Sensor Comprehensive Catalogue 2024



AKUSENSE

AKUSENSE **Sensor Comprehensive Catalogue** **2024**

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AKUSENSE

Precision Photoelectricity AI Sensing

VISION OF AKUSENSE

EMPOWER SCENARIO INTELLIGENCE, SUPPORT USERS TO BE INDUSTRY LEADERS



COMPANY OVERVIEW

AKUSENSE GROUP is an innovation company specializing in industrial photoelectric sensors and deep learning technology, majorly focusing on manufacturing high precision positioning, deep learning, precision measurement, and obstacle avoidance sensors and providing related solutions. We provide precision intelligence and AI sensing technology for such industries as 3C electronics, new energy, semiconductor manufacturing process, medical electronics and service robotics.There are two brands serving the market, AKUSENSE and MEIJIDENKI.

Our Production and Research Team accounts for more than 30% of the total. The core team established by a group of senior scientists and engineers who have been engaged in industrial sensors over 20 years. We have our own labs for precision optics and AI vision. As more than 10% of our annual revenue invested in research and development each year, our new products launched very fast from time to time. We are an intelligent sensor company with more than 120 core patents as well as many international certificates such as ISO 9001, ISO 14000, CE, UL, TUV and ROHS. Meanwhile, OEM and ODM services are available. With over 6,000,000 sensors being exported to more than 70 countries and regions throughout the world per year, Akusense is helping our customers to become the industry leaders from Smart Industry and IOT Field in the era of Industry 4.0.

20000+ Users	260+ Agent Cities	70+ Countries & Regions
600万+ Production Capacity	240+ Distributors	120+ Core Patents

* Above statistics are as of December 2023

ADVANTAGE

Leading in independent technology and algorithms more than 20 years experience in the R&D team of industrial sensor experts.
Rich and mature product line and system, achieving precision+intelligence+quality+innovation.
Rich experience in application scenarios, 3C Industry+New Energy industry+Robot and AGV industry.
Support solution customization, technology training, sample trial, industry excellent experience.

INDUSTRIAL CUSTOMIZATION EXPERT

Industrial sensors design
(Position detection, measurement, safety identification and diagnosis)

UL/CSA/CE standard requirements design

Adaptive displacement sensor design

High-precision analog sensors design

Product development process management
and manufacturability design



QUALITY CONCEPT

DO IT RIGHT
AT THE FIRST TIME



SPECIALISING IN INTELLIGENT SENSING SOLUTIONS FOR LITHIUM-ION EQUIPMENT



Customization based on your needs

Pre-engineered solutions are individually tailored to the specific application of your equipment, saving time and costs and guaranteeing optimum performance.



Complete service system

Our project team will help to confirm with you from the collection of requirements to testing and validation, as well as after-sales service.The office network of 10+ cities (constantly expanding) ensures that we can respond quickly to the needs of users.



Rich industry experience

Rich product lines and project experience, as well as the hardcore R&D team of senior engineers at home and abroad, support the engineers to customise high-quality and efficient solutions for you, so that your equipment is more competitive in the market.

Your solution path

Learn the customer need	Product Launch	Provide Selection	Product Iteration
• Define scenario requirements and project goals • Parameter Performance Requirements • Understanding of project priorities	• Recommend Selection • Product Testing and Verification	• Application Feedback • After-sales service (installation and commissioning technology and other after-sales support) • Batch application acceptance	• Continuous upgrading of solutions • Special upgrades customised for demanding environments

DEVELOPMENT HISTORY

2023

Microwave Moisture Meter
Blue Light Sensor
Small Size Photo Sensor
Precision Displacement Sensor
3D Line Laser Sensor



2022



Laser deflection sensor
New LiDAR
Color sensor
Intelligent image sensor
TOF ranging sensor

2021

Intelligent code reader
TOF photoelectric sensor
Ultra-thin thru-beam photoelectric sensor
Economical fiber amplifier



2020



Millimeter navigation LiDAR
Ultrasonic double sheet detection sensor
Full metal cylinder sensor
I P69K inductive sensor

2019

Temperature sensor
MINI laser LiDAR
Color confocal sensor
New BGS photoelectric sensor



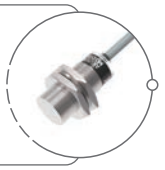
2018



Analog sensor tester
Fork type inductive sensor
Ultra-thin BGS photoelectric sensor

2017

Small size vibration sensor
Industrial barcode sensor
High-precision chipping sensor



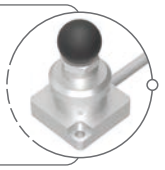
2016



µm level contact displacement sensor (anti-cutting fluid)
Industrial laser LiDAR

2015

ISM 2.4G wireless communication module
Multi-function sensor tester
360° contact sensor



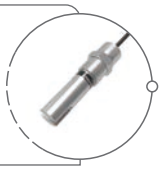
2014



Magnetic sensor
µm-level positioning high-precision sensor
Connector type fork photoelectric sensor

2012 – 2013

Ultra-thin all-metal sensor
Ultrasonic liquid level sensor



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Intelligent Code Readers L-02

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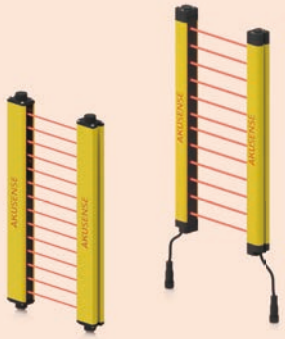
NEW! P.F–50



Laser Radar

Time of Flight detection principle, obstacle avoidance type, navigation type optional
Scanning range 360° , maximum scanning frequency 30Hz
Serial port (Type–C interface) communication, online output of measurement data (including distance and light intensity data in all directions)

BSL/SAF Series P.I–38



Safety Light Curtain

Line synchronous technology, performance safe and reliable
Optional spacing of 10/20/30/40mm, detection distance 0.1–6m
Certified by four–level safety, covering general protection scenarios

AR1/AR2/AR3 Series NEW! P.P–01



Safety Door Lock

Multiple contact points optional
Plastic, metal material optional, four mounting directions optional for the head
Locking force is 1300N, superior resistance to strong pulling

MLD25 Series NEW! P.F–16



Laser Displacement

Laser triangulation principle, micrometer–level repeat accuracy
485 communication, can provide real–time and efficient feedback of data values
Rich product series, multiple ranges optional

MRA/MRC Series NEW! P.F–32

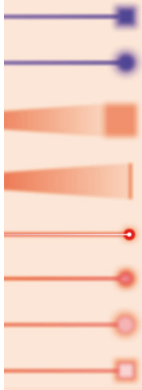


Contact Displacement

Micrometer–level high–precision measurement, up to 1.4 μ m
CMOS grating measurement principle, no tracking error
Can be selected according to different needs of driving mode (pneumatic / rebound) to complete the detection)

Photoelectric sensor

NEW! P.C–01





Photoelectric Family

BGS Background Suppression | TOF Technology | ASIC Chip Technology | IO–Link
Spot Patterns: Wide spot, Line spot, Circular spot, Square spot
Multi–light Source Technology: Laser, Infrared light, Red light, Blue light, RGB

ESB Series

NEW! P.C–40



Background Suppression Photoelectric

Unaffected by background color, stable detection of any color material
Dynamic filtering algorithm, achieves optimal detection results in various environments

ESL Series

NEW! P.C–38



Ultra-thin Photoelectric

Fast response speed ⩽1.2ms, suitable for rapid operation of equipment
Compact appearance, only 3.5mm thick, ideal for installation in limited spaces

ESX Series

NEW! P.F–28



Laser 3D profiler

Laser triangulation principle for high precision measurement
Wide range of products, 11mm–1490mm field of view available
High resolution, 1920/2048/4096 physical contour points available

Vision + Intelligent Decoding Series

NEW! P.K–04



AI Image Recognition

Intelligent Decoder | Intelligent Image Sensor
OCR Recognition + Real–time Scanning, full scene coverage

ESE Series

P.C–44



Color/Mark Detection

Unique RGB three–color light source, stable capture of product color characteristics
Color mode and color scale two modes can be selected, flexible and convenient detection methods
Unaffected by the intensity of reflected light from the product, easy to cope with jitter, tilt and other scenes.

ACC Series

P.F–55



Color Confocal Sensor

Touch screen display and setting, easy to set sensor
One controller with two probes;
the first choice for automatic precision measurement

ETD Series + Controller + Communicator

NEW! P.F–62



Laser Alignment

Edge Control / Outer Diameter / Inner Diameter / Gap Measurement
Using laser collimation measurement principle, repeatability ±1um

Proximity Sensors

NEW! P.E–01



Proximity Sensors

Complete product range, can provide optimal selection solutions for different application scenarios
Various sizes such as M8, M12, M18, etc.; flat and ultra–short shells are also available
Optional special functions such as IO–Link type, anti–slag, 3 times longer distance, near iron, corrosion resistance, IP69K, etc.

IO–Link Modules

NEW! P.R–01



IO-Link Modules

Rich communication interfaces, plug and play, quick configuration
Data visualization, preventive maintenance

Industrial Intelligent Sensors

NEW! P.M/N/O/P/Q/–01



Industrial Intelligent Sensors

Temperature Sensors | Magnetic Sensors | Vibration Sensors | Pressure Sensors
Safety Door Locks | Pressure Gauges | IO Bus | RFID

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4–23 Photovoltaic panel loading and unloading (Back End) P46
4–24 Mechanism module limitation detection NEW! P46
4–25 Mechanism motion positioning detection NEW! P47
4–26 Cylinder motion position detection NEW! P47
4–27 Arc–shaped tray transfer detection NEW! P47
4–28 Outgoing circuit board position detection NEW! P47
4–29 Cylinder up/down position detection NEW! P47
4–30 Nut feeding detection NEW! P47
4–31 Clamping/pressing of blade cover and blade holder NEW! P47
4–32 Turntable position control NEW! P47
4–33 Mechanical Limitation NEW! P48
4–34 Workbench position detection NEW! P48
4–35 Solder paste thickness control NEW! P48
4–36 Cylinder downward position detection NEW! P48
4–37 Battery cover plate material position detection NEW! P48
4–38 Stepper motor position detection NEW! P48
4–39 Detection of cylinder extension and retraction completeness NEW! P48
4–40 Bottle cap position detection NEW! P48
4–41 Cylinder Extension Position Detection NEW! P49
4–42 Servo module position in place detection NEW! P49
4–43 Detecting rotary arm position NEW! P49
4–44 Blow needle in–place detection NEW! P49
4–45 Detecting the position of the material tray NEW! P49
4–46 Detecting whether the material tray is in position NEW! P49
4–47 Mechanism limit NEW! P49
4–48 Silicon wafer in place NEW! P49
4–49 Basket positioning and forward/reverse detection NEW! P50
4–50 Silicon wafer in–place detection NEW! P50
4–51 Battery cell in–place detection NEW! P50
4–52 Lower limit detection for box loading platform NEW! P50
4–53 Elevator in–place detection NEW! P50
4–54 Detecting the presence of positive and negative electrodes NEW! P50
4–55 Silicon wafer identification via NEW! P50

AI Image Recognition P51-P54

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5–2 Appearance inspection of core components of wireless charger P51
5–3 Smart Watch Character Recognition P51
5–4 Character Recognition of Wireless Headphone Components P51
5–5 Camera filter appearance inspection P52
5–6 Defect detection of gearbox bearings P52
5–7 Defect detection of FPC soft board P52
5–8 Positioning and tracking of lithium battery P52
5–9 Defect detection of pole piece after rolling P52
5–10 Product Mark Positioning – Visual Inspection P53
5–11 Vision camera detects the position of wafers on the wafer tray P53
5–12 Detecting whether the cut length of pole lugs is qualified P53
5–13 Make judgments about defects/flaws in the appearance of batteries P53
5–14 Defect detection NEW! P53
5–15 Visual inspection for oil pump assembly NEW! P53
5–16 CCD inspection station NEW! P53
5–17 Track stop plate positioning NEW! P53
5–18 Battery cover finished product defect detection NEW! P54
5–19 Bottle cap tightening NEW! P54

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Semiconductor and photovoltaic

1–1 Check whether the chip is flat or not P21
1–40 Detect the transfer position of the injection molding machine P25
1–45 Measure wafer thickness and flatness P26
1–47 Door Protection Sensing NEW! P26
1–69 Detect the integrity of the product in the package P29
1–72 Detection the bulge of lithium batteries in production P29
1–73 Detect whether the wafers are placed accurately NEW! P30
1–87 Solar Cell String Welding Machine Grid Line Feeding Monitoring NEW! P31
1–91 Horizontal Direction Detection of Heliostats NEW! P32
1–92 Detection of Water/Glue Droplets NEW! P32
1–93 Detection of Chip Position NEW! P32
1–94 Control of Hydrophobic Liquid Level NEW! P32
1–95 Carrier ID Management NEW! P32
1–96 Target Positioning and Distance Measurement NEW! P32
1–97 Controlling Chemical Liquid Level NEW! P33
1–110 Detection of Single and Double Silicon Wafer Stacking NEW! P34
2–12 Use the IC tester to detect the workpiece P36
2–18 Use diffuse reflection photoelectric detection chip P37
2–31 Basket loading machine NEW! P38
2–32 Robotic arm silicon wafer gripping detection NEW! P38
2–44 Presence detection of silicon wafers NEW! P40
3–1 Chip fly–out inspection P41
3–16 Unmanned forklift safety obstacle avoidance NEW! P42
3–17 Area safety protection NEW! P43
4–12 Detecting the rotation status of the wafer tray rotary table P45
4–23 Photovoltaic panel loading and unloading (Back End) NEW! P46
4–24 Mechanism module limitation detection NEW! P46
4–48 Silicon wafer in place NEW!
4–49 Basket positioning and forward/reverse detection NEW! P50
4–50 Silicon wafer in–place detection NEW! P50
4–55 Silicon wafer identification via NEW! P50
5–11 Vision camera detects the position of wafers on the wafer tray P53

3C Electronics

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1–5 Detection of substrate warpage P21
1–6 Detection of substrate warpage P21
1–8 Detect whether the height of the finished slurry materials meet the standard P21
1–11 Confocal displacement sensor cell phone screen height measurement P22
1–16 Small included angle through beam photoelectric P22
1–19 Detect the height difference of resistance before welding P23
1–21 Defective product placement full material monitoring P23
1–23 Detecting Substrate in Place P23
1–24 Suction Nozzle Positive and Negative Pressure Detection P23
1–35 Trolley in place sensor P25
1–41 Alignment confirmation of connector pins P26
1–50 Feeding Station NEW! P27
1–51 Feeding Turntable Position Detection P27
1–52 Solder Paste Thickness Control NEW! P27
1–55 Mobile phone production assembly line tooling board inspection NEW! P27
1–59 Detect the rotation stop to circulate the assembled product P28
1–61 PCB Tray Information Traceability NEW! P28
1–68 3D printer position detection P29
1–69 Detect the integrity of the product in the package P29
1–86 Pressure Monitoring for Robotic Gripper Nozzles NEW! P31
1–89 Counting Chip Pins NEW! P32
1–98 Dispensing Height Measurement NEW! P33
1–99 Equipment Loading NEW! P33
1–100 Equipment Unloading NEW! P33
2–1 Line presence or absence detection P35
2–4 Workpiece detection P35
2–5 Wafer loading residual material monitoring P35
2–6 Confirmation of original clamping on the indexing table P35
2–10 Check for small holes P36
2–14 Pass detection of substrate P36
2–15 Detection of spacing holes on IC board P36
2–16 Missing detection of electronic components P36
2–17 Detection of grabbed objects P37
2–22 Pass detection of substrate P37
2–27 Detection of PCB board P38
2–35 Capacitor cover plate loading and unloading detection NEW! P39
2–42 Presence detection of material tray No.1 NEW! P40
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3–10 Safety grating to ensure the safety of U–shaped area P42
3–13 Detecting the opening and closing of metal doors around equipment P42
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4–8 Flexible cylinder positioning P44
4–10 Positioning of tiny square inductive cylinder P45
4–11 Linear module origin detection P45
4–27 Arc–shaped tray transfer detection NEW! P47
4–28 Outgoing circuit board position detection NEW! P47
4–33 Mechanical Limitation NEW! P48
4–34 Workbench position detection NEW! P48
4–35 Solder paste thickness control NEW! P48
4–45 Detecting the position of the material tray NEW! P49
4–46 Detecting whether the material tray is in position NEW! P49
5–1 Wireless earphone charging coil detection P51
5–2 Appearance inspection of core components of wireless charger P51
5–3 Smart Watch Character Recognition P51

Product Application Classified by industry

5–4 Character Recognition of Wireless Headphone Components P51
5–5 Camera filter appearance inspection P52
5–7 Defect detection of FPC soft board P52
5–10 Product Mark Positioning – Visual Inspection P53
5–14 Defect detection NEW! P53
5–17 Track stop plate positioning NEW! P53

Battery

1–3 Measuring the margin of functional film P21
1–12 Diaphragm transfer module upper diaphragm surplus detection P22
1–13 Installation of diffuse reflective optical fiber for inspection of product downgauging P22
1–15 Detecting the single and double–tension status of positive and negative electrodes P22
1–25 Tape residual material detection P24
1–26 Feeding Belt Photocell Detection in Place P24
1–27 Robotic Material Handling P24
1–28 Detection of cell in place at the processing station P24
1–32 Gripping and discharging control for loading robot P24
1–33 Detects lithium cells in place at this position P25
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1–43 Recognition of QR code by intelligent code reader P26
1–53 Detection of Battery Pole Position P27
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1–58 Film tension measurement P28
1–60 Multi–sheet detection of separator plate P28
1–64 Detecting the positional deviation of electrode sheet before roll coating P28
1–65 Electrode coating thickness detection P29
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1–71 Detect the flatness of lithium battery pole pieces P29
1–72 Detection the bulge of lithium batteries in production P29
1–74 Detect the position of the core coil material NEW! P30
1–75 Control of Diaphragm Position Deflection during Diaphragm Transportation P30
1–76 Detecting whether the position of the pole piece in the loading process deviates P30
1–77 Detect the temperature of the drying oven P30
1–78 Control the temperature of the mixer P30
1–90 Bottle Body Profile Recognition NEW! P32
1–108 Detection of Stack Pressure NEW! P34
1–109 Detection of Cylinder Extension and Retraction States NEW! P34
2–11 Detecting the presence or absence of cores in the pallet P36
2–20 Use photoelectric sensor to detect battery P37
2–23 Detect the presence of loading lithium batteries P37
2–24 Detect whether there is a pole piece in the material box P37
2–25 Battery unit in place detection P38
2–28 Detecting whether there are labels attached to polarizers NEW! P38
2–29 Monitoring on Transport of Pole and Diaphragm NEW! P38
2–39 Presence detection of battery cover plate in the transmission channel P39
3–4 Safety protection P41
3–9 Lithium battery winding machine safety operation pretection P41
3–11 Entrance protection of the winding unit P42
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3–22 Area protection NEW! P43
4–15 Precise control of the home and limit positions of the mechanism's movement P45
4–16 Position control such as positioning limit of the motion mechanism module P45
4–17 Position and limit of the motion mechanism module P46
4–18 Detect cylinder position P46
4–19 Cylinder module upper limit P46
4–20 Control the origin and limit position of the top mechanism P46
4–21 Limit the position of movement of the cylinder connecting rod P46
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4–37 Battery cover plate material position detection NEW! P48
4–38 Stepper motor position detection NEW! P48
4–39 Detection of cylinder extension and retraction completeness NEW! P48
4–51 Battery cell in–place detection NEW! P50
4–52 Lower limit detection for box loading platform NEW! P50
4–54 Detecting the presence of positive and negative electrodes NEW! P50
5–8 Positioning and tracking of lithium battery P52
5–9 Defect detection of pole piece after rolling P52
5–12 Detecting whether the cut length of pole lugs is qualified P53
5–13 Make judgments about defects/flaws in the appearance of batteries P53
5–18 Battery cover finished product defect detection NEW! P54

Automobiles and parts

1–7 Detect double–layer sheet metal P21
1–22 Detect the wear of small diameter drill bits P23
1–29 Detect the origin of the rotating mechanism P24
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1–46 Measure the characteristic dimensions of precision machined parts P26
1–48 Pin Counting NEW! P26
1–49 Product Code Reading NEW! P27
1–57 Security Door Protection NEW! P28
1–67 Automobile brake disc thickness detection P29
1–70 Motor detection P29
1–106 Production Line Tray Transport Positioning NEW! P34
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2–2 Check the presence of gaskets P35
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2–34 Terminal pin position detection NEW! P39
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3–18 Safety protection for equipment areas NEW! P43
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Classified by industry Product Application

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4–26 Cylinder motion position detection NEW! P47
4–29 Cylinder up/down position detection NEW! P47
4–30 Nut feeding detection NEW! P47
4–53 Elevator in–place detection NEW! P50
5–6 Defect detection of gearbox bearings P52
5–15 Visual inspection for oil pump assembly NEW! P53

Food and beverage packaging

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1–80 Bottle Body Profile Recognition NEW! P30
1–81 Bottle Body QR Code Data Reading NEW! P31
1–88 Recognition of Packaging Color Marks NEW! P31
2–9 Inspection of aluminum cans P36
2–19 Proximity sensor detection package P36
2–21 Inspection of aluminum cans passing through the assembly line P36
2–30 Dectect the beverage bottle placement and packaging P38
3–2 For stamping machine (verified product) P41
4–40 Bottle cap position detection NEW! P48
4–47 Mechanism limit NEW! P49
5–3 Smart Watch Character Recognition P51
5–19 Bottle cap tightening P54

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1–82 Material Box Transportation Detection NEW! P31
1–83 Material Box QR Code Reading NEW! P31
1–84 Vacuum Pressure Monitoring for Handling Module Suction Cups NEW! P31
3–19 Protection module in place assurance NEW! P43
4–41 Cylinder Extension Position Detection NEW! P49
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Daily necessities

2–36 Blade cover and holder loading NEW! P39
2–37 Defective product unloading tray detection NEW! P39
2–38 Good product unloading conveyor detection NEW! P39
4–31 Clamping/pressing of blade cover and blade holder NEW! P47
4–32 Turntable position control NEW! P47
5–16 CCD inspection station NEW! P53

Medical

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1–101 Test Tube Gripper Feeding NEW! P33
1–102 Gripper Cylinder, Pushing Cylinder, etc., Status Detection NEW! P33
1–103 Bottle Cap Feeding NEW! P33
1–104 Reagent Labeling NEW! P33
1–105 Information Storage and Traceability NEW! P34
2–40 Presence detection of syringes NEW! P39
2–41 Presence detection of black plungers NEW! P40
2–45 Virus preservation fluid level monitoring NEW! P40
3–20 Cabin door switch status monitoring NEW! P43
4–43 Detecting rotary arm position NEW! P49
4–44 Blow needle in–place detection NEW! P49

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1–9 AGV navigation in logistics conveyor P22
1–30 Alignment Photoelectric Limit P24
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1–63 Logistics Transport Information Collection NEW! P28
2–7 Diffuse photoelectric detection of the presence or absence of P35
3–5 Anti–collision of construction machinery NEW! P41
3–8 AGV navigation P41
3–15 Stacker Lidar Safety Obstacle Avoidance P42

Port

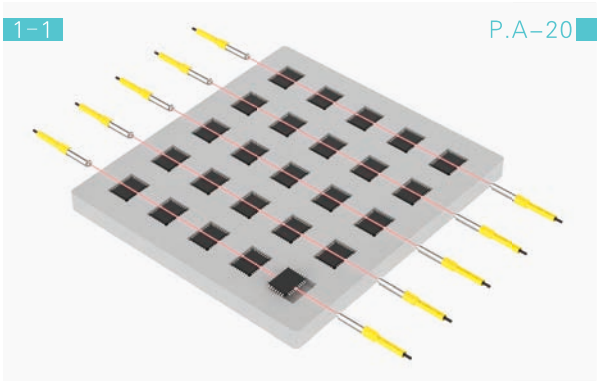
1–18 Container stack measurement P23
3–6 Anti–collision of the feet of the bridge crane P41
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Other

1–4 Measuring the flatness and thickness of glass P21
1–10 Axis rotation reading sensor P22
1–14 Parking lot vehicle detection P22
1–17 Vehicle location detection in a multi–story parking lot P23
1–20 Detecting the temperature of heat dissipation chillers P23
1–36 Printing paper 2 sheets feed detection P25
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1–41 Alignment confirmation of connector pins P26
1–62 Prevent paper re–feeding detection P28
2–3 Detect the tablet particles falling from the conveyor belt P35
2–8 Detecting wood P35
2–13 The glass plate is detected at the furnace outlet P36
2–26 Detection of pedestrian passing through gates P38
4–2 Position detection of fluorescent tube P44
4–5 Accurate positioning of the watch axis P44

Inspection

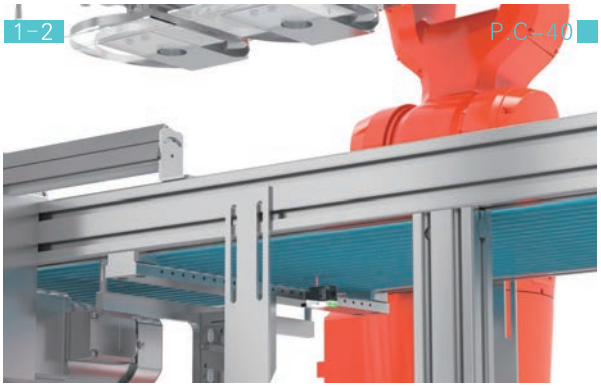
1-1 P.A-20



Check whether the chip is flat or not **PT-42**

The tiny optical fiber can detect the warpage of the tiny chip. The narrow beam projected from the ultra-fine fiber core can identify subtle changes.

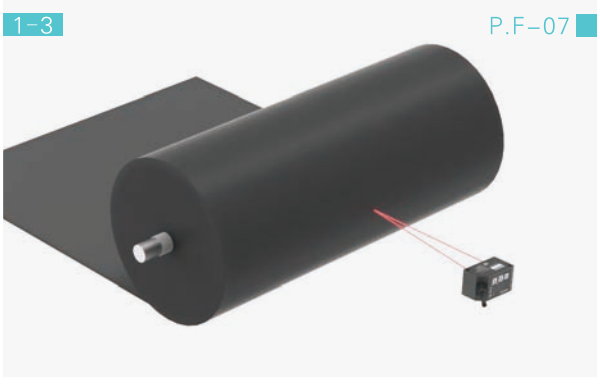
1-2 P.C-40



Loading material in place **ESB Series**

A background suppression type photoelectric sensor is installed directly below the front of the product position in the loading line to detect the loading of cell phone screens.

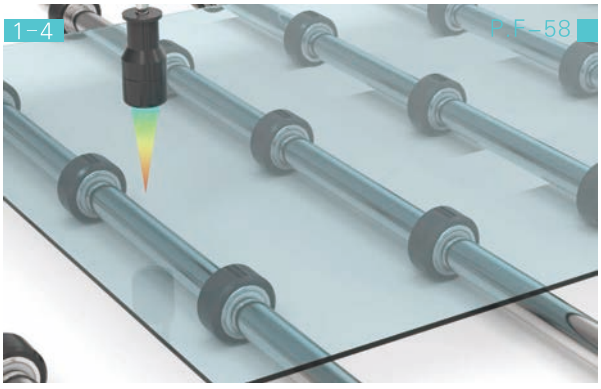
1-3 P.F-07



Measuring the margin of functional film **MLD21**

Non-contact high-precision displacement can detect the height of the remaining film in real time.

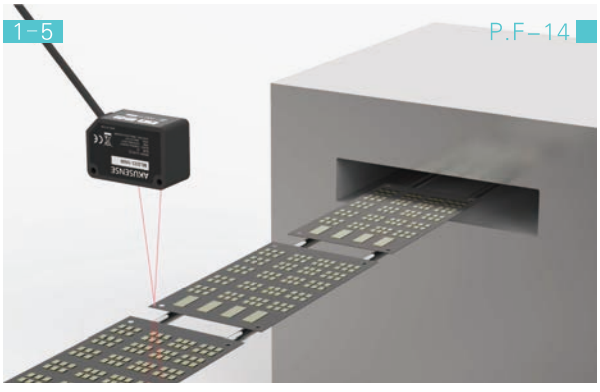
1-4 P.F-58



Measuring the flatness and thickness of the glass **ACC-008L**

Measuring the flatness and thickness of the glass

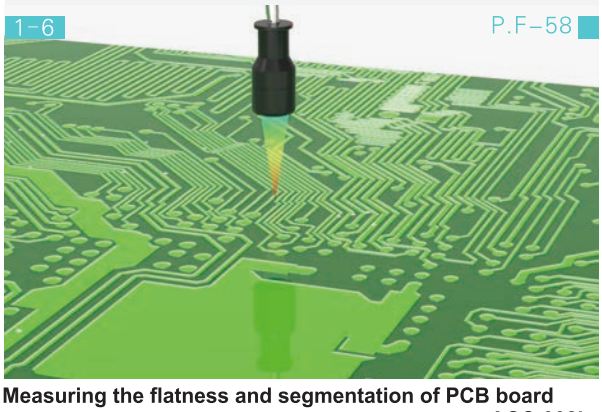
1-5 P.F-14



Detection of substrate warpage **MLD23**

The laser displacement sensor can accurately detect the warping range of the substrate.

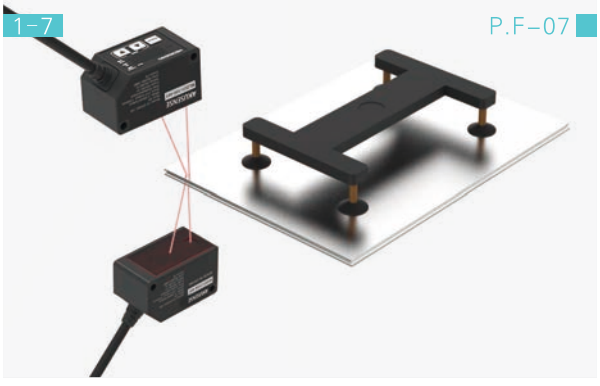
1-6 P.F-58



Measuring the flatness and segmentation of PCB board **ACC-008L**

Measuring the flatness and segmentation of PCB board.

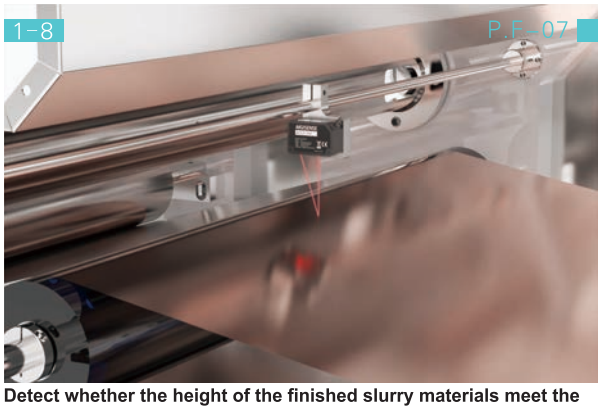
1-7 P.F-07



Detect double-layer sheet metal **MLD21 Series**

Detect double-layer metal plates during transportation. MLD22 can measure 12 points at the same time with high speed and accuracy.

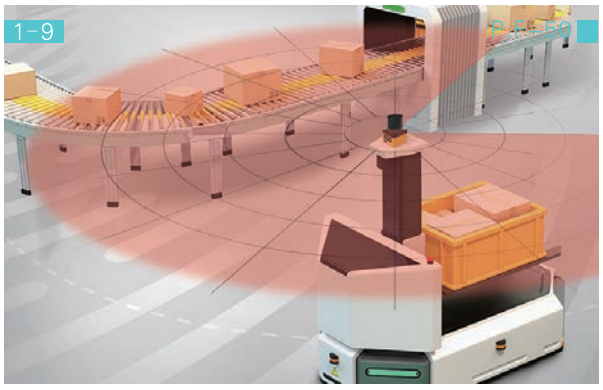
1-8 P.F-07



Detect whether the height of the finished slurry materials meet the standard **MLD21 Series**

It is used to detect whether the height of the material meets the standard after the slurry is applied.

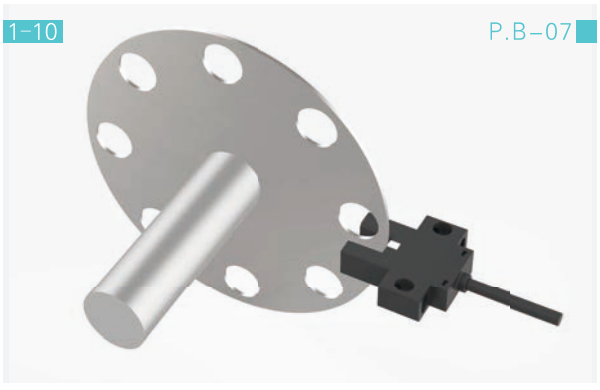
1–9 P.F–56



AGV Navigation in Logistics Conveyor **AS-31C**

Laser navigation is the commonly used navigation method in AGV system at present. According to its navigation principle, AGV carts can walk freely and locate precisely in the navigation area; within the navigation range, the walking path of the carts can be changed at any time according to the actual requirements, which can give full play to the flexibility of the AGVs and improve the production efficiency.

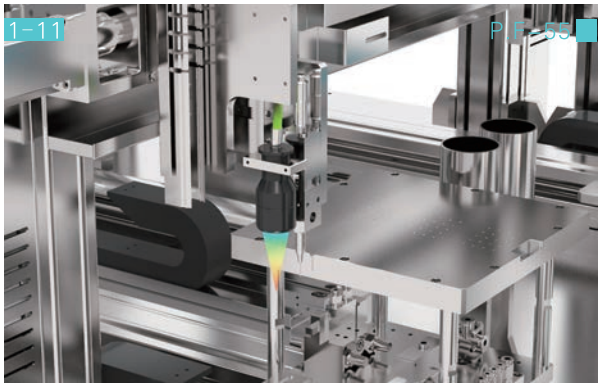
1–10 P.B–07



Axis rotation reading sensor **SK-306NA-W**

Check out the turning of circular plate hole, read revolutions and speed.

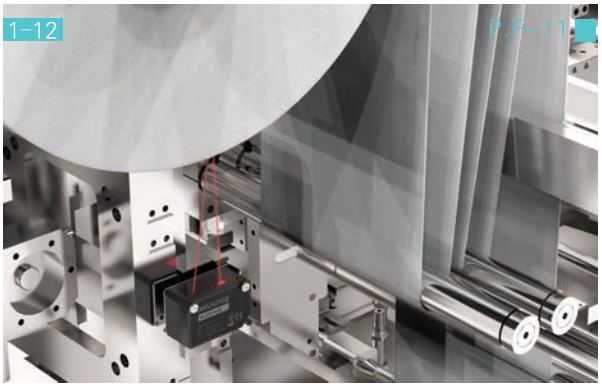
1–11 P.F–55



Confocal Displacement Sensor Cell Phone Screen Height Measurement **ACC Series**

For curved cell phone screens, poor angular characteristics can result in numerous shaped positions that cannot be measured properly. The confocal displacement sensor (ACC–ADV) has low requirements for the condition of the surface to be measured, allows for a greater angle of inclination of the surface to be measured, and is fast in measurement.

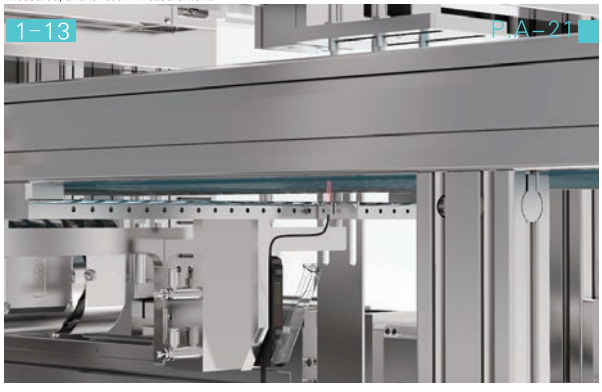
1–12 P.F–11



Diaphragm Transfer Module Upper Diaphragm Surplus Detection **MLD23 Series**

Membrane residue detection on diaphragm transfer modules for timely feedback of feeding instructions.

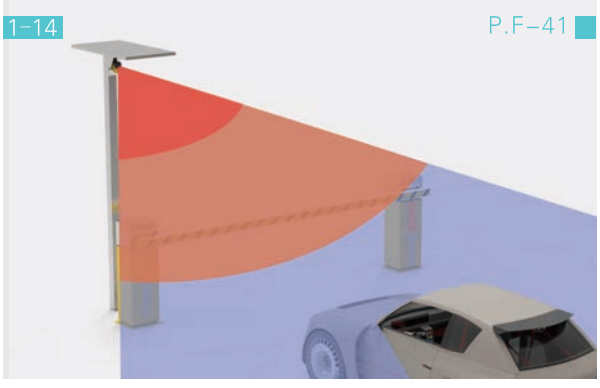
1–13 P.A–21



Installation of Diffuse Reflective Optical Fiber for Inspection of Product Downgauging **PD-F44UA**

Due to the small thickness of the cell phone screen, it is necessary to use a fine light type optical fiber, PD–F44U, with a powerful optical fiber amplifier, PG1, to achieve accurate measurement.

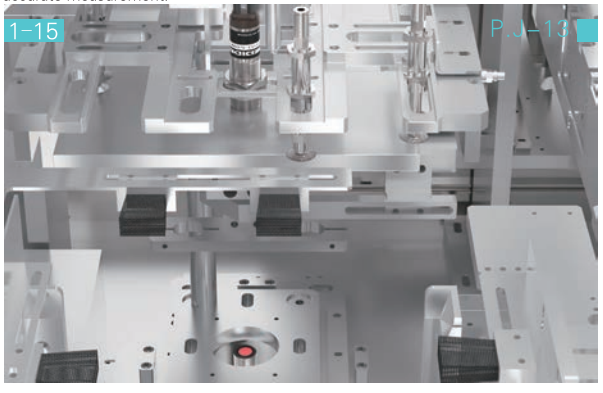
1–14 P.F–41



Parking lot vehicle detection **AS-21C**

The AS–21C lidar sensor can be used for vehicle position detection and can trigger the gate system to achieve functions such as capture and billing.

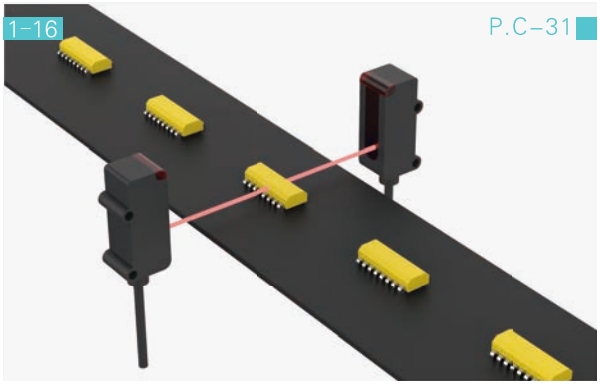
1–15 P.J–13



Detecting the single and double-tension status of positive and negative electrodes **MUD Series**

Detects the single– and double–tension status of positive and negative electrodes on the pole position correction module.

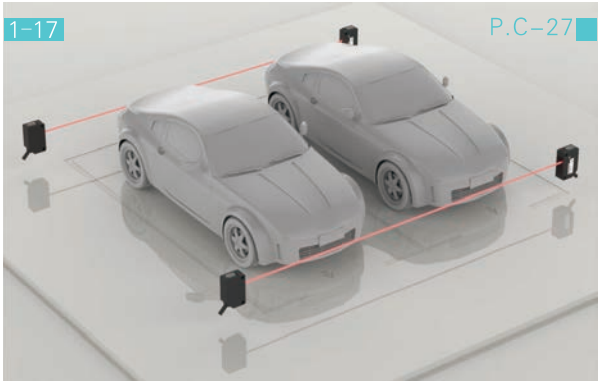
1–16 P.C–31



Small included angle through beam photoelectric **PTN-T50**

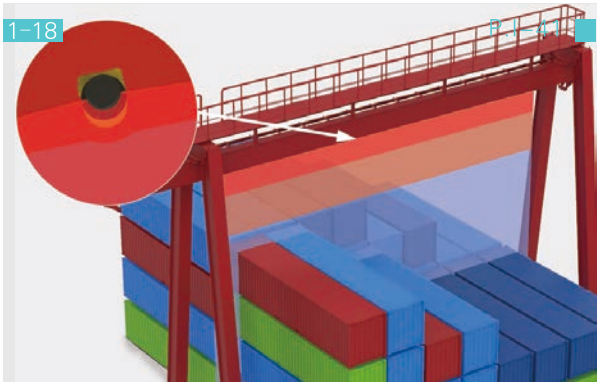
Detecting the passage of flat items accurately.

Inspection



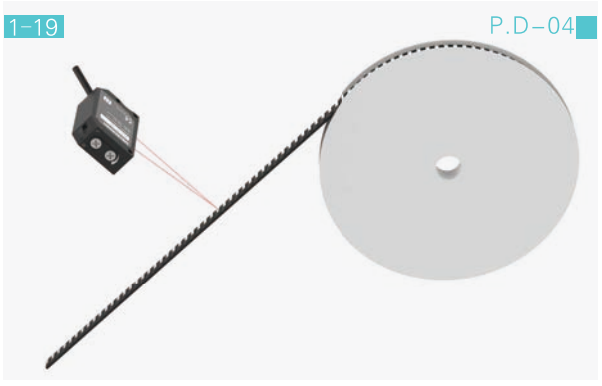
Vehicle location detection in a multi-story parking lot
PTV-TM20

Detect the edge position of the vehicle in the stereo parking lot.



Container stack measurement **AS-21C**

LiDAR AS-21C scans the stack of containers under the gantry crane, and then uses software processing to avoid collisions when lifting and fixing the container with a spreader..



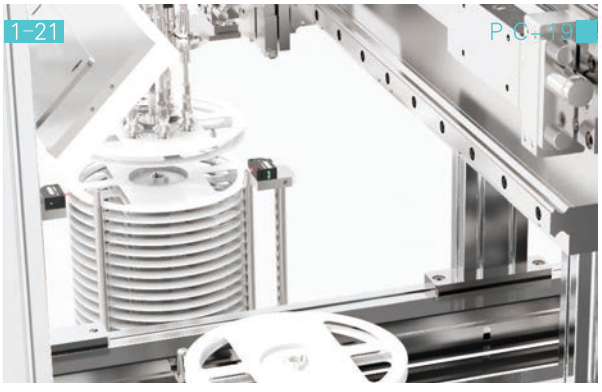
Detect the height difference of resistance before welding **ELE Series**

Using the C-MOS sensor background suppression ELS-ZL70 can detect subtle height differences.



Detect the temperature of heat dissipation chillers
TSP series

Temperature sensors can be used in confined spaces and small pipe diameters to detect the temperature of heat dissipation chillers, with a variety of probe diameters and lengths to choose from, and detecting temperatures from -30°C to 150°C.



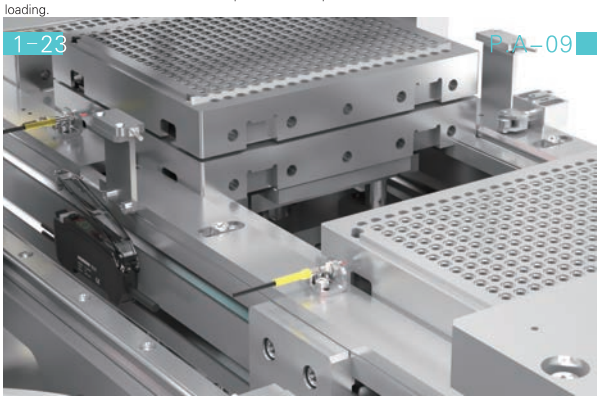
Defective product placement full material monitoring
PTE-TM10

Since there is a high degree of uncertainty in the shape and order of product placement, and the packaging material often has a high degree of reflectivity, the PTE series is installed to monitor the status of the material level at the workplace and to replace the container with a new one in time for loading.



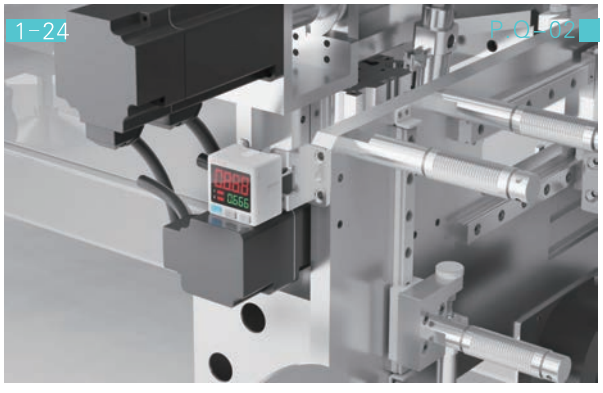
Detect the wear of small diameter drill bits **MR-T12B**

The contact sensor detects the abrasion of the cutter head and decides whether to change the cutter.



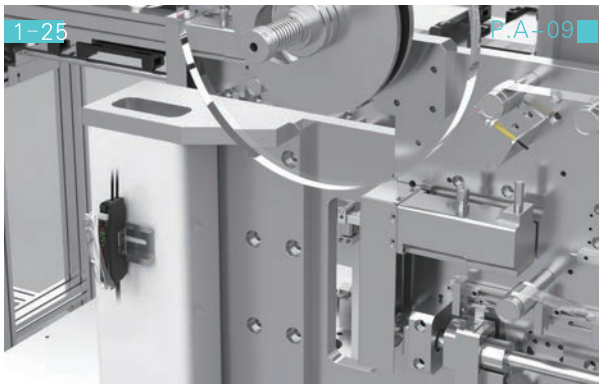
Detect Substrate in Place **PD-32**

Diffuse reflective optical fiber and fiber amplifier PG1 are installed on the substrate loading mechanism module to detect the substrate in place.



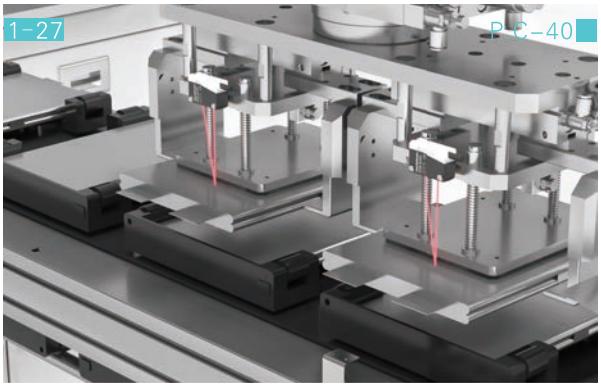
Suction Nozzle Positive and Negative Pressure Detection
MQ-02D

DetectionThe suction nozzle extracts electrode sheets from the lithium electrode sheet bin and transfers them to the alignment platform. We use the MQ-02D low-pressure digital pressure gauge to detect the positive and negative pressure of the suction nozzle, thereby determining the actions of picking up and placing the electrode sheets.



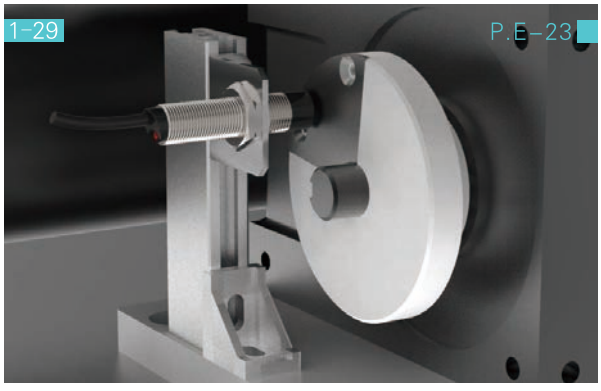
Tape residual material detection PG1+PD-32

Using fiber optic amplifier PG1 with PD-32 fiber optic head, the tape is detected, when the tape is used up, an alarm signal is given to remind the operator to replenish the tape material, to avoid the subsequent workstation due to the lack of material resulting in the output of defective products.



Robotic Material Handling ESB-BS30N

The material handling is carried out by the gripper of the manipulator, where the presence or absence of batteries is detected by sensors, which triggers the next action, and the gripper cylinder grabs the batteries and transports them to the next work station. The ESB-BS30N is a diffuse reflective photoelectric sensor that is color-neutral and sensitive to the presence of materials.



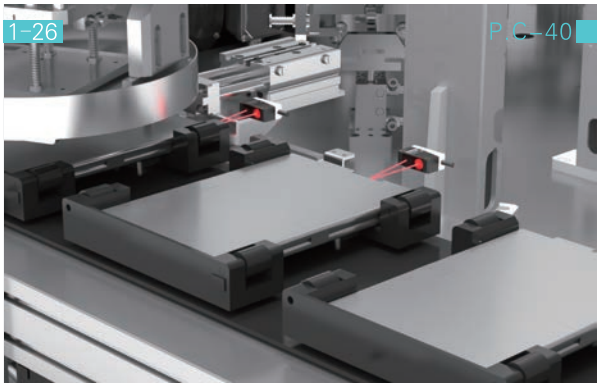
Detect the origin of the rotating mechanism TLN18

The Inductive sensor can find and locate the origin and can be used in a cutting fluid environment.



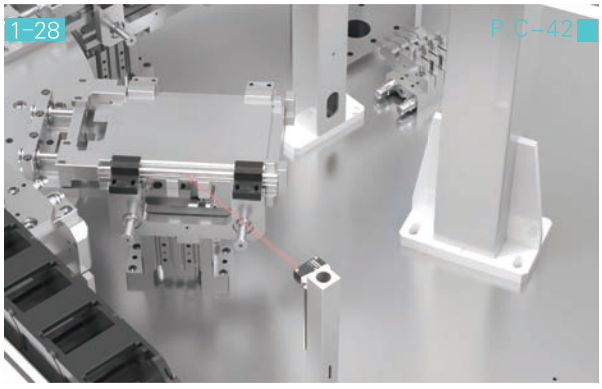
Reader Information Traceability RCD-AI100-X

After the first liquid injection of soft battery packs, parallel to the upward tilt 35° installed RCD-HSP30 real-time detection of product batches, and store information for subsequent operations. Realize the whole process of receiving and shelving automation and unmanned, record product information throughout the process, realize information traceability at any time, and help to improve the consistency of battery products.



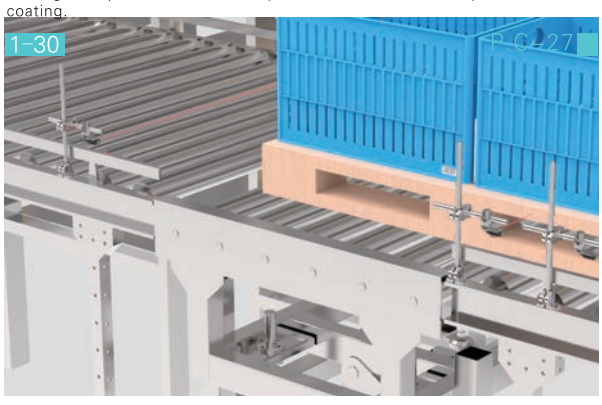
Feeding Belt Photocell Detection in Place ESB-BS30N

During the material transportation process on the conveyor belt, transmission is required after the sensor senses the material in place. The work station of the conveyor belt has strong light, so the anti-interference ability of the infrared light background suppression diffuse reflection photocell ESB series is selected. Furthermore, the background suppression function is further optimized, effectively improving the detection accuracy.



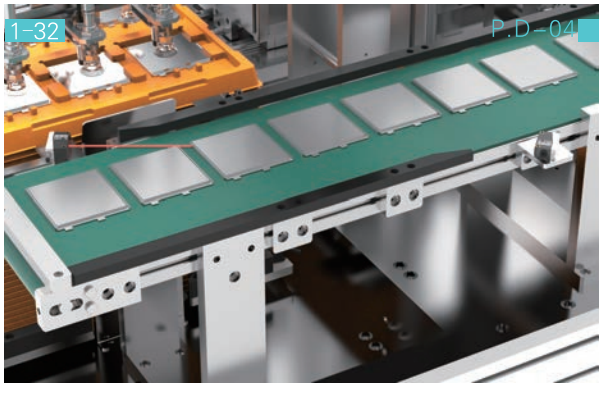
Detection of cell in place at the processing station ESB-B30N

The ESB-B30N, a diffuse reflection background suppression type photoelectric device, is installed at each processing station on the carousel, making it easy to detect the cell in place at that station and to process the coating.



Alignment Photoelectric Limit PTV-TM20AP

The PTV-TM20AP and the PTV-T500P can be used on jacking lifts to detect the presence or absence of soft battery pack trays and in place, and can detect opaque objects of ϕ12mm or more. Here three pairs of photoelectrics need to be installed for deceleration, in place and limit respectively.

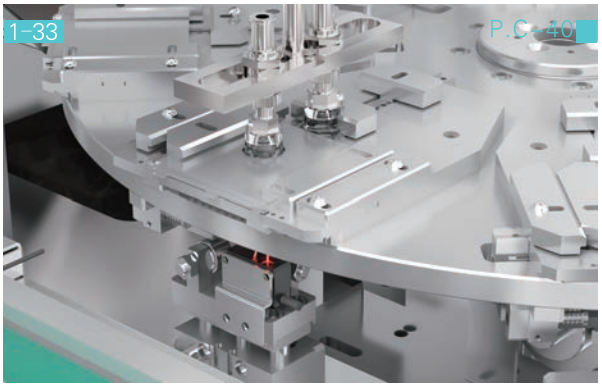


Gripping and discharging control for loading robot ELE-TM50N

Sensors are installed on both sides of the loading belt line at an angle to detect whether there is a battery cell at the corresponding position on the belt and control the loading robot to grab and discharge the material.

Inspection

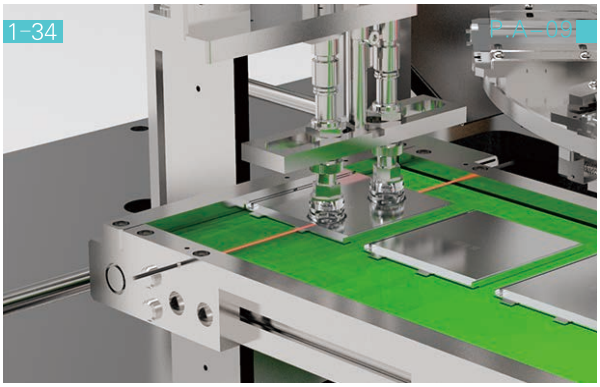
1-33 P.C-40



Detects lithium cells in place at this position **ESB Series**

Installed directly under the cam splitter fixture station 1, detects the lithium cell in place at this position.

1-34 P.A-69



Detection of core discharging **PE1+PD-32**

The two sides of the discharging belt line are fitted with counter-reflective optical fibers to detect the discharging of cores.

1-35 P.E-23



Trolley in place sensor **TLN12-08NO**

Adopting proximity sensor TLN12-08NO, it is an enhanced distance type proximity, more than double the detection distance of the standard product, can effectively solve the problem of conflict of work installation space, when the trolley to the feeding position, the sensor gives a signal to drive the belt to convey the material tray into the work station.

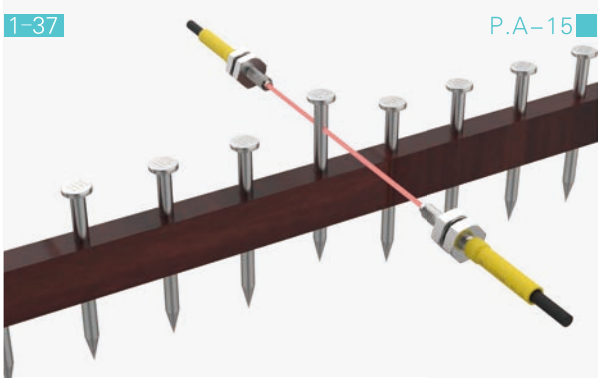
1-36 P.J-13



Printing paper 2 sheets feed detection **MUD-60N Series**

Adjust the speed by the beat rate of the pressing or stamping process. The distance between the plate and the sensor is used as a signal to control the speed of the motor.

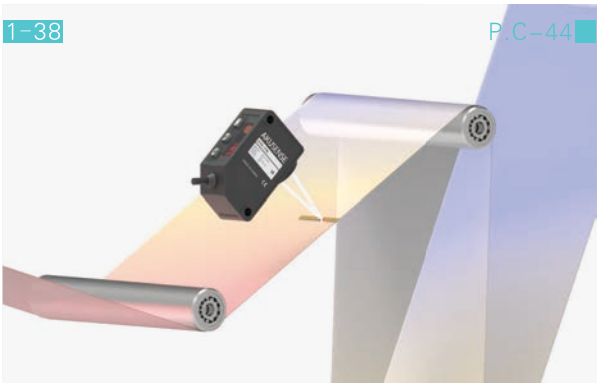
1-37 P.A-15



Detection of bad nail tape **PT-42**

Use the penetrating photoelectric sensor to detect nails with poor adhesive position.

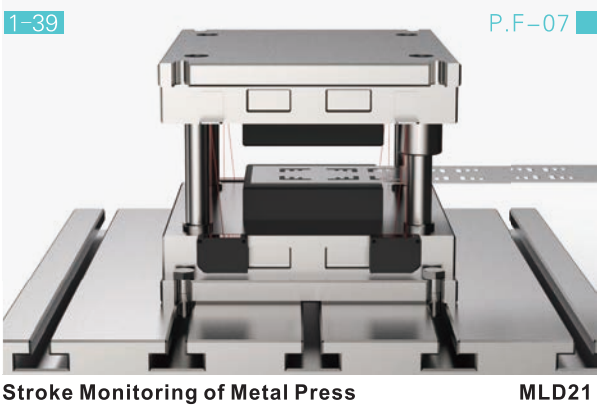
1-38 P.C-44



Detection of positional color markers on packaging film **ESE-10N**

The ESC-18 is a color-coded sensor equipped with a three-color RGB light source, which makes it possible to identify subtle differences in color with a simple demonstration.

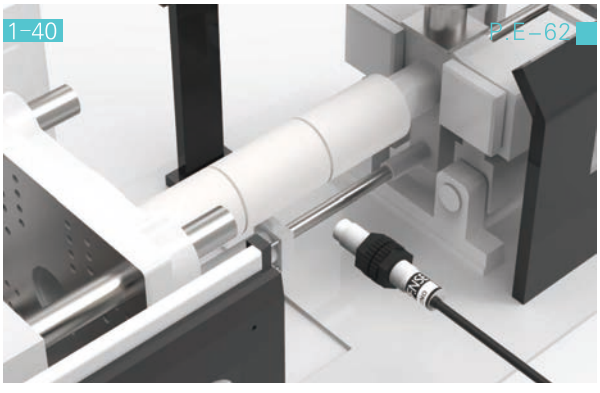
1-39 P.F-07



Stroke Monitoring of Metal Press **MLD21**

With a large measuring range, the line laser ranging sensor can continuously monitor the stroke and bottom dead center of the press to effectively avoid stroke defects.

1-40 P.E-62



Detect the transfer position of the injection molding machine **CKN12-06NO**

Detect the delivery position of injection molding machine.

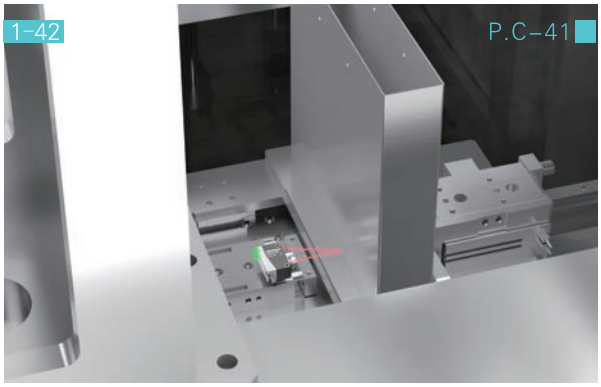
1-41 P.F-07



Alignment confirmation of connector pins **MLD21**

High-precision displacement detection of pins.

1-42 P.C-41



In-place detection triggers the next action **ESB-BV30N**

After dusting the battery shell, the robot grabs it and puts it into the working position of shell-in module, at this time, the bottom sensor ESB-V30N carries out the in-place detection and triggers the next action cylinder to push the processed battery cell into the shell to complete the action of the working position.

1-43 P.L-04



Recognition of QR code by intelligent code reader
RCD-AI100-X Series

Here you need to reverse the battery by 90 degrees, and at the same time you need to carry out the recognition of the QR code for easy recording and tracing.

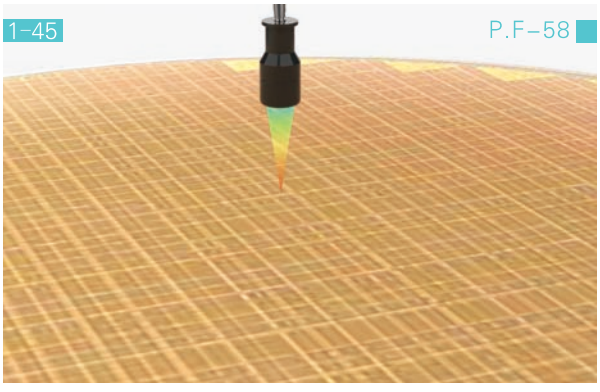
1-44 NEW! P.L-12



Recognition of Various Barcodes **RCD-AI500 Series**

The RCD-AI500 series intelligent code reader supports long-range detection over a wide range, empowering the automated product traceability management in the packaging industry.

1-45 P.F-58



Measure wafer thickness and flatness **ACC-008L**

Measuring thickness and flatness of wafer.

1-46 P.F-58



Measure the characteristic dimensions of precision machined parts **ACC-008L**

Measuring the dimensions of precision machined parts.

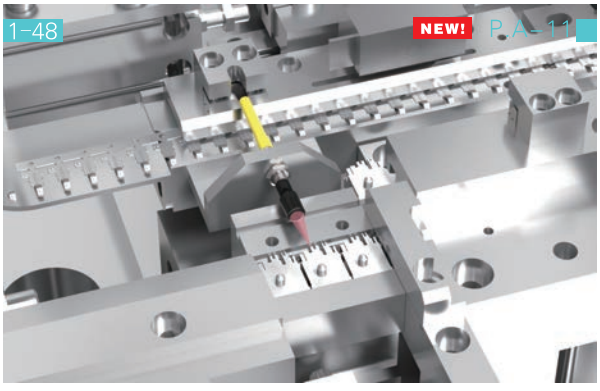
1-47 NEW! P.E-31



Door Protection Sensing **TQN18 Series**

Sensors need to be installed on the protective door to detect whether the door is tightly closed. The buried inductive square-type proximity sensor features a waist-shaped mounting hole, making installation simple. With a maximum detection distance of 8mm, it is installed using M18 threads, saving space.

1-48 NEW! P.A-11



Pin Counting **PE1&PD-C310-35FA&PF-6D**

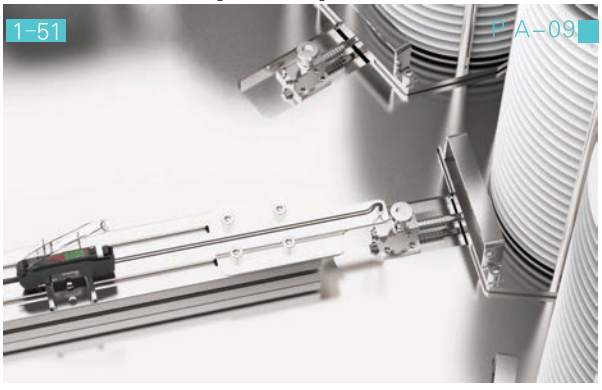
Sensors are installed at this station to detect whether the number of pins in the finished product is qualified. The sensor drives the equipment to remove defective products with an insufficient number of pins. The counting of 7 pins needs to be completed within 1ms.

Inspection



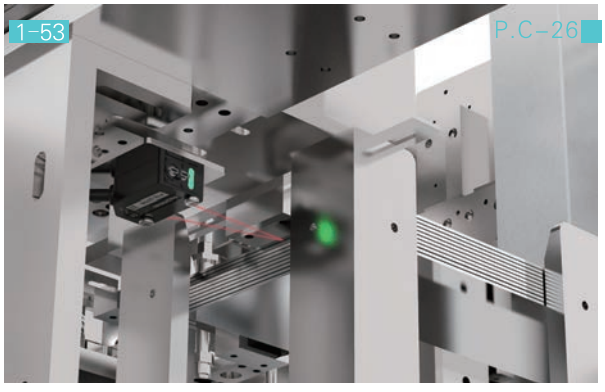
Product Code Read **RCD-AI100-SQ06WD**

Read the QR code on the product and upload the information to the company's MES system. Using the intelligent code reader, which is sensitive and fast, the hardware has been processed to reduce the glare from metal and minimize interference during code reading.



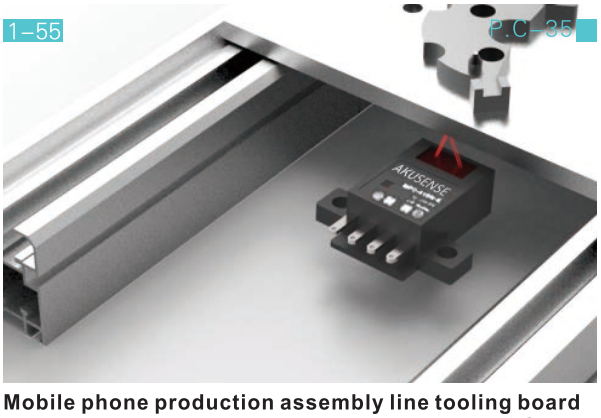
Feeding Turntable Position Detection **PE1&PD-32**

The speed of the feeding turntable often needs to be adjusted according to the production situation. Here, a PE1 fiber amplifier with five adjustable speeds & PD-32 cylindrical fiber unit can be used. It is installed at the middle structure of the feeding turntable to detect the positioning of the loading positions on the rotating disk.



Detection of Battery Pole Position **PTV Series**

The diffuse reflection photoelectric PTV series detects the position of battery pole pieces, triggering the next step of operation when the pole pieces are in place.



Mobile phone production assembly line tooling board inspection **MP2 Series**

Use MP2 series photoelectric sensor to detect mobile phone production assembly line tooling board.



Feeding Station **PTEW-D20 Series**

PCBs have many holes, which can easily be ignored by ordinary photoelectric sensors. The PTEW-D20 series adopts a wide beam design, with a beam diameter of about ϕ130mm, covering a large area and having a wide detection field of view. Surface roughness, holes, irregular shapes, and other challenges can all be reliably detected.



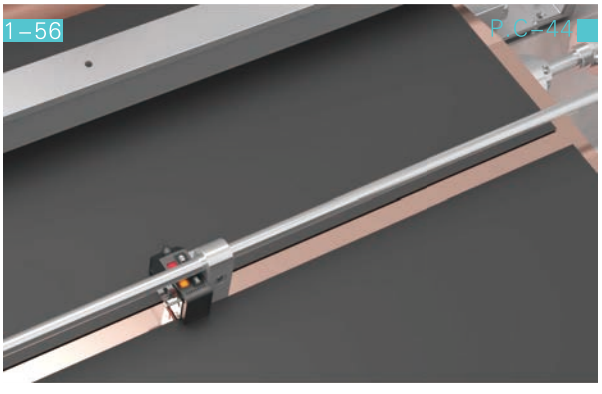
Solder Paste Thickness Control **MLD23-100 Series**

Using the laser displacement product MLD23 series, it can effectively detect the height parameters of the current solder paste and provide them to the upper computer or controller for automatic addition of solder paste.



Label Film Input Monitoring **ESB-BS30N**

During the process of packaging paper transmission, it is necessary to use the ESB-BS30N to monitor the status of the rolled material, including warnings for label film breakage and material shortage, to ensure timely response when there is abnormal breakage of the rolled material.



Splicing tape detection **ESE-10**

When replacing the roll, the end and the beginning of the two rolls that are next to each other should be connected with splicing tape. colour / the color mark sensor can stably detect the splicing tape so that it can be removed before the film is processed into units.

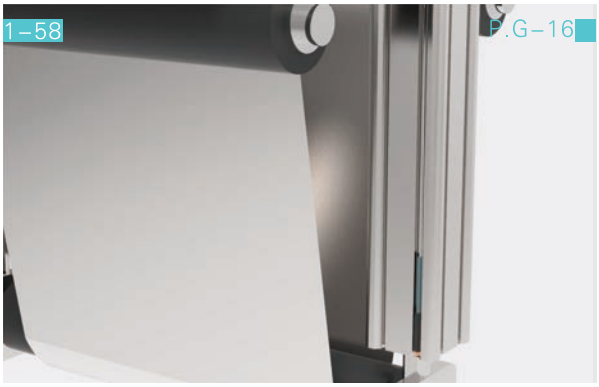
1–57 NEW! P.G–28



Security Door Protection **MR-D2**

The door magnet MR–D2 monitors the door with protection function, which can be installed flexibly and has excellent operational safety, which can make sure that the running machine stops when the door is opened and can only be started when the door is closed.

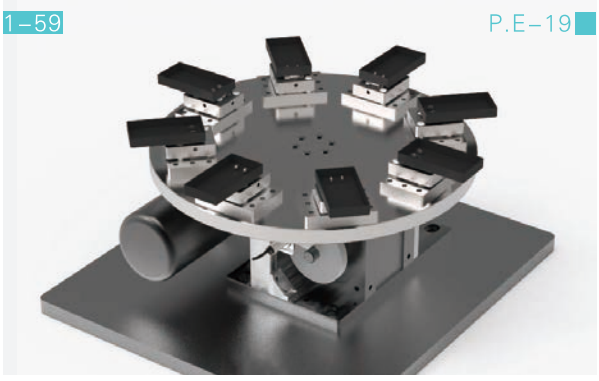
1–58 P.G–16



Film tension measurement **MR-C8**

In the process of processing the membrane into individual electrodes and separator plates, stress must be maintained on the membrane web. cylinder magnetic MR–C8 uses the position of the reversing roller to measure the film tension.

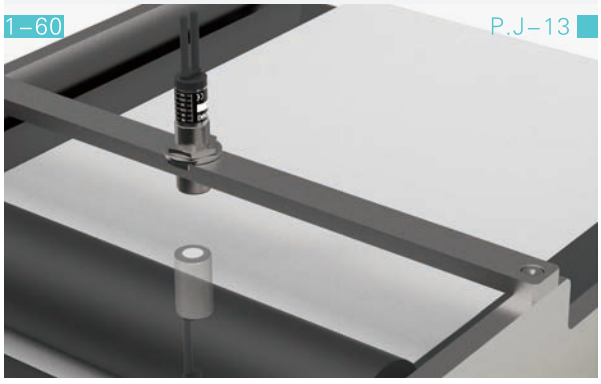
1–59 P.E–19



Detect the rotation stop to circulate the assembled product
TRF18 Series

An inductive sensor is used to detect the stop of rotation to cycle the assembled product.

1–60 P.J–13



Multi-sheet detection of separator plate **MUD Series**

Ultrasonic MUD series accurately detect the adjacent suspended electrodes and minimize defective products. Electrode and separation,The stacking of the device board is very important for the manufacture of battery cells.

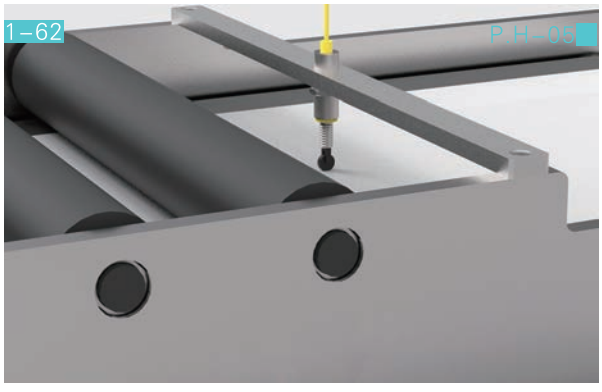
1–61 NEW! P.L–10



PCB Tray Information Traceability **RCD-AI500 Series**

With the reduction in size of QR codes on PCBs and the increase in data content, the requirements for barcode reading systems have become increasingly stringent. Meiji code readers can handle small–sized codes and glare interference in PCB trays, providing users with stable and efficient read rates.

1–62 P.H–05



Prevent paper re-feeding detection **MR-T5Z**

Use a contact sensor to detect the thickness of the paper to prevent multiple sheets from being taken out repeatedly.

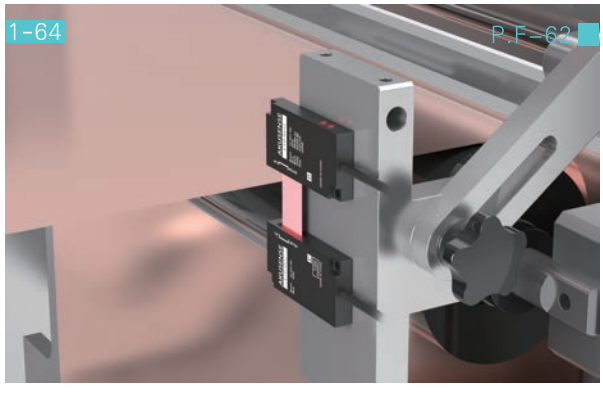
1–63 NEW! P.L–10



Logistics Transport Information Collection **RCD-AI500 Series**

The automatic polling function allows the code reader to be compatible with both bright and dark field and height difference scenarios. Even when the sizes and heights of packages are inconsistent, it can easily achieve barcode reading requirements. Meiji code readers can handle small–sized codes and glare interference in PCB trays, providing users with stable and efficient read rates.

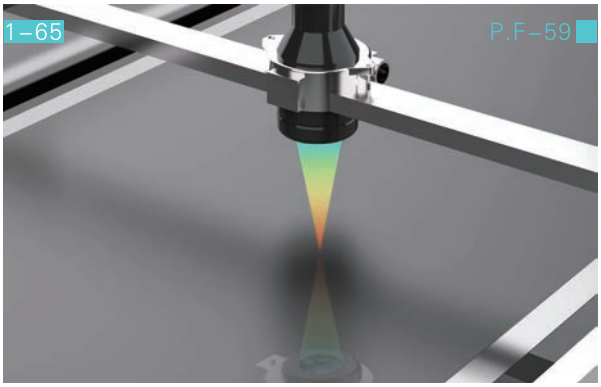
1–64 P.F–62



Detecting the positional deviation of electrode sheet before roll coating **ETD Series**

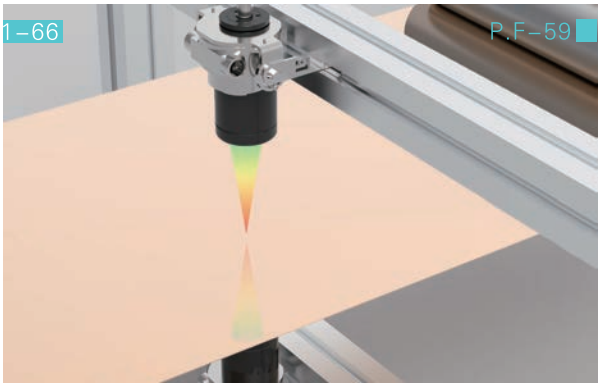
By acquiring the position of the electrode sheet before roll coating, the position of the electrode sheet is corrected and controlled in real time to ensure accurate roll coating.

Inspection



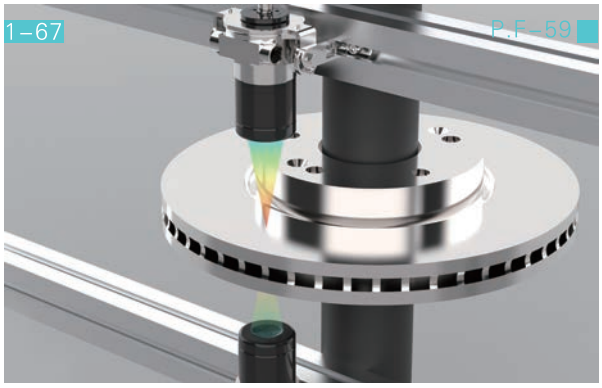
Electrode coating thickness detection **ADV-12CK2**

Based on the characteristics and the high–precision requirements of the battery pole pieces, it is a relatively reliable solution to use a confocal displacement sensor. ADV series spectral confocal can be equipped with two probes at the same time. It is the best choice for online beam detection of pole piece and coating thickness, which is economical, stable and reliable.



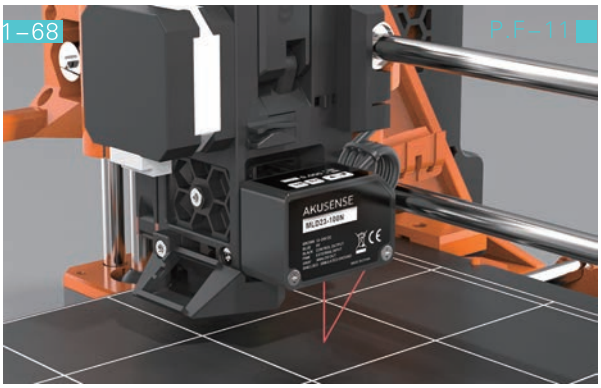
Sheet metal thickness detection **ADV-12CK2**

ADV–12CK2 can be used to detect the thinckness of the metal sheet.



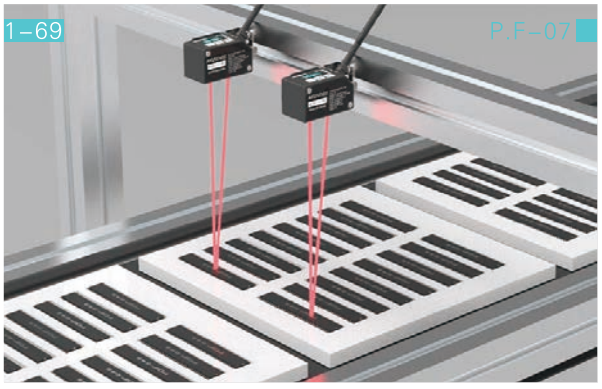
Automobile brake disc thickness detection **ADV-12CK2**

ADV–12CK2 series of spectral confocal sensors can be equipped with dual probes,which can be used to detect the thickness of automobile brake discs online. The confocal sensor adopts the principle of non–contact spectral confocal detection,with fast response speed, non–contact and no damage to the surface of the brake disc.



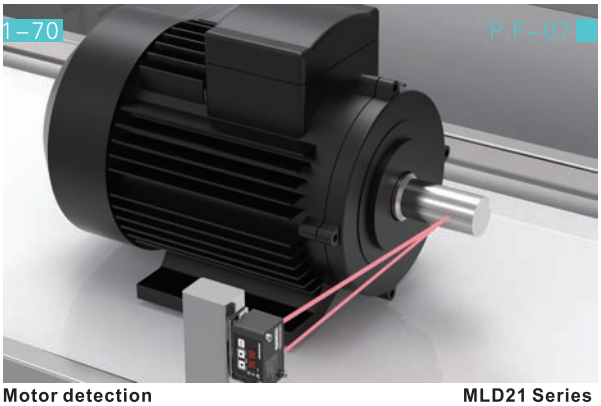
3D printer position detection **MLD23 Series**

A 3D printer with an automatic nozzle height positioning system can confirm whether the height of the nozzle meets the requirements of the printing height according to the height data measured by the displacement sensor, and realize the accurate positioning of the nozzle height to prevent the print adhesion or scraping.



Detect the integrity of the product in the package **MLD21 Series**

Check whether the product in the package is intact.



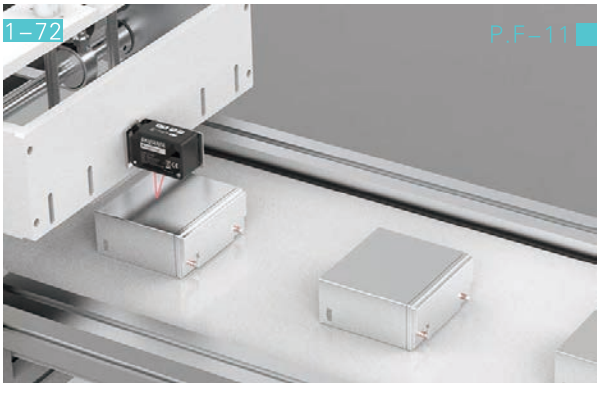
Motor detection **MLD21 Series**

In the production process of the motor, it is ensured that the size of the product is accurate and the shape is error–free.



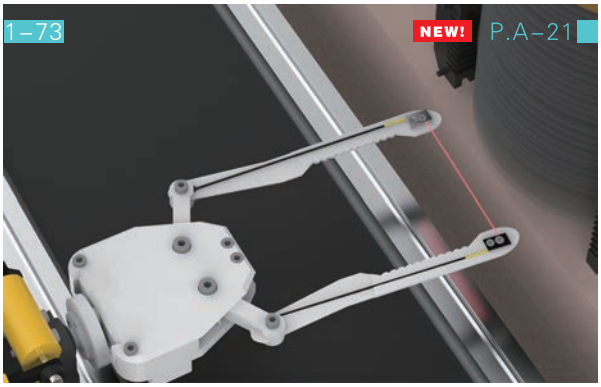
Detect the flatness of lithium battery pole pieces **MLD21 Series**

It is widely used in 3C manufacturing, lithium battery manufacturing, electronic semiconductor manufacturing, photovoltaics, machining and other industries. It can be used to guide laser marking, detect lithium battery bulge, detect carrier tape stacking and empty materials, and detect product gaps.



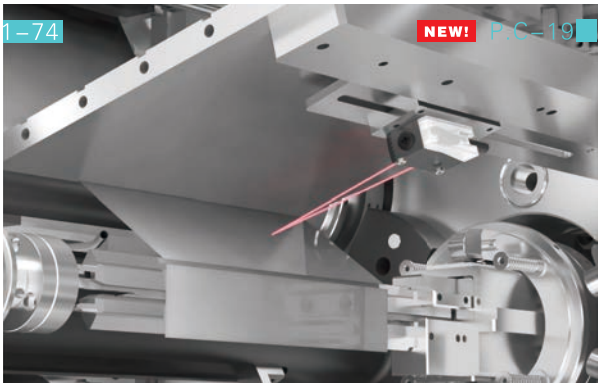
Detection the bulge of lithium batteries in production **MLD23 Series**

During the battery bulge inspection process, the bulge height is detected to ensure that the batteries does not leak, blemish and avoid the defective products flow into the next step.



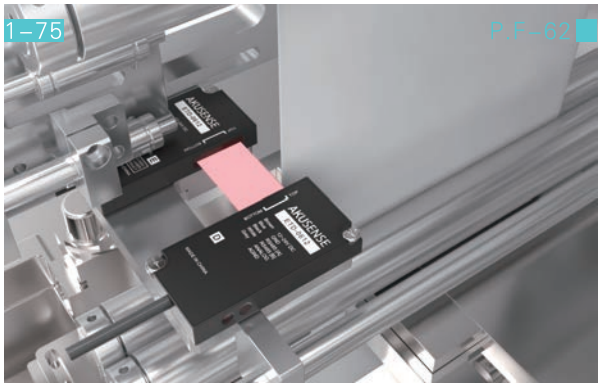
Detect whether the wafers are placed accurately **PT-F57UA**

Check whether the wafer placement is accurate



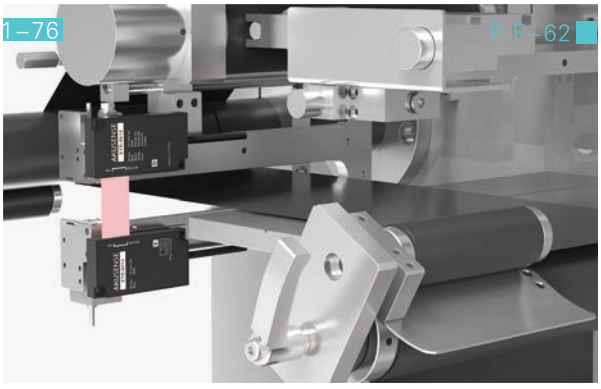
Detect the position of the core coil material **PTE Series**

After the materials and the separator are wound into small cell monomers, tape should be attached to prevent the cell from loosening or shifting. The photoelectric sensor is used to detect the position of cell roll material. The material will be moved to the next step if the replacement is right.



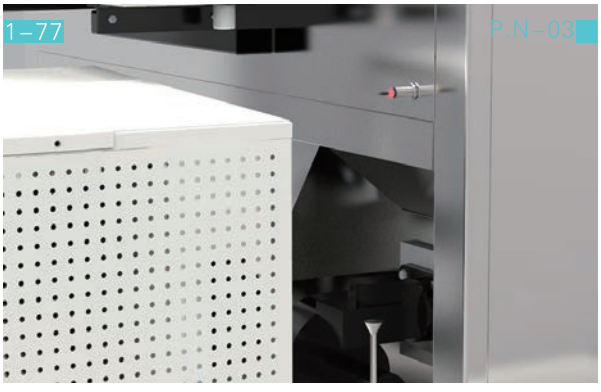
Control of Diaphragm Position Deflection during Diaphragm Transportation **ETD Series**

Pole piece pre–positioning, detects the diaphragm edge position during diaphragm transfer, and feeds back to the deskew system to control the diaphragm position swing during transfer.



Detecting whether the position of the pole piece in the loading process deviates **ETD Series**

In order to guarantee the consistency of the products, the deflection sensor detects the loading process of the pole piece in the manufacturing process of the electric core, and feeds the result of the detected position back to the deflection controller, so as to achieve the effect of deflection correction in a timely manner.



Detect the temperature of the drying oven **TSP Series**

The drying box is electrically heated, with uniform heating, precise temperature control and rapid drying.



Control the temperature of the mixer **TSP Series**

After the positive and negative materials are uniformly mixed by a vacuum mixer, they are stirred into slurry.



Label Color Identification **ESE Series**

The ESE series color sensor is selected to detect label color marks during the high–speed operation of the conveyor line, identifying whether there are errors in the label colors.



Bottle Body Profile Recognition **ESX Series**

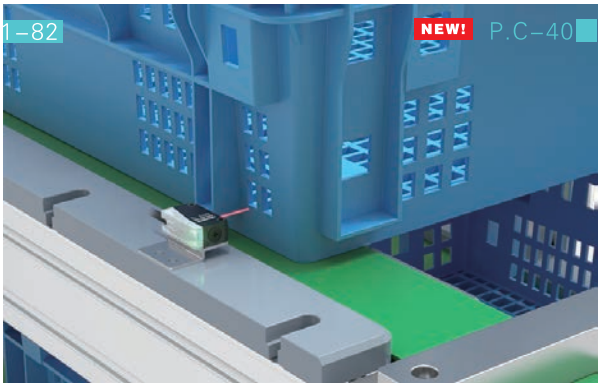
During the production of bottles, various deformations of products are produced, and the circulation rate during the conveying process is high. To achieve fast and smooth transportation, it is necessary to reliably identify the shape of the bottle. Using the line laser sensor ESX series, the packaging bottle's shape and surface condition can be accurately identified.

Inspection



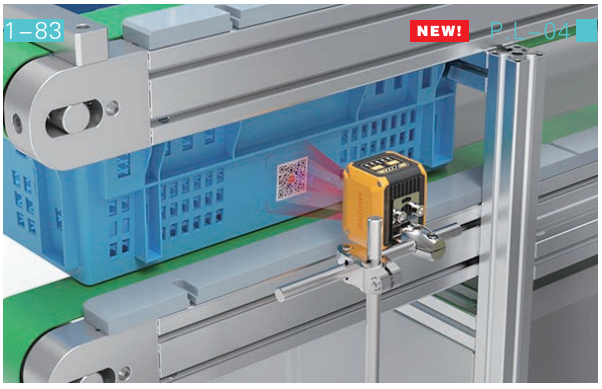
QR Code Data Read on Bottles **RCD-AI100-X16RD**

The Smart Code Reader RCD–AI100–X16RD is selected for one–click parameter adjustment and easy operation. It can be equipped with a polarized light source, which, through angle adjustment and polarizing mirror filtering, can eliminate most of the background stray light and easily read the QR code on highly reflective material surfaces.



Material Box Transportation Detection **ESB-BS15N**

When the material box is transported to the assembly line by AGV, sensors need to be installed to detect the presence of the material box and trigger the next station action. The background suppression type photoelectric sensor ESB–BS15N is used, which is not affected by color. The sensor adopts dynamic filtering algorithm internally, achieving optimal detection results in various environments



QR Code Read on Boxes **RCD-AI100-X08WD**

After the material box is filled, it flows to the discharge port through the conveyor line, where a code reader is installed to identify the QR code information on the box and send it to the AGV handling vehicle.



Vacuum Pressure Monitoring for Handling Module Suction Cups **MQ-03D Series**

After each layer of material is placed in the material box, the negative pressure suction cups on the handling module suck the protective film to prevent the material from stacking randomly. The Meiji MQ–03D series pressure gauge is selected, which has undergone pressure shock tests of more than 2000W times before leaving the factory and reliability tests of output signals, ensuring its service life.



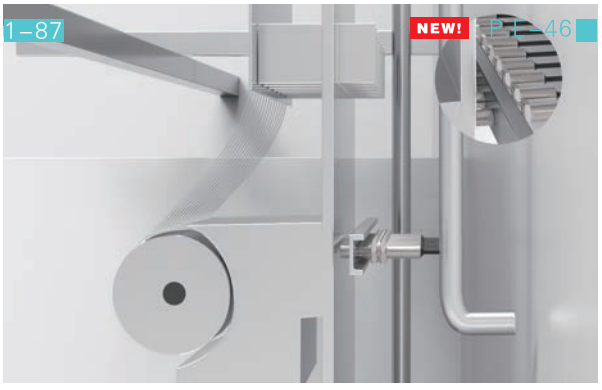
Hopper Material Level Detection **CKN12-06NO**

Here, sensors are used to detect the material level in the plunger hopper: when the minimum signal is received, the system starts to replenish the plunger to the hopper, and when the maximum signal is received, it stops feeding the hopper, requiring sensors with small size and easy installation.



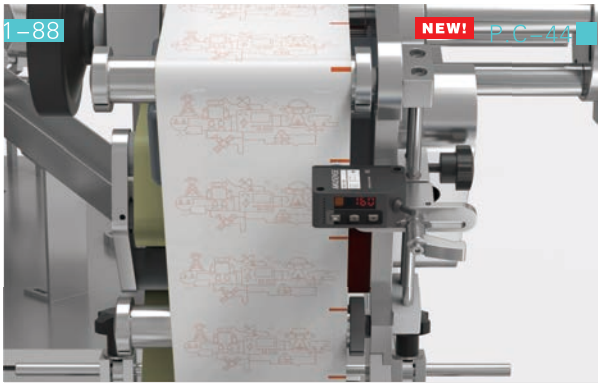
Pressure Monitoring for Robotic Gripper Nozzles **MQ Series**

On the robotic arm, both picking and placing are controlled by the suction nozzles on the arm. The negative pressure of the suction nozzles on the robotic arm is used to break up the OLED screen, and positive pressure is used to break the vacuum to release the material. Here, a pressure gauge is needed to monitor the pressure data in real time.



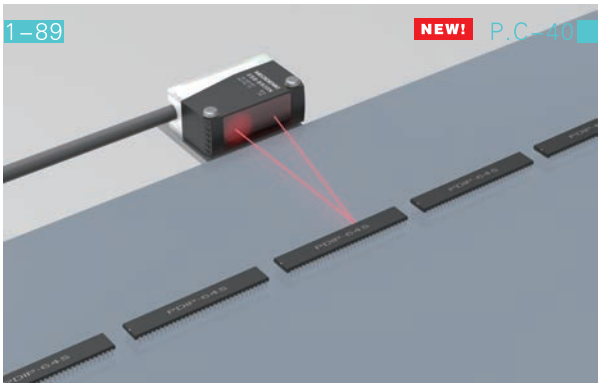
Solar Cell String Welding Machine Grid Line Feeding Monitoring **TMF08-01NO**

On the solar cell string welding machine, when the grid line is being fed, sensors are needed to monitor the status of the grid line in real time. If there is a break or missing grid line, the sensor sends a signal to drive the equipment to stop and triggers an alert signal to prompt the operator to check the equipment for abnormal operation.



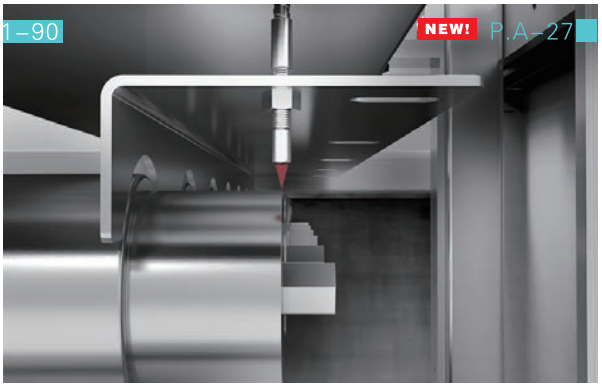
Recognition of Packaging Color Marks **ESE-10**

Color mark sensors are installed on the packaging machine. When the sensor detects the calibrated color block, it sends a signal to the equipment for the next action, driving the equipment to cut the packaging material into appropriate sizes, achieving precise packaging cutting.



Counting Chip Pins **ESB-BS30N**

During the rapid transmission of chips, sensors detect the number of chip pins. Small spot photoelectric sensors have obvious advantages in applications such as small object detection and high–precision positioning.



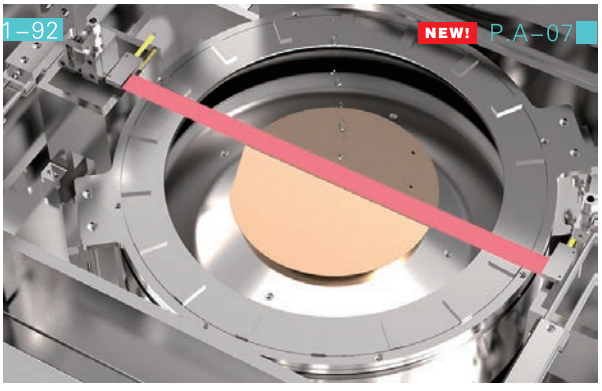
Detection of Rollers Inside Lithium Battery Kilns **PT-H42S**

Real–time monitoring of the rotation status of rollers inside the kiln at high temperatures. This high–temperature resistant fiber optic can operate stably at 350° C.



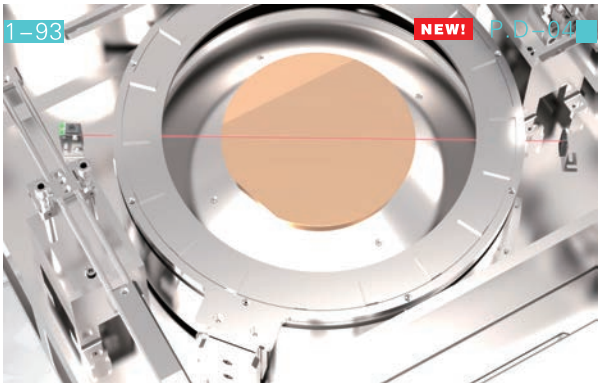
Horizontal Direction Detection of Heliostats **MJL Series**

Dual–axis tilt angle sensors are used in Fresnel power generation systems to avoid stray losses caused by inaccurate alignment of heliostats. These sensors detect the horizontal direction of the heliostats and can withstand high–temperature environments to accurately measure the tilt angle, ensuring that the heliostats can align with direct sunlight to convert as much solar radiation as possible into electrical energy.



Detection of Water/Glue Droplets **PE1+ PT-30ML**

Using area–through optical fibers with wide coverage area, even if there is a slight deviation in the path of water droplets, they can still be stably detected within the detection area.



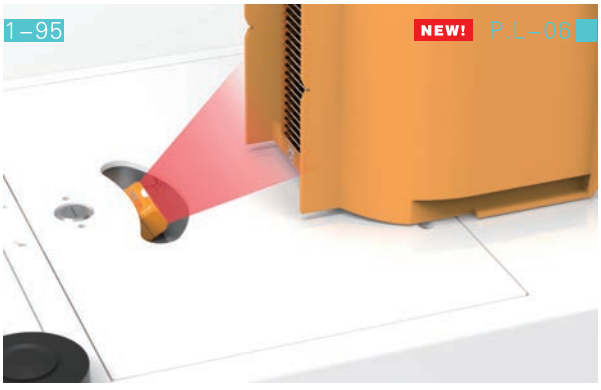
Detection of Chip Position **ELE Series**

The light intensity deviation caused by the color and shape changes of the wafer transfer box is very small. Therefore, a retro–reflective sensor is selected for stable measurement. By installing a reflector, wiring troubles are reduced.



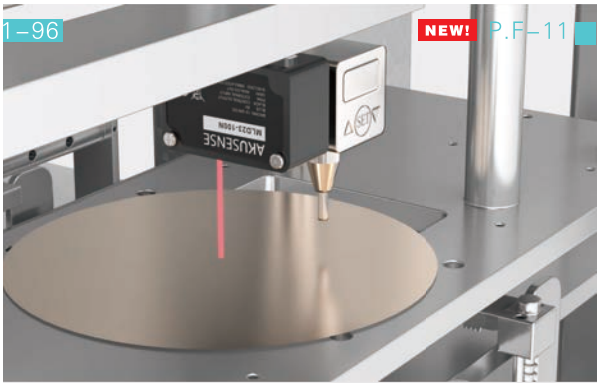
Control of Hydrophobic Liquid Level **CE30-26NO**

When air bubbles exist in the trough pipe, ordinary optical sensors may cause misjudgments. The product has a protection rating of IP67, waterproof and dustproof. The sensor fixing method is flexible, allowing easy movement of the detection position.



Carrier ID Management **RCD-AI100-S**

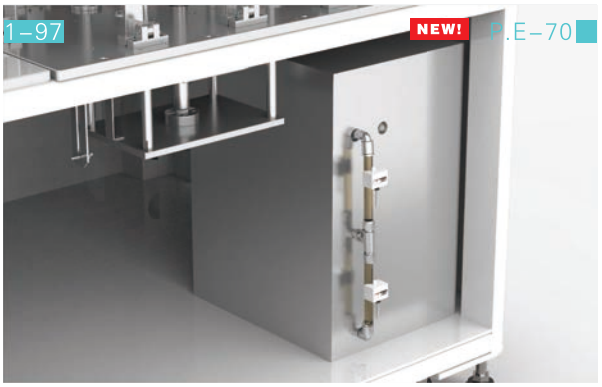
By automatically reading the universal barcode labels pasted on FOUP cassettes at the loading end, point–to–point precise management can be easily achieved, reducing costs. The algorithm is powerful and can simultaneously read multiple barcodes.



Target Positioning and Distance Measurement **MLD23-100N**

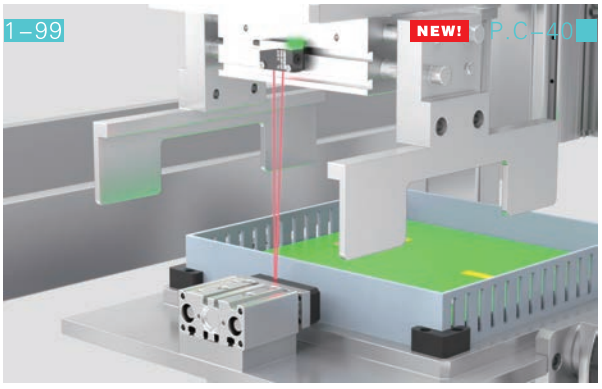
Real–time and accurate measurement of the height of each chip is required at this station. Meiji's laser displacement sensor has a large detection distance range of 65–135mm, meeting the real–time monitoring of chips at any position with an accuracy of 0.01mm. The software features easy teaching, improving debugging convenience.

Inspection



Controlling Chemical Liquid Level **CE30-26NO**

When there are air bubbles in the tank pipe, using optical sensors may cause misjudgments. Therefore, a dedicated capacitive proximity sensor for pipeline liquid level detection can be used. Even if bubbles are present in the pipeline, stable detection is possible. Moreover, it is not affected by the color and density of the liquid. The non–contact detection also eliminates the need for the sensor to consider chemical reactions with the sensor.



Equipment Loading **ESB Series**

Mounting the ESB series at the loading position to detect the presence and positioning of materials. For small PCB boards and mainboards, ordinary large spot photoelectric sensors are prone to misjudgments. This optical spot size is only 1.5mm with a detection distance of 100mm, ensuring stable detection even when the size of the workpiece changes.



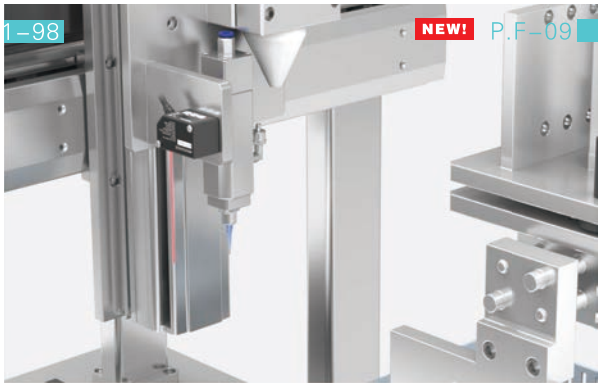
Test Tube Gripper Feeding **PE1+PD-E32**

When loading transparent test tubes, it is necessary to detect whether there is any material in the loading area to drive the gripper to pick up the material.



Bottle Cap Feeding **PC2+PD-S4Q3-30**

To increase efficiency, it is necessary to simultaneously detect the feeding of the four positions of the caps that come out of the vibration disk and grab the four caps. However, it is also necessary to control costs. Therefore, this model of four–head fiber optic head and higher–performance fiber optic amplifier are chosen.



Dispensing Height Measurement **MLD21 Series**

Dispensing machines require high precision in dispensing height positioning. Laser displacement sensors are commonly used for dispensing height measurement. Meiji's MLD21–100A series offers a linear precision accuracy of up to 0.07mm (thread level), ensuring high–precision measurement requirements.



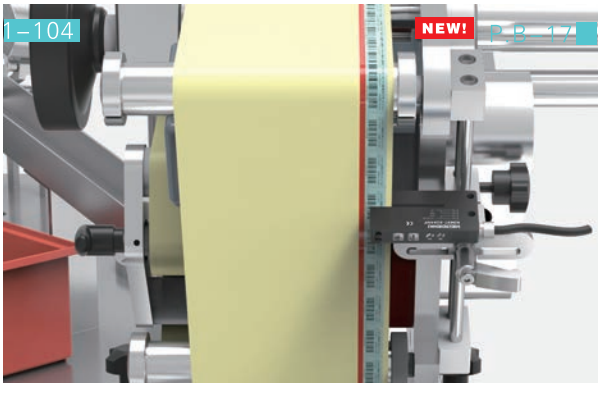
Equipment Unloading **PC2+ PD-C32TZ**

During unloading, it is necessary to count the number of qualified products. Therefore, a PC2 amplifier with microsecond–level fast counting function is used, paired with PD–C32TZ fiber components. The coaxial beam design ensures stable feedback of the sensor's light intensity, resulting in more stable detection.



Gripper Cylinder, Pushing Cylinder, etc., Status Detection **MR-C8-C-S**

For tube retrieval, bottle cap grabbing, and optional bottle cap cylinder clamping, cylinder sensors are needed to provide feedback on the status of cylinder switches to the control center PLC.



Reagent Labeling **KIM07-0204NP**

After filling and capping, it is time to label each reagent with a unique identity barcode, facilitating information traceability when nucleic acid results are obtained.

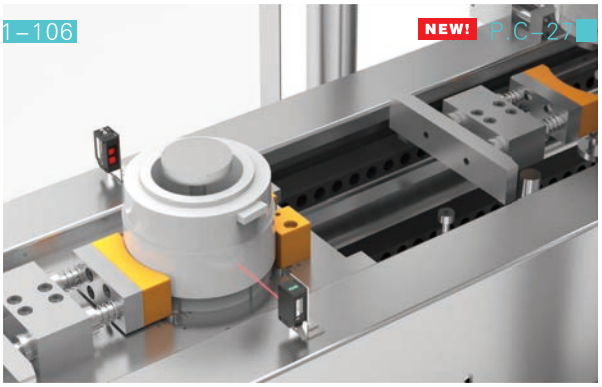
1–105 NEW! P.L–06



Information Storage and Traceability **RCD-AI100-S**

After labeling, it is necessary to read and store the QR codes. Simply install the smart code reader RCD–AI100–S above the conveyor belt. The information will be automatically saved in the system in real–time, making it convenient for inspection agencies or medical institutions to retrieve information based on the respective batch of test tubes, eliminating the need for manual searching and facilitating quick access.

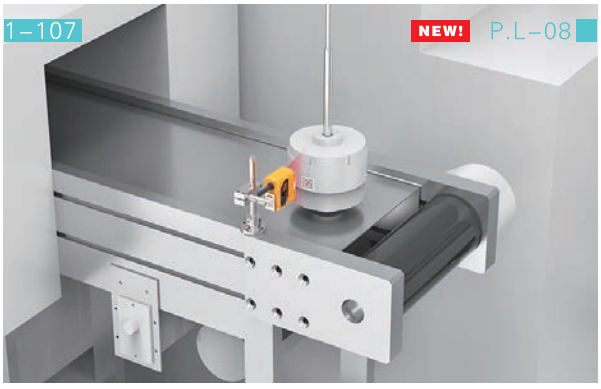
1–106 NEW! P.C–27



Production Line Tray Transport Positioning **PTV-TM20AN**

Using through–beam photoelectric sensors from the PTV series. This newly upgraded infrared through–beam photoelectric sensor has been optimized for equipment vibration issues in both hardware and software, allowing for a larger emission and reception angle. This ensures that the sensor is easy to install, calibrate, and use, providing stable and efficient operation.

1–107 NEW! P.L–08



Motor Tray QR Code Reading **RCD-AI100-SQ06WD**

QR codes are scanned before entering the rear process of the tray, and the information is entered into the database. The RCD–AI100–S smart code reader series offers various types and different coding processes for QR code recognition, with liquid–focus technology for quick focusing.

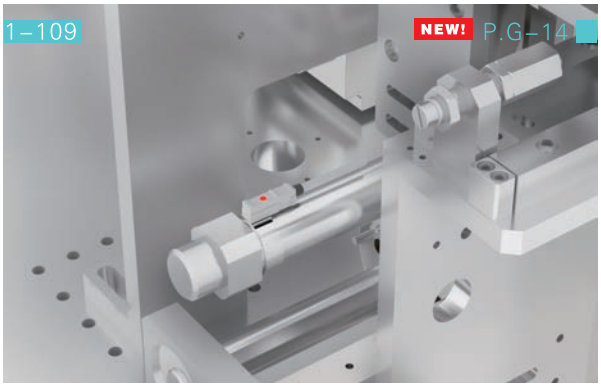
1–108 NEW! P.Q–02



Detection of Stack Pressure **MQ-10 Series**

Detecting pressure during stacking to ensure that the pressure during the stacking process meets the set requirements. Meiji's digital pressure sensor MQ–10 series provides highly accurate pressure measurement results, with precision down to several decimal places.

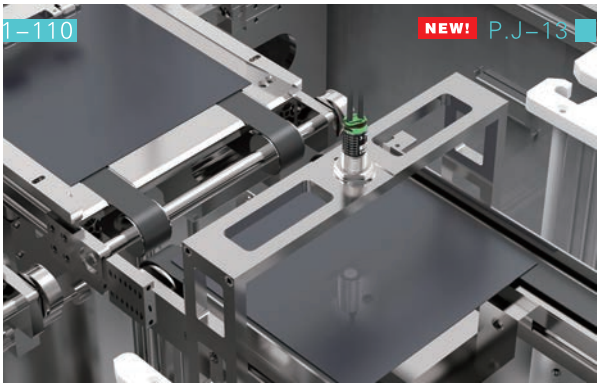
1–109 NEW! P.G–14



Detection of Cylinder Extension and Retraction States
MR-C12-N Series

Detecting the extension and retraction states of cylinders to determine if the cylinders are working properly, ensuring the stability of equipment during operation. Meiji's magnetic sensor MR–C12–N series detects based on magnetic principles, making it less susceptible to external interference and damage, thus providing high reliability.

1–110 NEW! P.J–13

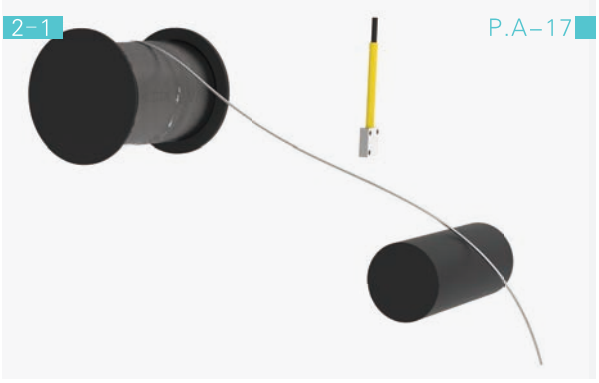


Detection of Single and Double Silicon Wafer Stacking
MUD Series

During the transportation of photovoltaic wafers, sensors are needed to detect whether there are multiple wafers stacked together. In scenarios where silicon wafer color or glossiness does not affect detection, and when silicon wafers may have water bonding or uneven thickness, corresponding signals are needed. The machine can then reject stacked wafers or empty trays and stop the next action accordingly.

Check for presence

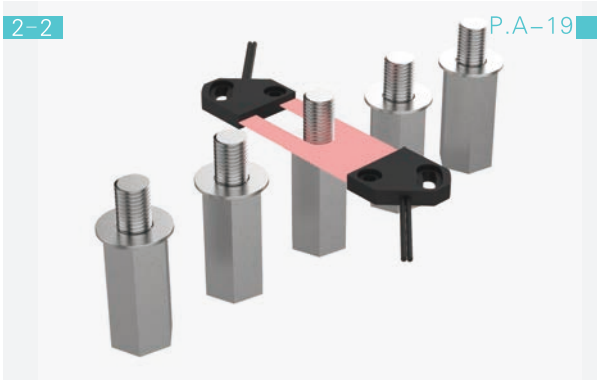
2-1 P.A-17



line presence or absence detection **PD-15ML-D**

Check for broken wires. Using broad light with a wide field of view, the work piece can be detected stably even when it is shaken.

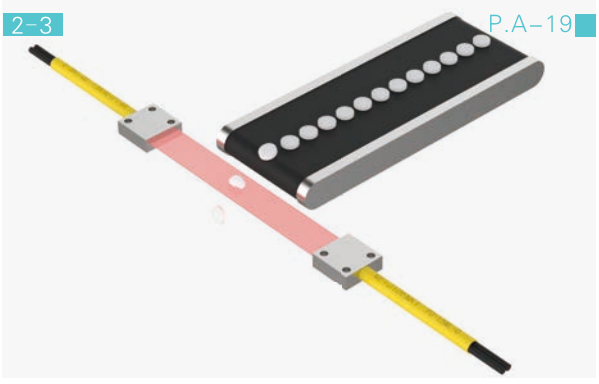
2-2 P.A-19



Check the presence of gaskets **PT-A10**

PT-A10 was used to detect gaskets. Since the width of PT-10A is 20mm, it can be detected without accurate positioning.

2-3 P.A-19



Detect the tablet particles falling from the conveyor belt **PT-10ML**

The 10mm wide-screen optical fiber PT-10ML can stably detect tablet particles falling on the conveyor belt. If the area where the tablets fall is large (30mm), you can use the wider optical fiber PT-30ML.

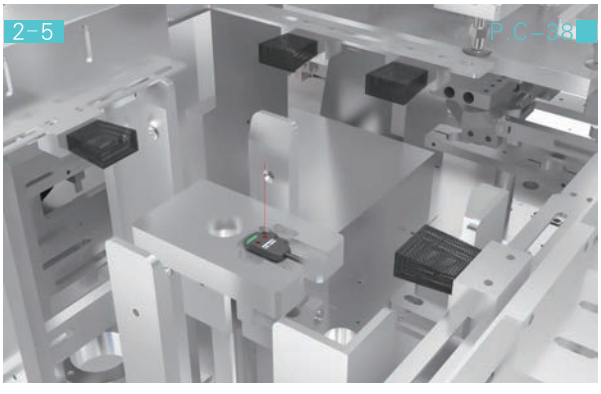
2-4 P.A-15



Workpiece detection **PT-32**

Detect the workpiece of the workpiece feeder groove.

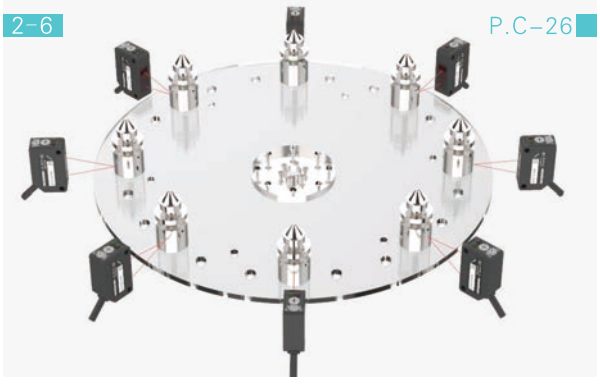
2-5 P.C-38



Wafer loading residual material monitoring **ESL-25 Series**

Detect whether there are wafers in the wafer box. When the wafer material is exhausted, the sensor promptly sends a signal to drive the equipment for reloading.

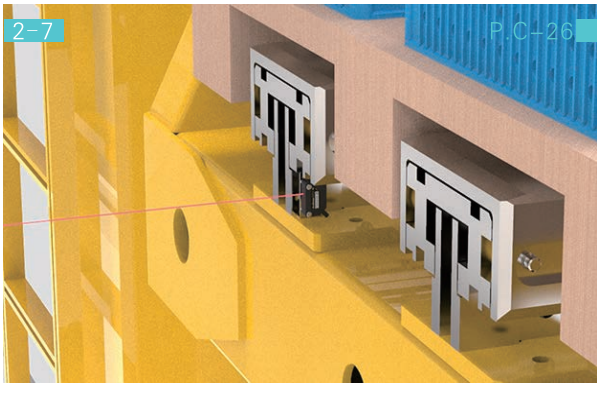
2-6 P.C-26



Confirmation of original clamping on the indexing table **PTV Series**

Detect the presence or absence of the original 8 stations to prevent the components from missing or falling off. The laser sensor has a small spot diameter and can accurately detect small parts.

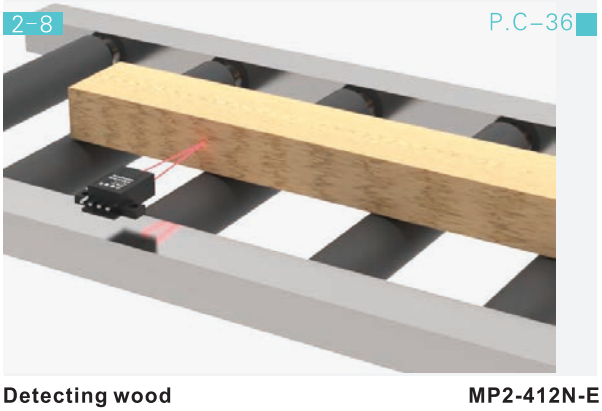
2-7 P.C-26



Diffuse photoelectric detection of the presence or absence of **PTV-D70N**

The loading platform is connected to the lifting mechanism by means of a wire rope or chain, and lifts up and down along the guide rails on the column. The fork telescopic mechanism is mounted on the load table and can be extended in both directions in order to feed (take out) containers to the cargo compartments on both sides, and together with the load table it runs along with the stacker cranes in the aisle.

2-8 P.C-36



Detecting wood **MP2-412N-E**

Using flat photoelectric sensor to detect Wood passing.

2-9 P.E-19



Inspection of aluminum cans **TRN18-08NO-E2**

Detection of aluminum tank.

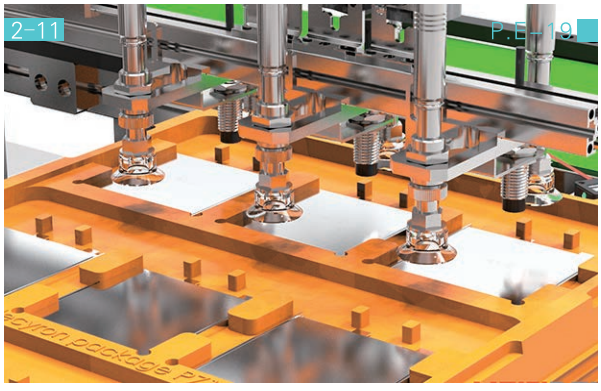
2-10 P.E-39



Check for small holes **TSSF6.5**

Detect whether there are small holes.

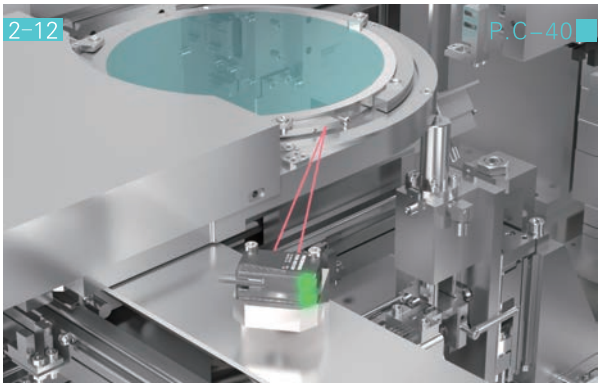
2-11 P.E-19



Detecting the presence or absence of cores in the pallet **TRN12-04NO**

The proximity switch is installed in the loading robot for detecting the presence or absence of cores in the pallet. When the cores in the pallet have been captured, a signal is sent to the robot to move the empty pallet to the pallet to be picked up station.

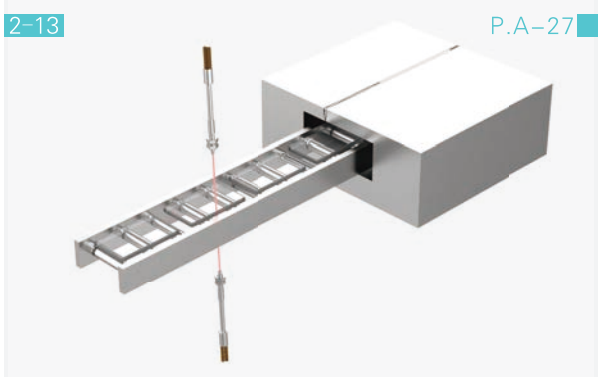
2-12 P.C-40



Use the IC tester to detect the workpiece **ESB Series**

Detecting the channel of the thin IC

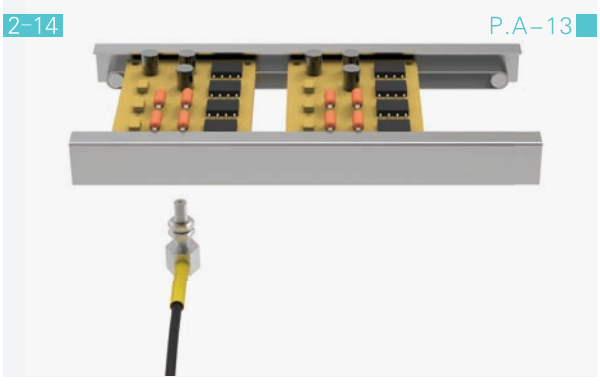
2-13 P.A-27



The glass plate is detected at the furnace outlet **PT-H42Y**

A lens device is installed on the high temperature penetrating fiber to detect the glass plate over long distance.

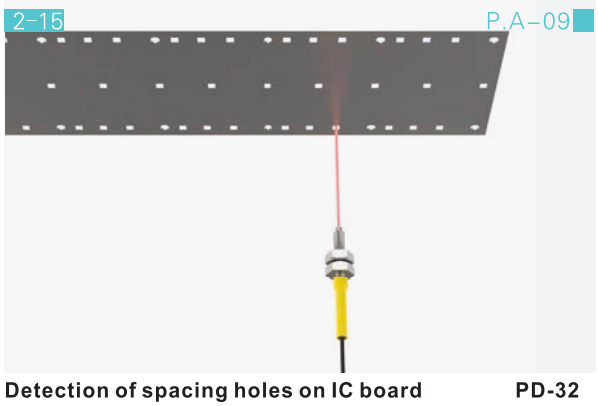
2-14 P.A-13



Pass detection of substrate **PD-C32TZ**

Check the substrate inside the installation machine. There is no requirement for bending the R5mm light seal installation site.

2-15 P.A-09



Detection of spacing holes on IC board **PD-32**

Combined with the lens unit, the small holes can be accurately detected.

2-16 P.A-09

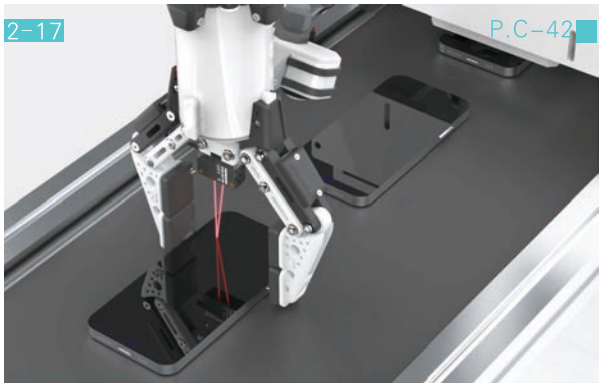


Missing detection of electronic components **PD-32-I**

Use fiber optic sensors to detect missing parts in the part chute.

Check for presence

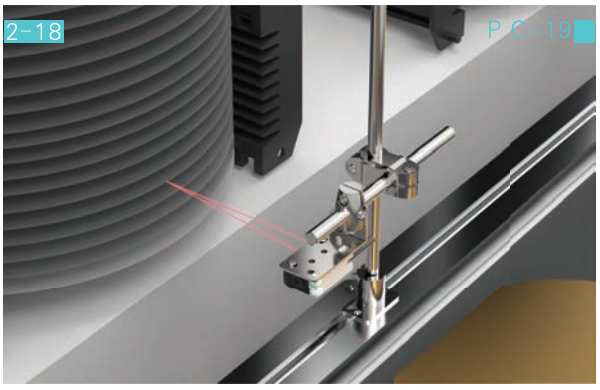
2-17 P.C-42



Detection of grabbed objects **ESB-B30**

The gripper usually needs to move a lot when picking up objects, so the ideal sensor used must be small and Light, background suppression photoelectric sensors are well suited for this application.

2-18 P.C-19



Use diffuse reflection photoelectric detection chip PTE Series

Use diffuse reflection photoelectric detection of wafers to determine the number of wafers.

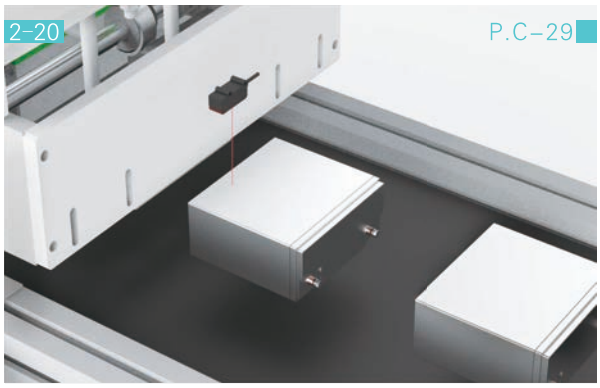
2-19 P.E-62



Proximity sensor detection package **CKF18-08**

When the scanning distance is short, the target is made of non-metallic materials, and the response time and positioning accuracy are not very important, the capacitive sensors are a wise choice. The capacitive sensor detects the presence of the package.

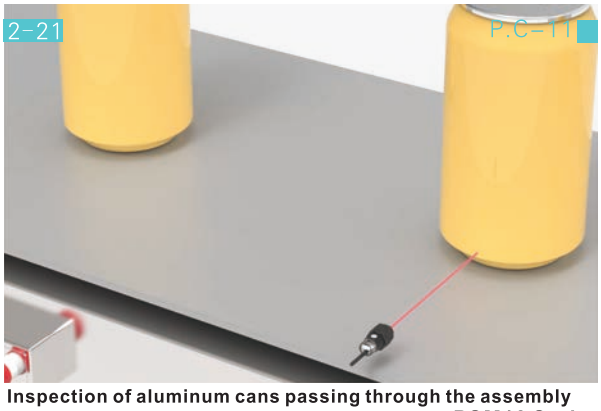
2-20 P.C-29



Use photoelectric sensor to detect battery PTN Series

The photoelectric sensor PTN series is reliable and can detect dark or highly reflective objects without a reflector, for example Such as battery cells, battery modules and battery pack shells.

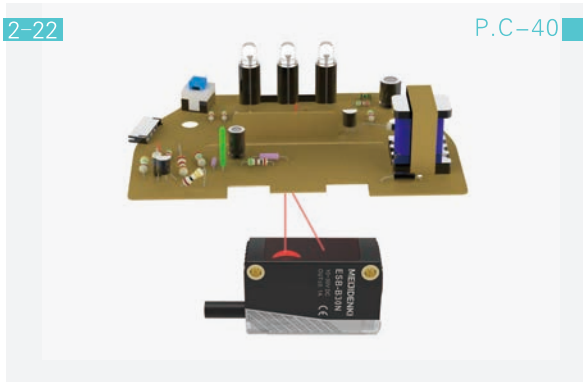
2-21 P.C-11



Inspection of aluminum cans passing through the assembly line **PSM18 Series**

Use PM18 series photoelectric sensors detect aluminum cans passing through the assembly line.

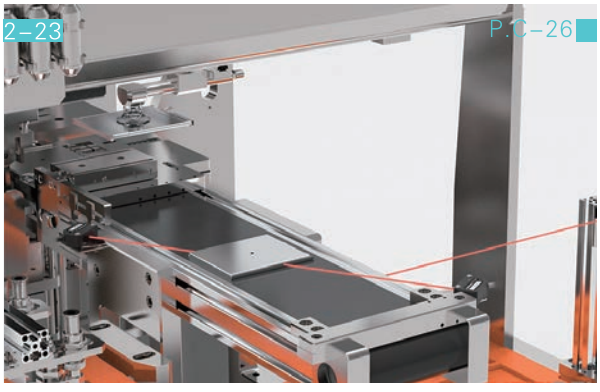
2-22 P.C-40



Pass detection of substrate **ESB Series**

It can also detect substrates, small light spots, and black objects in the mounting machine.

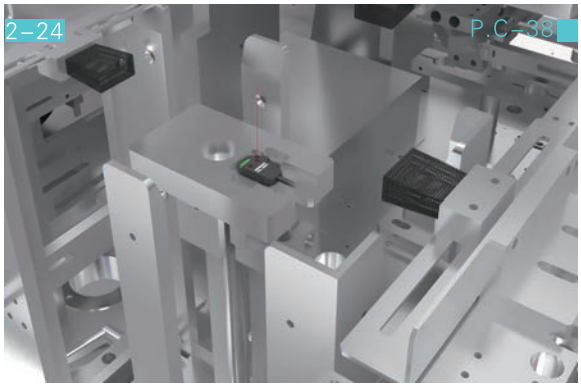
2-23 P.C-26



Detect the presence of loading lithium batteries **PTV Series**

It is used to detect the presence or absence of loading lithium batteries. Due tothe vibration of the customer's conveyor belt and mobile platform, the thru-beam photoelectric can ensure the stability of detection.

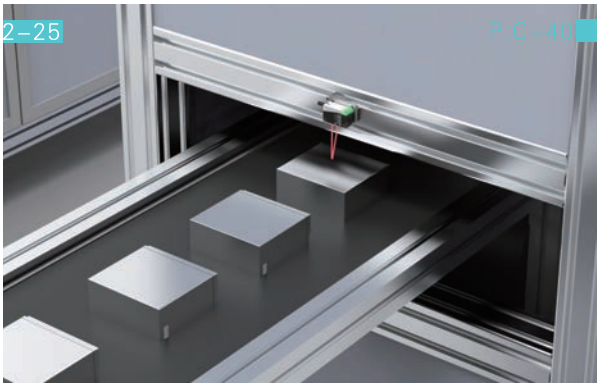
2-24 P.C-38



Detect whether there is pole piece in the material box ESL Series

ESL series detects whether there is a pole piece in the material box, and transmit signal for loading instruction.

2-25 P.C-40



Battery unit in place detection **ESB Series**

Detect whether the battery unit is in the right place.

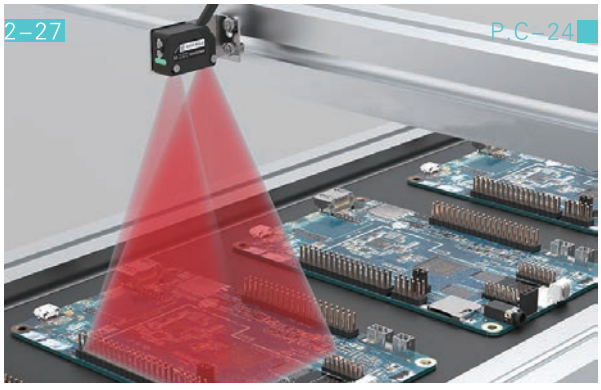
2-26 P.D-05



Detection of pedestrian passing through gates **ELE-TM50**

Detect whether pedestrians pass through the gates.

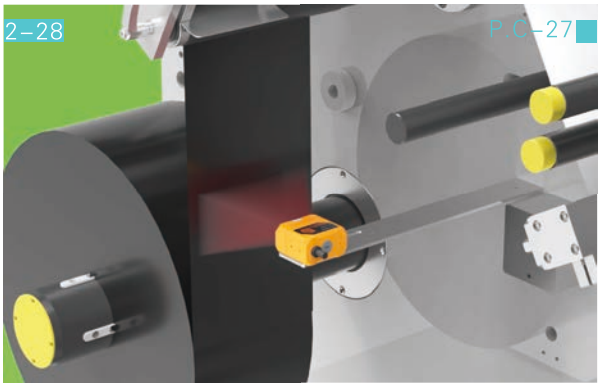
2-27 P.C-24



Detection of PCB board **PTEW Series**

The PTEW series has a large 13cm spot, covering a wide area. It is suitable for the detection of PCBs, textile materials, mesh items, transparent bodies, trays,etc. It has unique performance advantages in detecting products with irregular shapes, rough surface potholes, holes, broken wires, etc.

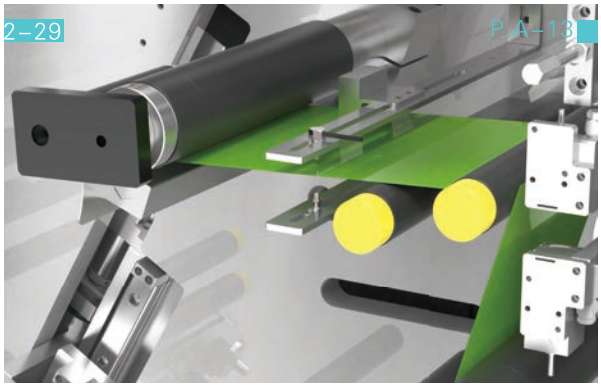
2-28 P.C-27



Detecting whether there are labels attached to polarizers **VDS10-BQ0106-WP**

There are labels of various colors (silver, green, yellow, blue) on the polarizer, and it is necessary to identify polarizers with labels. The Vision Standard Product VDS10 series is selected for detection, and the detection principle is to highlight the feature area under camera imaging to determine the presence of labels.

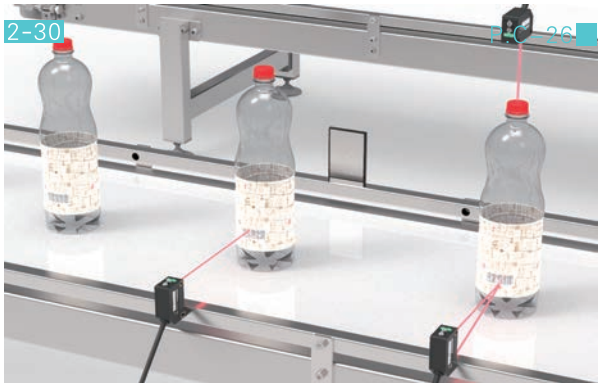
2-29 P.A-13



Monitoring on Transport of Pole and Diaphragm **PT-C32TZ**

For the detection of pole and diaphragm, fibre optic sensor is used to confirm the loading of these materials; it can be matched to the corresponding types like cylindrical, area matrix, flat holder and other kinds of fibers according to the installation conditions and mechanical operation requirements of the site for application programming.

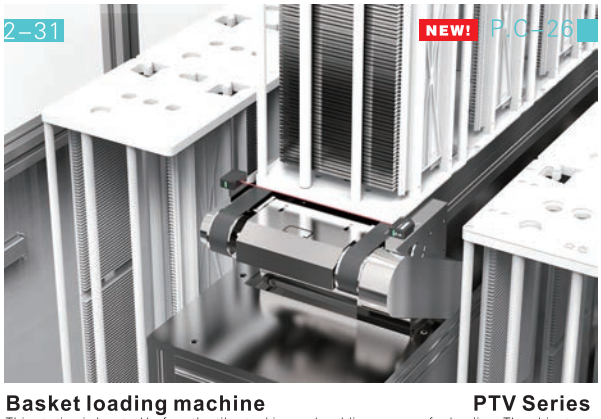
2-30 P.C-26



Dectect the beverage bottle placement and packaging **PTV Series**

It can be used for everage bottle in-position and packaging inspection on food and baverage production lines.

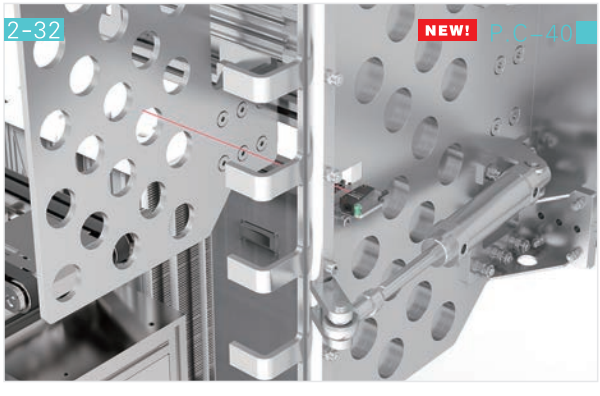
2-31 NEW! P.C-26



Basket loading machine **PTV Series**

This station is located before the tile stacking and welding process for loading. The object being measured is the photovoltaic basket, which comes in various colors such as black, dark blue, milky white, light yellow, etc. There is a high requirement for the stability of the sensor's detection. Additionally, the production line operates at an extremely fast speed, approximately 100mm/s, demanding a high response speed from the sensor.

2-32 NEW! P.C-40



Robotic arm silicon wafer gripping detection **ESB Series**

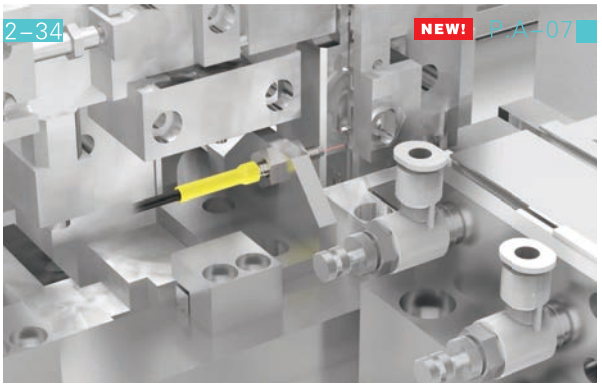
Install 3 BGS photo sensors(ESB series) on the robotic arm, which are unaffected by background color and can reliably detect silicon wafers of any color.

Check for presence



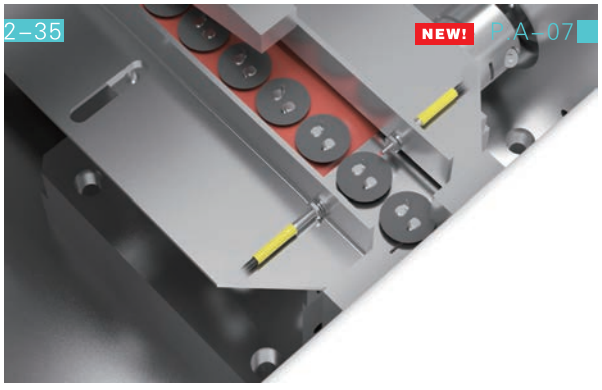
Material loading presence detection **TLF12-04NO**

In front of the detection equipment on the conveyor, sensors are installed to confirm the presence of materials, thereby outputting a signal to start the conveyor line. The fixture at this station rotates at a high speed, requiring the sensor to have a high switching frequency and a repeatability accuracy of within 0.5mm.



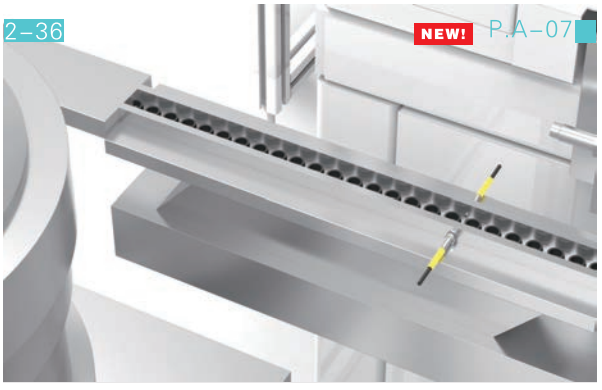
Terminal pin position detection **PE1-N & PD-32**

At the front end of the terminal assembly process, sensors detect the presence of terminal pins, outputting a signal to start the conveyor line, and drive the equipment cylinders to complete the combination of pins and terminals. The PD-32 is a high-precision diffuse reflection fiber optic component with a small size and high installation flexibility, making it capable of easily detecting tiny objects.



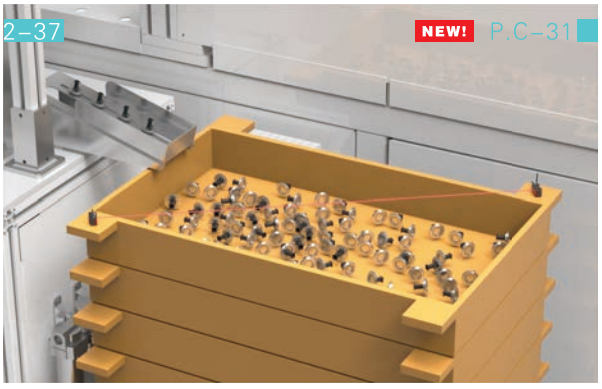
Capacitor cover plate loading and unloading detection **PE1-N & PT-32-I**

The capacitors are conveyed to this station through a vibratory feeder and guide rail. A sensor is used to detect the presence of the capacitor cover plate, and then the correct products are moved to the next station by means of loading and unloading cylinders.



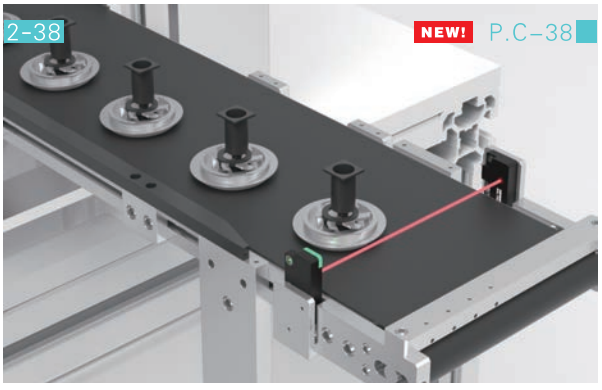
Blade cover and holder loading **PE1-N&PT-32-I**

The equipment conveys blade covers and holders in sequence using a vibratory feeder. The feeder operates at a fast feed rate, requiring a sensor with a high response frequency. PG1 features simple and convenient operation, anti-interference capabilities, high-speed response, and can meet the requirements for microsecond-level high-speed response.



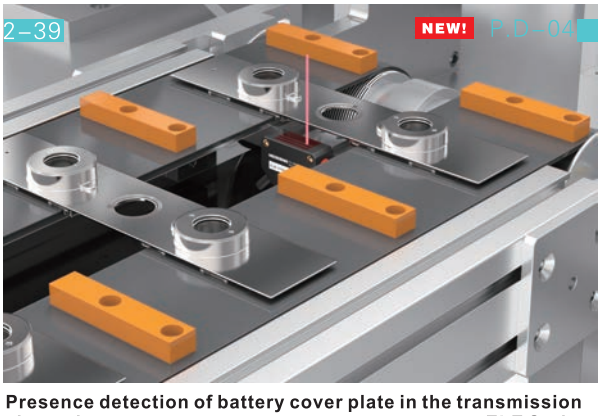
Defective product unloading tray detection **PTN-T50N**

The defective products after hot riveting are placed in the defective product unloading tray, and it is checked whether the tray is full. A small square through-beam photoelectric sensor is used, which has a compact structure and does not require additional installation space; the detection distance is 50cm, meeting the diagonal detection distance of the tray.



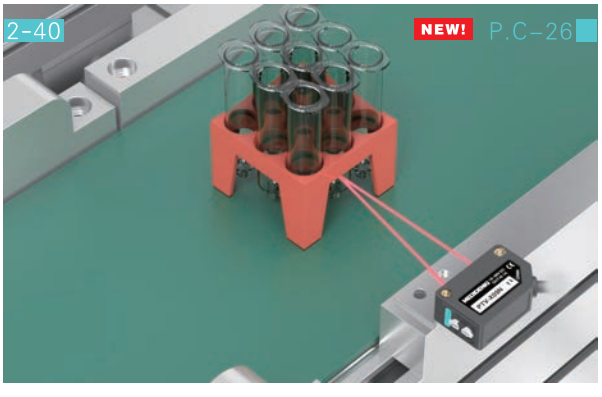
Good product unloading conveyor detection **ESL-TV50NO**

After assembly is completed and passes through quality inspection, there is a product-in-place detection on the good product unloading conveyor. Ultra-thin photoelectric sensors, with a thickness of only 4mm, are used to meet the on-site installation requirements.



Presence detection of battery cover plate in the transmission channel **ELE Series**

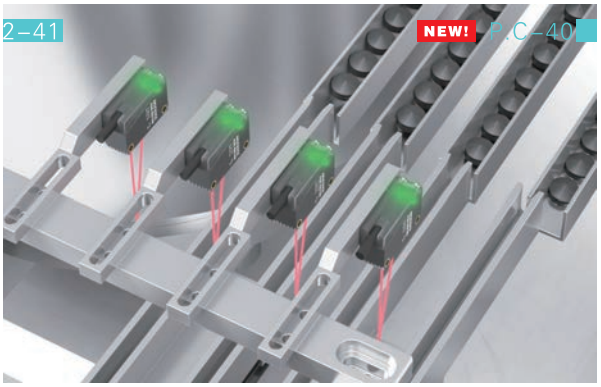
Presence detection of battery cover plates in the conveyor channel is required to ensure triggering of the mechanism for the next step action when the battery cover plate is in place. AKUSENSE laser sensors from the ELE series are chosen for this purpose. With a laser light source and an ultra-small beam spot, the maximum diameter of the beam spot is only 1.5mm, making it an ideal choice for long-distance detection of tiny objects.



Presence detection of syringes **PTV Series**

Detection of the presence of syringes on the conveyor plate, where the syringes are transparent, is achieved using AKUSENSE photo sensors from the PTV series. The sensors utilize the principle of limited reflection, making them less affected by the color, gloss, or tilt of the detected objects, ensuring strong stability.

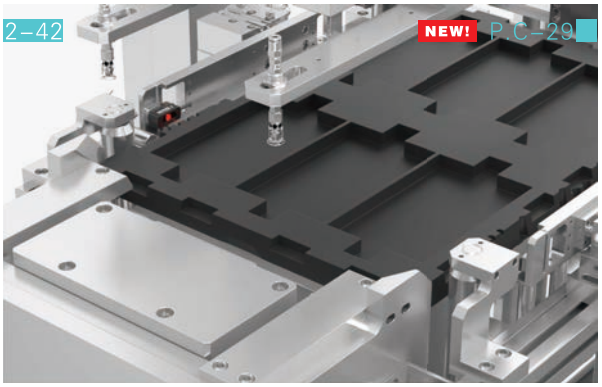
2–41 NEW! P.C–40



Presence detection of black plungers **ESB-BS15N**

A sensor is selected to monitor whether there is a black plunger in each feed channel. It is required that the sensor can reliably detect at a distance of 100mm; the response time needs to be less than 1ms; the ambient light around this workstation is strong, so the sensor should be resistant to strong light.

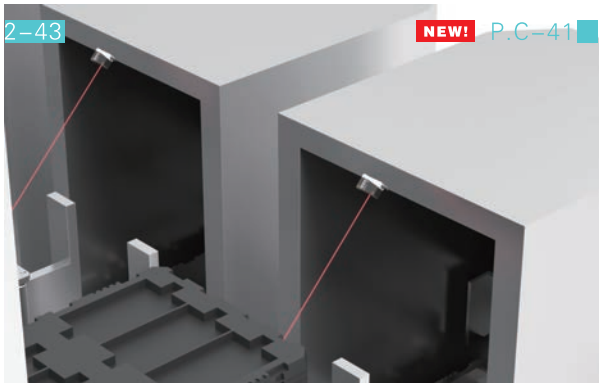
2–42 NEW! P.C–29



Presence detection of material tray No.1 **PTN-T150NO**

The material tray containing OLED flexible screens is transported to a fixed workstation on the equipment. A sensor detects the presence or absence of the material tray, then a moving cylinder guide rail moves the tray forward to the next workstation.

2–43 NEW! P.C–41



Presence detection of material tray No.2 **ESB-BL10N**

When the material tray advances to the loading position via the moving cylinder, the sensor detects whether there is a material tray on the raised workstation slot. If there is a material tray, the sensor signals the servo motor model, and the Z–axis of the tray rises.

2–44 NEW! P.A–07



Presence detection of silicon wafers **PE1-N&PT-32**

Based on the strength or absence of received light, it detects the presence of tiny objects. It is widely used in automation detection equipment, vibration disk equipment, and digital product assembly in large mechanical equipment, especially in limited installation space and harsh environments.

2–45 NEW! P.E–70

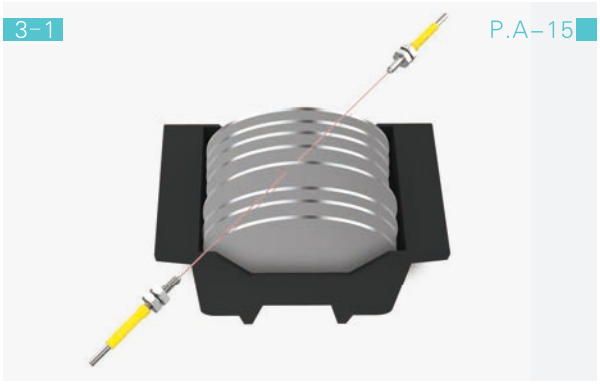


Virus preservation fluid level monitoring **CE15-13NO**

Install liquid sensor CE15–13NO on the outer wall of the main pipeline at the rear end of the peristaltic pump to monitor the presence or absence of liquid. When there is no liquid in the pipeline, the sensor sends a signal to alert the equipment to stop or trigger an alarm, preventing the loss of substandard liquid samples and avoiding the need for rework.

Safety confirmation

3-1 P.A-15



Chip fly-out inspection **PT-32**

Detect the floating of the wafer to prevent accidents.

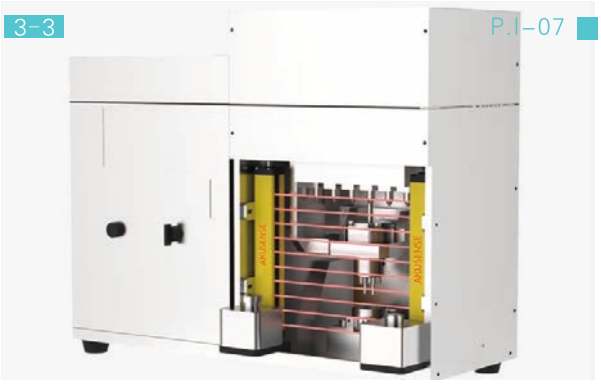
3-2 P.I-07



For stamping machine (verified product) **BML40**

Use light screen sensor to prevent accidents during stamping operation.

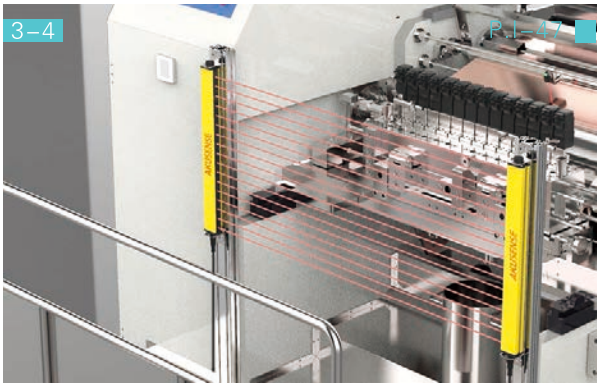
3-3 P.I-07



Mechanical safety operation protection **BML 40**

Install light curtain sensor to prevent improper operation and reduce accidents at work.

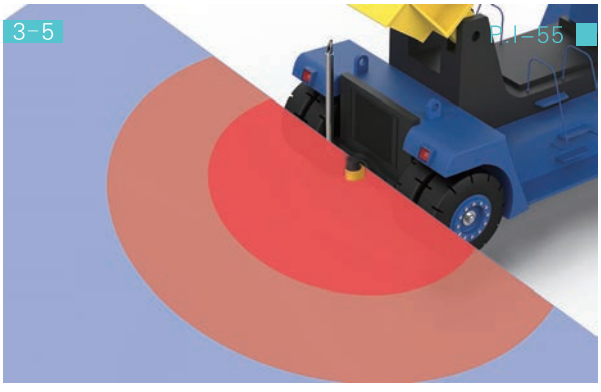
3-4 P.I-47



Safety protection **SAF Series**

Installed on both sides of the safety door of the coatingmachine for safety protection.

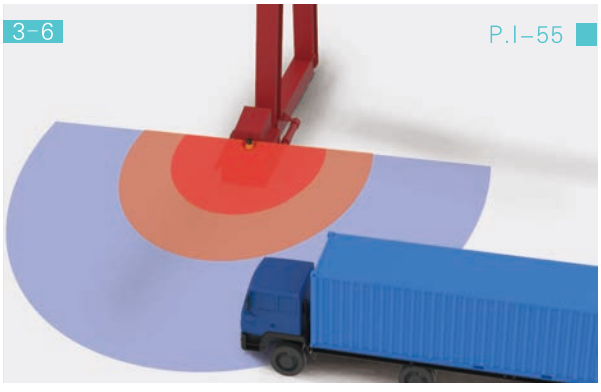
3-5 P.I-55



Anti-collision of construction machinery **AS-21C**

The collision avoidance system monitors the entire area behind the stacker day and night if an object enters. In the preset warning zone, the LiDAR provides the operator with an audible and visual warning signal.

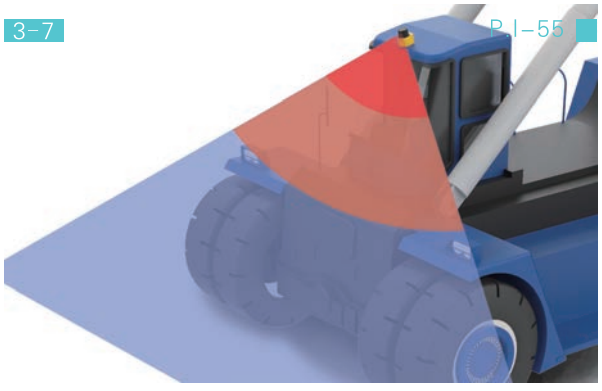
3-6 P.I-55



Anti-collision of the feet of the bridge crane **AS-21C**

It helps to avoid collisions between the bridge legs and other objects on the aisle, and helps the crane operator monitor the travel path and cross path.

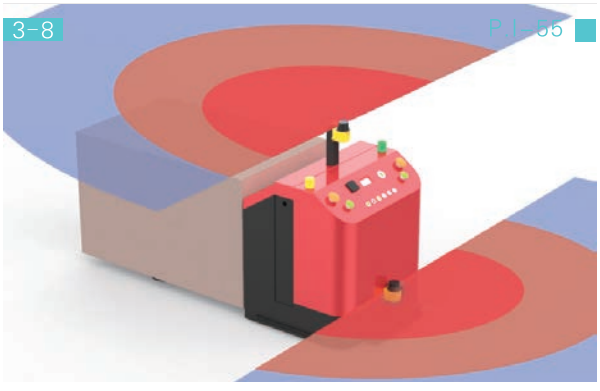
3-7 P.I-55



Crane collision avoidance **AS-21C**

The AS-21C LiDAR sensor has a detection range of 20 m. It helps crane operators avoid collisions between cranes and other objects.

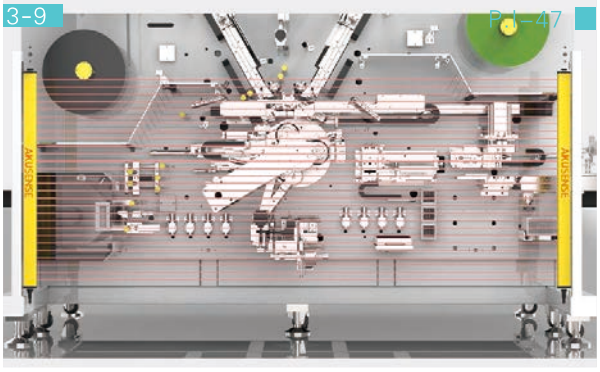
3-8 P.I-55



AGV navigation **AS-21C**

Avoid collisions between autopilot vehicles and other objects in the container yard. When an object is detected, the AGV will automatically slow down or stop.

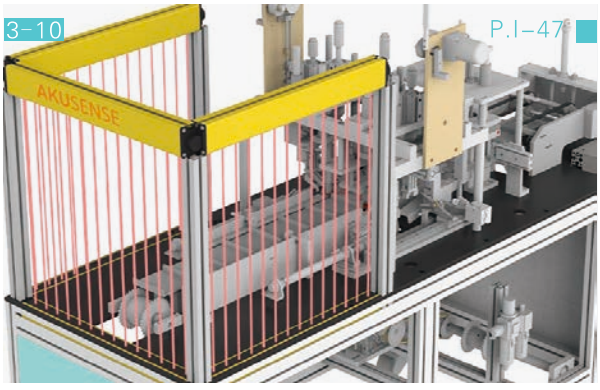
3-9 P.I-47



Lithium battery winding machine safety operation pretection **SAF Series**

Carry out safety protection during equipment operation to prevent personnel injury caused by personnel misoperation.

3-10 P.I-47



Safety grating to ensure the safety of U-shaped area **SAF Series**

SAF The series of safety light curtains can construct a safety U-shaped area that meets the requirements of humanization. Incorporate security control The device, using the photosensitive device activation function, can automatically start the process after the operator leaves safely.

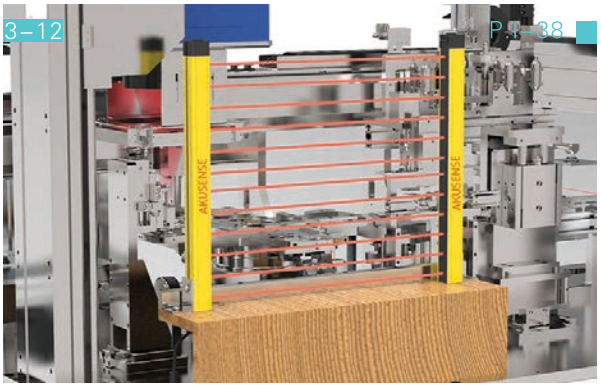
3-11 P.I-47



Entrance protection of the winding unit **SAF Series**

The continuous winding action of the material during the electrode production process may cause danger. The SAF series of safety light curtains can enough to reliably monitor the entrance of the winding unit.

3-12 P.I-38



Equipement safety operation protection **BSL Series**

Safety protection is carried out during the operation of the equipment to prevent the danger caused by personnel entering by mistake.

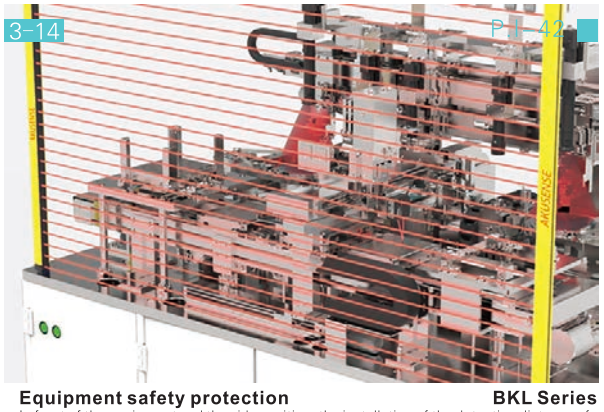
3-13 P.E-31



Detecting the opening and closing of metal doors around equipment **TQF18 Series**

Square proximity switches TQF18 series are installed around the equipment to detect the opening and closing of metal doors around the equipment with a detection distance of up to 8mm.

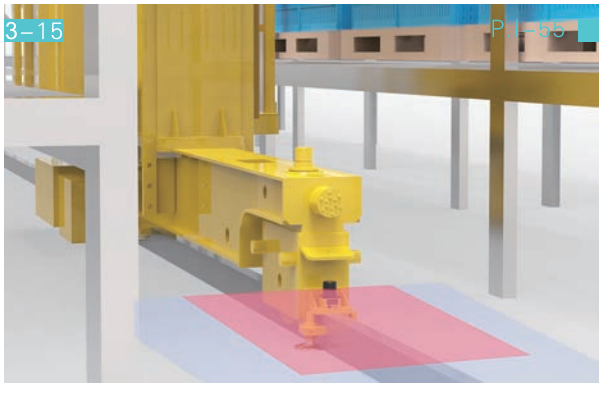
3-14 P.I-42



Equipment safety protection **BKL Series**

In front of the equipment and the side position, the installation of the detection distance of 0.1-6m economic BKL series safety light curtains, excellent structural design, anti-interference performance is good, can effectively prevent the occurrence of accidents caused by the operator's personal injury.

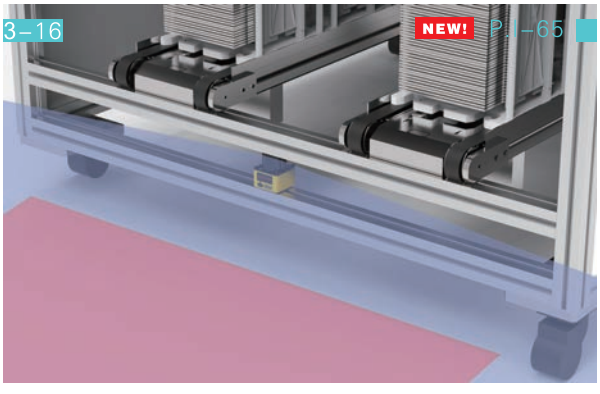
3-15 P.I-55



Stacker Lidar Safety Obstacle Avoidance **AS-21C**

After liquid injection, the soft battery packs need to be rested so that the electrolyte can be fully infiltrated, and the battery pack pallets need to be transported to the resting warehouse by stacker cranes, during which the radar AS-21C is utilized for safety obstacle avoidance protection.

3-16 NEW! P.I-65



Unmanned forklift safety obstacle avoidance **AS-33C**

Real-time and accurate distance measurement is conducted to achieve obstacle avoidance, preventing collisions with vehicles traveling in the aisle.

Safety confirmation

3-17 NEW! P.I-12



Area safety protection **BZL Series**

With AKUSENSE BZL series thin safety light curtain with millisecond-level response time, when foreign objects intrude into the protected area, the sensor sends an alarm signal to the machine, driving it to stop operation, thereby preventing injury to personnel in the workshop and avoiding interference with equipment operation.

3-18 NEW! P.I-42



Safety protection for equipment areas **BKL20-T1206N**

Utilizing AKUSENSE economical light curtain BKL series, which offers various light axis spacing and number of light axes to choose from, with fast response time and stable performance. It has strong resistance to light interference, capable of withstanding interference up to 10,000 lux, and is not affected by other ambient light interference on site.

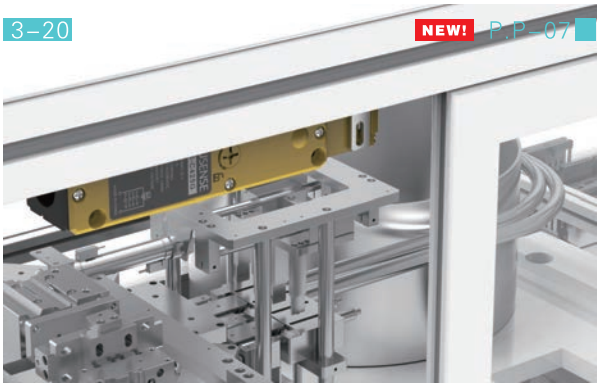
3-19 NEW! P.P-07



Protection module in place assurance **AR3 Series**

When the PVC liquid dissolved at high temperature flows through the pipeline to the injection mold, a protection module will be installed above the pipeline to prevent splashing of the high-temperature liquid. Install a safety door lock protection device with high tensile strength when locked, providing shield protection. Sensors are required to be dustproof, waterproof, and have strong shock resistance.

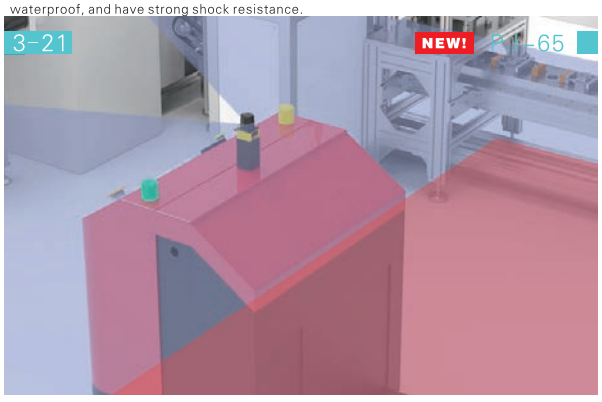
3-20 NEW! P.P-07



Cabin door switch status monitoring **AR3 Series**

Monitoring the switch status of the cabin door requires a safety switch with an independent actuating device to prevent the door from being opened.

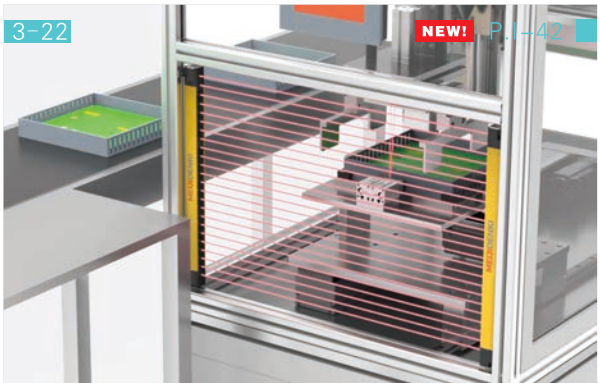
3-21 NEW! P.I-65



Unmanned forklift obstacle avoidance **AS-33C**

The route from the workshop to the packaging area and then to the finished goods warehouse is long, and the power batteries are heavy, necessitating the use of unmanned forklifts to improve internal logistics efficiency. Sensors are required to map the structure and terrain of the workshop environment and to perform emergency stop and avoidance actions when people or objects approach closely.

3-22 NEW! P.I-42



Area protection **BKL Series**

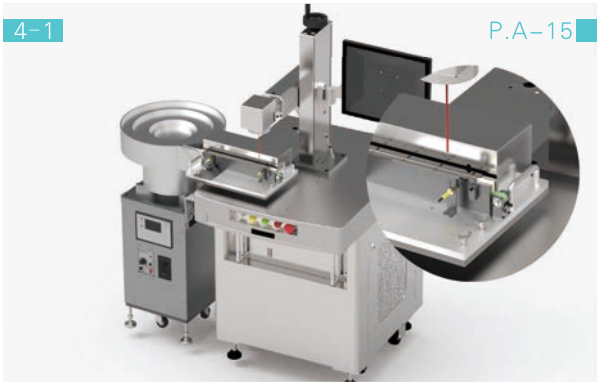
Safety light curtains are installed around the equipment to prevent personnel from accidentally entering and causing accidents. AKUSENSE BKL10-T4806NC is selected and customized for the equipment to provide protection at a tailored height. With a light beam spacing of 10mm, the light curtain will emit an alarm signal when an object passes through the protective area, alerting the operators to any anomalies in the equipment, effectively preventing unnecessary injuries and losses.

3-23 NEW! P.I-47



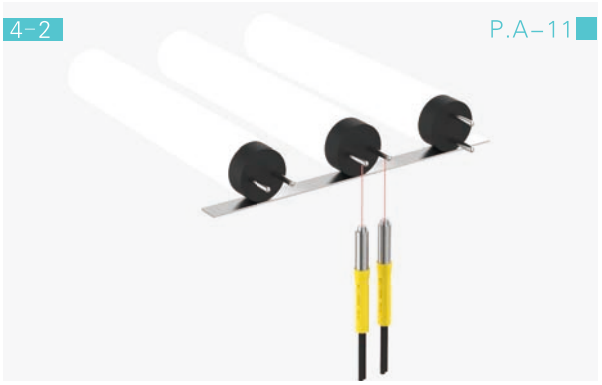
Protection of hazard zones, moving mechanisms, and other highrRisk areas **SAF Series**

Using AKUSENSE SAF series class 4 safety light curtain, with a super-long protection distance of 40 meters and high detection accuracy. It offers multiple beam spacing options to protect against finger injuries. Additionally, it is equipped with dual independent OSSD outputs and can individually drive lower safety relays. The dual-channel outputs do not interfere with each other, enhancing safety performance. It also boasts stronger anti-interference capabilities, including resistance to electromagnetic and optical interference.



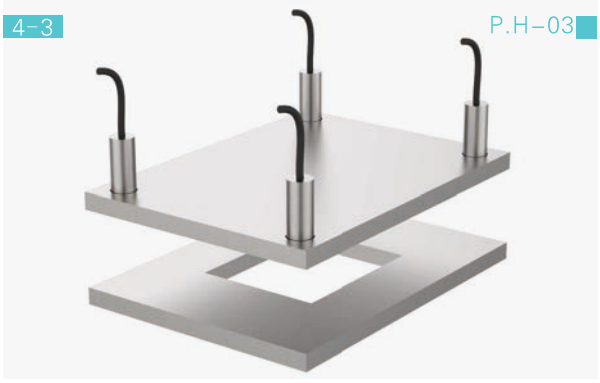
Opposite beam fiber inspection products are in place **PT-32**

Opposite optical fiber detection products in place.



Position detection of fluorescent tube **PD-62**

Position the printed mark on the fluorescent tube to detect the electrode.



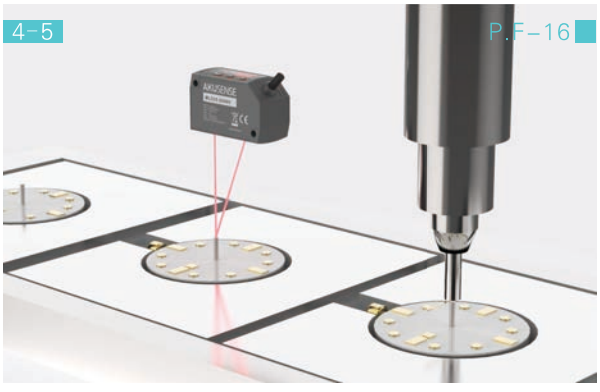
Positioning of the mask in the vacuum film forming device **MR-T8A**

Realize flatness detection of photomask.



Using precision positioning sensor for glass substrate positioning **MR-T8**

Measuring the basic flatness of glass.



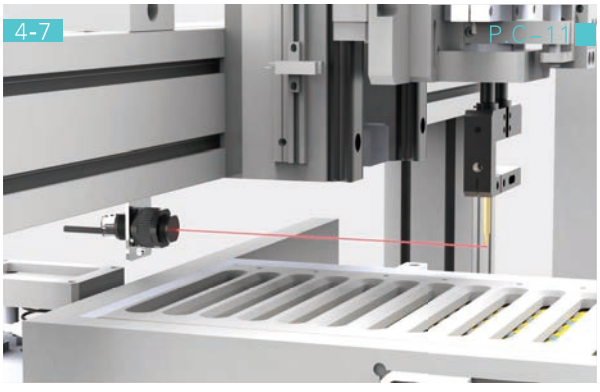
Accurate positioning of watch axis **MLD25 Series**

Use the point laser sensor to position the scale of the dial to realize the precise assembly of the dial.



Truck trailer positioning **AS-21C**

The AS-21C LiDAR sensor can be used to scan the stack of containers under the gantry crane to lock the container grab point..



Use diffuse reflection photoelectric inspection feed fixture **PSM18 Series**

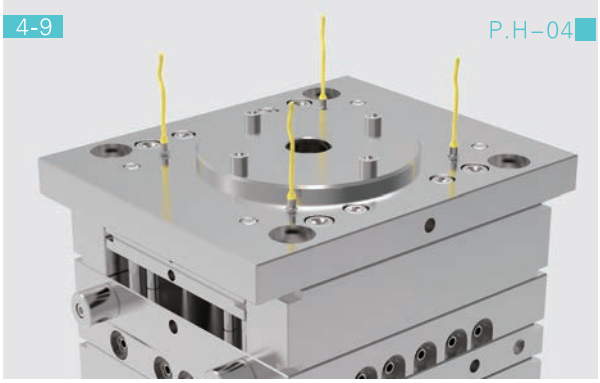
In industrial automation production lines, the restrictive position state of the feeder fixture is critical. With PM18 diffuse reflective photoelectric sensors,detects stablely the feeder fixture in place, thus preventing damage to expensive attachment heads.



Flexible cylinder positioning **MR-C92**

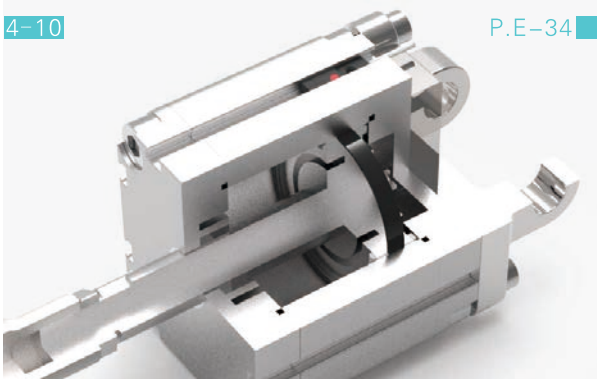
In the process of picking and placing components, ultra-thin components are gradually superimposed, and the cylinder sensor can be used to detect Measuring height up to 0.05 mm The components, and have good repeatability.

Positioning



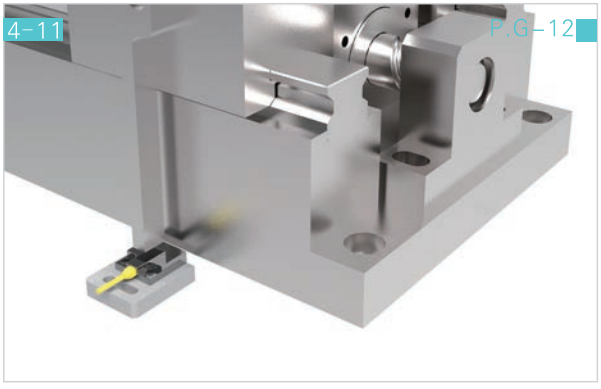
Thrimble reset detection **MR-T6**

use MR a series of contact sensors detect whether the ejector pin in the stamping die is reset.



Positioning of tiny square inductive cylinder **TEN10**

The use of tiny square inductors can detect heights up to 0.05mm The components, and have good repeatability.



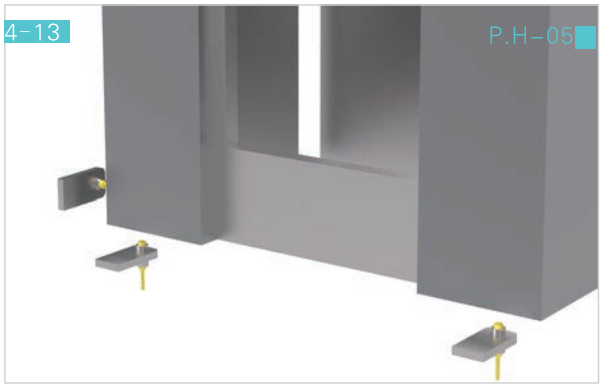
Linear module origin detection **MR-P4**

The linear sensor is used to detect the origin of the module, which is convenient for installation and accurate positioning.



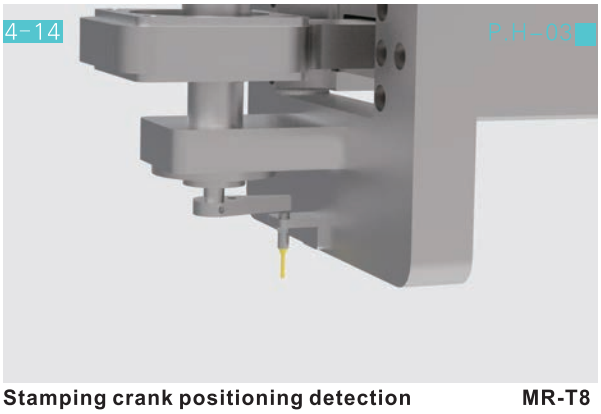
Detecting the rotation status of the wafer tray rotary table **SL-205 Series**

SL-205 series slot photocells are mounted on the side of the base rotary table in the wafer tray placement position to detect the rotation status of the wafer tray rotary table with an accuracy of 0.01mm. when the rotary table completes the motion within the set range, the slot photocell senses and sends out a signal to indicate the next motion.



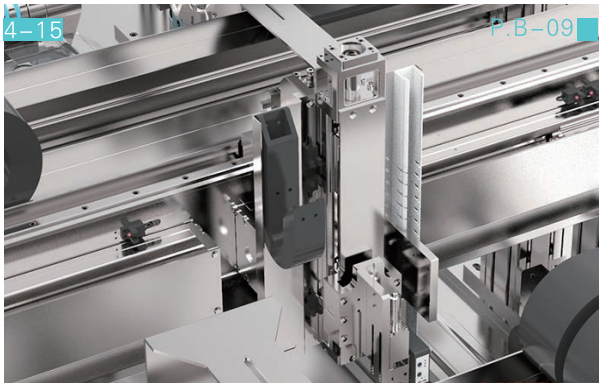
Positioning of safety door of CNC machine tool **MR-T5Z**

Use the contact sensor to detect the position of the safety door of the CNC machine tool to ensure that the safety door is closed when the machine tool is working.



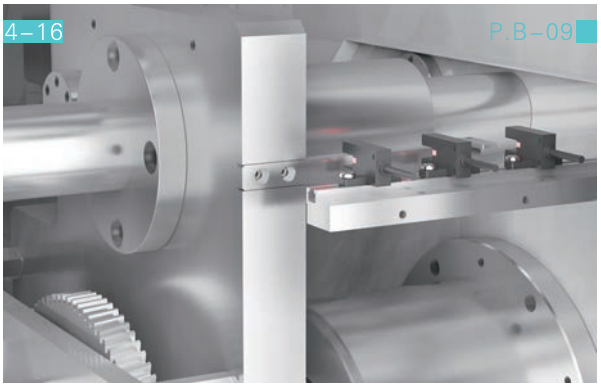
Stamping crank positioning detection **MR-T8**

A contact sensor is used to detect the positioning of the stamping crank.



Precise control of the home and limit positions of the mechanism's movement **SY-307 Series**

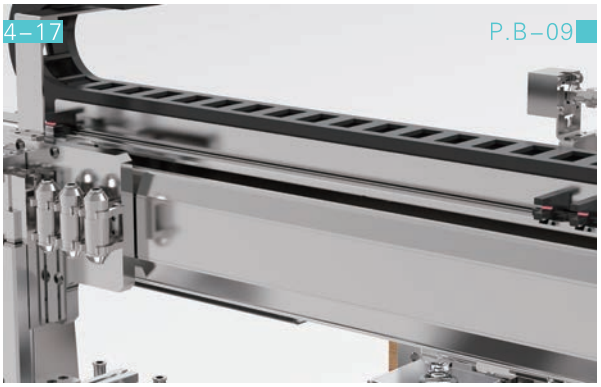
Slot sensors are mounted at both ends of the mechanism module and act as the "joints" of the mechanism, precisely controlling the home and limiting positions of the mechanism's movement.



Position control such as positioning limit of the motion mechanism module **ST-303 Series**

The motion mechanism of the equipment is complex, and slot sensors with a variety of housing are commonly used in multiple stations of the equipment to perform position control such as positioning and limiting of the motion mechanism module.

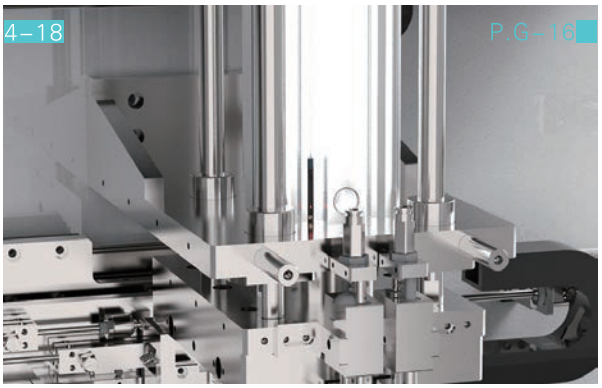
4–17 P.B–09



Position and limit of the motion mechanism module
ST-303 Series

It is applied to position the limit of the motion mechanism module.

4–18 P.G–16



Detect cylinder position **MR-C8 Series**

Applied to the upper limit of the cylinder module, the magnetic sensor detects to control the cylinder position.

4–19 P.G–16



Cylinder module upper limit **MR-C8 Series**

Applied to the upper limit of the cylinder module, the magnetic sensor detects the position of the cylinder to control the lifting and falling of the cylinder.

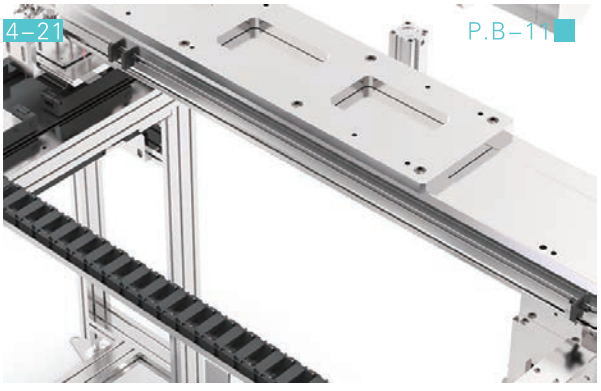
4–20 P.E–31



Control the origin and limit position of the top mechanism **TQF/N Series**

After the material box comes from the transmission line, it arrives at the loading station, and the motor moves the upper material box jig to a predetermined position. During this process, the proximity switch controls the origin and limit position of the upper mechanism.

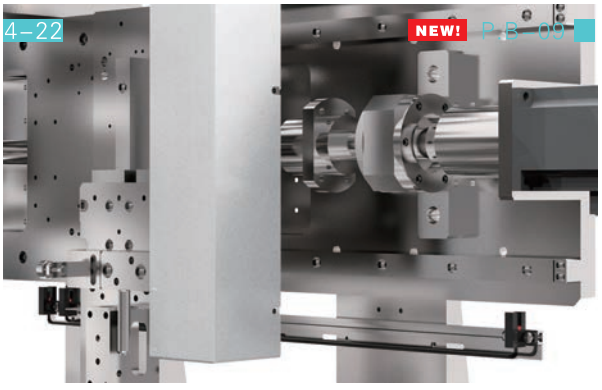
4–21 P.B–11



Limit the position of movement of the cylinder connecting rod **TL Series**

The proximity switch is used to detect the up and down movement of the cylinder connecting rod to limit the position.

4–22 NEW! P.B–09



Position control of the mechanism module
ST-303 Series

It is widely used in multiple points inside the machine to control the origin and limit position of the mechanism module, and control the position of the roller shaft.

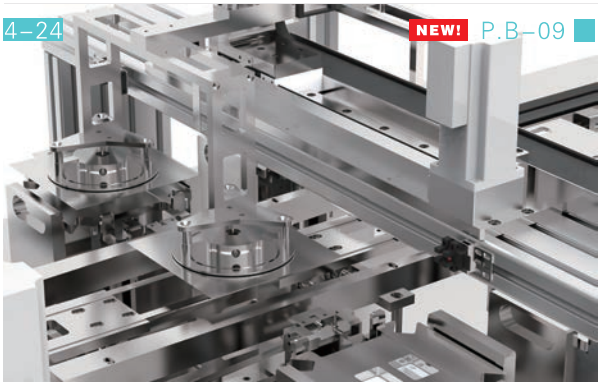
4–23 NEW! P.C–40



Photovoltaic panel loading and unloading (Back End)
ESB-BS15 Series

In the back end process of photovoltaic production, sensors are required to locate the loading and unloading of photovoltaic panels. Background suppression photoelectric sensors are used, which are not affected by any color, ensuring the stability of sensor positioning for all types of materials.

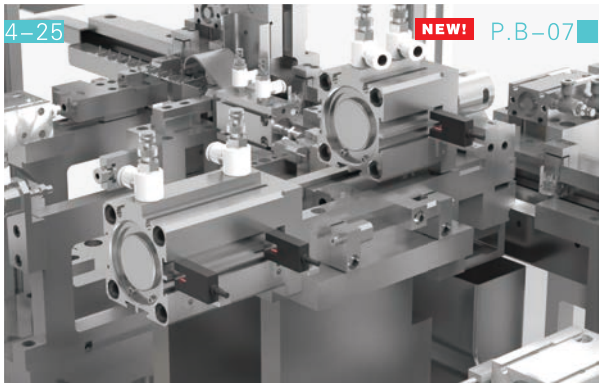
4–24 NEW! P.B–09



Mechanism module limitation detection **ST-303 Series**

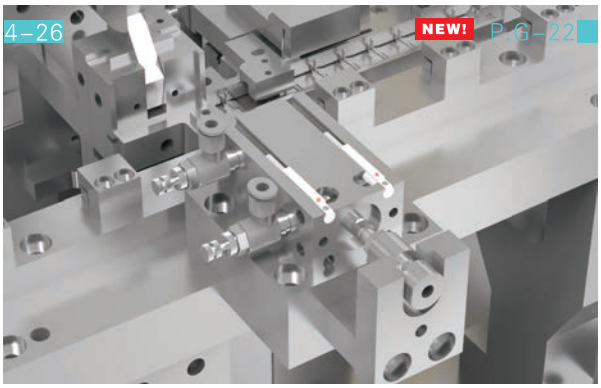
Detecting the extreme positions of the module movement, requiring high repeatability. The ST–303 series slot–type sensor offers a repeat accuracy of up to 0.01mm, enabling precise detection of the module's movement position.

Positioning



Mechanism motion positioning detection **SR-304NA-SW**

Install sensors to detect the linear motor's position during movement. With the mechanism operating at high speed, ensuring precise positioning requires sensors with high repeatability and fast response time. This slot–type sensor has excellent anti–interference performance, utilizing a through–beam detection principle, ensuring stability.



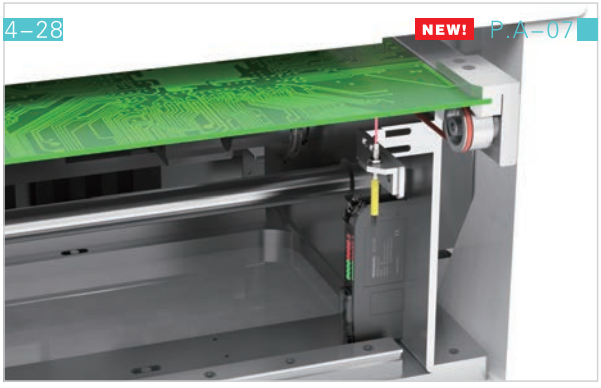
Cylinder motion position detection **MR-C80 Series**

Detect whether the advancing cylinder has reached its designated position. Since the cylinder moves quickly, sensors with fast response times, reaching microseconds, are required. The MR series of cylinder sensors, known for their high positioning accuracy and reliable performance, are employed for this purpose. They also feature surge absorption protection for added reliability.



Arc-shaped tray transfer detection **PTV-T500N**

When the arc–shaped tray reaches the designated position, the sensor detects whether the tray is in place. When the tray is in place, it triggers the next step in the process. Utilizing the through–beam photoelectric principle, the sensor is not affected by the color/surface condition/background interference of the object being measured.



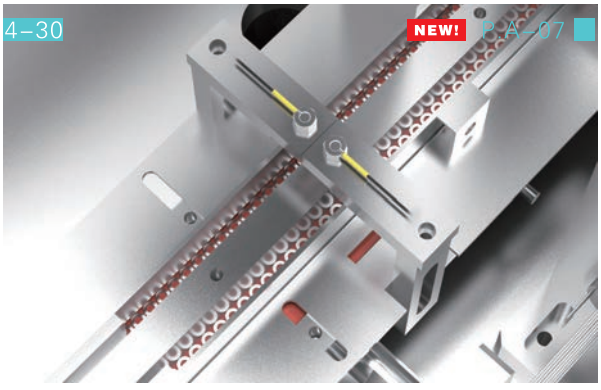
Outgoing circuit board position detection **PE1&PD-C42**

The fiber optic sensor PE1 detects the presence of PCB boards and sends a signal to the feeder end of the placement machine. The fiber optic head PD–C42 belongs to coaxial fiber optics, which performs more stable detection compared to non–coaxial fiber optics.



Cylinder up/down position detection **TQN17-08NO**

When the upper process of the material is completed, the cylinder will move up and down, driving the upper and lower grippers to pick up the material and transport it to the next workstation. Sensors detect any changes in the position of the cylinder.



Nut feeding detection **PE1-N& PD-C32TZ**

The product passes through the vibratory feeder guide rail and is conveyed to this workstation. A sensor is used to detect whether the nut is in place, triggering a signal to the upper computer for counting purposes.



Clamping/pressing of blade cover and blade holder **MR-C80**

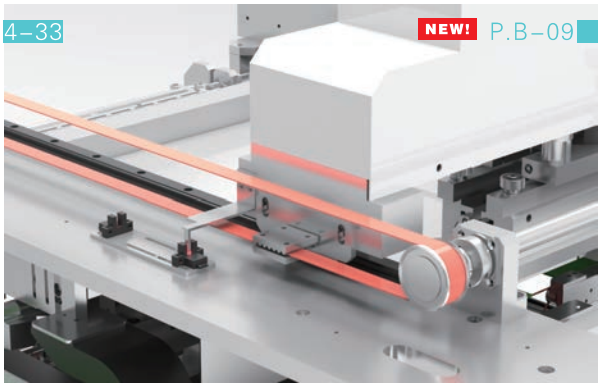
The mechanism employs cylinders for motion control, requiring sensors that match cylinder position detection. The MR–C80 high–precision magnetic sensor is used to accurately control the motion position of the cylinder.



Turntable position control **TEN15-05NO**

This platform operates in real–time rotation mode, allowing for multi–station operations including clamping and pressing of the tool holder. The turntable is made of metal structure, requiring no specific detection distance, hence the proximity sensor fits. Its 1KHz response frequency ensures precise control of the platform position.

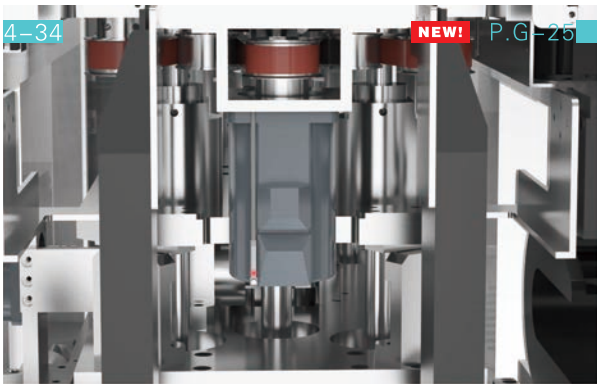
4–33 NEW! P.B–09



Mechanical Limitation **SL-305NA Series**

Slot–type sensors are distributed throughout various joints of the printing machine for mechanical limitation. Therefore, they require extremely flexible response speeds, being both compact and sensitive.

4–34 NEW! P.G–25



Workbench position detection **MR-70N**

The circuit board will ascend with the workbench to the corresponding position to allow for perfect application of solder paste. Here, a sensitive magnetic sensor will detect whether the workbench has ascended to the correct position. After printing is complete, it will descend to the discharge port.

4–35 NEW! P.F–14



Solder paste thickness control **MLD23-100 Series**

The MLD23 series laser displacement product is selected for its ability to effectively detect the current height parameters of the solder paste, providing this data to the upper–level machine or controller for automated solder paste dispensing.

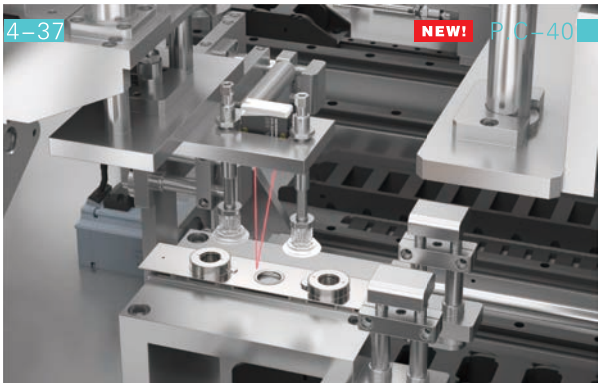
4–36 NEW! P.F–14



Cylinder downward position detection **MLD23-30NP**

When the cylinder presses down to clamp the product, a laser displacement sensor is utilized to detect the downward position of the cylinder, and it outputs a signal to determine whether it has pressed down into place.

4–37 NEW! P.C–40



Battery cover plate material position detection **ESB Series**

The sensor does not provide a signal until the battery cover plate is in position. Once the cylinder descends 10mm to pick up the battery cover plate, the sensor sends a signal to proceed to the next workstation.

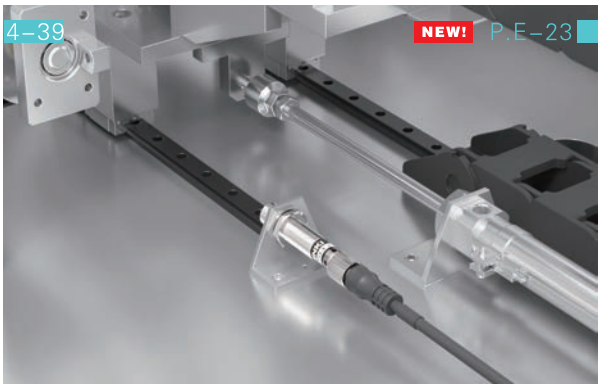
4–38 NEW! P.B–09



Stepper motor position detection **SL-305PA-SE**

A slot–type sensor is chosen to detect when the motor is in position. Once detected, it sends a signal to trigger the motor to stop, awaiting the next movement. The preferred slot–type photoelectric sensor chosen for mechanical limitation is SL–305PA–SE, known for its high response frequency and stable performance based on through–beam detection principle.

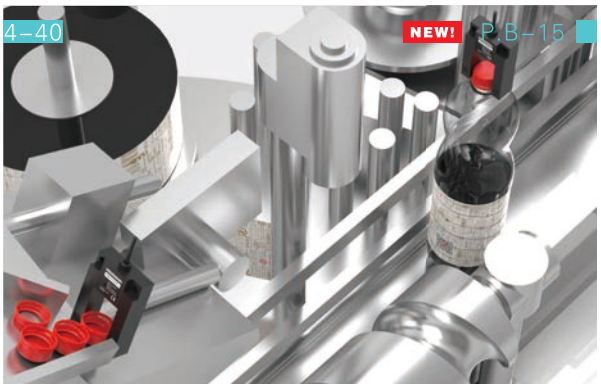
4–39 NEW! P.E–23



Detection of cylinder extension and retraction completeness **TLF12-04PO-E2**

A proximity sensor is selected to detect whether the extension action of the flipping cylinder is in place. When the sensor detects the movement of the carriage, it sends a signal, prompting the upper cylinder to press down on the battery cover plate for shaping.

4–40 NEW! P.B–15



Bottle cap position detection **KIM30-0304P-J**

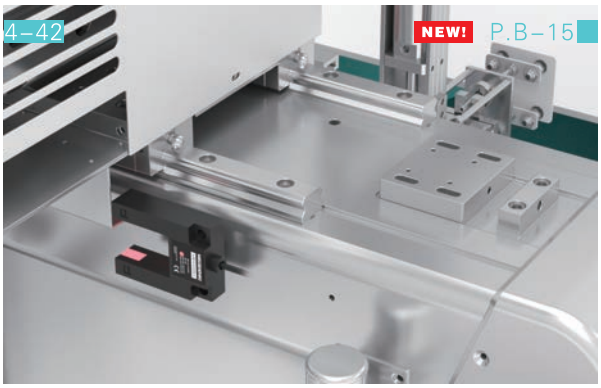
To ensure that the bottle cap is placed in position before sealing, sensors are needed to confirm the presence of the material. Two wide slot sensors from the KIM30 series are used for this purpose. The first sensor checks whether the bottle cap is present in the input area and whether its position is correct. The second sensor checks whether the bottle cap is correctly positioned on the bottle.

Positioning



Cylinder Extension Position Detection **MR-C81**

When the material box enters the waiting area of the assembly line, the cylinder will extend to perform the blocking action. It is necessary to use a cylinder sensor to detect whether the extension action is in place.



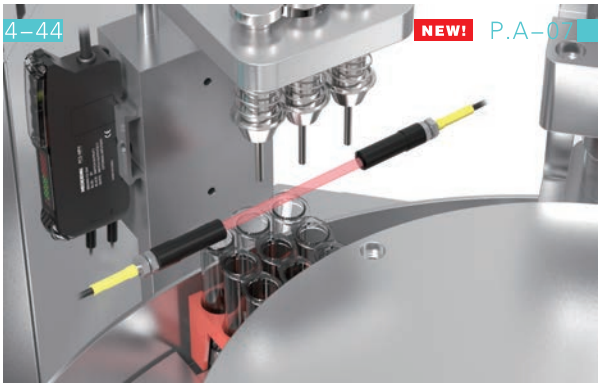
Servo module position in place detection **KIM30-0304N-J**

After the injection mold is formed, the servo module will move to a fixed position to pick up the finished product and place it in the material box. A slot–type sensor is used to detect whether the movement action is in place. The response speed is less than 0.6ms, with high detection accuracy and repeatability of 0.01mm. Output mode is optional.



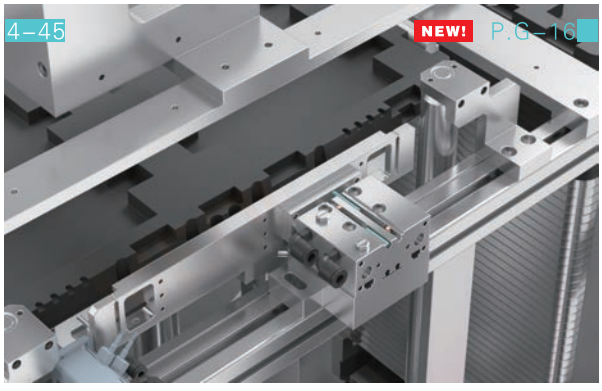
Detecting rotary arm position **TQF18-05NO**

When the rotary arm removes/changes another batch of injectors from the conveyor, it is necessary to choose a sensor to detect whether the rotary arm has reached its final position.



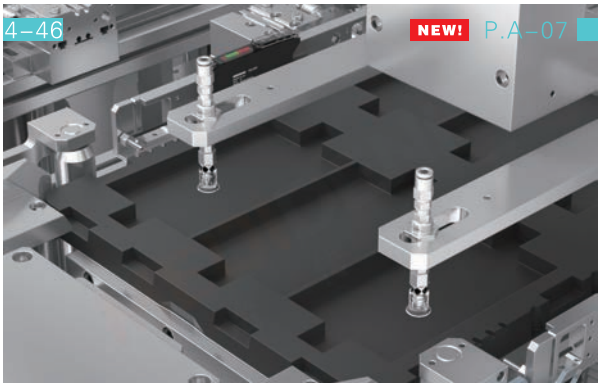
Blow needle in-place detection **PE1&PT-32&PF-4T**

Using a fine beam of fiber optic sensor to detect whether the blow needle returns to its starting position correctly. The PE1 amplifier adjusts parameters precisely via a digital display screen, supporting high–speed stable detection even during movement with microsecond–level response speed.



Detecting the position of the material tray **MR-C8-C-N**

The material tray advances for loading or retracts for unloading via a moving cylinder guide. A cylinder sensor is used to detect whether the tray has advanced or retracted into place. If the loading position is reached, the equipment proceeds with the next workstation action.



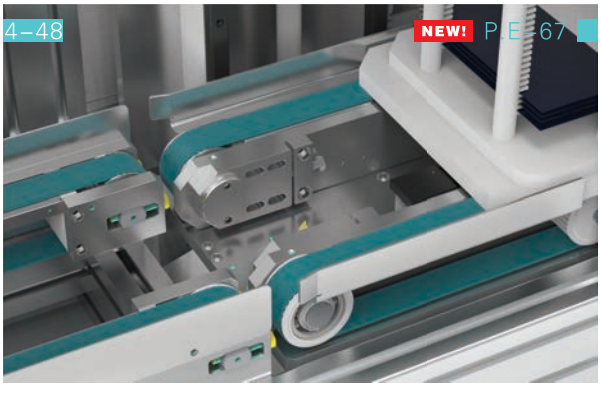
Detecting whether the material tray is in position **PE1-N&PD-C32TZ**

Servo motor controls the upward movement of the Z–axis for the material tray. Two sets of sensors are installed on either side of the tray: one set for detecting the position and the other for limiting. When the material tray ascends to the height where the robotic arm can retrieve the material, it sends a signal indicating it's in position and prevents further ascent of the material tray. Subsequently, the cylinder clamps the material tray.



Mechanism limit **ST-303N-SE**

Servo motor controls the upward or downward movement of the Z–axis for the material tray, which requires limit sensing using slot–type sensors. It's necessary to install one slot–type photoelectric sensor each for the positive limit (upward), the origin, and the negative limit (downward) on the mechanism to detect the movement of the material tray. If the servo motor exceeds the positive or negative limit, it stops moving, and an abnormal alarm is received by the touch screen.



Silicon wafer in place **CQ07-10NO**

CQ07–10NO sensor is used for silicon wafer detection on the production line. When the silicon wafer is detected in place, the sensor sends a signal to drive the motor for transportation. The flat capacitive proximity sensor CQ07 series is selected, which is not easily affected by the material being detected (except for insulating materials). The larger the dielectric constant of the detected material, the longer the sensing distance.

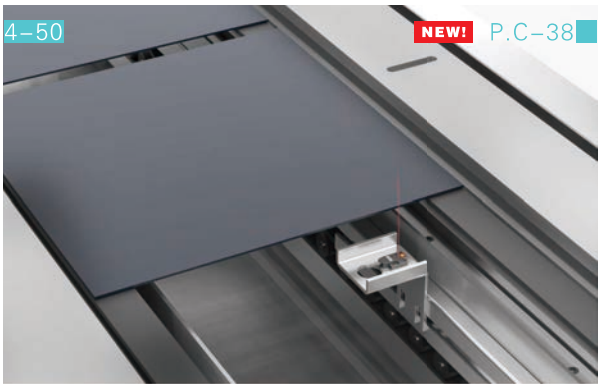
4–49 NEW! P.C–29



Basket positioning and forward/reverse detection PTN Series

In the velvet cleaning equipment, sensors are required to position and detect the orientation of the basket carrying silicon wafers. Due to space constraints for equipment installation, smaller–sized photoelectric sensors are needed for the detection on the initial section of the conveyor line.

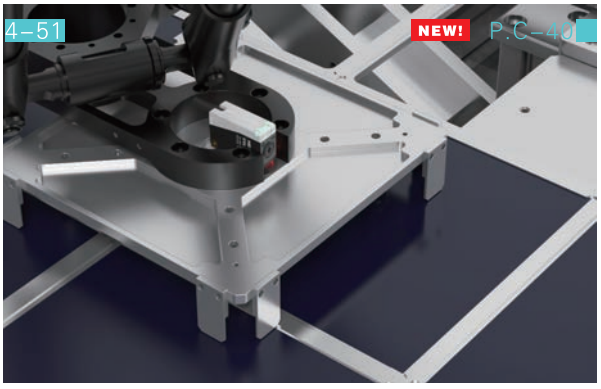
4–50 NEW! P.C–38



Silicon wafer in-place detection ESL Series

Sensors are installed in equipment with limited space to detect the positioning of silicon wafers. When a longer detection distance is required, the Akusense ultra–thin series photoelectric sensor ESL series can be chosen. With a thickness of only 3.5mm, this product offers superior performance and can reliably detect the positioning of silicon wafers, making it highly suitable for installations with restricted space.

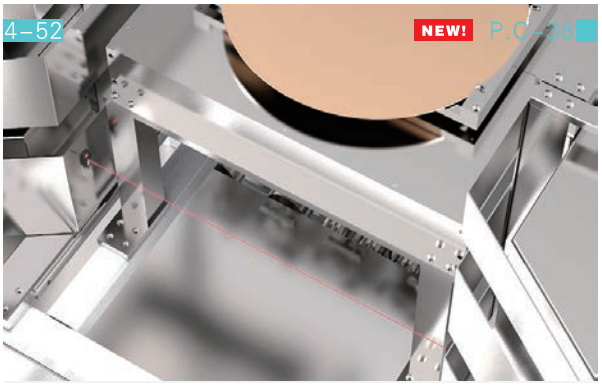
4–51 NEW! P.C–40



Battery cell in-place detection ESB-BS30 Series

After the basket rotates 90° , it's necessary to detect and confirm whether the rotation is completed. The sensor needs to pass through a 20mm hole for detection. It requires a small beam spot and the capability to shield detection of objects outside the target distance.

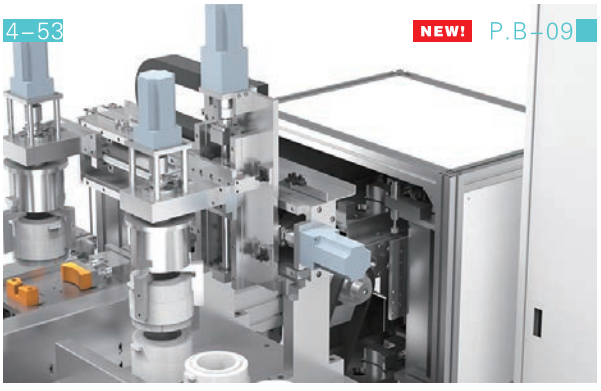
4–52 NEW! P.C–38



Lower limit detection for box loading platform ESL-TV50NO

With an ultra–thin design, it's only 4mm thick, making it suitable for installation in narrow spaces. It employs the principle of through–beam detection, ensuring stability and reliability. With a detection distance of up to 50cm, it can be used in various equipment scenarios regardless of size.

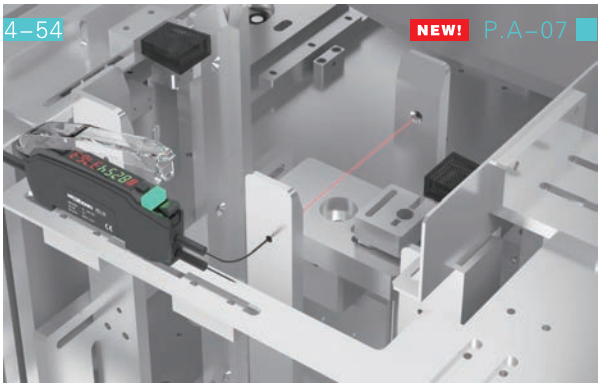
4–53 NEW! P.B–09



Elevator in-place detection SL-305 Series

It enables real–time control of the origin and limit positions of equipment motion modules. With a slot–type sensor product line and integrated chip solution, they offer a repeatable positioning accuracy of 0.01mm, ensuring more precise position control for the equipment.

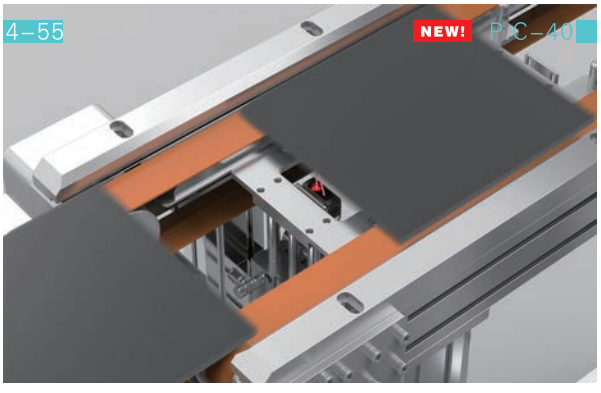
4–54 NEW! P.A–07



Detecting the presence of positive and negative electrodes PE1+PT-R58V

The sensor detects the position of the battery electrodes, triggering the next operation upon sensing the electrodes are in place. The detection distance ranges from a few millimeters to several tens of millimeters. Optical fiber sensors are selected, with the compact PE1 amplifier paired with the PT–R58V component, making installation simple and offering high flexibility.

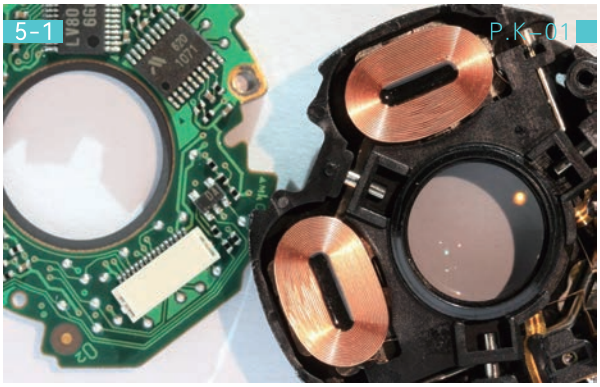
4–55 NEW! P.C–40



Silicon wafer identification via ESB-BS30 Series

Within a fully automated track, sensors are needed to recognize whether silicon wafers pass through the track normally and to send signals to the mechanism for the next processing step.

AI Image Recognition



Wireless headset charging coil detection

Project Overview

The customer hopes to introduce AI technology in the production process for appearance Defect detection to improve product quality and reduce returnRepair rate.
There are more than 20 types of items to be inspected, inspection area And there are many types and high accuracy requirements.

>=99.0% Detection rate

<=1% Inspection rate

Processing speed <=0.2 sec/chip, 25,000+ AI full inspection per production line per day, 95% labor cost reduction.

Solutions and application effects

According to the defect category, the inspection area of the material is divided intoSeven, using the detection and segmentation module of AKUSENSE AIVS to construct Build optimization.



Appearance inspection of core components of wireless charger

Project Overview

The customer of this project is a well-known domestic wireless communication equipment provider. In the device production process, the quality and efficiency of appearance inspection are required to be high, and the manpower input is large, so it is urgent to replace manpower with automated equipment. The inspection sub-categories required by the project include moon glue offset, crush injury, broken, foreign body, wrinkled, 2D code offset, 2D code missing, 2D code printing defect, etc.

>=99.0%

<=1%

Processing speed <=0.3 sec/slice, daily average processing 10 parties + to achieve AI full inspection, detection efficiency increased by 2 times.

Solutions and application effects

Using modules such as AKUSENSE AIVS classification, segmentation, and QR code recognition to create AI appearance defect detection automation equipment, which provides OK/NG material differentiation, 14 categories of fine defect detection for NG materials and 6 categories of sub-assembly trays, etc., to comprehensively improve production line inspection efficiency and provide data for manufacturing process analysis.



Smartwatch character recognition

Project Overview

Before a smartwatch enters the sales process, the manufacturer will assign a unique material number to each product for product tracking and after-sales service. The manufacturer was slow to introduce traditional OCR technology because the length of the engraved material was usually less than 5mm, the engraving form varied, and the number recognition accuracy rate required was as high as 99%.

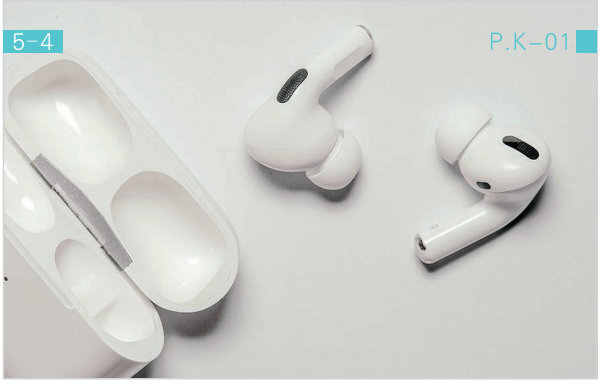
>=99.0% Overall recognition rate

>=99.9% Character recognition rate

Processing speed <=0.1 sec/pc, daily average processing 170,000+ materials to achieve fully automated identification of the production line.

Solutions and application effects

The AI OCR recognition module of MEIJIDENKI AIVS performs character recognition of materials and can be adapted to special backgrounds and engraving processes.



Character Recognition of Wireless Headphone Components

Project Overview

Manufacturers purchase raw materials from multiple suppliers and have to track materials in warehousing and production, so they need to introduce systems that can recognize and are compatible with multiple characters, and can solve various situations such as multiple lines in characters, vertical lines, and reverse codes to track production materials in warehousing.

>=98% Overall recognition rate

<=0.1 sec/slice processing speed

Average daily inspection of 16,000+ parts successfully replaced the customer's previous high-cost complex solution with multiple stations and cameras.

Solutions and application effects

OCR recognition module based on AKUSENSE AIVS, equipped with intelligent all-in-one machine, provides integrated software and hardware solutions for character recognition of materials and is compatible with a variety of material backgrounds and engraving processes.

5-5 P.K-01



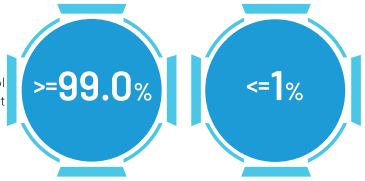
Camera filter appearance inspection

Project Overview

There will be a lot of defects in the filter manufacturing process.
In the latter part of the production line,there are currently 30-40 people for visual inspection. In order to save labor cost and improve quality control quality,this project is equipped with a complete set of automatic visual inspection system.

Solutions and application effects

Provide a complete set of visual inspection system, including: optical hardware selection, software interface design and AI algorithm implementation. The AI vision system can increase the detection efficiency to 80k/h, and each machine can replace about 2 people.



By AI vision system, the detection efficiency can be increased to 80k/h, each machine can replace about 2 people, and the detection rate of AI reading can reach more than 99%.

5-6 P.K-01



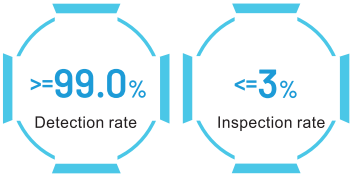
Defect detection of gearbox bearings

Project Overview

This project requires the inspection of bearings for defects such as knocks and scratches, as well as the rejection of a variety of interfering factors, such as unclean surfaces, the presence of antirust oil, fibers, hair, etc.

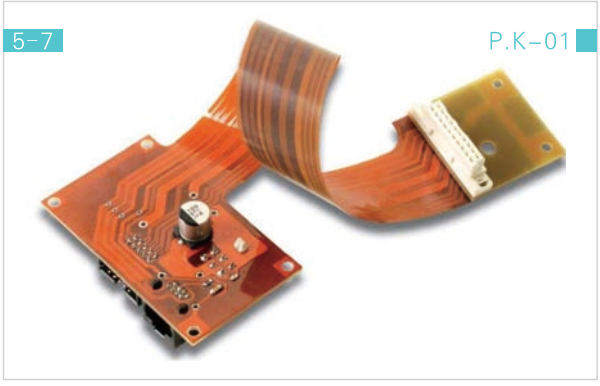
Solutions and application effects

Based on the AKUSENSE AIVS detection module, a variety of sub-category detection is achieved.



Processing speed of production line <=0.2 sec/chip, daily average processing 20,000+ to achieve AI full inspection, 80% labor cost saving.

5-7 P.K-01



Defect detection of FPC soft board

Project Overview

In the FPC flexible circuit board manufacturing process, defects such asforeign matter, scratches, and indentation will be generated. The customer hopes to configure an AVI inspection equipment to replace the manpower to do the appearance inspection of the defective items and automatically sort the defective items.

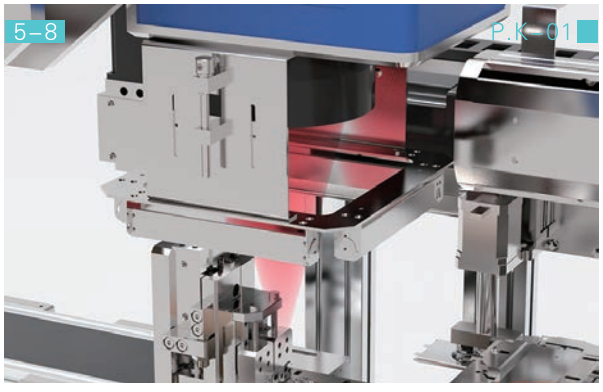
Solutions and application effects

Provide a complete set of automation equipment, including: structural design, motion control, optical imaging, software architecture design and AI algorithm implementation.



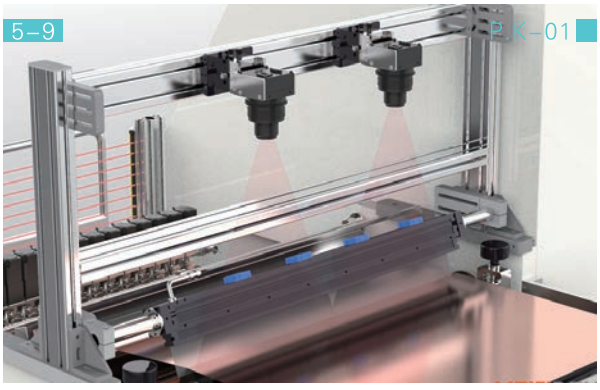
The average daily production capacity of fully automated AOI equipment can be increased to 26.4k/day, each machine can replace 18 people, and the detection rate of fully automated AOI equipment is as high as 99%.

5-8 P.K-01



Positioning and tracking of lithium battery
Use the camera to locate and track the lithium battery, and to detect product defects.

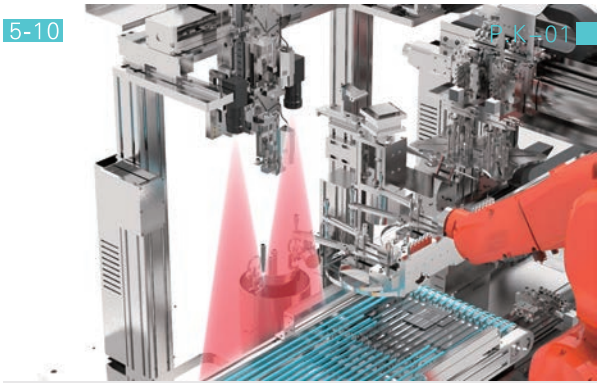
5-9 P.K-01



Defect detection of pole piece after rolling
Detecting the surface defects of the pole piece after rolling, such as bubbles,wrinkles, dust, large lint, etc.

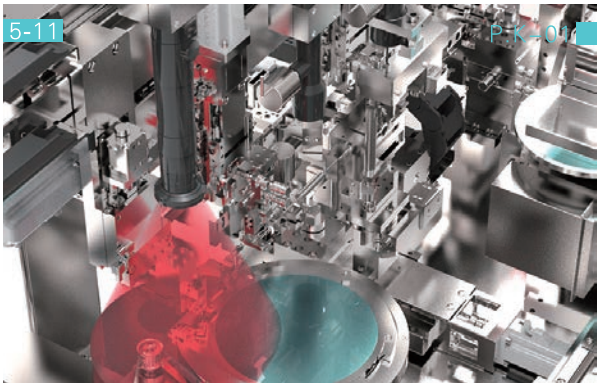
AI Image Recognition

5-10 P.K-01



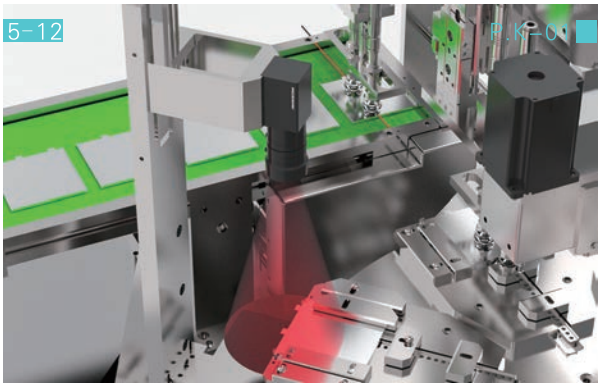
Product Mark Positioning - Visual Inspection
The camera is mounted above the uv dispensing station to recognize and locate the mark of the cell phone screen.

5-11 P.K-01



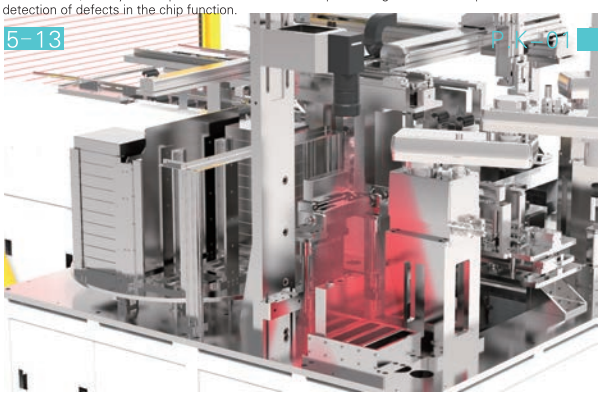
Vision camera detects the position of wafers on the wafer tray
The vision system of the solid crystal machine determines the speed and accuracy of the equipment to take the solid crystal, in the wafer plate placement position and solid crystal table directly above the installation of vision cameras to detect the position of the wafer on the wafer plate, as well as detecting the position of the substrate on the workbench and the position of the solid crystal point on the substrate, mainly to complete the identification and positioning of the LED chip as well as the detection of defects in the chip function.

5-12 P.K-01



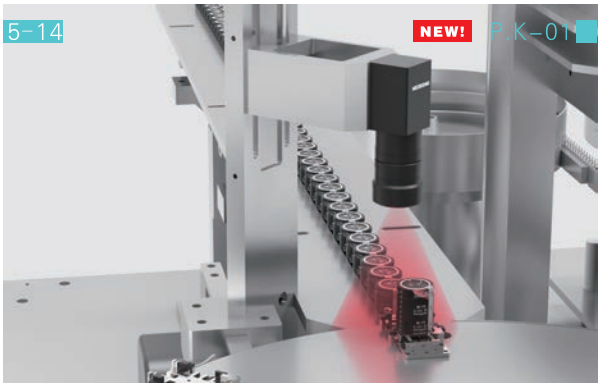
Detecting whether the cut length of pole lugs is qualified
Installed directly above the visual inspection station of the cam splitter fixture, it adopts backlight and camera to detect whether the cut length of the pole lugs is qualified or not.

5-13 P.K-01



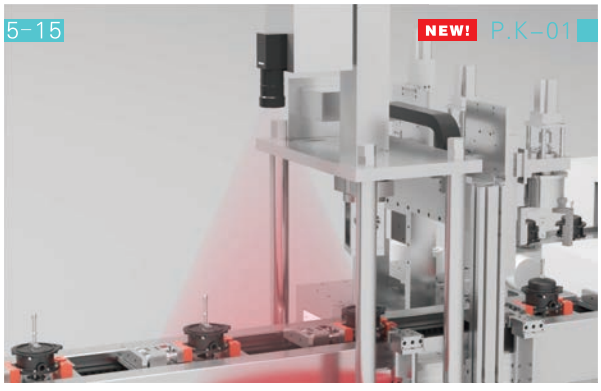
Make judgments about defects/flaws in the appearance of batteries
The vision inspection system makes OK/NG judgment on the defects and flaws of battery appearance (scratches, exposed metal, wrinkles, bright spots, particles, powder, broken edges, perforated poles, poles connected to the strip, dark spots, bright spots, dry spots, foreign objects and so on), which not only improves the work precision and efficiency, but also reduces the cost of labor, and also ensures the quality of the product and the rate of good quality.

5-14 NEW! P.K-01



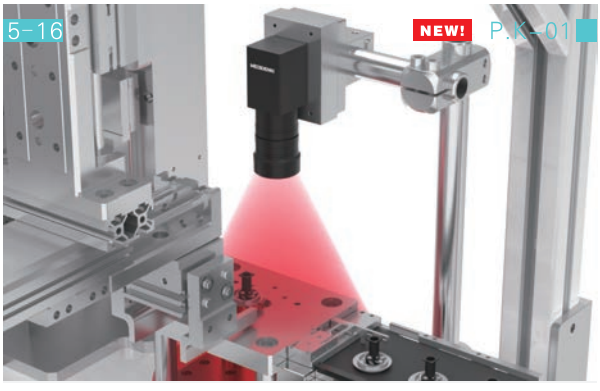
Defect detection
After capacitor assembly, defect detection is necessary to ensure product yield. Customized according to customer requirements, it integrates the advantages of AI algorithms and traditional visual inspection. With powerful model parallelism and image processing capabilities, it achieves a detection accuracy of 0.15 ± 0.05mm, effectively improving product yield.

5-15 NEW! P.K-01



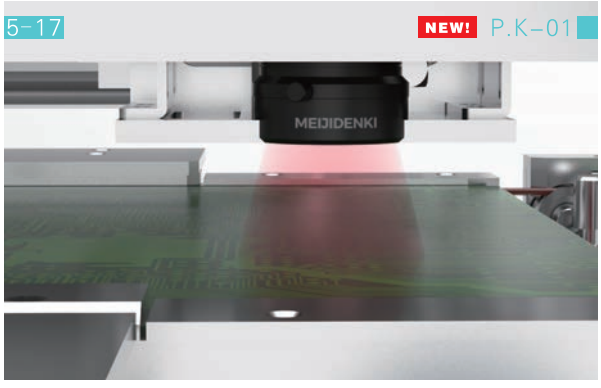
Visual inspection for oil pump assembly
Due to the complex structure of oil pumps, visual inspections are installed in various corners of the equipment to repeatedly confirm quality, ensuring product yield.

5-16 NEW! P.K-01



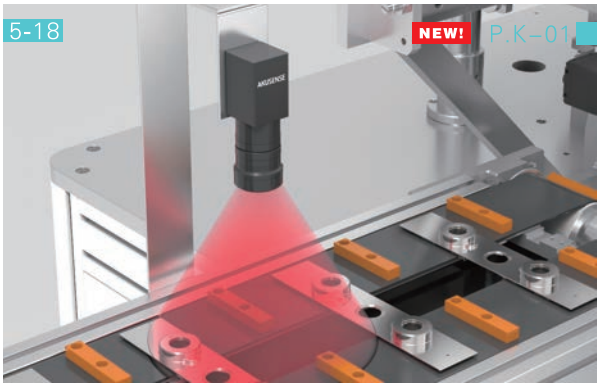
CCD inspection station
This CCD inspection station is responsible for detecting after knife holder assembly, position detection before knife holder and knife cover assembly, and post-riveting inspection. Utilizing deep learning algorithms enables defect detection after riveting. By integrating the advantages of AI algorithms and traditional visual inspection, precise control of assembly tolerances is achieved.

5-17 NEW! P.K-01



Track stop plate positioning
In order to facilitate the machine's better placement of components with higher accuracy, and without relying on machine tolerances or human errors, a soldering tin marking point is necessary. At this stage, a vision system is required to precisely position the circuit board so that after the motor ascends, solder paste can be accurately applied to every solder point on the circuit board.

5-18 NEW! P.K–01



Battery cover finished product defect detection

Special attention needs to be paid to ensure machining precision and surface quality of the cover plate, avoiding issues such as deformation or cracks. As the material steps through the track, a vision system is required to inspect each piece for defects (including checking for correct orientation, color differences, deformations, cracks, etc.) in the battery cover plate.

5-19 NEW! P.K–01



Bottle cap tightening

Ensure each filled bottle is securely capped to prevent unnecessary losses due to product spillage. A visual inspection solution can verify the placement and tightening position of any bottle cap and identify any tightening errors. It can be easily configured to accommodate different types of bottle caps.

Fiber Optic Sensors

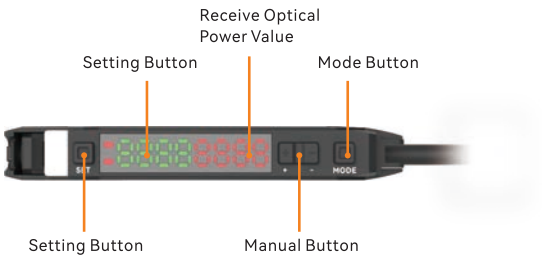


- Optical fiber amplifiers designed with automatic light compensation technology to effectively guarantee the stability of detection.
- Full range of optical fiber components can work as perfect replacement for popular models in the market.
- Customization is available according to the users' on-site applications.
- Abundant inventory, quick response and fast delivery.

Fiber Optic Amplifier

Intuitive and Convenient LED Dual Digital Display

5mm wider than regular displays, providing enhanced visibility





Strong light may cause a decrease in contrast.

In such cases, simply press and hold the "MODE" button to automatically adjust the brightness of the fiber optic amplifier to the appropriate level.



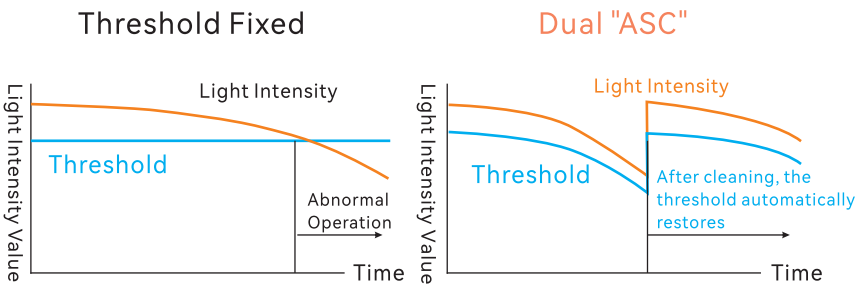
Automatic Light Quantity Adjustment Feature

1."ASC" for More Stable Detection

In typical sensor applications, light attenuation often occurs in dusty environments.

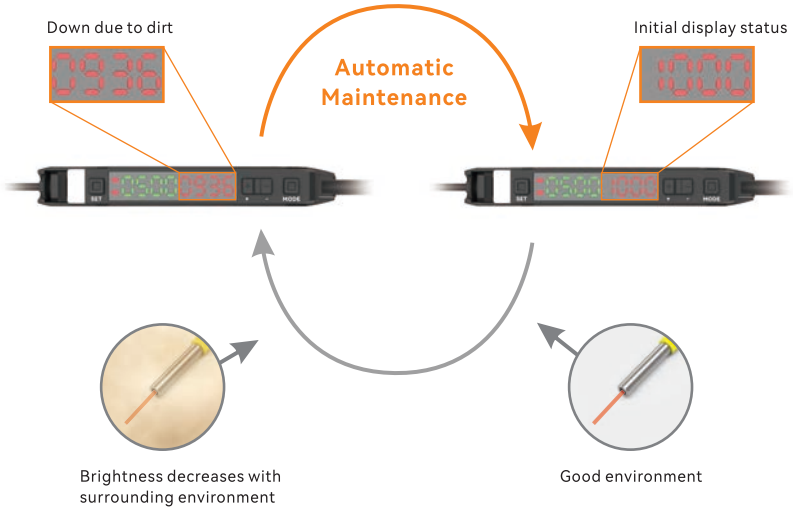
The dual "ASC" feature enables it to achieve threshold automatic adjustment.

When the dust dissipates, the sensor automatically adjusts the threshold without the need for manual teaching.



The light intensity may attenuate due to dust, and when it decreases below the set threshold, the sensor must be re-taught to adjust the parameter value in order to function properly.

The sensor can monitor the light intensity in real-time and automatically adjust the value to the optimal level based on changes in light intensity.



2.Automatic maintenance, maintaining high-precision detection status

When the sensor detects a decrease in received light intensity due to dirt or other reasons, it will restore the sensor to its initial display state.

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Fiber amplifiers
Standard
Fiber components
Regular type
Array-type
Flat bracket type
Side-view type
High flexible type
High temperature resistant
Small spot type
Combination type
High end type
Fiber lens
Fiber lens

Product Highlights

Fiber Optic Amplifier

Suppressing Light Saturation through Simple Teaching

Strong light can lead to decreased contrast.
In such cases, simply adjust to the appropriate brightness by pressing the SET button.



※Light intensity values in saturation state: 3000 (response speed: 1-HS/2-FS): 9999 (response speed: 3-ST~7-EL)
※You can repeat the above steps to set up the function of suppressing saturation.
※To cancel the function of suppressing saturation: Change the setting value of parameter "4-13. Light Intensity" from "Adj" to "IIIIIJ/IIIJ/'IJ".

Rich and Convenient Operation Features



1.External Calibration Input

The sensor can be calibrated from a PLC or other external devices, allowing for periodic teaching, shutting off light emission input, synchronous input, count reset input, and other functions.
This ensures stable detection even in harsh environments.
Additionally, it can provide a low brightness signal in cases of severe dust, ensuring reliable performance.

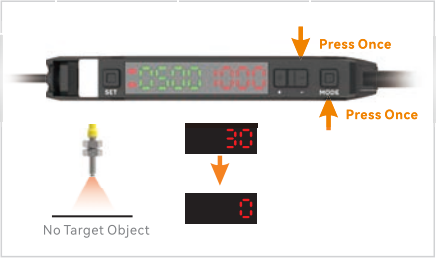
2.One-Key Completion of Two-Point Teaching

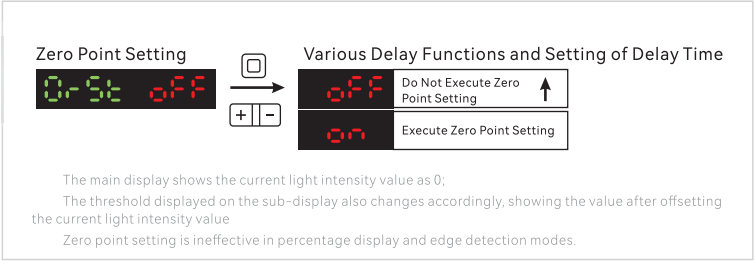
Simply press the SET button once with and once without the target object to complete the setup.



3.Zero Point Drift

Reset the display value to zero by toggling the status to "on" in the menu 0r5t.





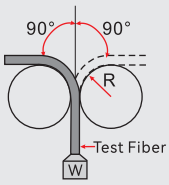
The main display shows the current light intensity value as 0;
The threshold displayed on the sub-display also changes accordingly, showing the value after offsetting the current light intensity value
Zero point setting is ineffective in percentage display and edge detection modes.

Highly Elastic Optical Fiber *

A brand-new optical fiber material that is not affected by movement and interruptions, enabling flexible and dynamic operations.

* PD-W Series, PT-W Series

High Toughness



Bending Conditions

Angle: 90° to the left and right	
Bending Radius: R1mm	
Load: 20g	
Bending Frequency:	30 times per minute (bending to the left and right, then returning to the original position constitutes one cycle)
Test Fiber: PD-W32-Q	

Difficult to Break



Traditional elastic optical fibers
Bending radius is R4mm, containing 4 core fibers



Brand-new elastic optical fibers
Multi-core fibers achieve a bending radius of R1mm, ensuring they never break



Miniature Optical Fiber with ϕ1mm*

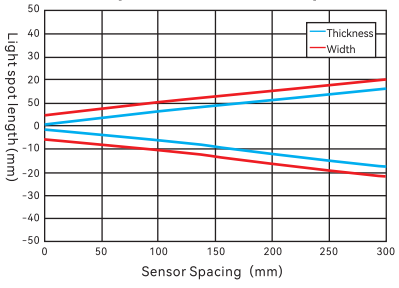
An ultra-fine and freely installable optical fiber, combined with high toughness of R1mm, enriching the installation scenarios of the product

* PT-R58 Series

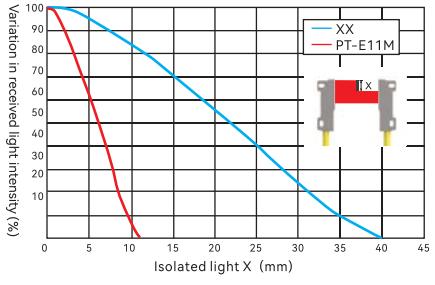
Broad Beam Length Optical Fiber

Light diffuses through a lens to cover a larger detection range

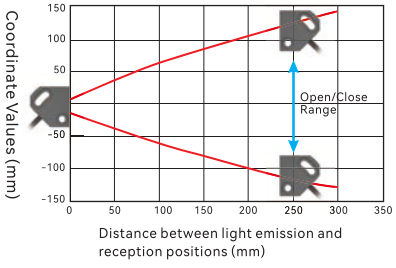
PT-E11M Spot Distance (Example)



Relationship between received and isolated light (Example)



PD-A10 Translation Characteristics (Example)





Array Optical Fiber

Multiple microfibers arranged in parallel, enabling large-area detection

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Fiber amplifiers
Standard

Fiber components
Regular type
Array-type
Flat bracket type
Side-view type
High flexible type
High temperature resistant
Small spot type
Combination type
High end type

Fiber lens
Fiber lens

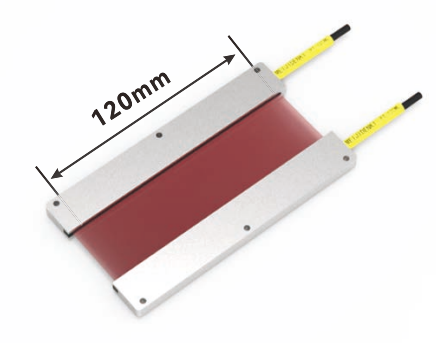
Product Highlights

Fiber Optic Amplifier

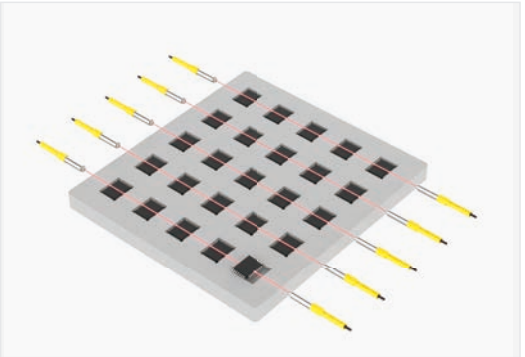
Large Area Optical Fiber*

Maximum area width up to 120mm

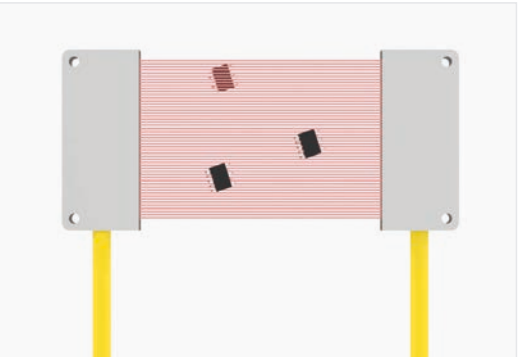
* PT-120ML Series



Application Scenarios



Detection of whether chips are flat



Detection of tiny parts



NEW!

PE1 Standard Dual Digital Fiber Amplifier

- Automatic light compensation technology and great adaptability for less maintenance.
- Six adjustable response speeds, up to 50μs small hyteresis ;
- High power mode for longer detection distances.

P.A-07



Lens

- Offering a full range specifications that can replace most of the popular products in the market
- Thru-beam and diffuse reflection types are optional.

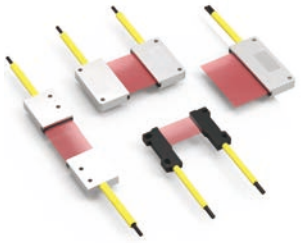
P.A-34



Regular Type

- Imported fiber optic core, wonderful performance
- Long sensing distance, cost-effective

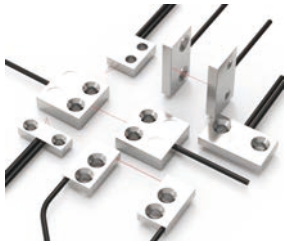
P.A-09



Array-type

- Suitable for moving object detection
- To detect unclear position objects

P.A-17



Flat Bracket Type

- Flexible installation, easy to fix
- Suitable for limited space

P.A-21



Side-view Type

- To detect objects in narrow space
- Easy access to detected objects with high precision

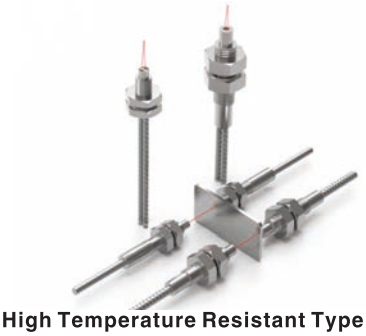
P.A-23



High Elasticity Type

- Good performance with excellent flexibility
- After bending at angles of 90 degree, transmission ability only reduces 10%

P.A-25



High Temperature Resistant Type

- Heat resistant stainless steel jacket, strong chemical resistance
- Withstand temperatures up to 350℃.

P.A-27



Small Spot Type

- Built-in lens, small beam spot
- Customizable high-flex optical fiber cables

P.A-29



Combination Type

- Several fiber units combined together
- Customicable fiber length to tail your needs

P.A-29



High End Type

- Pioneering hot melt leveling technology
- Metal protective cap design

P.A-31

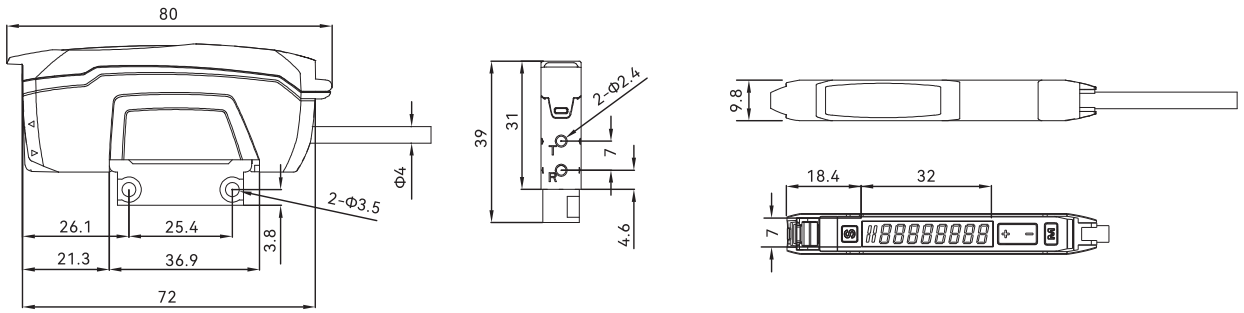
Standard Fiber optic amplifiers

PE1 Series



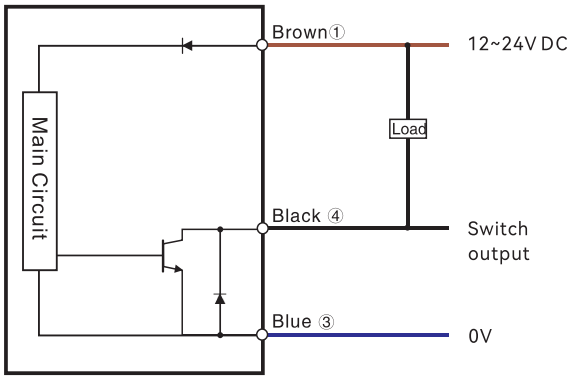
Basic Features	Working Principle	Photoelectric sensor	
	Housing Style	Slim block	
	Optical Working Principle	Depends on optical fiber	
	Light Source	Red LED 630nm (modulated)	
	Indicator Lights	Operating Status: Green LED, Output Status: Red LED	
	Display Screen	7-segment 8-digit display (Red: 4 digits, Green: 4 digits)	
Electrical Data	Switching Mode	Dark ON / Light ON switch	
	Output Mode	NPN open collector	PNP open collector
	Response Time	160us (1-HS)/320us (2-FS)/960us (3-ST)/1.92ms (4-LG)/3.84ms (5-PL)	
	Switching Frequency	≤6kHz	
	Operating Voltage	12-24V DC±10%	
	Current Consumption	≤40mA	
	Residual Voltage	<1.5V （100mA）	
	Load Current	≤100mA （24VDC）	
	Insulation Resistance	≥20MΩ between power terminal and housing (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz) for 1 minute between power terminal and housing	
	Protection Circuit	Polarity reversal protection / Surge protection / Short circuit protection	
	Delay Function	OFF delay, ON delay, OFF delay, single pulse	
Environmental Conditions	Operating Temperature	-20℃~+50℃ (no freezing)	
	Storage Temperature	–30℃ ~ +70℃ (no freezing)	
	Operating Humidity	35~85%RH (no condensation)	
	Storage Humidity	35~95%RH (no condensation)	
	Ambient Illuminance	Incandescent light: below 3000 lux / Sunlight: below 10000 lux	
	Vibration Resistance	10~50Hz, double amplitude 1.5mm, 2 hours each in X, Y, Z	
Mechanical Data	Protection Rating	IP50	
	Connection Method	2M/3-core cable	
	Dimensions	9.8x39.0x80.0mm	
	Material	PC	
	Weight	0.05kg	
	Accessories	–	
	Model	**PE1-N**	**PE1-P**

Dimensions

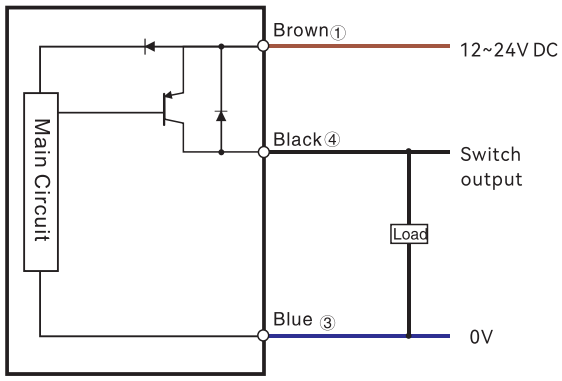


Circuit diagram

NPN



PNP



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Fiber amplifiers
Standard

Fiber components
Regular type
Array-type
Flat bracket type
Side-view type
High flexible type
High temperature resistant
Small spot type
Combination type
High end type

Fiber lens
Fiber lens

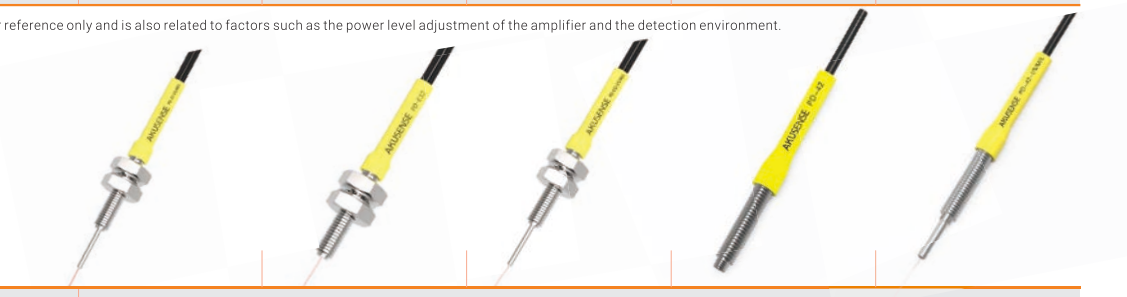
Regular Type Fiber Components

Diffuse reflection



Basic Features	Working Principle	Fiber optic components				
	Optical Working Principle	Diffuse reflection				
	Housing Style	–	Short convex tube	Long convex tube	–	–
	Fiber Head Type	Ø1.5mm	Ø1.5mm	Ø2.0mm	Ø3.0mm	M3mm
	Sensing Distance	with PG1:50mm with PE1:60mm	with PG1:10mm with PE1:15mm	with PG1:10mm with PE1:20mm	with PG1:60mm with PE1:100mm	with PG1:60mm with PE1:100mm
	Fiber Length	2000mm	1000mm	2000mm		
	Fiber Diameter	Ø0.250mm	Ø0.125mm	Ø0.250mm	Ø0.500mm	
	Fiber Arrangement	Standard				
	Core Construction	Transmitter end：2，Receiver end：2		Transmitter end：1，Receiver end：1		
	Integrated Lens	No lens				
	Minimum Object Diameter	–				
Mechanical Data	Bending Radius	2mm	10mm			15mm
	Material	Stainless steel	Stainless steel + Polyvinyl alcohol	Stainless steel		Stainless steel + Polyvinyl alcohol
	Fiber Can Be Cut	Can be cut with fiber cutter				
	Operating Environment Temperature	–				
	Accessories	No installation parts				M3 nut + 2 washers
	Model	PD-R49Y	PD-R46	PD-E22-Q-I/S/M/L	PD-S32-Q	PD-32

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.



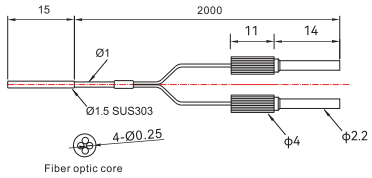
Basic Features	Working Principle	Fiber optic components				
	Optical Working Principle	Diffuse reflection				
	Housing Style	Long convex tube	–	Long convex tube	Short convex tube	Long convex tube
	Fiber Head Type	M3			M4	
	Sensing Distance	with PG1:60mm with PE1:100mm	with PG1:10mm with PE1:15mm	with PG1:10mm with PE1:15mm	with PG1:50mm with PE1:100mm	with PG1:50mm with PE1:100mm
	Fiber Length	2000mm				
	Fiber Diameter	Ø0.5mm	Ø0.25mm		Ø0.5mm	
	Fiber Arrangement	Standard				
	Core Construction	Transmitter end：1，Receiver end：1				
	Integrated Lens	No lens				
	Minimum Object Diameter	–				
Mechanical Data	Bending Radius	15mm	10mm		15mm	
	Material	Stainless steel + Polyvinyl alcohol	Stainless steel		Stainless steel + Polyvinyl alcohol	
	Fiber Can Be Cut	Can be cut with fiber cutter				
	Operating Environment Temperature	–				
	Accessories	M3 nut + 2 washers			No installation parts	
	Model	PD-32-I/S/M/L	PD-E32	PD-E32-I/S/M/L	PD-42	PD-42-I/S/M/L

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

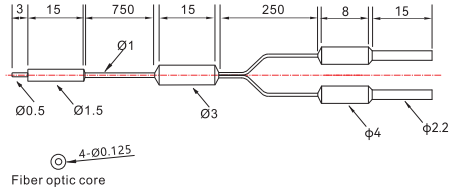
Unit: mm

Dimensions

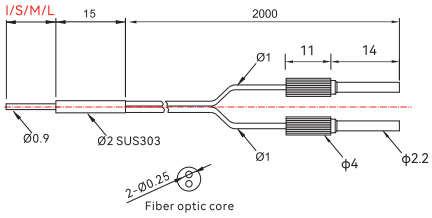
PD-R49Y



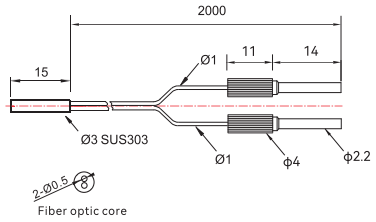
PD-R46



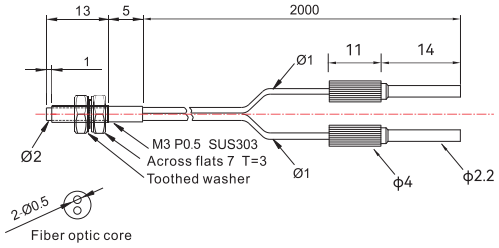
PD-E22-Q-I/S/M/L



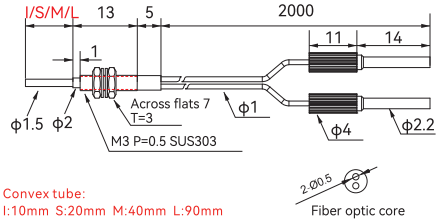
PD-S32-Q



PD-32

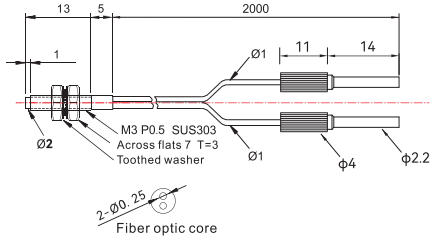


PD-32-I/S/M/L

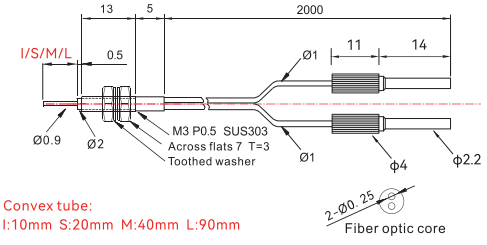


Convex tube:
I:10mm S:20mm M:40mm L:90mm

PD-E32

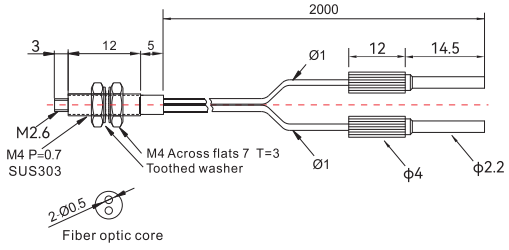


PD-E32-I/S/M/L

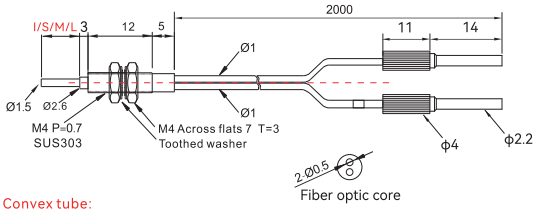


Convex tube:
I:10mm S:20mm M:40mm L:90mm

PD-42



PD-42-I/S/M/L



Convex tube:
I:10mm S:20mm M:40mm L:90mm

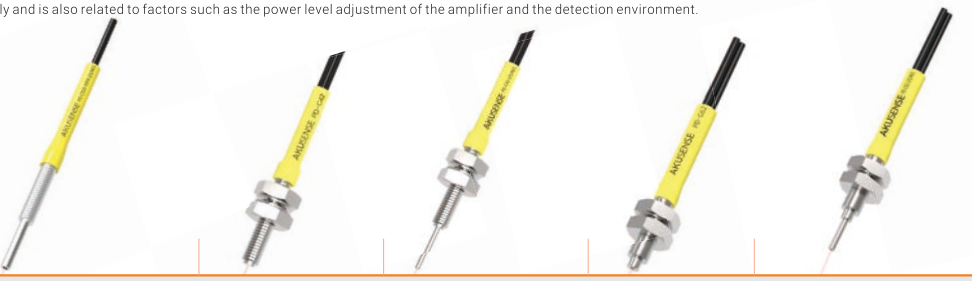
Regular Type Fiber Components

Diffuse reflection



Basic Features	Working Principle	Fiber optic components				
	Optical Working Principle	Diffuse reflection				
	Housing Style	Short convex tube	Long convex tube	–	Long convex tube	–
	Fiber Head Type	M6mm		M3mm	Ø3.0mm	M3mm
	Sensing Distance	with PG1:200mm with PE1:250mm	with PG1:200mm with PE1:250mm	with PG1:100mm with PE1:170mm	with PG1:10mm with PE1:20mm	with PG1:100mm with PE1:130mm
	Fiber Length	2000mm		2000mm		
	Fiber Diameter	Ø1mm		Transmitter end:Ø0.5mm Receiver end:Ø0.265mm	Ø0.265mm	Transmitter end:Ø0.5mm Receiver end:Ø0.25mm
	Fiber Arrangement	Standard		Coaxial Optical Devices	Standard	Coaxial Optical Devices
	Core Construction	Transmitter end:1, Receiver end:1		Transmitter end:1, Receiver end:8	Transmitter end:1, Receiver end:1	Transmitter end:1, Receiver end:8
	Integrated Lens	No lens				
	Minimum Object Diameter	–				
Mechanical Data	Bending Radius	25mm		2mm	4mm	15mm
	Material	Stainless steel + Polyvinyl alcohol			–	Stainless steel
	Fiber Can Be Cut	Can be cut with fiber cutter				
	Operating Environment Temperature	–				
	Accessories	No installation parts	M6 nut + 2 washers		No installation parts	
	Model	PD-62	PD-62-I/S/M/L	PD-L35GA (HOT)	PD-G45Y	PD-C310-35FA

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.



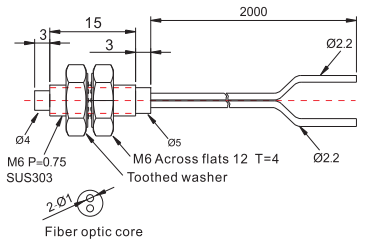
Basic Features	Working Principle	Fiber optic components				
	Optical Working Principle	Diffuse reflection				
	Housing Style	Long convex tube	–	Long convex tube	Short convex tube	Long convex tube
	Fiber Head Type	M3mm	M4mm		M6mm	
	Sensing Distance	with PG1:100mm with PE1:130mm	with PG1:100mm with PE1:160mm	with PG1:100mm with PE1:160mm	with PG1:220mm with PE1:300mm	with PG1:220mm with PE1:300mm
	Fiber Length	1000mm	2000mm			
	Fiber Diameter	Transmitter end:Ø0.5mm, Receiver end:Ø0.25mm			Transmitter end:Ø1mm, Receiver end:Ø0.25mm	
	Fiber Arrangement	Coaxial Optical Devices				
	Core Construction	Transmitter end:1, Receiver end:8	Transmitter end:1, Receiver end:9		Transmitter end:1, Receiver end:16	
	Integrated Lens	No lens				
	Minimum Object Diameter	–				
Mechanical Data	Bending Radius	15mm			25mm	
	Material	Stainless steel				
	Fiber Can Be Cut	Can be cut with fiber cutter				
	Operating Environment Temperature	–				
	Accessories	No installation parts	M4 nut + 2 washers		M6 nut + 2 washers	
	Model	PD-C310-35FA-I/S/M/L	PD-C42 (HOT)	PD-C42-I/S/M/L	PD-C62	PD-C62-I/S/M/L

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

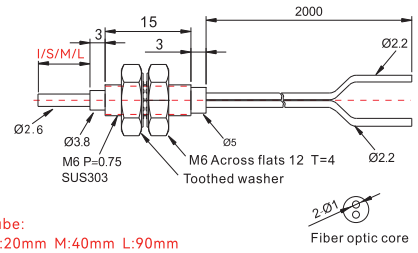
Unit: mm

Dimensions

PD-62

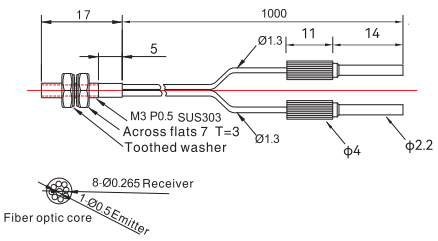


PD-62-I/S/M/L

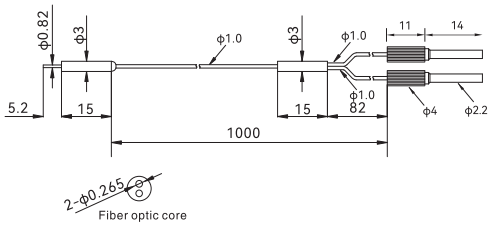


Convex tube:
I:10mm S:20mm M:40mm L:90mm

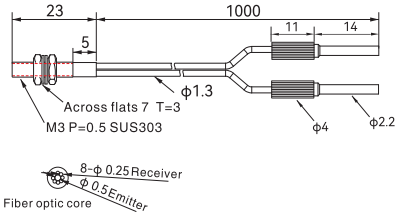
PD-L35GA



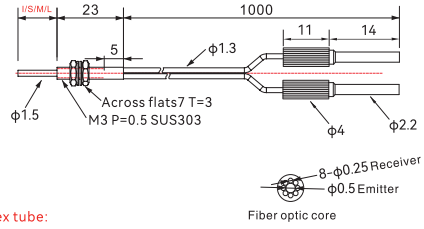
PD-G45Y



PD-C310-35FA

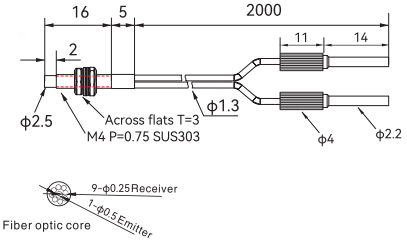


PD-C310-35FA-I/S/M/L

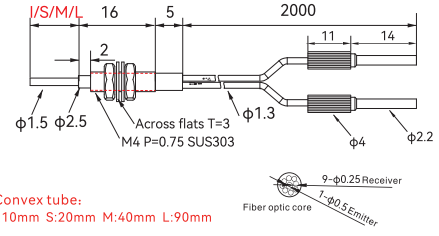


Convex tube:
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PD-C42

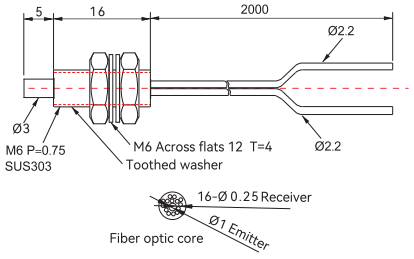


PD-C42-I/S/M/L

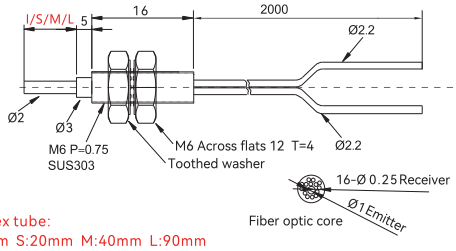


Convex tube:
I:10mm S:20mm M:40mm L:90mm

PD-C62



PD-C62-I/S/M/L



Convex tube:
I:10mm S:20mm M:40mm L:90mm

Regular Type Fiber Components

Diffuse reflection





Basic Features	Working Principle	Fiber optic components	
	Optical Working Principle	Diffuse reflection	
	Housing Style	Right-angle type	Right-angle type, short convex tube
	Fiber Head Type	M3mm	M4mm
	Sensing Distance	with PG1:70mm with PE1:120mm	with PG1:60mm with PE1:100mm
	Fiber Length	2000mm	
	Fiber Diameter	Transmitter end:Ø0.5mm, Receiver end:Ø0.25mm	
	Fiber Arrangement	Coaxial Optical Devices	
	Core Construction	Transmitter end:1, Receiver end:9	
	Integrated Lens	No lens	
	Minimum Object Diameter	–	
Mechanical Data	Bending Radius	5mm	
	Material	–	
	Fiber Can Be Cut	Can be cut with fiber cutter	
	Operating Environment Temperature	–	
	Accessories	M3 nut + 2 washers	M4 nut + 2 washers
	Model	PD-C32TZ HOT	PD-C42TZ HOT

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

Thru-beam









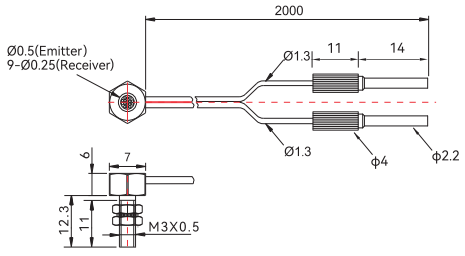
Basic Features	Working Principle	Fiber optic components			
	Optical Working Principle	Thru-beam			
	Housing Style	–			Right-angle type, long convex tube
	Fiber Head Type	Ø1.0mm	Ø1.5mm		Ø2.5mm
	Sensing Distance	with PG1:240mm with PE1:350mm	with PG1:190mm with PE1:310mm	with PG1:230mm with PE1:320mm	with PG1:60mm with PE1:100mm
	Fiber Length	1000mm			
	Fiber Diameter	Ø0.5mm	Ø0.1mm	Ø0.5mm	Ø0.6mm
	Fiber Arrangement	Standard			
	Core Construction	Transmitter end:1, Receiver end:1	Transmitter end:4, Receiver end:4	Transmitter end:1, Receiver end:1	
	Integrated Lens	No lens			
	Minimum Object Diameter	–			
Mechanical Data	Bending Radius	10mm		15mm	25mm
	Material	Stainless steel + Polyvinyl alcohol		Stainless steel	
	Fiber Can Be Cut	Can be cut with fiber cutter			
	Operating Environment Temperature	–			
	Accessories	No installation parts			
	Model	PT-R58V HOT	PT-R59	PT-S1520-Q	PT-G32

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

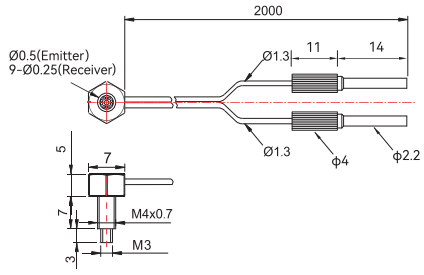
Unit: mm

Dimensions

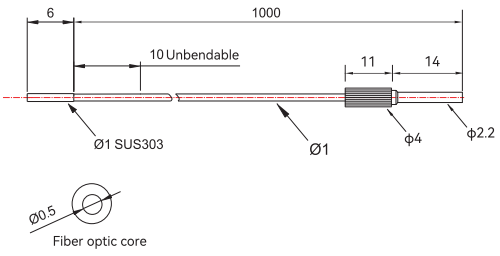
PD-C32TZ



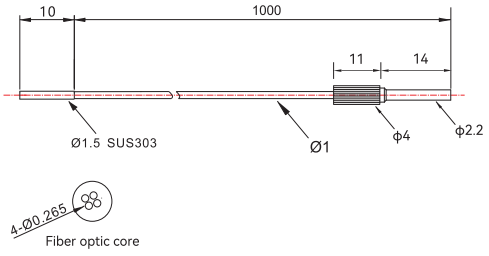
PD-C42TZ



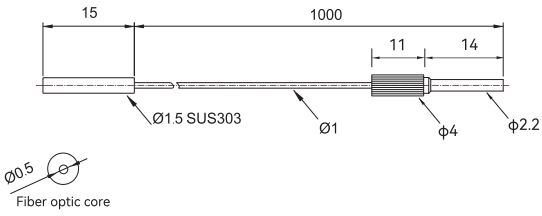
PT-R58V



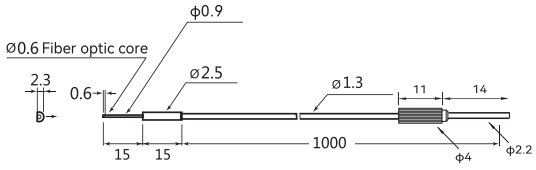
PT-R59



PT-S1520-Q



PT-G32



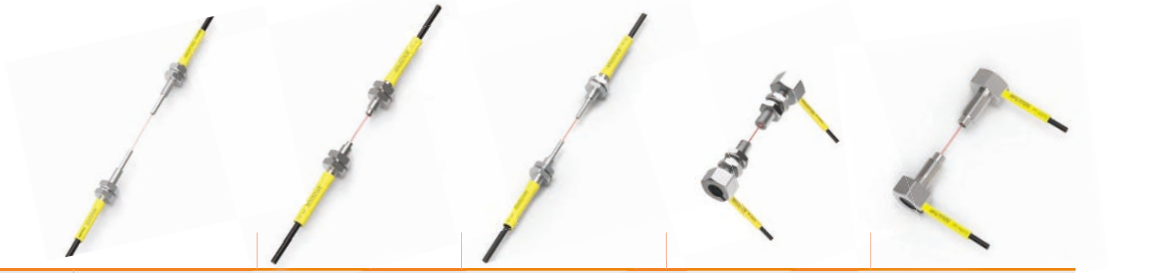
Regular Type Fiber Components

Thru-beam



Basic Features	Working Principle	Fiber optic components				
	Optical Working Principle	Thru-beam				
	Housing Style	Short convex tube	Long convex tube	Short convex tube	Long convex tube	Short convex tube
	Fiber Head Type	Ø3.0mm		M3mm		M4mm
	Sensing Distance	with PG1:240mm/with PE1:400mm		with PG1:800mm/with PE1:1400mm		with PG1:400mm with PE1:1400mm
	Fiber Length	1000mm		2000mm		
	Fiber Diameter	Ø0.5mm		Ø1mm		
	Fiber Arrangement	Standard				
	Core Construction	Transmitter end:1，Receiver end:1				
	Integrated Lens	No lens				
	Minimum Object Diameter	–				
Mechanical Data	Bending Radius	15mm		25mm		
	Material	Stainless steel		Stainless steel + Polyvinyl alcohol		
	Fiber Can Be Cut	Can be cut with fiber cutter				
	Operating Environment Temperature	–				
	Accessories	No installation parts		M3 nut + 2 washers		M4 nut + 2 washers
	Model	PT-S31-Q	PT-S31-Q-I/S/M/L	PT-32	PT-32-I/S/M/L	PT-42 HOT

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.



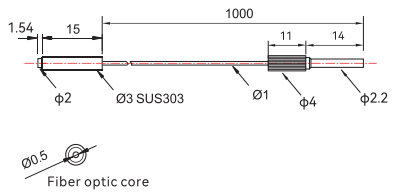
Basic Features	Working Principle	Fiber optic components				
	Optical Working Principle	Thru-beam				
	Housing Style	Long convex tube	Short convex tube	Long convex tube	Right-angle type	Right-angle type, short convex tube
	Fiber Head Type	M4mm	M6mm		M3mm	M4mm
	Sensing Distance	with PG1:400mm with PE1:1400mm	with PG1:600mm with PE1:1200mm	with PG1:600mm with PE1:1200mm	with PG1:560mm with PE1:730mm	with PG1:400mm with PE1:640mm
	Fiber Length	2000mm				
	Fiber Diameter	Ø1mm			Ø0.25mm	
	Fiber Arrangement	Standard			Coaxial Optical Devices	
	Core Construction	Transmitter end:1，Receiver end:1			Transmitter end:1，Receiver end:15	
	Integrated Lens	No lens				
	Minimum Object Diameter	–				
Mechanical Data	Bending Radius	25mm			5mm	15mm
	Material	Stainless steel + Polyvinyl alcohol				
	Fiber Can Be Cut	Can be cut with fiber cutter				
	Operating Environment Temperature	–				
	Accessories	M4 nut + 2 washers	M6 nut + 2 washers		M3 nut + 2 washers	M4 nut + 2 washers
	Model	PT-42-I/S/M/L	PT-62	PT-62-I/S/M/L	PT-C32TZ	PT-C42TZ

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

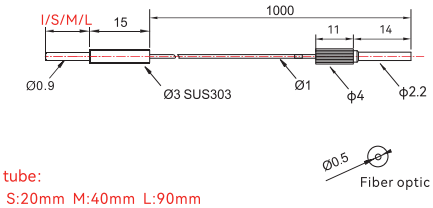
Unit: mm

Dimensions

PT-S31-Q

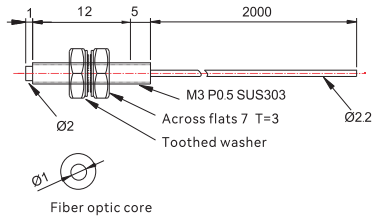


PT-S31-Q-I/S/M/L

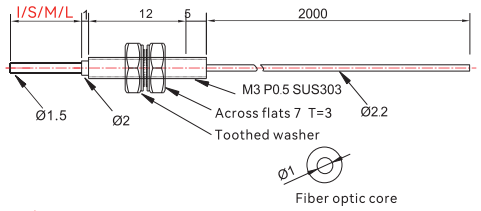


Convex tube:
I:10mm S:20mm M:40mm L:90mm

PT-32

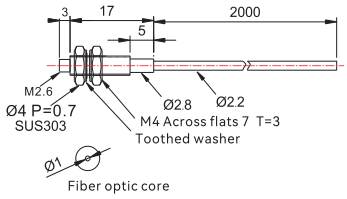


PT-32-I/S/M/L

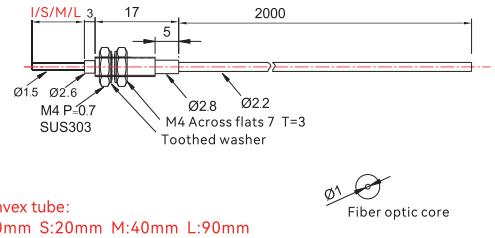


Convex tube:
I:10mm S:20mm M:40mm L:90mm

PT-42

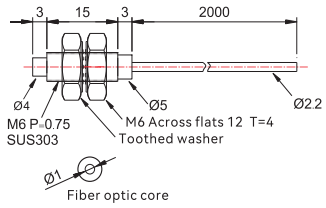


PT-42-I/S/M/L

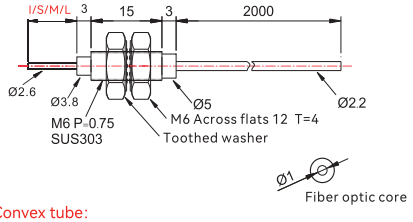


Convex tube:
I:10mm S:20mm M:40mm L:90mm

PT-62

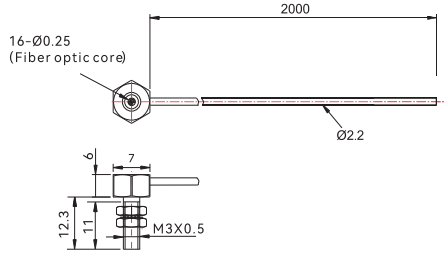


PT-62-I/S/M/L

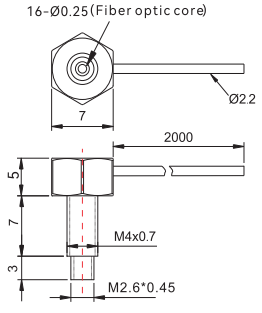


Convex tube:
I:10mm S:20mm M:40mm L:90mm

PT-C32TZ



PT-C42TZ



Array-type Fiber Components

Diffuse reflection



Basic Features	Working Principle	Fiber optic components			
	Optical Working Principle	Diffuse reflection			
	Housing Style	–	Right-angle type	Right-angle type	–
	Fiber Head Type	Without drum			
	Sensing Distance	with PG1:80mm/with PE1:110mm	with PG1:110mm/with PE1:160mm	with PG1:150mm/with PE1:240mm	with PG1:200mm/with PE1:250mm
	Fiber Length	2000mm			
	Fiber Diameter	Ø0.25mm			
	Fiber Arrangement	Grating			
	Core Construction	Transmitter end:9，Receiver end:9		Transmitter end:16，Receiver end:16	
	Integrated Lens	No lens			
	Minimum Object Diameter	Ø0.05mm			
Mechanical Data	Bending Radius	15mm		5mm	
	Material	Aluminum + Polyvinyl Alcohol			
	Fiber Can Be Cut	Can be cut with fiber cutter			
	Operating Environment Temperature	–			
	Accessories	No installation parts			
	Model	**PD-10ML**	**PD-15ML-D**	**PD-20ML-S**	**PD-20ML**

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.



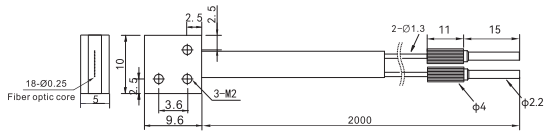
Basic Features	Working Principle	Fiber optic components				
	Optical Working Principle	Diffuse reflection				
	Housing Style	Right-angle type				–
	Fiber Head Type	Without drum				
	Sensing Distance	with PG1:120mm with PE1:190mm	with PG1:180mm with PE1:210mm	with PG1:180mm with PE1:210mm	with PG1:160mm with PE1:200mm	with PG1:110mm with PE1:170mm
	Fiber Length	2000mm				
	Fiber Diameter	Ø0.25mm				
	Fiber Arrangement	Grating				
	Core Construction	Transmitter end:16，Receiver end:16				–
	Integrated Lens	No lens				
	Minimum Object Diameter	Ø2mm	Ø4mm	Ø6mm	Ø10mm	Ø0.05mm
Mechanical Data	Bending Radius	5mm				25mm
	Material	Aluminum + Polyvinyl Alcohol				Aluminum
	Fiber Can Be Cut	Can be cut with fiber cutter				
	Operating Environment Temperature	–				
	Accessories	No installation parts				
	Model	**PD-25ML**	**PD-30ML**	**PD-35ML**	**PD-50ML**	**PD-A10**

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

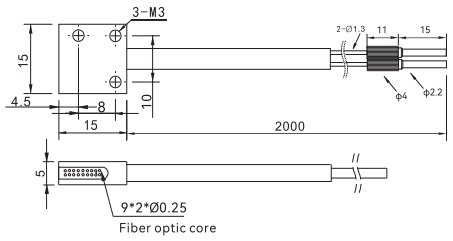
Unit: mm

Dimensions

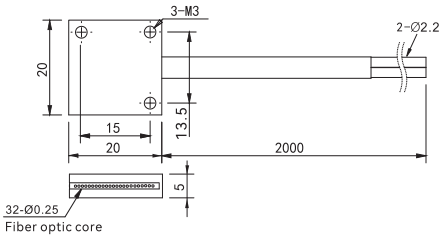
PD-10ML



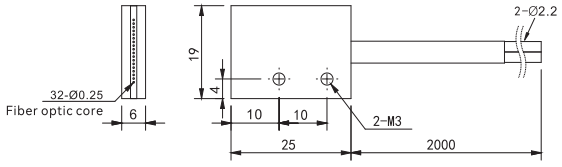
PD-15ML-D



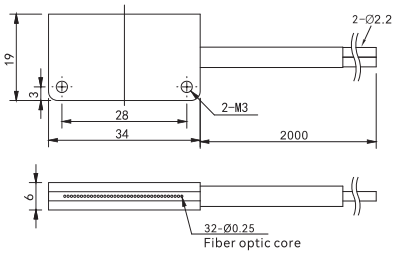
PD-20ML-S



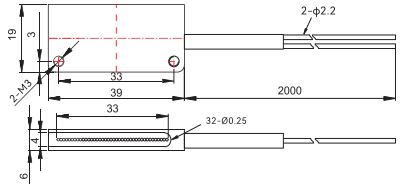
PD-20ML



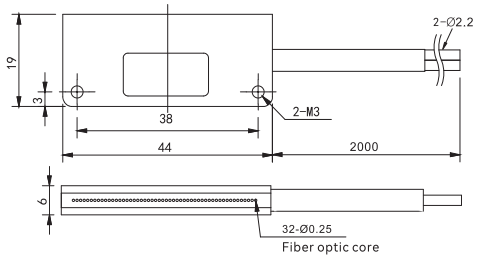
PD-25ML



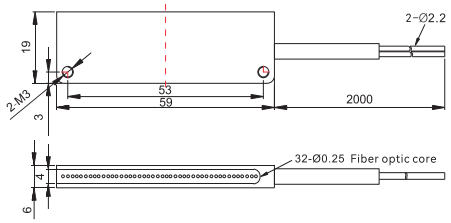
PD-30ML



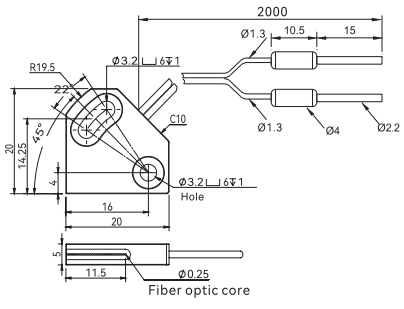
PD-35ML



PD-50ML



PD-A10



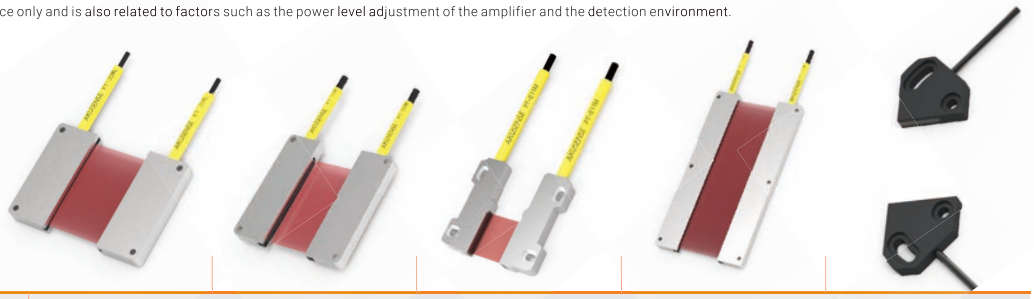
Array-type Fiber Components

Thru-beam



Basic Features	Working Principle	Fiber optic components				
	Optical Working Principle	Thru-beam				
	Housing Style	–	Right-angle type	–	Right-angle type	
	Fiber Head Type	Without drum				
	Sensing Distance	with PG1:520mm with PE1:760mm	with PG1:580mm with PE1:790mm	with PG1:970mm with PE1:1100mm	with PG1:920mm with PE1:1170mm	with PG1:880mm with PE1:1220mm
	Fiber Length	2000mm				
	Fiber Diameter	Ø0.25mm			Ø0.265mm	Ø0.25mm
	Fiber Arrangement	Grating				
	Core Construction	Transmitter end: 16, Receiver end: 16		Transmitter end: 32, Receiver end: 32		
	Integrated Lens	No lens				
	Minimum Object Diameter	Ø0.1mm	Ø0.5mm		Ø2mm	Ø3mm
Mechanical Data	Bending Radius	5mm		15mm		
	Material	Aluminum + Polyvinyl Alcohol		Aluminum+PVC		
	Fiber Can Be Cut	Can be cut with fiber cutter				
	Operating Environment Temperature	–				
	Accessories	No installation parts				
	Model	PT-10ML	PT-15ML-D	PT-20ML	PT-25ML	PT-30ML HOT

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.



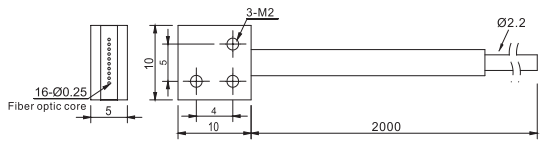
Basic Features	Working Principle	Fiber optic components				
	Optical Working Principle	Thru-beam				
	Housing Style	Right-angle type				–
	Fiber Head Type	Without drum				
	Sensing Distance	with PG1:930mm with PE1:1280mm	with PG1:880mm with PE1:1170mm	with PG1:420mm with PE1:640mm	with PG1:950mm with PE1:1140mm	with PG1:520mm with PE1:800mm
	Fiber Length	2000mm				
	Fiber Diameter	Ø0.250mm		–	Ø0.250mm	
	Fiber Arrangement	Grating				
	Core Construction	Transmitter end:32, Receiver end:32		–	Transmitter end:32, Receiver end:32	–
	Integrated Lens	No lens				
	Minimum Object Diameter	Ø4mm	Ø5mm	Ø1mm	Ø30mm	Ø0.05mm
Mechanical Data	Bending Radius	15mm		25mm	15mm	25mm
	Material	Aluminum+PVC		Aluminum	Aluminum+PVC	–
	Fiber Can Be Cut	Can be cut with fiber cutter				
	Operating Environment Temperature	–				
	Accessories	No installation parts				
	Model	PT-35ML	PT-50ML	PT-E11M HOT	PT-120ML	PT-A10

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

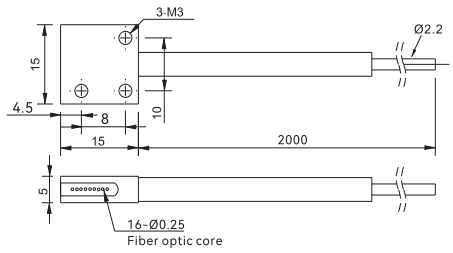
Unit: mm

Dimensions

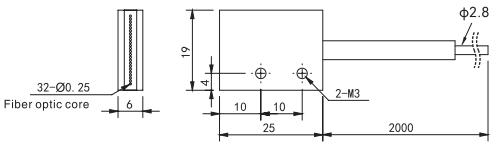
PT-10ML



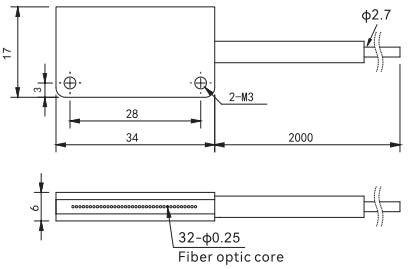
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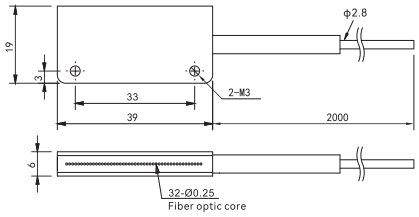
PT-20ML



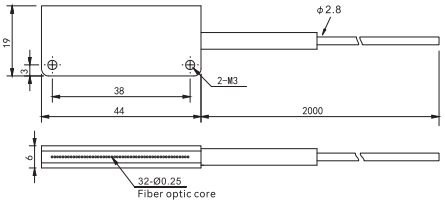
PT-25ML



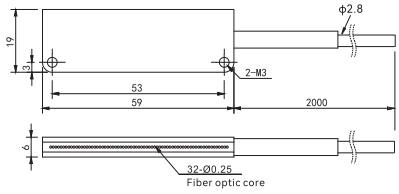
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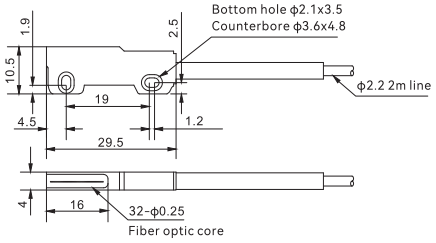
PT-35ML



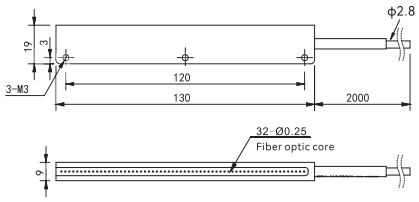
PT-50ML



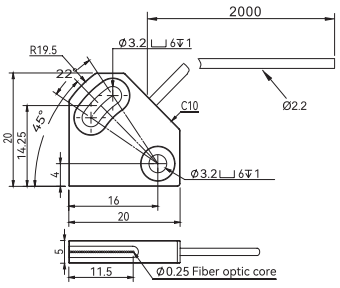
PT-E11M



PT-120ML

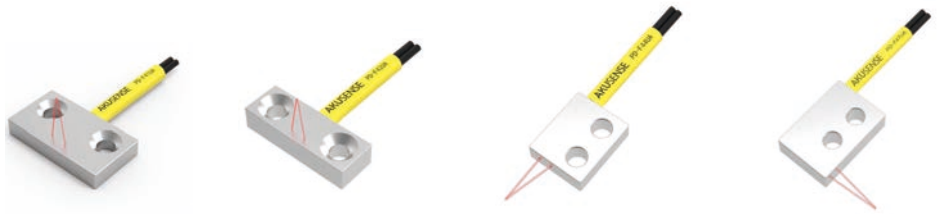


PT-A10



Flat bracket type Fiber Components

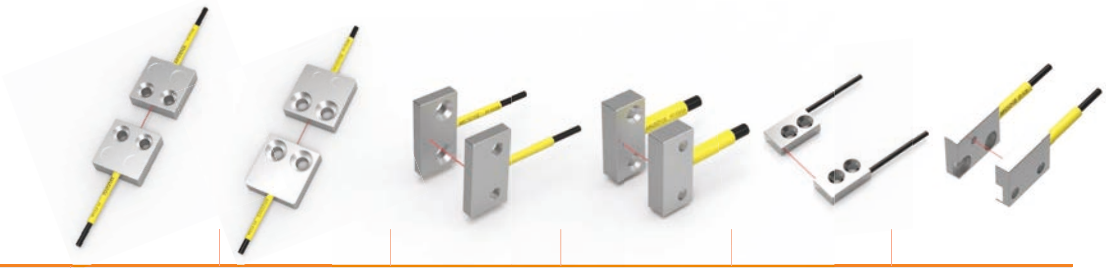
Diffuse reflection



Basic Features	Working Principle	Fiber optic components			
	Optical Working Principle	Diffuse reflection			
	Housing Style	Right-angle type		–	Right-angle type
	Fiber Head Type	Without drum			
	Sensing Distance	with PG1:50mm/with PE1:80mm	with PG1:170mm/with PE1:230mm	with PG1:80mm/with PE1:130mm	with PG1:60mm/with PE1:110mm
	Fiber Length	1000mm	2000mm	1000mm	
	Fiber Diameter	Ø0.5mm			
	Fiber Arrangement	Standard			
	Core Construction	Transmitter end:1, Receiver end:1			
	Integrated Lens	No lens			
	Minimum Object Diameter	Ø0.05mm			
Mechanical Data	Bending Radius	2mm			
	Material	Stainless steel + Polyvinyl alcohol			
	Fiber Can Be Cut	Can be cut with fiber cutter			
	Operating Environment Temperature	–			
	Accessories	No installation parts			
	Model	PD-F41UA	PD-F42UA	PD-F44UA	PD-F47UA

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

Thru-beam



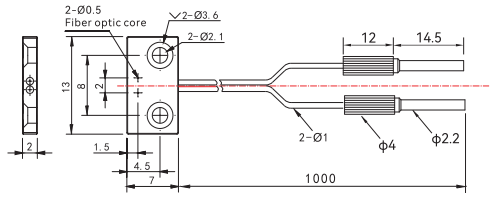
Basic Features	Working Principle	Fiber optic components					
	Optical Working Principle	Thru-beam					
	Housing Style	–		Right-angle type			
	Fiber Head Type	Without drum					
	Sensing Distance	with PG1:250mm with PE1:450mm	with PG1:690mm with PE1:1120mm	with PG1:130mm with PE1:200mm	with PG1:780mm with PE1:1280mm	with PG1:250mm with PE1:420mm	with PG1:730mm with PE1:1020mm
	Fiber Length	1000mm	2000mm	1000mm	2000mm	1000mm	
	Fiber Diameter	Ø0.5mm	Ø1mm	Ø0.5mm	Ø1mm	Ø0.5mm	Transmitter end:Ø1mm Receiver end:Ø0.25mm
	Fiber Arrangement	Standard					
	Core Construction	Transmitter end:1, Receiver end:1					Transmitter end:1 Receiver end:7
	Integrated Lens	No lens					
	Minimum Object Diameter	Ø0.05mm					Ø0.1mm
Mechanical Data	Bending Radius	2mm					
	Material	Aluminum + Polyvinyl Alcohol		Stainless steel + Polyvinyl alcohol			Aluminum + Polyvinyl Alcohol
	Fiber Can Be Cut	Can be cut with fiber cutter					
	Operating Environment Temperature	–					
	Accessories	No installation parts					
	Model	PT-F51UA	PT-F52UA	PT-F53UA	PT-F54UA HOT	PT-F57UA	PT-FZ8 HOT

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

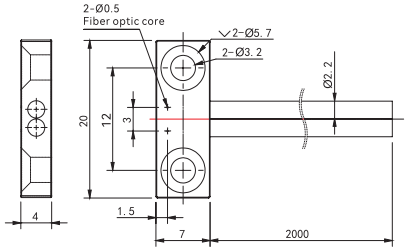
Unit: mm

Dimensions

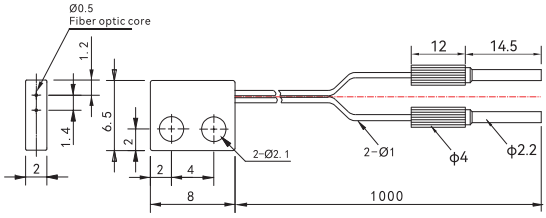
PD-F41UA



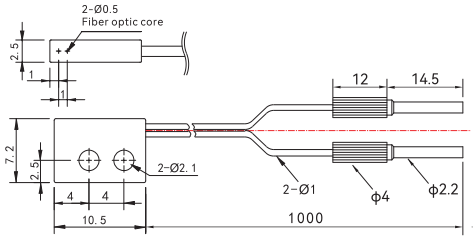
PD-F42UA



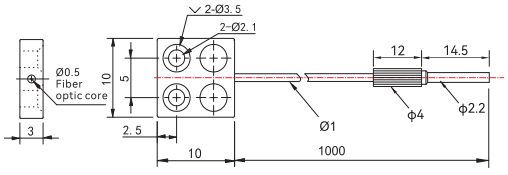
PD-F44UA



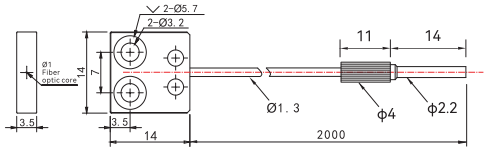
PD-F47UA



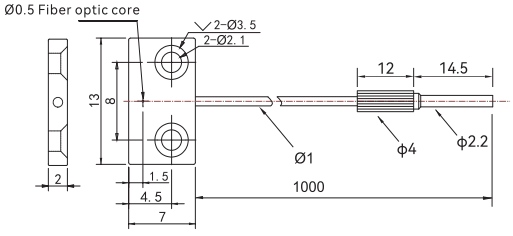
PT-F51UA



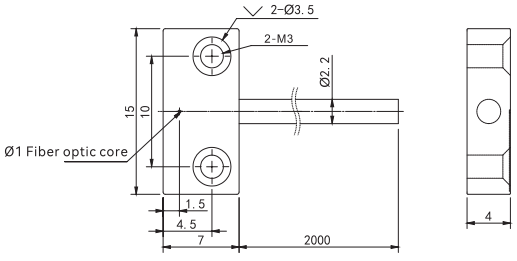
PT-F52UA



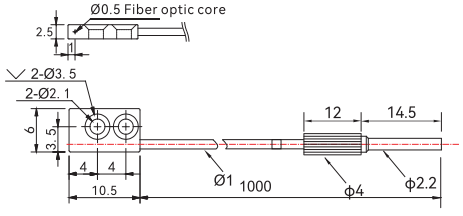
PT-F53UA



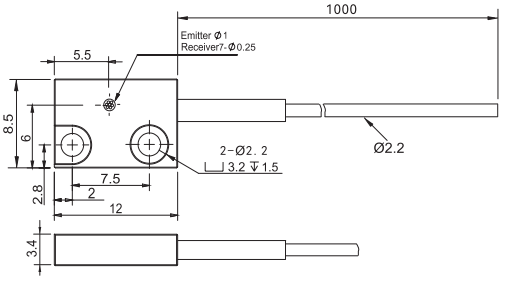
PT-F54UA



PT-F57UA



PT-FZ8



Side-view Type Fiber Components

Diffuse reflection





Basic Features	Working Principle	Fiber optic components	
	Optical Working Principle	Diffuse reflection	
	Housing Style	Right-angle type, Long convex tube	
	Fiber Head Type	Ø3.0mm	
	Sensing Distance	with PG1:40mm/with PE1:120mm	with PG1:110mm/with PE1:130mm
	Fiber Length	2000mm	
	Fiber Diameter	Ø0.5mm	
	Fiber Arrangement	Standard	
	Core Construction	Transmitter end:1，Receiver end:1	
	Integrated Lens	No lens	
	Minimum Object Diameter	–	
Mechanical Data	Bending Radius	25mm	10mm
	Material	Stainless steel	
	Fiber Can Be Cut	Can be cut with fiber cutter	
	Operating Environment Temperature	–	
	Accessories	No installation parts	
	Model	PD-32-DQ	PD-32-SQ

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

Thru-beam





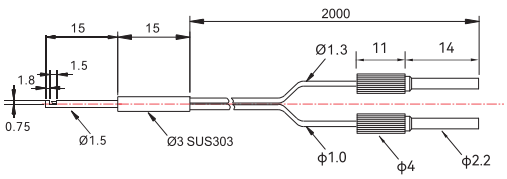
Basic Features	Working Principle	Fiber optic components	
	Optical Working Principle	Thru-beam	
	Housing Style	Right-angle type, long convex tube	
	Fiber Head Type	Ø3.0mm	Ø2.5mm
	Sensing Distance	with PG1:300mm/with PE1:440mm	with PG1:80mm/with PE1:140mm
	Fiber Length	2000mm	
	Fiber Diameter	Ø0.5mm	
	Fiber Arrangement	Standard	
	Core Construction	Transmitter end:1，Receiver end:1	
	Integrated Lens	No lens	
	Minimum Object Diameter	–	
Mechanical Data	Bending Radius	25mm	10mm
	Material	–	
	Fiber Can Be Cut	Can be cut with fiber cutter	
	Operating Environment Temperature	–	
	Accessories	No installation parts	
	Model	PT-32-DQ	PT-32-SQ

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

Unit: mm

Dimensions

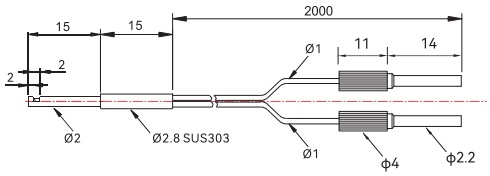
PD-32-DQ





2-Ø0.5 Fiber optic core

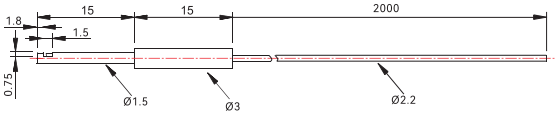
PD-32-SQ





2-Ø0.5 Fiber optic core

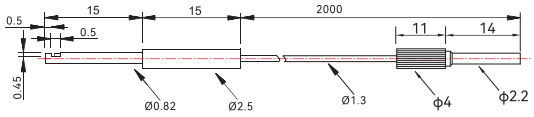
PT-32-DQ





Ø0.5 Fiber optic core

PT-32-SQ





Ø0.5 Fiber optic core

High flexible type Fiber Components

Diffuse reflection



Basic Features	Working Principle	Fiber optic components			
	Optical Working Principle	Diffuse reflection			
	Housing Style	–			Short convex tube
	Fiber Head Type	Ø3.0mm		M3mm	M4mm
	Sensing Distance	with PG1:60mm with PE1:100mm	with PG1:40mm with PE1:80mm	with PG1:30mm with PE1:60mm	with PG1:40mm with PE1:50mm
	Fiber Length	2000mm		1000mm	2000mm
	Fiber Diameter	Ø0.5mm	Ø0.25mm		
	Fiber Arrangement	Standard			
	Core Construction	Transmitter end:1 Receiver end:1	Transmitter end:2，Receiver end:2		Transmitter end:4 Receiver end:4
	Integrated Lens	No lens			
	Minimum Object Diameter	–			
Mechanical Data	Bending Radius	10mm		4mm	
	Material	Stainless steel	Stainless steel + Polyvinyl alcohol	nickel-plated brass	Stainless steel
	Fiber Can Be Cut	Can be cut with fiber cutter			
	Operating Environment Temperature	–			
	Accessories	No installation parts		M3 nut + 2 washers	M4 nut + 2 washers
	Model	**PD-W32-Q**	**PD-W48**	**PD-W69Y**	**PD-W68**

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

Thru-beam



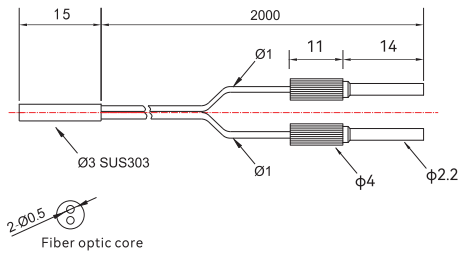
Basic Features	Working Principle	Fiber optic components		
	Optical Working Principle	Thru-beam		
	Housing Style	–		Right-angle type
	Fiber Head Type	Ø1.5mm	M3mm	Without drum
	Sensing Distance	with PG1:180mm/with PE1:300mm	with PG1:150mm/with PE1:230mm	–
	Fiber Length	1000mm		
	Fiber Diameter	Ø0.25mm		
	Fiber Arrangement	Standard		
	Core Construction	Transmitter end:2，Receiver end:2		Transmitter end:4，Receiver end:4
	Integrated Lens	No lens		
	Minimum Object Diameter	–		
Mechanical Data	Bending Radius	4mm		
	Material	–	Nickel-plated brass	–
	Fiber Can Be Cut	Can be cut with fiber cutter		
	Operating Environment Temperature	–		
	Accessories	No installation parts	M3 nut + 2 washers	No installation parts
	Model	**PT-W59**	**PT-W79**	**PT-W57UF**

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

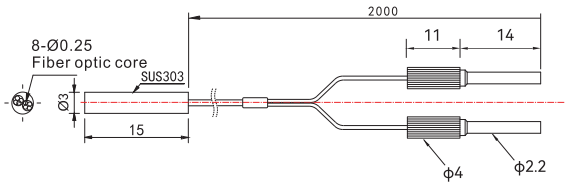
Unit: mm

Dimensions

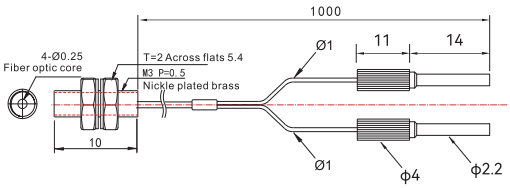
PD-W32-Q



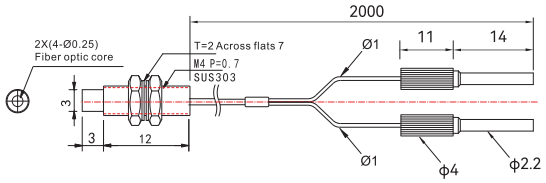
PD-W48



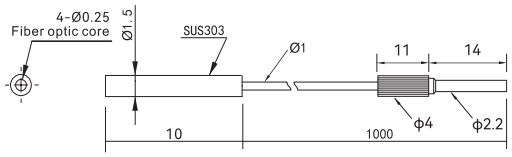
PD-W69Y



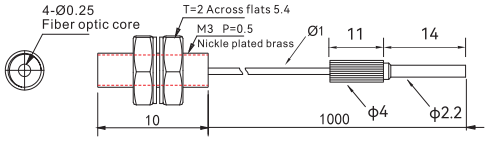
PD-W68



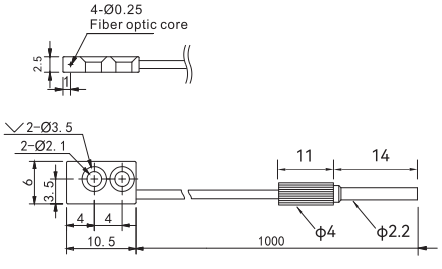
PT-W59



PT-W79



PT-W57UF



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Fiber amplifiers
Standard

Fiber components
Regular type
Array-type
Flat bracket type
Side-view type
High flexible type
High temperature resistant
Small spot type
Combination type
High end type

Fiber lens
Fiber lens

High Temperature Resistant Type Fiber Components

Diffuse reflection



Basic Features	Working Principle	Fiber optic components					
	Optical Working Principle	Diffuse reflection					
	Housing Style	Short convex tube					
	Fiber Head Type	M4mm	M6mm	M4mm	M6mm	M4mm	M6mm
	Sensing Distance	with PG1:60mm with PE1:70mm	with PG1:250mm with PE1:360mm	with PG1:220/320mm with PE1:200/290mm	with PG1:220/200mm with PE1:310/300mm	with PG1:-/150mm with PE1:230/320mm	with PG1:150/210mm with PE1:260/370mm
	Fiber Length	2000mm		900/1900mm	1000/2000mm	900/1900mm	1000/2000mm
	Fiber Diameter	Ø0.5mm	Ø1mm	Ø1.5mm			
	Fiber Arrangement	Standard					
	Core Construction	Transmitter end:1，Receiver end:1					
	Integrated Lens	No lens					
	Minimum Object Diameter	–					
Mechanical Data	Bending Radius	10mm	25mm				
	Material	Stainless steel + Cross-linked polyethylene		Stainless steel + Polytetrafluoroethylene		Stainless steel	
	Fiber Can Be Cut	Can be cut with fiber cutter					
	Operating Environment Temperature	105℃	105℃	200℃		350℃	
	Accessories	M4 nut + 2 washers	M6 nut + 2 washers	M4 nut + 2 washers	M6 nut + 2 washers	M4 nut + 2 washers	M6 nut + 2 washers
	Model	**PD-H42Y**	**PD-H62Y**	**PD-H41E/H42E** HOT	**PD-H61E/H62E**	**PD-H41S/H42S**	**PD-H61S/H62S**

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

Thru-beam



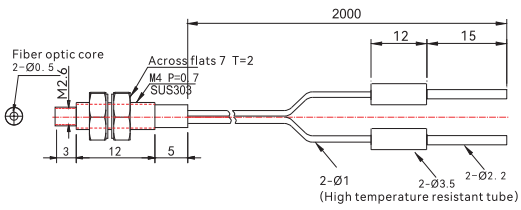
Basic Features	Working Principle	Fiber optic components		
	Optical Working Principle	Thru-beam		
	Housing Style	Short convex tube		
	Fiber Head Type	M4mm		
	Sensing Distance	with PG1:770mm/with PE1:930mm	with PG1:830/–mm/with PE1:1360/–mm	with PG1:600/700mm/with PE1:1300mm
	Fiber Length	2000mm	1000/2000mm	1000/2000mm
	Fiber Diameter	Ø1mm		
	Fiber Arrangement	Standard		
	Core Construction	Transmitter end:1，Receiver end:1		
	Integrated Lens	No lens		
	Minimum Object Diameter	–		
Mechanical Data	Bending Radius	25mm		
	Material	Stainless steel + Cross-linked polyethylene	Stainless steel + Polytetrafluoroethylene	Stainless steel
	Fiber Can Be Cut	Can be cut with fiber cutter		
	Operating Environment Temperature	105℃	200℃	350℃
	Accessories	M4 nut + 2 washers		
	Model	**PT-H42Y**	**PT-H41E/H42E**	**PT-H41S/H42S**

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

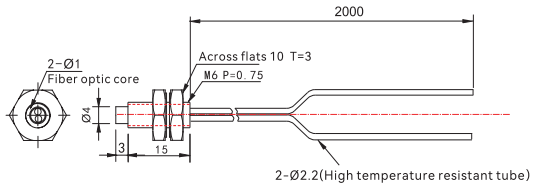
Unit: mm

Dimensions

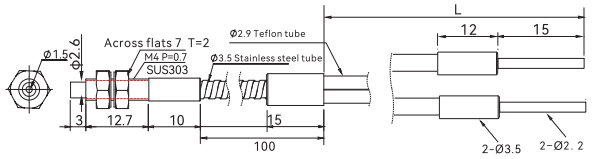
PD-H42Y



PD-H62Y

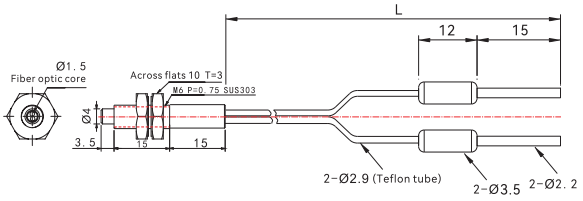


PD-H41E/H42E



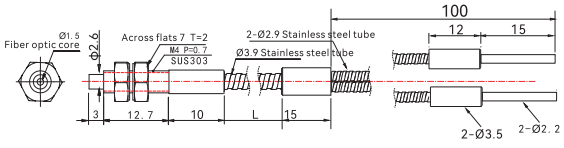
PD-H41E:L=900/PD-H42E:L=1900

PD-H61E/H62E



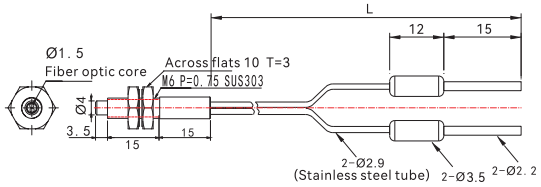
PD-H61E:L=1000/PD-H62E:L=2000

PD-H41S/H42S



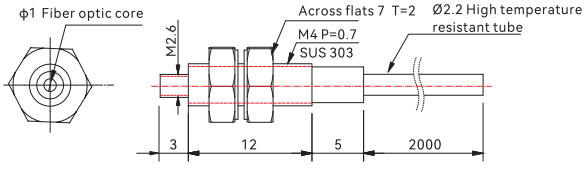
PD-H41S:L=900/PD-H42S:L=1900

PD-H61S/H62S

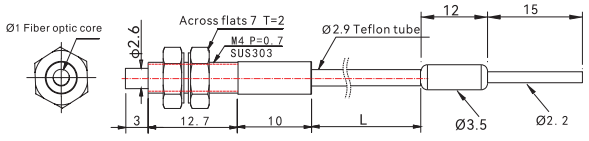


PD-H61S:L=1000/PD-H62S:L=2000

PT-H42Y

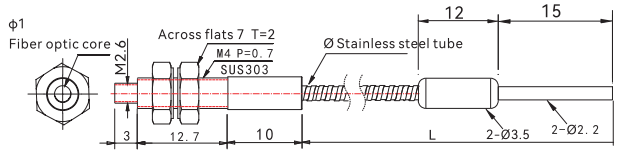


PT-H41E/H42E



PT-H41E:L=1000/PT-H42E:L=2000

PT-H41S/H42S



PT-H41S:L=1000/PT-H42S:L=2000

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Fiber amplifiers
Standard

Fiber components
Regular type
Array-type
Flat bracket type
Side-view type
High flexible type
High temperature resistant
Small spot type
Combination type
High end type

Fiber lens
Fiber lens

Small Spot Type / Combination type Fiber Components

Small Spot Type



Basic Features	Working Principle	Fiber optic components
	Optical Working Principle	Diffuse reflection
	Housing Style	–
	Fiber Head Type	Ø3.0mm
	Sensing Distance	with PG1:20mm/with PE1:30mm
	Fiber Length	500mm
	Fiber Diameter	Ø1.7mm
	Fiber Arrangement	Standard
	Core Construction	Transmitter end:1, Receiver end:6
	Integrated Lens	Built-in focusing lens
	Minimum Object Diameter	–
Mechanical Data	Bending Radius	15mm
	Material	Aluminum + Polyvinyl Alcohol
	Fiber Can Be Cut	Can be cut with fiber cutter
	Operating Environment Temperature	–
	Accessories	No installation parts
	Model	PD-X20 HOT

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

Combination type





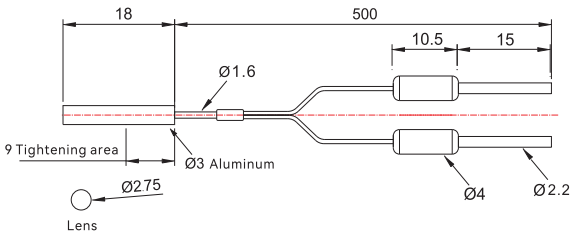
Basic Features	Working Principle	Fiber optic components	
	Optical Working Principle	Diffuse reflection	
	Housing Style	Long convex tube	
	Fiber Head Type	Ø3.0mm	Ø1.5mm
	Sensing Distance	with PG1:50mm/with PE1:100mm	with PG1:410mm/with PE1:550mm
	Fiber Length	300mm	1000mm
	Fiber Diameter	–	
	Fiber Arrangement	Standard	
	Core Construction	–	
	Integrated Lens	No lens	
	Minimum Object Diameter	–	
Mechanical Data	Bending Radius	–	
	Material	–	
	Fiber Can Be Cut	Can be cut with fiber cutter	
	Operating Environment Temperature	–	
	Accessories	No installation parts	
	Model	PD-S4Q3-30 Customizable	PD-S10Q1.5-100

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

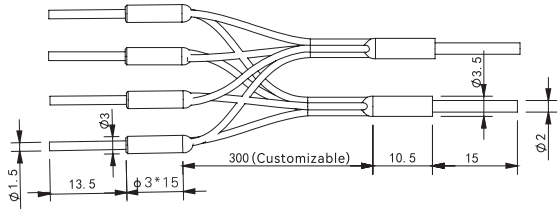
Unit：mm

Dimensions

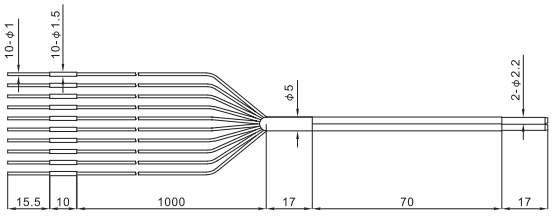
PD-X20



PD-S4Q3-30



PD-S10Q1.5-100



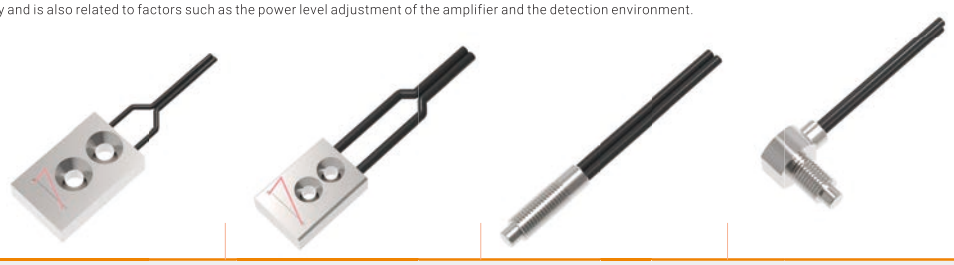
High End Type Fiber Components

Diffuse reflection



Basic Features	Working Principle	Fiber optic components			
	Optical Working Principle	Diffuse reflection			
	Housing Style	Long convex tube	Short convex tube		Long convex tube
	Fiber Head Type	Ø1.5mm	M3mm		
	Sensing Distance	with PG1:10mm with PE1:15mm	with PG1:70mm with PE1:110mm	with PG1:75mm with PE1:120mm	–
	Fiber Length	1000mm	2000mm		
	Fiber Diameter	Ø0.125mm	Ø0.5mm	Transmitter end:Ø0.5mm Receiver end:Ø0.25mm	Ø0.25mm
	Fiber Arrangement	Standard		Coaxial Optical Devices	Standard
	Core Construction	Transmitter end: 2 Receiver end: 2	Transmitter end: 1 Receiver end: 1	Transmitter end: 1 Receiver end: 10	Transmitter end: 1 Receiver end: 1
	Integrated Lens	No lens			
	Minimum Object Diameter	–			
Mechanical Data	Bending Radius	4mm	10mm	15mm	10mm
	Material	Poly(methyl methacrylate) + Fluorinated polymer			
	Fiber Can Be Cut	Can be cut with fiber cutter			
	Operating Environment Temperature	–			
	Accessories	No installation parts			
	Model	PD-R15 HOT	PD-R32 HOT	PD-RC32 HOT	PD-RE32-I/S/M/L HOT

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.



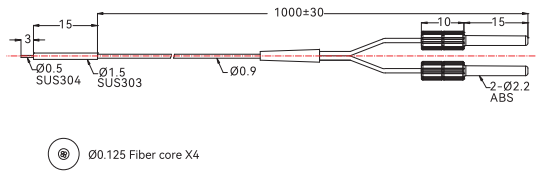
Basic Features	Working Principle	Fiber optic components			
	Optical Working Principle	Diffuse reflection			
	Housing Style	Right-angle type	Right-angle type	Short convex tube	Right-angle type, short convex tube
	Fiber Head Type	Without drum		M6mm	
	Sensing Distance	with PG1:10mm with PE1:15mm	–	with PG1:260mm with PE1:310mm	with PG1:180mm with PE1:230mm
	Fiber Length	2000mm			
	Fiber Diameter	Ø0.5mm	Ø1mm		
	Fiber Arrangement	Standard			
	Core Construction	Transmitter end:1, Receiver end:1			
	Integrated Lens	No lens			
	Minimum Object Diameter	–			
Mechanical Data	Bending Radius	15mm	25mm		2mm
	Material	Poly(methyl methacrylate) + Fluorinated polymer			
	Fiber Can Be Cut	Can be cut with fiber cutter			
	Operating Environment Temperature	–			
	Accessories	No installation parts			
	Model	PD-R38V HOT	PD-R38L HOT	PD-R62 HOT	PD-R62TE HOT

Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

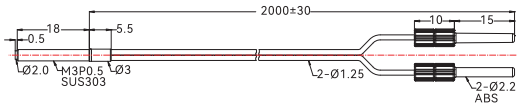
Unit：mm

Dimensions

PD-R15

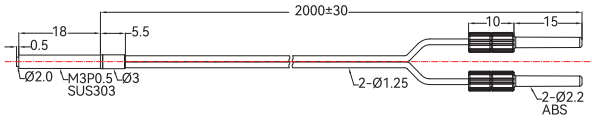


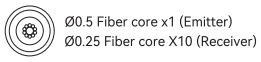
PD-R32



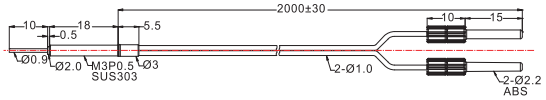


PD-RC32

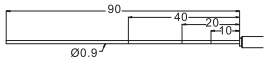




PD-RE32-I/S/M/L

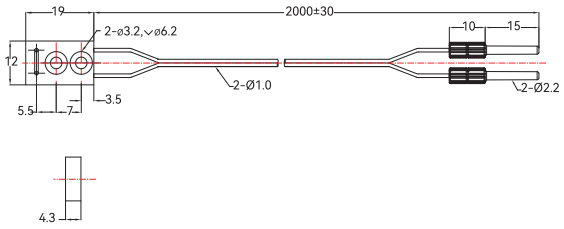




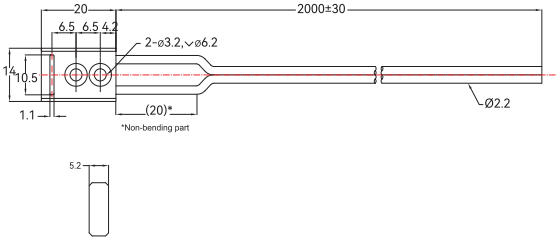


Convex tube:
I:10mm S:20mm M:40mm L:90mm

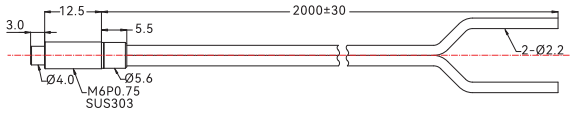
PD-R38V



PD-R38L

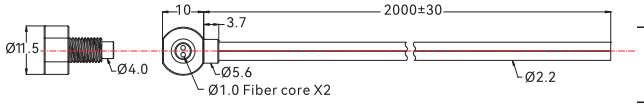


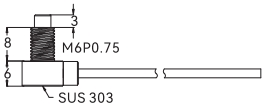
PD-R62



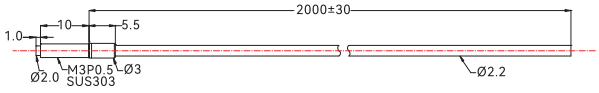


PD-R62TE



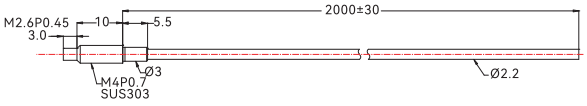


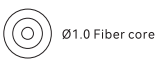
PT-R32





PT-R42





High End Type Fiber Components

Thru-beam

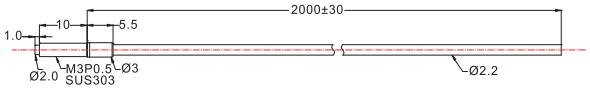




Basic Features	Working Principle	Fiber optic components	
	Optical Working Principle	Thru-beam	
	Housing Style	Short convex tube	
	Fiber Head Type	M3mm	M4mm
	Sensing Distance	–	with PG1:820mm/with PE1:1170mm
	Fiber Length	2000mm	
	Fiber Diameter	Ø1mm	
	Fiber Arrangement	Standard	
	Core Construction	Transmitter end:1，Receiver end:1	
	Integrated Lens	No lens	
	Minimum Object Diameter	–	
Mechanical Data	Bending Radius	25mm	
	Material	Poly(methyl methacrylate) + Fluorinated polymer	
	Fiber Can Be Cut	Can be cut with fiber cutter	
	Operating Environment Temperature	–	
	Accessories	No installation parts	
	Model	PT-R32 HOT	PT-R42 HOT

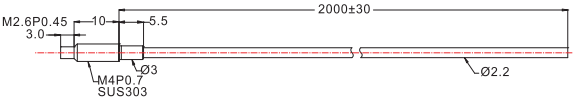
Note: The detection distance is for reference only and is also related to factors such as the power level adjustment of the amplifier and the detection environment.

PT-R32



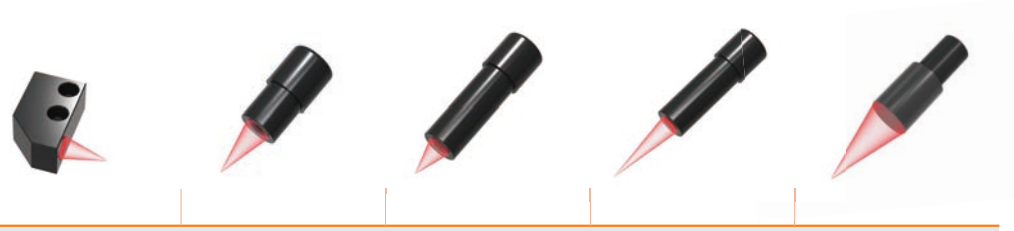


PT-R42





Diffuse reflection



Basic Features	Working Principle	Optical Lens for Fiber				
	Housing Style	Flat block	Smooth Roller with Probe			
	Tip Size	–	φ4.3		φ7.4	φ10.6
	Spot Diameter	φ0.5~3	about φ4 (Detection Distance Within 0~20mm)	φ0.4	φ0.5	φ2.0
	Focal Length	8~30	0~30	7±2mm	15±2mm	35±2mm
Mechanical Data	Suitable for Fiber Head	M3				
	Material	Aluminum				
	Model	PF-5D	PF-3D	PF-2D HOT	PF-4D	PF-6D

Thru-beam



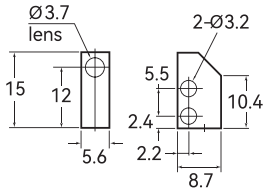
Basic Features	Working Principle	Optical Lens for Fiber			
	Housing Style	Smooth Roller with Probe		Flat block	Smooth Roller with Probe
	Tip Size	φ4.3	φ4	–	φ4
	Spot Diameter	–			
	Focal Length	3600mm			
Mechanical Data	Suitable for Fiber Head	Ø2.6mm			
	Material	Aluminum	Nickel-plated brass	Aluminum	Nickel-plated brass
	Model	PF-4T	PF-2T	PF-5T	PF-1T

Fiber Lens

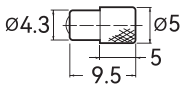
Dimensions

Unit: mm

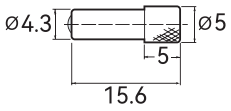
PF-5D



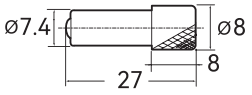
PF-3D



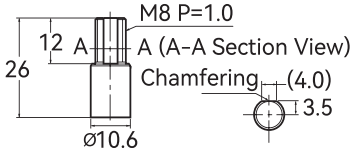
PF-2D



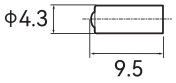
PF-4D



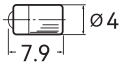
PF-6D



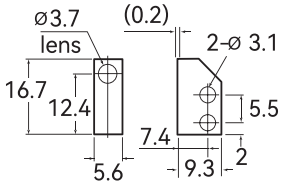
PF-4T



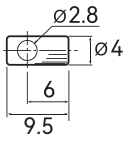
PF-2T



PF-5T



PF-1T



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Fiber amplifiers
Standard
Fiber components
Regular type
Array-type
Flat bracket type
Side-view type
High flexible type
High temperature resistant
Small spot type
Combination type
High end type
Fiber lens
Fiber lens

Fiber Optic Sensors

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

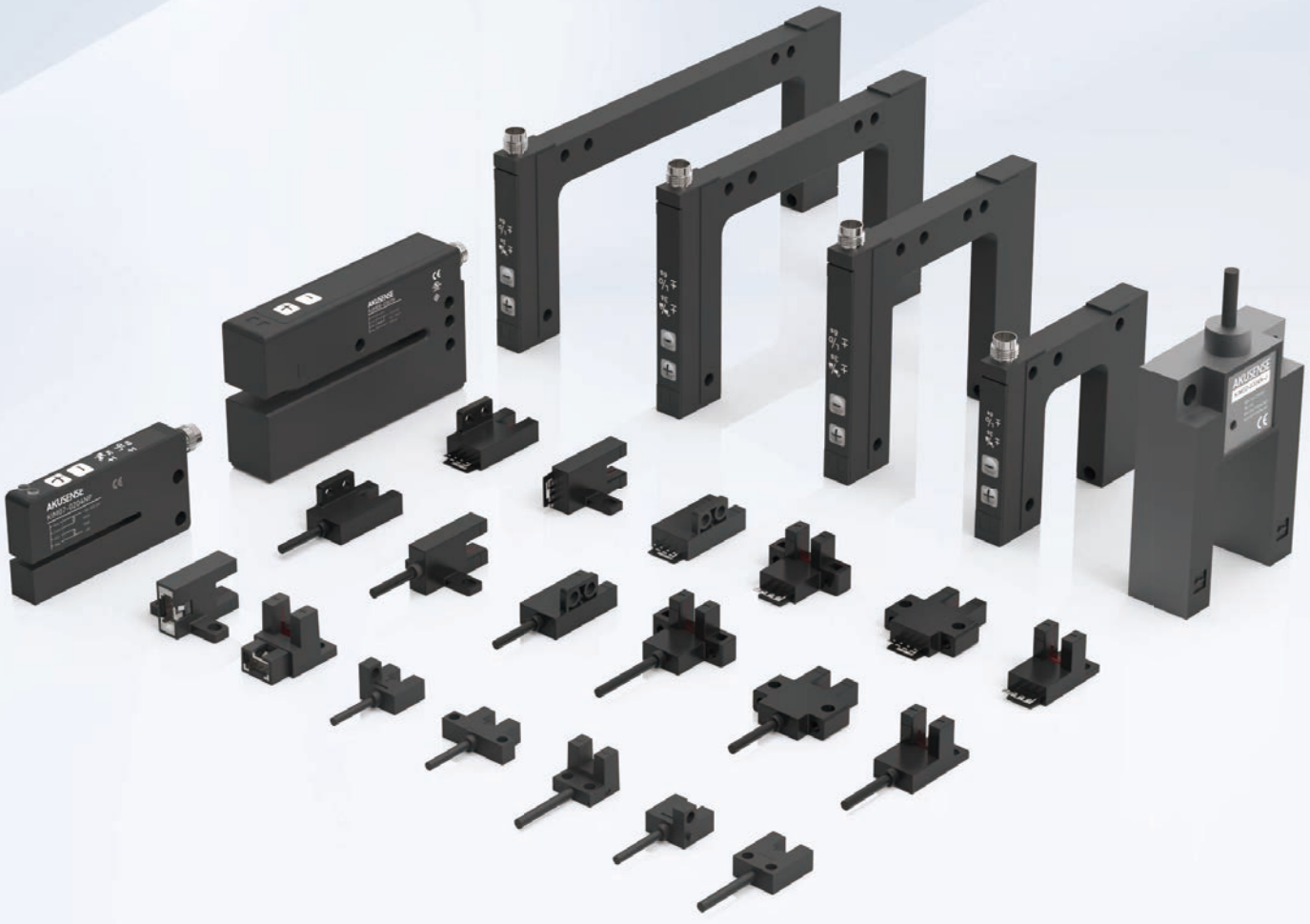
Guidance

Fiber amplifiers
Standard

Fiber components
Regular type
Array-type
Flat bracket type
Side-view type
High flexible type
High temperature resistant
Small spot type
Combination type
High end type

Fiber lens
Fiber lens

Slot-Type Sensors

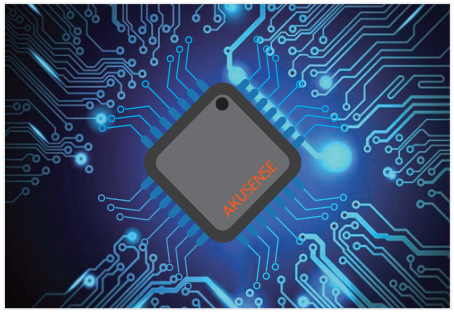


- Multiple product line, slot width ranges from 5mm to 120mm
- Mircoslot sensors can fully substitute for the popular models from other well-known brands
- Label sensors are equipped with standard teach-in function, can stably detect various labels

Chip-based Solution*

Integration of product functions and applications highly onto a single chip, achieving higher consistency

* ST-603NA-E2、SY-607NA-E2





Rich Product Line

Slot width ranges from 5mm to 120mm, compatible with over 12 shapes such as F/T/R/L/K

Mechanical installation, compatible with mainstream installation hole distances in the market

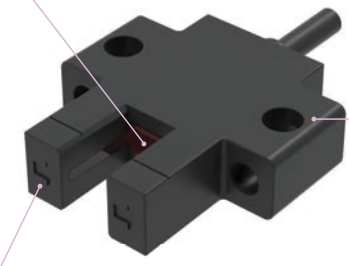
Clear LED Indicator Light Design

High-brightness LED lights

Ultra-wide viewing angle design

Clear LED Indicator Light Design

High-brightness LED lights
Ultra-wide viewing angle design



High Precision

Repeatability: 0.01mm3KHz
3KHz high-speed response, response time: 0.17 milliseconds

Strong Anti-interference Ability

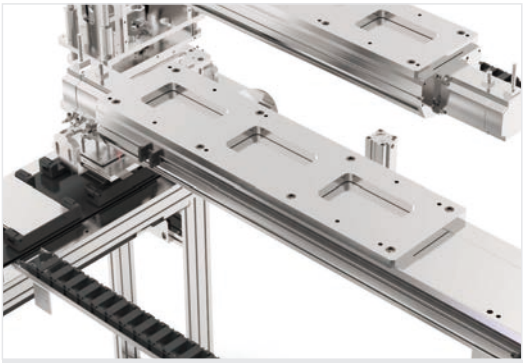
Resistant to incandescent light up to 1,000Lux

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

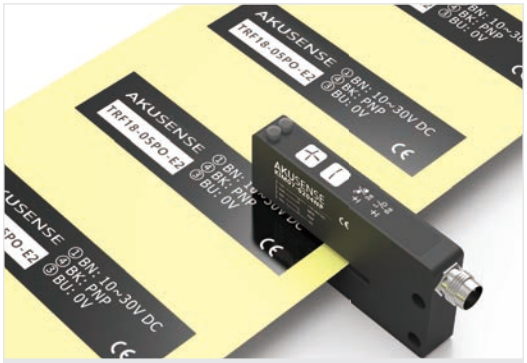
Guidance

Slot type sensors
Mirco slot type
Slot type
Wide slot type
Label detection

Application Scenarios



Precision positioning of motion mechanism



Label positioning detection

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Slot type sensors
Mirco slot type
Slot type
Wide slot type
Label detection

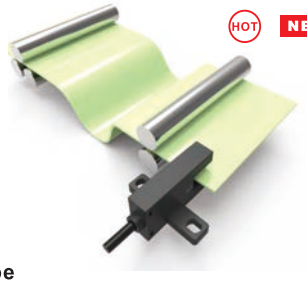
Guidance



Micro Slot Type

- Newly developed products,competitve price and good quality
- Derived from Japanese advanced technology, excellent performance
- 6.5mm slot depth (effectively prevents detected objects from hitting the bottom of the slots) ※Part of the model

P.B-05



HOT NEW!

Slot Type

- Available in pre-wired and connector type, 12 specifications such as F/T/R/L/K.T for option
- NO/NC output (easy wiring)
- 8.5 mm slot depth (prevents detected objects from hitting the bottom of the slot to a large extent)

P.B-07

NEW!

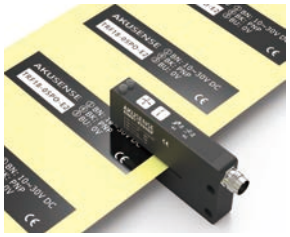


NPN and PNP in one

Wide Slot Type

- Flexible to switch NPN and PNP output
- Provide laser and infrared light sources according to different needs
- Various wide slots are available, 30mm, 50mm, 80mm, 120mm, etc.

P.B-13



Label Detection Type

- Stably detects those labels with 2mm gaps or 2mm lengths.
- With two-point and single-point teaching function
- Infrared detection and ultrasonic detection are available

P.B-15

Micro Slot Type

Series	Appearance	Slot width			Model number		Pages
					NPN Normally open	PNP Normally open	
Mirco slot type(4-wire)		K shape	5mm	D.on/ L.on	SK-206NA-W	SK-206PA-W	B-05
		L shape	5mm	D.on/ L.on	SL-205NA-W HOT	SL-205PA-W	
		F shape	5mm	D.on/ L.on	SF-202NA-W	SF-202PA-W	
		R shape	5mm	D.on/ L.on	SR-204NA-W	SR-204PA-W	
		U shape	5mm	D.on/ L.on	SU-201NA-W	SU-201PA-W	

Slot Type

Series	Appearance	Slot width		When detecting objects	NPN Normally open&Normally closed	PNP Normally open&Normally closed	Pages
Slot type(Pre-wired)		F shape	5mm	Light on when detecting object	SF-302N-SW	SF-302P-SW	B-07
				Light off when detecting object	SF-302NA-SW	SF-302PA-SW	
		T shape	5mm	Light on when detecting object	ST-303N-SW HOT	ST-303P-SW	
				Light off when detecting object	ST-303NA-SW HOT	ST-303PA-SW	
		R shape	5mm	Light on when detecting object	SR-304N-SW	SR-304P-SW	
				Light off when detecting object	SR-304NA-SW	SR-304PA-SW	

Slot Type

Series	Appearance	Slot width	When detecting objects	NPN Normally open&Normally closed	PNP Normally open&Normally closed	Pages
Slot type(Pre-wired)	L shape	5mm	Light on when detecting object	SL-305N-SW (HOT)	SL-305P-SW	B-07
			Light off when detecting object	SL-305NA-SW (HOT)	SL-305PA-SW	
	K shape	5mm	Light on when detecting object	SK-306N-SW	SK-306P-SW	
			Light off when detecting object	SK-306NA-SW	SK-306PA-SW	
	Y shape	5mm	Light on when detecting object	SY-307N-SW (HOT)	SY-307P-SW	
			Light off when detecting object	SY-307NA-SW (HOT)	SY-307PA-SW	
Slot type (Connector type)	F shape	5mm	Light on when detecting object	SF-302N-SE	SF-302P-SE	B-09
			Light off when detecting object	SF-302NA-SE	SF-302PA-SE	
	T shape	5mm	Light on when detecting object	ST-303N-SE (HOT)	ST-303P-SE	
			Light off when detecting object	ST-303NA-SE (HOT)	ST-303PA-SE	
	R shape	5mm	Light on when detecting object	SR-304N-SE	SR-304P-SE	
			Light off when detecting object	SR-304NA-SE	SR-304PA-SE	
	L shape	5mm	Light on when detecting object	SL-305N-SE (HOT)	SL-305P-SE	
			Light off when detecting object	SL-305NA-SE (HOT)	SL-305PA-SE	
	K shape	5mm	Light on when detecting object	SK-306N-SE	SK-306P-SE	B-11
			Light off when detecting object	SK-306NA-SE	SK-306PA-SE	
	Y shape	5mm	Light on when detecting object	SY-307N-SE (HOT)	SY-307P-SE	
			Light off when detecting object	SY-307NA-SE (HOT)	SY-307PA-SE	

▪ Remark: Standard 2 or 4m cable, cable length is customizable

Wide Slot Type

Series	Appearance	Slot width	Output mode	Model number	Pages
KLM		30mm	NPN & PNP dual output	KLM06-0304NP	B-13
		50mm		KLM06-0506NP	
		80mm		KLM06-0806NP	
		120mm		KLM06-1206NP	
KIM		15mm	NPN D.on/L.on	KIM15-0101N	B-15
		15mm	PNP D.on/L.on	KIM15-0101P	
		30mm	NPN D.on/L.on	KIM30-0304N-J	
		30mm	PNP D.on/L.on	KIM30-0304P-J	

Label Detection

Series	Appearance	Slot width	Min length of label	Model number NPN	Model number PNP	Pages
KIM		2mm	2mm	KIM07-0204NP		B-17
		3mm	2mm	KIM07-0304N	KIM07-0304P	
KUM		3mm	2mm	KUM08-0307N	KUM08-0307P	B-19

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Slot type sensors
Mirco slot type
Slot type
Wide slot type
Label detection

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Slot type sensors
Mirco slot type
Slot type
Wide slot type
Label detection

Micro Slot Type



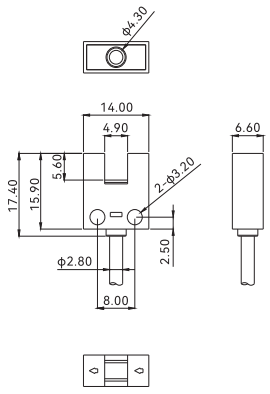
Basic Features	Working principle	Photoelectric sensor				
	Housing style	Shape U	Shape F	Shape R	Shape L	Shape K
	Optical working principle	Through-beam				
	Light source	Infrared LED, 940nm				
	Slot width	5.0mm				
	Slot depth	5.6mm	5.9mm	5.75mm	6.2mm	5.8mm
	Detecting object	1.2x1.8mm				
	Indicator light	Red LED				
Electrical data	Switching mode	L.on (light-on action)/D.on (dark-on action) switchable				
	Output mode	NPN or PNP collector open				
	Response time	0.33ms				
	Switching frequency	6.06kHz				
	Repeat accuracy	<0.03mm				
	Hysteresis	<0.2mm				
	Operating voltage	5~24V DC				
	Power consumption	≤16mA				
	Residual voltage	Below 1V (when load current is 50mA)				
	Load current	≤100mA(24VDC)				
	Insulation resistance	≥20MΩ(250VDC)				
	Withstand voltage	1000VAC (50/60Hz)				
	Protection circuit	Reverse polarity protection/short-circuit protection/surge protection				
Environmental conditions	Operating temperature	–25~55℃(no freezing)				
	Storage temperature	–30~80℃(no freezing)				
	Operating humidity	5~85%RH(no condensation)				
	Storage humidity	5~95%RH(no condensation)				
	Environmental illumination	Incandescent light ≤1000 Lux; LED light ≤1000 Lux; Sunlight ≤10000 Lux				
	Vibration resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes				
	Protection rating	IP50				
Mechanical data	Connection method	2m/4-core cable				
	Dimensions	6.6x14.0x15.9mm	15.5x14.7x12.3mm	15.9x14.7x12.3mm	13.8x12.1x12.4mm	24.0x14.0x6.5mm
	Material	ABS				
	Weight	0.025kg	0.023kg		0.024kg	0.023kg
	Accessories	–				
Model	NPN	**SU-201NA-W**	**SF-202NA-W**	**SR-204NA-W**	**SL-205NA-W** HOT	**SK-206NA-W**
	PNP	**SU-201PA-W**	**SF-202PA-W**	**SR-204PA-W**	**SL-205PA-W**	**SK-206PA-W**

Note: SL-205NA/PA-W is recommended to be installed with small or non-standard M3 screws (screw head diameter less than 5.2mm); other models are recommended to be installed with general-purpose M3 screws.

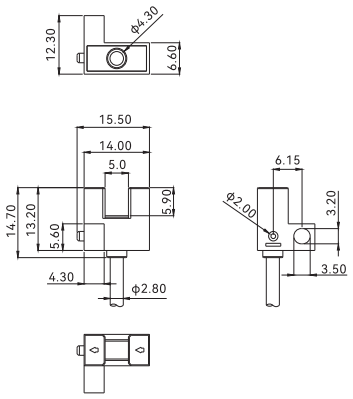
Dimensions

Unit: mm

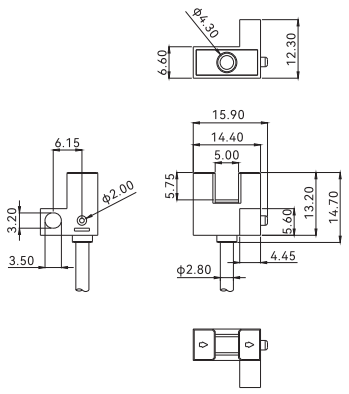
U Shape



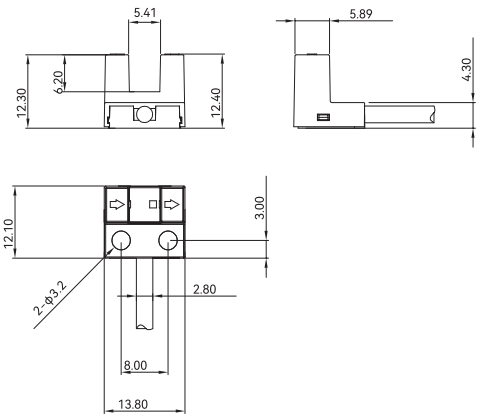
F Shape



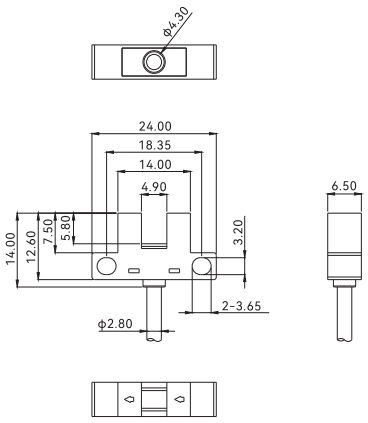
R Shape



L Shape

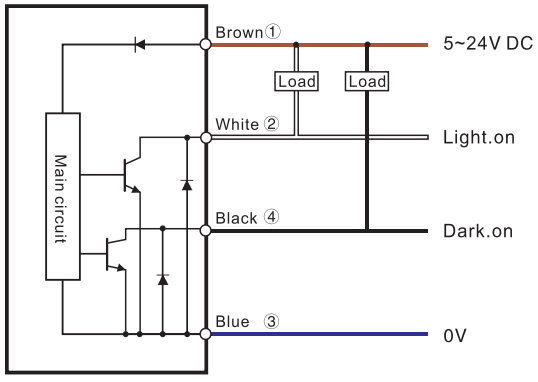


K Shape

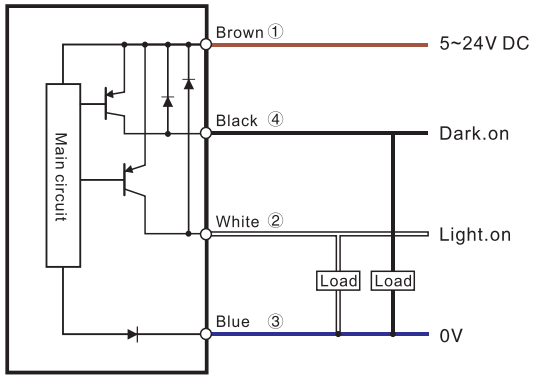


Circuit diagram

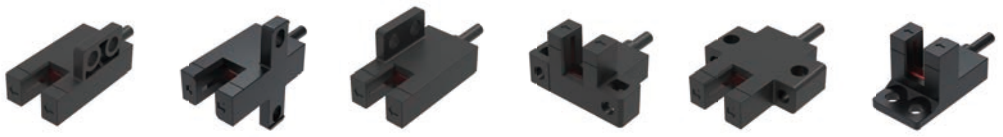
NPN



PNP



Slot Type



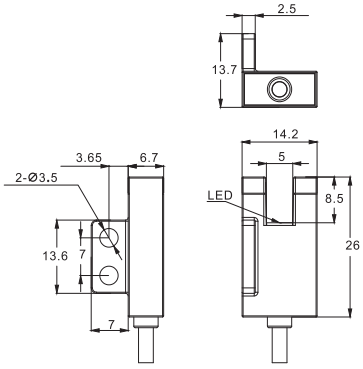
Basic Features	Working principle	Photoelectric sensor					
	Housing style	Shape F	Shape T	Shape R	Shape L	Shape K	Shape Y
	Optical working principle	Through-beam					
	Light source	Infrared LED, 940nm					
	Slot width	5.0mm					
	Slot depth	8.5mm					
	Detecting object	1.2x1.8mm opaque object					
	Indicator light	Red LED					
Electrical data	Switching mode	L.on (light-on action)/D.on (dark-on action) switchable					
	Output mode	NPN or PNP collector open					
	Response time	≤0.33ms					
	Switching frequency	3KHz					
	Repeat accuracy	0.01mm					
	Hysteresis	<0.2mm					
	Operating voltage	5~24V DC					
	Power consumption	<20mA					
	Residual voltage	Below 1.5V (with load current of 100mA and 2m wire length)					
	Load current	≤100mA(24VDC)					
	Insulation resistance	≥20MΩ(250VDC)					
	Withstand voltage	AC, 1000V for 1 minute, between all power supply connection terminals and the housing					
	Protection circuit	Reverse polarity protection/surge protection					
Environmental conditions	Operating temperature	–25~55℃					
	Storage temperature	–30~80℃(no freezing)					
	Operating humidity	5%~85%RH					
	Storage humidity	5~95%RH(no condensation)					
	Environmental illumination	Incandescent light ≤1000 Lux					
	Vibration resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes					
	Protection rating	IP50					
Mechanical data	Connection method	2m/4-core cable					
	Dimensions	26x14.2x13.7mm	26.5x15.2x27.1mm	26x14.2x13.7mm	26.03x18x14.9mm	26x6.7x25.4mm	25.8x15.4x14.4mm
	Material	PC					
	Weight	0.025kg	0.026kg	0.025kg		0.026kg	0.025kg
	Accessories	–					
Model	NPN	**SF-302NA-SW**	**ST-303NA-SW**	**SR-304NA-SW**	**SL-305NA-SW**	**SK-306NA-SW**	**SY-307NA-SW**
	PNP	**SF-302PA-SW**	**ST-303PA-SW**	**SR-304PA-SW**	**SL-305PA-SW**	**SK-306PA-SW**	**SY-307PA-SW**

Note: For SL-305NA/PA-SW, it is recommended to use small or non-standard M3 screws (screw head diameter less than 5.2mm) for installation;
for SK-306NA/PA-SW, it is recommended to use general-purpose M3.5 screws for installation. For other models,
it is recommended to use general-purpose M3 screws for installation. Recommended torque value is less than 0.6N.

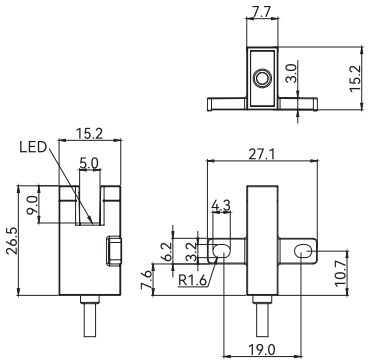
Unit：mm

Dimensions

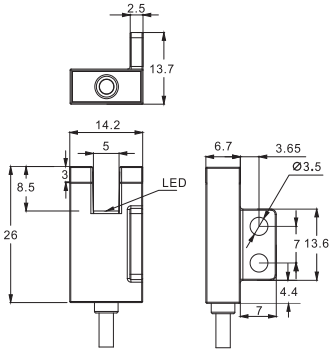
F Shape



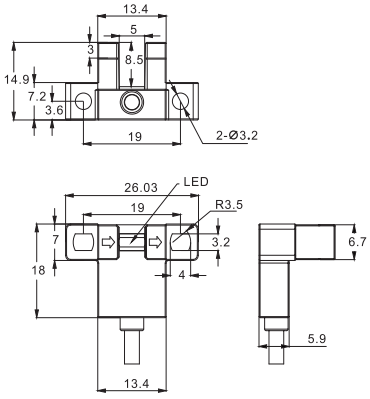
T Shape



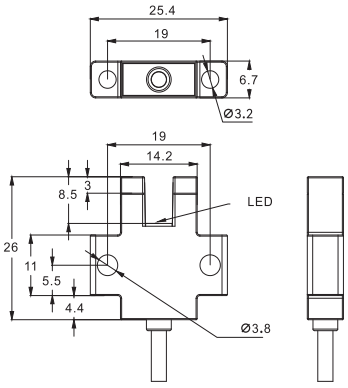
R Shape



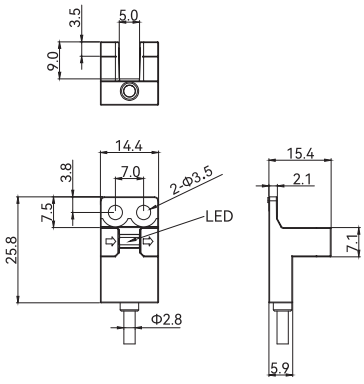
L Shape



K Shape

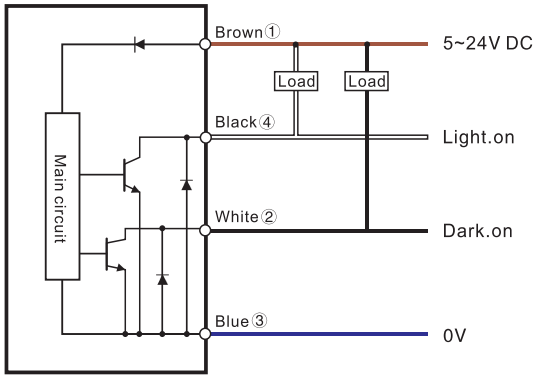


Y Shape

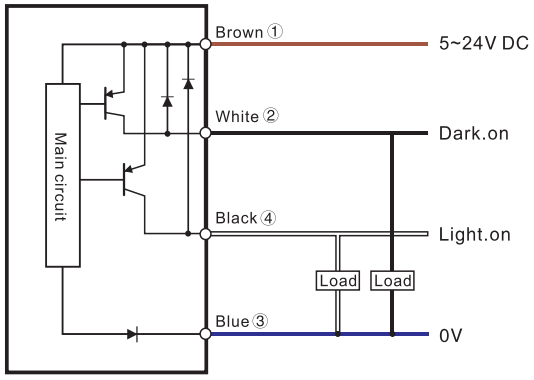


Circuit diagram

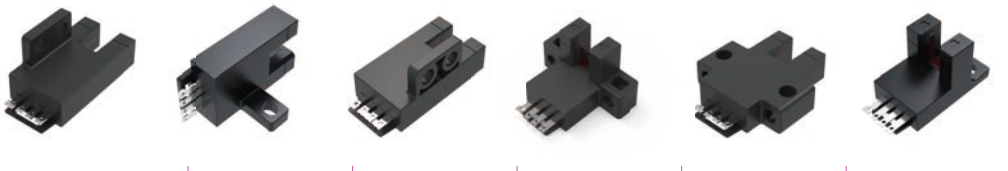
NPN



PNP



Slot Type



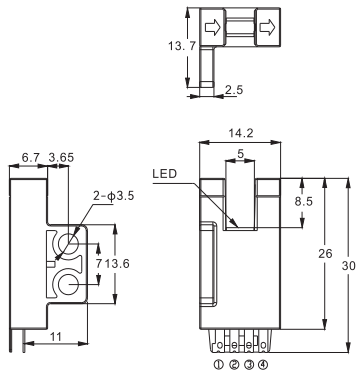
Basic Features	Working principle	Photoelectric sensor					
	Housing style	Shape F	Shape T	Shape R	Shape L	Shape K	Shape Y
	Optical working principle	Through-beam					
	Light source	Infrared LED, 940nm					
	Slot width	5mm					
	Slot depth	8.5mm			7.7mm	8.5mm	
	Detecting object	1.2x1.8mm opaque object					
	Indicator light	Red LED					
Electrical data	Switching mode	light-on action)/D.on (dark-on action) switchable					
	Output mode	NPN or PNP collector open					
	Response time	0.3ms					
	Switching frequency	3KHz					
	Repeat accuracy	0.01mm					
	Hysteresis	<0.2mm					
	Operating voltage	5~24V DC					
	Power consumption	<20mA					
	Residual voltage	Below 0.2V (with load current of 10mA),Below 1.5V (with load current of 100mA)					
	Load current	≤100mA(24VDC)					
	Insulation resistance	≥20MΩ(250VDC)					
	Withstand voltage	AC, 1000V for 1 minute, between all power supply connection terminals and the housing					
	Protection circuit	Reverse polarity protection/surge protection					
Environmental conditions	Operating temperature	-25~55℃					
	Storage temperature	-30~80℃(no freezing)					
	Operating humidity	5%~85%RH					
	Storage humidity	5~95%RH(no condensation)					
	Environmental illumination	Incandescent light ≤1000 Lux					
	Vibration resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes					
	Protection rating	IP50					
Mechanical data	Connection method	4-pin connector					
	Dimensions	30x14.2x13.7mm	32.7x15.2x27.1mm	30x14.2x13.7mm	26x23.1x14.9mm	30x25.4x6.7mm	31.3x14.4x15.4mm
	Material	PC					
	Weight	0.003kg	0.002kg	0.003kg	0.002kg	0.003kg	0.002kg
	Accessories	–					
Model	NPN	**SF-302NA-SE**	**ST-303NA-SE**	**SR-304NA-SE**	**SL-305NA-SE**	**SK-306NA-SE**	**SY-307NA-SE**
	PNP	**SF-302PA-SE**	**ST-303PA-SE**	**SR-304PA-SE**	**SL-305PA-SE**	**SK-306PA-SE**	**SY-307PA-SE**

Note: For SL-305NA/PA-SE, it is recommended to use small or non-standard M3 screws (screw head diameter less than 5.2mm) for installation; for SK-306NA/PA-SE, it is recommended to use general-purpose M3.5 screws for installation.
For other models, it is recommended to use general-purpose M3 screws for installation. Recommended torque value is less than 0.6N.
Connecting cable: ME-1007 (refer to O-11

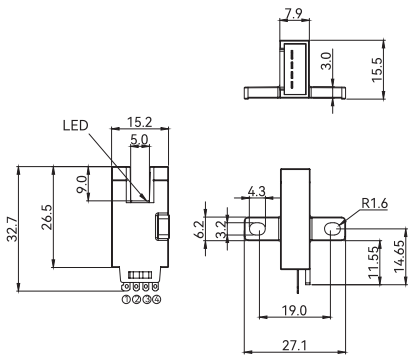
Unit：mm

Dimensions

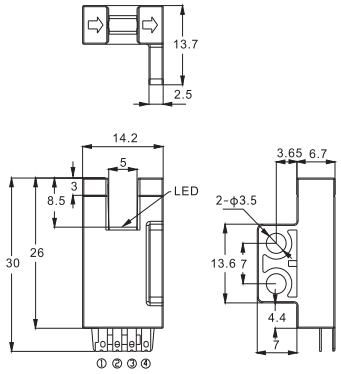
F Shape



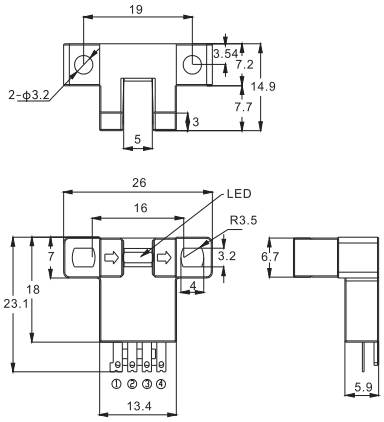
T Shape



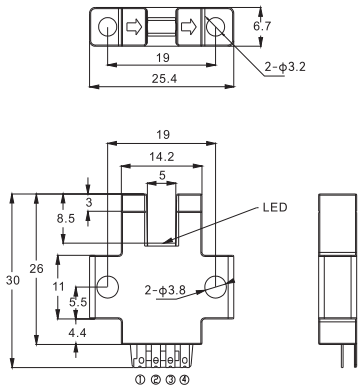
R Shape



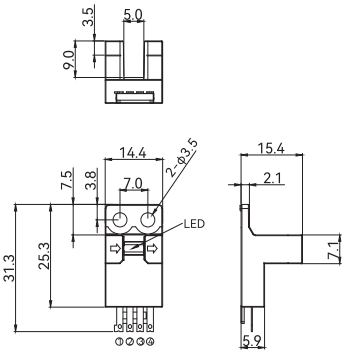
L Shape



K Shape

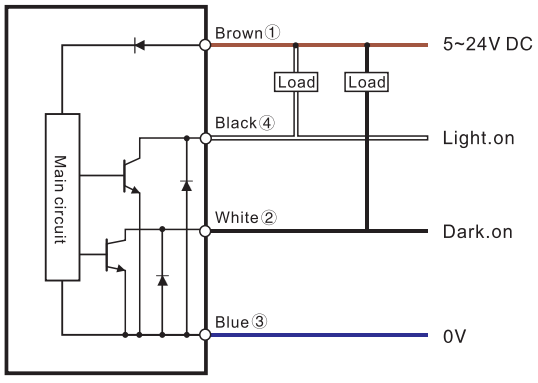


Y Shape

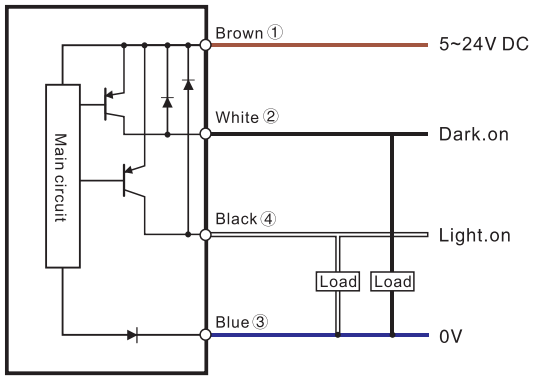


Circuit diagram

NPN



PNP



Slot Type



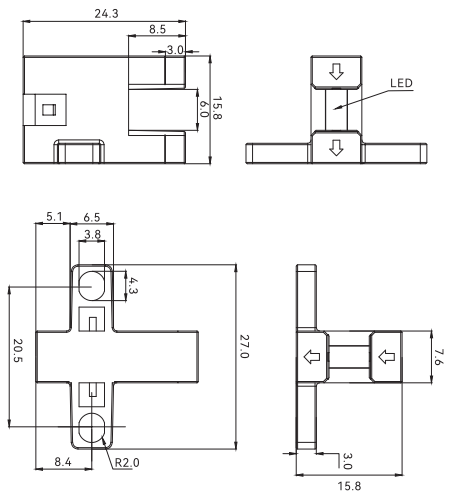


Basic Features	Working principle		Photoelectric sensor	
	Housing style		Shape T	Shape Y
	Optical working principle		Through-beam	
	Light source		Infrared LED, 940nm	
	Slot width		6mm	
	Slot depth		8.5mm	9mm
	Detecting object		1.2x1.8mm opaque object	
	Indicator light		Red LED	
Electrical data	Switching mode		L.on (light-on action)/D.on (dark-on action) switchable	
	Output mode		NPN or PNP collector open	
	Response time		166.67ms	
	Switching frequency		3khz	
	Repeat accuracy		<0.01mm	
	Hysteresis		<0.05mm	
	Operating voltage		5~24V DC	
	Power consumption		≤15mA	
	Residual voltage		Less than 0.4V (with load current of 40mA)	
	Load current		< 50mA	
	Insulation resistance		≥20MΩ(250VDC)	
	Withstand voltage		±1000V 50/60Hz 60s	
	Protection circuit		Reverse polarity protection	
Environmental conditions	Operating temperature		–25~55℃(no freezing)	
	Storage temperature		–30~80℃(no freezing)	
	Operating humidity		5~85%RH(no condensation)	
	Storage humidity		5~95%RH(no condensation)	
	Environmental illumination		Incandescent light ≤1000 Lux	
	Vibration resistance		10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection rating		IP50	
Mechanical data	Connection method		Plug-in	
	Dimensions		27x24.3x15.8mm	17x24.4x15.8mm
	Material		PC	
	Weight		0.0255kg	0.0254kg
	Accessories		–	
Model	NPN	Detect object light on.	**ST-603N-E2**	**SY-607N-E2**
		Detect object light off.	**ST-603NA-E2**	**SY-607NA-E2**
	PNP	Detect object light on.	**ST-603P-E2**	**SY-607P-E2**
		Detect object light off.	**ST-603PA-E2**	**SY-607PA-E2**

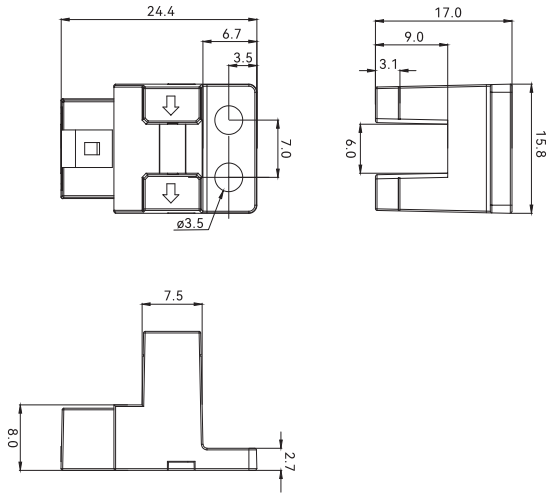
Unit：mm

Dimensions

ST-603-E2

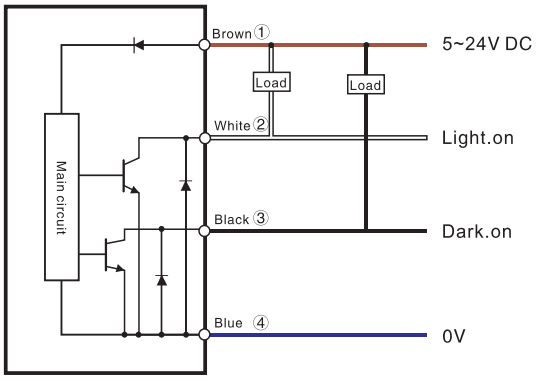


ST-607-E2

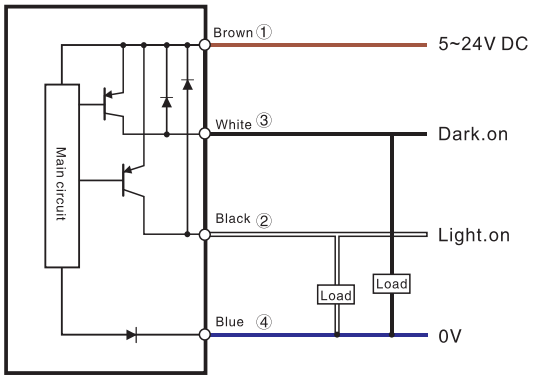


Circuit diagram

NPN



PNP



Wide Slot Type

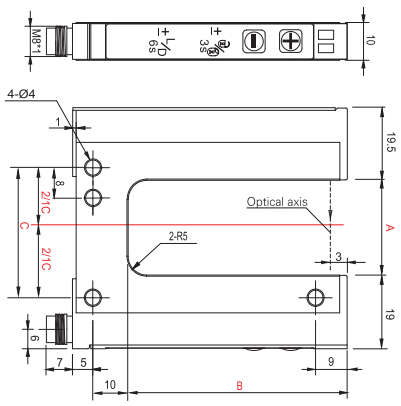
KLM Series



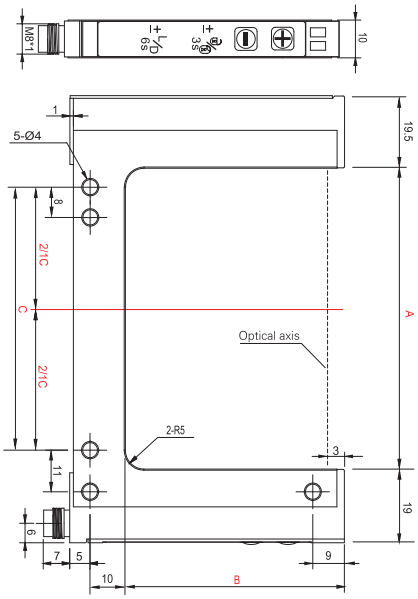
Basic Features	Working principle	Photoelectric sensor			
	Housing style	Shape U			
	Optical working principle	Through-beam			
	Light source	Red laser, 670nm (modulated)			
	Slot width	30mm	50mm	80mm	120mm
	Slot depth	42mm	59mm		
	Detecting object	0.05mm			
	Indicator light	Output function: Red LED, operational status: Green LED			
Electrical data	Switching mode	L.on (light-on action)/D.on (dark-on action) switchable			
	Output mode	NPN or PNP collector open			
	Response time	0.1ms			
	Switching frequency	20kHz			
	Repeat accuracy	<0.01mm		<0.2mm	<0.01mm
	Hysteresis	<0.01mm		<0.2mm	<0.01mm
	Operating voltage	12~24V DC ± 10%			
	Power consumption	≤40mA			
	Residual voltage	≤2.0V(100mA)			
	Load current	≤100mA(24VDC)			
	Insulation resistance	≥50MΩ(500VDC)			
	Withstand voltage	1000VAC (50/60Hz)			
	Protection circuit	Reverse polarity protection/short-circuit protection			
Environmental conditions	Operating temperature	-20~50℃(no freezing)			
	Storage temperature	-30~80℃(no freezing)			
	Operating humidity	35~85%RH(no condensation)			
	Storage humidity	35~95%RH(no condensation)			
	Environmental illumination	Incandescent light ≤1000 Lux; LED light ≤1000 Lux; Sunlight ≤10000 Lux			
	Vibration resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes			
	Protection rating	IP65			
Mechanical data	Connection method	M8/4-pin plug			
	Dimensions	57.0x10.0x68.5mm	74.0x10.0x88.5mm	74.0x10.0x118.5mm	74.0x10.0x158.5mm
	Material	Aluminum, glass			
	Weight	0.043kg	0.058kg	0.068kg	0.081kg
	Accessories	–			
	Model	**KLM06-0304NP**	**KLM06-0506NP**	**KLM06-0806NP**	**KLM06-1206NP**

Unit：mm

Dimensions



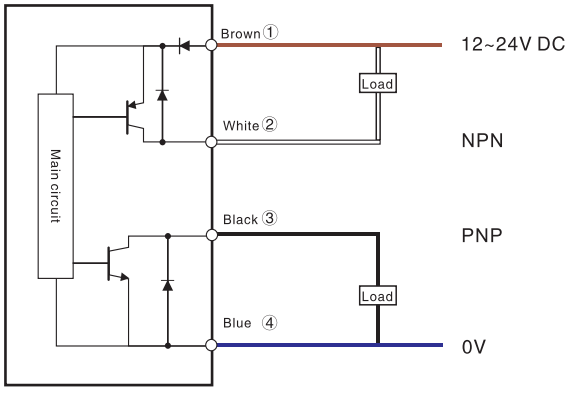
Model number	A	B	C
KLM06-0304NP	30	42	42



Model number	A	B	C
KLM06-0506NP	50	59	40
KLM06-0806NP	80	59	70
KLM06-1206NP	120	59	110

Circuit diagram

NPN/PNP



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Slot type sensors
Mirco slot type
Slot type
Wide slot type
Label detection

Wide Slot Type

KIM Series



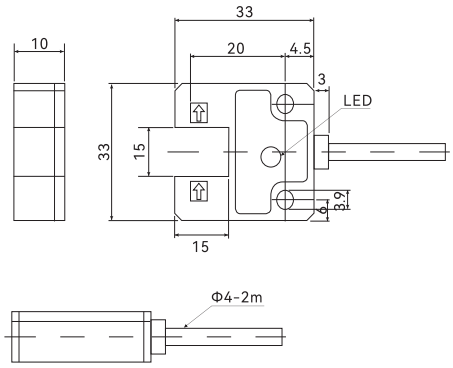
NEW!

Basic Features	Working principle	Photoelectric sensor	
	Housing style	Shape U	
	Optical working principle	Through-beam	
	Light source	Infrared LED, 940nm(modulated)	
	Slot width	15mm	30mm
	Slot depth	15mm	44m
	Detecting object	2mm	
	Indicator light	Output function: Yellow LED	
Electrical data	Switching mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output mode	NPN or PNP collector open	
	Response time	0.5ms	1ms
	Switching frequency	0.5kHz	2kHz
	Repeat accuracy	<1%	<0.03mm
	Hysteresis	≤2%	<0.03mm
	Operating voltage	12~24V DC ± 10%	
	Power consumption	≤15mA	
	Residual voltage	≤1.5V(100mA)	≤2.5V(100mA)
	Load current	≤100mA(24VDC)	
	Insulation resistance	≥20MΩ(500VDC)	≥50MΩ(500VDC)
	Withstand voltage	1000VAC (50/60Hz)	
	Protection circuit	Reverse polarity protection	Reverse polarity protection/short-circuit protection
Environmental conditions	Operating temperature	–10~55℃(no freezing)	–15~55℃(no freezing)
	Storage temperature	–20~60℃(no freezing)	–25~80℃(no freezing)
	Operating humidity	35~85%RH(no condensation)	35~95%RH(no condensation)
	Storage humidity	35~95%RH(no condensation)	
	Environmental illumination	Incandescent light ≤2000 Lux； Sunlight ≤1000 Lux	LED light ≤500 Lux
	Vibration resistance	10~50Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection rating	IP54	IP60
Mechanical data	Connection method	2m/4-core cable	
	Dimensions	10.0x33.0x33.0mm	52.0x20.2x72.0mm
	Material	ABS	
	Weight	0.025kg	0.065kg/0.019kg
	Accessories	–	
Model	NPN	**KIM15-0101N**	**KIM30-0304N-J**
	PNP	**KIM15-0101P**	**KIM30-0304P-J**

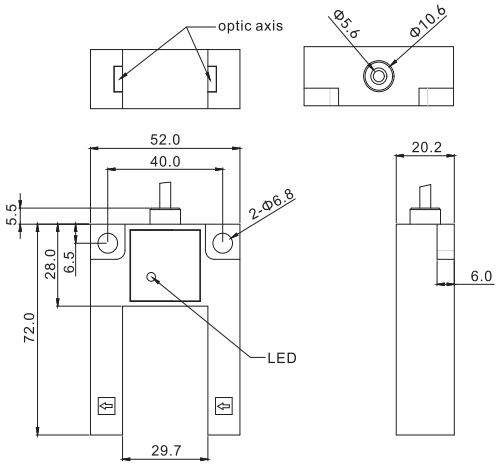
Unit：mm

Dimensions

KIM15-0101N/P

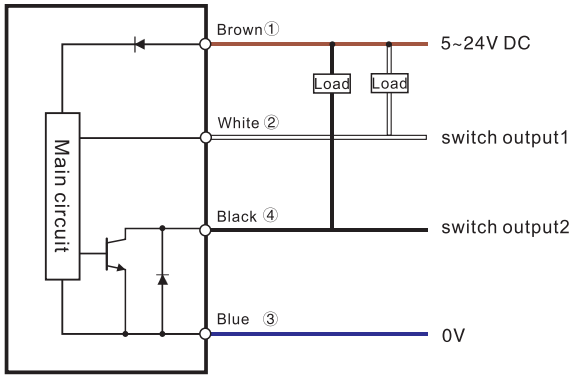


KIM30-0304N/P-J

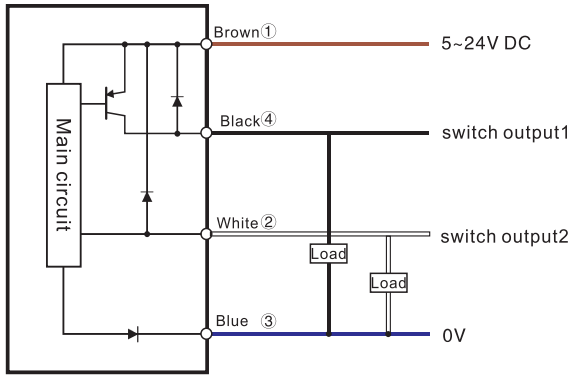


Circuit diagram

NPN



PNP



Label Detection

KIM Series



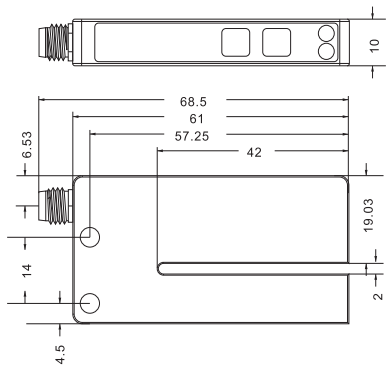


Basic Features	Working principle	Photoelectric sensor	
	Housing style	Shape U	
	Optical working principle	Through-beam	
	Light source	Infrared LED, 940nm	
	Slot width	2mm	3mm
	Slot depth	42mm	
	Detecting object	2mm (minimum label gap)	2mm (minimum label gap) 2mm (minimum label length)
	Indicator light	Output function: Red LED, operational status: Green LED	
Electrical data	Switching mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output mode	NPN or PNP collector open	
	Response time	0.02ms	
	Switching frequency	100kHz	
	Repeat accuracy	±0.02mm	
	Hysteresis	≤0.02mm	
	Operating voltage	12~24V DC±10%	
	Power consumption	≤40mA	
	Residual voltage	≤2V	
	Load current	≤100mA(24VDC)	
	Insulation resistance	≥50MΩ(500VDC)	
	Withstand voltage	1000VAC (50/60Hz)	
	Protection circuit	Reverse polarity protection/short-circuit protection	
Environmental conditions	Operating temperature	–10℃~+55℃	–20℃~+60℃
	Storage temperature	–30℃~+70℃	–30℃~+80℃
	Operating humidity	35%RH~85%RH	
	Storage humidity	35%RH~85%RH	
	Environmental illumination	Sunlight ≤10000 Lux	
	Vibration resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection rating	IP65	
Mechanical data	Connection method	M8/4-pin plug	
	Dimensions	32.5x10.0x61.0mm	63.6x25x10mm
	Material	Aluminum	PA (reinforced glass fiber)
	Weight	0.035kg	
	Accessories	Cable connectors sold separately	
Model	NPN	**KIM07-0204NP**	**KIM07-0304N**
	PNP		**KIM07-0304P**

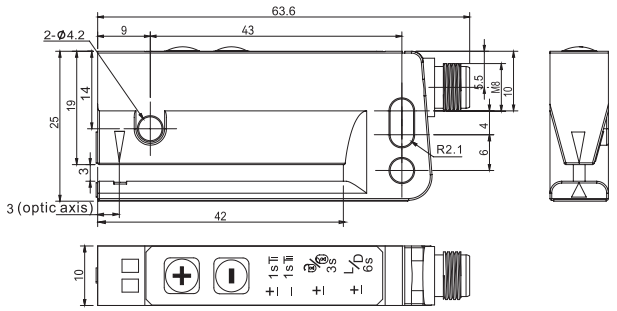
Unit：mm

Dimensions

KIM07-0204NP



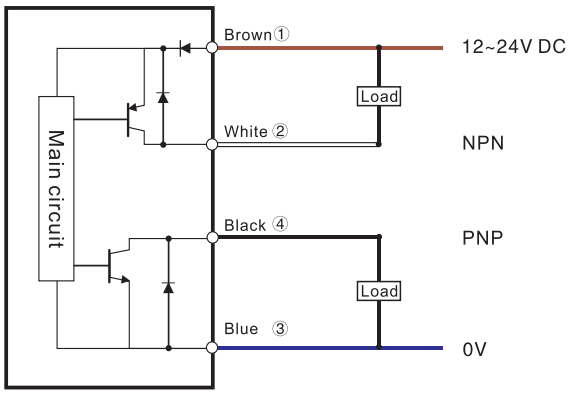
KIM07-0304N/P



Circuit diagram

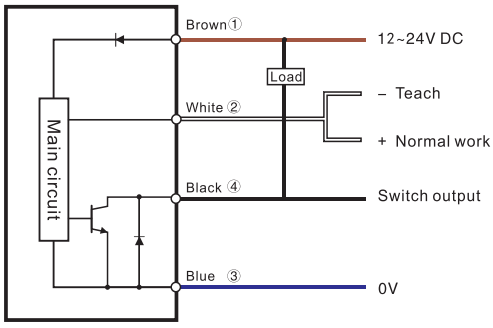
KIM07-0204NP

NPN/PNP

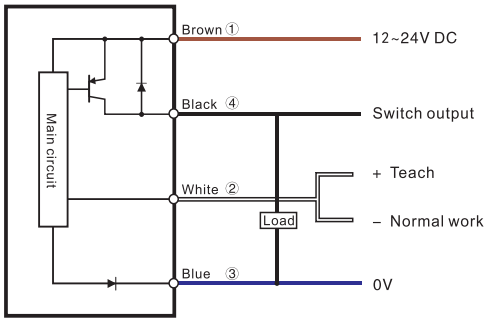


KIM07-0304N/P

NPN



PNP



Label Detection

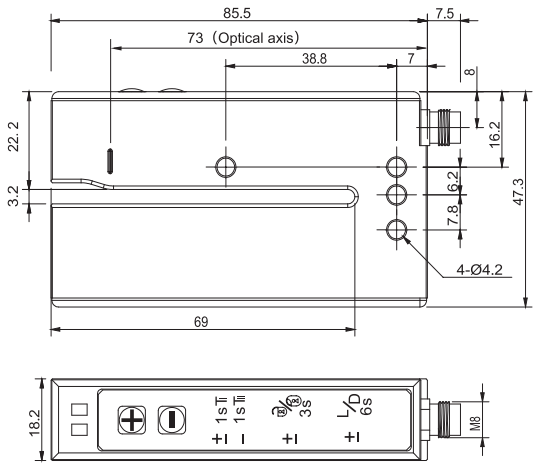
KUM Series



Basic Features	Working principle	Ultrasonic detection
	Housing style	U-shaped fork
	Optical working principle	Through-beam
	Transmitter	Ultrasonic
	Slot width	3.2mm
	Slot depth	69mm
	Detecting object	2mm minimum label gap
	Indicator light	Output function: Red LED, operational status: Green LED
Electrical data	Switching mode	L.on (light-on action)/D.on (dark-on action) switchable
	Output mode	NPN or PNP collector open
	Response time	0.3ms
	Switching frequency	1.5kHz
	Repeat accuracy	±0.2
	Hysteresis	–
	Operating voltage	12~24V DC ± 10%
	Power consumption	≤45mA
	Residual voltage	<2V@1L=100mA
	Load current	⩽100mA
	Insulation resistance	DC500V insulation resistance >50MΩ
	Withstand voltage	Insulation voltage of VC100V when current <0.1mA
	Protection circuit	short-circuit protection
Environmental conditions	Operating temperature	–5~55℃
	Storage temperature	–20~70℃
	Operating humidity	35~95%RH(no condensation)
	Storage humidity	35~95%RH(no condensation)
	Environmental illumination	Unavailable
	Vibration resistance	10~50Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes
	Protection rating	IP65
Mechanical data	Connection method	M8/4-pin plug
	Dimensions	85.5x47.3x18.2mm
	Material	Aluminum
	Weight	0.019kg
	Accessories	–
Model	NPN	**KUM08-0307N**
	PNP	**KUM08-0307P**

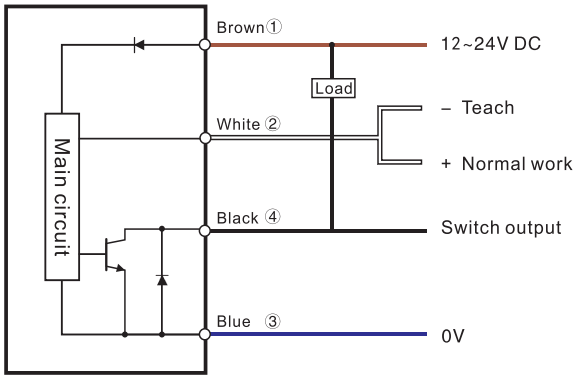
Unit：mm

Dimensions

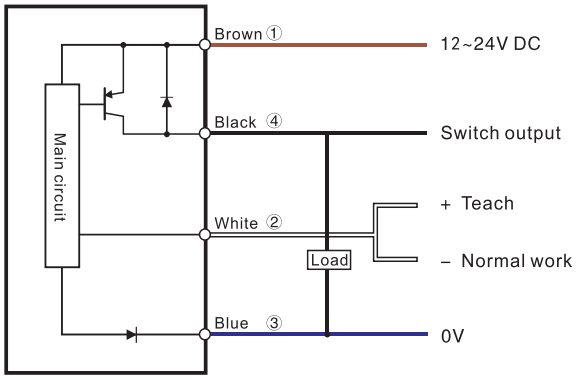


Circuit diagram

NPN



PNP



Photoelectric Sensors



- Available in a variety of models, like thin type, square type, cylindrical type, etc.
- Solid and durable metal housing; Economical plastic housing; Easy to install.
- Short circuit protection and reverse polarity protection.

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors

Precision Optical Design

Reduced stray light interference, resulting in a clearer and brighter light spot



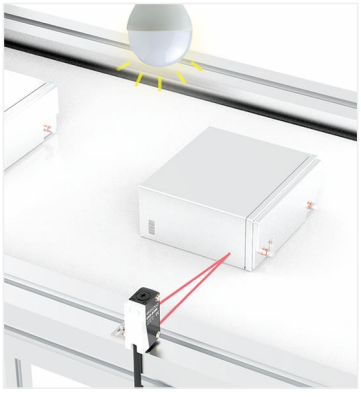
Meets the needs of various detection scenarios

Comprehensive specifications and sizes, including thin, square, cylindrical, and transparent types



Strong Anti-interference and Stability

Powerful software algorithms, noise filtering design, enhancing resistance to light interference





Protection rating up to IP69K *

Fully prevents dust intrusion while capable of withstanding high-pressure water/steam cleaning, enabling normal operation of the equipment

* PM18K Series

Guidance



NEW!

Cylindrical Type (PM/PSM/PXM Series)

- Epoxy resin fillings ,powerful in shock resistance
- The smallest diameter(8mm) in the industry
- Through-beam detection distance up to 20M

P.C-07



IP69K High Protection Type(PM18K Series)

- AISI 316L stainless steel housing material
- Protection grade IP69K, excellent mechanical performance
- Applied in harsh environments.

P.C-17

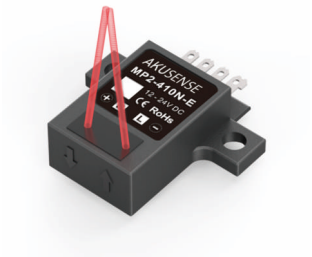


HOT NEW!

Square Type(PTE/PTEW/PTV/PTVW/PTN/PTJ-I Series)

- Identifying the action clearly with dual LED indicators
- Diffuse reflection detection distance up to 1M
- Retroreflective detection distance up to 3M

P.C-19



HOT

Flat Type(MP2 Series)

- Sensing surfaces on top side and front side support various detections
- Can switch L.on and D.on switch flexibly
- Long distance detection up to 40mm(white cardboard)

P.C-35



HOT NEW!

Thickness is only 3.5mm

Thin Type (ESL series)

- 3.5mm ultra-thin design, greatly saves installation space
- IP67 Protection degree , excellent mechanical performance
- LED indicator is bright and can be clearly seen from the back

P.C-38



HOT NEW!

Not affected by background color

BGS Type(ESB Series)

- High-precision optical lenses for clearer and brighter spot, eliminating stray light interference
- Dynamic filtering algorithm, achieving optimal detection results in various environments

P.C-40



RGB Light Source

Color/Mark Detection(ESE Series)

- RGB tricolor light source for stable detection of color characteristics
- Equipped with color mode and color reference mode, suitable for various detection scenarios

P.C-44

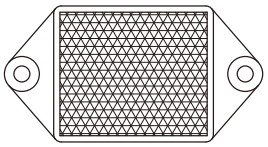


NEW!

TOF Type (ELT Series)

- High-speed TOF principle ranging chip, achieving precise detection up to 2m long distance
- Unaffected by object and background colors, stable adaptation to more scenarios

P.C-46



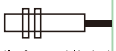
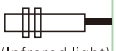
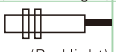
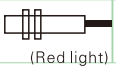
Reflectors

- Made of special material (robust housing)
- Shapes as circular, square and combination etc
- Customization is available as requested by clients

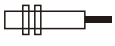
P.C-48

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
Reflectors
Reflectors

Cylindrical

Series		Sensing type	Sensing distance	Model No. NPN L.on&D.on	Model No. PNP L.on&D.on	Pages
PM08	 (Infrared light)	Diffuse reflection	3cm	L.on:PM08-D03NO (HOT)	L.on:PM08-D03PO	C-07
PXM18 (PBT housing)	 (D10 Red light) (D40 Infrared light)	Diffuse reflection	10cm	PXM18-D10N	PXM18-D10P	C-15
			40cm	PXM18-D40N	PXM18-D40P	
PSM12	 (Infrared light)	Thru-beam	500cm	PSM12-TM05NO	PSM12-TM05PO	C-09
				PSM12-TM05NC	PSM12-TM05PC	
PSM18	 (Red light)	Diffuse reflection	40cm	PSM18-D40N	PSM18-D40P	C-11
	 (Red light)	Diffuse reflection	40cm	PSM18-DV40N	PSM18-DV40P	C-13

IP69K high protection type

Series		Sensing type	Sensing distance	Model No. NPN L.on&D.on	Model No. PNP L.on&D.on	Pages
PM18	 (Infrared light)	Diffuse reflection	400mm	PM18K-D40NR		C-17

Square

Series		Sensing type	Sensing distance	Model No. NPN L.on&D.on	Model No. PNP L.on&D.on	Pages
PTE	 (Red light)	Diffuse reflection	1~30cm	PTE-DV30NR (荐)	PTE-DV30PR	C-19
			0.5~100cm	PTE-DV100NR	PTE-DV100PR	
		Convergent reflective	0.5~14cm	PTE-XE15NR (荐)	PTE-XE15PR	
		Retro -reflection	200cm	PTE-RM2N	PTE-RM2P	C-20
			300cm	PTE-RM3N	PTE-RM3P	
		Thru-beam	1000cm	PTE-TEM10NR	PTE-TEM10PR	C-21
PTEW	 (PTEW Red light PTVW Infrared light)	Diffuse reflection	0.5~20cm	PTEW-D20N	PTEW-D20P	C-24
PTVW			10cm	PTVW-D10N	PTVW-D10P	
			20cm	PTVW-D20N	PTVW-D20P	
PTV	 (Infrared light)	Diffuse reflection	1~30cm	PTV-D30N	PTV-D30P	C-26
			0.5~100cm	PTV-D70N	PTV-D70P	
		Convergent reflective	0.5~14cm	PTV-X09N	PTV-X09P	
		Thru-beam	500cm	PTV-T500N	PTV-T500P	C-27
				PTV-TM20NO	PTV-TM20PO	
			2000cm	PTV-TM20NC	PTV-TM20NC	
				PTV-TM20AN	PTV-TM20AP	
PTN	 (Red light) (Blue light)	Diffuse reflection	10cm	PTN-B10NO	PTN-B10PO	C-29
				PTN-B10NC	PTN-B10PC	
		Diffuse reflection	10cm	PTN-BY10NO	PTN-BY10PO	
				PTN-BY10NC	PTN-BY10PC	
		Thru-beam	150cm	PTN-T150NO	PTN-T150PO	
				PTN-T150NC	PTN-T150PC	

Guidance

Square

PTN	(Red light)	Diffuse reflection	5cm	PTN–D05N	PTN–D05P	C-31
		Thru-beam	50cm	PTN–T50N	PTN–T50P	
PTJ–I	(Infrared light)	Thru-beam	80cm	D.on:PTJ–T80NO–I	D.on:PTJ–T80PO–I	C-33
				L.on:PTJ–T80NC–I	L.on:PTJ–T80PC–I	
		Thru-beam	150cm	D.on:PTJ–T150NO–I	D.on:PTJ–T150PO–I	
				L.on:PTJ–T150NC–I	L.on:PTJ–T150PC–I	

Flat

Series		Sensing type	Sensing distance	Model No. NPN L.on&D.on	PNP L.on&D.on	Pages
MP2 (Connector)	(Infrared light)	Diffuse reflection	40mm	MP2–410N–E	MP2–410P–E	C-36
	(Infrared light)	Diffuse reflection	40mm	MP2–412N–E	MP2–412P–E	
MP2 (Pre–wired)	(Infrared light)	Diffuse reflection	2.5~8mm	D.on: MP2–410N–WD	D.on: MP2–410P–WD	C-35
				L.on: MP2–410N–WL	L.on: MP2–410P–WL	
	(Infrared light)	Diffuse reflection	2.5~8mm	D.on: MP2–412N–WD	D.on: MP2–412P–WD	
				L.on: MP2–412N–WL	L.on: MP2–412P–WL	

Thin Type

Series		Sensing type	Sensing distance	Model No. NPN L.on&D.on	PNP L.on&D.on	Pages
ESL	(Infrared light)	Diffuse reflection	1~25mm	ESL–25NO	ESL–25PO	C-38
				ESL–25NC	ESL–25PC	
	(Red light)	Thru-beam	0~500mm	ESL–TV50NO	ESL–TV50PO	
				ESL–TV50NC	ESL–TV50PC	

BGS

Series		Sensing type	Sensing distance	Model No. NPN L.on&D.on	PNP L.on&D.on	Pages
ESB	(Red light)	Diffuse reflection	0.2~15cm	ESB–BS15N	ESB–BS15P	C-40
		Diffuse reflection	0.2~15cm	ESB–BS15AN	ESB–BS15AN	
		Diffuse reflection	0.2~30cm	ESB–BS30N	ESB–BS30P	
		Diffuse reflection	0.2~30cm	ESB–BS30AN	ESB–BS30AN	
		Diffuse reflection	0.1~10cm	ESB–BL10N	ESB–BL10P	C-41
	(Infrared light)	Diffuse reflection	0.1~30cm	ESB–BV30N	ESB–BV30P	

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
Reflectors
Reflectors

BGS

Series	Sensing type		Sensing distance	Model No.		Pages
				NPN L.on&D.on	PNP L.on&D.on	
ESB	 (Red light)	Diffuse reflection	0. 2~30cm	ESB-B30N	ESB-B30P	C-42
	 (Blue light)	Diffuse reflection	0. 2~30cm	ESB-BY30N	ESB-BY30P	

Color/Mark Detection

Series	Sensing type		Sensing distance	Model No.		Pages
				NPN	PNP	
ESE	 (RGB)	Diffuse reflection	7~13mm	ESE-10N	ESE-10P	C-44

TOF Type

Series	Sensing type		Sensing distance	Model No.		Pages
				NPN	PNP	
ELT		TOF	0.05~2m	ELT-M3BN	ELT-M3BP	C-46

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors

Cylindrical

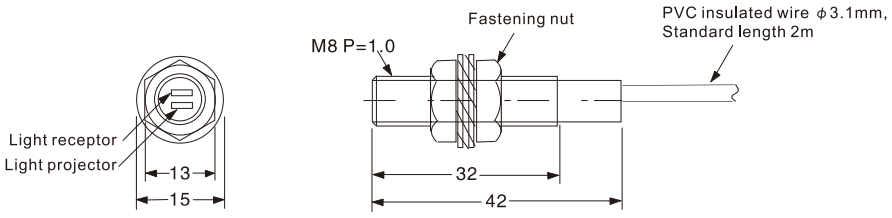
PM08 Series



Basic Features	Working Principle	Photoelectric Sensor
	Housing Style	Cylinder Shape
	Optical Working Principle	Diffuse Reflection
	Detection Range	30mm (White paper 30x30mm)
	Spot Size	Not Applicable (Infrared Light)
	Detected Object	White paper 30x30mm
	Light Source	Infrared Light 940nm
	Indicator Light	No Display
	Sensitivity Adjustment	None
Electrical data	Switching Mode	Light.on(light-on action)
	Output Mode	NPN or PNP collector open
	Response Time	3ms
	Switching Frequency	0.67kHz
	Repeatability	5%
	Hysteresis	≤20%
	Operating Voltage	12~24V DC±10%
	Current Consumption	≤30mA
	Residual Voltage	≤2.0V(50mA)
	Load Current	50mA
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 20MΩ (500VDC)
	Withstand Voltage	500VAC (50/60Hz), 1 Minute between Power Terminal and Housing
	Protection Circuit	Short Circuit Protection/Reverse Polarity Protection/Protection against Mutual Interference
Environmental conditions	Operating Temperature	-25~+55℃(no freezing)
	Storage Temperature	-30~+70℃(no freezing)
	Operating Humidity	30~85%RH(no condensation)
	Storage Humidity	35~95%RH(no condensation)
	Ambient Light	Incandescent light ≤3000 Lux; LED light ≤1000 Lux; Sunlight ≤10000 Lux
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP65
Mechanical data	Maximum Tightening Torque	–
	Connection Method	2m/3-core Cable
	Dimensions	M8x42.0mm
	Material	Stainless Steel
	Weight	about 0.08kg
	Accessories	Nut M8x1
Model	NPN	**PM08-D03NO**
	PNP	**PM08-D03PO**

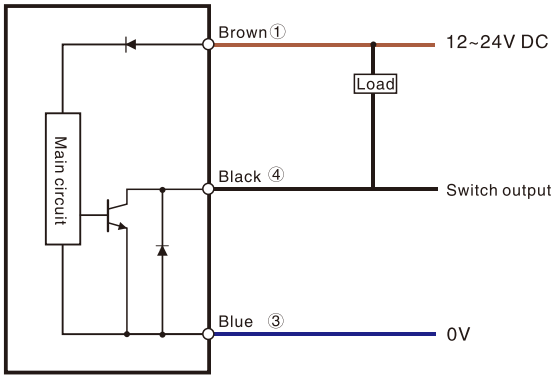
Unit: mm

Dimensions

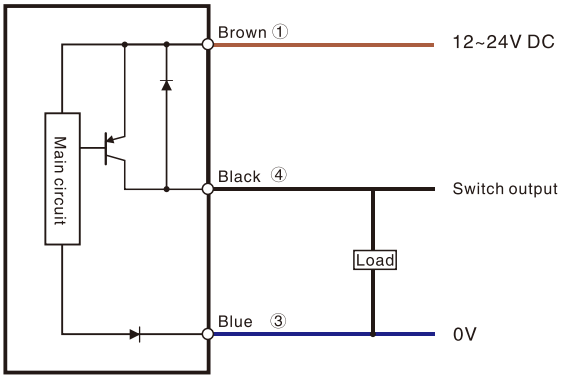


Circuit diagram

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
Reflectors
Reflectors

Cylindrical

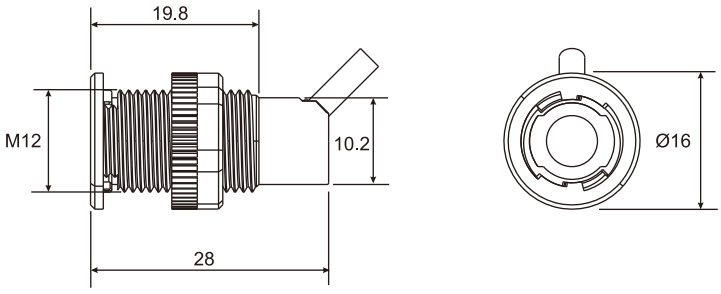
PSM12 Series



Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Cylindrical	
	Optical Working Principle	Through-beam	
	Detection Range	5000mm	
	Spot Size	–	
	Detected Object	8mm	
	Light Source	Infrared Light	
	Indicator Light	Output Function: Orange LED, Operation Status: Green LED	
	Sensitivity Adjustment	None	
Electrical data	Switching Mode	L.on（light-on action）	D.on（dark-on action）
	Output Mode	NPN or PNP collector open	
	Response Time	2ms	
	Switching Frequency	1 kHz	
	Repeatability	–	
	Hysteresis	–	
	Operating Voltage	12~24V DC±10%	
	Current Consumption	Transmitter ≤ 18mA, Receiver ≤ 15mA	
	Residual Voltage	⩽1.0V（50mA）	
	Load Current	⩽50mA（24VDC）	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Short Circuit Protection/Reverse Polarity Protection	
Environmental conditions	Operating Temperature	–25~+55℃(No Freezing)	
	Storage Temperature	–30~+70℃(No Freezing)	
	Operating Humidity	35~85%RH(No Condensation)	
	Storage Humidity	30~90%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ⩽ 3000 Lux; LED Lamp ⩽ 5000 Lux; Sunlight ⩽ 10000 Lux	
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP67	
Mechanical data	Maximum Tightening Torque	–	
	Connection Method	2M/2-core Rubber-insulated Flexible Cable (Emitter) 2M/3-core Rubber-insulated Flexible Cable (Receiver)	
	Dimensions	M12x28.0mm	
	Material	PC	
	Weight	0.025kg	
	Accessories	Nut M12	
Model	NPN	**PSM12-TM05NO**	**PSM12-TM05NC**
	PNP	**PSM12-TM05PO**	**PSM12-TM05PC**

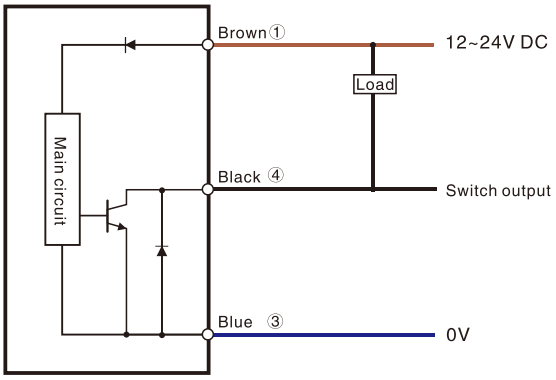
Unit: mm

Dimensions

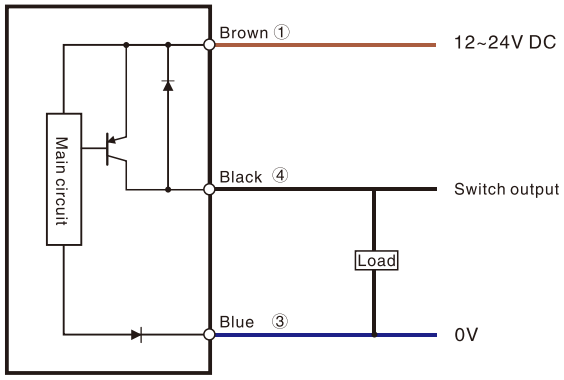


Circuit diagram

NPN Output



PNP Output



Cylindrical

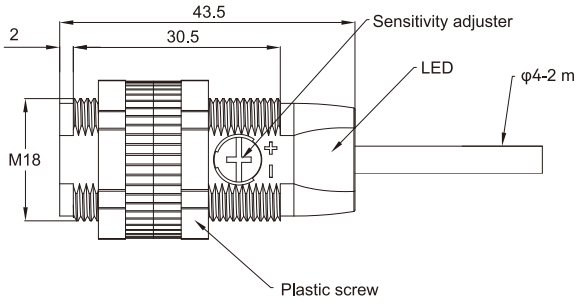
PSM18 Series



Basic Features	Working Principle	Photoelectric Sensor
	Housing Style	Cylindrical
	Optical Working Principle	Diffuse Reflection
	Detection Range	100~400mm
	Spot Size	Ø36.0mm/0.40m
	Detected Object	7mm
	Light Source	Red LED
	Indicator Light	Power Status: Green LED, Operation Status: Red LED
	Sensitivity Adjustment	1-turn Potentiometer
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable
	Output Mode	NPN or PNP collector open
	Response Time	2ms
	Switching Frequency	1 kHz
	Repeatability	5%
	Hysteresis	≤20%
	Operating Voltage	10~30V DC
	Current Consumption	≤25mA
	Residual Voltage	≤1.5V(120mA)
	Load Current	≤120mA(30VDC)
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing
	Protection Circuit	Reverse Polarity Protection/Short Circuit Protection
Environmental conditions	Operating Temperature	–15~55℃(No Freezing)
	Storage Temperature	–25~80℃(No Freezing)
	Operating Humidity	30~90%RH(No Condensation)
	Storage Humidity	35~95%RH(No Condensation)
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; LED Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP67
Mechanical data	Maximum Tightening Torque	–
	Connection Method	2m/4-core Cable
	Dimensions	M18X43.5mm
	Material	PC
	Weight	0.05kg
	Accessories	Nut M18x1
Model	NPN	**PSM18-D40N**
	PNP	**PSM18-D40P**

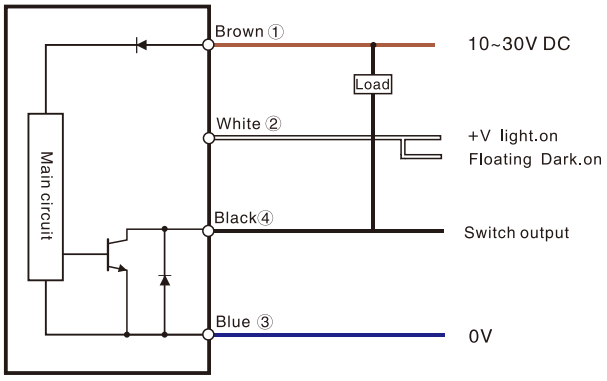
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Dimensions

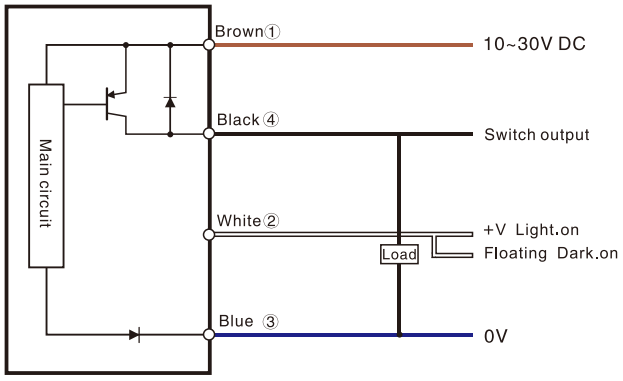


Circuit diagram

NPN Output



PNP Output



Cylindrical

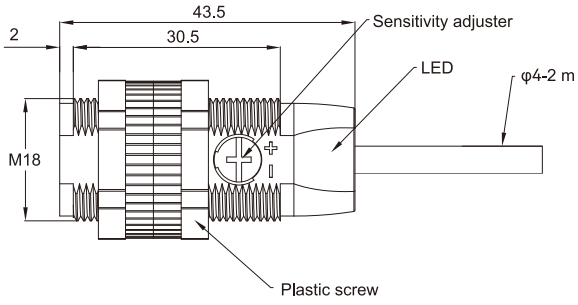
PSM18 Series



Basic Features	Working Principle	Photoelectric Sensor
	Housing Style	Cylindrical
	Optical Working Principle	Diffuse Reflection
	Detection Range	100~400mm
	Spot Size	Ø36.0mm/0.40m
	Detected Object	7mm
	Light Source	Infrared LED
	Indicator Light	Power Status: Green LED, Operation Status: Red LED
	Sensitivity Adjustment	1-turn Potentiometer
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable
	Output Mode	NPN or PNP collector open
	Response Time	2ms
	Switching Frequency	1 kHz
	Repeatability	5%
	Hysteresis	≤20%
	Operating Voltage	10~30V DC
	Current Consumption	≤25mA
	Residual Voltage	≤1.5V(120mA)
	Load Current	≤120mA(30VDC)
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing
	Protection Circuit	Reverse Polarity Protection/Short Circuit Protection
Environmental conditions	Operating Temperature	–15~55℃(No Freezing)
	Storage Temperature	–25~80℃(No Freezing)
	Operating Humidity	30~90%RH(No Condensation)
	Storage Humidity	35~95%RH(No Condensation)
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; LED Lamp ≤ 1000 Lux; Sunlight ≤ 10000 Lux
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP67
Mechanical data	Maximum Tightening Torque	–
	Connection Method	2m/4-core Cable
	Dimensions	M18X43.5mm
	Material	PC
	Weight	0.05kg
	Accessories	Nut M18x1
Model	NPN	**PSM18-DV40N**
	PNP	**PSM18-DV40P**

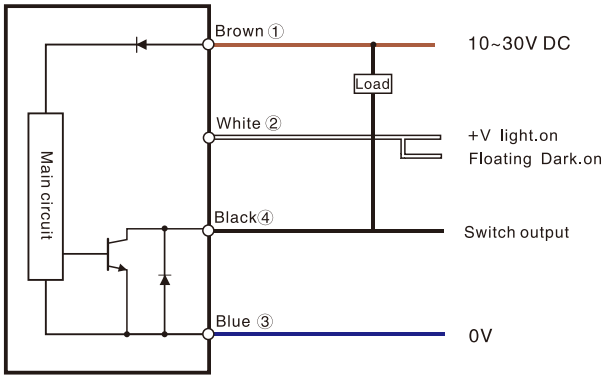
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Dimensions

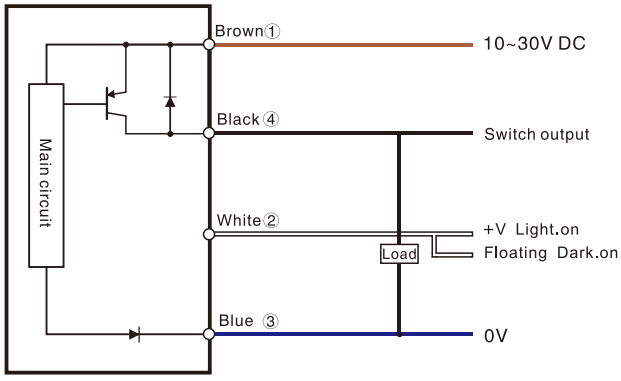


Circuit diagram

NPN Output



PNP Output



Cylindrical

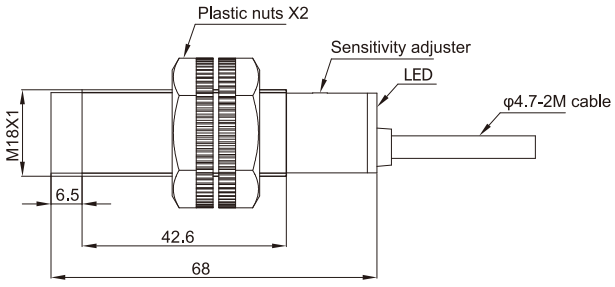
PXM18 Series



Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Cylindrical	
	Optical Working Principle	Diffuse Reflection	
	Detection Range	100mm	400mm
	Spot Size	Ø8.0mm/0.10m	Not Applicable (Infrared Light)
	Detected Object	–	
	Light Source	–	
	Indicator Light	Power Status: Green LED, Operation Status: Red LED	
	Sensitivity Adjustment	Multi-turn Potentiometer	
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN or PNP collector open	
	Response Time	20ms	
	Switching Frequency	0.1 kHz	
	Repeatability	5%	
	Hysteresis	≤10%	
	Operating Voltage	10~30V DC±10%	
	Current Consumption	≤30mA	
	Residual Voltage	≤2V(100mA)	
	Load Current	≤100mA(30VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/Output Short Circuit Protection/Pulse Overvoltage Protection	
Environmental conditions	Operating Temperature	–25~70℃(No Freezing)	
	Storage Temperature	–30~80℃(No Freezing)	
	Operating Humidity	35~85%RH(No Condensation)	
	Storage Humidity	35~95%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; LED Lamp ≤ 1000 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP67	
Mechanical data	Maximum Tightening Torque	1Nm	
	Connection Method	2m/4-core Cable	
	Dimensions	M18X68mm	
	Material	Housing: PBT, Lens: PC	
	Weight	0.091/0.050kg	0.089/0.050kg
	Accessories	Nut M18x1	
Model	NPN	**PXM18-D10N**	**PXM18-D40N**
	PNP	**PXM18-D10P**	**PXM18-D40P**

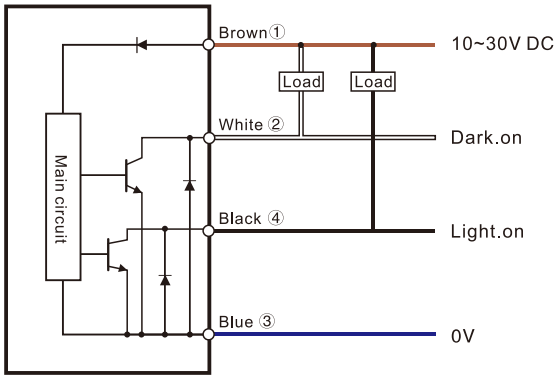
Unit: mm

Dimensions

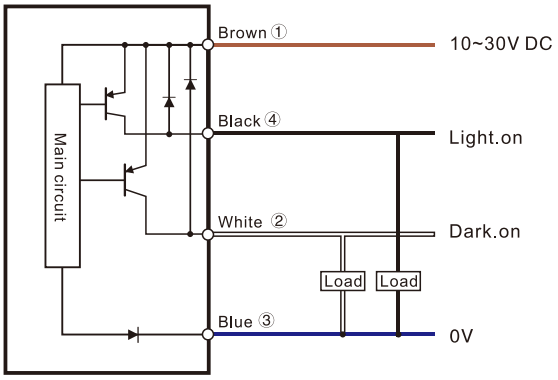


Circuit diagram

NPN Output



PNP Output



IP69K

PM18K Series

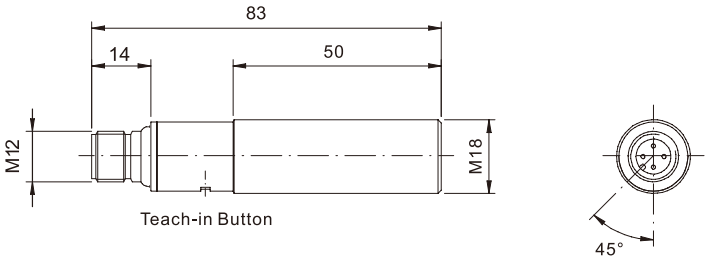


IP69K

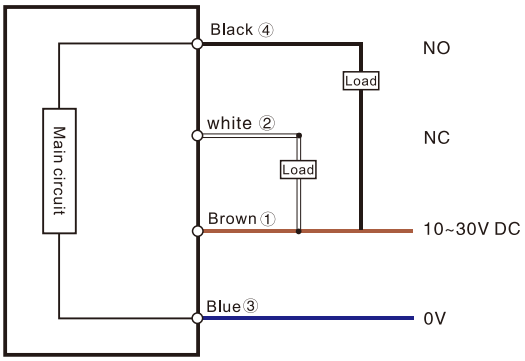
Basic Features	Working Principle	Photoelectric Sensor
	Housing Style	Cylindrical
	Optical Working Principle	Diffuse Reflection
	Detection Range	400mm
	Spot Size	–
	Detected Object	–
	Light Source	Infrared Light 880nm
	Indicator Light	Output Function: Yellow LED, Automatic Sensitivity Setting: Green LED
	Sensitivity Adjustment	None
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable
	Output Mode	NPN
	Response Time	2ms
	Switching Frequency	1KHz
	Repeatability	5%
	Hysteresis	≤10%
	Operating Voltage	10~30V DC±10%
	Current Consumption	≤35mA
	Residual Voltage	≤2.0V(100mA)
	Load Current	≤100mA(30VDC)
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing
	Protection Circuit	Reverse Polarity Protection/Transient Overvoltage Protection
Environmental conditions	Operating Temperature	–25~80℃(No Freezing)
	Storage Temperature	–30~80℃(No Freezing)
	Operating Humidity	35~85%RH(No Condensation)
	Storage Humidity	35~95%RH(No Condensation)
	Ambient Light	Incandescent Lamp ≤ 5000 Lux; Sunlight ≤ 10000 Lux
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP67, IP68 (1M, 7M/day); IP69K (meets DIN 40050-9 standard)
Mechanical data	Maximum Tightening Torque	–
	Connection Method	M12/4-pin Connector
	Dimensions	M18X83mm
	Material	Stainless Steel 316
	Weight	0.05kg
	Accessories	Nut M18x1
	Model	**PM18K-D40NR**

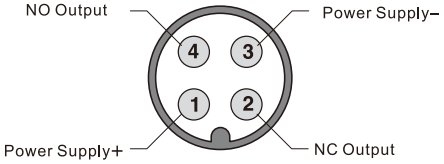
Unit: mm

Dimensions



Circuit diagram





Square

PTE Series



NEW!
Economical Type

Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Diffuse Reflection		Retro-reflective Type
	Detection Range	5~300mm(Matte White Paper)	1~1000mm(Matte White Paper)	0.5~150mm
	Spot Size	at 50cm：1cm x 1cm	at 50cm：1.8cm x 1.6cm	1cm(150mm)
	Detected Object	≤5mm		–
	Light Source	Infrared LED 940nm		Red LED 660nm
	Indicator Light	Operation Indicator: Green; Action Indicator: Red		
	Sensitivity Adjustment	6-turn Potentiometer		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN or PNP collector open		
	Response Time	≤2.5ms	≤1.6ms	≤1ms
	Switching Frequency	2000Hz	300Hz	≥500Hz
	Repeatability	≤5%SN		≤15%
	Hysteresis	<15%Sr		
	Operating Voltage	10~30V DC		
	Current Consumption	≤20mA	≤25mA	≤20mA
	Residual Voltage	<1.5V		
	Load Current	100mA		
	Insulation Resistance	20MΩ		
	Withstand Voltage	≤0.1mA (1000V AC)		
	Protection Circuit	Reverse Polarity Protection/Short Circuit Protection/surge protection		
Environmental conditions	Operating Temperature	–25~55℃(No Freezing)		
	Storage Temperature	–30~+70℃		
	Operating Humidity	35~85%RH(No Condensation)		
	Storage Humidity	35~95%RH		
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux		
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes		
	Protection Rating	IP67		
Mechanical data	Maximum Tightening Torque	≤0.1Nm		≤0.5Nm
	Connection Method	2m/4-core cable,Ø4mm		
	Dimensions	20.0x31.0x11.0mm		
	Material	PBT+Glass Fiber		
	Weight	0.05kg		
	Accessories	Screwdriver		
Model	NPN	**PTE-DV30NR**	**PTE-DV100NR**	**PTE-XE15NR**
	PNP	**PTE-DV30PR**	**PTE-DV100PR**	**PTE-XE15PR**

PTE Series



NEW!

Economical Type

Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Square	
	Optical Working Principle	Retroreflective	
	Detection Range	2m	3m
	Spot Size	At 2m：4cm x 4cm	
	Detected Object	18mm	
	Light Source	Red LED 660nm(modulated)	
	Indicator Light	Light Source Indicator Light: Green; Action Indicator Light: Red	Operating indicator light: green, Action indicator light: red
	Sensitivity Adjustment	Single-turn potentiometer	
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN or PNP collector open	
	Response Time	≤1ms	
	Switching Frequency	2Khz	
	Repeatability	–	
	Hysteresis	–	
	Operating Voltage	10~30V DC	
	Current Consumption	≤21mA	
	Residual Voltage	<1.5V (Load Current ≤ 100mA)	
	Load Current	≤100mA	
	Insulation Resistance	–	20MΩ
	Withstand Voltage	–	0.1mA(1000VAC)
	Protection Circuit	Reverse Polarity Protection/Short Circuit Protection/surge protection	
Environmental conditions	Operating Temperature	–25~55℃(No Freezing)	
	Storage Temperature	–30~70℃(No Freezing)	
	Operating Humidity	35~85%RH(No Condensation)	
	Storage Humidity	35~95%RH	
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~50Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP67	
Mechanical data	Maximum Tightening Torque	≤0.5Nm	
	Connection Method	2m/3-core cable,Ø4mm	
	Dimensions	20.0x31.0x11.0mm	
	Material	PBT	
	Weight	0.050kg	
	Accessories	Screwdriver, Bracket, Screws and Nuts	
Model	NPN	**PTE-RM2AN**	**PTE-RM3AN**
	PNP	**PTE-RM2AP**	**PTE-RM3AP**

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
Reflectors
Reflectors

Square

PTE Series



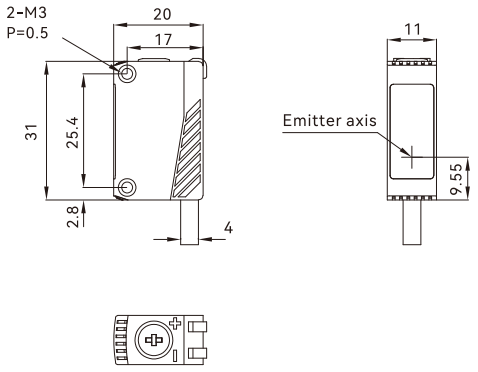
NEW!
Economical Type

Basic Features	Working Principle	Photoelectric Sensor
	Housing Style	Square
	Optical Working Principle	Through-beam
	Detection Range	10m
	Spot Size	at 1m：4cm x 4cm
	Detected Object	Ø60mm
	Light Source	Infrared LED
	Indicator Light	Operation Indicator: Green; Action Indicator: Red
	Sensitivity Adjustment	None
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable
	Output Mode	NPN or PNP collector open
	Response Time	≤3.4ms
	Switching Frequency	150Hz
	Repeatability	–
	Hysteresis	–
	Operating Voltage	10~30V DC
	Current Consumption	≤120mA
	Residual Voltage	< 1.5V
	Load Current	15mA
	Insulation Resistance	± 1000V 50/60Hz 60s
	Withstand Voltage	1000VAC (50/60Hz)
	Protection Circuit	Reverse Polarity Protection/Short Circuit Protection
Environmental conditions	Operating Temperature	–15~55℃(No Freezing)
	Storage Temperature	–30~70℃
	Operating Humidity	35~90%RH(No Condensation)
	Storage Humidity	35~95%RH
	Ambient Light	LED Lamp ≤ 10000 Lux
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP67
Mechanical data	Maximum Tightening Torque	≤0.5Nm
	Connection Method	2m/4-core cable
	Dimensions	20.0x31.0x11.0mm
	Material	PC
	Weight	0.05kg
	Accessories	Bracket, Screws
Model	NPN	**PTE-TEM10NR**
	PNP	**PTE-TEM10PR**

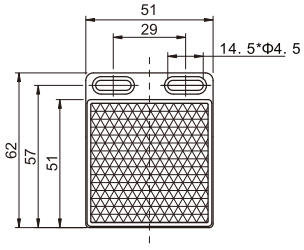
Unit: mm

Dimensions

PTE-DV30/DV100/XE15

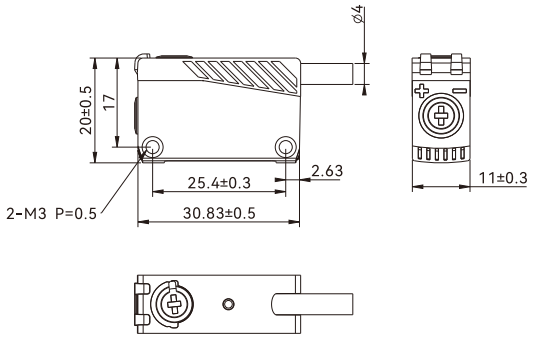


Standard TD-08

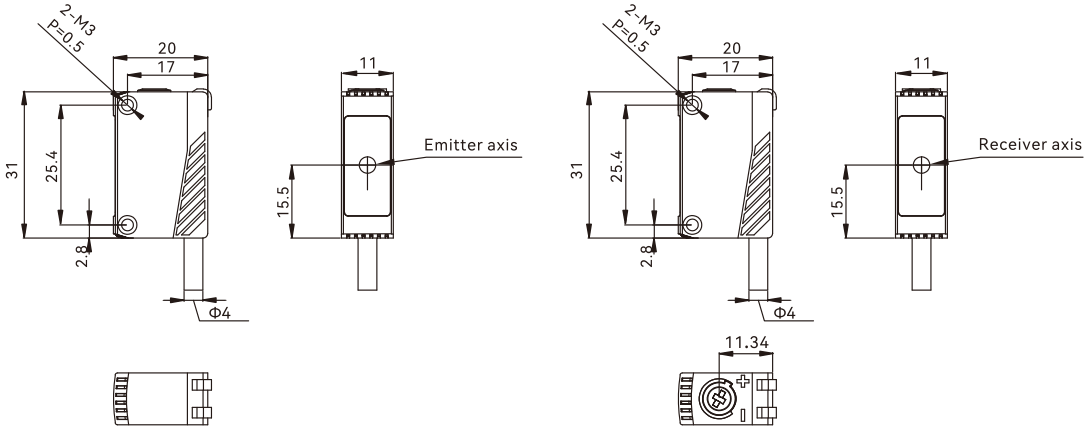


(PTE-RM2/RM3 Standard TD-08)

PTE-RM2/RM3



PTE-TEM10



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

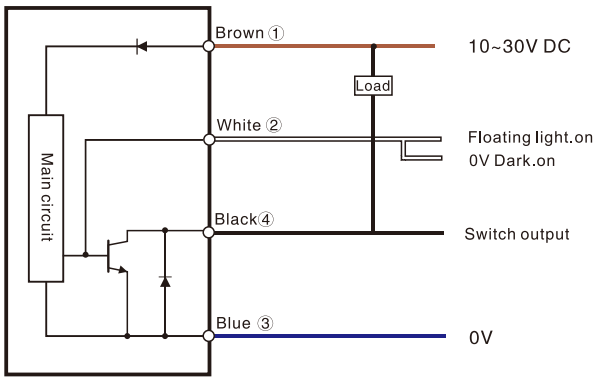
Reflectors
Reflectors

Square

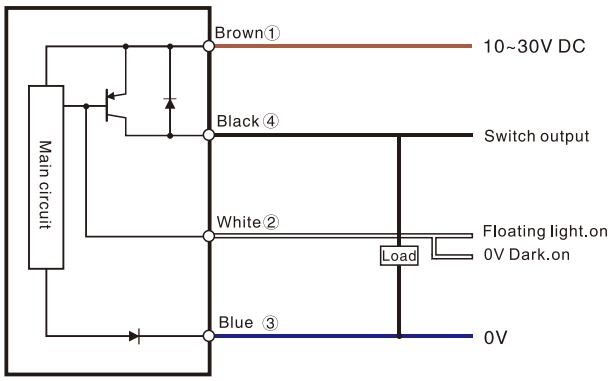
Circuit diagram

PTE-DV30/DV100/XE15/TEM10

NPN Output

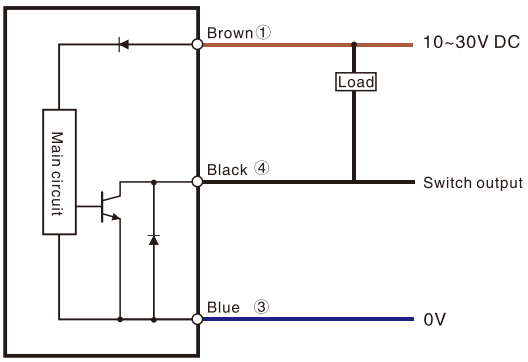


PNP Output

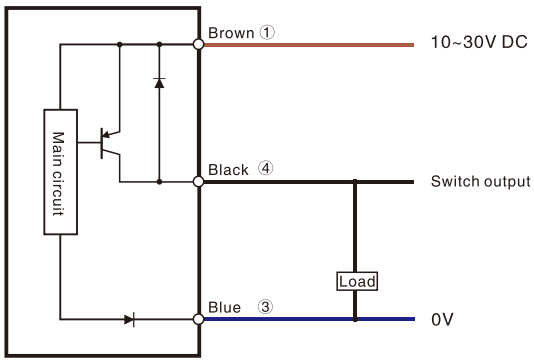


PTE-RM2/RM3

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
Reflectors
Reflectors

PTEW/PTVW Series

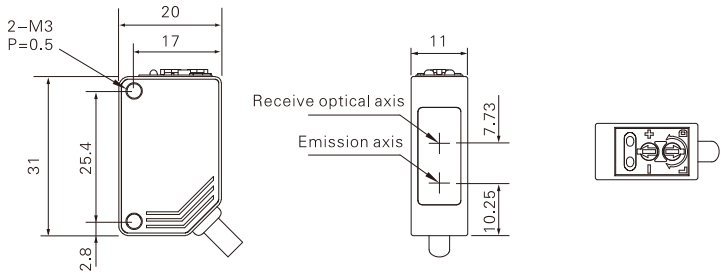


Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Diffuse Reflection		
	Detection Range	5~200mm	100mm	200mm
	Spot Size	Ø130.0mm/0.20m	Not Applicable (Infrared Light)	
	Detected Object	–		
	Light Source	Infrared LED 940nm(modulated)		
	Indicator Light	Output Function: Red LED, Operation Status: Green LED		
	Sensitivity Adjustment	6-turn Potentiometer		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN or PNP collector open		
	Response Time	< 1ms		
	Switching Frequency	2 kHz		
	Repeatability	≤5%		
	Hysteresis	≤20%		
	Operating Voltage	10~30V DC		
	Current Consumption	≤25mA	≤20mA	
	Residual Voltage	≤1.5V(100mA)		
	Load Current	≤100mA(30VDC)		
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)		
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing		
	Protection Circuit	Reverse Polarity Protection/Output Reverse Polarity Protection/Short Circuit Protection/Surge Protection		
Environmental conditions	Operating Temperature	–25~55℃(No Freezing)		
	Storage Temperature	–30~70℃(No Freezing)		
	Operating Humidity	35~85%RH(No Condensation)		
	Storage Humidity	35~95%RH(No Condensation)		
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux		
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes		
	Protection Rating	IP65		
Mechanical data	Maximum Tightening Torque	≤0.5Nm		
	Connection Method	2m/3-core cable		
	Dimensions	11.0x31.0x20.0mm		
	Material	PBT+Glass Fiber		
	Weight	0.05kg	0.049kg	0.05kg
	Accessories	Screwdriver		
Model	NPN	**PTEW-D20N**	**PTVW-D10N**	**PTVW-D20N**
	PNP	**PTEW-D20P**	**PTVW-D10P**	**PTVW-D20P**

Square

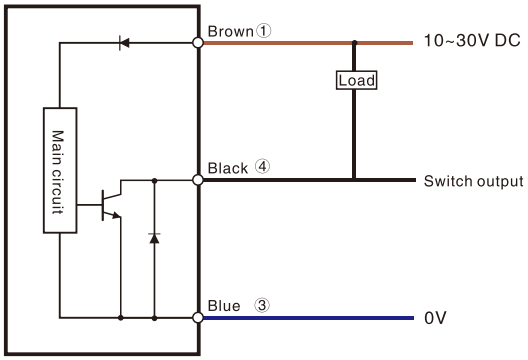
Dimensions

Unit: mm

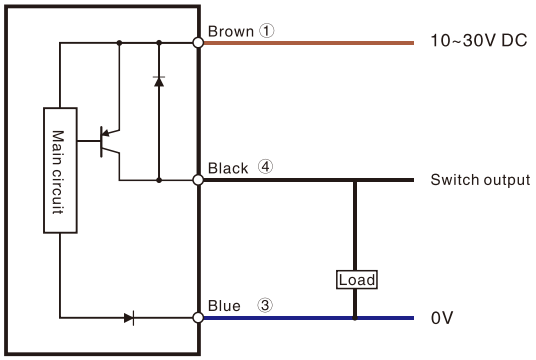


Circuit diagram

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors

PTV Series



Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle		Diffuse Reflection	Retro-reflective Type
	Detection Range	10~300mm	5~1000mm	5~140mm
	Spot Size	Not Applicable (Infrared Light)		
	Detected Object	–		
	Light Source	Infrared LED 940nm(modulated)		
	Indicator Light	Output Function: Red LED, Operation Status: Green LED		
	Sensitivity Adjustment	1-turn Potentiometer		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN or PNP collector open		
	Response Time	< 1ms		
	Switching Frequency	2 kHz		
	Repeatability	5%		
	Hysteresis	≤20%		
	Operating Voltage	10~30V DC		
	Current Consumption	≤25mA		
	Residual Voltage	≤1.5V(100mA)		
	Load Current	≤100mA(30VDC)		
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)		
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing		
	Protection Circuit	Reverse Polarity Protection/Output Reverse Polarity Protection/Short Circuit Protection/Surge Protection		
Environmental conditions	Operating Temperature	–25~55℃(No Freezing)		
	Storage Temperature	–30~70℃(No Freezing)		
	Operating Humidity	35~85%RH(No Condensation)		
	Storage Humidity	35~95%RH(No Condensation)		
	Ambient Light	LED Lamp ≤ 600 Lux		LED Lamp ≤ 1000 Lux
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes		
	Protection Rating	IP65		
Mechanical data	Maximum Tightening Torque	≤0.5Nm		
	Connection Method	2m/3-core cable		
	Dimensions	11.0x31.0x20.0mm		
	Material	PBT+Glass Fiber		
	Weight	0.05kg		
	Accessories	Screwdriver		
Model	NPN	**PTV-D30N** HOT	**PTV-D70N**	**PTV-X09N**
	PNP	**PTV-D30P**	**PTV-D70P**	**PTV-X09P**

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
Reflectors
Reflectors

Square

PTV Series

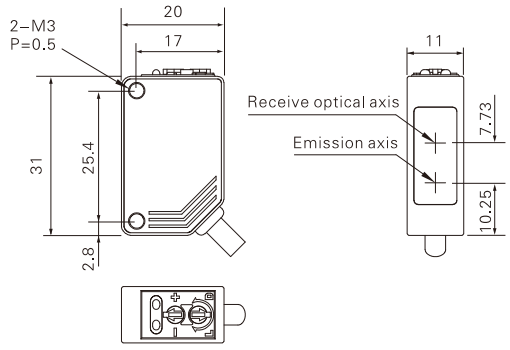


Basic Features	Working Principle	Photoelectric Sensor			
	Housing Style	Square			
	Optical Working Principle	Through-beam			
	Detection Range	20000mm (Fixed)		20000mm	5000mm
	Spot Size	Not Applicable (Infrared Light)			
	Detected Object	Ø10mm			Ø60mm
	Light Source	Infrared LED 940nm(modulated)			
	Indicator Light	Output Function: Red LED, Operation Status: Green LED			
	Sensitivity Adjustment	None			
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable			
	Output Mode	NPN or PNP collector open			
	Response Time	≤5ms			
	Switching Frequency	0.4 kHz			
	Repeatability	–			
	Hysteresis	–			
	Operating Voltage	10~30V DC			
	Current Consumption	≤20mA			
	Residual Voltage	≤1.5V(100mA)			
	Load Current	–			
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)			
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing			
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection/surge Protection			
Environmental conditions	Operating Temperature	–25~55℃(No Freezing)			
	Storage Temperature	–30~70℃(No Freezing)			
	Operating Humidity	35~85%RH(No Condensation)			
	Storage Humidity	35~95%RH(No Condensation)			
	Ambient Light	LED Lamp ≤ 600 Lux			–
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes			
	Protection Rating	IP65			
Mechanical data	Maximum Tightening Torque	≤0.5Nm			
	Connection Method	2m/3-core cable			
	Dimensions	11.0x31.0x20.0mm			
	Material	PBT+Glass Fiber			
	Weight	0.095/0.05kg	0.05kg	0.095/0.05kg	0.095/0.05kg
	Accessories	Screwdriver			
Model	NPN	**PTV-TM20NO**	**PTV-TM20NC**	**PTV-TM20AN**	**PTV-T500N**
	PNP	**PTV-TM20PO**	**PTV-TM20PC**	**PTV-TM20AP**	**PTV-T500P**

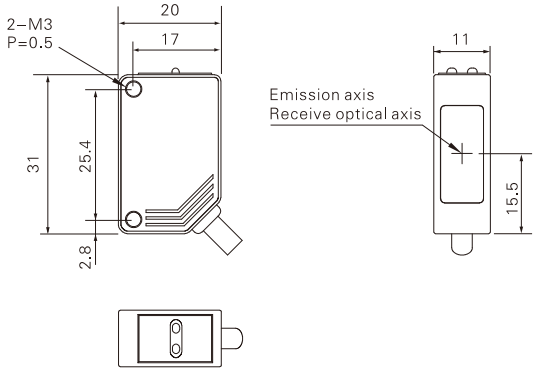
Unit: mm

Dimensions

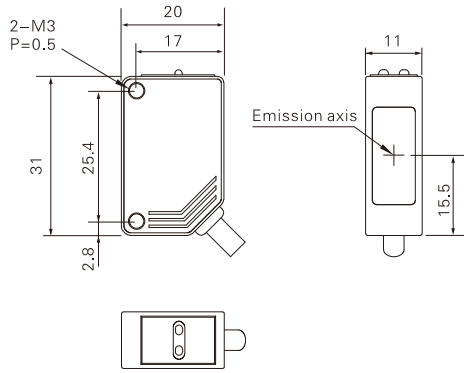
PTV-D30、PTV-D70、PTV-X09

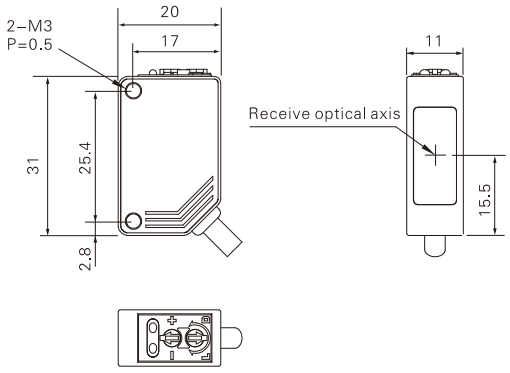


PTV-TM20NO/PO/NC/PC



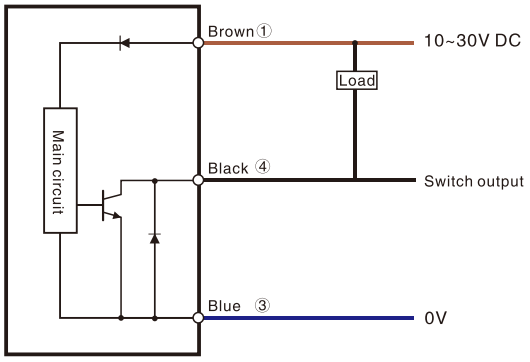
PTV-TM20AN/AP、PTV-T500



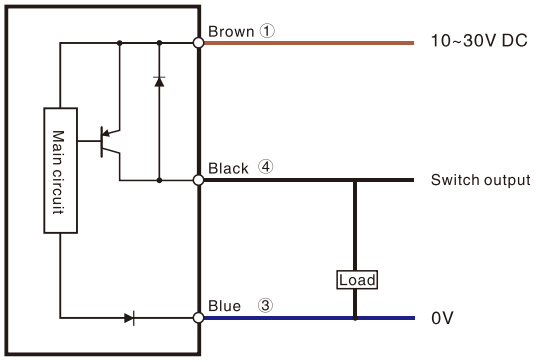


Circuit diagram

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
Reflectors
Reflectors

Square

PTN Series





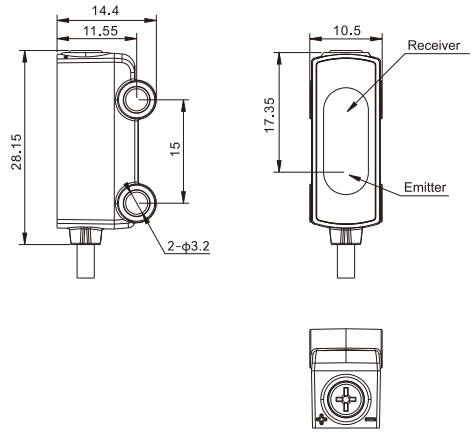


Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Background suppression diffuse reflection		Through-beam
	Detection Range	Adjustable up to 100mm, >5mm objects	White Paper: 1-100mm, Blue Paper: 1-95mm, Black Paper: 10-80mm (White Paper set at 100mm)	Fixed at 1.5m, >5mm objects
	Spot Size	–		
	Detected Object	Objects >5mm	Φ5mm Opaque Objects	–
	Light Source	Red LED 637nm	Blue LED 465nm (Modulated)	Red LED 637nm
	Indicator Light	–		
	Sensitivity Adjustment	–		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN or PNP collector open		
	Response Time	≤1.2ms	≤1ms	≤1.2ms
	Switching Frequency	850Hz	–	850Hz
	Repeatability	<1%Sr		
	Hysteresis	≤20%MAX		
	Operating Voltage	12~24DC±10%		
	Current Consumption	≤18mA	<20mA	≤15mA
	Residual Voltage	<2V (Load current <100mA)	<1V	<2V (Load current <100mA/ <100mA/<50mA/<50mA)
	Load Current	<100mA	≤100mA(24V)	<100mA/<100mA/<50mA/<50mA
	Insulation Resistance	≥50MΩ(500VDC)		
	Withstand Voltage	± 500V 50/60Hz60s		
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection/surge Protection		
Environmental conditions	Operating Temperature	-25℃~55℃,No Freezing;No Condensation		
	Storage Temperature	-10℃~55℃		
	Operating Humidity	35~85%RH		
	Storage Humidity	35~95%RH		
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux		Incandescent Lamp ≤500 Lux; Sunlight ≤ 10000 Lux
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP67	IP65	–
Mechanical data	Maximum Tightening Torque	≤0.5Nm		
	Connection Method	Φ2.5*2m/3cable		
	Dimensions	28.15x14.7x10.5mm		
	Material	–		
	Weight	–	about 0.024kg	–
	Accessories	Installation Screws		
Model	NPN D.on	**PTN-B10NC**	**PTN-BY10NC**	**PTN-T150NC**
	NPN L.on	**PTN-B10NO**	**PTN-BY10NO**	**PTN-T150NO**
	PNP D.on	**PTN-B10PC**	**PTN-BY10PC**	**PTN-T150PC**
	PNP L.on	**PTN-B10PO**	**PTN-BY10PO**	**PTN-T150PO**

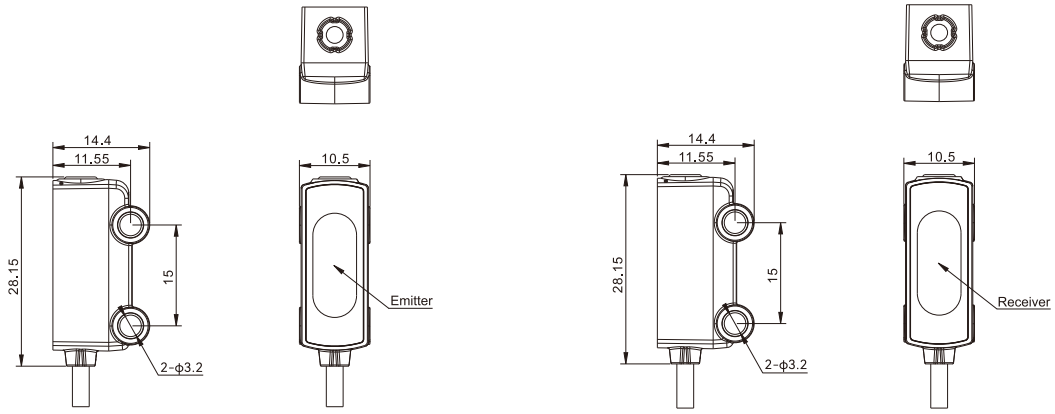
Unit: mm

Dimensions

PTN-B10/BY10

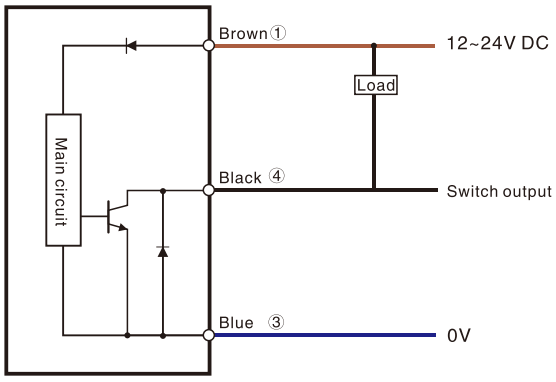


PTN-T150

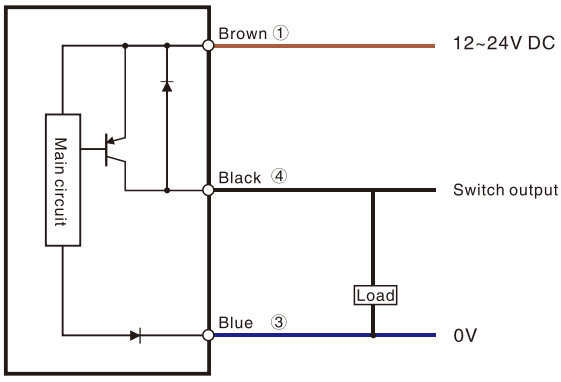


Circuit diagram

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
Reflectors
Reflectors

Square

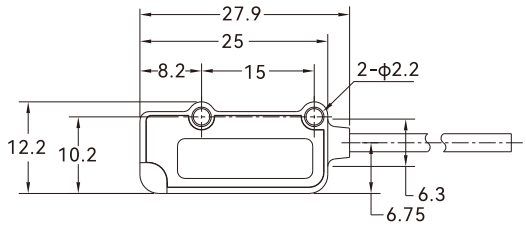
PTN Series

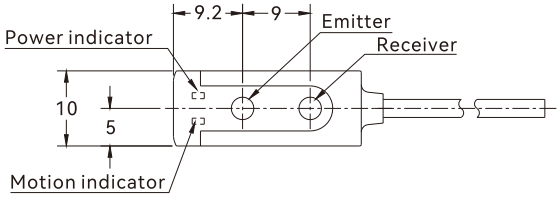


Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Square	
	Optical Working Principle	Diffuse Reflection	Through-beam
	Detection Range	5cm,White Paper 100*100mm(≥5cm)	50cm
	Spot Size	Not Applicable (Infrared Light)	
	Detected Object	White Paper:100x100mm	Ø1mm
	Light Source	Infrared LED 940nm	
	Indicator Light	Output Function: Red LED, Operation Status: Green LED	
	Sensitivity Adjustment	None	
Electrical data	Switching Mode	L.on (light-on action)	D.on (dark-on action)
	Output Mode	NPN or PNP collector open	
	Response Time	≤1ms	
	Switching Frequency	2 kHz	
	Repeatability	5%	–
	Hysteresis	≤20%	–
	Operating Voltage	12~24V DC±10%	
	Current Consumption	≤20mA	≤30mA
	Residual Voltage	≤1.5V(100mA)	
	Load Current	≤100mA(24VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Power Protection, Output Short Circuit Protection	
Environmental conditions	Operating Temperature	–10~45℃(No Freezing)	
	Storage Temperature	–10~55℃(No Freezing)	
	Operating Humidity	35~85%RH(No Condensation)	
	Storage Humidity	35~95%RH(No Condensation)	
	Ambient Light	–	LED Lamp ≤ 600 Lux
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP64	
Mechanical data	Maximum Tightening Torque	–	
	Connection Method	2m/3-core cable	2m/4-core cable,2m/3-core cable
	Dimensions	10.0x27.9x12.2mm	
	Material	ABS	
	Weight	0.019/0.02kg	0.038/0.040kg
	Accessories	Installation Screws	
Model	NPN	**PTN-D05N**	**PTN-T50N**
	PNP	**PTN-D05P**	**PTN-T50P**

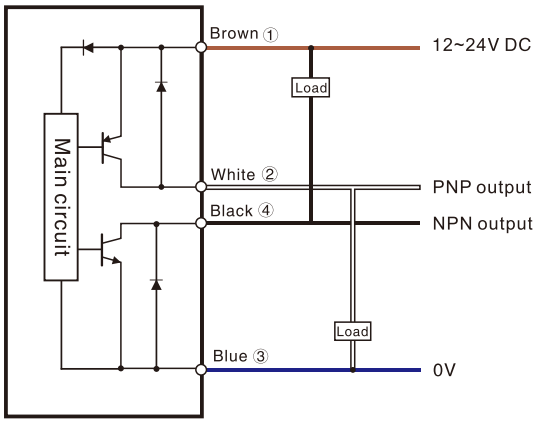
Unit: mm

Dimensions





Circuit diagram



Square

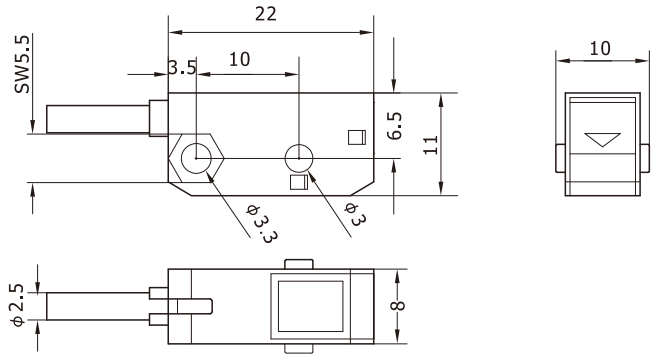
PTJ-I Series



Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Square	
	Optical Working Principle	Through-beam	
	Detection Range	800mm (Fixed)	1500mm (Fixed)
	Spot Size	Not Applicable (Infrared Light)	
	Detected Object	Ø6mm	
	Light Source	Infrared Light 850nm	
	Indicator Light	Output function: Yellow LED(Receiver end),operational status: Green LED(Transmitter end)	
	Sensitivity Adjustment	None	
Electrical data	Switching Mode	L.on (Light On Action) / D.on (Darkening Action) Model Optional	
	Output Mode	NPN or PNP collector open	
	Response Time	< 33ms	
	Switching Frequency	0.06 kHz	
	Repeatability	–	
	Hysteresis	–	
	Operating Voltage	12~24V DC	
	Current Consumption	Transmitter end≤20mA,Receiver end≤20mA	
	Residual Voltage	≤2.0V(50mA)	
	Load Current	≤50mA(24VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 20MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection	
Environmental conditions	Operating Temperature	–20~50℃(No Freezing)	
	Storage Temperature	–30~70℃(No Freezing)	
	Operating Humidity	35~90%RH(No Condensation)	
	Storage Humidity	35~90%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP64	
Mechanical data	Maximum Tightening Torque	–	
	Connection Method	2m/3-core cable	
	Dimensions	10.0x22.0x11.0mm	
	Material	PC/ABS	
	Weight	0.045kg	0.042kg
	Accessories	None	
Model	NPN L. on	**PTJ-T80NO-I**	**PTJ-T150NO-I**
	NPN D. on	**PTJ-T80NC-I**	**PTJ-T150NC-I**
	PNP L. on	**PTJ-T80PO-I**	**PTJ-T150PO-I**
	PNP D. on	**PTJ-T80PC-I**	**PTJ-T150PC-I**

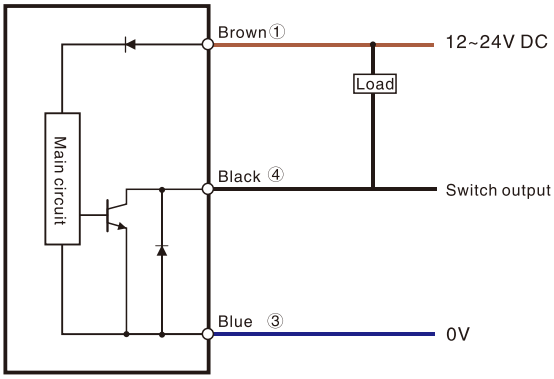
Unit: mm

Dimensions

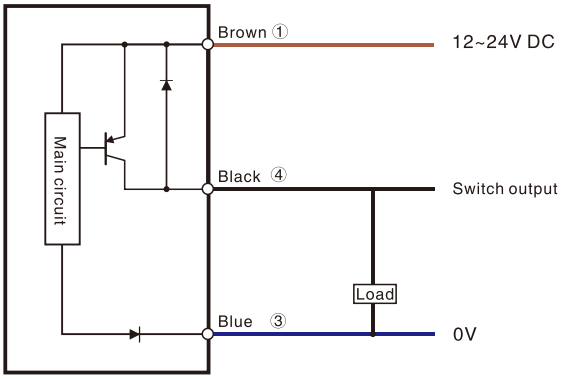


Circuit diagram

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

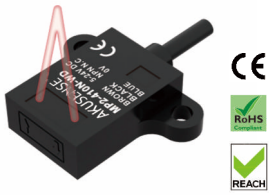
Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors

Flat Type

MP2 Series

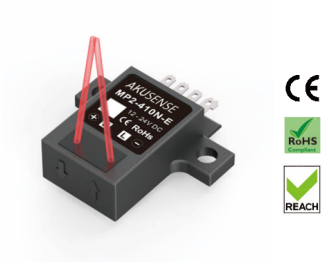


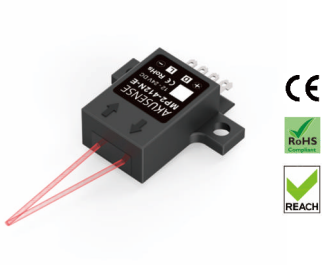


Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Flat Square	
	Optical Working Principle	Diffuse Reflection	
	Detection Range	2.5~8.0mm	
	Spot Size	Not Applicable (Infrared Light)	
	Detected Object	–	
	Light Source	Red LED 880nm	
	Indicator Light	Red LED	
	Sensitivity Adjustment	None	
Electrical data	Switching Mode	L.on (Light On Action) / D.on (Darkening Action) Model Optional	
	Output Mode	NPN or PNP collector open	
	Response Time	⩽1ms	
	Switching Frequency	2 kHz	
	Repeatability	5%	
	Hysteresis	⩽20%	
	Operating Voltage	12~24V DC	
	Current Consumption	–	
	Residual Voltage	⩽3.0V(100mA)	
	Load Current	⩽100mA(24VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/surge Protection	
Environmental conditions	Operating Temperature	–10~55℃(No Freezing)	
	Storage Temperature	–25~80℃(No Freezing)	
	Operating Humidity	45~85%RH(No Condensation)	
	Storage Humidity	35~90%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ≤ 3500 Lux; Sunlight ≤ 3500 Lux	
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP50	
Mechanical data	Maximum Tightening Torque	–	
	Connection Method	2m/3-core cable	
	Dimensions	26.0x20.5x7.0mm	
	Material	PC	
	Weight	0.023kg	
	Accessories	–	
Model	NPN D. on	**MP2-410N-WD**	**MP2-412N-WD**
	NPN L. on	**MP2-410N-WL**	**MP2-412N-WL**
	PNP D. on	**MP2-410P-WD**	**MP2-412P-WD**
	PNP L. on	**MP2-410P-WL**	**MP2-412P-WL**

Flat Type

MP2 Series





Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Flat Square	
	Optical Working Principle	Diffuse Reflection	
	Detection Range	40mm	
	Spot Size	Not Applicable (Infrared Light)	
	Detected Object	–	
	Light Source	Infrared Light 850nm	
	Indicator Light	operational status: Green LED	
	Sensitivity Adjustment	None	
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN or PNP collector open	
	Response Time	≤1ms	
	Switching Frequency	2 kHz	
	Repeatability	5%	
	Hysteresis	≤20%	
	Operating Voltage	12~24V DC	
	Current Consumption	≤20mA	≤25mA
	Residual Voltage	<2.5V(Load current 100mA)	
	Load Current	≤100mA(24VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 20MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/surge Protection	
Environmental conditions	Operating Temperature	–20~55℃(No Freezing)	
	Storage Temperature	–25~80℃(No Freezing)	
	Operating Humidity	45~85%RH(No Condensation)	
	Storage Humidity	35~90%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP50	
Mechanical data	Maximum Tightening Torque	–	
	Connection Method	4-pin Connector	
	Dimensions	26.0x20.0x8.0mm	26.0x20.0x9.0mm
	Material	PC	
	Weight	0.003kg	
	Accessories	Installation Screws	
Model	NPN	**MP2-410N-E** (HOT)	**MP2-412N-E**
	PNP	**MP2-410P-E**	**MP2-412P-E**

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors

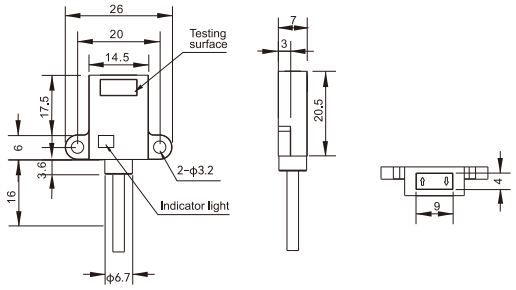
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
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Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
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Color/Mark Detection
TOF type
Reflectors
Reflectors

Flat Type

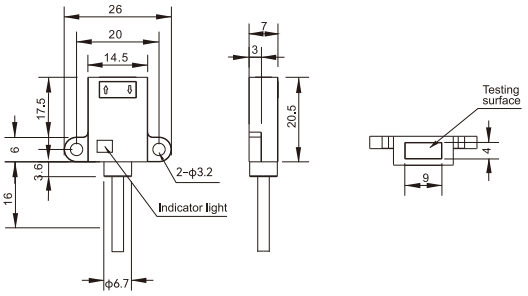
Dimensions

Unit: mm

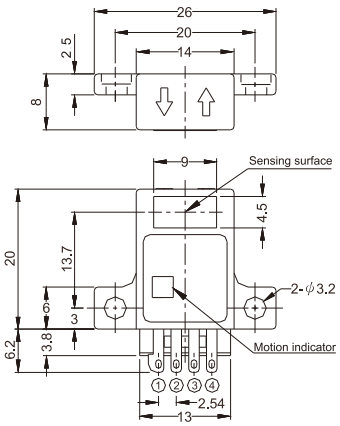
MP2-410□-W□



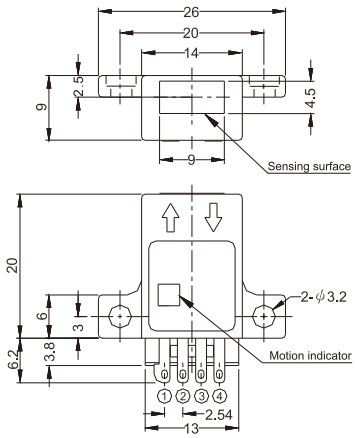
MP2-412□-W□



MP2-410N(P)-E



MP2-412N(P)-E



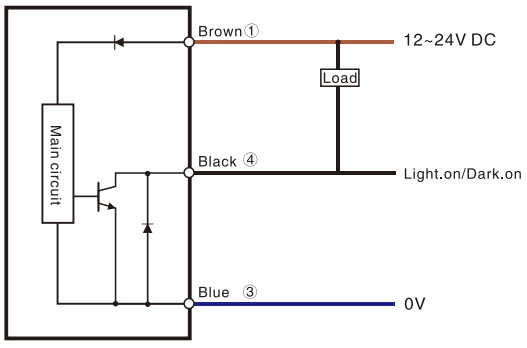
①: ⊕ Brown
②: OUT1 White
③: OUT2 Black
④: ⊖ Blue

Connection cable: ME-1007

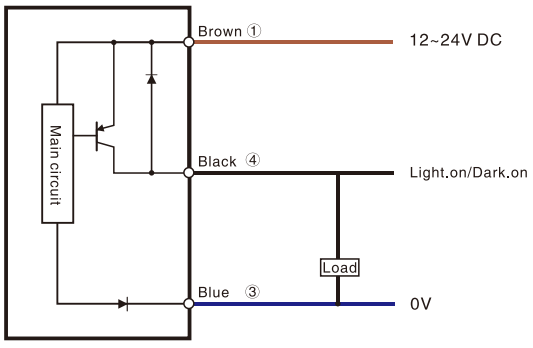
Circuit diagram

MP2-410□-W□ MP2-412□-W□

NPN

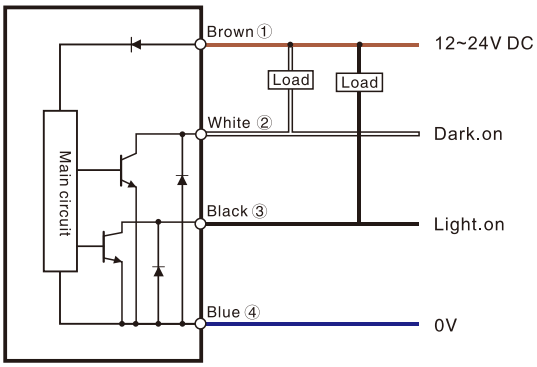


PNP

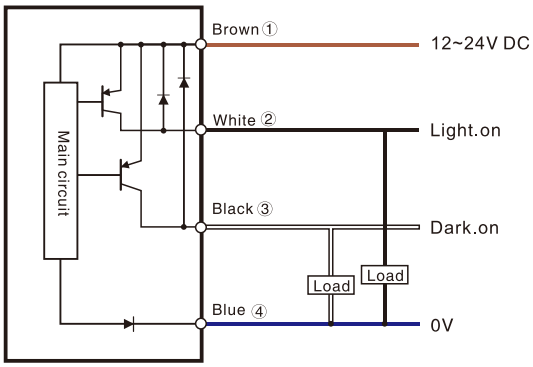


MP2-410N(P)-E MP2-412N(P)-E

NPN Output



PNP Output



ESL Series





Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Flat Square	
	Optical Working Principle	Diffuse Reflection	Through-beam
	Detection Range	White Paper:1~25mm	0~500mm
	Spot Size	Not Applicable (Infrared Light)	
	Detected Object	φ1.5mm opaque object(at 10mm) ,φ20mm opaque object(at 25mm)	φ1.5mm opaque object
	Light Source	Infrared LED 950nm(modulated)	Infrared LED 945nm(modulated)
	Indicator Light	Output Indicator Light: Orange Power Indicator Light: Green	
	Sensitivity Adjustment	None	
Electrical data	Switching Mode	L.on (Light On Action) / D.on (Darkening Action) Model Optional	
	Output Mode	NPN or PNP collector open	
	Response Time	≤2ms	≤1ms
	Switching Frequency	250Hz	800Hz
	Repeatability	<5%	
	Hysteresis	<15%Sr	
	Operating Voltage	10~30V DC±10%	
	Current Consumption	≤20mA	–
	Residual Voltage	≤2.0V(50mA)	
	Load Current	≤50mA(30VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection/ surge Protection	
Environmental conditions	Operating Temperature	–20~55℃(No Freezing)	
	Storage Temperature	–30℃~+60℃	
	Operating Humidity	35~85%RH(No Condensation)	
	Storage Humidity	35~95%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; LED Lamp ≤ 1000/3000/200 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP67	
Mechanical data	Maximum Tightening Torque	–	
	Connection Method	2m/3-core cable	
	Dimensions	13.25x20.5x3.5mm	10.25x20.5x4.0mm
	Material	PC	
	Weight	0.022kg	0.044kg
	Accessories	Installation Screws	
Model	NPN L. on	**ESL-25NO**	**ESL-TV50NO**
	NPN D. on	**ESL-25NC**	**ESL-TV50NC**
	PNP L. on	**ESL-25PO**	**ESL-TV50PO**
	PNP D. on	**ESL-25PC**	**ESL-TV50PC**

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

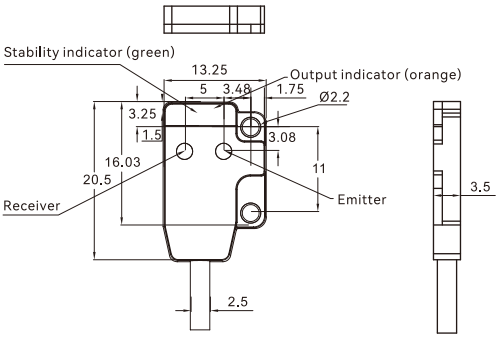
Reflectors
Reflectors

Thin Type

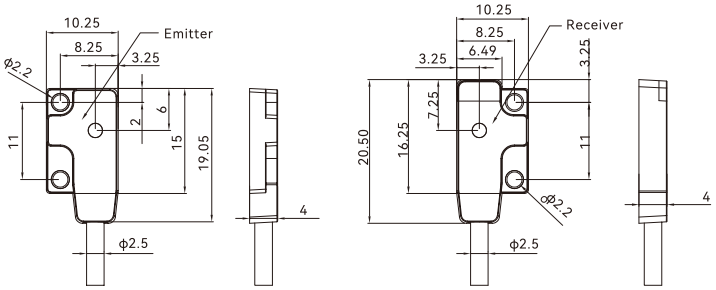
Dimensions

Unit: mm

ESL-25

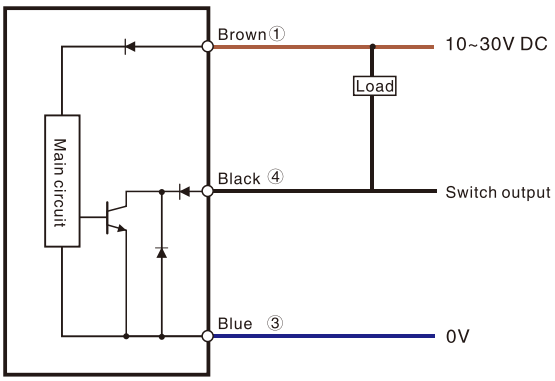


ESL-TV50

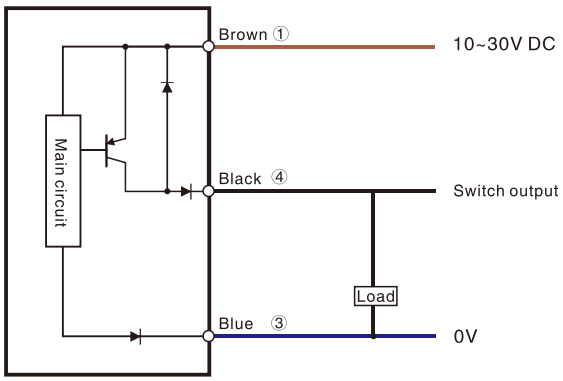


Circuit diagram

NPN Output



PNP Output



ESB Series



NEW!



NEW!

Basic Features	Working Principle	Photoelectric Sensor			
	Housing Style	Square			
	Optical Working Principle	Background suppression diffuse reflection			
	Detection Range	2~150mm		2~300mm(Matte White Paper)	
	Spot Size	–	Ø2mm/150m	Ø8mm/300mm	–
	Detected Object	–			
	Light Source	Red LED 660nm(modulated)			
	Indicator Light	Operation Indicator: Green; Action Indicator: Red	Have	Operation Indicator: Green; Action Indicator: Red	
	Sensitivity Adjustment	6-turn Potentiometer			
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable			
	Output Mode	NPN or PNP collector open			
	Response Time	≤1ms			
	Switching Frequency	–			
	Repeatability	–			
	Hysteresis	≤5%	≤5%(Matte White Paper)	–	
	Operating Voltage	10~30V DC			
	Current Consumption	≤25mA		≤20mA	
	Residual Voltage	< 1.5V			
	Load Current	≤100mA			
	Insulation Resistance	20MΩ			
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing			
	Protection Circuit	Reverse Polarity Protection/ short Circuit Protection/surge Protection		Reverse Polarity Protection/short Circuit Protection/ surge Protection/Interference Light Protection	
Environmental conditions	Operating Temperature	–25℃~+55℃		–10~70℃(No Freezing)	
	Storage Temperature	–30℃~+70℃		–25~80℃(No Freezing)	
	Operating Humidity	35~85%RH(No Condensation)			
	Storage Humidity	35~95%RH(No Condensation)			
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux			
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes			
	Protection Rating	IP67			
Mechanical data	Maximum Tightening Torque	–			
	Connection Method	–			
	Dimensions	31*20*11mm			
	Material	PBT + Glass Fiber (Housing); PMMA (Lens)			
	Weight	0.05kg			
	Accessories	Screwdriver	Screwdriver, Bracket, Screws and Nuts	Screwdriver	
Model	NPN	**ESB-BS15N**	**ESB-BS15AN**	**ESB-BS30N**	**ESB-BS30AN**
	PNP	**ESB-BS15P**	**ESB-BS15AP**	**ESB-BS30P**	**ESB-BS30AP**

BGS

ESB Series



NEW!

Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Square	
	Optical Working Principle	Background suppression diffuse reflection	
	Detection Range	1~100mm	1~300mm
	Spot Size	65x0.5mm/100m	Ø8mm/300mm
	Detected Object	Ø5mm(at 50mm)	≤5mm
	Light Source	Red LED	Infrared LED 940nm(modulated)
	Indicator Light	Output Indicator Light: Orange；Light Source Indicator Light: Green	Output Function: Red LED, Operation Status: Green LED
	Sensitivity Adjustment	4-turn Potentiometer	6-turn Potentiometer
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN or PNP collector open	
	Response Time	≤0.3ms	1ms
	Switching Frequency	≤2000Hz	2kHz
	Repeatability	≤5%	
	Operating Voltage	10~24V DC	10~30V DC
	Current Consumption	≤20mA	≤25mA
	Residual Voltage	<1V	≤1.5V
	Load Current	100mA	≤100mA(30VDC)
	Insulation Resistance	≥20MΩ(250V DC)	20MΩ
	Withstand Voltage	≤0.1mA (1000V AC)	
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection/ surge Protection/Interference Light Protection	Reverse Polarity Protection/short Circuit Protection/ surge Protection
Environmental conditions	Operating Temperature	–30℃~+70℃(No Freezing)	–25℃~+55℃(No Freezing)
	Storage Temperature	–30~70℃(No Freezing)	–30℃~+70℃
	Operating Humidity	35%~85%RH(No Condensation)	
	Storage Humidity	35%~95%RH	
	Ambient Light	Incandescent Lamp ≤ 5000 Lux; LED Lamp ≤2000 Lux; Sunlight ≤ 20000 Lux	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux
	Vibration Resistance	10~50Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP66	IP65
Mechanical data	Maximum Tightening Torque	–	
	Connection Method	–	
	Dimensions	11.0x20.0x31.0mm	
	Material	Housing: ABS with Glass Fiber, Lens: PMMA	ABS with Glass Fiber
	Weight	0.044kg	0.049kg
	Accessories	Screwdriver	
Model	NPN	**ESB-BL10N**	**ESB-BV30N**
	PNP	**ESB-BL10P**	**ESB-BV30P**

ESB Series



NEW!



NEW!

Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Square	
	Optical Working Principle	Background suppression diffuse reflection	
	Detection Range	White Paper:2~300mm	
	Spot Size	Ø16mm/300mm	
	Detected Object	–	5mm/0.05m
	Light Source	Red LED 623nm(modulated)	Blue LED 465nm(modulated)
	Indicator Light	Operation Indicator: Green; Action Indicator: Red	
	Sensitivity Adjustment	6-turn Potentiometer	
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN or PNP collector open	
	Response Time	≤1.5ms	
	Switching Frequency	≤500Hz	
	Repeatability	≤5%	
	Hysteresis	≤5%	
	Operating Voltage	10~30V DC	
	Current Consumption	≤25mA	≤20mA
	Residual Voltage	≤1.5V(100mA)	
	Load Current	≤100mA	
	Insulation Resistance	50MΩ	≥50MΩ(500VDC)
	Withstand Voltage	≤0.1mA (1000V AC)	
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection/surge Protection/Interference Light Protection	
Environmental conditions	Operating Temperature	–25℃~+55℃(No Freezing)	
	Storage Temperature	–30℃~+70℃(No Freezing)	
	Operating Humidity	35%~85%RH(No Condensation)	
	Storage Humidity	35%~95%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP67	
Mechanical data	Maximum Tightening Torque	–	
	Connection Method	–	
	Dimensions	11.0x31.0x20.0mm	
	Material	PBT + Glass Fiber	
	Weight	0.045kg	
	Accessories	Screwdriver	
Model	NPN	**ESB-B30N**	**ESB-BY30N**
	PNP	**ESB-B30P**	**ESB-BY30P**

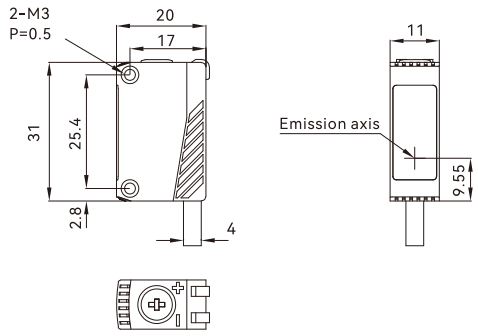
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
Reflectors
Reflectors

BGS

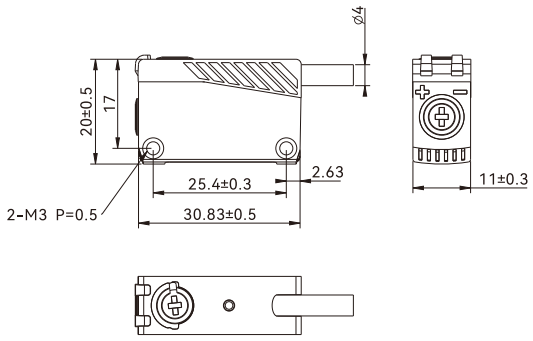
Dimensions

Unit: mm

ESB-B30/BL10/BS15/BS30/BV30/BY30N(P)



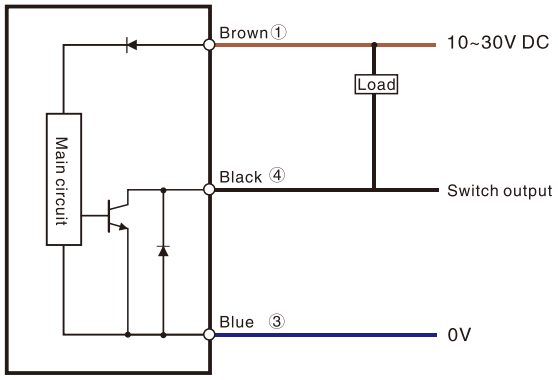
ESB-BS15AN/AP
ESB-BS30AN/AP



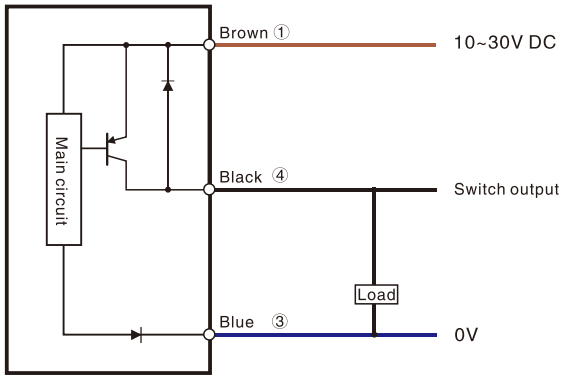
Circuit diagram

ESB-BS15AN/AP ESB-BS30AN/AP

NPN Output

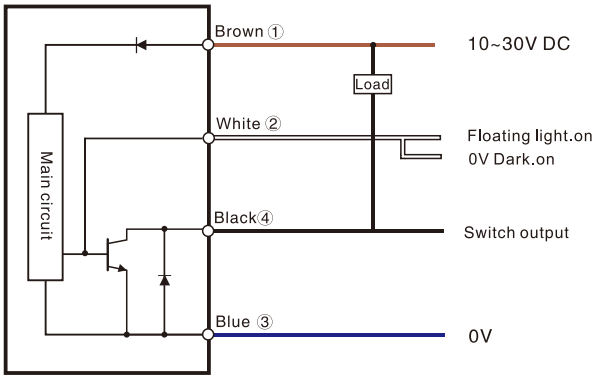


PNP Output

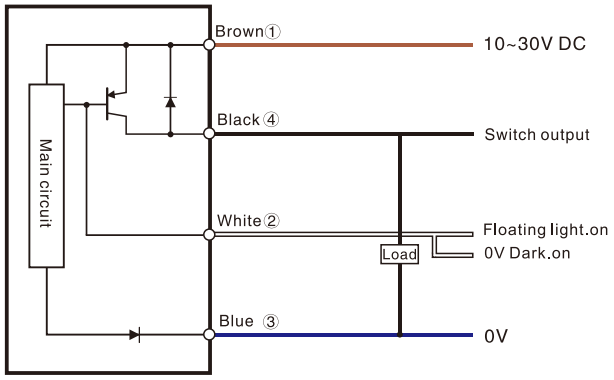


ESB-B30/BL10/BS15/BS30/BV30/BY30N(P)

NPN Output



PNP Output



ESE Series

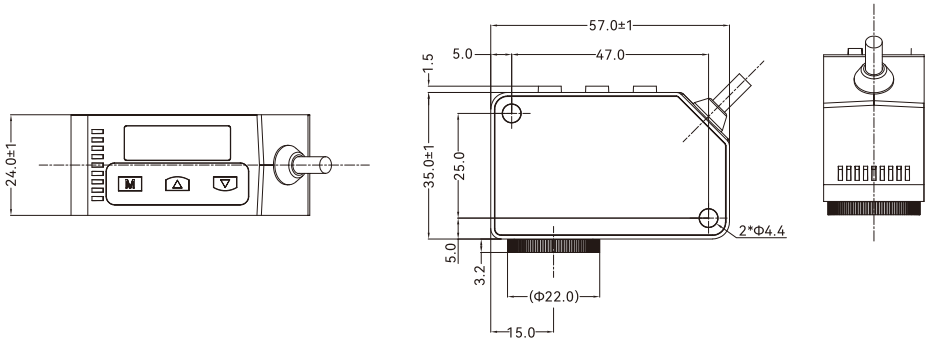


Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Square	
	Optical Working Principle	Diffuse Reflection	
	Detection Range	10mm(±3mm)	
	Spot Size	1*6mm（Set Distance: 10mm)	
	Detected Object	–	
	Light Source	Red/Blue/Green Composite LED (Wavelength 625nm/470nm/525nm)	
	Indicator Light	Output Status - Orange	
	Sensitivity Adjustment	7-segment 8-digit Display (Red: 4 digits, Green: 4 digits)	
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN collector open	PNP collector open
	Response Time	Color Mark Mode 0.05ms, Color Mode 0.2ms	
	Switching Frequency	≤6kHz	
	Repeatability	5%SN	
	Hysteresis	5%	
	Operating Voltage	12-24V DC±10%	
	Current Consumption	≤35mA(24V DC)	
	Residual Voltage	<1.5V(Load current < 50mA)	
	Load Current	< 50mA	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 20MΩ (250VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection/surge Protection	
Environmental conditions	Operating Temperature	–10℃~+50℃(No Freezing)	
	Storage Temperature	–20℃~+70℃(No Freezing)	
	Operating Humidity	35%~95%RH(No Condensation)	
	Storage Humidity	35%~85%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~50Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP67	
Mechanical data	Maximum Tightening Torque	–	
	Connection Method	2m/3-core cable,Ø4mm	
	Dimensions	57*35*24mm	
	Material	PC	
	Weight	0.05kg	
	Accessories	Installation Screws	
Model	NPN	**ESE-10N**	
	PNP	**ESE-10P**	

Color/Mark Detection

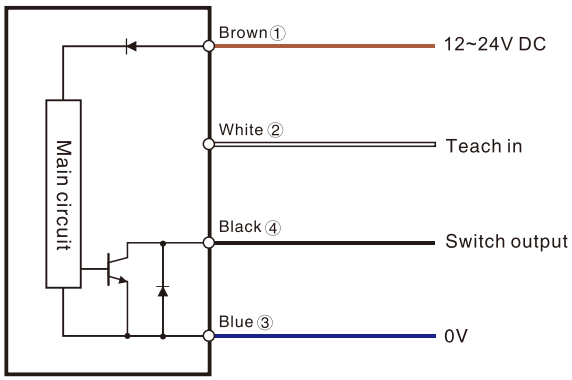
Dimensions

Unit: mm

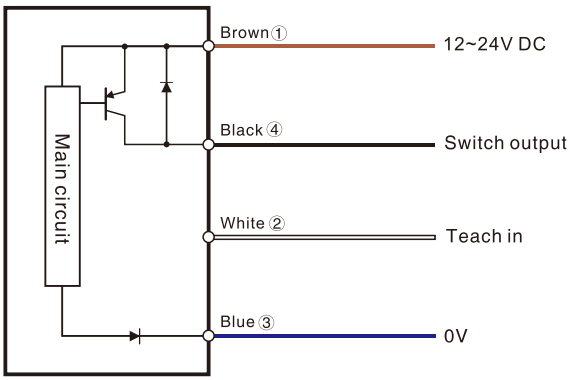


Circuit diagram

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors



NEW!

TOF

CE

Basic Features	Working Principle	TOF Principle
	Housing Style	Square
	Optical Working Principle	D-TOF Principle
	Detection Range	0.05-1m @5% Reflectance; 0.05-2m @30% Reflectance
	Spot Size	<5mm@2m
	Detected Object	–
	Light Source	Laser Diode 650nm, Class 2
	Indicator Light	Action Indicator (Orange), Stability/Communication Indicator (Green)
	Sensitivity Adjustment	–
Electrical data	Switching Mode	NC/NO switchable
	Output Mode	Instant/Delayed Response Mode, switching by pressing the button for different durations
	Response Time	1ms
	Switching Frequency	1000HZ
	Repeatability	±5mm
	Hysteresis	–
	Operating Voltage	9~30VDC
	Current Consumption	≤30mA
	Residual Voltage	<1V
	Load Current	≤100mA
	Insulation Resistance	≥50MΩ(500VDC)
	Withstand Voltage	1000VAC (50/60Hz)
	Protection Circuit	Reverse Power Protection, Output Short Circuit Protection, Output Reverse Connection Protection
Environmental conditions	Operating Temperature	–20℃~+55℃
	Storage Temperature	–40~+70℃
	Operating Humidity	35%~85%RH(No Condensation)
	Storage Humidity	35%~95%RH(No Condensation)
	Ambient Light	Ambient light >3000 lux
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP67
Mechanical data	Maximum Tightening Torque	–
	Connection Method	0.2mm 3-core PVC Cable, Length 2 meters (Customizable cable length)
	Dimensions	37x30x15mm
	Material	Housing: PC+ABS; Lens: PMMA
	Weight	0.045kg
	Accessories	–
Model	NPN	**ELT-M3BN**
	PNP	**ELT-M3BP**

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
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AI Image
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Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

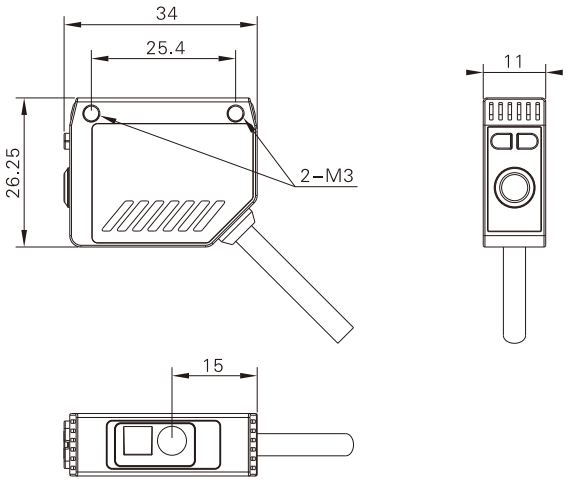
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors

TOF

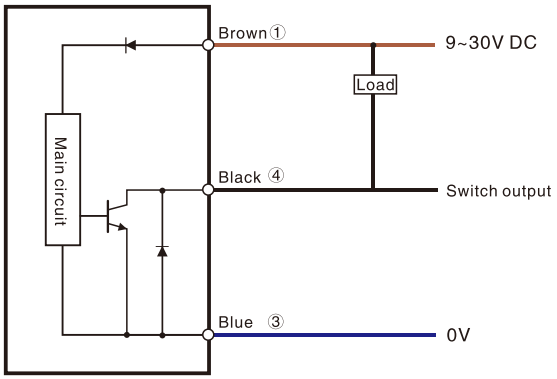
Dimensions

Unit: mm

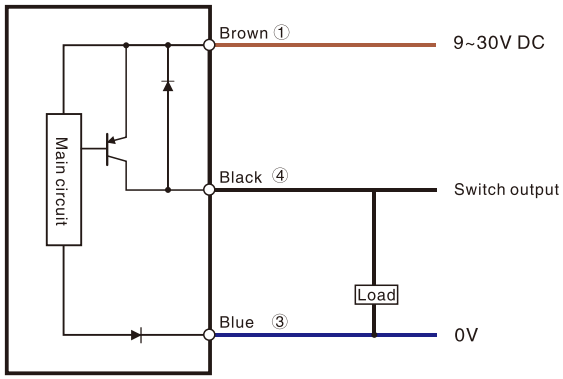


Circuit diagram

NPN Output



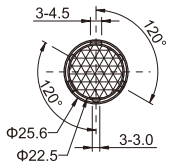
PNP Output



Unit: mm

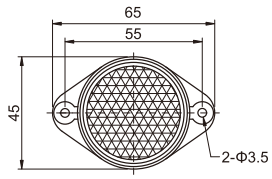
Dimensions

STD-06



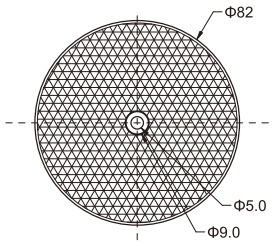
Thickness: 8mm

TD-04



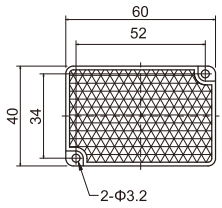
Thickness: 8mm

TD-05



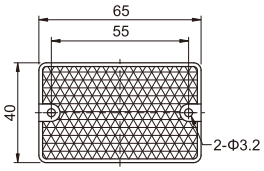
Thickness: 8mm

TD-09



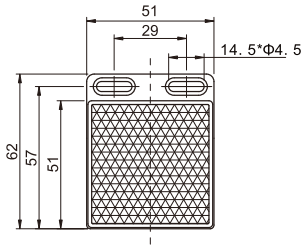
Thickness: 8mm

TD-02



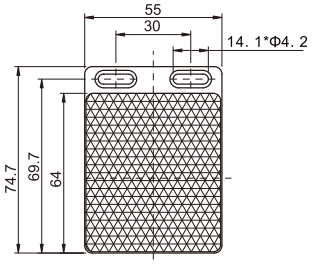
Thickness: 8mm

TD-08



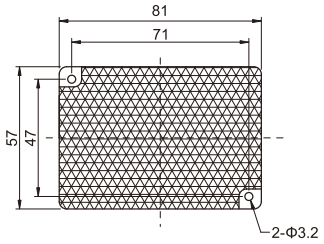
Thickness: 8mm

TD-01



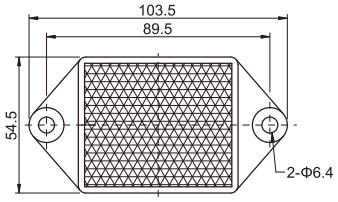
Thickness: 8mm

TD-03



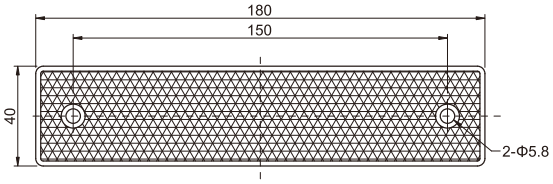
Thickness: 8mm

TD-01-3



Thickness: 8mm

TD-10



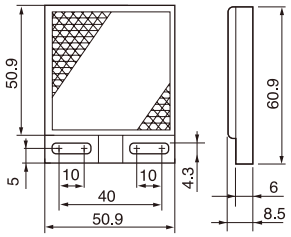
Thickness: 8mm

Reflectors

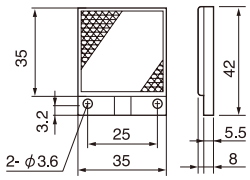
Dimensions

Unit: mm

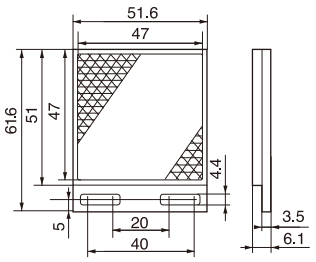
TD-11



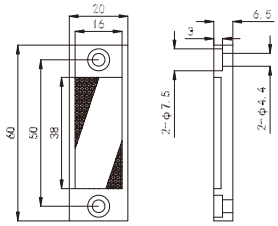
TD-12



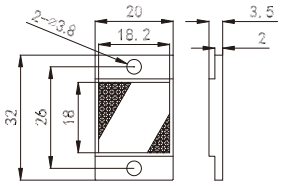
TD-13



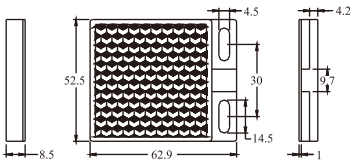
TD-14



TD-15



TD-22



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

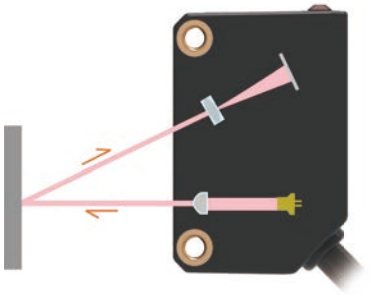
Photoelectric
Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors
Reflectors

Laser Sensors



- Utilizes custom-developed integrated circuits and optical design
- Ultra-small light spots (minimum 1mm), Achieved High-Precision Detection

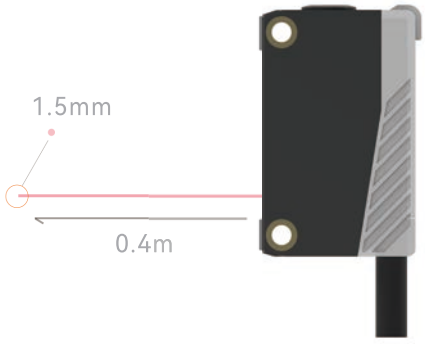


Unique Product Design

Utilizes custom-developed integrated circuits and optical designs
Effective integration of laser light sources with photosensitive elements enhances product performance

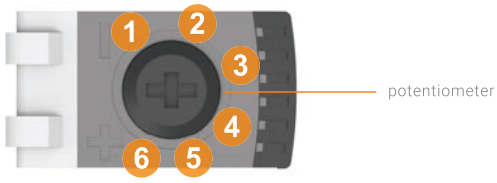
Achieved High-Precision Detection

Fully utilizes the unique excellent directionality and visual recognition of lasers, with ultra-small light spots (minimum 1mm), ensuring the precision of product detection.

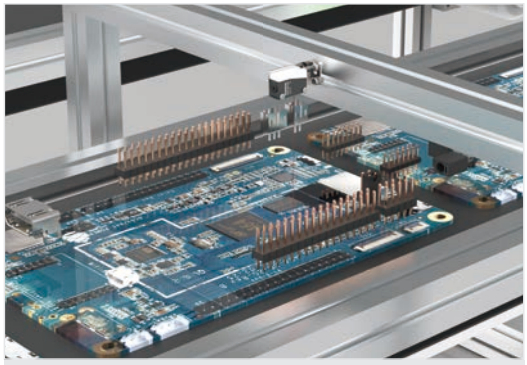


Fine Adjustment at Will

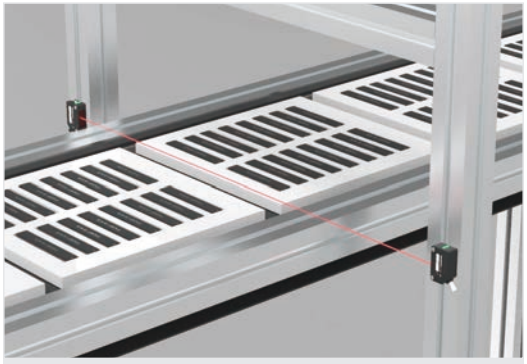
Adjustable knob for sensitivity adjustment, making it more convenient to use



Application



Detection of PCB boards on the production line



Checking if products inside packaging are correctly positioned

Guidance

Appearance	Type	Sensing Distance	Model No. NPN Normally open& Normally closed	Model No. PNP Normally open& Normally closed	Pages
	Diffuse reflection	2~35cm	ELE-B35N	ELE-B35P	D-04
	Diffuse reflection	2~40cm	ELE-B35NS02	ELE-B35PS02	
	Diffuse reflection	2~80cm	ELE-D80NR	ELE-D80PR	
	Retro-reflection	10m	ELE-RM10AN	ELE-RM10AP	
	Thru-beam	50m	ELE-TM50AN	ELE-TM50AP	

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Laser sensors
Square

ELE Series



Economical Type

NEW!

CE

Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Background suppression diffuse reflection		
	Detection Range	20~350mm	20~400mm	20~800mm
	Light Source	Red laser, 650nm (modulated), Class 2		
	Spot Size	Ø3.5mm/350mm	about Ø1.5mm/400mm	–
	Detected Object	Ø0.5mm		
	Indicator Light	Operating indicator light: green; Output indicator light: red		
	Sensitivity Adjustment	6-turn potentiometer		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN or PNP collector open		
	Response Time	≤1.2ms		1.2ms
	Switching Frequency	1kHz	–	
	Repeatability	≤5%	–	
	Hysteresis	≤5%		
	Operating Voltage	10~24VDC ± 10%	10~30VDC ± 10%	
	Current Consumption	≤20mA		
	Residual Voltage	<1.5V		
	Load Current	≤100mA	100mA	
	Insulation Resistance	≥20MΩ(500V DC)	≥20MΩ(250V DC)	
	Withstand Voltage	1000VAC (50/60Hz)		
	Protection Circuit	Reverse polarity protection/short-circuit protection		Reverse connection protection/ short-circuit protection
Environmental conditions	Operating Temperature	–10~55℃(no freezing)		
	Storage Temperature	–30~70℃(no freezing)		
	Operating Humidity	35~85%RH(no condensation)		
	Storage Humidity	35~95%RH(no condensation)		
	Ambient Light	Incandescent light ≤1000 Lux; LED light ≤600 Lux; Sunlight ≤20000 Lux		
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes		
	Protection Rating	IP65		
Mechanical data	Maximum Tightening Torque	≤0.5Nm		
	Connection Method	2m/4-core cable		
	Dimensions	11.0x31.0x20.0mm		
	Material	PBT+glass fiber (housing); PMMA (lens)		
	Weight	about 68g		
	Accessories	Bracket, screws		
Model	NPN	**ELE-B35N**	**ELE-B35NS02**	**ELE-D80NR**
	PNP	**ELE-B35P**	**ELE-B35PS02**	**ELE-D80PR**

Square

ELE Series



Economical Type

NEW!

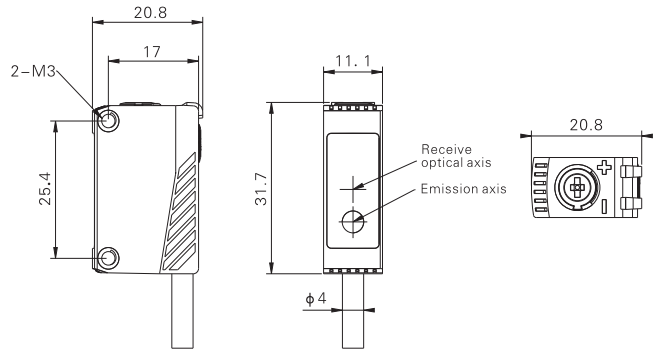
CE

Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Square	
	Optical Working Principle	Retroreflective	Through-beam
	Detection Range	10m	50m
	Light Source	Red laser, 650nm (modulated), Class 2	
	Spot Size	≤15mmx15mm at 10m	≤25.5mmx29.1mm at 8m
	Detected Object	≤0.5mm	
	Indicator Light	Operating indicator light: green, Action indicator light: red	
	Sensitivity Adjustment	Single-turn potentiometer	
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN or PNP collector open	
	Response Time	⩽1ms	⩽1.7ms
	Switching Frequency	0.5kHz	0.3kHz
	Repeatability	⩽5%	
	Hysteresis	⩽20%	
	Operating Voltage	10~30VDC	
	Current Consumption	⩽20mA	Receiver: ≤20mA, Emitter: ≤10mA
	Residual Voltage	<1.5V	
	Load Current	⩽100mA(30VDC)	
	Insulation Resistance	⩾50MΩ(500VDC)	
	Withstand Voltage	AC 1000V 50/60Hz 60S	
	Protection Circuit	Reverse polarity protection/short-circuit protection	Reverse polarity protection/ surge protection/short-circuit protection
Environmental conditions	Operating Temperature	–25~55℃(no freezing/no condensation)	
	Storage Temperature	–30~70℃(no freezing)	
	Operating Humidity	35~85%RH(no condensation)	
	Storage Humidity	35~95%RH	
	Ambient Light	LED light ≤1000 Lux	Incandescent light ≤3000 Lux; LED light ≤3000 Lux
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP67	IP65
Mechanical data	Maximum Tightening Torque	⩽0.5Nm	
	Connection Method	2m/3-core cable	
	Dimensions	11.0x31.0x20.0mm	
	Material	PBT+glass fiber	
	Weight	about 70g	
	Accessories	Screwdriver, reflector, mounting bracket, screws	Screwdriver, mounting bracket, screws
Model	NPN	**ELE-RM10AN**	**ELE-TM50AN**
	PNP	**ELE-RM10AP**	**ELE-TM50AP**

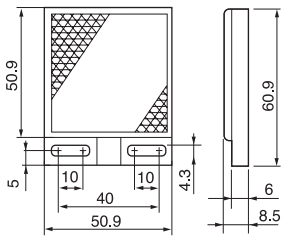
Dimensions

Unit: mm

ELE-B35/B35NS02/D80/RM10

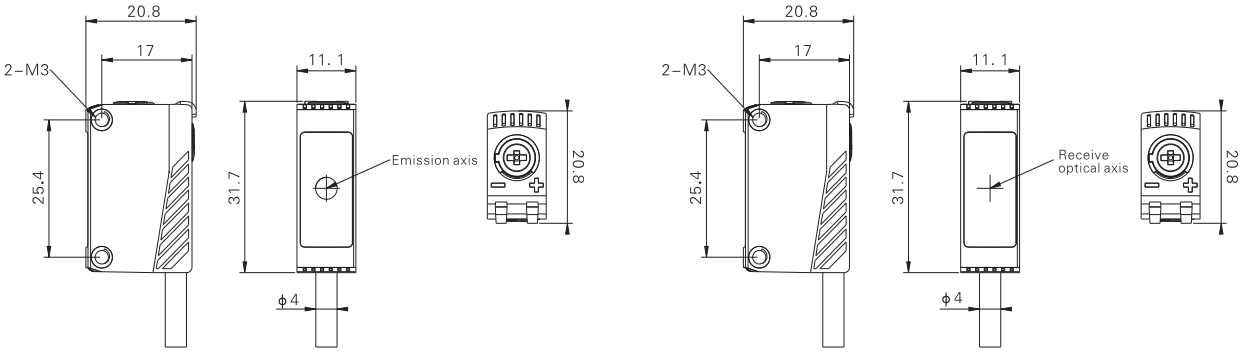


Reflector TD-11



(ELE-RM10 Optional TD-11)

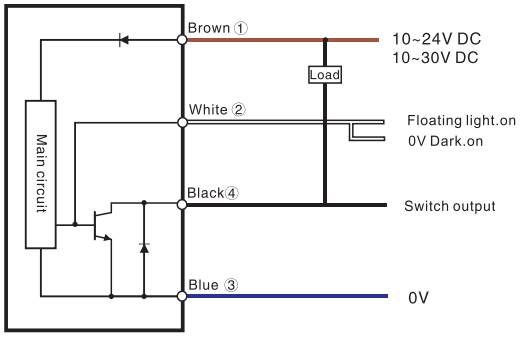
ELE-TM50



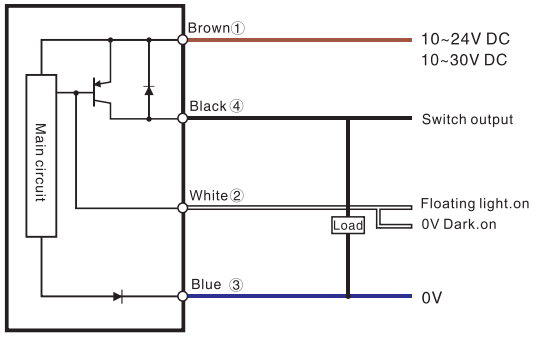
Circuit diagram

ELE-B35/B35N(P)S02/D80

NPN Output

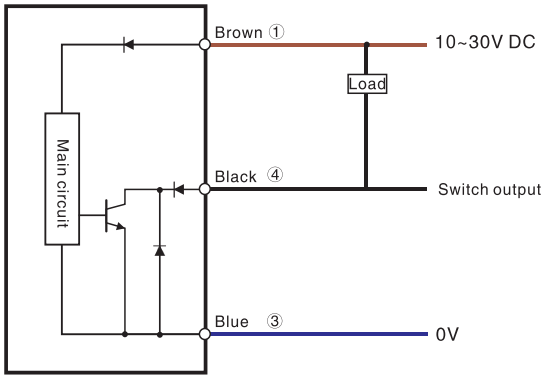


PNP Output

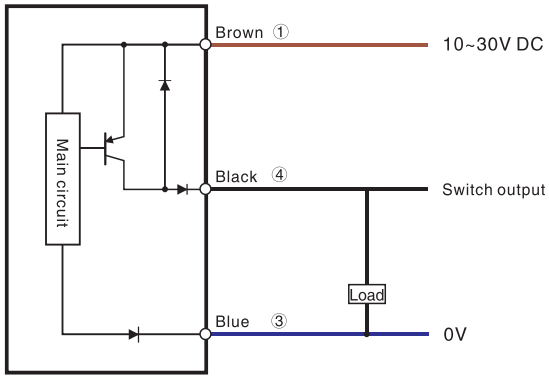


ELE-RM10/TM50

NPN Output



PNP Output



Proximity Sensors



- Highly sensitive and intense accuracy, durability up to 8 years
- Various housing materials and sizes available
- IP67, excellent water and oil resistance

Most materials can be detected

Adopting both inductive and capacitive principle design, compatible with detection of metal and non-metal objects
The product can detect the presence or absence of most objects such as metal, plastic, glass, wood, and liquids.



Glass



Metal



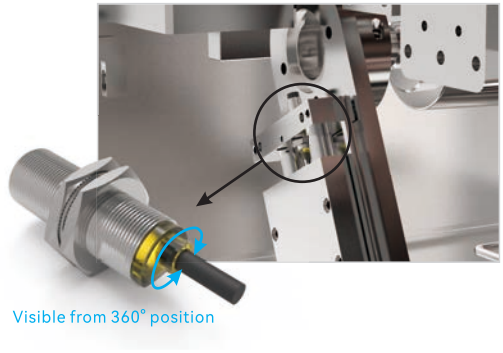
Liquid



Wood

Equipped with all around 360° signal indicator

No need to worry about the direction of the indicator when installing, more convenient to install and adjust.



Visible from 360° position

8%SN

High temperature compensation

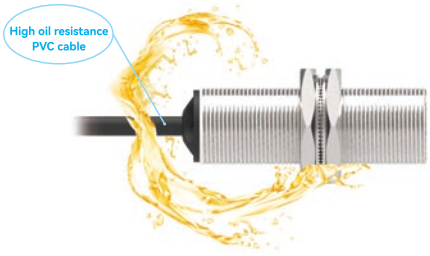
Unique adjustable design and excellent temperature characteristics

Adopting self-developed temperature compensation algorithm, realizing 8%SN of ultra-high temperature compensation
Self-developed debugging software realizing the flexible adjustment of the product output mode and detection distance

Excellent oil resistance*

Conventional products: cable deterioration due to oil chipping
Upgraded products: with highly oil-resistant PVC cables, greatly enhancing the performance of oil resistance.

* All proximity sensors can be customized





Ultra-compact (TX series)

Ultra-compact design for stable operation in small spaces
Sensors with built-in amplifier, shielded construction, can be embedded in objects for detection, easy installation

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
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Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

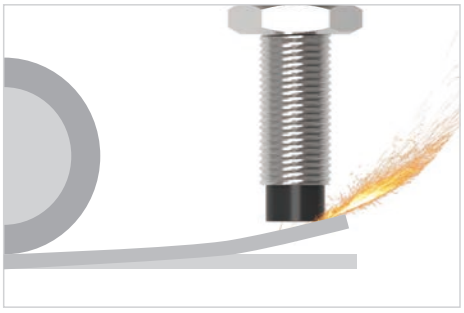
Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Product Highlights

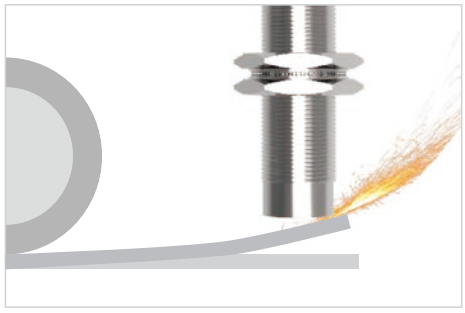
Full-metal sensing surface(TMF/TMN series)*

Anti-collision and scratch metal sensing head is not easily damaged by friction, collision with the workpiece, or cleaning with metal brushes. Compared with general resin sensing heads, it reduces unplanned downtime due to friction and collision, and has better durability.

* Full-metal sensors



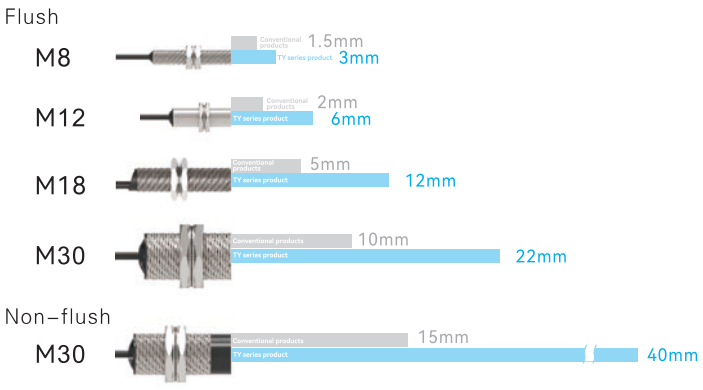
Failure after collision



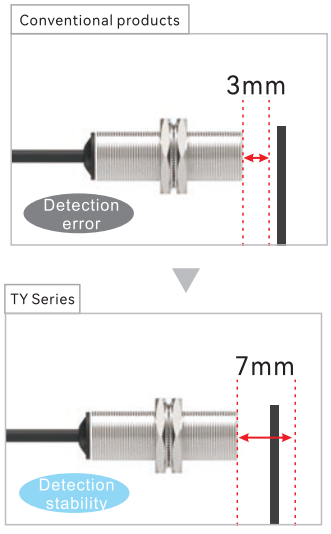
Less likely to fail after collision

Long sensing distance(TYF/N series)

1.2 times longer detection distance than conventional products



2.Even if the gripper is deflected due to vibration of the equipment, it has less effect on the detection





Standard Distance Type (TR series)

- Classical cylindrical appearance, high stability
- Adaptive to different occasions, top-notch quality, low price
- Customizable cables & connectors as requested

P.E-19



Extended Distance Type (TL series)

- sensing distance is double that of standard products
- Save installing space effectively
- Customizable cables & connectors at your request

P.E-23



Long Distance Type (TY series)

- Ultra-long sensing distance, up to 40mm
- Avoid any attenuation caused by the material of detected objects
- Ip67 high protection degree

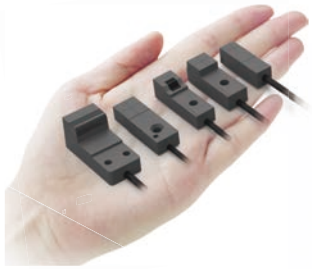
P.E-27



Square Type (TQ series)

- Kidney -shaped hole, easy installation
- Up to 8 mm sensing distance
- Plastic housing, protection degree IP67

P.E-31



Mini-square Type (TE series)

- 6mm (extral small), built-in amplifier
- 8mm sensing distance, the longest sensing distance in the industry
- Sensing surface on the top and at the front to suit your needs

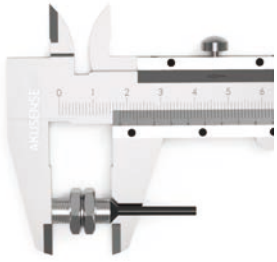
P.E-33



Mini-cylindrical Type (TX series)

- Highly stablized detection in narrow space
- Shield type, can be embeded in detecting objects
- Φ3, Φ4, M4, M5, various models for you to choose from

P.E-36



Short-body Type (TSS/TS series)

- Compared with similar sensors, the length can be shortened 1/3
- 18mm body length can perfectly fit into narrow space
- Epoxy resin fillings exhibit excellent shock resistance

P.E-39



Ring-type (TH series)

- 2mm thickness, the thinnest one in the industry
- Stainless steel housing; strong impact resistance
- Flexible sensitivity adjustment with knobs

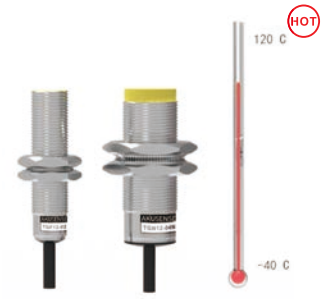
P.E-44



Metal Face Type (TM series)

- Stainless steel face, with great impact resistance
- 1000PSI/High pressure resistance
- Wonderful thermal shock and chemical resistance

P.E-46



Temperature Resistance Type (TG/TZ series)

- Extended temperature varies from -40℃ to +220℃
- Degree of protection up to IP67
- Reverse polarity protection and surge protection

P.E-49



IP69K High Protection (TP series)

- AISI 316L stainless steel housing
- IP67-IP68-IP69K protection level
- Can be used in the food and beverage field

P.E-52



Anti-welding Slag (TW series)

- Factor 1, no attenuation
- Teflon coating
- Interference suppression and high magnetic resistance

P.E-55

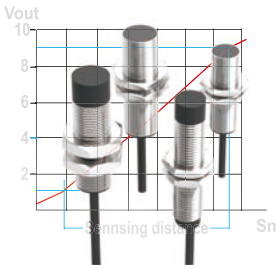
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Guidance Inductive Sensors



Analog Output Type (TA series)

- First choice of short distance and non-contact detection
- Analog output 0~20mA and 0~10v
- Output PNP-Analog

P.E-57



DC 2-wire Type (TD series)

- Nonpolarized specifications, easy wiring method
- With smallest sensing surface M8
- 10~30V DC and 10~60V DC ,two voltages

P.E-59

Guidance Capacitive sensors



Cylindrical Type (CK series)

- Detect metal, plastic and liquid, ect
- With reverse polarity, short circuit, surge and many other protection functions
- Metal and plastic housings are available

P.E-62



Corrosion Resistance Type (CWF series)

- Up to 20 turns sensitivity adjustment
- Teflon coatings ensure superior corrosion resistance
- Widely used in detection of metals, water, oil, glasses, plastic and water, etc

P.E-64

NEW!



Flat Type (CQ series)

- 7mm of thickness only for saving space
- Enjoy stablility; comparable to world famous brands
- Offer different kinds of sensing distance of 5mm, 6mm, 7mm and 10mm, etc

P.E-66

HOT



Liquid Level Detection (CE series)

- Free from influence of liquid color in pipeline
- Suitable for pipeline diameter from Φ8mm to Φ11mm, Φ12mm to Φ26 mm
- With built-in amplifier to save installing space

P.E-70

Type 1	Type 2	Series	
Inductive Sensors	Cylinderical	Standard Distance	TR Series
		Extended Distance	TL Series
		Long Distance	TY Series
		Mini–cylindrical	TX Series
		Short–body	TSS/TS Series
		Analog Output	TA Series
		DC 2–wire	TD Series
	Square	Standard Square	TQ Series
		Mini–square	TE Series
	Special Applications	Ring–type	TH Series
		Metal Face	TM Series
		Temerature Resistance	TG/TZ Series
		IP69K High Protection	TP Series
		Anti–welding slag	TW Series
Capacitive Sensors	Cylinderical	Plastic Housing	CK Series
	Corrosion Resistant	Teflon Housing	CWF Series
	Flat	Plastic Housing	CQ Series
	Special Applications	Liquid Level Detecion	CE Series

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Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

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Guidance

Standard Distance DC 3-wire

Type		Appearance	Sensing distance	Model number		Page
			Unit: mm	NPN Normally open	NPN Normally closed	
Pre-wired Type	Flush		ϕ6.5*45.5	1.5mm	TRF6.5-1.5NO	TRF6.5-1.5NC	E-19
			M8*45	1.5mm	TRF08-1.5NO	TRF08-1.5NC	
			M12*44.5	2mm	TRF12-02NO	TRF12-02NC	
			M18*55	5mm	TRF18-05NO	TRF18-05NC	
			M30*54	10mm	TRF30-10NO	TRF30-10NC	
	Non-flush		ϕ6.5*45	2mm	TRN6.5-02NO	TRN6.5-02NC	
			M8*45.5	2mm	TRN08-02NO HOT	TRN08-02NC	
			M12*46.5	4mm	TRN12-04NO HOT	TRN12-04NC	
			M18*54	8mm	TRN18-08NO	TRN18-08NC	
			M30*58	15mm	TRN30-15NO	TRN30-15NC	
Connector Type	Flush		M8*60	1.5mm	TRF08-1.5NO-E1	TRF08-1.5NC-E1	
			M12*68	2mm	TRF12-02NO-E2	TRF12-02NC-E2	
			M18*82	5mm	TRF18-05NO-E2	TRF18-05NC-E2	
			M30*78	10mm	TRF30-10NO-E2	TRF30-10NC-E2	
	Non-flush		M8*60	2mm	TRN08-02NO-E1	TRN08-02NC-E1	
			M12*67	4mm	TRN12-04NO-E2	TRN12-04NC-E2	
			M18*78	8mm	TRN18-08NO-E2	TRN18-08NC-E2	
			M30*78	15mm	TRN30-15NO-E2	TRN30-15NC-E2	

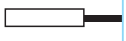
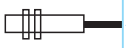
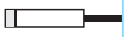
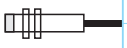
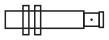
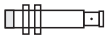
Noted: Model numbers ended with "PO/""PO-E1/""PO-E2" are PNP normally open ;model numbers ended with"PC/"PC-E1/""PC-E2" are PNP normally closed.

Extended Distance DC 3-wire

Type		Appearance	Sensing distance	Model number		Page
			Unit: mm	NPN Normally open	NPN Normally closed	
Pre-wired Type	Flush		ϕ6.5*45	2mm	TLF6.5-02NO	TLF6.5-02NC	E-23
			M8*45	2mm	TLF08-02NO	TLF08-02NC	
			M12*45	4mm	TLF12-04NO	TLF12-04NC	
			M18*54	8mm	TLF18-08NO	TLF18-08NC	
			M30*54	16mm	TLF30-16NO	TLF30-16NC	
	Non-flush		ϕ6.5*44	4mm	TLN6.5-04NO	TLN6.5-04NC	
			M8*44	4mm	TLN08-04NO HOT	TLN08-04NC	
			M12*53	8mm	TLN12-08NO HOT	TLN12-08NC	
			M18*58	16mm	TLN18-16NO	TLN18-16NC	
			M30*61	25mm	TLN30-25NO	TLN30-25NC	
Connector Type	Flush		M8*60	2mm	TLF08-02NO-E1	TLF08-02NC-E1	E-24
			M12*68	4mm	TLF12-04NO-E2	TLF12-04NC-E2	
			M18*82	8mm	TLF18-08NO-E2	TLF18-08NC-E2	
			M30*78	16mm	TLF30-16NO-E2	TLF30-16NC-E2	
	Non-flush		M8*60	4mm	TLN08-04NO-E1	TLN08-04NC-E1	
			M12*71	8mm	TLN12-08NO-E2	TLN12-08NC-E2	
			M18*82	16mm	TLN18-16NO-E2	TLN18-16NC-E2	
			M30*81	25mm	TLN30-25NO-E2	TLN30-25NC-E2	

Noted: Model numbers ended with "PO/""PO-E1/""PO-E2" are PNP normally open ; model numbers ended with"PC/"PC-E1/""PC-E2" are PNP normally closed.

DC 3-wire **Long Distance**

Type		Appearance	Unit: mm	Sensing distance	Model number NPN Normally open	Model number NPN Normally closed	Page
Pre-wired Type	Flush		ϕ6.5*45	3mm	TYF6.5-03NO	TYF6.5-03NC	E-27
			M8*45	3mm	TYF08-03NO	TYF08-03NC	
			M12*45	6mm	TYF12-06NO	TYF12-06NC	
			M18*54	12mm	TYF18-12NO	TYF18-12NC	
			M30*54	22mm	TYF30-22NO	TYF30-22NC	
	Non-flush		ϕ6.5*44	6mm	TYN6.5-06NO	TYN6.5-06NC	
			M8*44	6mm	TYN08-06NO	TYN08-06NC	
			M12*53	10mm	TYN12-10NO	TYN12-10NC	
			M18*58	20mm	TYN18-20NO	TYN18-20NC	
			M30*61	40mm	TYN30-40NO	TYN30-40NC	
Connector Type	Flush		M8*60	3mm	TYF08-03NO-E1	TYF08-03NC-E1	E-28
			M12*68	6mm	TYF12-06NO-E2	TYF12-06NC-E2	
			M18*82	12mm	TYF18-12NO-E2	TYF18-12NC-E2	
			M30*78	22mm	TYF30-22NO-E2	TYF30-22NC-E2	
	Non-flush		M8*60	6mm	TYN08-06NO-E1	TYN08-06NC-E1	
			M12*71	10mm	TYN12-10NO-E2	TYN12-10NC-E2	
			M18*82	20mm	TYN18-20NO-E2	TYN18-20NC-E2	
			M30*81	40mm	TYN30-40NO-E2	TYN30-40NC-E2	

Noted: Model numbers ended with "PO/""PO-E1/""PO-E2" are PNP normally open ;model numbers ended with"PC/"PC-E1/""PC-E2" are PNP normally closed.

DC 3-wire **Square**

Type	Appearance	Unit: mm		Sensing distance	Model number NPN Normally open	Model number NPN Normally closed	Page
Pre-wired Type	 17*17*27	Q17	Shielded	5mm	TQF17-05NO	TQF17-05NC	E-31
			Unshielded	8mm	TQN17-08NO	TQN17-08NC	
	 18*18*34	Q18	Shielded	5mm	TQF18-05NO HOT	TQF18-05NC	
			Unshielded	8mm	TQN18-08NO	TQN18-08NC	
	 18*10*30.5	Q18C	Shielded	5mm	TQF18C-05NO	TQF18C-05NC	
			Unshielded	8mm	TQN18C-08NO	TQN18C-08NC	

Noted: Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

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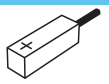
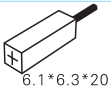
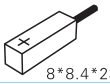
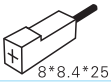
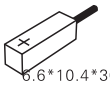
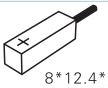
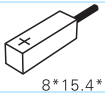
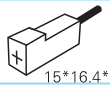
Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Guidance

Mini Square DC 3-wire

Type		Appearance		Sensing distance	Model number		Page
		Unit: mm			NPN Normally open	NPN Normally closed	
Pre-wired Type	Non-flush	 6.2*6.4*20.4	E06	1mm	TEN06-01NO	TEN06-01NC	E-33
		 6.1*6.3*20.4	E07	1mm	TEN07-01NO	TEN07-01NC	
		 8*8.4*23.5	E08	2.5mm	TEN08-2.5NO HOT	TEN08-2.5NC	
				3mm	TEN08-03NO	TEN08-03NC	
		 8*8.4*25.5	E09	2.5mm	TEN09-2.5NO	TEN09-2.5NC	
				3mm	TEN09-03NO HOT	TEN09-03NC	
		 6.6*10.4*30.5	E10	2.5mm	TEN10-2.5NO	TEN10-2.5NC	E-34
				4mm	TEN10-04NO	TEN10-04NC	
		 8*12.4*30.5	E12	4mm	TEN12-04NO	TEN12-04NC	
		 8*15.4*34.5	E15	5mm	TEN15-05NO	TEN15-05NC	
				8mm	TEN15-08NO	TEN15-08NC	
		 15*16.4*34.5	E16	5mm	TEN16-05NO	TEN16-05NC	
				8mm	TEN16-08NO	TEN16-08NC	

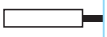
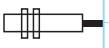
Noted: Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

Mini-cylindrical DC 3-wire

Type		Appearance		Sensing distance	Model number		Page
		Unit: mm			NPN Normally open	NPN Normally closed	
Pre-wired Type	Flush		ϕ3*25	0.6mm	TXF03-0.6NO	TXF03-0.6NC	E-36
				0.8mm	TXF03-0.8NO	TXF03-0.8NC	
				1.0mm	TXF03-01NO	TXF03-01NC	
			ϕ4*25	0.8mm	TXF04-0.8NO	TXF04-0.8NC	
				1.0mm	TXF04-01NO	TXF04-01NC	
				1.2mm	TXF04-1.2NO	TXF04-1.2NC	
				1.5mm	TXF04-1.5NO	TXF04-1.5NC	
			M4*25	0.6mm	TXFM4-0.6NO	TXFM4-0.6NC	E-37
				0.8mm	TXFM4-0.8NO	TXFM4-0.8NC	
				1.0mm	TXFM4-01NO	TXFM4-01NC	
			M5*25	0.8mm	TXF05-0.8NO	TXF05-0.8NC	
				1.0mm	TXF05-01NO	TXF05-01NC	
				1.2mm	TXF05-1.2NO	TXF05-1.2NC	
				1.5mm	TXF05-1.5NO	TXF05-1.5NC	

Noted: Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

DC 3-wire **Ultra-short Body**

Type		Appearance		Sensing distance	Model number		Page
			Unit: mm		NPN Normally open	NPN Normally closed	
Pre-wired Type	Flush		ϕ6.5*18	1mm	TSSF6.5-01NO	TSSF6.5-01NC	E-39
				2mm	TSSF6.5-02NO	TSSF6.5-02NC	
				3mm	TSSF6.5-03NO	TSSF6.5-03NC	
			ϕ6.5*18	1mm	TSSF6.5Y-01NO	TSSF6.5Y-01NC	
				2mm	TSSF6.5Y-02NO	TSSF6.5Y-02NC	
				3mm	TSSF6.5Y-03NO	TSSF6.5Y-03NC	
			M8*18	1mm	TSSF08-01NO	TSSF08-01NC	E-40
				2mm	TSSF08-02NO HOT	TSSF08-02NC	
			M12*22	2mm	TSSF12-02NO	TSSF12-02NC	
				4mm	TSSF12-04NO	TSSF12-04NC	

Noted: Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

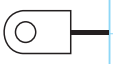
DC 3-wire **Short-body**

Type		Appearance		Sensing distance	Model number		Page
			Unit: mm		NPN Normally open	NPN Normally closed	
Pre-wired Type	Flush		M8*35	1mm	TSF08-01NO	TSF08-01NC	E-41
				2mm	TSF08-02NO	TSF08-02NC	
			M12*35	2mm	TSF12-02NO	TSF12-02NC	
				4mm	TSF12-04NO	TSF12-04NC	
			M18*35	5mm	TSF18-05NO	TSF18-05NC	
				8mm	TSF18-08NO	TSF18-08NC	
			M30*35	10mm	TSF30-10NO	TSF30-10NC	
				16mm	TSF30-16NO	TSF30-16NC	
	Non-flush		M8*35	2mm	TSN08-02NO	TSN08-02NC	E-42
				4mm	TSN08-04NO	TSN08-04NC	
			M12*35	4mm	TSN12-04NO	TSN12-04NC	
				8mm	TSN12-08NO	TSN12-08NC	
			M18*43	8mm	TSN18-08NO	TSN18-08NC	
				16mm	TSN18-16NO	TSN18-16NC	
			M30*47	15mm	TSN30-15NO	TSN30-15NC	
				25mm	TSN30-25NO	TSN30-25NC	

Noted: Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

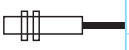
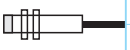
Guidance

Ring-type DC 3-wire

Type	Appearance	Sensing distance	Model number		Page
Unit: mm			NPN Normally open	NPN Normally closed	
Pre-wired Type		H10 Hole height:20 — 10.5mm	TH10-20NO	TH10-20NC	E-44
		H15 Hole height:20 — 15.5mm	TH15-20NO	TH15-20NC	
		H21 Hole height:20 — 22.5mm	TH21-20NO	TH21-20NC	
		H43 Hole height:20 — 43.5mm	TH43-20NO	TH43-20NC	

Noted: Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

Metal Face DC 3-wire

Type	Appearance	Sensing distance	Model number		Page
Unit: mm			NPN Normally open	NPN Normally closed	
Pre-wired Type / Flush		M8*45 — 1mm	TMF08-01NO	TMF08-01NC	E-46
		M8*45 — 2mm	TMF08-02NO	TMF08-02NC	
		M12*45 — 2mm	TMF12-02NO	TMF12-02NC	
		M12*45 — 4mm	TMF12-04NO	TMF12-04NC	
		M18*54 — 5mm	TMF18-05NO	TMF18-05NC	
		M18*54 — 8mm	TMF18-08NO	TMF18-08NC	
		M30*54 — 10mm	TMF30-10NO	TMF30-10NC	
		M30*54 — 16mm	TMF30-16NO	TMF30-16NC	
Pre-wired Type / Non-flush		M8*49 — 2mm	TMN08-02NO	TMN08-02NC	E-47
		M8*49 — 3mm	TMN08-03NO	TMN08-03NC	
		M12*54 — 4mm	TMN12-04NO	TMN12-04NC	
		M12*54 — 8mm	TMN12-08NO	TMN12-08NC	
		M18*62 — 8mm	TMN18-08NO	TMN18-08NC	
		M18*62 — 16mm	TMN18-16NO	TMN18-16NC	
		M30*66 — 15mm	TMN30-15NO	TMN30-15NC	
		M30*66 — 25mm	TMN30-25NO	TMN30-25NC	

Noted: Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

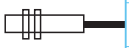
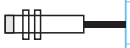
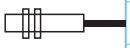
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

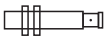
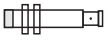
Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

DC 3-wire **Temperature Resistance**

Type		Appearance	Sensing distance	Model number		Page
		Unit: mm		NPN Normally open	NPN Normally closed	
High temperature resistant	120℃ Flush		M12*54	2mm	TGF12-02NO	TGF12-02NC	E-49
			M18*55	5mm	TGF18-05NO	TGF18-05NC	
			M30*51.5	10mm	TGF30-10NO	TGF30-10NC	
	120℃ Non-flush		M12*51	4mm	TGN12-04NO	TGN12-04NC	
			M18*51.5	8mm	TGN18-08NO (HOT)	TGN18-08NC	
			M30*51.5	15mm	TGN30-15NO	TGN30-15NC	
	220℃ Flush		M12*55	2mm	TGF12-02NO2	TGF12-02PO2	E-50
			M18*55	5mm	TGF18-05NO2	TGF18-05PO2	
			M30*54	10mm	TGF30-10NO2	TGF30-10PO2	

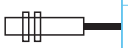
Noted:Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

IP69K High Protection

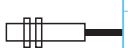
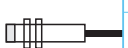
Type		Appearance	Sensing distance	Model number		Page
		Unit: mm		NPN	PNP	
Connector Type	Flush		M12*64. 6	2mm	TPF12-02NR-E2	TPF12-02PR-E2	E-52
				4mm	TPF12-04NR-E2	TPF12-04PR-E2	
			M18*63. 1	5mm	TPF18-05NR-E2	TPF18-05PR-E2	E-53
				8mm	TPF18-08NR-E2	TPF18-08PR-E2	
	Non-flush		M12*64. 6	4mm	TPN12-04NR-E2	TPN12-04PR-E2	E-52
				8mm	TPN12-08NR-E2	TPN12-08PR-E2	
			M18*63. 1	8mm	TPN18-08NR-E2	TPN18-08PR-E2	E-53
				12mm	TPN18-12NR-E2	TPN18-12PR-E2	

Note: The model ending with **NR-E2 is NPN normally open + normally closed; the model ending with **PR-E2 is PNP normally open + normally closed.

Anti-welding Slag

Type		Appearance	Sensing distance	Model number		Page
		Unit: mm		NPN	PNP	
Pre-wired Type	Flush		M12*57.2	4mm	TWF12-04NO/POE	TWF12-04NC/PCE	E-55
			M18*57.2	8mm	TWF18-08NO/POE	TWF18-08NC/PCE	
			M30*57.2	15mm	TWF30-16NO/POE	TWF30-16NC/PCE	

DC 3-wire **Analog Output**

Type		Appearance	Sensing distance	Model number		Page
		Unit: mm		PNP Current output	PNP Volage output	
Pre-wired Type	Flush		M12*45	3mm	TAF12-03PA	TAF12-03PV	E-57
			M18*54	4mm	TAF18-04PA	TAF18-04PV	
			M30*54	10mm	TAF30-10PA	TAF30-10PV	
	Non-flush		M12*44	4mm	TAN12-04PA	TAN12-04PV	
			M18*54	7mm	TAN18-07PA	TAN18-07PV	
			M30*58	14mm	TAN30-14PA	TAN30-14PV	

Fiber Optic
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Safety door lock
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Guidance

Inductive sensors
Standard distance
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Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
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Short-body
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Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

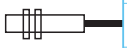
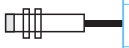
Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Guidance

DC 2-Wire

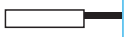
Type	Appearance	Sensing distance		Model number		Page
		Unit: mm		Normally open	Normally closed	
Pre-wired Type	Flush	ϕ6.5*45	1mm	TDF6.5-01HO	TDF6.5-01HC	E-59
			2mm	TDF6.5-02HO	TDF6.5-02HC	
		M8*45	1mm	TDF08-01HO	TDF08-01HC	
			2mm	TDF08-02HO	TDF08-02HC	
		M12*45	2mm	TDF12-02HO	TDF12-02HC	
			4mm	TDF12-04HO	TDF12-04HC	
		M18*54	5mm	TDF18-05HO	TDF18-05HC	
			8mm	TDF18-08HO	TDF18-08HC	
		M30*54	10mm	TDF30-10HO	TDF30-10HC	
			16mm	TDF30-16HO	TDF30-16HC	
	Non-flush	ϕ6.5*44	2mm	TDN6.5-02HO	TDN6.5-02HC	E-60
			4mm	TDN6.5-04HO	TDN6.5-04HC	
		M8*44	2mm	TDN08-02HO	TDN08-02HC	
			4mm	TDN08-04HO	TDN08-04HC	
		M12*44	4mm	TDN12-04HO	TDN12-04HC	
			8mm	TDN12-08HO	TDN12-08HC	
		M18*54	8mm	TDN18-08HO	TDN18-08HC	
			16mm	TDN18-16HO	TDN18-16HC	
		M30*58	15mm	TDN30-15HO	TDN30-15HC	
			25mm	TDN30-25HO	TDN30-25HC	

DC 3-wire **Cylindrical**

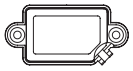
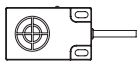
Type		Appearance	Sensing distance		Model number		Page
			Unit: mm		NPN Normally open	NPN Normally closed	
Plastic Housing	Flush		M12*55	3mm	CKF12-03NO	CKF12-03NC	E-62
			M18*70	8mm	CKF18-08NO	CKF18-08NC	
			M30*80	20mm	CKF30-20NO	CKF30-20NC	
	Non-flush		M12*59	6mm	CKN12-06NO	CKN12-06NC	
			M18*73	15mm	CKN18-15NO	CKN18-15NC	
			M30*82	30mm	CKN30-30NO	CKN30-30NC	

Noted:Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

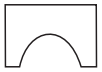
DC 4-wire **Corrosion Resistance Type**

Type	Appearance	Sensing distance		Model number	Page
		Unit: mm		NPN PNP Normally open/Normally closed	
Teflon housing Non-flush		M18*70.5	10mm	CWF18-10NP	E-64

DC 3-wire **Flat Type**

Appearance	Sensing distance	Model number	Page
	4mm	CQ06-04NO/NC/PO/PC	E-66
	8mm	CQ06-08NO/NC/PO/PC	
	5mm	CQ07-05NO/NC/PO/PC	E-67
	10mm	CQ07-10NO/NC/PO/PC	
	8mm	CQ07-08NO/NC/PO/PC	E-68

DC 3-wire **Liquid Level Detection**

Type	Appearance	Exterior diameter of pipes	Model number		Page
			NPN Normally open	NPN Normally closed	
Non-flush		ϕ8~ϕ11	CE15-13NO	CE15-13NC	E-70
		ϕ12~ϕ26	CE30-26NO HOT	CE30-26NC	

Noted:Model numbers ended with "PO" are PNP normally open ;model numbers ended with"PC" are PNP normally closed.

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
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Contact
Area
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Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
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Short-body
Ring-type
Metal face
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IP69K high protection
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Analog output
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Capacitive sensors
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Fiber Optic
Slot Sensors
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Inductive sensors
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IP69K high protection
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Analog output
DC 2 wires

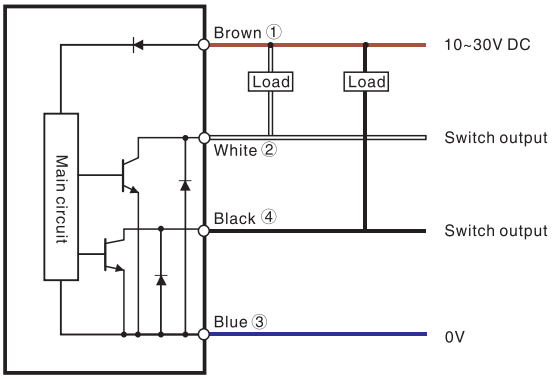
Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Guidance

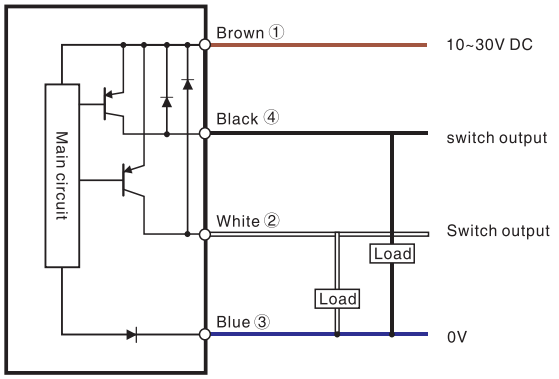
Input/Output Circuit

DC 4-Wire

NPN Output

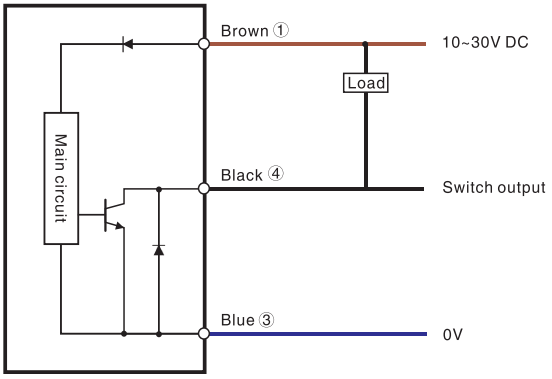


PNP Output

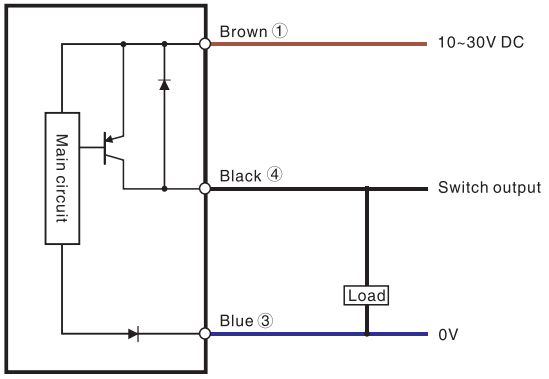


DC 3-Wire

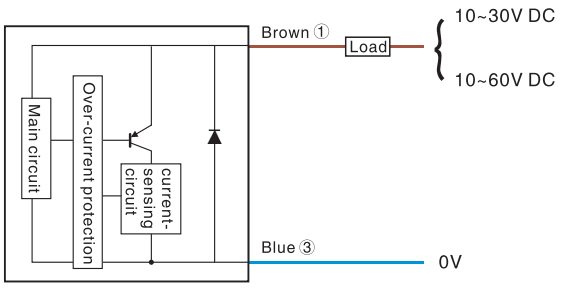
NPN Output



PNP Output

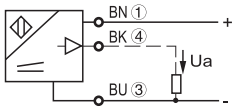
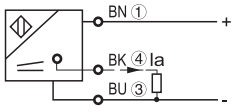
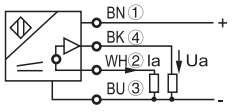


DC 2-Wire



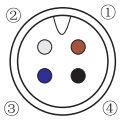
*Load (can be connected between blue wire and negative power supply.)
M8 sensor does not include short-circuit protection or current detection circuit. 1 and 4 in the circuit diagram show the connection of the connector type.

Analog

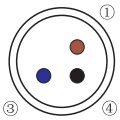
3-wire Voltage output	
3-wire Current output	
4-wire Voltage/current output	

Configulation of Connector Type Sensor

Note:Terminal 1 and 4 are used in connector models



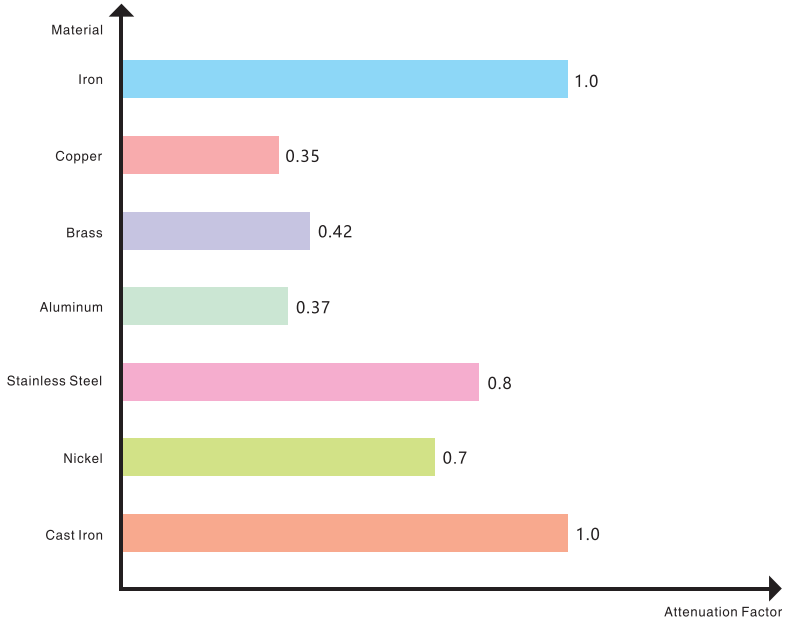
M12 4 pin



M8 3 pin

Inductance Attenuation Coefficien

Sensing distance=Nominal sensing distance*Attenuation factor



Note:

1.Proper installation: shielded or unshielded
2.Specifcations
3.Sensing distance
4.Feature of detecting objects(material and size)

Capacitive Sensors Dielectric Constant

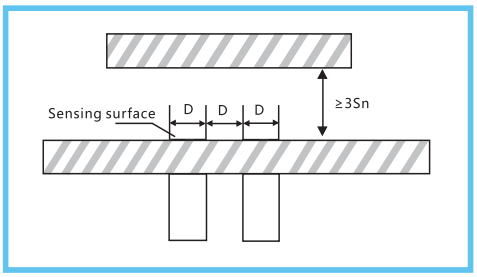
For capacitive sensors, the sensing distance and sensitivity vary due to changes in the dielectric constant of the target object. The bigger the dielectric constant of the target object, the farther the sensing distance of the sensor

Dielectric Constant chart

Material	Dielectric Constant
Air	1
Wood	2~7
Paper	2.3
Polypropylene	2.3
Rubber, neoprene	2.5
Porcelain	4.4
Glass, pyrex	5
Water	80

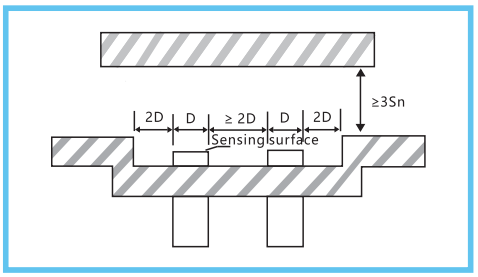
Guidance

Mounting Method



Flush Type Mounting Proximity Sensors

Sensing surface must be flush with metal surface



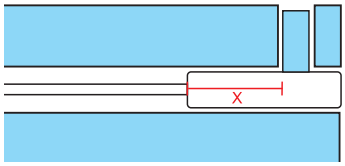
Non-flush Type Mounting Proximity Sensors

The distance between sensing surface to surrounding metals must be more than 2 times sensing distance

Mounting Torque

Cylindrical Type

1. φ3/3.4/4:Fix the sensing head with a screw at 7mm where it is near the tip part;
2. φ6.5 Fluse mounting: Fix the sensing head with a screw at 8mm where it is near the tip part;
3. φ6.5 Non-flush mounting: Fix the sensing head with a screw at 12mm where it is near the tip part.



ϕ3/ϕ3.4/ϕ4: X=7mm ϕ6.5: X=8~12mm

Thread Type

When installing a threaded sensor,please do not exceed the torque listed below.

Model No.	Tightening torque N
M4*0.5	1.5
M5*0.5	1.5
M8*1	3.5
M12*1	16
M18*1	28
M30*1.5	150

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires
Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Capacitive Sensors

T ① ② ③ – ④ ⑤ ⑥ – ⑦

No.	Classification	Explantion of model numbers
①	Series	A: Analog Output D: DC 2–wire E: Mini Square G: High–temperature Resistant H: Ring–type L: Extended Distance M: Metal Face Q: Square R: Standard Distance S: Short body P: IP69K SS: Super Short Body W:Anti–welding Slag X: Mini–cylindrical Y: Long Distance Z: Low Temperature Resistant
②	Mounting	F: Flush N: Non–flush
③	Specifications	08: M8 12: M12 18: M18 30: M30
④	Sensing Distance	1.5: 1.5mm 02: 2mm 05: 5mm 08: 8mm
⑤	Output Type	N: NPN P: PNP H: DC 2–Wire
⑥	Output Status	O: Normally open C: Normally closed A: Current output V: Voltage output
⑦	Connection	Null: Pre–wired type E1: M8 3 pin connector E2: M12 4 pin connector

Capacitive Sensors

C ① ② ③ – ④ ⑤ ⑥ – ⑦

No.	Classification	Explantion of model numbers
①	Series	E: Liquid Level Detection K: Plastic Shells Q: Flat Type W: Corrosion resistant
②	Mounting	F: Flush N: Non–flush
③	Specifications	08: M8 12: M12 18: M18 30: M30
④	Sensing Distance	1.5: 1.5mm 02: 2mm 05: 5mm 08: 8mm
⑤	Output Type	N: NPN P: PNP H: DC 2–Wire
⑥	Output Status	O: Normally open C: Normally closed
⑦	Connection	Null: Pre–wired type E1: M8 3 pin connector E2: M12 4 pin connector

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

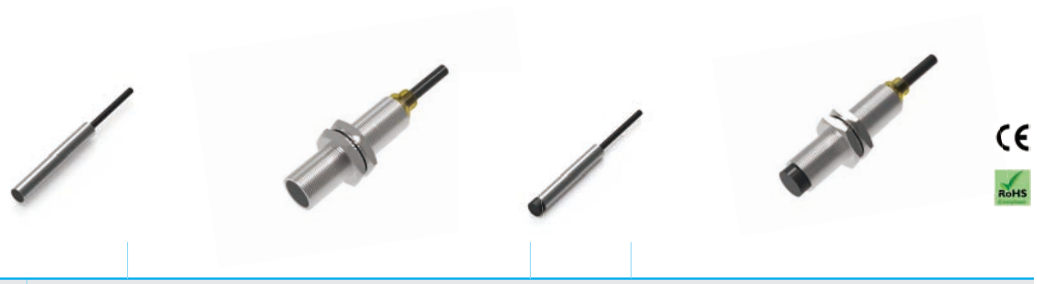
Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Standard Range-TR series

Pre-wired



Basic Features	Working principle	Inductive sensor									
	Housing	Cylindrical									
	Installation type	Flush					Non-flush				
	Sensing distance	1.5mm ± 10%		2.0mm ± 10%	5.0mm ± 10%	10mm ± 10%	2.0mm ± 10%		4.0mm ± 10%	8.0mm ± 10%	15mm ± 10%
	Thread size	ϕ6.5	M8	M12	M18	M30	ϕ6.5	M8	M12	M18	M30
	Sensing surface material	PBT									
	Detected objects	Metal									
	Indicator	Operation Status: LED									
	Sensing range adjustment	None									
Electrical data	Switching output	No:normally open,NC:normally closed									
	Output mode	NPN or PNP Open Collector									
	External input	None									
	Switching frequency	2.0kHz	1.5kHz	1.0kHz		0.3kHz	2.0kHz	1.0kHz	0.8kHz	0.5kHz	0.15kHz
	Repeatability	1%							5%	1%	
	Hysteresis	≤15%									
	Operating Voltage	10~30V DC±10%									
	Current consumption	≤10mA								≤20mA	
	Residual Voltage	≤1.5V		≤2.0V			≤1.5V		≤2.0V		
	Load current	150mA									
	Leakage current	<0.01mA									
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure									
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure									
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions									
	Circuit Protection	Short circuit protection									
Environmental conditions	Operating Temperature	–25~+75℃									
	Operating Humidity	35~85%									
	Enclosure rating	IP67									
Mechanical data	Connection type	2m/3-core Cable									
	Dimension	Ø6.5x45.5mm	M8x46.7mm	M12x49.7mm	M18x63.0mm	M30x55.6mm	Ø6.5x45.0mm	M8x50.7mm	M12x54.6mm	M18x63.1mm	M30x58.5mm
	Material	Stainless steel+PBT		Copper–nickel alloy+PBT			Stainless steel+PBT		Copper–nickel alloy+PBT		
	Weight	0.009kg	0.012kg	0.05kg	0.08kg	0.12kg	0.009kg	0.012kg	0.05kg	0.08kg	0.12kg
	Accessories	–	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5	–	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5
Model	NPN NO	TRF6.5-1.5[NO]	TRF08-1.5[NO]	TRF12-02[NO]	TRF18-05[NO]	TRF30-10[NO]	TRN6.5-02[NO]	TRN08-02[NO] HOT	TRN12-04[NC] HOT	TRN18-08[NO]	TRN30-15[NO]
	Others	[NO]:NPN Normally open [NC]:NPN Normally closed [PO]:PNP Normally open [PC]:PNP Normally closed									

Connector Type





Basic Features	Working principle	Inductive sensor							
	Housing	Cylindrical							
	Installation type	Flush				Non-flush			
	Sensing distance	1.5mm ± 10%	2.0mm ± 10%	5.0mm ± 10%	10mm ± 10%	2.0mm ± 10%	4.0mm ± 10%	8.0mm ± 10%	15mm ± 10%
	Thread size	M8	M12	M18	M30	M8	M12	M18	M30
	Sensing surface material	PBT							
	Detected objects	Metal							
	Indicator	Operation Status: LED							
	Sensing range adjustment	None							
Electrical data	Switching output	No:normally open,NC:normally closed							
	Output mode	NPN or PNP Open Collector							
	External input	None							
	Switching frequency	1.5kHz	2.0kHz	1.0kHz	0.3kHz	1.0kHz		0.5kHz	0.15kHz
	Repeatability	1%							
	Hysteresis	≤15%							
	Operating Voltage	10~30V DC±10%							
	Current consumption	≤10mA							
	Residual Voltage	≤1.5V							
	Load current	150mA							
	Leakage current	<0.01mA							
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure							
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure							
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions							
	Circuit Protection	Short circuit protection							
Environmental conditions	Operating Temperature	–25~+75℃							
	Operating Humidity	35~85%							
	Enclosure rating	IP67							
Mechanical data	Connection type	M8/3-pin Connector	M12/4-pin Connector			M8/3-pin Connector	M12/4-pin Connector		
	Dimension	M8x60.0mm	M12x68.0mm	M18x82.0mm	M30x78.0mm	M8x60.0mm	M12x67.0mm	M18x78.0mm	M30x78.0mm
	Material	Stainless steel+PBT	Copper–nickel alloy+PBT			Stainless steel+PBT	Copper–nickel alloy+PBT		
	Weight	0.012kg	0.05kg	0.08kg	0.12kg	0.012kg	0.05kg	0.08kg	0.012kg
	Accessories	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5
Model	NPN NO	TRF08-1.5NO-E1	TRF12-02NO-E2	TRF18-05NO-E2	TRF30-10NO-E2	TRN08-02NO-E1	TRN12-04NO-E2	TRN18-08NO-E2	TRN30-15NO-E2
	Others	NO:NPN Normally open	NC:NPN Normally closed	PO:PNP Normally open	PC:PNP Normally closed				

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

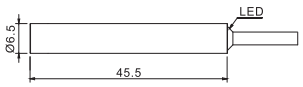
Standard Distance-TR Series

Dimensions- Pre-wired Type

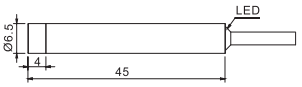
Unit:mm

ϕ6.5

TRF6.5-1.5□□

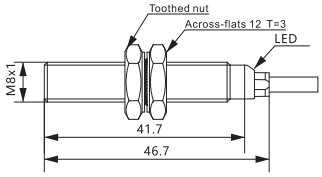


TRN6.5-02□□

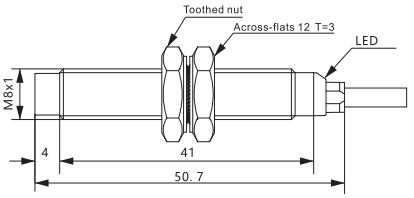


M8

TRF08-1.5□□

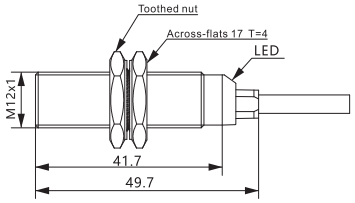


TRN08-02□□

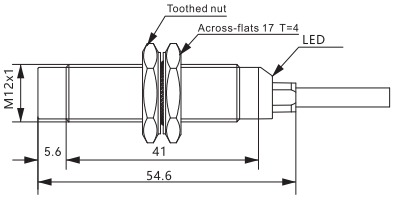


M12

TRF12-02□□

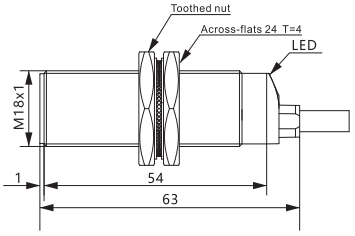


TRN12-04□□

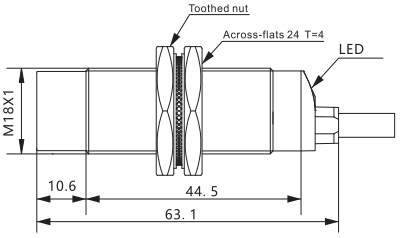


M18

TRF18-05□□

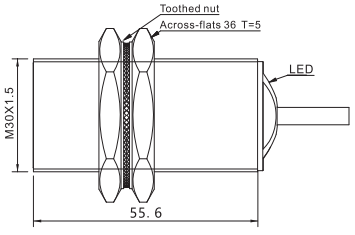


TRN18-08□□

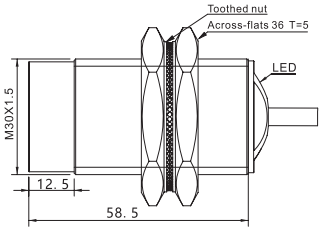


M30

TRF30-10□□



TRN30-15□□

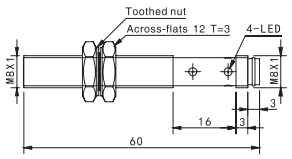


Unit:mm

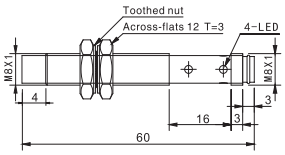
Dimensions- Connector Type

M8

TRF08-1.5□□-E1



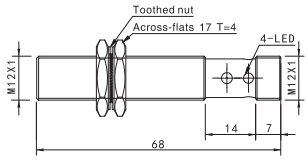
TRN08-02□□-E1



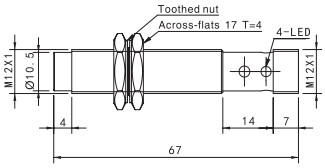


M12

TRF12- 02□□-E2



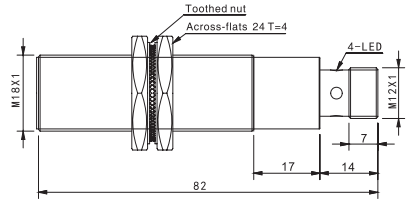
TRN12-04□□-E2



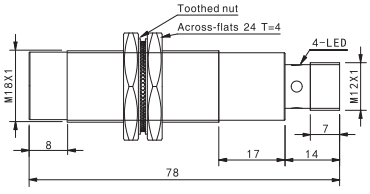


M18

TRF18-05□□-E2



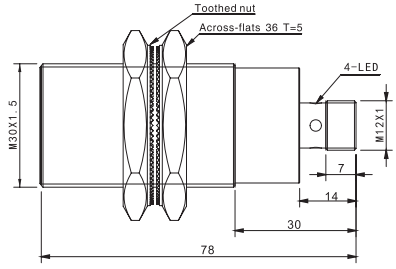
TRN18- 08□□-E2



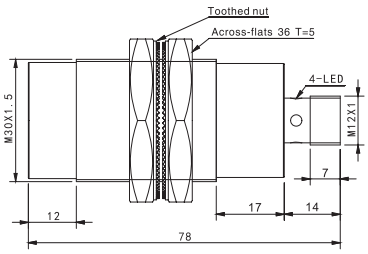


M30

TRF30-10□□-E2



TRN30-15□□-E2





Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

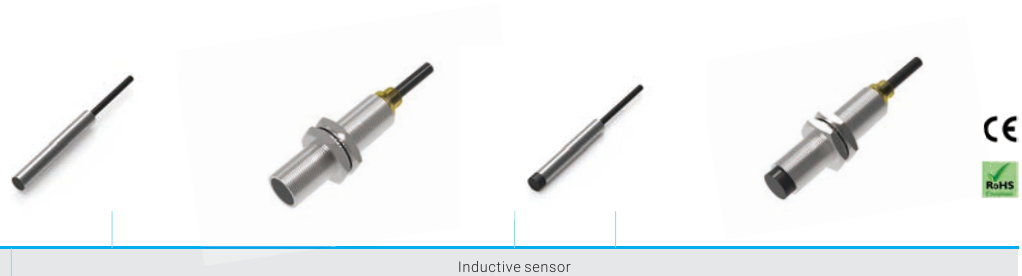
Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Extended Distance-TL Series

Pre-wired Type



Basic Features	Working principle	Inductive sensor								
	Housing	Cylindrical								
	Installation type	Flush					Non-flush			
	Sensing distance	2.0mm ± 10%		4.0mm ± 10%	8.0mm ± 10%	16mm ± 10%	4.0mm ± 10%		8.0mm ± 10%	16mm ± 10%	25mm ± 10%
	Thread size	ϕ6.5	M8	M12	M18	M30	ϕ6.5	M8	M12	M18	M30
	Sensing surface material	PBT									
	Detected objects	Metal									
	Indicator	Operation Status: LED									
	Sensing range adjustment	None									
Electrical data	Switching output	No:normally open,NC:normally closed									
	Output mode	NPN or PNP Open Collector									
	External input	None									
	Switching frequency	2.0kHz	1.0kHz	0.3kHz	0.5kHz	0.15kHz	1.0kHz	0.8kHz	0.5kHz	0.15kHz	0.1kHz
	Repeatability	1%		5%	1%			5%		1%	
	Hysteresis	≤15%									
	Operating Voltage	10~30V DC±10%									
	Current consumption	≤10mA									
	Residual Voltage	≤1.5V	≤2.0V				≤1.5V	≤2.0V			
	Load current	150mA									
	Leakage current	<0.01mA									
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure									
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure									<40V
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions									
	Circuit Protection	Short circuit protection									
Environmental conditions	Operating Temperature	–25~+75℃									
	Operating Humidity	35~85%									
	Enclosure rating	IP67									
Mechanical data	Connection type	2m/3-core Cable									
	Dimension	Ø6.5x45.5mm	M8x46.7mm	M12x49.7mm	M18x63.0mm	M30x55.6mm	Ø6.5x45.0mm	M8x50.7mm	M12x54.6mm	M18x63.1mm	M30x58.5mm
	Material	Stainless steel+PBT		Copper–nickel alloy+PBT			Stainless steel+PBT		Copper–nickel alloy+PBT		
	Weight	0.009kg	0.012kg	0.05kg	0.08kg	0.12kg	0.009kg	0.012kg	0.05kg	0.08kg	0.12kg
	Accessories	–	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5	–	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5
Model	NPN NO	TLF6.5-02NO	TLF08-02NO	TLF12-04NO	TLF18-08NO	TLF30-16NO	TLN6.5-04NO	TLN08-04NO HOT	TLN12-08NO HOT	TLN18-16NO	TLN30-25NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed									

Connector Type





Basic Features	Working principle	Inductive sensor							
	Housing	Cylindrical							
	Installation type	Flush				Non-flush			
	Sensing distance	2.0mm ± 10%	4.0mm ± 10%	8.0mm ± 10%	16mm ± 10%	4.0mm ± 10%	8.0mm ± 10%	16mm ± 10%	25mm ± 10%
	Thread size	M8	M12	M18	M30	M8	M12	M18	M30
	Sensing surface material	PBT							
	Detected objects	Metal							
	Indicator	Operation Status: LED							
	Sensing range adjustment	None							
Electrical data	Switching output	No:normally open,NC:normally closed							
	Output mode	NPN or PNP Open Collector							
	External input	None							
	Switching frequency	1kHz		0.5kHz	0.15kHz	0.8kHz	0.5kHz	0.15kHz	0.1kHz
	Repeatability	1%							
	Hysteresis	≤15%							
	Operating Voltage	10~30V DC±10%							
	Current consumption	≤10mA							
	Residual Voltage	≤1.5V							
	Load current	150mA							
	Leakage current	<0.01mA							
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure							
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure						<40V	
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions							
	Circuit Protection	Short circuit protection							
Environmental conditions	Operating Temperature	–25~+75℃							
	Operating Humidity	35~85%							
	Enclosure rating	IP67							
Mechanical data	Connection type	M8/3-pin Connector	M12/4-pin Connector			M8/3-pin Connector	M12/4-pin Connector		
	Dimension	M8x60.0mm	M12x68.0mm	M18x82.0mm	M30x78.0mm	M8x60.0mm	M12x71.0mm	M18x82.0mm	M30x81.0mm
	Material	Stainless steel+PBT	Copper–nickel alloy+PBT			Stainless steel+PBT	Copper–nickel alloy+PBT		
	Weight	0.012kg	0.05kg	0.08kg	0.12kg	0.012kg	0.05kg	0.08kg	0.012kg
	Accessories	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5
Model	NPN NO	TLF08-02NO-E1	TLF12-04NO-E2	TLF18-08NO-E2	TLF30-16NO-E2	TLN08-04NO-E1	TLN12-08NO-E2	TLN18-16NO-E2	TLN30-25NO-E2
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed							

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

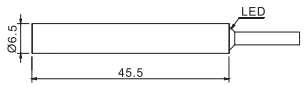
Extended Distance-TL Series

Dimensions-Pre-wired Type

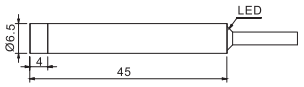
Unit:mm

ϕ6.5

TLF6.5-02□□

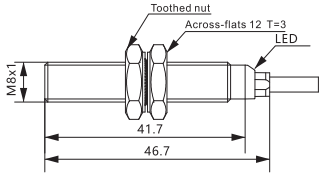


TLN6.5-04□□

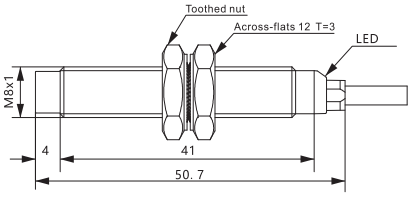


M8

TLF08-02□□

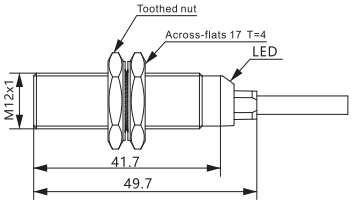


TLN08-04□□

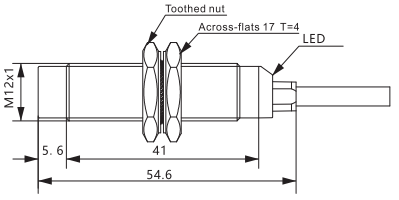


M12

TLF12-04□□

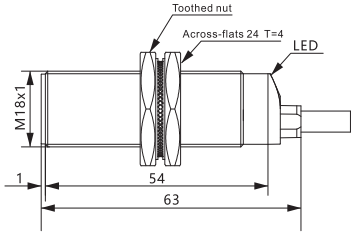


TLN12-08□□

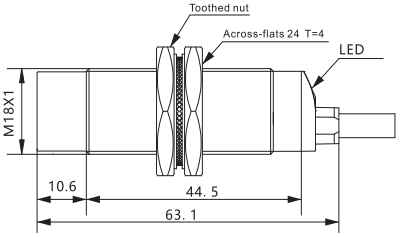


M18

TLF18-08□□

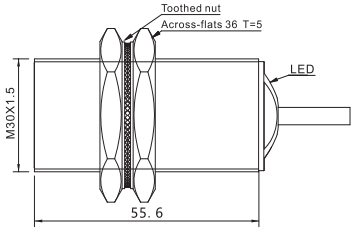


TLN18-16□□

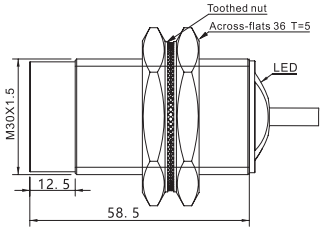


M30

TLF30-16□□



TLN30-25□□

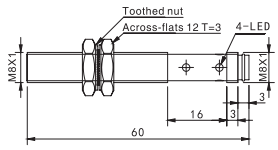


Unit:mm

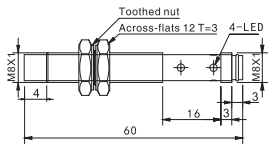
Dimensions- Connector Type

M8

TLF08-02□□-E1



TLN08-04□□-E1

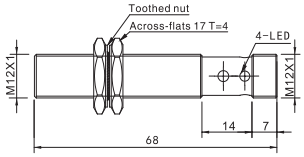




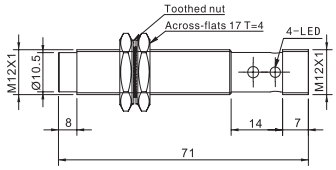
M8 3PIN

M12

TLF12-04□□-E2



TLN12-08□□-E2

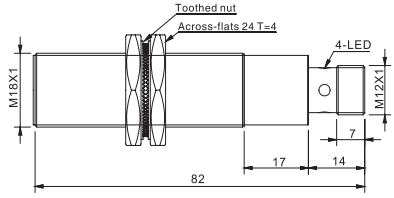




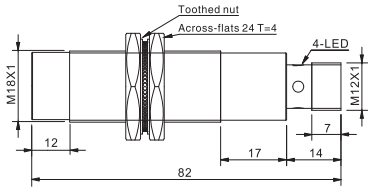
M12 4PIN

M18

TLF18-08□□-E2



TLN18-16□□-E2

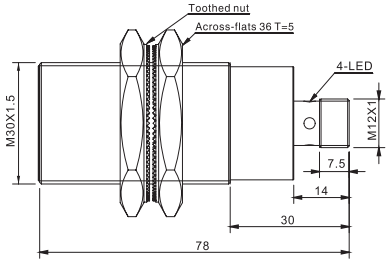




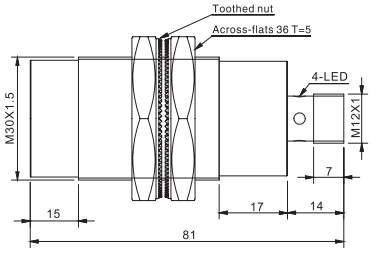
M12 4PIN

M30

TLF30-16□□-E2



TLN30-25□□-E2





M12 4PIN

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Long Distance-TY Series

Pre-wired



Basic Features	Working principle	Inductive sensor									
	Housing	Cylindrical									
	Installation type	Flush					Non-flush				
	Sensing distance	3.0mm ± 10%		6.0mm ± 10%	12mm ± 10%	22mm ± 10%	6.0mm ± 10%		10mm ± 10%	20mm ± 10%	40mm ± 10%
	Thread size	ϕ6.5	M8	M12	M18	M30	ϕ6.5	M8	M12	M18	M30
	Sensing surface material	PBT									
	Detected objects	Metal									
	Indicator	Operation Status: LED									
	Sensing range adjustment	None									
Electrical data	Switching output	No:normally open,NC:normally closed									
	Output mode	NPN or PNP Open Collector									
	External input	None									
	Switching frequency	1.0kHz		0.8kHz	0.3kHz	0.15kHz	0.5kHz		0.4kHz	0.1kHz	
	Repeatability	5%									
	Hysteresis	15%									
	Operating Voltage	10~30V DC±10%									
	Current consumption	⩽10mA									
	Residual Voltage	⩽1.5V									
	Load current	150mA									
	Leakage current	<0.01mA									
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure									
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure		<40V	1,000 VAC, 50/60Hz for 1 min between power terminals and enclosure	330VAC 0.26mA	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure			<40V	
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions									
	Circuit Protection	Short circuit protection									
Environmental conditions	Operating Temperature	–25~+75℃									
	Operating Humidity	35~85%									
	Enclosure rating	IP67									
Mechanical data	Connection type	2m/3-core Cable									
	Dimension	Ø6.5x45.0mm	M8x45.0mm	M12x45.0mm	M18x54.0mm	M30x54.0mm	Ø6.5x44.0mm	M8x44.0mm	M12x53.0mm	M18x58.0mm	M30x61.0mm
	Material	Stainless steel+PBT		Copper–nickel alloy+PBT			Stainless steel+PBT		Copper–nickel alloy+PBT		
	Weight	0.009kg	0.012kg	0.05kg	0.08kg	0.12kg	0.009kg	0.012kg	0.05kg	0.08kg	0.12kg
	Accessories	–	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5	–	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5
Model	NPN NO	TYF6.5-03NO	TYF08-03NO	TYF12-06NO	TYF18-12NO	TYF30-22NO	TYN6.5-06NO	TYN08-06NO	TYN12-10NO	TYN18-20NO	TYN30-40NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed									

Connector Type





Basic Features	Working principle	Inductive sensor							
	Housing	Cylindrical							
	Installation type	Flush				Non-flush			
	Sensing distance	3.0mm ± 10%	6.0mm ± 10%	12mm ± 10%	22mm ± 10%	6.0mm ± 10%	10mm ± 10%	20mm ± 10%	40mm ± 10%
	Thread size	M8	M12	M18	M30	M8	M12	M18	M30
	Sensing surface material	PBT							
	Detected objects	Metal							
	Indicator	Operation Status: LED							
	Sensing range adjustment	None							
Electrical data	Switching output	No:normally open,NC:normally closed							
	Output mode	NPN or PNP Open Collector							
	External input	None							
	Switching frequency	1kHz	0.8kHz	0.3kHz	0.15kHz	0.5kHz	0.4kHz	0.1kHz	
	Repeatability	5%							
	Hysteresis	15%							
	Operating Voltage	10~30V DC±10%							
	Current consumption	⩽10mA							
	Residual Voltage	⩽1.5V							
	Load current	150mA							
	Leakage current	<0.01mA							
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure							
	Dielectric strength	1,000 VAC, 50/60Hz for 1 min between power terminals and enclosure	<40V			1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure		330VAC 0.11mA	<40V
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions							
	Circuit Protection	Short circuit protection							
Environmental conditions	Operating Temperature	–25~+75℃							
	Operating Humidity	35~85%							
	Enclosure rating	IP67							
Mechanical data	Connection type	M8/3-pin Connector	M12/4-pin Connector			M8/3-pin Connector	M12/4-pin Connector		
	Dimension	M8x60.0mm	M12x68.0mm	M18x82.0mm	M30x78.0mm	M8x60.0mm	M12x71.0mm	M18x82.0mm	M30x81.0mm
	Material	Stainless steel+PBT	Copper–nickel alloy+PBT			Stainless steel+PBT	Copper–nickel alloy+PBT		
	Weight	0.012kg	0.05kg	0.08kg	0.12kg	0.012kg	0.05kg	0.08kg	0.012kg
	Accessories	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5	Nut M8x1	Nut M12x1	Nut M18x1	Nut M30x1.5
Model	NPN NO	TYF08-03[NO]-E1	TYF12-06[NO]-E2	TYF18-12[NO]-E2	TYF30-22[NO]-E2	TYN08-06[NO]-E1	TYN12-10[NO]-E2	TYN18-20[NO]-E2	TYN30-40[NO]-E2
	Others	[NO]:NPN Normally open [NC]:NPN Normally closed [PO]:PNP Normally open [PC]:PNP Normally closed							

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

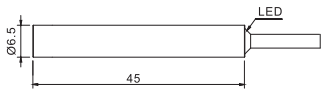
Long Distance-TY Series

Dimensions-Pre-wired

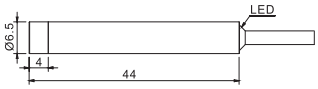
Unit:mm

φ6.5

TYF6.5-03□□

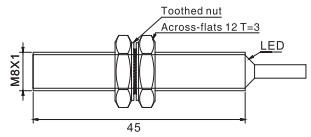


TYN6.5-06□□

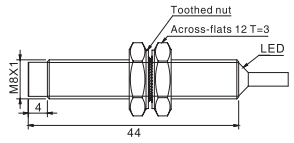


M8

TYF08-03□□

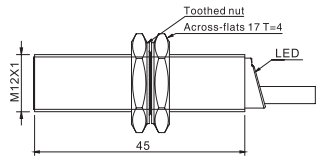


TYN08-06□□

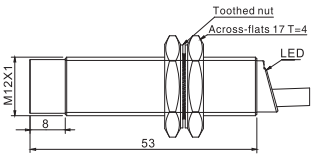


M12

TYF12-06□□

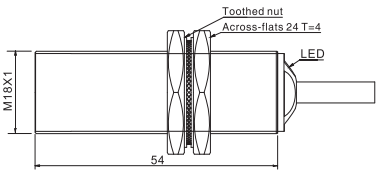


TYN12-10□□

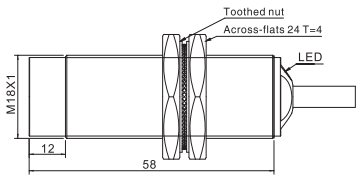


M18

TYF18-12□□

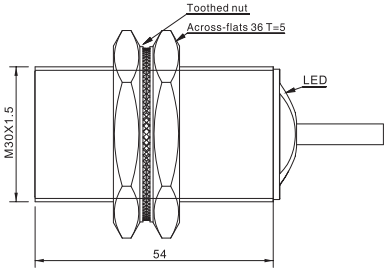


TYN18-20□□

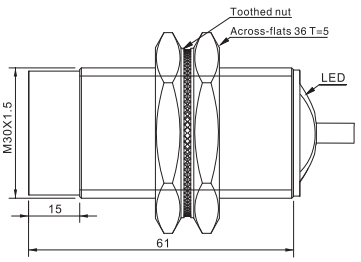


M30

TYF30-22□□



TYN30-40□□

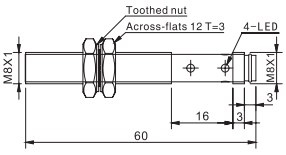


Unit:mm

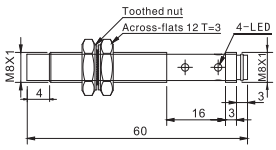
Dimensions-Connector Type

M8

TYF08-03□□-E1



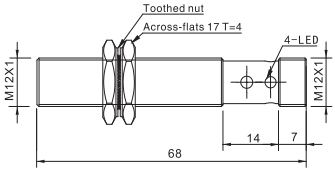
TYN08-06□□-E1



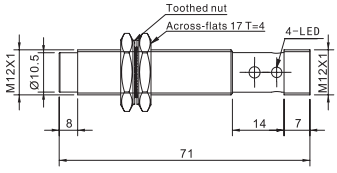


M12

TYF12-06□□-E2



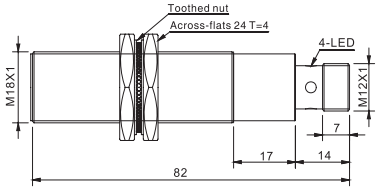
TYN12-10□□-E2



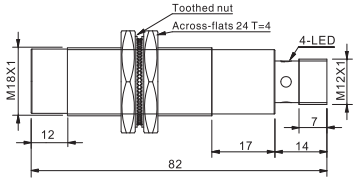


M18

TYF18-12□□-E2



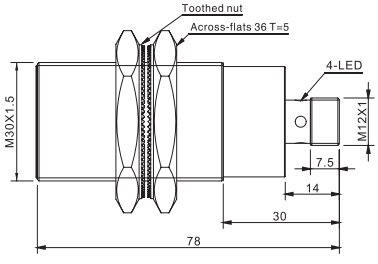
TYN18-20□□-E2



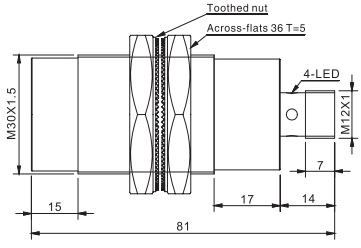


M30

TYF30-22□□-E2



TYN30-40□□-E2





Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Square-TQ Series

Pre-wired





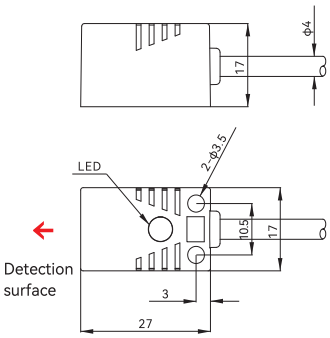
Basic Features	Working principle	Inductive sensor					
	Housing	Square					
	Installation type	Flush	Non-flush	Flush	Non-flush	Flush	Non-flush
	Sensing distance	5.0mm ± 10%	8.0mm ± 10%	5.0mm ± 10%	8.0mm ± 10%	5.0mm ± 10%	8.0mm ± 10%
	Thread size	–					
	Sensing surface material	ABS					
	Detected objects	Metal					
	Indicator	Operation Status: LED					
	Sensing range adjustment	None					
Electrical data	Switching output	No:normally open,NC:normally closed					
	Output mode	NPN or PNP Open Collector					
	External input	None					
	Switching frequency	1kHz	0.3kHz	1kHz	0.3kHz	1kHz	0.3kHz
	Repeatability	1%					
	Hysteresis	15%					
	Operating Voltage	10~30V DC					
	Current consumption	≤10mA					
	Residual Voltage	<1.5V					
	Load current	150mA					
	Leakage current	<0.01mA					
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure					
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure					
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions					
	Circuit Protection	Short circuit protection					
Environmental conditions	Operating Temperature	–25~+75℃					
	Operating Humidity	35~85%					
	Enclosure rating	IP67					
Mechanical data	Connection type	2m/3-core Cable					
	Dimension	27.0x17.0x17.0mm		34.0x18.0x18.0mm		30.5x18.0x10.0mm	
	Material	Plastic+ABS					
	Weight	0.05kg					
	Accessories	–					
Model	NPN NO	TQF17-05NO	TQN17-08NO	TQF18-05NO (HOT)	TQN18-08NO	TQF18C-05NO (HOT)	TQN18C-08NO
	Others	NO:NPN Normally open	NC:NPN Normally closed	PO:PNP Normally open	PC:PNP Normally closed		

Unit:mm

Dimensions-Pre-wired

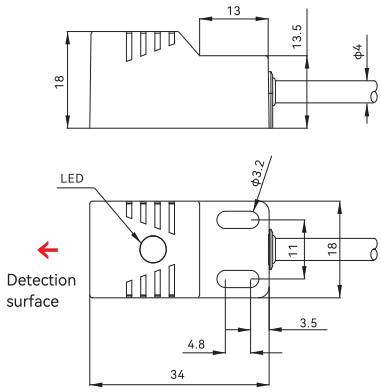
Q17

TQF17-05□□
TQN17-08□□



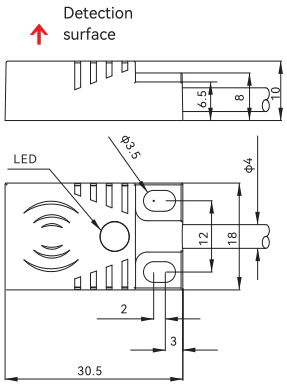
Q18

TQF18-05□□
TQN18-08□□



Q18C

TQF18C-05□□
TQN18C-08□□



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Mini-square-TE Series

Pre-wired



Basic Features	Working principle	Inductive sensor			
	Housing	Mini blocks			
	Installation type	Non-flush			
	Sensing distance	1.0mm ± 15%		2.5mm ± 10%	
	Thread size	–			
	Sensing surface material	PC			
	Detected objects	Metal			
	Indicator	Operation Status: LED			
	Sensing range adjustment	None			
Electrical data	Switching output	No:normally open,NC:normally closed			
	Output mode	NPN or PNP Open Collector			
	External input	None			
	Switching frequency	0.5kHz		0.8kHz	
	Repeatability	5%		1%	
	Hysteresis	15%			
	Operating Voltage	10~30V DC ± 10%			
	Current consumption	≤10mA			
	Residual Voltage	≤1.5V			
	Load current	100mA		150mA	
	Leakage current	<0.01mA			
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure			
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Circuit Protection	–		Short circuit protection	
Environmental conditions	Operating Temperature	–25~+75℃			
	Operating Humidity	35~85%			
	Enclosure rating	IP67			
Mechanical data	Connection type	2m/3-core Cable			
	Dimension	20.4x6.4x6.2mm	20.4x6.3x6.1mm	23.5x8.4x8.0mm	25.5x8.4x8.0mm
	Material	Plastic+PC			
	Weight	0.05kg			
	Accessories	–			
Model	NPN NO	TEN06-01NO	TEN07-01NO	TEN08-2.5NO HOT	TEN09-2.5NO HOT
	Others	NO:NPN Normally open	NC:NPN Normally closed	PO:PNP Normally open	PC:PNP Normally closed

Pre-wired



Basic Features	Working principle	Inductive sensor					
	Housing	Mini blocks					
	Installation type	Non-flush					
	Sensing distance	2.5mm ± 10%	4.0mm ± 10%	5.0mm ± 10%	8.0mm ± 10%	5.0mm ± 10%	8.0mm ± 10%
	Thread size	–					
	Sensing surface material	PC					
	Detected objects	Metal					
	Indicator	Operation Status: LED					
	Sensing range adjustment	None					
Electrical data	Switching output	No:normally open,NC:normally closed					
	Output mode	NPN or PNP Open Collector					
	External input	None					
	Switching frequency	0.8kHz	0.2kHz	1kHz	0.5kHz		
	Repeatability	5%	1%				
	Hysteresis	15%					
	Operating Voltage	10~30V DC ± 10%					
	Current consumption	≤10mA					
	Residual Voltage	≤1.5V					
	Load current	150mA					
	Leakage current	<0.01mA					
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure					
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure					
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions					
	Circuit Protection	Short circuit protection					
Environmental conditions	Operating Temperature	–25~+75℃					
	Operating Humidity	35~85%					
	Enclosure rating	IP67					
Mechanical data	Connection type	2m/3-core Cable					
	Dimension	30.5x10.4x6.6mm	30.5x12.4x8mm	34.5x15.4x8.0mm	34.5x16.4x15.0mm		
	Material	Plastic+PC					
	Weight	0.05kg					
	Accessories	–					
Model	NPN NO	TEN10-2.5NO	TEN10-04NO	TEN12-04NO	TEN15-05NO	TEN15-08NO	TEN16-05NO	TEN16-08NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed					

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

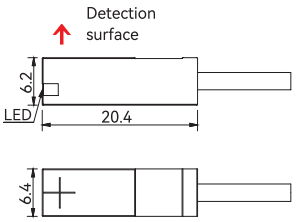
Mini-square-TE Series

Dimensions

Unit:mm

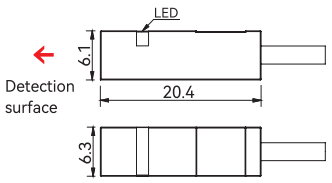
E06

TEN06-01□□



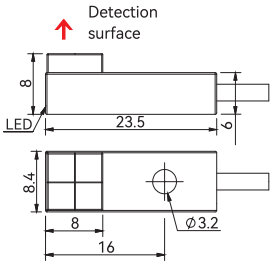
E07

TEN07-01□□



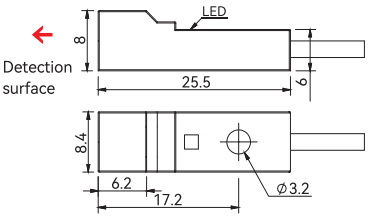
E08

TEN08-2.5/03□□



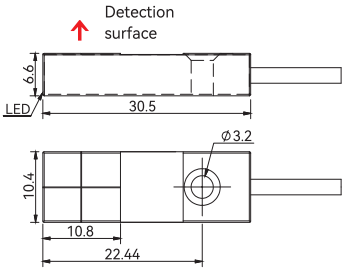
E09

TEN09-2.5/03□□



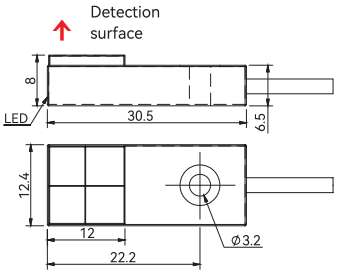
E10

TEN10-2.5/04□□



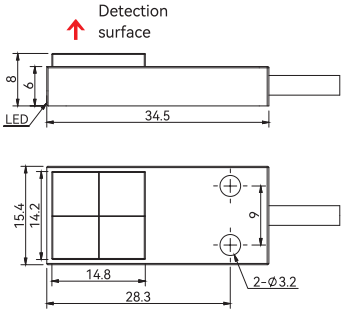
E12

TEN12-04□□



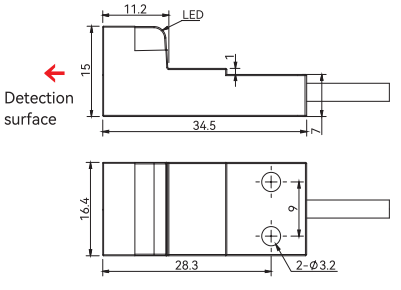
E15

TEN15-05/08□□



E16

TEN16-05/08□□



Pre-wired



Basic Features	Working principle	Inductive sensor	
	Housing	Cylindrical	
	Installation type	Flush	
	Sensing distance	0.6mm/0.8mm/1.0mm ± 10%	0.8mm/1.0mm/1.2mm/1.5mm ± 10%
	Thread size	–	
	Sensing surface material	PA66	
	Detected objects	Metal	
	Indicator	Operation Status: LED	
	Sensing range adjustment	None	
Electrical data	Switching output	No:normally open,NC:normally closed	
	Output mode	NPN or PNP Open Collector	
	External input	None	
	Switching frequency	2kHz	
	Repeatability	1%	
	Hysteresis	15%	
	Operating Voltage	10~30V DC ± 10%	
	Current consumption	≤10mA	
	Residual Voltage	≤1.5V	
	Load current	100mA	150mA
	Leakage current	<0.01mA	
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure	
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure	
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions	
	Circuit Protection	–	
Environmental conditions	Operating Temperature	–25~+75℃	
	Operating Humidity	35~85%	
	Enclosure rating	IP67	
Mechanical data	Connection type	2m/3-core Cable	
	Dimension	Ø3.0x25.0mm	Ø4.0x25.0mm
	Material	Stainless steel+PA66	
	Weight	0.005kg	0.007kg
	Accessories	–	
Model	NPN NO	TXF03-0.6NO/TXF03-0.8NO/TXF03-01NO	TXF04-0.8NO/TXF04-01NO/TXF04-1.2NO /TXF04-1.5NO
	Others	NO:NPN Normally open NC:NPN Normally closed	PO:PNP Normally open PC:PNP Normally closed

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Mini-cylindrical-TX Series

Pre-wired



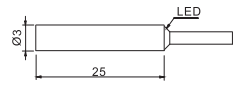
Basic Features	Working principle	Inductive sensor	
	Housing	Cylindrical	
	Installation type	Flush	
	Sensing distance	0.6mm/0.8mm/1.0mm ± 10%	0.8mm/1.0mm/1.2mm/1.5mm ± 10%
	Thread size	M4	M5
	Sensing surface material	PA66	
	Detected objects	Metal	
	Indicator	Operation Status: LED	
	Sensing range adjustment	None	
Electrical data	Switching output	No:normally open,NC:normally closed	
	Output mode	NPN or PNP Open Collector	
	External input	None	
	Switching frequency	2kHz	
	Repeatability	5%	
	Hysteresis	15%	
	Operating Voltage	10~30V DC ± 10%	
	Current consumption	≤10mA	
	Residual Voltage	≤1.5V	
	Load current	100mA	
	Leakage current	<0.01mA	
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure	
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure	
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions	
	Circuit Protection	–	
Environmental conditions	Operating Temperature	–25~+75℃	
	Operating Humidity	35~85%	
	Enclosure rating	IP67	
Mechanical data	Connection type	2m/3-core Cable	
	Dimension	M4x25.0mm	M5x25.0mm
	Material	Stainless steel+PA66	
	Weight	0.005kg	0.007kg
	Accessories	Nut M4x0.5	Nut M5x0.5
Model	NPN NO	TXFM4-0.6NO / TXFM4-0.8NO / TXFM4-01NO	TXF05-0.8NO / TXF05-01NO / TXF05-1.2NO / TXF05-1.5NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed	

Unit:mm

Dimensions

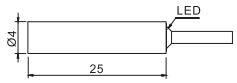
ϕ3

TXF03-0.6/0.8/01□□



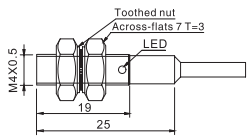
ϕ4

TXF04-0.8/01/1.2/1.5□□



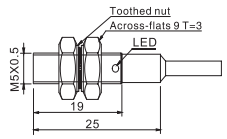
M4

TXFM4-0.6/0.8/01□□



M5

TXF05-0.8/01/1.2/1.5□□



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Short-body-TSS Series

Ultra Short Housing





Basic Features	Working principle	Inductive sensor	
	Housing	Cylindrical	
	Installation type	Flush	
	Sensing distance	1.0mm/2.0mm ± 10%	1.0mm/2.0mm ± 10%
	Thread size	–	
	Sensing surface material	PBT	
	Detected objects	Metal	
	Indicator	Operation Status: LED	
	Sensing range adjustment	None	
Electrical data	Switching output	No:normally open,NC:normally closed	
	Output mode	NPN or PNP Open Collector	
	External input	None	
	Switching frequency	2kHz	
	Repeatability	1%	
	Hysteresis	15%	
	Operating Voltage	10~30V DC ± 10%	
	Current consumption	≤10mA	
	Residual Voltage	≤1.5V	
	Load current	150mA	
	Leakage current	<0.01mA	
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure	
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure	
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions	
	Circuit Protection	Short circuit protection	
Environmental conditions	Operating Temperature	–25~+75℃	
	Operating Humidity	35~85%	
	Enclosure rating	IP67	
Mechanical data	Connection type	2m/3-core Cable	
	Dimension	Ø6.5x18.0mm	
	Material	Stainless steel+PBT	
	Weight	0.009kg	
	Accessories	–	
Model	NPN NO	TSSF6.5-01NO / TSSF6.5-02NO	TSSF6.5Y-01NO / TSSF6.5Y-02NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed	

Ultra Short Housing



Basic Features	Working principle	Inductive sensor	
	Housing	Cylindrical	
	Installation type	Flush	
	Sensing distance	1.0mm/2.0mm ± 10%	2.0mm/4.0mm ± 10%
	Thread size	M8	M12
	Sensing surface material	PBT	
	Detected objects	Metal	
	Indicator	Operation Status: LED	
	Sensing range adjustment	None	
Electrical data	Switching output	No:normally open,NC:normally closed	
	Output mode	NPN or PNP Open Collector	
	External input	None	
	Switching frequency	2kHz	
	Repeatability	1%	
	Hysteresis	15%	
	Operating Voltage	10~30V DC ± 10%	
	Current consumption	≤10mA	
	Residual Voltage	≤1.5V	
	Load current	150mA	
	Leakage current	<0.01mA	
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure	
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure	
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions	
	Circuit Protection	Short circuit protection, Except TSSF08-02NO	
Environmental conditions	Operating Temperature	–25~+75℃	
	Operating Humidity	35~85%	
	Enclosure rating	IP67	
Mechanical data	Connection type	2m/3-core Cable	
	Dimension	M8x18.0mm	M12x22.0mm
	Material	Stainless steel+PBT	Copper–nickel alloy+PBT
	Weight	0.012kg	0.05kg
	Accessories	Nut M8x1.0	Nut M12x1.0
Model	NPN NO	TSSF08-01NO / TSSF08-02NO (HOT)	TSSF12-02NO / TSSF12-04NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed	

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Short-body-TS Series

General Short Housing



Basic Features	Working principle	Inductive sensor			
	Housing	Mini blocks			
	Installation type	Flush			
	Sensing distance	1.0mm/2.0mm ± 10%	2.0mm/4.0mm ± 10%	5.0mm/8.0mm ± 10%	10mm/16mm ± 10%
	Thread size	M8	M12	M18	M30
	Sensing surface material	PBT			
	Detected objects	Metal			
	Indicator	Operation Status: LED			
	Sensing range adjustment	None			
Electrical data	Switching output	No:normally open,NC:normally closed			
	Output mode	NPN or PNP Open Collector			
	External input	None			
	Switching frequency	2kHz	2kHz/1kHz	1kHz/0.5kHz	0.3kHz/0.15kHz
	Repeatability	1%			
	Hysteresis	15%			
	Operating Voltage	10~30V DC ± 10%			
	Current consumption	≤10mA			
	Residual Voltage	≤1.5V			
	Load current	150mA			
	Leakage current	<0.01mA			
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure			
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Circuit Protection	Short circuit protection			
Environmental conditions	Operating Temperature	–25~+75℃			
	Operating Humidity	35~85%			
	Enclosure rating	IP67			
Mechanical data	Connection type	2m/3-core Cable			
	Dimension	M8x35.0mm	M12x35.0mm	M18x35.0mm	M30x35.0mm
	Material	Stainless steel+PBT	Copper–nickel alloy+PBT		
	Weight	0.012kg	0.05kg	0.08kg	0.12kg
	Accessories	Nut M8x1.0	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	NPN NO	TSF08-01NO / TSF08-02NO	TSF12-02NO / TSF12-04NO	TSF18-05NO / TSF18-08NO	TSF30-10NO / TSF30-16NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed			

General Short Housing



Basic Features	Working principle	Inductive sensor			
	Housing	Mini blocks			
	Installation type	Non-flush			
	Sensing distance	2.0mm/4.0mm ± 10%	4.0mm/8.0mm ± 10%	8.0mm/16mm ± 10%	15mm/25mm ± 10%
	Thread size	M8	M12	M18	M30
	Sensing surface material	PBT			
	Detected objects	Metal			
	Indicator	Operation Status: LED			
	Sensing range adjustment	None			
Electrical data	Switching output	No:normally open,NC:normally closed			
	Output mode	NPN or PNP Open Collector			
	External input	None			
	Switching frequency	2kHz/1kHz	1kHz/0.5kHz	0.5kHz/0.15kHz	0.15kHz/0.1kHz
	Repeatability	1%			
	Hysteresis	15%			
	Operating Voltage	10~30V DC ± 10%			
	Current consumption	≤10mA			
	Residual Voltage	≤1.5V			
	Load current	150mA			
	Leakage current	<0.01mA			
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure			
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure, TSN18-16[NO]			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Circuit Protection	Short circuit protection			
Environmental conditions	Operating Temperature	–25~+75℃			
	Operating Humidity	35~85%			
	Enclosure rating	IP67			
Mechanical data	Connection type	2m/3-core Cable			
	Dimension	M8x35.0mm	M12x35.0mm	M18x40.0mm	M30x47.0mm
	Material	Stainless steel+PBT	Copper–nickel alloy+PBT		
	Weight	0.012kg	0.05kg	0.08kg	0.12kg
	Accessories	Nut M8x1.0	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	NPN NO	TSN08-02[NO] / TSN08-04[NO]	TSN12-04[NO] / TSN12-08[NO]	TSN18-08[NO] / TSN18-16[NO]	TSN30-15[NO] / TSN30-25[NO]
	Others	[NO]:NPN Normally open [NC]:NPN Normally closed [PO]:PNP Normally open [PC]:PNP Normally closed			

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

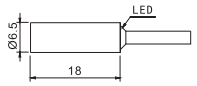
Short-body-TSS/TS Series

Super Short housing-Dimensions

Unit:mm

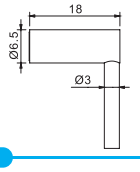
ϕ6.5

TSSF6.5-01/02□□



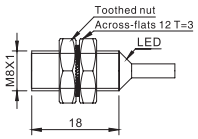
ϕ6.5Y

TSSF6.5Y-01/02□□



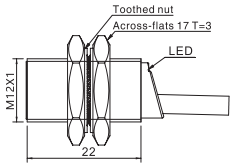
M8

TSSF08-01/02□□



M12

TSSF12-02/04□□

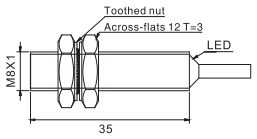


General-Dimensions

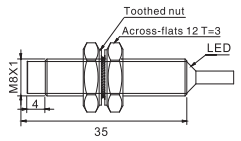
Unit:mm

M8

TSF08-01/02□□

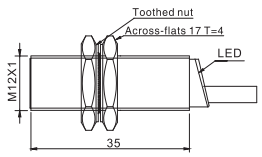


TSN08-02/04□□

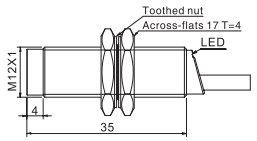


M12

TSF12-02/04□□

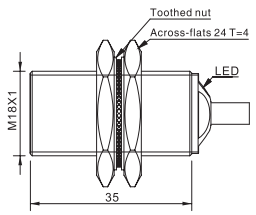


TSN12-04/08□□

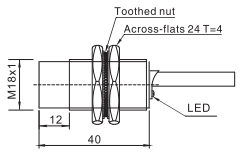


M18

TSF18-05/08□□

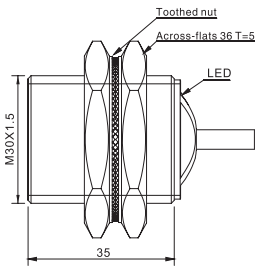


TSN18-08/16□□

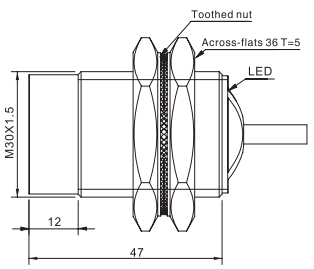


M30

TSF30-10/16□□



TSN30-15/25□□



Pre-wired



Basic Features	Working principle	Inductive sensor			
	Housing	Ring type			
	Installation type	–			
	Sensing distance	–			
	Thread size	–			
	Sensing surface material	PBT			
	Detected objects	Metal			
	Indicator	Operation Status: LED			
	Sensing range adjustment	None			
Electrical data	Switching output	No:normally open,NC:normally closed			
	Output mode	NPN or PNP Open Collector			
	External input	None			
	Switching frequency	2kHz	1.5kHz	1kHz	0.5kHz
	Repeatability	2%			
	Hysteresis	15%			
	Operating Voltage	10~30V DC ± 10%			
	Current consumption	≤15mA			
	Residual Voltage	≤1.5V			
	Load current	150mA			
	Leakage current	<0.01mA			
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure			
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Circuit Protection	Reverse Polarity Protection/Short Circuit Protection			
Environmental conditions	Operating Temperature	-25~+75℃			
	Operating Humidity	35~85%			
	Enclosure rating	IP67			
Mechanical data	Connection type	2m/3-core Cable			
	Dimension	50.0x30.0x20.0mm	60.0x35.0x20.0mm		90.0x61.0x20.0mm
	Material	ABS+PBT			
	Weight	0.2kg	0.04kg		0.06kg
	Accessories	–			
Model	NPN NO	TH10-20NO	TH15-20NO	TH21-20NO	TH43-20NO
	Others	NO:NPN Normally open	NC:NPN Normally closed	PO:PNP Normally open	PC:PNP Normally closed

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

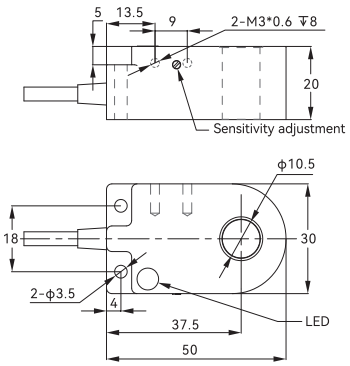
Ring-type-TH Series

Dimensions

Unit:mm

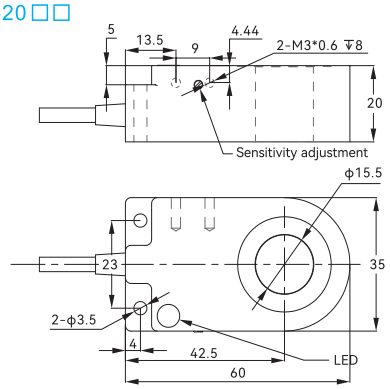
H10

TH10-20□□



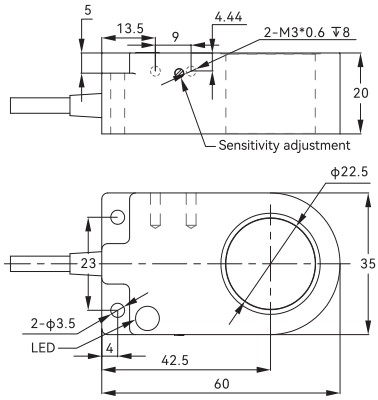
H15

TH15-20□□



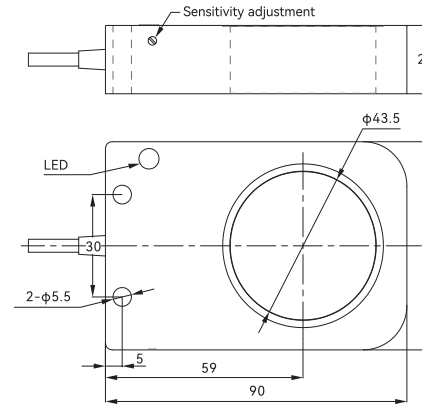
H21

TH21-20□□



H43

TH43-20□□



Pre-wired



Basic Features	Working principle	Inductive sensor			
	Housing	Cylindrical			
	Installation type	Flush			
	Sensing distance	1.0mm/2.0mm ± 10%	2.0mm/4.0mm ± 10%	5.0mm/8.0mm ± 10%	10mm/16mm ± 10%
	Thread size	M8	M12	M18	M30
	Sensing surface material	Stainless Steel			
	Detected objects	Metal			
	Indicator	Operation Status: LED			
	Sensing range adjustment	None			
Electrical data	Switching output	No:normally open,NC:normally closed			
	Output mode	NPN or PNP Open Collector			
	External input	None			
	Switching frequency	2kHz	1kHz	1kHz/0.5kHz	0.3kHz/0.15kHz
	Repeatability	1%			
	Hysteresis	15%			
	Operating Voltage	10~30V DC ± 10%			
	Current consumption	≤10mA			
	Residual Voltage	≤1.5V			
	Load current	150mA			
	Leakage current	<0.01mA			
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure			
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Circuit Protection	Short circuit protection			
Environmental conditions	Operating Temperature	–25~+75℃			
	Operating Humidity	35~85%			
	Enclosure rating	IP67			
Mechanical data	Connection type	2m/3-core Cable			
	Dimension	M8x45.0mm	M12x45.0mm	M18x54.0mm	M30x54.0mm
	Material	Stainless Steel			
	Weight	0.012kg	0.05kg	0.08kg	0.12kg
	Accessories	Nut M8x1.0	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	NPN NO	TMF08-01NO /TMF08-02NO	TMF12-02NO /TMF12-04NO	TMF18-05NO /TMF18-08NO	TMF30-10NO /TMF30-16NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed			

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Metal Face-TM Series

Pre-wired



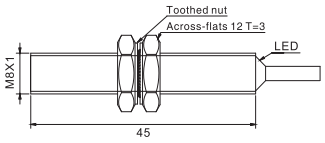
Basic Features	Working principle	Inductive sensor			
	Housing	Cylindrical			
	Installation type	Non-flush			
	Sensing distance	2.0mm/3.0mm ± 10%	4.0mm/8.0mm ± 10%	8.0mm/16mm ± 10%	15mm/25mm ± 10%
	Thread size	M8	M12	M18	M30
	Sensing surface material	Stainless Steel			
	Detected objects	Metal			
	Indicator	Operation Status: LED			
	Sensing range adjustment	None			
Electrical data	Switching output	No:normally open,NC:normally closed			
	Output mode	NPN or PNP Open Collector			
	External input	None			
	Switching frequency	2kHz/1kHz	1kHz/0.5kHz	0.5kHz/0.15kHz	0.15kHz/0.1kHz
	Repeatability	1%			
	Hysteresis	15%			
	Operating Voltage	10~30V DC ± 10%			
	Current consumption	≤10mA			
	Residual Voltage	≤1.5V			
	Load current	150mA			
	Leakage current	<0.01mA			
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure			
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Circuit Protection	Short circuit protection			
Environmental conditions	Operating Temperature	-25~+75℃			
	Operating Humidity	35~85%			
	Enclosure rating	IP67			
Mechanical data	Connection type	2m/3-core Cable			
	Dimension	M8x49.0mm	M12x54.0mm	M18x62.0mm	M30x66.0mm
	Material	Stainless Steel			
	Weight	0.012kg	0.05kg	0.08kg	0.12kg
	Accessories	Nut M8x1.0	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	NPN NO	TMN08-02NO /TMN08-03NO	TMN12-04NO /TMN12-08NO	TMN18-08NO /TMN18-16NO	TMN30-15NO /TMN30-25NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed			

Unit:mm

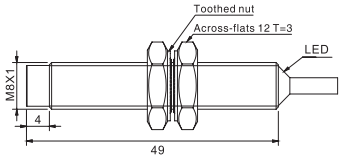
Dimensions

M8

TMF08-01/02□□

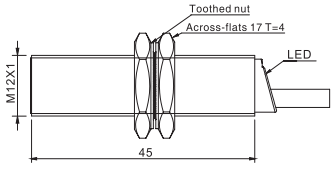


TMN08-02/03□□

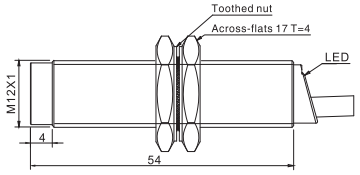


M12

TMF12-02/04□□

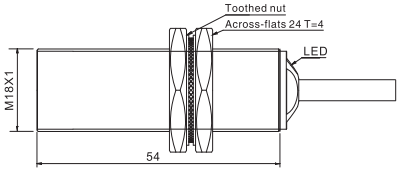


TMN12-04/08□□

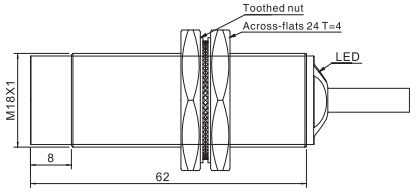


M18

TMF18-05/08□□

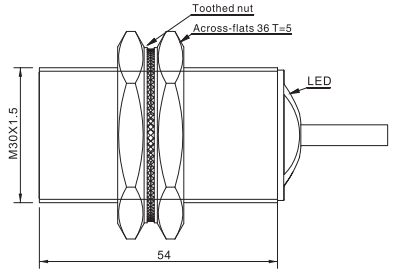


TMN18-08/16□□

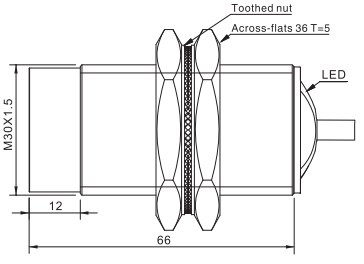


M30

TMF30-10/16□□



TMN30-15/25□□



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
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Safety door lock
Pressure Switch
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Guidance

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Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Temperature Resistance-TG Series

High Temperature (120℃) Resistance Pre-wired Type





Basic Features	Working principle	Inductive sensor					
	Housing	Cylindrical					
	Installation type	Flush			Non-flush		
	Sensing distance	2.0mm ± 10%	5.0mm ± 10%	10mm ± 10%	4.0mm ± 10%	8.0mm ± 10%	15mm ± 10%
	Thread size	M12	M18	M30	M12	M18	M30
	Sensing surface material	–					
	Detected objects	Metal					
	Indicator	Operation Status: LED					
	Sensing range adjustment	None					
Electrical data	Switching output	No:normally open,NC:normally closed					
	Output mode	NPN or PNP Open Collector					
	External input	None					
	Switching frequency	1.5kHz	1kHz	0.5kHz	1kHz	0.8kHz	0.3kHz
	Repeatability	5%					
	Hysteresis	1~20%					
	Operating Voltage	10~30V DC ± 10%					
	Current consumption	≤15mA					
	Residual Voltage	≤2.5V					
	Load current	100mA					
	Leakage current	<0.1mA					
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure					
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure					
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions					
	Circuit Protection	Reverse Polarity Protection/Surge Protection					
Environmental conditions	Operating Temperature	–25~+120℃					
	Operating Humidity	35~95%RH					
	Enclosure rating	IP67					
Mechanical data	Connection type	2m/3-core Cable					
	Dimension	M12x51.0mm	M18x52.5mm	M30x51.5mm	M12x51.0mm	M18x52.5mm	M30x51.5mm
	Material	Copper–nickel alloy					
	Weight	0.05kg	0.08kg	0.12kg	0.05kg	0.08kg	0.12kg
	Accessories	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	NPN NO	TGF12-02NO	TGF18-05NO	TGF30-10NO	TGN12-04NO	TGN18-08NO HOT	TGN30-15NO
	Others	NO:NPN Normally open	NC:NPN Normally closed	PO:PNP Normally open	PC:PNP Normally closed		

High Temperature (120℃) Resistance Pre-wired Type



Basic Features	Working principle	Inductive sensor		
	Housing	Cylindrical		
	Installation type	Flush		
	Sensing distance	2.0mm ± 10%	5.0mm ± 10%	10mm ± 10%
	Thread size	M12	M18	M30
	Sensing surface material	PEEK		
	Detected objects	Metal		
	Indicator	Operation Status: LED		
	Sensing range adjustment	None		
Electrical data	Switching output	No:normally open,NC:normally closed		
	Output mode	NPN or PNP Open Collector		
	External input	None		
	Switching frequency	0.5kHz/220℃	0.5kHz/230℃	0.2kHz/230℃
	Repeatability	3%		
	Hysteresis	3~15%		
	Operating Voltage	10~30V DC ± 10%		
	Current consumption	≤25mA(24VDC)		
	Residual Voltage	≤1.8V		
	Load current	150mA		
	Leakage current	<0.1mA		
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure		
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure		<420V
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions		
	Circuit Protection	Reverse Polarity Protection/Surge Protection		
Environmental conditions	Operating Temperature	–25~+230℃		
	Operating Humidity	35~85%		
	Enclosure rating	IP66		
Mechanical data	Connection type	3M teflon shielded cable/S12 Connector		
	Dimension	M12x54.0mm	M18x55.0mm	M30x54.0mm
	Material	Stainless Steel+PEEK		
	Weight	0.05kg	0.08kg	0.12kg
	Accessories	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	NPN NO	TGF12-02NO2	TGF18-05NO2	TGF30-10NO2
	PNP NO	TGF12-02PO2	TGF18-05PO2	TGF30-10PO2

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

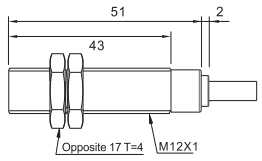
Temperature Resistance-TG Series

Dimensions

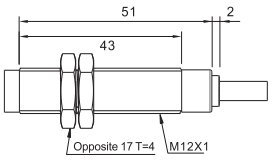
Unit:mm

M12

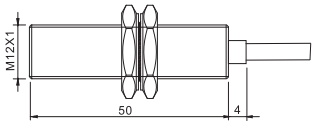
TGF12-02□□



TGN12-04□□

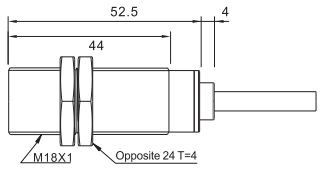


TGF12-02□□2

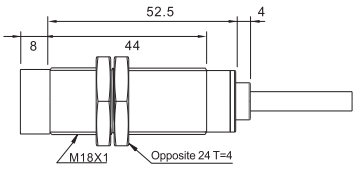


M18

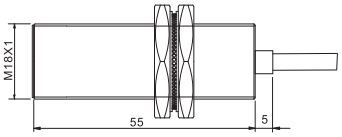
TGF18-05□□



TGN18-08□□

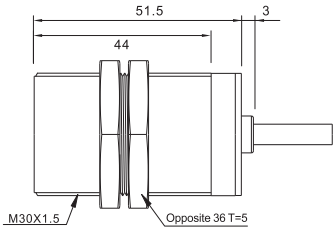


TGF18-05□□2

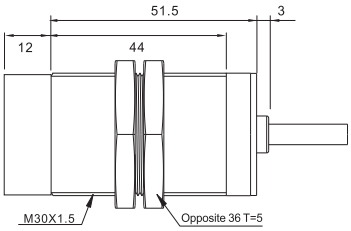


M30

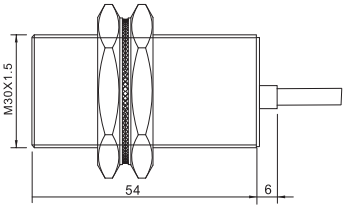
TGF30-10□□



TGN30-15□□



TGF30-10□□2







Basic Features	Working principle	Inductive sensor			
	Housing	Cylindrical			
	Installation type	Flush		Non-flush	
	Sensing distance	2.0mm ± 10%	4.0mm ± 10%		8.0mm ± 10%
	Thread size	M12			
	Sensing surface material	PPS (FDA certified)			
	Detected objects	Metal			
	Indicator	Operating status: LED (only for NC)			
	Sensing range adjustment	Available			
Electrical data	Switching output	No:normally open/NC:normally closed			
	Output mode	NPN or PNP Open Collector			
	External input	None			
	Switching frequency	2kHz			
	Repeatability	5%			
	Hysteresis	1~20%			
	Operating Voltage	10~30V DC ± 10%			
	Current consumption	≤15mA			
	Residual Voltage	≤2V			
	Load current	200mA			
	Leakage current	<15μA			
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure			
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Circuit Protection	–			
Environmental conditions	Operating Temperature	-40 to 80°C (up to 100°C for ≤15s, ≤10% duty cycle), -25 to 110°C for NC			
	Operating Humidity	35~85%			
	Enclosure rating	IP67, IP68 (1m for 7 days); IP69K (compliant with DIN 40050-9 standard)			
Mechanical data	Connection type	M12/4-pin Connector			
	Dimension	M12x64.6mm			
	Material	Stainless steel + PPS (FDA certified)			
	Weight	0.03kg			
	Accessories	Nut M12x1.0			
Model	NPN	TPF12-02NR-E2	TPF12-04NR-E2	TPN12-04NR-E2	TPN12-08NR-E2
	PNP	TPF12-02PR-E2	TPF12-04PR-E2	TPN12-04PR-E2	TPN12-08PR-E2

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
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Vibration
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Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

IP69K High Protection-TP Series



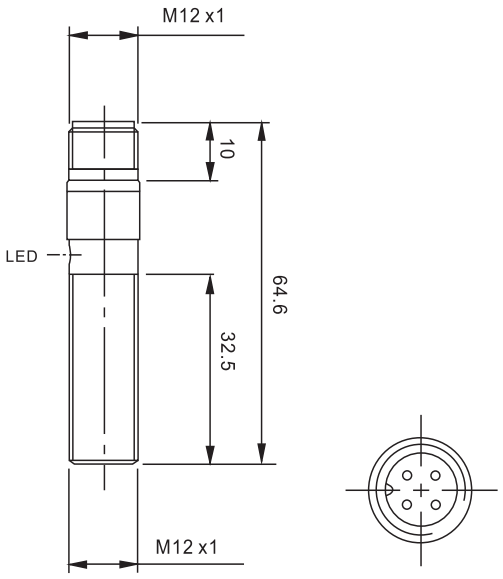


Basic Features	Working principle	Inductive sensor			
	Housing	Cylindrical			
	Installation type	Flush		Non-flush	
	Sensing distance	5.0mm ± 10%	8.0mm ± 10%		12.0mm ± 10%
	Thread size	M18			
	Sensing surface material	PPS (FDA certified)			
	Detected objects	Metal			
	Indicator	Operating status: LED (only for NC)			
	Sensing range adjustment	Available			
Electrical data	Switching output	No:normally open/NC:normally closed			
	Output mode	NPN or PNP Open Collector			
	External input	None			
	Switching frequency	15kHz			
	Repeatability	5%			
	Hysteresis	1~20%			
	Operating Voltage	10~30V DC ± 10%			
	Current consumption	≤15mA			
	Residual Voltage	≤2V			
	Load current	200mA			
	Leakage current	<10μA			
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure			
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Circuit Protection	–			
Environmental conditions	Operating Temperature	-40 to 80°C (up to 100°C for ≤15s, ≤10% duty cycle), -25 to 110°C for NC			
	Operating Humidity	35~85%			
	Enclosure rating	IP67, IP68 (1m for 7 days); IP69K (compliant with DIN 40050-9 standard)			
Mechanical data	Connection type	M12/4-pin Connector			
	Dimension	M18x63.1mm			
	Material	Stainless steel + PPS (FDA certified)			
	Weight	0.03kg			
	Accessories	Nut M18x1.0			
Model	NPN	TPF18-05NR-E2	TPF18-08NR-E2	TPN18-08NR-E2	TPN18-12NR-E2
	PNP	TPF18-05PR-E2	TPF18-08PR-E2	TPN18-08PR-E2	TPN18-12PR-E2

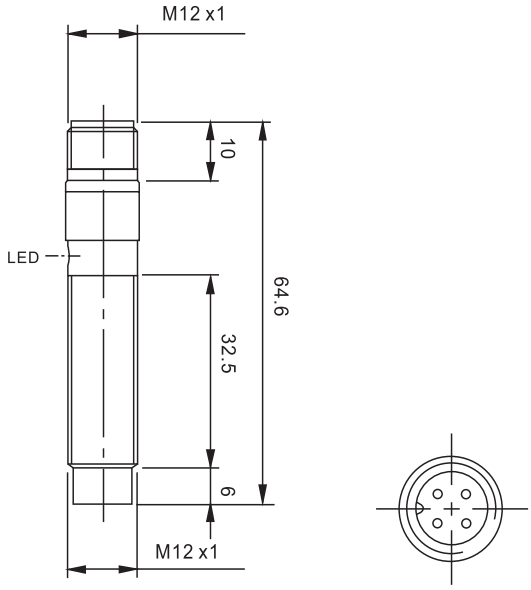
Unit:mm

Dimensions

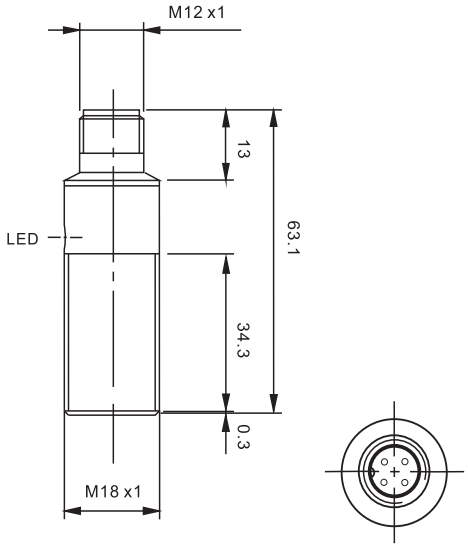
TPF12-02NR-E2(PR)
TPF12-04NR-E2(PR)



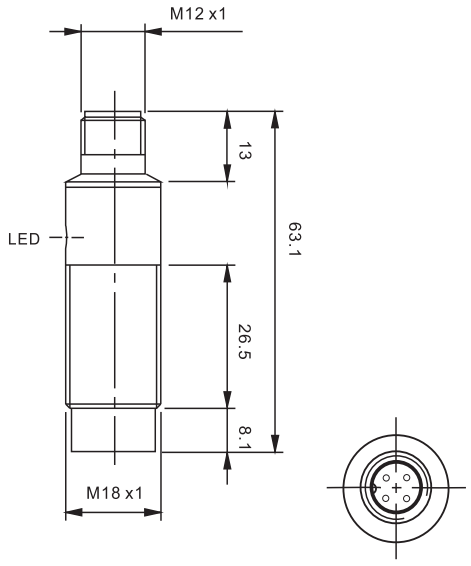
TPN12-04NR-E2(PR)
TPN12-08NR-E2(PR)



TPF18-05NR-E2(PR)
TPF18-08NR-E2(PR)



TPN18-08NR-E2(PR)
TPN18-12NR-E2(PR)



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Anti-welding Slag-TW Series

NEW!





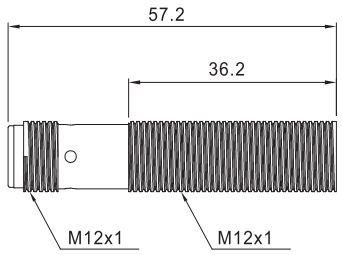
Basic Features	Working principle	Inductive sensor		
	Housing	Cylindrical		
	Installation type	Flush		
	Sensing distance	4mm	8mm	15mm
	Thread size	M12	M18	M30
	Sensing surface material	Teflon coating		
	Detected objects	Metal		
	Indicator	Action Indicator: Yellow LED		
	Sensing range adjustment	None		
Electrical data	Switching output	No:normally open, NC:normally closed		
	Output mode	NPN or PNP Open Collector		
	External input	None		
	Switching frequency	1kHz		
	Repeatability	≤2% rated distance		
	Hysteresis	3~10% rated distance		
	Operating Voltage	10~30V DC		
	Current consumption	25mA		
	Residual Voltage	–		
	Load current	≤50mA		
	Leakage current	–		
	Insulation resistance	≥50MΩ with 500V DC between the whole charging section and enclosure		
	Dielectric strength	AC500V, 50/60Hz for 60s, between the whole charging section and enclosure		
	Vibration resistance	55 Hz, 1.5 mm amplitude, 240 minutes for each X, Y, and Z directions. Sweep cycle time: 5 minutes		
	Circuit Protection	Reverse polarity protection/output overload protection/output short circuit protection		
Environmental conditions	Operating Temperature	–30~+70%		
	Operating Humidity	35%~95%RH		
	Enclosure rating	IP67		
Mechanical data	Connection type	M12 4 pin connector		
	Dimension	M12X57.2mm	M18X57.2mm	M30X57.2mm
	Material	Copper + Teflon coating		
	Weight	0.05kg		
	Accessories	None		
Model	NPN NO	TWF12-04[N][O]E	TWF18-08[N][O]E	TWF30-16[N][O]E
	Others	[N][O]:NPN Normally open	[N][C]:NPN Normally closed	[P][O]:PNP Normally open [P][C]:PNP Normally closed

Unit:mm

Dimensions

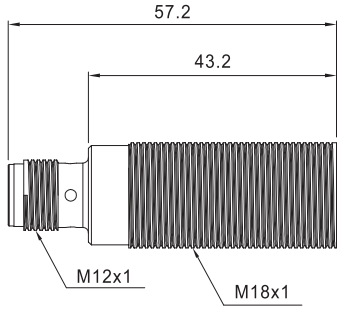
M12

TWF12-04□□



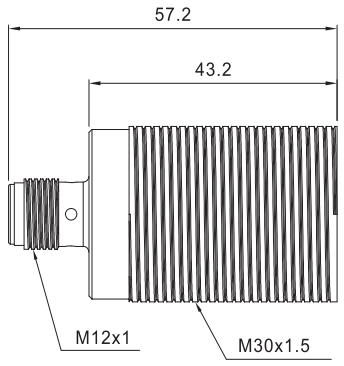
M18

TWF18-08□□



M30

TWF30-16□□



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Analog Output-TA Series

Pre-wired





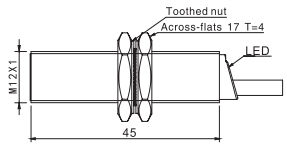
Basic Features	Working principle	Inductive sensor					
	Housing	Cylindrical					
	Installation type	Flush			Non-flush		
	Sensing distance	0.1~3mm ± 10%	1~4mm ± 10%	5~10mm ± 10%	0.1~4mm ± 10%	1~7mm ± 10%	7~14mm ± 10%
	Thread size	M12	M18	M30	M12	M18	M30
	Sensing surface material	PBT					
	Detected objects	Metal					
	Indicator	Operation Status: LED					
	Sensing range adjustment	Available					
Electrical data	Switching output	–					
	Output mode	PNP-Analog					
	External input	None					
	Switching frequency	0.1kHz					
	Repeatability	2%					
	Hysteresis	20%					
	Operating Voltage	18~30V DC ± 10%					
	Current consumption	≤15mA					
	Residual Voltage	–					
	Load current	–					
	Leakage current	–					
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure					
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure					
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions					
	Circuit Protection	Reverse Polarity Protection					
Environmental conditions	Operating Temperature	–25~75℃					
	Operating Humidity	35~85%					
	Enclosure rating	IP67					
Mechanical data	Connection type	2m/3-core Cable					
	Dimension	M12x45.0mm	M18x54.0mm	M30x54.0mm	M12x44.0mm	M18x54.0mm	M30x58.0mm
	Material	Copper–nickel alloy+PBT					
	Weight	0.05kg	0.08kg	0.12kg	0.05kg	0.08kg	0.12kg
	Accessories	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	Current output (normally open)	TAF12-03PA	TAF18-04PA	TAF30-10PA	TAN12-04PA	TAN18-07PA	TAN30-14PA
	Voltage output (normally open)	TAF12-03PV	TAF18-04PV	TAF30-10PV	TAN12-04PV	TAN18-07PV	TAN30-14PV

Unit:mm

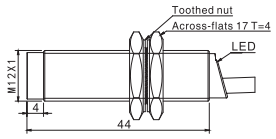
Dimensions

M12

TAF12-03□□

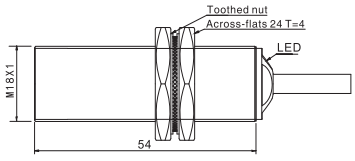


TAN12-04□□

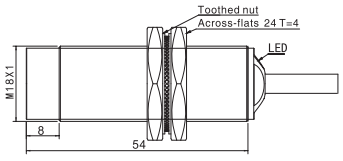


M18

TAF18-04□□

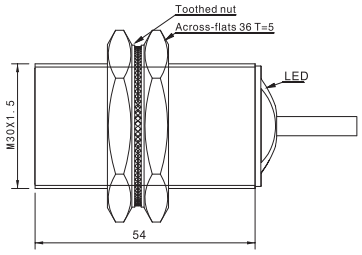


TAN18-07□□

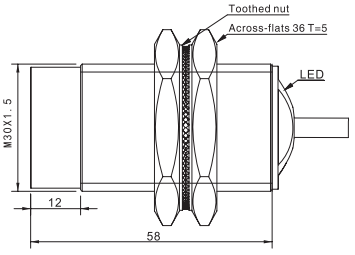


M30

TAF30-10□□



TAN30-14□□



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

DC 2-wire-TD Series

Pre-wired





Basic Features	Working principle	Inductive sensor				
	Housing	Cylindrical				
	Installation type	Flush				
	Sensing distance	1.0mm/2.0mm ± 10%	1.0mm/2.0mm ± 10%	2.0mm/4.0mm ± 10%	5.0mm/8.0mm ± 10%	10mm/16mm ± 10%
	Thread size	ϕ6.5	M8	M12	M18	M30
	Sensing surface material	PBT				
	Detected objects	Metal				
	Indicator	Operation Status: LED				
	Sensing range adjustment	None				
Electrical data	Switching output	No:normally open,NC:normally closed				
	Output mode	Reed switch				
	External input	None				
	Switching frequency	2kHz		1kHz		0.5kHz
	Repeatability	2%				
	Hysteresis	15%				
	Operating Voltage	10~30V DC ± 10%		10~60V DC ± 10%		
	Current consumption	3~100mA				
	Residual Voltage	<4.0V		<6.0V		
	Load current	≤120mA				
	Leakage current	<0.8mA				
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure				
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure				
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions				
	Circuit Protection	Short circuit protection				
Environmental conditions	Operating Temperature	–25~75℃				
	Operating Humidity	35~85%				
	Enclosure rating	IP67				
Mechanical data	Connection type	2m/2-core Cable				
	Dimension	Ø6.5x45.0mm	M8x45.0mm	M12x45.0mm	M18x54.0mm	M30x54.0mm
	Material	Stainless steel+PBT		Copper–nickel alloy+PBT		
	Weight	0.009kg	0.012kg	0.05kg	0.08kg	0.12kg
	Accessories	–	Nut M8x1.0	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	Normally closed	TDF6.5-01HO/TDF6.5-02HO	TDF08-01HO/TDF08-02HO	TDF12-02HO/TDF12-04HO	TDF18-05HO/TDF18-08HO	TDF30-10HO/TDF30-16HO
	Normally open	TDF6.5-01HC/TDF6.5-02HC	TDF08-01HC/TDF08-02HC	TDF12-02HC/TDF12-04HC	TDF18-05HC/TDF18-08HC	TDF30-10HC/TDF30-16HC

Pre-wired





Basic Features	Working principle	Inductive sensor				
	Housing	Cylindrical				
	Installation type	Non-flush				
	Sensing distance	2.0mm/4.0mm ± 10%		4.0mm/8.0mm ± 10%	8.0mm/16mm ± 10%	15mm/25mm ± 10%
	Thread size	ϕ6.5	M8	M12	M18	M30
	Sensing surface material	PBT				
	Detected objects	Metal				
	Indicator	Operation Status: LED				
	Sensing range adjustment	None				
Electrical data	Switching output	No:normally open,NC:normally closed				
	Output mode	Reed switch				
	External input	None				
	Switching frequency	2kHz		1kHz	0.5kHz	0.2kHz
	Repeatability	2%				
	Hysteresis	15%				
	Operating Voltage	10~30V DC ± 10%		10~60V DC ± 10%		
	Current consumption	3~100mA				
	Residual Voltage	<4.0V		<6.0V		
	Load current	≤120mA				
	Leakage current	<0.8mA				
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure				
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure				
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions				
	Circuit Protection	Short circuit protection				
Environmental conditions	Operating Temperature	–25~75℃				
	Operating Humidity	35~85%				
	Enclosure rating	IP67				
Mechanical data	Connection type	2m/2-core Cable				
	Dimension	Ø6.5x44.0mm	M8x44.0mm	M12x44.0mm	M18x54.0/M18x59.0mm	M30x58.0/M30x61.0mm
	Material	Stainless steel+PBT		Copper-nickel alloy+PBT		
	Weight	0.009kg	0.012kg	0.05kg	0.08kg	0.12kg
	Accessories	–	Nut M8x1.0	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	Normally closed	TDN6.5-02HO/TDN6.5-04HO	TDN08-02HO/TDN08-04HO	TDN12-04HO/TDN12-08HO	TDN18-08HO/TDN18-16HO	TDN30-15HO/TDN30-25HO
	Normally open	TDN6.5-02HC/TDN6.5-04HC	TDN08-02HC/TDN08-04HC	TDN12-04HC/TDN12-08HC	TDN18-08HC/TDN18-16HC	TDN30-15HC/TDN30-25HC

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

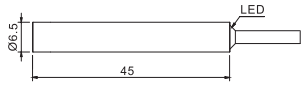
DC 2-wire-TD Series

Dimensions

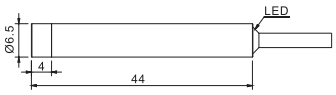
Unit:mm

ϕ6.5

TDF6.5-01/02□□

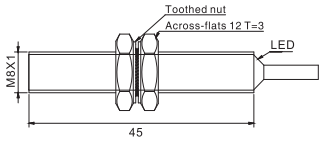


TDN6.5-02/04□□

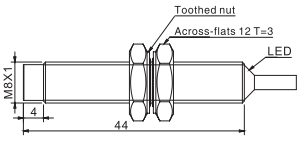


M8

TDF08-01/02□□

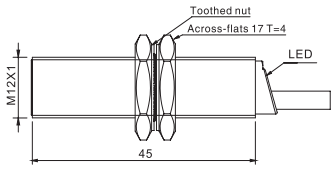


TDN08-02/04□□

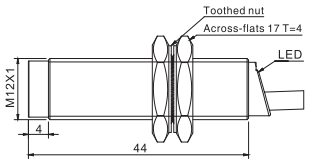


M12

TDF12-02/04□□

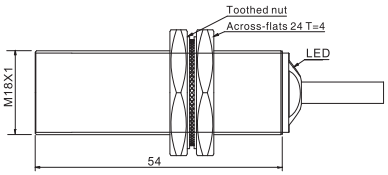


TDN12-04/08□□

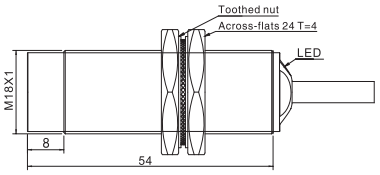


M18

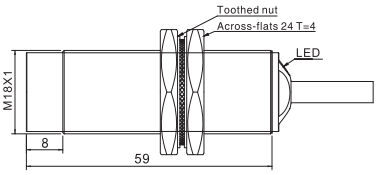
TDF18-05/08□□



TDN18-08□□

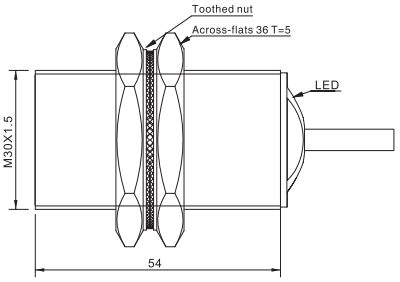


TDN18-16□□

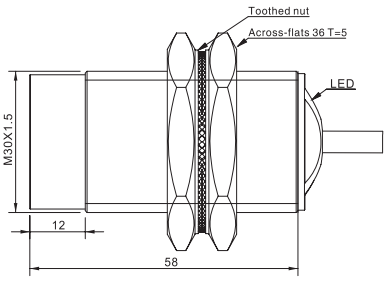


M30

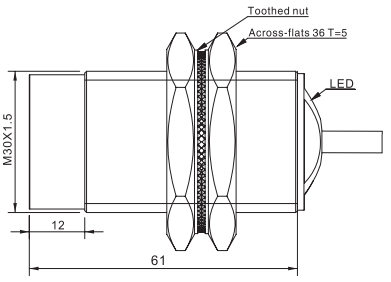
TDF30-10/16□□



TDN30-15□□



TDN30-25□□



Plastic Housing





Basic Features	Working principle	Capacitive sensor					
	Housing	Cylindrical					
	Installation type	Flush			Non-flush		
	Sensing distance	3.0mm	8.0mm	20mm	6.0mm	15mm	30mm
	Thread size	M12	M18	M30	M12	M18	M30
	Sensing surface material	PBT					
	Detected objects	Metal, liquid, powder, wood, paper, plastic and other materials					
	Indicator	Operation Status: LED					
	Sensing range adjustment	Available					
Electrical data	Switching output	No:normally open,NC:normally closed					
	Output mode	NPN or PNP Open Collector					
	External input	None					
	Switching frequency	0.1kHz					
	Repeatability	5%					
	Hysteresis	15%					
	Operating Voltage	10~30V DC ± 10%					
	Current consumption	≤10mA					
	Residual Voltage	≤2V					
	Load current	150mA	300mA		150mA	300mA	
	Leakage current	<0.01mA					
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure					
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure					
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions					
	Circuit Protection	Short circuit protection					
Environmental conditions	Operating Temperature	-25~75℃					
	Operating Humidity	35~85%					
	Enclosure rating	IP67					
Mechanical data	Connection type	2m/3-core Cable					
	Dimension	M12x56.9mm	M18x72.5mm	M30x87.0mm	M12x61.4mm	M18x76.0mm	M30x85.0mm
	Material	PBT					
	Weight	0.05kg	0.08kg	0.12kg	0.05kg	0.08kg	0.12kg
	Accessories	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5	Nut M12x1.0	Nut M18x1.0	Nut M30x1.5
Model	NPN NO	CKF12-03NO	CKF18-08NO	CKF30-20NO	CKN12-06NO	CKN18-15NO	CKN30-30NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed					

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

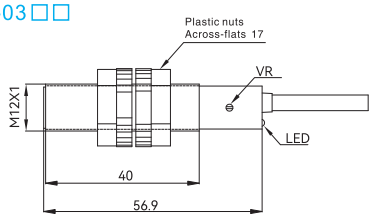
Cylinderical-CK Series

Dimensions

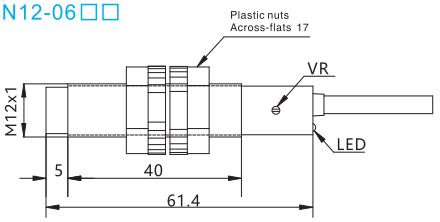
Unit:mm

M12

CKF12-03□□

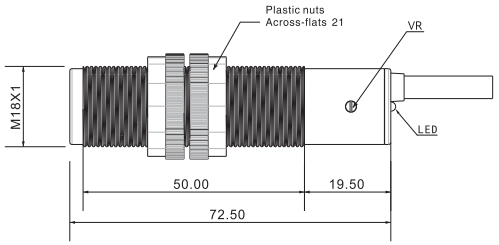


CKN12-06□□

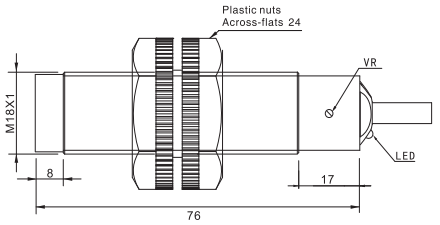


M18

CKF18-08□□

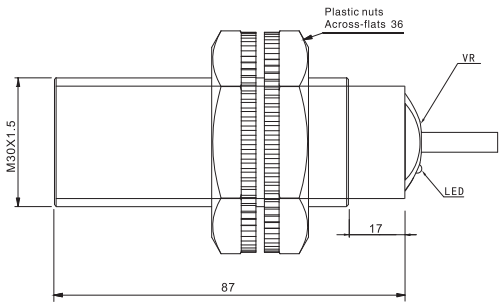


CKN18-15□□

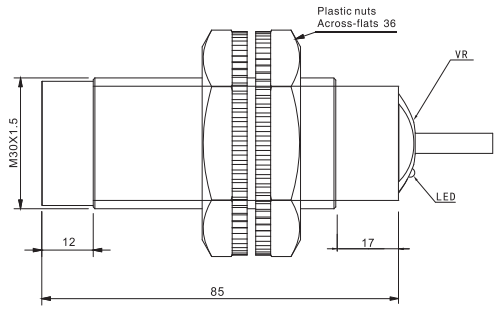


M30

CKF30-20□□



CKN30-30□□





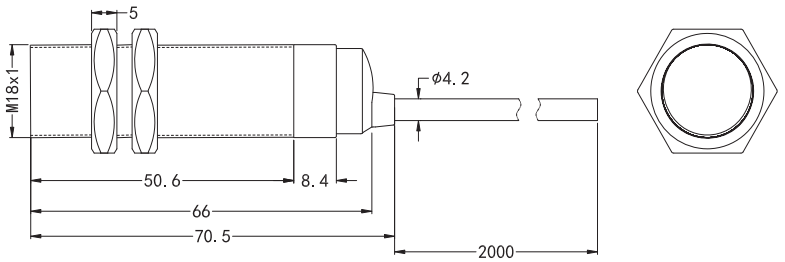
Corrosion Resistance

Basic Features	Working principle	Capacitive sensor
	Housing	Cylindrical
	Installation type	Flush
	Sensing distance	–
	Thread size	M18
	Sensing surface material	PBT
	Detected objects	Metal, liquid, powder, wood, paper, plastic and other materials
	Indicator	–
	Sensing range adjustment	Available
Electrical data	Switching output	No:normally open/NC:normally closed
	Output mode	NPN/PNP
	External input	None
	Switching frequency	0.035kHz
	Repeatability	–
	Hysteresis	10%
	Operating Voltage	12~24V DC ± 10%
	Current consumption	<22mA
	Residual Voltage	<1.5V
	Load current	≤100mA
	Leakage current	<1.1mA
	Insulation resistance	≥20MΩ with 500V DC between power terminals and enclosure
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions
	Circuit Protection	–
Environmental conditions	Operating Temperature	–20~60℃
	Operating Humidity	35~85%
	Enclosure rating	IP66
Mechanical data	Connection type	2m/4-core Cable
	Dimension	M18x70.5mm
	Material	Plastic
	Weight	0.08kg
	Accessories	Nut M18x1.0
	Model	CWF18-10NP (NPN NO/NC PNP PC/PO)

Corrosion Resistance-CWF Series

Dimensions

Unit:mm



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

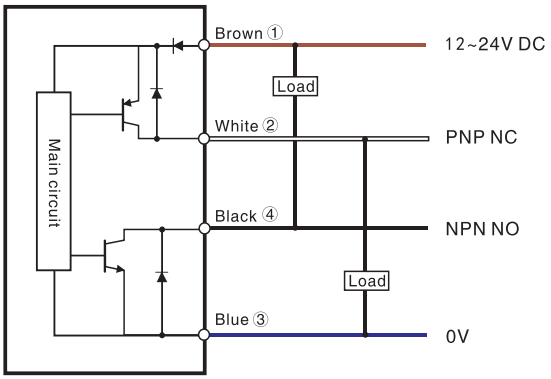
Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

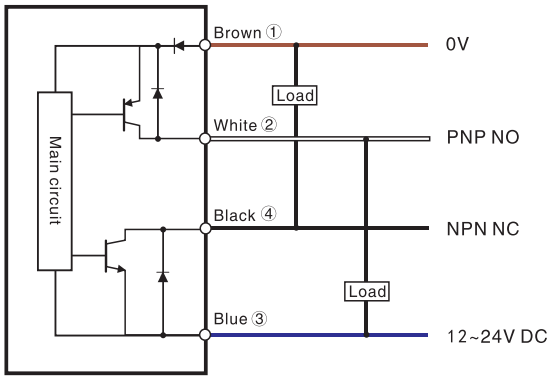
Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

Circuit diagram

Method 1:



Method 2:



Pre-wired

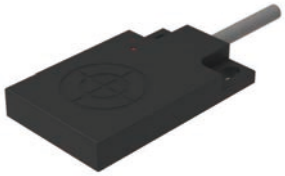


NEW!

Basic Features	Working principle	Capacitive sensor	
	Housing	Flat block	
	Installation type	Flush	
	Sensing distance	4mm	8mm
	Thread size	–	
	Sensing surface material	–	
	Detected objects	Metal, liquid, powder, wood, paper, plastic and other materials	
	Indicator	Operation Status: LED	
	Sensing range adjustment	–	
Electrical data	Switching output	No:normally open,NC:normally closed	
	Output mode	NPN or PNP Open Collector	
	External input	None	
	Switching frequency	200Hz	
	Repeatability	<5%sr	
	Hysteresis	<15%sr	
	Operating Voltage	10~30V DC	
	Current consumption	≤10mA	
	Residual Voltage	≤1.5V	
	Load current	≤150mA	
	Leakage current	<0.01mA	
	Insulation resistance	–	
	Dielectric strength	–	
	Vibration resistance	–	
	Circuit Protection	Short circuit protection	
Environmental conditions	Operating Temperature	–10~55℃	
	Operating Humidity	–	
	Enclosure rating	IP67	
Mechanical data	Connection type	2M 3 pin PVC cable	
	Dimension	6.0x25.0x52.5mm	
	Material	PBT	
	Weight	–	
	Accessories	–	
Model	NPN NO	CQ06-04NO	CQ06-08NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed	

Flat Type-CQ Series

Pre-wired



Basic Features	Working principle	Capacitive sensor	
	Housing	Flat block	
	Installation type	–	
	Sensing distance	5mm	10mm
	Thread size	–	
	Sensing surface material	–	
	Detected objects	Metal, liquid, powder, wood, paper, plastic and other materials	
	Indicator	Operation Status: LED	
	Sensing range adjustment	Available	
Electrical data	Switching output	No:normally open,NC:normally closed	
	Output mode	NPN or PNP Open Collector	
	External input	None	
	Switching frequency	0.1kHz	
	Repeatability	5%	
	Hysteresis	–	
	Operating Voltage	24V DC ± 10%	
	Current consumption	≤10mA	
	Residual Voltage	≤1.5V	
	Load current	≤50mA	
	Leakage current	<0.01mA	
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure	
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure	
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions	
	Circuit Protection	Reverse polarity protection/short circuit protection/pulse overvoltage protection	
Environmental conditions	Operating Temperature	–30~75℃	
	Operating Humidity	35~85%	
	Enclosure rating	IP67	
Mechanical data	Connection type	2m/3-core Cable	
	Dimension	50.6x30.3x7.0mm	
	Material	Plastic	
	Weight	0.05kg	
	Accessories	–	
Model	NPN NO	CQ07-05NO	CQ07-10NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed	

Pre-wired



Basic Features	Working principle	Capacitive sensor
	Housing	Flat block
	Installation type	Flush
	Sensing distance	8mm
	Thread size	–
	Sensing surface material	–
	Detected objects	Metal, liquid, powder, wood, paper, plastic and other materials
	Indicator	Operation Status: LED
	Sensing range adjustment	Available
Electrical data	Switching output	No:normally open,NC:normally closed
	Output mode	NPN or PNP Open Collector
	External input	None
	Switching frequency	0.035kHz
	Repeatability	1%
	Hysteresis	10%
	Operating Voltage	10~30V DC ± 10%
	Current consumption	≤10mA
	Residual Voltage	≤1.5V
	Load current	≤150mA
	Leakage current	<0.01mA
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions
	Circuit Protection	Reverse Polarity Protection/Short Circuit Protection/surge protection
Environmental conditions	Operating Temperature	–10~55℃
	Operating Humidity	35~85%RH
	Enclosure rating	IP66
Mechanical data	Connection type	2m/3-core Cable
	Dimension	48.8x20.0x7.0mm
	Material	Plastic
	Weight	0.05kg
	Accessories	–
Model	NPN NO	CQ07-08NO
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
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Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Inductive sensors
Standard distance
Extended distance
Long distance
Square
Mini square
Mini-cylindrical
Short-body
Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

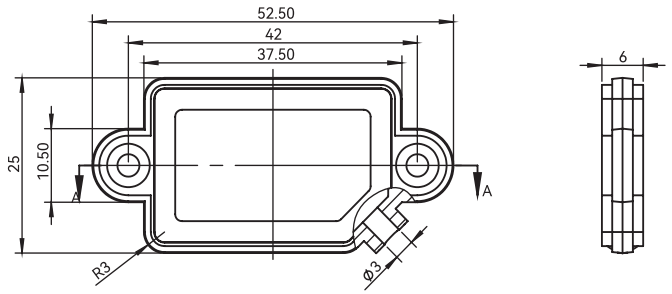
Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

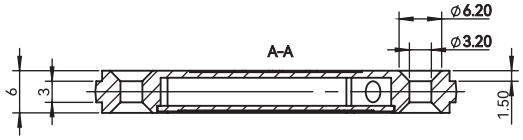
Flat Type-CQ Series

Dimensions

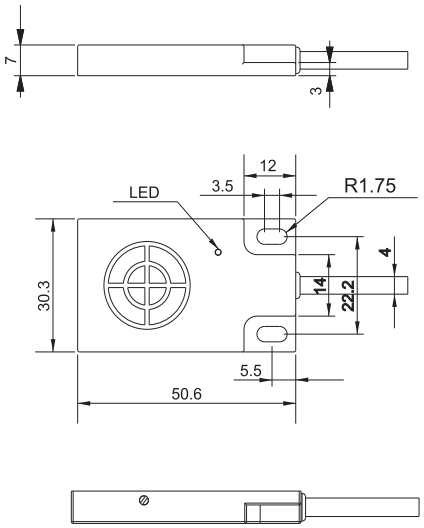
Unit:mm

CQ06-04NO CQ06-08NO

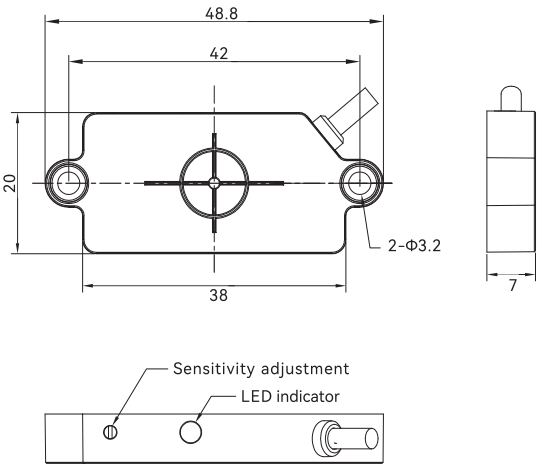




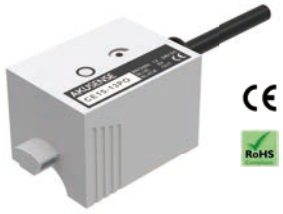
CQ07-05NO CQ07-10NO



CQ07-08NO



Pre-wired





Basic Features	Working principle	Capacitive sensor	
	Housing	Square	
	Installation type	Non-flush	
	Sensing distance	13mm	26mm
	Thread size	–	
	Sensing surface material	–	
	Detected objects	Metal, liquid, powder, wood, paper, plastic and other materials	
	Indicator	Action Indicator: Yellow LED	
	Sensing range adjustment	Available	
Electrical data	Switching output	No:normally open,NC:normally closed	
	Output mode	NPN or PNP Open Collector	
	External input	None	
	Switching frequency	0.02kHz	
	Repeatability	3%	
	Hysteresis	20%	
	Operating Voltage	10~30V DC ± 10%	
	Current consumption	<15mA	
	Residual Voltage	≤2.5V	
	Load current	≤150mA	
	Leakage current	<0.01mA	
	Insulation resistance	≥50MΩ with 500V DC between power terminals and enclosure	
	Dielectric strength	1,000 VAC, 50/60 Hz for 1 min between power terminals and enclosure	
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions	
	Circuit Protection	Reverse Polarity Protection/Short Circuit Protection	
Environmental conditions	Operating Temperature	–25~75℃	
	Operating Humidity	35~85%	
	Enclosure rating	IP67	
Mechanical data	Connection type	2m PVC cable	
	Dimension	44.2x24.4x22.6mm	35.0x33.4x22.4mm
	Material	PBT	
	Weight	0.05kg	
	Accessories	–	
Model	NPN NO	CE15-13NO	CE30-26NO HOT
	Others	NO:NPN Normally open NC:NPN Normally closed PO:PNP Normally open PC:PNP Normally closed	

Fiber Optic
Slot Sensors
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Long distance
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Mini square
Mini-cylindrical
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Ring-type
Metal face
Temperature resistance type
IP69K high protection
Anti-Slag
Analog output
DC 2 wires

Capacitive sensors
Cylinderical
Correctsion resistanct type
Flat type
Level detection

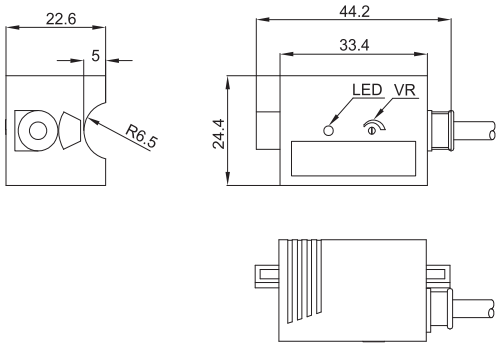
Liquid Level Detection-CE Series

Dimensions

Unit:mm

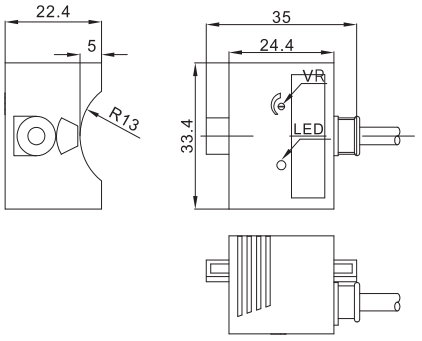
CE15

CE15-13□□



CE30

CE30-26□□



Proximity Sensors

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Correctsion resistanct type
Flat type
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Measuring Displacement Sensor



- Adopting international advanced technology and production process.
- Non-contact detection, realizing micron-level high-precision measurement.
- Less affected by the color and material of the workpiece, good stability.

NEW!



Triangulation measuring (MLD25 Series)

- Laser triangulation principle, micrometer-level repeat accuracy
- 485 communication, can providereal-time and efficient feedback of data values
- Rich product series, multiple ranges optional

P.F-16

NEW!



TOF long range type (PX-FM series)

- Ultra-long distance measurement, detection distance 8/40/80m optional.
- Stable accuracy, and the repeatability can be guaranteed within 2mm at a long distance.
- Multiple communication modes, supporting RS485(Modbus)/RS232/RS232+Current+Voltage output

P.F-24

NEW!



3D Laser Profiler (ESX Series)

- Laser triangulation principle for high precision measurement
- Wide range of products, 11mm-1490mm field of view available
- High resolution, 1920/2048/4096 physical contour points available

P.F-28

NEW!



Contact Displacement (MRA/MRC Series)

- Micrometer-level high-precision measurement, up to 1.4 μ m
- CMOS grating measurement principle, no tracking error
- Can be selected according to different needs of driving mode (pneumatic/rebound) to complete the detection)

P.F-38

NEW!



Laser Lidar

- Time of Flight detection principle, obstacle avoidance type, navigation type optional
- Scanning range 360° , maximum scanning frequency 30Hz
- Serial port (Type-C interface) communication, online output of measurement data (including distance and light intensity data in all directions)

P.F-53



Color Confocal (ACC Series)

- Automated precision measurement device;
- Stable detection for any material;
- Latest non-contact optical sensing technology.

P.F-61

NEW!



Through-beam edge sensor (ETD Series)

- Edge measurement & width and pitch measurement.
- Optical axis adjustment function for easy installation.
- Compact design for easy installation.

P.F-68

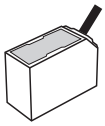
Fiber Optic
Slot Sensors
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Pressure Switch
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Accessories

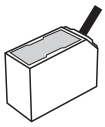
Guidance

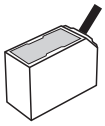
Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Guidance

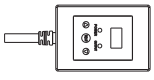
Triangulation Mini Digital Display

Appearance	Type	Sensing distance	Model number	Pages
	Diffuse reflection	65–135mm	MLD21–100A–485	F-09
		120~320mm	MLD21–220A–485	
		300~700mm	MLD21–500A–485	

Appearance	Type	Sensing distance	Model number		Pages
	Diffuse reflection	25~35mm	MLD23–30N	MLD23–30NP	F-14
		65~135mm	MLD23–100N	MLD23–100NP	
		120~280mm	MLD23–200N	MLD23–200NP	

Appearance	Type	Sensing distance	Model number		Pages
	Diffuse reflection	25~35mm	MLD25–30NV	MLD25–30PV	F-16
		35~65mm	MLD25–50NV	MLD25–50PV	
		65~135mm	MLD25–100NV	MLD25–100PV	
		120~280mm	MLD25–200NV	MLD25–200PV	

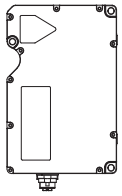
TOF long range type

Appearance	Type	Sensing distance	Model number			Pages
		0.05~8m	PX–FM08–485	PX–FM08–IV–232	PX–FM08–232	F-18
		0.05~8m	PX–FM40–485	PX–FM40–IV–232	PX–FM40–232	F-19
		0.05~40m	PX–FM80–485	PX–FM80–IV–232	PX–FM80–232	F-20

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TOF Long Range Type
3D Laser Profiler
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LiDAR Scanner
Color confocal
Laser Alignment

3D Laser Profiler

Appearance	Type	Sensing distance	Model number	Pages
	Diffuse reflection	7mm	ESX-C10	F-22
		11mm	ESX-C20	
		25mm	ESX-C30	
		70mm	ESX-C100	
		200mm	ESX-C200	
		200mm	ESX-CE200	F-23
		350mm	ESX-CE300	
		490mm	ESX-CE500	
		1280mm	ESX-CE1000	
		7mm	ESX-G10	F-24
		24mm	ESX-G20	
		74mm	ESX-G100	
		192mm	ESX-GE200	
		7mm	ESX-P10	F-25
		24mm	ESX-P20	
		74mm	ESX-P100	
		191mm	ESX-P200	F-26
		191mm	ESX-PE200	
		250mm	ESX-PE300	
		6mm	ESX-H10	F-27
		18mm	ESX-H20	

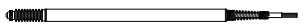
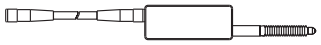
Fiber Optic
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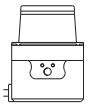
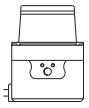
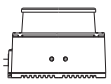
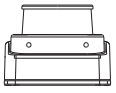
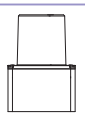
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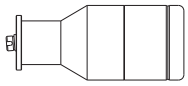
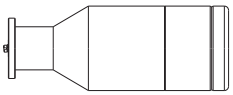
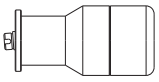
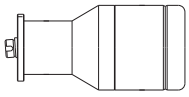
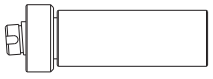
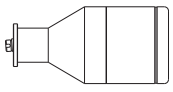
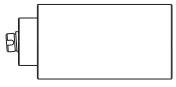
Magnetic Displacement

Appearance	Type	Sensing distance	Model number	Pages
	Pencil type	2mm	MRA-R02R01XX	F-32
	Pencil type	5mm	MRA-R05R01XX	
	Pencil type	8mm	MRA-R08R01XX	
	Pencil type	10mm	MRA-R10R01XX	
	Box type	0~12.7mm	MRC-H12R0XX	F-34
	Box type	0~25.4mm	MRC-H25R0XX	
	Box type	0~12.7mm	MRC-H12R0XDX	F-35
	Box type	0~12.7mm	MRC-H12Q0XX	
	Retangular	–	CM-M01	F-37
	Retangular	–	CM-M01A	

LiDAR Scanner

Appearance	Size	Sensing distance	Model number	Pages
	83.5 × 85 × 104.9(mm)	20m	AS-21C	F-41
	83.5 × 85 × 104.9(mm)	40m	AS-41C	F-41
	86 × 85 × 59.5(mm)	20m	AS-11C	F-44
	110*96.5*71.5(mm)	100m	AS-100C	F-47
	60*60*84.9(mm)	20m	AS-31C	F-50
	60*60*81(mm)	20m	AS-32C	F-50
	50*50*72(mm)	10m	AS-33C	F-51
	60*60*82.5(mm)	50m	AS-35C/CA	F-53

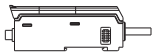
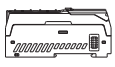
Color Confocal

Appearance	Size	Sensing distance	Model number	Pages
	Φ41*93.9(mm)	8±0.2mm	ACC-008L	F-58
	Φ98*266(mm)	11±1.2mm	ACC-011L	F-58
	Φ41*153.6(mm)	16±1mm	ACC-016L	F-58
	Φ34*153.6(mm)	18±1mm	ACC-018L	F-58
	Φ38*82(mm)	30±2mm	ACC-030L	F-58
	Φ18*55(mm)	33±2mm	ACC-033L	F-58
	Φ54*111.2(mm)	40±4mm	ACC-040L	F-58
	Φ33*75(mm)	55±3mm	ACC-055L	F-58

Through-beam Edge Sensor

Appearance	Size	Sensing distance	Model number	Pages
	Through-beam	60*10.5*8.2(mm)	Edge detection mode ±3.25mm Diameter detection mode 6mm	ETD-0306	F-64
	Through-beam	60*25*8.2(mm)	Edge detection mode ±6mm Diameter detection mode 12mm	ETD-0612	F-65

Edge Sensor Controller Communicator

Appearance	Size	Installation method	Model number	Pages
	100.78*40*38.76(mm)	DIN rail mounting	CR-M02	F-67
	94.5*29.4*40.81(mm)	DIN rail mounting	CTM01-EC	F-68

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

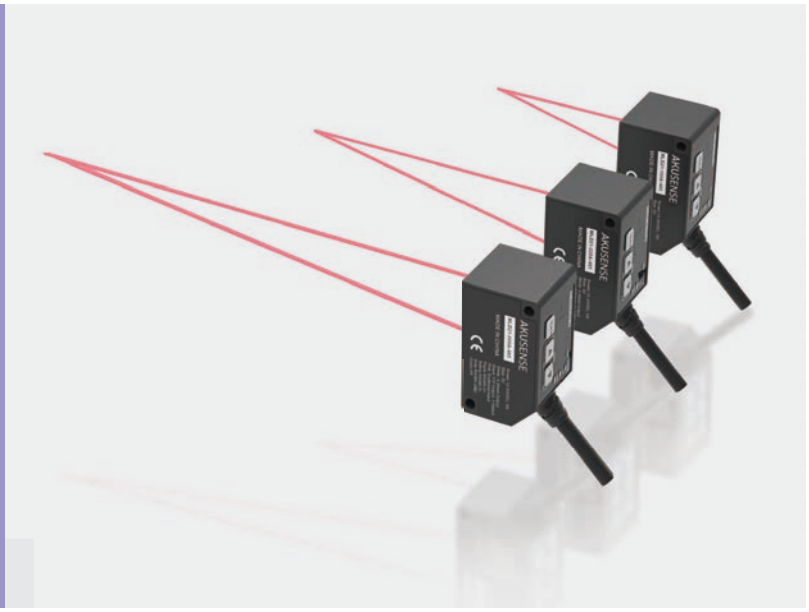
Guidance

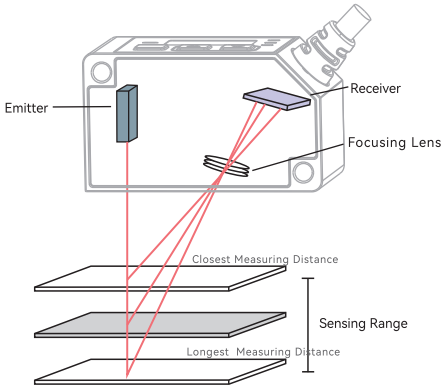
Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Product Highlights

Laser Displacement Sensor

MLD21 Series





CMOS sensor element Highly accurate detection achived by triangulation principle

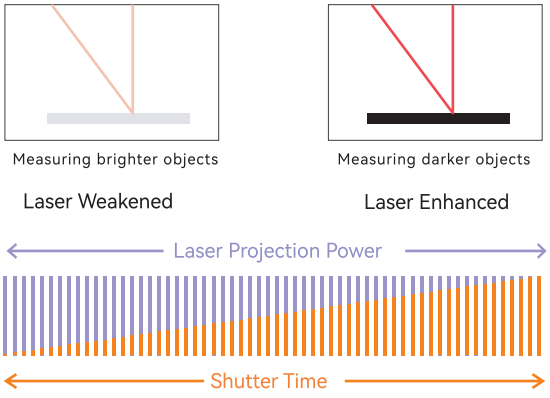
By triangulation principle,the incoming light port on the CMOS of the sensor receiver moves as the object position changes.

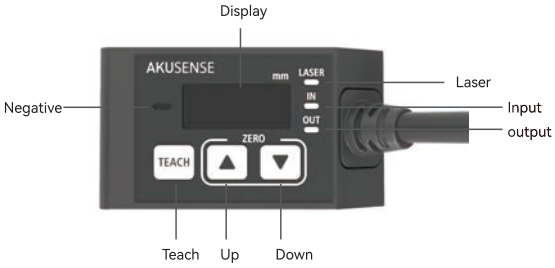
And the the change of objects can be checked by detecting the incoming light position.

Automatic Exposure Adjustment

The amount of energy received can be automatically adjusted according to different applications;

Detection remains stable even the color or material of the workpiece changes.





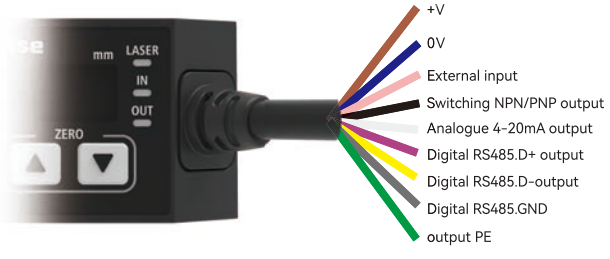
Intuitive digit display on the panel,and button function makes commissioning easy

Equipped with display and function buttons within a mini space;

The opening/closing of the laser,external trigger signal and control output signal status can be intuitively presented;most function settings can be made directly via the sensor panel.

It includes parameter item setting, function item setting and threshold setting.

Integrated output methods; Switching, analogue and digital outputs all in one.

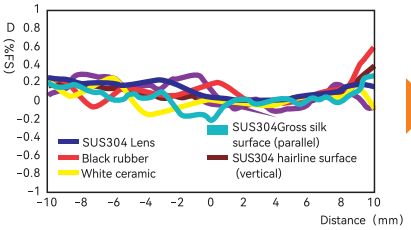


Detection remains stable even the workpiece moves

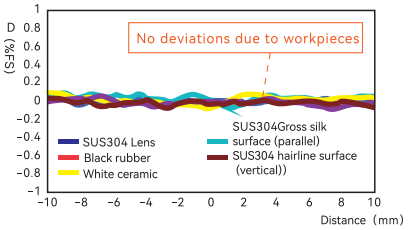
For workpieces with rough surfaces, a linear beam is used to average the amount of reflection.

And the amount of light received is corrected at a highspeed of 30us for per measurement cycle to reduce the alteration of the amount of light received caused by workpiece moving.

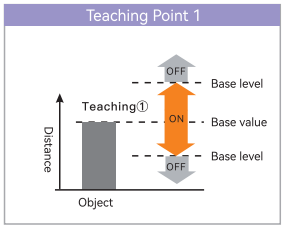
Thus the detection remains stable even when the workpiece is displaced during the pro process of measurement.

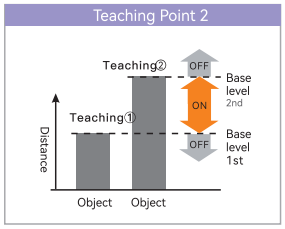


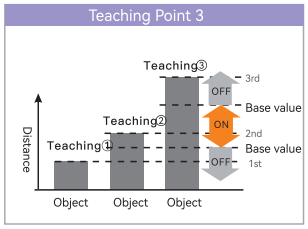
Material-based linear properties of previous products



Material-based linear properties of MLD21







Built-in rich detection modes for greater functionality

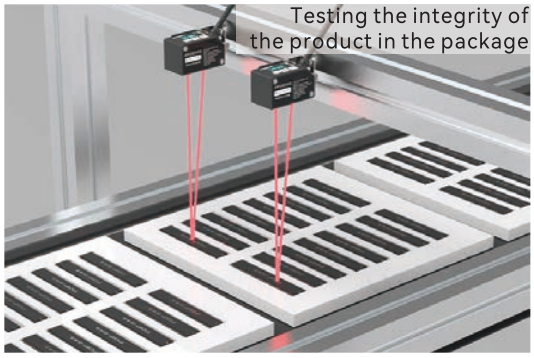
In addition to the basic teaching settings, the following three modes have been implemented:

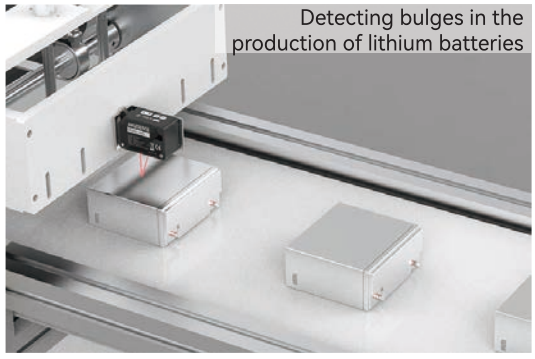
Basic teaching mode for simple setting of the presence or absence of the object to be measured;

A single-point serial comparison mode for deviations from the reference measurement surface;

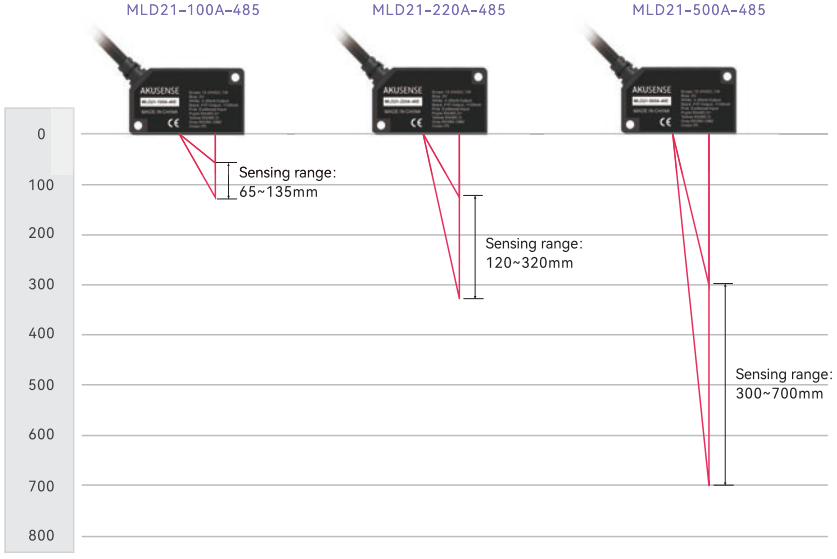
A two-point teaching serial comparison mode for precise range control.

Application





Selection table



Model	MLD21-100A-485
Repeat accuracy	70μm
Linearity	±0.1%
Base distance	100mm

Model	MLD21-220A-485
Repeat accuracy	200μm
Linearity	±0.2%
Base distance	220mm

Model	MLD21-500A-485
Repeat accuracy	(300~500mm)300μm (500~700mm)600μm
Linearity	(300~500mm) ±0.2% (500~700mm) ±0.3%
Base distance	500mm

Triangulaiton Mini digital dispaly

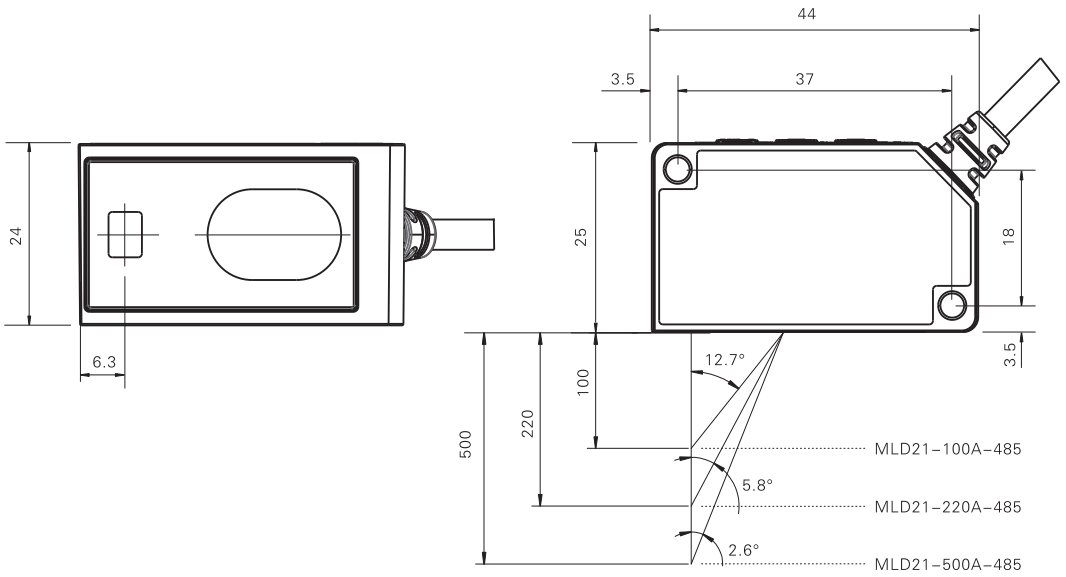
MLD21 Series



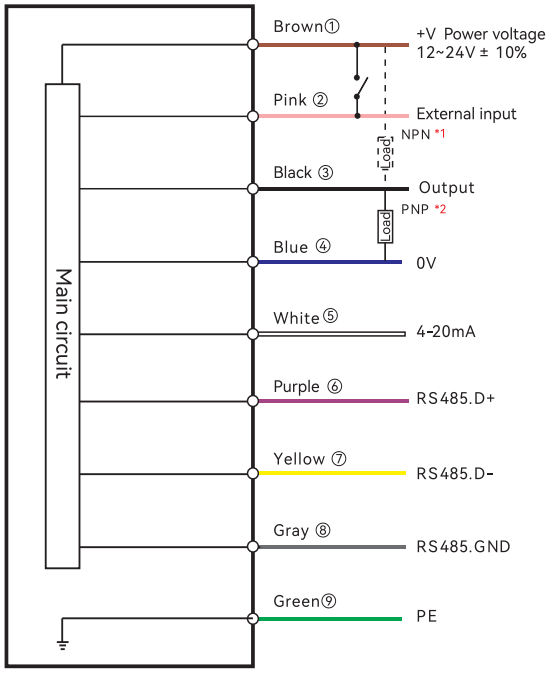
Basic Features	Working principle	Triangulation		
	Housing	Retangular		
	Optical working principle	Diffuse reflection		
	Reference distance	100mm	220mm	500mm
	Measuring range	65~135mm	120~320mm	300~700mm
	Light source	Red laser，Class 2		
	Spot size	0.14x0.11mm	0.29x0.24mm	0.54x0.33mm
Electrical data	Switching mode	L.on/D.on		
	Output mode	NPN or PNP collector open		
	Response time	1.5ms/ 3ms/5ms (default v: ms)		
	Linearity	±0.1%	±0.2%	(300~500mm)±0.2% (500~700mm)±0.3%
	Repeatability	70μm	200μm	(300~500mm)300μm (500~700mm)600μm
	Temperature drift characteristics	–		
	Operating voltage	12~24VDC±10%		
	Current consumption	–		
	Load current	<100mA		
	Insulation sesistance	⩾20MΩ with 500V DC between power terminals and enclosure		
	Dielectric strength	500 VAC, 50/60 Hz for 1 min between power terminals and enclosure		
	Protection circuit	Reverse Polarity Protection/surge protection		
Environmental conditions	Operating temperature	–10~50℃		
	Operating humidity	35~85%RH		
	Ambient illumination	Incandescent⩽3000 Lux		
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions		
	Enclosure rating	IP67		
Mechanical data	Connection type	2m, 9 core cable		
	Dimension	24,0x44.0x25.0mm		
	Material	Aluminum		
	Weight	0.065kg		
	Accessories	Cable		
	Model	**MLD21-100A-485**	**MLD21-220A-485**	**MLD21-500A-485**

Unit:mm

Dimensions



Circuit diagram



Remark :

1.NPN output connection : Connect Black with Brown (+V)
2.PNP output connection: Connect Black with Blue (0V)

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

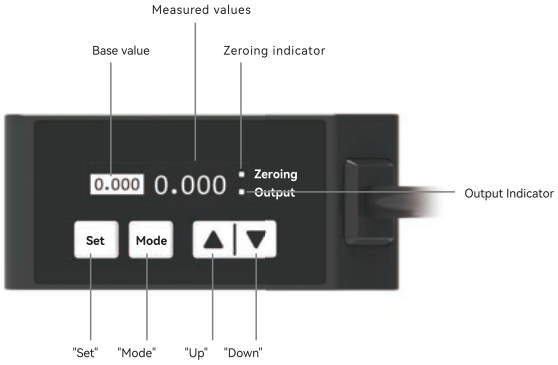
Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Product Highlights

Laser Displacement Sensor

MLD23 Series





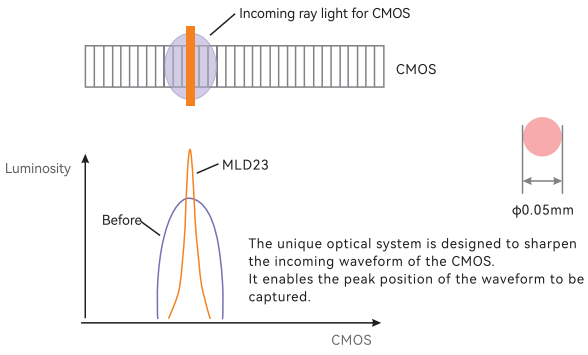
Mini Chinese Display

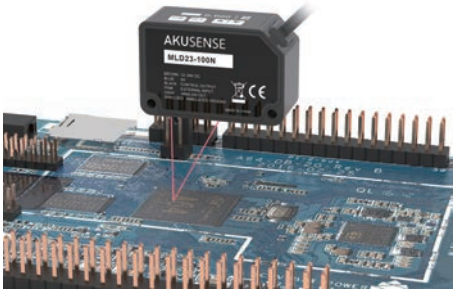
More Intuitive and Simple for Commissioning

Convergent harnesses for more accurate detection

Akusense has developed its own optical system to significantly converge and improve the beam to 50um;

An ultra-small spot size of 0.05mm formed, which detects objects with stability and accuracy.



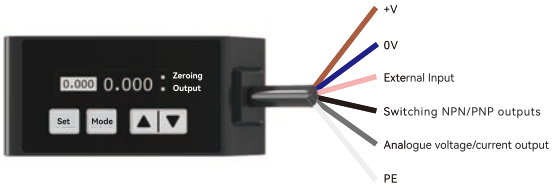


Micron-level linear accuracy

Linear accuracy reaches to 0.01mm for easy inspection with high accuracy

Convenient Installation

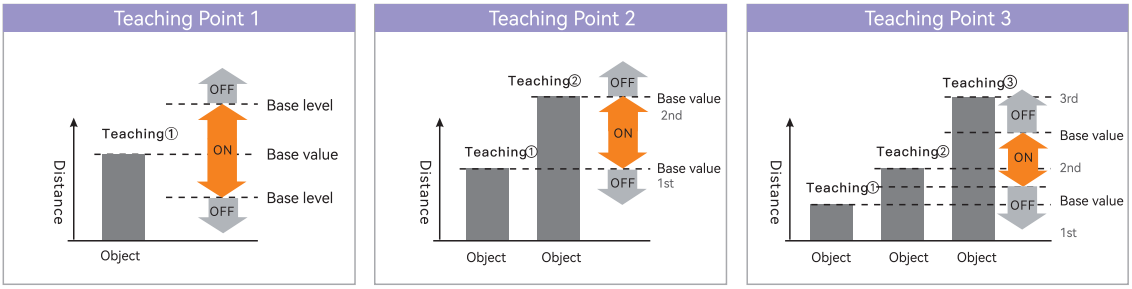
Integration of analogue voltage, analogue current and switching



MLD23 Series

Simple and flexible test patterns

Multiple teaching modes to make testing easier

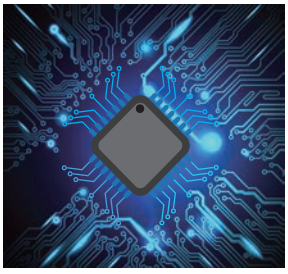


Faster, more stable, more accurate

Three test modes are for option:
standard, high speed and high accuracy

①Ultra-high speed computing and processing

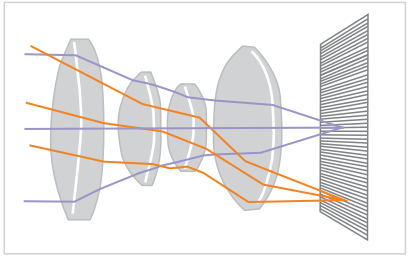
The application of Akusense 's advanced IC and algorithm technology has greatly improved the sensor's detection rate and data accuracy, allowing for both high speed transmission and stable detection of measured values.

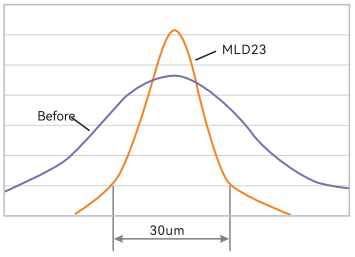


Max 1.5ms response time

Repeat accuracy up to10um

Min ±0.1% F.S linearity



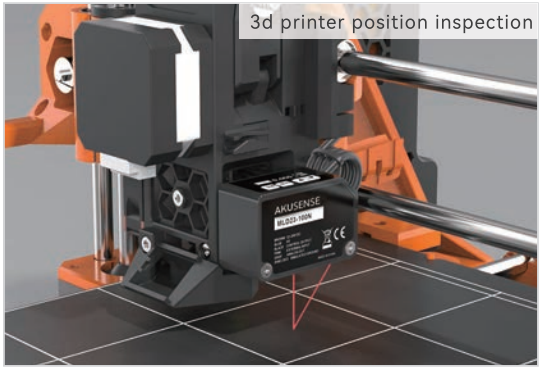


② Achieving greater precision

The new Akusense high-resolution lens design reduces pixel aberration and is assembled with precision.

The small spot of light at any angle can be imaged at the receiving section, resulting in a smaller waveform and higher measurement accuracy.

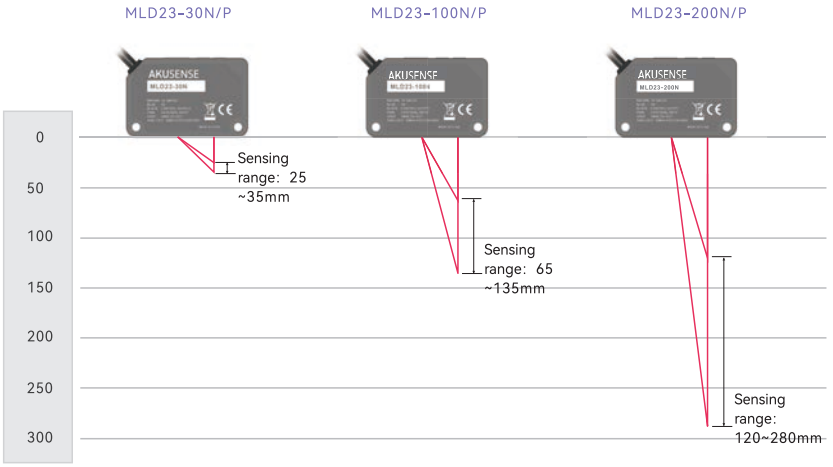
Application





Product Highlights

Selection table



Model	MLD23-30N/P
Repeat accuracy	10μm
Linear accuracy	±0.1% F.S.
Base distance	30mm

Model	MLD23-100N/P
Repeat accuracy	70μm
Linear accuracy	±0.1% F.S.
Base distance	100mm

Model	MLD23-200N/P
Repeat accuracy	200μm
Linear accuracy	±0.2% F.S.
Base distance	200mm

Fiber Optic
Slot Sensors
Photoelectric
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Proximity
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Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

MLD23 Series



Economical Type

Basic Features	Working principle	Triangulation		
	Housing	Retangular		
	Optical working principle	Diffuse reflection		
	Reference distance	30mm	100mm	200mm
	Measuring range	25~35mm	65~135mm	120~280mm
	Light source	Red laser，655nm，Class 2		
	Spot Size	about Φ0.05mm	about Φ0.15mm	about Φ0.3mm
Electrical data	Switching mode	L.on/D.on		
	Output mode	NPN or PNP collector open		
	Response time	1.5ms/5ms/50ms switchable		
	Linearity	± 0.1% F.S.		± 0.2% F.S.
	Repeatability	10μm	70μm	200μm
	Temperature drift characteristics	± 0.03%/℃		
	Operating voltage	12~24VDC ± 10%		
	Current consumption	<60mA(24VDC); <100mA(12VDC)		
	Load current	<50mA		
	Insulation sesistance	⩾20MΩ with 500V DC between power terminals and enclosure		
	Dielectric strength	< 0.1mA(1000V AC)		
	Protection circuit	Surge protection		
Environmental conditions	Operating temperature	–10~45℃(No Freezing)		
	Operating humidity	35~85%RH(No Condensation)		
	Ambient illumination	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 3000 Lux		
	Vibration resistance	10 to 50 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions		
	Enclosure rating	IP66		
Mechanical data	Connection type	2m, 9 core cable		
	Dimension	22.5x50.0x32.0mm		
	Material	Acrylic-based，Aluminum		
	Weight	0.065kg		
	Accessories	Cable		
Model	NPN	**MLD23-30N**	**MLD23-100N**	**MLD23-200N**
	NPN+PNP	**MLD23-30NP**	**MLD23-100NP**	**MLD23-200NP**

Fiber Optic
Slot Sensors
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Contact
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Safety door lock
Pressure Switch
Communication
Accessories

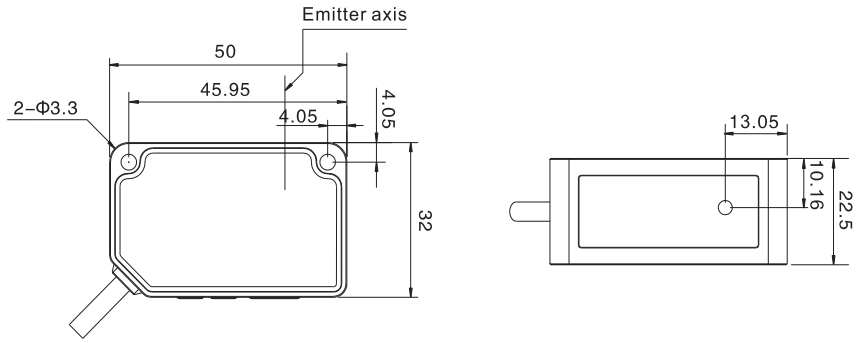
Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Triangulaiton Mini Digital Dispaly

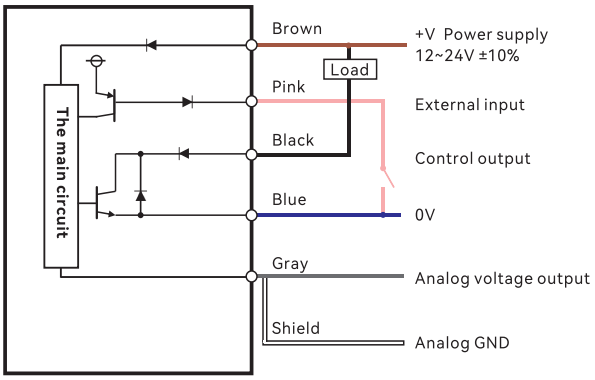
Dimensions

Unit:mm

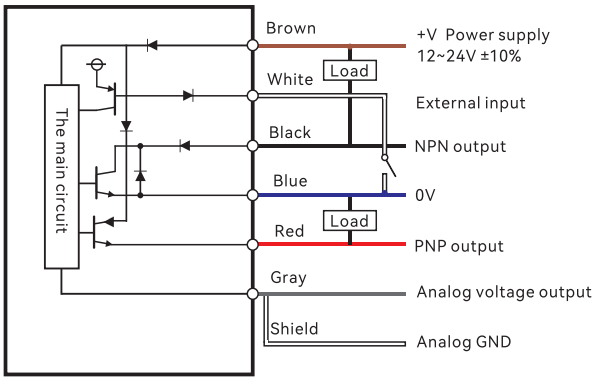


Circuit diagram

■ NPN



■ NPN+PNP



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
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Area
Ultrasonic
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Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

MLD25 Series



NEW!

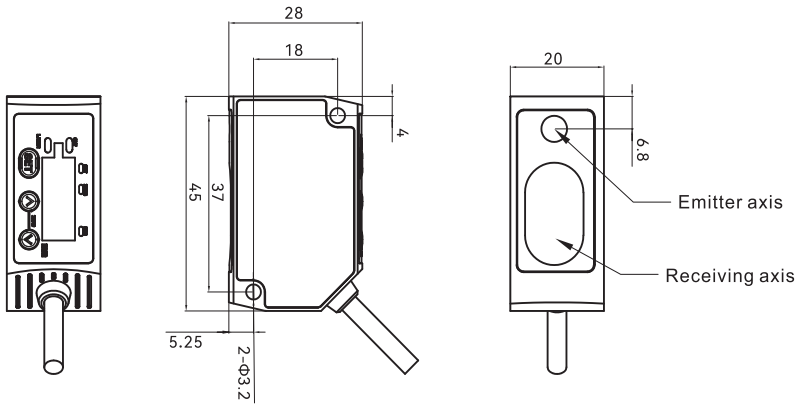
CE

Basic Features	Working principle	Triangulation			
	Housing	Retangular			
	Optical working principle	Diffuse reflection			
	Reference distance	30mm	50mm	100mm	200mm
	Measuring range	25-35mm	35-65mm	65-135mm	120-280mm
	Light source	Red laser, wavelength:655nm 1mW Class2			
	Spot Size	ϕ40μm	Φ50μm	Φ80μm	Φ140μm
Electrical data	Switching mode	L.on/D.on/Botton/RS-485 switch			
	Output mode	Switch output/Analog output			
	Response time	< 10ms/5ms/1.5ms			
	Linearity	± 0.1% F.S.			± 0.2% F.S.
	Repeatability	10um	30um	70um	200um
	Temperature drift characteristics	0.03%/℃ F.S.			
	Operating voltage	12~24V DC ± 10%			
	Current consumption	< 65mA(12V), < 40mA(24V)			< 40mA(24V), < 80mA(12V)
	Load current	≤100mA			
	Insulation sesistance	> 500MΩ(500V DC)			
	Dielectric strength	< 0.1mA(1000V AC)			
	Protection circuit	Reverse polarity protection / short circuit protection / overload protection / surge protection			
Environmental conditions	Operating temperature	–10~+45℃(No freezing)			
	Operating humidity	35~85%RH(no condensation)			
	Ambient illumination	Ambient light: ≤10000 lux without interference; incandescent lamp: ≤3000 lux			
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Enclosure rating	IP67			
Mechanical data	Connection type	2m 7-pin composite cable			
	Dimension	20x28x45mm			
	Material	Body: die-cast aluminum; Front cover: acrylic-based			
	Weight	90g			
	Accessories	Cable			
Model	NPN	**MLD25-30NV**	**MLD25-50NV**	**MLD25-100NV**	**MLD25-200NV**
	PNP	**MLD25-30PV**	**MLD25-50PV**	**MLD25-100PV**	**MLD25-200PV**

Triangulaiton

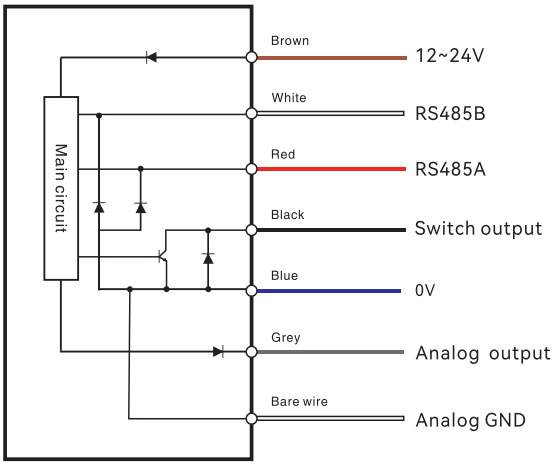
Dimensions

Unit:mm

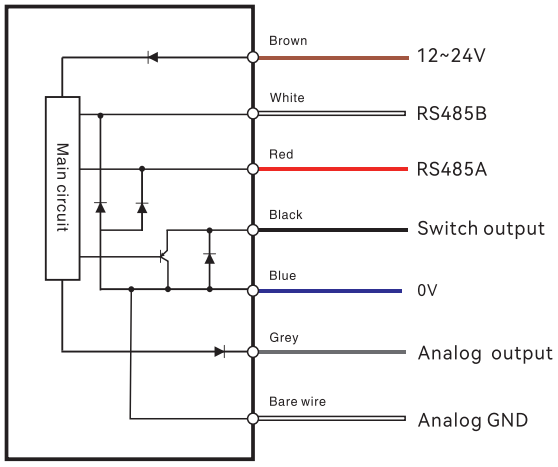


Circuit diagram

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

TOF Long Range Type

PX-FM Series



NEW!

TOF

Basic Features	Working principle	TOF principle		
	Housing	Retangular		
	Optical working principle	Diffuse reflection		
	Measuring range	0.05~8m		
	Light source	Red laser, 655nm, Class 2		
	Spot size	–		
Electrical data	Operating mode	Single measurement/Continous measurement/Quick measurement		
	Data output rate	Single measurement: 1s ,Continous measurement: 200ms ,Quick measurement: 30-100ms		
	Resolution	1mm		
	Repeatability	< ±2mm		
	Operating voltage	24VDC±10%		5VDC±10%
	Current consumption	Normal 44mA, max.65mA		Normal 50mA, max.150mA
	Residual voltage	0V		
	Load current	150mA(MAX)		
	Input voltage	12~26V DC		5V DC+10%
	Output voltage	Active low	Active low,2 channel output	Active low
	Protocol	RS485(Modbus)	RS232/4-20mA/0-10V	RS232
Environmental conditions	Operating temperature	–10℃-40℃		
	Storage temperature	–20℃-60℃		
	Operating humidity	5%~95%		
	Storage humidity	RH85%		
	Ambient illumination	Ambient light: ≤10000 lux		
	Enclosure rating	IP65		
Mechanical data	Connection type	2M cable		1M cable
	Dimension	42*61.2*23.5mm		
	Material	Aluminum alloy		
	Weight	200g		
	Accessories	–		
	Model	**PX-FM08-485**	**PX-FM08-IV-232**	**PX-FM08-232**

TOF Long Range Type

PX-FM Series



NEW!
TOF型

Basic Features	Working principle	TOF principle		
	Housing	Retangular		
	Optical working principle	Diffuse reflection		
	Measuring range	0.05~40m		
	Light source	Red laser，655nm，Class 2		
	Spot Size	–		
Electrical data	Operating mode	Single measurement/Continous measurement/Quick measurement		
	Data output rate	Single measurement：1s ,Continous measurement：200ms ,Quick measurement：30-100ms		
	Resolution	1mm		
	Repeatability	< ±2mm		
	Operating voltage	12~26V DC		5V DC±10%
	Current consumption	Normal 44mA, max.65mA		Normal 50mA, max.150mA
	Residual voltage	0V		
	Load Current	150mA(MAX)		
	Input voltage	12~26V DC		5V DC+10%
	Output voltage	Active low	Active low,2 channel output	Active low
	Protocol	RS485(Modbus)	RS232/4-20mA/0-10V	RS232
Environmental conditions	Operating temperature	–10℃-40℃		
	Storage temperature	–20℃-60℃		
	Operating humidity	5%~95%		
	Storage humidity	RH85%		
	Ambient illumination	Ambient light: ≤10000 lux		
	Enclosure rating	IP65		
Mechanical data	Connection type	2M cable		1M cable
	Dimension	42*61.2*23.5mm		
	Material	Aluminum alloy		
	Weight	200g		
	Accessories	–		
	Model	**PX-FM40-485**	**PX-FM40-IV-232**	**PX-FM40-232**

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Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

TOF Long Range Type

PX-FM Series



NEW!

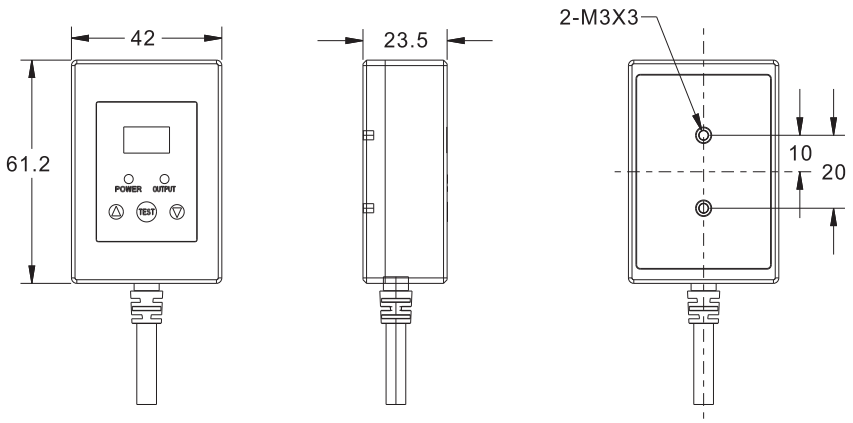
TOF

Basic Features	Working principle	TOF principle		
	Housing	Retangular		
	Optical working principle	Diffuse reflection		
	Measuring range	0.05~80m		
	Light source	Red laser, 655nm, Class 2		
	Spot Size	–		
Electrical data	Operating mode	Single measurement/Continous measurement/Quick measurement		
	Data output rate	Single measurement: 1s ,Continous measurement: 200ms ,Quick measurement: 30-100ms		
	Resolution	1mm		
	Repeatability	< ±2mm		
	Operating voltage	24VDC±10%		5V DC±10%
	Current consumption	Normal 44mA, max.65mA		Normal 50mA, max.150mA
	Residual voltage	0V		
	Load current	150mA(MAX)		
	Input voltage	12~26V DC		5V DC+10%
	Output voltage	Active low	Active low,2 channel output	Active low
	Protocol	RS485(Modbus)	RS232/4-20mA/0-10V	RS232
Environmental conditions	Operating temperature	–10℃-40℃		
	Storage temperature	–20℃-60℃		
	Operating humidity	5%~95%		
	Storage humidity	RH85%		
	Ambient illumination	Ambient light: ≤10000 lux		
	Enclosure rating	IP65		
Mechanical data	Connection type	2M cable		1M cable
	Dimension	42*61.2*23.5mm		
	Material	Aluminum alloy		
	Weight	200g		
	Accessories	–		
	Model	**PX-FM80-485**	**PX-FM80-IV-232**	**PX-FM80-232**

TOF Long Range Type

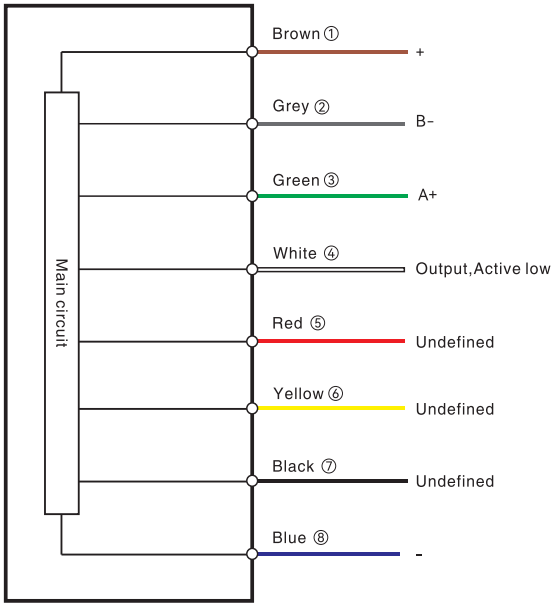
Dimensions

Unit:mm

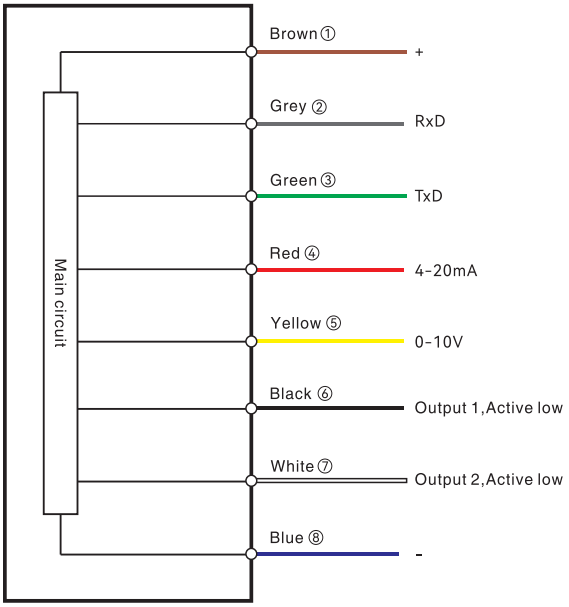


Circuit diagram

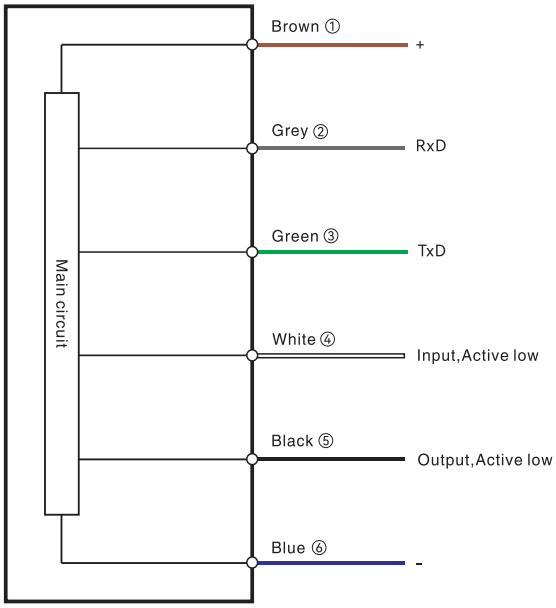
PX-FM08/40/80-485



PX-FM08/40/80-IV-232



PX-FM08/40/80-232



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LiDAR Scanner
Color confocal
Laser Alignment

ESX series

NEW!







Basic Features	Working principle		Laser 3D measurement displacement sensor				
	Housing		Retangular				
	Optical working principle		Reflection				
	Mounting distance (CD)		19mm	22mm	54mm	80mm	100mm
	Measuring range	Z-axis depth of field (MR)	7mm	11mm	25mm	70mm	200mm
		X-axis width: Near-end FOV	11mm	16mm	28mm	54mm	110mm
		X-axis width: Reference distance	12mm	17mm	31mm	68mm	170mm
		X-axis width: Distal FOV	13mm	18mm	35mm	80mm	230mm
	Contour points		2048				
	Light source	Wavelength	405nm				
		Laser class	2M/3R				
		Laser output power	10mW				
	Reflection angle		50°	45°	30°	30°	27°
Electrical data	X-direction resolution		5.6⍰ 6.3μm	7.8~8.9μm	13.4~16.4μm	27.1~40.0μm	54.0~114.2μm
	Z-axis repeatability		0.1μm	0.2μm	0.3μm	0.8μm	1.2μm
	Z-direction linearity (+/-% of MR)		0.02%				
	Scanning speed		340 ~ 10000Hz				
	Operating voltage		24V DC±10%				
	Power consumption		11W				
	Communication interface		Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional los				
Environmental conditions	Operating temperature		0~50℃				
	Ambient illumination		Incandescent≤10000lux				
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions				
	Shock resistance		Peak acceleration of 15g, duration of 11ms half-sine wave shock				
	Enclosure rating		IP67				
Mechanical data	Dimension		150x90x54mm	150x100x54mm	160x105x54mm		185x100x54mm
	Housing material		Aluminum				
	Weight		0.94kg	0.84kg	1.12kg	0.8kg	
	Model		**ESX-C10**	**ESX-C20**	**ESX-C30**	**ESX-C100**	**ESX-C200**

3D Laser Profiler

ESX series

NEW!





Basic Features	Working principle		Laser 3D measurement displacement sensor			
	Housing		Retangular			
	Optical working principle		Reflection			
	Mounting distance (CD)		100mm	330mm	250mm	760mm
	Measuring range: Z-axis depth of field (MR)		200mm	350mm	490mm	1280mm
	Measuring range: X-axis width	Near-end FOV	110mm	195mm	230mm	700mm
		Reference distance	170mm	262mm	385mm	1095mm
		Distal FOV	230mm	330mm	540mm	1490mm
	Contour points		2048			
	Light source: Wavelength		650nm			
	Light source: Laser class		2M/3R			
	Light source: Laser output power		10mW			
	Reflection angle		27°	23.2°	25°	27°
Electrical data	X-direction resolution		54.0~114.2μm	92.8~164.9μm	115.5~265.1μm	338.8~731.8μm
	Z-axis repeatability		1.2μm	2μm	6μm	15μm
	Z-direction linearity (+/-% of MR)		0.02%			
	Scanning speed		340 ~ 10000Hz			
	Operating voltage		24V DC±10%			
	Power consumption		11W			
	Communication interface		Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios			
Environmental conditions	Operating temperature		0~50℃			
	Ambient illumination		Incandescent≤10000lux			
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Shock resistance		Peak acceleration of 15g, duration of 11ms half-sine wave shock			
	Enclosure rating		IP67			
Mechanical data	Dimension		185x100x54mm	285x100x52.5mm	285x100x52.5mm	690x134.5x58.4mm
	Housing material		Aluminum			
	Weight		0.8kg	1.62kg	1.44kg	4.44kg
	Model		**ESX-CE200**	**ESX-CE300**	**ESX-CE500**	**ESX-CE1000**

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LiDAR Scanner
Color confocal
Laser Alignment

ESX series

NEW!







Basic Features	Working principle		Laser 3D measurement displacement sensor			
	Housing		Retangular			
	Optical working principle		Reflection			
	Mounting distance (CD)		18mm	40mm	90mm	140mm
	Measuring range	Z-axis depth of field (MR)	7mm	24mm	74mm	192mm
		X-axis width: Near-end FOV	14mm	30mm	55mm	100mm
		X-axis width: Reference distance	15mm	33mm	72mm	145mm
		X-axis width: Distal FOV	16mm	36mm	88mm	190mm
	Contour points		4096			
	Light source	Wavelength	405nm			650nm
		Laser class	2M/3R			
		Laser output power	10mW			
	Reflection angle		41°	38°	30°	24°
Electrical data	X-direction resolution		6.9~8.4μm	14.6~20.1μm	28.8~47.1μm	51.7~99.6μm
	Z-axis repeatability		0.2μm	0.4μm	0.6μm	1μm
	Z-direction linearity (+/-% of MR)		0.02%			
	Scanning speed		1000 (full frame) ~20000Hz			
	Operating voltage		24V DC±10%			
	Power consumption		11W			
	Communication interface		Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios			
Environmental conditions	Operating temperature		0~50℃			
	Ambient illumination		Incandescent≤10000lux			
	Vibration resistance		10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions			
	Shock resistance		Peak acceleration of 15g, duration of 11ms half-sine wave shock			
	Enclosure rating		IP67			
Mechanical data	Dimension		145x95x60mm	160x104.5x60mm	170x105x60mm	190x115x64mm
	Housing material		Aluminum			
	Weight		1.04kg	1.24kg	1.22kg	1.56kg
	Model		**ESX-G10**	**ESX-G20**	**ESX-G100**	**ESX-GE200**

3D Laser Profiler

ESX series

NEW!





Basic Features	Working principle			Laser 3D measurement displacement sensor		
	Housing			Retangular		
	Optical working principle			Reflection		
	Mounting distance (CD)			18mm	40mm	90mm
	Measuring range	Z-axis depth of field (MR)		7mm	24mm	74mm
		X-axis width	Near-end FOV	13mm	28mm	55mm
			Reference distance	14.5mm	27mm	72mm
			Distal FOV	16mm	36mm	90mm
	Contour points			1920		
	Light source	Wavelength		405nm		
		Laser class		2M/3R		
		Laser output power		10mW		
	Reflection Angle			41°	38°	30°
Electrical data	X-direction resolution			7.0~8.6μm	14.6~20.1μm	28.8~47.1μm
	Z-axis repeatability			0.2μm	0.4μm	0.6μm
	Z-direction linearity (+/-% of MR)			0.02%		
	Scanning speed			2500~56000Hz		
	Operating voltage			24V DC±10%		
	Power consumption			11W		
	Communication Interface			Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios		
Environmental conditions	Operating temperature			0~50℃		
	Ambient illumination			Incandescent≤10000lux		
	Vibration resistance			10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions		
	Shock resistance			Peak acceleration of 15g, duration of 11ms half-sine wave shock		
	Enclosure rating			IP67		
Mechanical data	Dimension			145x95x60mm	160x104.5x60mm	190x115x64mm
	Housing material			Aluminum		
	Weight			0.8kg	1.24kg	1.22kg
	Model			**ESX-P10**	**ESX-P20**	**ESX-P100**

Fiber Optic
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Pressure Switch
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Accessories

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TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

ESX series



NEW!



NEW!

Basic Features	Working principle			Laser 3D measurement displacement sensor		
	Housing			Retangular		
	Optical working principle			Reflection		
	Mounting distance (CD)			140mm	140mm	235mm
	Measuring range	Z-axis depth of field (MR)		191mm	191mm	250mm
		X-axis width	Near-end FOV	100mm	100mm	192mm
			Reference distance	145mm	145mm	247mm
			Distal FOV	190mm	190mm	302mm
	Contour Points			1920		
	Light source	Wavelength		405nm	650nm	
		Laser class		2M/3R		
		Laser output power		10mW		
	Reflection angle			24°		23.2°
Electrical data	X-direction resolution			51.7~99.7μm	51.7~99.7μm	100.7~160.3μm
	Z-axis repeatability			1μm	1μm	1.5μm
	Z-direction linearity (+/-% of MR)			0.02%		0.04%
	Scanning speed			2500~56000Hz		
	Operating voltage			24V DC±10%		
	Power consumption			11W		
	Communication interface			Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios		
Environmental conditions	Operating temperature			0~50℃		
	Ambient illumination			Incandescent≤10000lux		
	Vibration resistance			10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions		
	Shock resistance			Peak acceleration of 15g, duration of 11ms half-sine wave shock		
	Enclosure rating			IP67		
Mechanical data	Dimension			190x115x64mm		340x115x64.8mm
	Housing material			Aluminum		
	Weight			1.54kg		2.08kg
	Model			**ESX-P200**	**ESX-PE200**	**ESX-PE300**

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Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

3D Laser Profiler

ESX series



NEW!

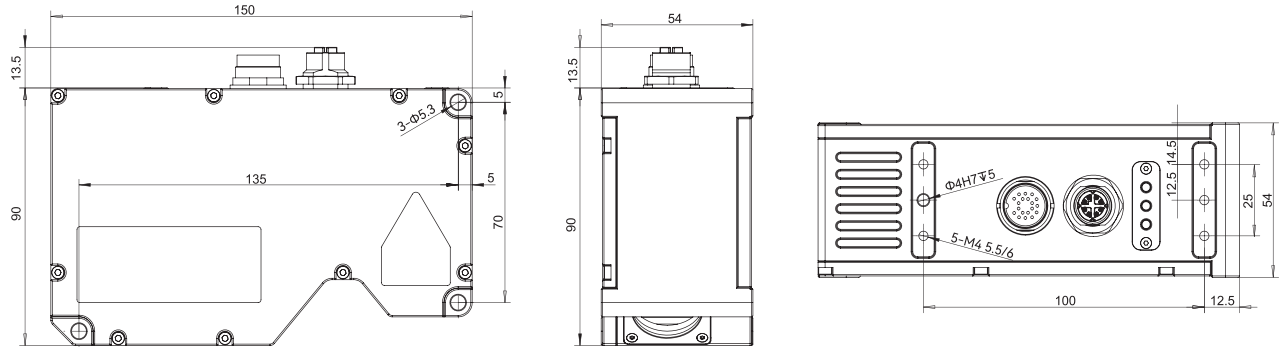
CE

Basic Features	Working principle			Laser 3D measurement displacement sensor	
	Housing			Retangular	
	Optical working principle			Reflection	
	Mounting distance (CD)			30mm	50mm
	Measuring range	Z-axis depth of field (MR)		6mm	18mm
		X-axis width	Near-end FOV	20mm	45mm
			Reference distance	22mm	51mm
			Distal FOV	24mm	56mm
	Contour Points			4096	
	Light source	Wavelength		405nm	
		Laser class		2M/3R	
		Laser output power		10mW	
	Reflection angle			50°	38°
Electrical data	X-direction resolution			5.1~5.9μm	11.1~13.6μm
	Z-axis repeatability			0.1μm	0.3μm
	Z-direction linearity (+/-% of MR)			0.02%	
	Scanning speed			1200~16000Hz	
	Operating voltage			24V DC±10%	
	Power consumption			11W	
	Communication Interface			Gigabit network interface, 1 24V TTL input, 1 output, 2 RS485 bidirectional Ios	
Environmental conditions	Operating temperature			0~50℃	
	Ambient Illumination			Incandescent≤10000lux	
	Vibration resistance			10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions	
	Shock resistance			Peak acceleration of 15g, duration of 11ms half-sine wave shock	
	Enclosure rating			IP67	
Mechanical data	Dimension			190x115x80mm	
	Housing material			Aluminum	
	Weight			1.31kg	1.35kg
	Model			**ESX-H10**	**ESX-H20**

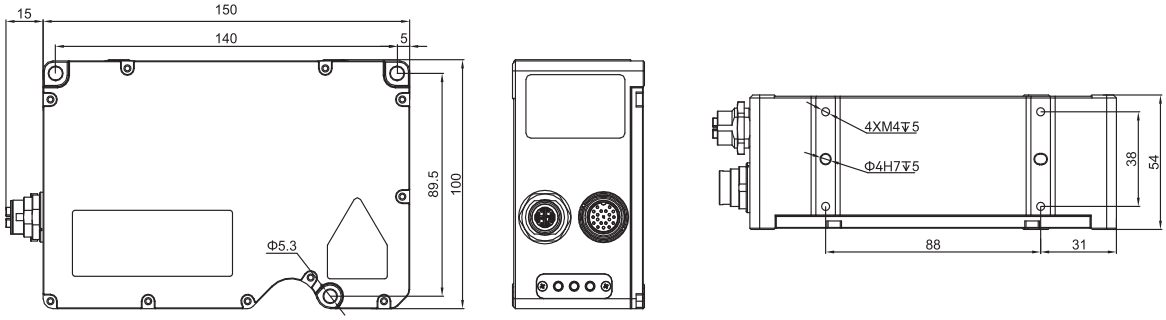
Unit:mm

Dimensions

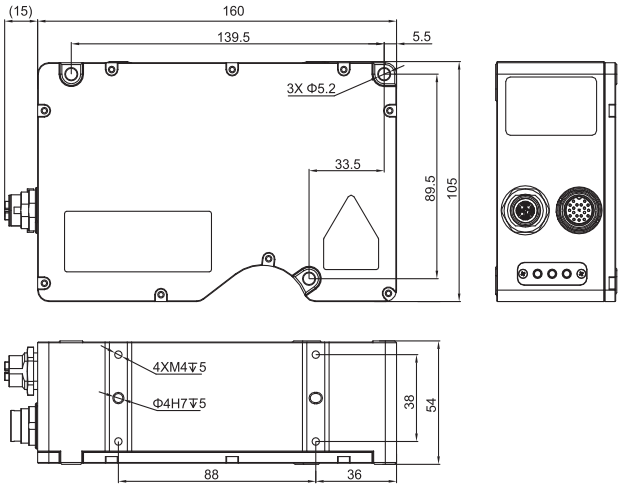
ESX-C10



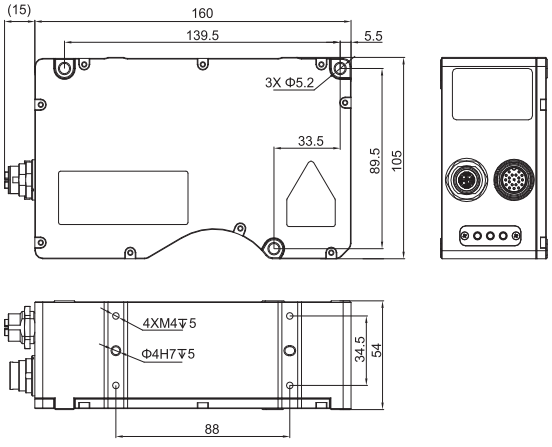
ESX-C20



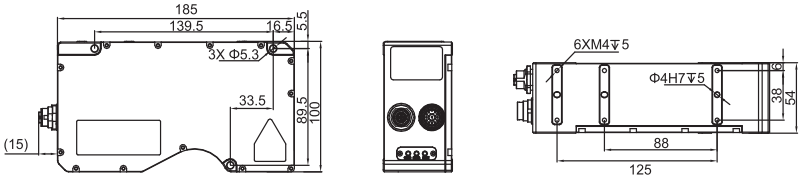
ESX-C30



ESX-C100



ESX-C200/CE200



ESX-CE300



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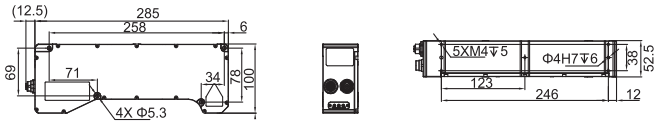
Displacement
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Color confocal
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3D Laser Profiler

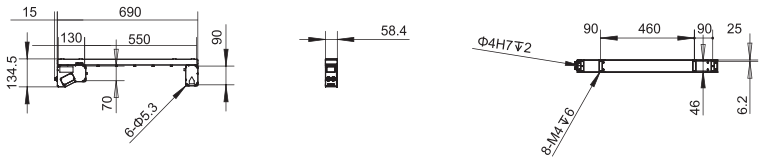
Dimensions

Unit:mm

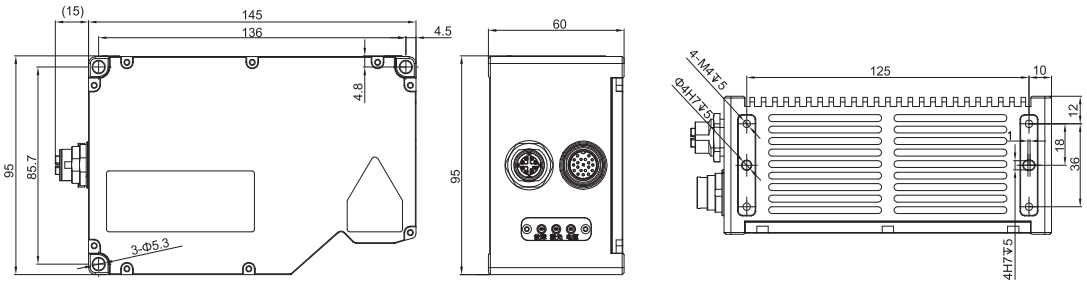
ESX-CE500



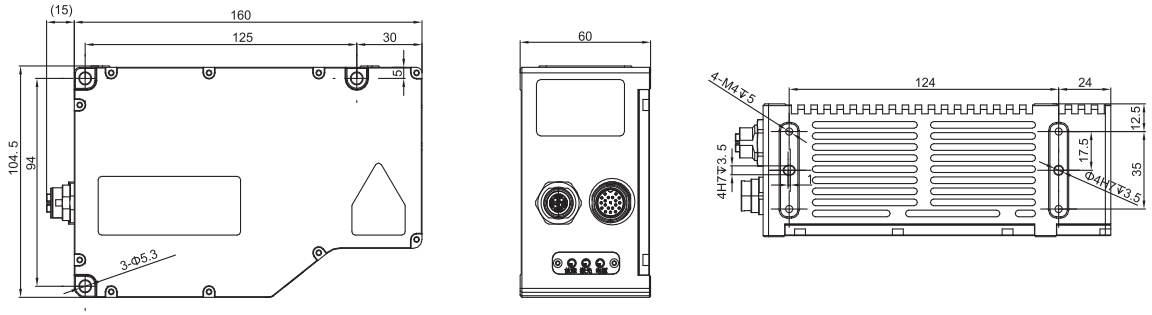
ESX-CE1000



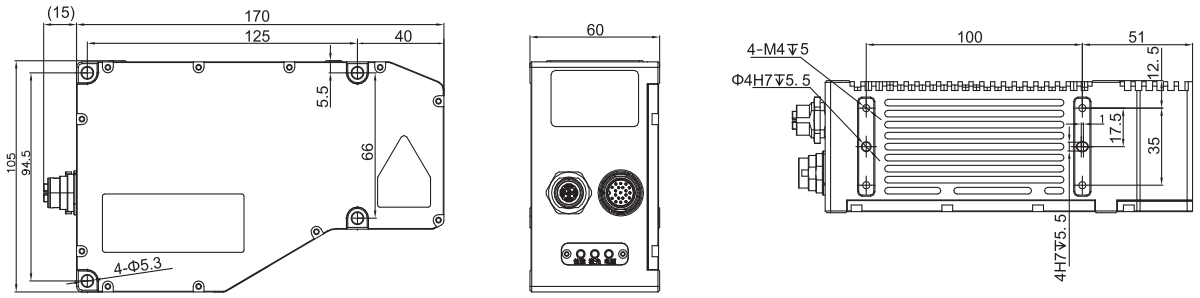
ESX-G10 ESX-P10



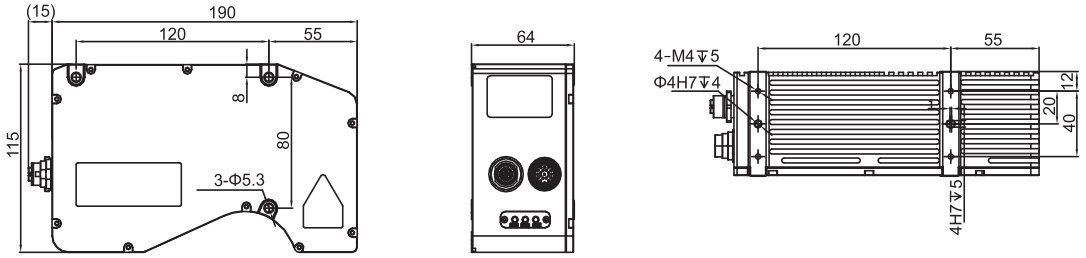
ESX-G20 ESX-P20



ESX-G100



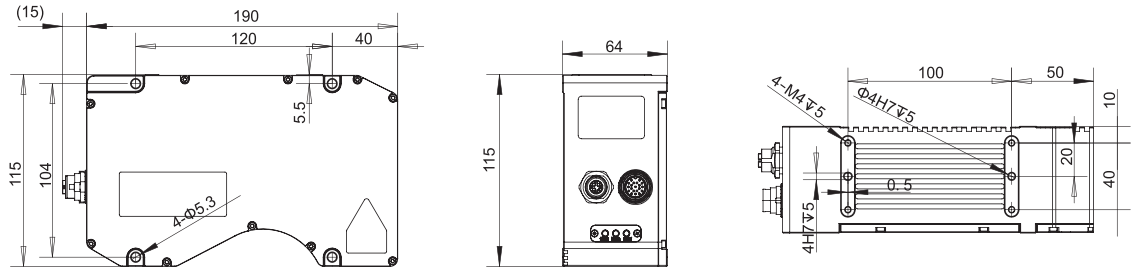
ESX-GE200



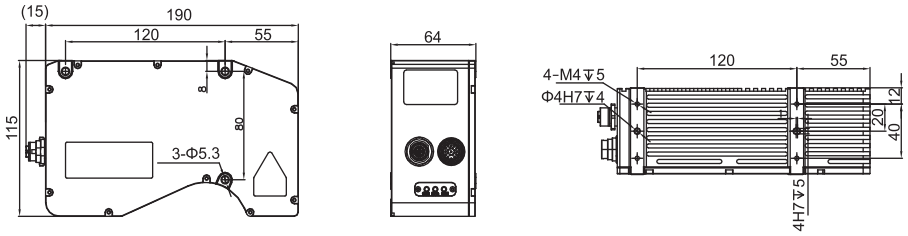
Unit:mm

Dimensions

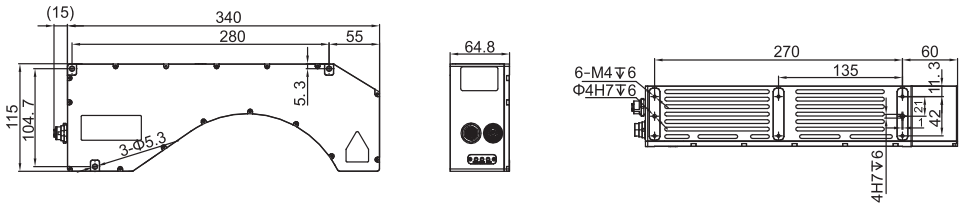
ESX-P100



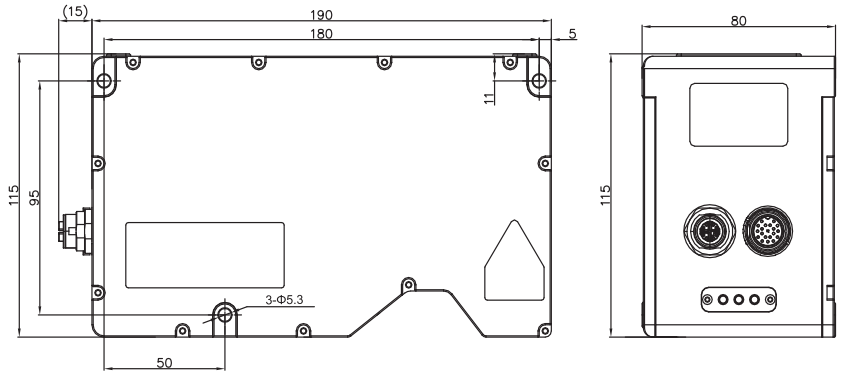
ESX-P200 ESX-PE200

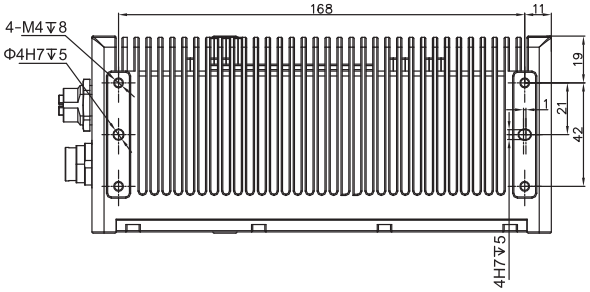


ESX-PE300



ESX-H10 ESX-H20





3D Laser Profiler

Interface Definitions

Circular connecting pins	Signal definition	Cable color	Feature
C	DIO2+	Orange	Multifunctional difference I/O2
B	DIO2–	Orangish and white	
D	INDEX+	Yellow	Encoder Z–phase input
E	INDEX–	Yellowish and white	
I	A+	Gray	Encoder A–phase input
S	A–	Grayish	
H	B+	Purple	Encoder B–phase input
G	B–	Pure white	
T	DIO1+	Pink	Multifunctional difference I/O2
K	DIO1–	Pink and white	
U	OUT+	Blue	Single–ended output
M	OUT–	Blue and white	
O	TRIG_EN+	Brown	Trigger enable
N	TRIG_EN–	Brown and white	
R	IN+	Green	Single–ended output
P	IN–	greenish white	
A	+24V	Red+red and white two wires	Camera Power
L	GND	Black+black and white two wires	Power ground
F	EARTH_GND	Silver	Grounding

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

MRA-P Series

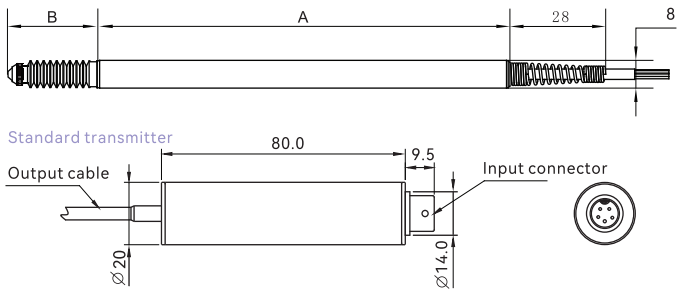


Basic Features	Working principle	Differential transformer			
	Housing	Pencil type			
	Drive mode	Rebound			
	Measuring range	2mm	5mm	8mm	10mm
Electrical data	Linearity	±0.25% F.S.			
	Resolution	≤0.1μm,Communication output 16 bit			
	Response time	100ms			
	Sampling frequency	10Hz			
	Operating voltage	9~28V DC(0~5V Analog output)			
		9~29V DC(0~10V Analog output)			
		2-wire,15~28V DC (4~20mA Analog output)			
		9~12V DC (RS485 output)			
	Current consumption	<15mA			
	Communication protocol	Modbus RTU			
Environmental conditions	Operating temperature	–25℃~+85℃(No Freezing)			
	Operating humidity	10~80% RH(No Condensation)			
	Enclosure rating	IP64			
Mechanical data	Connection type	ϕ14/5-pin signal transmitter			
	Dimension	ϕ8x85.1mm	ϕ8x138.3mm	ϕ8x151.3mm	ϕ8x151.3mm
	Material	Stainless steel			
	Weight	130g			
	Accessories	Mounting bracket			
Model	Analog voltage 0~5V	**MRA-P02R01V1**	**MRA-P05R01V1**	**MRA-P08R01V1**	**MRA-P10R01V1**
	Analog voltage 0~10V	**MRA-P02R01V2**	**MRA-P05R01V2**	**MRA-P08R01V2**	**MRA-P10R01V2**
	Analog current 4~20mA	**MRA-P02R01A**	**MRA-P05R01A**	**MRA-P08R01A**	**MRA-P10R01A**
	RS485 communication	**MRA-P02R01M1**	**MRA-P05R01M1**	**MRA-P08R01M1**	**MRA-P10R01M1**

Contact Displacement Sensor Mini Digital Display

Dimensions

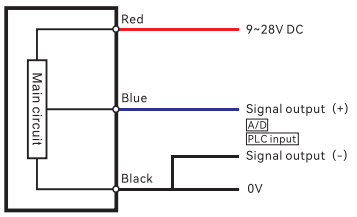
Unit:mm



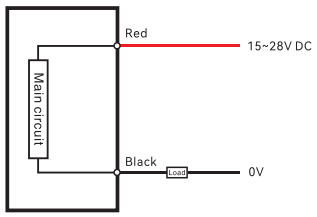
Parameters	Rebound			
Measuring range(mm)	2	5	8	10
Length of A(mm)	65.5	115	121	121
Length of guide rob B(mm)	19.6	23.3	30.3	30.3

Circuit diagram

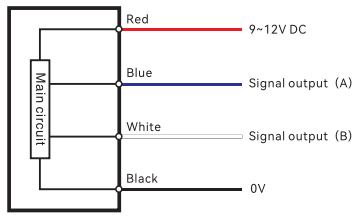
Voltage Output



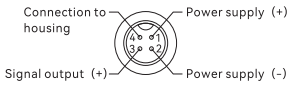
2-wire current output



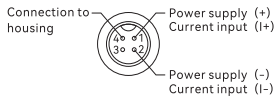
Digital Output



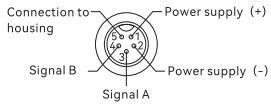
Analog voltage signal output



Analog current signal output



Digital RS485 signal output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

MRC-H Series

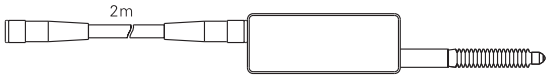




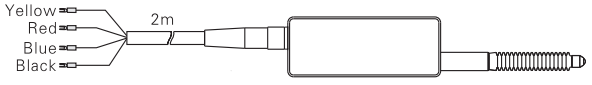
Basic Features	Working principle	CMOS encoder measurement (no tracking error)							
	Housing	Box type							
	Drive mode	Rebound							
	Measuring range	0~12.7mm				0~25.4mm			
Electrical data	Linearity	⩽1.4μm	⩽2μm	±2μm	⩽10μm	⩽1.8μm	⩽3μm	±3μm	⩽10μm
	Resolution	0.2μm	0.5μm	1μm	5μm	0.2μm	0.5μm	1μm	5μm
	Response time	50ms							
	Sampling frequency	40ms							
	Operating voltage	5V DC							
	Current consumption	< 50mA							
	Communication protocol	Modbus RTU							
Environmental conditions	Operating temperature	–10~50℃(No Freezing)							
	Operating humidity	35~80% RH(No Condensation)							
	Enclosure rating	IP65							
Mechanical data	Measuring force	1.1-1.2N				1.6-1.8N			
	Connection type	M8 4pin cable							
	Dimension	146.9x26.2x18mm				206.9x26.2x18mm			
	Material	Body: Aluminum alloy; Dust cover: Viton; Sensor head: Tungsten carbide							
	Weight	about 71.7g				about 91.5g			
	Accessories	M8 4pin cable							
Model	Connector type*1	MRC-H12R04S	MRC-H12R02S	MRC-H12R12S	MRC-H12R10S	MRC-H25R08S	MRC-H25R03S	MRC-H25R13S	MRC-H25R10S
	Pre-wired type*2	MRC-H12R04W	MRC-H12R02W	MRC-H12R12W	MRC-H12R10W	MRC-H25R08W	MRC-H25R03W	MRC-H25R13W	MRC-H25R10W

*1:standard CA08FF-S4F2C M8 dual female connecting cable, need to be used with digital display control module.
1 sensor head needs to match 1 CA08FF-S4F2C, 1 digital display control module can be connected to 4 sensor heads.
*2:standard M8 four-core cable, does not support the use of digital display control module, if you need to use with the digital display control module, please select the connector type

Dimensions



(0-12.7mm) Aviation plug type



(0-12.7mm) Lead Type



(0-25.4mm) Aviation plug type



(0-25.4mm) Lead Type

Contact Displacement Sensor

MRC-H Series

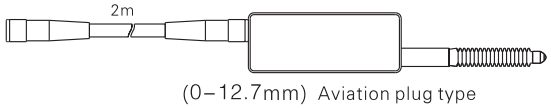




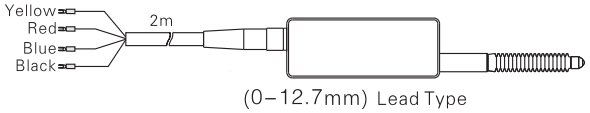
Basic Features	Working principle	CMOS encoder measurement (no tracking error)							
	Housing	Box type							
	Drive mode	Rebound				Air push			
	Measuring range	0~12.7mm				0~12.7mm			
Electrical data	Linearity	⩽1.4μm	⩽2μm	±2μm	⩽10μm	⩽1.4μm	⩽2μm	±2μm	⩽10μm
	Resolution	0.2μm	0.5μm	1μm	5μm	0.2μm	0.5μm	1μm	5μm
	Response time	50ms							
	Sampling frequency	40ms							
	Operating voltage	5V DC							
	Current consumption	< 50mA							
	Communication protocol	Modbus RTU							
Environmental conditions	Operating temperature	–10~50℃(No Freezing)							
	Operating humidity	35~80% RH(No Condensation)							
	Enclosure rating	IP65							
Mechanical data	Measuring force	1.1-1.2N				2.4-3.4N			
	Pressure range	–				0.16~0.2Mpa			
	Connection type	M8 4pin cable							
	Dimension	146.9x26.2x24mm				149.6 x34x20mm			
	Material	Body: Aluminum alloy; Dust cover: Viton; Sensor head: Tungsten carbide							
	Weight	about 90.5g				about 99.2g			
	Accessories	M8 4pin cable							
Model	Connector type*1	MRC-H12R04DS	MRC-H12R02DS	MRC-H12R12DS	MRC-H12R10DS	MRC-H12Q04S	MRC-H12Q02S	MRC-H12Q12S	MRC-H12Q10S
	Pre-wired type*2	MRC-H12R04DW	MRC-H12R02DW	MRC-H12R12DW	MRC-H12R10DW	MRC-H12Q04W	MRC-H12Q02W	MRC-H12Q12W	MRC-H12Q10W

*1:standard CA08FF-S4F2C M8 dual female connecting cable, need to be used with digital display control module.
1 sensor head needs to match 1 CA08FF-S4F2C, 1 digital display control module can be connected to 4 sensor heads.
*2:standard M8 four-core cable.

Dimensions



(0-12.7mm) Aviation plug type

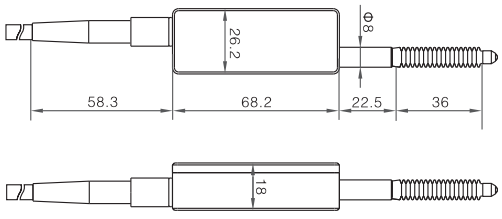


(0-12.7mm) Lead Type

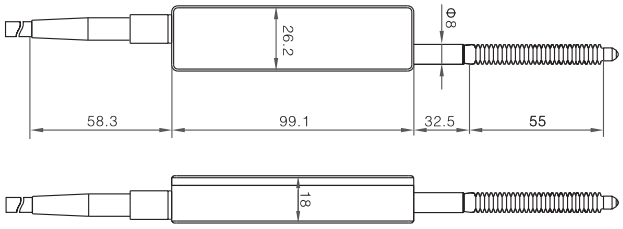
Dimensions

Unit: mm

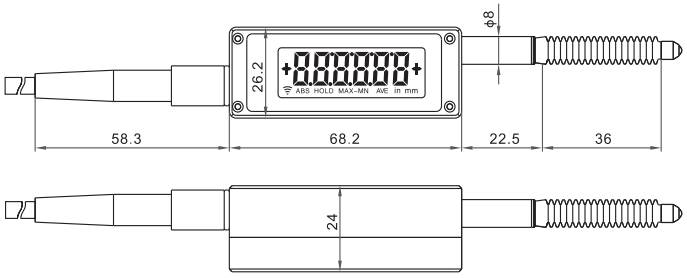
MRC-H12R



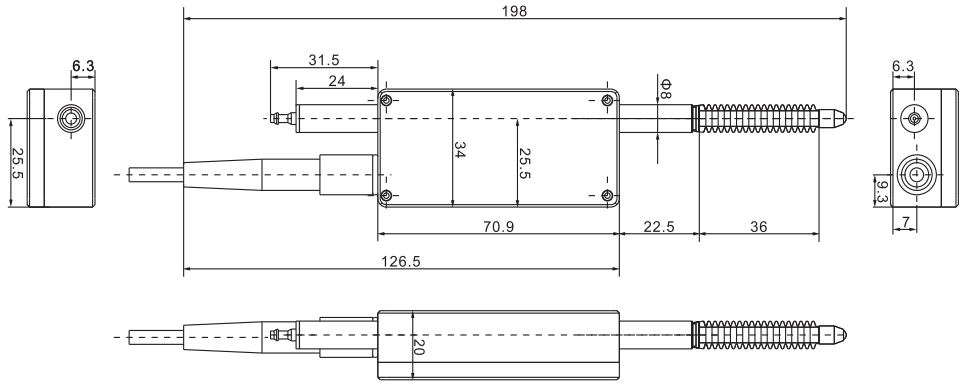
MRC-H25R



MRC-H12RD



MRC-H12Q



Circuit diagram

Port output description:



Aviation plug type	
Pin No.	Description
1	DC 5V(Power)
2	RXD
3	TXD
4	GND

RS232 Lead type	
Pin No.	Description
Blue	RXD
Black	TXD
Yellow	DC 5V(Power)
Red	GND

Contact Displacement Sensor

MRC-H controllers and accessories



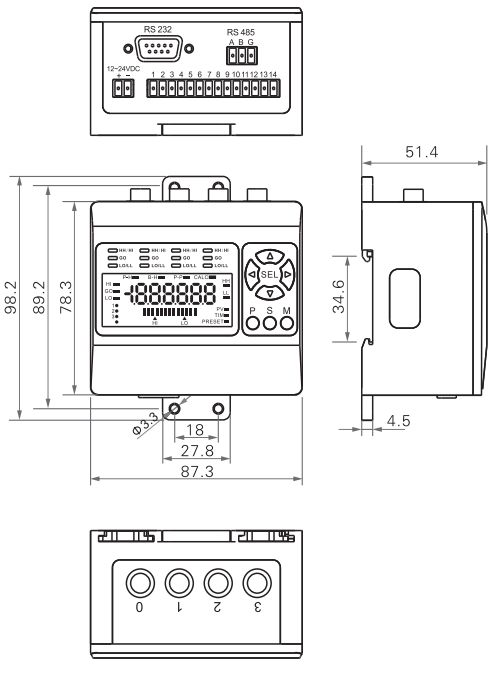
NEW!

Basic Features	Housing	Retangular	
	Display range	–199.9999~199.9999	
	Display resolution	5μm/1μm/0.5μm/0,2μm(Displayed according to the type of sensor head)	
Electrical data	Operating voltage	12~24VDC	
	Power consumption	⩽240mW(without sensor and subcontrol module connected)	⩽100mW(without sensor)
	Response time	50/100/500/1000ms(Changed in function parameter setting)	
	Control input	Timer, preset, reset, channel input, no voltage input	
	Control output	NPN output, max. 20mA	
	Communication protocol	Modbus RTU	–
	Communication interface	RS232/RS485	–
Environmental conditions	Operating temperature	–10~60℃(No Freezing)	
	Operating humidity	35~80% RH(No Condensation)	
Mechanical data	Expandable	1 main control module, up to 4 sub-control modules can be extended	–
	Number of connectable sensors	4	
	Dimension	Main control module&Sub-control module:78.3x87.3x51.4mm	
	Material	Body: ABS Key: ABS Panel: MMA Cable: PVC	
	Weight	Main control module approx. 201.6g	Sub–control module approx. 168.3g
	Accessories	The main controller can be paired with up to 4 sub–controllers, up to 20 sensor heads, each sensor head needs to be matched with 1pc of CA08FF–S4F2C to use	
	Model	**CR-M01**	**CR-M01A**

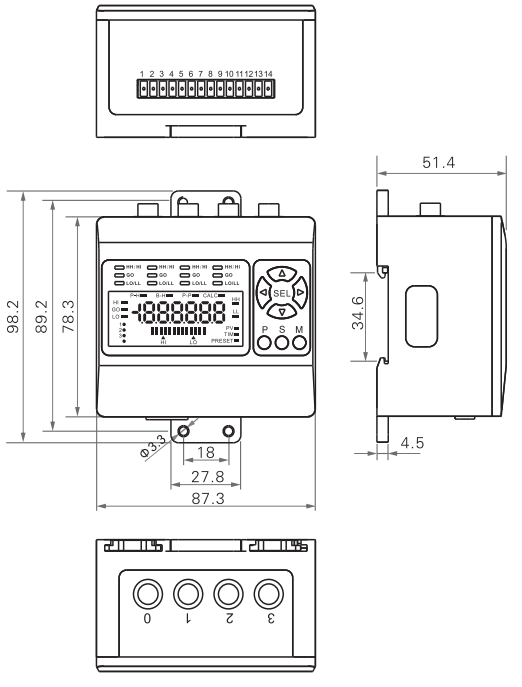
Dimensions

Unit: mm

Main control module CR–M01



Sub–control module CR–M01A



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Laser Lidar

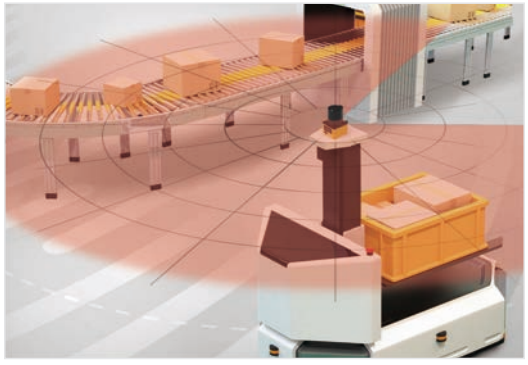
AS Series



Industrial obstacle avoidance lidar

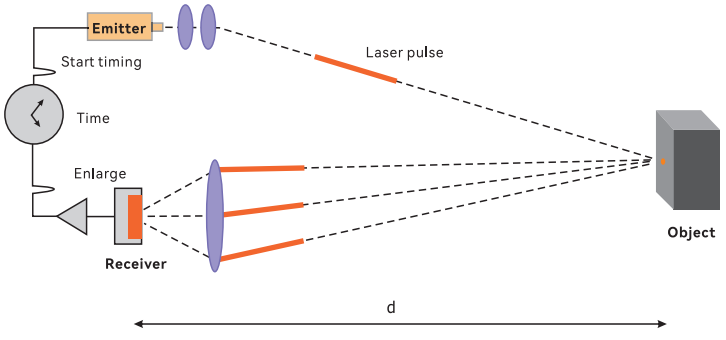
AKUSENSE's new generation TOF single-line LiDAR boasts high reliability, stable performance, and cost-effectiveness. It's an ideal choice for industrial AGVs, mobile robots, and low-speed robots.





Single-line laser lidar

Accurate 2D scanning of object contours on flat surfaces



Mainstream performance of TOF single-line lidar

Measurement distance ≥ 10 m (70% reflectivity), ≥ 4 m (10% reflectivity)

Horizontal viewing angle: 270° scanning angle, can be divided into 64 independent channels

Measurement rates up to 54 KHz

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

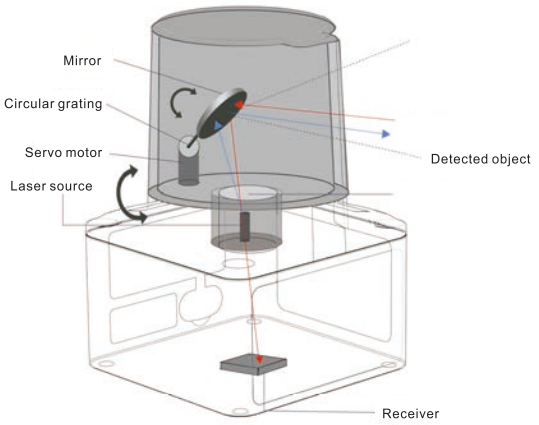
Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Product Highlights

AS Series

Unique structural design, high reliability

The use of lightweight rotary mirror design, with precision brushless silent motor, making the product stable and reliable operation.





Supports serial port (Type-C connector) communication *

Online real-time output of measurement data (including distance and light intensity data in each direction)

* AS-33C

Vibration and shock resistant, adapting to a variety of inspection scenarios

Precision dust-free assembly process, through the high-intensity vibration test and harsh impact test, product consistency is good.



Lidar Technology

Pulsed TOF high-speed ranging technology:

AKUSENSE's full range of LIDAR products utilize direct time-of-flight (dTOF) technology for distance measurement.

This means that short, nanosecond pulses with high instantaneous power are emitted and the distance to the target is calculated by measuring the round trip time of the pulse.

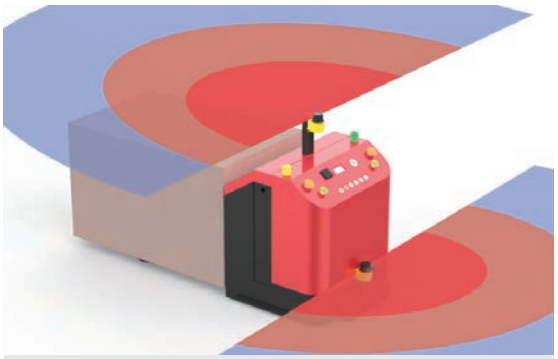
Compared to other commonly used ranging mechanisms (e.g. triangulation based on geometric similarity, and phase ranging using the phase difference between the transceiver channels), it is much faster and has a longer detection distance.

Weak echo signal processing with high signal-to-noise ratio

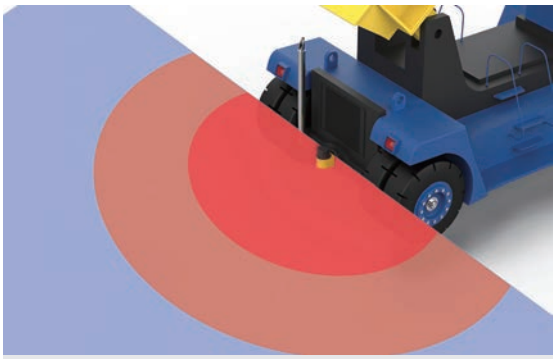
Pulse echo signal at the receiving end of the photoelectric sensor to form a weak photocurrent, converted to voltage signals and through several levels of amplification and conditioning, by the timing circuit for subsequent processing.

In order to ensure the stability and reliability of the measurement results, the entire signal processing path is sufficient to meet the requirements of TOF ranging on the large bandwidth and high signal-to-noise ratio, so as to capture the weaker signals and measure longer distances.

Application

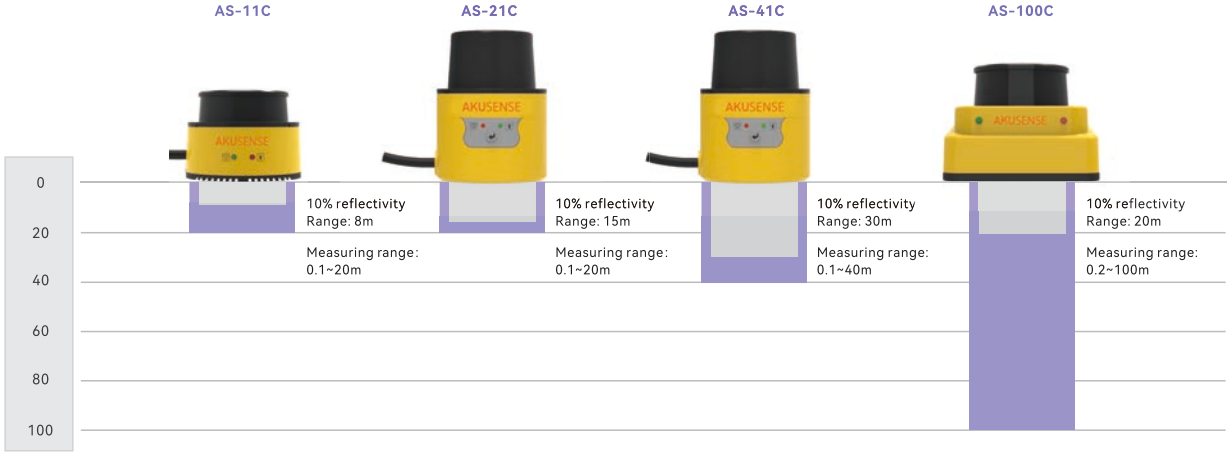


AGV Navigation

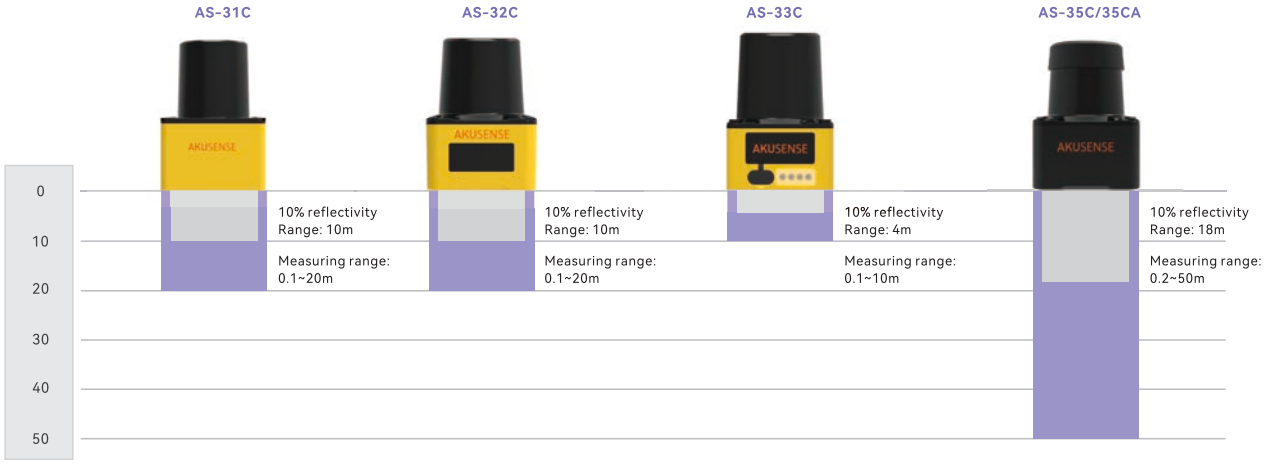


Construction Machinery Collision Avoidance

Selection table



Model.	AS-11C	AS-21C	AS-41C	AS-100C
Scanning angle	360°	300°	300°	360°
Resolution	0.5°	0.5°(default)/0.25°/0.125°	0.5°(default)/0.25°/0.125°	0.05°/0.1°
Scanning frequency	12.5Hz	25Hz(default)/12.5Hz/6.25Hz	25Hz(default)/12.5Hz/6.25Hz	10Hz/20Hz



Model.	AS-31C	AS-32C	AS-33C	AS-35C/35CA
Scanning angle	270°	270°	270°	360°
Resolution	0.12°/0.18°/0.23°/0.35°	0.12°/0.18°/0.23°/0.35°	0.5°	0.06°/ 0.09°/ 0.12°/ 0.18°
Scanning frequency	10Hz/15Hz/20Hz/25Hz/30Hz	10Hz/15Hz/20Hz/25Hz/30Hz	25Hz	10 Hz /15 Hz /20 Hz /30 Hz

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

LiDAR Scanner

AS-21/41C

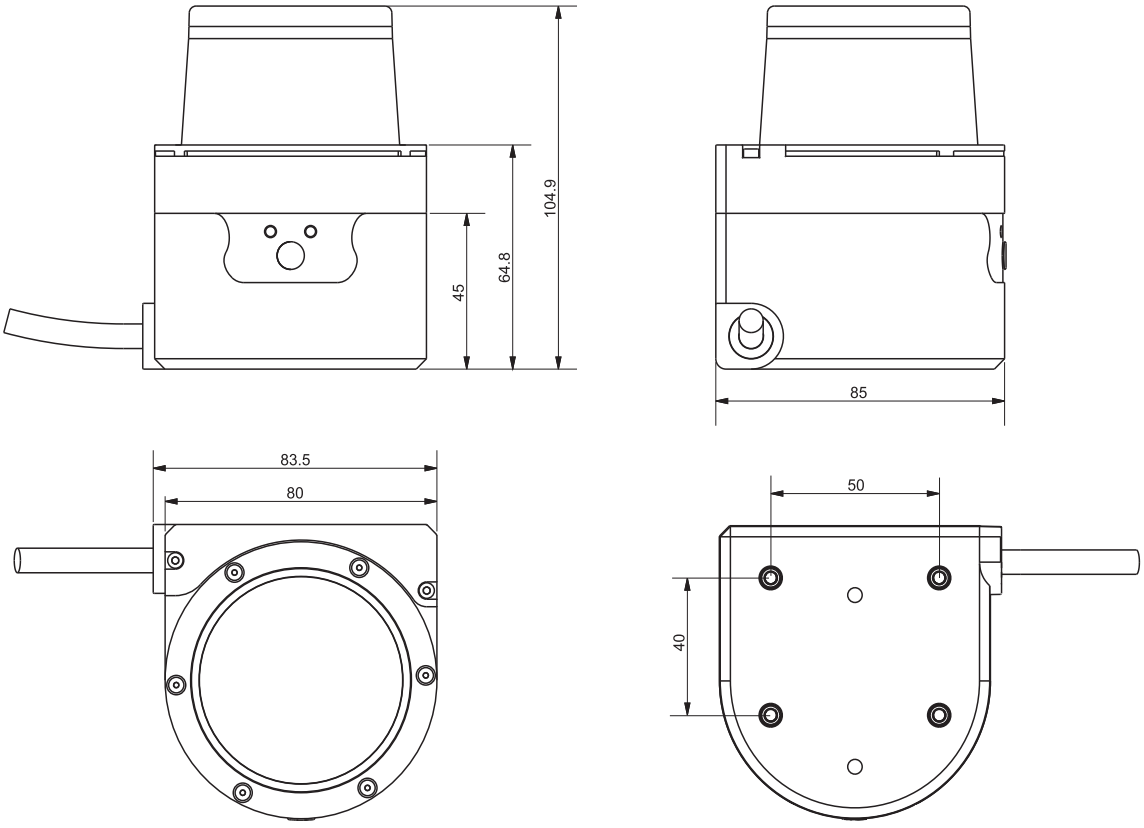
TOF principle



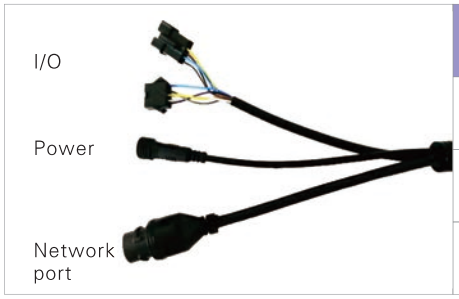
Basic Features	Working principle		TOF	
	Optical working principle		Diffuse Reflection	
	Light source		Infrared laser (905nm)	
	Laser spot exit aperture		8mm	
	Scanning range		300°	
	Scanning angle resolution		0.5°(default)/0.25°/0.125°	
	Measuring range		0.1m ~20m	0.1m ~40m
	Measurement Error	System error (typical)	±5cm	±5cm(1m~20m); ± 10cm(20m~40m)
		Statistical error(1σ)	±2cm	±2cm(1m~20m); ± 4cm(20m~40m)
	Indicator		Quantity: 2; Definition: ERR (Equipment Alarm: Failure/Abnormality, Dirty/Shade of Transparent Cover, High/Low Temperature, Dense Fog); HTR (Operation Status Indication: Detecting Signal/Self-Learning)	
Electrical data	Operating voltage		10V~28V DC	
	Power consumption		5W(Measuring)，3.6W@DC 12V/14.4W@DC 24V(Heating)	
	Communication		Ethernet, rate: 10/100 Mbps; Network protocol: TCP/P: Functions: device configuration/ measurement data output/monitoring signal output	
Environmental conditions	Operating temperature		-25℃~+50℃	
	Storage temperature		-30℃~+70℃	
	Operating humidity		93%,+40℃,2h(GB/T2423.3)	
	Ambient Illumination		≤70,000Lux	
	Vibration resistance		GB/T 2423,10	
	Enclosure rating		IP65(GB4208~2008)	
Mechanical data	Connection		GB/T 2423,10	
	Dimension		83.5×85×104.9(mm)	
	Material		Aluminum Alloy	
	Weight		0.6kg	
	Accessories		Side/sit composite bracket AS-21C-AT, power cable AS-21C-EC, standard RJ45 cable, waterproof sheath for cable crystal head, hexagonal M4*8 screws, spacers, recommended installation tools.	
Special function	Safety class		Class I(GB 7247.1-2012, human eye safety)	
	Laser spot emission angle		12.5mrad	
	Scanning frequency		300°(-60°~+240°)	
	Model		**AS-21C**	**AS-41C**

Unit:mm

Dimensions



Power Interface



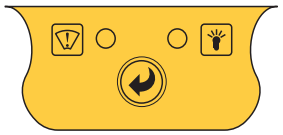
Socket	Type	Explanation
DC002	Power	Female 2 pin
Ethernet	RJ45 socket	4 pin
I/O	Cable	10 pin

Accessories

			Mounting screws, gasket and easy installation tool
Composite Bracket: AS-21C-AT 1 Piece	Power Cable: AS-21C-EC 1 Strip	Crystal Protective Cover: AS-21C-WJ 1 Piece	Accessories: M4x8 1 Set

LiDAR Scanner

Indicators and Operation Buttons



Name	Instructions
ERR	Work fault indicator ◆ Startup state: Light on(About 27s)Always off: No fault ◆ Always on:Internal fault ◆ Always on: Internal fault,Abnormal measurement ◆ Long flicker (0.25Hz) : High / low temperature alarm ◆ Short flicker(1Hz) : Transmissive cover is dirty/occluded[1]
HTR	Work status indicator ◆ Startup state: Off ◆ Off: The device does not start measuring/ready to restart ◆ Always on:Equipment normal measurement ◆ Flash1 (0.5Hz) : Monitor Signal output ◆ Flash2 (1Hz) : Self-learning[2] ◆ Flash3 (2.5Hz) : Ready to start self-learning[2]
SLR	Operation button ◆short press (1s~5s)Start background self-learning ◆Long press(⩾ 6s) : Delete background

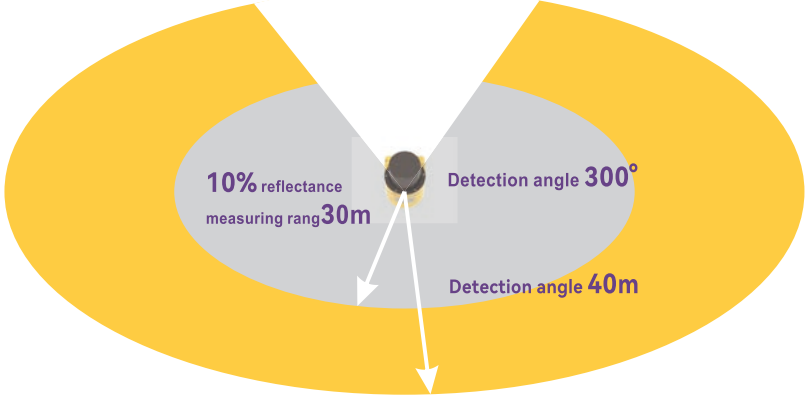
1:Including being blocked by dense fog or the detection area being blocked.
2:Including "background self-learning" and "normal goal self-learning"(customization function).

Measuring coordinate system/scan range/range

AS-21C



AS-41C



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

MINI LiDAR Scanner



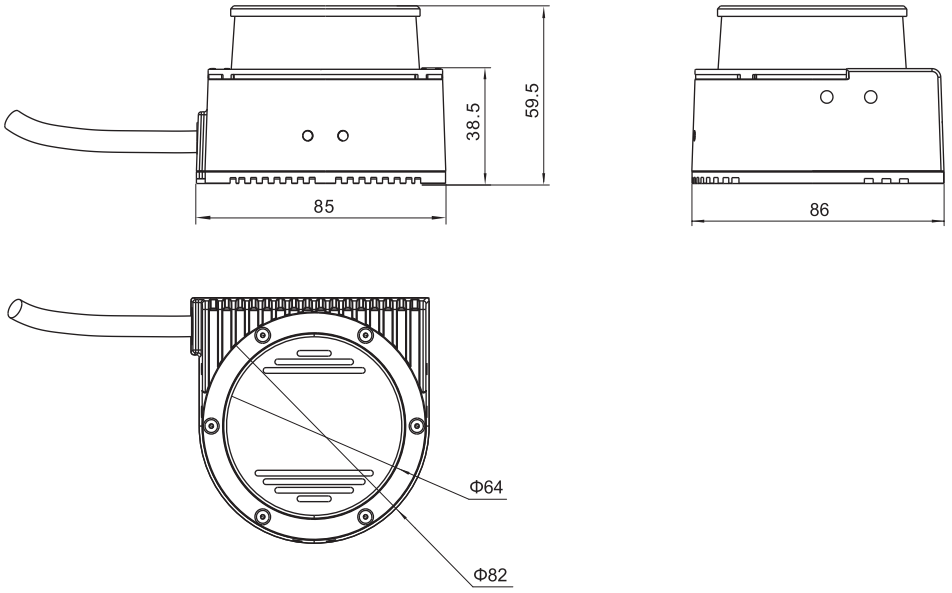
TOF principle

Basic Features	Working principle		TOF
	Optical working principle		Diffuse Reflection
	Light source		Infrared laser (905nm)
	Laser spot exit aperture		10mm
	Scanning range		360°
	Scanning angle resolution		0.5°
	Measuring range		0.1m ~20m
	Measurement Error	System error (typical)	±5cm(1m~15m)
		Statistical Error(1σ)	±2cm(1m~15m)
	Indicator		Quantity: 2; Definition: ERR (Equipment Alarm: Failure/Abnormality, Dirty/Shade of Transparent Cover, High/Low Temperature, Dense Fog); HTR (Operation Status Indication: Detecting Signal/Self-Learning)
Electrical data	Operating voltage		12V~28V DC
	Power consumption		4.5W@DC 24V
	Communication		Ethernet, rate: 10/100 Mbps; Network protocol: TCP/P: Functions: device configuration/ measurement data output/monitoring signal output
Environmental conditions	Operating temperature		-10℃~+45℃
	Storage temperature		-30℃~+70℃
	Operating humidity		93%,+40℃,2h(GB/T2423,3)
	Ambient Illumination		≤70,000Lux
	Vibration resistance		GB/T 2423,10
	Enclosure rating		IP65(GB4208~2008)
Mechanical data	Connection		Cable Connection
	Dimension		86.0×85.0×59.5(mm)
	Material		Aluminum Alloy
	Weight		0.5kg
	Accessories		Power Supply，RJ45 socket，Leads
Special function	Safety class		Class I(GB 7247.1-2012, human eye safety)
	Laser spot emission angle		10.0(H) × 2.0(V)mrad
	Scanning frequency		360°
	Model		**AS-11C**

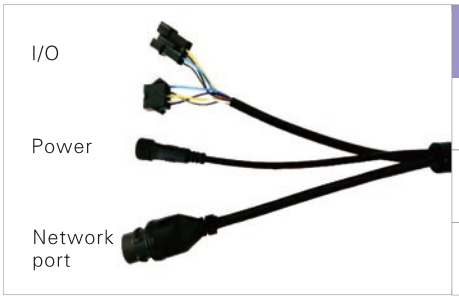
LiDAR Scanner

Dimensions

Unit:mm

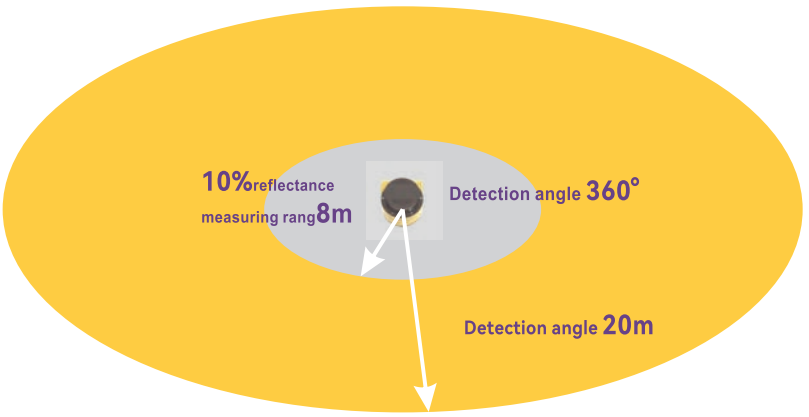


Power Interface



Socket	Type	Explanation
DC002	Power	Female 2 pin
Ethernet	RJ45 socket	4 pin
I/O	Cable	9 pin

Accessories

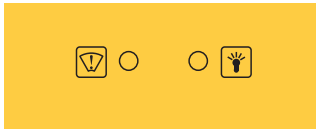


Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Indicators and Operation Buttons



Name	Instructions
ERR	Work fault indicator ◆Startup status: bright (About 27s) ◆Off: No fault ◆Steady light: Internal fault ◆Long flicker (0.5 Hz): High temperature / low temperature alarm ◆Short flicker (1Hz): Transmissive cover is dirty/occluded[1]
HTR	Work status indicator ◆Startup state: off ◆Off: The device does not start measurement/ready to reboot ◆Bright: Normal measurement of equipment ◆Flashing 1 (0.5Hz): Monitor signal output ◆Flashing 2 (1Hz): Self-learning[2] ◆Flashing 3 (2.5Hz) : Ready for self-learning[2]

1:Including being blocked by dense fog or the detection area being blocked.
2:Including "background self-learning" and "normal goal self-learning"(customized function).

Accessories

			Mounting screws, gasket and easy installation tool
Side bracket: A AS-11C-AT	Cable:A piece of AS-11C-EC	Network cable crystal head waterproof jacket: A AS-11C-WJ	Accessories:A set of M4x8

Fiber Optic
Slot Sensors
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Temperature
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Safety door lock
Pressure Switch
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Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

LiDAR Scanner

Navigation Type

TOF principle

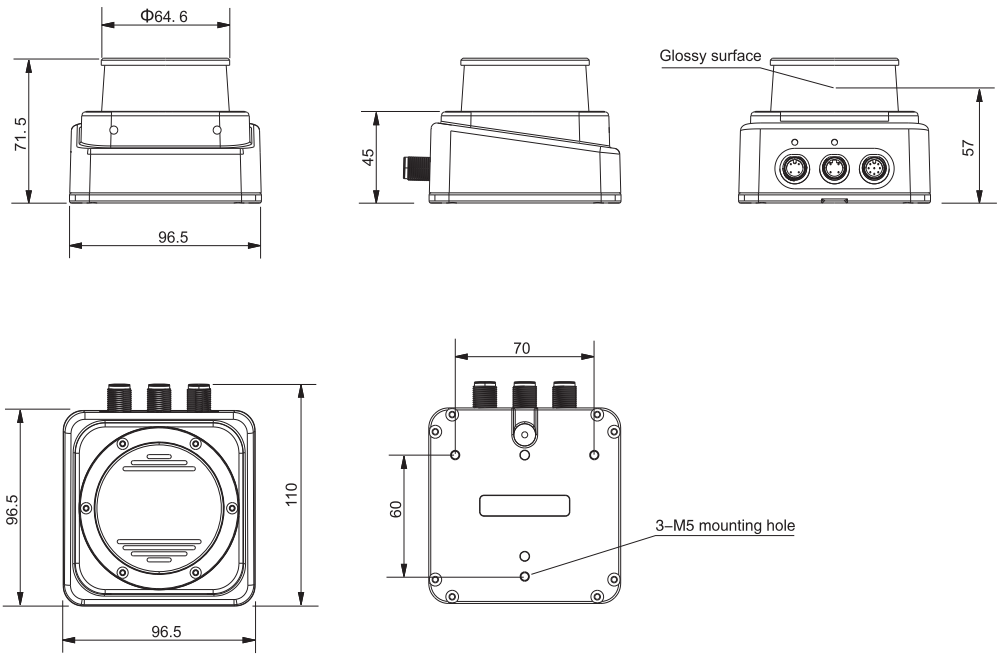
NEW!



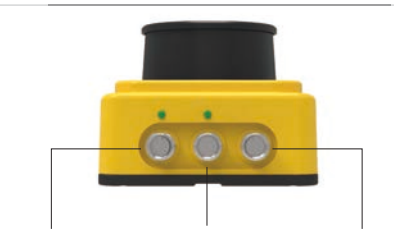
Basic Features	Working principle		TOF
	Optical working principle		Diffuse Reflection
	Light source		Infrared laser (905nm)
	Laser spot exit aperture		10mm
	Scanning angle		360°
	Scanning angle resolution		0.05°/0.1°
	Measuring range		0.2m ~100m
	Measurement Error	System error (typical)	Distance measurement：25mm(1m~20m) / 40mm(20m~50m)；RSSI Measurement：2%(1m~20m) / 4%(20m~50m)
		Statistical Error(1σ)	Distance measurement：10mm(1m~20m) / 20mm(20m~50m)；RSSI Measurement：1%(1m~20m) / 2%(20m~50m)
	Indicator		Quantity: 4; Definition: PWR: Power indicator; LNK: Ethernet indicator; ERR: Operating fault indicator; HTR: Normal measurement indicator
Electrical data	Operating voltage		9V~30V DC
	Power consumption		5W@DC 24V
	Communication		Ethernet: Rate: 10/100Mbps; Functions: device configuration/measurement data output
Environmental conditions	Operating temperature		-10℃~+50℃
	Storage temperature		-30℃~+70℃
	Operating humidity		93%,+40℃,2h(GB/T2423.3)
	Ambient Illumination		≤80,000Lux
	Vibration resistance		GB/T 2423.10
	Enclosure rating		IP65(GB4208~2008)
Mechanical data	Connection		Connector
	Dimension		110x96.5x71.5mm
	Material		Aluminum Alloy
	Weight		0.7kg
	Accessories		Power cables, RJ45 network cables, I/O cables, mounting screws, spacers and easy installation tools, vibration isolating screws, nuts and spacers
Special function	Safety class		Class I(GB 7247.1-2012, human eye safety)
	Laser spot emission angle		2.0(H)×8.0(V)mrad
	Scanning frequency		10Hz/20Hz
	Working condition		Resistant to sunlight, dirt, supports smoke penetration, non-rainfall conditions
	Measurement data		Composite data (distance + RSSI)
	Device self-test		Contents: Dirty/obstructed light transmission cover/high/low temperature
	Model		**AS-100C**

Unit:mm

Dimensions

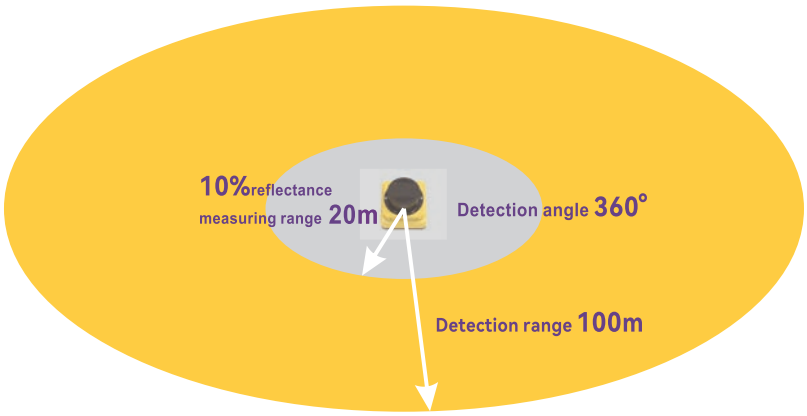


Power connector



Socket	Types	Number of terminal
Power supply	M12(Type A), Male	4
Etherne	M12(Type B), Male	4
I/O	M12(Type B), Male	8

Measuring coordinate system/scanning range/range



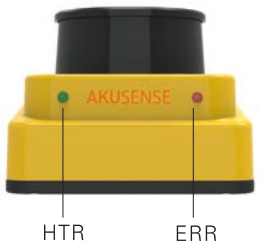
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

LiDAR Scanner

Indicators and Operation Buttons





Name	Description
PWR	Power Indicator ◆Normal off: no power / power is invalid ◆Constant light: power on
LNK	Ethernet indicator ◆Always off: no network connection ◆Always on: there is a network connection
ERR	Work failure indicator ◆Starting state: Yellow (about 24 seconds) ◆Green: no fault ◆Yellow: internal fault/measurement abnormal[1] ◆Long flashing (0.5Hz): high temperature/low temperature alarm ◆Short flashing (1Hz): Dirty/obstructed light transmission cover[2]
HTR	Normal measurement indicator ◆Starting state: off ◆Always off: the device has not started to measure ◆Always on: the equipment is measuring normally

1: Including measurement stop and motor stop;
2: Including being blocked by dense fog.

Accessories

					Mounting screws, washers And easy installation tools
Mounting bracket: AS-100C-AT set	M12 dust plug Comes with	Power cable: AS-100C-EC A	RJ45 network cable: AS-100C-IOCB A	I/O cable: AS-100C-IOCB A	Parts and accessories: M5x8 set

AS-31/32C

TOF principle





Basic Features	Working principle		TOF	
	Optical working principle		Diffuse Reflection	
	Light source		Infrared laser (905nm)	
	Laser spot exit aperture		7*3mm	4.5*2mm
	Scanning angle		270°	
	Scanning angle resolution		0.12°/0.18°/0.23°/0.35°	
	Measuring range		0.1m ~20m（70% reflectivity）；0.1m - 10m（10% reflectivity）	
	Measurement Error	Resolution	1cm	
		Linearity	2cm	
	Indicator		–	
Electrical data	Operating voltage		DC 12V	DC 9~28V
	Power consumption		5W	
	Communication		Ethernet or RS485	
Environmental conditions	Operating temperature		–20℃~60℃	
	Storage temperature		–20℃~70℃	
	Operating humidity		93%,+40℃,2h(GB/T2423.3)	
	Ambient Illumination		≤80,000Lux	
	Vibration resistance		500m/s (about 50G), 3 times each in XYZ direction	
	Enclosure rating		IP65(GB4208~2008)	
Mechanical data	Connection		Cable Connection	
	Dimension		60×60×84.9(mm)	60×60×81.3(mm)
	Material		Aluminum Alloy	
	Weight		0.25kg	
	Accessories		DC5521 female power socket, RJ45 Ethernet male	
Special function	Safety class		Class I(GB 7247.1-2012, human eye safety)	
	Laser spot emission angle		5.2*9mrad	4.0*2mrad
	Scanning frequency		10Hz/15Hz/20Hz/25Hz/30Hz	
	Working condition		Indoor	
	Application		Navigation	
	Device self-test		Yes	
	Abnormal alarm function		Yes	
	Sampling frequency		30KHz	
	Model		**AS-31C**	**AS-32C**

LiDAR Scanner

AS-33C



TOF principle

CE

RoHS

Basic Features	Working principle	TOF
	Optical working principle	Diffuse Reflection
	Light source	Infrared laser (905nm)
	Laser spot exit aperture	4.5(V)*2(H)mm
	Scanning angle	270°
	Scanning angle resolution	0.5°
	Measuring range	10 m（70%reflectivity）/4 m（10%reflectivity）
	Measurement error	±2 cm(≤10m)
	Indicator	4 (3 zone signals, 1 fault signal)
Electrical data	Operating voltage	DC 9 V ~28 V
	Power consumption	Rated power: < 1 W (no load); starting power: < 3 W (no load)
	Communication	USB-TYPE C(Serial port)
Environmental conditions	Operating temperature	–10℃~50℃
	Storage temperature	-20℃~70℃
	Operating humidity	85% or less, non-condensing
	Ambient Illumination	≤80000 Lux
	Vibration resistance	500m/s (about 50G), 3 times each in XYZ direction
	Enclosure rating	IP65
Mechanical data	Connection	Cable Connection
	Dimension	50x50x72mm
	Material	Aluminum
	Weight	171g
	Accessories	Threaded
Special function	Sampling frequency	18KHz/54KHz
	Response time	40 ms
	Start-up time	<10s
	Model	**AS-33C**

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

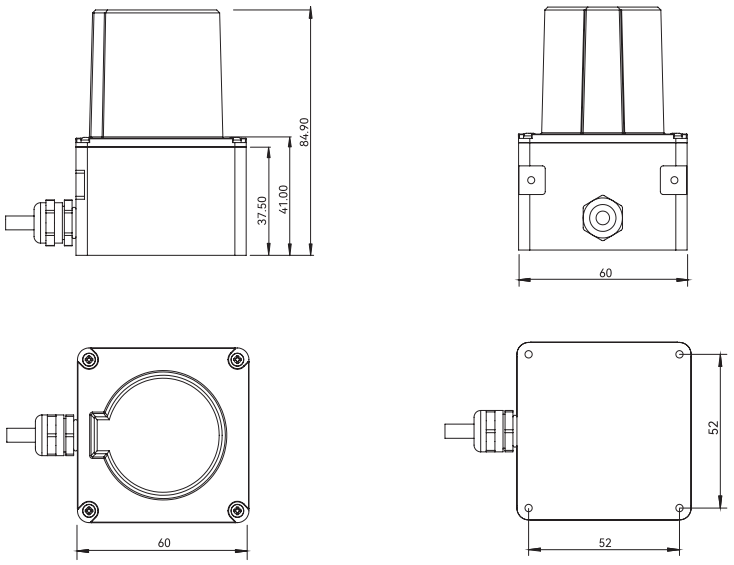
Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

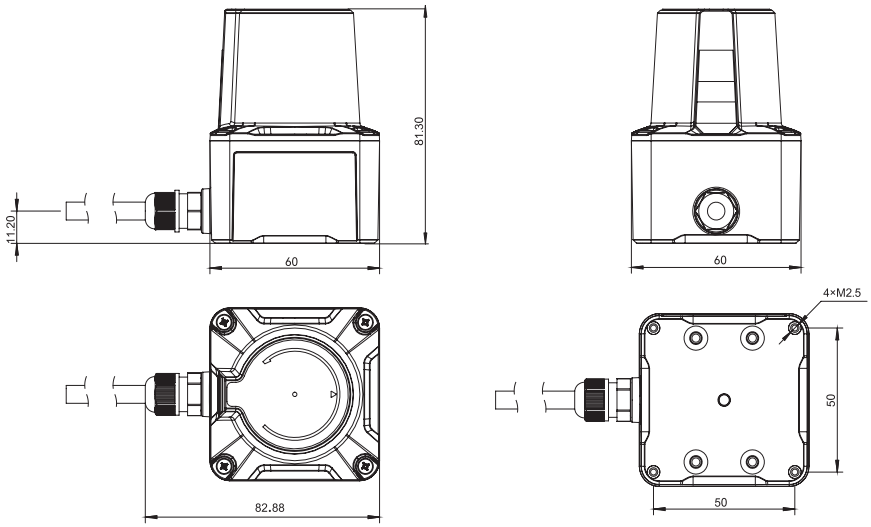
Unit:mm

Dimensions

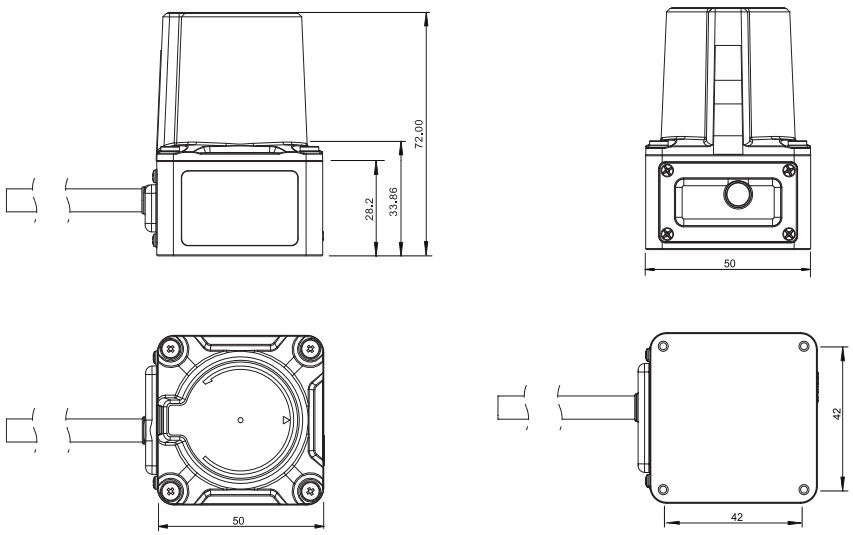
AS-31C



AS-32C



AS-33C



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
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RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

LiDAR Scanner

AS-35C/AS-35CA



TOF principle

NEW!

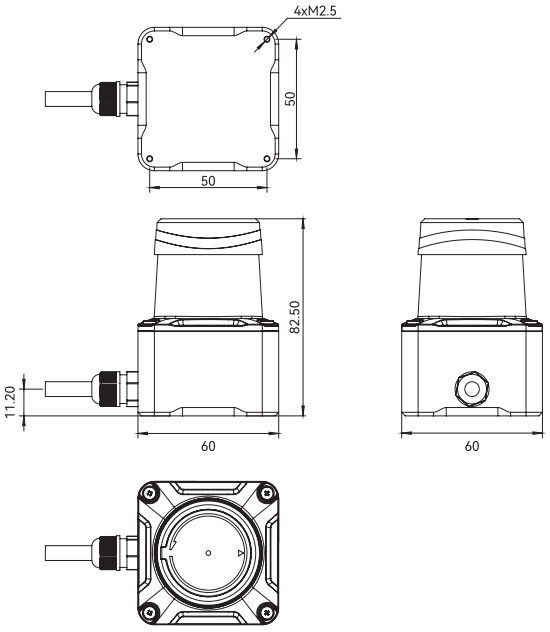
CE

Basic Features	Working principle	TOF	
	Optical working principle	Diffuse Reflection	
	Light source	laser (905nm)	
	Laser spot exit aperture	4.5*2mm	
	Scanning angle	360°(Ranging performance in the area of 10° directly behind is about half of other positions)	
	Scanning angle resolution	0.06°/0.09°/0.12°/0.18°	
	Measuring range	0.2m~50m(90% reflectivity),0.2~18m(10% reflectivity),0.2~6m(2% reflectivity)	
	Measurement error	± 2 cm	
	Indicator	–	
Electrical data	Operating voltage	DC9V~24V	
	Power consumption	<5W/peak, <2W/typical	
	Communication	Ethernet/RJ45	4 holes, M8x1 connector, Ethernet/RJ45 communication
Environmental conditions	Operating temperature	–10℃~50℃(no freezing)	
	Storage temperature	-20℃~60℃	
	Operating humidity	85% or less, non-condensing	
	Ambient Illumination	≤80000 Lux	
	Vibration resistance	500m/s (about 50G), 3 times each in XYZ direction	
	Enclosure rating	IP65	
Mechanical data	Connection	Cable Connection	
	Dimension	82.5x60x60mm	
	Material	Aluminum	
	Weight	about 171 g	
	Accessories	Threaded	
Special function	Sampling frequency	60 kHz 2	
	Power supply	Dc5521 Standard Power Supply	3-hole, M8x1 connector, standard power supply
	Model	**AS-35C**	**AS-35CA**

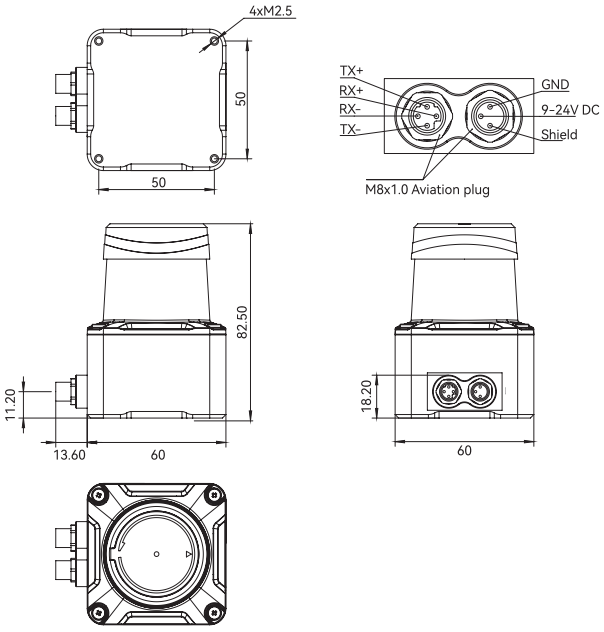
Unit:mm

Dimensions

AS-35C



AS-35CA



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Selection Guide

ACC Series

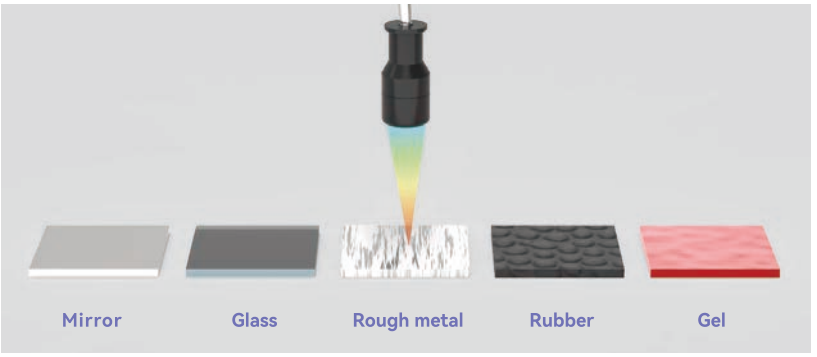
Color Confocal Displacement Sensor

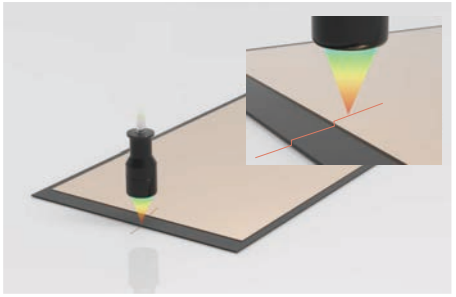
ACC Series



Stable measurement for any material

Metals, ceramics, mirrors, glass, transparent and non-transparent materials can all be detected



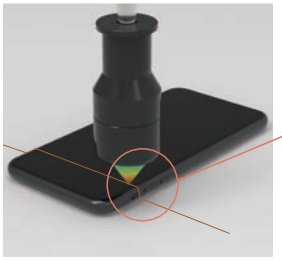


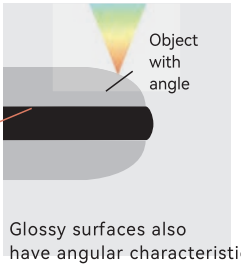
Sub-micron ultra-high measurement accuracy

The maximum resolution is 0.02um,and the mimimum spot size is 2um,for precise capture of minute details

Tilt angle measurement up to ±60°

The shape of object with angles can be accurately tracked,almost no impact by the shape.





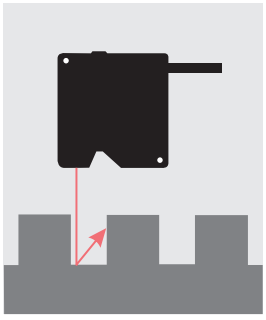
Glossy surfaces also have angular characteristics

ACC Series

High precision measurement for any surface condition

Stable detection for rough surfaces, mirrors, curved surfaces, inclined surfaces, pits, section differences, etc.

Detection from all directions,even for hollows and segment differences

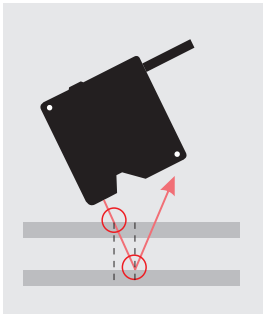


Traditional laser displacement

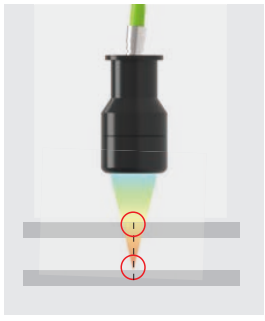


ACC Series

Transparent and mirror objects can also be correctly measured



Traditional laser displacement



ACC Series

Application fields



Panel/glass industry



PCB board/IC chip industry



Photovoltaic / semiconductor wafer industries



Metal / precision manufacturing industries



Lithium and other industries



Lens industry

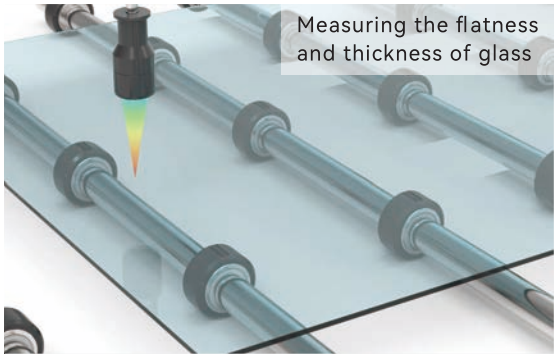


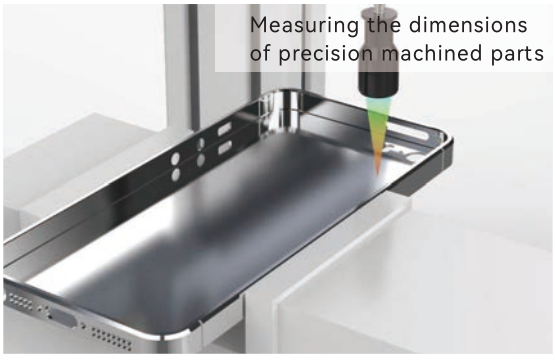
3C electronics and other industries



Printing/Ink industry

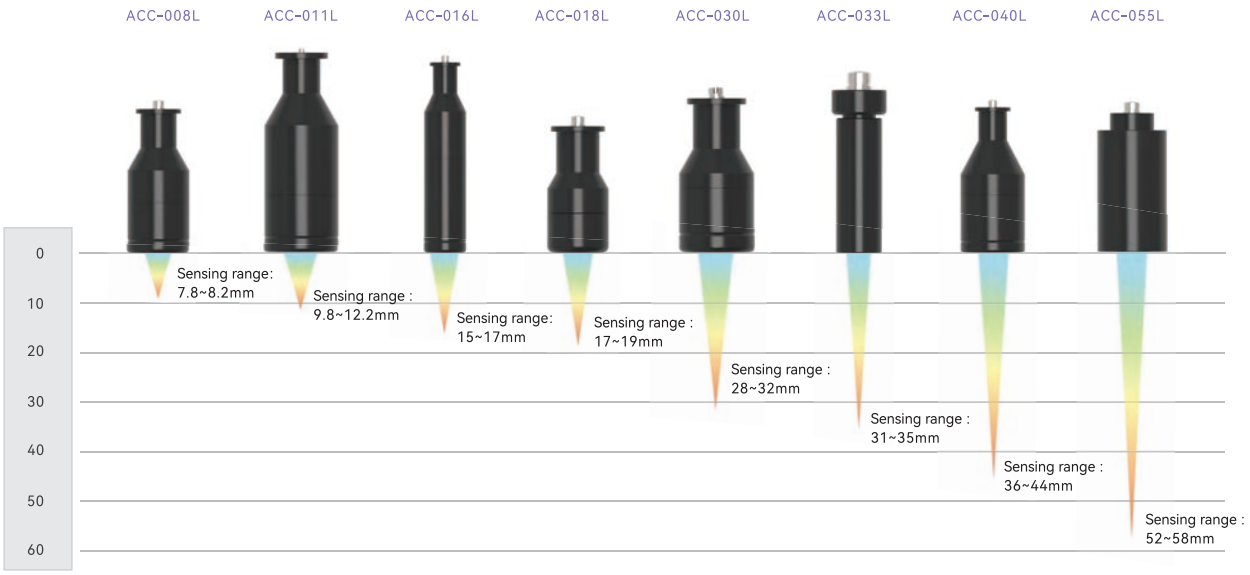
Applications





Selection Guide

Selection table



Model	ACC-008L	ACC-011L	ACC-016L	ACC-018L	ACC-030L	ACC-033L	ACC-040L	ACC-055L
Resolution	0.02μm	0.05μm	0.05μm	0.05μm	0.07μm	0.2μm	0.12μm	0.1μm
Spot size	2μm	16μm	8μm	25μm	9μm	40μm	40μm	45μm
Max. inclination	±40°	±60°	±30°	±22°	±15°	±7°	±15°	±11°

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LiDAR Scanner
Color confocal
Laser Alignment

ACC Series

Probe



Basic Features	Working principle	Coaxial	Coaxial	Coaxial	Coaxial
	Housing	Cylindrical	Cylindrical	Cylindrical	Cylindrical
	Reference distance	8mm	11mm	16mm	18mm
	Measuring range	±0.2mm	±1.2mm	±1mm	±1mm
	Spot size*3	2μm	16μm	8μm	25μm
	Resolution*1	0.02μm	0.05μm	0.05μm	0.05μm
	Linearity *2	±0.15μm	±0.45μm	±0.35μm	±0.3μm
Mechanical data	Maximum tilt angle*4	±40°	±60°	±30°	±22°
	Enclosure rating	IP40	IP40	IP40	IP40
	Dimension	Φ41x99mm	Φ98x266mm	Φ41x159mm	Φ34x75mm
	Weight	220g	3250g	360g	105g
	Probe model	**ACC-008L**	**ACC-011L**	**ACC-016L**	**ACC-018L**

Probe



Basic Features	Working Principle	Coaxial	Coaxial	Coaxial	Coaxial
	Housing	Cylindrical	Cylindrical	Cylindrical	Cylindrical
	Reference distance	30mm	33mm	40mm	55mm
	Measuring range	±2mm	±2mm	±4mm	±3mm
	Spot size*3	9μm	40μm	40μm	45μm
	Resolution*1	0.07μm	0.2μm	0.12μm	0.1μm
	Linearity *2	±0.45μm	±2μm	±0.5μm	±0.65μm
Mechanical data	Maximum tilt angle*4	±15°	±7°	±15°	±11°
	Enclosure rating	IP40	IP40	IP40	IP40
	Dimension	Φ38x82mm	Φ18x55mm	Φ54x116mm	Φ33x75mm
	Weight	145g	24g	380g	122g
	Probe model	**ACC-030L**	**ACC-033L**	**ACC-040L**	**ACC-055L**

Color Confocal Displacement Sensor

ACC Series

Controller model



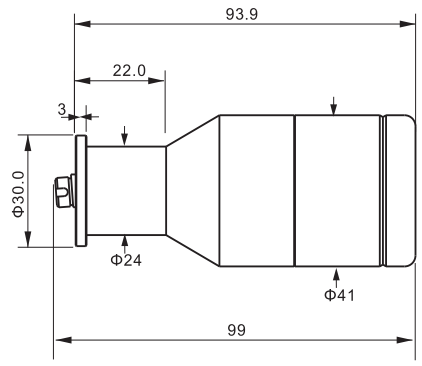


Basic Features	Housing	Retangular	
	Light source	White LED	
Electrical data	Operating voltage	24V DC	
	Sampling frequency	4K HZ(Max)	2K HZ(Max)
	I/O function	Pulse input, output, encoder trigger input	
	Number of encoder axes	3 axes, incremental (A/B/Z phase)	
	External communication interface	RS-232:115200 bps(max.) Ethernet:100BASE-TX/10BASE-T	
Environmental conditions	Operating temperature	5~40℃	
	Operating humidity	35~80%	
	Ambient illumination	<10000lx	
	Enclosure rating	IP20	
Mechanical data	Fiber optic extension cable	ACC-OF-S(standard); Outer Armor: ACC-OF-M(optional)	
	Length of fiber optic extension cable	2/5/10m, standard 10m	
	Weight of fiber optic extension cable	ACC-OF-S：23/40/69g；ACC-OF-M：108/218/396g	
	Minimum bending radius*5	50mm	
	Dimension	140x122x127mm	185x122x127mm
	Weight	1.38kg	
	Accessories	–	
	Connectable channels	–	2
	Controller model	**ADV-12CKS**	**ADV-12CK2**

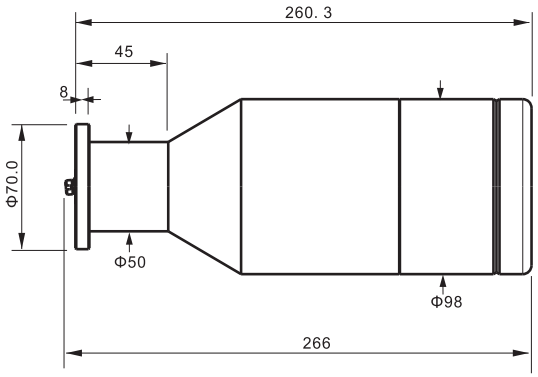
Unit:mm

Dimensions

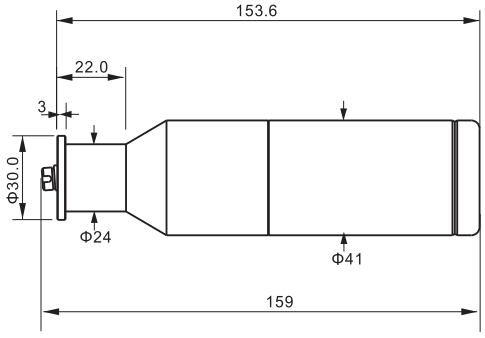
ACC-008L



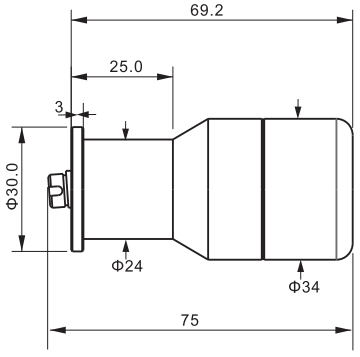
ACC-011L



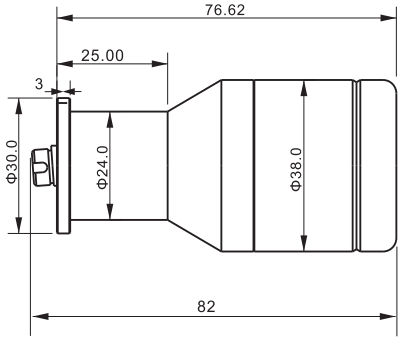
ACC-016L



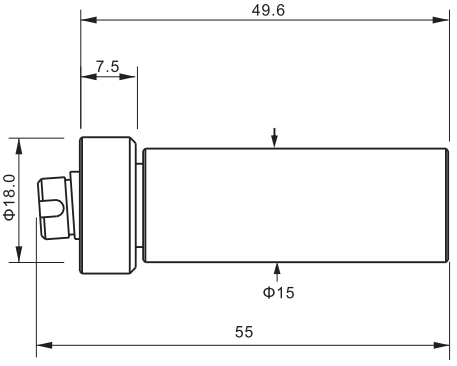
ACC-018L



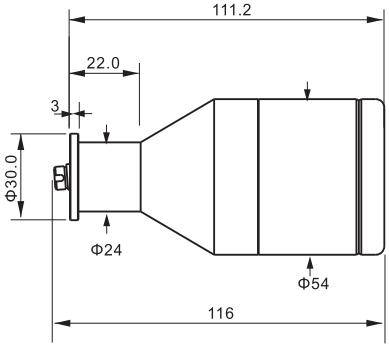
ACC-030L



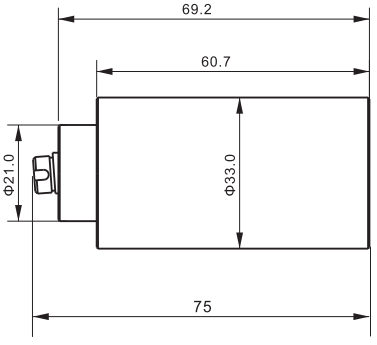
ACC-033L



ACC-040L



ACC-055L

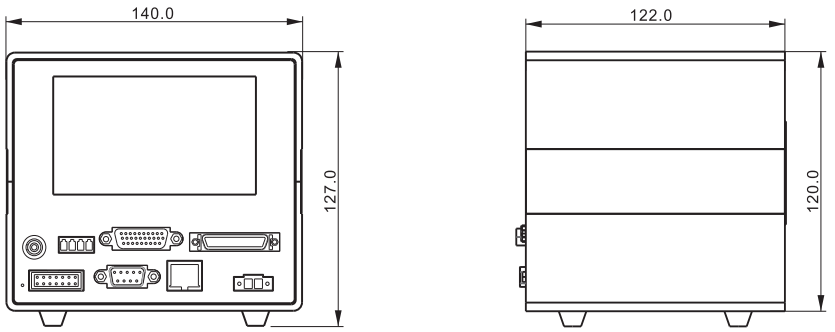


Color Confocal Displacement Sensor

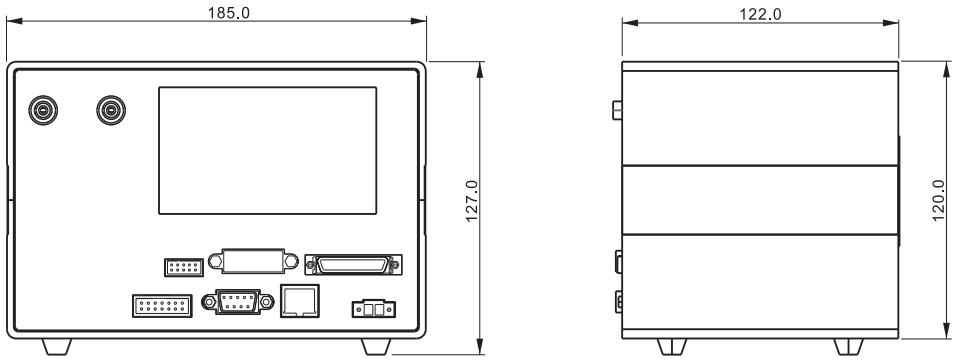
Dimensions

Unit:mm

ADV-12CKS



ADV-12CK2



*1. Resolution: The average level of noise for the stationary workpiece at the zero center of the range center (opening the light intensity auto adjustment and 256 times averaging function)
*2. Linearity: Maximum error value for full-scale measurement of mirror standard parts after calibration (opening the light intensity auto adjustment and 256 times averaging function)
*3. Spot diameter: theoretical spot diameter value at the center of the range
*4. Maximum inclination: refers to the maximum acceptable optical signal angle under the mirror-reflective material workpiece. The diffuse reflection workpiece usually can reach 80 degrees.
*5. Minimum bending radius: The minimum radius of curvature that can be received when the fiber is crimped and stored. Below this value, it is easy to break and damage.

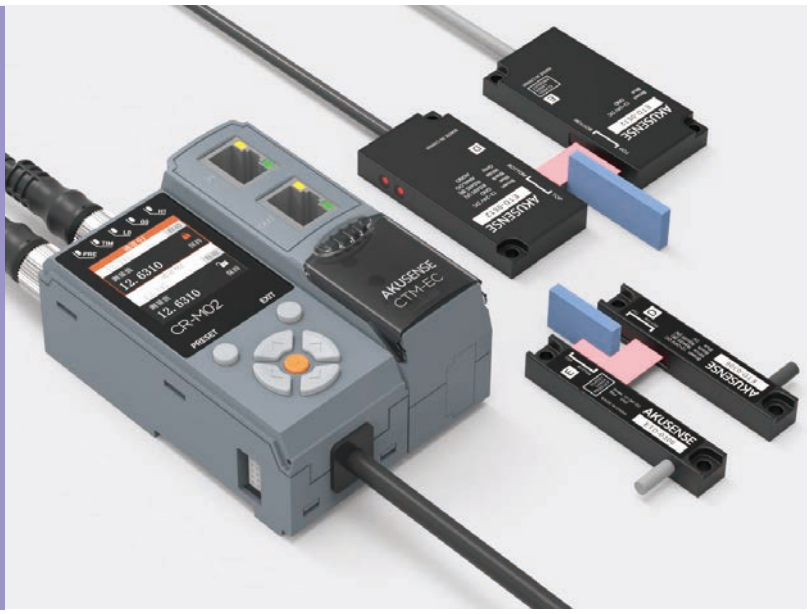
Fiber Optic
Slot Sensors
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Displacement Sensors

ETD Series



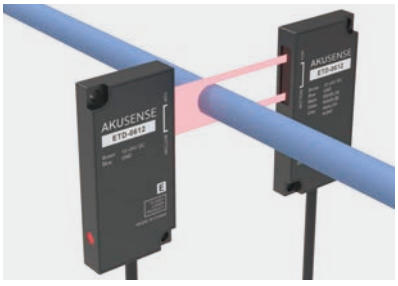
Product features:

Combination of width mode and edge mode to adapt to a variety of detection scenarios



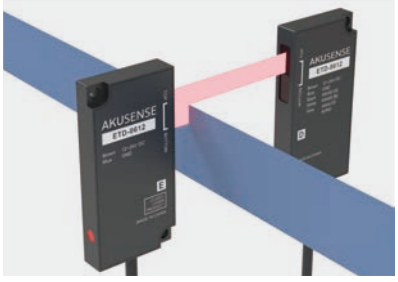
Edge control and positioning modes

Measures the distance from the end of the detection range to the edge of the target



Outside diameter/width detection mode

Measures the outer diameter or width of the target



Inside diameter/gap detection mode

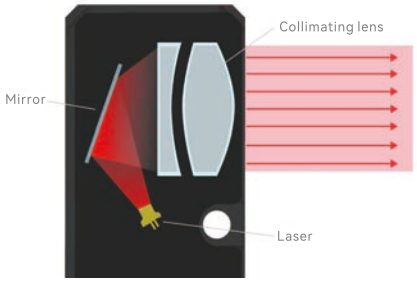
Measures the inner diameter of the target or the gap between targets



Measurement is possible at any position within the area, regardless of the color or material of the object.

Self-developed lens realizes ultra-flat light technology with repeatability of 1μm

Ultra-flat light technology realizes near-ideal parallel light.
Suppressing errors in the measurement area, realizing high-precision inspection over long distances.



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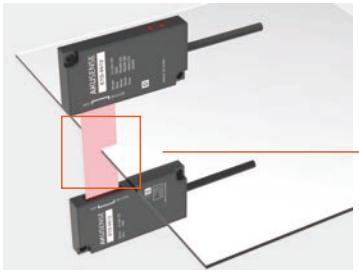
Displacement
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Product Highlights

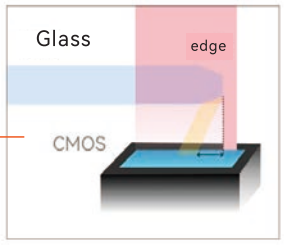
ETD Series

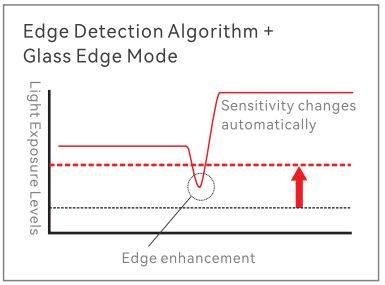
Unique edge detection algorithm
Stable measurement even on transparent objects (mirrors/translucent glass)

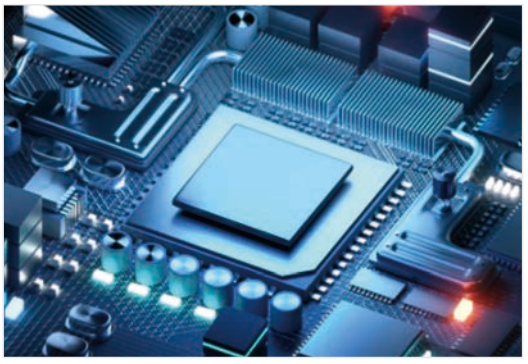
The edges of transparent objects, such as glass, are less transparent, reducing the amount of light received.
ETD series utilizes this characteristic to detect edges and automatically adjusts the sensitivity to accommodate the detection of transparent objects.



Glass edge



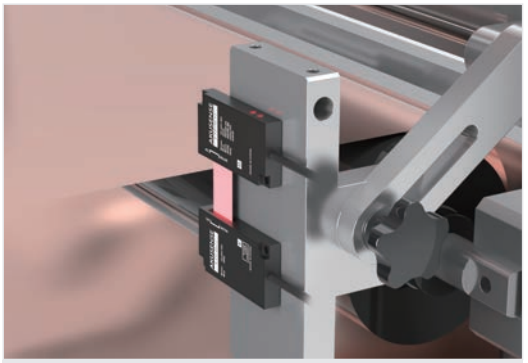




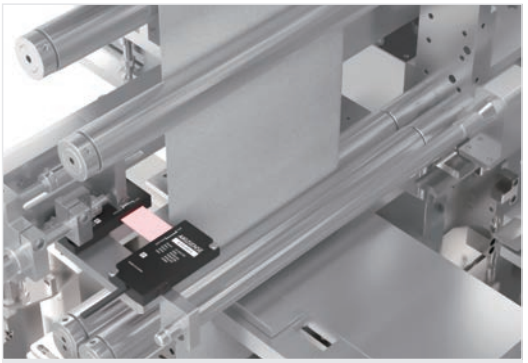
High-speed sampling period, up to 0.5ms

Equipped with high-performance ultra-high-speed processor combined with unique algorithms to realize high-speed detection.

Application



Detection of electrode sheet position shift after roller coating



Control of diaphragm positional drift during transport

ETD Series



Basic features	Working principle	Photoelectric sensor
	Housing	Flat block
	Optical working principle	Thru-beam
	Measuring range	Edge detection mode ±3.25mm, Diameter detection mode 6mm
	Sensor head mounting distance	0~200mm
	Light source	Red laser
	Spot size	–
	Indicator	Transmitter (laser emission indicator green); Receiver (optical axis adjustment indicator green, judgment output indicator red)
Electrical data	Linearity	± 0.12% F.S. (when setting distance 20mm); ±0.4% F.S. (when setting distance 100mm)
	Repeatability	1μm(when setting distance 20mm);3μm(when setting distance 100mm);5μm(when setting distance 200mm)
	Sampling period	–
	Operating voltage	12~24VDC ± 10%
	Operating current	Emitter:≤10mA，Receiver:≤70mA
	Communication mode	485 communication hexadecimal
	Temperature drift characteristics	–
	Circuit protection	Reverse connection protection
Environmental conditions	Operating temperature	–10~45℃(no freezing,no condensation)
	Storage humidity	–20~+60℃
	Operating humidity	35~85%RH(no condensation)
	Storage humidity	35~85%RH(no condensation)
	Ambient Illumination	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions
	Enclosure rating	IP67
Mechanical data	Connection type	2x M8/4-pin connector with 0.3m cable
	Dimensions	2x8.2x60x10.5mm
	Material	Aluminum
	Weight	–
	Accessories	Brackets and screws
	Model	**ETD-0306**

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Through-beam edge sensor

ETD Series

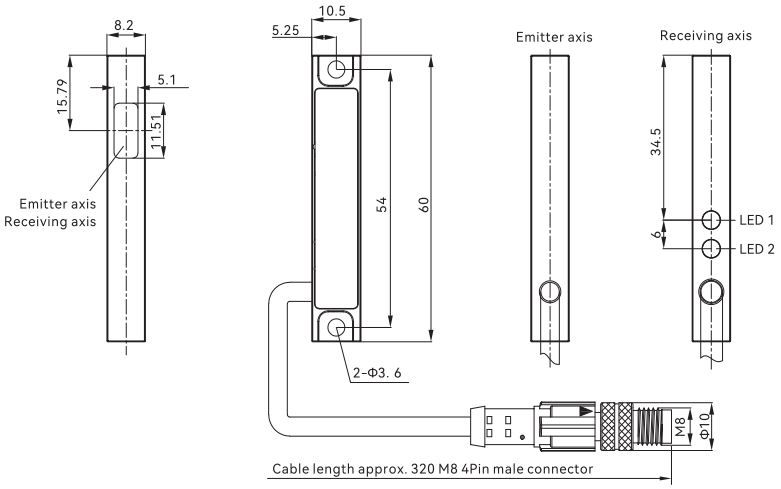


Basic features	Working principle	Photoelectric sensor
	Housing	Flat block
	Optical working principle	Thru-beam
	Measuring range	Edge detection mode ±6mm, Diameter detection mode 12mm
	Sensor head mounting distance	0~500mm
	Light source	Red laser,650nm
	Spot size	13x3.5mm
	Indicator	Transmitter (laser emission indicator green); Receiver (optical axis adjustment indicator green, judgment output indicator red)
Electrical data	Linearity	± 0.12% F.S. (when setting distance 20mm); ±0.4% F.S. (when setting distance 100mm)
	Repeatability	1μm(when setting distance 20mm);3μm(when setting distance 100mm);5μm(when setting distance 200mm)
	Sampling period	1ms
	Operating voltage	12~24VDC ± 10%
	Operating current	Emitter:≤10mA，Receiver:≤70mA
	Communication mode	485 communication hexadecimal
	Temperature drift characteristics	± 0.03%/℃
	Circuit protection	Reverse connection protection
Environmental conditions	Operating temperature	-10~50℃
	Storage humidity	-20~60℃
	Operating humidity	35~85%RH(no condensation)
	Storage humidity	35~85%RH(no condensation)
	Ambient Illumination	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux
	Vibration resistance	10 to 55 Hz, 1.5 mm double amplitude, 2 hours for each X, Y, and Z directions
	Enclosure rating	IP50
Mechanical data	Connection type	2x M8/4-pin connector with 0.3m cable
	Dimension	2x8.2x60x30mm
	Material	Aluminum
	Weight	0.01kg
	Accessories	Brackets and screws
	Model	**ETD-0612**

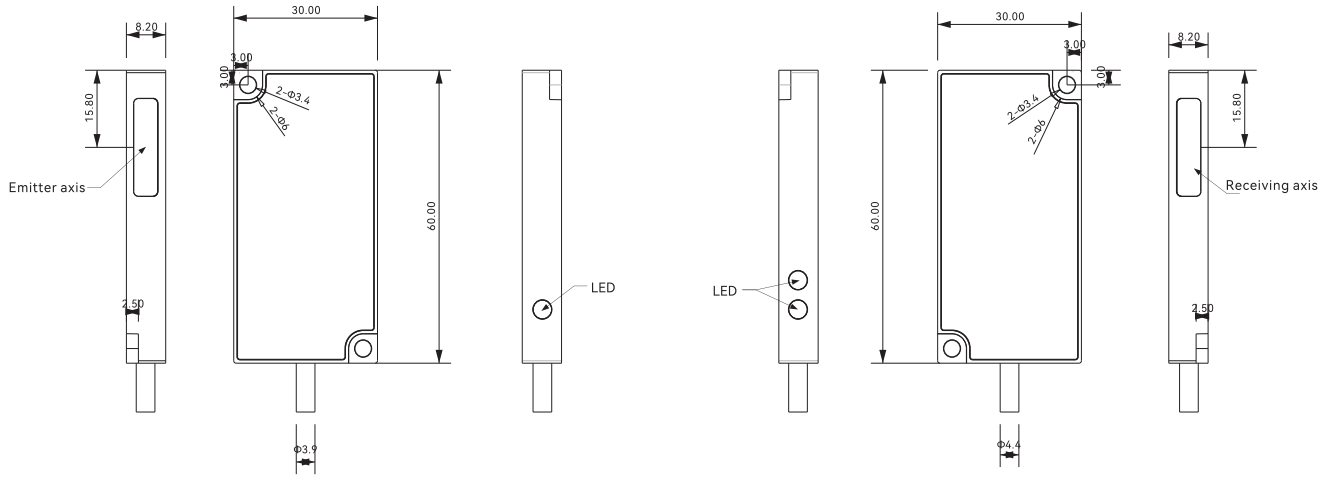
Unit:mm

Dimensions

ETD-0306

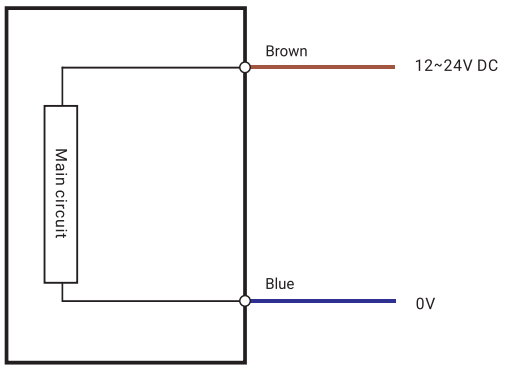


ETD-0612

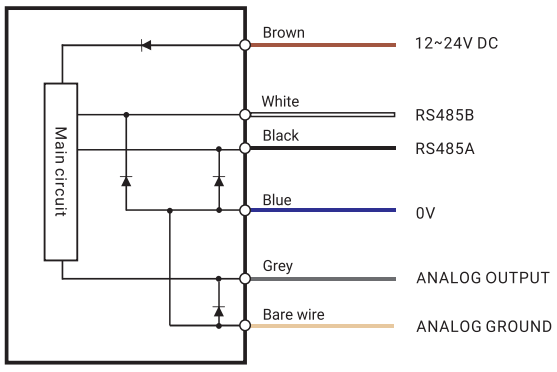


Circuit Diagram

Emitter



Receiver



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Controller

CR-M02

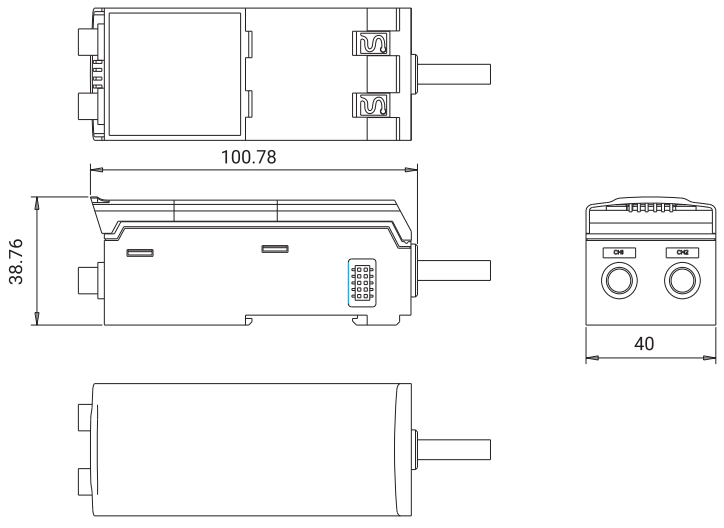


NEW!

	Installation method	DIN rail installation
	Operating voltage	+24VDC±10%
	Current consumption of a single controller	Under 100mA(When connecting the sensor)
	Number of connected sensors	Two pairs of sensors
	The communication with sensors	RS485
	Number of controllers connected in parallel	Up to 16 controllers can be connected
	Display	240*240TFT display
	Indicator light	Output 1~3 and function indicator light red
	Analog output	Analog output current 4~20mA, voltage 0~5V can be switched
	Switching output	3-channel output, NO, NC, PO, PC can be switched
	External input	3-channel input, NPN and PNP input optional
	Display resolution	1μm
	Display range	–99.999mm~99.999mm
	Protective structure	IP40
	Operating temperature	-10℃~+50℃
	Working humidity	35%RH~85%RH
	Insulation resistance	The resistance of all connecting terminals and shells is above 20MΩ
	Dielectric strength	All connection terminals and housing withstand voltage AC 1000V
	Vibration resistance	Frequency 10~55HZ, 1.5m double amplitude, two hours each in X, Y and Y directions
	Shock proof	98m/s² (about 10G) 5 times each in X, Y, and Z directions
	Model	**CR-M02**

Dimensions

Unit:mm



CTM01-EC

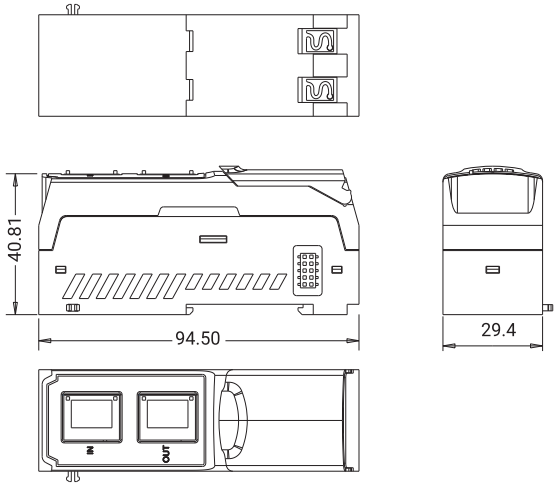


NEW!

	Installation method	DIN rail installation
	Operating voltage	24V DC(10~30V DC)
	Indicator light	PWR: Power indicator/green RUN: running indicator light/green ERR: Error indicator/red Sensor communication indicator light: red light (RTU communication abnormality) Ethernet port：(green) D-BUS: RTU Communication normal/green light Ethernet port(green): RTU communication abnormality/traffic light alternation of some slave stations No RTU communication activity/off The Ethernet port has established a valid network connection/on. The Ethernet port is in network activity/blinks. The Ethernet port does not establish a network connection or the port is abnormal/off.
	100M Ethernet port	10/100Base-T (X) RJ45, automatic flow control, full and half-duplex mode, MDI/MDI-X automatic detection
	Burning port	The software programming port uses 8-bit terminal blocks with a pitch of 2.0mm, occupying 2-5 positions from the left
	Console port	The CLI command management port uses 8-position terminal blocks with a spacing of 2.0mm, occupying 6-8 positions from the left
	RS-485 serial port	Supports 2 RS-485 serial ports, one of which is reserved, using 10-bit terminal blocks with a spacing of 2.0mm, and the serial port occupies 4 bits
	Reset button	Reset button
	Access terminal,noload power consumption at normal temperature	10-position terminal block with a pitch of 2.0mm, 2 positions for power supply，0.7w@10VDC 0.7w@20VDC 0.7w@30VDC
	Full-load power consumption at normal temperature	0.7w@10VDC 0.7w@20VDC 0.7w@30VDC
	High temperature full load power consumption	0.8w@10VDC 0.8w@20VDC 0.8w@30VDC
	Operating temperature	-40℃~75℃
	Storage temperature	-40℃~85℃
	Working humidity	5%~95%（No condensation）
	Model	**CTM01-EC**

Dimensions

Unit:mm



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

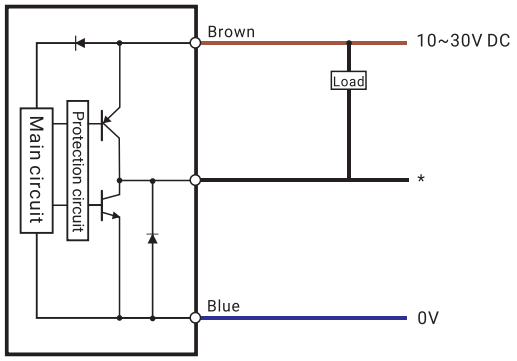
Displacement
Triangulation
TOF Long Range Type
3D Laser Profiler
Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

Controller/Communicator

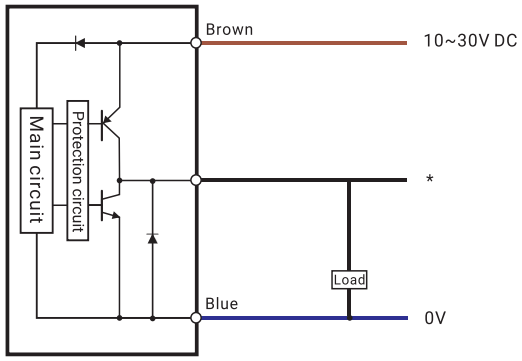
Circuit Diagram

Input Circuit Diagram

NPN Output



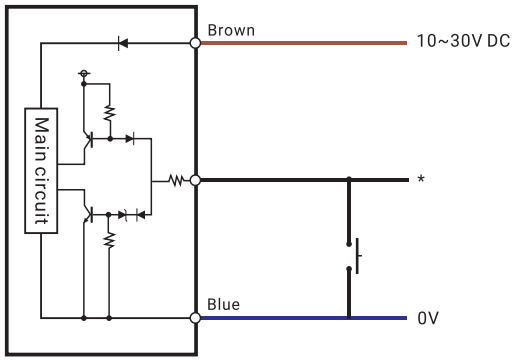
PNP Output



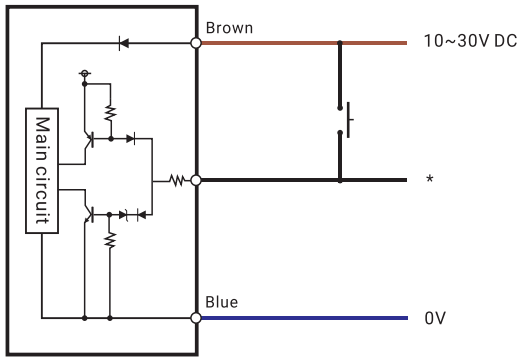
* Black (HIGH detection output) / White (LOW detection output) / Grey (GO detection output) / Green (Verification input)

Output Circuit Diagram

NPN Output



PNP Output



* Pink (External Input 1) / Yellow (External Input 2) / Pink Purple (External Input 3) / Purple (External Input 4)

Displacement

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Slot Sensors
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Accessories

Guidance

Displacement

Triangulation
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Contact Displacement
LiDAR Scanner
Color confocal
Laser Alignment

High Precision Magnetic Sensors



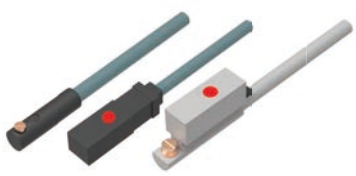
- Non-contact measurement, high reliability, ruggedness, variety
- Extreme response speed at micron level, high measurement sensitivity
- High positioning accuracy and reliable performance



Magnetic Sensors

- Small size, long duration, high sensitivity and long sensing distance
- Response Time at 5 μ s–Fatest response time
- S–pole (standard magnet pole)

P.G-05



High Precision Positioning with Reliable Performance

- High positioning precision, reliable performance
- Vibration and heat resistance
- Response time less than 5 μ s (3 –wire type)

P.G-14



Economical Cylinder Sensor

- High positioning accuracy, reliable performance
- Maximum switching frequency up to 1000 Hz

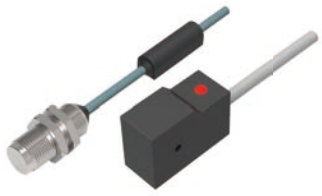
P.G-20



Environmental Resistance Cylinder Sensors

- Full metal material, reliable performance
- Vibration and heat resistance
- Maximum switching frequency up to 1000HZ

P.G-25



Magnetic Proximity Sensors

- Proximity sensors that detect ferromagnetism materials, such as iron
- No reaction to aluminum and non–ferromagnetic stainless steel
- Can be used on CNC machines, refrigerating equipments, on–standard positioning equipments etc.

P.G-26



Door Sensors

- Small size, excellent sensitivity
- Non–contact, long life and highly reliable
- With magnetic hole (ϕ 12) ,it still performs well even fixed inside iron doors

P.G-28



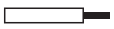
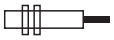
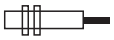
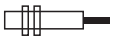
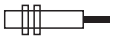
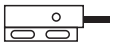
Linear Sensors

- Output voltage varies linearly with magnetic force
- Output voltage changes linearly according to the movements of magnets
- It can be used from low to high temperature

P.G-31

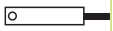
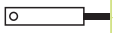
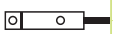
Guidance

Magnetic Sensors

Appearance	Size	Sensing distance*	Detected poles		Model number	Pages
	ϕ4.9X16mm	MR-M10L: 4mm MR-M9K: 8mm	S-pole	Top surface detection	MR-P10-H	G-05
				Side surface detection	MR-P10-X HOT	
	ϕ6.2X21mm	MR-M10L: 8mm MR-M9K: 10mm	N-pole, S-pole optional	S-pole detection	MR-P13-S	
				N-pole detection	MR-P13-N	
	M9X25mm	MR-M10L: 8mm MR-M9K: 11mm	N-pole, S-pole optional	S-pole detection	MR-P24-S	G-07
				N-pole detection	MR-P24-N	
	M9X25mm	MR-M10L: 13mm MR-M9K: 20mm	N-pole & S-pole detection	N-pole & S-pole detection	MR-P25 HOT	G-08
	M6X15mm	MR-M10L: 6mm MR-M9K: 8mm	S-pole	S-pole detection	MR-P26	
	7X5.8X20.5mm	MR-M10L: 5mm MR-M9K: 8mm	N-pole, S-pole optional	S-pole detection	MR-P12-S	G-10
				N-pole detection	MR-P12-N	
	9X9.6X30mm	MR-M10L: 8mm MR-M9K: 11mm	N-pole, S-pole optional	S-pole detection	MR-PH5-S	G-11
				N-pole detection	MR-PH5-N	
	12X7.8X4.2mm	MR-M10L: 8mm MR-M9K: 12mm	S-pole	Top surface detection	MR-P4-H	G-12
				Side surface detection	MR-P4-X	
	17.6X18.6X4.6mm	MR-M10L: 8mm MR-M9K: 12mm	N-pole, S-pole optional	S-pole detection	MR-P9-S	
				N-pole detection	MR-P9-N	

*:Different magnets have different sensing distances

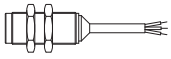
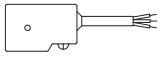
High Precision Combined Cylinder Sensors

Appearance	Size	Detected poles	Suitable applications	Model number	Pages
	6.1X5.1X20mm	N-pole and S-pole, optional	T shaped slot	MR-C6	G-14
	5.8X7X20.5mm	N-pole and S-pole, optional	T shaped slot	MR-C12	
	ϕ4X14.5mm	N-pole and S-pole, optional	C shaped slot	MR-C7	G-16
	4X5.5X24.5mm	N-pole and S-pole, optional	C shaped slot	MR-C8-C	
	4X5.5X24.5mm	N-pole and S-pole, optional	U shaped slot	MR-C8-U	
	5X10X22.2mm	N-pole and S-pole, optional	C shaped slot	MR-C13-C	
	5X10X22.2mm	N-pole and S-pole, optional	U shaped slot	MR-C13-U	
	17.6X18.6X5.1mm	N-pole and S-pole, optional	External usage	MR-C92	G-18
	17.6X18.6X5.1mm	N-pole and S-pole, optional	External usage	MR-C9	
	17.6X18.6X4.6mm	N-pole and S-pole, optional	External usage	MR-C9-E	

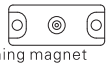
Economical/Magnetic Proximity Sensors

Appearance	Size	Sensing diatance		Model number	Pages
	31. 4*6. 2*4. 3mm	Normally Open	200Hz/ 1000Hz	MR-30/30G/30N/P	G-20
	15. 1*4*5mm	Normally Open	1000Hz	MR-C80	G-22
				MR-C81	G-23
				MR-C86	G-24
	14. 3*4*4. 7mm	Normally Open	1000Hz	MR-70	G-25

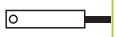
Magnetic Proximity Sensors

Appearance	Size	Sensing diatance		Model number	Pages
	M10X22.8mm	1mm(Iron wire ϕ1) 2mm(High-speed steel drill ϕ2) 2mm(Square iron20Xt1)	Normally open, without LED indicator	MR-F11	G-26
			Normally open, with LED indicator	MR-F11-LED	
			Normally closed, without LED indictor	MR-F11-B	
			Normally closed, with LED indicator	MR-F11-B-LED	
	9X14X21mm	6mm(Square iron30Xt10) 4mm(Square iron30Xt2)	Normally open	MR-F2	G-27
			Normally closed	MR-F2-B	

Door Sensors

Appearance	Size	Detected poles	Model number	Pages
	14X14X34mm	Upward detection	MR-D2	G-28
	14X14X34mm	Upward detection	MR-D2P	
 Matching magnet	14X14X34mm	Upward detection	MR-DM2	
	14X14X34mm	Sideway detection	MR-D2X	
	14X14X34mm	Sideway detection	MR-D2XP	
 Matching magnet	14X14X34mm	Sideway detection	MR-DM2X	

Linear Sensors

Appearance	Size	Detected poles		Model Number	Pages
	8.6X12X3.5mm	Detect N-pole and S-pole simultaneously	Frontal Detection	MR-L4	G-31
	7.8X12X4.2mm	Detect N-pole and S-pole simultaneously	Sideway Detection	MR-L4-H	
	ϕ4.9X16mm	Detect N-pole and S-pole simultaneously	Sideway Detection	MR-L10X	

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Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Fiber Optic
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Mounting accessories

Magnetic Sensors





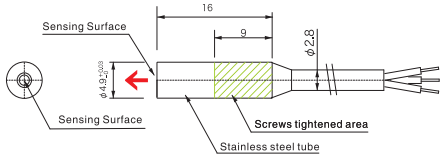
Basic features	Operating Principle	Magnetic	
	Shell Style	Cylindrical	
	Detection Range*	MR-M10L：4mm；MR-M9K：8mm	MR-M10L：8mm；MR-M9K：10mm
	Detection of Magnetic Poles	S Pole	Optional N and S Pole Models
	Magnetic Sensitivity	5~7mT	2.5~3.5mT
	Indicator Light	–	
Electrical data	Output Mode	NPN Normally Open, N.O.(N.O.)(Turns ON when Approached)	
	Operating Voltage	5~24V DC	
	Output Current	⩽15mA	
	Power Consumption	⩽15mA	
	Response Speed	5μs	
	Operating Frequency	30Hz	
Environmental conditions	Operating Temperature	-20℃~+85℃，No Freezing	
	Operating Humidity	20%~95%RH，No Condensation	
	Dielectric Strength	AC1000V for 1 minute	
	Insulation Strength	250V DC⩾20MΩ	
	Protection Level	IP65	IP65
Mechanical data	Mounting Method	Fix the M3 screws with a torque of less than 0.2 N·m	M7 Nut with Installation Torque of 0.3N·m
	Connection Method	1M/3-core Cable	
	Dimensions	Φ4.9x16mm	Φ6.2x21mm
	Material	SUS303	GF reinforced PBT: gray; MR-P13-S cable in gray color, MR-P13-N cable in black color
	Weight	about 13.4g	
	Model	**Head Detection: MR-P10-H**	**Detects South Pole:MR-P13-S**
		Side Detection: MR-P10-X HOT	**Detects North Pole:MR-P13-N**

* : Induction distance varies with different magnets

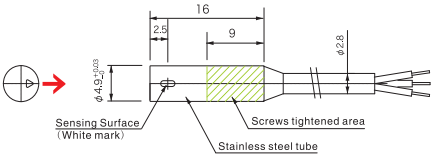
Dimensions

Unit:mm

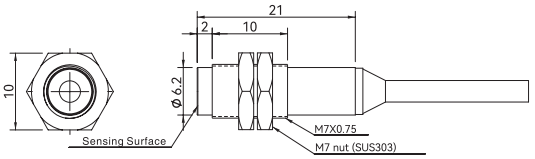
MR-P10-H



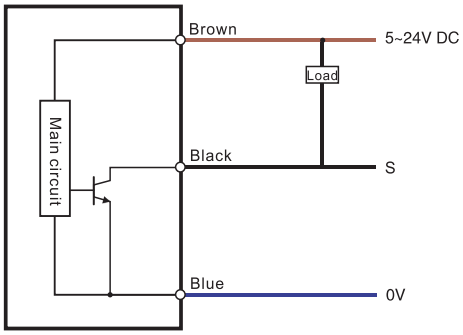
MR-P10-X



MR-P13-S(N)



Circuit diagram



Fiber Optic
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Guidance

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Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Magnetic Sensors

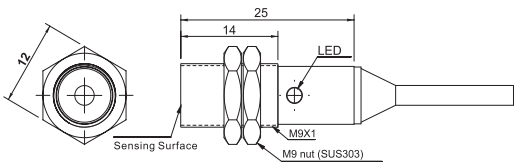


Basic features	Operating Principle	Magnetic
	Shell Style	Cylindrical
	Detection Range*	MR-M10L：8mm；MR-M9K：11mm
	Detection of Magnetic Poles	Optional N and S Pole Models
	Magnetic Sensitivity	MR-P24-S：2.5~3.5mT、MR-P24-N：0.9±0.2mT
	Indicator Light	Red
Electrical data	Output Mode	NPN Normally Open, N.O.(N.O.)(Turns ON when Approached)
	Operating Voltage	5~24V DC
	Output Current	≤12mA
	Power Consumption	≤12mA
	Response Speed	5μs
	Operating Frequency	30Hz
Environmental conditions	Operating Temperature	-20℃~+85℃，No Freezing
	Operating Humidity	20%~95%RH，No Condensation
	Dielectric Strength	AC1000V for 1 minute
	Insulation Strength	250V DC≥20MΩ
	Protection Level	IP67
Mechanical data	Mounting Method	Fix the M9 screws with a torque of less than 0.5 N·m
	Connection Method	1M/3-core Cable
	Dimensions	M9x25mm
	Material	GF reinforced PBT: gray; MR-P24-S cable in gray color, MR-P24-N cable in black color
	Weight	about 21g
	Model	**Detects South Pole: MR-P24-S**
		Detects North Pole: MR-P24-N

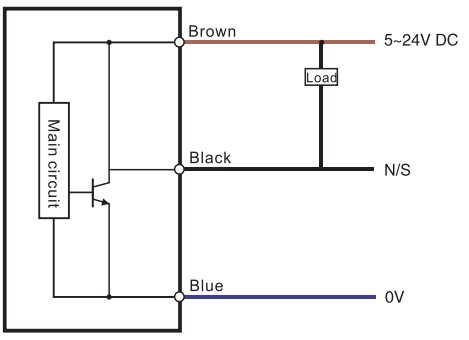
* : Induction distance varies with different magnets

Dimensions

Unit:mm



Circuit diagram







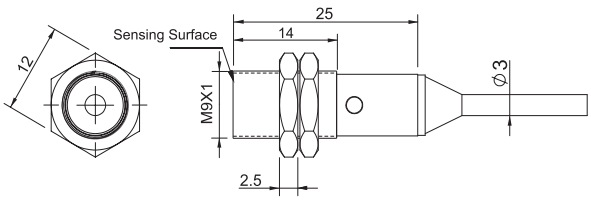
Basic features	Operating Principle	Magnetic	
	Shell Style	Cylindrical	
	Detection Range*	MR-M10L：13mm；MR-M9K：20mm	MR-M10L：6mm；MR-M9K：8mm
	Detection of Magnetic Poles	Simultaneously detect the N pole and the S pole	
	Magnetic Sensitivity	S Pole：0.5±0.1mT　N Pole：0.45±0.1mT	3~4mT
	Indicator Light	S Pole：Red　N Pole：Green	Red
Electrical data	Output Mode	NPN Normally Open, N.O.(N.O.)(Turns ON when Approached)	
	Operating Voltage	12~24V DC	5~24V DC
	Output Current	⩽12mA	
	Power Consumption	During operation: ≤30mA (≤10mA when not in operation)	⩽4mA
	Response Speed	⩽16μs	5μs
	Operating Frequency	40Hz	
Environmental conditions	Operating Temperature	-20℃~+85℃，No Freezing	
	Operating Humidity	20%~95%RH，No Condensation	
	Dielectric Strength	AC1000V for 1 minute	
	Insulation Strength	250V DC⩾20MΩ	
	Protection Level	IP65	IP67
Mechanical data	Mounting Method	M9 Screw with Installation Torque of 5N·m	M6 Screw with Installation Torque of 2N·m
	Connection Method	1M/4-core Cable	1M/3-core Cable
	Dimensions	M9x25mm	M6x15mm
	Material	SUS303	
	Weight	about 21g	
	Model	MR-P25 HOT	MR-P26

* ： Induction distance varies with different magnets

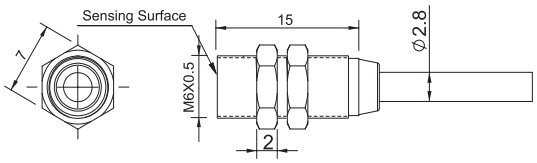
Dimensions

Unit:mm

MR-P25



MR-P26



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

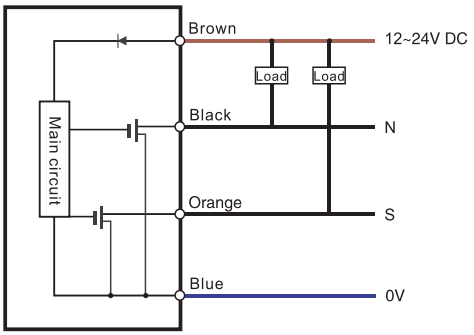
Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

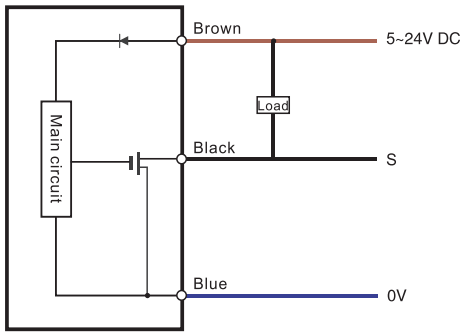
Magnetic Sensors

Circuit diagram

MR-P25



MR-P26



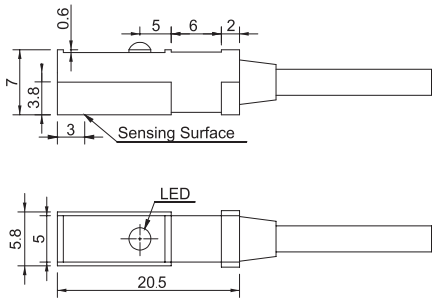


Basic features	Operating Principle	Magnetic
	Shell Style	Square
	Detection Range*	MR-M10L：5mm；MR-M9K：8mm
	Detection of Magnetic Poles	Optional N and S Pole Models
	Magnetic Sensitivity	2.5~3.5mT
	Indicator Light	Red
Electrical data	Output Mode	NPN Normally Open, N.O.(N.O.)(Turns ON when Approached)
	Operating Voltage	12~24V DC
	Output Current	≤50mA
	Power Consumption	No Indicator Light: 15mA MAX, With Indicator Light: 12mA MAX
	Response Speed	50μs
	Operating Frequency	30Hz
Environmental conditions	Operating Temperature	-20℃~+85℃，No Freezing
	Operating Humidity	20%~95%RH，No Condensation
	Dielectric Strength	AC1000V for 1 minute
	Insulation Strength	250V DC≥20MΩ
	Protection Level	IP67
Mechanical data	Mounting Method	–
	Connection Method	1M/2-core Cable
	Dimensions	7x5.8x20.5mm
	Material	GF Reinforced PBT
	Weight	about 13.9g
	Model	**Detects South Pole: MR-P12-S**
		Detects North Pole: MR-P12-N

* : Induction distance varies with different magnets

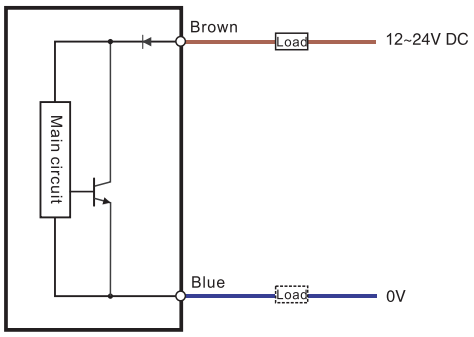
Dimensions

Unit:mm



Mounting accessories: HP12-0/HP12-3/HP12-6.2/HP12-t

Circuit diagram



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Magnetic Sensors

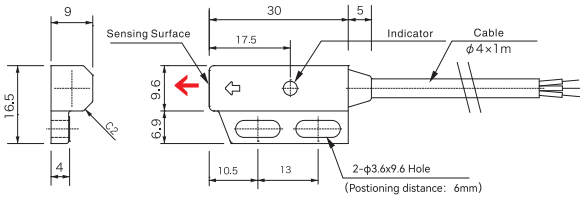


Basic features	Operating Principle	Magnetic
	Shell Style	Square
	Detection Range*	MR-M10L：8mm；MR-M9K：11mm
	Detection of Magnetic Poles	Optional N and S Pole Models
	Magnetic Sensitivity	0.9±0.2mT
	Indicator Light	Red
Electrical data	Output Mode	NPN Normally Open, N.O.(N.O.)(Turns ON when Approached)
	Operating Voltage	5~24V DC
	Output Current	⩽12mA
	Power Consumption	⩽12mA
	Response Speed	5μs
	Operating Frequency	30Hz
Environmental conditions	Operating Temperature	-20℃~+85℃，No Freezing
	Operating Humidity	20%~95%RH，No Condensation
	Dielectric Strength	AC1000V for 1 minute
	Insulation Strength	250V DC⩾20MΩ
	Protection Level	IP67
Mechanical data	Mounting Method	M3 Screw with Installation Torque of 0.3N·m
	Connection Method	1M/3-core Cable
	Dimensions	9x9.6x30mm
	Material	GF Reinforced PBT: Black
	Weight	about 23.8g
	Model	**Detects South Pole: MR-PH5-S**
		Detects North Pole: MR-PH5-N

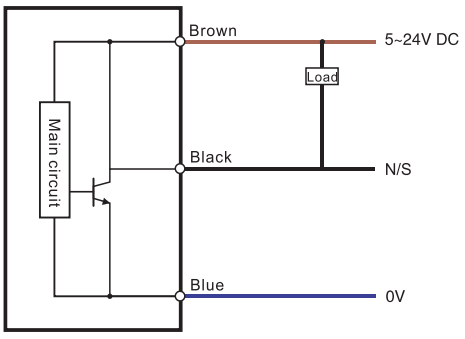
* : Induction distance varies with different magnets

Dimensions

Unit:mm



Circuit diagram







Basic features	Operating Principle	Magnetic	
	Shell Style	Square	
	Detection Range*	MR-M10L：8mm；MR-M9K：12mm	
	Detection of Magnetic Poles	S Pole	Optional N and S Pole Models
	Magnetic Sensitivity	2.5~3.5mT	
	Indicator Light	–	
Electrical data	Output Mode	NPN Normally Open, N.O.(N.O.)(Turns ON when Approached)	
	Operating Voltage	5~24V DC	12~24V DC
	Output Current	≤15mA	≤80mA
	Power Consumption	≤15mA	≤12mA
	Response Speed	5μs	
	Operating Frequency	30Hz	
Environmental conditions	Operating Temperature	-20℃~+85℃，No Freezing	
	Operating Humidity	20%~95%RH，No Condensation	
	Dielectric Strength	AC1000V for 1 minute	
	Insulation Strength	250V DC≥20MΩ	
	Protection Level	IP65	IP67
Mechanical data	Mounting Method	M2 Screw with Installation Torque of 0.15N·m	M3 Screw with Installation Torque of 1.5N·m
	Connection Method	0.3M/3-core Cable	1M/3-core Cable
	Dimensions	7.8x12x4.2mm	17.6x18.6x4.6mm
	Material	GF Reinforced PBT: Green	Zinc Alloy
	Weight	about 19g	
	Model	**Head Detection: MR-P4-H**	**Detects South Pole: MR-P9-S**
		Side Detection: MR-P4-X	**Detects North Pole: MR-P9-N**

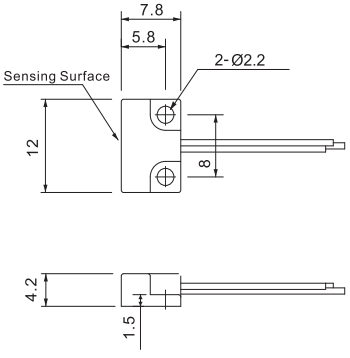
* ： Induction distance varies with different magnets

Dimensions

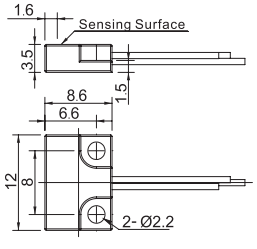
Unit:mm

MR-P4-H(X)

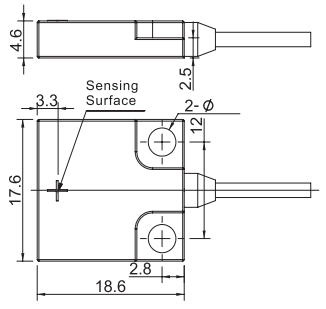
MR-P4-H



MR-P4-X



MR-P9-S(N)

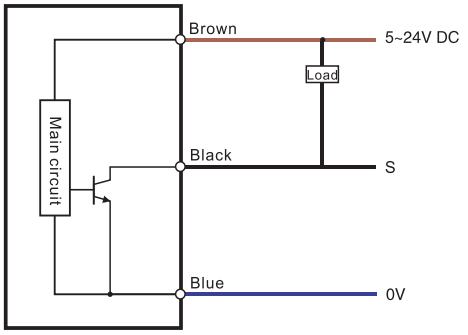


Mounting accessories:
-BT: cable protective tube/
-BD: belt shaped mounting accessories

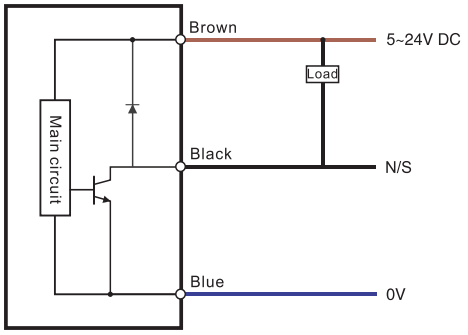
Magnetic Sensors

Circuit diagram

MR-P4



MR-P9



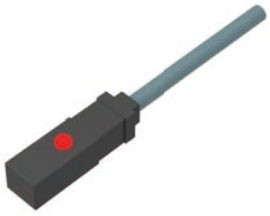
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

High Precision Cylinder Sensors

3-wire



2-wire

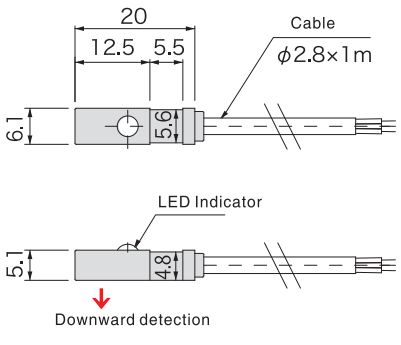


Basic features	Operating Principle	Magnetic	
	Shell Style	Square	
	Applicable Groove Type	Shape T	
	Detection of Magnetic Poles	Optional N and S Pole Models	
	Magnetic Sensitivity	2.5~3.5mT	
	Indicator Light	Red	
Electrical data	Output Mode	NPN Normally Open, N.O.(N.O.)(Turns ON when Approached)	···
	Operating Voltage	5~24V DC	12~24V DC
	Output Current	⩽12mA	⩽50mA
	Power Consumption	⩽12mA	···
	Response Speed	5μs	50μs
Environmental conditions	Operating Temperature	-20℃~+85℃，No Freezing	
	Operating Humidity	20%~95%RH，No Condensation	
	Dielectric Strength	AC1000V for 1 minute	
	Insulation Strength	250V DC⩾20MΩ	
	Protection Level	IP67	
Mechanical data	Mounting Method	–	
	Connection Method	1M/3-core Cable	1M/2-core Cable
	Dimensions	6.1x5.1x20mm	5.8x7x20.5mm
	Material	GF Reinforced PBT: Black	GF Reinforced PBT: Gray
	Weight	about 14.4g	
	Model	MR-C6-S	MR-C12-S
		MR-C6-N	MR-C12-N

Dimensions

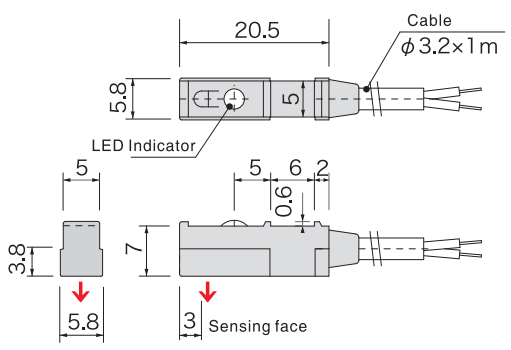
Unit:mm

MR-C6



Mounting accessories: HP3-1/HP3-2/HP3-3/HP3-4

MR-C12



Mounting accessories: HP12-0/HP12-3/HP12-6.2/HP12-t

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

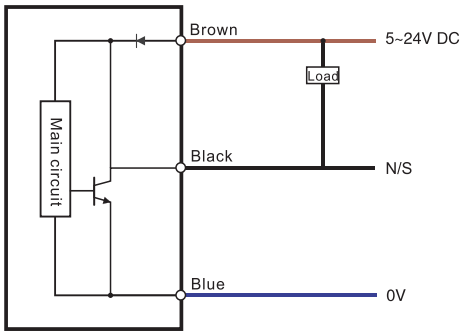
Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

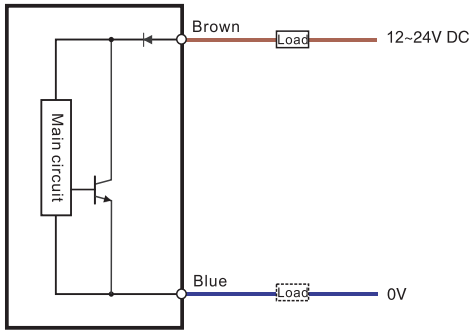
High Precision Cylinder Sensors

Circuit diagram

MR-C6



MR-C12

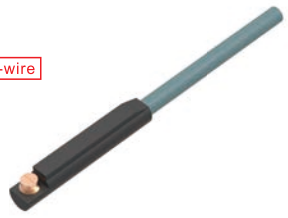


Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories





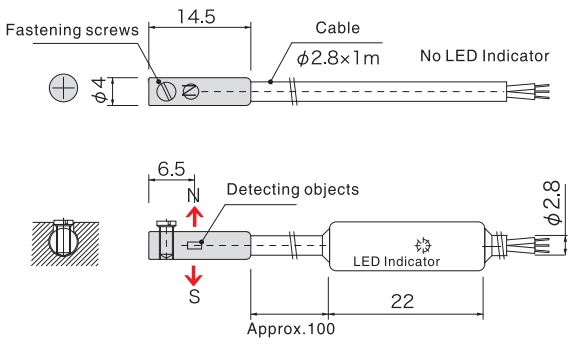


Basic features	Operating Principle	Magnetic				
	Shell Style	Square				
	Applicable Groove Type	Shape C		Shape U	Shape C	Shape U
	Detection of Magnetic Poles	Optional N and S Pole Models				
	Magnetic Sensitivity	4.5~6mT			2.5~3.5mT	
	Indicator Light	Distance from Main Body: Approximately 100mm		Red		
Electrical data	Output Mode	NPN Normally Open, N.O.(N.O.)(Turns ON when Approached)			···	
	Operating Voltage	5~24V DC			12~24V DC	
	Output Current	≤12mA			≤50mA	
	Power Consumption	≤12mA			···	
	Response Speed	5μs			50μs	
Environmental conditions	Operating Temperature	-20℃~+85℃，No Freezing				
	Operating Humidity	20%~95%RH，No Condensation				
	Dielectric Strength	AC1000V for 1 minute				
	Insulation Strength	250V DC≥20MΩ				
	Protection Level	IP67				
Mechanical data	Mounting Method	–				
	Connection Method	1M/3-core Cable			1M/2-core Cable	
	Dimensions	Φ4x14.5mm	4x5.5x24.5mm		5x10x22.2mm	
	Material	GF Reinforced PBT: Black			GF Reinforced PBT: Gray	
	Weight	about 11.3g			about 14.4g	
Model	Detects South Pole	MR-C7-S	MR-C8-C-S	MR-C8-U-S	MR-C13-C-S	MR-C13-U-S
	Detects North Pole	MR-C7-N	MR-C8-C-N	MR-C8-U-N	MR-C13-C-N	MR-C13-U-N

Dimensions

Unit:mm

MR-C7



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

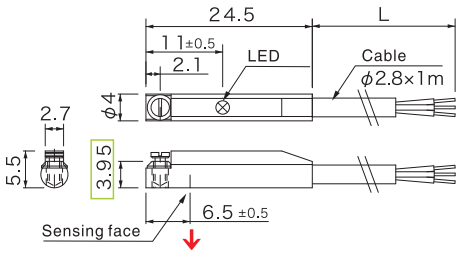
Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

High Precision Cylinder Sensors

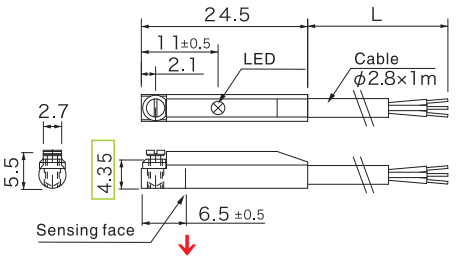
Dimensions

Unit:mm

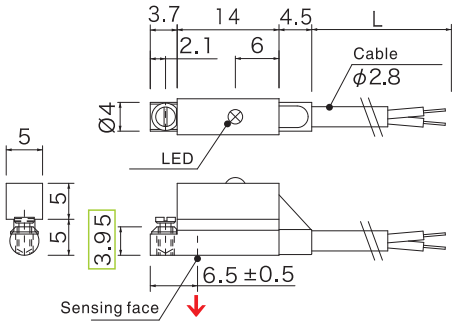
MR-C8(C shaped slot)



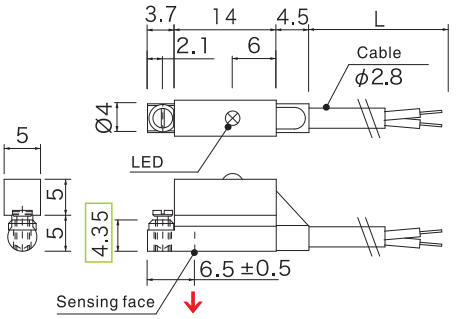
MR-C8(U shaped slot)



MR-C13(C shaped slot)

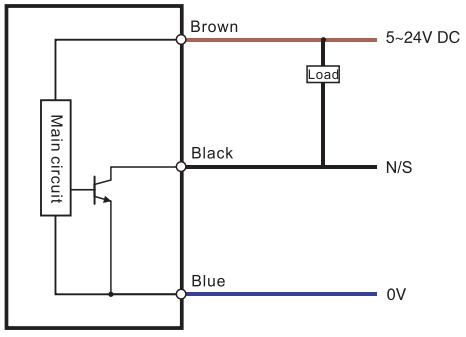


MR-C13(U shaped slot)

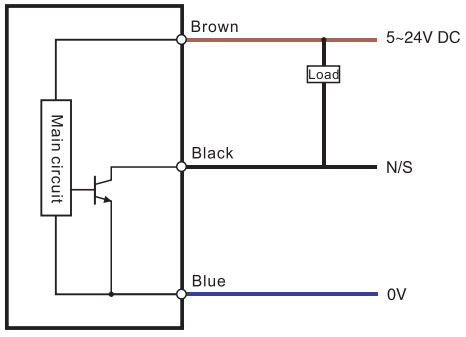


Circuit diagram

MR-C7



MR-C8



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories





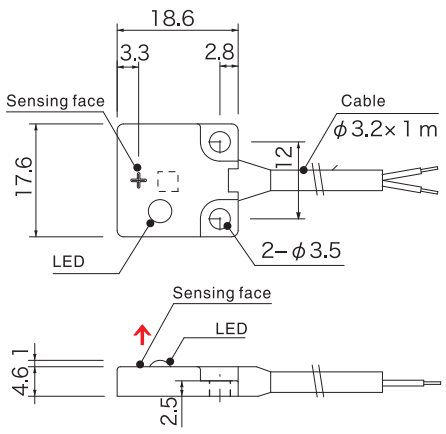


			(High Output Current)	(Economic Type without Indicator Light)
Basic features	Operating Principle	Magnetic		
	Shell Style	Square		
	Applicable Groove Type	External		
	Detection of Magnetic Poles	Optional N and S Pole Models		
	Magnetic Sensitivity	2.5~3.5mT		
	Indicator Light	Red		None
Electrical data	Output Mode	···	NPN Normally Open, N.O.(N.O.)(Turns ON when Approached)	
	Operating Voltage	12~24V DC	5~24V DC	
	Output Current	50mA MAX	≤12mA	
	Power Consumption	···	≤12mA	
	Response Speed	50μs	5μs	
Environmental conditions	Operating Temperature	-20℃~+85℃，No Freezing		
	Operating Humidity	20%~95%RH，No Condensation		
	Dielectric Strength	AC1000V for 1 minute		
	Insulation Strength	250V DC≥20MΩ		
	Protection Level	IP67		
Mechanical data	Mounting Method	Comes with Screw Installation Torque of 1.5N·m	M3 Stainless Steel Screw with Installation Torque of 1.5N·m	
	Connection Method	1M/2-core Cable	1M/3-core Cable	
	Dimensions	18.6x17.6x5.6mm	18.6x17.6x5.6mm	18.6x17.6x4.6mm
	Material	Zinc Alloy		
	Weight	about 20g		
Model	Detects South Pole	MR-C92-S	MR-C9-S	MR-C9-E-S
	Detects North Pole	MR-C92-N	MR-C9-N	MR-C9-E-N

Dimensions

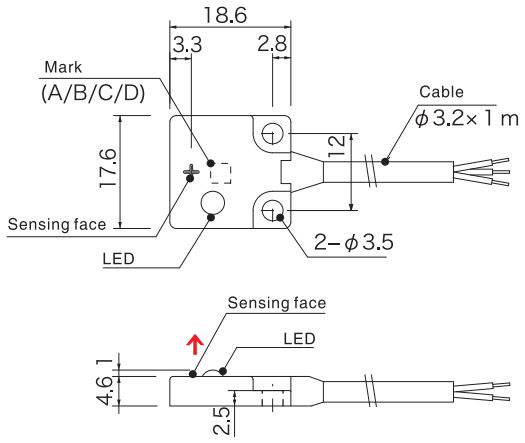
Unit:mm

MR-C92



Mounting accessories:
-BT: cable protective tube/-BD: belt shaped mounting accessories

MR-C9



Mounting accessories:
-BT: cable protective tube/-BD: belt shaped mounting accessories

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

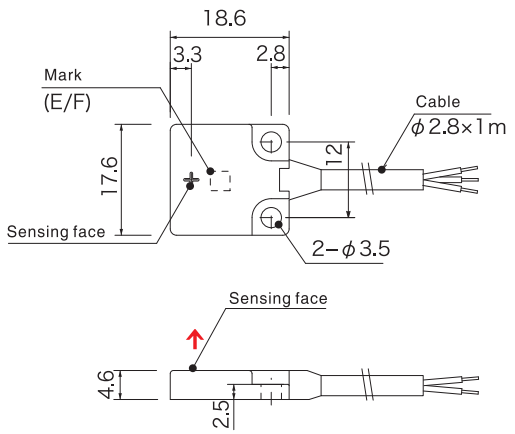
Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

High Precision Cylinder Sensors

Dimensions

Unit:mm

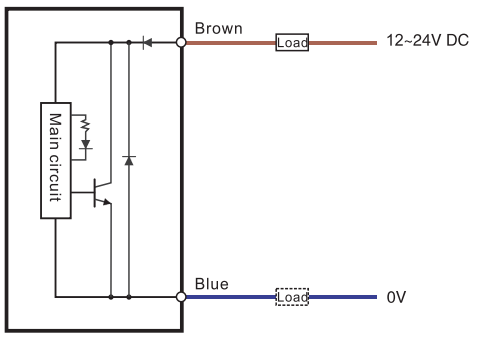
MR-C9-E(No LED)



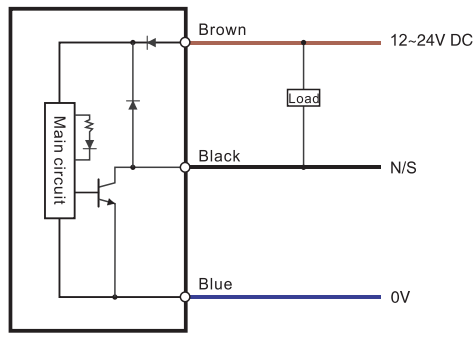
Mounting accessories:
-BT:cable protective tube/-BD:belt shaped mounting accessories

Circuit diagram

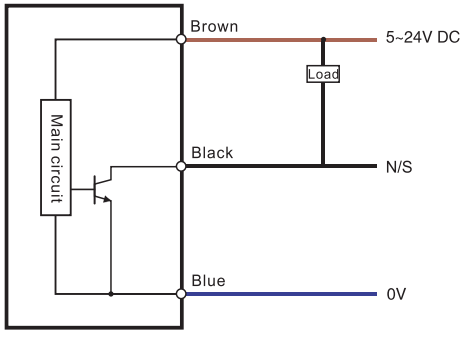
MR-C92



MR-C9



MR-C9-E



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
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Accessories

Guidance

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Magnetic sensors
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Economic cylinder
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Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories



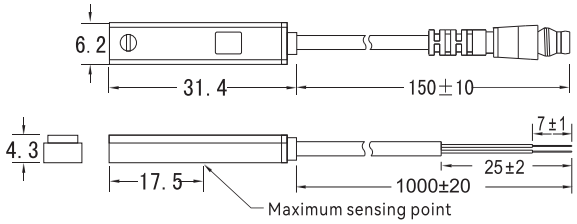
Economical Type

Basic features	Operating Principle	Magnetic			
	Shell Style	Square			
	Indicator Light	Red LED			Green LED
Electrical data	Switching Logic	SPST Normally Open Type	Electronic Type: Normally Open	Electronic Type: Contactless; Normally Open	
	Switch Type	Contact Reed Switch Type	Two-wire Contactless Transistor Type	Contactless Transistor NPN Type	Contactless Transistor PNP Type
	Sensitivity	40G	25-1000G		
	Maximum Switching Frequency	200Hz	1000Hz		
	Operating Voltage	5~24V DC	10~28V DC	5~30V DC	
	Maximum Switching Current	100mA Max	50mA Max	200mA Max	
	Power Consumption	None	40μA Max.@24V	14mA Max@24V(Switch Active)	
	Leakage Current	None	90μA Max.@28v	0.01mA Max	
	Maximum Switching Capacitance	10W Max	1.4W Max	6W Max	
	Residual Voltage Drop	2.5V Max@100mA DC	2.65V Max@50mA DC	0.5V Max@200mA DC	
	Suitable Load	–			
	Protection Circuit	None	Surge Absorption Protection	Reverse Polarity Protection; Surge Absorption Protection; Short Circuit Protection	
Environmental conditions	Operating Temperature	-10~70℃			
	Shock Resistance	30G	50G		
	Vibration Resistance	9G			
	Protection Level	IP67(EN6052)			
Mechanical data	Connection Method	2.9 ϕ ,2C,Gray Oil-resistant PVC	2.9 ϕ ,2C,Gray Oil-resistant TPU	2.9 ϕ ,3C,Gray Oil-resistant TPU	
	Dimensions	31.4x6.2x4.3mm			
	Material	Plastic			
	Weight	about 23.5g			
	Model	MR-30	MR-30G	MR-30N	MR-30P

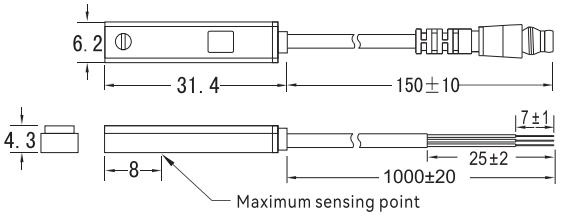
Dimensions

Unit:mm

MR-30R/G



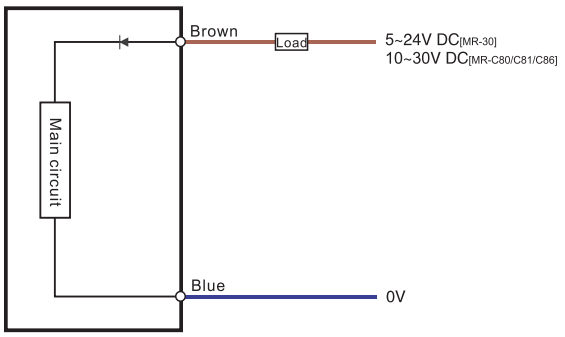
MR-30N/P



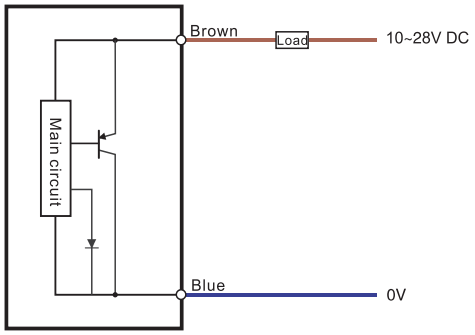
Economical Cylinder Sensor

Circuit diagram

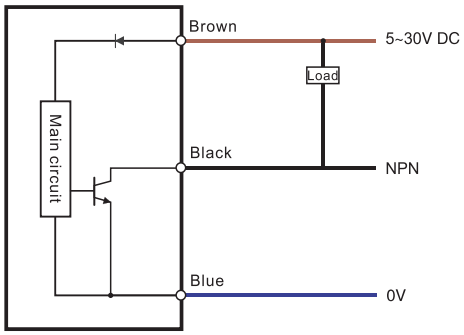
MR-30/C80/C81/C86



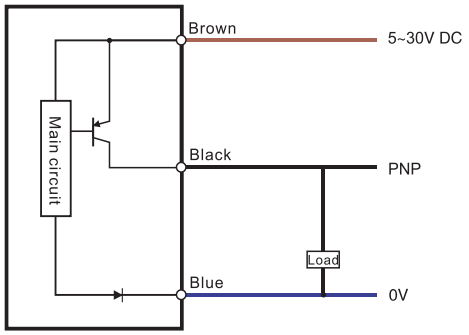
MR-30G



MR-30N



MR-30P



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
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Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

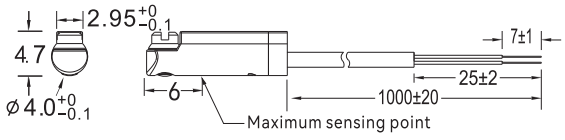


Economical Type

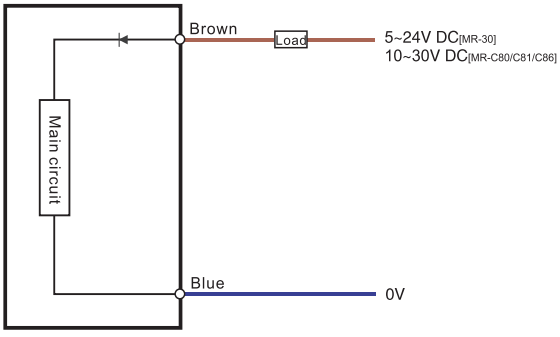
Basic features	Operating Principle	Magnetic
	Shell Style	Square
	Indicator Light	Red LED
Electrical data	Switching Logic	Electronic Type: Normally Open
	Switch Type	Two-wire Contactless Transistor Type
	Sensitivity	25-1000G
	Maximum Switching Frequency	1000Hz
	Operating Voltage	10~30V DC
	Maximum Switching Current	100mA Max
	Power Consumption	6μA Max.@24V
	Leakage Current	40μA Max.@28v
	Maximum Switching Capacitance	3W Max
	Residual Voltage Drop	2.65V Max@50mA
	Suitable Load	DC24V Relay for PLC
	Protection Circuit	Surge Absorption Protection
Environmental conditions	Operating Temperature	-10~70℃
	Shock Resistance	50G
	Vibration Resistance	9G
	Protection Level	IP67(EN6052)
Mechanical data	Connection Method	2.8 ϕ ,2C,Gray Oil-resistant TPU
	Dimensions	15x4x4.7mm
	Material	Plastic
	Weight	about 19.5g
	Model	MR-C80

Dimensions

Unit:mm



Circuit diagram



Economical Cylinder Sensor

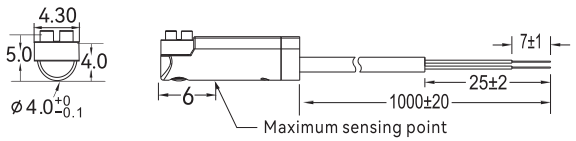
Economical Type



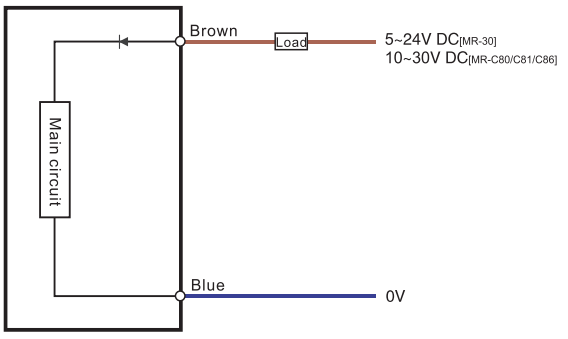
Basic features	Operating Principle	Magnetic
	Shell Style	Square
	Indicator Light	Red LED
Electrical data	Switching Logic	Electronic Type: Normally Open
	Switch Type	Two-wire Contactless Transistor Type
	Sensitivity	25-1000G
	Maximum Switching Frequency	1000Hz
	Operating Voltage	10~30V DC
	Maximum Switching Current	100mA Max
	Power Consumption	6μA Max.@24V
	Leakage Current	40μA Max.@28v
	Maximum Switching Capacitance	3W Max
	Residual Voltage Drop	2.65V Max@50mA
	Suitable Load	DC24V Relay for PLC
	Protection Circuit	Surge Absorption Protection
Environmental conditions	Operating Temperature	-10~70℃
	Shock Resistance	50G
	Vibration Resistance	9G
	Protection Level	IP67(EN6052)
Mechanical data	Connection Method	2.8 ϕ ,2C,Gray Oil-resistant TPU
	Dimensions	15.1x4.3x5mm
	Material	Plastic
	Weight	about 19.5g
	Model	**MR-C81**

Dimensions

Unit:mm



Circuit diagram



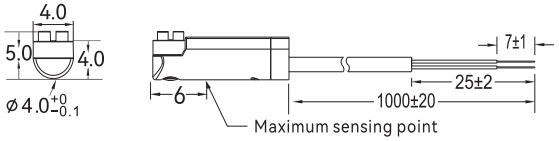
Economical Type



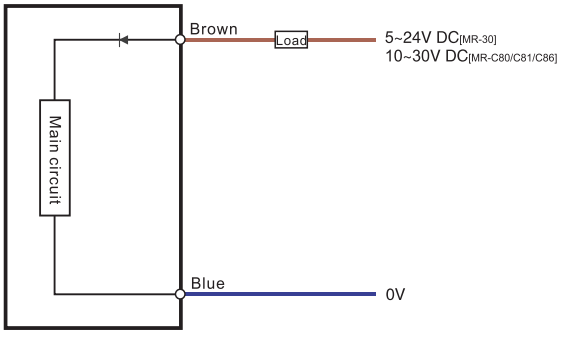
Basic features	Operating Principle	Magnetic
	Shell Style	Square
	Indicator Light	Red LED
Electrical data	Switching Logic	Electronic Type: Normally Open
	Switch Type	Two-wire Contactless Transistor Type
	Sensitivity	25-1000G
	Maximum Switching Frequency	1000Hz
	Operating Voltage	10~30V DC
	Maximum Switching Current	100mA Max
	Power Consumption	6μA Max.@24V
	Leakage Current	40μA Max.@28v
	Maximum Switching Capacitance	3W Max
	Residual Voltage Drop	2.65V Max@50mA
	Suitable Load	DC24V Relay for PLC
	Protection Circuit	Surge Absorption Protection
Environmental conditions	Operating Temperature	-10~70℃
	Shock Resistance	50G
	Vibration Resistance	9G
	Protection Level	IP67(EN6052)
Mechanical data	Connection Method	2.8 ϕ ,2C,Gray Oil-resistant TPU
	Dimensions	15.1x4x5mm
	Material	Plastic
	Weight	about 19.5g
	Model	**MR-C86**

Dimensions

Unit:mm



Circuit diagram



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
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Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
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Safety door lock
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Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Environmental Cylinder Sensor

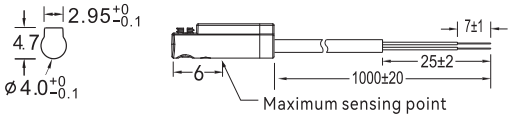
Enviromentally Resistant Type



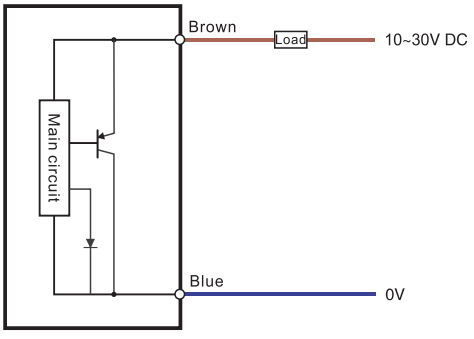
Basic features	Operating Principle	Magnetic
	Shell Style	Square
	Indicator Light	Red LED
Electrical data	Switching Logic	Electronic Type: Normally Open
	Switch Type	Two-wire Contactless Transistor Type
	Sensitivity	25-1000G
	Maximum Switching Frequency	1000Hz
	Operating Voltage	10~30V DC
	Maximum Switching Current	100mA Max
	Power Consumption	6μA Max.@24V
	Leakage Current	40μA Max.@28v
	Maximum Switching Capacitance	3W Max
	Residual Voltage Drop	2.65V Max@50mA
	Suitable Load	DC24V Relay for PLC
	Protection Circuit	Surge Absorption Protection
Environmental conditions	Operating Temperature	-10~70℃
	Shock Resistance	50G
	Vibration Resistance	9G
	Protection Level	IP67(EN6052)
Mechanical data	Connection Method	2.8 ϕ ,2C,Gray Oil-resistant TPU
	Dimensions	14.3x4x4.7mm
	Material	Plastic
	Weight	about 23.5g
	Model	**MR-70**

Dimensions

Unit:mm



Circuit diagram

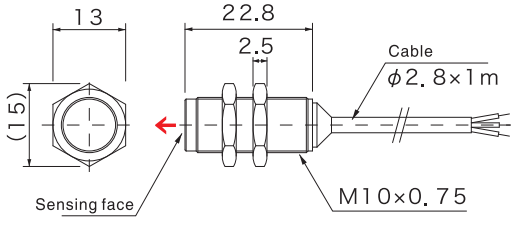




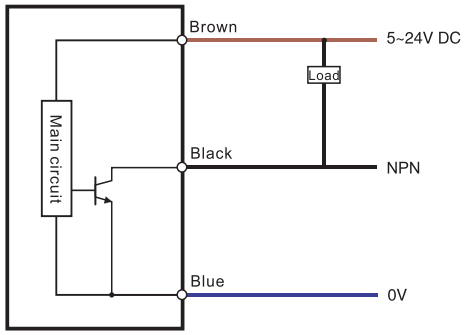
Basic features	Operating Principle		Magnetic
	Shell Style		Cylindrical
	Detection Distance	Iron Wire φ1	1.0
		High-Speed Steel Drill φ2	2.0
		Square Iron 20Xt1	2.4
	Operation Indicator Light		Distance from Main Body: Approximately 100mm
Electrical data	Output Mode		NPN Normally Open (N.O.) Type, with Rear (B) for OFF when Approached
	Operating Voltage		5~24V DC
	Output Current		≤15mA
	Power Consumption		≤15mA
	Voltage Endurance		AC 1000V 1min
	Insulation Resistance		250V DC≥20MΩ
Environmental conditions	Operating Temperature		-20℃~+85℃(No Condensation)
	Operating Humidity		20~95%RH
Mechanical data	Protection Level		IP67
	Connection Method		M10 Nut with Installation Torque of 12N·m
	Dimensions		M10x22.8mm
	Material		SUS303
	Weight		–
Special function	Features		Threaded Shell Type, Metal Shell, Waterproof
Model	Normally Open without Indicator Light		MR-F11
	Normally Open with Indicator Light		MR-F11-LED
	Normally Closed without Indicator Light		MR-F11-B
	Normally Closed with Indicator Light		MR-F11-B-LED

Dimensions

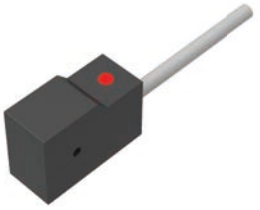
Unit:mm



Circuit diagram



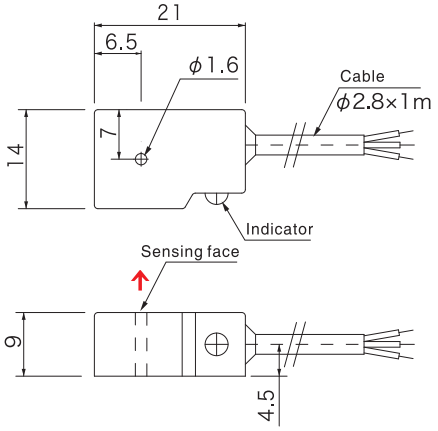
Magnetic Proximity Sensors



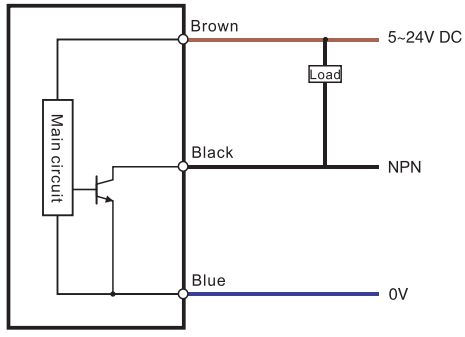
Basic features	Operating Principle		Magnetic
	Shell Style		Square
	Detection Distance	Square Iron 30Xt10	6.0
		Square Iron 30Xt2	4.0
	Operation Indicator Light		Distance from Main Body: Approximately 100mm
Electrical data	Output Mode		NPN Normally Open (N.O.) Type, with Rear (B) for OFF when Approached
	Operating Voltage		5~24V DC
	Output Current		≤15mA
	Power Consumption		≤15mA
	Voltage Endurance		AC 1000V 1min
	Insulation Resistance		250V DC≥20MΩ
Environmental conditions	Operating Temperature		-20℃~+85℃(No Condensation)
	Operating Humidity		20~80%RH
Mechanical data	Protection Level		IP65
	Connection Method		M3 Nut with Installation Torque of 0.3N·m
	Dimensions		9x14x21mm
	Material		GF Reinforced PBT
	Weight		22.8x13x13
Model	Normally Open		MR-F2
	Normally Closed		MR-F2-B

Dimensions

Unit:mm



Circuit diagram



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Slot Sensors
Photoelectric
Laser
Proximity
Displacement
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Contact
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AI Image
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Pressure Switch
Communication
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Guidance

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Magnetic sensors
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Environmental cylinder
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Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Upward Detection





Basic features	Operating Principle	Magnetic	
	Shell Style	Square	
	Detection Range	15mm	
Electrical data	Operating Voltage	5~24V DC	
	Output Mode	NPN Normally Open (N.O.) Type, with Rear (B) for OFF when Approached	
	Output Current	⩽15mA	⩽80mA
	Power Consumption	⩽15mA	
	Voltage Endurance	AC1000V 1min	
	Insulation Resistance	250VDC≥20MG	
	Response Speed	5us	
Environmental conditions	Operating Temperature	-20℃~+85℃(No Condensation)	
	Operating Humidity	20~95%RH	
	Protection Level	IP67	
Mechanical data	Connection Method	M3 Nut with Installation Torque of 0.8N·m	
	Dimensions	14x14x34mm	
	Material	GF Reinforced PBT:Black	
	Weight	about 17.6g	
Model	Normally Open	MR-D2	MR-D2P
	Normally Closed		MR-D2PB

(Matching magnet)

MR-DM2

Sideway Detection




Basic features	Operating Principle	Magnetic	
	Shell Style	Square	
	Detection Range	12mm	
Electrical data	Operating Voltage	12~24V DC	
	Output Mode	NPN Normally Open (N.O.) Type, with Rear (B) for OFF when Approached	
	Output Current	⩽80mA	
	Power Consumption	⩽15mA	⩽80mA
	Voltage Endurance	AC1000V 1min	
	Insulation Resistance	250V DC≥20MΩ	
	Response Speed	5us	
Environmental conditions	Operating Temperature	-20℃~+85℃(No Condensation)	
	Operating Humidity	20~95%RH	
	Protection Level	IP67	
Mechanical data	Connection Method	M3 Nut with Installation Torque of 0.8N·m	
	Dimensions	14x14x34mm	
	Material	GF Reinforced PBT:Black	
	Weight	about 17.4g	about 17g
Model	Normally Open	MR-D2X	MR-D2XP
	Normally Closed		MR-D2XPB

(Matching magnet)

MR-DM2X

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

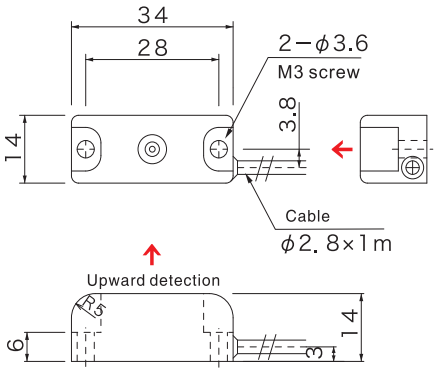
Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Door Sensors

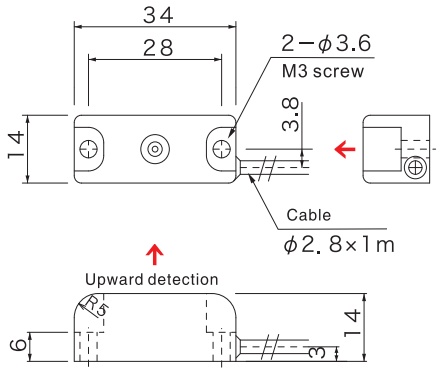
Dimensions

Unit:mm

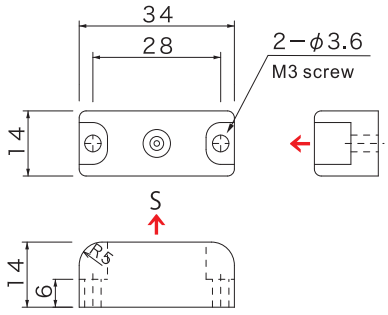
MR-D2



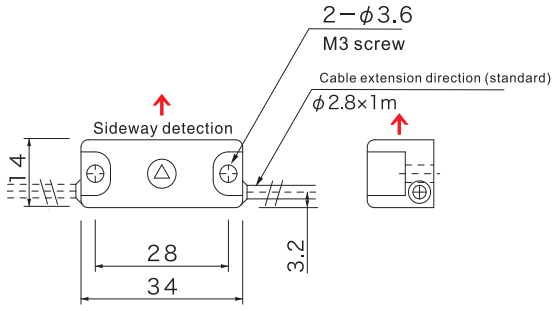
MR-D2P/D2PB



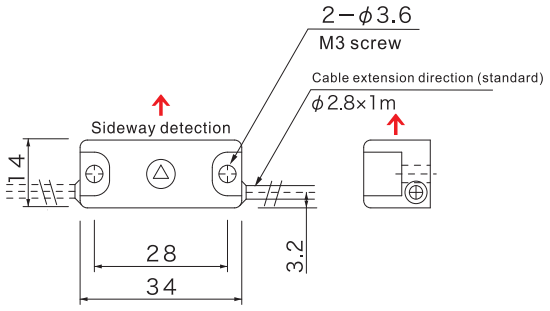
MR-DM2



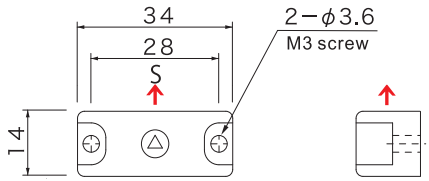
MR-D2X



MR-D2XP/D2XPB

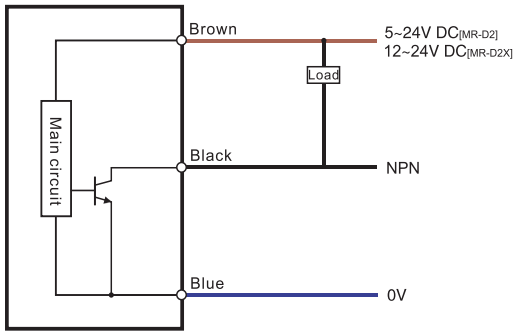


MR-DM2X

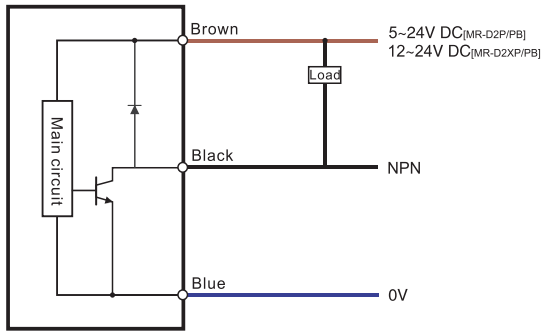


Circuit diagram

MR-D2/D2X



MR-D2P(PB)/D2XP(PB)



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
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Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Linear Sensors



Basic features	Operating Principle	Linear Sensor
	Shell Style	Square
Electrical data	Operating Voltage	5V DC
	Output Voltage	0.3→4.7V(-40→+40mT):(Center Value)
	Center Voltage	2.5V±0.15V
	Output Current	≤±12mA
	Power Consumption	12mA
	Response Speed	5us(100kHz)
Environmental conditions	Operating Temperature	-20℃~+85℃
	Operating Humidity	20~95%RH
	Protection Level	IP65
Mechanical data	Connection Method	M2 Nut with Installation Torque of 0.15N·m
	Dimensions	MR-L4:8.6x12x3.5mm MR-L4-H:7.8x12x4.2mm
	Material	GF Reinforced PBT:Orange
	Weight	2g
Special function	Magnetic Sensitivity	65mV/mT(Center Value)
	Magnetic Sensitivity Temperature Coefficient	0±0.04%℃
	Center Voltage Temperature Coefficient	0±0.5mV/℃
Model	Front Detection	**MR-L4**
	Side Detection	**MR-L4-H**

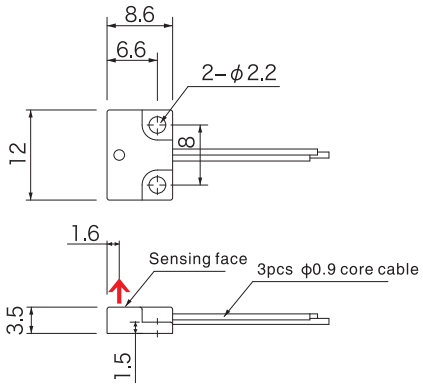


Basic features	Operating Principle	Linear Sensor
	Shell Style	Cylindrical
Electrical data	Operating Voltage	5V DC
	Output Voltage	0.3→4.7V(-40→+40mT):(Center Value)
	Center Voltage	2.5V±0.15V
	Output Current	≤ ± 12mA
	Power Consumption	12mA
	Response Speed	5us(100kHz)
Environmental conditions	Operating Temperature	-20℃~+85℃
	Operating Humidity	20~95%RH
	Protection Level	IP65
Mechanical data	Connection Method	M3 Nut with Installation Torque of 0.15N·m
	Dimensions	4.9x4.9x16mm
	Material	SUS303
	Weight	2g
Special function	Magnetic Sensitivity	65mV/mT(Center Value)
	Magnetic Sensitivity Temperature Coefficient	0 ± 0.04 % ℃
	Center Voltage Temperature Coefficient	0 ± 0.5mV/℃
	Model	**MR-L10X**

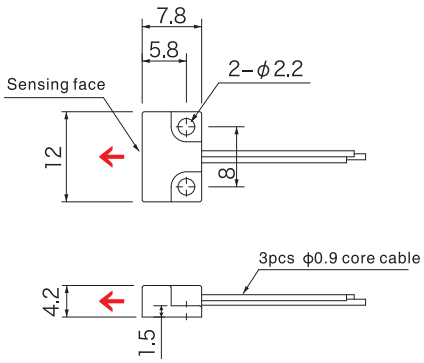
Unit:mm

Dimensions

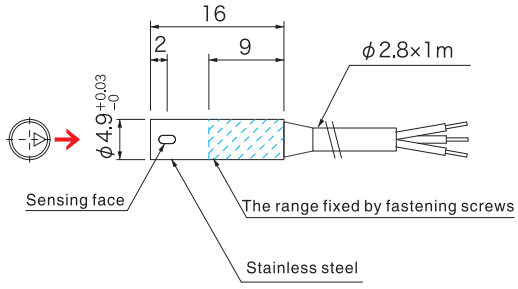
MR-L4



MR-L4-H

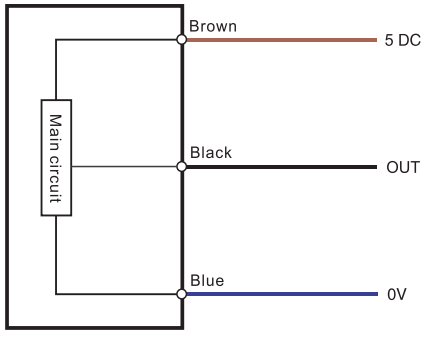


MR-L10X



Circuit diagram

MR-L4/L10X

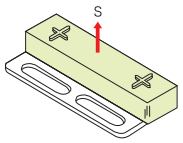
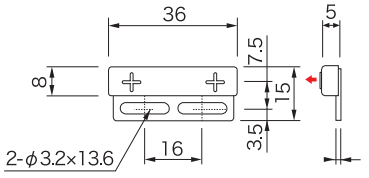
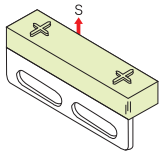
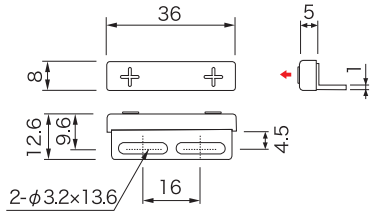
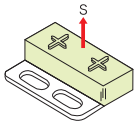
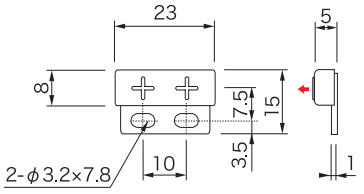
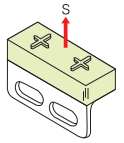
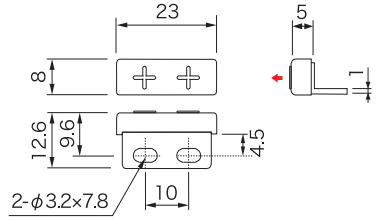
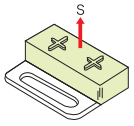
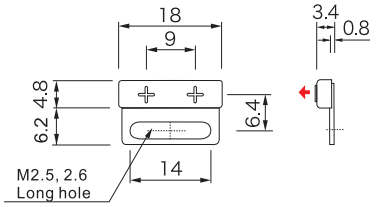
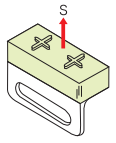
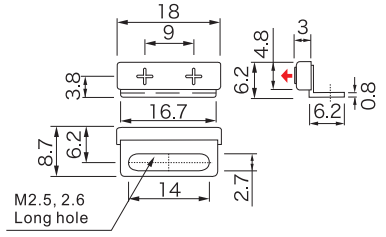
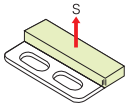
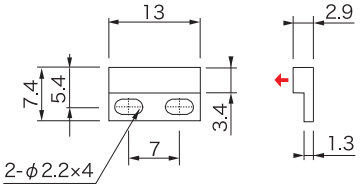
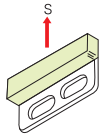
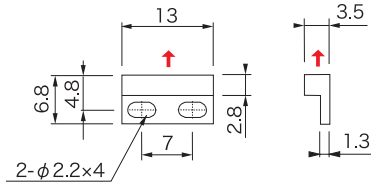
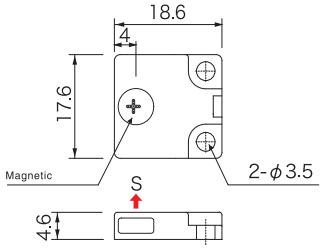
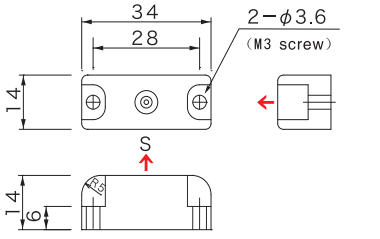
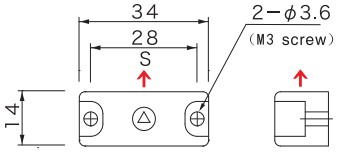
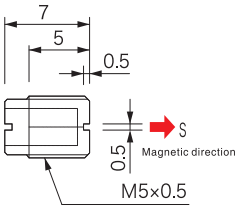
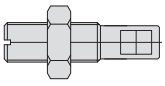
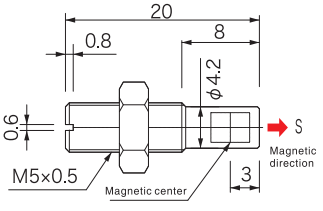
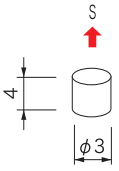
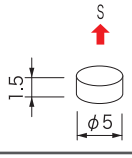


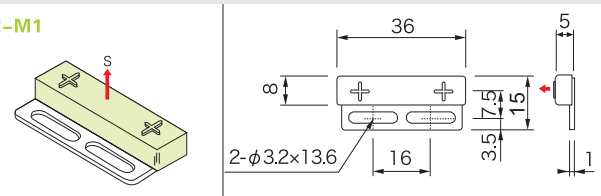
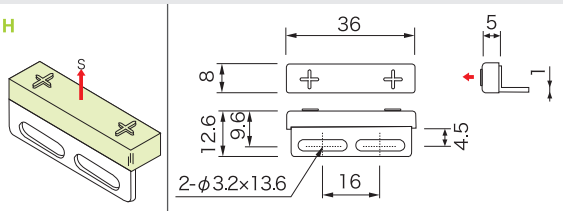
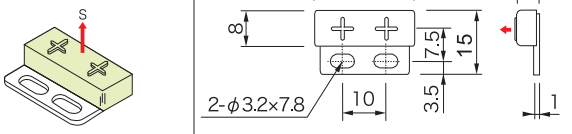
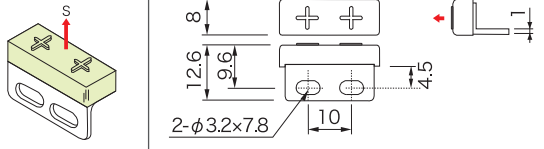
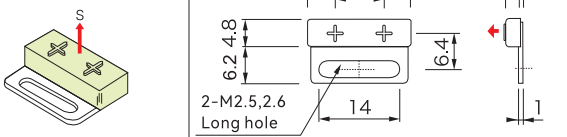
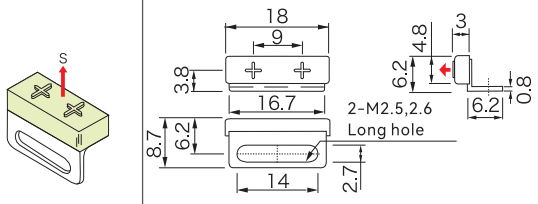
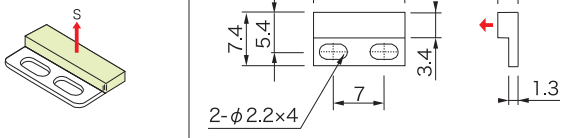
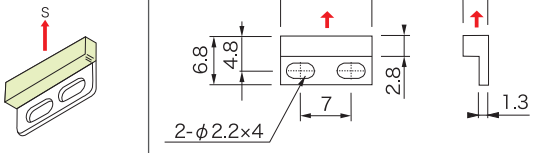
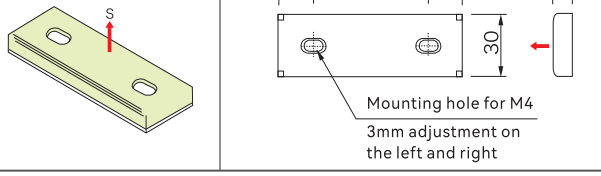
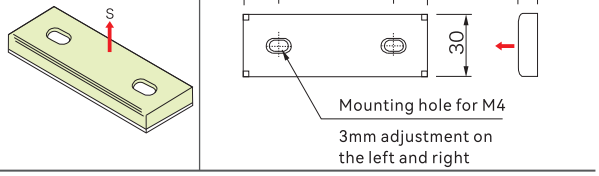
Ordinary Magnets

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

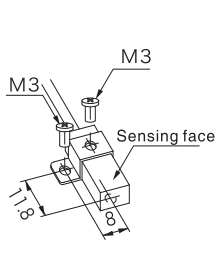
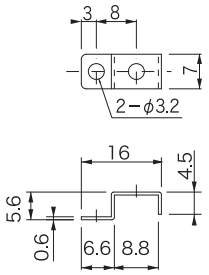
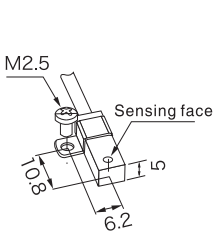
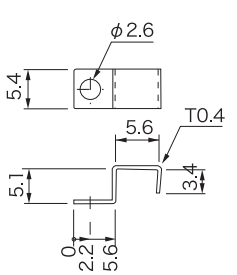
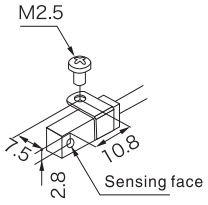
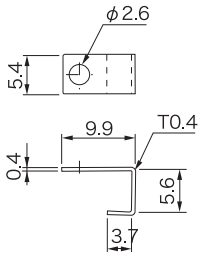
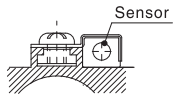
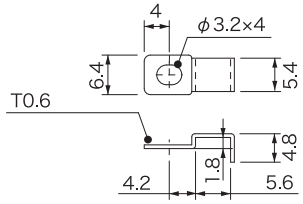
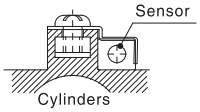
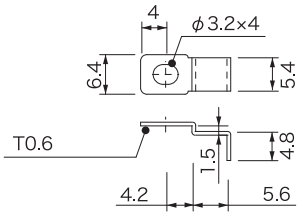
Guidance

Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Model No.	Dimensions (Unit:mm)	Model No.	Dimensions (Unit:mm)
MR-M1K	 	MR-M1KH	 
MR-M2K	 	MR-M2KH	 
MR-M3K	 	MR-M3KH	 
MR-M4K	 	MR-M4KH	 
MR-M9K	 	MR-M2S	 
MR-M2X	 	MR-M10S	 
MR-M10L	 	MR-M304	 
MR-M5015	 		

Model No.	Dimensions (Unit:mm)	Model No.	Dimensions (Unit:mm)
MR-M1		MR-M1H	
MR-M2		MR-M2H	
MR-M3		MR-M3H	
MR-M4		MR-M4H	
MR-M11		MR-M11-K	

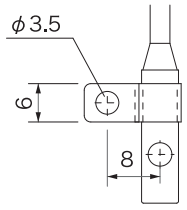
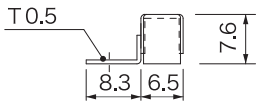
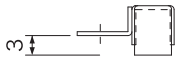
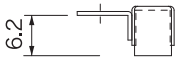
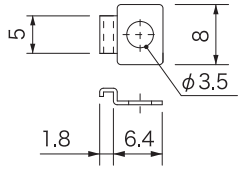
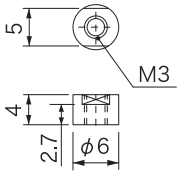
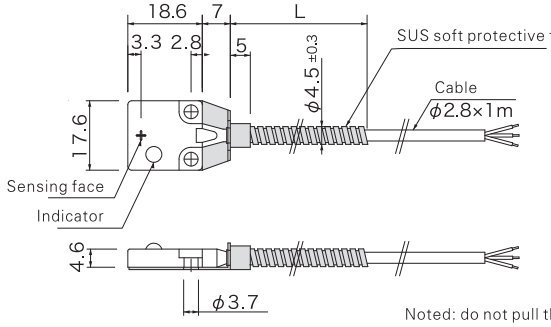
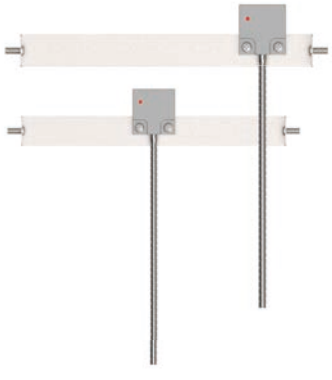
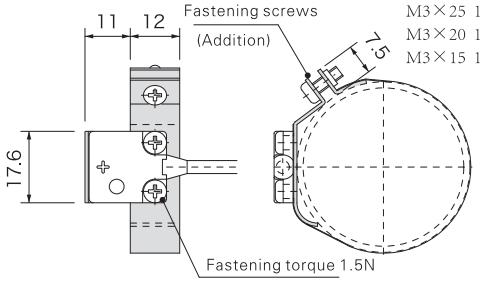
Mounting Accessories

Model No.	Dimensions (Unit:mm)	Model No.	Dimensions (Unit:mm)
HP2-1	 	HP3-1	 
HP3-2	 	HP3-3	 Cylinders (With special screw) 
HP3-4	 Cylinders (Using normal M3 nut)		
			

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

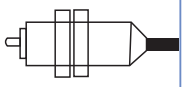
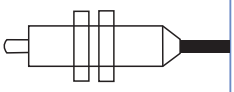
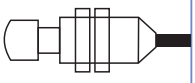
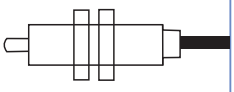
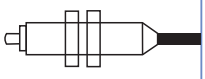
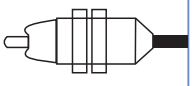
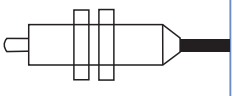
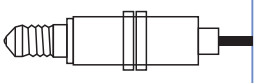
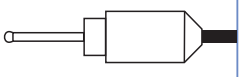
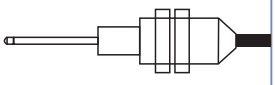
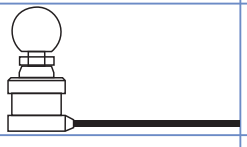
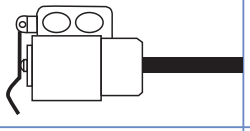
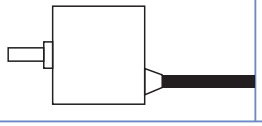
Magnetic
Magnetic sensors
High precision cylinder
Economic cylinder
Environmental cylinder
Magnetic Proximity
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
Mounting accessories

Appearance and mounting	Dimensions(Unit:mm)
	**HP12-0**  *Mounting deviation: None
	HP12-3  *Mounting deviation: 3mm
	HP12-6.2  *Mounting deviation: 6.2mm
	HP12-t  [Accessory]  [Nut] With special screw *Used for Pneumatic fingers
Mounting accessories: -BT: cable protective tube 	● Extremely strong, even being stomped on the ground,SUS304 soft protective tube ● Can be used in rough environments, such as dust, oil, water, and light, very robust  Noted: do not pull the cable with force more than 10N.
Mounting accessories: -BD: belt shaped mounting accessories 	● Fastening with stainless steel belt shaped accessories. ● Even with huge vibration or shock, it will stay fixed. ● Suitable for normal tube shaped cylinders with inner diameter ϕ32~100.  *Fastening screws(Addition) M3×25 1 pcs M3×20 1 pcs M3×15 1 pcs

High Accuracy Contact Sensors



- Magnetic detection principle, reliable performance, high durability
- Repeat accuracy up to 0.001mm
- With high precision spring; Min. detected operating force 0.3N

Appearance	Position Repeat Accuracy	Size	Range	Operating Force	Main Model No.	Pages
	± 0.001mm	M8X24	1.5mm	0.3N	MR-T8	H-03
	± 0.001mm	M8X35	3mm	0.6N	MR-T8A	
	± 0.001mm	M8X38.2	3mm	0.6N	MR-T8B	
	± 0.001mm	M8X39	3mm	0.6N	MR-T8P	
	± 0.001mm	M6X21	1.2mm	0.3N	MR-T6	H-04
	± 0.001mm	M10X27	3mm	1N	MR-T10	
	± 0.01mm	M10X21.2	1mm	H:5N J:0.5N	MR-T10B	
	± 0.001mm	M14X37	6mm	0.5~1.5N	MR-T5Z	H-05
	± 0.01mm	ϕ 14X80.5	5mm	H:2N J:0.8N	MR-T1X	
	± 0.01mm	M6X25	1.2mm	0.3N	MR-T6N	
	± 0.01mm	26X55	360° direction: 3 ± 0.5mm	H:3N J:0.5N	MR-T4X	
	± 0.01mm	ϕ 12X12.9	1mm	H:7N J:0.5N	MR-T12B	H-06
	± 0.002mm	Leverage: 18X7.4X15.7 Button: 10.4X7.4X14.9	……	Leverage: 0.3N Button: 0.6N	MR-T1QA	
	± 0.01mm	21X22	8mm	0.8N	MR-T93Q	

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
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Contact
Area
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Pressure Switch
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Contact

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Safety door lock
Pressure Switch
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Guidance
Contact
Contact

Contact




Ceramic plane

Cutting liquid resistant

Basic Features	Working principle	Contact sensor			
	Housing	Cylindrical			
	Detection distance	1.5mm		3mm	
	Pre-travel(PT)	0.4~0.7mm			
	Operate position(OP)	–			
	Indicator	Approx. 100mm from object			
Electrical data	Position repeatability	+0.001mm			
	Operating frequency	120 cycles per minute			
	Hysteresis	Less than 0.1mm			
	Output type	NPN NO/NPN NC			
	Output current	Without indicator: ≤15mA, with indicator: ≤12mA			
	Operating voltage	5~24VDC			
	Current consumption	Without indicator: ≤15mA, with indicator: ≤12mA			
Environmental conditions	Operating temperature	-20℃~+85℃,No freezing			
	Operating humidity	20%~95%RH,No condensation			
	Insulation strength	250VDC≥20MΩ			
	Dielectric strength	AC1000V for 1 minute			
	Enclosure rating	IP69			
Mechanical data	Operating force	0.3N			
	Travel	1.5mm	3mm		
	Connection	1m/3-core cable			
	Max. tightening torque	5N·m for M8 nut installation			
	Dimension	11.5x10x24mm	11.5x10x30mm	11.5x10x38.7mm	11.5x10x40mm
	Material	SUS303			
	Weight	about 15.8g			
	Accessory	Nut			
	Model	MR-T8-□-□ Action Null : OFF→ON B : ON→OFF Indicator on cables Null : No indicator LED : With indicators	MR-T8A-□-□ HOT Action Null : OFF→ON B : ON→OFF Indicator on cables Null : No indicator LED : With indicators	MR-T8B-□-□ HOT Action Null : OFF→ON B : ON→OFF Protective hood Null : Stainless steel TX : Ceramic	MR-T8P-□ Action Null : OFF→ON B : ON→OFF







Basic Features	Working principle	Contact sensor		
	Housing	Cylindrical		
	Detection distance	1.2mm	3mm	1mm
	Pre-travel(PT)	0.4~0.7mm	Freely specified from 0.4±0.15mm to 2.0±0.15mm	0.3~0.6mm
	Operate position(OP)	–		
	Indicator	Approx. 100mm from object		
Electrical data	Position repeatability	±0.001mm		±0.01mm
	Operating frequency	120 cycles per minute	≤60 cycles per minute	120 cycles per minute
	Hysteresis	Less than 0.1mm		
	Output type	NPN NO/NPN NC		
	Output current	Without indicator: ≤15mA, with indicator: ≤12mA		
	Operating voltage	5~24VDC		
	Current consumption	Without indicator: ≤15mA, with indicator: ≤12mA		
Environmental conditions	Operating temperature	-20℃~+85℃,No freezing		
	Operating humidity	20%~95%RH,No condensation		
	Insulation strength	250VDC≥20MΩ		
	Dielectric strength	AC1000V for 1 minute		
	Enclosure rating	IP67		
Mechanical data	Operating force	0.3N	1N	H:5N,J:0.5N
	Travel	1.2mm	3mm	1mm
	Connection	1m/3-core cable		
	Max. tightening torque	2N·m for M6 nut installation	12N·m for M10 nut installation	
	Dimension	7x8x21mm	15x13x27mm	
	Material	SUS303		
	Weight	about 13.1g		
	Accessory	Nut		
	Model	MR-T6-□-□ (HOT) Action: Null : OFF→ON, B : ON→OFF Indicator on cables: Null : No indicator, LED : With indicators	MR-T10-□-□ Built-in sensors: S : Single output, D : Dual output Action: Null : OFF→ON, B : ON→OFF	MR-T10B-□-□-□ Action: Null : OFF→ON, B : ON→OFF Operating force: H : 5N, J : 0.5N Indicator on cables: Null : No indicator, LED : With indicators

Contact

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Vibration
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RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Contact
Contact



Up to 4 action points available







360° degree detection

Basic Features	Working principle	Contact sensor			
	Housing	Cylindrical			Square
	Detection distance	6mm	5mm	1.2mm	3±0.5mm at 360°
	Pre-travel(PT)	0.1~0.4mm	–	0.4~0.7mm	–
	Operate position(OP)	–	2±0.5mm	–	1.5±0.5mm
	Indicator	Approx. 100mm from object			
Electrical data	Position repeatability	±0.001mm	±0.01mm		
	Operating frequency	120 cycles per minute			
	Hysteresis	Less than 0.08mm		Less than 0.1mm	
	Output type	NPN(NO)		NPN NO/NPN NC	NPN(NO)
	Output current	Without indicator: ≤15mA, with indicator: ≤12mA			
	Operating voltage	5~24VDC			
	Current consumption	Without indicator: ≤15mA, with indicator: ≤12mA			
Environmental conditions	Operating temperature	-20℃~+85℃,No freezing			
	Operating humidity	20%~95%RH,No condensation			
	Insulation strength	250VDC≥20MΩ			
	Dielectric strength	AC1000V for 1 minute			
	Enclosure rating	IP65			
Mechanical data	Operating force	0.5~1.5N	H: 2N； J: 0.8N	0.3N	H: 1.5N； J: 0.5N
	Travel	6mm	5mm	1.2mm	3±0.5mm at 360°
	Connection	1m/3-core cable			
	Max. tightening torque	18N·m for M14 nut installation	–	2N·m for M6 nut installation	–
	Dimension	17x19.6x59mm	80.6x14x14mm	7x8x25mm	26x57x117.5mm
	Material	Rubber sleeve: Butadiene rubber Housing、Nut: SUS303	SUS303		Housing: Zinc alloy; Ball handle: Black phenolic
	Weight	about 34.1g	about 13.1g		
	Accessory	Nut			
	Model	MR-T5Z-□-□ The shape of contact position S : SUS ball C : Super-hard ball Units of sensors 1~4	MR-T1X-□-□ Operating force H : 2N J : 0.8N Indicator on cables Null:No indicator LED:With indicators	MR-T6N-□-□-□ Action Null:OFF→ON B:ON→OFF NT(mm) 40,60,80,100 Indicator on cables Null:No indicator LED:With indicators	MR-T4X-□-□ Operating force H : 2N J : 0.8N Indicator on cables Null:No indicator LED:With indicators





Light operating force



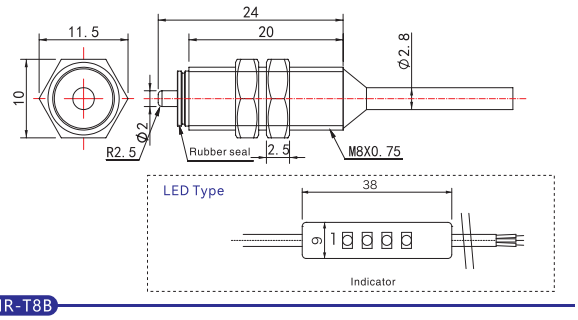
Basic Features	Working principle	Contact sensor		
	Housing	Cylindrical	Square	
	Detection distance	1mm	0.7mm	0.8mm
	Pre-travel(PT)	0.3~0.6mm	0.1~0.4mm	0.3-0.8mm
	Operate position(OP)	–		
	Indicator	Approx. 100mm from object	……	MR-T93Q：Red；MR-T93Q-E：None
Electrical data	Position repeatability	±0.001mm		±0.01mm
	Operating frequency	120 cycles per minute		
	Hysteresis	Less than 0.08mm	Less than 0.1mm	
	Output type	NPN NO/NPN NC		
	Output current	Without indicator: ≤15mA, with indicator: ≤12mA		MR-T93Q: ≤80mA: MR-T93Q-E: ≤15mA
	Operating voltage	5~24VDC		MR-T93Q: 12~24VDC; MR-T93Q-E: 5~24V DC
	Current consumption	Without indicator: ≤15mA, with indicator: ≤12mA		MR-T93Q: ≤80mA: MR-T93Q-E: ≤15mA
Environmental conditions	Operating temperature	-20℃~+85℃,No freezing		
	Operating humidity	20%~95%RH,No condensation		
	Insulation strength	250VDC≥20MΩ		
	Dielectric strength	AC1000V for 1 minute		
	Enclosure rating	IP65		
Mechanical data	Operating force	H: 7N J: 0.5N	0.6N	0.8N
	Travel	1mm	0.7mm	8mm
	Connection	1m/3-core cable		
	Max. tightening torque	–		0.3N·m for M3 nut installation
	Dimension	12.9x12x38mm	14.9x10.4x7.4mm	31x22x11mm
	Material	SUS303	Housing: Heat-resistant ABS; Rubber seal: Butadiene rubber	Shaft: SUS303; Housing: Glass fiber reinforced PBT
	Weight	about 17.8g		
	Accessory	Nut		
	Model	MR-T12B- □-□-□ Action: Null: OFF→ON, B: ON→OFF Operating force: H: 7N, J: 0.5N Indicator on cables: Null:No indicator, LED:With indicators	MR-T1QA-B-J MR-T1QA-H Note: MR-T1QA-B-J: Indicates ON→OFF action; Low operating force. MR-T1QA-H: Indicates OFF→ON action; Standard operating force.	MR-T93Q-□-□ Output current: Null: 80mA, E:15mA Action: Null: OFF→ON, B: ON→OFF

Contact

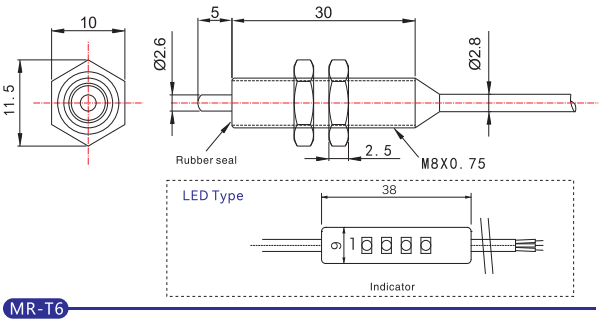
Dimensions

Unit:mm

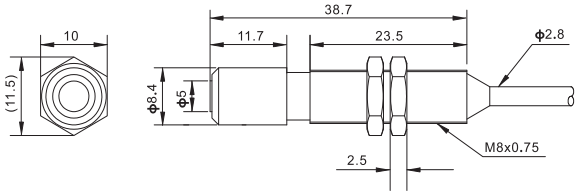
MR-T8



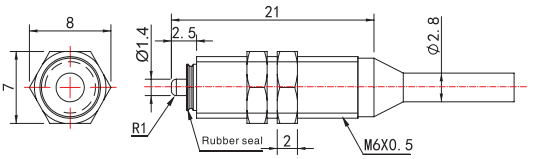
MR-T8A



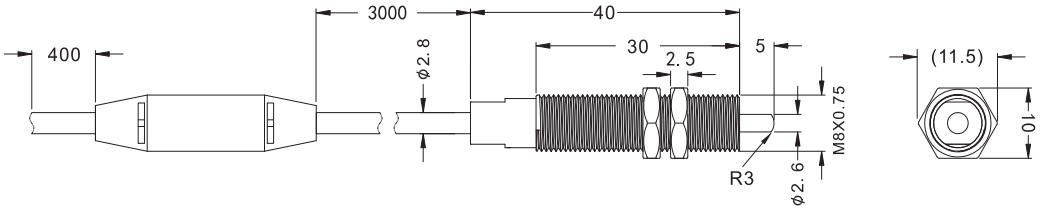
MR-T8B



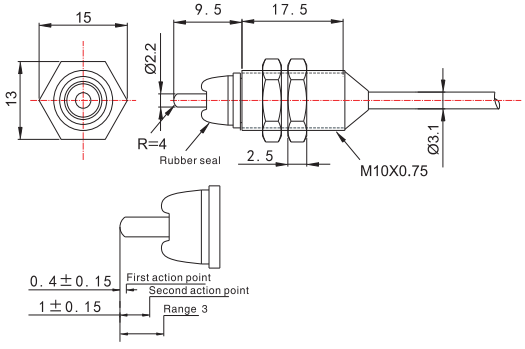
MR-T6



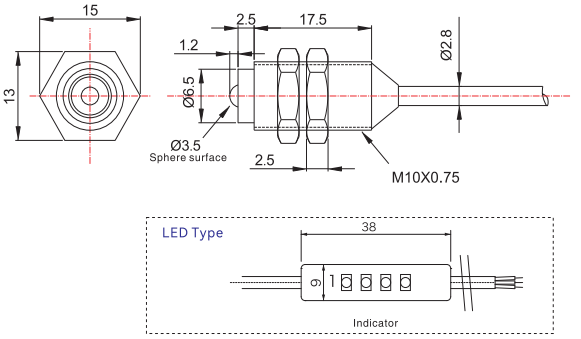
MR-T8P



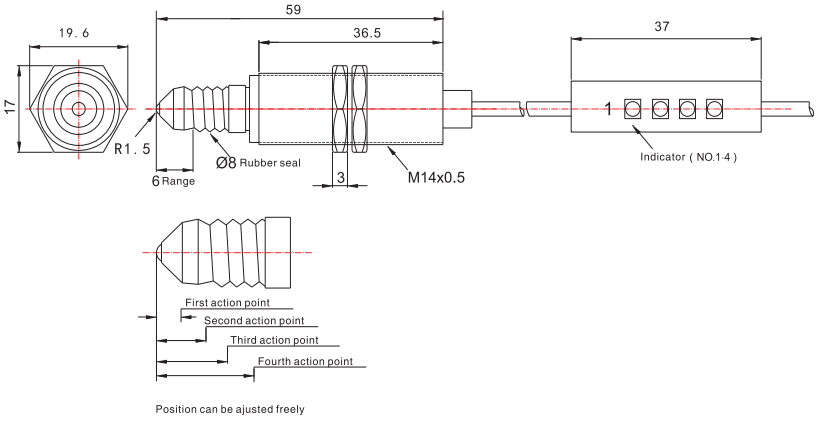
MR-T10



MR-T10B



MR-T5Z

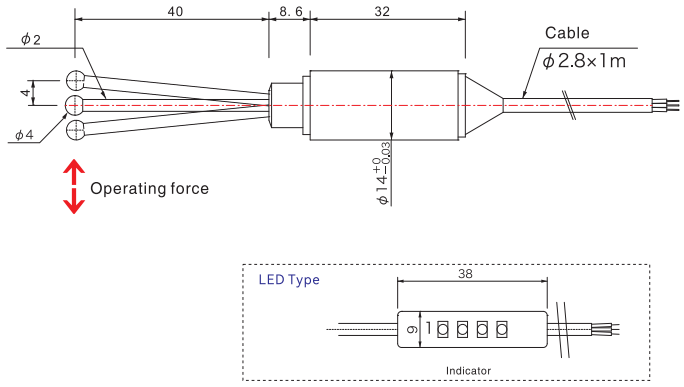


Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Contact
Contact

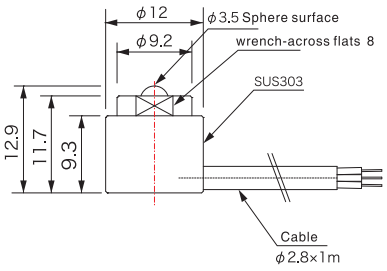
Unit:mm

Dimensions

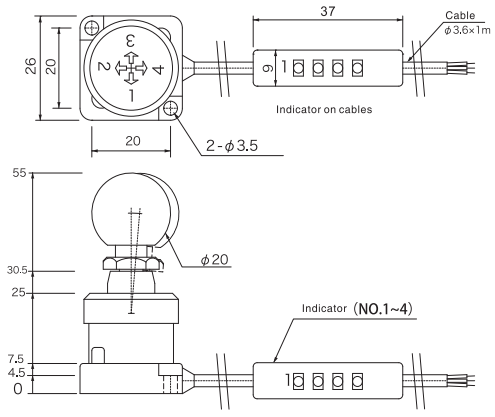
MR-T1X



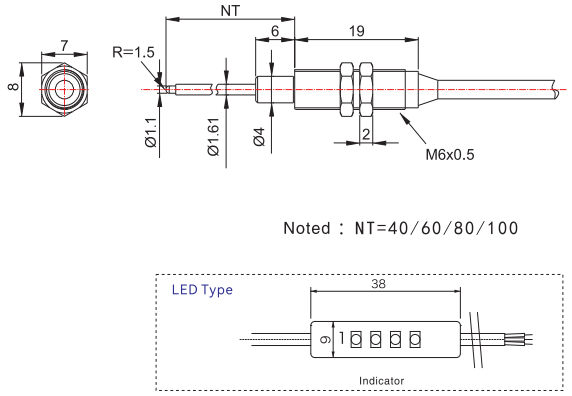
MR-T12B



MR-T4X

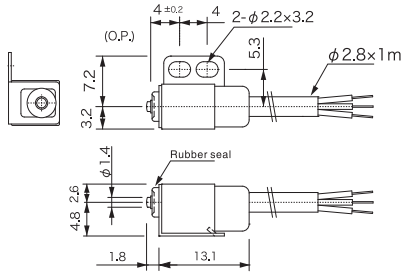


MR-T6N

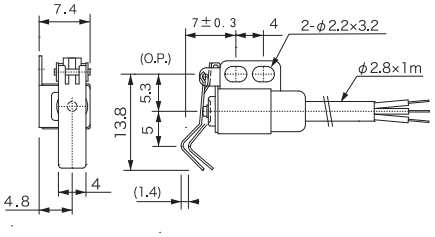


MR-T1QA

Button

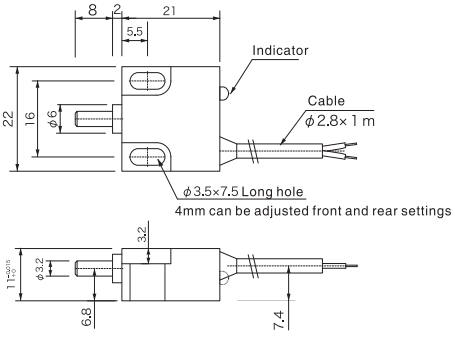


Leverage

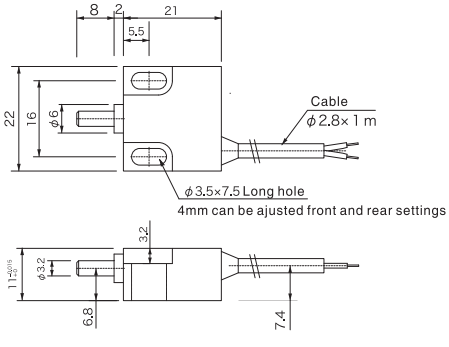


MR-T93Q

With Light



Without Light

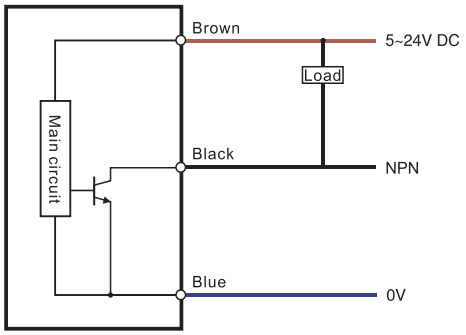


Contact

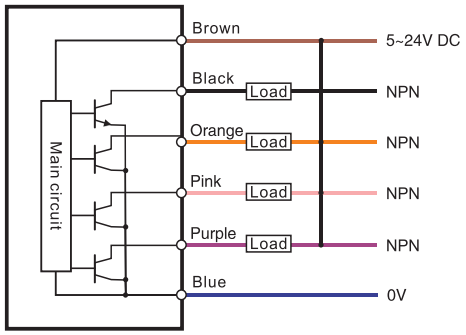
Circuit diagram

单位：mm

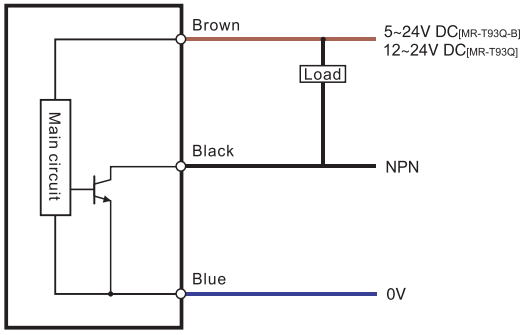
MR-T8(P)/T6/T10(B)/T1X/T6N/T12B/T1QA



MR-T5Z/T4X



MR-T93Q



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Contact
Contact

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Contact
Contact

Area/Safety/Obstacle Avoidance Sensor



- TUV certified safety level 4, suitable for high-risk places
- Fastened structure design, strong anti-vibration performance
- Various sizes, protection heights and inspection methods are available, and can be quickly customized according to various non-standard requirements

Guidance



Standard Type(BML Series)

- Cross-sectional size is 30mm * 30mm.
- Multiple resolutions for option.
- 3M cable as standard

P.I-07



Top-emitting Type(BZL Series)

- Frontal detection, thickness is only 17mm.
- With plastic installation hole, easy to install.
- The protection distance can be customized according to clients' requirements.

P.I-12



Side-emitting Type(BCL Series)

- Side detection, thickness is only 15mm.
- With plastic installation hole, easy to install.
- Small upper and lower blind area, saving installation space.

P.I-18



Waterproof Type(BPL Series)

- Cylindrical design with a diameter of only 48mm
- High-strength sealing ring, IP68
- Extraordinary self-checking function and strong anti-interference capability

P.I-22



Measuring Type (BAL Series)

- Surface mount technology for superior shock resistance
- Extraordinary self-checking function and strong anti-interference capability
- Customizable RS485/232/422 communication protocols

P.I-27



Economical Type (BKL Series)

- Strong anti-electromagnetic interference
- Class 4 safety grating design standards
- Satisfying different installation scenarios, suitable for a variety of working environments

P.I-42



Guidance Economical type(BSL Series)

- Response time ⩽ 20ms, fast response for safe production.
- Detection distance of 1-6m, covering general protection scenarios.
- Robust housing construction, resistant to pressure, vibration and shock.

P.I-38



Safety Light Curtain(SAF Series)

- Type 4 standard providing security, providing security for high-risk sites
- Beam Pitch: 10mm, 20mm, 30mm and 40mm. Protection distance: 3m or 12m, 8~20m

P.I-47

Lidar Scanner



TOF LiDAR Scanner(AS-11C/21C/41C)

- 20M/40M sensing distance
- 300° scanning range
- 25HZ (Max.) scanning frequency
- 0.125° (Max.) resolution

P.I-55



Obstacle avoidance LiDAR(AS-33C)

- Measuring distance up to 10 metres
- Scanning frequency 25 Hz; measurement rate up to 54 KHz
- Horizontal angle of view: 270° scanning angle in front of the machine.64 independent channels

P.I-65



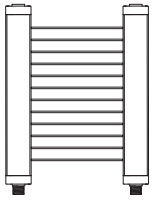
Navigation Lidar(AS-100C/31C/32C/35C/35CA)

- Scanning range 360° , maximum scanning frequency 30Hz
- Serial port (Type-C interface) communication, online output of measurement data (including distance and light intensity data in all directions)

P.I-61

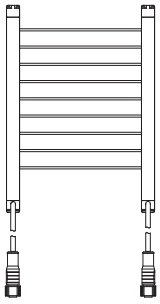
Guidance

Standard Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	10mm	> ϕ14mm, opaque	6~32	50~310mm	0.3~3m	NPN:BML10-TXX03NC PNP:BML10-TXX03PC	I-07
	14mm	> ϕ19mm, opaque	6~32	70~434mm	0.3~3m	NPN:BML14-TXX03NC PNP:BML14-TXX03PC	
	20mm	> ϕ25mm, opaque	4~32	60~620mm	0.3~3m	NPN:BML20-TXX03NC PNP:BML20-TXX03PC	
	25mm	> ϕ30mm, opaque	6~32	125~775mm	0.3~3m	NPN:BML25-TXX03NC PNP:BML25-TXX03PC	
	30mm	> ϕ35mm, opaque	4~32	90~930mm	0.3~3m	NPN:BML30-TXX03NC PNP:BML30-TXX03PC	
	40mm	> ϕ45mm, opaque	4~32	120~1240mm	0.3~3m	NPN:BML40-TXX03NC PNP:BML40-TXX03PC	

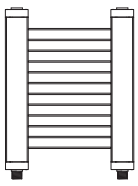
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Top-emitting Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	10mm	> ϕ18mm, opaque	6~32	50~310mm	0.3~1.5m	NPN:BZL10-TXX03NC PNP:BZL10-TXX03PC	I-12
	14mm	> ϕ22mm, opaque	6~32	70~434mm	0.3~1.5m	NPN:BZL14-TXX03NC PNP:BZL14-TXX03PC	
	20mm	> ϕ28mm, opaque	4~32	60~620mm	0.3~1.5m	NPN:BZL20-TXX03NC PNP:BZL20-TXX03PC	
	25mm	> ϕ33mm, opaque	6~32	125~775mm	0.3~1.5m	NPN:BZL25-TXX03NC PNP:BZL25-TXX03PC	
	30mm	> ϕ38mm, opaque	4~32	90~930mm	0.3~1.5m	NPN:BZL30-TXX03NC PNP:BZL30-TXX03PC	
	40mm	> ϕ48mm, opaque	4~32	120~1240mm	0.3~1.5m	NPN:BZL40-TXX03NC PNP:BZL40-TXX03PC	

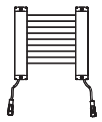
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Measuring Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	2.5mm	> ϕ3.75mm, opaque	32~1000	77.5~2497.5mm	0.3~3m	Voltage:BAL02-TXX03V Current:BAL02-TXX03A	I-27
	5mm	> ϕ6.5mm, opaque	16~1000	75~4995mm	0.3~3m	Voltage:BAL05-TXX03V Current:BAL05-TXX03A	
	10mm	> ϕ15mm, opaque	8~296	70~2950mm	0.3~3m	Voltage:BAL10-TXX03V Current:BAL10-TXX03A	
	20mm	> ϕ25mm, opaque	4~596	60~11900mm	0.3~3m	Voltage:BAL20-TXX03V Current:BAL20-TXX03A	
	40mm	> ϕ45mm, opaque	4~146	120~5800mm	0.3~3m	Voltage:BAL40-TXX03V Current:BAL40-TXX03A	

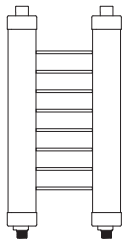
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Side-emitting Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	20mm	> ϕ 28mm, opaque	6~32	100~620mm	0.3~1m	NPN:BCL20-TXX03NC PNP:BCL20-TXX03PC	I-18
	40mm	> ϕ 48mm, opaque	4~32	120~1240mm	0.3~1m	NPN:BCL40-TXX03NC PNP:BCL40-TXX03PC	

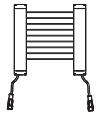
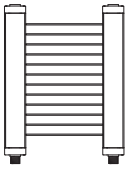
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Waterproof Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	10mm	> ϕ 15mm, opaque	4~32	50~310mm	0.3~3m	NPN:BPL10-TXX03NC PNP:BPL10-TXX03PC	I-22
	14mm	> ϕ 19mm, opaque	4~32	70~434mm	0.3~3m	NPN:BPL14-TXX03NC PNP:BPL14-TXX03PC	
	20mm	> ϕ 25mm, opaque	4~32	60~620mm	0.3~3m	NPN:BPL20-TXX03NC PNP:BPL20-TXX03PC	
	25mm	> ϕ 30mm, opaque	4~32	125~775mm	0.3~3m	NPN:BPL25-TXX03NC PNP:BPL25-TXX03PC	
	30mm	> ϕ 35mm, opaque	4~32	90~930mm	0.3~3m	NPN:BPL30-TXX03NC PNP:BPL30-TXX03PC	
	40mm	> ϕ 45mm, opaque	4~32	120~1240mm	0.3~3m	NPN:BPL40-TXX03NC PNP:BPL40-TXX03PC	

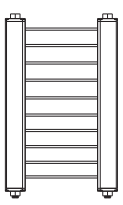
Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Economical Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	30mm	> ϕ 38mm, opaque	4~32	90~930mm	0.1~6m	NPN:BSL30-TXX06NC NPN:BSL30-TXX06PC	I-38
	40mm	> ϕ 48mm, opaque	4~32	120~1240mm	0.1~6m	NPN:BSL40-TXX06NC NPN:BSL40-TXX06PC	
	10mm	> ϕ 14mm, opaque	14~48	130~470mm	0.1~6m	NPN:BKL10-TXX06NC PNP:BKL10-TXX06PC	I-42
	20mm	> ϕ 25mm, opaque	8~48	140~940mm	0.1~6m	NPN:BKL20-TXX06NC PNP:BKL20-TXX06PC	
	40mm	> ϕ 45mm, opaque	4~48	120~1880mm	0.1~6m	NPN:BKL40-TXX06NC PNP:BKL40-TXX06PC	

Note: XX represents the number of beam, eg. 06 represents the 6 axis.

Safety Type

Appearance	Pitch	Min. sized detectable objects	Beams	Protection height	Protection distance	Model No.	Pages
	10mm	> ϕ 18mm, opaque	16~72	150~710mm	0~3m 0~12m 8~20m	PNP:SAF10-TXXYYPC	I-47
	20mm	> ϕ 28mm, opaque	8~72	140~1420mm	0~3m 0~12m 8~20m	PNP:SAF20-TXXYYPC	
	30mm	> ϕ 38mm, opaque	6~72	150~2130mm	0~3m 0~12m 8~20m	PNP:SAF30-TXXYYPC	
	40mm	> ϕ 48mm, opaque	4~72	120~2840mm	0~3m 0~12m 8~20m	PNP:SAF40-TXXYYPC	

Note: XX represents the number of beam, eg. 06 represents the 6 axis.YY stands for protection distance. For example: 03 means 0~3m.

Fiber Optic
Slot Sensors
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AI Image
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Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
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Area
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Guidance

Light curtains
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Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Product Highlights

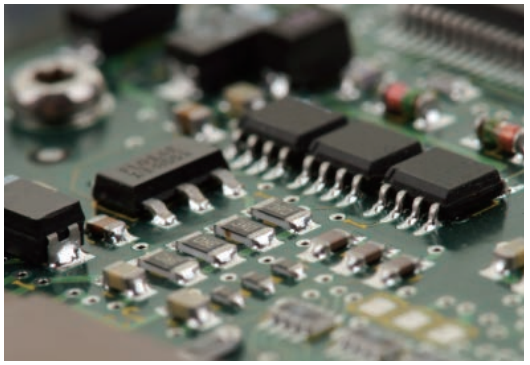
Area Safety Obstacle Avoidance

Light Curtain/Light Barrier Series



Excellent anti-interference performance

Adopt SMT chip design, strong anti-light and electromagnetic interference ability





High-quality components

High-quality lamp beads, good power and stability, long transmitting distance, long light-emitting life

Rugged body construction

Fastened structure design, with a variety of anti-vibration measures, high stability





Type 4 light curtains for high-risk locations

SAF type class 4 light curtain for safety protection in high-risk locations
Adopt double circuit output signal, perfect self-test, short response time

Various sizes for option

Provides a variety of sizes for detecting palm, finger, arm, etc.

Step 1: Select the beam pitch
To protect fingers and palms, choose 10mm;
To protect the arm, choose 20mm;
To protect the body, choose 40mm



Detecting fingers:
beam pitch 10mm



Detecting palms:
beam pitch 20~30mm

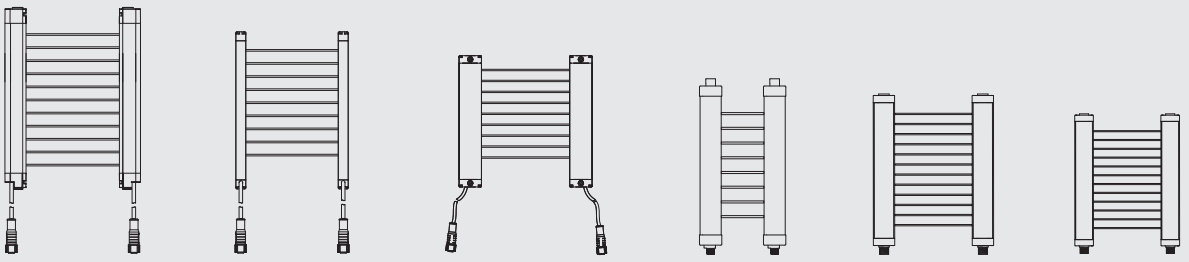


Detection arm:
beam pitch 40mm

Step 2:
According to the protection height, select the appropriate number of optical axes (greater than 4 even), select the signal output (there are a variety of signal output, PNP * 2, NPN * 2, relays, etc.)

Step 3:
Select the alignment distance (light curtain cross-section size is small, the alignment distance is generally closer, less than 3 meters; light curtain cross-section size is large, the alignment distance is generally farther, more than 3 meters.

Step 4: Select the shape and structure of the light curtain



Economical type | Front Lighting Type | Side Lighting Type | Waterproof type | Standard type | Measuring type

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Fiber Optic
Slot Sensors
Photoelectric
Laser
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Guidance

Light curtains
Standard type
Top-emitting type
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Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Standard Type

BML Series



Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	–
	Standard	–
	Light source	Infrared light (modulation)
	Number of beams	4~32 beams
	Beam pitch	10/14/20/25/30/40mm
	Protection height	50~1240mm
	Protection distance	0.3~3.0m
	Mini. detectable object	ϕ14/ϕ19/ϕ25/ϕ30/ϕ35/ϕ45mm or more opaque object
Electrical data	Output Mode	NPN/PNP
	Synchronization type	Line synchronization
	Response time	≤15ms
	Operating voltage	24VDC ± 10%
	Current consumption	≤200mA
	Power consumption	4~6W
	Residual Voltage	≤1.5V(75mA)
	Load Current	–
	Insulation resistance	≥50MΩ between power terminal and case (500VDC)
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection/surge protection
Environmental conditions	Operating temperature	–10~55℃(No freezing)
	Storage temperature	–15~60℃(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp≤3000Lux;LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~150Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	106~1305x35x51mm
	Material	Aluminum
	Weight	0.53~6.53kg
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cable, M12/4-pin plug cable

BML10

Beam pitch		10mm						
Mini. detectable object		φ14 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	……	32 beams
Protection height		50mm	70mm	90mm	110mm	130mm	……	310mm
Length of light curtain		106mm	126mm	146mm	166mm	186mm	……	366mm
Model	NPN NC	BML10-T0603NC	BML10-T0803NC	BML10-T1003NC	BML10-T1203NC	BML10-T1403NC	……	BML10-T3203NC
	PNP NC	BML10-T0603PC	BML10-T0803PC	BML10-T1003PC	BML10-T1203PC	BML10-T1403PC	……	BML10-T3203PC

Remarks: Maximum number of beams is 70.

BML Series

BML14

Beam pitch		14mm						
Mini. detectable object		φ19 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	……	32 beams
Protection height		70mm	98mm	126mm	154mm	182mm	……	434mm
Length of light curtain		128mm	156mm	184mm	212mm	240mm	……	492mm
Model	NPN NC	BML14-T0603NC	BML14-T0803NC	BML14-T1003NC	BML14-T1203NC	BML14-T1403NC	……	BML14-T3203NC
	PNP NC	BML14-T0603PC	BML14-T0803PC	BML14-T1003PC	BML14-T1203PC	BML14-T1403PC	……	BML14-T3203PC

Remarks: Maximum number of beams is 32.

BML20

Beam pitch		20mm						
Mini. detectable object		φ25 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	32 beams
Protection height		60mm	100mm	140mm	180mm	220mm	……	620mm
Length of light curtain		115mm	155mm	195mm	235mm	275mm	……	675mm
Model	NPN NC	BML20-T0403NC	BML20-T0603NC	BML20-T0803NC	BML20-T1003NC	BML20-T1203NC	……	BML20-T3203NC
	PNP NC	BML20-T0403PC	BML20-T0603PC	BML20-T0803PC	BML20-T1003PC	BML20-T1203PC	……	BML20-T3203PC

Remarks: Maximum number of beams is 72.

BML25

Beam pitch		25mm						
Mini. detectable object		φ30 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	……	32 beams
Protection height		125mm	175mm	225mm	275mm	325mm	……	775mm
Length of light curtain		182.5mm	232.5mm	282.5mm	332.5mm	382.5mm	……	832.5mm
Model	NPN NC	BML25-T0603NC	BML25-T0803NC	BML25-T1003NC	BML25-T1203NC	BML25-T1403NC	……	BML25-T3203NC
	PNP NC	BML25-T0603PC	BML25-T0803PC	BML25-T1003PC	BML25-T1203PC	BML25-T1403PC	……	BML25-T3203PC

Remarks: Maximum number of beams is 32.

BML30

Beam pitch		30mm						
Mini. detectable object		φ35 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	32 beams
Protection height		90mm	150mm	210mm	270mm	330mm	……	930mm
Length of light curtain		150mm	210mm	270mm	330mm	390mm	……	990mm
Model	NPN NC	BML30-T0403NC	BML30-T0603NC	BML30-T0803NC	BML30-T1003NC	BML30-T1203NC	……	BML30-T3203NC
	PNP NC	BML30-T0403PC	BML30-T0603PC	BML30-T0803PC	BML30-T1003PC	BML30-T1203PC	……	BML30-T3203PC

Remarks: Maximum number of beams is 32.

BML40

Beam pitch		40mm						
Mini. detectable object		φ45 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	32 beams
Protection height		120mm	200mm	280mm	360mm	440mm	……	1240mm
Length of light curtain		185mm	265mm	345mm	425mm	505mm	……	1305mm
Model	NPN NC	BML40-T0403NC	BML40-T0603NC	BML40-T0803NC	BML40-T1003NC	BML40-T1203NC	……	BML40-T3203NC
	PNP NC	BML40-T0403PC	BML40-T0603PC	BML40-T0803PC	BML40-T1003PC	BML40-T1203PC	……	BML40-T3203PC

Remarks: Maximum number of beams is 72.

Fiber Optic
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Vibration
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Standard Type

BML Series

BML10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML10-T0603NC	BML10-T0603PC	10	06	50	108
BML10-T0803NC	BML10-T0803PC	10	08	70	128
BML10-T1003NC	BML10-T1003PC	10	10	90	148
BML10-T1203NC	BML10-T1203PC	10	12	110	168
BML10-T1403NC	BML10-T1403PC	10	14	130	188
BML10-T1603NC	BML10-T1603PC	10	16	150	208
BML10-T1803NC	BML10-T1803PC	10	18	170	228
BML10-T2003NC	BML10-T2003PC	10	20	190	248
BML10-T2203NC	BML10-T2203PC	10	22	210	268
BML10-T2403NC	BML10-T2403PC	10	24	230	288
BML10-T2603NC	BML10-T2603PC	10	26	250	308
BML10-T2803NC	BML10-T2803PC	10	28	270	328
BML10-T3003NC	BML10-T3003PC	10	30	290	348
BML10-T3203NC	BML10-T3203PC	10	32	310	368

BML14

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML14-T0603NC	BML14-T0603PC	14	06	70	128
BML14-T0803NC	BML14-T0803PC	14	08	98	156
BML14-T1003NC	BML14-T1003PC	14	10	126	184
BML14-T1203NC	BML14-T1203PC	14	12	154	212
BML14-T1403NC	BML14-T1403PC	14	14	182	240
BML14-T1603NC	BML14-T1603PC	14	16	210	268
BML14-T1803NC	BML14-T1803PC	14	18	238	296
BML14-T2003NC	BML14-T2003PC	14	20	266	324
BML14-T2203NC	BML14-T2203PC	14	22	294	352
BML14-T2403NC	BML14-T2403PC	14	24	322	380
BML14-T2603NC	BML14-T2603PC	14	26	350	408
BML14-T2803NC	BML14-T2803PC	14	28	378	436
BML14-T3003NC	BML14-T3003PC	14	30	406	464
BML14-T3203NC	BML14-T3203PC	14	32	434	492

BML20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML20-T0403NC	BML20-T0403PC	20	04	60	116
BML20-T0603NC	BML20-T0603PC	20	06	100	156
BML20-T0803NC	BML20-T0803PC	20	08	140	196
BML20-T1003NC	BML20-T1003PC	20	10	180	236
BML20-T1203NC	BML20-T1203PC	20	12	220	276
BML20-T1403NC	BML20-T1403PC	20	14	260	316
BML20-T1603NC	BML20-T1603PC	20	16	300	356
BML20-T1803NC	BML20-T1803PC	20	18	340	396
BML20-T2003NC	BML20-T2003PC	20	20	380	436
BML20-T2203NC	BML20-T2203PC	20	22	420	476
BML20-T2403NC	BML20-T2403PC	20	24	460	516
BML20-T2603NC	BML20-T2603PC	20	26	500	556
BML20-T2803NC	BML20-T2803PC	20	28	540	596
BML20-T3003NC	BML20-T3003PC	20	30	580	636
BML20-T3203NC	BML20-T3203PC	20	32	620	676

BML Series

BML25

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML25-T0603NC	BML25-T0603PC	25	06	125	184
BML25-T0803NC	BML25-T0803PC	25	08	175	234
BML25-T1003NC	BML25-T1003PC	25	10	225	284
BML25-T1203NC	BML25-T1203PC	25	12	275	334
BML25-T1403NC	BML25-T1403PC	25	14	325	384
BML25-T1603NC	BML25-T1603PC	25	16	375	434
BML25-T1803NC	BML25-T1803PC	25	18	425	484
BML25-T2003NC	BML25-T2003PC	25	20	475	534
BML25-T2203NC	BML25-T2203PC	25	22	525	584
BML25-T2403NC	BML25-T2403PC	25	24	575	634
BML25-T2603NC	BML25-T2603PC	25	26	625	684
BML25-T2803NC	BML25-T2803PC	25	28	675	734
BML25-T3003NC	BML25-T3003PC	25	30	725	784
BML25-T3203NC	BML25-T3203PC	25	32	775	834

BML30

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML30-T0403NC	BML30-T0403PC	30	04	90	151
BML30-T0603NC	BML30-T0603PC	30	06	150	211
BML30-T0803NC	BML30-T0803PC	30	08	210	271
BML30-T1003NC	BML30-T1003PC	30	10	270	331
BML30-T1203NC	BML30-T1203PC	30	12	330	391
BML30-T1403NC	BML30-T1403PC	30	14	390	451
BML30-T1603NC	BML30-T1603PC	30	16	450	511
BML30-T1803NC	BML30-T1803PC	30	18	510	571
BML30-T2003NC	BML30-T2003PC	30	20	570	631
BML30-T2203NC	BML30-T2203PC	30	22	630	691
BML30-T2403NC	BML30-T2403PC	30	24	690	751
BML30-T2603NC	BML30-T2603PC	30	26	750	811
BML30-T2803NC	BML30-T2803PC	30	28	810	871
BML30-T3003NC	BML30-T3003PC	30	30	870	931
BML30-T3203NC	BML30-T3203PC	30	32	930	991

BML40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BML40-T0403NC	BML40-T0403PC	40	04	120	186
BML40-T0603NC	BML40-T0603PC	40	06	200	266
BML40-T0803NC	BML40-T0803PC	40	08	280	346
BML40-T1003NC	BML40-T1003PC	40	10	360	426
BML40-T1203NC	BML40-T1203PC	40	12	440	506
BML40-T1403NC	BML40-T1403PC	40	14	520	586
BML40-T1603NC	BML40-T1603PC	40	16	600	666
BML40-T1803NC	BML40-T1803PC	40	18	680	746
BML40-T2003NC	BML40-T2003PC	40	20	760	826
BML40-T2203NC	BML40-T2203PC	40	22	840	906
BML40-T2403NC	BML40-T2403PC	40	24	920	986
BML40-T2603NC	BML40-T2603PC	40	26	1000	1066
BML40-T2803NC	BML40-T2803PC	40	28	1080	1146
BML40-T3003NC	BML40-T3003PC	40	30	1160	1226
BML40-T3203NC	BML40-T3203PC	40	32	1240	1306

Fiber Optic
Slot Sensors
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
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Measuring type
Economical type

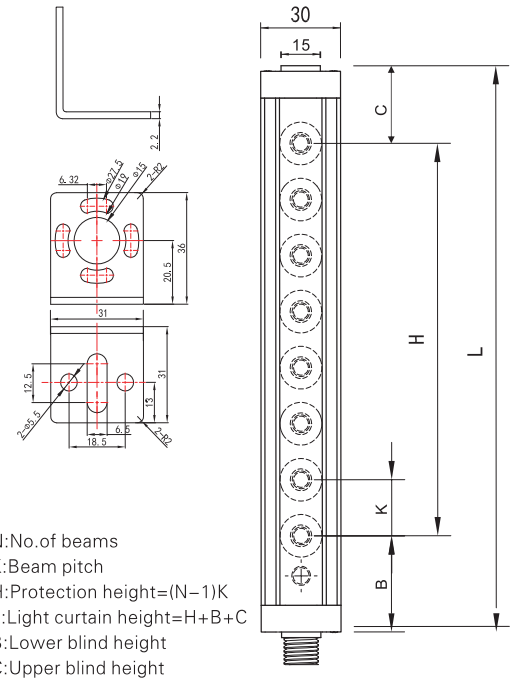
Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Standard Type

Dimensions

Unit:mm



N:No.of beams
K:Beam pitch
H:Protection height=(N−1)K
L:Light curtain height=H+B+C
B:Lower blind height
C:Upper blind height

BML10
K：10
H：(N−1)*10
L：H+56
B：41
C：15

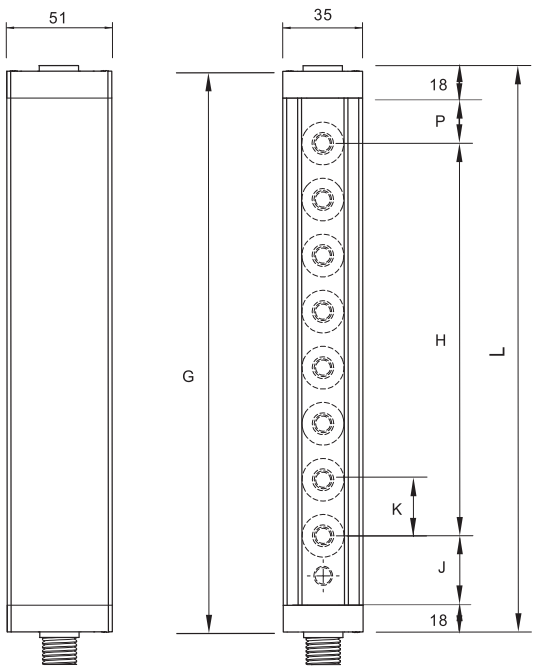
BML14
K：14
H：(N−1)*14
L：H+58
B：41
C：17

BML20
K：20
H：(N−1)*20
L：H+55
B：35
C：20

BML25
K：25
H：(N−1)*25
L：H+57.5
B：35
C：22.5

BML30
K：30
H：(N−1)*30
L：H+60
B：35
C：25

BML40
K：40
H：(N−1)*40
L：H+65
B：35
C：30



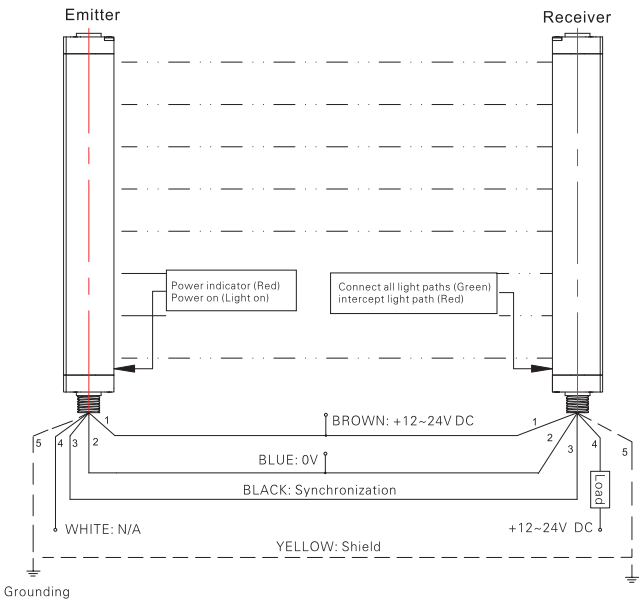
When the detection distance is more than 10m and the number of optical axis exceeds 32 axis:

H：Detection height
H=(N−1)*k
L：Light curtain height
N：No.of beams
L=P+H+J+18+18

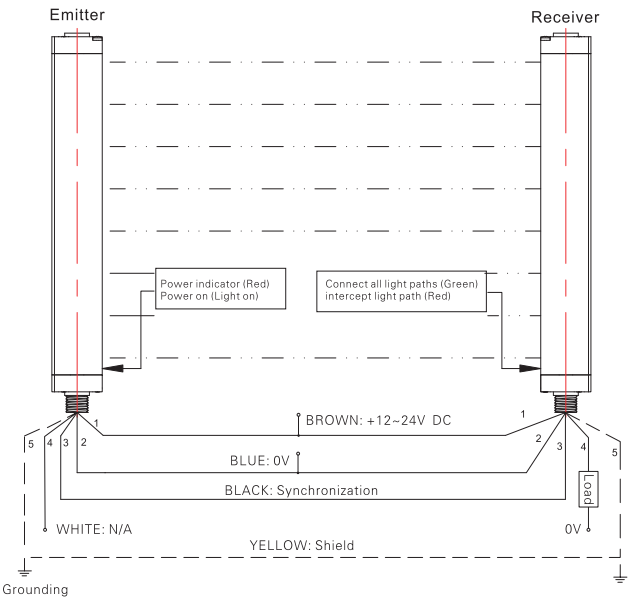
K	14	20	25	30	40
P	7	10	12.5	15	20
J	32	25	25	25	25

Connection Diagram

NPN



PNP



BZL Series



Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	–
	Standard	–
	Light source	Infrared light (modulation)
	Number of beams	4~32 beams
	Beam pitch	10/14/20/25/30/40mm
	Protection height	50~1240mm
	Protection distance	0.3~3.0m
	Mini. detectable object	ϕ18/ϕ22/ϕ28/ϕ33/ϕ38/ϕ48mm or more opaque object
Electrical data	Output Mode	NPN/PNP
	Synchronization type	Line synchronization
	Response time	≤15ms
	Operating voltage	24VDC ± 10%
	Current consumption	≤200mA
	Power consumption	3~8W
	Residual Voltage	≤2.5V(50mA)
	Load Current	–
	Insulation resistance	≥100MΩ between power terminal and case (500VDC)
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection
Environmental conditions	Operating temperature	–10~55℃(No freezing)
	Storage temperature	–15~60℃(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp≤2000Lux;LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	110~1309x30x17.2mm
	Material	Aluminum
	Weight	0.55~6.55kg
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cablex2

BZL10

Beam pitch		10mm						
Mini. detectable object		φ18 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10beams	12 beams	14 beams	……	32 beams
Protection height		50mm	70mm	90mm	110mm	130mm	……	310mm
Length of light curtain		110mm	130mm	150mm	170mm	190mm	……	370mm
Model	NPN NC	BZL10-T0603NC	BZL10-T0803NC	BZL10-T1003NC	BZL10-T1203NC	BZL10-T1403NC	……	BZL10-T3203NC
	PNP NC	BZL10-T0603PC	BZL10-T0803PC	BZL10-T1003PC	BZL10-T1203PC	BZL10-T1403PC	……	BZL10-T3203PC

Remarks: Maximum number of beams is 32.

Fiber Optic
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Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Top-emitting Type

BZL Series

BZL14

Beam pitch		14mm						
Mini. detectable object		φ22 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	……	32 beams
Protection height		70mm	98mm	126mm	154mm	182mm	……	434mm
Length of light curtain		132mm	160mm	188mm	216mm	244mm	……	496mm
Model	NPN NC	BZL14-T0603NC	BZL14-T0803NC	BZL14-T1003NC	BZL14-T1203NC	BZL14-T1403NC	……	BZL14-T3203NC
	PNP NC	BZL14-T0603PC	BZL14-T0803PC	BZL14-T1003PC	BZL14-T1203PC	BZL14-T1403PC	……	BZL14-T3203PC

Remarks: Maximum number of beams is 32.

BZL20

Beam pitch		20mm						
Mini. detectable object		φ28 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	32 beams
Protection height		60mm	100mm	140mm	180mm	220mm	……	620mm
Length of light curtain		119mm	159mm	199mm	239mm	279mm	……	679mm
Model	NPN NC	BZL20-T0403NC	BZL20-T0603NC	BZL20-T0803NC	BZL20-T1003NC	BZL20-T1203NC	……	BZL20-T3203NC
	PNP NC	BZL20-T0403PC	BZL20-T0603PC	BZL20-T0803PC	BZL20-T1003PC	BZL20-T1203PC	……	BZL20-T3203PC

Remarks: Maximum number of beams is 32.

BZL25

Beam pitch		25mm						
Mini. detectable object		φ33 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	……	32 beams
Protection height		125mm	175mm	225mm	275mm	325mm	……	775mm
Length of light curtain		186.5mm	236.5mm	286.5mm	336.5mm	386.5mm	……	836.5mm
Model	NPN NC	BZL25-T0603NC	BZL25-T0803NC	BZL25-T1003NC	BZL25-T1203NC	BZL25-T1403NC	……	BZL25-T3203NC
	PNP NC	BZL25-T0603PC	BZL25-T0803PC	BZL25-T1003PC	BZL25-T1203PC	BZL25-T1403PC	……	BZL25-T3203PC

Remarks: Maximum number of beams is 32.

BZL30

Beam pitch		30mm						
Mini. detectable object		φ38 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	32 beams
Protection height		90mm	150mm	210mm	270mm	330mm	……	930mm
Length of light curtain		154mm	214mm	274mm	334mm	394mm	……	994mm
Model	NPN NC	BZL30-T0403NC	BZL30-T0603NC	BZL30-T0803NC	BZL30-T1003NC	BZL30-T1203NC	……	BZL30-T3203NC
	PNP NC	BZL30-T0403PC	BZL30-T0603PC	BZL30-T0803PC	BZL30-T1003PC	BZL30-T1203PC	……	BZL30-T3203PC

Remarks: Maximum number of beams is 32.

BZL40

Beam pitch		40mm						
Mini. detectable object		φ48 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	32 beams
Protection height		120mm	200mm	280mm	360mm	440mm	……	1240mm
Length of light curtain		189mm	269mm	349mm	429mm	509mm	……	1309mm
Model	NPN NC	BZL40-T0403NC	BZL40-T0603NC	BZL40-T0803NC	BZL40-T1003NC	BZL40-T1203NC	……	BZL40-T3203NC
	PNP NC	BZL40-T0403PC	BZL40-T0603PC	BZL40-T0803PC	BZL40-T1003PC	BZL40-T1203PC	……	BZL40-T3203PC

Remarks: Maximum number of beams is 32.

BZL Series

BZL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL10-T0603NC	BZL10-T0603PC	10	06	50	110
BZL10-T0803NC	BZL10-T0803PC	10	08	70	130
BZL10-T1003NC	BZL10-T1003PC	10	10	90	150
BZL10-T1203NC	BZL10-T1203PC	10	12	110	170
BZL10-T1403NC	BZL10-T1403PC	10	14	130	190
BZL10-T1603NC	BZL10-T1603PC	10	16	150	210
BZL10-T1803NC	BZL10-T1803PC	10	18	170	230
BZL10-T2003NC	BZL10-T2003PC	10	20	190	250
BZL10-T2203NC	BZL10-T2203PC	10	22	210	270
BZL10-T2403NC	BZL10-T2403PC	10	24	230	290
BZL10-T2603NC	BZL10-T2603PC	10	26	250	310
BZL10-T2803NC	BZL10-T2803PC	10	28	270	330
BZL10-T3003NC	BZL10-T3003PC	10	30	290	350
BZL10-T3203NC	BZL10-T3203PC	10	32	310	370

BZL14

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL14-T0603NC	BZL14-T0603PC	14	06	70	132
BZL14-T0803NC	BZL14-T0803PC	14	08	98	160
BZL14-T1003NC	BZL14-T1003PC	14	10	126	188
BZL14-T1203NC	BZL14-T1203PC	14	12	154	216
BZL14-T1403NC	BZL14-T1403PC	14	14	182	244
BZL14-T1603NC	BZL14-T1603PC	14	16	210	272
BZL14-T1803NC	BZL14-T1803PC	14	18	238	300
BZL14-T2003NC	BZL14-T2003PC	14	20	266	328
BZL14-T2203NC	BZL14-T2203PC	14	22	294	356
BZL14-T2403NC	BZL14-T2403PC	14	24	322	384
BZL14-T2603NC	BZL14-T2603PC	14	26	350	412
BZL14-T2803NC	BZL14-T2803PC	14	28	378	440
BZL14-T3003NC	BZL14-T3003PC	14	30	406	468
BZL14-T3203NC	BZL14-T3203PC	14	32	434	496

BZL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL20-T0403NC	BZL20-T0403PC	20	04	60	119
BZL20-T0603NC	BZL20-T0603PC	20	06	100	159
BZL20-T0803NC	BZL20-T0803PC	20	08	140	199
BZL20-T1003NC	BZL20-T1003PC	20	10	180	239
BZL20-T1203NC	BZL20-T1203PC	20	12	220	279
BZL20-T1403NC	BZL20-T1403PC	20	14	260	319
BZL20-T1603NC	BZL20-T1603PC	20	16	300	359
BZL20-T1803NC	BZL20-T1803PC	20	18	340	399
BZL20-T2003NC	BZL20-T2003PC	20	20	380	439
BZL20-T2203NC	BZL20-T2203PC	20	22	420	479
BZL20-T2403NC	BZL20-T2403PC	20	24	460	519
BZL20-T2603NC	BZL20-T2603PC	20	26	500	559
BZL20-T2803NC	BZL20-T2803PC	20	28	540	599
BZL20-T3003NC	BZL20-T3003PC	20	30	580	639
BZL20-T3203NC	BZL20-T3203PC	20	32	620	679

Top-emitting Type

BZL Series

BZL25

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL25-T0603NC	BZL25-T0603PC	25	06	125	186.5
BZL25-T0803NC	BZL25-T0803PC	25	08	175	236.5
BZL25-T1003NC	BZL25-T1003PC	25	10	225	286.5
BZL25-T1203NC	BZL25-T1203PC	25	12	275	336.5
BZL25-T1403NC	BZL25-T1403PC	25	14	325	386.5
BZL25-T1603NC	BZL25-T1603PC	25	16	375	436.5
BZL25-T1803NC	BZL25-T1803PC	25	18	425	486.5
BZL25-T2003NC	BZL25-T2003PC	25	20	475	536.5
BZL25-T2203NC	BZL25-T2203PC	25	22	525	586.5
BZL25-T2403NC	BZL25-T2403PC	25	24	575	636.5
BZL25-T2603NC	BZL25-T2603PC	25	26	625	686.5
BZL25-T2803NC	BZL25-T2803PC	25	28	675	736.5
BZL25-T3003NC	BZL25-T3003PC	25	30	725	786.5
BZL25-T3203NC	BZL25-T3203PC	25	32	775	836.5

BZL30

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL30-T0403NC	BZL30-T0403PC	30	04	90	154
BZL30-T0603NC	BZL30-T0603PC	30	06	150	214
BZL30-T0803NC	BZL30-T0803PC	30	08	210	274
BZL30-T1003NC	BZL30-T1003PC	30	10	270	334
BZL30-T1203NC	BZL30-T1203PC	30	12	330	394
BZL30-T1403NC	BZL30-T1403PC	30	14	390	454
BZL30-T1603NC	BZL30-T1603PC	30	16	450	514
BZL30-T1803NC	BZL30-T1803PC	30	18	510	574
BZL30-T2003NC	BZL30-T2003PC	30	20	570	634
BZL30-T2203NC	BZL30-T2203PC	30	22	630	694
BZL30-T2403NC	BZL30-T2403PC	30	24	690	754
BZL30-T2603NC	BZL30-T2603PC	30	26	750	814
BZL30-T2803NC	BZL30-T2803PC	30	28	810	874
BZL30-T3003NC	BZL30-T3003PC	30	30	870	934
BZL30-T3203NC	BZL30-T3203PC	30	32	930	994

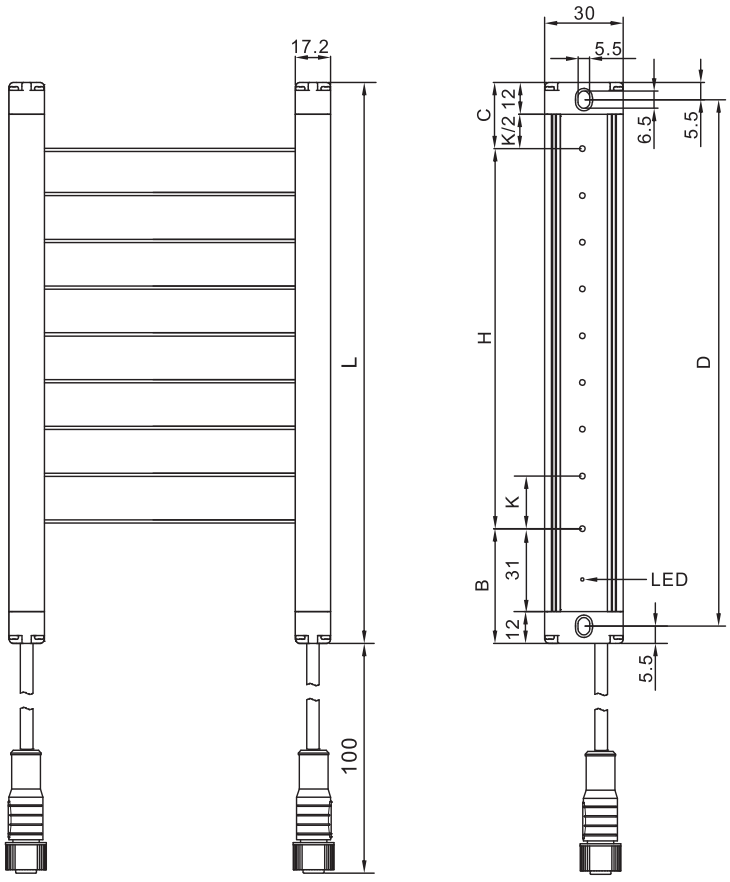
BZL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BZL40-T0403NC	BZL40-T0403PC	40	04	120	189
BZL40-T0603NC	BZL40-T0603PC	40	06	200	269
BZL40-T0803NC	BZL40-T0803PC	40	08	280	349
BZL40-T1003NC	BZL40-T1003PC	40	10	360	429
BZL40-T1203NC	BZL40-T1203PC	40	12	440	509
BZL40-T1403NC	BZL40-T1403PC	40	14	520	589
BZL40-T1603NC	BZL40-T1603PC	40	16	600	669
BZL40-T1803NC	BZL40-T1803PC	40	18	680	749
BZL40-T2003NC	BZL40-T2003PC	40	20	760	829
BZL40-T2203NC	BZL40-T2203PC	40	22	840	909
BZL40-T2403NC	BZL40-T2403PC	40	24	920	989
BZL40-T2603NC	BZL40-T2603PC	40	26	1000	1069
BZL40-T2803NC	BZL40-T2803PC	40	28	1080	1149
BZL40-T3003NC	BZL40-T3003PC	40	30	1160	1229
BZL40-T3203NC	BZL40-T3203PC	40	32	1240	1309

Unit:mm

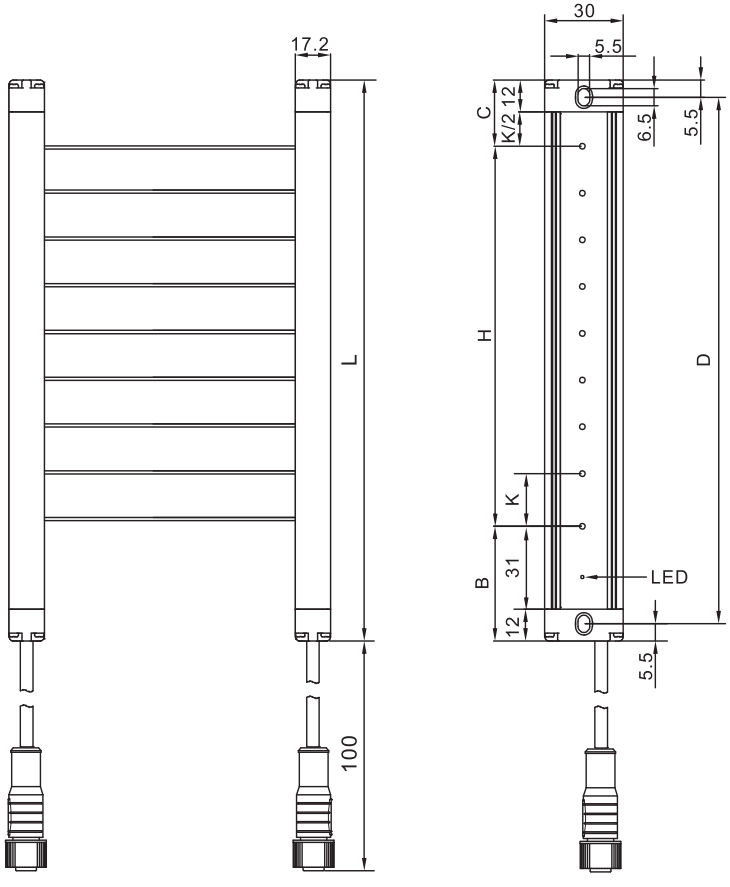
Dimensions

BZL10



H:Protection Height= (N−1) K
L:Light curtain total height=H+60
N:No.of beams
K:Beam pitch=10
B:Lower blind height=43
C:Upper blind height=17
D:Mounting hole spacing= (L−11)

BZL14



H:Protection Height= (N−1) K
L:Light curtain total height=H+62
N:No.of beams
K:Beam pitch=14
B:Lower blind height=43
C:Upper blind height=19
D:Mounting hole spacing= (L−11)

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

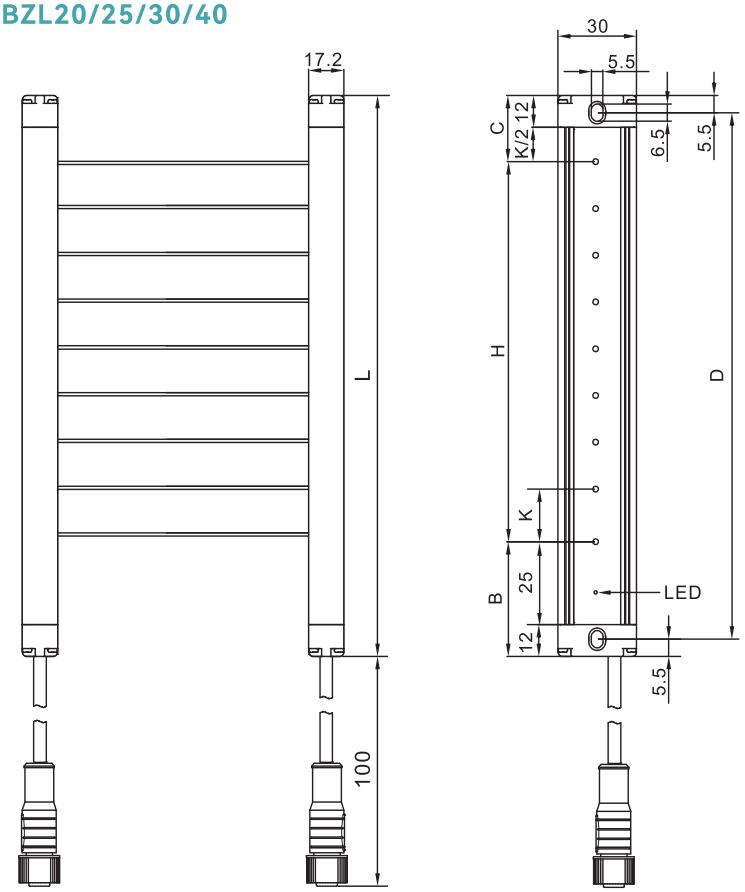
LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Top-emitting Type

Dimensions

Unit:mm

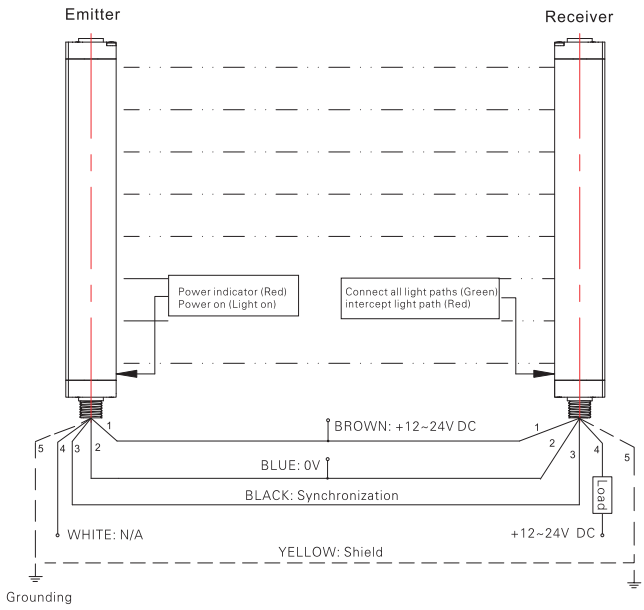
BZL20/25/30/40



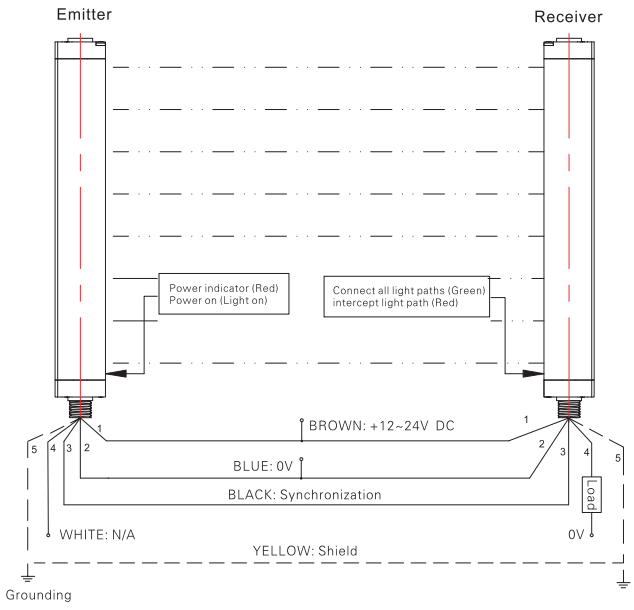
H: Protection Height= (N−1) K
L: Light curtain total height=(N−1/2)K+49
N: No.of beams
K: Beam pitch
B: Lower blind height=37
C: Upper blind height=K/2+12
D: Mounting hole spacing= (L−11)

Connection Diagram

NPN



PNP



BCL Series



Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	–
	Standard	–
	Light source	Infrared light (modulation)
	Number of beams	4~32 beams
	Beam pitch	20/40mm
	Protection height	100~1240mm
	Protection distance	0.3~3.0m
	Mini. detectable object	ϕ28/ϕ48mm or more opaque object
Electrical data	Output Mode	NPN/PNP
	Synchronization type	Line synchronization
	Response time	≤15ms
	Operating voltage	24VDC±10%
	Current consumption	≤200mA
	Power consumption	3~8W
	Residual Voltage	≤3.5V（150mA）
	Load Current	–
	Insulation resistance	≥100MΩ between power terminal and case (500VDC)
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection
Environmental conditions	Operating temperature	–10~55℃(No freezing)
	Storage temperature	–10~55℃(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp≤3000Lux;LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	159~1292.5x15x30mm
	Material	Aluminum
	Weight	0.8~6.46kg
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cablex2

Side-emitting Type

BCL Series

BCL20

Beam pitch		20mm					
Mini. detectable object		φ28 or more opaque object					
Protection distance		0.3~3m					
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	... ...	30 beams
Protection height		100mm	140mm	180mm	220mm	260mm	... ...	580mm
Length of light curtain		159mm	199mm	239mm	279mm	319mm	··· ···	639mm
Model	NPN NC	BCL20-T0603NC	BCL20-T0803NC	BCL20-T1003NC	BCL20-T1203NC	BCL20-T1403NC	··· ···	BCL20-T3003NC
	PNP NC	BCL20-T0603PC	BCL20-T0803PC	BCL20-T1003PC	BCL20-T1203PC	BCL20-T1403PC	··· ···	BCL20-T3003PC

Remarks: Maximum number of beams is 30.

BCL40

Beam pitch		40mm					
Mini. detectable object		φ48 or more opaque object					
Protection distance		0.3~3m					
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	... ...	32 beams
Protection height		120mm	200mm	280mm	360mm	440mm	... ...	1240mm
Length of light curtain		172.5mm	252.5mm	332.5mm	412.5mm	492.5mm	··· ···	1292.5mm
Model	NPN NC	BCL40-T0403NC	BCL40-T0603NC	BCL40-T0803NC	BCL40-T1003NC	BCL40-T1203NC	··· ···	BCL40-T3203NC
	PNP NC	BCL40-T0403PC	BCL40-T0603PC	BCL40-T0803PC	BCL40-T1003PC	BCL40-T1203PC	··· ···	BCL40-T3203PC

Remarks: Maximum number of beams is 32.

BCL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BCL20-T0603NC	BCL20-T0603PC	20	06	100	159
BCL20-T0803NC	BCL20-T0803PC	20	08	140	199
BCL20-T1003NC	BCL20-T1003PC	20	10	180	239
BCL20-T1203NC	BCL20-T1203PC	20	12	220	279
BCL20-T1403NC	BCL20-T1403PC	20	14	260	319
BCL20-T1603NC	BCL20-T1603PC	20	16	300	359
BCL20-T1803NC	BCL20-T1803PC	20	18	340	399
BCL20-T2003NC	BCL20-T2003PC	20	20	380	439
BCL20-T2203NC	BCL20-T2203PC	20	22	420	479
BCL20-T2403NC	BCL20-T2403PC	20	24	460	519
BCL20-T2603NC	BCL20-T2603PC	20	26	500	559
BCL20-T2803NC	BCL20-T2803PC	20	28	540	599
BCL20-T3003NC	BCL20-T3003PC	20	30	580	639

BCL40

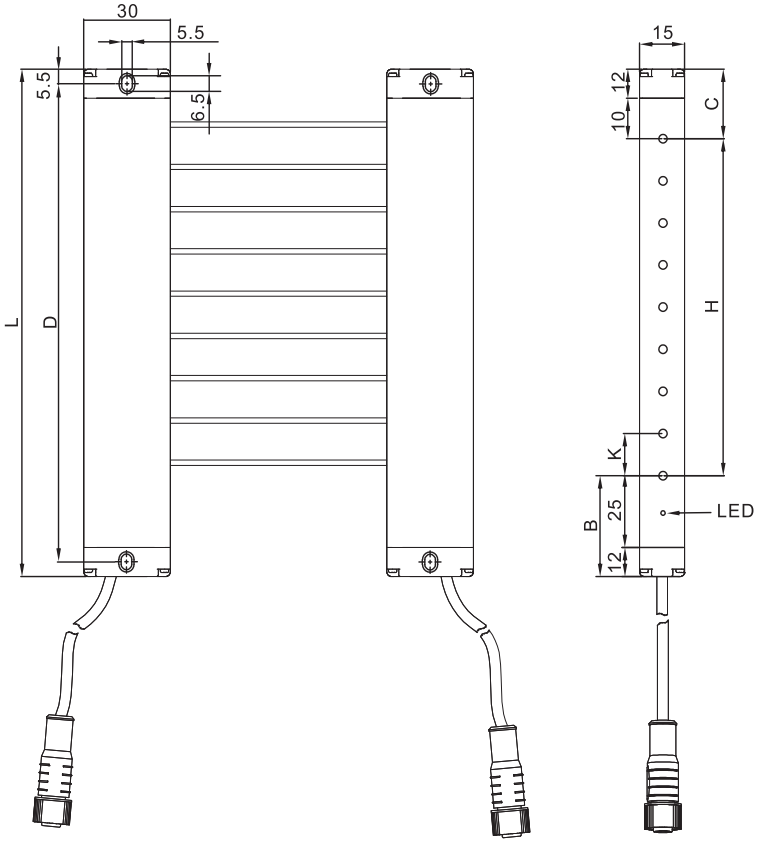
Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BCL40-T0403NC	BCL40-T0403PC	40	04	120	172.5
BCL40-T0603NC	BCL40-T0603PC	40	06	200	252.5
BCL40-T0803NC	BCL40-T0803PC	40	08	280	332.5
BCL40-T1003NC	BCL40-T1003PC	40	10	360	412.5
BCL40-T1203NC	BCL40-T1203PC	40	12	440	492.5
BCL40-T1403NC	BCL40-T1403PC	40	14	520	572.5
BCL40-T1603NC	BCL40-T1603PC	40	16	600	652.5
BCL40-T1803NC	BCL40-T1803PC	40	18	680	732.5
BCL40-T2003NC	BCL40-T2003PC	40	20	760	812.5
BCL40-T2203NC	BCL40-T2203PC	40	22	840	892.5
BCL40-T2403NC	BCL40-T2403PC	40	24	920	972.5
BCL40-T2603NC	BCL40-T2603PC	40	26	1000	1052.5
BCL40-T2803NC	BCL40-T2803PC	40	28	1080	1132.5
BCL40-T3003NC	BCL40-T3003PC	40	30	1160	1212.5
BCL40-T3203NC	BCL40-T3203PC	40	30	1240	1292.5

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type
Safety Light Curtain
Safety Light Curtain
LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Unit:mm

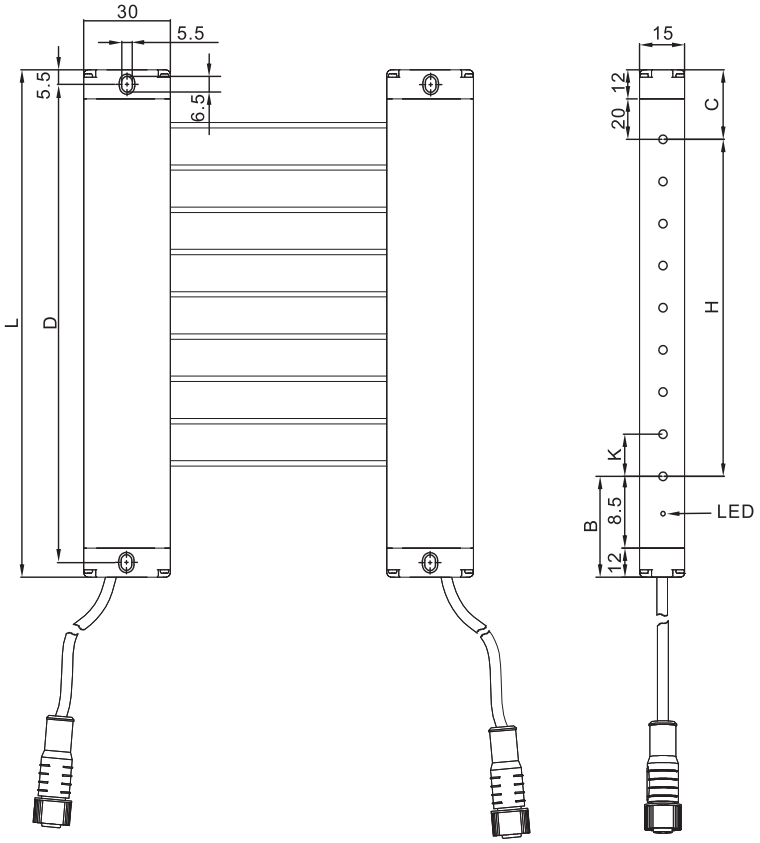
Dimensions

BCL20



H: Protection Height= (N−1) K
L: Light curtain total height=H+59
N: No.of beams
K: Beam pitch=20
B: Lower blind height=37
C: Upper blind height=22
D: Mounting hole spacing= (L−11)

BCL40



H: Protection Height= (N−1) K
L: Light curtain total height=H+52.5
N: No.of beams
K: Beam pitch=40
B: Lower blind height=20.5
C: Upper blind height=32
D: Mounting hole spacing= (L−11)

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

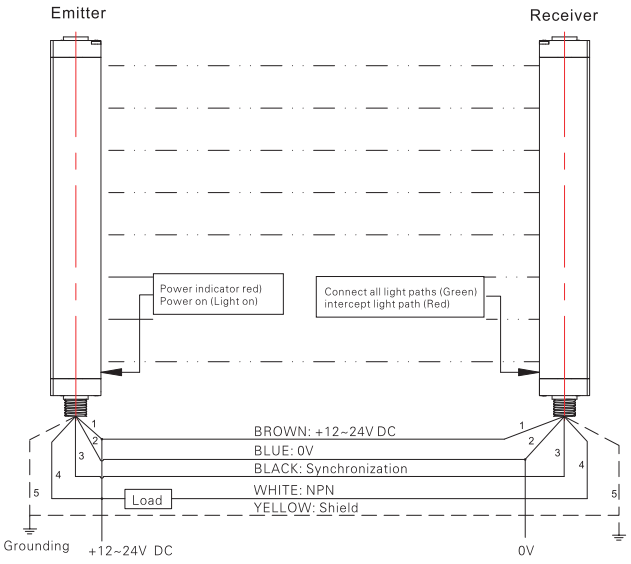
LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Side-emitting Type

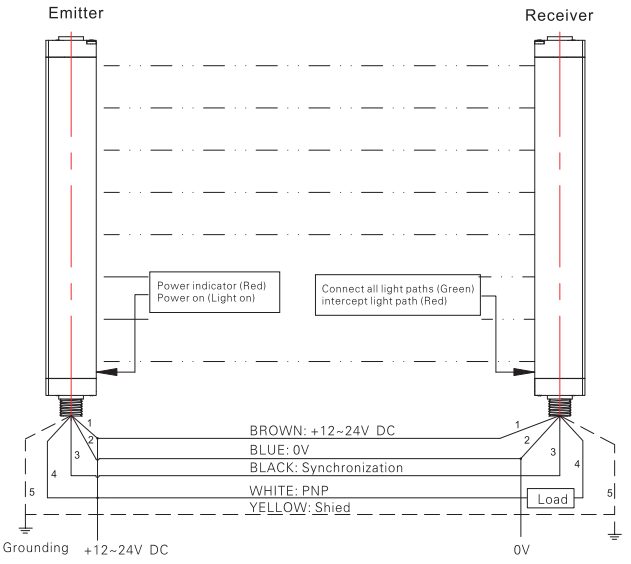
Connection Diagram

Unit:mm

NPN



PNP



BPL series



Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	–
	Standard	–
	Light source	Infrared light (modulation)
	Number of beams	4~32beams
	Beam pitch	10/14/20/25/30/40mm
	Protection height	50~1240mm
	Protection distance	0.3~3.0m
	Mini. detectable object	ϕ15/ϕ19/ϕ25/ϕ30/ϕ35/ϕ45mm or more opaque object
Electrical data	Output Mode	NPN/PNP
	Synchronization type	Line synchronization
	Response time	⩽15ms
	Operating voltage	24VDC ± 10%
	Current consumption	⩽200mA
	Power consumption	3~8W
	Residual Voltage	–
	Load Current	–
	Insulation resistance	⩾100MΩ between power terminal and case (500VDC)
	Dielectric strength	–
	Protection circuit	Reverse polarity protection/short circuit protection
Environmental conditions	Operating temperature	–10~55℃(No freezing)
	Storage temperature	–15~60℃(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	–
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP68
Mechanical data	Connection type	Cable
	Dimensions	118~1317xØ48xØ48mm
	Material	Aluminum
	Weight	0.59~6.59kg
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cablex2

BPL10

Beam pitch		10mm						
Mini. detectable object		φ15 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	……	32 beams
Protection height		50mm	70mm	90mm	110mm	130mm	……	310mm
Length of light curtain		118mm	138mm	158mm	178mm	198mm	……	378mm
Model	NPN NC	BPL10-T0603NC	BPL10-T0803NC	BPL10-T1003NC	BPL10-T1203NC	BPL10-T1403NC	……	BPL10-T3203NC
	PNP NC	BPL10-T0603PC	BPL10-T0803PC	BPL10-T1003PC	BPL10-T1203PC	BPL10-T1403PC	……	BPL10-T3203PC

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Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
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MINI LiDAR scanner
Navigation LiDAR

Waterproof Type

BPL series

BPL14

Beam pitch		14mm						
Mini. detectable object		φ19 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	……	32 beams
Protection height		70mm	98mm	126mm	154mm	182mm	……	434mm
Length of light curtain		140mm	168mm	196mm	224mm	252mm	……	504mm
Model	NPN NC	BPL14-T0603NC	BPL14-T0803NC	BPL14-T1003NC	BPL14-T1203NC	BPL14-T1403NC	……	BPL14-T3203NC
	PNP NC	BPL14-T0603PC	BPL14-T0803PC	BPL14-T1003PC	BPL14-T1203PC	BPL14-T1403PC	……	BPL14-T3203PC

BPL20

Beam pitch		20mm						
Mini. detectable object		φ25 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	32 beams
Protection height		60mm	100mm	140mm	180mm	220mm	……	620mm
Length of light curtain		127mm	167mm	207mm	247mm	287mm	……	687mm
Model	NPN NC	BPL20-T0403NC	BPL20-T0603NC	BPL20-T0803NC	BPL20-T1003NC	BPL20-T1203NC	……	BPL20-T3203NC
	PNP NC	BPL20-T0403PC	BPL20-T0603PC	BPL20-T0803PC	BPL20-T1003PC	BPL20-T1203PC	……	BPL20-T3203PC

BPL25

Beam pitch		25mm						
Mini. detectable object		φ30 or more opaque object						
Protection distance		0.3~3m						
Number of beams		6 beams	8 beams	10 beams	12 beams	14 beams	……	32 beams
Protection height		125mm	175mm	225mm	275mm	325mm	……	775mm
Length of light curtain		194.5mm	244.5mm	294.5mm	344.5mm	394.5mm	……	844.5mm
Model	NPN NC	BPL25-T0603NC	BPL25-T0803NC	BPL25-T1003NC	BPL25-T1203NC	BPL25-T1403NC	……	BPL25-T3203NC
	PNP NC	BPL25-T0603PC	BPL25-T0803PC	BPL25-T1003PC	BPL25-T1203PC	BPL25-T1403PC	……	BPL25-T3203PC

BPL30

Beam pitch		30mm						
Mini. detectable object		φ35 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	32 beams
Protection height		90mm	150mm	210mm	270mm	330mm	……	930mm
Length of light curtain		162mm	222mm	282mm	342mm	402mm	……	1002mm
Model	NPN NC	BPL30-T0403NC	BPL30-T0603NC	BPL30-T0803NC	BPL30-T1003NC	BPL30-T1203NC	……	BPL30-T3203NC
	PNP NC	BPL30-T0403PC	BPL30-T0603PC	BPL30-T0803PC	BPL30-T1003PC	BPL30-T1203PC	……	BPL30-T3203PC

BPL40

Beam pitch		40mm						
Mini. detectable object		φ45 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	32 beams
Protection height		120mm	200mm	280mm	360mm	440mm	……	1240mm
Length of light curtain		197mm	277mm	357mm	437mm	517mm	……	1317mm
Model	NPN NC	BPL40-T0403NC	BPL40-T0603NC	BPL40-T0803NC	BPL40-T1003NC	BPL40-T1203NC	……	BPL40-T3203NC
	PNP NC	BPL40-T0403PC	BPL40-T0603PC	BPL40-T0803PC	BPL40-T1003PC	BPL40-T1203PC	……	BPL40-T3203PC

BPL series

BPL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL10-T0603NC	BPL10-T0603PC	10	06	50	118
BPL10-T0803NC	BPL10-T0803PC	10	08	70	138
BPL10-T1003NC	BPL10-T1003PC	10	10	90	158
BPL10-T1203NC	BPL10-T1203PC	10	12	110	178
BPL10-T1403NC	BPL10-T1403PC	10	14	130	198
BPL10-T1603NC	BPL10-T1603PC	10	16	150	218
BPL10-T1803NC	BPL10-T1803PC	10	18	170	238
BPL10-T2003NC	BPL10-T2003PC	10	20	190	258
BPL10-T2203NC	BPL10-T2203PC	10	22	210	278
BPL10-T2403NC	BPL10-T2403PC	10	24	230	298
BPL10-T2603NC	BPL10-T2603PC	10	26	250	318
BPL10-T2803NC	BPL10-T2803PC	10	28	270	338
BPL10-T3003NC	BPL10-T3003PC	10	30	290	358
BPL10-T3203NC	BPL10-T3203PC	10	32	310	378

BPL14

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL14-T0603NC	BPL14-T0603PC	14	06	70	140
BPL14-T0803NC	BPL14-T0803PC	14	08	98	168
BPL14-T1003NC	BPL14-T1003PC	14	10	126	196
BPL14-T1203NC	BPL14-T1203PC	14	12	154	224
BPL14-T1403NC	BPL14-T1403PC	14	14	182	252
BPL14-T1603NC	BPL14-T1603PC	14	16	210	280
BPL14-T1803NC	BPL14-T1803PC	14	18	238	308
BPL14-T2003NC	BPL14-T2003PC	14	20	266	336
BPL14-T2203NC	BPL14-T2203PC	14	22	294	364
BPL14-T2403NC	BPL14-T2403PC	14	24	322	392
BPL14-T2603NC	BPL14-T2603PC	14	26	350	420
BPL14-T2803NC	BPL14-T2803PC	14	28	378	448
BPL14-T3003NC	BPL14-T3003PC	14	30	406	476
BPL14-T3203NC	BPL14-T3203PC	14	32	434	504

BPL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL20-T0403NC	BPL20-T0403PC	20	04	60	127
BPL20-T0603NC	BPL20-T0603PC	20	06	100	167
BPL20-T0803NC	BPL20-T0803PC	20	08	140	207
BPL20-T1003NC	BPL20-T1003PC	20	10	180	247
BPL20-T1203NC	BPL20-T1203PC	20	12	220	287
BPL20-T1403NC	BPL20-T1403PC	20	14	260	327
BPL20-T1603NC	BPL20-T1603PC	20	16	300	367
BPL20-T1803NC	BPL20-T1803PC	20	18	340	407
BPL20-T2003NC	BPL20-T2003PC	20	20	380	447
BPL20-T2203NC	BPL20-T2203PC	20	22	420	487
BPL20-T2403NC	BPL20-T2403PC	20	24	460	527
BPL20-T2603NC	BPL20-T2603PC	20	26	500	567
BPL20-T2803NC	BPL20-T2803PC	20	28	540	607
BPL20-T3003NC	BPL20-T3003PC	20	30	580	647
BPL20-T3203NC	BPL20-T3203PC	20	32	620	687

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Guidance

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Safety Light Curtain
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Waterproof Type

BPL series

BPL25

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL25-T0603NC	BPL25-T0603PC	25	06	125	194.5
BPL25-T0803NC	BPL25-T0803PC	25	08	175	244.5
BPL25-T1003NC	BPL25-T1003PC	25	10	225	294.5
BPL25-T1203NC	BPL25-T1203PC	25	12	275	344.5
BPL25-T1403NC	BPL25-T1403PC	25	14	325	394.5
BPL25-T1603NC	BPL25-T1603PC	25	16	375	444.5
BPL25-T1803NC	BPL25-T1803PC	25	18	425	494.5
BPL25-T2003NC	BPL25-T2003PC	25	20	475	544.5
BPL25-T2203NC	BPL25-T2203PC	25	22	525	594.5
BPL25-T2403NC	BPL25-T2403PC	25	24	575	644.5
BPL25-T2603NC	BPL25-T2603PC	25	26	625	694.5
BPL25-T2803NC	BPL25-T2803PC	25	28	675	744.5
BPL25-T3003NC	BPL25-T3003PC	25	30	725	794.5
BPL25-T3203NC	BPL25-T3203PC	25	32	775	844.5

BPL30

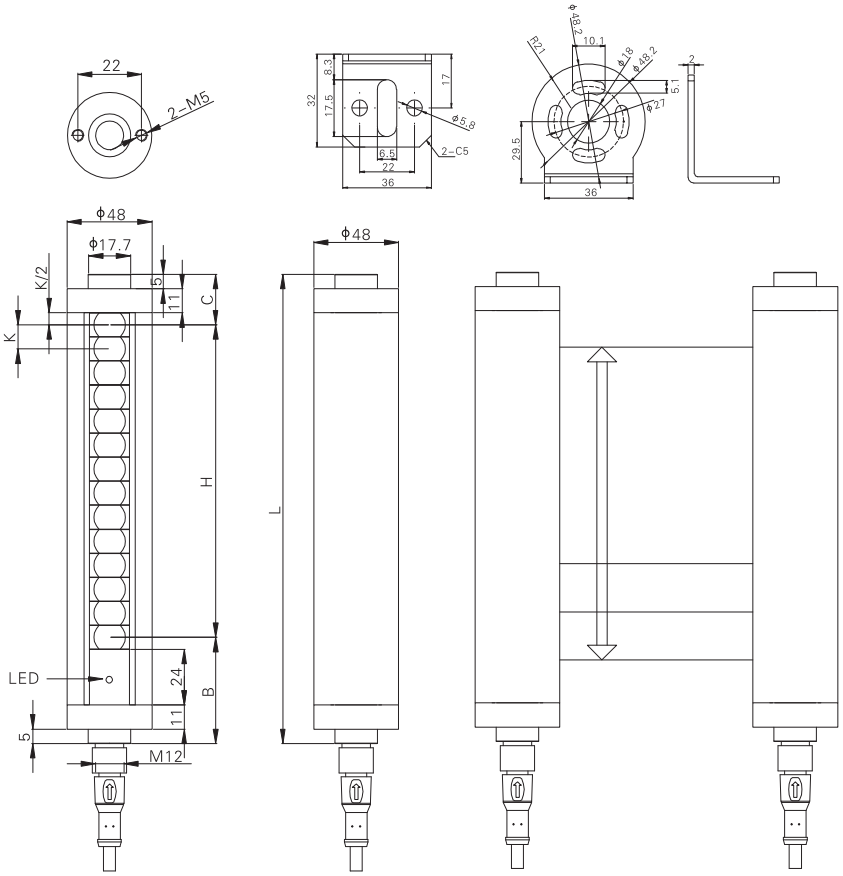
Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL30-T0403NC	BPL30-T0403PC	30	04	90	162
BPL30-T0603NC	BPL30-T0603PC	30	06	150	222
BPL30-T0803NC	BPL30-T0803PC	30	08	210	282
BPL30-T1003NC	BPL30-T1003PC	30	10	270	342
BPL30-T1203NC	BPL30-T1203PC	30	12	330	402
BPL30-T1403NC	BPL30-T1403PC	30	14	390	462
BPL30-T1603NC	BPL30-T1603PC	30	16	450	522
BPL30-T1803NC	BPL30-T1803PC	30	18	510	582
BPL30-T2003NC	BPL30-T2003PC	30	20	570	642
BPL30-T2203NC	BPL30-T2203PC	30	22	630	702
BPL30-T2403NC	BPL30-T2403PC	30	24	690	762
BPL30-T2603NC	BPL30-T2603PC	30	26	750	822
BPL30-T2803NC	BPL30-T2803PC	30	28	810	882
BPL30-T3003NC	BPL30-T3003PC	30	30	870	942
BPL30-T3203NC	BPL30-T3203PC	30	32	930	1002

BPL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BPL40-T0403NC	BPL40-T0403PC	40	04	120	197
BPL40-T0603NC	BPL40-T0603PC	40	06	200	277
BPL40-T0803NC	BPL40-T0803PC	40	08	280	357
BPL40-T1003NC	BPL40-T1003PC	40	10	360	437
BPL40-T1203NC	BPL40-T1203PC	40	12	440	517
BPL40-T1403NC	BPL40-T1403PC	40	14	520	597
BPL40-T1603NC	BPL40-T1603PC	40	16	600	677
BPL40-T1803NC	BPL40-T1803PC	40	18	680	757
BPL40-T2003NC	BPL40-T2003PC	40	20	760	837
BPL40-T2203NC	BPL40-T2203PC	40	22	840	917
BPL40-T2403NC	BPL40-T2403PC	40	24	920	997
BPL40-T2603NC	BPL40-T2603PC	40	26	1000	1077
BPL40-T2803NC	BPL40-T2803PC	40	28	1080	1157
BPL40-T3003NC	BPL40-T3003PC	40	30	1160	1237
BPL40-T3203NC	BPL40-T3203PC	40	32	1240	1317

Unit:mm

Dimensions



BPL10
K: 10
H: (N−1)*10
L: H+68
B: 47
C: 21

BPL14
K: 14
H: (N−1)*14
L: H+70
B: 47
C: 23

BPL20
K: 20
H: (N−1)*20
L: H+67
B: 41
C: 26

BPL25
K: 25
H: (N−1)*25
L: H+69.5
B: 41
C: 28.5

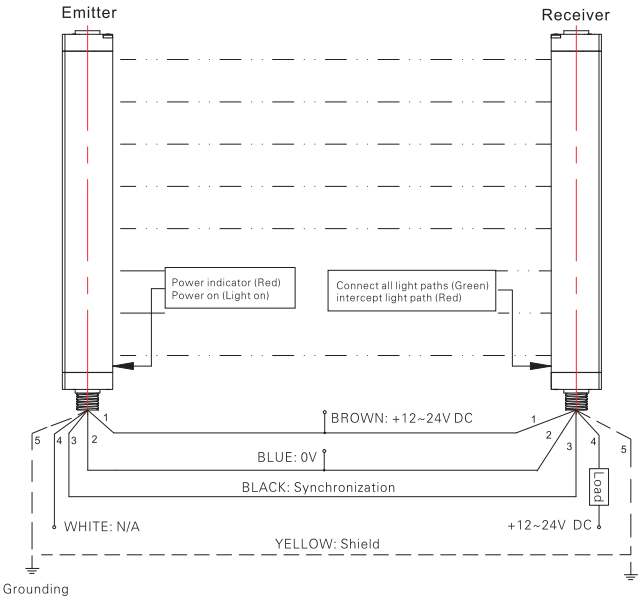
BPL30
K: 30
H: (N−1)*30
L: H+72
B: 41
C: 31

BPL40
K: 40
H: (N−1)*40
L: H+77
B: 41
C: 36

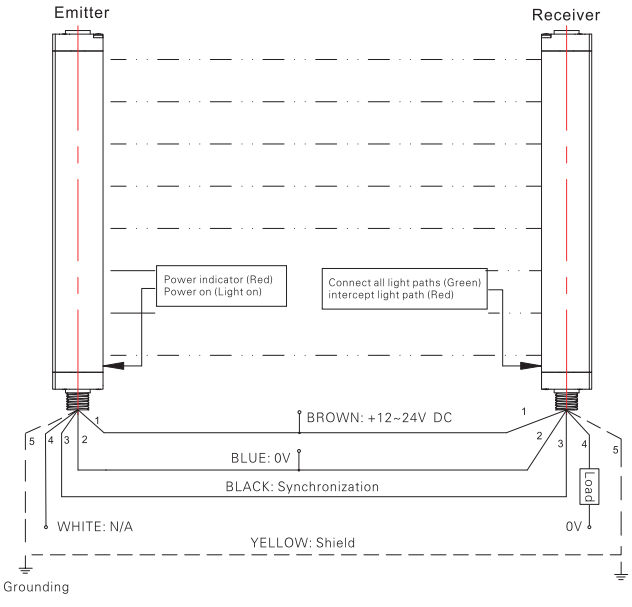
N: No.of beams
K: Beam pitch
H: Protection Height=(N−1)K
L: Light curtain total height=H+B+C
B: Lower blind height
C: Upper blind height=K/2+16

Connection Diagram

NPN



PNP



Measuring Type

BAL Series



CE

Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	–
	Standard	–
	Light source	Infrared light (modulation)
	Number of beams	4~496 beams
	Beam pitch	2.5/5/10/20/40mm
	Protection height	60~3990mm
	Protection distance	0.3~3.0m
	Mini. detectable object	ϕ3.75/ϕ6.5/ϕ15/ϕ25/ϕ45mm or more opaque object
Electrical data	Output Mode	I:4~20mA; U:1~5V; NPN/PNP; 485/232 output
	Synchronization type	Line synchronization
	Response time	≤15ms
	Operating voltage	24VDC ± 10%
	Current consumption	≤200mA
	Power consumption	3~8W
	Residual Voltage	Analog output
	Load Current	–
	Insulation resistance	≥100MΩ between power terminal and case (500VDC)
	Dielectric strength	500VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection/surge protection
Environmental conditions	Operating temperature	–10~55℃(No freezing)
	Storage temperature	–10~55℃(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~150Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	136.5~5056.5x36x36mm
	Material	Aluminum
	Weight	0.68~8.28kg
	Accessories	Mounting bracket, mounting screws, M12/5-pin plug cablex2

BAL02

Beam pitch		2.5mm						
Mini. detectable object		φ3.75 or more opaque object						
Protection distance		0.3~3m						
Number of beams		32 beams	64 beams	96 beams	128 beams	160 beams	……	496 beams
Protection height		77.5mm	157.5mm	237.5mm	317.5mm	397.5mm	……	1237.5mm
Length of light curtain		136.5mm	216.5mm	296.5mm	376.5mm	456.5mm	……	1296.5mm
Model	Voltage	BAL02-T3203V	BAL02-T6403V	BAL02-T9603V	BAL02-T12803V	BAL02-T16003V	……	BAL02-T49603V
	Current	BAL02-T3203A	BAL02-T6403A	BAL02-T9603A	BAL02-T12803A	BAL02-T16003A	……	BAL02-T49603A

BAL05

Beam pitch		5mm						
Mini. detectable object		φ6.5 or more opaque object						
Protection distance		0.3~3m						
Number of beams		16 beams	24 beams	32 beams	40 beams	48 beams	……	496 beams
Protection height		75mm	115mm	155mm	195mm	235mm	……	2475mm
Length of light curtain		136.5mm	176.5mm	216.5mm	256.5mm	296.5mm	……	2536.5mm
Model	Voltage	BAL05-T1603V	BAL05-T2403V	BAL05-T3203V	BAL05-T4003V	BAL05-T4803V	……	BAL05-T100003V
	Current	BAL05-T1603A	BAL05-T2403A	BAL05-T3203A	BAL05-T4003A	BAL05-T4803A	……	BAL05-T100003A

BAL10

Beam pitch		10mm						
Mini. detectable object		φ15 or more opaque object						
Protection distance		0.3~3m						
Number of beams		8 beams	10 beams	12 beams	14 beams	16 beams	……	400 beams
Protection height		70mm	90mm	110mm	130mm	150mm	……	3990mm
Length of light curtain		136.5mm	156.5mm	176.5mm	196.5mm	216.5mm	……	4056.5mm
Model	Voltage	BAL10-T0803V	BAL10-T1003V	BAL10-T1203V	BAL10-T1403V	BAL10-T1603V	……	BAL10-T40003V
	Current	BAL10-T0803A	BAL10-T1003A	BAL10-T1203A	BAL10-T1403A	BAL10-T1603A	……	BAL10-T40003A

BAL20

Beam pitch		20mm						
Mini. detectable object		φ25 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	200 beams
Protection height		60mm	100mm	140mm	180mm	220mm	……	3980mm
Length of light curtain		136.5mm	176.5m	216.5mm	256.5mm	296.5mm	……	4056.5mm
Model	Voltage	BAL20-T0403V	BAL20-T0603V	BAL20-T0803V	BAL20-T1003V	BAL20-T1203V	……	BAL20-T20003V
	Current	BAL20-T0403A	BAL20-T0603A	BAL20-T0803A	BAL20-T1003A	BAL20-T1203A	……	BAL20-T20003A

BAL40

Beam pitch		40mm						
Mini. detectable object		φ45 or more opaque object						
Protection distance		0.3~3m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	100 beams
Protection height		120mm	200mm	280mm	360mm	440mm	……	3960mm
Length of light curtain		196.5mm	276.5mm	356.5mm	436.5mm	516.5mm	……	4036.5mm
Model	Voltage	BAL40-T0403V	BAL40-T0603V	BAL40-T0803V	BAL40-T1003V	BAL40-T1203V	……	BAL40-T10003V
	Current	BAL40-T0403A	BAL40-T0603A	BAL40-T0803A	BAL40-T1003A	BAL40-T1203A	……	BAL40-T10003A

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Measuring Type

BAL Series

BAL02

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL02-T3203V	BAL02-T3203A	2.5	32	77.5	136.5
BAL02-T4003V	BAL02-T4003A	2.5	40	97.5	156.5
BAL02-T4803V	BAL02-T4803A	2.5	48	117.5	176.5
BAL02-T5603V	BAL02-T5603A	2.5	56	137.5	196.5
BAL02-T6403V	BAL02-T6403A	2.5	64	157.5	216.5
BAL02-T7203V	BAL02-T7203A	2.5	72	177.5	236.5
BAL02-T8003V	BAL02-T8003A	2.5	80	197.5	256.5
BAL02-T8803V	BAL02-T8803A	2.5	88	217.5	276.5
BAL02-T9603V	BAL02-T9603A	2.5	96	237.5	296.5
BAL02-T10403V	BAL02-T10403A	2.5	104	257.5	316.5
BAL02-T11203V	BAL02-T11203A	2.5	112	277.5	336.5
BAL02-T12003V	BAL02-T12003A	2.5	120	297.5	356.5
BAL02-T12803V	BAL02-T12803A	2.5	128	317.5	376.5
BAL02-T13603V	BAL02-T13603A	2.5	136	337.5	396.5
BAL02-T14403V	BAL02-T14403A	2.5	144	357.5	416.5
BAL02-T15203V	BAL02-T15203A	2.5	152	377.5	436.5
BAL02-T16003V	BAL02-T16003A	2.5	160	397.5	456.5
BAL02-T16803V	BAL02-T16803A	2.5	168	417.5	476.5
BAL02-T17603V	BAL02-T17603A	2.5	176	437.5	496.5
BAL02-T18403V	BAL02-T18403A	2.5	184	457.5	516.5
BAL02-T19203V	BAL02-T19203A	2.5	192	477.5	536.5
BAL02-T20003V	BAL02-T20003A	2.5	200	497.5	556.5
BAL02-T20803V	BAL02-T20803A	2.5	208	517.5	576.5
BAL02-T21603V	BAL02-T21603A	2.5	216	537.5	596.5
BAL02-T22403V	BAL02-T22403A	2.5	224	557.5	616.5
BAL02-T23203V	BAL02-T23203A	2.5	232	577.5	636.5
BAL02-T24003V	BAL02-T24003A	2.5	240	597.5	656.5
BAL02-T24803V	BAL02-T24803A	2.5	248	617.5	676.5
BAL02-T25603V	BAL02-T25603A	2.5	256	637.5	696.5
BAL02-T26403V	BAL02-T26403A	2.5	264	657.5	716.5
BAL02-T27203V	BAL02-T27203A	2.5	272	677.5	736.5
BAL02-T28003V	BAL02-T28003A	2.5	280	697.5	756.5
BAL02-T28803V	BAL02-T28803A	2.5	288	717.5	776.5
BAL02-T29603V	BAL02-T29603A	2.5	296	737.5	796.5
BAL02-T30403V	BAL02-T30403A	2.5	304	757.5	816.5
BAL02-T31203V	BAL02-T31203A	2.5	312	777.5	836.5
BAL02-T32003V	BAL02-T32003A	2.5	320	797.5	856.5
BAL02-T32803V	BAL02-T32803A	2.5	328	817.5	876.5
BAL02-T33603V	BAL02-T33603A	2.5	336	837.5	896.5
BAL02-T34403V	BAL02-T34403A	2.5	344	857.5	916.5
BAL02-T35203V	BAL02-T35203A	2.5	352	877.5	936.5
BAL02-T36003V	BAL02-T36003A	2.5	360	897.5	956.5
BAL02-T36803V	BAL02-T36803A	2.5	368	917.5	976.5
BAL02-T37603V	BAL02-T37603A	2.5	376	937.5	996.5
BAL02-T38403V	BAL02-T38403A	2.5	384	957.5	1016.5
BAL02-T39203V	BAL02-T39203A	2.5	392	977.5	1036.5
BAL02-T40003V	BAL02-T40003A	2.5	400	997.5	1056.5
BAL02-T40803V	BAL02-T40803A	2.5	408	1017.5	1076.5
BAL02-T41603V	BAL02-T41603A	2.5	416	1037.5	1096.5
BAL02-T42403V	BAL02-T42403A	2.5	424	1057.5	1116.5
BAL02-T43203V	BAL02-T43203A	2.5	432	1077.5	1136.5
BAL02-T44003V	BAL02-T44003A	2.5	440	1097.5	1156.5
BAL02-T44803V	BAL02-T44803A	2.5	448	1117.5	1176.5
BAL02-T45603V	BAL02-T45603A	2.5	456	1137.5	1196.5
BAL02-T46403V	BAL02-T46403A	2.5	464	1157.5	1216.5
BAL02-T47203V	BAL02-T47203A	2.5	472	1177.5	1236.5
BAL02-T48003V	BAL02-T48003A	2.5	480	1197.5	1256.5
BAL02-T48803V	BAL02-T48803A	2.5	488	1217.5	1276.5
BAL02-T49603V	BAL02-T49603A	2.5	496	1237.5	1296.5

BAL05

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL05-T1603V	BAL05-T1603A	5	16	75	136.5
BAL05-T2403V	BAL05-T2403A	5	24	115	176.5
BAL05-T3203V	BAL05-T3203A	5	32	155	216.5
BAL05-T4003V	BAL05-T4003A	5	40	195	256.5
BAL05-T4803V	BAL05-T4803A	5	48	235	296.5
BAL05-T5603V	BAL05-T5603A	5	56	275	336.5
BAL05-T6403V	BAL05-T6403A	5	64	315	376.5
BAL05-T7203V	BAL05-T7203A	5	72	355	416.5
BAL05-T8003V	BAL05-T8003A	5	80	395	456.5
BAL05-T8803V	BAL05-T8803A	5	88	435	496.5
BAL05-T9603V	BAL05-T9603A	5	96	475	536.5
BAL05-T10403V	BAL05-T10403A	5	104	515	576.5
BAL05-T11203V	BAL05-T11203A	5	112	555	616.5
BAL05-T12003V	BAL05-T12003A	5	120	595	656.5
BAL05-T12803V	BAL05-T12803A	5	128	635	696.5
BAL05-T13603V	BAL05-T13603A	5	136	675	736.5
BAL05-T14403V	BAL05-T14403A	5	144	715	776.5
BAL05-T15203V	BAL05-T15203A	5	152	755	816.5
BAL05-T16003V	BAL05-T16003A	5	160	795	856.5
BAL05-T16803V	BAL05-T16803A	5	168	835	896.5
BAL05-T17603V	BAL05-T17603A	5	176	875	936.5
BAL05-T18403V	BAL05-T18403A	5	184	915	976.5
BAL05-T19203V	BAL05-T19203A	5	192	955	1016.5
BAL05-T20003V	BAL05-T20003A	5	200	995	1056.5
BAL05-T20803V	BAL05-T20803A	5	208	1035	1096.5
BAL05-T21603V	BAL05-T21603A	5	216	1075	1136.5
BAL05-T22403V	BAL05-T22403A	5	224	1115	1176.5
BAL05-T23203V	BAL05-T23203A	5	232	1155	1216.5
BAL05-T24003V	BAL05-T24003A	5	240	1195	1256.5
BAL05-T24803V	BAL05-T24803A	5	248	1235	1296.5
BAL05-T25603V	BAL05-T25603A	5	256	1275	1336.5
BAL05-T26403V	BAL05-T26403A	5	264	1315	1376.5
BAL05-T27203V	BAL05-T27203A	5	272	1355	1416.5
BAL05-T28003V	BAL05-T28003A	5	280	1395	1456.5
BAL05-T28803V	BAL05-T28803A	5	288	1435	1496.5
BAL05-T29603V	BAL05-T29603A	5	296	1475	1536.5
BAL05-T30403V	BAL05-T30403A	5	304	1515	1576.5
BAL05-T31203V	BAL05-T31203A	5	312	1555	1616.5
BAL05-T32003V	BAL05-T32003A	5	320	1595	1656.5
BAL05-T32803V	BAL05-T32803A	5	328	1635	1696.5
BAL05-T33603V	BAL05-T33603A	5	336	1675	1736.5
BAL05-T34403V	BAL05-T34403A	5	344	1715	1776.5
BAL05-T35203V	BAL05-T35203A	5	352	1755	1816.5
BAL05-T36003V	BAL05-T36003A	5	360	1795	1856.5
BAL05-T36803V	BAL05-T36803A	5	368	1835	1896.5
BAL05-T37603V	BAL05-T37603A	5	376	1875	1936.5
BAL05-T38403V	BAL05-T38403A	5	384	1915	1976.5
BAL05-T39203V	BAL05-T39203A	5	392	1955	2016.5
BAL05-T40003V	BAL05-T40003A	5	400	1995	2056.5
BAL05-T40803V	BAL05-T40803A	5	408	2035	2096.5
BAL05-T41603V	BAL05-T41603A	5	416	2075	2136.5
BAL05-T42403V	BAL05-T42403A	5	424	2115	2176.5
BAL05-T43203V	BAL05-T43203A	5	432	2155	2216.5
BAL05-T44003V	BAL05-T44003A	5	440	2195	2256.5
BAL05-T44803V	BAL05-T44803A	5	448	2235	2296.5
BAL05-T45603V	BAL05-T45603A	5	456	2275	2336.5
BAL05-T46403V	BAL05-T46403A	5	464	2315	2376.5
BAL05-T47203V	BAL05-T47203A	5	472	2355	2416.5
BAL05-T48003V	BAL05-T48003A	5	480	2395	2456.5
BAL05-T48803V	BAL05-T48803A	5	488	2435	2496.5
BAL05-T49603V	BAL05-T49603A	5	496	2475	2536.5

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Measuring Type

BAL Series

BAL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL10-T0803V	BAL10-T0803A	10	8	70	136.5
BAL10-T1003V	BAL10-T1003A	10	10	90	156.5
BAL10-T1203V	BAL10-T1203A	10	12	110	176.5
BAL10-T1403V	BAL10-T1403A	10	14	130	196.5
BAL10-T1603V	BAL10-T1603A	10	16	150	216.5
BAL10-T1803V	BAL10-T1803A	10	18	170	236.5
BAL10-T2003V	BAL10-T2003A	10	20	190	256.5
BAL10-T2203V	BAL10-T2203A	10	22	210	276.5
BAL10-T2403V	BAL10-T2403A	10	24	230	296.5
BAL10-T2603V	BAL10-T2603A	10	26	250	316.5
BAL10-T2803V	BAL10-T2803A	10	28	270	336.5
BAL10-T3003V	BAL10-T3003A	10	30	290	356.5
BAL10-T3203V	BAL10-T3203A	10	32	310	376.5
BAL10-T3403V	BAL10-T3403A	10	34	330	396.5
BAL10-T4603V	BAL10-T4603A	10	36	350	416.5
BAL10-T3803V	BAL10-T3803A	10	38	370	436.5
BAL10-T4003V	BAL10-T4003A	10	40	390	456.5
BAL10-T4203V	BAL10-T4203A	10	42	410	476.5
BAL10-T4403V	BAL10-T4403A	10	44	430	496.5
BAL10-T4603V	BAL10-T4603A	10	46	450	516.5
BAL10-T4803V	BAL10-T4803A	10	48	470	536.5
BAL10-T5003V	BAL10-T5003A	10	50	490	556.5
BAL10-T5203V	BAL10-T5203A	10	52	510	576.5
BAL10-T5403V	BAL10-T5403A	10	54	530	596.5
BAL10-T5603V	BAL10-T5603A	10	56	550	616.5
BAL10-T5803V	BAL10-T5803A	10	58	570	636.5
BAL10-T6003V	BAL10-T6003A	10	60	590	656.5
BAL10-T6203V	BAL10-T6203A	10	62	610	676.5
BAL10-T6403V	BAL10-T6403A	10	64	630	696.5
BAL10-T6603V	BAL10-T6603A	10	66	650	716.5
BAL10-T6803V	BAL10-T6803A	10	68	670	736.5
BAL10-T7003V	BAL10-T7003A	10	70	690	756.5
BAL10-T7203V	BAL10-T7203A	10	72	710	776.5
BAL10-T7403V	BAL10-T7403A	10	74	730	796.5
BAL10-T7603V	BAL10-T7603A	10	76	750	816.5
BAL10-T7803V	BAL10-T7803A	10	78	770	836.5
BAL10-T8003V	BAL10-T8003A	10	80	790	856.5
BAL10-T8203V	BAL10-T8203A	10	82	810	876.5
BAL10-T8403V	BAL10-T8403A	10	84	830	896.5
BAL10-T8603V	BAL10-T8603A	10	86	850	916.5
BAL10-T8803V	BAL10-T8803A	10	88	870	936.5
BAL10-T9003V	BAL10-T9003A	10	90	890	956.5
BAL10-T9203V	BAL10-T9203A	10	92	910	976.5
BAL10-T9403V	BAL10-T9403A	10	94	930	996.5
BAL10-T9603V	BAL10-T9603A	10	96	950	1016.5
BAL10-T9803V	BAL10-T9803A	10	98	970	1036.5
BAL10-T10003V	BAL10-T10003A	10	100	990	1056.5
BAL10-T10203V	BAL10-T10203A	10	102	1010	1076.5
BAL10-T10403V	BAL10-T10403A	10	104	1030	1096.5
BAL10-T10603V	BAL10-T10603A	10	106	1050	1116.5
BAL10-T10803V	BAL10-T10803A	10	108	1070	1136.5
BAL10-T11003V	BAL10-T11003A	10	110	1090	1156.5
BAL10-T11203V	BAL10-T11203A	10	112	1110	1176.5
BAL10-T11403V	BAL10-T11403A	10	114	1130	1196.5
BAL10-T11603V	BAL10-T11603A	10	116	1150	1216.5
BAL10-T11803V	BAL10-T11803A	10	118	1170	1236.5
BAL10-T12003V	BAL10-T12003A	10	120	1190	1256.5
BAL10-T12203V	BAL10-T12203A	10	122	1210	1276.5
BAL10-T12403V	BAL10-T12403A	10	124	1230	1296.5

BAL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL10-T12603V	BAL10-T12603A	10	126	1250	1316.5
BAL10-T12803V	BAL10-T12803A	10	128	1270	1336.5
BAL10-T13003V	BAL10-T13003A	10	130	1290	1356.5
BAL10-T13203V	BAL10-T13203A	10	132	1310	1376.5
BAL10-T13403V	BAL10-T13403A	10	134	1330	1396.5
BAL10-T13603V	BAL10-T13603A	10	136	1350	1416.5
BAL10-T13803V	BAL10-T13803A	10	138	1370	1436.5
BAL10-T14003V	BAL10-T14003A	10	140	1390	1456.5
BAL10-T14203V	BAL10-T14203A	10	142	1410	1476.5
BAL10-T14403V	BAL10-T14403A	10	144	1430	1496.5
BAL10-T14603V	BAL10-T14603A	10	146	1450	1516.5
BAL10-T14803V	BAL10-T14803A	10	148	1470	1536.5
BAL10-T15003V	BAL10-T15003A	10	150	1490	1556.5
BAL10-T15203V	BAL10-T15203A	10	152	1510	1576.5
BAL10-T15403V	BAL10-T15403A	10	154	1530	1596.5
BAL10-T15603V	BAL10-T15603A	10	156	1550	1616.5
BAL10-T15803V	BAL10-T15803A	10	158	1570	1636.5
BAL10-T16003V	BAL10-T16003A	10	160	1590	1656.5
BAL10-T16203V	BAL10-T16203A	10	162	1610	1676.5
BAL10-T16403V	BAL10-T16403A	10	164	1630	1696.5
BAL10-T16603V	BAL10-T16603A	10	166	1650	1716.5
BAL10-T16803V	BAL10-T16803A	10	168	1670	1736.5
BAL10-T17003V	BAL10-T17003A	10	170	1690	1756.5
BAL10-T17203V	BAL10-T17203A	10	172	1710	1776.5
BAL10-T17403V	BAL10-T17403A	10	174	1730	1796.5
BAL10-T17603V	BAL10-T17603A	10	176	1750	1816.5
BAL10-T17803V	BAL10-T17803A	10	178	1770	1836.5
BAL10-T18003V	BAL10-T18003A	10	180	1790	1856.5
BAL10-T18203V	BAL10-T18203A	10	182	1810	1876.5
BAL10-T18403V	BAL10-T18403A	10	184	1830	1896.5
BAL10-T18603V	BAL10-T18603A	10	186	1850	1916.5
BAL10-T18803V	BAL10-T18803A	10	188	1870	1936.5
BAL10-T19003V	BAL10-T19003A	10	190	1890	1956.5
BAL10-T19203V	BAL10-T19203A	10	192	1910	1976.5
BAL10-T19403V	BAL10-T19403A	10	194	1930	1996.5
BAL10-T19603V	BAL10-T19603A	10	196	1950	2016.5
BAL10-T19803V	BAL10-T19803A	10	198	1970	2036.5
BAL10-T20003V	BAL10-T20003A	10	200	1990	2056.5
BAL10-T20203V	BAL10-T20203A	10	202	2010	2076.5
BAL10-T20403V	BAL10-T20403A	10	204	2030	2096.5
BAL10-T20603V	BAL10-T20603A	10	206	2050	2116.5
BAL10-T20803V	BAL10-T20803A	10	208	2070	2136.5
BAL10-T21003V	BAL10-T21003A	10	210	2090	2156.5
BAL10-T21203V	BAL10-T21203A	10	212	2110	2176.5
BAL10-T21403V	BAL10-T21403A	10	214	2130	2196.5
BAL10-T21603V	BAL10-T21603A	10	216	2150	2216.5
BAL10-T21803V	BAL10-T21803A	10	218	2170	2236.5
BAL10-T22003V	BAL10-T22003A	10	220	2190	2256.5
BAL10-T22203V	BAL10-T22203A	10	222	2210	2276.5
BAL10-T22403V	BAL10-T22403A	10	224	2230	2296.5
BAL10-T22603V	BAL10-T22603A	10	226	2250	2316.5
BAL10-T22803V	BAL10-T22803A	10	228	2270	2336.5
BAL10-T23003V	BAL10-T23003A	10	230	2290	2356.5
BAL10-T23203V	BAL10-T23203A	10	232	2310	2376.5
BAL10-T23403V	BAL10-T23403A	10	234	2330	2396.5
BAL10-T23603V	BAL10-T23603A	10	236	2350	2416.5
BAL10-T23803V	BAL10-T23803A	10	238	2370	2436.5
BAL10-T24003V	BAL10-T24003A	10	240	2390	2456.5
BAL10-T24203V	BAL10-T24203A	10	242	2410	2476.5

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
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Contact
Area
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AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Measuring Type

BAL Series

BAL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL10-T24403V	BAL10-T24403A	10	244	2430	2496.5
BAL10-T24603V	BAL10-T24603A	10	246	2450	2516.5
BAL10-T24803V	BAL10-T24803A	10	248	2470	2536.5
BAL10-T25003V	BAL10-T25003A	10	250	2490	2556.5
BAL10-T25203V	BAL10-T25203A	10	252	2510	2576.5
BAL10-T25403V	BAL10-T25403A	10	254	2530	2596.5
BAL10-T25603V	BAL10-T25603A	10	256	2550	2616.5
BAL10-T25803V	BAL10-T25803A	10	258	2570	2636.5
BAL10-T26003V	BAL10-T26003A	10	260	2590	2656.5
BAL10-T26203V	BAL10-T26203A	10	262	2610	2676.5
BAL10-T26403V	BAL10-T26403A	10	264	2630	2696.5
BAL10-T26603V	BAL10-T26603A	10	266	2650	2716.5
BAL10-T26803V	BAL10-T26803A	10	268	2670	2736.5
BAL10-T27003V	BAL10-T27003A	10	270	2690	2756.5
BAL10-T27203V	BAL10-T27203A	10	272	2710	2776.5
BAL10-T27403V	BAL10-T27403A	10	274	2730	2796.5
BAL10-T27603V	BAL10-T27603A	10	276	2750	2816.5
BAL10-T27803V	BAL10-T27803V	10	278	2770	2836.5
BAL10-T28003V	BAL10-T28003A	10	280	2790	2856.5
BAL10-T28203V	BAL10-T28203A	10	282	2810	2876.5
BAL10-T28403V	BAL10-T28403A	10	284	2830	2896.5
BAL10-T28603V	BAL10-T28603A	10	286	2850	2916.5
BAL10-T28803V	BAL10-T28803A	10	288	2870	2936.5
BAL10-T29003V	BAL10-T29003A	10	290	2890	2956.5
BAL10-T29203V	BAL10-T29203A	10	292	2910	2976.5
BAL10-T29403V	BAL10-T29403A	10	294	2930	2996.5
BAL10-T29603V	BAL10-T29603A	10	296	2950	3016.5
BAL10-T29803V	BAL10-T29803A	10	298	2970	3036.5
BAL10-T30003V	BAL10-T30003A	10	300	2990	3056.5
BAL10-T30203V	BAL10-T30203A	10	302	3010	3076.5
BAL10-T30403V	BAL10-T30403A	10	304	3030	3096.5
BAL10-T30603V	BAL10-T30603A	10	306	3050	3116.5
BAL10-T30803V	BAL10-T30803A	10	308	3070	3136.5
BAL10-T31003V	BAL10-T31003A	10	310	3090	3156.5
BAL10-T31203V	BAL10-T31203A	10	312	3110	3176.5
BAL10-T31403V	BAL10-T31403A	10	314	3130	3196.5
BAL10-T31603V	BAL10-T31603A	10	316	3150	3216.5
BAL10-T31803V	BAL10-T31803A	10	318	3170	3236.5
BAL10-T32003V	BAL10-T32003A	10	320	3190	3256.5
BAL10-T32203V	BAL10-T32203A	10	322	3210	3276.5
BAL10-T32403V	BAL10-T32403A	10	324	3230	3296.5
BAL10-T32603V	BAL10-T32603A	10	326	3250	3316.5
BAL10-T32803V	BAL10-T32803A	10	328	3270	3336.5
BAL10-T33003V	BAL10-T33003A	10	330	3290	3356.5
BAL10-T33203V	BAL10-T33203A	10	332	3310	3376.5
BAL10-T33403V	BAL10-T33403A	10	334	3330	3396.5
BAL10-T33603V	BAL10-T33603A	10	336	3350	3416.5
BAL10-T33803V	BAL10-T33803A	10	338	3370	3436.5
BAL10-T34003V	BAL10-T34003A	10	340	3390	3456.5
BAL10-T34203V	BAL10-T34203A	10	342	3410	3476.5
BAL10-T34403V	BAL10-T34403A	10	344	3430	3496.5
BAL10-T34603V	BAL10-T34603A	10	346	3450	3516.5
BAL10-T34803V	BAL10-T34803A	10	348	3470	3536.5
BAL10-T35003V	BAL10-T35003A	10	350	3490	3556.5
BAL10-T35203V	BAL10-T35203A	10	352	3510	3576.5
BAL10-T35403V	BAL10-T35403A	10	354	3530	3596.5
BAL10-T35603V	BAL10-T35603A	10	356	3550	3616.5
BAL10-T35803V	BAL10-T35803A	10	358	3570	3636.5
BAL10-T36003V	BAL10-T36003A	10	360	3590	3656.5

BAL Series

BAL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL10-T36203V	BAL10-T36203A	10	362	3610	3676.5
BAL10-T36403V	BAL10-T36403A	10	364	3630	3696.5
BAL10-T36603V	BAL10-T36603A	10	366	3650	3716.5
BAL10-T36803V	BAL10-T36803A	10	368	3670	3736.5
BAL10-T37003V	BAL10-T37003A	10	370	3690	3756.5
BAL10-T37203V	BAL10-T37203A	10	372	3710	3776.5
BAL10-T37403V	BAL10-T37403A	10	374	3730	3796.5
BAL10-T37603V	BAL10-T37603A	10	376	3750	3816.5
BAL10-T37803V	BAL10-T37803A	10	378	3770	3836.5
BAL10-T38003V	BAL10-T38003A	10	380	3790	3856.5
BAL10-T38203V	BAL10-T38203A	10	382	3810	3876.5
BAL10-T38403V	BAL10-T38403A	10	384	3830	3896.5
BAL10-T38603V	BAL10-T38603A	10	386	3850	3916.5
BAL10-T38803V	BAL10-T38803A	10	388	3870	3936.5
BAL10-T39003V	BAL10-T39003A	10	390	3890	3956.5
BAL10-T39203V	BAL10-T39203A	10	392	3910	3976.5
BAL10-T39403V	BAL10-T39403A	10	394	3930	3996.5
BAL10-T39603V	BAL10-T39603A	10	396	3950	4016.5
BAL10-T39803V	BAL10-T39803A	10	398	3970	4036.5
BAL10-T40003V	BAL10-T40003A	10	400	3990	4056.5

BAL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL20-T0403V	BAL20-T0403A	20	4	60	136.5
BAL20-T0603V	BAL20-T0603A	20	6	100	176.5
BAL20-T0803V	BAL20-T0803A	20	8	140	216.5
BAL20-T1003V	BAL20-T1003A	20	10	180	256.5
BAL20-T1203V	BAL20-T1203A	20	12	220	296.5
BAL20-T1403V	BAL20-T1403A	20	14	260	336.5
BAL20-T1603V	BAL20-T1603A	20	16	300	376.5
BAL20-T1803V	BAL20-T1803A	20	18	340	416.5
BAL20-T2003V	BAL20-T2003A	20	20	380	456.5
BAL20-T2203V	BAL20-T2203A	20	22	420	496.5
BAL20-T2403V	BAL20-T2403A	20	24	460	536.5
BAL20-T2603V	BAL20-T2603A	20	26	500	576.5
BAL20-T2803V	BAL20-T2803A	20	28	540	616.5
BAL20-T3003V	BAL20-T3003A	20	30	580	656.5
BAL20-T3203V	BAL20-T3203A	20	32	620	696.5
BAL20-T3403V	BAL20-T3403A	20	34	660	736.5
BAL20-T4603V	BAL20-T4603A	20	36	700	776.5
BAL20-T3803V	BAL20-T3803A	20	38	740	816.5
BAL20-T4003V	BAL20-T4003A	20	40	780	856.5
BAL20-T4203V	BAL20-T4203A	20	42	820	896.5
BAL20-T4403V	BAL20-T4403A	20	44	860	936.5
BAL20-T4603V	BAL20-T4603A	20	46	900	976.5
BAL20-T4803V	BAL20-T4803A	20	48	940	1016.5
BAL20-T5003V	BAL20-T5003A	20	50	980	1056.5
BAL20-T5203V	BAL20-T5203A	20	52	1020	1096.5
BAL20-T5403V	BAL20-T5403A	20	54	1060	1136.5
BAL20-T5603V	BAL20-T5603A	20	56	1100	1176.5
BAL20-T5803V	BAL20-T5803A	20	58	1140	1216.5
BAL20-T6003V	BAL20-T6003A	20	60	1180	1256.5
BAL20-T6203V	BAL20-T6203A	20	62	1220	1296.5
BAL20-T6403V	BAL20-T6403A	20	64	1260	1336.5
BAL20-T6603V	BAL20-T6603A	20	66	1300	1376.5
BAL20-T6803V	BAL20-T6803A	20	68	1340	1416.5
BAL20-T7003V	BAL20-T7003A	20	70	1380	1456.5
BAL20-T7203V	BAL20-T7203A	20	72	1420	1496.5

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Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
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Navigation LiDAR

Measuring Type

BAL Series

BAL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL20-T7403V	BAL20-T7403A	20	74	1460	1536.5
BAL20-T7603V	BAL20-T7603A	20	76	1500	1576.5
BAL20-T7803V	BAL20-T7803A	20	78	1540	1616.5
BAL20-T8003V	BAL20-T8003A	20	80	1580	1656.5
BAL20-T8203V	BAL20-T8203A	20	82	1620	1696.5
BAL20-T8403V	BAL20-T8403A	20	84	1660	1736.5
BAL20-T8603V	BAL20-T8603A	20	86	1700	1776.5
BAL20-T8803V	BAL20-T8803A	20	88	1740	1816.5
BAL20-T9003V	BAL20-T9003A	20	90	1780	1856.5
BAL20-T9203V	BAL20-T9203A	20	92	1820	1896.5
BAL20-T9403V	BAL20-T9403A	20	94	1860	1936.5
BAL20-T9603V	BAL20-T9603A	20	96	1900	1976.5
BAL20-T9803V	BAL20-T9803A	20	98	1940	2016.5
BAL20-T10003V	BAL20-T10003A	20	100	1980	2056.5
BAL20-T10203V	BAL20-T10203A	20	102	2020	2116.5
BAL20-T10403V	BAL20-T10403A	20	104	2060	2156.5
BAL20-T10603V	BAL20-T10603A	20	106	2100	2196.5
BAL20-T10803V	BAL20-T10803A	20	108	2140	2236.5
BAL20-T11003V	BAL20-T11003A	20	110	2180	2276.5
BAL20-T11203V	BAL20-T11203A	20	112	2240	2316.5
BAL20-T11403V	BAL20-T11403A	20	114	2280	2356.5
BAL20-T11603V	BAL20-T11603A	20	116	2320	2396.5
BAL20-T11803V	BAL20-T11803A	20	118	2360	2436.5
BAL20-T12003V	BAL20-T12003A	20	120	2400	2476.5
BAL20-T12203V	BAL20-T12203A	20	122	2440	2516.5
BAL20-T12403V	BAL20-T12403A	20	124	2480	2556.5
BAL20-T12603V	BAL20-T12603A	10	126	2520	2596.5
BAL20-T12803V	BAL20-T12803A	10	128	2560	2636.5
BAL20-T13003V	BAL20-T13003A	10	130	2600	2676.5
BAL20-T13203V	BAL20-T13203A	10	132	2640	2716.5
BAL20-T13403V	BAL20-T13403A	10	134	2680	2756.5
BAL20-T13603V	BAL20-T13603A	10	136	2720	2796.5
BAL20-T13803V	BAL20-T13803A	10	138	2760	2836.5
BAL20-T14003V	BAL20-T14003A	10	140	2800	2876.5
BAL20-T14203V	BAL20-T14203A	10	142	2840	2916.5
BAL20-T14403V	BAL20-T14403A	10	144	2880	2956.5
BAL20-T14603V	BAL20-T14603A	10	146	2920	2996.5
BAL20-T14803V	BAL20-T14803A	10	148	2960	3036.5
BAL20-T15003V	BAL20-T15003A	10	150	3000	3076.5
BAL20-T15203V	BAL20-T15203A	10	152	3040	3116.5
BAL20-T15403V	BAL20-T15403A	10	154	3080	3156.5
BAL20-T15603V	BAL20-T15603A	10	156	3120	3196.5
BAL20-T15803V	BAL20-T15803A	10	158	3160	3236.5
BAL20-T16003V	BAL20-T16003A	10	160	3200	3276.5
BAL20-T16203V	BAL20-T16203A	10	162	3240	3316.5
BAL20-T16403V	BAL20-T16403A	10	164	3280	3356.5
BAL20-T16603V	BAL20-T16603A	10	166	3320	3396.5
BAL20-T16803V	BAL20-T16803A	10	168	3360	3436.5
BAL20-T17003V	BAL20-T17003A	10	170	3400	3476.5
BAL20-T17203V	BAL20-T17203A	10	172	3440	3516.5
BAL20-T17403V	BAL20-T17403A	10	174	3480	3556.5
BAL20-T17603V	BAL20-T17603A	10	176	3520	3596.5
BAL20-T17803V	BAL20-T17803A	10	178	3560	3636.5
BAL20-T18003V	BAL20-T18003A	10	180	3600	3676.5
BAL20-T18203V	BAL20-T18203A	10	182	3640	3716.5
BAL20-T18403V	BAL20-T18403A	10	184	3680	3756.5
BAL20-T18603V	BAL20-T18603A	10	186	3720	3796.5
BAL20-T18803V	BAL20-T18803A	10	188	3760	3836.5

BAL Series

BAL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL20-T19003V	BAL20-T19003A	10	190	3800	3876.5
BAL20-T19203V	BAL20-T19203A	10	192	3840	3916.5
BAL20-T19403V	BAL20-T19403A	10	194	3880	3956.5
BAL20-T19603V	BAL20-T19603A	10	196	3920	3996.5
BAL20-T19803V	BAL20-T19803A	10	198	3960	4036.5
BAL20-T20003V	BAL20-T20003A	10	200	3980	4056.5

BAL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BAL40-T0403V	BAL40-T0403A	40	4	120	196.5
BAL40-T0603V	BAL40-T0603A	40	6	200	276.5
BAL40-T0803V	BAL40-T0803A	40	8	280	356.5
BAL40-T1003V	BAL40-T1003A	40	10	360	436.5
BAL40-T1203V	BAL40-T1203A	40	12	440	516.5
BAL40-T1403V	BAL40-T1403A	40	14	520	596.5
BAL40-T1603V	BAL40-T1603A	40	16	600	676.5
BAL40-T1803V	BAL40-T1803A	40	18	680	756.5
BAL40-T2003V	BAL40-T2003A	40	20	760	836.5
BAL40-T2203V	BAL40-T2203A	40	22	840	916.5
BAL40-T2403V	BAL40-T2403A	40	24	920	996.5
BAL40-T2603V	BAL40-T2603A	40	26	1000	1076.5
BAL40-T2803V	BAL40-T2803A	40	28	1080	1156.5
BAL40-T3003V	BAL40-T3003A	40	30	1160	1236.5
BAL40-T3203V	BAL40-T3203A	40	32	1240	1316.5
BAL40-T3403V	BAL40-T3403A	40	34	1320	1396.5
BAL40-T4603V	BAL40-T4603A	40	36	1400	1476.5
BAL40-T3803V	BAL40-T3803A	40	38	1480	1556.5
BAL40-T4003V	BAL40-T4003A	40	40	1560	1636.5
BAL40-T4203V	BAL40-T4203A	40	42	1640	1716.5
BAL40-T4403V	BAL40-T4403A	40	44	1720	1796.5
BAL40-T4603V	BAL40-T4603A	40	46	1800	1876.5
BAL40-T4803V	BAL40-T4803A	40	48	1880	1956.5
BAL40-T5003V	BAL40-T5003A	40	50	1960	2036.5
BAL40-T5203V	BAL40-T5203A	40	52	2040	2116.5
BAL40-T5403V	BAL40-T5403A	40	54	2120	2196.5
BAL40-T5603V	BAL40-T5603A	40	56	2200	2276.5
BAL40-T5803V	BAL40-T5803A	40	58	2280	2356.5
BAL40-T6003V	BAL40-T6003A	40	60	2360	2436.5
BAL40-T6203V	BAL40-T6203A	40	62	2440	2516.5
BAL40-T6403V	BAL40-T6403A	40	64	2520	2596.5
BAL40-T6603V	BAL40-T6603A	40	66	2600	2676.5
BAL40-T6803V	BAL40-T6803A	40	68	2680	2756.5
BAL40-T7003V	BAL40-T7003A	40	70	2760	2836.5
BAL40-T7203V	BAL40-T7203A	40	72	2840	2916.5
BAL40-T7403V	BAL40-T7403A	40	74	2920	2996.5
BAL40-T7603V	BAL40-T7603A	40	76	3000	3076.5
BAL40-T7803V	BAL40-T7803A	40	78	3080	3156.5
BAL40-T8003V	BAL40-T8003A	40	80	3160	3236.5
BAL40-T8203V	BAL40-T8203A	40	82	3240	3316.5
BAL40-T8403V	BAL40-T8403A	40	84	3320	3396.5
BAL40-T8603V	BAL40-T8603A	40	86	3400	3476.5
BAL40-T8803V	BAL40-T8803A	40	88	3480	3556.5
BAL40-T9003V	BAL40-T9003A	40	90	3560	3636.5
BAL40-T9203V	BAL40-T9203A	40	92	3640	3716.5
BAL40-T9403V	BAL40-T9403A	40	94	3720	3796.5
BAL40-T9603V	BAL40-T9603A	40	96	3800	3876.5
BAL40-T9803V	BAL40-T9803A	40	98	3880	3956.5
BAL40-T10003V	BAL40-T10003A	40	100	3960	4036.5

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Pressure Switch
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Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

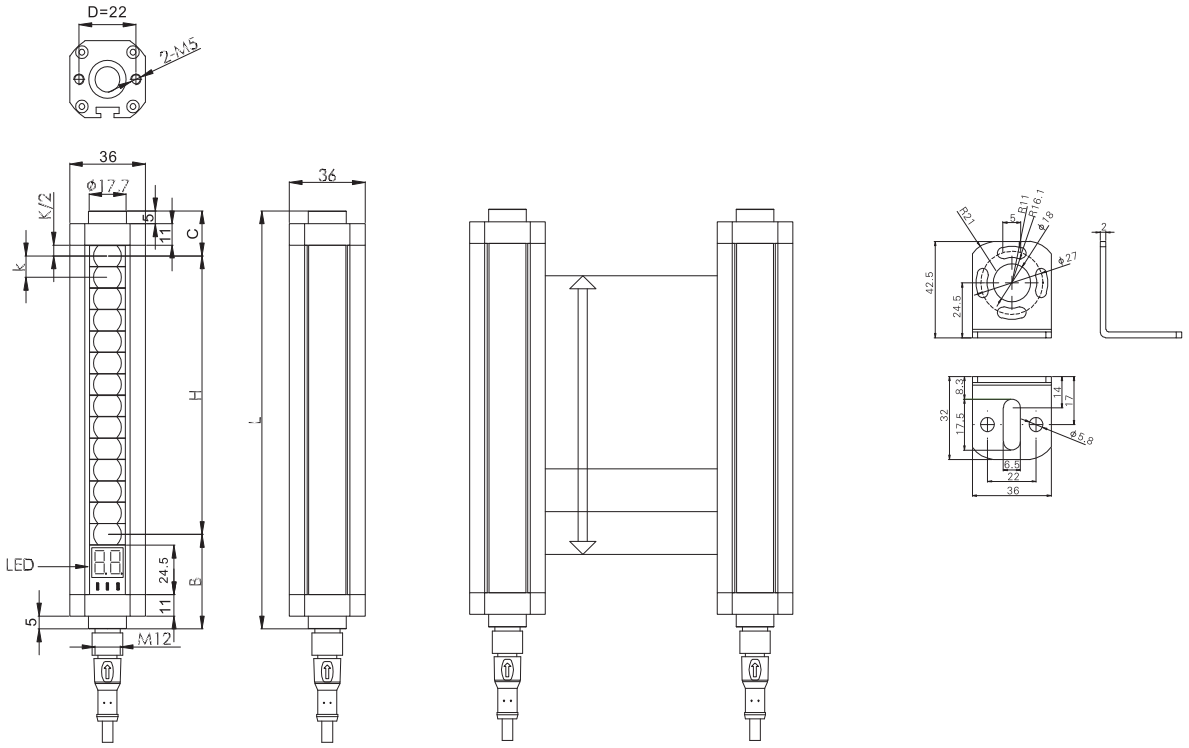
Safety Light Curtain
Safety Light Curtain

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Measuring Type

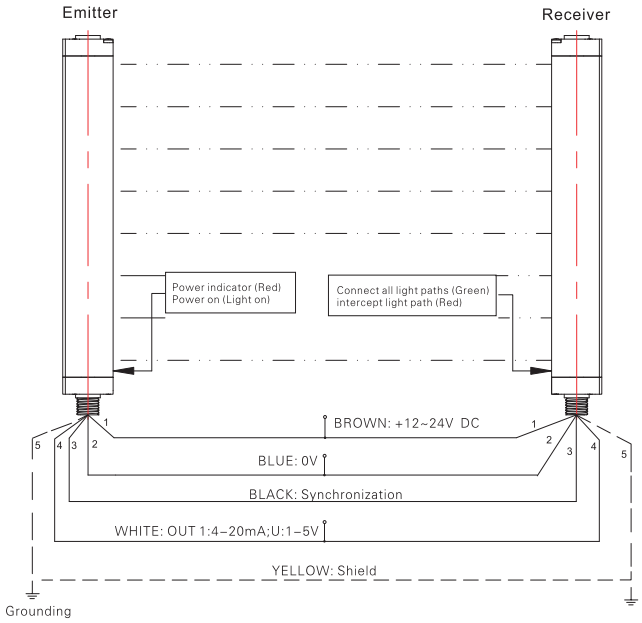
Dimensions

Unit:mm



H: Protection Height=（N−1）K
L: Light curtain total height=B+H+C
N: No.of beams
K: Beam pitch
B: Lower blind height=K/2+40.5（K=40，B=50.5）
C: Upper blind height=K/2+16（K=40，C=26）
D: Mounting hole(M5) spacing=22

Connection Diagram



BSL Series



Economical Type

CE

Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	–
	Standard	–
	Light source	Infrared light,860nm (modulation)
	Number of beams	8~32 beams
	Beam pitch	20/40mm
	Protection height	180~1240mm
	Protection distance	0.1~6.0m
	Mini. detectable object	ϕ28/ϕ48mm or more opaque object
Electrical data	Output Mode	NPN/PNP
	Synchronization type	Line synchronization
	Response time	≤20ms
	Operating voltage	12~24VDC ± 10%
	Current consumption	Emitter：≤200mA，Receiving：≤200mA
	Power consumption	3~8W
	Residual Voltage	≤2.0V(150mA)/ < 2.0V
	Load Current	≤150mA
	Insulation resistance	≥100MΩ between power terminal and case (500VDC)/ ± 500V 50/60Hz 60s
	Dielectric strength	500VAC (50/60Hz), 1 minute between power terminal and case/ ± 500V 50/60Hz 60s
	Protection circuit	Reverse polarity protection/short circuit protection/surge protection
Environmental conditions	Operating temperature	–10~55℃(No freezing)
	Storage temperature	–10~55℃(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp≤3000Lux;LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	214.6~1274.6x30x29.65mm
	Material	Aluminum
	Weight	0.62~6.37kg
	Accessories	Right angle mount: M12/5-pin plug cablex2

Economical Type

BSL Series

BSL20

Beam pitch		20mm				
Mini. detectable object		φ28 or more opaque object				
Protection distance		0.1~6m				
Number of beams		10 beams	12 beams	14 beams	··· ···	32 beams
Protection height		180mm	220mm	260mm	··· ···	620mm
Length of light curtain		214.6mm	254.6mm	294.6mm	··· ···	654.6mm
Model	NPN NC	BSL20-T1006NC	BSL20-T1206NC	BSL20-T1406NC	··· ···	BSL20-T3206NC
	PNP NC	BSL20-T1006PC	BSL20-T1206PC	BSL20-T1406PC	··· ···	BSL20-T3206PC

BSL40

Beam pitch		40mm				
Mini. detectable object		φ48 or more opaque object				
Protection distance		0.1~6m				
Number of beams		8 beams	10 beams	12 beams	... ...	32 beams
Protection height		280mm	360mm	440mm	... ...	1240mm
Length of light curtain		314.6mm	394.6mm	474.6mm	··· ···	1274.6mm
Model	NPN NC	BSL40-T0806NC	BSL40-T1006NC	BSL40-T1206NC	··· ···	BSL40-T3206NC
	PNP NC	BSL40-T0806PC	BSL40-T1006PC	BSL40-T1206PC	··· ···	BSL40-T3206PC

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Guidance

Light curtains
Standard type
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Safety Light Curtain
Safety Light Curtain

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BSL Series

BSL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BSL20-T1006NC	BSL20-T1006PC	20	10	180	214.6
BSL20-T1206NC	BSL20-T1206PC	20	12	220	254.6
BSL20-T1406NC	BSL20-T1406PC	20	14	260	294.6
BSL20-T1606NC	BSL20-T1606PC	20	16	300	334.6
BSL20-T1806NC	BSL20-T1806PC	20	18	340	374.6
BSL20-T2006NC	BSL20-T2006PC	20	20	380	414.6
BSL20-T2206NC	BSL20-T2206PC	20	22	420	454.6
BSL20-T2406NC	BSL20-T2406PC	20	24	460	494.6
BSL20-T2606NC	BSL20-T2606PC	20	26	500	534.6
BSL20-T2806NC	BSL20-T2806PC	20	28	540	574.6
BSL20-T3006NC	BSL20-T3006PC	20	30	580	614.6
BSL20-T3206NC	BSL20-T3206PC	20	32	620	654.6

BSL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BSL40-T0806NC	BSL40-T0806PC	40	08	280	314.6
BSL40-T1006NC	BSL40-T1006PC	40	10	360	394.6
BSL40-T1206NC	BSL40-T1206PC	40	12	440	474.6
BSL40-T1406NC	BSL40-T1406PC	40	14	520	554.6
BSL40-T1606NC	BSL40-T1606PC	40	16	600	634.6
BSL40-T1806NC	BSL40-T1806PC	40	18	680	714.6
BSL40-T2006NC	BSL40-T2006PC	40	20	760	794.6
BSL40-T2206NC	BSL40-T2206PC	40	22	840	874.6
BSL40-T2406NC	BSL40-T2406PC	40	24	920	954.6
BSL40-T2606NC	BSL40-T2606PC	40	26	1000	1034.6
BSL40-T2806NC	BSL40-T2806PC	40	28	1080	1114.6
BSL40-T3006NC	BSL40-T3006PC	40	30	1160	1194.6
BSL40-T3206NC	BSL40-T3206PC	40	32	1240	1274.6

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Light curtains
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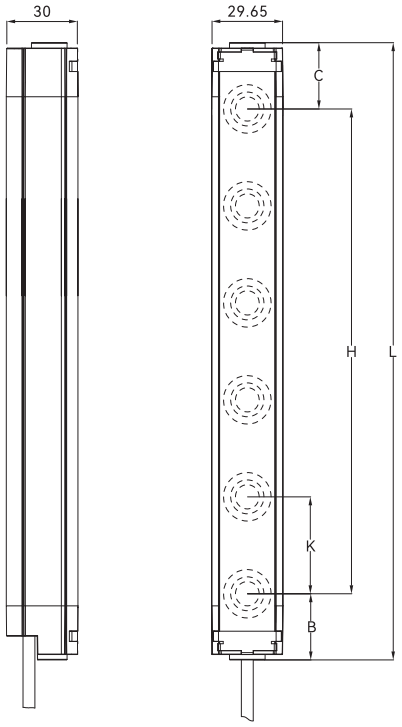
Safety Light Curtain
Safety Light Curtain

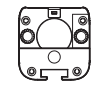
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MINI LiDAR scanner
Navigation LiDAR

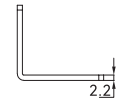
Economical Type

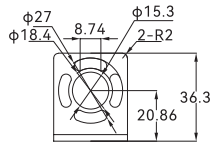
Dimensions

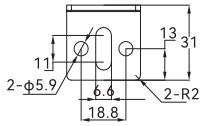
Unit:mm











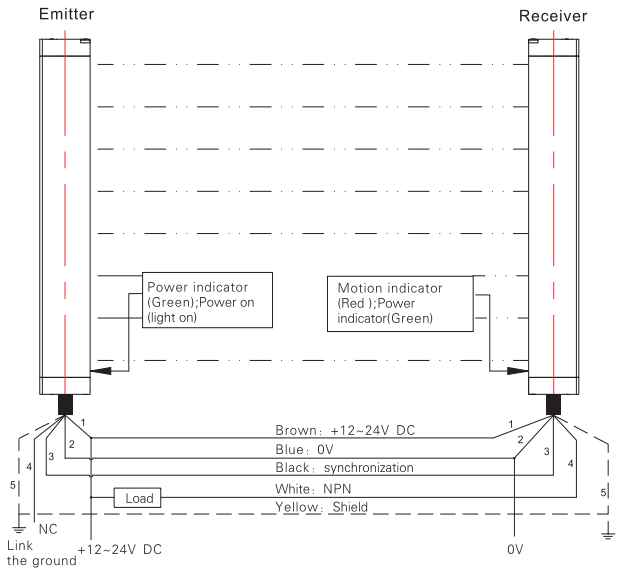
B=C=17.3mm
H=(N−1)*K
L=H+B+C

B：Upper blind height
C：Lower blind height

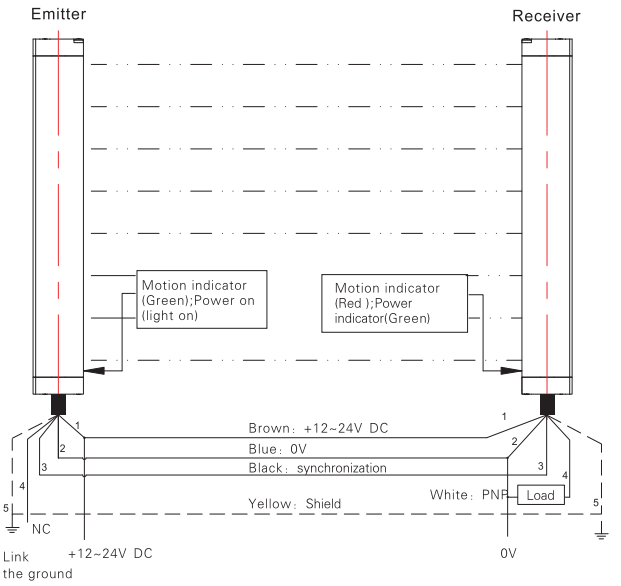
K：Beam pitch
H：Protection height
N：No.of beam
L：Total light curtain height

Connection Diagram

NPN



PNP



BKL Series



Economical Type

CE

Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	–
	Standard	–
	Light source	Infrared light (modulation)
	Number of beams	4~48 beams
	Beam pitch	10/20/40mm
	Protection height	120~1880mm
	Protection distance	0.1~6.0m
	Mini. detectable object	ϕ14/ϕ25/ϕ45mm or more opaque object
Electrical data	Output Mode	NPN/PNP
	Synchronization type	Optical synchronization,Line synchronization
	Response time	≤10ms
	Operating voltage	12~24VDC ± 10%
	Current consumption	≤200mA
	Power consumption	3~8W
	Residual Voltage	≤1.5V（150mA）
	Load Current	–
	Insulation resistance	≥10MΩ between power terminal and case (500VDC)
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection/surge protection
Environmental conditions	Operating temperature	–15~55℃(No freezing)
	Storage temperature	–20~60℃(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp≤3000Lux;LED≤3000Lux;Sunlight≤10000Lux
	Vibration resistance	10~150Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	146~1926x30x30mm
	Material	Aluminum
	Weight	0.75~9.65kg
	Accessories	Mounting bracket, mounting screws, M12/6-pin plug cablex2

Economical Type

BKL Series

BKL10

Beam pitch		10mm						
Mini. detectable object		φ14 or more opaque object						
Protection distance		0.1~6m						
Number of beams		14 beams	16 beams	18 beams	20 beams	22 beams	... ...	48 beams
Protection height		130mm	150mm	170mm	190mm	210mm	... ...	470mm
Length of light curtain		146mm	166mm	186mm	206mm	226mm	··· ···	486mm
Model	NPN NC	BKL10-T1406NC	BKL10-T1606NC	BKL10-T1806NC	BKL10-T2006NC	BKL10-T2206NC	··· ···	BKL10-T4806NC
	PNP NC	BKL10-T1406PC	BKL10-T1606PC	BKL10-T1806PC	BKL10-T2006PC	BKL10-T2206PC	··· ···	BKL10-T4806PC

Remarks: Maximum number of beams is 64.

BKL20

Beam pitch		20mm						
Mini. detectable object		φ25 or more opaque object						
Protection distance		0.1~6m						
Number of beams		8 beams	10 beams	12 beams	14 beams	16 beams	... ...	48 beams
Protection height		140mm	180mm	220mm	260mm	300mm	... ...	940mm
Length of light curtain		166mm	206mm	246mm	286mm	326mm	··· ···	966mm
Model	NPN NC	BKL20-T0806NC	BKL20-T1006NC	BKL20-T1206NC	BKL20-T1406NC	BKL20-T1606NC	··· ···	BKL20-T4806NC
	PNP NC	BKL20-T0806PC	BKL20-T1006PC	BKL20-T1206PC	BKL20-T1406PC	BKL20-T1606PC	··· ···	BKL20-T4806PC

Remarks: Maximum number of beams is 128.

BKL40

Beam pitch		40mm						
Mini. detectable object		φ45 or more opaque object						
Protection distance		0.1~6m						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	... ...	48 beams
Protection height		120mm	200mm	280mm	360mm	440mm	... ...	1880mm
Length of light curtain		166mm	246mm	326mm	406mm	486mm	··· ···	1926mm
Model	NPN NC	BKL40-T0406NC	BKL40-T0606NC	BKL40-T0806NC	BKL40-T1006NC	BKL40-T1206NC	··· ···	BKL40-T4806NC
	PNP NC	BKL40-T0406PC	BKL40-T0606PC	BKL40-T0806PC	BKL40-T1006PC	BKL40-T1206PC	··· ···	BKL40-T4806PC

Remarks: Maximum number of beams is 48.

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

BKL Series

BKL10

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BKL10-T1406NC	BKL10-T1406PC	10	14	130	146
BKL10-T1606NC	BKL10-T1606PC	10	16	150	166
BKL10-T1806NC	BKL10-T1806PC	10	18	170	186
BKL10-T2006NC	BKL10-T2006PC	10	20	190	206
BKL10-T2206NC	BKL10-T2206PC	10	22	210	226
BKL10-T2406NC	BKL10-T2406PC	10	24	230	246
BKL10-T2606NC	BKL10-T2606PC	10	26	250	266
BKL10-T2806NC	BKL10-T2806PC	10	28	270	286
BKL10-T3006NC	BKL10-T3006PC	10	30	290	306
BKL10-T3206NC	BKL10-T3206PC	10	32	310	326
BKL10-T3406NC	BKL10-T3406PC	10	34	330	346
BKL10-T3606NC	BKL10-T3606PC	10	36	350	366
BKL10-T3806NC	BKL10-T3806PC	10	38	370	386
BKL10-T4006NC	BKL10-T4006PC	10	40	390	406
BKL10-T4206NC	BKL10-T4206PC	10	42	410	426
BKL10-T4406NC	BKL10-T4406PC	10	44	430	446
BKL10-T4606NC	BKL10-T4606PC	10	46	450	466
BKL10-T4806NC	BKL10-T4806PC	10	48	470	486

BKL20

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BKL20-T0806NC	BKL20-T0806PC	20	08	140	166
BKL20-T1006NC	BKL20-T1006PC	20	10	180	206
BKL20-T1206NC	BKL20-T1206PC	20	12	220	246
BKL20-T1406NC	BKL20-T1406PC	20	14	260	286
BKL20-T1606NC	BKL20-T1606PC	20	16	300	326
BKL20-T1806NC	BKL20-T1806PC	20	18	340	366
BKL20-T2006NC	BKL20-T2006PC	20	20	380	406
BKL20-T2206NC	BKL20-T2206PC	20	22	420	446
BKL20-T2406NC	BKL20-T2406PC	20	24	460	486
BKL20-T2606NC	BKL20-T2606PC	20	26	500	526
BKL20-T2806NC	BKL20-T2806PC	20	28	540	566
BKL20-T3006NC	BKL20-T3006PC	20	30	580	606
BKL20-T3206NC	BKL20-T3206PC	20	32	620	646
BKL20-T3406NC	BKL20-T3406PC	20	34	660	686
BKL20-T3606NC	BKL20-T3606PC	20	36	700	726
BKL20-T3806NC	BKL20-T3806PC	20	38	740	766
BKL20-T4006NC	BKL20-T4006PC	20	40	780	806
BKL20-T4206NC	BKL20-T4206PC	20	42	820	846
BKL20-T4406NC	BKL20-T4406PC	20	44	860	886
BKL20-T4606NC	BKL20-T4606PC	20	46	900	926
BKL20-T4806NC	BKL20-T4806PC	20	48	940	966

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Economical Type

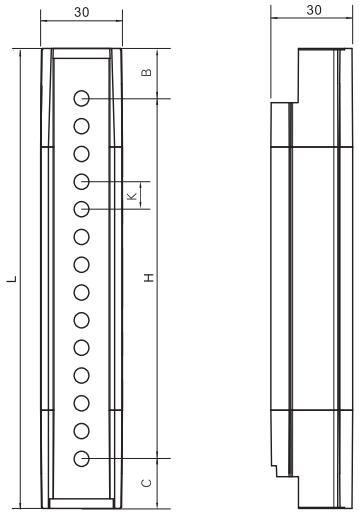
BKL Series

BKL40

Model		Beam pitch	No. Beams	Detection Height	Light Curtain Height
BKL40-T0406NC	BKL40-T0406PC	40	04	120	166
BKL40-T0606NC	BKL40-T0606PC	40	06	200	246
BKL40-T0806NC	BKL40-T0806PC	40	08	280	326
BKL40-T1006NC	BKL40-T1006PC	40	10	360	406
BKL40-T1206NC	BKL40-T1206PC	40	12	440	486
BKL40-T1406NC	BKL40-T1406PC	40	14	520	566
BKL40-T1606NC	BKL40-T1606PC	40	16	600	646
BKL40-T1806NC	BKL40-T1806PC	40	18	680	726
BKL40-T2006NC	BKL40-T2006PC	40	20	760	806
BKL40-T2206NC	BKL40-T2206PC	40	22	840	886
BKL40-T2406NC	BKL40-T2406PC	40	24	920	966
BKL40-T2606NC	BKL40-T2606PC	40	26	1000	1046
BKL40-T2806NC	BKL40-T2806PC	40	28	1080	1126
BKL40-T3006NC	BKL40-T3006PC	40	30	1160	1206
BKL40-T3206NC	BKL40-T3206PC	40	32	1240	1286
BKL40-T3406NC	BKL40-T3406PC	40	34	1320	1366
BKL40-T3606NC	BKL40-T3606PC	40	36	1400	1446
BKL40-T3806NC	BKL40-T3806PC	40	38	1480	1526
BKL40-T4006NC	BKL40-T4006PC	40	40	1560	1606
BKL40-T4206NC	BKL40-T4206PC	40	42	1640	1686
BKL40-T4406NC	BKL40-T4406PC	40	44	1720	1766
BKL40-T4606NC	BKL40-T4606PC	40	46	1800	1846
BKL40-T4806NC	BKL40-T4806PC	40	48	1880	1926

Unit:mm

Dimensions

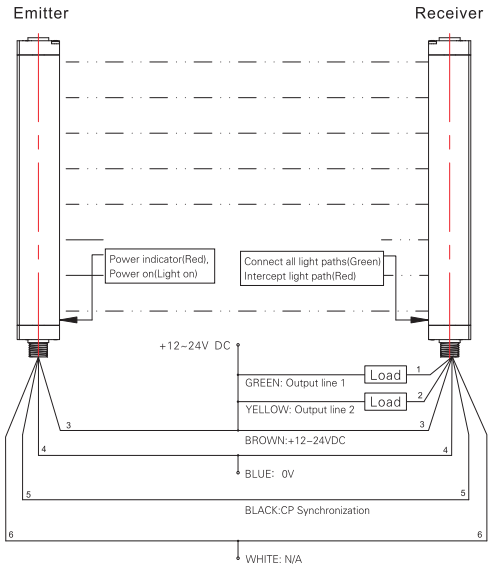


B: Upper blind
C: Lower blind
K: Beam pitch
H: Protection Height
N: No.of beams
N: Light curtain total height

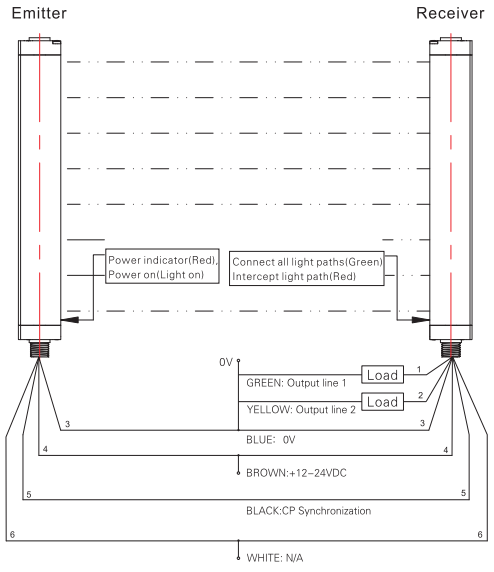
B=1/2K+3mm
C=1/2K+3mm
H=(N−1)*K
L=H+B+C

Connection Diagram

NPN



PNP



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Safety Light Curtain

SAF Series



Basic Features	Working principle	Photoelectric Sensor
	Housing	Array
	Optical working principle	Thru-beam
	Safety class	Type 4 Cat.4 PLe
	Standard	GB 4584、GB/T 19436.1 (Type 4)、GB/T 19436.2 (Type 4)、IEC 61496-1 (Type 4)、IEC 61496-2 (Type 4)
	Light source	Infrared light,940nm (modulation)
	Number of beams	4~72 beams
	Beam pitch	10/20/40mm
	Protection height	120~2840mm
	Protection distance	0~6m/0~12m/8~20m
	Mini. detectable object	ϕ18/ϕ28/ϕ38/ϕ48mm or more opaque object
Electrical data	Output Mode	PNP (two groups)
	Synchronization type	Line synchronization
	Response time	⩽20ms
	Operating voltage	24VDC ± 10%
	Current consumption	Emitter：⩽300mA，Receiving：⩽100mA
	Power consumption	3~10W
	Residual Voltage	⩽3.5V(300mA)
	Load Current	⩽300mA
	Insulation resistance	⩾100MΩ between power terminal and case (500VDC)
	Dielectric strength	1000VAC (50/60Hz), 1 minute between power terminal and case
	Protection circuit	Reverse polarity protection/short circuit protection
Environmental conditions	Operating temperature	–10~55℃(No freezing)
	Storage temperature	–40~70℃(No freezing)
	Operating humidity	35~85%RH(No condensation)
	Storage humidity	35~95%RH(No condensation)
	Ambient Illumination	Incandescent Lamp⩽3000Lux;LED⩽3000Lux;Sunlight⩽10000Lux
	Vibration resistance	10~55Hz, dual amplitude 1.5mm, 2 hours for each X/Y/Z axis
	Protection class	IP65
Mechanical data	Connection type	Cable
	Dimensions	239~2959x35x52mm
	Material	–
	Weight	1.2~14.8kg
	Accessories	Mounting bracket, mounting screws, M18/7-pin plug cablex2

Product Description

The safety light curtain integrates the controller and is a photoelectric protection device for risk-assessed equipment that does not require a controller and needs to be controlled by a level signal (e.g. equipment controlled by a PLC, computer), with two safe PNP output signals. It meets the requirements of safety class four. SAF series light curtains can effectively detect any opaque objects that enter the light curtain area beyond the detection accuracy. It is suitable for the safety protection of mechanical presses, hydraulic presses, shearing machines, bending machines, and other hazardous occasions. It can be used for detection and anti-theft.

Product features

- Perfect self-test function, realizing full self-test including output signal;
- Floating shielding function can be realized, which is convenient to realize the processing of long materials;.
- Provide two relay passive contact outputs, higher safety performance
- High detection accuracy, up to 18mm, can protect fingers;
- Long detection distance, up to 40m.
- Long detection height, up to 2840mm.
- Wide range of product specifications
- Split indication function can be provided to visualize the state of the beam on and off;
- Good vibration damping performance, suitable for high-speed punch, large tonnage presses, long service life;
- Strong resistance to light interference and electromagnetic interference; more stable work;
- configuring the safety relay module, it can provide two forms of 3 normally open and 1 normally closed outputs and 2 normally open and 1 normally closed outputs.

SAF Series

SAF10

Beam pitch		10mm						
Mini. detectable object		φ18 or more opaque object						
Protection distance		03：0~3m；12：0~12m；20：8~20m；						
Number of beams		16 beams	20 beams	24 beams	28 beams	32 beams	……	72 beams
Protection height		150mm	190mm	230mm	270mm	310mm	……	710mm
Length of light curtain		239mm	279mm	319mm	359mm	399mm	……	799mm
Model	PNP NC	SAF10-T16[0][3]PC	SAF10-T20[0][3]PC	SAF10-T24[0][3]PC	SAF10-T28[0][3]PC	SAF10-T32[0][3]PC	……	SAF10-T72[0][3]PC
	Other	[0][3]：0~3m	[1][2]：0~12m	[2][0]：8~20m				

SAF20

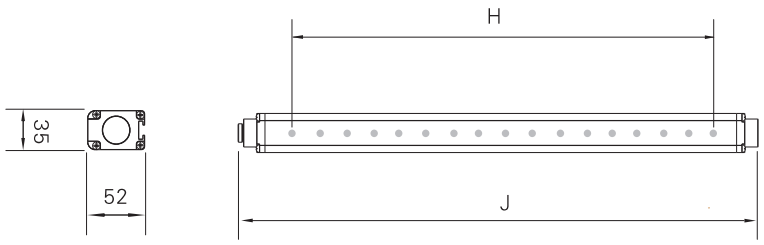
Beam pitch		20mm						
Mini. detectable object		φ28 or more opaque object						
Protection distance		03：0~3m；12：0~12m；20：8~20m；						
Number of beams		8 beams	10 beams	12 beams	14 beams	16 beams	……	72 beams
Protection height		140mm	180mm	220mm	260mm	300mm	……	1420mm
Length of light curtain		239mm	279mm	319mm	359mm	399mm	……	1519mm
Model	PNP NC	SAF20-T08[0][3]PC	SAF20-T10[0][3]PC	SAF20-T12[0][3]PC	SAF20-T14[0][3]PC	SAF20-T16[0][3]PC	……	SAF20-T72[0][3]PC
	Other	[0][3]：0~3m	[1][2]：0~12m	[2][0]：8~20m				

SAF40

Beam pitch		40mm						
Mini. detectable object		φ48 or more opaque object						
Protection distance		03：0~3m；12：0~12m；20：8~20m；						
Number of beams		4 beams	6 beams	8 beams	10 beams	12 beams	……	72 beams
Protection height		120mm	200mm	280mm	360mm	440mm	……	2840mm
Length of light curtain		239mm	319mm	399mm	479mm	559mm	……	2959mm
Model	PNP NC	SAF40-T04[0][3]PC	SAF40-T06[0][3]PC	SAF40-T08[0][3]PC	SAF40-T10[0][3]PC	SAF40-T12[0][3]PC	……	SAF40-T72[0][3]PC
	Other	[0][3]：0~3m	[1][2]：0~12m	[2][0]：8~20m				

Dimensions

Unit:mm



H： Protection height
J： Length of light emitter and light receiver

Fiber Optic
Slot Sensors
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Safety door lock
Pressure Switch
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Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Safety Light Curtain

SAF Series

SAF10

Model			Beam pitch	No. Beams	Detection Height	Light Curtain Height
SAF10-T1603PC	SAF10-T1612PC	SAF10-T1620PC	10	16	150	500
SAF10-T2003PC	SAF10-T2012PC	SAF10-T2020PC	10	20	190	500
SAF10-T2403PC	SAF10-T2412PC	SAF10-T2420PC	10	24	230	500
SAF10-T2803PC	SAF10-T2812PC	SAF10-T2820PC	10	28	270	750
SAF10-T3203PC	SAF10-T3212PC	SAF10-T3220PC	10	32	310	750
SAF10-T3603PC	SAF10-T3612PC	SAF10-T3620PC	10	36	350	750
SAF10-T4003PC	SAF10-T4012PC	SAF10-T4020PC	10	40	390	750
SAF10-T4403PC	SAF10-T4412PC	SAF10-T4420PC	10	44	430	750
SAF10-T4803PC	SAF10-T4812PC	SAF10-T4820PC	10	48	470	1000
SAF10-T5203PC	SAF10-T5212PC	SAF10-T5220PC	10	52	510	1000
SAF10-T5603PC	SAF10-T5612PC	SAF10-T5620PC	10	56	550	1000
SAF10-T6003PC	SAF10-T6012PC	SAF10-T6020PC	10	60	590	1000
SAF10-T6403PC	SAF10-T6412PC	SAF10-T6420PC	10	64	630	1000
SAF10-T6803PC	SAF10-T6812PC	SAF10-T6820PC	10	68	670	1000
SAF10-T7203PC	SAF10-T7212PC	SAF10-T7220PC	10	72	710	1000

SAF20

Model			Beam pitch	No. Beams	Detection Height	Light Curtain Height
SAF20-T0803PC	SAF20-T0812PC	SAF20-T0820PC	20	08	140	500
SAF20-T1003PC	SAF20-T1012PC	SAF20-T1020PC	20	10	180	500
SAF20-T1203PC	SAF20-T1212PC	SAF20-T1220PC	20	12	220	500
SAF20-T1403PC	SAF20-T1412PC	SAF20-T1420PC	20	14	260	750
SAF20-T1603PC	SAF20-T1612PC	SAF20-T1620PC	20	16	300	750
SAF20-T1803PC	SAF20-T1812PC	SAF20-T1820PC	20	18	340	750
SAF20-T2003PC	SAF20-T2012PC	SAF20-T2020PC	20	20	380	750
SAF20-T2203PC	SAF20-T2212PC	SAF20-T2220PC	20	22	420	750
SAF20-T2403PC	SAF20-T2412PC	SAF20-T2420PC	20	24	460	1000
SAF20-T2603PC	SAF20-T2612PC	SAF20-T2620PC	20	26	500	1000
SAF20-T2803PC	SAF20-T2812PC	SAF20-T2820PC	20	28	540	1000
SAF20-T3003PC	SAF20-T3012PC	SAF20-T3020PC	20	30	580	1000
SAF20-T3203PC	SAF20-T3212PC	SAF20-T3220PC	20	32	620	1000
SAF20-T3403PC	SAF20-T3412PC	SAF20-T3420PC	20	34	660	1000
SAF20-T3603PC	SAF20-T3612PC	SAF20-T3620PC	20	36	700	1000
SAF20-T3803PC	SAF20-T3812PC	SAF20-T3820PC	20	38	740	1200
SAF20-T4003PC	SAF20-T4012PC	SAF20-T4020PC	20	40	780	1200
SAF20-T4203PC	SAF20-T4212PC	SAF20-T4220PC	20	42	820	1200
SAF20-T4403PC	SAF20-T4412PC	SAF20-T4420PC	20	44	860	1200
SAF20-T4603PC	SAF20-T4612PC	SAF20-T4620PC	20	46	900	1200
SAF20-T4803PC	SAF20-T4812PC	SAF20-T4820PC	20	48	940	1500
SAF20-T5003PC	SAF20-T5012PC	SAF20-T5020PC	20	50	980	1500
SAF20-T5203PC	SAF20-T5212PC	SAF20-T5220PC	20	52	1020	1500
SAF20-T5403PC	SAF20-T5412PC	SAF20-T5420PC	20	54	1060	1500
SAF20-T5603PC	SAF20-T5612PC	SAF20-T5620PC	20	56	1100	1500
SAF20-T5803PC	SAF20-T5812PC	SAF20-T5820PC	20	58	1140	1500
SAF20-T6003PC	SAF20-T6012PC	SAF20-T6020PC	20	60	1180	1500
SAF20-T6203PC	SAF20-T6212PC	SAF20-T6220PC	20	62	1220	1750
SAF20-T6403PC	SAF20-T6412PC	SAF20-T6420PC	20	64	1260	1750
SAF20-T6603PC	SAF20-T6612PC	SAF20-T6620PC	20	66	1300	1750
SAF20-T6803PC	SAF20-T6812PC	SAF20-T6820PC	20	68	1340	1750
SAF20-T7003PC	SAF20-T7012PC	SAF20-T7020PC	20	70	1380	1750
SAF20-T7203PC	SAF20-T7212PC	SAF20-T7220PC	20	72	1420	1750

SAF40

Model			Beam pitch	No. Beams	Detection Height	Light Curtain Height
SAF40-T0403PC	SAF40-T0412PC	SAF40-T0420PC	40	04	120	239
SAF40-T0603PC	SAF40-T0612PC	SAF40-T0620PC	40	06	200	319
SAF40-T0803PC	SAF40-T0812PC	SAF40-T0820PC	40	08	280	399
SAF40-T1003PC	SAF40-T1012PC	SAF40-T1020PC	40	10	360	479
SAF40-T1203PC	SAF40-T1212PC	SAF40-T1220PC	40	12	440	559
SAF40-T1403PC	SAF40-T1412PC	SAF40-T1420PC	40	14	520	639
SAF40-T1603PC	SAF40-T1612PC	SAF40-T1620PC	40	16	600	719
SAF40-T1803PC	SAF40-T1812PC	SAF40-T1820PC	40	18	680	799
SAF40-T2003PC	SAF40-T2012PC	SAF40-T2020PC	40	20	760	879
SAF40-T2203PC	SAF40-T2212PC	SAF40-T2220PC	40	22	840	959
SAF40-T2403PC	SAF40-T2412PC	SAF40-T2420PC	40	24	920	1039
SAF40-T2603PC	SAF40-T2612PC	SAF40-T2620PC	40	26	1000	1119
SAF40-T2803PC	SAF40-T2812PC	SAF40-T2820PC	40	28	1080	1199
SAF40-T3003PC	SAF40-T3012PC	SAF40-T3020PC	40	30	1160	1279
SAF40-T3203PC	SAF40-T3212PC	SAF40-T3220PC	40	32	1240	1359
SAF40-T3403PC	SAF40-T3412PC	SAF40-T3420PC	40	34	1320	1439
SAF40-T3603PC	SAF40-T3612PC	SAF40-T3620PC	40	36	1400	1519
SAF40-T3803PC	SAF40-T3812PC	SAF40-T3820PC	40	38	1480	1599
SAF40-T4003PC	SAF40-T4012PC	SAF40-T4020PC	40	40	1560	1679
SAF40-T4203PC	SAF40-T4212PC	SAF40-T4220PC	40	42	1640	1759
SAF40-T4403PC	SAF40-T4412PC	SAF40-T4420PC	40	44	1720	1839
SAF40-T4603PC	SAF40-T4612PC	SAF40-T4620PC	40	46	1800	1919
SAF40-T4803PC	SAF40-T4812PC	SAF40-T4820PC	40	48	1880	1999
SAF40-T5003PC	SAF40-T5012PC	SAF40-T5020PC	40	50	1960	2079
SAF40-T5203PC	SAF40-T5212PC	SAF40-T5220PC	40	52	2040	2159
SAF40-T5403PC	SAF40-T5412PC	SAF40-T5420PC	40	54	2120	2239
SAF40-T5603PC	SAF40-T5612PC	SAF40-T5620PC	40	56	2200	2319
SAF40-T5803PC	SAF40-T5812PC	SAF40-T5820PC	40	58	2280	2399
SAF40-T6003PC	SAF40-T6012PC	SAF40-T6020PC	40	60	2360	2479
SAF40-T6203PC	SAF40-T6212PC	SAF40-T6220PC	40	62	2440	2559
SAF40-T6403PC	SAF40-T6412PC	SAF40-T6420PC	40	64	2520	2639
SAF40-T6603PC	SAF40-T6612PC	SAF40-T6620PC	40	66	2600	2719
SAF40-T6803PC	SAF40-T6812PC	SAF40-T6820PC	40	68	2680	2799
SAF40-T7003PC	SAF40-T7012PC	SAF40-T7020PC	40	70	2760	2879
SAF40-T7203PC	SAF40-T7212PC	SAF40-T7220PC	40	72	2840	2959

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

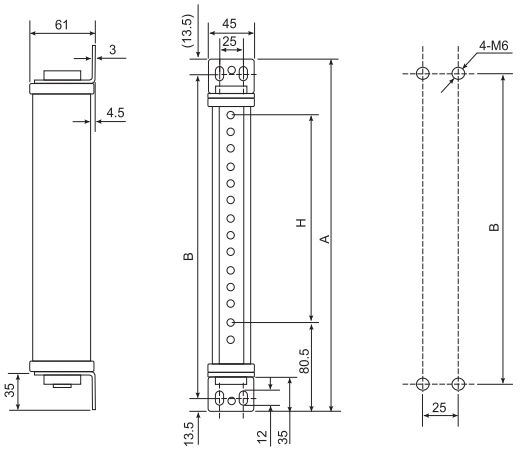
LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Safety Light Curtain

Installation Method

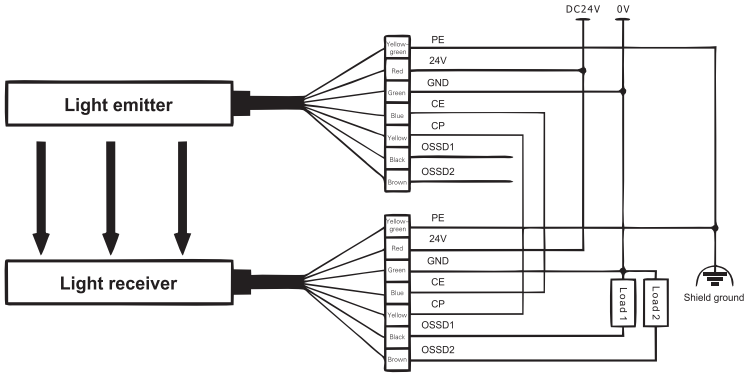
Front and side integrated installation method (ZC)

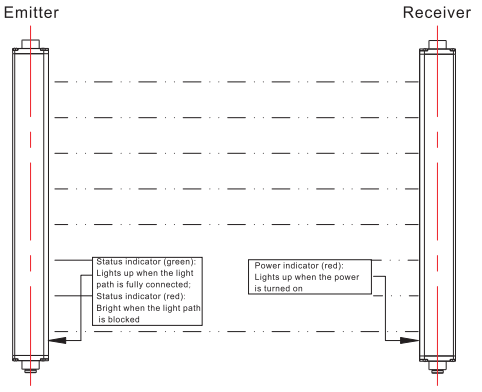




A	Optical axis spacing 10mm	H+131
	Optical axis spacing 20mm	H+141
	Optical axis spacing 30mm	H+131
	Optical axis spacing 40mm	H+161
B	Optical axis spacing 10mm	H+104
	Optical axis spacing 20mm	H+114
	Optical axis spacing 30mm	H+104
	Optical axis spacing 40mm	H+134
H	Protection height	

Connection diagram





Note: The control signal lines OSSD1 and OSSD2 at the light emitter end are floating.

Laser Lidar

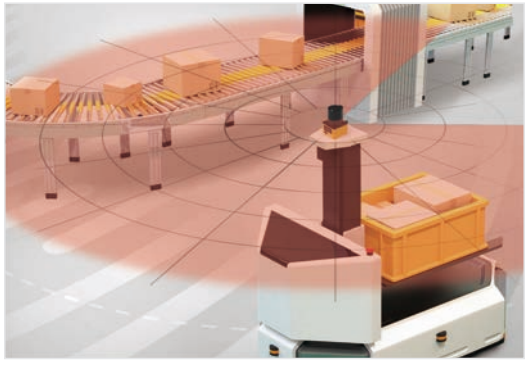
AS Series



Industrial obstacle avoidance lidar

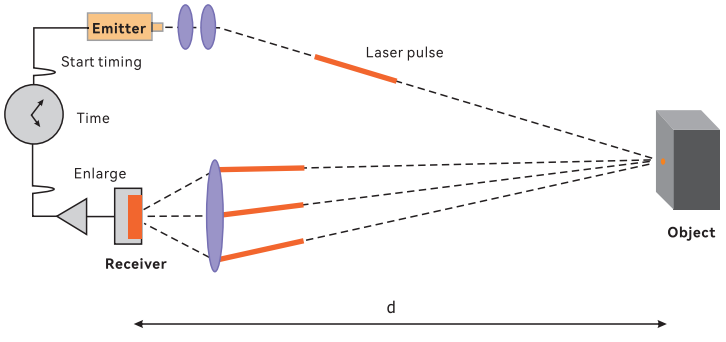
AKUSENSE's new generation TOF single-line LiDAR boasts high reliability, stable performance, and cost-effectiveness. It's an ideal choice for industrial AGVs, mobile robots, and low-speed robots.





Single-line laser lidar

Accurate 2D scanning of object contours on flat surfaces



Mainstream performance of TOF single-line lidar

Measurement distance ≥ 10 m (70% reflectivity), ≥ 4 m (10% reflectivity)

Horizontal viewing angle: 270° scanning angle, can be divided into 64 independent channels

Measurement rates up to 54 KHz

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
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Safety Light Curtain
Safety Light Curtain

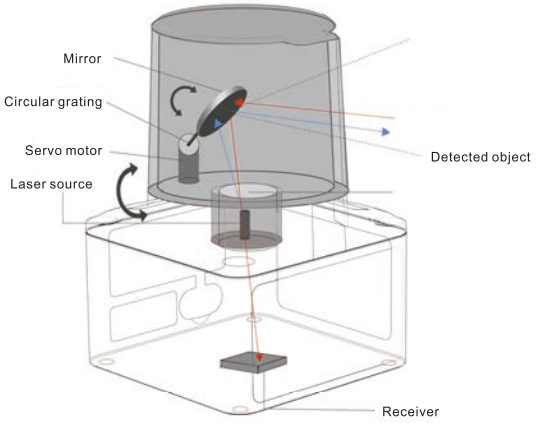
LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Product Highlights

AS Series

Unique structural design, high reliability

The use of lightweight rotary mirror design, with precision brushless silent motor, making the product stable and reliable operation.





Supports serial port (Type-C connector) communication *

Online real-time output of measurement data (including distance and light intensity data in each direction)

* AS-33C

Vibration and shock resistant, adapting to a variety of inspection scenarios

Precision dust-free assembly process, through the high-intensity vibration test and harsh impact test, product consistency is good.



Lidar Technology

Pulsed TOF high-speed ranging technology:

AKUSENSE's full range of LIDAR products utilize direct time-of-flight (dTOF) technology for distance measurement.

This means that short, nanosecond pulses with high instantaneous power are emitted and the distance to the target is calculated by measuring the round trip time of the pulse.

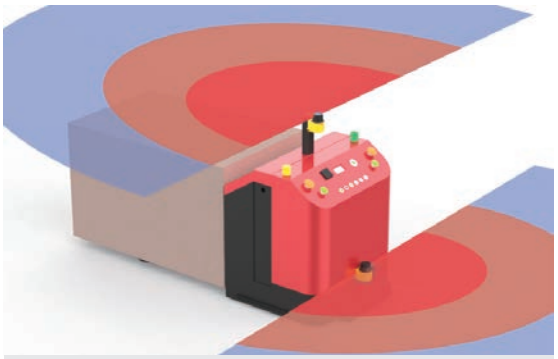
Compared to other commonly used ranging mechanisms (e.g. triangulation based on geometric similarity, and phase ranging using the phase difference between the transceiver channels), it is much faster and has a longer detection distance.

Weak echo signal processing with high signal-to-noise ratio

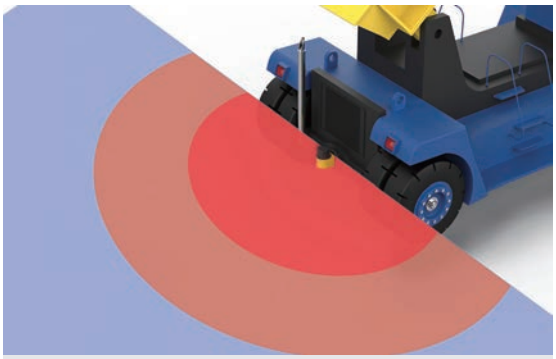
Pulse echo signal at the receiving end of the photoelectric sensor to form a weak photocurrent, converted to voltage signals and through several levels of amplification and conditioning, by the timing circuit for subsequent processing.

In order to ensure the stability and reliability of the measurement results, the entire signal processing path is sufficient to meet the requirements of TOF ranging on the large bandwidth and high signal-to-noise ratio, so as to capture the weaker signals and measure longer distances.

Application

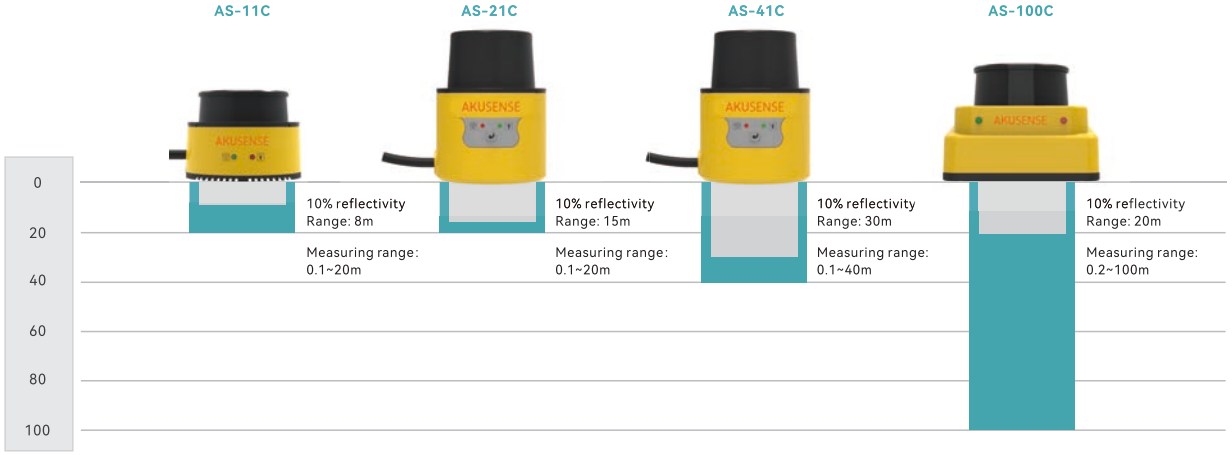


AGV Navigation

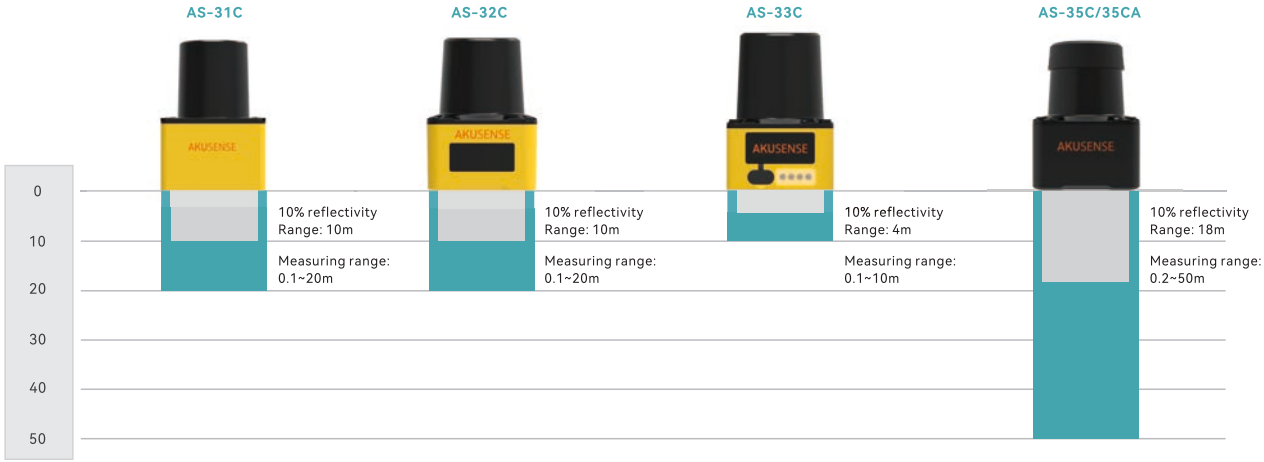


Construction Machinery Collision Avoidance

Selection table



Model.	AS-11C	AS-21C	AS-41C	AS-100C
Scanning angle	360°	300°	300°	360°
Resolution	0.5°	0.5°(default)/0.25°/0.125°	0.5°(default)/0.25°/0.125°	0.05°/0.1°
Scanning frequency	12.5Hz	25Hz(default)/12.5Hz/6.25Hz	25Hz(default)/12.5Hz/6.25Hz	10Hz/20Hz



Model.	AS-31C	AS-32C	AS-33C	AS-35C/35CA
Scanning angle	270°	270°	270°	360°
Resolution	0.12°/0.18°/0.23°/0.35°	0.12°/0.18°/0.23°/0.35°	0.5°	0.06°/ 0.09°/ 0.12°/ 0.18°
Scanning frequency	10Hz/15Hz/20Hz/25Hz/30Hz	10Hz/15Hz/20Hz/25Hz/30Hz	25Hz	10 Hz /15 Hz /20 Hz /30 Hz

LiDAR Scanner

AS-21/41C

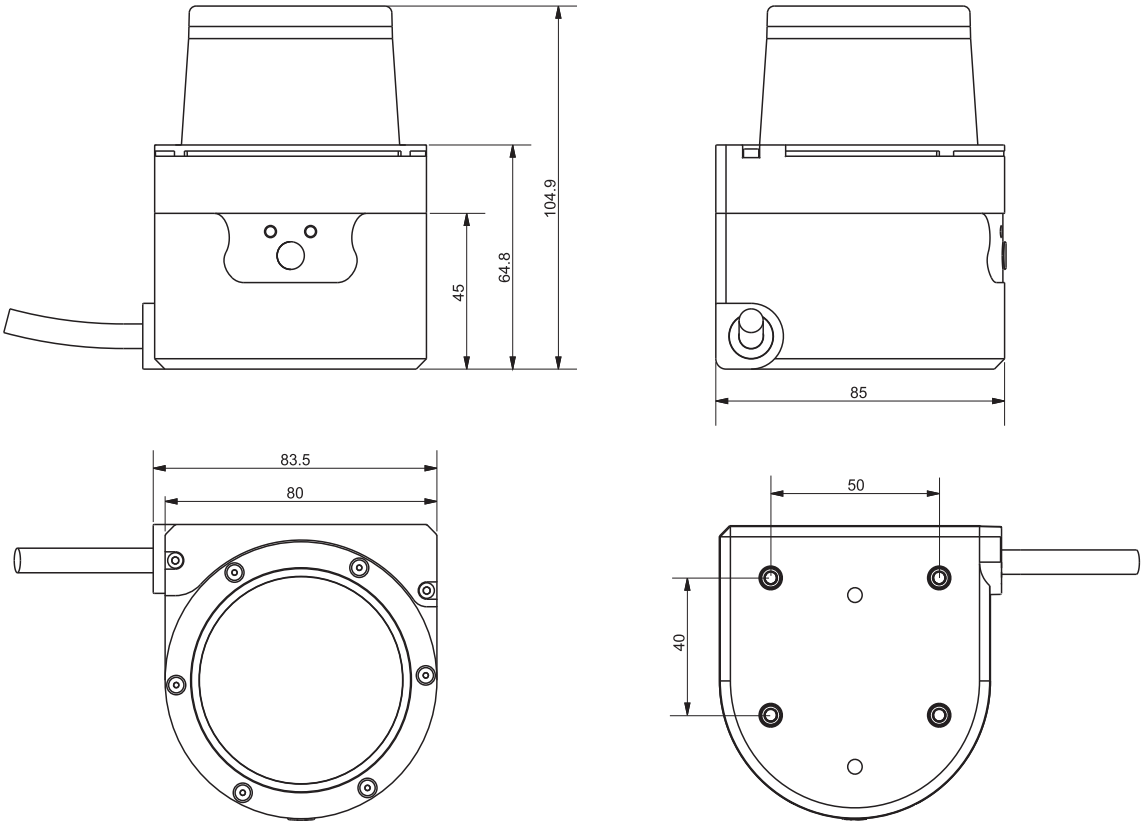
TOF Principle



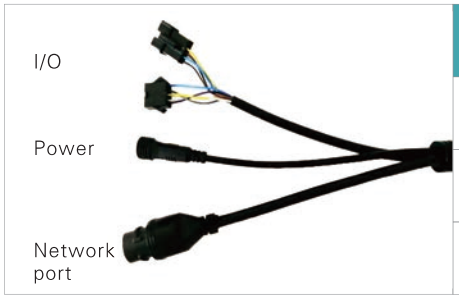
Basic Features	Working principle		TOF	
	Optical working principle		Diffuse Reflection	
	Light source		Infrared laser (905nm)	
	Laser spot exit aperture		8mm	
	Scanning angle		300°	
	Scanning angle resolution		0.5°(default)/0.25°/0.125°	
	Measuring range		0.1m ~20m	0.1m ~40m
	Measurement Error	System error (typical)	±5cm	±5cm(1m~20m); ± 10cm(20m~40m)
		Statistical error(1σ)	±2cm	±2cm(1m~20m); ± 4cm(20m~40m)
	Indicator		Quantity: 2; Definition: ERR (Equipment Alarm: Failure/Abnormality, Dirty/Shade of Transparent Cover, High/Low Temperature, Dense Fog); HTR (Operation Status Indication: Detecting Signal/Self-Learning)	
Electrical data	Operating voltage		10V~28V DC	
	Power consumption		5W(Measuring)，3.6W@DC 12V/14.4W@DC 24V(Heating)	
	Communication		Ethernet, rate: 10/100 Mbps; Network protocol: TCP/P: Functions: device configuration/ measurement data output/monitoring signal output	
Environmental conditions	Operating temperature		-25℃~+50℃	
	Storage temperature		-30℃~+70℃	
	Operating humidity		93%,+40℃,2h(GB/T2423.3)	
	Ambient illumination		≤70,000Lux	
	Vibration resistance		GB/T 2423,10	
	Enclosure rating		IP65(GB4208~2008)	
Mechanical data	Connection		GB/T 2423,10	
	Dimension		83.5×85×104.9(mm)	
	Material		Aluminum Alloy	
	Weight		0.6kg	
	Accessories		Side/sit composite bracket AS-21C-AT, power cable AS-21C-EC, standard RJ45 cable, waterproof sheath for cable crystal head, hexagonal M4*8 screws, spacers, recommended installation tools.	
Special function	Safety class		Class I(GB 7247.1-2012, human eye safety)	
	Laser spot emission angle		12.5mrad	
	Scanning frequency		300°(-60°~+240°)	
	Model		AS-21C	AS-41C

Unit:mm

Dimensions



Power Interface



Socket	Type	Explanation
DC002	Power	Female 2 pin
Ethernet	RJ45 socket	4 pin
I/O	Cable	10 pin

Accessories

			Mounting screws, gasket and easy installation tool
Composite Bracket: AS-21C-AT 1 Piece	Power Cable: AS-21C-EC 1 Strip	Crystal Protective Cover: AS-21C-WJ 1 Piece	Accessories: M4x8 1 Set

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

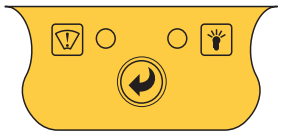
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

LiDAR Scanner

Indicators and Operation Buttons

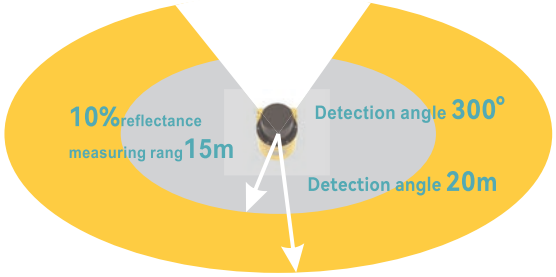


Name	Instructions
ERR	Work fault indicator ◆ Startup state: Light on(About 27s)Always off: No fault ◆ Always on:Internal fault ◆ Always on: Internal fault,Abnormal measurement ◆ Long flicker (0.25Hz) : High / low temperature alarm ◆ Short flicker(1Hz) : Transmissive cover is dirty/occluded[1]
HTR	Work status indicator ◆ Startup state: Off ◆ Off: The device does not start measuring/ready to restart ◆ Always on:Equipment normal measurement ◆ Flash1 (0.5Hz) : Monitor Signal output ◆ Flash2 (1Hz) : Self-learning[2] ◆ Flash3 (2.5Hz) : Ready to start self-learning[2]
SLR	Operation button ◆short press (1s~5s)Start background self-learning ◆Long press(≥ 6s) : Delete background

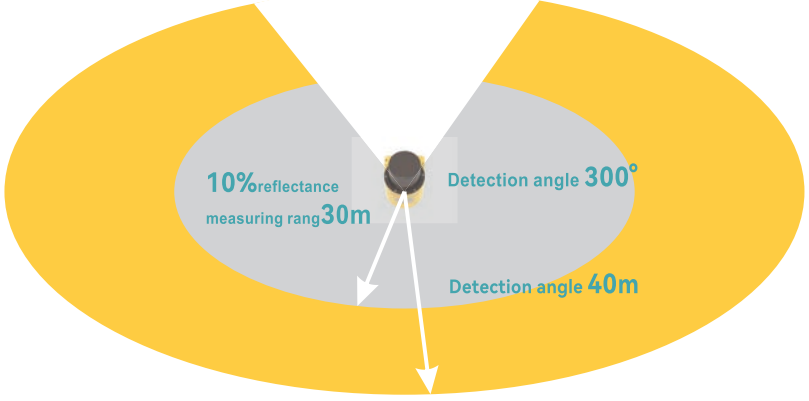
1:Including being blocked by dense fog or the detection area being blocked.
2:Including "background self-learning" and "normal goal self-learning"(customization function).

Measuring coordinate system/scan range/range

AS-21C



AS-41C



MINI LiDAR Scanner

TOF Principle



Basic Features	Working principle		TOF
	Optical working principle		Diffuse Reflection
	Light source		Infrared laser (905nm)
	Laser spot exit aperture		10mm
	Scanning angle		360°
	Scanning angle resolution		0.5°
	Measuring range		0.1m ~20m
	Measurement Error	System error (typical)	±5cm(1m~15m)
		Statistical error(1σ)	±2cm(1m~15m)
	Indicator		Quantity: 2; Definition: ERR (Equipment Alarm: Failure/Abnormality, Dirty/Shade of Transparent Cover, High/Low Temperature, Dense Fog); HTR (Operation Status Indication: Detecting Signal/Self-Learning)
Electrical data	Operating voltage		12V~28V DC
	Power consumption		4.5W@DC 24V
	Communication		Ethernet, rate: 10/100 Mbps; Network protocol: TCP/P: Functions: device configuration/ measurement data output/monitoring signal output
Environmental conditions	Operating temperature		-10℃~+45℃
	Storage temperature		-30℃~+70℃
	Operating humidity		93%,+40℃,2h(GB/T2423,3)
	Ambient illumination		≤70,000Lux
	Vibration resistance		GB/T 2423,10
	Enclosure rating		IP65(GB4208~2008)
Mechanical data	Connection		Cable Connection
	Dimension		86.0×85.0×59.5(mm)
	Material		Aluminum Alloy
	Weight		0.5kg
	Accessories		Power Supply，RJ45 socket，Leads
Special function	Safety class		Class I(GB 7247.1-2012, human eye safety)
	Laser spot emission angle		10.0(H) × 2.0(V)mrad
	Scanning frequency		360°
	Model		AS-11C

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
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AI Image
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Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

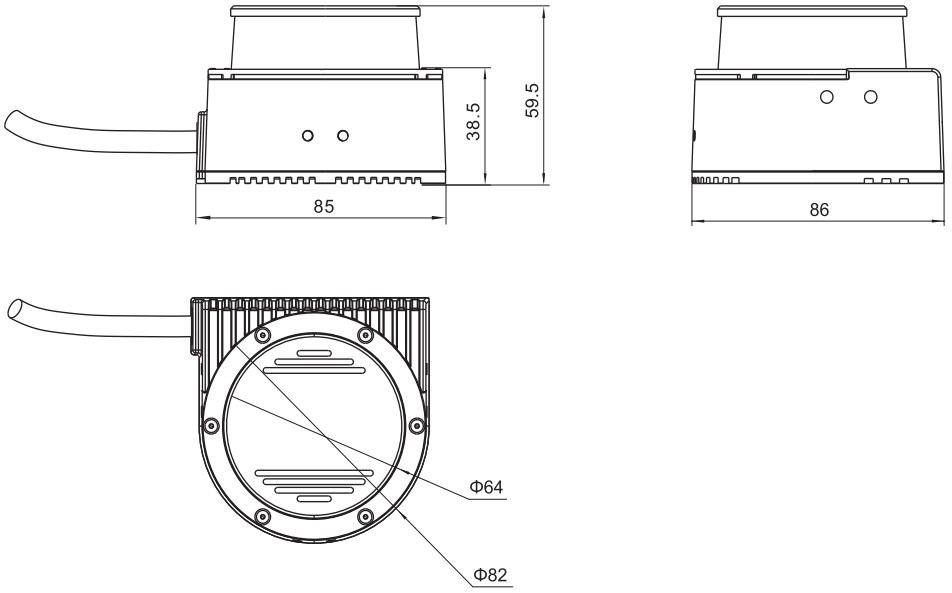
Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

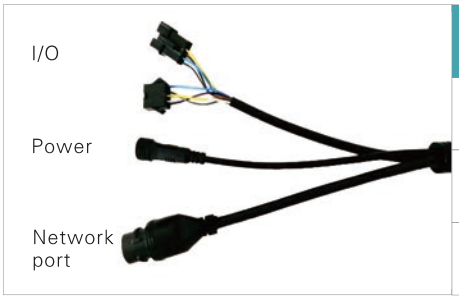
LiDAR Scanner

Dimensions

Unit:mm

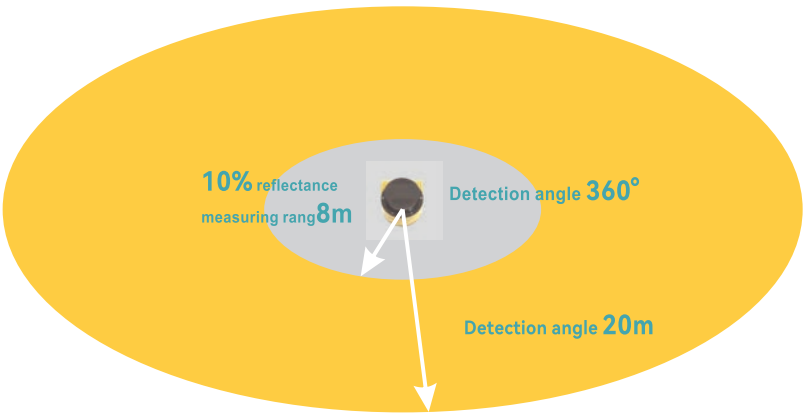


Power Interface

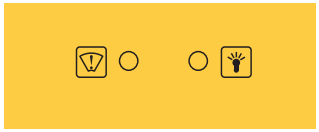


Socket	Type	Explanation
DC002	Power	Female 2 pin
Ethernet	RJ45 socket	4 pin
I/O	Cable	9 pin

Accessories



Indicators and Operation Buttons



Name	Instructions
ERR	Work fault indicator ◆Startup status: bright (About 27s) ◆Off: No fault ◆Steady light: Internal fault ◆Long flicker (0.5 Hz): High temperature / low temperature alarm ◆Short flicker (1Hz): Transmissive cover is dirty/occluded[1]
HTR	Work status indicator ◆Startup state: off ◆Off: The device does not start measurement/ready to reboot ◆Bright: Normal measurement of equipment ◆Flashing 1 (0.5Hz): Monitor signal output ◆Flashing 2 (1Hz): Self-learning[2] ◆Flashing 3 (2.5Hz) : Ready for self-learning[2]

1:Including being blocked by dense fog or the detection area being blocked.
2:Including "background self-learning" and "normal goal self-learning"(customized function).

Accessories

			Mounting screws, gasket and easy installation tool
Side bracket: AS-11C-AT*1 pc	Cable:AS-11C-EC*1 pc	Network cable crystal head waterproof jacket: AS-11C-WJ*1 pc	Accessories:A set of M4x8

LiDAR Scanner

Navigation Type

TOF Principle

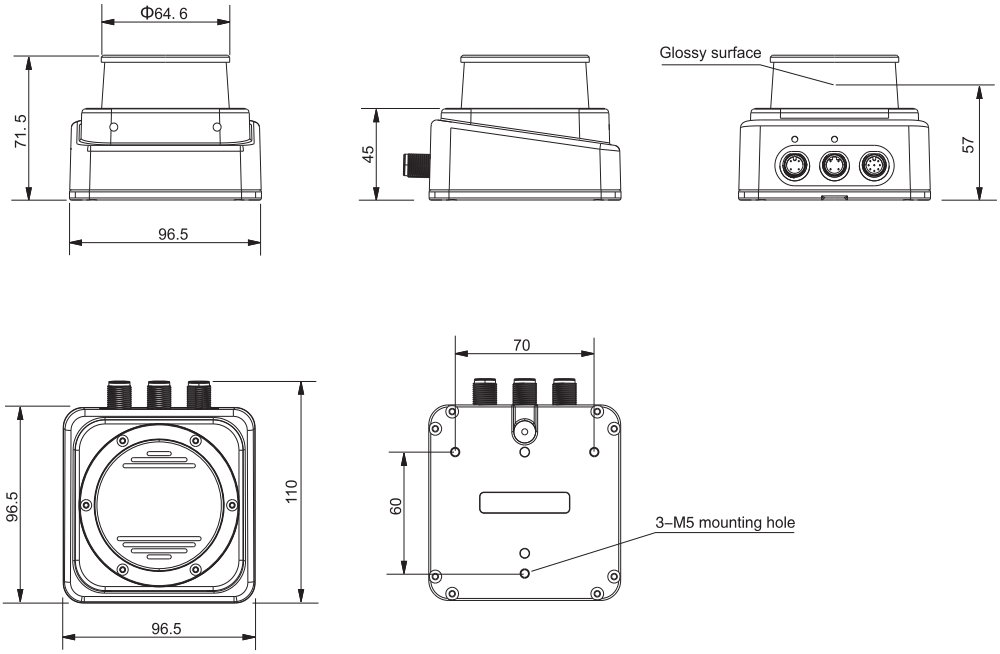
NEW!



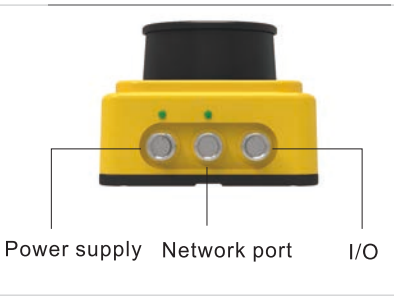
Basic Features	Working principle		TOF
	Optical working principle		Diffuse Reflection
	Light source		Infrared laser (905nm)
	Laser spot exit aperture		10mm
	Scanning angle		360°
	Scanning angle resolution		0.05°/0.1°
	Measuring range		0.2m ~100m
	Measurement Error	System error (typical)	Distance measurement：25mm(1m~20m) / 40mm(20m~50m)；RSSI Measurement：2%(1m~20m) / 4%(20m~50m)
		Statistical error(1σ)	Distance measurement：10mm(1m~20m) / 20mm(20m~50m)；RSSI Measurement：1%(1m~20m) / 2%(20m~50m)
	Indicator		Quantity: 4; Definition: PWR: Power indicator; LNK: Ethernet indicator; ERR: Operating fault indicator; HTR: Normal measurement indicator
Electrical data	Operating voltage		9V~30V DC
	Power consumption		5W@DC 24V
	Communication		Ethernet: Rate: 10/100Mbps; Functions: device configuration/measurement data output
Environmental conditions	Operating temperature		-10℃~+50℃
	Storage temperature		-30℃~+70℃
	Operating humidity		93%,+40℃,2h(GB/T2423.3)
	Ambient illumination		≤80,000Lux
	Vibration resistance		GB/T 2423.10
	Enclosure rating		IP65(GB4208~2008)
Mechanical data	Connection		Connector
	Dimension		110x96.5x71.5mm
	Material		Aluminum Alloy
	Weight		0.7kg
	Accessories		Power cables, RJ45 network cables, I/O cables, mounting screws, spacers and easy installation tools, vibration isolating screws, nuts and spacers
Special function	Safety class		Class I(GB 7247.1-2012, human eye safety)
	Laser spot emission angle		2.0(H)×8.0(V)mrad
	Scanning frequency		10Hz/20Hz
	Working condition		Resistant to sunlight, dirt, supports smoke penetration, non-rainfall conditions
	Measurement data		Composite data (distance + RSSI)
	Device self-test		Contents: Dirty/obstructed light transmission cover/high/low temperature
	Model		**AS-100C**

Unit:mm

Dimensions

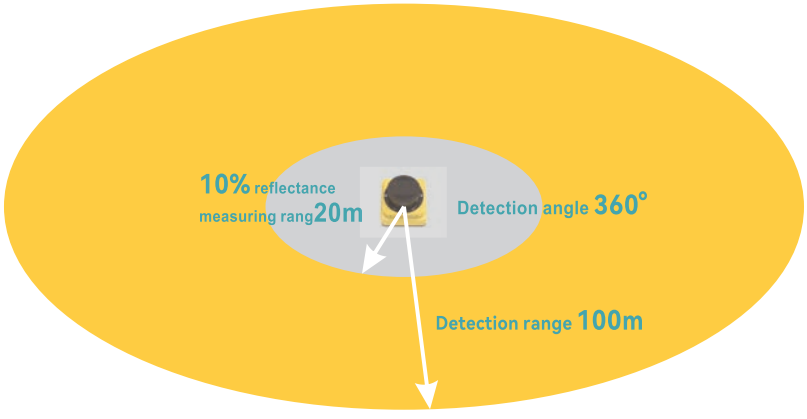


Power connector



Socket	Types	Number of terminal
Power supply	M12(Type A)，Male	4
Etherne	M12(Type B)，Male	4
I/O	M12(Type B)，Male	8

Measuring coordinate system/scanning range/range



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

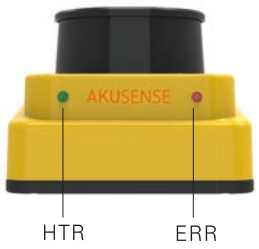
Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

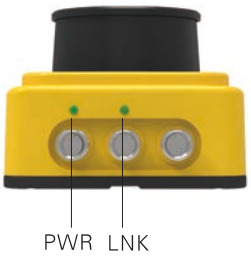
Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

LiDAR Scanner

Indicators and Operation Buttons





Name	Description
PWR	Power Indicator ◆Normal off: no power / power is invalid ◆Constant light: power on
LNK	Ethernet indicator ◆Always off: no network connection ◆Always on: there is a network connection
ERR	Work failure indicator ◆Starting state: Yellow (about 24 seconds) ◆Green: no fault ◆Yellow: internal fault/measurement abnormal[1] ◆Long flashing (0.5Hz): high temperature/low temperature alarm ◆Short flashing (1Hz): Dirty/obstructed light transmission cover[2]
HTR	Normal measurement indicator ◆Starting state: off ◆Always off: the device has not started to measure ◆Always on: the equipment is measuring normally

1: Including measurement stop and motor stop;
2: Including being blocked by dense fog.

Accessories

					Mounting screws, washers And easy installation tools
Mounting bracket: AS-100C-AT set	M12 dust plug Comes with	Power cable: AS-100C-EC*1 pc	RJ45 network cable: AS-100C-IOCB*1 pc	I/O cable: AS-100C-IOCB*1 pc	Parts and accessories: M5x8 set

AS-31/32C

TOF Principle





Basic Features	Working principle		TOF	
	Optical working principle		Diffuse Reflection	
	Light source		Infrared laser (905nm)	
	Laser spot exit aperture		7*3mm	4.5*2mm
	Scanning angle		270°	
	Scanning angle resolution		0.12°/0.18°/0.23°/0.35°	
	Measuring range		0.1m ~20m（70% reflectivity）；0.1m - 10m（10% reflectivity）	
	Measurement Error	Resolution	1cm	
		Linearity	2cm	
	Indicator		–	
Electrical data	Operating voltage		DC 12V	DC 9~28V
	Power consumption		5W	
	Communication		Ethernet or RS485	
Environmental conditions	Operating temperature		–20℃~60℃	
	Storage temperature		–20℃~70℃	
	Operating humidity		93%,+40℃,2h(GB/T2423.3)	
	Ambient illumination		≤80,000Lux	
	Vibration resistance		500m/s (about 50G), 3 times each in XYZ direction	
	Enclosure rating		IP65(GB4208~2008)	
Mechanical data	Connection		Cable Connection	
	Dimension		60×60×84.9(mm)	60×60×81.3(mm)
	Material		Aluminum Alloy	
	Weight		0.25kg	
	Accessories		DC5521 female power socket, RJ45 Ethernet male	
Special function	Safety class		Class I(GB 7247.1-2012, human eye safety)	
	Laser spot emission angle		5.2*9mrad	4.0*2mrad
	Scanning frequency		10Hz/15Hz/20Hz/25Hz/30Hz	
	Working condition		Indoor	
	Application		Navigation	
	Device self-test		Yes	
	Abnormal alarm function		Yes	
	Sampling frequency		30KHz	
	Model		AS-31C	AS-32C

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

LiDAR Scanner

AS-33C



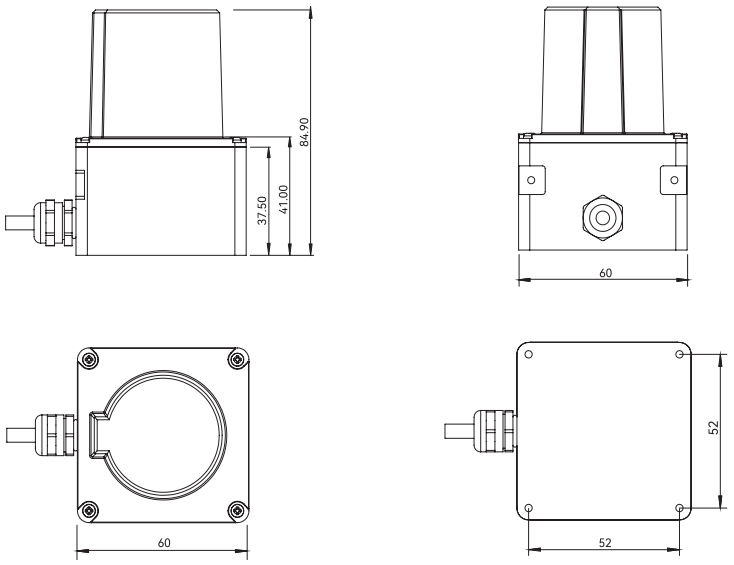
TOF Principle

Basic Features	Working principle	TOF
	Optical working principle	Diffuse Reflection
	Light source	Infrared laser (905nm)
	Laser spot exit aperture	4.5(V)*2(H)mm
	Scanning angle	270°
	Scanning angle resolution	0.5°
	Measuring range	10 m （70%reflectivity）/4 m （10%reflectivity）
	Measurement error	±2 cm(≤10m)
	Indicator	4 (3 zone signals, 1 fault signal)
Electrical data	Operating voltage	DC 9 V ~28 V
	Power consumption	Rated power: < 1 W (no load); starting power: < 3 W (no load)
	Communication	USB-TYPE C(Serial port)
Environmental conditions	Operating temperature	–10℃~50℃
	Storage temperature	-20℃~70℃
	Operating humidity	85% or less, non-condensing
	Ambient illumination	≤80000 Lux
	Vibration resistance	500m/s (about 50G), 3 times each in XYZ direction
	Enclosure rating	IP65
Mechanical data	Connection	Cable Connection
	Dimension	50x50x72mm
	Material	Aluminum
	Weight	171g
	Accessories	Threaded
Special function	Sampling frequency	18KHz/54KHz
	Response time	40 ms
	Start-up time	<10s
	Model	AS-33C

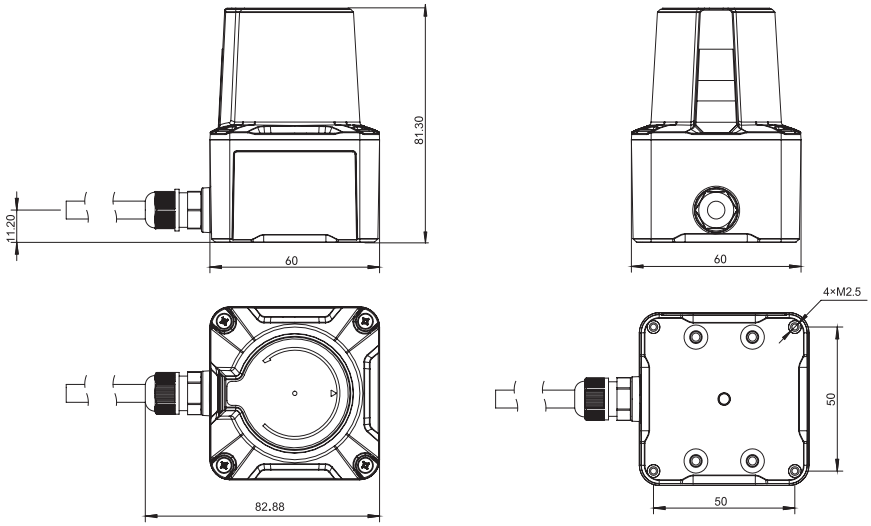
Unit:mm

Dimensions

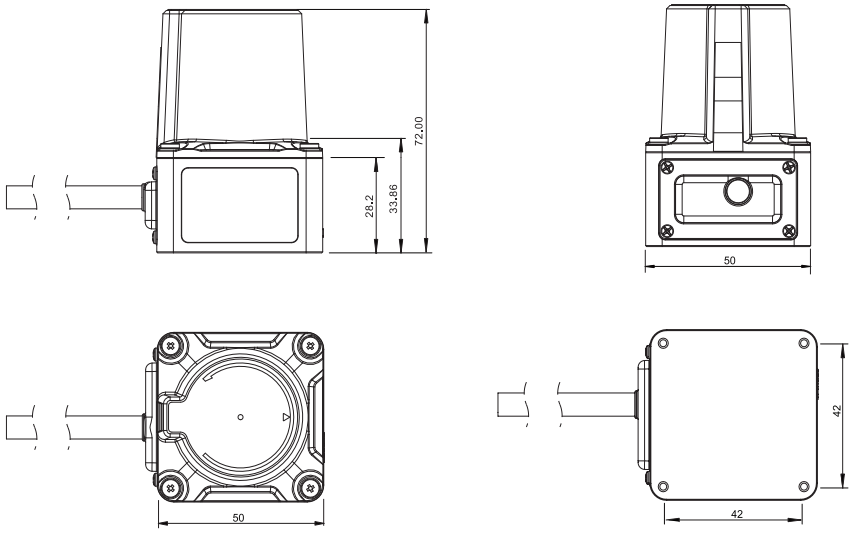
AS-31C



AS-32C



AS-33C



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Light curtains
Standard type
Top-emitting type
Side-emitting type
Waterproof type
Measuring type
Economical type

Safety Light Curtain
Safety Light Curtain

LiDAR scanner
TOF LiDAR scanner
MINI LiDAR scanner
Navigation LiDAR

LiDAR Scanner

AS-35C/AS-35CA



TOF Principle

NEW!

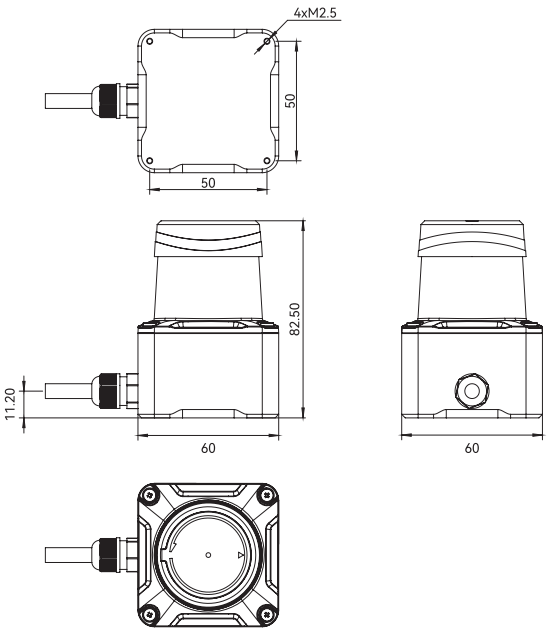
CE

Basic Features	Working principle	TOF	
	Optical working principle	Diffuse Reflection	
	Light source	laser (905nm)	
	Laser spot exit aperture	4.5*2mm	
	Scanning angle	360°(Ranging performance in the area of 10° directly behind is about half of other positions)	
	Scanning angle resolution	0.06°/0.09°/0.12°/0.18°	
	Measuring range	0.2m~50m(90% reflectivity),0.2~18m(10% reflectivity),0.2~6m(2% reflectivity)	
	Measurement error	± 2 cm	
	Indicator	–	
Electrical data	Operating voltage	DC9V~24V	
	Power consumption	<5W/peak, <2W/typical	
	Communication	Ethernet/RJ45	4 holes, M8x1 connector, Ethernet/RJ45 communication
Environmental conditions	Operating temperature	–10℃~50℃(no freezing)	
	Storage temperature	-20℃~60℃	
	Operating humidity	85% or less, non-condensing	
	Ambient illumination	⩽80000 Lux	
	Vibration resistance	500m/s (about 50G), 3 times each in XYZ direction	
	Enclosure rating	IP65	
Mechanical data	Connection	Cable Connection	
	Dimension	82.5x60x60mm	
	Material	Aluminum	
	Weight	about 171 g	
	Accessories	Threaded	
Special function	Sampling frequency	60 kHz 2	
	Power supply	Dc5521 Standard Power Supply	3-hole, M8x1 connector, standard power supply
	Model	AS-35C	AS-35CA

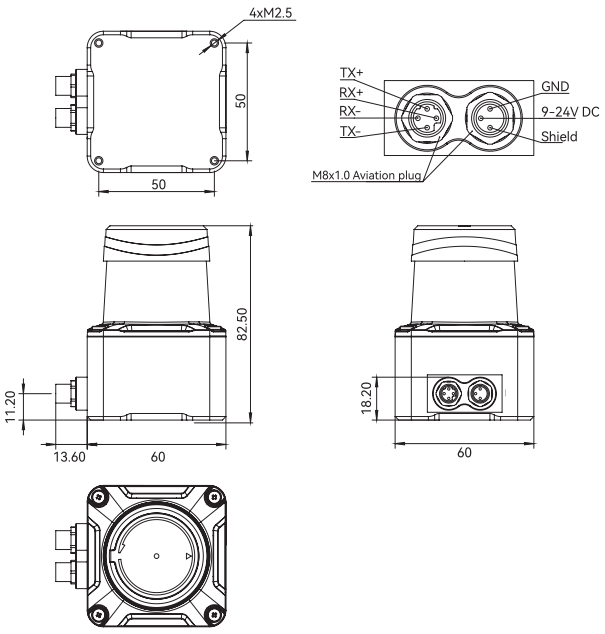
Unit:mm

Dimensions

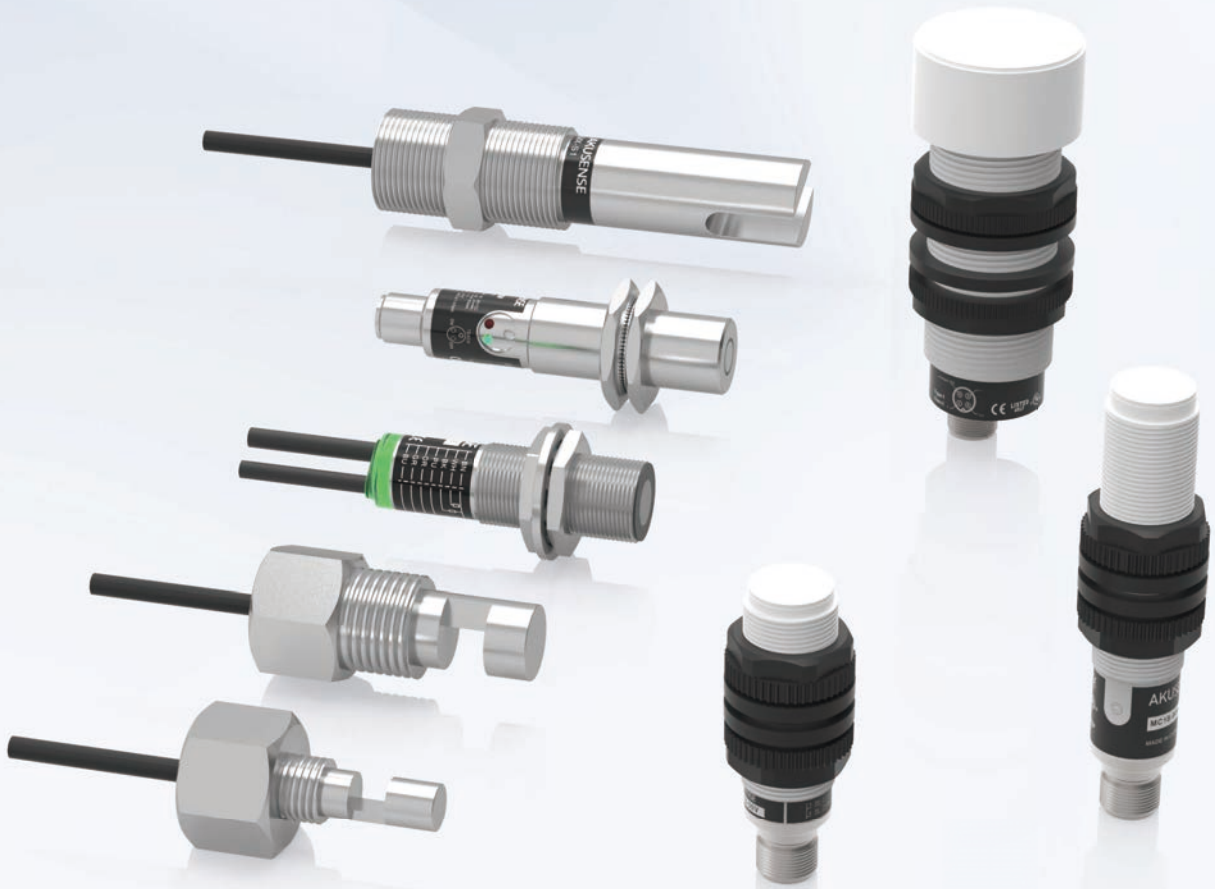
AS-35C



AS-35CA



Ultrasonic Sensors



- All-rounder, detects a wide range of objects
- Maximum 6m measuring distance, millimeter-level accuracy
- Adaptable to a variety of harsh environments, such as high temperature, dusty, water mist

Wide Variety of Objects

The color, transparency, material (metallic, non-metallic), and form (solid, liquid) of the objects do not affect the detection.



Transparent objects



Metallic objects



Liquid objects



Color

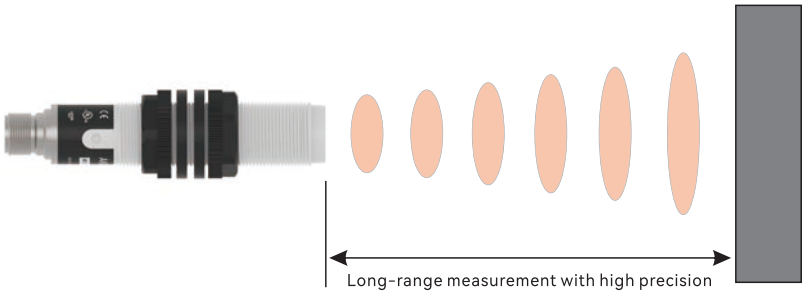


One-touch Teaching Function

The setting of whether there are workpieces, and the removal of background influence, can be easily achieved with simple settings

Long-distance High Precision

Measuring distance up to 6m, millimeter level accuracy



Adaptable to various harsh environments, such as high temperature, dust, and water mist



Highly dusty conditions



High temperature



Water mist

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Ultrasonic
Cylinderical type
Solid level switches type
Fork level switch typ
Double-sheet sensor

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

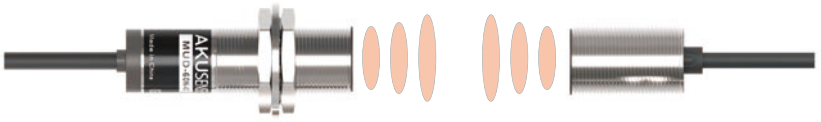
Guidance

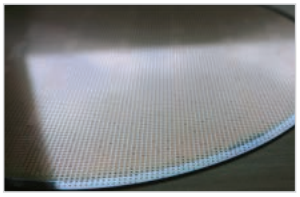
Ultrasonic
Cylinderical type
Solid level switches type
Fork level switch typ
Double-sheet sensor

Product Highlights

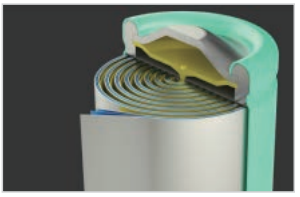
Thru Beam MUD Series

Capable of reliably distinguishing between single and double layers of thin objects, such as battery electrodes, silicon wafers, paper, wooden boards, glass sheets, metals, and other thin materials





Silicon Wafers



Battery Electrodes



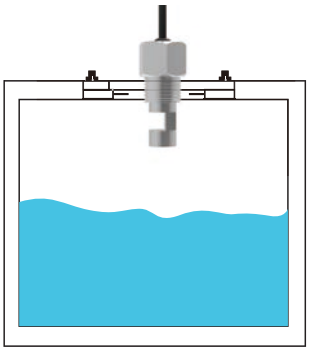
Wood



Glass

Thru Beam MDJ Series

Capable of stable liquid level detection

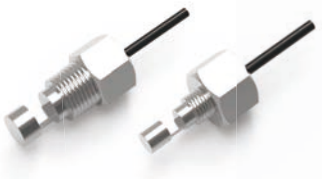




Cylindrical Type

- Sizes of M18 and M30 for choosing
- Sensing distance varies from 40 to 6000mm
- Different output types (NPN/PNP/ Analog Voltage/ Analog Current) are available

P.J-04



Solid Level Switch

- It can detect a variety of viscous liquids such as water, oil, solvent and reagents
- Position repeatability up to 2mm, strong stability
- Integrated NPN/PNP relay output ,connection is convenient

P.J-11



Fork Type Liquid Level Switch

- It can detect all kinds of liquid
- Using digital filtering technology, the performance is reliable
- It can work normally under the high pressure environment of 1000PSI

P.J-12

NEW!



Double Sheet Detection Sensor

- Reliable detection of single and double sheets (multiple sheets) of material
- It can be flexibly set by the Teach–in function
- Stable detection of paper / metal / plastic / platinum / silicon / battery pole pieces and other materials

P.J-13

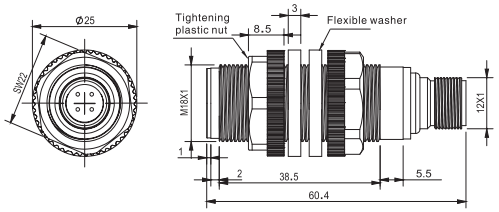
M18 Short-body Series



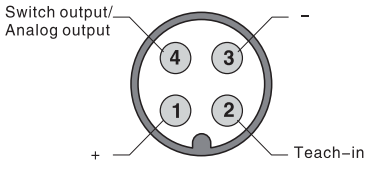
Basic Features	Operating Principle		Ultrasonic Detection	
	Enclosure Shape		Cylindrical	
	Detection Method		Diffuse reflection	
	Detection Range		40~300mm	60~800mm
	Divergence Angle		7°±2°	8°±2°
	Resolution		2mm	
	Detection Range Adjustment		External teaching	
Electrical data	Output Mode		0~10V / 4~20mA / NPN / PNP	0~10V / 4~20mA / NPN / PNP
	Response Time		Switch output 12ms, Analog output 500ms	Switch output 80ms, Analog output 500ms
	Switching Frequency		8Hz	5Hz
	Repeatability		2%	
	Hysteresis		2%	
	Operating Voltage		15~30VDC	
	Operating Current		≤35mA	
	Residual Voltage		2.2Vmax(1L=100mA)	
	Load Current		≤100mA	
	Maximum Ripple		±5%	
	Voltage Drop		≤2.2V(100mA)	
	Protection Circuit		Reverse polarity protection/short circuit protection (auto reset)/surge protection	
	Temperature Drift		5%	
	Temperature Compensation		Have	
Environmental conditions	Working Temperature		–20~70℃	
	Protect Degree		IP67	
Mechanical data	Connection Method		M12/4-pin connector	
	Maximum Tightening Torque		1Nm	
	Dimensions		M18x60.4mm	
	Material		PBT	
	Weight		0.015kg	
	Accessories		Plastic nut M18x1	
Model	Analog	Voltage	**MS18-30V**	**MS18-90V**
		Current	**MS18-30I**	**MS18-90I**
	Switch	NPN	**MS18-30N**	**MS18-90N**
		PNP	**MS18-30P**	**MS18-90P**

Dimensions

Unit: mm



Wiring Diagram



Cylindrical Type

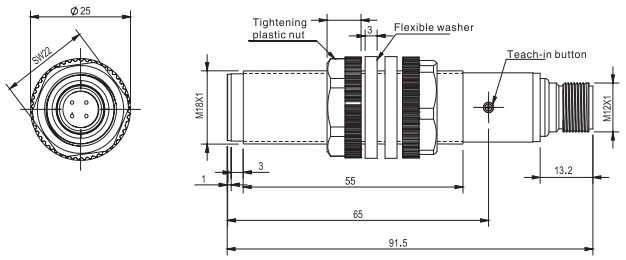
M18 Plastic Housing Series



Basic Features	Operating Principle		Ultrasonic Detection			
	Enclosure Shape		Cylindrical			
	Detection Method		Diffuse reflection			
	Detection Range		50~400mm	100~900mm	150~1600mm	200~2200mm
	Divergence Angle		±8°	±7°	±8°	±7°
	Resolution		3mm	2mm	3mm	
	Detection Range Adjustment		–			
Electrical data	Output Mode		0~10V / 4~20mA / NPN / PNP	0~10V / 4~20mA / NPN / PNP	0~10V / 4~20mA / NPN / PNP	0~10V / 4~20mA / NPN / PNP
	Response Time		500ms	≤125ms	≤250ms	≤500ms
	Switching Frequency		10Hz	4Hz	2Hz	1Hz
	Repeatability		0.5%			
	Hysteresis		1%			
	Operating Voltage		15~30VDC			
	Operating Current		≤50mA			
	Residual Voltage		2.2V max.(1L=100mA)			
	Load Current		≤100mA			
	Maximum Ripple		±5%			
	Voltage Drop		≤2.2V(100mA)			
	Protection Circuit		Reverse Polarity Protection/Short-circuit (Auto-reset)/Pulse Overvoltage Protection			
	Temperature Drift		5%			
	Temperature Compensation		Have			
Environmental conditions	Working Temperature		–20~60℃			
	Protect Degree		IP67			
Mechanical data	Connection Method		M12/4-pin connector			
	Maximum Tightening Torque		50Nm			
	Dimensions		M18x91.5mm			
	Material		PBT			
	Weight		0.026kg			
	Accessories		Plastic nut M18x1			
Model	Analog	Voltage	**MC18-40V**	**MC18-90V**	**MC18-160V**	**MC18-220V**
		Current	**MC18-40I**	**MC18-90I**	**MC18-160I**	**MC18-220I**
	Switch	NPN	**MC18-40N**	**MC18-90N**	**MC18-160N**	**MC18-220N**
		PNP	**MC18-40P**	**MC18-90P**	**MC18-160P**	**MC18-220P**

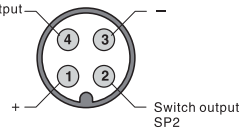
Dimensions

Unit: mm

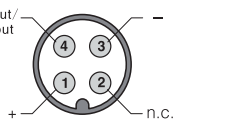


Wiring Diagram

Dual switch outputs:



Switch / Analog:



M18 Metal Housing Series



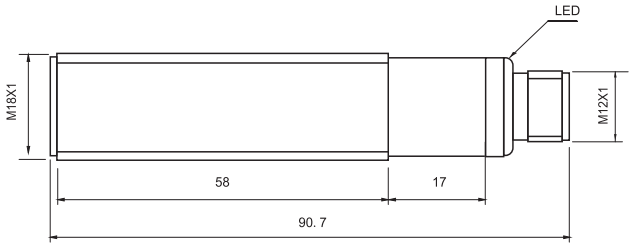
Basic Features	Operating Principle		Ultrasonic Detection
	Enclosure Shape		Cylindrical
	Detection Method		Diffuse reflection
	Detection Range		60~1000mm
	Divergence Angle		±7°
	Resolution		0.5mm
	Ultrasonic Frequency		200kHz
	Detection Range Adjustment		–
	Indicator		When no target is detected, the learning status LED remains lit: red LED; when a target is detected, it blinks in learning mode: blue LED; operational mode: yellow LED; power on: green LED
Electrical data	Output Mode		0~5V /0~10V / 4~20mA / NPN / NPN Hysteresis Mode / PNP /PNP Hysteresis Mode
	Response Time		100ms
	Switching Frequency		5Hz
	Repeatability		0.3%
	Linearity		< 1%
	Operating Voltage		9~30VDC
	Operating Current		≤25mA
	Residual Voltage		≤10μA(30VDC)
	Load Current		≤200mA
	Maximum Ripple		± 10%
	Insulation Sesistance		–
	Protection Circuit		Reverse Connection Protection/Transient Overvoltage Protection
	Temperature Drift		0.05%/℃
	Temperature Compensation		Have
Environmental conditions	Working Temperature		–20~70℃
	Protect Degree		IP65
Mechanical data	Connection Method		V3 Connector, 4 Pins
	Maximum Tightening Torque		50Nm
	Dimensions		M18x90.7mm
	Material		Nickel-Copper Plating
	Weight		0.062kg
	Accessories		Nut M18x1
Model	Analog	Voltage Output 0~5V	**MT18-100V**
		Voltage Output 0~10V	**MT18-100V2**
		Current Output 4~20mA	**MT18-100A**
	Switch	NPN	**MT18-100N**
		NPN Hysteresis Mode	**MT18-100N2**
		PNP	**MT18-100P**
		PNP Hysteresis Mode	**MT18-100P2**
	Numerical Capacity	TTL Output	**MT18-100T**

Cylindrical Type

M18 Metal Housing Series

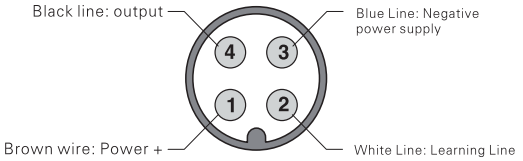
Dimensions

Unit: mm

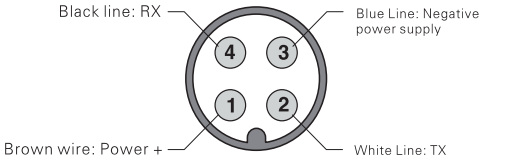


Circuit Diagram

TTL output



Other output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Ultrasonic
Cylinderical type
Solid level switches type
Fork level switch typ
Double-sheet sensor

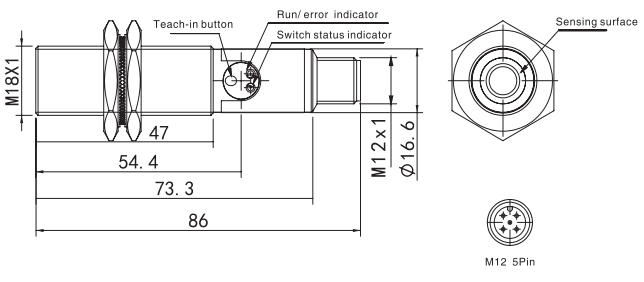
M18 Metal Housing Series



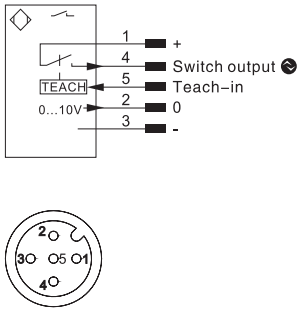
Basic Features	Operating Principle	Ultrasonic Detection
	Enclosure Shape	Cylindrical
	Detection Method	Diffuse reflection
	Detection Range	50~400mm
	Divergence Angle	≤12°
	Resolution	0.1mm
	Ultrasonic Frequency	300kHz
	Detection Range Adjustment	Teach Button
	Indicator	Operational/Error Mode: LED; Switch Status: LED
Electrical data	Output Mode	NPN+0~10V
	Response Time	25ms
	Switching Frequency	20Hz
	Repeatability	1mm
	Hysteresis	2mm
	Operating Voltage	18~30VDC
	Operating Current	≤30mA
	Residual Voltage	≤10μA(30VDC)
	Load Current	≤100mA
	Voltage Drop	≤2.2V(100mA)
	Protection Circuit	Short-circuit Protection/Reverse Polarity Protection/Overload Protection
	Temperature Compensation	None
Environmental conditions	Working Temperature	-25~60℃
	Protect Degree	IP67
Mechanical data	Connection Method	M12/5-Pin Connector
	Maximum Tightening Torque	–
	Dimensions	M18x86.0mm
	Material	Stainless steel
	Weight	0.062kg
	Accessories	Nut M18x1
	Model	MD18-35V HOT

Dimensions

Unit: mm



Wiring Diagram



Cylindrical Type

M30 Series



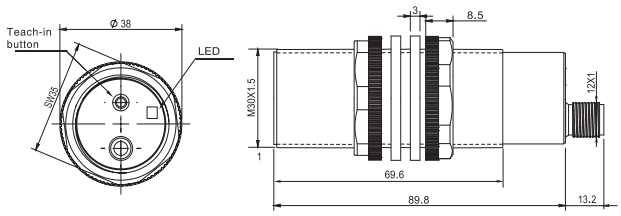


Basic Features	Operating Principle		Ultrasonic Detection	
	Enclosure Shape		Cylindrical	
	Detection Method		Diffuse reflection	
	Detection Range		250~3500mm	350~6000mm
	Divergence Angle		±7°	±9°
	Resolution		4.0mm	6.0mm
	Detection Range Adjustment		Teach Button	
Electrical data	Output Mode		Analog: 0~10V / 4~20mA, Switch: NPN / PNP, Dual-channel Digital Output: 2NPN / 2PNP Analog + switch: NPN+4~20mA / PNP+4~20mA / NPN+0~10V / PNP+0~10V	
	Response Time		Switch value 250ms, analog value 600ms	Switch value 500ms, analog value 600ms
	Switching Frequency		2Hz	1Hz
	Repeatability		1.0%	0.5%
	Hysteresis		1%	
	Operating Voltage		12~30VDC,Analog voltage output: 15~30VDC(5%)	
	Operating Current		≤50mA	
	Residual Voltage		2.2V max.(1L=100mA)	
	Load Current		≤100mA	
	Maximum Ripple		±5%	
	Voltage Drop		≤2.2V(100mA)	
	Protection Circuit		Reverse Polarity Protection/Short-circuit (Auto-reset)/Transient Overvoltage Protection	
	Temperature Drift		±8% (switch output), ±5% (analog output)	
	Temperature Compensation		Have	
Environmental conditions	Working Temperature		–20~70℃	
	Protect Degree		IP67	
Mechanical data	Connection Method		M12/4pin connector	
	Maximum Tightening Torque		1.5Nm	
	Dimensions		M30x102.0mm	M30x93.0mm
	Material		PBT	
	Weight		0.14kg	0.17kg/0.17kg/0.14kg/0.14kg/0.14kg/0.14kg
	Accessories		Nut M30x1.5	
Model	Analog	Voltage	**MC30-350V**	
		Current	**MC30-350I**	
	Switch	NPN	**MC30-350N**	
		PNP	**MC30-350P**	
	Dual-channel Digital Output	NPN	**MC30-350N2**	**MC30-600N2**
		PNP	**MC30-350P2**	**MC30-600P2**
	Analog + switch	NPN+Current	**MC30-350NI**	**MC30-600NI**
		PNP+Current	**MC30-350PI**	**MC30-600PI**
		NPN+Voltage	**MC30-350NV**	**MC30-600NV**
		PNP+Voltage	**MC30-350PV**	**MC30-600PV**

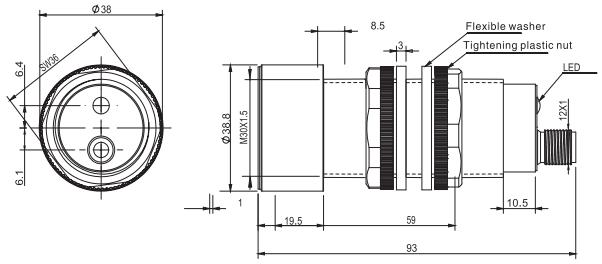
Dimensions

Unit: mm

MC30-350

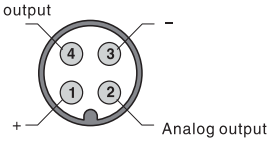


MC30-600

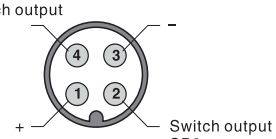


Wiring Diagram

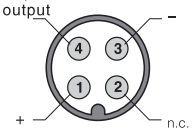
Switch +Analog: Switch output



Dual switch outputs: Switch output SP1



Switch / Analog: Switch output/ Analog output



Solid Level Switch Type

MDJ Series



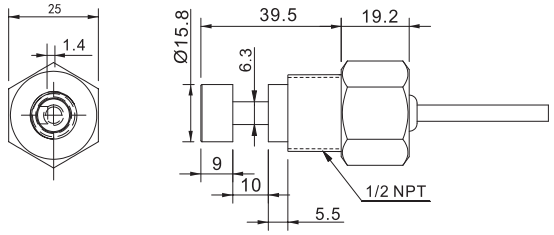


Basic Features	Operating Principle	Solid State Liquid Level Switch	
	Enclosure Shape	Cylindrical	
	Detection Method	Thru-beam	
	Mounting Method	1/2"NPT	1/4"NPT
Electrical data	Repeatability	≤2mm	
	Operating Voltage	5~30VDC	
	Leakage Current	≤50μA	
	Delay	0.5s	
	Output	Relay Output: 0.5A Single Pole Single Throw (NO)	
	Protection Circuit	Ransient Voltage and Polarity Reversal	
Environmental conditions	Working Temperature	–29℃~80℃	
	Environmental Pressure	250PSI,Customizable Development of 500/1000 PSI Products	
Mechanical data	Connection Method	12 inches (305mm)	
	Material	Stainless Steel (316L)	
	Model	**MDJ-C02-1/2**	**MDJ-C02-1/4**

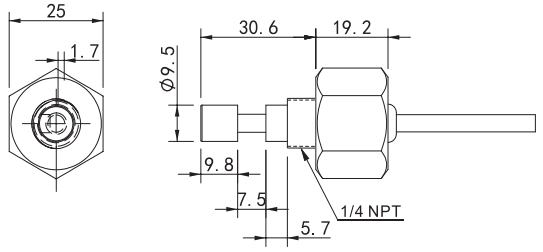
Dimensions

Unit：mm

MDJ-C02-1/2



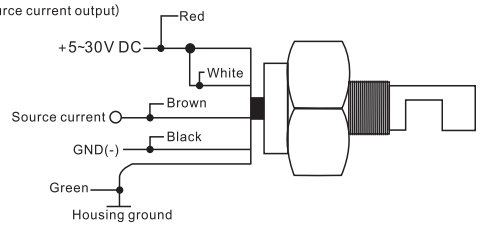
MDJ-C02-1/4



Wiring Diagram

PNP

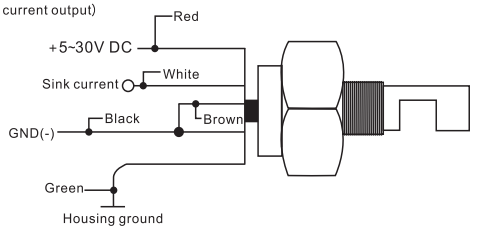
(Source current output)



White line jumper connected to red line(+)

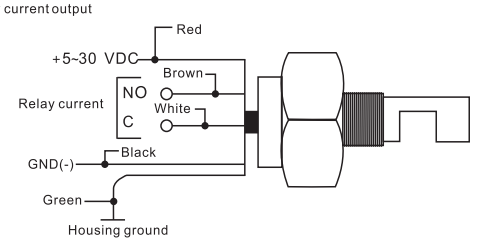
NPN

(Sink current output)



Brown line jumper connected to black line(–)

Relay current output



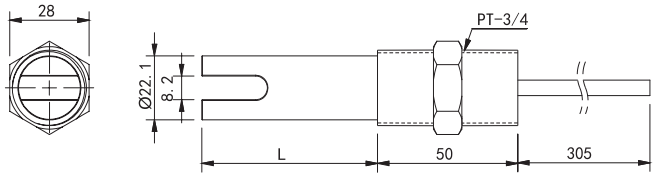
MX Series



Basic Features	Operating Principle	Ultrasonic Detection
	Enclosure Shape	Cylindrical
	Detection Method	Thru-beam
	Mounting Method	3/4'NPT STD
Electrical data	Repeatability	≤2mm
	Operating Voltage	5~30VDC
	Leakage Current	≤50μA
	Delay	0.5s
	Output	Delayed Output: 1A Single Pole Double Throw (NO/NC); 30V DC
	Protection Circuit	Everse Connection Protection, Transient Protection
Environmental conditions	Working Temperature	–29℃~80℃
	Environmental Pressure	Maximum Pressure: Up to 1000 PSI
Mechanical data	Connection Method	Standard 305mm, customizable according to customer requirements
	Material	Stainless Steel (316L)
	Model	**MX-S1**

Dimensions

Unit：mm



*L default value is 62, L can be designed according to requirements

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Ultrasonic
Cylinderical type
Solid level switches type
Fork level switch typ
Double-sheet sensor

Double-sheet Detection Sensor

MUD Series



Basic Features	Operating Principle	Ultrasonic Detection	
	Enclosure Shape	Cylindrical Shape (Pair of Sensors)	
	Mounting Method	Diffuse reflection	
	Detection Range	20~40mm Best:20mm+2mm	20~60mm Best:40mm+5mm
	Divergence Angle	±45°	
	Ultrasonic Frequency	400kHz	200kHz
	Indicator	Green Light: Single Sheet, Flashing Green Light: Teaching Mode, Red Light: Double/Multiple Sheets, Flashing Red Light: No Paper	
Electrical data	Output Mode	NPN/PNP output: Imax=200mA (-V+2V)	
	Response Time	The automatic running mode is 2.5ms	The automatic running mode is 6.5ms
	Switching Frequency	20Hz	7Hz
	Hysteresis	<750ms	<1.9s
	Operating Voltage	20~30VDC	
	Operating Current	≤50mA	
	Residual Voltage	2V	
	Load Current	≤200mA	
	Maximum Ripple	±10%	
	Insulation Sesistance	–	
	Protection Circuit	Everse Polarity Protection/Short-circuit Protection	
	Temperature Compensation	None	
Environmental conditions	Working Temperature	+5~+60℃	
	Protect Degree	IP65	
Mechanical data	Connection Method	2m PUR cable	
	Maximum Tightening Torque	15Nm	
	Dimensions	M18X1x60.0mm + M18X1x30.0mm	
	Material	Nickel-Copper Plating	
	Weight	0.4kg	
	Accessories	Nut M18x1	
Model	NPN	**MUD-60N-400**	**MUD-60N-200**
	PNP	**MUD-60P-400**	**MUD-60P-200**

Double-sheet Detection Sensor

MUD Series



NEW!

CE

Basic Features	Operating Principle	Ultrasonic Detection
	Enclosure Shape	Cylindrical Shape (Pair of Sensors)
	Detection Method	Diffuse reflection
	Detection Range	30~60mm
	Refreshment Rate	1ms
	Ultrasonic Frequency	200kHz
	Detection Range Adjustment	With Calibration Mode
	Indicator	Operational Status: LED
Electrical data	Output Mode	Three NPN / PNP
	Response Time	15ms
	Transducer Frequency	10Hz
	Operating Voltage	18~30VDC
	Operating Current	≤50mA
	Load Current	≤100mA
	Maximum Ripple	±10%
	Voltage Drop	<2V
	Protection Circuit	Short-circuit Protection/Overload Protection
	Temperature Drift	–
	Temperature Compensation	None
Environmental conditions	Working Temperature	–20~70℃
	Protect Degree	IP65
Mechanical data	Connection Method	With six-core cable VC, 2 meters
	Maximum Tightening Torque	–
	Dimensions	M18x79.0mm/M18x47.6mm
	Material	Nickel-Copper Plating
	Weight	0.17kg
	Accessories	Nut M18x1
Model	NPN	**MUD-60N-18-GL**
	PNP	**MUD-60P-18-GL**

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Ultrasonic
Cylinderical type
Solid level switches type
Fork level switch typ
Double-sheet sensor

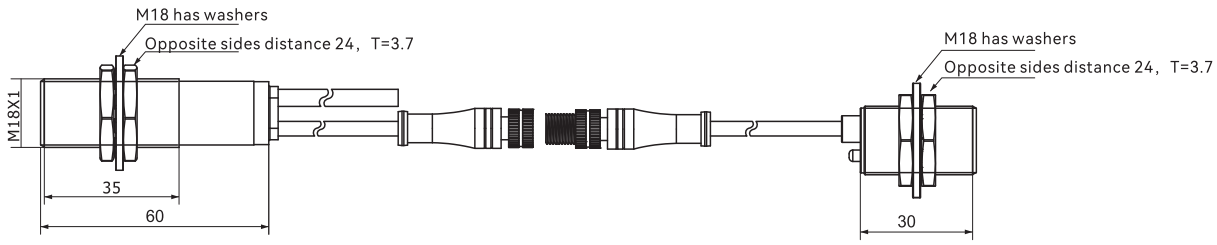
Double-sheet Detection Sensor

MUD Series

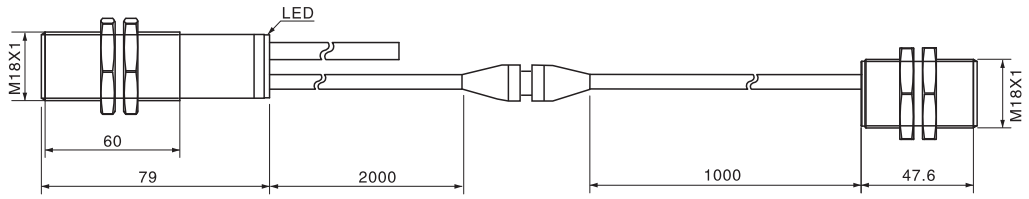
Dimensions

Unit: mm

MUD-60N/P-200/400



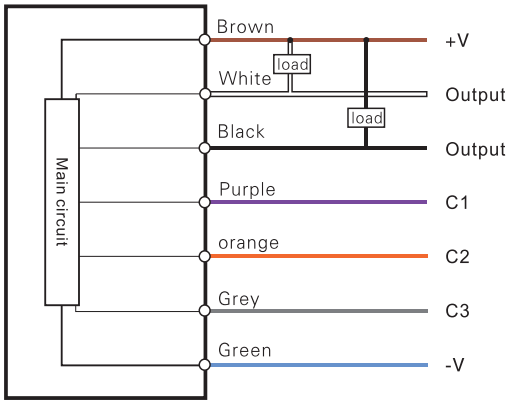
MUD-60N/P-18-GL



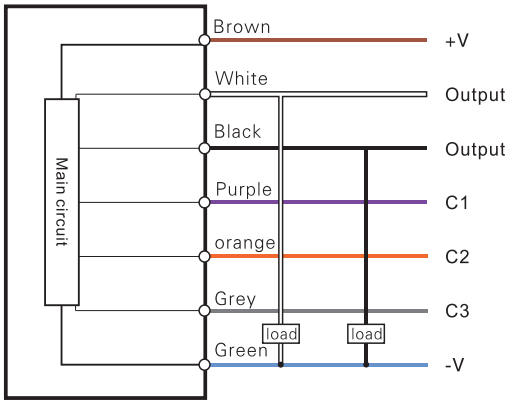
Circuit Diagram

MUD-60N/P-200/400

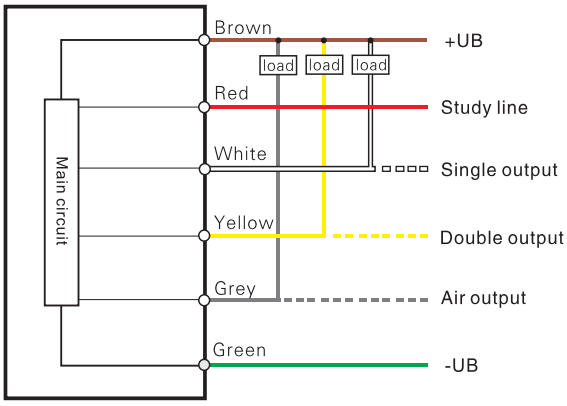
NPN



PNP



MUD-60N/P-18-GL



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Ultrasonic
Cylinderical type
Solid level switches type
Fork level switch typ
Double-sheet sensor

Ultrasonic

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Ultrasonic
Cylinderical type
Solid level switches type
Fork level switch typ
Double-sheet sensor

AI Image Recognition

AKUSENSE AIVS

AKUSENSE AIVS(Artificial Intelligent Vision System) provides from image acquisition to model deployment and upgrade, and then to the production line for complete closed loop, through the docking with imaging equipment to achieve image acquisition, the user annotates the collected data, and then perform model training with one-click operation,Export and deploy the model to the production line to directly inspect the materials in real time Measurement. As the production line changes, AKUSENSE AIVS will conduct independent training and upgrade models, There is no need for professional AI algorithm personnel to participate in the whole process.



0 Programme 1 Deploy 2 Contents 3 Operations

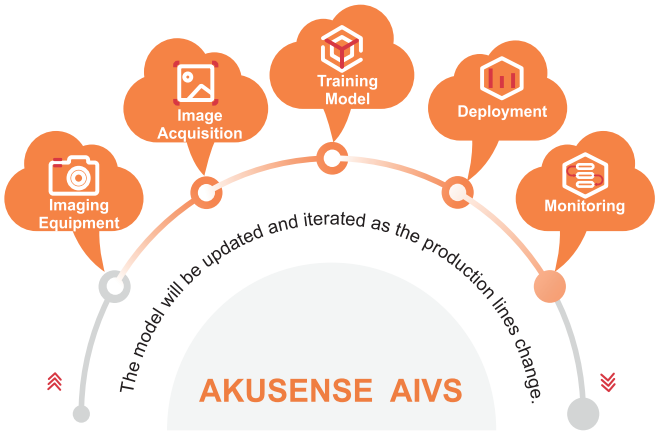
AKUSENSE AIVS(Artificial Intelligence Vision System) consists of training and running, no need programming requirements, only 3 steps to complete model training, and 1 click deployment to the production line.

Program Overview

AKUSENSE AIVS is a set of end-to-end solution for industrial vision AI, mainly with two parts: model training and operation. It can provide full flow, one stop AI empowerment and management capabilities for industrial manufacturing to create intelligent manufacturing standardized AI delivery system.

The AIVS model training platform is aimed at AI algorithm autonomous training for complicated scenes like material tracking, defect positioning, workpiece measurement of the production line, and Multi-class appearance detection. The AIVS model running platform imports the model generated by the training platform and deploys it directly to the production line, then connect with the production line equipment to achieve real-time AI detection.

AKUSENSE AIVS decreases the industries'dependence to professional AI ability. With the program launched, the corporations do not need algorithm personnel to program on-site, the training and deployment of the AI model can be completed with simple mouse click, so that AI can be used in industrial production line to improve production efficiency, and fulfil the intelligent upgrade of traditional manufacturing. This solution can be widely used in consumer electronics, automobiles, new energy, and pan-industries. At present, it has provided services for a great number of Fortune 500 manufacturers in different fields, with production line equipments seamlessly connected to realize AI real-time detection.

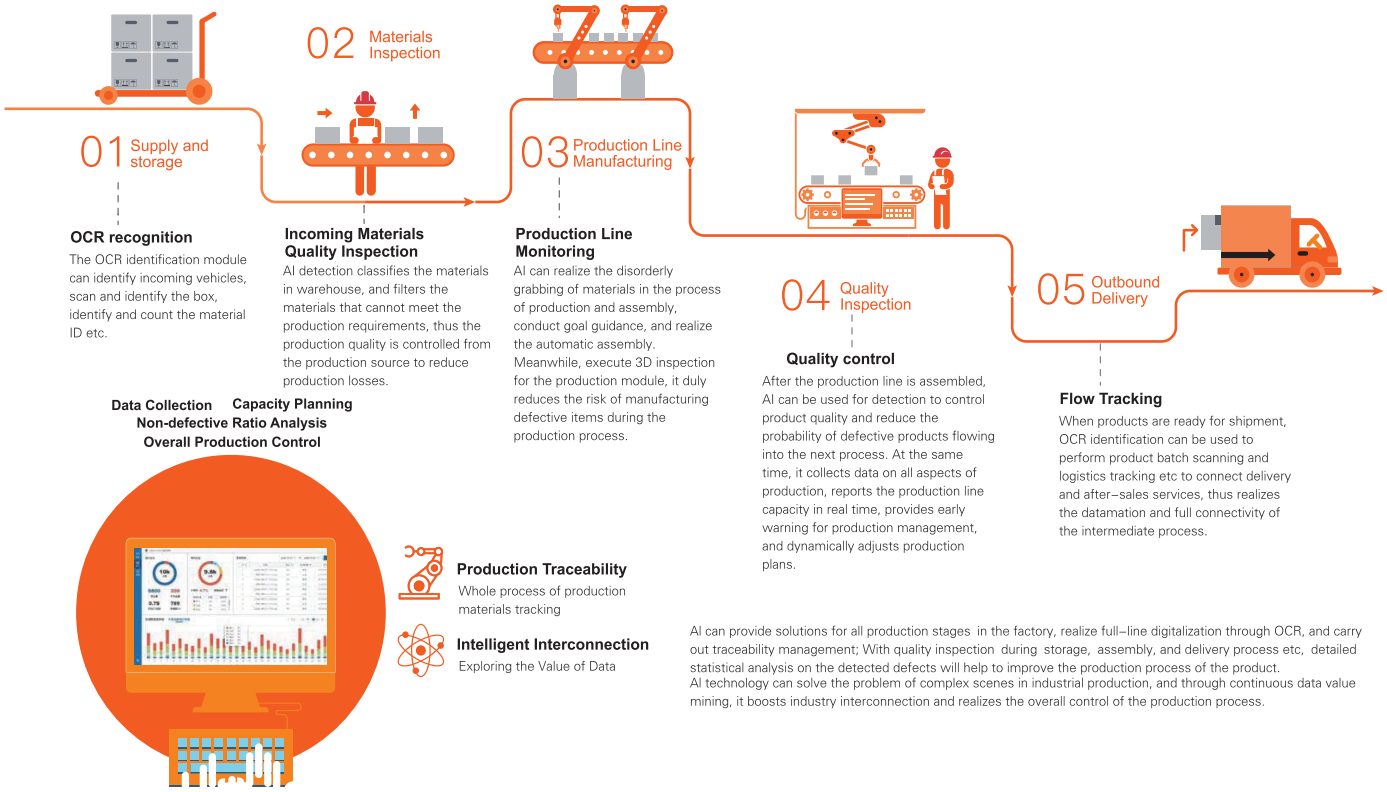


Application

For typical cases and industry applications, please refer to P51-54

Application Scenarios

AKUSENSE AIVS provides AI services for the entire manufacturing process, and helps to improve production traceability management and industrial interconnection.



OCR recognition
The OCR identification module can identify incoming vehicles, scan and identify the box, identify and count the material ID etc.

Incoming Materials Quality Inspection
AI detection classifies the materials in warehouse, and filters the materials that cannot meet the production requirements, thus the production quality is controlled from the production source to reduce production losses.

Production Line Monitoring
AI can realize the disorderly grabbing of materials in the process of production and assembly, conduct goal guidance, and realize the automatic assembly. Meanwhile, execute 3D inspection for the production module, it duly reduces the risk of manufacturing defective items during the production process.

Quality control
After the production line is assembled, AI can be used for detection to control product quality and reduce the probability of defective products flowing into the next process. At the same time, it collects data on all aspects of production, reports the production line capacity in real time, provides early warning for production management, and dynamically adjusts production plans.

Flow Tracking
When products are ready for shipment, OCR identification can be used to perform product batch scanning and logistics tracking etc to connect delivery and after-sales services, thus realizes the datamation and full connectivity of the intermediate process.

Data Collection **Capacity Planning**
Non-defective Ratio Analysis
Overall Production Control

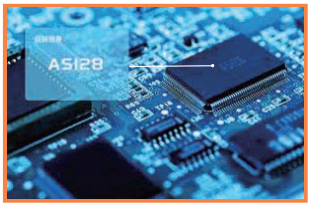
Production Traceability
Whole process of production materials tracking

Intelligent Interconnection
Exploring the Value of Data

AI can provide solutions for all production stages in the factory, realize full-line digitalization through OCR, and carry out traceability management; With quality inspection during storage, assembly, and delivery process etc, detailed statistical analysis on the detected defects will help to improve the production process of the product. AI technology can solve the problem of complex scenes in industrial production, and through continuous data value mining, it boosts industry interconnection and realizes the overall control of the production process.

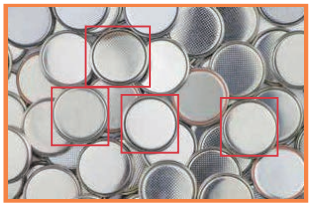
Core Algorithm Function

OCR



Adopting end-to-end solution based on deep learning, it supports single-character and multi-character labeling and recognition, and recognize different background characters, such as steel stamping, laser engraving, printing, textiles etc, breaking the technical limitations of traditional approaches and solving curved characters Recognition, low-contrast character recognition, large character recognition and other complex issues .

Detection



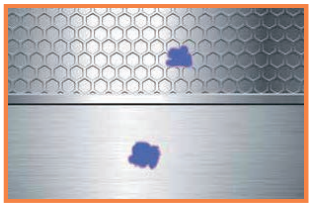
Positioning and categorizing the targets in the detected materials, it is suitable for multi-target detection, small target detection, counting etc, can be used as drug pill counting and 3C device detection etc.

Classification



Classify and analyse the tested materials, such as the OK/NG two-class judgment of materials, the color of the object, the type of food material, and the detailed classification of 3C defects etc.

Segmentation



Pixel level detection and edge recognition of the detected object. Such as identifying the crack area of the silicon wafer, and the bearing bump area etc.

Extreme Fine Recognition Capability
4 Pixels

When the detection objects are very dense, with only 4-5 pixels between different targets, ordinary algorithms cannot distinguish it well. AKUSENSE AIVS detects the label structure information of the target through the auto-encoder learning, which can identify the granularity as low as 4 pixels.

Small Sample Error Corrector
Boost 10%+

In order to solve the issue of fewer training samples, AKUSENSE AIVS solution will search for typical cases among the samples, cyclically guides and rectifies for the prediction results, so that the recognition rate of the final small samples increases by over 10%.

Core algorithm advantage

Super Image Processing Power
100 Million Pixels

Super model parallel capability, image processing on a multi-card machine, can handle 4 times the field of view of the normal network, and can conduct up to 100 million pixels in a single image.

Dynamic Data Enhancement
Up to 30x Enhancement

The uneven distribution of training sample data leads to poor prediction effects of the model. AKUSENSE AIVS can automatically match the optimal data enhancement strategy according to different task requirements, generate new simulation data through learning iteration, and increase the data utilization rate by over 30 times.

Remarks: The above algorithm effect data are calculated based on the actual measurement data of AKUSENSE's running projects. Specific to similar projects measured results may produce small deviations.

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Vision Camera
AKUSENSE AIVS
Vision Sensors

AKUSENSE AIVS

Functional Features

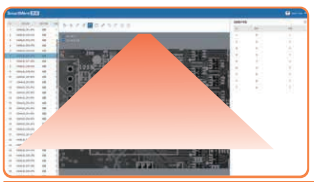


01

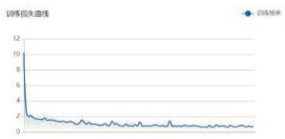
Consumer-level Product Experience

It provides data labeling, management and other functions, humanized interactive design helps to complete labeling work smoothly through guided labeling and quickly close up; the platform supports image and labeling data import and export,which can be used for data sharing and management.





02



Visual Training Process

AKUSENSE AIVS features characters such as automatic parameter tuning and intelligent data distribution. Users do not need to acquire professional AI knowledge, but conduct simple parameter configuration to perform one–click training; during the model training process, the system provides real–time model effect trend curve, Model performance is shown clearly.

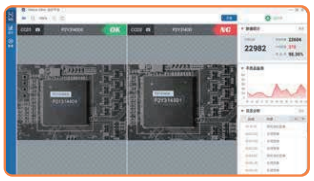
03



Clear Test Results

The model can be tested after training. The test result includes model information,test indicators and visual images for users to judge the performance of the model promptly. The test report supports one–click export, which is convenient for users to conduct further deep learning analysis and summary for the report.

04

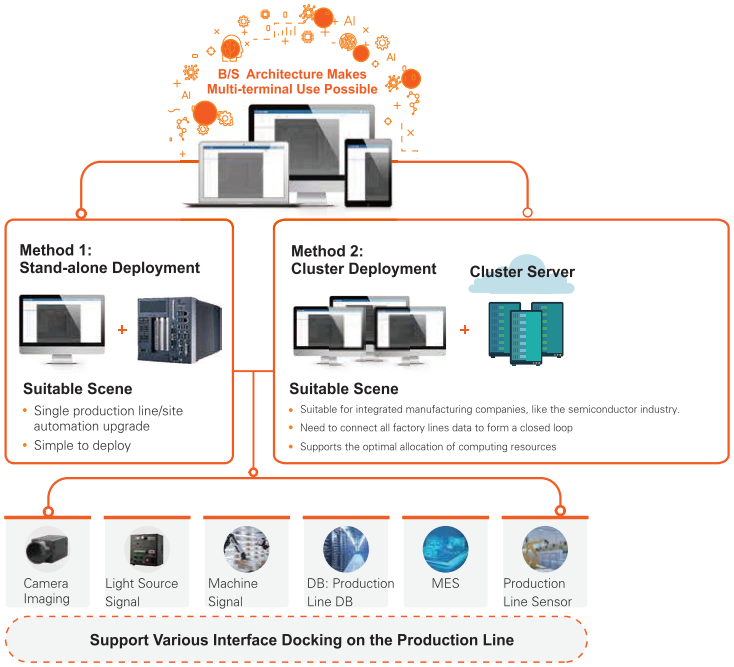




Agile Project Delivery

The agile project delivery model can be easily deployed to the operating platform, and the detection results can be displayed in real time. The operating platform supports docking with various camera data interfaces and multi–view configuration. The model can be operated on the production line with simple operation.

Application



AKUSENSE AIVS provides two deployment methods, and users can choose flexibly according to their needs.

For a single site/production line, only single link problem needs to be solved through AI, and then stand–alone deployment method can be used.

For production lines with high digital interconnection requirements, in addition to solve the single–point problem of the production line, it is also necessary to open up the data of the whole plant to form industrial interconnection and drive digital management,cluster deployment can be adopted.

AKUSENSE AIVS can adapt to multiple types of interfaces and communication protocols in industrial production scenarios, and supports the docking of multiple models of cameras, light sources, industrial computers, common sensors, MES and databases, etc., to open up the data link of the production line.

Stand-alone Deployment Characteristics

One click deployment, promptly used on the production line, light–weight operation, and supports cross–operating systems.

Cluster Deployment Features

AKUSENSE AIVS supports multiple server clusters (data centers), training and running machine mixing to achieve maximum sharing of computing power to achieve optimal allocation of resources and to ensure the full mobilization of idle resources. In addition, it can also provide capacity monitoring and statistical analysis of the entire production line to guide for yield analysis and process improvement.

Platform Architecture Characteristics

The platform adopts B/S architecture, no matter which deployment solution is selected, users can apply to multiple terminals under the same network segment to use various services provided by AKUSENSE AIVS.

VDS10 Series

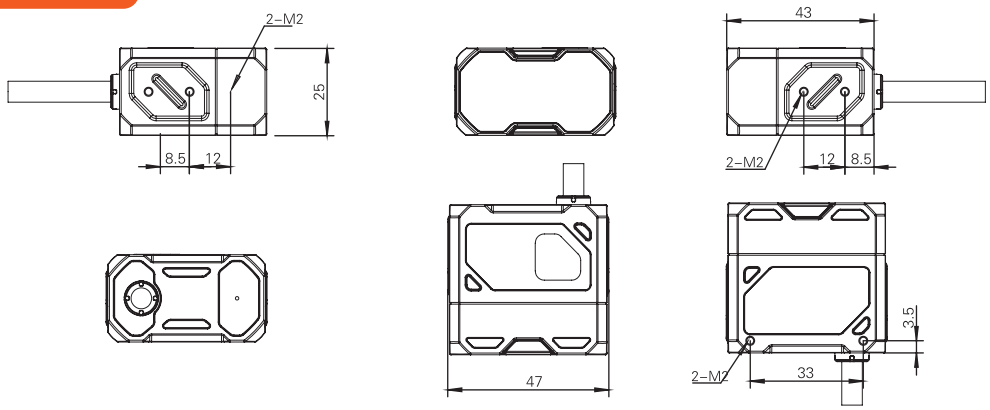


NEW!

Basic Features	Operating Principle	Intelligent Vision Sensor		
	Shell Style	Square		
	Detection Range	30～300mm	40~300mm(@ 6mm),100~400mm(@16mm)	
	Field of View	–		
	Focal Length	6mm		16mm
	Focus Adjustment Method	Manual Focus	Liquid Focus	
	Resolution	1280*800		
	Light Source	Non-polarized Red Light/Non-polarized White Light/Polarized Red Light/Polarized White Light		
	Color/Black and White	Black and White		
	Shutter	Global		
	Indicator Light	2 green light spots indicate the center area of scanning position; 3 status LEDs and buzzer		
Electrical data	Image Sensor Size	3μm x 3μm		
	Target Surface Size	1/4"		
	Maximum Reading Speed	60		
	Exposure Time	20μs~10000μs		
	Gain	0 dB ~ 255dB		
	Operating Voltage	24V DC		
	Power Consumption	5W		
	Output Type	Two optically isolated inputs, supporting NPN, PNP types; three non-isolated outputs		
	Communication Protocol	TCP Server、TCP Client、ModBus TCP、ModBus RTU、Profinet、Ethernet/IP、MELSEC/SLMP、Serial		
	Communication Interface	RS232、Ethernet		
Environmental conditions	Operating Temperature	0~45℃		
	Storage Temperature	–20~70℃		
	Humidity	5%~95%RH(Non-condensing)		
	Protection Level	IP67		
	Connection Method	Cable Connection		
Mechanical data	Dimensions	47x25x43mm		
	Weight	about 100g		
	Accessories	M12-17PIN cable, 24V power adapter (optional), L-shaped mounting bracket + screws		
Model	Non-polarized Red Light	**VDS10-BH0106-RP**	**VDS10-BQ0106-RP**	**VDS10-BQ0116-RP**
	Non-polarized White Light	**VDS10-BH0106-WP**	**VDS10-BQ0106-WP**	**VDS10-BQ0116-WP**
	Polarized Red Light	**VDS10-BH0106-RD**	**VDS10-BQ0106-RD**	**VDS10-BQ0116-RD**
	Polarized White Light	**VDS10-BH0106-WD**	**VDS10-BQ0106-WD**	**VDS10-BQ0116-WD**

Dimensions

Unit：mm



Vision Sensor

VDS20 Series

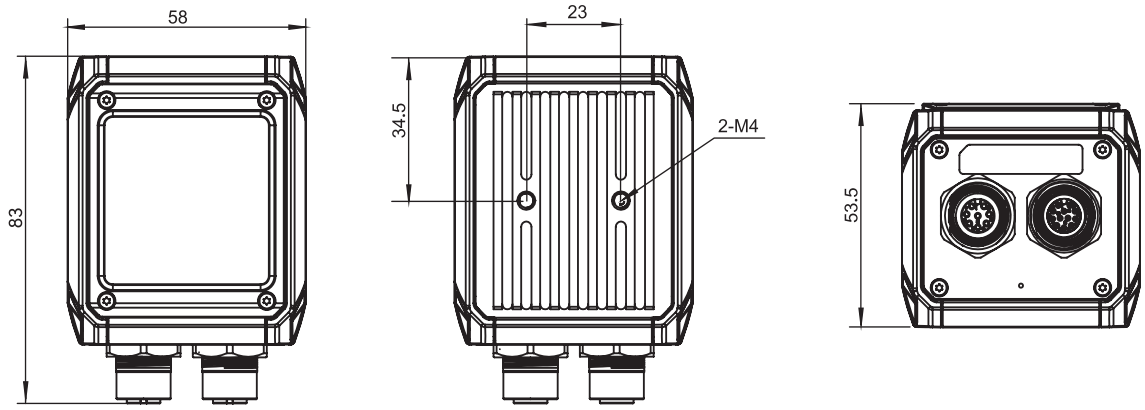


NEW!

Basic Features	Operating Principle	Intelligent Vision Sensor					
	Shell Style	Square Shape					
	Detection Range	100~1000mm					
	Field of View	–					
	Focal Length	8mm	12mm	16mm	8mm	12mm	16mm
	Focus Adjustment Method	Mechanical Focus					
	Resolution	1280*800			1920*1200		
	Light Source	Non-polarized Red Light/Non-polarized White Light/Polarized Red Light/Polarized White Light					
	Color/Black and White	Black and White					
	Shutter	Global					
	Indicator Light	1 green light spot indicates the center area of scanning position; 5 status LEDs and buzzer					
Electrical data	Image Sensor Size	3μm x 3μm					
	Target Surface Size	1/4"			1/2.6"		
	Maximum Reading Speed	60					
	Exposure Time	20μs~10000μs					
	Gain	-					
	Operating Voltage	24V DC					
	Power Consumption	15W					
	Output Type	Two optically isolated inputs, supporting NPN, PNP types; three non-isolated outputs					
	Communication Protocol	TCP Server，TCP Client，ModBus TCP，ModBus RTU，Profinet，Ethernet/IP，MELSEC/SLMP，Serial					
	Communication Interface	RS232、Ethernet					
Environmental conditions	Operating Temperature	0~45℃					
	Storage Temperature	–20~70℃					
	Humidity	5%~95%RH(Non-condensing)					
	Protection Level	IP67					
	Connection Method	Cable Connection					
Mechanical data	Dimensions	58x53.5x83mm					
	Weight	about 220g					
	Accessories	M12-12PIN-3M (3m high-flex), M12-8PIN-3M (3m high-flex), L-shaped mounting bracket, 24V power adapter (optional), screw kit					
Model	Non-polarized Red Light	**VDS20-BX0108-RP**	**VDS20-BX0112-RP**	**VDS20-BX0116-RP**	**VDS20-BX0208-RP**	**VDS20-BX0212-RP**	**VDS20-BX0216-RP**
	Non-polarized White Light	**VDS20-BX0108-WP**	**VDS20-BX0112-WP**	**VDS20-BX0116-WP**	**VDS20-BX0208-WP**	**VDS20-BX0212-WP**	**VDS20-BX0216-WP**
	Polarized Red Light	**VDS20-BX0108-RD**	**VDS20-BX0112-RD**	**VDS20-BX0116-RD**	**VDS20-BX0208-RD**	**VDS20-BX0212-RD**	**VDS20-BX0216-RD**
	Polarized White Light	**VDS20-BX0108-WD**	**VDS20-BX0112-WD**	**VDS20-BX0116-WD**	**VDS20-BX0208-WD**	**VDS20-BX0212-WD**	**VDS20-BX0216-WD**

Unit: mm

Dimensions



Smart Code Readers



- Built-in million-pixel image sensor combined with proprietary advanced sampling technology and millisecond-level decoding algorithm
- Convenient operation with one-click parameter adjustment, significantly saving debugging time.
- Powerful networking function, supporting the combination of 32 code readers
- The preset multiple sets of algorithms and imaging parameters are cyclically decoded, simultaneously compatible with bright and dark field conditions and scenes with product height differences

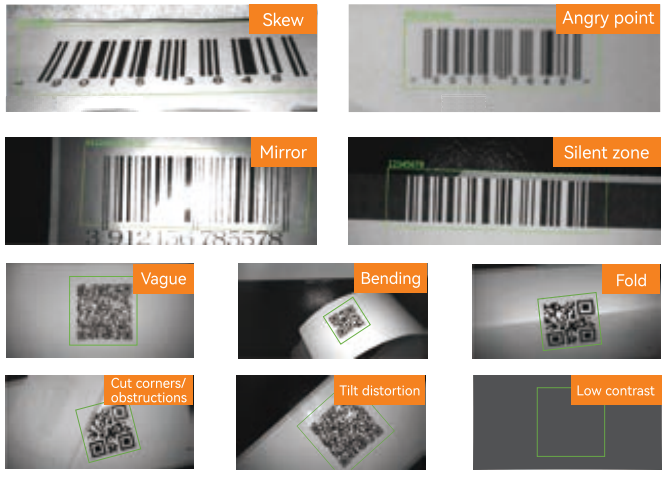
Smart code reader

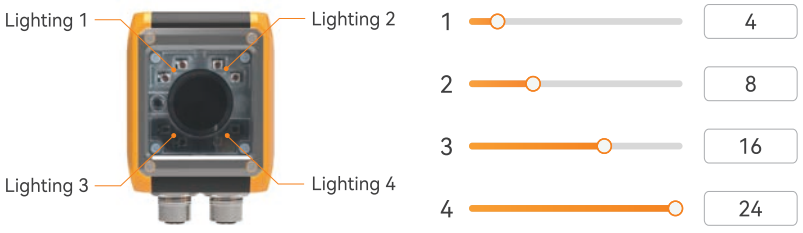
RCD-AI100-X series



Fast Barcode Scanning in Harsh Environments

Equipped with high-performance deep learning chips, capable of effectively reading codes in complex conditions such as damaged codes, low contrast, poor printing quality, skewing, noise, mirrored surfaces, quiet zones, blurriness, bending, folding, missing corners/obstructions, etc., with strong robustness





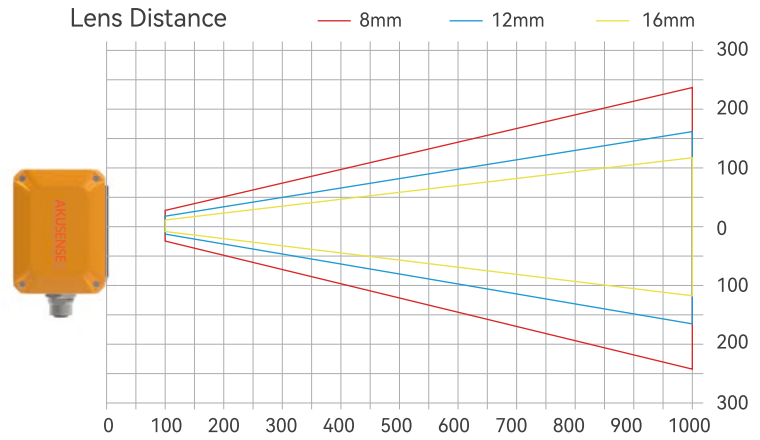
Highly Flexible Lighting System

Red/White light optional, 4 groups of light sources can be controlled independently, brightness adjustment for 1-24 sections of light sources, providing 16 supplementary lighting schemes.

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Code readers
Intelligent code reader

Product Highlights

RCD-AI100-X series



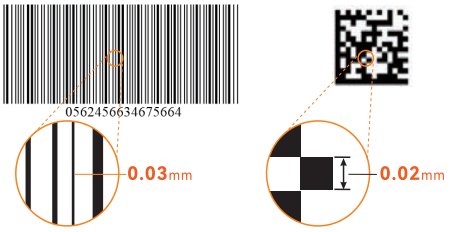
Versatile Working Distance

Offering three different focal length lenses of 8mm, 12mm, and 16mm, supporting automatic mechanical focusing from 100mm to 1000mm, meeting application requirements for various installation spaces

Enabling Ultra-Small Code Reading

Million-pixel image sensor, combined with ME-mind advanced sampling technology and deep learning algorithms, achieves a recognition accuracy of up to 0.06mm, supporting ultra-small code reading

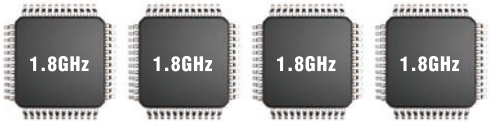




Automatic Polling Function

Pre-set multiple sets of algorithms and imaging parameters for cyclic decoding, simultaneously compatible with bright and dark field conditions and scenes with product height different





Quad-core SMP Processor

Pixels	1280*800pixel
Ordinary code reader	30ms
RCD-AI Series	10ms

Millisecond-level Decoding Speed

Equipped with a Cortex Quad-core processor, with a single core clock speed of up to 1.8 GHz, achieving ultra-fast positioning of one/two-dimensional codes, increasing decoding speed from the average speed of 30ms of ordinary code readers to 10ms, 3 times faster

RCD-AI100-X Series

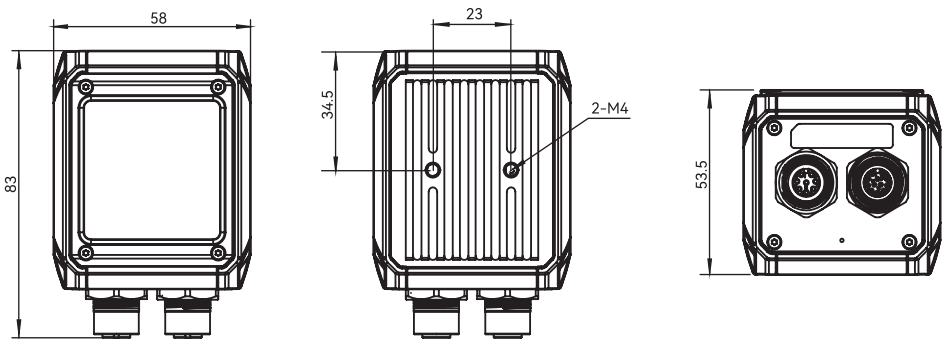


NEW!

Basic Features	Operating Principle	CMOS		
	Shell Style	Square		
	Detection Range	100~1000mm		
	Field of View	Maximum 480mm x 300mm (@1000mm distance, 8mm focal length)		
	Focal Length	8mm	12mm	16mm
	Focus Adjustment Method	Mechanical focus		
	Resolution	1280×800		
	Light Source	Non-polarized Red Light/Non-polarized White Light/Polarized Red Light/Polarized White Light		
	Code Type	One-dimensional Code：Code39,Code93,Code128,EAN-8,EAN-13,Interleaved 2 of 5,UPC,Pharmacode; Two-dimensional Code：QR code,DataMatrix		
	Color/Black and White	Black and White		
	Shutter	Global		
	Indicator Light	Position Indication: 1 green light spot indicates the center area of the scanning position; Status Indication: 5 status LEDs and and buzzer		
Electrical data	Image Sensor Size	3μmx3μm		
	Target Surface Size	1/4"		
	Maximum Reading Speed	60/second		
	Exposure Time	20μs~1sec		
	Gain	0dB~255dB		
	Operating Voltage	24VDC		
	Power Consumption	15W		
	Output Type	Input Control: Two-channel optocoupler isolated inputs, supporting NPN and PNP types; Output Control: Three-channel output control, optocoupler isolated		
	Communication Protocol	TCP Server,TCP Client, ModBus TCP,ModBus RTU,Profinet, Ethernet/IP, Fins, MELSEC/SLMP,Serial		
	Communication Interface	RS232、Ethernet		
Environmental conditions	Operating Temperature	0~45℃		
	Storage Temperature	–20~70℃		
	Humidity	5%~95%RH(non-condensing)		
	Protection Level	IP67		
Mechanical data	Connection Method	Cable Connection		
	Dimensions	58x53.5x83mm		
	Weight	about 220g		
	Accessories	M12-12PIN-3M (3m high-flex), M12-8PIN-3M (3m high-flex), L-shaped mounting bracket, 24V power adapter (optional), screw kit		
Model	Non-polarized Red Light	**RCD-AI100-X08R**	**RCD-AI100-X12R**	**RCD-AI100-X16R**
	Non-polarized White Light	**RCD-AI100-X08W**	**RCD-AI100-X12W**	**RCD-AI100-X16W**
	Polarized Red Light	**RCD-AI100-X08RD**	**RCD-AI100-X12RD**	**RCD-AI100-X16RD**
	Polarized White Light	**RCD-AI100-X08WD**	**RCD-AI100-X12WD**	**RCD-AI100-X16WD**

Demensions

Unit：mm



Intelligent code reader

RCD-AI230-X Series

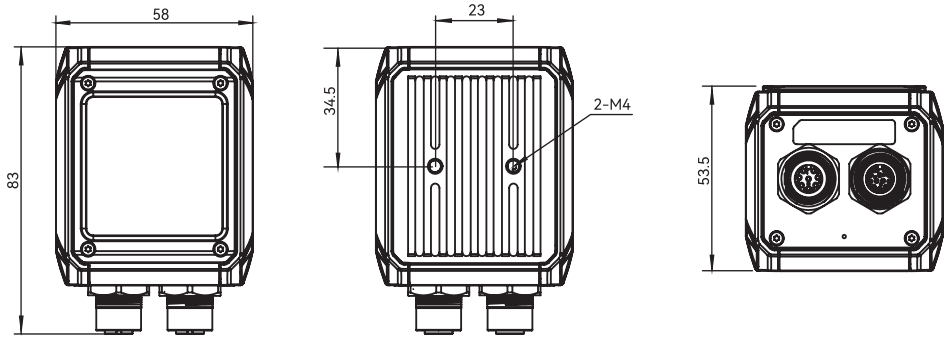


NEW!

Basic Features	Operating Principle	CMOS		
	Shell Style	Square		
	Detection Range	100~1000mm		
	Field of View	Maximum 480mm x 300mm (@1000mm distance, 8mm focal length)		
	Focal Length	8mm	12mm	16mm
	Focus Adjustment Method	Mechanical focus		
	Resolution	1920×1200		
	Light Source	Non-polarized Red Light/Non-polarized White Light/Polarized Red Light/Polarized White Light		
	Code Type	One-dimensional Code:Code 39,Code93,Code128,EAN-8,EAN-13,Interleaved 2 of 5,UPC,Pharmacode; Two-dimensional Code:QR code,DataMatrix		
	Color/Black and White	Black and White		
	Shutter	Global		
	Indicator Light	1 green light spot indicates the center area of the scanning position; Status Indication: 5 status LEDs and and buzzer		
Electrical data	Image Sensor Size	3μmx3μm		
	Target Surface Size	1/2.6"		
	Maximum Reading Speed	60/second		
	Exposure Time	20us~1sec		
	Gain	0dB~255dB		
	Operating Voltage	24V DC		
	Power Consumption	15W		
	Output Type	Two-channel input control, optocoupler isolated - supports NPN, PNP types; Three-channel output control, optocoupler isolated		
	Communication Protocol	TCP Server、TCP Client、ModBus TCP、ModBus RTU、Profinet、Ethernet/IP、Fins、MELSEC/SLMP、Serial		
	Communication Interface	RS232、Ethernet		
Environmental conditions	Operating Temperature	0~45℃		
	Storage Temperature	–20~70℃		
	Humidity	5%~95%RH(non-condensing)		
	Protection Level	IP67		
Mechanical data	Connection Method	Cable Connection		
	Dimensions	58x53.5x83mm		
	Weight	about 220g		
	Accessories	M12-12PIN-3M (3m high-flex), M12-8PIN-3M (3m high-flex), L-shaped mounting bracket, 24V power adapter (optional), screw kit		
Model	Non-polarized Red Light	RCD-AI230-X08R	RCD-AI230-X12R	RCD-AI230-X16R
	Non-polarized White Light	RCD-AI230-X08W	RCD-AI230-X12W	RCD-AI230-X16W
	Polarized Red Light	RCD-AI230-X08RD	RCD-AI230-X12RD	RCD-AI230-X16RD
	Polarized White Light	RCD-AI230-X08WD	RCD-AI230-X12WD	RCD-AI230-X16WD

Demensions

Unit：mm



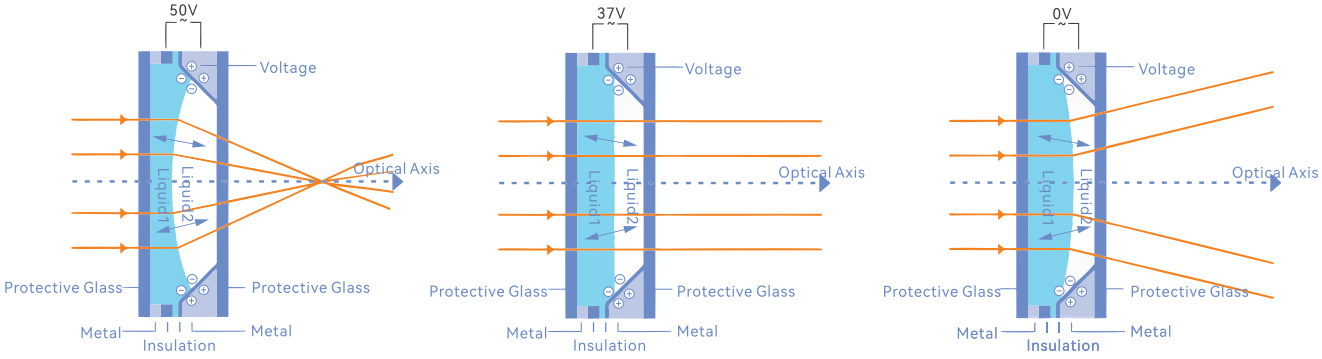
Smart code reader

RCD-AI100-S series



Liquid Lens Autofocus Technology

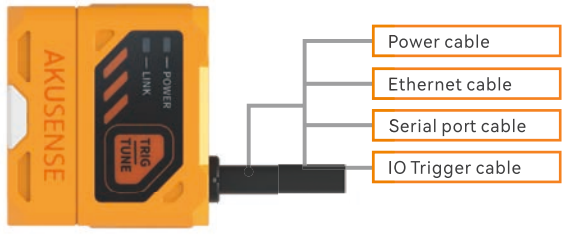
Equipped with liquid lens zoom lens, focusing can be completed with just a few sampled images, offering the advantages of fast, accurate, and clear focusing



Small Size, Easy Installation

The body size is only 47mm x 25mm x 43mm, making it installable even in tight spaces





Integrated cable for easy deployment

Integrate power line, Ethernet cable, serial port cable, and IO trigger cable into one cable,providing users with a convenient deployment method

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Code readers
Intelligent code reader

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

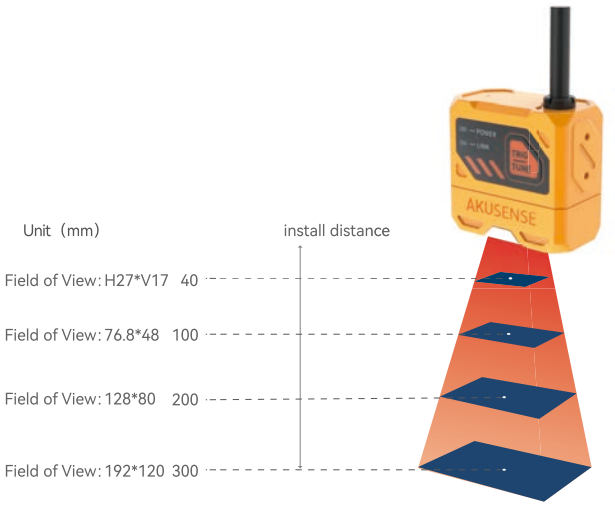
Code readers
Intelligent code reader

Product Highlights

RCD-AI100-S series

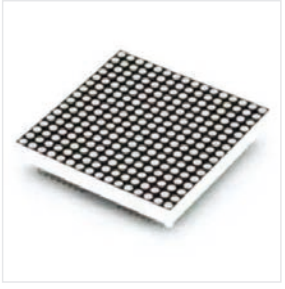
Flexible Working Distance

Supports a working distance of 40mm to 300mm, covering mainstream code reading applications on the market



Supports barcode reading for different coding processes

Hollow Dot Matrix Code, Hole Array Code, Curved DPM Code, Pin Collision DPM Code, Dot Matrix Code



Hollow Dot Matrix Code



Hole Array Code



Curved DPM Code



Pin Collision DPM Code

RCD-AI100-S Series

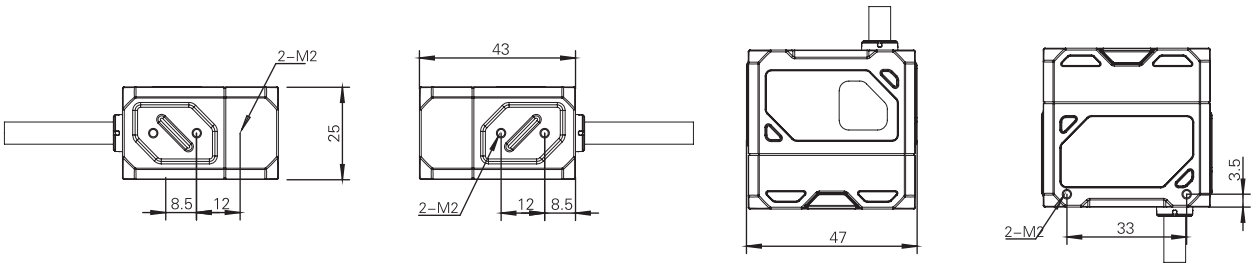


NEW!

Basic Features	Working Principle	CMOS		
	Housing	Square		
	Detection Distance	40~300mm	30~300mm	100~400mm
	Field of View	Maximum 192mm*120mm (@300mm distance)		
	Focal Length	6mm		16mm
	Focusing Method	Liquid focusing	Manual focusing	Liquid focusing
	Resolution	1280×800		
	Light Source	Red/White light available		
	Barcode Types	1D：Code 39、Code93、Code128、EAN-8、EAN-13、Interleaved 2 of 5、UPC、Pharmacode；2D：QR code, DataMatrix		
	Color/Monochrome	Monochrome		
	Shutter	Global		
	Indicator	Position Indication: 2 green light spots indicate the scanning position center area; Status Indication: 3 status LEDs and buzzer		
Electrical data	Image Native Resolution	3μm×3μm		
	Target Surface Dimensions	1/4"		
	Maximum Reading Speed	60/second		
	Exposure Time	20μs~1sec		
	Gain	0dB~255dB		
	Operating Voltage	24 VDC		
	Power Consumption	5W		
	Output Types	Two channels of optically isolated inputs, supporting NPN and PNP types;Output Control: Three channels of non–isolated outputs		
	Communication Protocol	TCP Server,TCP Client、ModBus TCP、ModBus RTU、Profinet、Ethernet/IP,MELSEC/SLMP、Fins、Serial		
	Communication Interface	RS232, Ethernet		
Environmental conditions	Operating Temperature	0~45℃		
	Storage Temperature	–20~70℃		
	Humidity	5% to 95% RH (non-condensing)		
	Protection Rating	IP67		
Mechanical data	Connection Method	Cable Connection		
	Dimension	47x25x43mm		
	Weight	about 100g		
	Accessories:Cable	M12-17PIN connection cable;Power Supply: 24V power adapter (optional);L-shaped mounting bracket + screws		
Model	Non-Polarized Red Light	RCD-AI100-SQ06R	RCD-AI100-SH06R	RCD-AI100-SQ16R
	Non-Polarized White Light	RCD-AI100-SQ06W	RCD-AI100-SH06W	RCD-AI100-SQ16W
	Polarized Red Light	RCD-AI100-SQ06RD	RCD-AI100-SH06RD	RCD-AI100-SQ16RD
	Polarized White Light	RCD-AI100-SQ06WD	RCD-AI100-SH06WD	RCD-AI100-SQ16WD

Demensions

Unit：mm



Intelligent code reader

RCD-AI100-F(HF) Series



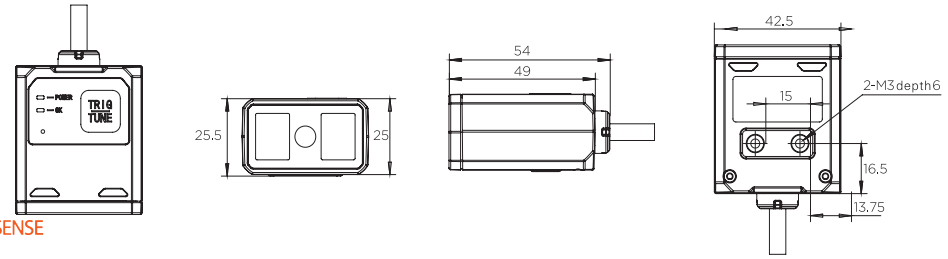
NEW!

CE

Basic Features	Operating Principle	CMOS	
	Shell Style	Square	
	Detection Range	Fixed Focus：180mm Code 39(5 mil):85~220 mm，Code 128(10 mil):51~415 mm QR Code(15 mil):42~313 mm，Data Matrix(10 mil) :60~150 mm	Fixed Focus：50mm Code 39(3 mil):30~60 mm，Code 128(10 mil):40~122 mm QR Code(5 mil):30~80 mm，Data Matrix(5 mil) :35~74 mm
	Field of View	–	
	Focal Length	–	
	Focus Adjustment Method	Fixed Focus	
	Resolution	1280×800	
	Light Source	Red/White Light Source Optional	
	Code Type	One-dimensional codes：Code39,Code93,Code128,EAN-8,EAN-13,Interleaved 2 of 5,UPC,Pharmacode; Two-dimensional codes：QR code,DataMatrix	
	Color/Black and White	Black and White	
	Shutter	Global	
	Indicator Light	2 green light spots indicate the central area of the scanning position, 2 status LEDs (code reading status, power status) and buzzer	
Electrical data	Image Sensor Size	3μmx3μm	
	Target Surface Size	–	
	Maximum Reading Speed	60/second	
	Exposure Time	20us~100000us	
	Gain	0dB~255dB	
	Operating Voltage	24 VDC/USB5V	
	Power Consumption	5W	
	Output Type	Two non-isolated inputs; two non-isolated outputs	
	Communication Protocol	TCP Server,TCP Client,ModBus TCP,ModBus RTU,Profinet,Ethernet/IP,MELSEC/SLMP,Fins,Serial	
	Communication Interface	RS232、RJ45、USB	
Environmental conditions	Operating Temperature	0~45℃	
	Storage Temperature	–20~70℃	
	Humidity	5%~95%RH(Non-Condensing)	
	Protection Level	IP54	
Mechanical data	Connection Method	Two types of wires: 1. Connect to the smart code reader through DB15 Puruo wire, which outputs a total of 3 physical interfaces: network port, serial port, and IO port; 2. Connect to the smart code reader through DB15 Puruo cable, which outputs a total of 2 physical interfaces: USB port and IO port	
	Dimensions	49x25.5x42.5mm	
	Weight	about 80g	
	Accessories	HDB15P-M-ETH-3M (Network port 3 meters Plug) or HDB15P-M-USB-3M (USB port 3 meters Plug) L-shaped mounting bracket, screw kit	
Model	Non-polarized Red Light	RCD-AI100-F06R	RCD-AI100-HF06R
	Non-polarized White Light	RCD-AI100-F06W	RCD-AI100-HF06W
	Polarized Red Light	RCD-AI100-F06RD	RCD-AI100-HF06RD
	Polarized White Light	RCD-AI100-F06WD	RCD-AI100-HF06WD

Demensions

Unit：mm



RCD-AI500 Series



NEW!

CE



NEW!

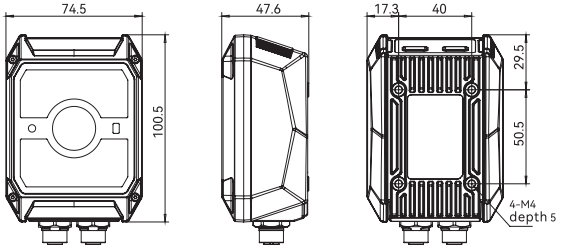
CE

Basic Features	Operating Principle	CMOS				
	Shell Style	Square				
	Detection Range	100-2000mm(@8/12/16mm)200-2000mm(@25mm)				
	Field of View	–				
	Focal Length	8mm	12mm	16mm	25mm	16mm
	Focus Adjustment Method	Mechanical focus				Liquid focus
	Resolution	2448x2048				
	Light Source	Red/White Light Source Optional				
	Code Type	One-dimensional codes: Code 39, Code93, Code128, EAN-8, EAN-13, Interleaved 2of5, UPC, Pharmacode; Two-dimensional codes:QR code, DataMatrix				
	Color/Black and White	Black and White				
	Shutter	Global				
	Indicator Light	1 green light point indicates the central area of the scanning position; 1 distance sensor for auxiliary focus, 5 status LEDs and buzzers				
Electrical data	Image Sensor Size	2.74μmx2.74μm				
	Target Surface Size	1/1.8"				
	Maximum Reading Speed	30/second				
	Exposure Time	20us~1sec				
	Gain	0dB~255dB				
	Operating Voltage	24VDC				
	Power Consumption	15W				
	Output Type	Two-channel input control, optocoupler isolation - supports NPN, PNP type; three-channel output control, optocoupler isolation				
	Communication Protocol	TCP Server、TCP Client、ModBus TCP、ModBus RTU、Profinet、Ethernet/IP、MELSEC/SLMP、Fins、Serial				
	Communication Interface	RS232, Ethernet				
Environmental conditions	Operating Temperature	0~45℃				
	Storage Temperature	–20~70℃				
	Humidity	5% to 95% RH (non-condensing)				
	Protection Level	IP67				
Mechanical data	Connection Method	Cable Connection				
	Dimensions	74.5x100.5x47.6mm 134.5x108.5x65.3mm（High power）				
	Weight	Standard light source: about 550g; high-power light source: about 750g				
	Accessories	M12-12PIN-3M (3m high-flex), M12-8PIN-3M (3m high-flex), L-shaped mounting bracket, 24V power adapter (optional), screw kit				
Model	Non-polarized Red Light	RCD-AI500-X08R	RCD-AI500-X12R	RCD-AI500-X16R	RCD-AI500-X25R	RCD-AI500-Q16R
	Non-polarized White Light	RCD-AI500-X08W	RCD-AI500-X12W	RCD-AI500-X16W	RCD-AI500-X25W	RCD-AI500-Q16W
	Polarized Red Light	RCD-AI500-X08RD	RCD-AI500-X12RD	RCD-AI500-X16RD	RCD-AI500-X25RD	RCD-AI500-Q16RD
	Polarized White Light	RCD-AI500-X08WD	RCD-AI500-X12WD	RCD-AI500-X16WD	RCD-AI500-X25WD	RCD-AI500-Q16WD
	Non-Polarized red light (High power)	RCD-AI500-X08RH	RCD-AI500-X12RH	RCD-AI500-X16RH	RCD-AI500-X25RH	RCD-AI500-Q16RH
	Non-polarized white light (High power)	RCD-AI500-X08WH	RCD-AI500-X12WH	RCD-AI500-X16WH	RCD-AI500-X25WH	RCD-AI500-Q16WH

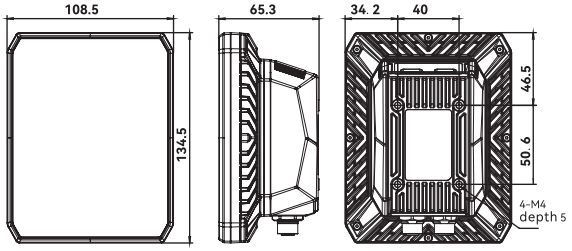
Demensions

Unit: mm

Standard



High Power



Intelligent code reader

RCD-AI2000 Series



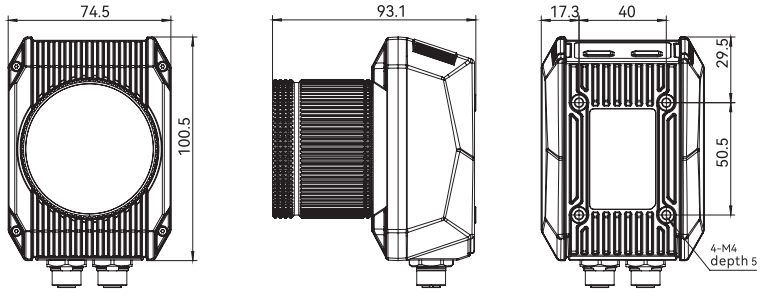
NEW!

CE

Basic Features	Operating Principle	CMOS
	Shell Style	Square
	Detection Range	Based on lens specifications
	Field of View	–
	Focal Length	–
	Focus Adjustment Method	C port
	Resolution	5472x3648
	Light Source	External light source
	Code Type	One-dimensional code：Code39,Code93,Code128,EAN-8,EAN-13,Interleaved 2 of 5,UPC,Pharmacode； Two–dimensional code：QR code,DataMatrix
	Color/Black and White	Black and White
	Shutter	Rolling shutter
	Indicator Light	1 green light point indicates the center area of the scanning position; 5 status LEDs and buzzers
Electrical data	Image Sensor Size	2.4μmx2.4μm
	Target Surface Size	1/1.8"
	Maximum Reading Speed	15/second
	Exposure Time	20μs~1sec
	Gain	–
	Operating Voltage	24V DC
	Power Consumption	15W
	Output Type	Two-channel input control, optocoupler isolation - supports NPN, PNP type; three-channel output control, optocoupler isolation
	Communication Protocol	TCP Server、TCP Client、ModBus TCP、ModBus RTU、Profinet、Ethernet/IP、MELSEC/SLMP、Fins、Seria
	Communication Interface	RS232, Ethernet
Environmental conditions	Operating Temperature	0~45℃
	Storage Temperature	–20~70℃
	Humidity	5% to 95% RH (non-condensing)
	Protection Level	IP67
Mechanical data	Connection Method	Cable Connection
	Dimensions	74.5x93.1x100.5mm
	Weight	about 450g
	Accessories	M12-12PIN-3M (3m high-flex), M12-8PIN-3M (3m high-flex), L-shaped mounting bracket, 24V power adapter (optional), screw kit
	Model	RCD-AI2000-HC

Demensions

Unit：mm



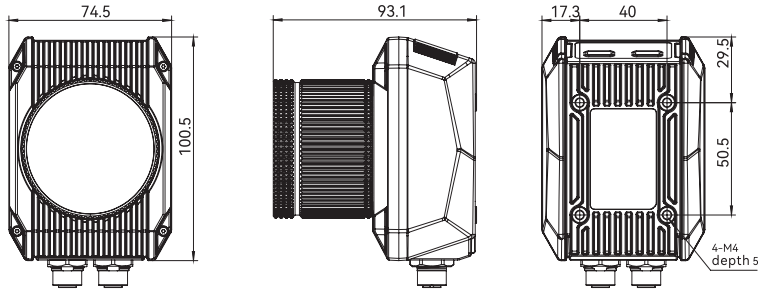
RCD-AI500 Series



Basic Features	Operating Principle	CMOS
	Shell Style	Square
	Detection Range	Based on lens specifications
	Field of View	–
	Focal Length	–
	Focus Adjustment Method	C port
	Resolution	2448x2048
	Light Source	External light source
	Code Type	One-dimensional code：Code39,Code93,Code128,EAN-8,EAN-13,Interleaved 2 of 5,UPC,Pharmacode； Two–dimensional code：QR code,DataMatrix
	Color/Black and White	Black and White
	Shutter	Rolling shutter
	Indicator Light	1 green light point indicates the center area of the scanning position; 5 status LEDs and buzzers
Electrical data	Image Sensor Size	2.74μmx2.74μm
	Target Surface Size	1/1.8"
	Maximum Reading Speed	30/second
	Exposure Time	20us~1sec
	Gain	0dB~255dB
	Operating Voltage	24VDC
	Power Consumption	15W
	Output Type	Two-channel input control, optocoupler isolation - supports NPN, PNP type; three-channel output control, optocoupler isolation
	Communication Protocol	TCP Server、TCP Client、ModBus TCP、ModBus RTU、Profinet、Ethernet/IP、MELSEC/SLMP、Fins、Serial
	Communication Interface	RS232, Ethernet
Environmental conditions	Operating Temperature	0~45℃
	Storage Temperature	–20~70℃
	Humidity	5% to 95% RH (non-condensing)
	Protection Level	IP67
Mechanical data	Connection Method	Cable Connection
	Dimensions	74.5x100.5x93.1mm
	Weight	about 450g
	Accessories	M12-12PIN-3M (3m high-flex), M12-8PIN-3M (3m high-flex), L-shaped mounting bracket, 24V power adapter (optional), screw kit
	Model	RCD-AI500-C

Demensions

Unit：mm



Vibration/Inclinometer Sensor



- Up to 5mg resolution accuracy and 0.5% linearity accuracy for high sensitivity detection.
- Configurable range in real time online

Various installation methods

MJD series equipped with cylindrical thread structure



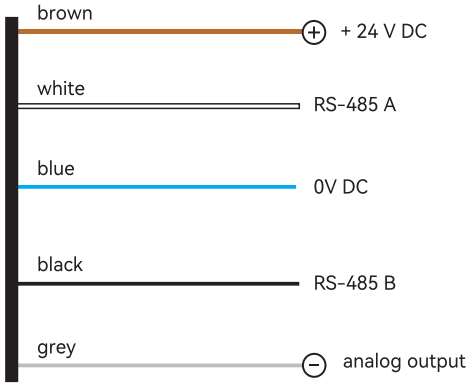
MJD Series



MJL Series

Configure serial ports, analog quantities and IO

MJD series vibration acceleration products are equipped with multiple output modes. Through the debugging software, the voltage and current analog outputs can be easily configured and configured with RS485 and RS232 serial communication outputs.



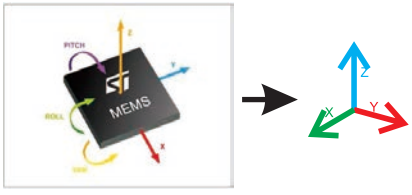
MJD series	Resolution/Range	15.62mg @ ±2g 31.25mg @ ±4g 62.50mg @ ±8g 125mg @ ±16g (Rangecan be set)

Excellent measurement accuracy and stability

Up to 5mg resolution accuracy and 0.5% linearityaccuracy
High sensitivity detects whether there is vibration or whether the level of vibration has changed

Realize X, Y, Z three-axis acceleration measurement

MJD series products can realize X,Y, Z measurement and output three-axis accelerationmeasurement values through the serial port.



MEMS(Microelectromechanical systems)

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Vibration
Triaxial Measurement

Inclinometer
Dual axis measurement

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
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AI Image
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Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Vibration
Triaxial Measurement

Inclinometer
Dual axis measurement

Product Highlights

Configure interrupt function

Interrupt signal management via RS485 or analog configuration
Interrupt analog configuration in three modes (standard, switching, pulse)

Standard

The analog output cannot send any alarmsreported, whether theinterrupt is available or unavailable through theanalog output, it follows thestandard trend in speed

Switching

The acceleration exceeds the threshold value and the continuous value, causing an alarm.
The output status is at the most Switch between minimum and maximum values

Pulse

In this mode, the analog output is always at the minimum value.
Each time the threshold and duration are exceeded, the output is switched to the maximum value, remains at the high value for at least 5ms, and then returns to the minimum value.
Mode limits alarm acknowledgment frequency

Application


Industrial Robot


Aerial Work Platform


Logistics Conveyor System


Agricultural Tractors/ Earthmoving Vehicles


Oilfield Pumping Units


Photovoltaic Industry


Medical Instruments


Bridge Crane

Selection guide



Three-axis measurement

- Simultaneous measurement of XYZ three directions
- Supported by RS485 communication.
- 316L stainless steel enclosure

P.M-04

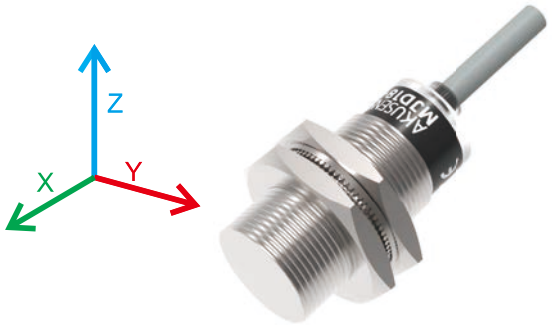


Dual Axis Measurement

- Wide voltage input, 9~36V DC
- Resolution is 0.05°
- Biaxial inclination measurement

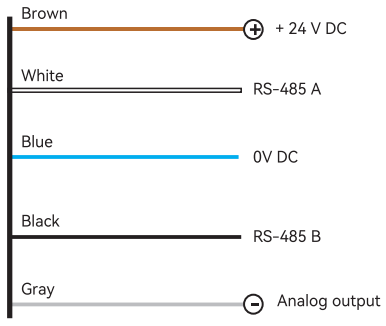
P.M-05

MJD Series



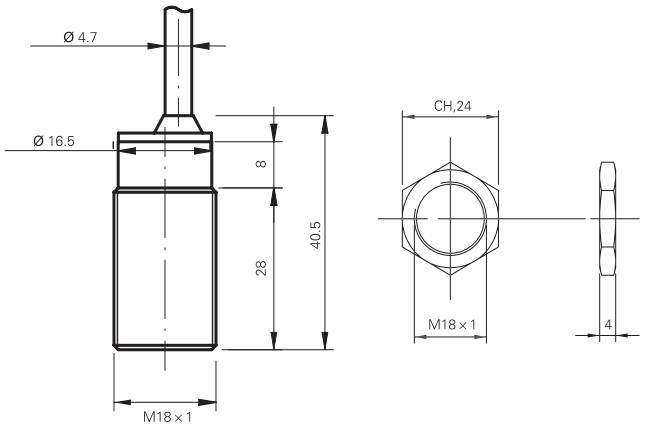
Basic Features	working principle	Principle of inertia	
	Enclosure type	Cylindrical	
	Detect range	±16g(MAX)	
	Detect axis	3(X,Y,Z)	
	Resolution	15.62mg@±2g；31.25mg@±4g；62.50mg@±8g；125mg@±16g	
	Technical	MEMS(microelectromechanical system)	
Electrical data	Operating Voltage	24VDC±20%	
	Power consumption	<1W	
	Digital output	RS-485 (addressable) 57600 baud - 1 bit stop - no parity	
	Resolution Digital Output	16 bit@RS-485;12 bit@Analog output	
	Voltage analog output	0~5V/0~10V(programmable)	
	Current analog output	0~5V/0~10V(programmable)	
	Vibration frequency	0~400Hz	
	resistance	Resistance (voltage): 1k~1MΩ; resistance (current): 100~500 Ω	
	protect the circuit	Reverse polarity protection, surge protection	
Environmental conditions	Working temperature	-25℃~+70℃	
	Storage temperature	-30℃~+90℃ No condensation	
	Working environment humidity	<80% No condensation	
	Protect degree	IP67	
Mechanical data	Connection method	5 core cable	M12,5PINConnector (20cm lead)
	Dimensions	M18x40.5mm	
	Material	Stainless steel AISI 316L	
	Weight	100g	
	Accessories	Nut	
	Model	**MJD18-W**	**MJD18-P**

Circuit Diagram



Dimensions

Unit：mm



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Guidance
Vibration
Triaxial Measurement
Inclinometer
Dual axis measurement

Dual Axis Measurement

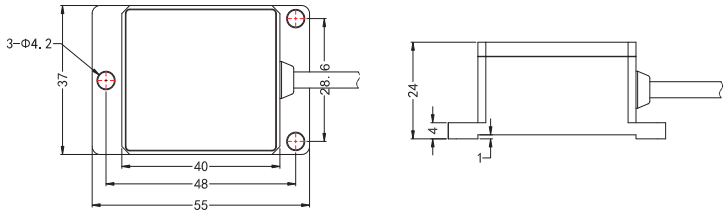
MJL Series



Basic Features	Working principle	Principle of inertia			
	Enclosure type	Square			
	Detection range	±10°	±30°	±60°	±90°
	Detection axis	X,Y			
	Resolution	0.05°			
	Long-term stability	0.2		0.25	
Electrical data	Absolute precision	0.1°		0.2°	
	Response time	0.02s			
	Power-on startup time	0.5s			
	Operating Voltage	9~36V			
	No load current	40mA			
	Mean time between failures(MTBF)	⩾45000h/time			
	Output rate	5Hz、15Hz、35Hz、50Hz Can be set			
	Output signal	RS232/RS485/RS422/TTL/CAN			
	Electromagnetic compatibility	Follow En61000 and GBT17626			
	Insulation resistance	⩾100M			
Environmental conditions	Working temperature	−40~+85℃			
	Storage temperature	−55~+100℃			
	Zero temperature drift	±0.01°/℃			
	Sensitivity temperature coefficient	⩽150 ppm/℃			
	Vibration Resistance	10grms 10~1000Hz			
	Impact resistance	100g@11ms、Three-axis and Synchronous (Half-Sine Wave)			
	Protect degree	IP67			
Mechanical data	Connection method	M16/5 pin			
	Dimensions	55x37x24mm			
	Material	Stainless stee			
	Weight	90g(Excluding cables)			
	Accessories	Standard 1 meter length, wear-resistant, wide temperature, shielded cable (direct lead)			
Model	4~20mA	**MJL326T-10-A1**	**MJL326T-30-A1**	**MJL326T-60-A1**	**MJL326T-90-A1**
	0~5V	**MJL326T-10-V3**	**MJL326T-30-V3**	**MJL326T-60-V3**	**MJL326T-90-V3**
	RS232	**MJL326T-10-23**	**MJL326T-30-23**	**MJL326T-60-23**	**MJL326T-90-23**
	RS485	**MJL326T-10-48**	**MJL326T-30-48**	**MJL326T-60-48**	**MJL326T-90-48**

Dimensions

Unit：mm



Fiber Optic
Slot Sensors
Photoelectric
Laser
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Code Readers
Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Vibration
Triaxial Measurement

Inclinometer
Dual axis measurement

Temperature Sensor



- Suitable for small pipe diameters and confined spaces
- Fast response time
- Different probe diameter and length optional

TTS Series



NEW!

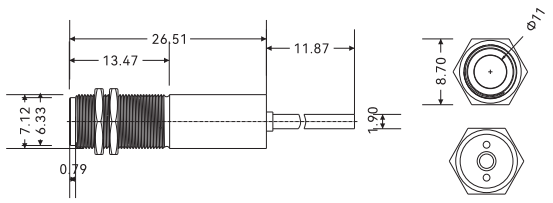
Basic Features	Working principle	Non-contact temperature sensor				
	Housing	Cylindrical				
	Measurement range	−20℃~300℃	0℃~100℃	0℃~500℃	0℃~600℃	0℃~800℃
	Spectral range	8~14um				
	Resolution	1℃				
	Optical resolution	20:1				
	Emissivity	0.95				
Electrical data	Temperature accuracy	±2% of measured value				
	Repeatability	±1% of measured value				
	Response time	300ms				
	Operating voltage	12~24V DC				
	Current consumption	Current output series:≤20mA;Voltage output series:≤8mA				
	Analog output	Current output:4~20mA;Voltage output:V1:0~5V				
Environmental conditions	Operating temperature	0℃~60℃				
	Storage temperature	−20℃~80℃				
	Operating humidity	10-95%(Non-condensing)				
	Enclosure rating	IP65				
Mechanical data	Connection method	2m/4-core cable				
	Dimensions	M18x26.51mm				
	Material	Stainless steel				
	Weight	about 122g				
	Accessories	Nut				
	Model	**TTS-20300A**	**TTS-100A**	**TTS-500A**	**TTS-600A**	**TTS-800A**
		TTS-20300V1	**TTS-100V1**	**TTS-500V1**	**TTS-600V1**	**TTS-800V1**

Circuit Diagram

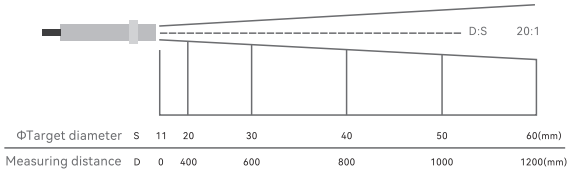
Current output 4~20mA	Red	Power supply (+)
	Blue	Signal output (+)
	Black	Common−
	Orange	Common−
		Laser illumination control line
	Transparent	Shielded
Voltage output 0~5V 0~10V	Red	Power supply (+)
	Black	Common−
	White	Voltage output (+)
	Blue	Common−
	Transparent	Shielded

Dimensions

Unit: mm



Optical path diagram



D:S=20:1

Temperature Sensor

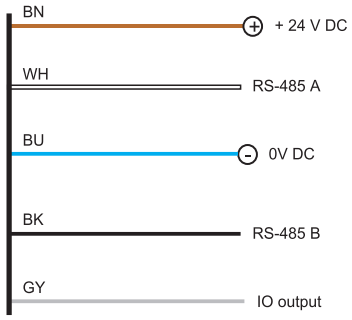
TSP Series



Basic Features	Working principle	Contact temperature sensor	
	Housing	Cylindrical	
	Measurement range	–30℃~150℃	
	Measurement element	1×Pt 1000	
	Medium	Liquid and gas mediums	
	Resolution	0 . 1℃	
Electrical data	Output mode	NPN or PNP collector open	
	Temperature accuracy	± 0.5%(FS)	
	Response time	<3 (s)/<8 (s)	
	Operating voltage	10~30V DC	
	Current consumption	<25mA	
	Load current	< 150mA	
	Protection circuit	Reverse polarity protection/surge protection/short circuit protection	
	Static electricity	± 4000V	
	Communication protocol	ModBus RTU	
	Communication interface	RS-485	
Environmental conditions	Operating temperature	Operating temperature:–25℃~80℃,Storage temperature:–20℃~70℃	
	Operating humidity	35~90%RH,Storage:35~90%RH	
	Dielectric strength	±1000V 50/60Hz 60s	
	Vibration resistance	10 to 55 Hz, 1.5 mm amplitude, 2 hours for each X, Y, and Z directions	
	Enclosure rating	IP67	
Mechanical data	Probe diameter	6mm	
	Probe length	25mm	100mm
	Connection method	5-core cable	
	Dimension	M18x108mm	M18x183mm
	Material	Stainless steel 316L	
	Weight	about 122g	
	Accessories	Nut	
	Model	**TSP-30150D-25**	**TSP-30150D-100**

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Safety door lock
Pressure Switch
Communication
Accessories

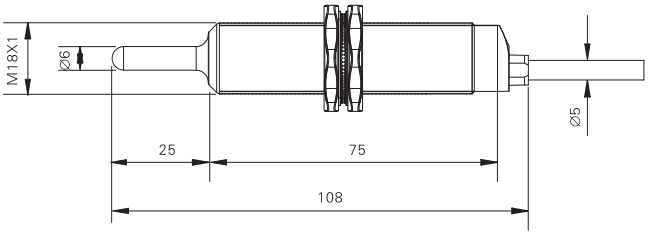
Circuit Diagram



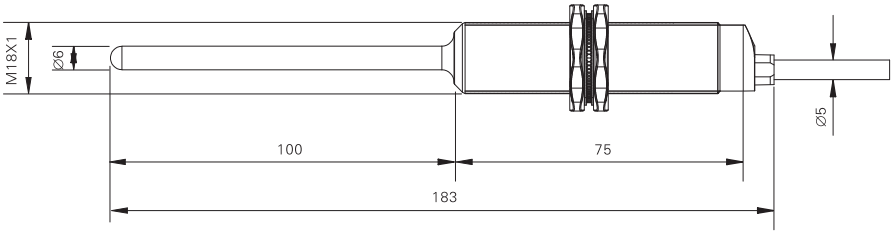
Dimensions

Unit: mm

TSP-30150D-25



TSP-30150D-100



RFID



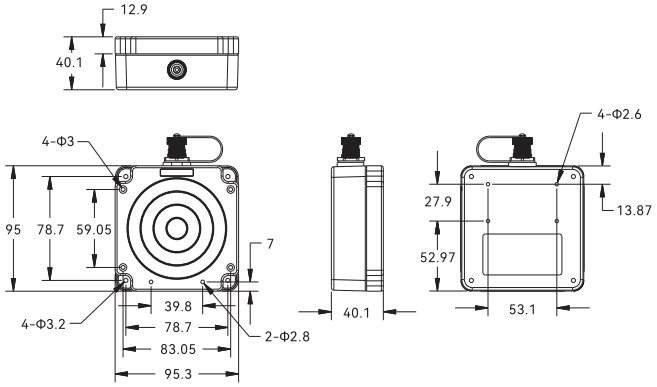
- Reads without visible light
- Repeatable data reading and writing, batch reading
- Maintenance-free, long service life



Basic Features	Working principle	RFID
	Housing	Square
	RF chip	Korea PR9200 special RF chip
	Detection distance	300~2000mm(depending on the tag)
	Write distance	0~1000mm(related to reader parameters, antenna gain, tag type)
	Supported Countries&Regions	The United States, Canada and other regions in line with the U.S. FCC Part 15 specification; Europe and other regions in line with the ETSIEN302308 specification; China, India, Japan, South Korea, Malaysia, Taiwan
	Operating Status	LED Indicator, Beeper
Electrical data	Power Supply	Operating voltage DC9~24V
	Power Consumption	Maximum power consumption 3W, maximum starting current 1A
	Operating Frequency	902-928MHz or 865-868MHz
	Output power	13-27dBm±1dBm
	Output power adjustment	1dBm step (set by VANCH software)
	Receiving Sensitivity	<70dBm
	Peak speed of stored tags	>50 times/sec
	Tag RSSI	Support
	Antenna	Dual feedpoint ceramic antenna or PCB near-field antenna
	Communication Interface	RJ45、RS232、RS485
	Communication Protocol	ModbusTCP、ModbusRTU、TCP/UDP protocol
	WiFi(optional)	Support IEEE 802.11 n/b/g
	Communication rate	Serial rate 9600~115200bps, RJ45 is 10Mbps.
	General Purpose Input/Output (GPIO)	2 inputs, 2 outputs
	Application Software Interface	Provide API development kit and C and Java application routines.
Environmental conditions	Operating Temperature	–40℃~+85℃
	Storage temperature	Ambient temperature
	Enclosure rating	IEC IP67
Mechanical data	Heating device (optional)	Low-temperature automatic heating (minus 5°) optional (according to the project site environment to determine)
	Reliable firmware upgrade	Expandable upgrade mechanism
	Connection	Industrial connection tail line one tow five
	Dimension	95.3x95x40.1mm
	Material	Aluminum alloy, plastic
	Weight	about 1.1kg
	Accessories	Cable
	Model	RVC-H610P

Dimensions

unit: mm



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RFID

RFID

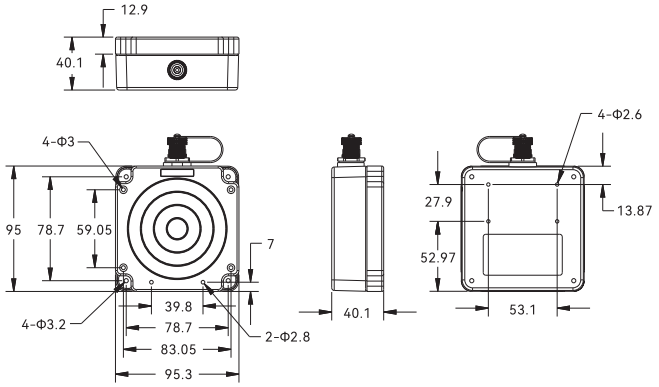


NEW!

Basic Features	Working principle	RFID
	Housing	Square
	NFC chip	ZC100
	Detection distance	1ISO15693:110mm ISO14443A:60mm(depending on the tag)
	Write distance	S015693:100mm ISO14443A:50mm(relate to tag type)
	Operating Status	LED Indicator, Beeper
Electrical data	Power Supply	Operating voltage DC9~24V
	Power consumption	Maximum power consumption 3W, maximum starting current 1A
	Operating Frequency	13.56MHz
	Tag RSSI	Support
	Antenna	PCB integrated antenna
	Communication Interface	RJ45、RS232、RS485
	Communication Protocol	ModbusTCP、ModbusRTU、TCP/UDP protocol
	WiFi(optional)	Support IEEE 802.11 n/b/g
	Communication rate	Serial rate 9600～115200bps, RJ45 is 10/100Mbps.
	General Purpose Input/Output (GPIO)	2 inputs, 2 outputs
	Application Software Interface	Provide API development kit and C、C# and Java application routines.
Environmental conditions	Operating Temperature	–40℃~+85℃
	Storage temperature	Ambient temperature
	Enclosure rating	IEC IP67
Mechanical data	Heating device (optional)	Low-temperature automatic heating (minus 5°) optional (according to the project site environment to determine)
	Reliable firmware upgrade	Expandable upgrade mechanism
	Connection	Industrial connection tail line one tow five
	Dimension	95.3x95x40.1mm
	Material	Aluminum alloy, plastic
	Weight	about 1.1 kg (whole set)
	Accessories	Cable
	Model	RVC-H610P-F

Dimensions

unit: mm



RFID

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Guidance

RFID

RFID

Safety Door Lock



- Multiple contacts available
- Plastic, metal material can be selected, four mounting directions of the head can be selected
- Locking force of 1300N, excellent tensile resistance

AR1 Series



NEW!

Basic Features	Working principle		Electromechanical	
	Housing		Square	
	Switching Principle		Slow-action switching element	
	Locking force		–	
	Contact Pitch		Above 2x2mm	
	Forced disconnecting force		Standard type: Minimum 60N ; Tension type: Minimum 80N	
	Pre-travel of forced disconnection line		Above 10mm	
	Operation speed		0.1m~0.5m/s	
	Allowable operating frequency		Maximum 20 operations/minute	
	Indicator		Green, orange optional	
Electrical data	Type of use		AC-15	DC-13
	Rated operating voltage		240V	24V
	Rated operating current		3A	2A
	Contact resistance		Less than 25m Ω	
	Rated insulation voltage		300V	
	Insulation resistance		Less than 100m Ω(Less than 500VDC)	
	Conditional short-circuit current		100A	
	Protection against electric shock		Class II (double insulation)	
	Short circuit protection device		Quick blow fuse required for 10A, 250V	
Mechanical data	Operating temperature		–10℃ ~ + 70℃ No freezing	
	Operating humidity		85%RH	
	Pulse withstand voltage		2.5KV	
	Pollution Degree		3(EN60947-5-1)	
	Vibration Resistance		10-55Hz, double amplitude 1.5mm	
	Shock Resistance	Durability	1000m/s²	
		Malfunction	300m/s²	
	Enclosure rating		IP67	
Environmental conditions	Connection type		P: Pg13.5(terminal type) M: M20(terminal type) 2M: Standard pre-wired type(2m) 2ME: Bend-resistant pre-wired type(2m)	
	Lifetime	Mechanical	More than 1,000,000 times	
		Electrical	More than 150,000 times	
	Dimension		29.84x30.1x96mm	
	Material		Pa66 flame retardant	
	Weight		about 96.5g	
	Model		AR1 Series	

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Safety door lock
AR1
AR2
AR3

Safety door lock

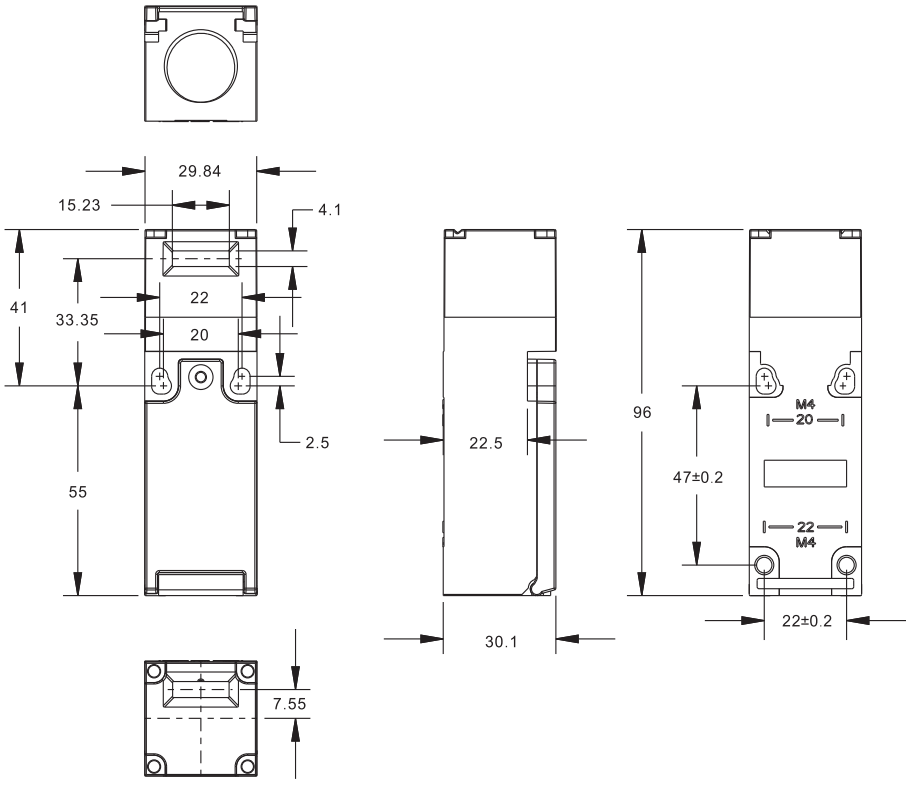
Selection coding rules

AR1－①②③

NO.	Classfication	Explantion of model numbers
①	Installation Direction of Head	F：Four mounting directions available (front installation upon delivery) / Plastic D：Four mounting directions available (front installation upon delivery) / Metal
②	Conduit Port / Connector Size	1：Pg13.5（Terminal type） 2：M20（Terminal type）
③	Switch Contacts	A:1NC/1NO（Slow-action contact） B:2NC（Slow-action contact） C:2NC/1NO（Slow-action contact） D:3NC（Slow-action contact）

Dimensions

Unit：mm



AR2 Series



NEW!

Basic Features	Working principle		Electromechanical	
	Housing		Square	
	Switching Principle		Slow-action switching element	
	Locking force		1300N	
	Contact Pitch		Above 2x2mm	
	Forced disconnecting force		Minimum 60N	
	Pre-travel of forced disconnection line		Above 10mm	
	Operation speed		0.1m~0.5m/s	
	Allowable operating frequency		Maximum 30 operations/minute	
	Indicator		Green, orange optional	
Electrical data	Type of use		AC-15	DC-13
	Rated operating voltage		240V	24V
	Rated operating current		3A	2A
	Contact resistance		Less than 25m Ω	
	Rated insulation voltage		300V	
	Insulation resistance		More than 100m Ω	
	Conditional short-circuit current		100A	
	Protection against electric shock		Class II (double insulation)	
	Short circuit protection device		Quick blow fuse required for 10A, 250V	
Mechanical data	Operating temperature		-10℃ ~+ 55℃ No freezing	
	Operating humidity		Less than 95%RH	
	Pulse withstand voltage		2.5KV	
	Pollution Degree		3(EN60947-5-1)	
	Vibration Resistance		10-55Hz, double amplitude 1.5mm	
	Shock Resistance	Durability	1000m/s²	
		Malfunction	300m/s²	
	Enclosure rating		IP67	
Environmental conditions	Connection type		P: Pg13.5 (terminal type) M: M20 (terminal type)	
	Lifetime	Mechanical	More than 1,000,000 times	
		Electrical	More than 150,000 times (AC240V 3A, resistive load)	
	Dimension		88x34.3x108mm	
	Material		Pa66 flame retardant	
	Weight		about 370.6g	
	Model		AR2 Series	

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Guidance

Safety door lock
AR1
AR2
AR3

Safety door lock

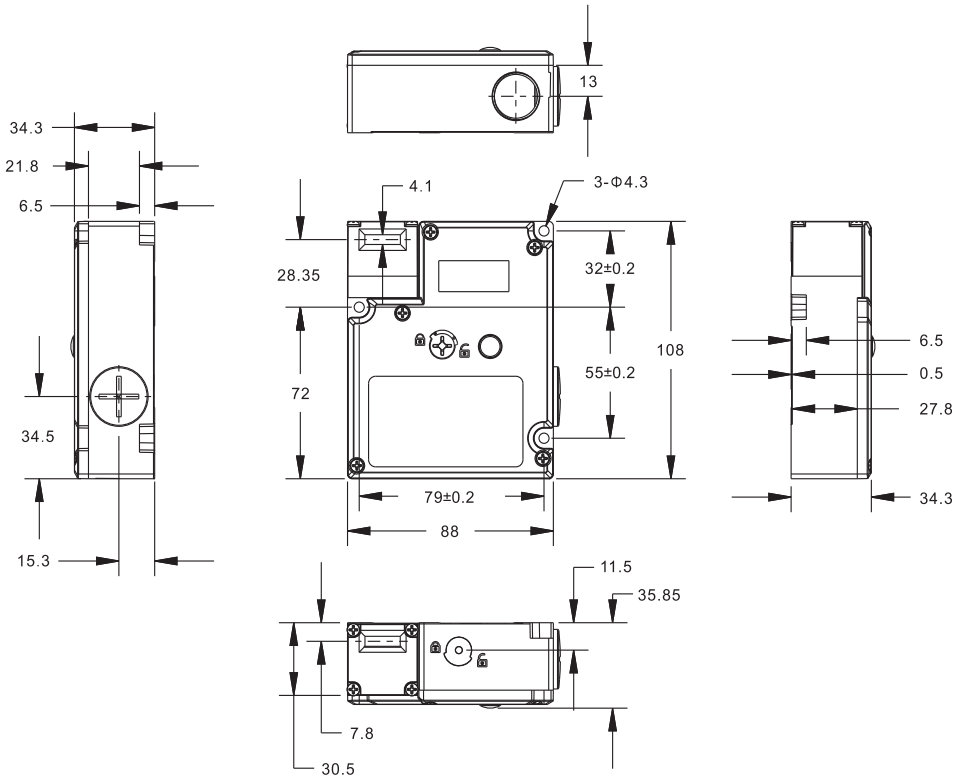
Selection coding rules

AR2 – ① ② ③ ④ ⑤ ⑥ ⑦

NO.	Classfication	Explantion of model numbers
①	Installation Direction of Head	F：Four mounting directions available (front installation upon delivery) / Plastic D：Four mounting directions available (front installation upon delivery) / Metal
②	Conduit Port / Connector Size	1：Pg13.5（Terminal type） 2：M20（Terminal type）
③	Door Locking / Release Method	A：Mechanical Locking / DC24V Electromagnetic Release B：Mechanical Locking / AC110V Electromagnetic Release G：DC24V Electromagnetic Locking / Mechanical Release H：AC110V Electromagnetic Locking / Mechanical Release
④	Indicator	Blank: Standard DC24V (Green LED indicator light) / None B: DC24V (Orange LED indicator light)
⑤	Key Release Position	F：Top S：Front
⑥	Key Release Type	Blank: Standard DC24V (Resin) H: Special Release Key (Resin,Release key included)
⑦	Switch Contacts	A：1NC/1NO（Slow-action contact）+1NC/1NO（Slow-action contact） B：1NC/1NO（Slow-action contact）+ 2NC（Slow-action contact） C：2NC（Slow-action contact）+ 1NC/1NO（Slow-action contact） D：2NC（Slow-action contact）+ 2NC（Slow-action contact） E：2NC/1NO（Slow-action contact）+ 1NC/1NO（Slow-action contact） F：2NC/1NO（Slow-action contact）+ 2NC（Slow-action contact） G：2NC/1NO（Slow-action contact）+ 2NC/1NO（Slow-action contact） H：3NC（Slow-action contact）+ 1NC/1NO（Slow-action contact） I：3NC（Slow-action contact）+ 2NC（Slow-action contact） J：3NC（Slow-action contact）+ 3NC（Slow-action contact） K：3NC（Slow-action contact）+ 2NC/1NO（Slow-action contact） L：2NC/1NO（Slow-action contact）+ 3NC（Slow-action contact）

Unit: mm

Dimensions



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Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Safety door lock
AR1
AR2
AR3

Safety door lock

AR3 Series



NEW!

Basic Features	Working principle		Electromechanical	
	Housing		Square	
	Switching Principle		Slow-action switching element	
	Locking force		1300N	
	Contact Pitch		Above 2x2mm	
	Forced disconnecting force		Minimum 60N	
	Pre-travel of forced disconnection line		Above 10mm	
	Operation speed		0.1m~0.5m/s	
	Allowable operating frequency		Maximum 30 operations/minute	
	Indicator		Green	
Electrical data	Type of use		AC-15	DC-13
	Rated operating voltage		240V	24V
	Rated operating current		3A	2A
	Contact resistance		Less than 25m Ω	
	Rated insulation voltage		300V	
	Insulation resistance		More than 100m Ω	
	Conditional short-circuit current		100A	
	Protection against electric shock		Class II (double insulation)	
	Short circuit protection device		Quick blow fuse required for 10A, 250V	
Mechanical data	Operating temperature		-10℃ ~+ 55℃ No freezing	
	Operating humidity		Less than 95%RH	
	Pulse withstand voltage		2.5KV	
	Pollution Degree		3(EN60947-5-1)	
	Vibration Resistance		10-55Hz, double amplitude 1.5mm	
	Shock Resistance	Durability	1000m/s²	
		Malfunction	300m/s²	
	Enclosure rating		IP67	
Environmental conditions	Connection type		P: Pg13.5 (terminal type) M: M20 (terminal type)	
	Lifetime	Mechanical	More than 1,000,000 times	
		Electrical	More than 150,000 times (AC240V 3A, resistive load)	
	Dimension		35x36x165mm	
	Material		PA66 flame retardant	
	Weight		about 253.4g	
	Model		AR3 Series	

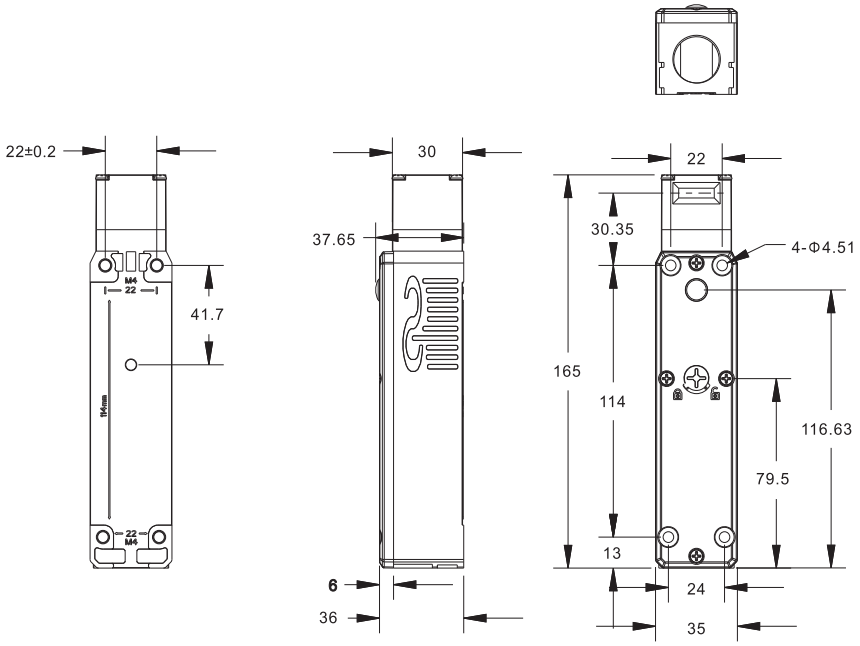
Selection coding rules

AR3－①②③④⑤⑥⑦

NO.	Classfication	Explantion of model numbers
①	Installation method	F：Four mounting directions available (front installation upon delivery) / Plastic D：Four mounting directions available (front installation upon delivery) / Metal
②	Conduit port/connector size	1: Pg 13.5 terminal type　2: M20 terminal type　3: M16 terminal type
③	Door Locking / Release Method	A: Mechanical Locking / DC24V Electromagnetic Release B: Mechanical Locking / AC110V Electromagnetic Release G: DC24V Electromagnetic Locking / Mechanical Release H: AC110V Electromagnetic Locking / Mechanical Release
④	Indicator	Blank: Standard DC24V (Green LED indicator light) / None B: DC24V (Orange LED indicator light)
⑤	Key Release Position	F：Front　S：Reverse
⑥	Key Release Type	Blank: Standard　H: Special Release Key （Release key included）
⑦	Switch Contacts	A：1NC（Slow-action contact）+ 1NO（Slow-action contact） B：2NC（Slow-action contact）+ 1NC/1NO（Slow-action contact） C：1NC（Slow-action contact）+ 1NC（Slow-action contact） D：1NC（Slow-action contact）+ 2NC（Slow-action contact） E：2NC（Slow-action contact）+ 2NO（Slow-action contact） F：1NC（Slow-action contact）+ 1NC/1NO（Slow-action contact） G：2NC（Slow-action contact）+ 2NC（Slow-action contact） H：1NC/1NO (Slow-action contact) + 1NC/1NO(Slow-action contact) I：3NC (Slow-action contact) + 1NO(Slow-action contact) J：3NC (Slow-action contact) + 1NC(Slow-action contact) K：1NC (Slow-action contact) + 3NO(Slow-action contact) L：1NC (Slow-action contact) + 3NC(Slow-action contact) M：1NC/1NO (Slow-action contact) + 2NC (Slow-action contact) N：1NC/1NO (Slow-action contact) + 2NO (Slow-action contact)

Dimensions

Unit：mm



Digital Barometer



- Low-voltage and high-voltage types available
- Easy to view and set reference values without switching screen modes
- Supports real-time monitoring of remote readings and setting operations



NEW!



NEW!

Basic Features	Working principal	Digital pressure switch								
	Enclosure shape	square								
	Type	Low-pressure type				High-pressure type				
	Applicable gases	Non-corrosive gas, non-flammable gas (compliant with ISO8573-1:2010[7:4:4])								
	Display	3-color (red, orange, yellow-green) display (sampling rate: 4 times per second) temperature characteristics								
Electrical data	Rated pressure range	-101.3~101.3kPa				-0.101~1.000MPa				
	Set pressure range	-101.0~101.0kPa				-0.100~1.000MPa				
	Maximum withstand pressure	500kPa				1.5MPa				
	Comparison output	NPN collector open circuit output, maximum load current: 100mA, maximum supply voltage: 30V DC, internal voltage drop: below 1.5V								
		PNP collector open circuit output, maximum load current: 100mA, maximum supply voltage: 24V DC, internal voltage drop: below 1.5V								
	Display accuracy	±1%F. S.±1 digits (Operating temperature: 25±10℃)								
	Repeatability	±0.2%F. S.±2 digits								
	Power supply voltage	12~24V±10%								
	Current consumption	<45mA(No load)								
	Display resolution at different pressure units	0.1KPa				–				
		–				0.001MPa				
		0.001kgf/cm²				0.01kgf/cm²				
		0.001bar				0.01bar				
		0.01psi				0.1psi				
		0.1mmHg				–				
		1inchHg				–				
	Voltage-type analog output	None	Output voltage: 1~5V ±2.5% F.S. Linearity: ±1% F.S. Output impedance: Approximately 1KΩ		None		Output voltage: 1~5V ±2.5% F.S. Linearity: ±1% F.S. Output impedance: Approximately 1KΩ		None	
	Current-type analog output	None	Output Current:4~20mA±2.5% F.S. Linearity: ±1% F.S. Load resistance: Minimum 5KΩ, maximum 300Ω@12V; 600Ω@24V		None		Output Current:4~20mA±2.5% F.S. Linearity: ±1% F.S. Load resistance: Minimum 5KΩ, maximum 300Ω@12V; 600Ω@24V		None	
	MODBUS function	None			Have		None		Have	
Environmental conditions	Temperature characteristics	Within 1% F.S., reference temperature for comparison: 25°C (within operating range of 0~50°C)								
	Operating environment temperature	0~50℃ (Non-condensing, non-freezing)								
	Storage temperature	–10~50℃ (Non-condensing, non-freezing)								
	Operating environment humidity	35~85%RH (No condensation)								
	Storage humidity	35~85%RH (No condensation)								
	Protect degree	IP40	IP40	IP65	IP40	IP65	IP40	IP40	IP65	IP40	IP65
Mechanical data	Connection method	Internal thread: M5; External thread: R1/8 (Asian standard, equivalent to PT1/8)								
	Dimension	30x30x21.3	30x30x40.3				30x30x21.3	30x30x40.3		
	Material	Plastic								
	Weight	About 85g (including power cable)								
	Accessories	One terminal power cable, one manual								
Model	NPN	MQ-01DN					MQ-10DN			
	PNP	MQ-01DP					MQ-10DP			
	NPN+PNP	MQ-01DNP					MQ-10DNP			
	2 channels NPN+analog voltage		MQ-02DNV	MQ-02DNVH				MQ-20DNV	MQ-20DNVH	
	2 channels NPN+analog current		MQ-02DNA	MQ-02DNAH				MQ-20DNA	MQ-20DNAH	
	2 channels PNP+analog voltage		MQ-02DPV	MQ-02DPVH				MQ-20DPV	MQ-20DPVH	
	2 channels PNP+analog current		MQ-02DPA	MQ-02DPAH				MQ-20DPA	MQ-20DPAH	
	NPN+RS485 communication				MQ-03DN-485	MQ-03DNH-485				MQ-30DN-485 MQ-30DNH-485
	PNP+RS485 communication				MQ-03DP-485	MQ-03DPH-485				MQ-30DP-485 MQ-30DPH-485

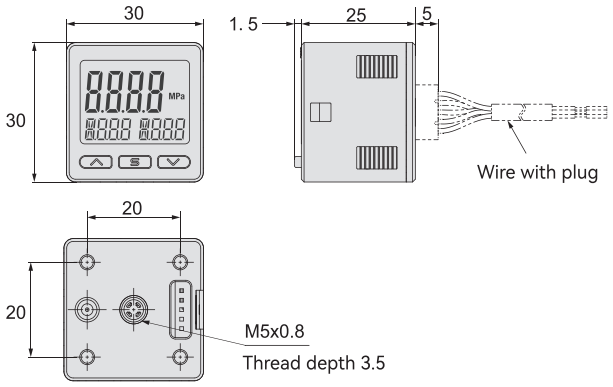
Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
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Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories
Barometers
Barometers

Digital Barometer

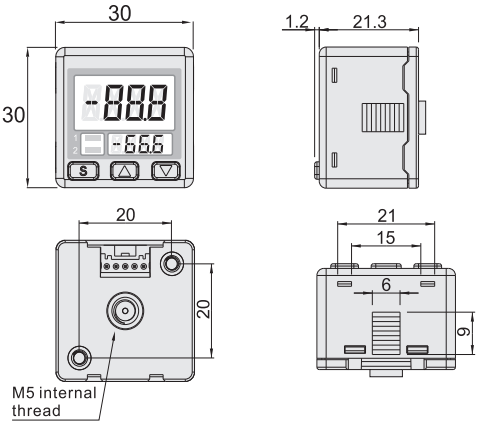
Dimensions

Unit:mm

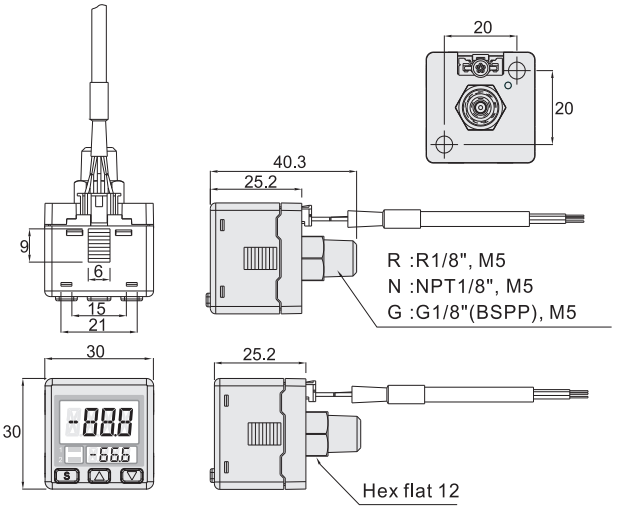
High protection rating（IP65）



MQ-01D/10D

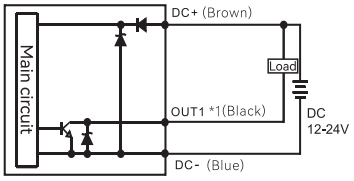


MQ-02D/20D/03D/30D

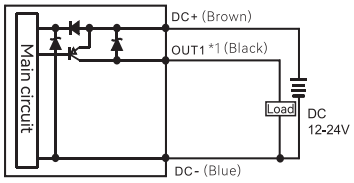


Circuit diagram

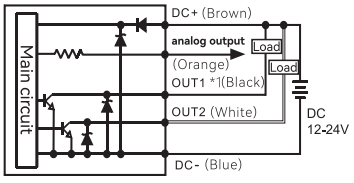
Single channel NPN



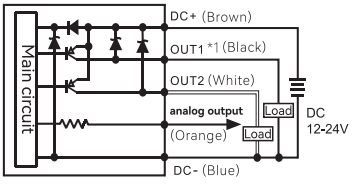
Single channel PNP



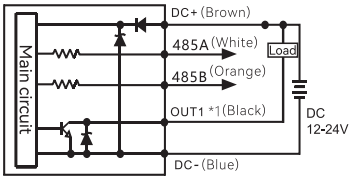
2 channels NPN + 1 channel analog output



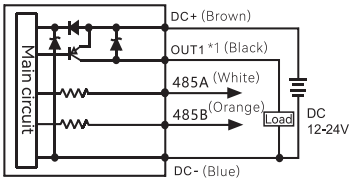
2 channels PNP + 1 channel analog output



1 channel NPN + Rs485



1 channel PNP + Rs485



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Code Readers
Vibration
Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

Communication And Connection

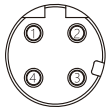
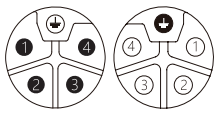


- Rich communication interfaces,plug-and-play capability, rapid configuration.
- Data visualization, proactive maintenance.

CIO 200 Series



NEW!

Basic parameters	Shell material		Aluminum alloy	
	Shell color		Metallic silver	
	Ptotect degree		IP67 , Epoxy encapsulation	
	External dimensions		205mm × 60mm ×34.4mm	
	Weight		515g	
	Operating temperature		-25℃~70℃	
	Storage/transport temperature		-40℃~85℃	
	Operating humidity		5%~95%	
	Storage/transport humidity		5%~95%	
	Operating atmospheric pressure		80KPa~106KPa	
	Storage/transport atmospheric pressure		80KPa~106KPa	
	I/O port fastening torque		M12:0.5Nm	
	Application environment		Compliant with EN-61131	
	Vibration testing		Compliant with IEC60068-2	
	Shock testing		Compliant with IEC60068-27	
	Free fall testing		Compliant with IEC60068-32	
	Electromagnetic compatibility (EMC)		Compliant with IEC61000-4-2,-3,-4	
	Certification		CE,RoHS	
	Installation hole specifications		Φ4.5mm × 1 ;Φ5.5mm × 1	
Pinout definition for data port	M12 D-code Female end	Connection method	2 × M12 D-code; 4-pin socket	XF0 , XF1  1. TX+ 2. RX+ 3. TX– 4. RX–
		Physical layer	Ethernet	
		Transmission speed	10/100 Mbps, Full duplex	
		Characteristics	Compliant with protocol specifications	
		Alarm function	Diagnosis alarm, process alarm	
		Minimum cycle time	1ms	
		Communication port fastening torque	M12:0.5Nm	
Pinout definition for auxiliary power supply port	Auxiliary power supply port M12 L-code Female end &Male end Pinout definition	Power supply connection method	M12, 5-pin, L-code, male/female	XP0 XP1  Male Female 1. +24V_Us 2. GND_Ua 3. GND_Us 4. +24V_Ua 5. FE
		System power supply voltage us	18~30 VDC(type.24VDC)	
		Auxiliary power supply voltage ua	18~30 VDC(type.24VDC)	
		Total current Is	12A	
		Total current Ia	12A	
		Static operating current Ic	≤150mA	
		Reverse power protection	Have	
		Power port fastening torque	M12:0.5Nm	

Fiber Optic
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Safety door lock
Pressure Switch
Communication
Accessories

IO Bus
Module main station
Module Slave

Controller & Communicator
Controller
Communicator

Module main station

CIO 200 Series

IO-Link Master station parameters	The number of ports on the master station	Maximum configurable 8 ports					
	Master station connection method	M12, 5-pin, A-code, female					
	IO-link Version	V1.1.2					
	Communication rate	COM1:4.8KBps;COM2:38.4KBps;COM3:230.4KBps					
	Port voltage L+	type.24VDC (via US)					
	Port current L+	2A(via US)					
	Class A	8 ports, X1~X8					
	Master-slave communication distance	⩽20m					
	Master-master communication distance	⩽100m					
Digital input Output parameters	Number of inputs	8-channel, adaptive					
	Input port location	X1~X8					
	Input polarity	PNP					
	Signal "0" voltage	–0.3~5VDC					
	Signal "1" voltage	12~30VDC					
	Input current	type.5mA(via US)					
	Number of outputs	8-channel, adaptive					
	Output port location	X1~X8					
	Input polarity	PNP					
	Output current	Single channel 2A (via UA)					
	Port protection	Power supply short-circuit protection, overload protection for power supply port					
Module indicator lights	PWR	Module power normal					
		Red: Module power reverse connection					
	I/O	Green: Channel signal normal					
		Red: Port power short-circuit					
	LINK	Green: Connection normal					
		Yellow flashing: Connection normal, data communication normal					
		Off: No connection established					
	RUN	Green: OP status	SF	Red: module failure	MS	Green: Module status is normal	
		Green slow flashing: SAFEOP status				Green flash: module is not configured	
		Green fast flashing: Pre-OP status	BF	Red: internal error		Red: module failure	
		Off: Init status		Flashing red: Device name/IP address/module group status error	NS	Green: The network status is normal	
	ERR	Red flashing: Communication error				Green flash: communication not established	
		Off: module status is normal				Flashing red: communication interrupted	
	IO-LINK	Green: Port operation (running) status					
		Flashing green quickly: port connection process or wrong device					
		Flashing green slowly: The port is in pre-operation state					
		Green off: port is closed					
	Protocol	EtherCat Protocol		ProfiNet Protocol		EtherNet/IP Protocol	
	Model	**CIO200-ECIO-8A**		**CIO200-PNIO-8A**		**CIO200-EIIO-8A**	

I/O Port pin definition

	Pin definition	Address distribution
Port M12 A-code female end	**M12(X1~X8)**  **Class A** 1. V+ 2. In/Output 3. 0 V 4. C/Q 5. N/C	Byte | 0 Bit0 | X1P2 Bit1 | X2P2 Bit2 | X3P2 Bit3 | X4P2 Bit4 | X5P2 Bit5 | X6P2 Bit6 | X7P2 Bit7 | X8P2

CIO 200 Series

IO-Link Master station parameters	The number of ports on the master station	Maximum configurable 8 ports				
	Master station connection method	M12, 5-pin, A-code, female				
	IO-link Version	V1.1.2				
	Communication rate	COM1:4.8KBps;COM2:38.4KBps;COM3:230.4KBps				
	Port voltage L+	type.24VDC (via US)				
	Port current L+	2A(via US)				
	Class B auxiliary voltage	type.24VDC(via UA)				
	Class B auxiliary current	2A(via UA)				
	Class A	4 ports, X1~X4				
	Class B	4 ports, X5~X8				
	Master-slave communication distance	≤20m				
	Master-master communication distance	≤100m				
Digital Input Output parameters	Number of inputs	4-channel, adaptive				
	Input port location	X1~X4				
	Input polarity	PNP				
	Signal "0" voltage	−0.3~5VDC				
	Signal "1" voltage	12~30VDC				
	Input current	type.5mA(via US)				
	Number of outputs	4-channel, adaptive				
	Output port location	X1~X4				
	Input polarity	PNP				
	Output current	Single channel 2A (via UA)				
	Port protection	Power supply short-circuit protection, overload protection for power supply port				
Module indicator lights	PWR	Module power normal				
		Red: Module power reverse connection				
	I/O	Green: Channel signal normal				
		Red: Port power short-circuit				
	LINK	Green: Connection normal				
		Yellow flashing: Connection normal, data communication normal				
		Off: No connection established				
	RUN	Green: OP status	SF	Red: module failure	MS	Green: Module status is normal
		Green slow flashing: SAFEOP status				Green flash: module is not configured
		Green fast flashing: Pre-OP status	BF	Red: internal error		Red: module failure
		Off: Init status		Flashing red: Device name/IP address/module group status error	NS	Green: The network status is normal
	ERR	Red flashing: Communication error				Green flash: communication not established
		Off: module status is normal				Flashing red: communication interrupted
	IO-LINK	Green: Port operation (running) status				
		Flashing green quickly: port connection process or wrong device				
		Flashing green slowly: The port is in pre-operation state				
		Green off: port is closed				
	Protocol	EtherCat Protocol		ProfiNet Protocol		EtherNet/IP Protocol
	Model	**CIO200-ECIO-4A4B**		**CIO200-PNIO-4A4B**		**CIO200-EIIO-4A4B**

I/O Port pin definition

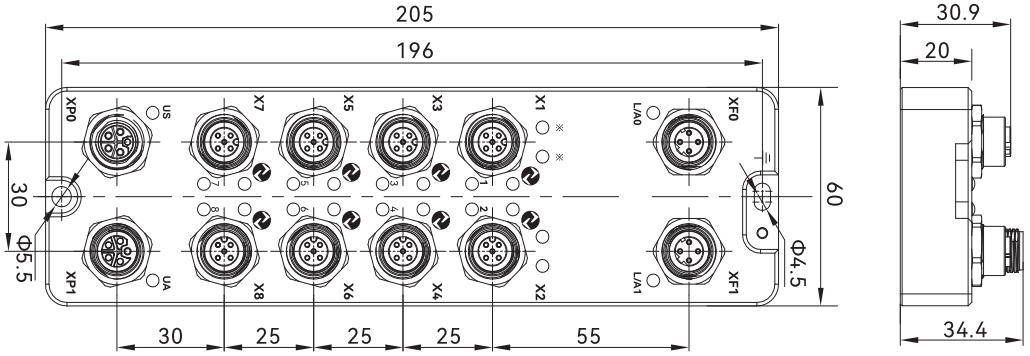
	Pin definition	Address distribution
Port	M12(X1~X8) 	
M12 A-code female end	**Class A** 1. V+ 2.In/Output 3.0V 4. C/Q 5.N/C	**Class B** 1. V+ 2.P24V 3.0V 4. C/Q 5.N24V

Byte	0
Bit0	X1P2
Bit1	X2P2
Bit2	X3P2
Bit3	X4P2

Module main station

Dimensions

Unit: mm



Fiber Optic
Slot Sensors
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Proximity
Displacement
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Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

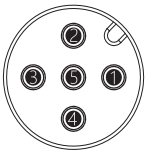
IO Bus
Module main station
Module Slave

Controller & Communicator
Controller
Communicator

CIO 100 Series



NEW!

Basic parameters	Shell material	PA6 + GF
	Shell color	Black
	Ptotect degree	IP67 , Epoxy full potting
	External dimensions	155mm × 53mm ×28.7mm
	Weight	217g
	Operating temperature	-25℃~70℃
	Storage/transport temperature	-40℃~85℃
	Operating humidity	5%~95%
	Storage/transport humidity	5%~95%
	Operating atmospheric pressure	80KPa~106KPa
	Storage/transport atmospheric pressure	80KPa~106KPa
	I/O port fastening torque	M12:0.5Nm
	Application environment	Compliant with EN-61131
	Vibration testing	Compliant with IEC60068-2
	Shock testing	Compliant with IEC60068-27
	Free fall testing	Compliant with IEC60068-32
	Electromagnetic compatibility (EMC)	Compliant with IEC61000-4-2,-3,-4
	Certification	CE,RoHS
	Installation hole specifications	Φ4.3mm × 4
Pinout definition for data port	IO-Link Pinout definition for port	IO–Link M12 MALE  1. V+ 2. P24V 3. 0V 4. C/Q 5. N/C

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IO Bus
Module main station
Module Slave

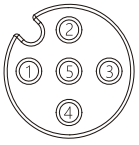
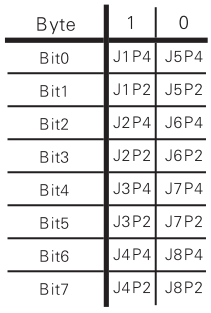
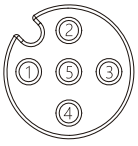
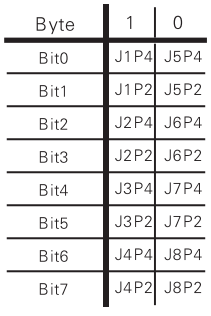
Controller & Communicator
Controller
Communicator

Module slave

CIO 100 Series

IO-Link Master station parameters	IO-Link Number of ports	1 × device	
	IO-Link Handle data length	2 input bytes	2 Output bytes
	Minimum cycle time	3 ms	
Input/Output parameters	Input and output quantity	16 inputs	16 inputs
	Rated working voltage	18~30V DC	
	Maximum load current (sensor)	200 mA	–
	Maximum load current (actuator)	–	500 mA
	Total current UI	< 1.6A	–
	Total current UO	–	< 2.5A
Module indicator lights	IO-LINK RUN	Green: No communication connection	
		Green flash: communication is normal	
		Red: communication interrupted	
	PWR	Green: module power supply is normal	
		Off: module power is not connected	Yellow: Auxiliary power is not connected
	I/O	Green: Channel signal is normal	
		Red: Port failure	
	IO-Link	Class A	
Model	PNP	**CIO100-M12-DI16P**	**CIO100-M12-DO16P**
	NPN	**CIO100-M12-DI16N**	**CIO100-M12-DO16N**

I/O Port pin definition

	Pin definition	Address distribution
Port M12 A-code female end	M12(J1~J8)  **PNP** **Input** 1.24VDC+ 2. Input 3.0V 4. Input 5.FE **NPN** **Input** 1.24VDC+ 2. Input 3.0V 4. Input 5.FE	
Port M12 A-code female end	M12(J1~J8)  **PNP** **Output** 1.N/C 2. Output 3.0V 4. Output 5.FE **NPN** **Output** 1.24VDC+ 2. Output 3.N/C 4. Output 5.FE	

Byte	1	0
Bit0	J1P4	J5P4
Bit1	J1P2	J5P2
Bit2	J2P4	J6P4
Bit3	J2P2	J6P2
Bit4	J3P4	J7P4
Bit5	J3P2	J7P2
Bit6	J4P4	J8P4
Bit7	J4P2	J8P2

Byte	1	0
Bit0	J1P4	J5P4
Bit1	J1P2	J5P2
Bit2	J2P4	J6P4
Bit3	J2P2	J6P2
Bit4	J3P4	J7P4
Bit5	J3P2	J7P2
Bit6	J4P4	J8P4
Bit7	J4P2	J8P2

CIO 100 Series

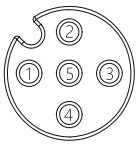
IO-Link Master station parameters	IO-Link Number of ports	1 × device	
	IO-Link Handle data length	2 input bytes; 2 output bytes	1 input byte; 1 output byte
	Minimum cycle time	3 ms	
Input/Output parameters	Input and output quantity	16-way adaptive	8 inputs 8 outputs
	Rated working voltage	18~30V DC	
	Maximum load current (sensor)	200 mA	
	Maximum load current (actuator)	500 mA	
	Total current UI	< 1.6A	
	Total current UO	< 2.5A	
Module indicator lights	IO-LINK RUN	Green: No communication connection	
		Green flash: communication is normal	
		Red: communication interrupted	
	PWR	Green: module power supply is normal	
		Yellow: Auxiliary power is not connected	
	I/O	Green: Channel signal is normal	
		Red: Port failure	
	IO-Link	Class A	
Model	PNP	**CIO100-M12-DIO16P**	**CIO100-M12-DI8DO8P**
	NPN	**CIO100-M12-DIO16N**	**CIO100-M12-DI8DO8N**

I/O Port pin definition

Pin definition

Port: M12 A-code female end

M12(J1~J8)



PNP		NPN	
Input/Output		**Input/Output**	
1.24VDC+		1.24VDC+	
2. Input/Output		2. Input/Output	
3.0V		3.0V	
4. Input/Output		4. Input/Output	
5.FE		5.FE	

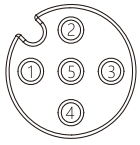
Address distribution

Byte	1	0
Bit0	J1P4	J5P4
Bit1	J1P2	J5P2
Bit2	J2P4	J6P4
Bit3	J2P2	J6P2
Bit4	J3P4	J7P4
Bit5	J3P2	J7P2
Bit6	J4P4	J8P4
Bit7	J4P2	J8P2

Pin definition

Port: M12 A-code female end

M12(J1~J8)



PNP		NPN	
Input	**Output**	**Input**	**Output**
1.24VDC+	1.N/C	1. 24 VDC+	1.24VDC+
2. Input	2. Output	2. Input	2. Output
3.0V	3. 0 V	3.0V	3.N/C
4. Input	4. Output	4. Input	4. Output
5.FE	5. FE	5.FE	5.FE

Address distribution

Byte	1
Bit0	J1P4
Bit1	J1P2
Bit2	J2P4
Bit3	J2P2
Bit4	J3P4
Bit5	J3P2
Bit6	J4P4
Bit7	J4P2

Byte	0
Bit0	J5P4
Bit1	J5P2
Bit2	J6P4
Bit3	J6P2
Bit4	J7P4
Bit5	J7P2
Bit6	J8P4
Bit7	J8P2

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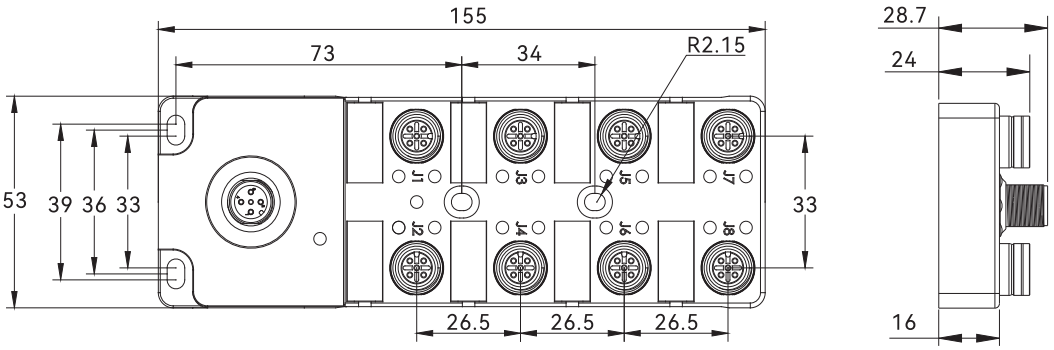
IO Bus
Module main station
Module Slave

Controller & Communicator
Controller
Communicator

Module slave

Dimensions

Unit: mm



Fiber Optic
Slot Sensors
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Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

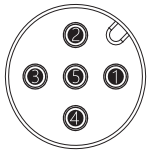
IO Bus
Module main station
Module Slave

Controller & Communicator
Controller
Communicator

CIO 100 Series



NEW!

Basic parameters	Shell material	PA6 + GF
	Shell color	Black
	Ptotect degree	IP67 , Epoxy full potting
	External dimensions	140mm × 30mm ×24.8mm
	Weight	180g
	Operating temperature	-25℃~70℃
	Storage/transport temperature	-40℃~85℃
	Operating humidity	5%~95%
	Storage/transport humidity	5%~95%
	Operating atmospheric pressure	80KPa~106KPa
	Storage/transport atmospheric pressure	80KPa~106KPa
	I/O port fastening torque	M12:0.5Nm
	Application environment	Compliant with EN-61131
	Vibration testing	Compliant with IEC60068-2
	Shock testing	Compliant with IEC60068-27
	Free fall testing	Compliant with IEC60068-32
	Electromagnetic compatibility (EMC)	Compliant with IEC61000-4-2,-3,-4
	Certification	CE,RoHS
	Installation hole specifications	Φ4.3mm × 2
Pinout definition for data port	IO-Link Pinout definition for port	IO-Link M12 MALE  1. V+ 2. P24V 3. 0V 4. C/Q 5. N/C

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

IO Bus
Module main station
Module Slave

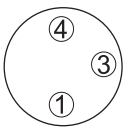
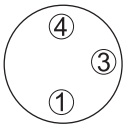
Controller & Communicator
Controller
Communicator

Module slave

CIO 100 Series

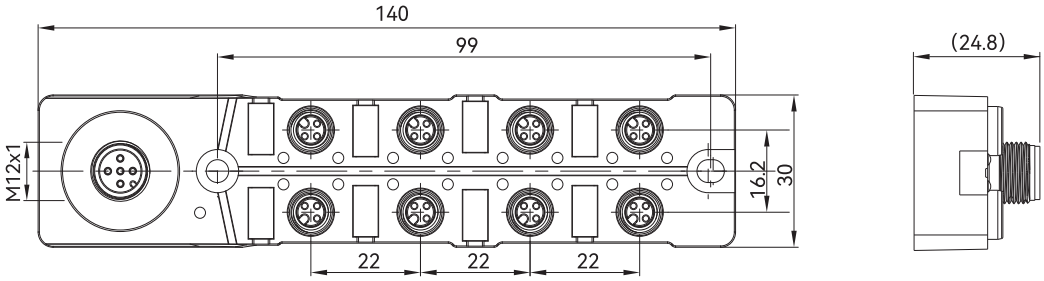
IO-Link Master station parameters	IO-Link Number of ports	1 × device	
	IO-Link Handle data length	1 input byte	1 output byte
	Minimum cycle time	3 ms	
Input/Output parameters	Input and output quantity	8 inputs	8 outputs
	Rated working voltage	18~30V DC	
	Maximum load current (sensor)	200 mA	–
	Maximum load current (actuator)	–	500 mA
	Total current UI	< 1.6A	–
	Total current UO	–	< 2.5A
Module indicator lights	IO-LINK RUN	Green: No communication connection	
		Green flash: communication is normal	
		Red: communication interrupted	
	I/O	Green: Channel signal is normal	
		Red: Port failure	
	IO-Link	Class A	
Model	PNP	**CIO100-M08-DI8P**	**CIO100-M08-DO8P**
	NPN	**CIO100-M08-DI8N**	**CIO100-M08-DO8N**

I/O Port pin definition

	Pin definition	Address distribution
Port M12 A-code female end	M8(J1~J8)  **PNP** **Input** 1. 24 VDC+ 4. Input 3. 0 V **NPN** **Input** 1. 24 VDC+ 4. Input 3. 0 V	Byte 1 Bit0 J1P4 Bit1 J2P4 Bit2 J3P4 Bit3 J4P4 Bit4 J5P4 Bit5 J6P4 Bit6 J7P4 Bit7 J8P4
Port M12 A-code female end	M8(J1~J8)  **PNP** **Output** 1. N/C 4. Output 3. 0 V **NPN** **Output** 1. 24VDC+ 4. Output 3. N/C	Byte 1 Bit0 J1P4 Bit1 J2P4 Bit2 J3P4 Bit3 J4P4 Bit4 J5P4 Bit5 J6P4 Bit6 J7P4 Bit7 J8P4

Unit：mm

Dimensions



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Magnetic
Contact
Area
Ultrasonic
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Code Readers
Vibration
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Safety door lock
Pressure Switch
Communication
Accessories

IO Bus
Module main station
Module Slave

Controller & Communicator
Controller
Communicator

Controller

CR-M02

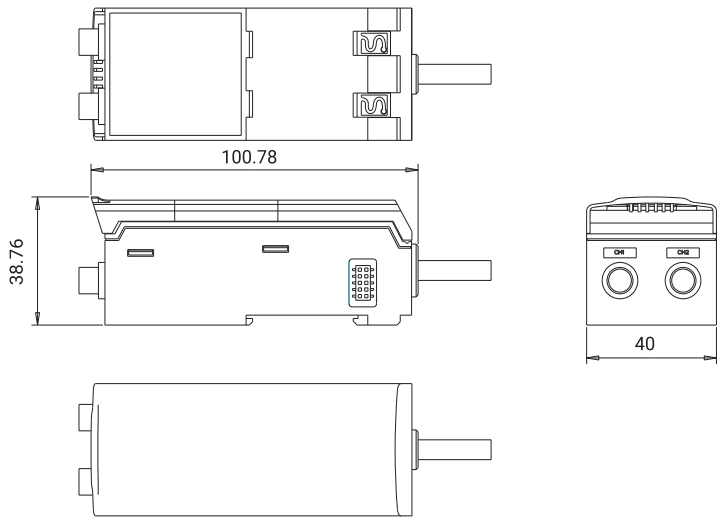


NEW!

	Installation method	DIN rail installation
	Operating voltage	+24VDC±10%
	Current consumption of a single controller	Under 100mA(When connecting the sensor)
	Number of connected sensors	Two pairs of sensors
	The communication with sensors	RS485
	Number of controllers connected in parallel	Up to 16 controllers can be connected
	Display	240*240TFT display
	Indicator light	Output 1~3 and function indicator light red
	Analog output	Analog output current 4~20mA, voltage 0~5V can be switched
	Switching output	3-channel output, NO, NC, PO, PC can be switched
	External input	3-channel input, NPN and PNP input optional
	Display resolution	1μm
	Display range	-99.999mm~99.999mm
	Protective structure	IP40
	Operating temperature	10℃~+50℃
	Working humidity	35%RH~85%RH
	Insulation resistance	The resistance of all connecting terminals and shells is above 20MΩ
	Withstand voltage	All connection terminals and housing withstand voltage AC 1000V
	Vibration resistance	Frequency 10~55HZ, 1.5m double amplitude, two hours each in X, Y and Y directions
	Shock proof	98m/s^2 (about 10G) 5 times each in X, Y, and Z directions
	Model	**CR-M02**

Dimensions

Unit: mm



CTM01-EC

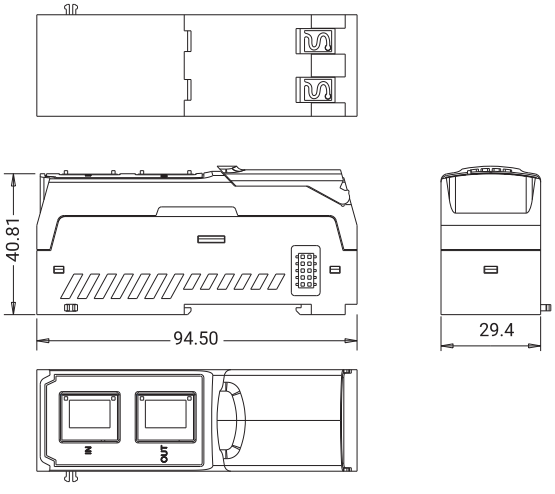


NEW!

	Installation method	DIN rail installation
	Operating voltage	24V DC(10~30V DC)
	Indicator light	PWR: Power indicator/green RUN: running indicator light/green ERR: Error indicator/red Sensor communication indicator light: red light (RTU communication abnormality) Ethernet port：(green) D-BUS: RTU Communication normal/green light Ethernet port(green): RTU communication abnormality/traffic light alternation of some slave stations No RTU communication activity/off The Ethernet port has established a valid network connection/on. The Ethernet port is in network activity/blinks. The Ethernet port does not establish a network connection or the port is abnormal/off.
	100M Ethernet port	10/100Base-T (X) RJ45, automatic flow control, full and half-duplex mode, MDI/MDI-X automatic detection
	Burning port	The software programming port uses 8-bit terminal blocks with a pitch of 2.0mm, occupying 2-5 positions from the left
	Console port	The CLI command management port uses 8-position terminal blocks with a spacing of 2.0mm, occupying 6-8 positions from the left
	RS-485 serial port	Supports 2 RS-485 serial ports, one of which is reserved, using 10-bit terminal blocks with a spacing of 2.0mm, and the serial port occupies 4 bits
	Reset button	Reset button
	Access terminal,noload power consumption at normal temperature	10-position terminal block with a pitch of 2.0mm, 2 positions for power supply，0.7w@10VDC 0.7w@20VDC 0.7w@30VDC
	Full-load power consumption at normal temperature	0.7w@10VDC 0.7w@20VDC 0.7w@30VDC
	High temperature full load power consumption	0.8w@10VDC 0.8w@20VDC 0.8w@30VDC
	Operating temperature	-40℃~75℃
	Storage temperature	-40℃~85℃
	Working humidity	5%~95%（No condensation）
	Model	**CTM01-EC**

Dimensions

Unit：mm



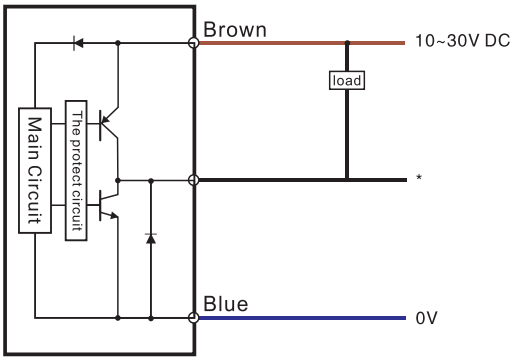
Fiber Optic
Slot Sensors
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AI Image
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Safety door lock
Pressure Switch
Communication
Accessories
IO Bus
Module main station
Module Slave
Controller & Communicator
Controller
Communicator

Controller/Communicator

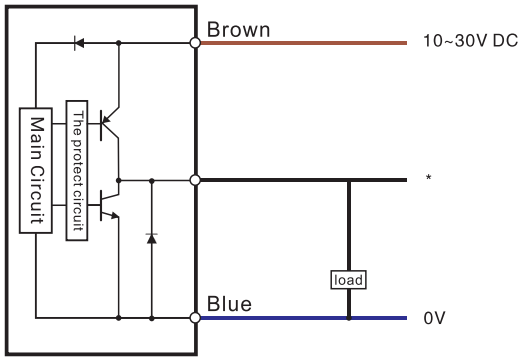
Circuit Diagram

Input circuit diagram

NPN output



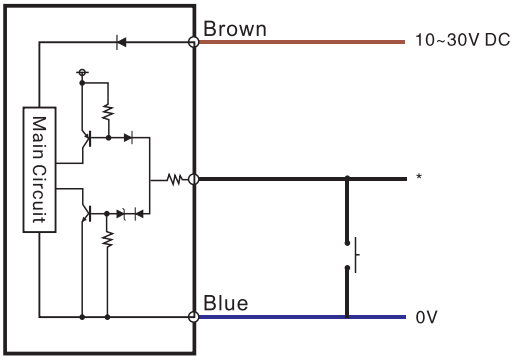
PNP output



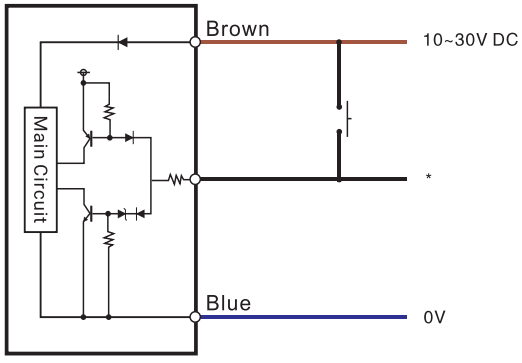
* Black (HIGH judgment output)/white (LOW judgment output)/grey (GO judgment output)/green (verification input)

Output circuit diagram

NPN output



PNP output



* Pink (External input 1)/Yellow (External input 2)/Pink·Purple (External input 3)/Purple (External input 4)

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IO Bus
Module main station
Module Slave

Controller & Communicator
Controller
Communicator

Accessories



- Analog current, voltage, and switchable modes are selectable
- Some products support IO-Link/EtherCAT/Profibus bus standards
- Capable of handling custom requirements such as welding slag resistance, oil resistance, IP69K rating, with LED lights, shielding, and more



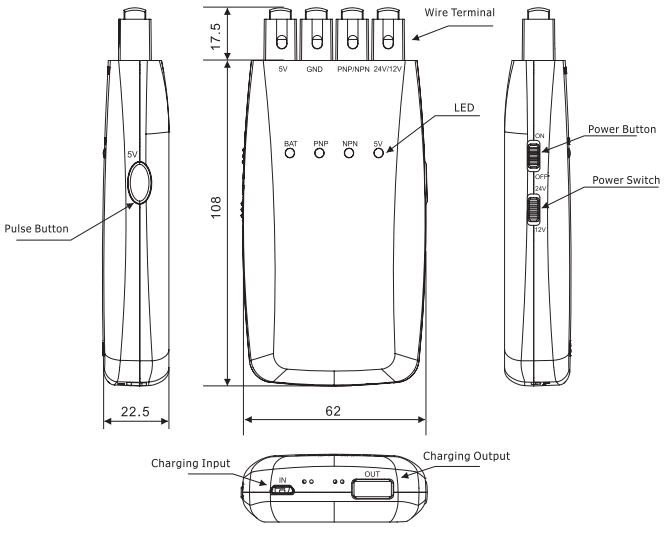
NEW!

CE

Basic features	Detection Type	NPN/PNP	Automatic Recognition
	Battery Capacity	2500mAH	
	Charging Time	2.5h	
Electrical data	Output Voltage	4.5~5.5V	Select 5V Output
		11~13V	Select 12V Output
		22~26V	Select 24V Output
	Output Current	≤0.55A	5V Output
		≤0.5A	12V Output
		≤0.25A	24V Output
	Protection Circuit	Output Short Circuit Protection	
Environmental conditions	Operating Temperature	-10~45℃	
Mechanical data	Other Features	Silent Mode, Sleep Mode	
	Dimensions	125x62x23mm	
	Weight	145g	
	Model	WT-3	

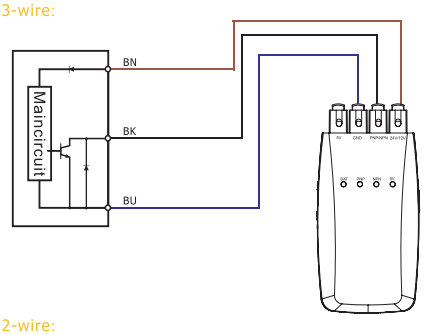
Dimensions

Unit: mm

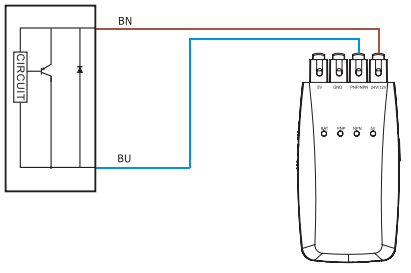


Circuit diagram

3-wire:



2-wire:



Fiber Optic
Slot Sensors
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Pressure Switch
Communication
Accessories

Guidance

Sensor tester kit
Switch Type
Analog type

Connecting Cable
M8
M12
Other

Signal converion Cable
M8 Cable

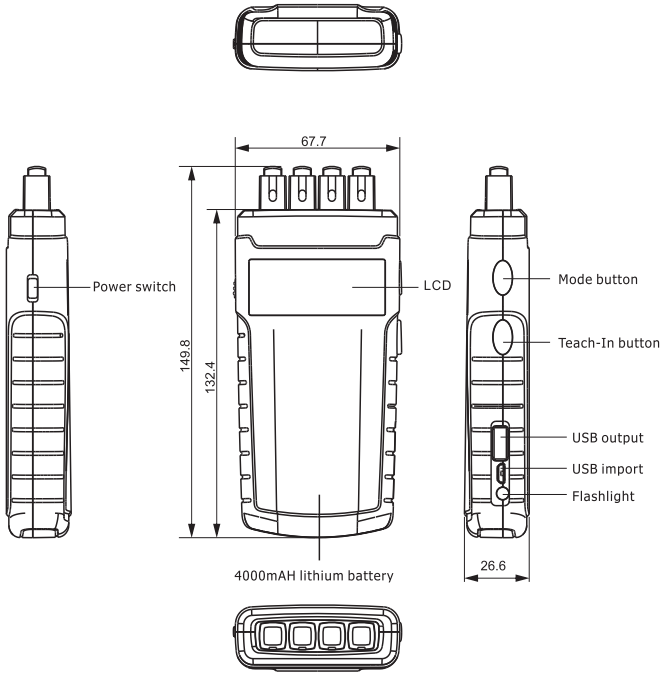
Analog Type



Basic features	Detection Type	NPN/PNP	Automatic Recognition
	Battery Capacity	4000mAH	
	Charging Time	9h	
Electrical data	Output Voltage	19V~24V	Brown Output Terminal
		4.8V~5V	USB Output Terminal
	Output Current	≤160mA	Brown Output Terminal
		≤500mA	USB Output Terminal
	Protection Circuit	Power Overcurrent Protection	
Environmental conditions	Operating Temperature	-10℃~+45℃	
Mechanical data	Other Features	Sleep Function,Silent Function,Flashlight	
	Dimensions	67.7x26.6x149.8mm	
	Weight	200g	
Special features	Measurement Range	0~10V	Voltage Mode
		0~20mA	Current Mode
	Measurement Accuracy	≤0.04V(Full Range)	Voltage Mode
		≤0.04mA(Full Range)	Current Mode
	Scan Cycle	22ms	Digital Mode
		140ms	Current Mode
		140ms	Voltage Mode
	Model	WD-1	

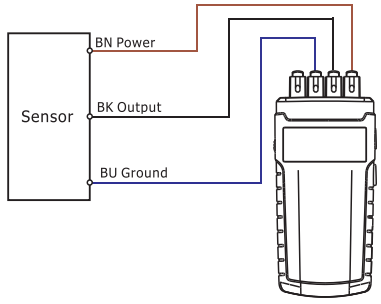
Dimensions

Unit: mm



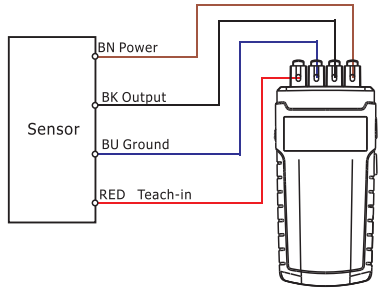
Circuit diagram

3–wire system:



Common measurement
1 Connect the terminals of the corresponding functions and turn on the power.
2.Select the corresponding measurement mode (voltage, current, digital).
3.The measurement results are displayed on the screen.

4–wire system:



Teach–in button
1 Connect the corresponding function terminals and turn on the power
2 Press the Teach–in button, the screen Teach–in area displays ON, then the red terminal will output high level, release the Teach–in button, the screen Teach–in area displays OFF, then the red terminal will output low level
3 Select the corresponding measurement mode (voltage V, current I, switch D)
4 The measurement result is displayed on the screen

Function description

1 Mode switching

Press the MODE button shortly to switch the test box in three modes: current (I), voltage (V), and switch (D). Customer can select the correct mode and connection according to the sensor type,the test result will be displayed on the screen, and the test box will store the current test mode, and will restore the previous state when it is restarted.

2.Battery

Battery status will be displayed on the upper right coner. The number of grids represents the remaining power. Grids flashing indicates that the power is insufficient and needs to be charged. The flashing during charging indicates the charging progress, when the charging is done, the whole grids will flash.

3.Sleeping mode

If the test box does not operate for more than 10 minutes, the test box automatically enters the sleeping state, the 24V power supply and the screen will be turned off, press the Mode button or the Teach-IN button, and the test box returns to the operable state.

4.Powerbank mode

Press the mode button in the off state, turn on the power button, the buzzer will sound twice, the sleep of the test box function will be invalid, the function has no memory, and the sleep function is enabled by default when it is turned on again.

5.Mute mode

Press and hold Teach-in for more than 6s, the buzzer will sound once, and the test box has entered silent mode. In the same operation, the buzzer will sound twice to indicate that the mute mode has been excited, and the test box will store the state, and will remain in the last state when it is turned on again.

6. Teach-in function

Press the teach button, the Teach-in (red) terminal will output a high level voltage, and the voltage logic will match the brown terminal voltage. When the button is released, the Teach-in (red) terminal will output a low level voltage, and the LCD will display the current Teach-in logic state.

7.Flashlight function

Press and hold the mode button for more than 2s, the light will be on, and the same operation can turn off the light.

8.Short circuit protection

When the output current is too high, short circuit protection will be inspired, and the screen will display 'SCP' during short circuit protection. After the short circuit condition is withdrawn, the test box will automatically return to normal state.

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Sensor tester kit
Switch Type
Analog type

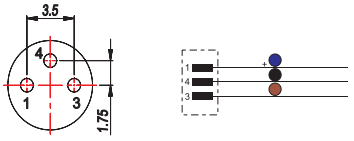
Connecting Cable
M8
M12
Other

Signal converion Cable
M8 Cable

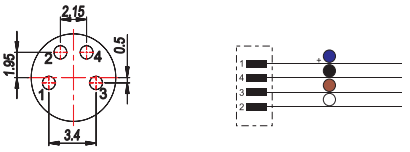
M8 Cables



3 Pin
Female



4 Pin
Female



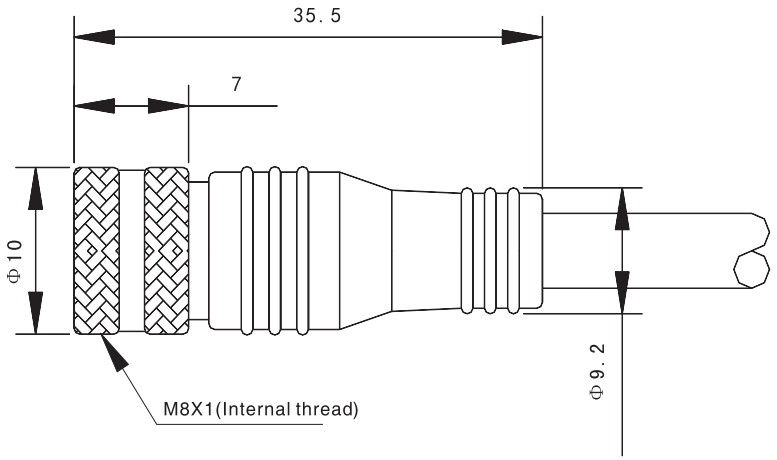
Type	3 Pin		4 Pin	
Female, straight	2m cable	5m cable	2m cable	5m cable
PVC	CA08-S3F2C	CA08-S3F5C	CA08-S4F2C	CA08-S4F5C
PUR	CA08-S3F2R	CA08-S3F5R	CA08-S4F2R	CA08-S4F5R

Specifications

Type	M8 straight cable
Coding type	A coding
Rated voltage	60V(3Pin)/30V(4Pin)
Rated current	3A
Pin Material	Gold-plated phosphor copper
Coupling screw	Nickel plated brass

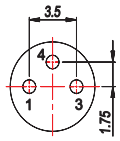
Insulation resistance	≥100MΩ
Cable Material	PVC/PUR
Cable length	Standard 2 or 5 m, customizable
Cores	0.25mm²
Degree of protection	IP67/68
Operating temperature	-25~+ 85℃

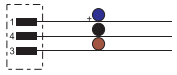
Dimensions(Unit:mm)



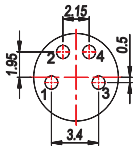


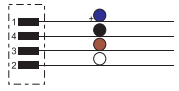
3 Pin
Female





4 Pin
Female





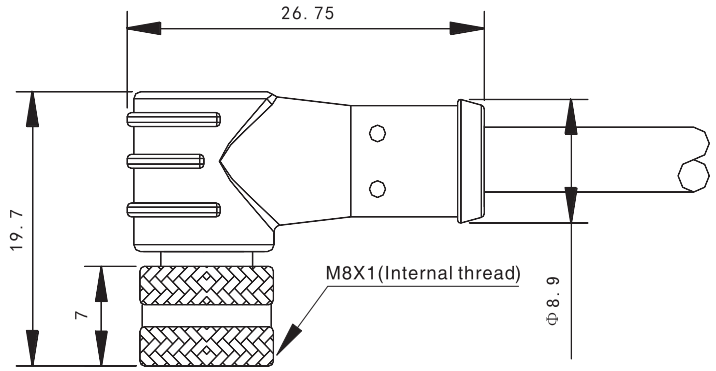
Type	3 Pin		4 Pin	
Female , Right angle	2m cable	5m cable	2m cable	5m cable
PVC	CA08-R3F2C	CA08-R3F5C	CA08-R4F2C	CA08-R4F5C
PUR	CA08-R3F2R	CA08-R3F5R	CA08-R4F2R	CA08-R4F5R

Specifications

Type	M8 Right angle Cable
Coding type	A coding
Rated voltage	60V(3Pin)/30V(4Pin)
Rated current	3A
Pin Material	Gold-plated phosphor copper
Coupling screw	Nickel plated brass

Insulation resistance	≥100MΩ
Cable Material	PVC/PUR
Cable length	Standard 2 or 5 m, customizable
Cores	0.25mm²
Degree of protection	IP67/68
Operating temperature	-25~+ 85℃

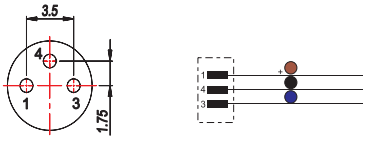
Dimensions(Unit:mm)



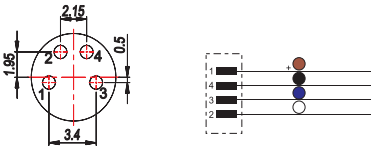
M8 Cables



3 Pin
Female



4 Pin
Female



Type	3 Pin		4 Pin	
Female , Right angle, LED, PNP	2m cable	5m cable	2m cable	5m cable
PVC	CA08-R3F2C-LP	CA08-R3F5C-LP	CA08-R4F2C-LP	CA08-R4F5C-LP
PUR	CA08-R3F2R-LP	CA08-R3F5R-LP	CA08-R4F2R-LP	CA08-R4F5R-LP

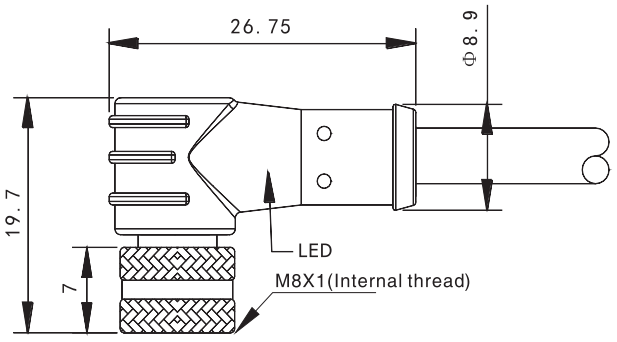
Specifications

Type	Cable with LED
Coding type	A coding
Rated voltage	60V(3Pin)/30V(4Pin)
Rated current	3A
Pin Material	Gold-plated phosphor copper
Coupling screw	Nickel plated brass

Insulation resistance	≥100MΩ
Cable Material	PVC/PUR
Cable length	Standard 2 or 5 m, customizable
Cores	0.25mm²
Degree of protection	IP67/68
Operating temperature	-25~+ 85℃

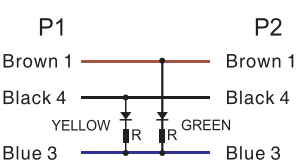
Dimensions(Unit:mm)

Female , Right angle, LED, PNP



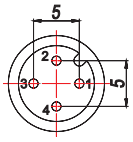
PNP

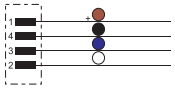
WIRE LIST



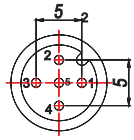


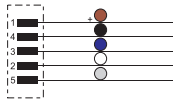
4 Pin
Female





5 Pin
Female





Type	4 Pin		5 Pin	
Female, Straight,Shielded	2m cable	5m cable	2m cable	5m cable
PVC	CA12-S4F2C-S	CA12-S4F5C-S	CA12-S5F2C-5-S	CA12-S5F5C-5-S
PUR	CA12-S4F2R-S	CA12-S4F5R-S	CA12-S5F2R-5-S	CA12-S5F5R-5-S
Female, Straight	2m cable	5m cable	2m cable	5m cable
PVC	CA12-S4F2C	CA12-S4F5C	CA12-S5F2C-5	CA12-S5F5C-5
PUR	CA12-S4F2R	CA12-S4F5R	CA12-S5F2R-5	CA12-S5F5R-5

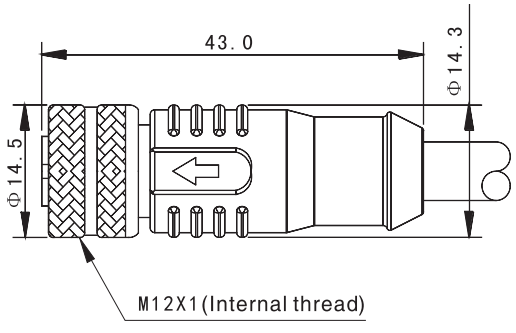
Specifications

Type	M12 Straight Cable
Coding type	A coding
Rated voltage	250V
Rated current	4A
Pin Material	Gold-plated phosphor copper
Coupling screw	Nickel plated brass

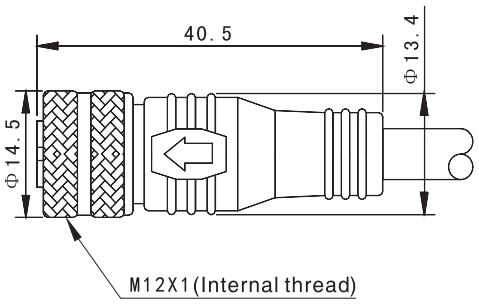
Insulation resistance	≥100MΩ
Cable Material	PVC/PUR
Cable length	Standard 2 or 5 m,customizable
Cores	0.34mm²
Degree of protection	IP67/68
Operating temperature	-25~+85℃

Dimensions(Unit:mm)

M12 Female, Straight, Shielded



M12 Female, Straight



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Sensor tester kit
Switch Type
Analog type

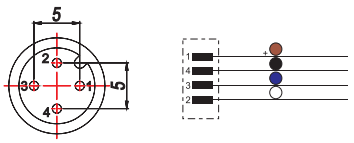
Connecting Cable
M8
M12
Other

Signal converion Cable
M8 Cable

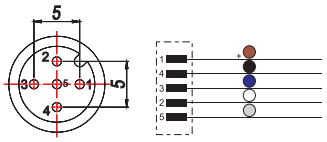
M12 Cables



4 Pin
Female



5 Pin
Female



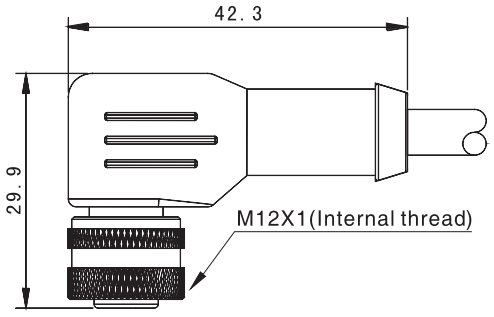
Type	4 Pin		5 Pin	
Female,Right angle	2m cable	5m cable	2m cable	5m cable
PVC	CA12-R4F2C	CA12-R4F5C	CA12-R5F2C-5	CA12-R5F5C-5
PUR	CA12-R4F2R	CA12-R4F5R	CA12-R5F2R-5	CA12-R5F5R-5

Specifications

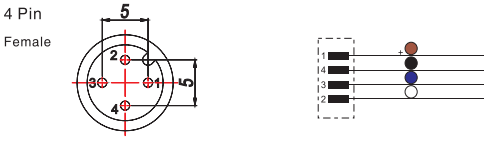
Type	M12 Straight, Shielded
Coding type	A coding
Rated voltage	250V
Rated current	4A
Pin Material	Gold-plated phosphor copper
Coupling screw	Nickel plated brass

Insulation resistance	≥100MΩ
Cable Material	PVC/PUR
Cable length	Standard 2 or 5 m, customizable
Cores	0.34mm²
Degree of protection	IP67/68
Operating temperature	-25~+85℃

Dimensions(Unit:mm)







Type	4 Pin	
Female,Right angle,LED	2m cable	5m cable
PNP	CA12-R4F2C-LP	CA12-R4F5C-LP
NPN	CA12-R4F2C-LN	CA12-R4F5C-LN

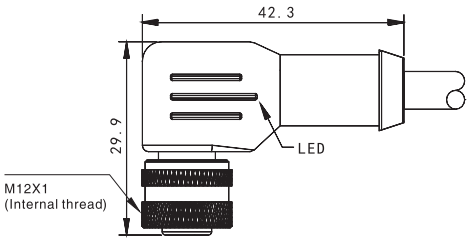
Specifications

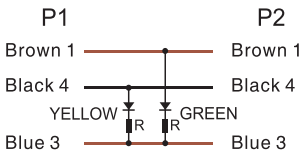
Type	M12 Female,Right angle,LED
Coding type	A coding
Rated voltage	250V
Rated current	4A
Pin Material	Gold-plated phosphor copper
Coupling screw	Nickel plated brass

Insulation resistance	≥100MΩ
Cable Material	PVC/PUR
Cable length	Standard 2 or 5 m,customizable
Cores	0.34mm²
Degree of protection	IP67/68
Operating temperature	-25℃~+85℃

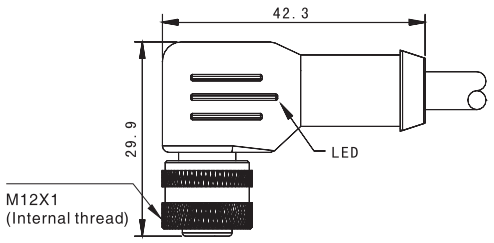
Dimensions(Unit:mm)

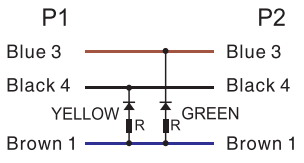
M12 Female,Right angle,LED,PNP





M12 Female,Right angle,LED,NPN





Fiber Optic
Slot Sensors
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Temperature
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Safety door lock
Pressure Switch
Communication
Accessories

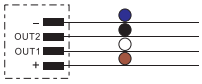
Guidance

Sensor tester kit
Switch Type
Analog type

Connecting Cable
M8
M12
Other

Signal converion Cable
M8 Cable

Other





Type

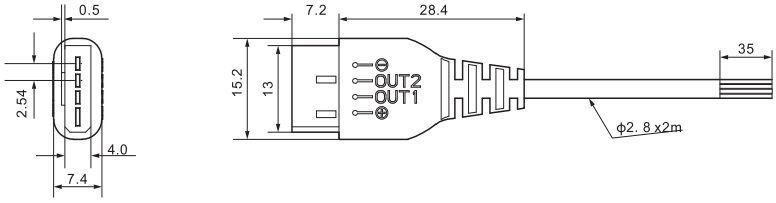
ME-1007

Specifications

Insertion force	<18N
Pull-out force(cover retention)	25N
Cover material	PVC
Contact point	Phosphor bronze

Dimensions(Unit:mm)

ME-1007





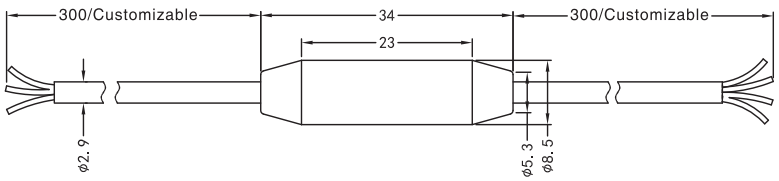
Type

NPN converting to PNP	CTC-N2P
PNP converting to NPN	CTC-P2N

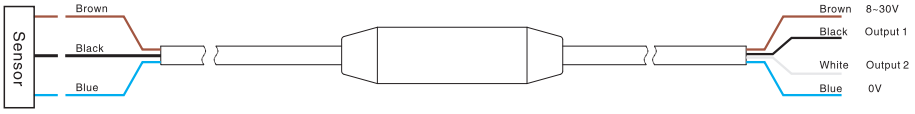
Specifications

Protective circuit	Reverse polarity protection
Operating temperature	-20℃~+60℃
Storage temperature	-40℃~+85℃
Input voltage	8~30V
Load current	≤150mA
Voltage drop	≤1V
Switch output	≤5KHz

Dimensions(Unit:mm)



Wiring diagram



Sensor's output state before converting	Corresponding output state after converting
NO	Black: NO White: NC
NC	Black: NC White: NO

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