



PROVIDE ACCURATE AND RELIABLE PERCEPTION FOR AUTOMATION



ACHIEVE THE FIRST BRAND OF AUTOMATION SENSORS



Guangdong Mote Intelligent Control Co., Ltd.

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National Office: Shenzhen Foshan Quanzhou Ningde Suzhou Hangzhou Shanghai Wuhan Chengdu Changsha



## Comprehensive catalogue of Motte sensors

Industrial automation sensor manufacturer



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# About us



## Desire

Innovation and concentration, excellent quality



## Mission

Provide accurate and reliable perception for automation



## Sense of worth

Achievement of national brand of automation sensor

Motte intelligent control co., ltd

Focus on the research and development and application of core technologies of industrial automation, Develop all kinds of sensor products with independent intellectual property rights,Is a high-tech enterprise integrating R&D, production and sales.China is an outstanding professional sensor manufacturer.Mott Intelligence always adheres to the business philosophy of "quality is the foundation of survival".Strive for Excellence and seek common development of enterprises and industries.Strive to make Mott brand a leading enterprise in the field of intelligent sensing and control in the world.

STRENGTH  
CASTMAGNIFICENTLY

SUCCESSFUL CASES

TEAMWORK



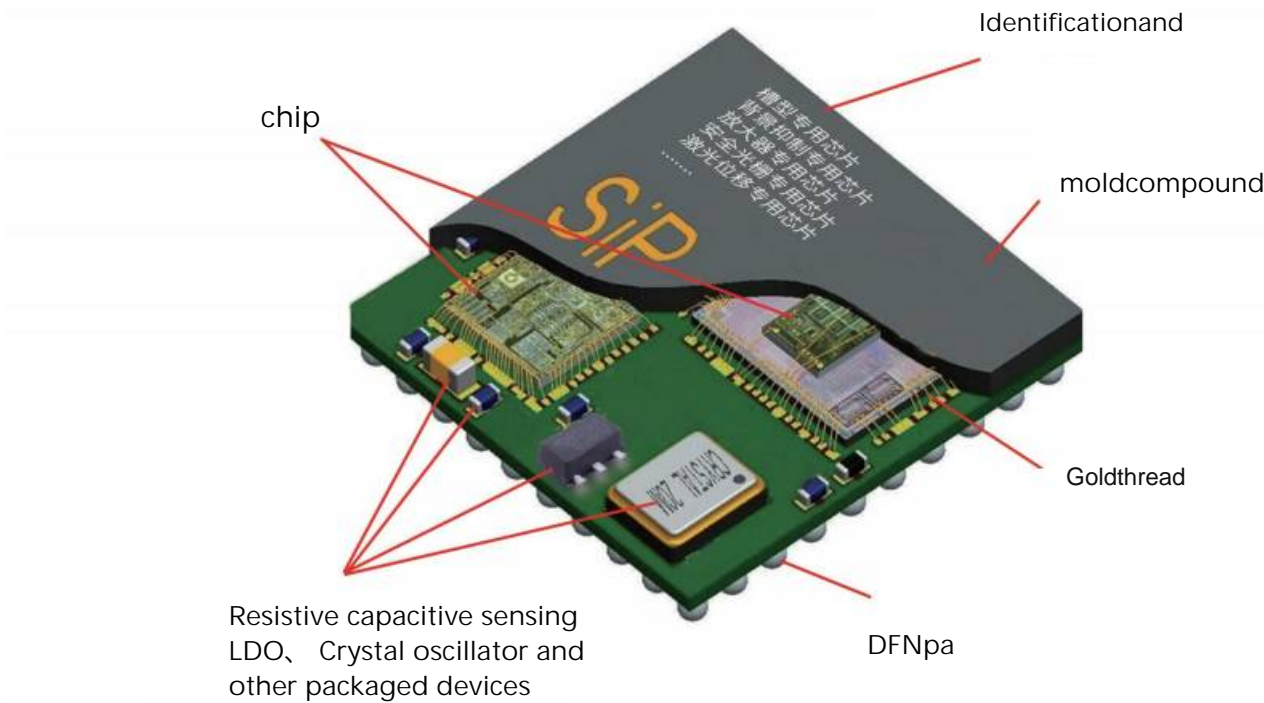


# ENTERPRISE OVERVIEW

As a leader in the field of industrial automation intelligent sensors, Mott Intelligent Control Co., Ltd. is a comprehensive high-tech enterprise integratinhigh-end chip design, advanced semiconductor packaging, in-depth research and development of micro-electronic integrated circuits, precision production and global sales. We provide core devices for China's local high-end intelligent equipment manufacturing industry and are one of the most influential sensor brand manu-facturers in the industry.

## company introduction

The company focuses on all-round R&D, efficient production and customization of industrial automation sensors, builds a complete independent R&D system of photoelectric sensor technology chain, and holds dozens of innovative R&D patents and software copyrights, which shows our profound knowledge in technological innovation. The R&D team of Mott Intelligence has gathered a group of sensor application experts who have been deeply involved in the automation industry for nearly 20 years, and carried out sensor R&D and innovation in a three-dimensional integrated mode of "chip+algorithm+hardware circuit design", and is unswervingly committed to the comprehensive localization process of sensor applications. After years of technical accumulation and market sharpening, Mott Intelligent has established a significant technological leading edge in the sensor field, and established a supply chain such as chip packaging department, SMT patch department, mold department, plastic injection department and wire department for self-produc-tion.Relying on the strong strength of independent research and development and the vertical integration of materials in the whole industry chain, Mott Intelligent can quickly respond to market changes, ensure that our products always keep pace with market demand, provide customers with super cost-effective products and lead the industry forward.



Independent research and development of special chip for photoelectric switch

AmplifierPower management is highly integrated, stable and reliable.  
Transmitting and receiving moduleLogical processing

National invention patent number:CN110322649B

### Innovate

Ultra-small structure makes the equipment miniaturized.  
Core chip technology, single-sided PCBA

### Stable

Small drift, high welding yield, high reliability and long service life. The peripheral circuit has only three components, and the product consistency is extremely high.

### SMIC 65nm

Each functional module is integrated in one chip.

### Electric current

Less than 8mA, and the chip has low calorific value.

### Frequency

5KHz response, the residual voltage is less than 0.8V@100mA load current.

### Triple protection

Output short circuit protection, power supply reverse connection protection and current overload protection.

### Operating voltage

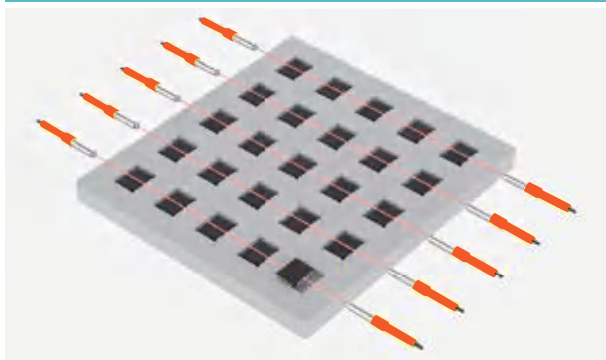
Ultra-wide range of DC5-50V

### IP65

-25~+55℃, 5%~80% relative humidity can be normal.

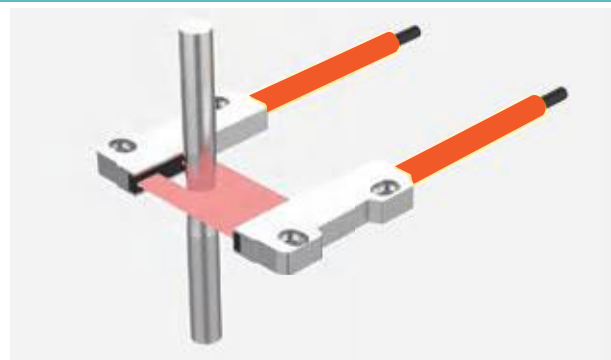
As the first manufacturer to set up chip packaging among domestic industrial automation sensor brands, we have the system on a chip packaging capability of SIP(System In Package) and the national packaging capability of COB(Chip On Board) to build functional chips for various sensors, which are highly integrated with power management, MCU logic control, high-precision operational amplifier, transmitting and receiving photosensitive devices, large-load transistor output, short-circuit over-load and overcurrent protection, etc., which can greatly improve the various limit performance of sensors and the consistency of products.





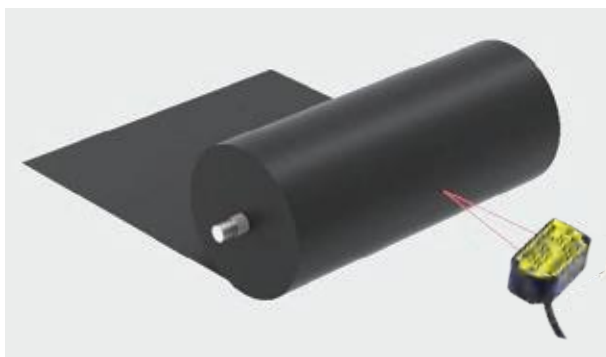
### Use the optical fiber to detect whether the chip is flat

A micro-sleeve - type optical fiber is used to detect the warping of a micro-chip. The narrow light beam projected from the ultra-fine optical fiber core can identify subtle changes.



### Analog fiber amplifier measurement and deflection correction

Use regional optical fibers to inspect the outer diameter of the material



### Lithium battery equipment coating detection

High-precision displacement detection. It can detect the height of the remaining film in real-time without contact.



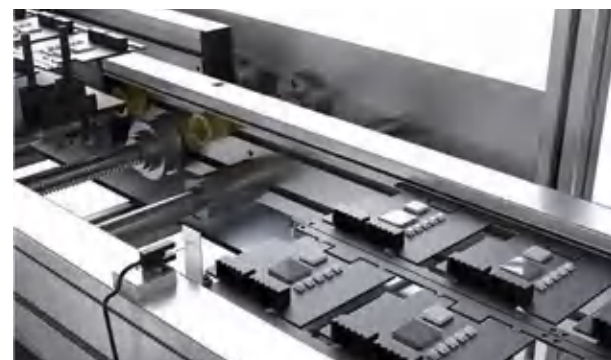
### Used for protective door devices related to the safety of personnel or machines

MT-GS51 series security door locks are based on magnetic coding induction technology and adopt a monitored stainless steel lock structure.



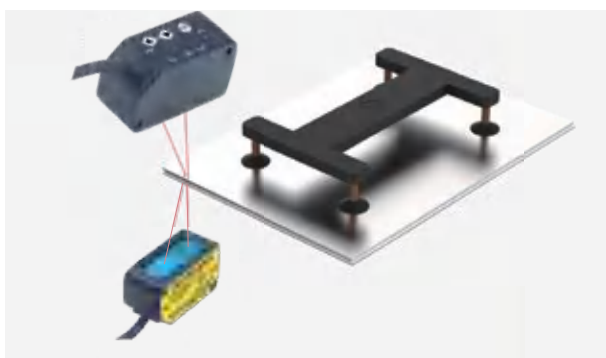
### Semiconductor PCB Inspection

Laser displacement sensor can accurately detect the warping range of the substrate.



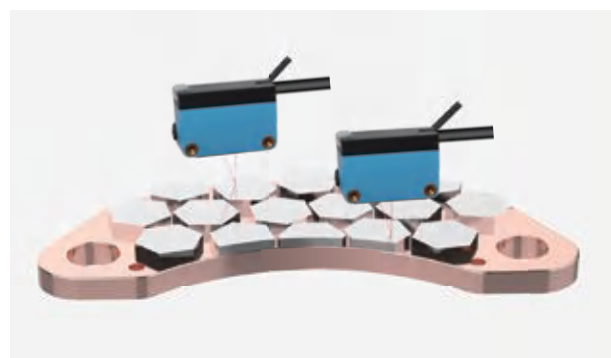
### Detecting the position of transport pallets on PCB loaders

Miniature photoelectric sensors are used to detect the position of transport pallets on PCB loaders



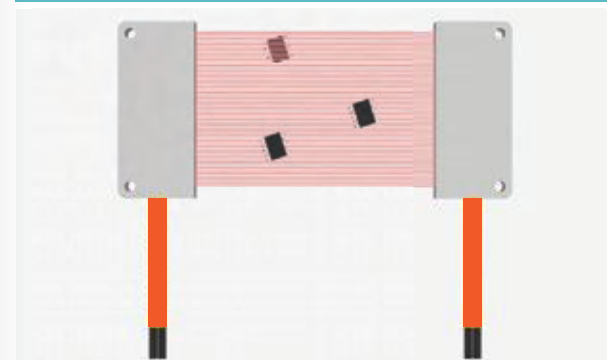
### Detection of double-layer sheet metal

Inspect double-layered metal sheets during transport, measuring 12 points simultaneously at high speed and precision.



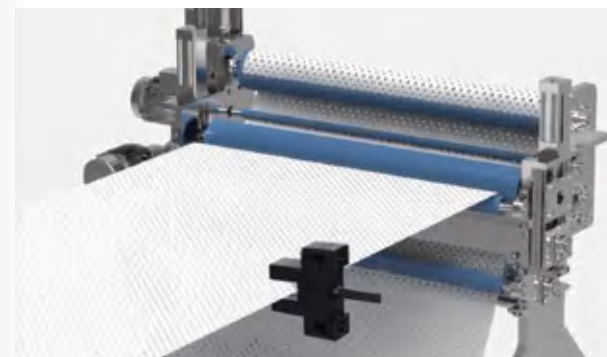
### Background suppression to detect object presence

Electronic product assembly component inspection, shielding highly reflective and high-brightness backgrounds.



### Counting tiny devices with regional optical fiber

Using a wide beam of light, tiny parts can be detected within a wide field of view.



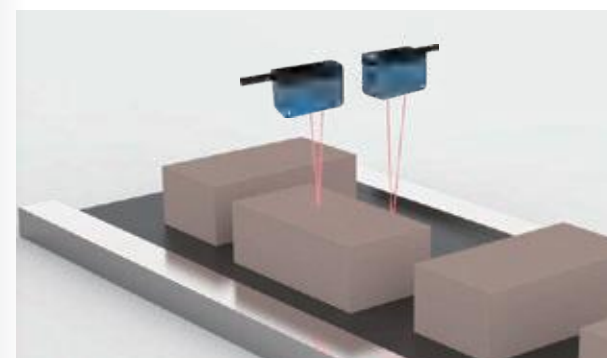
### Detect whether cloth, paper or film is broken

Detecting printed paper or textile fabric outflow.



### Detect product appearance defects or feature points

Use coaxial fiber with condenser to detect small gaps with a minimum spot size of 0.5 mm



### Detecting the orientation of cartons

Background suppression photoelectric can detect different colors and distinguish cartons placed in different directions.



### Origin positioning and limit position 3KHz high-speed response

Detect the holes of the rotating disk and read the number of revolutions and speed.



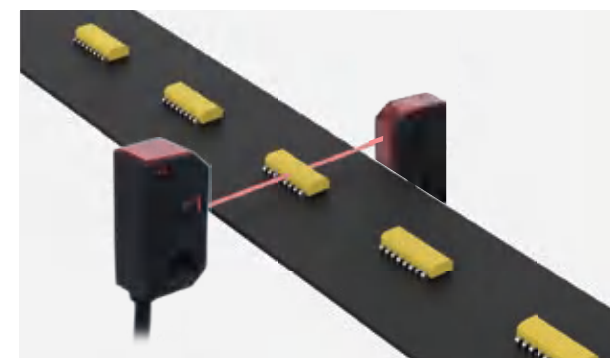
### Detecting cans or counting them on the production line

Capacitive proximity switch, laurel-shaped photoelectric switch, detect passing objects



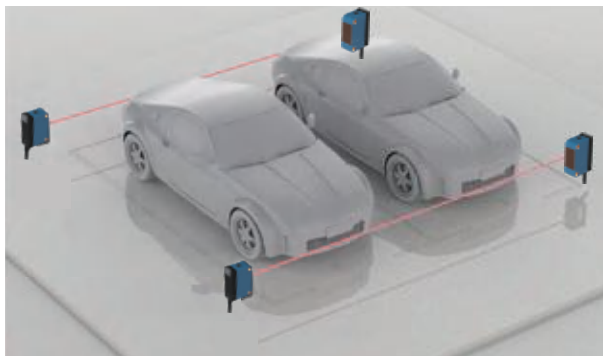
### Strip light photoelectric detection of hollow circuit boards or irregular objects

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

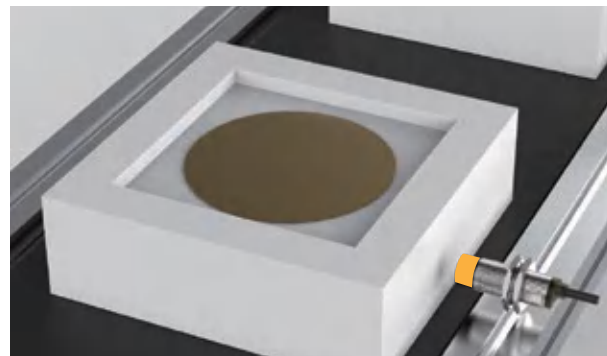


### Small angle photoelectric

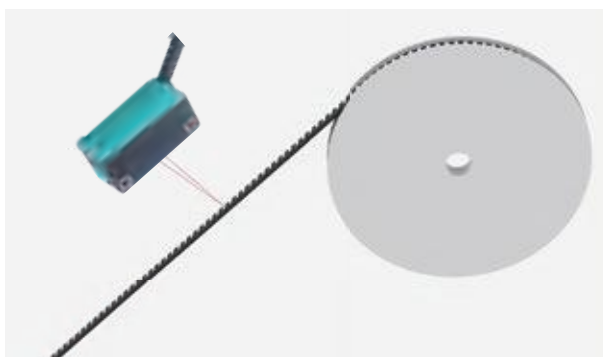
Accurately detect the passage of flat objects.



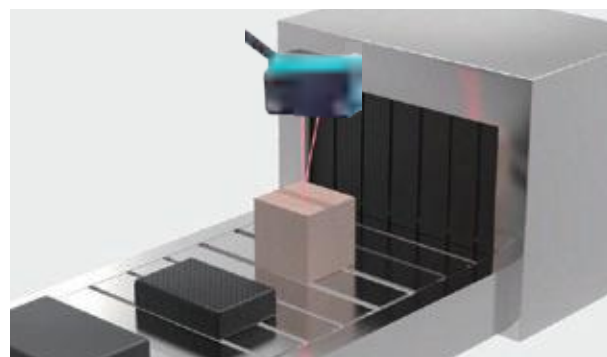
**Laser beam detection of vehicle position**  
Detect the edge position of the vehicle in the multi-story parking lot.



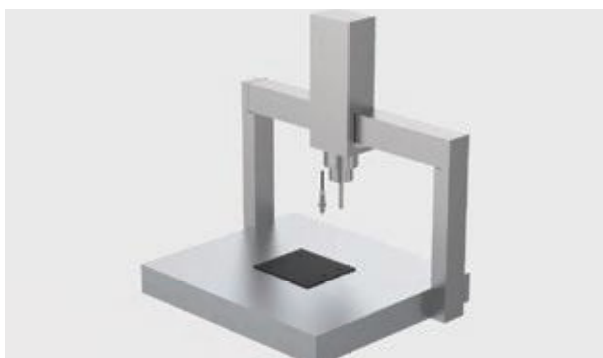
**Proximity sensor detect packaging**  
Inductive sensors are a wise choice when the scanning distance is short, the target is made of non-metallic materials, and the response time and positioning accuracy are not very important. Inductive proximity sensors detect the presence of packages



**Detecting the height difference of the resistor before welding**  
High-precision laser background suppression L61-BG detects subtle height differences



**Conveyor belt package passing confirmation**  
Confirm the parcels on the conveyor line, count the number of parcels that have passed, and distinguish and classify the parcels that have passed.



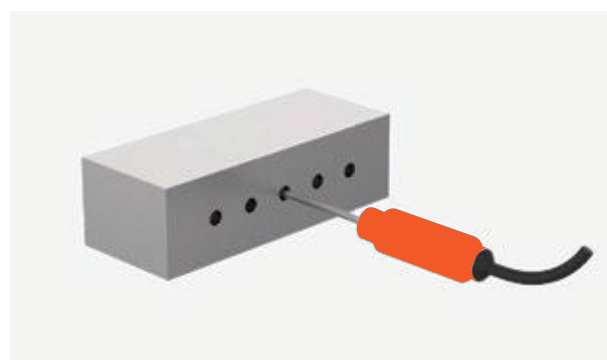
**Glue dispensing machine detects adhesive nozzle height**  
Precision contact sensor detects nozzle height to achieve  $\mu$  m-level positioning of dispensing



**MS-LV pen displacement sensor  $\mu$  level detection**  
The contact sensor detects the wear of the cutter head and decides whether to change the cutter.



**Tooling fixtures inspection & testing equipment**  
A light curtain sensor to prevent accidents in stamping operations.



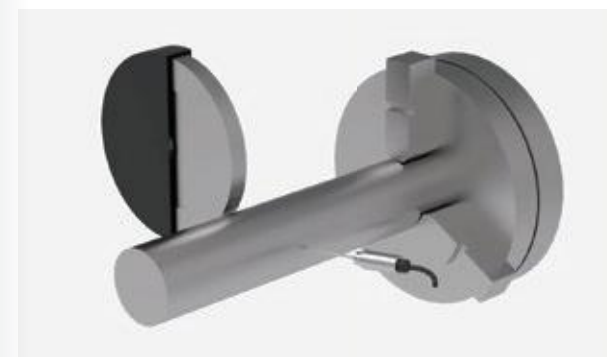
**One-to-multiple optical fiber sensor**



**Magnetic metal induction positioning**  
Correct the display accuracy error.



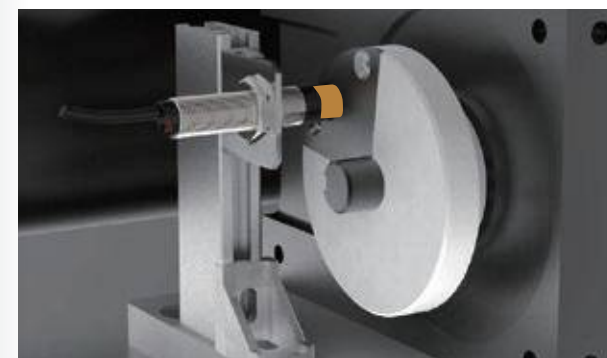
**Detecting repeated material removal of sheet metal**  
It is a multi - point contact sensor that can distinguish the heights of different plates



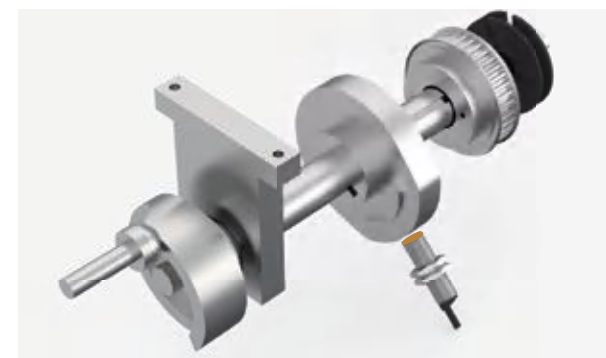
**Contact Sensor**  
It can cope with harsh environments such as cooling water and cutting dust.



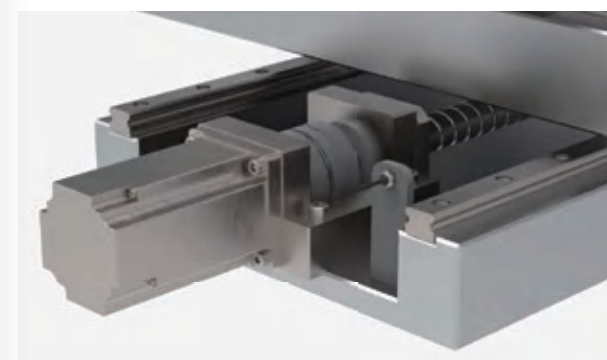
**$\mu$  m-level contact sensor to detect flatness**  
It can achieve stable detection at the micrometer (  $\mu$  m ) level.



**Detect the origin of the rotating mechanism**  
Inductive sensors can be used for origin finding and positioning, and can be used in cutting fluid environments



**Cam divider**  
Divider station, brake signal control.

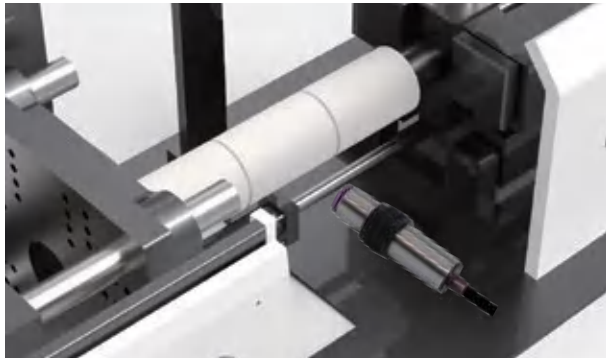


**Correction of thermal displacement of XY axis**  
Measure the displacement difference of XY axis and make automatic adjustments.



**Punch press flywheel position detection**  
It can detect the position of the punching machine's flywheel.





### Photoelectric switch detects the presence of objects

Detect injection molding machine transfer position.



### Remote detection of materials in containers

Material detection in hopper.



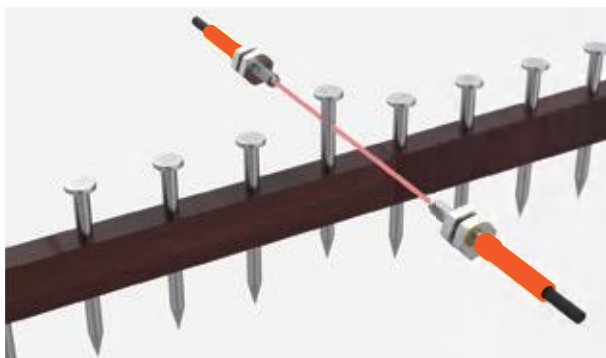
### Photoelectric switch for detection & counting

Control the speed or frequency of movement based on the signal fed back by the sensor



### Through-beam sensors detect opaque objects

Used for edge positioning, up to 50 meters away



### Optical fiber detection of small objects

Minimum detection accuracy 0.5mm opaque object



### Wafer notch detection

By using coaxial reflective optical fibers and focusing lenses, tiny notches can be detected.



### Protect your arms and fingers from injury

Safety light curtain or photoelectricity effectively protects personal safety



### Use IC tester to detect workpieces

Use high - speed laser displacement gauge to check the bending degree of the pin.



### Alignment confirmation of connector pins

引脚的高精度位移检测。

Detect the high-precision displacement of pins



### Color mark sensor for detecting RGB primary colors

对颜色精准识别

Accurately recognize colors.



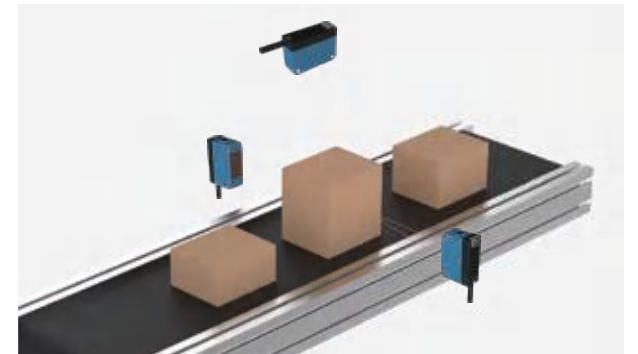
### Photoelectric sensors are used to detect the paper loading capacity on the trays of industrial printers.



### Use analog signal output to detect the flatness of objects

采用新开发的高精度测量技术提高测量的精度和稳定性。

Adopt the newly developed high - precision measurement technology to improve the accuracy and stability of measurement.



### General sensors for board loading & unloading machines, transfer machines, logistics equipment and assembly lines

国际通用尺寸的方型光电

Square photoelectric sensors with internationally common dimensions



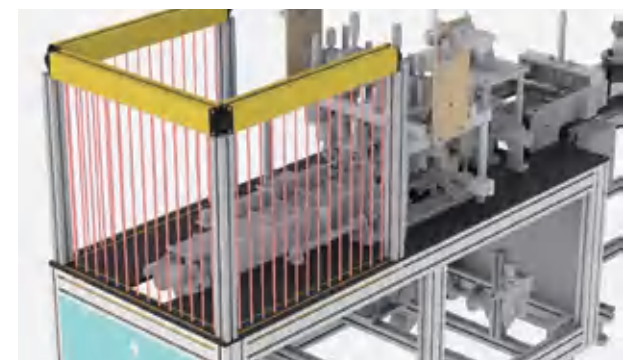
### Ultra-thin photoelectric sensor

It's installed in a narrow space to detect the labeled packaging boxes before they are transported.



### Entrance protection for the feeding unit

Safety protection for the feeding inlets of assembly lines in industries such as lithium-battery, photovoltaic and semiconductor.



### Customization of special-shaped safety gratings

Customization for special applications such as arc-shaped, U-shaped, and triangular protections, as well as special requirements like cascading and blanking.

Slot-type sensors

Ultra-small slot photoelectric sensor UX95 series P.11	Compact slot photoelectric sensors UX45 series P.15	Plug-in slot photoelectric sensor UX65 series P.19
Plug-in slot photoelectric sensor UX67 series P.23	Lead-wire slot photoelectric sensor UX67-WR series P.27	Wide slot photoelectric sensor UXG series P.31
Tag slot sensor UX series P.33		
Dual digital display fiber optic amplifier EX series P.35	Analog deviation correction amplifier EX-V series P.39	Color fiber optic amplifier EX-C series P.41
Fiber optic components EX-D reflection series P.43	Fiber optic components EX-T through-beam series P.47	Grooved optical fiber EX-UT series P.51
Cross-needle fiber EX series P.51	Blanking detection optical fiber EX series P.51	Fiber optic components high-flexibility & high-temperature series P.52
Laser displacement sensor MD series P.53	High precision laser displacement sensor MD series P.55	Remote laser ranging sensor MD series P.57
TOF long-distance laser ranging sensor MD series P.59	Grating displacement sensor MD series P.61	Contact displacement sensor MD series P.63

Fiber Optic Sensor

Displacement sensor

Advances In Sensor Technology

Standard safety light curtain MTS series P.71	Front ultra-thin safety light curtain MTF series P.73	Side ultra-thin safety light curtain MTL series P.75
Plastic housing light curtain MTP series P.77	Compact safety light curtain MTC series P.79	Type4 safety light curtain without blind zone MTE series P.81
Reinforced safety light curtain MTG series P.83	Measuring safety light curtain MTM series P.85	Waterproof safety light curtain MTR series P.87
Diffuse reflection zonelight curtains MTD series P.89	Light curtain controller MT series P.91	Door magnetic switch MT series P.93
Magnetic Coding Safety Switches MT series P.95	Electromagnetic locking safety door lock MT series P.97	Security door lock MT series P.99
Electronic security door lock MT series P.101	Door lock handle MT series P.103	Safety relays MSR series P.105
Laser obstacle avoidance radar MT series P.107		



Photoelectric Sensors

Square ordinary photoelectric sensor EZ series P.109	Background suppression photoelectric sensor EZ-BG series P.111	Strip-shaped light spot photoelectric sensor EZ series P.113
Confined reflection photoelectric sensor EZ series P.117	Time-flight photoelectric sensor EZ series P.119	Laser photoelectric sensor EZ series P.121
High-end background suppression sensor EZ series P.123	One-key setting photoelectric sensor EZ series P.125	Long-range photoelectric sensor EZ series P.127
Thin photoelectric sensor EZ series P.129	Ultra-thin photoelectric sensor EZ series P.131	Small photoelectric sensor EZ series P.133
Micro-small photoelectric sensor EZ series P.135	Micro-small photoelectric sensor EZ series P.137	Flat photoelectric sensors EZ series P.139
Flat photoelectric sensors EZ series P.141	Cylindrical photoelectric sensor E3F series P.143	Laser fiber optic photoelectric sensor E3F series P.145
Photoelectric liquid level sensor E3F series P.147		

Proximity sensor

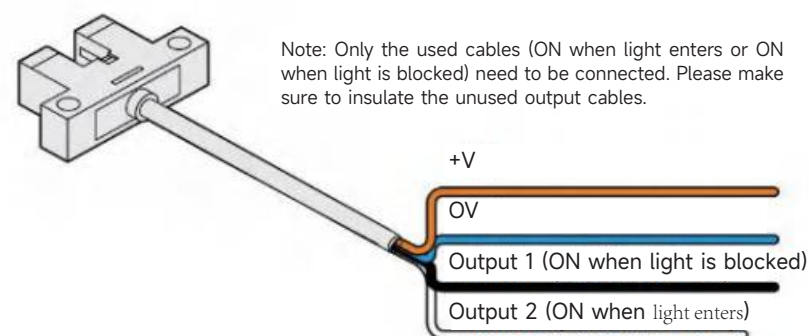
Cylindrical proximity sensor EB-M series P.149	Double-distance proximity sensor EB-M series P.153	Square proximity sensor EB-Q series P.157
Flat proximity sensor EB-W series P.159	Ring-shaped proximity sensor EB-C series P.163	Cylindrical capacitive proximity switch EB-DRM series P.165
Flat capacitive proximity switch EB-DRF series P.167	Capacitive liquid level sensor EB-DRY series P.169	Hall proximity switch EB-HE series P.171

# UX95 Series Ultra-small Slot Photoelectric Sensor

## Ultra-small Slot Photoelectric Sensor

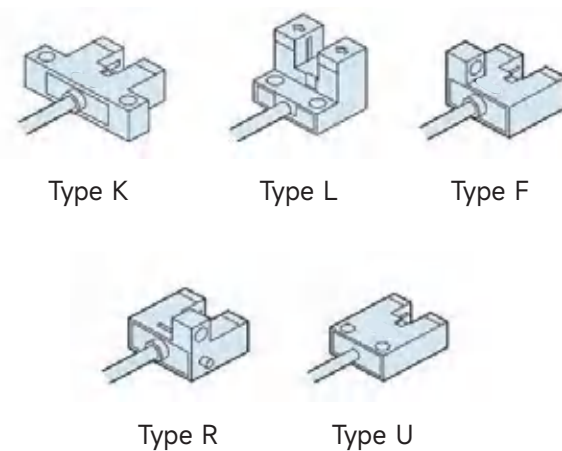
### Equipped with two independent outputs

All models are equipped with two independent outputs - ON when light enters and ON when light is blocked, which can meet different output requirements according to different places of use.



### Easy connection

The simple connection type eliminates all the troubles of previous requirements such as tin soldering and insulation treatment, enabling quick connection and is very easy to use.



### Line lead

Standard 2M flexible wire, wire length can be customized.  
Optional bending-resistant drag chain line-GR.  
Optional white normally open black normally closed-SX.

### Line lead

Power supply voltage range 5~24VDC:

### High-speed response

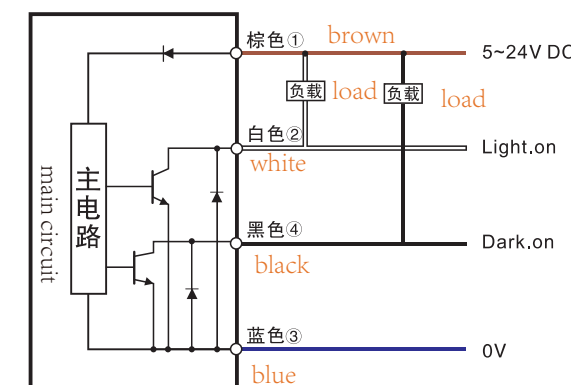
The response frequency is 3KHZ high speed response.

## Ultra-small Slot Photoelectric Sensor

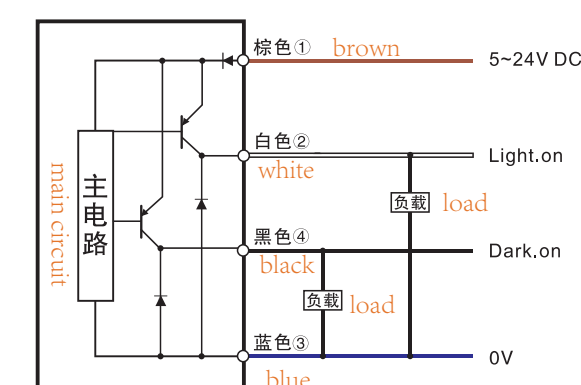
Type					
Exterior					
Type	Type K	Type L	Type F	Type R	Type U
Detection distance	5mm (槽宽) slot width				
Standard test objects	Opaque objects larger than 0.8*1.2mm				
Repeatability	Below 0.03mm				
Output mode	NPN or PNP open collector				
Switch mode	L.on (light-incoming action)/D.on (light-blocking action) switchable				
Indicator Lights	The light turns off when an object is detected and turns on when no object is detected				
Response frequency	3KHz				
Light source	Infrared light				
Operating voltage	5~24V DC				
Residual voltage	Below 1V (when load current 100mA)				
Current consumption	≤8mA				
Protection circuit	Surge protection, reverse polarity protection				
Ambient light intensity	Illuminance on the light receiving surface incandescent lamps: below 1000 lux				
Ambient temperature	Operating: -25°C~+55°C Storage: -30°C~+80°C, no ice				
Ambient humidity	Operating: 5%~85%RH Storage: 5%~95%RH, no condensation				
Voltage resistance	AC, 1000V for 1 minute, between all power connection terminals and the shell				
Vibration resistance	Frequency 10Hz~2,000Hz, double amplitude 1.5mm (maximum acceleration 196m/s <sup>2</sup> ), 2 hours in each direction of XYZ				
Insulation resistance	Between all power connection terminals and the housing, above 20MΩ(based on DC250V)				
Protection rating	IP50				
Material	ABS+PC				
Cable outlet method	2M4 core cable				
NPN model	UX950-WR	UX951-WR	UX952-WR	UX953-WR	UX954-WR
PNP model	UX950P-WR	UX951P-WR	UX952P-WR	UX953P-WR	UX954P-WR

## Circuit

### DC line 4-wire NPN output



### DC line 4-wire PNP output

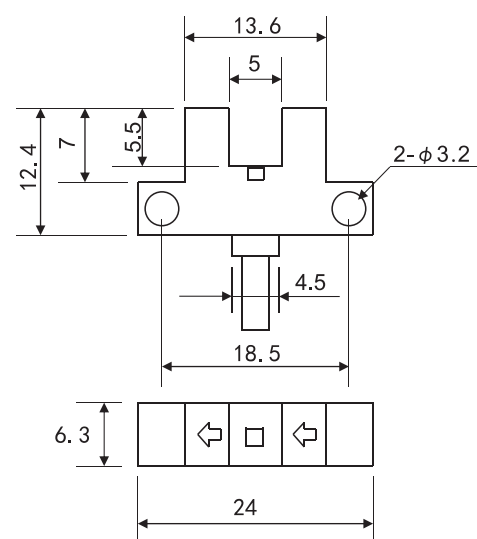




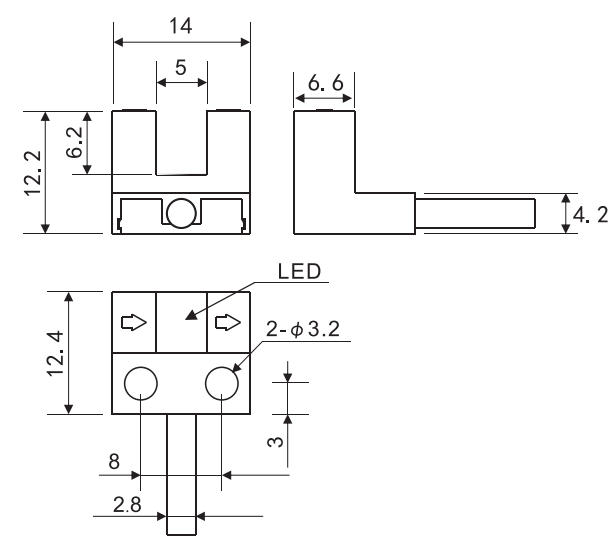
## Ultra-small Slot Photoelectric Sensor

外形尺寸图 ( 单位 : mm) Overall dimension drawing(unit: mm)

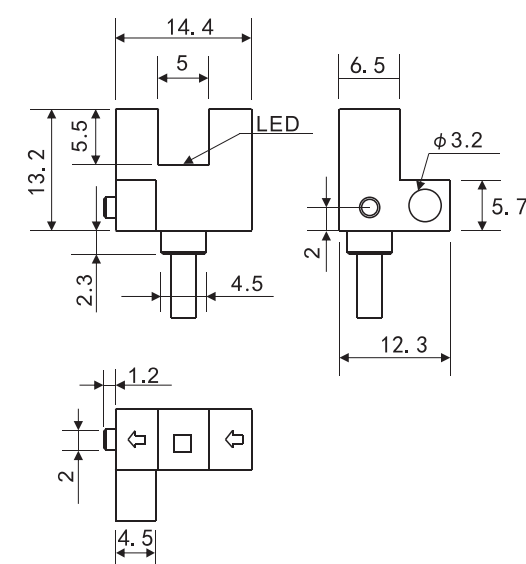
### UX950-WR



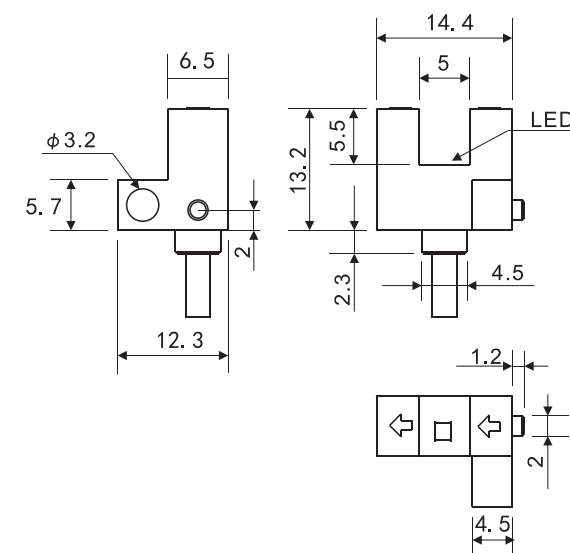
### UX951-WR



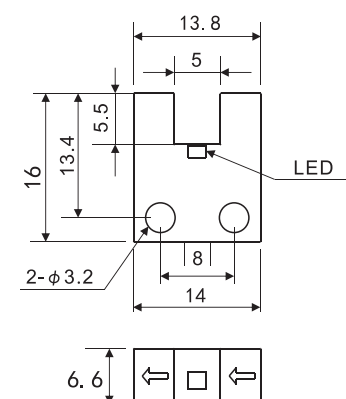
### UX952-WR



### UX953-WR



### UX954-WR

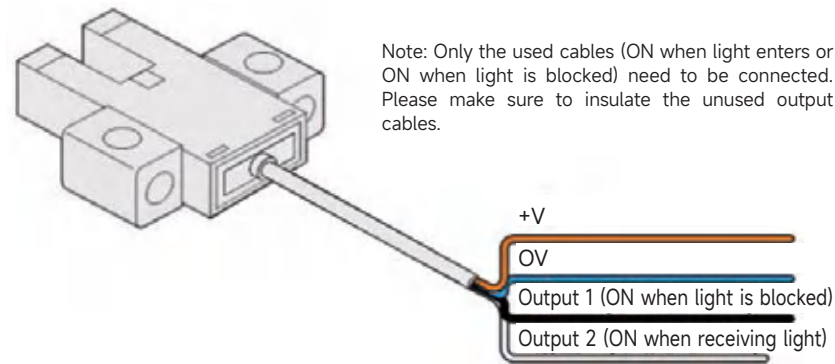


## Ultra-small Slot Photoelectric Sensor

## Compact Slot Photoelectric Sensor

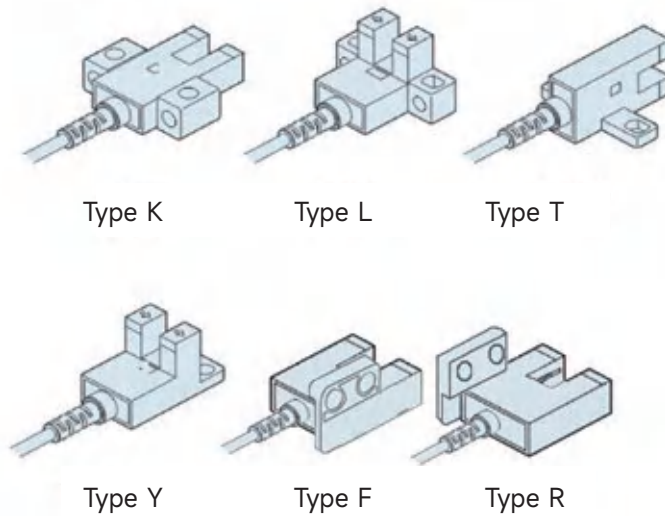
### Equipped with two independent outputs

All models are equipped with two independent outputs - ON when light enters and ON when light is blocked, which can meet different output requirements according to different places of use.



### Various models

With a wide variety of types and up to six different shapes, you can select a model that meets your installation requirements.



### Wire lead-out

Standard 2M flexible wire, wire length can be customized.  
Optional bending-resistant drag chain cable-GR.  
Optional white normally open and black normally closed-SX.

### Voltage range

Power supply voltage range 5~24VDC

### High-speed response

The response frequency is 3KHZ high speed response.

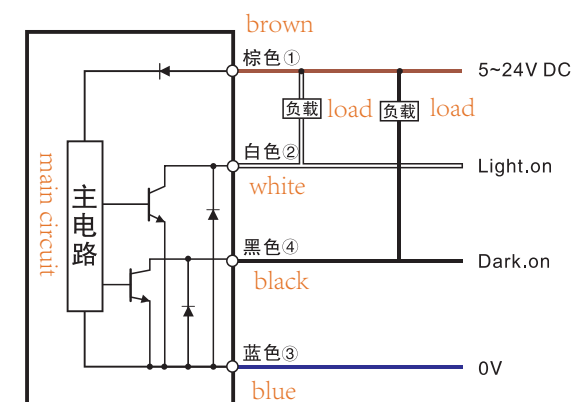
## Compact Slot Photoelectric Sensor

### Type

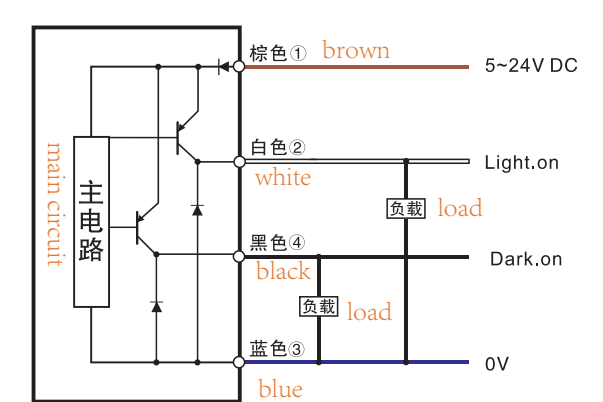
Exterior						
Type	Type K	Type L	Type T	Type Y	Type F	Type R
Detection distance	5mm (槽宽) slot width					
Standard test objects	Opaque objects larger than 0.8*1.2mm					
Repeatability	0.03mm or less					
Output mode	NPN open collector					
Switch mode	L.on (light-incoming action)/D.on (light-blocking action) switchable					
Indicator lights	The light turns off when an object is detected and turns on when no object is detected					
Response frequency	3KHz					
Light source	Infrared light					
Operating voltage	5~24V DC					
Residual voltage	Below 1V (load current 100mA)					
Current consumption	≤8mA					
Protection circuit	Surge protection, reverse polarity protection					
Ambient light intensity	Illuminance on the light receiving surface incandescent lamp: below 1000 lux					
Ambient temperature	Operating: -25°C~+55°C storage: -30°C~+80°C, no ice					
Ambient humidity	Operating: 5%-85%RH storage: 5%-95%RH, no condensation					
Voltage resistance	AC, 1000V for 1 minute, between all power connection terminals and the shell					
Vibration resistance	Frequency 10Hz~2,000Hz, double amplitude 1.5mm(maximum acceleration 196m/s <sup>2</sup> ), 2 hours in each direction of XYZ					
Insulation resistance	Between all power connection terminals and shell, 20MΩ or more (based on DC250V)					
Protection rating	IP50					
Material	ABS+PC					
Cable outlet method	2M4 core cable					
NPN model	UXK45	UXL45	UXT45	UXY45	UXF45	UXR45
PNP model	UXK45P	UXL45P	UXT45P	UXY45P	UXF45P	UXR45P

### Circuit

#### DC line 4-wire NPN output



#### DC line 4-wire PNP output

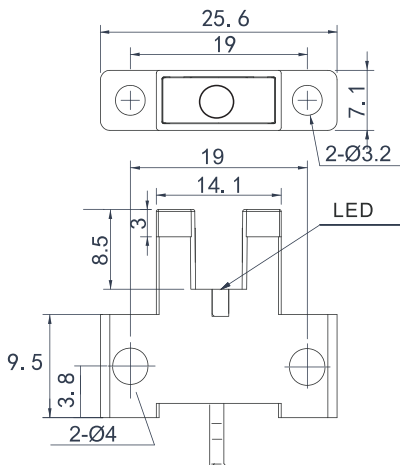




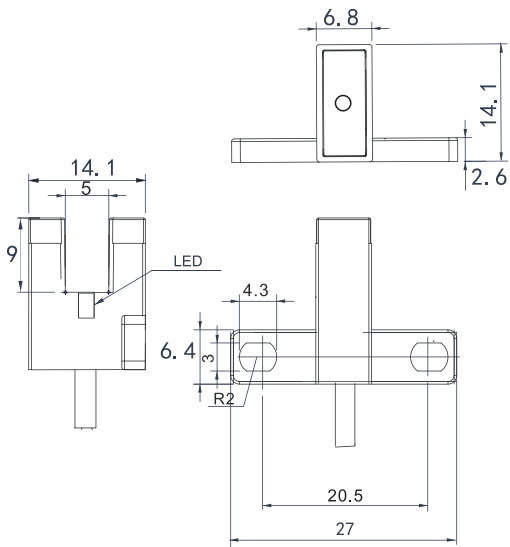
Compact Slot Photoelectric Sensors

外形尺寸图 Overall dimension drawing(unit: mm)

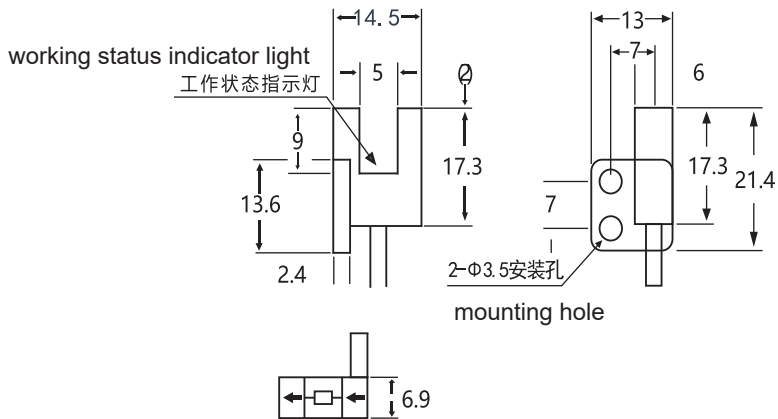
UXK45



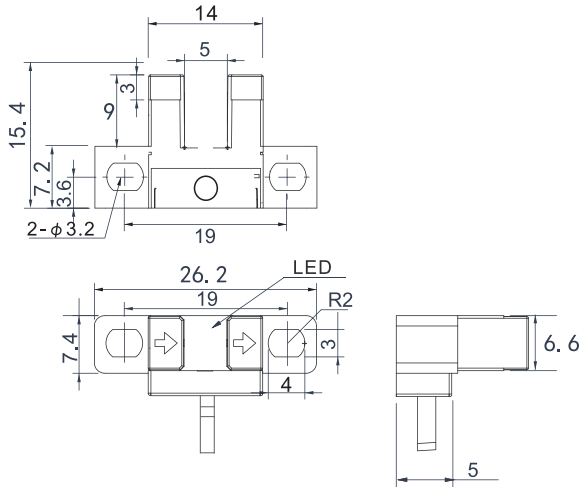
UXT45



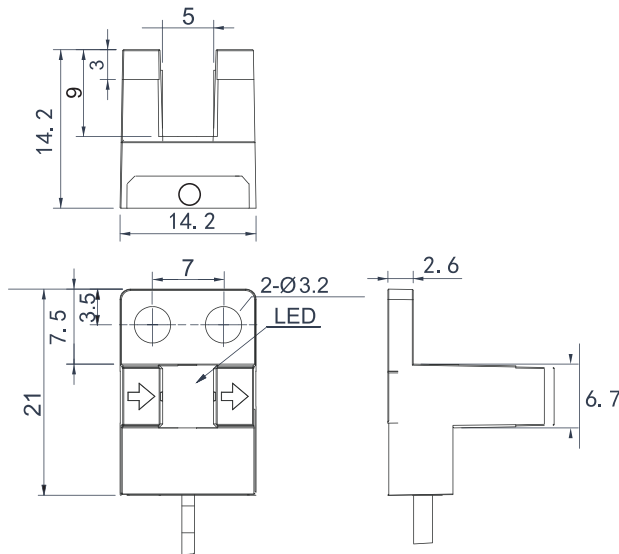
UXF45



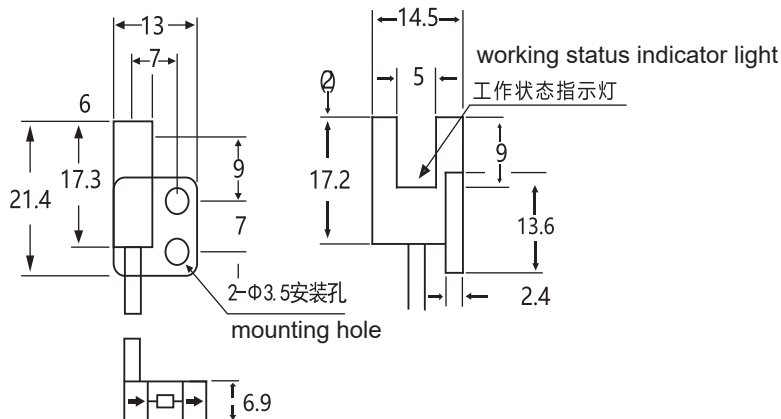
UXL45



UXY45

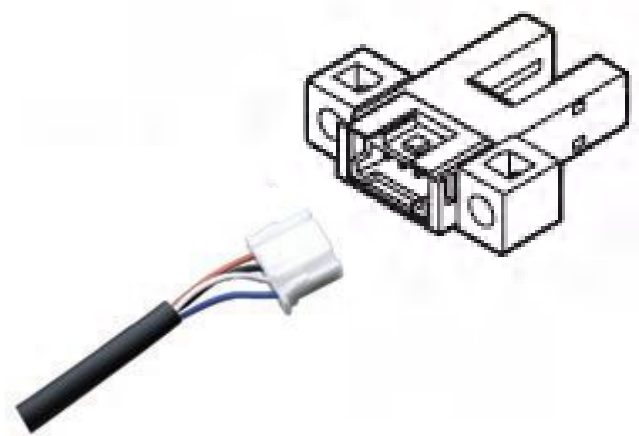


UXR45



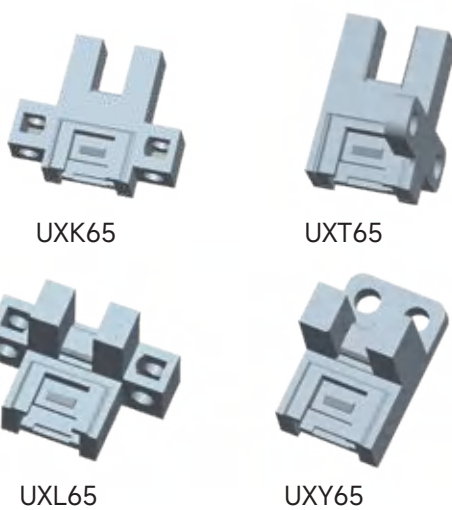
Compact Slot Photoelectric Sensors

Connector cable included



### Various models

With a wide variety of types and up to four different shapes, you can select a model that meets your installation requirements.



### Wire lead-out

Optional UX1008 connecting cable.  
Optional UX1008-GR high-flex cable.

### Voltage range

Power supply voltage range 5~24VDC

### High-speed response

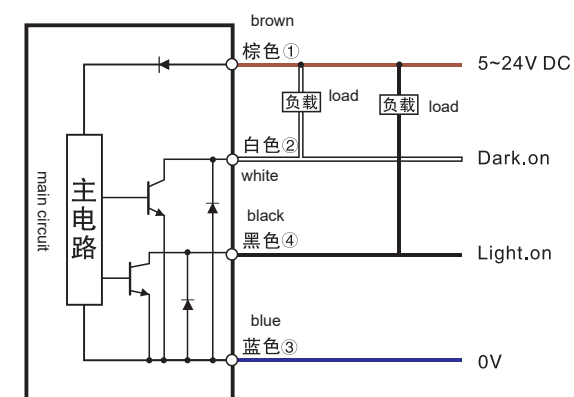
The response frequency is 3KHZ high speed response.

### Type

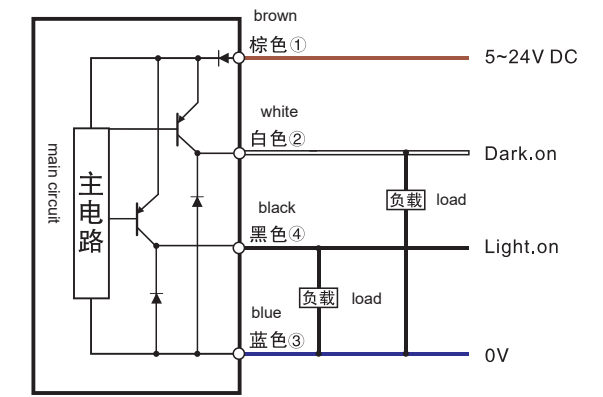
Exterior	Type K	Type L	Type T	Type Y	Type F	Type R
Type	Type K	Type L	Type T	Type Y	Type F	Type R
Detection distance	5mm(slot width)					
Standard test objects	Opaque objects larger than 0.8*1.2mm					
Repeatability	below 0.03mm					
Output mode	NPN open collector					
Switch mode	L.on (light-incoming action)/D.on (light-blocking action) switchable					
Indicator lights	The light turns off when an object is detected and turns on when no object is detected					
Response frequency	3KHz					
Light source	Infrared light					
Operating voltage	5VDC~24VDC±10% pulsation below P-P10%					
Residual voltage	Below 1V(when load current 100mA)					
Current consumption	≤8mA					
Protection structure	IP50(IEC)					
Ambient light intensity	Illuminance on the light receiving surface incandescent lamps: below 1000 lux					
Ambient temperature	-25°C~+55°C (no condensation or ice), storage: -30°C~+80°C					
Ambient humidity	5%-85%RH storage: 5%-95%RH					
Voltage resistance	AC, 1000V for 1 minute, between all power connection terminals and shell					
Vibration resistance	Frequency 10Hz~2,000Hz, double amplitude 1.5mm (maximum acceleration 196m/s <sup>2</sup> ), 2 hours in each direction of XYZ					
Insulation resistance	Between all power connection terminals and shell, above 20MΩ (based on DC250V)					
Protection rating	IP50(IEC)					
Material	ABS+PC					
Outlet mode	Connectors					
NPN model	UXK65	UXL65	UXT65	UXY65	UXF65	UXR65
PNP model	UXK65P	UXL65P	UXT65P	UXY65P	UXF65P	UXR65P

### Circuit

#### DC line 4-wire NPN output



#### DC line 4-wire PNP output

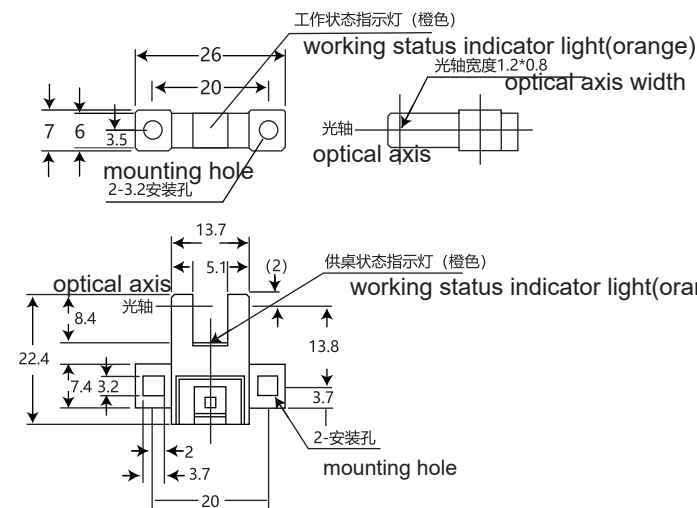




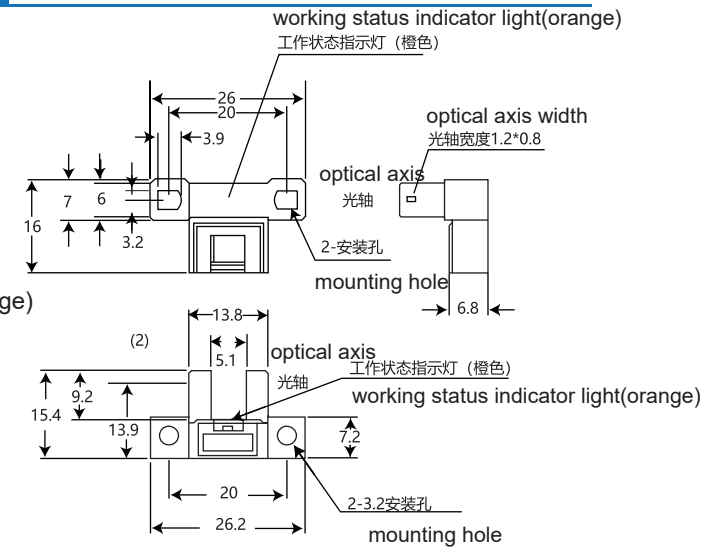
## Plug-in Slot Photoelectric Sensor

外形尺寸图 Overall dimension drawing(unit: mm)

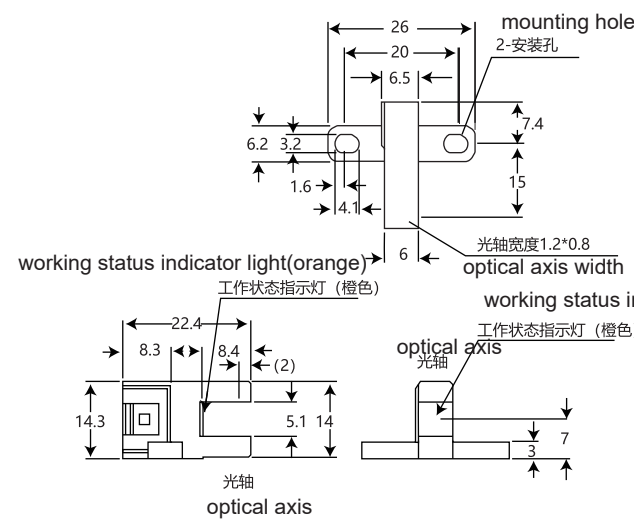
### UXK65



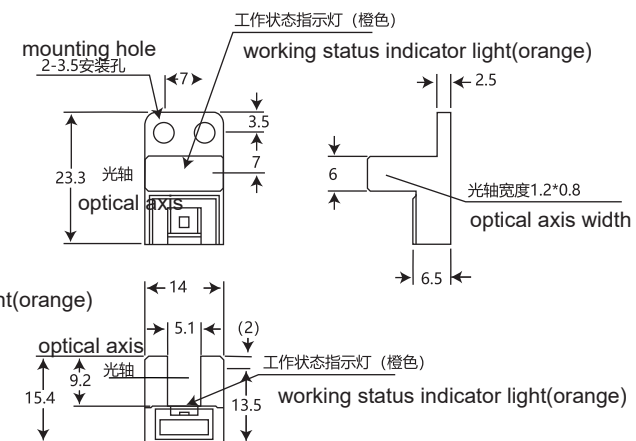
### UXL65



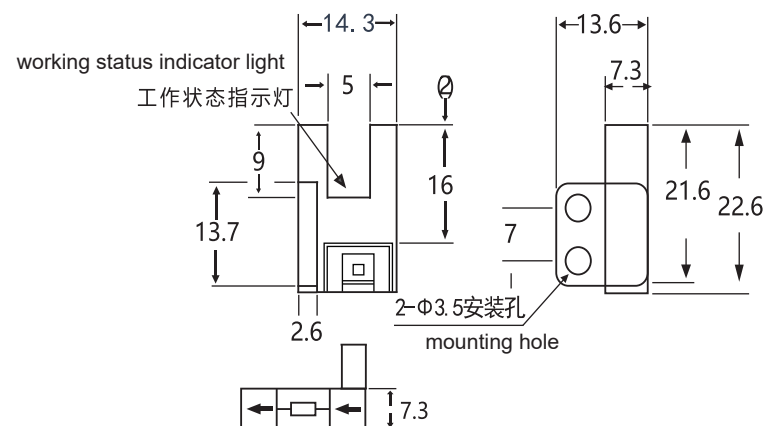
### UXT65



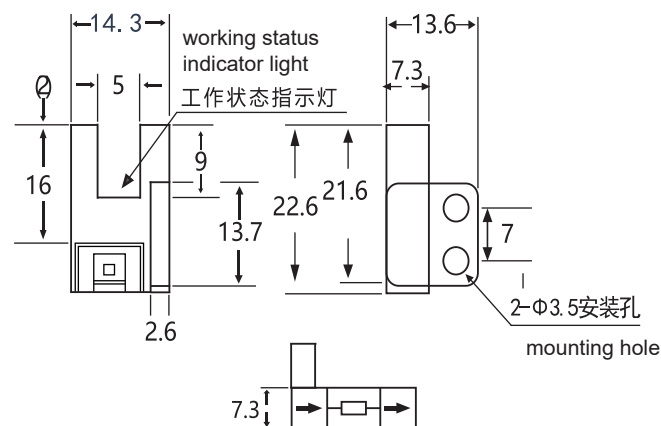
### UXY65



### UXF65



### UXR65



## Plug-in Slot Photoelectric Sensor

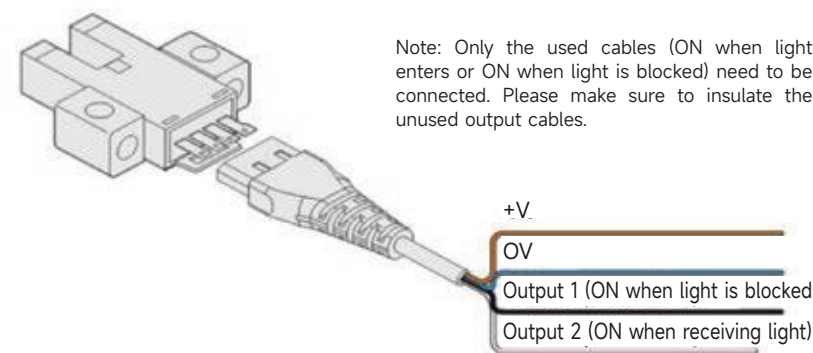
配件

### UX1008 (默认2m,另有1m、3m、5m、7m、10m可售)

The default length is 2m. Lengths of 1m, 3m, 5m, 7m, and 10m are also available for sale.

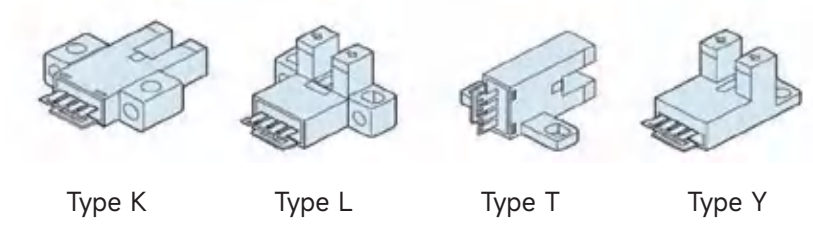
Equipped with two independent outputs

All models are equipped with two independent outputs - ON when light enters and ON when light is blocked, which can meet different output requirements according to different places of use.



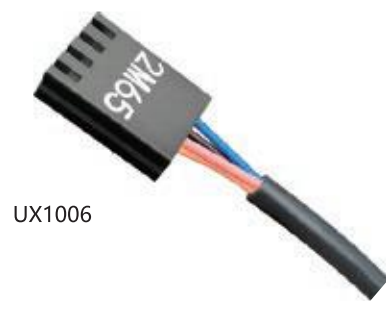
Various models

There are a wide variety of shapes and as many as 4 types, from which you can choose the model that meets your installation conditions.



Easy Links

The simple connection type eliminates all the troubles of soldering and insulation treatment required in the past, and achieves quick connection, which is very simple. Black output and pink switching product options are available - QH.



High-speed response

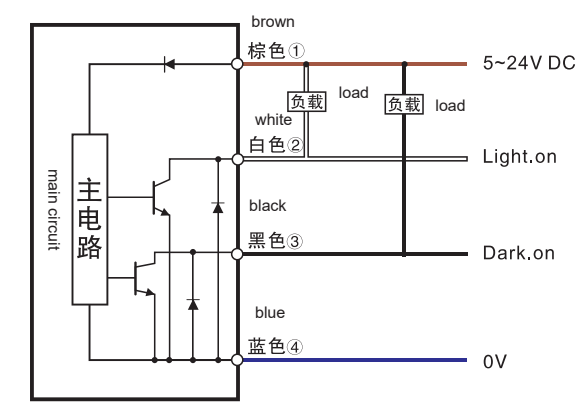
The response frequency is 3KHZ high speed response.

Type

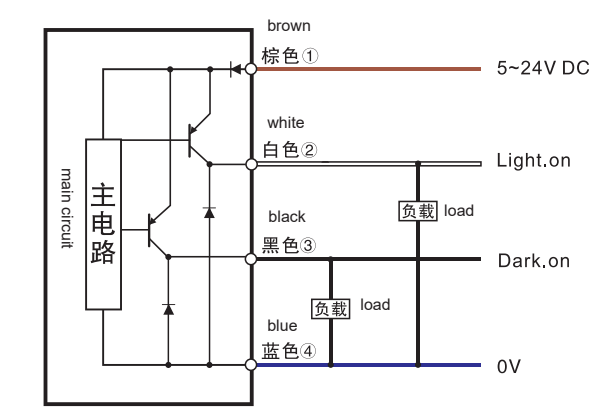
Exterior				
Type	Type K	Type L	Type T	Type Y
Detection distance	5mm (槽宽) slot width			
Standard test objects	Opaque objects larger than 0.8*1.2mm			
Repeatability	Below 0.03mm			
Output mode	NPN open collector			
Switch mode	L.on (light-incoming action)/D.on (light-blocking action) switchable			
Indicator lights	The light turns off when an object is detected and turns on when no object is detected			
Response frequency	3KHz			
light source	Infrared light			
Operating voltage	5~24V DC			
Residual voltage	Below 1V (when load current 100mA)			
Current consumption	≤8mA			
protect the circuit	Surge protection, reverse polarity protection			
Ambient light	Illuminance on the light receiving surface incandescent lamp: below 1000 lux			
Ambient temperature	Operating: -25°C~+55°C storage: -30°C~+80°C, no ice			
Ambient humidity	Operating: 5%~85%RH storage: 5%~95%RH, no condensation			
Withstand voltage	AC, 1000V for 1 minute, between all power connection terminals and shell			
Vibration resistance	Frequency 10Hz~2,000Hz, double amplitude 1.5mm (maximum acceleration 196m/s2), 2 hours in each direction of XYZ			
Insulation resistance	Between all power connection terminals and shell, above 20MΩ (based on DC250V)			
Protection level	IP50			
Material	ABS+PC			
Outlet mode	Connectors			
NPN model	UX670-XJ	UX671-XJ	UX672-XJ	UX674-XJ
PNP model	UX670P-XJ	UX671P-XJ	UX672P-XJ	UX674P-XJ

Circuit

DC line 4-wire NPN output



DC line 4-wire PNP output

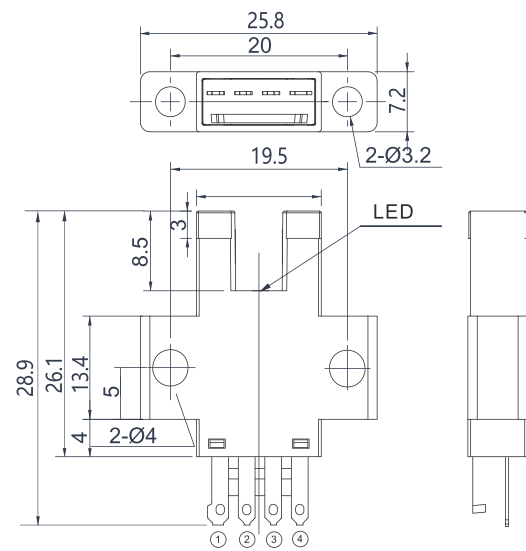




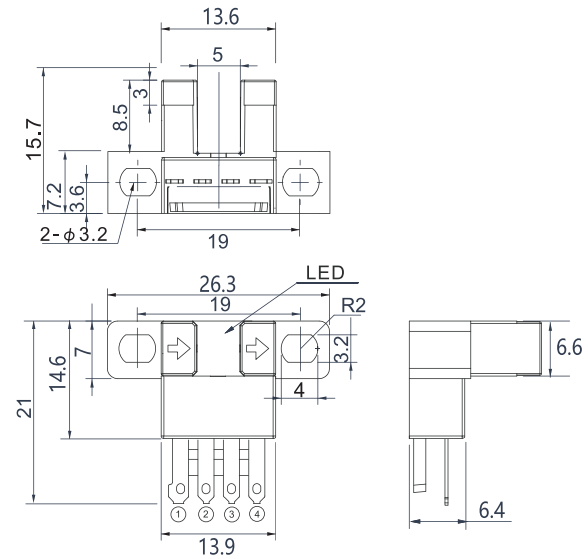
Plug-in Slot Photoelectric Sensor

外形尺寸图 (单位: mm) Overall dimension drawing (unit: mm)

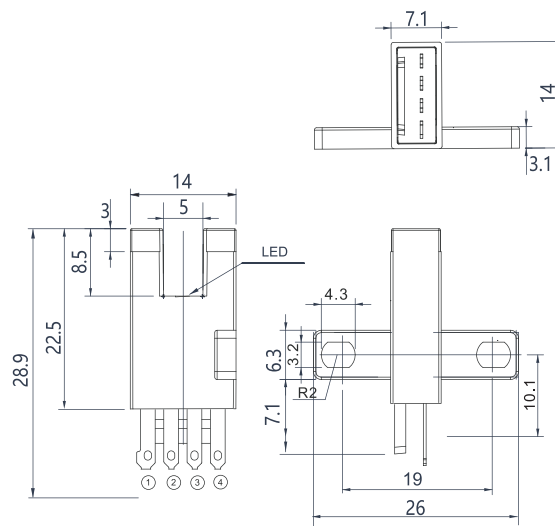
UX670-XJ



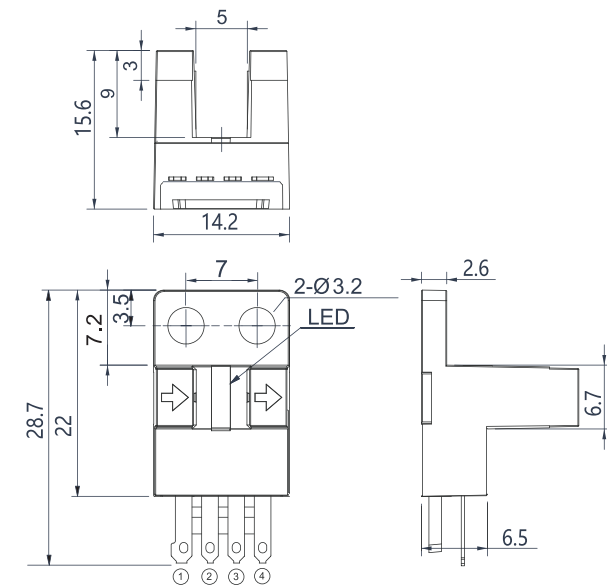
UX671-XJ



UX672



UX674-XJ



Accessories

UX1006 (默认2m,另有1m、3m、5m、7m、10m可售)

The default length is 2m. Lengths of 1m, 3m, 5m, 7m, and 10m are also available for sale.

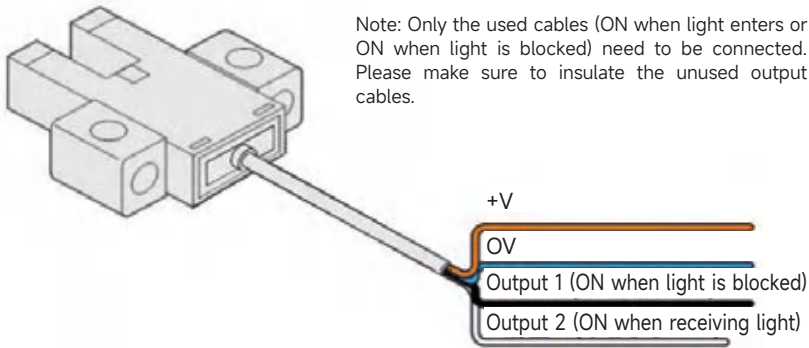
Plug-in Slot Photoelectric Sensor

# UX67-WR Series Slot Photoelectric Sensor

## Lead-wire Slot Photoelectric Sensor

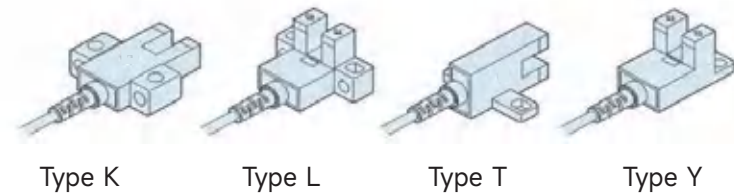
### Equipped with two independent outputs

All models are equipped with two independent outputs - ON when light enters and ON when light is blocked, which can meet different output requirements according to different places of use.



### Various models

With a wide variety of types and up to four different shapes, you can select a model that meets your installation requirements.



### Wire lead-out

Standard 2M flexible wire, wire length can be customized.  
Optional bending-resistant drag chain cable-GR.  
Optional white normally open black normally closed-SX.

### Voltage range

Power supply voltage range 5~24VDC:

### High-speed response

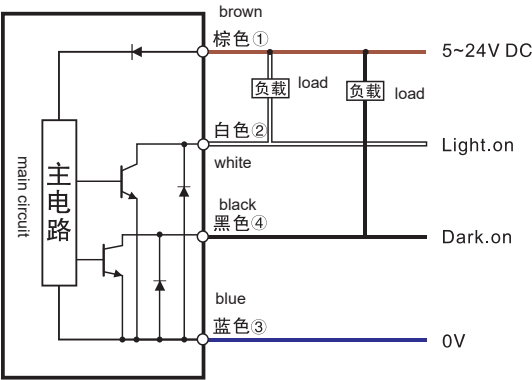
The response frequency is 3KHZ high speed response.

## Lead-wire Slot Photoelectric Sensor

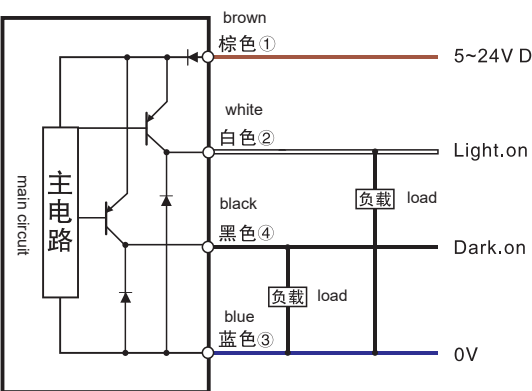
Type						
Exterior						
Type	Type K	Type L	Type T	Type U1	Type Y	Type T1
Detection distance	5mm (槽宽) slot width					
Standard test objects	Opaque objects larger than 0.8*1.2mm					
Repeatability	Below 0.03mm					
Output mode	NPN open collector					
Switch mode	L.on (light-incoming action)/D.on (light-blocking action) switchable					
Indicator Lights	The light turns off when an object is detected and turns on when no object is detected					
Response frequency	3KHz					
Light source	Infrared light					
Operating voltage	5~24V DC					
Residual voltage	Below 1V (load current 100mA)					
Current consumption	≤8mA					
Protect circuit	Surge protection, reverse polarity protection					
Ambient light intensity	Illuminance on the light receiving surface incandescent lamps: below1000 lux					
Ambient temperature	Operating: -25°C~+55°C storage: -30°C~+80°C, no ice					
Ambient humidity	Operating: 5%~85%RH storage: 5%~95%RH, no condensation					
Voltage resistance	AC, 1000V for 1 minute, between all power connection terminals and shell					
Vibration resistance	Frequency 10Hz~2,000Hz, double amplitude 1.5mm (maximum acceleration 196m/s <sup>2</sup> ), 2 hours in each direction of XYZ					
Insulation resistance	Between all power connection terminals and shell, above 20MΩ (based on DC250V)					
Protection rating	IP50					
Material	ABS+PC					
Cable outlet method	2M4 core cable					
NPN model	UX670-WR	UX671-WR	UX672-WR	UX673-WR	UX674-WR	UX675-WR
PNP model	UX670P-WR	UX671P-WR	UX672P-WR	UX673P-WR	UX674P-WR	UX675P-WR

## Circuit

### DC line 4-wire NPN output



### DC line 4-wire PNP output

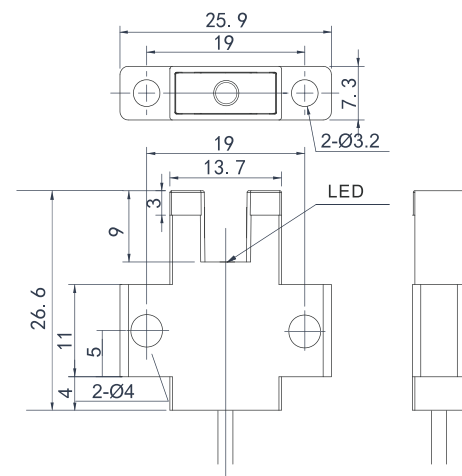




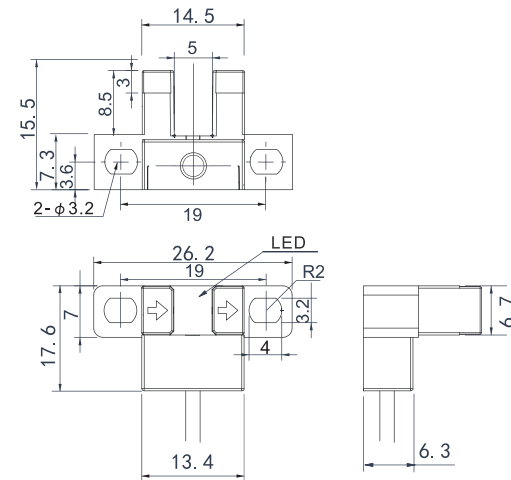
Lead-wire Slot Photoelectric Sensor

外形尺寸图 (单位: mm) Overall dimension drawing(unit: mm)

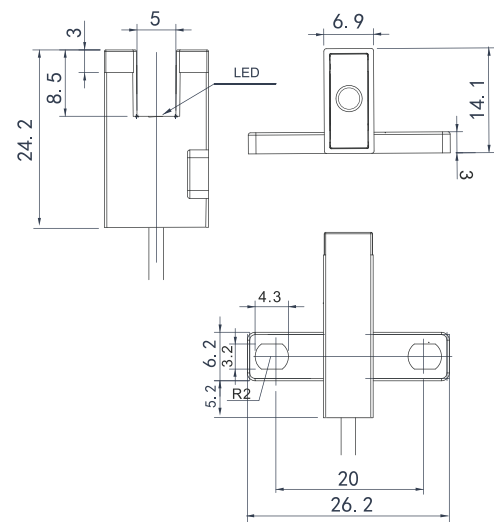
UX670-WR



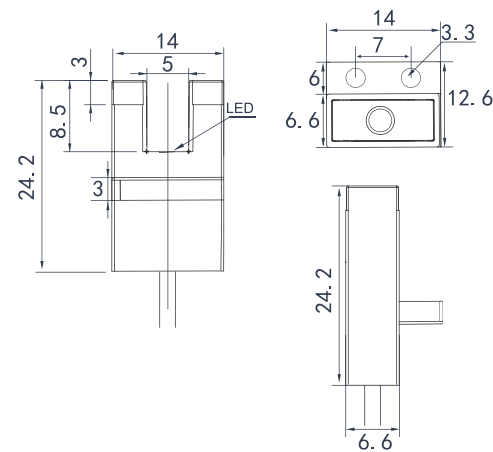
UX671-WR



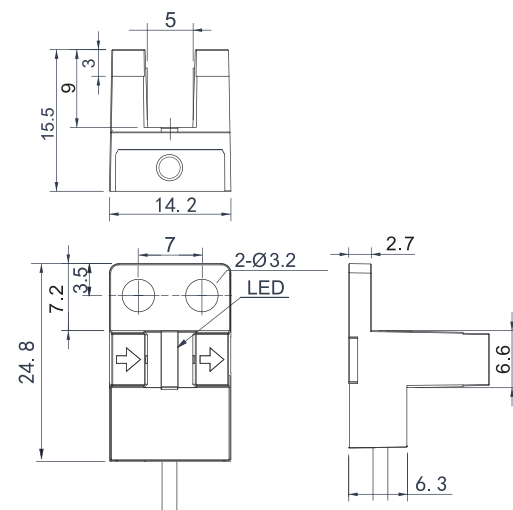
UX672-WR



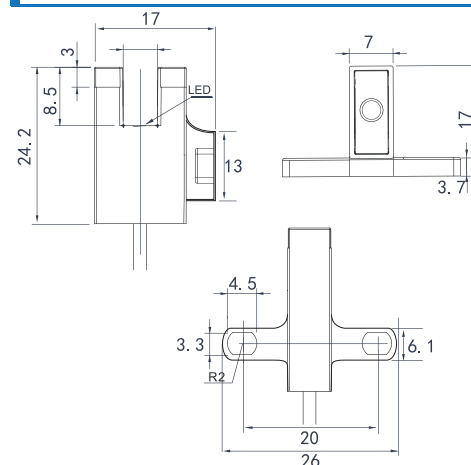
UX673-WR



UX674-WR



UX675-WR



Lead-wire Slot Photoelectric Sensor

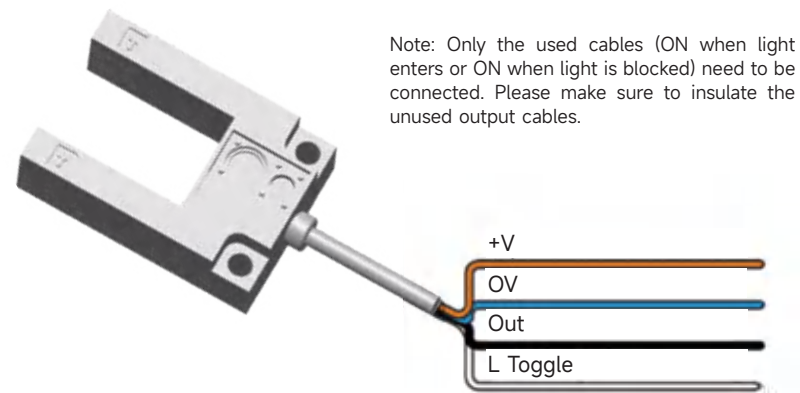
# UXG Series Wide Slot Photoelectric Sensor



## Wide Slot Photoelectric Sensor

### Equipped with two independent outputs

All models are equipped with two independent outputs - ON when light enters and ON when light is blocked, which can meet different output requirements according to different places of use.



### Strong anti-interference ability

Strong resistance to external stray light interference, minimum detection object 1mm

High-speed response with response frequency of 1KHz

### Three types of slot widths

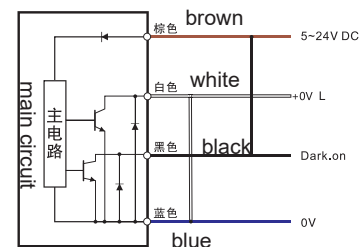
The slot width is divided into three types: 15mm, 25mm, and 30mm. You can choose the model that meets your installation conditions according to your needs.

### Adjustable sensitivity

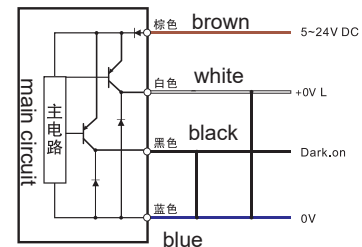
Built-in single-turn potentiometer, adjustable sensitivity to detect transparent films or labels larger than 0.1mm

### Wiring method

#### DC line 4-wire NPN output



#### DC line 4-wire PNP output



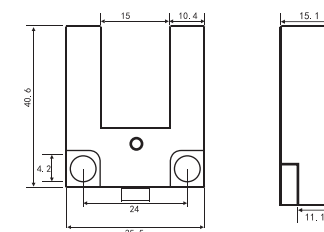
## Wide Slot Photoelectric Sensor

### Product parameter

Exterior			
Item type	UXG15-XJ	UXG25-XJ	UXG30-XJ
Detection distance	15mm	25mm	30mm
Standard test objects	Opaque objects larger than 1mm		
Response frequency	1KHz		
Light source (emission wavelength)	Infrared light-emitting diode (950nm)		
Supply voltage	pulsation(P-P) below 10%		
Current consumption	Below 40mA		
Control output	Load power supply voltage below DC24V, load current below 80mA (residual voltage below 2V), NPN voltage output type, light-incoming ON / light-blocking ON, wire connection switch mode		
Protection circuit	Reverse power connection protection, output short-circuit protection		
Response time	Operation and reset: below 1ms each		
Sensitivity adjustment	Unidirectional rotary knob		
Illuminance of the operating environment	Illuminance of the light receiving surface: incandescent lamp: 3,000lx, daylight: 10,000lx		
Ambient temperature	Operating: -25~+55°C, storage: -40~+70°C (no ice or condensation)		
Ambient humidity	Operating: 35~85%RH, storage: 35~95%RH (no condensation)		
Insulation resistance	Above 20MΩ (DC500VMΩ)		
Voltage resistance	AC1,000V 50/60Hz 1min		
Vibration resistance	10 - 55 Hz, double amplitude of 1.5 mm, 2 hours for each direction of X, Y, and Z.		
Shock resistance	500 m/s², three times for each direction of X, Y, and Z.		
Protection structure	IEC standard IP67		
Connection method	Wire lead-out type (standard lead wire length 2m)		
Weight (after packing)	about 330g		
NPN model	UXG15	UXG25	UXG30
PNP model	UXG15P	UXG25P	UXG30P

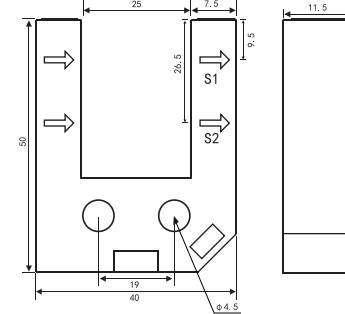
### Product dimension

#### UXG15

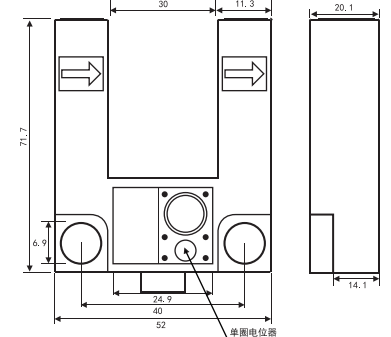


#### Two-optical-axis and two-channel output

#### UXG25 (两光轴两通道输出)



#### UXG30



UX series  
Label sensor



Label sensor

Product characteristics

Shape advantage

Thin design, can be flexibly installed near the automatic labeling machine, ensuring higher process accuracy. The shell is compact, saving installation space.

Solid one-piece shell

The solid integrated shell is extremely reliable. The aluminum shell is adopted, and the protection grade is IP65, which meets all the use requirements in strict and cool industrial environment.

There is no need for a solid U-shape with optical axis alignment.

The projector and the receiver are placed in the same sensor, so there is no need for optical axis alignment.

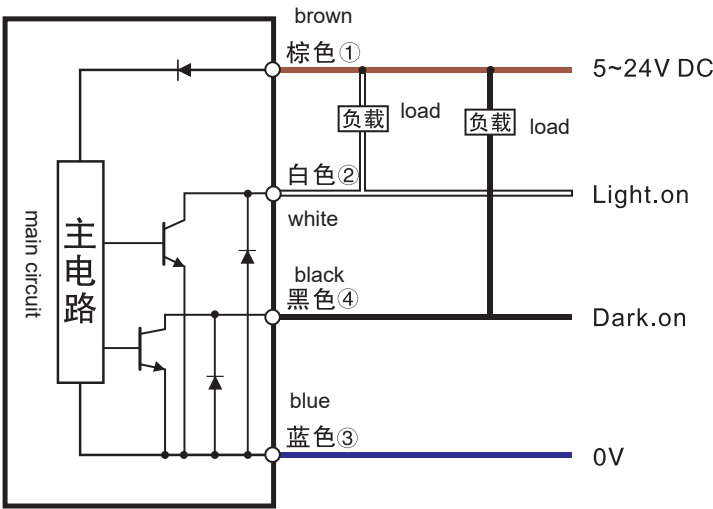
Efficient reaction

Fast response time, fast response time up to 50μs and high resolution, which can ensure the reliability of certificate detection even at high speed.

Be anti-interference


Using infrared light source, it has excellent anti-interference of ambient light.

Circuit

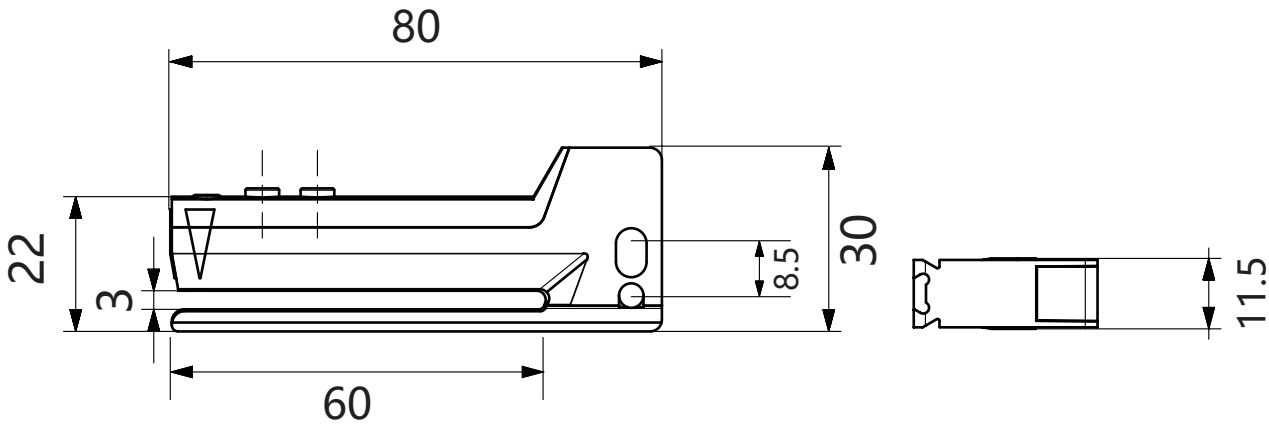


Label sensor

Product parameter

Project	Kind	Kind		Label sensor	
		NPN	PNP	UX-WFS3N	UX-WFS3P
	Exterior				
Groove depth/groove width		3x58mm			
Operating voltage		DC12V ~ 24V			
Ripple voltage		10%			
Power consumption		40mA			
Light source		GaAs infrared light emitting diode (940nm)			
Switching frequency		10kHz			
Stability of response time		±20μs			
Switch function		Normally open and normally closed, can be selected by button.			
Switch output voltage		NPN: high level = about Vs/ low level ≤2V.PNP: high level =Vs-≤2V/ low level = about OV.			
Maximum output current		100mA			
Initialization time		100ms			
Attended mode		Direct outlet			
Ambient light safety		( 10000Lx )			
Circuit protection		Surge protection circuit, short circuit protection, polarity reverse connection protection			
Enclosure protection grade		IP65			
Texture of wood		ABS			

Overall dimension drawing(unit: mm)





## Dual Digital Display Fiber Optic Amplifier

### Intelligent adjustment, simple and stable

Accuracy of detection and simplicity for customers. Long-term stable brightness reduces device maintenance.

### Just one click to set up

It can be set with just one button. Press the SET button when there is no target detection object, and press the SET button again when there is a target detection object to automatically set the best position.



### Dust cover

For easy viewing, the dust cover is close to the display



### Adjustable light output

When detecting close-range or transparent objects or small objects, the light level is saturated, and the sensor's light output can be adjusted to achieve stable detection without changing the response time. This function can be used to easily set detection that previously required changing the response time and optical fiber.

### Two digital screens for easy use

Equipped with two digital screens, the reference value and incident light amount can be checked simultaneously, and various settings can be made, demonstrating extremely strong operability.



### Cable outlet method

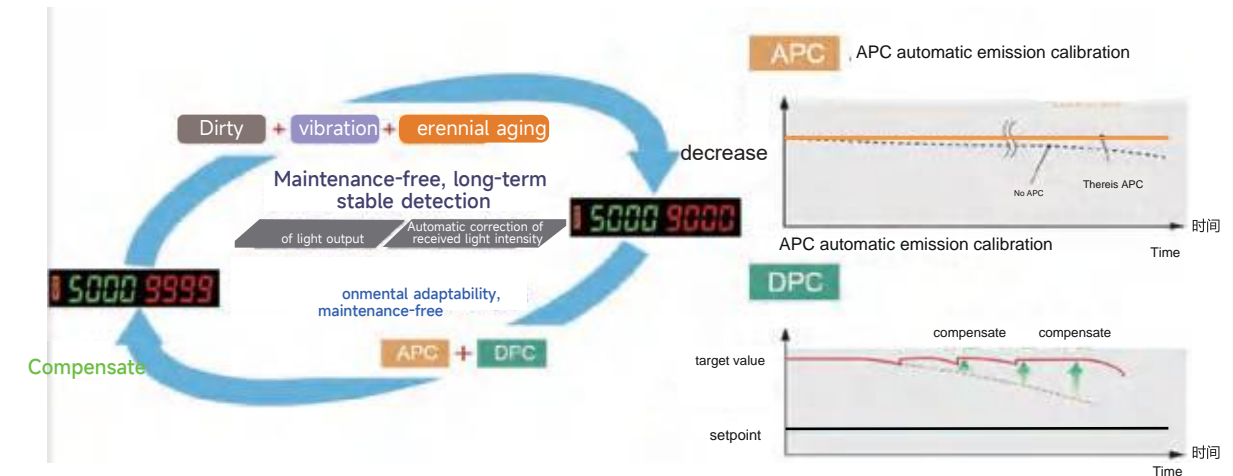
It is equipped with a wire lead-out type (standard 2-meter flexible cable), and a connector type is also available for selection.

## Dual Digital Display Fiber Optic Amplifier

### Features

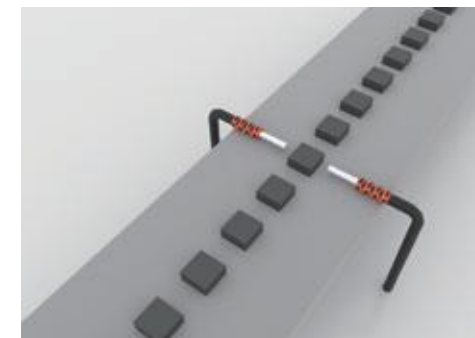
### Brightness compensation

The automatic maintenance function can detect when the light brightness decreases due to dirt or other reasons and restore the sensor to its initial display state. This function can eliminate the influence of the surrounding environment, enabling the sensor to continuously perform high-precision detection.



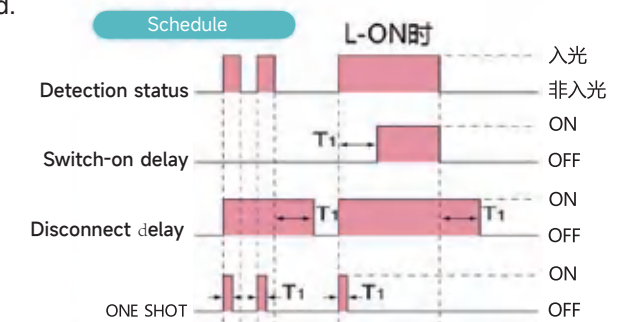
### Four detection methods

There are four detection modes: standard detection mode 1ms, high-speed 250us, ultra-high-speed detection mode 25us and high-precision detection mode 16ms. It can also detect small workpieces moving at high speed.



### 3 types of timers available

Equipped with on-delay, off-delay and ONE SHOT timer. (Timer time is about 1ms~10s)



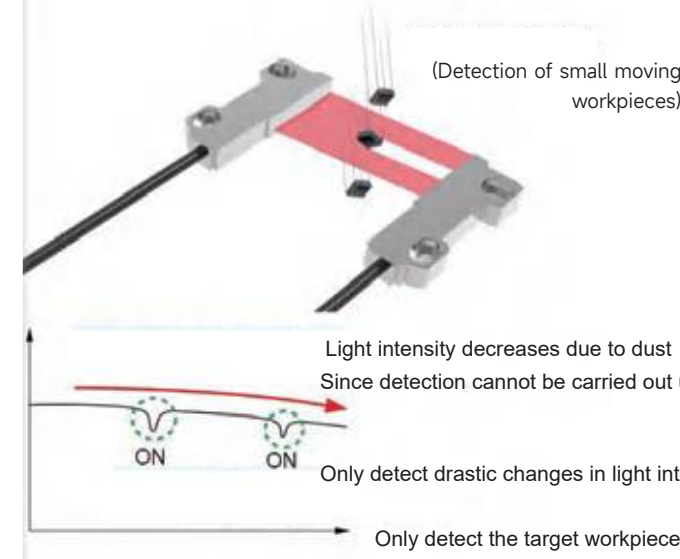
**on-delay** Delay the output of the ON state after detection.

**off-delay** When the detection time is short and detection cannot be performed via the PLC, maintain the output in the ON state.

**shot jogging** Even if the sizes of the detected objects vary, timed output can still be achieved.

### Differential detection mode

Detections that previously required multiple sensors and those where it was difficult to set a reference value can now be carried out.



Dual Digital Display Fiber Optic Amplifier

Eliminate deviation in light intensity display

Even when performing the same detection, there are deviations in the values of each fiber optic amplifier. Although there is no problem with the detection itself, it may still cause concerns among operators. By adjusting the display settings, the values can be corrected to any desired level. Therefore, display deviations can be eliminated, and it becomes easier to create work instructions.

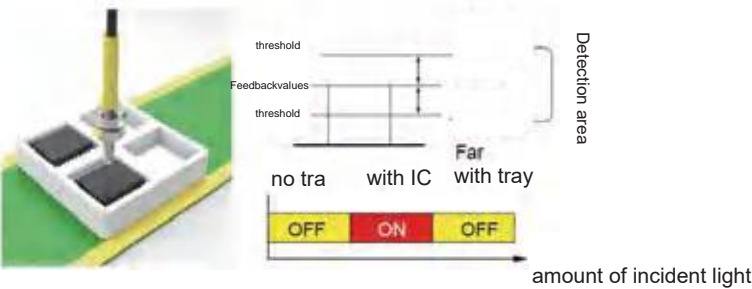


Light value adjustment

If you want to modify the light intensity target (light intensity adjustment level), you can set the light intensity adjustment level (100-9999, 1 scale, initial value is 9999.)

Window detection

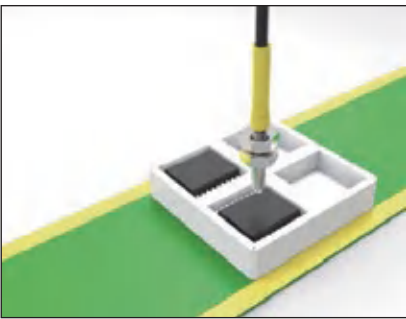
The upper and lower reference values can be set, and the amount of incident light within the range can be turned on/off (检测托盘内的IC) Inspect the ICs inside the tray



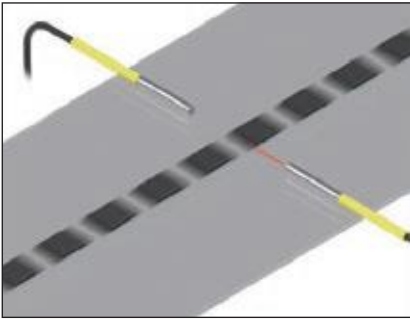
Save current consumption

After setting, if no key operation is performed within about 20 seconds, the digital display will turn off and the power consumption will be controlled below about 600mW. (Below 720mW when the light is on)

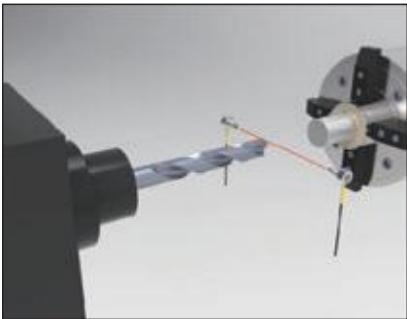
应用示例 Application examples



检测托盘上有无IC  
Inspect the ICs inside the tray



检测高速通过的小型工件  
Detect small workpieces passing by at high speed.

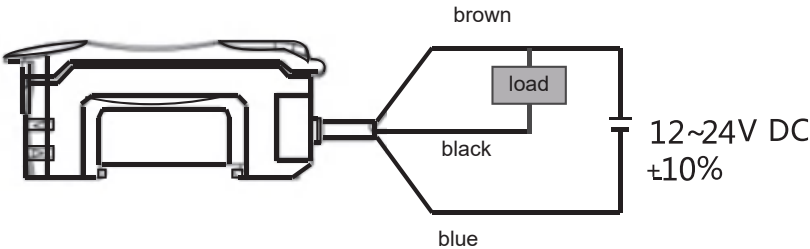


在油污恶劣环境下检测  
Detect in a harsh environment with oil contamination.

Type

Type	Shape(mm)	NPN type	PNP type
Economical		EX-NA11	EX-NA11P
Universal dual digital display		EX-HD10	EX-HD10P
Chinese dual digital display		EX-HD20	EX-HD20P

Input/output circuit



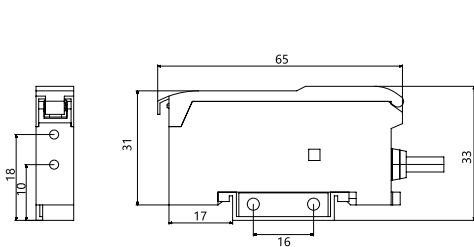
Dual Digital Display Fiber Optic Amplifier

Type

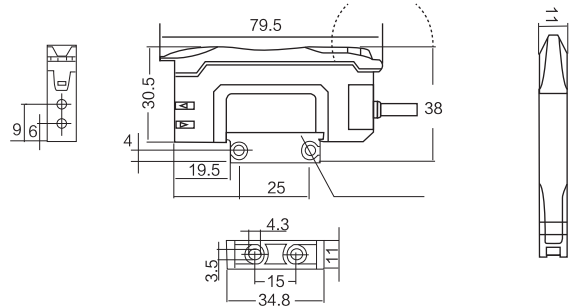
Item	Model	Economical	Universal dual digital display	Chinese dual digital display
		EX-NA11	EX-HD10	EX-HD20
Light source		640nm red modulated light		
Voltage		DC12-24V±10% fluctuation (pp) below 10%		
Power consumption		≤30mA		
Output mode		NPN open collector/PNP open collector		
Switch mode		L.on (light-incoming action)/D.on (light-blocking action) can be set		
Response time		P-0 25μs P-1:100μs, P-2:400μs, P-3:800μs, P-4:3.2ms		
Timer function		On-delay, off-delay, ONE SHOT timer		
Timing range		1 ~ 9999ms		
Useful functions		Parameter initialization/key lock/threshold two points, fully automatic and manual setting		
Advanced features		Automatic compensation for light projection quantity and received light intensity, differential detection, area detection		
Ambient temperature		-20°C~+50°C		
Ambient humidity		35~85%RH		
Ambient light		Daylight: below 30000LX, incandescent lamp: below 20000LX		
Protection circuit		Surge protection circuit, short circuit protection, reverse polarity protection		
Vibration resistance		10 - 55 Hz, double amplitude of 1.5 mm, 2 hours for each direction of X, Y, and Z.		
Shock resistance)		500m/s² double amplitude, 10 times for each direction of X. Y. and Z.		
Connection method		Wire lead-out type (standard lead wire length 2m)		
Material		Housing: PBT Cover: PC		

Dimension drawing (unit: mm)

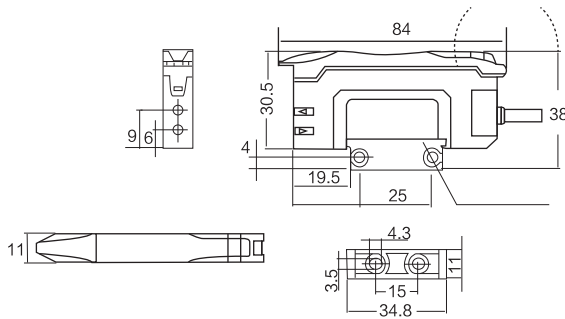
EX-NA11



EX-HD10



EX-HD20

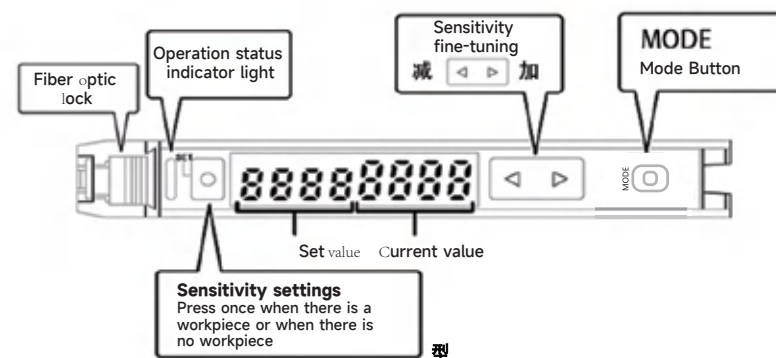


# EX-V analogue fiber amplifier

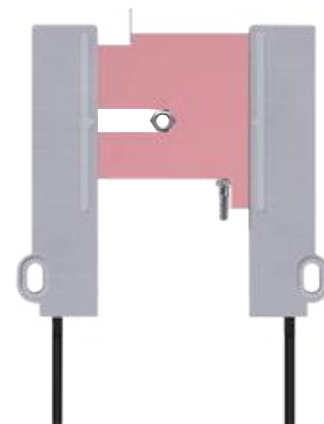


## Analog Deviation Correction Amplifier

### Product description

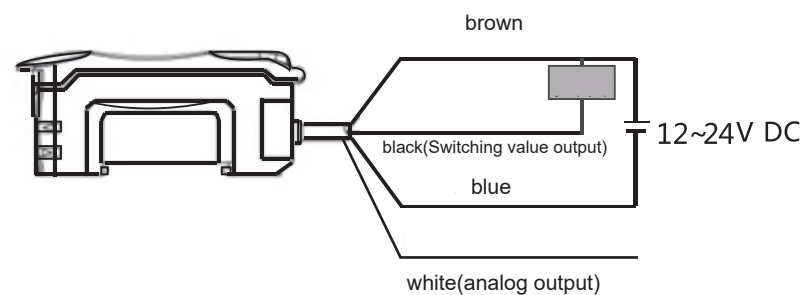


### Functions



- ▶ Regional deviation correction
- ▶ Dimensional measurement
- ▶ Detection

### Wiring diagram

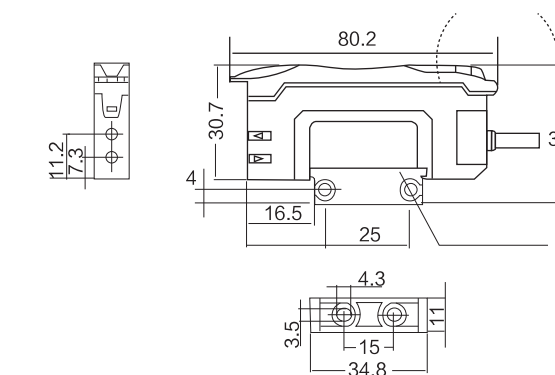


## Analog Deviation Correction Amplifier

### Rated specification performance

Model	EX-V61M	EX-V61MV
	NPN output + analog current	NPN output + analog voltage
Type	1 output port, wire lead-out	
Control output	1 output port (with analog output)	
Light source	Red, 4-element LED body	
Reaction time	P-0 25μs P-1:100μs, P-2:400μs, P-3:800μs, P-4:3.2ms	
Output selection	LIGHT-ON/DARK-ON (switch selection)	
Display indicator	Operation indicator: white LED, dual digital monitor: dual 7-digit display, threshold value (4-digit green LED indicator) and current value (4-digit white LED indicator) light up together. Current value range: 0-9999	
Detection method	Light intensity (area detection, automatic sensitive tracking available)	
Delay function	Off delay timer/on delay timer/single timer/on delay single timer are available. Duration time can be selected from 1ms to 9999ms.	
Control output	NPN/PNP open collector 24V, maximum 100mA (only for main components) maximum 20mA (residual voltage when expansion components are connected: 1V), sensors with M model are analog output, analog voltage ranges from 0-5V, detection accuracy is 1/1000	
Power supply	Between 12 and 24 VDC + 10%, floating ratio (PP): maximum 10% level 2	
Working environment brightness	Incandescent lamp: Max 20,000 lux, sunlight: Max 30,000 lux	
Power	Standard mode: Max 300mW	Standard mode: Max 300mW
Consumption	Maximum voltage 24V	Maximum voltage 24V
Vibration resistance	10 - 55 Hz, double amplitude of 1.5 mm, 2 hours for each direction of X, Y, and Z.	
Ambient temperature	-10 to +55°C, no ice	

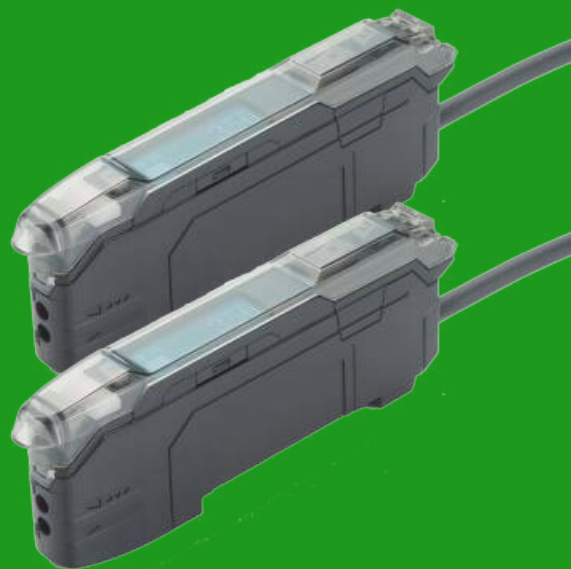
### Dimension drawing (unit: mm)



### EX-V61



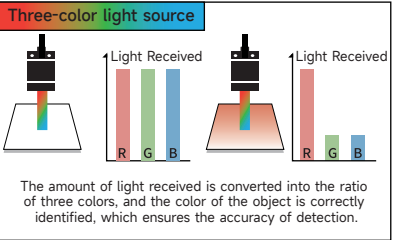
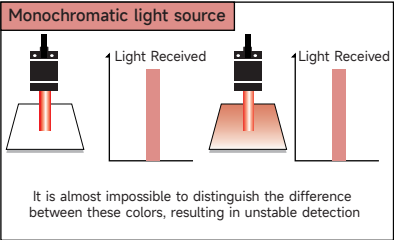
# EX-C dual digital display Color fiber amplifier



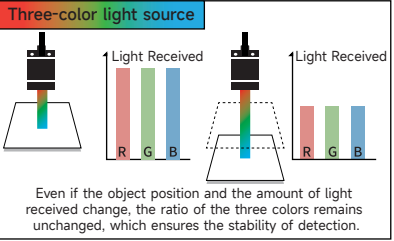
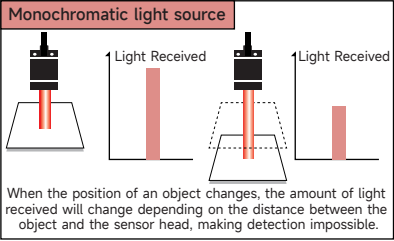
## Color Optical Fiber Amplifier

RGB light source capable of recognizing multiple targets

### Advantages of RGB light source 1 Accurate target identification

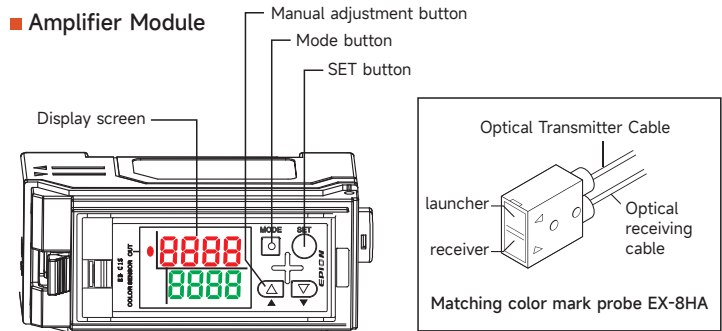


### Advantages of RGB light source 2 Very little affected by changes in the position of objects

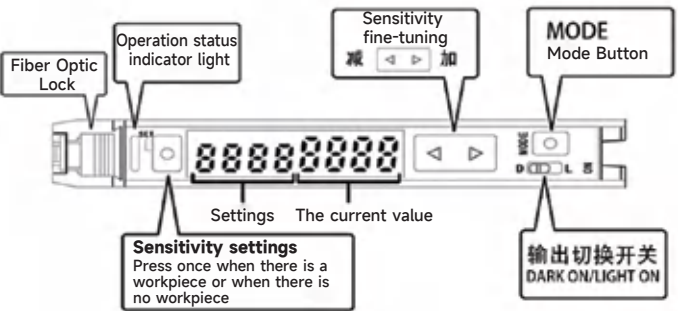


## EX-C21-XJ

### Amplifier Module



## EX-C71-XJ



## EX-8HA-XJ

### When detecting metal surfaces or smooth objects

If the target has a metallic or smooth surface, tuning/recognition will fail. To detect such a target, the sensor head should be tilted about 10-15 degrees.



## Color Optical Fiber Amplifier

### Product description

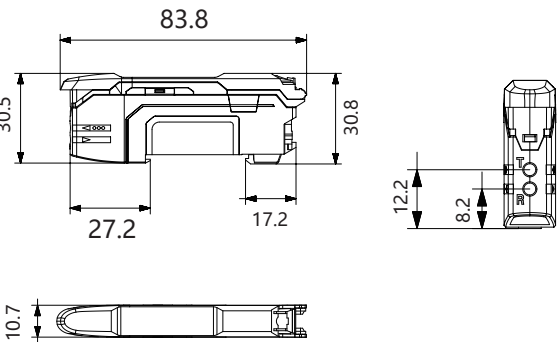
NPN output	EX-C71
PNP output	EX-C71P
Control output	Simple single-channel output
Light source	RGB tri-color, 4-element LED
Response time	300μs(HSP)/1ms(FINE)
Output selection	LIGHT-ON/DARK-ON(switch selection)
Display indicator	Operation indicator light: Dual 7-digit display, threshold value and current value light up simultaneously. Current value range: 0 - 9999.
Detection method	Light intensity (capable of area detection and providing automatic sensitivity tracking function)
Delay function	Off delay timer/on delay timer/single timer/on delay single timer are available. Duration time can be selected from 1ms to 9999ms
Control output	PNP/NPN open collector: Maximum 40 VDC (maximum 100 mA), Residual voltage: Maximum 1.0 V
Power supply	Between 12 and 24 VDC ± 10%, floating ratio (P-P): maximum 10%
Working environment brightness	Incandescent lamp: Max 5000 Lux, sunlight: Max 10,000 Lux
Power consumption	Standard mode: Max 300mW, maximum voltage: 24V
Vibration resistance	10 - 55 Hz, double amplitude of 1.5 mm, double amplitude 2 hours for each direction of X, Y, and Z.
Ambient temperature	-10 to +55°C no ice

### Wiring diagram

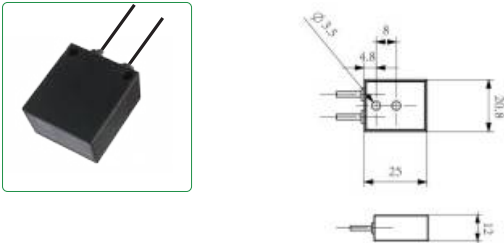


### Product dimension

#### EX-C71



#### EX-8HA



Selection rules

EX - L D 3 1 Q TZ S10

convex tube: N/A=no fine pins are led out. S10=convex tube 10mm

optical fiber: N/A = ordinary; TZ = coaxial; N = right-angled

type thread: N/A=with thread, Q=without thread

diameter: 1= $\phi$ 1.5, 2= $\phi$ 2, 3=M3, 4=M4, A=zone optical fiber

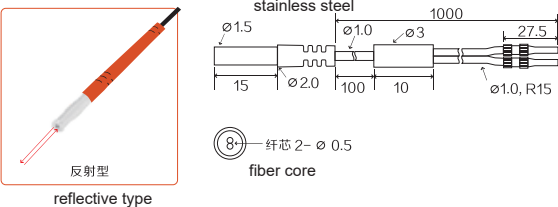
detection method: D=reflective; T=through-beam

detection direction: N/A = front; L = side; W = top; F = frontal

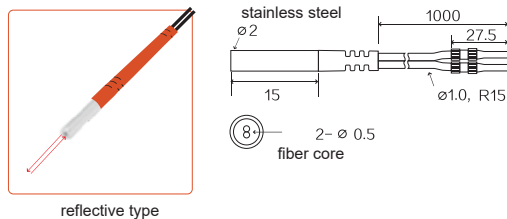
EX series optical fiber

Reflecting fiber

EX-D11Q



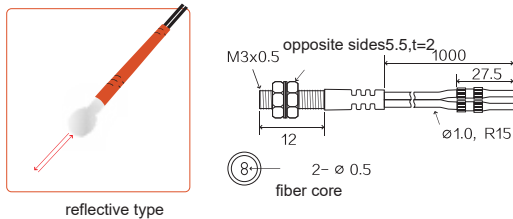
EX-D21Q



EX-D31

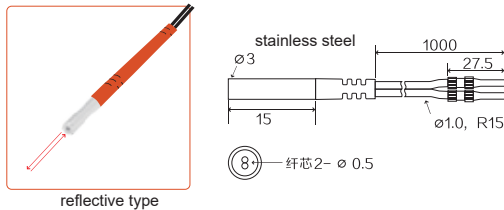
Available convex tube

The convex tube can be expanded by 1.5 mm



EX-D31Q

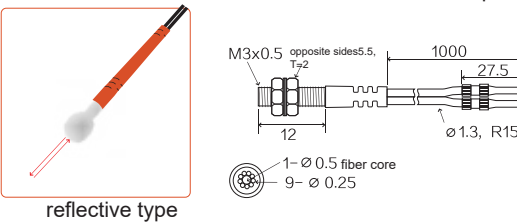
The convex tube can be expanded by 1.5 mm



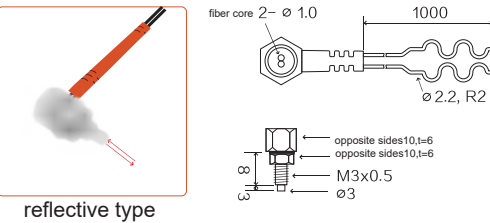
Reflective optic fiber

EX-D31TZ

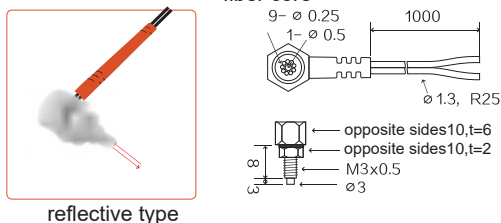
The convex tube can be expanded by 1.5 mm



EX-D31N

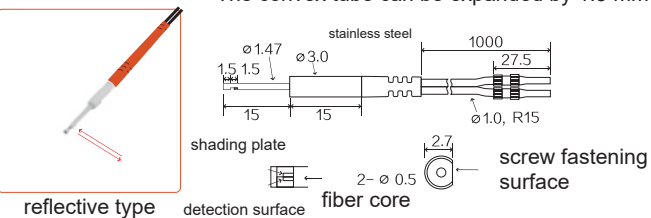


EX-D31NTZ



EX-LD31QS15

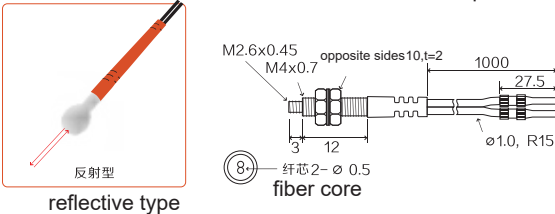
The convex tube can be expanded by 1.5 mm



EX-D41

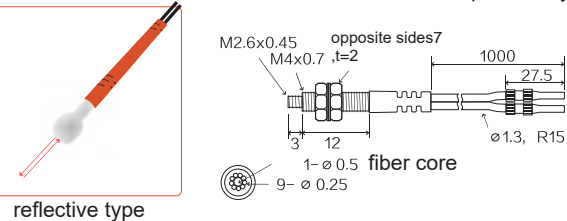
Available convex tube

The convex tube can be expanded by 1.5 mm

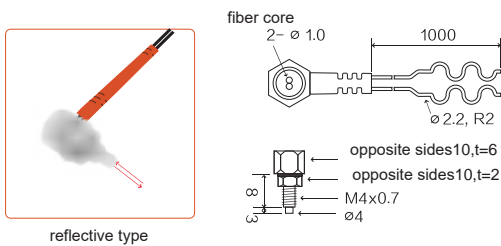


EX-D41TZ

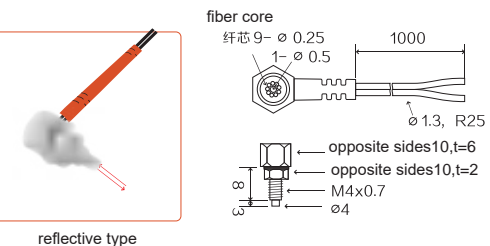
The convex tube can be expanded by 1.5 mm



EX-D41N



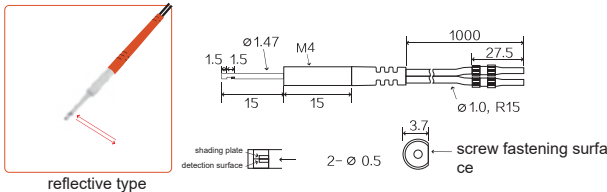
EX-D41NTZ



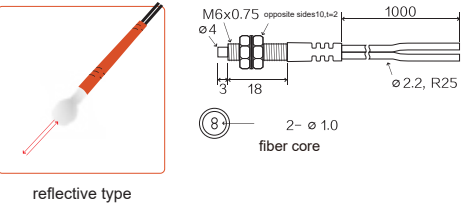
EX-LD41S15

The convex tube is expandable.

The convex tube can be expanded by 1.47mm



EX-D61

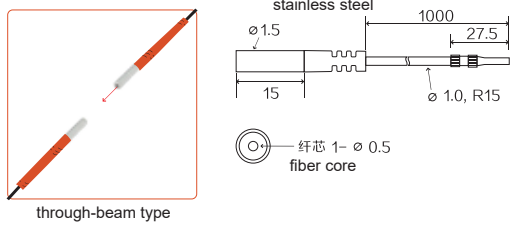




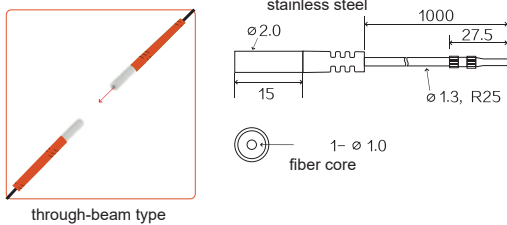


Through-beam optical fiber

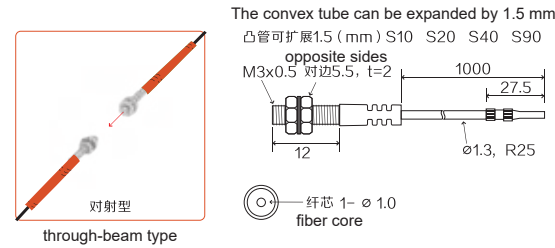
EX-T11Q



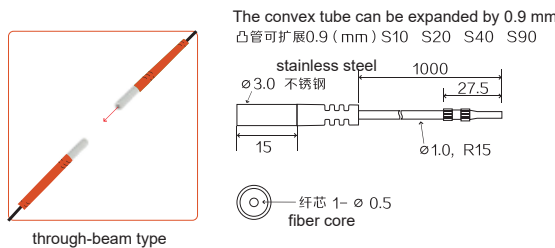
EX-T21Q



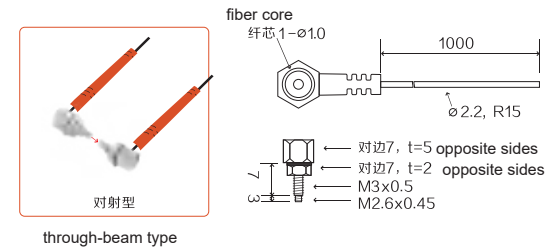
EX-T31



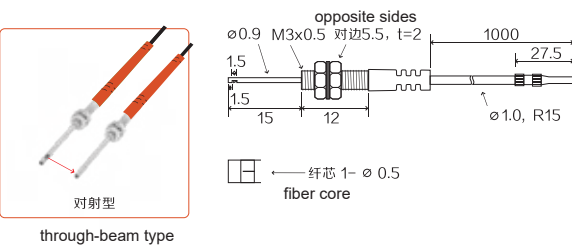
EX-T31Q



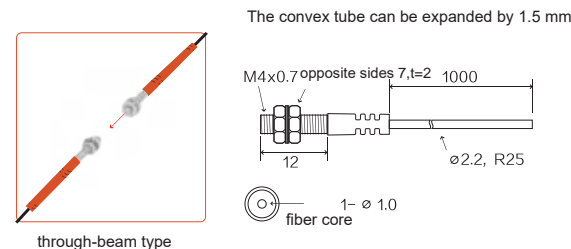
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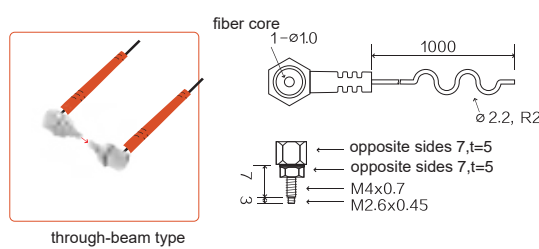
EX-LT31S15



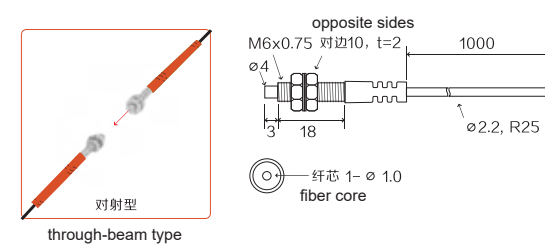
EX-T41



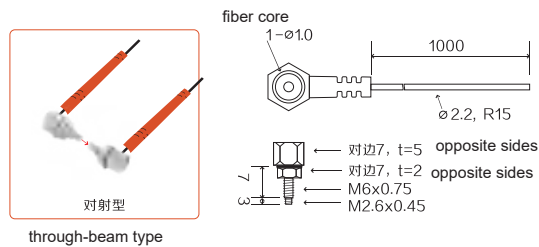
EX-T41N



EX-T61

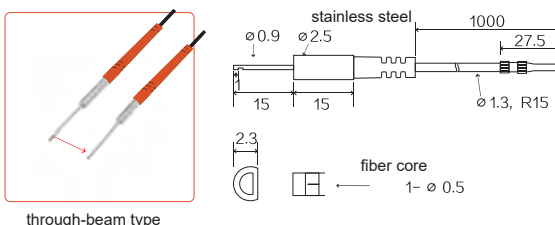


EX-T61N

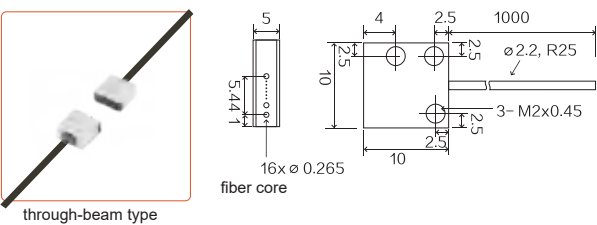


Through-beam optical fiber

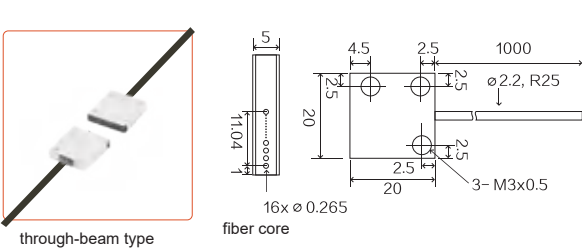
EX-FU32



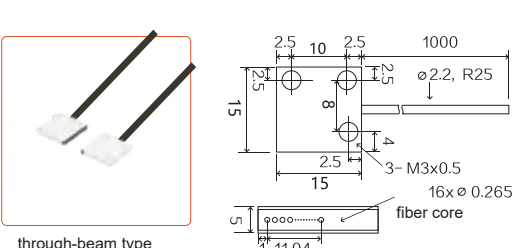
EX-FTA10



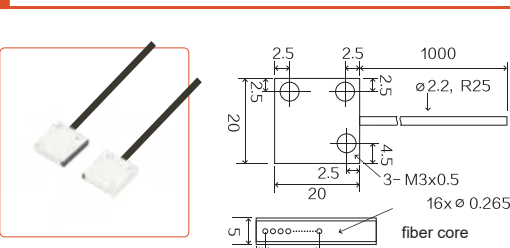
EX-FTA20



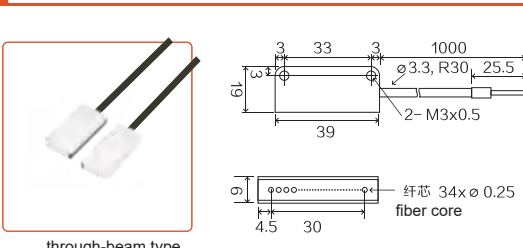
EX-LTA15



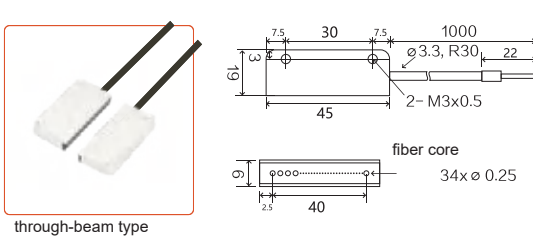
EX-LTA20



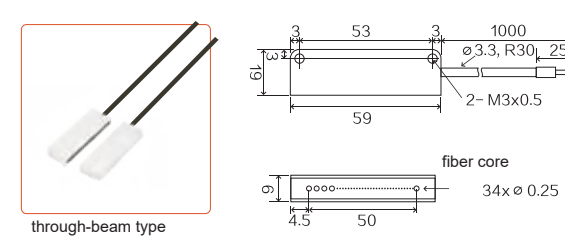
EX-LTA40



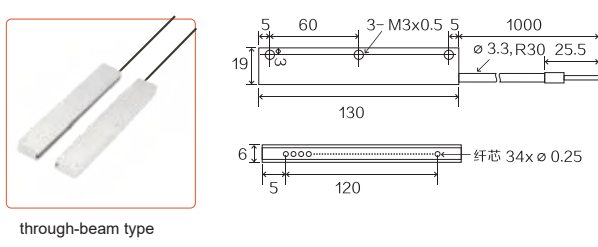
EX-LTA45



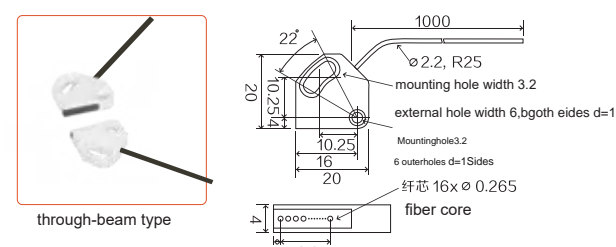
EX-LTA60



EX-LTA130



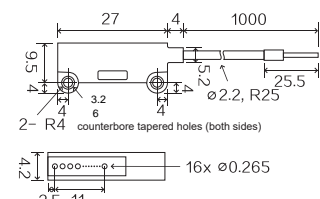
EX-WTA10



## EX-LTE11



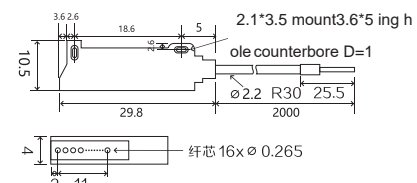
through-beam type



## EX-LTE11-H



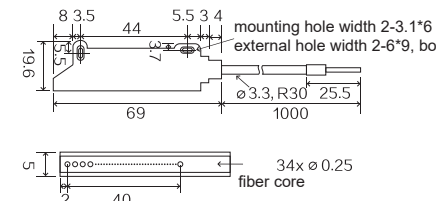
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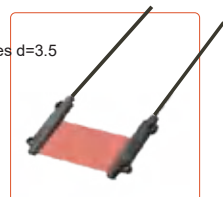
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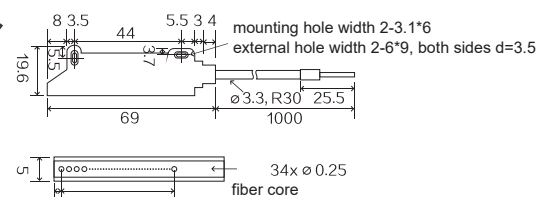
through-beam type



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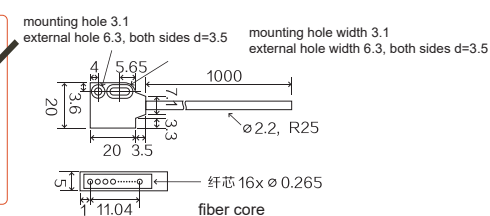
through-beam type



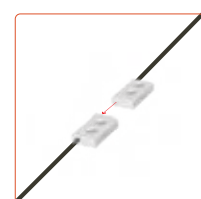
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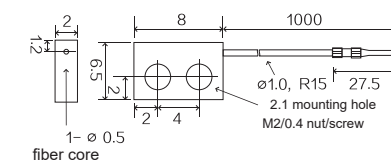
through-beam type



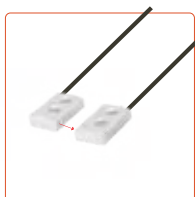
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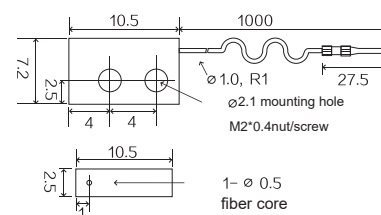
through-beam type



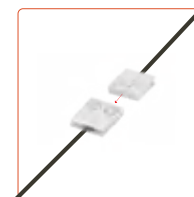
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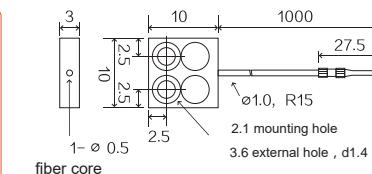
through-beam type



## EX-FT51



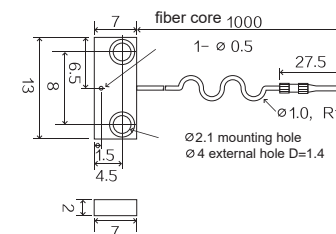
through-beam type



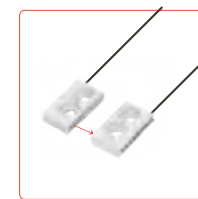
## EX-LT53



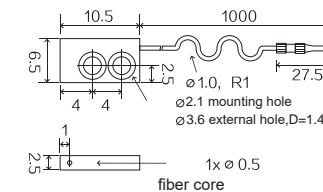
through-beam type



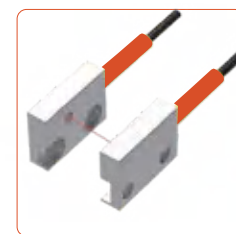
## EX-LT57



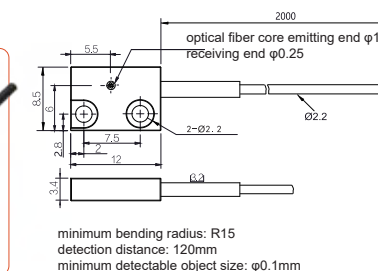
through-beam type



## EX-FT12



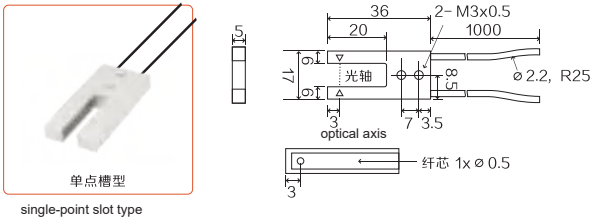
minimum bending radius: R15  
detection distance: 120mm  
minimum detectable object size:  $\varnothing 0.1\text{mm}$



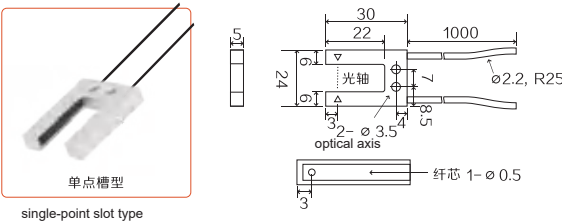
Optical Fiber Component

Slot-type optical fiber

EX-UT0520

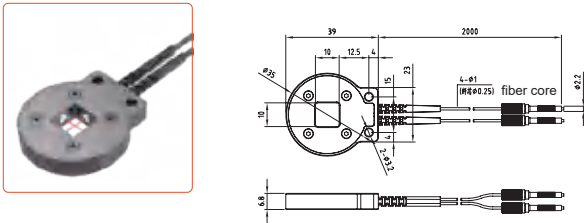


EX-UT1220

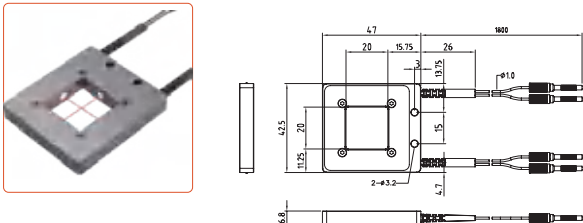


十字对针光纤 Cross-alignment optical fiber

EX-S4010

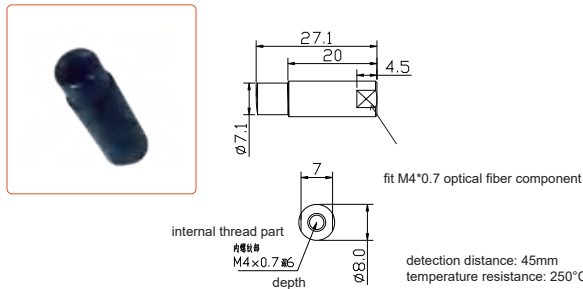


EX-Q4520

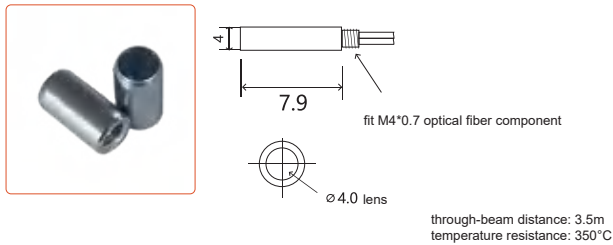


高温透镜 High-temperature lens

EX-D4RHT



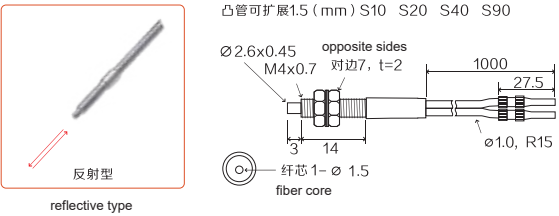
EX-T4SHT



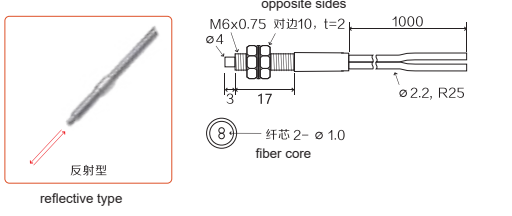
Optical Fiber Component

High-temperature optical fiber Maximum temperature 350°C

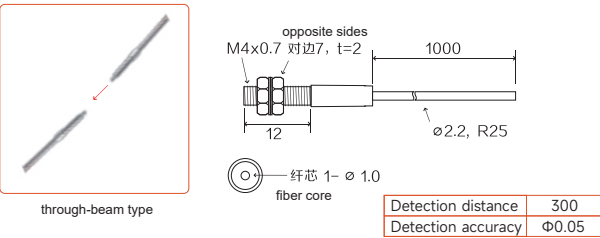
EX-D41HT



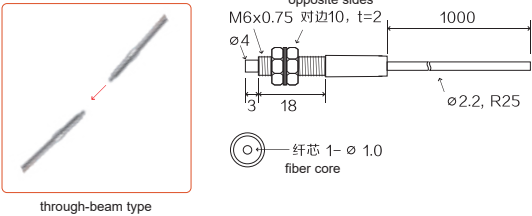
EX-D61HT



EX-T41HT

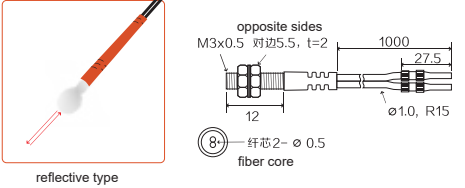


EX-T61HT

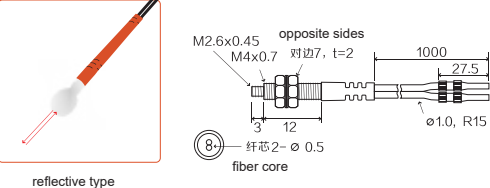


High flexibility fiber

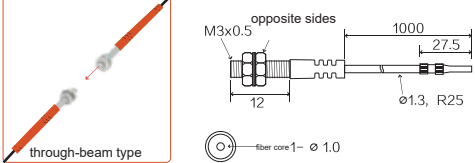
EX-D31GR



EX-D41GR



EX-T31GR





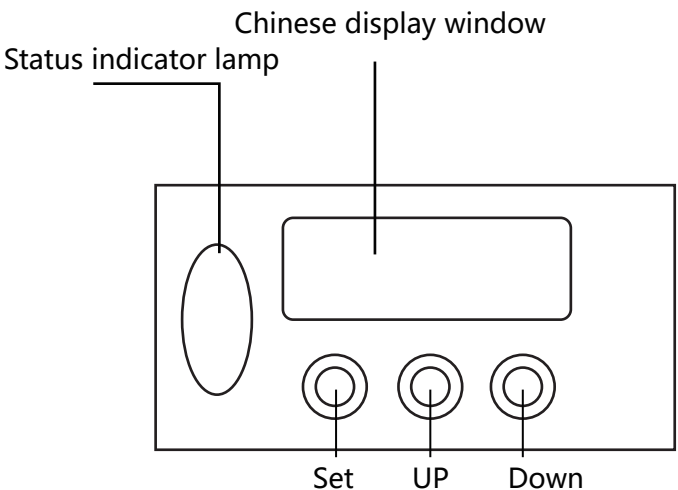
# MD Laser Displacement sensor



## Laser displacement sensor

### Names of parts

The repeatability of stable detection is 0.01 mm.  
High measurement accuracy of 0.1%  
Ultra-fast response time up to 1.5ms  
Various output modes, pure I/O/analog /RS-485.

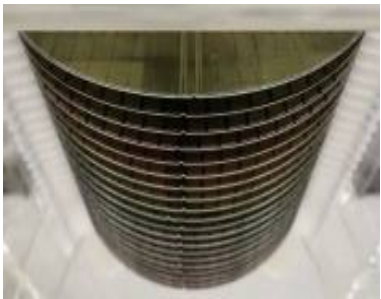


### Teach

- Product surface flatness detection
- Dispensing quantity detection



- Chip presence or absence detection
- Wafer lamination inspection



## Laser displacement sensor

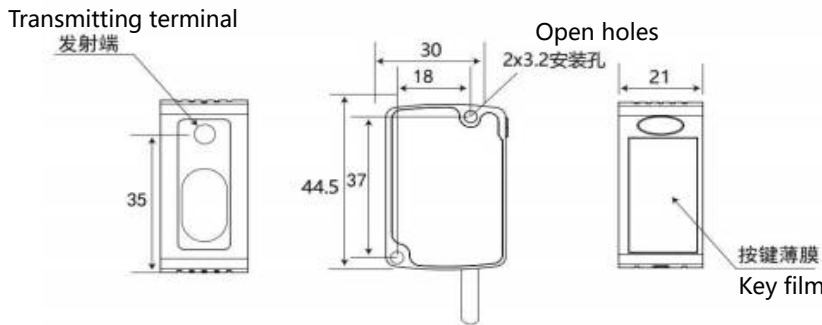
### Product parameter

Model Project		Kind	Micro laser displacement sensor					
			30mm	50mm	100mm	200mm	400mm	600mm
		NPN/PNP+analog quantity MA/V +RS-485	MD-LS030	MD-LS050	MD-LS100	MD-LS200	MD-LS400	MD-LS600
		Measuring center distance	30mm	50mm	100mm	200mm	400mm	475mm
		Measuring range	±5mm	±15mm	±35mm	±80mm	±200mm	60-950mm
		Repeatability	10um	30um	70um	200um	300um (200~400) mm 800um (400~600) mm	600um
		Measurement accuracy	±0.1%F.S.			±0.2%F.S.	±0.2%F.S. (160~400) mm ±0.3%F.S. (400~600) mm	±0.3%F.S.
		Response frequency	1.5ms/ 5ms/15ms					
		Light source	Red laser (655nm)					
		Spot size	Φ100um	φ100um	Φ200um	φ500um	φ1mm	
		Power supply voltage	12V~24V DC±10% / P-P 10%					
		Light source power	<1W					
		Output	Transistor output: NPN/PNP Analog output: 0V~5V、0V~10V、4mA20mA Communication output:RS-485					
		Output action	ON in light/on in non-light can be switched.					
		Short circuit protection	Equip					
Environmental resistance	Protective structure		IP67					
	Working temperature		-10℃~+50℃					
	Ambient temperature		-20℃~+60℃					
	Ambient humidity		35%RH~85%RH					
	Ambient illumination		Incandescent lamp: the illuminance of the light receiving surface is below 3000lux.					
	Voltage withstand		1000V/AC/50Hz/60Hz 60s					
	Insulance		≥50MΩ (500V DC)					
	Vibration resistance		Frequency: 10 ~ 50hz, double amplitude: 15mmXYZ, 2 hours in each direction (when not energized).					
	Shockproof		Acceleration 500m/s2 (about 50G)XYZ 3 times in each direction (when not energized).					
		Texture of wood	Shell: die-casting zinc window: glass					
		Link mode	2m cable					

(Note 1) No specified measurement condition refers to the condition that the ambient temperature is equal to +23℃.  
(Note 2) This product is a laser product, and it can be used after preheating for ten minutes.

### Dimension drawing (unit:mm)

#### MD-LS030/050/100/200/400



MD

High precision laser displacement series

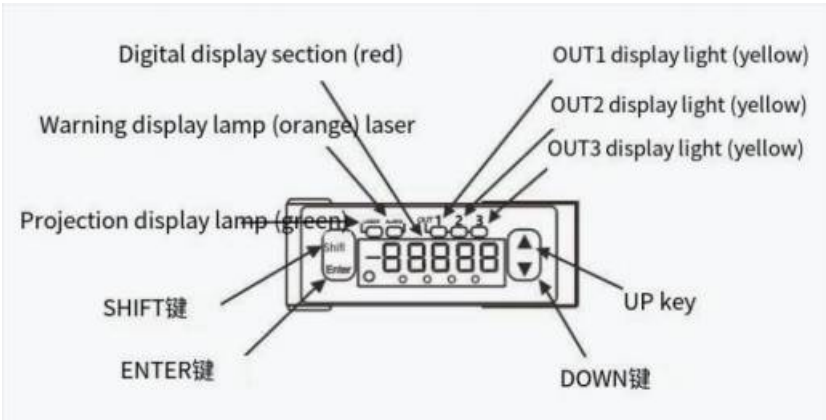


Laser displacement sensor

Names of parts

High-precision stable detection, the accuracy can reach 0.002 mm.

Wide measuring range, and various output modes such as switching value, analog value and communication can be selected, which is suitable for more application scenarios.



Kind

Shape	Measuring center distance and measuring range	Resolution Ratio	Beam Diameter	Model
	30±4mm	0.5μm	0.1X1mm	MD-HL030
	50±10mm	1.5μm	0.5X1mm	MD-HL050
	85±20mm	2.5μm	0.75X1.25mm	MD-HL085
	120±60mm	8μm	1.0X1.5mm	MD-HL120
	250±150mm	20μm	1.75X3.5mm	MD-HL250

Hookup

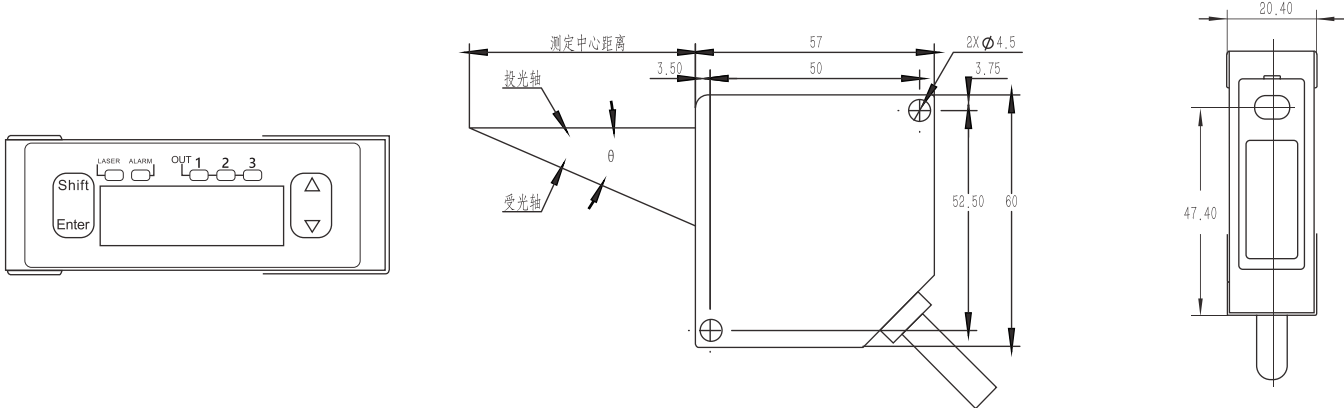
	name	function	Line color	
Analog input	A(V)	Analog voltage output	1-core shield	black
	AGND	Analog grounding		
	A(I)	Analog current output	1-core shield	ash
	AGND	Analog grounding		
Digital output line	OUT1	Judgement output 1	Black, white, blue	
	OUT2	Judgement output 2		
	OUT3	Judgement output 3 or warning output		
	TM	Timing input	pink	
	MI	Zero adjustment, reset, memory switching, teaching, saving and laser control. input	purple	
	NP	NPN /PNP switching input	Pink/blue or purple	*1
	+SD	TXD	unshielded twisted pair	green
	-SD	TXD	unshielded twisted pair	light blue
	+RD	receive data	unshielded twisted pair	Orange
	-RD	receive data	unshielded twisted pair	yellow
	SG	Signal grounding		black
	+V	DC24V input power		brown
	OV	grounding for power supply		blue

Laser displacement sensor

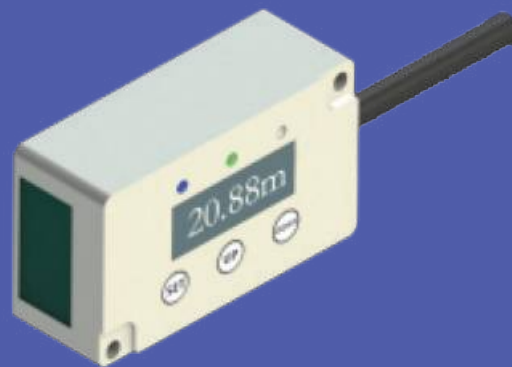
Product parameter

Product model	MD-HL030	MD-HL050	MD-HL085	MD-HL120	MD-HL250
Determination mode	Diffuse reflection				
Measuring center distance	30mm	50mm	85mm	120mm	250mm
Measuring range	±4mm	±10mm	±20mm	±60mm	±150mm
Light source	The maximum output of red semiconductor laser class 1 (JIS/IEC/GB/KS/FDA laser notice No.50/GB) is 0.39mW, and the projection peak wavelength is 655nm.				
Beam diameter	0.1×0.1mm	0.5×1mm	0.75×1.25mm	1.0×1.5mm	1.75×3.5mm
	0.1×1mm				
Light receiving part	cmos image sensor				
Resolution ratio	0.5μm	1.5μm	2.5μm	8μm	20μm
Linearity	±0.1%F.S.				±0.3%F.S.
Temperature characteristics	± 0.08%F.S./°C				
Power supply voltage	10% of 24VDC soil includes pulsation of 0.5V(P-P).				
Current consumption	100mA以下				
Sampling period	500μs、1ms、2ms				
Analog output	Voltage	Output range: 0~10.5V (normal) and 11V (warning) Output impedance:100Ω			
	Electric current	Output range: 3.2~20.8mA (normal) and 21.6mA (warning) Load impedance:300Ω以下			
OUT1 output	Judgement output or warning output (set switching mode)NPN transistor open collector /PNP transistor open collector (switching mode)				
OUT2 output					
OUT3 output					
	< when NPN action is set >Maximum inflow current: 50mAApplied voltage: 3 ~ 24 VDC (output -0V)Residual voltage: 2V or less (when the inflow current is 50mA)Leakage current: less than 0.1mA		< when PNP action is set > Maximum outflow current: 50MAResidual voltage: less than 2.8V (when the outflow current is 50mA) Leakage current: less than 0.1mA		
Output action	Open circuit when ON (output action)				
Short circuit protection	Equipped (automatic recovery)				
NP switching input	OV connection: NPN open collector output action.When the power supply is connected to 24VDC: PNP open collector output action.				
Timing input	NPN action setting: action when OV is connected or action during connection (depending on setting). When setting PNP action: when connecting external power supply+or when connecting (depending on the setting).				
Multiplex input	NPN action setting: action when OV is connected or action during connection (depending on setting). When setting PNP action: when connecting external power supply+or when connecting (depending on the setting).				
Communication interface (high power type)	RS-422或RS-485Baud rate: 9,600/19,200/38,400/115,200bps.Data length is 8bit, ending bit length is 1bit, parity is not available, BCC is available, and data distinction is CR.				
LED	Laser projection	The green LED lights up when the laser is turned on.			
	warn	The state that the light quantity of orange LED is not enough to be measured.			
	output	Yellow LED (number of lights displayed: 3)Lights up when the action is output.			
Digital display unit	Red LED symbol and 5-digit display				
Protective structure	IP67				
Contamination degree	2				
Insulance	More than 20MQ at DC250V Megger (between all terminals and casing)				
Voltage withstand	AC1,000V1 minutes (between all terminals and housing)				
Vibration resistance	Durable frequency: 10 ~ 55hz (cycle 1 minute) Double amplitude: 1.5mmX, 2 hours in Y and Z directions respectively.				
Shockproof	500m/s2X, y, z direction 3 times each.				
Ambient illumination	3, 000lx or less (illumination of light receiving surface in case of incandescent lamp)				
Ambient temperature	-10~+45°C (be careful not to condense or freeze) When stored: -20~+60°C				
Ambient humidity	When stored at 35 ~ 85% RH: 35 ~ 85% RH				
Use height	2,000m以下				
Texture of wood	Body shell: PBT, front cover: propylene, cable: PVC.				
Electric cable	0.5M				

Dimension drawing (unit:mm)



# MD Remote Laser sensor



## Laser displacement sensor

### Characteristic

- Short, medium and long measuring ranges are optional.
- Support NPN/PNP switching
- Support 485 communication
- OLED Chinese digital display, clear and clear.
- Full Metal Jacket, sturdy and durable.
- Small volume, small light spot and high precision.

### Menu description:

In the main menu of the menu SETting interface, press and hold "set" for more than three seconds to exit the menu setting interface and save the parameter settings.Note: Long press exit cannot be performed in the submenu of the menu setting interface.After entering the menu setting mode, press the "UP" key or "DOWN" key to switch the menu up and down.Press the "SET" key briefly to enter the corresponding menu item.Working mode: it can be switched in standard mode, high-speed mode and high-precision mode.Normally open state: in normal detection mode, when the received light intensity is greater than the threshold, the output is turned on; In the area detection mode, the output is turned on when the received light intensity is within the upper/lower threshold range.Normally closed state: in normal detection mode, when the received light intensity is less than the threshold, the output is turned on; Area detectionAddress: As the address code of 485 communication, it can be set in the range of 1~100.Select output: high level (PNP) and low level (NPN)Reset: Initialize the equipment and change all parameter settings to default values.

### Hookup

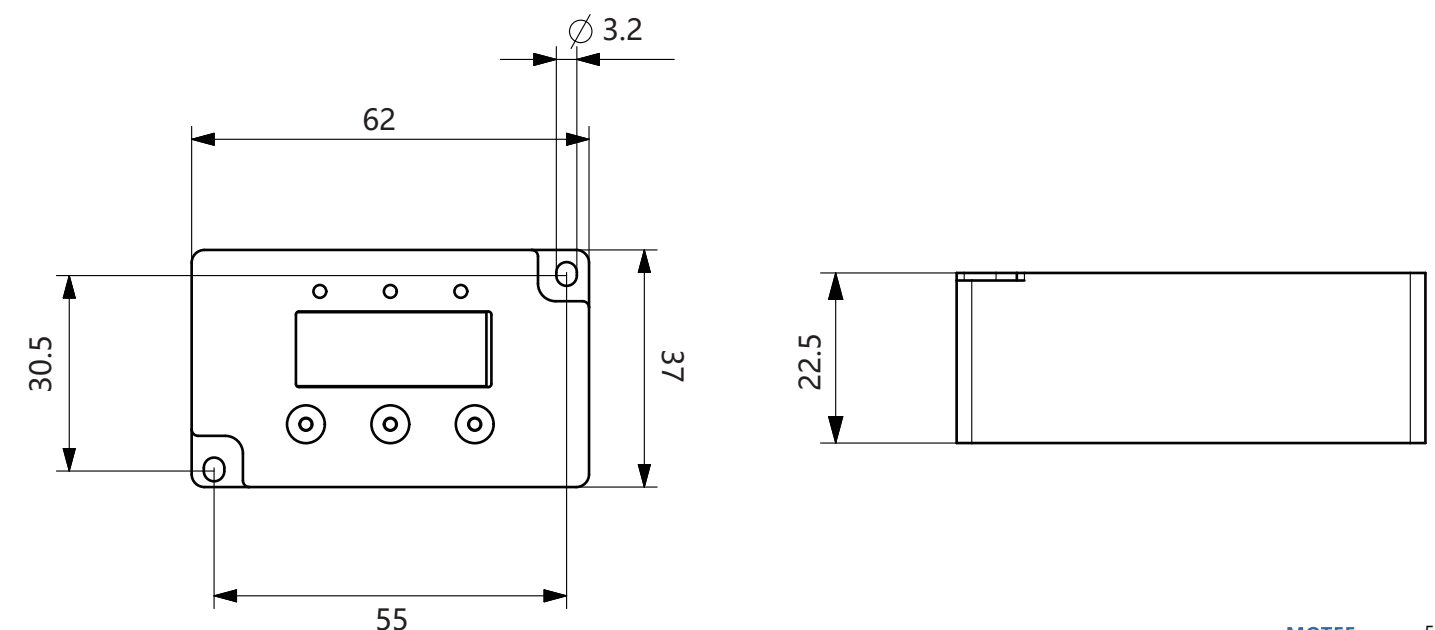
Wire No.	Function	Wire Color (Outgoing Type)
1	NPN/PNP	Black
2	Power (+)	Brown
3	Power (-)	Blue
4	485A	Yellow
5	485B	Green

## Laser displacement sensor

### Product parameter

Kind	RS485+NPN/PNP	RS485+NPN/PNP	RS485+NPN/PNP	RS485+NPN/PNP
Model	MD-LG05	MD-LG10	MD-LG20	MD-LG40
Examination area	30mm-5M	30mm-10M	30mm-20M	30mm-40M
Repeatability	±1.5mm	±1.5mm	±2mm	±2.5mm
Output category	NPN output /PNP optional			
Output mode	Double switch quantity, RS485 response digital quantity			
Communication method	RS485 (supporting multi-site output)			
Beam diameter	5mm			
Power supply voltage	12V-24VDC ±10% P-P10%			
Consumption current	Below 100mA			
Light source	Red semiconductor laser class 2, maximum output: 1mW, luminous beam wavelength: 620-650nm.			
Short circuit protection	Equipped (automatic recovery type)			
Response frequency	5-20HZ			
Protective structure	IP65(IEC)			
Operating ambient temperature	-10 C-+40 C (be careful not to condense or freeze)			
Using ambient humidity	35%-85%RH (non-condensable)			
Use ambient illumination	Incandescent lamp: the illuminance of the light receiving surface is below 3,000lx.			
Electric cable	25mm 6-core composite cable with external diameter 2mm/ cable length can be customized.			
Texture of wood	Body shell: aluminum casting			
Weight	About 35g (excluding cable) about 85g (including cable)			
Product size	62*37*23mm			
Applicable specifications	Conform to MC instruction			

### Dimension drawing (unit:mm)





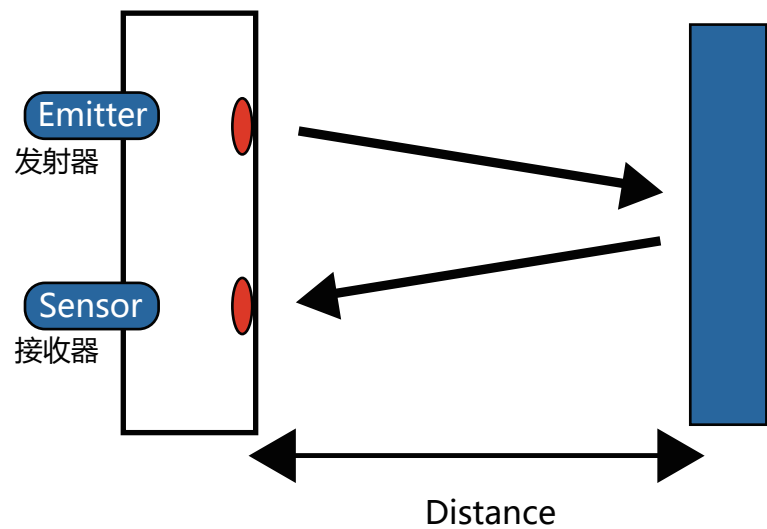
# MD TOF remote laser sensor



## Laser displacement sensor

### Characteristic

TOF(Time-of-Fligh), the working principle of laser ranging sensor is based on the time-of-flight ranging technology. By emitting a laser pulse with a specific wavelength and measuring the time from emission to reflection, the distance can be calculated by measuring the time of flight of the pulse.At present, there are two main algorithms in industrial applications, one is pulse ranging (dTOF) and the other is phase difference ranging (iTOF). veinImpulse ranging (dTOF) directly measures the flight time difference between the transmission and reception of optical pulses and calculates the distance. The circuit implementation is relatively easy, the measurement frequency is fast, and the accuracy is about 2-3 mm.



距离L

时间T/2

光速

Measured Distance

=

Photon Travel Time/2

X

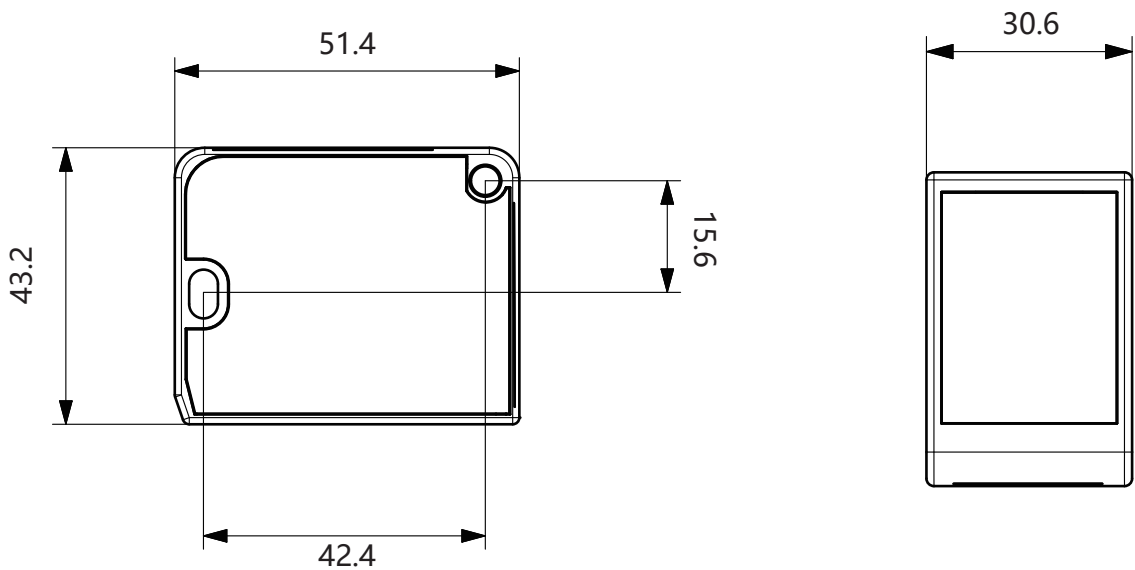
Speed of light

## Laser displacement sensor

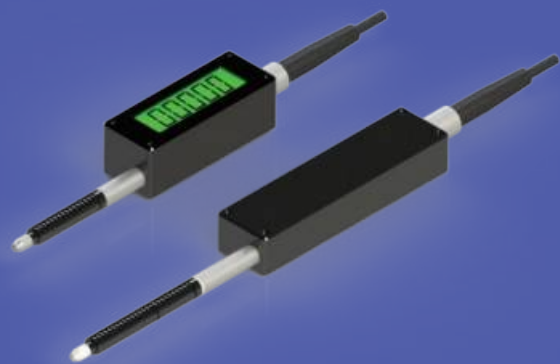
### 产品参数

Kind	MD-LTB2000	MD-LTB5000
Model		
Examination area	30-2000	30-5000
Repeatability	2mm	2mm
Output category	NPN output /PNP optional	
Output mode	Double switch quantity, RS485 response digital quantity	
Communication method	RS485 (supporting multi-site output)	
Beam diameter	5mm	
Power supply voltage	12V-24VDC ±10% P-P10%	
Consumption current	Below 100mA	
Light source	Red semiconductor laser class 2, maximum output: 1mW, luminous beam wavelength: 620-650mm.	
Short circuit protection	Equipped (automatic recovery type)	
Response frequency	20-1000HZ	
Protective structure	IP65(IEC)	
Operating ambient temperature	-10 C-+40 C (be careful not to condense or freeze)	
Using ambient humidity	35%-85%RH (non-condensable)	
Use ambient illumination	Incandescent lamp: the illuminance of the light receiving surface is below 3,000lx.	
Electric cable	25mm 6-core composite cable with external diameter 2m/ cable length can be customized.	
Texture of wood	Body shell: aluminum casting	
Weight	About 35g (excluding cable) about 85g (including cable)	
Product size	62*37*23mm	
Applicable specifications	Conform to MC instruction	

### Dimension drawing (unit:mm)



# MD Grating Displacement Sensor



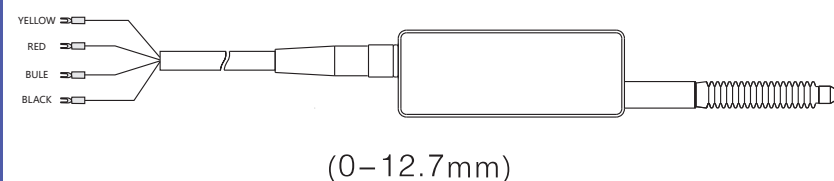
## Grating displacement sensor

### Characteristic

10 million rebound testsRS485 communication output, the accuracy can reach 0.002 mm.Measuring principle of CMOS gratingThrough high-speed reading of CMOS sensor, the temperature and tracking error are solved.



### Hookup



RS485 lead type	
Pin number	function
Blue	B
Black	A
Yellow	DC 5V
Red	GND

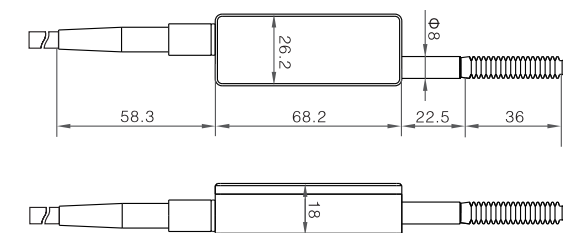
## Grating displacement sensor

### Product parameter

Product name		Model	measuring range (mm)	Full-range accuracy	Resolution ratio	Waterproof grade
Standard grating displacement sensor		MD-LV1050	0-12.7	≤10μm	5μm	IP65
		MD-LV1010		±2μm	1μm	
		MD-LV1005		≤2μm	0.5μm	
Digital display grating displacement sensor		MD-LV1050D		≤10μm	5μm	
		MD-LV1010D		±2μm	1μm	
		MD-LV1002D		≤1.4μm	0.2μm	
Detecting system		Grating measurement system, image sensor				
Operating voltage		DC 5V				
Operational current		<50mA				
Data update speed		50ms				
Lead length		2m				

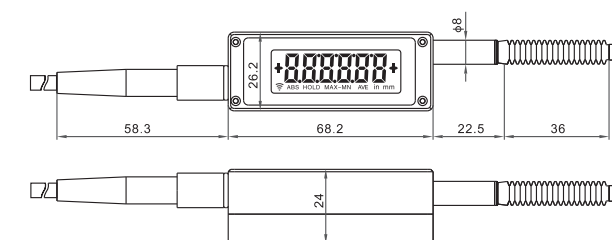
### Dimension drawing (unit:mm)

#### MD-LV1050/1010/1005/1002



0-12.7mm

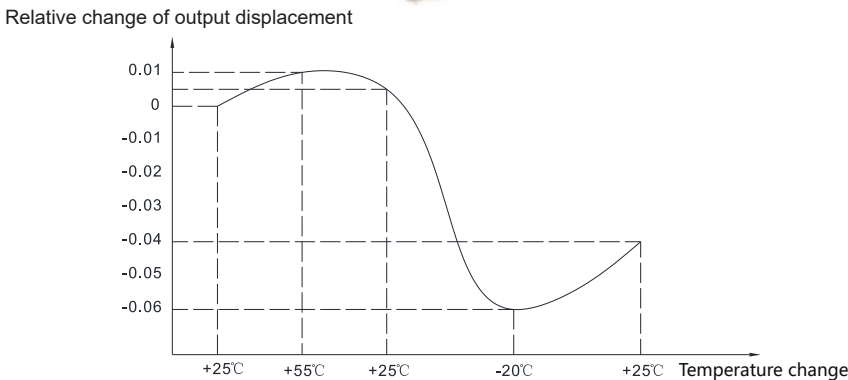
#### MD-LV1050D/1010D/1005D/1002D



0-12.7mm

Contact sensor

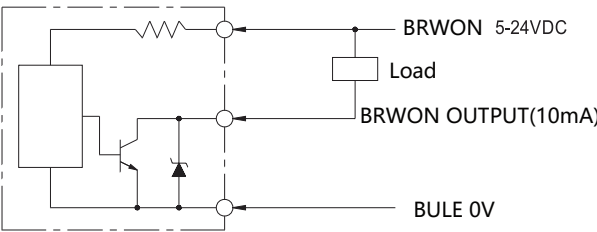
Characteristic



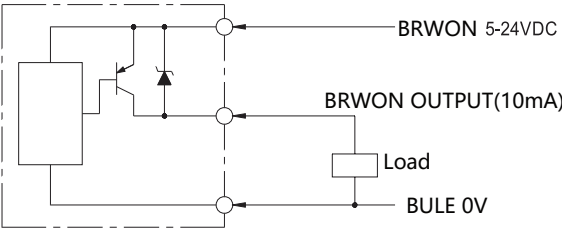
This product is just an ordinary object detection sensor, so please do not use it for safety detection.

Hookup

NPN



PNP

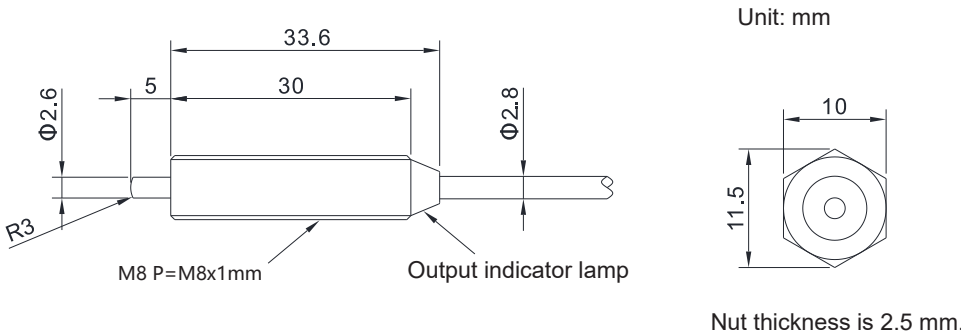


Contact sensor

Product parameter

MODEL	MD-LV83BN	MD-LV83BP
OUT PUT	NPN.NO	PNP.NO
OPERATING VOLTAGE	5~24VDC	
ATTENDED MODE	THE DIAMETER OF 3-CORE CABLE IS 2.8MM; ; THE LINE LENGTH IS 3 METERS	
POSITION REPETITION ACCURACY	± 0.001mm	
SCHEDULE	3mm	
OPERATING FORCE	0.6N	
MOVING PT BEFORE ACTION	0.5~0.9mm	
BACK DIFFERENCE MD	BELOW 0.1MM	
ACTION FREQUENCY	120 TIMES/MINUTE	
OUTPUT CURRENT	10mA	
CONSUMPTION CURRENT	≤ 10mA	
INDICATOR LIGHT	THE LIGHT IS ON WHEN OUTPUTTING.	
CRUSHING STRENGTH	AC1000V1 MINUTE	
DIELECTRIC STRENGTH	250VDC ≥ 20M Ω	
AMBIENT TEMPERATURE AND HUMIDITY	20℃ ~+85℃ (NO FREEZING) 20%~95%RH (NO CONDENSATION)	
FIX	M8 NUT INSTALLATION TORQUE 5N · M	
THE PROTECTION GRADES	IP67	

Dimension drawing (unit:mm)





# Safety Sensor



## ► Complete certificates

The full range of safety light barriers, safety relays, safety door locks, and door magnetic switch products comply with the national CNAS unified certification standards. They have passed ISO9100 quality management system certification, and CE, PLe, PLd, REACH, EMC, ROHS, FCC and other certifications and test reports.

## ► CPU self-test

The light curtain uses CPU self-checking. When a fault occurs in the light curtain itself (such as: out-of-sync light sources, insufficient light source intensity, errors in the light-emitting drive circuit, errors in the main control circuit, cable problems, as well as errors in the receiving drive circuit, errors in the main control circuit, and errors in the CPU), the light curtain can ensure that no incorrect signals are sent to the controlled equipment, thus ensuring the safety of the light curtain.

## ► Dual independent OSSD outputs

In terms of output, in pursuit of better safety, dual independent redundant outputs are adopted, which makes automatic fault prevention highly safe and can directly drive safety relays and safety PLCs.

## ► External relay contact adhesion protection (EDM) function

When the output signal of the light curtain needs to be connected to the customer's ordinary relay/contact device, to ensure the safety of the entire system, the safety light curtain has the EDM function of monitoring the "external relay contact status". This function prevents the loss of safety protection function caused by the adhesion fault of the external relay.

## ► Super strong anti-interference ability

Adopt infrared communication and special optical system, with strong anti-interference ability (good anti-interference ability to electromagnetic signals, strobe lights, welding arcs and surrounding light sources)

## ► More responsive

The response time of all light curtain products in this series is within 5ms; Overload and short circuit protection: When the safety light curtain output is overloaded or short-circuited, the light curtain will enter the protection state and the optical safety system will be shut down; Self-detection: Within 2 seconds of power on, self-detection is implemented to ensure that there is no fault.

## ► Power-on delay function

The light curtain allows the equipment to operate normally 3 seconds after power-on. This provides a buffer time for operators and the equipment, enhancing the safety of both the equipment and the personnel.

## ► With shielding (floating/fixed blanking) function

The automatic shielding and setting shielding functions can be customized, greatly improving the use in various on-site environments.

## ► Optical synchronization technology

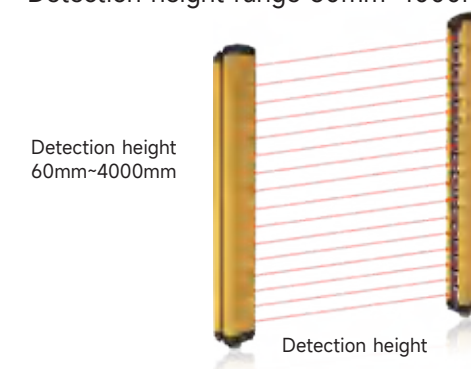
Unique optical synchronization technology replaces traditional data line synchronization, avoids signal interference, and eliminates the need for long data line connections.

## ► Ultra-high detection accuracy

The standard product has a hardware accuracy of 2mm and a software cross algorithm accuracy of 1mm, meeting the high-end requirements of safety gratings with small spacing, long distance, high accuracy and long size.

## ■ Equipped with a wide range of detection heights

Detection height range 60mm~4000mm



## ■ Various detection types

There are three common types, depending on the size of the minimum detectable object.



10mm



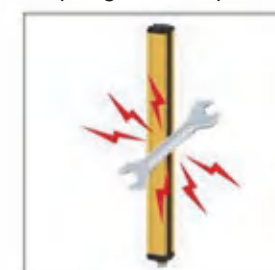
20mm



40mm

## ■ Impact-resistant, thick-walled, rugged shell

The product has a solid metal shell, which can reliably protect it from various impacts such as collision and trampling of workpieces.



Collision, knock



Trampling



Fall

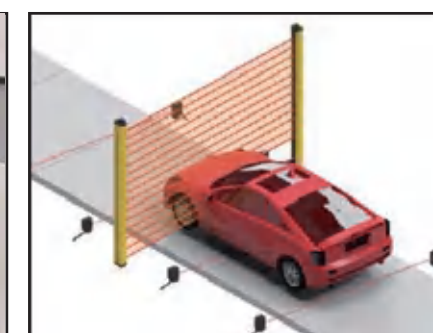
## Application scenarios



Production line moving parts protection detection



Automated operation protection detection

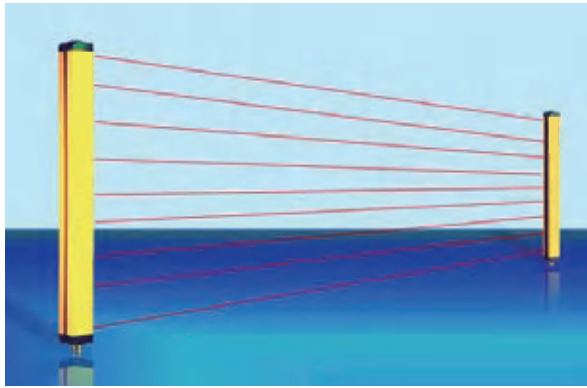


Assembly line safety protection detection



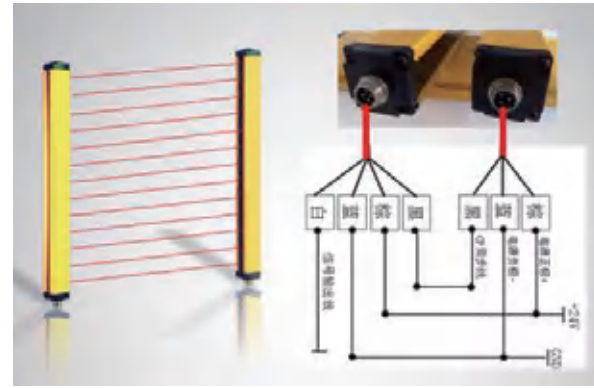
## Application scenarios

## Easy to aim at ultra-long distances



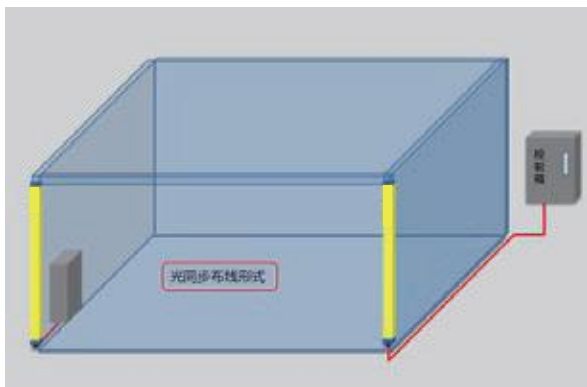
The light curtain has a stronger infrared receiving capability, and can easily match the signal with a light deviation of 5 degrees. The maximum beam distance between the transmitter and the receiver can reach 30 meters.

## Simple wiring



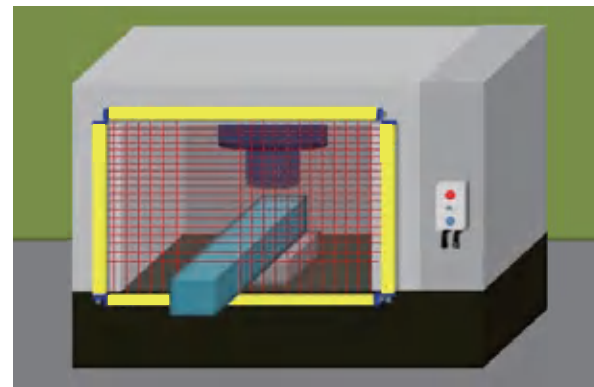
The light curtain is developed using the newest phase pulse technology, which has simplified the complexity of wiring and achieved the functions of simple wiring and stable performance.

## Optical &amp; line synchronization



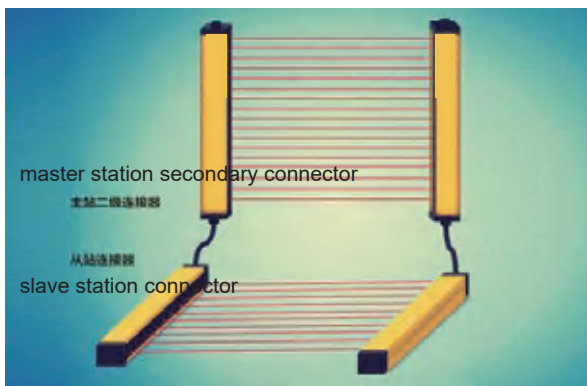
The optical synchronization technology utilizes advanced optical principles, eliminating the need for a synchronization cable between the emitter and the receiver. Meanwhile, it can be independently connected to a power source, making on-site wiring simpler and shortening the operation detection time. Main applications: suitable for all types of mechanical equipment.

## Fixed/floating blanking



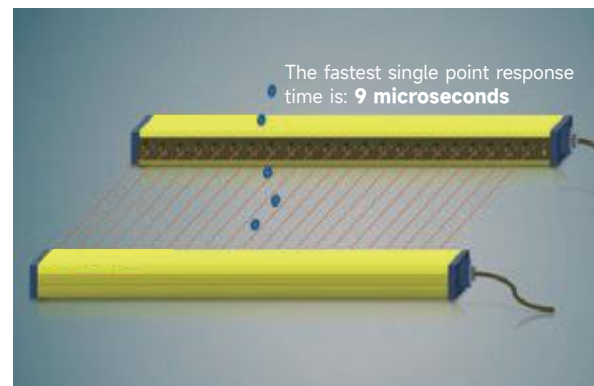
The blind-zone area of the light curtain can be set. The shielding function integrated with time monitoring is used to temporarily put the light curtain into the shielding state. For example, when a workpiece passes through the protection area, it can play a protective role without affecting normal operations. Main applications: equipment where the workpiece extends beyond the mold range.

## Cascade connection



Master-slave mode consisting of multiple sets of gratings in series

## Fast response time



INCT pioneered the "fast" light curtain. It's not just a bit faster but features high-speed response. The single-point response time can reach up to 9 ms, making it one of the fastest light curtain products on the market currently. The fast light curtain can effectively detect/measure high-speed moving objects, highlighting the advantages of fast and reliable detection.

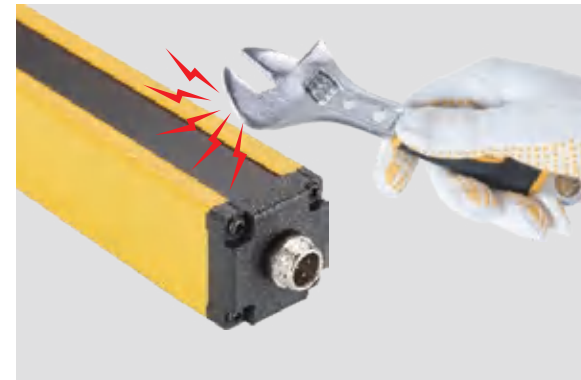
## Application scenarios

## Superb resistance to electromagnetic and optical interference



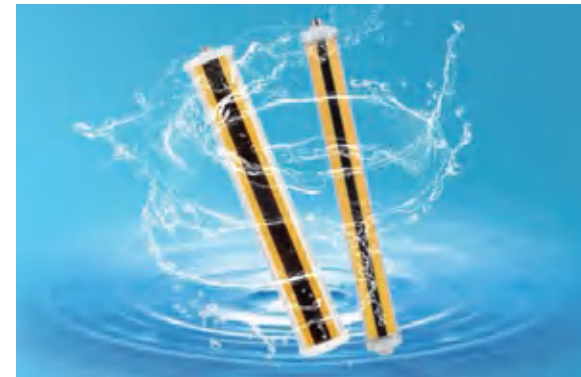
The product features the latest anti-interference circuit design at its core, fundamentally solving the interference problem. It has excellent anti-interference capabilities against high and low frequency inverters, stroboscopic lights, welding arcs, and surrounding light sources.

## Reinforced to resist collision



The reinforced light curtain has a thickened shell, a solid structure, strong shock resistance, collision resistance, powerful functions, perfect self-checking, easy to use and convenient to install. Main applications: suitable for large equipment such as high-speed punching machines and large-tonnage presses.

## Waterproof level up to IP69



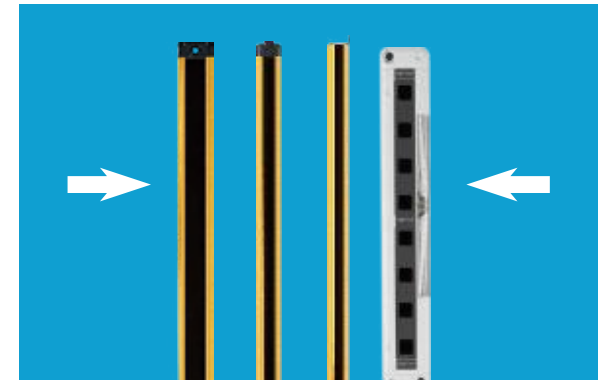
The waterproof light curtain has an IP69 protection level and has been proven by the market to be able to work stably in water depths of up to 3 meters.

## Working temperature -25~65°C



All INCT gratings use imported components. They can withstand low temperatures of -25°C and high temperatures of 65°C. Different components are selected according to different working environments to meet the requirements of various working conditions.

## Adapt to small space



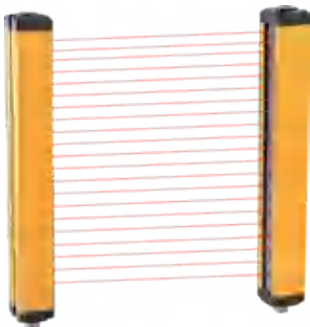
The ultra-thin series products feature the smallest dimensions in the industry and come with a variety of shape options, including front-side and side-side light emission. They can meet the most demanding installation requirements. With powerful functions, a comprehensive self-checking system, and ease of use, they truly have no blind spots.

## Non-standard customization

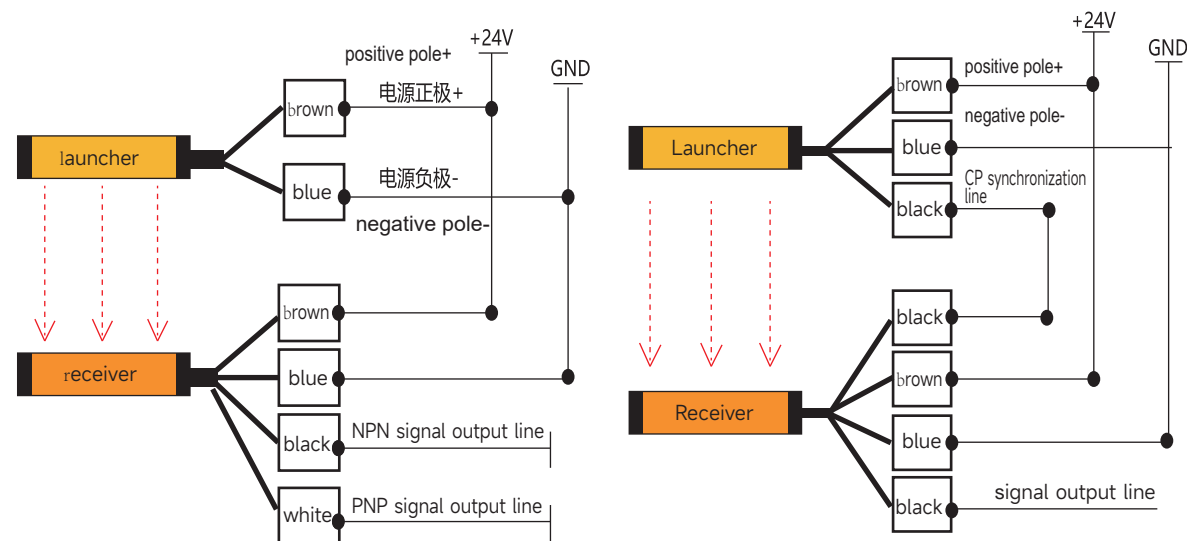


Non-standard customized grating/light curtain is a major advantage of our company. We have many years of experience from appearance customization to core customization. According to customer requirements, we have non-standard products: curved light curtain, T-shaped light curtain, V-shaped light curtain, circular light curtain, etc. Main application: mechanical equipment that cannot be installed with ordinary light curtains.

## Type

Shape	Use	Optical axis spacing	Series
	Short distance to the hazard source detected object $\Phi 15\text{mm}$ (finger detection)	5mm	MT □ □ 05-XJ
		10mm	MT □ □ 10-XJ
	most commonly used standard type detected object $\Phi 25\text{mm}$ (palm detection)	20mm	MT □ □ 20-XJ
	Long distance to the hazard source detected object $\Phi 45\text{mm}$ (arm, foot, body detection)	40mm	MT □ □ 40-XJ

## Product wiring statement



## Optical synchronization

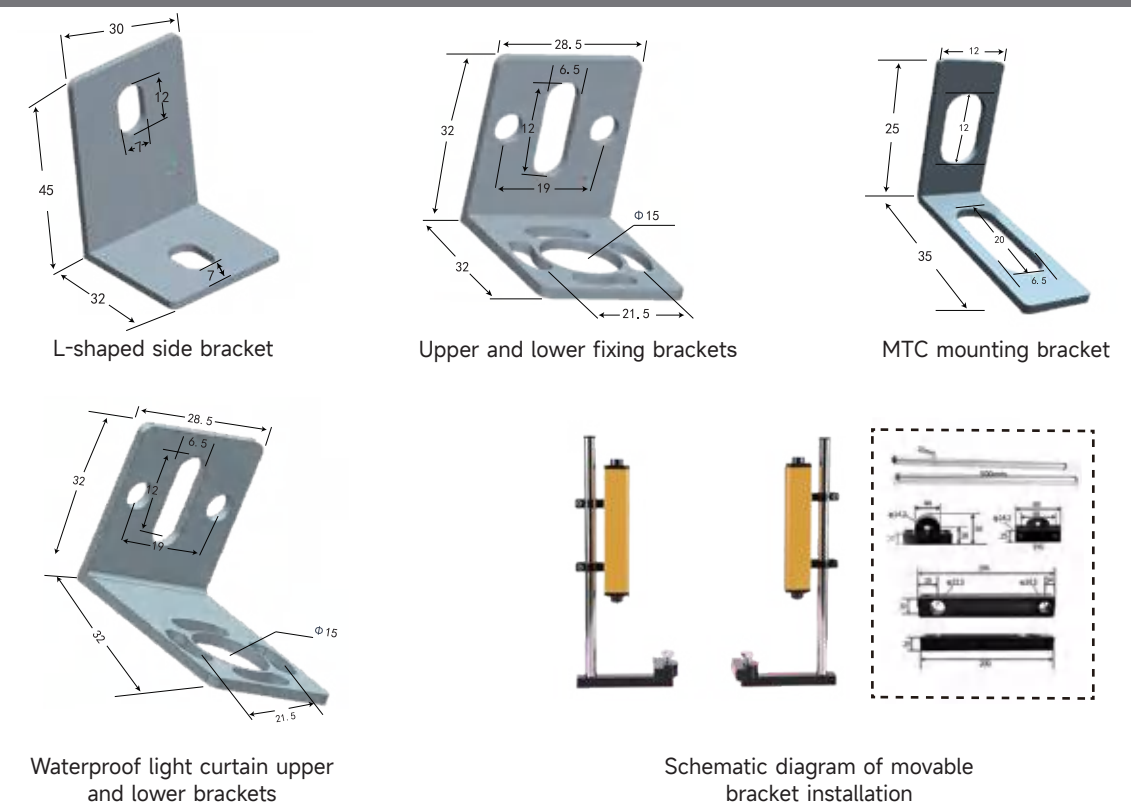
## Line synchronization

## Safety Light Curtain Sensor

## Technical parameters

Product series	MTS	MTC	MTF	MTP	MTL	MTE	MTG
Features	Universal	Compact	Ultra-thin front	plastic shell	Ultra-thin side	Level 4 without blind spots	Enhanced
Cross-section size	29×30	21×25	13×28	13×30	16×29	30×30	35×35
Optical properties							
Optical axis spacing	1mm/2mm/5mm/10mm/20mm/40mm			20mm	10mm/20mm/40mm		
Number of optical axes	4、6、8、10...256						
Protection height	Optical axis spacing X (optical axis number -1)						
Protection width	0.2-7m		0.2-3m			0.2-6m	0.2-30m
Electrical characteristics							
Voltage	24V±10%						
Power	3-8W						
Response time	≤10ms						
Insulation resistance	≥100MΩ						
Signal output	NPN、PNP、Relay			NPN、PNP			
Operating temperature	-10℃~+55℃						
Storage temperature	-40℃~+70℃						
Working humidity	35%RH-85%RH						
Anti-light interference	10000Lux						
Light curtain form	Default optical synchronization, optional line synchronization					Default line synchronization (optical synchronization above 5M)	
Protection rating	IP65						
Certificates	CE/FCC/EMC/REACH/SIL3/TYPE 4						
Circuit protection	Reverse polarity protection/output short circuit protection						
Standard wiring	Pigtail-type aviation plug	2m direct cable	Pigtail-type aviation plug	2m direct cable	Pigtail-type aviation plug		Pigtail-type aviation plug

## Installation instructions

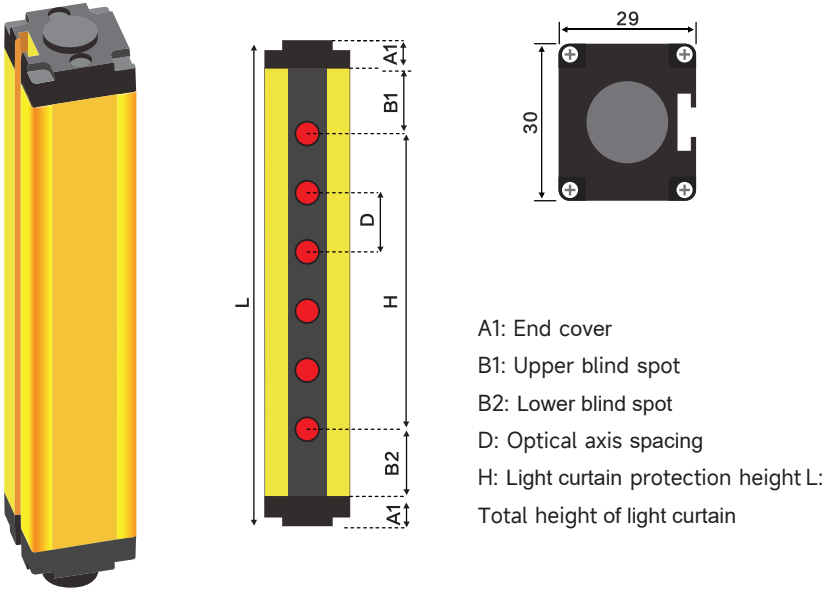




# MTS Standard Safety Light Curtain

## Standard Safety Light Curtain

### Dimensions



A1=12mm  
B1=1/2 optical axis spacing  
B2=1/2 optical axis spacing  
H=(number of optical axes -1)\* optical axis spacing  
L=number of optical axes \* optical axis spacing + 24mm

Bracket name and code	Bracket pictures and accessories
Side-mounted bracket	
Upper and lower mounting brackets	

### Selection rules

MTS	20	10	N	C	03	E	
Cable specifications: None=standard 2m pigtail-type aviation plug, S20n=shielded cable type, A=direct-out aviation plug, W=line synchronization, X=crossed through-beam, Cn=wire length n meters, FX=floating blanking, GX=fixed blanking							
Installation method: E=up and down installation (default) L=side bracket T=steel pipe bracket							
Installation distance: 01=0-1m 03=1-3m 05=1-5m 07=1-7m							
Signal mode: "C=normally closed" "O=normally open"							
Signal output: N=NPN P=PNP R=Relay							
Optical axis spacing: 5, 10, 20, 40 mm							
Number of optical axes: 4, 6, 8, 10, 12...256							
MTS series safety light curtain							

## Standard Safety Light Curtain

### MTS Standard Safe Light Curtain

Optical axis spacing	10mm			20mm			40mm		
	Number of optical axes	Model	Protection height(mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)
4				MTS0420	60	104	MTS0440	120	184
	6	MTS0610	50	84	MTS0620	100	144	MTS0640	200
8	MTS0810	70	104	MTS0820	140	184	MTS0840	280	344
10	MTS1010	90	124	MTS1020	180	224	MTS1040	360	424
12	MTS1210	110	144	MTS1220	220	264	MTS1240	440	504
14	MTS1410	130	164	MTS1420	260	304	MTS1440	520	584
16	MTS1610	150	184	MTS1620	300	344	MTS1640	600	664
18	MTS1810	170	204	MTS1820	340	384	MTS1840	680	744
20	MTS2010	190	224	MTS2020	380	424	MTS2040	760	824
22	MTS2210	210	244	MTS2220	420	464	MTS2240	840	904
24	MTS2410	230	264	MTS2420	460	504	MTS2440	920	984
26	MTS2610	250	284	MTS2620	500	544	MTS2640	1000	1064
28	MTS2810	270	304	MTS2820	540	584	MTS2840	1080	1144
30	MTS3010	290	324	MTS3020	580	624	MTS3040	1160	1224
32	MTS3210	310	344	MTS3220	620	664	MTS3240	1240	1304
34	MTS3410	330	364	MTS3420	660	704	MTS3440	1320	1384
36	MTS3610	350	384	MTS3620	700	744	MTS3640	1400	1464
38	MTS3810	370	404	MTS3820	740	784	MTS3840	1480	1544
40	MTS4010	390	424	MTS4020	780	824	MTS4040	1560	1624
42	MTS4210	410	444	MTS4220	820	864	MTS4240	1640	1704
44	MTS4410	430	464	MTS4420	860	904	MTS4440	1720	1784
46	MTS4610	450	484	MTS4620	900	944	MTS4640	1800	1864
48	MTS4810	470	504	MTS4820	940	984	MTS4840	1880	1944
50	MTS5010	490	524	MTS5020	980	1024	MTS5040	1960	2024
52	MTS5210	510	544	MTS5220	1020	1064	MTS5240	2040	2104
54	MTS5410	530	564	MTS5420	1060	1104	MTS5440	2120	2184
56	MTS5610	550	584	MTS5620	1100	1144	MTS5640	2200	2264
58	MTS5810	570	604	MTS5820	1140	1184	MTS5840	2280	2344
60	MTS6010	590	624	MTS6020	1180	1224	MTS6040	2360	2424

Note: This model has a variety of optical axis spacings of 10mm, 20mm, and 40mm. The selection table does not fully cover all options. If your choice is not listed, you can use the selection rules or contact us for assistance in making the selection.

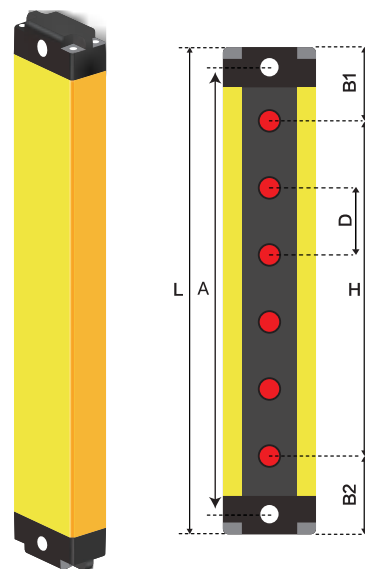
# MTF

## Front Ultra-thin Safety Light Curtain



### Front Ultra-thin Safety Light Curtain

#### Dimensions



B1: Upper blind spot  
B2: Lower blind spot  
D: Optical axis space  
H: Light curtain protection height  
L: Total height of light curtain

$B1 = \frac{1}{2} \text{ optical axis distance} + 13\text{mm}$

$B2 = \frac{1}{2} \text{ optical axis distance} + 13\text{mm}$

$L = \text{number of optical axes} * \text{optical axis spacing} + 26\text{mm}$

$A = L - 12\text{mm}$

#### Selection rules

MTF 20 10 N C 01 Z

Cable specifications: None=standard 2m pigtail-type aviation plug, S20n=shielded cable type, W=line synchronization, X=crossed through-beam, Cn=wire length n meters

Installation method: Z= comes with mounting hole

Installation distance: 01=0-1m 02=1-2m 03=1-3m

Signal mode: "C=normally closed" "O=normally open"

Signal output: N=NPN P=PNP

Optical axis spacing: 5, 10, 20, 40mm

Number of optical axes: 4, 6, 8, 10, 12, ..256

MTF series safety light curtain

### Front Ultra-thin Safety Light Curtain

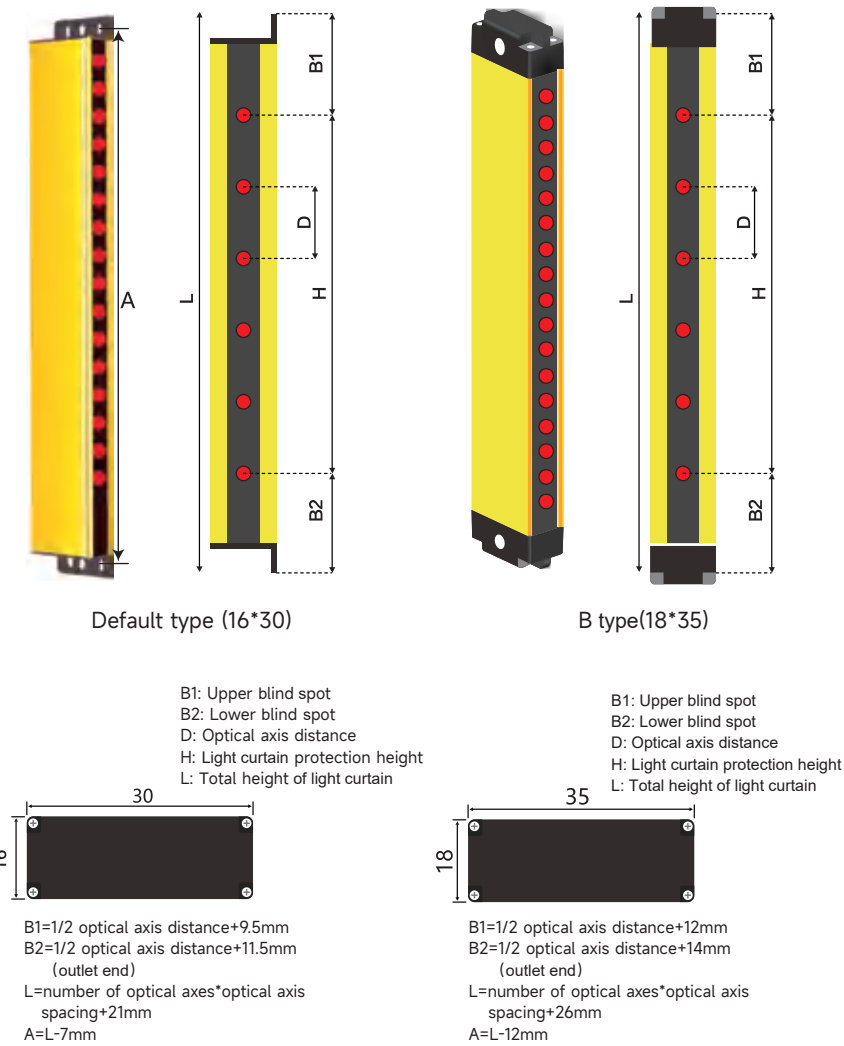
#### MTF front ultra-thin light curtain selection table

Optical axis spacing	10mm			20mm			40mm		
	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTF0410	30	86	MTF0420	60	106	MTF0440	120	186
6	MTF0610	50	86	MTF0620	100	146	MTF0640	200	266
8	MTF0810	70	106	MTF0820	140	186	MTF0840	280	346
10	MTF1010	90	126	MTF1020	180	226	MTF1040	360	426
12	MTF1210	110	146	MTF1220	220	266	MTF1240	440	506
14	MTF1410	130	166	MTF1420	260	326	MTF1440	520	586
16	MTF1610	150	186	MTF1620	300	346	MTF1640	600	666
18	MTF1810	170	206	MTF1820	340	386	MTF1840	680	746
20	MTF2010	190	226	MTF2020	380	426	MTF2040	760	826
22	MTF2210	210	246	MTF2220	420	466	MTF2240	840	906
24	MTF2410	230	266	MTF2420	460	506	MTF2440	920	986
26	MTF2610	250	286	MTF2620	500	546	MTF2640	1000	1066
28	MTF2810	270	306	MTF2820	540	586	MTF2840	1080	1146
30	MTF3010	290	326	MTF3020	580	626	MTF3040	1160	1226
32	MTF3210	310	346	MTF3220	620	666	MTF3240	1240	1306
34	MTF3410	330	366	MTF3420	660	706	MTF3440	1320	1386
36	MTF3610	350	386	MTF3620	700	746	MTF3640	1400	1466
38	MTF3810	370	406	MTF3820	740	786	MTF3840	1480	1546
40	MTF4010	390	426	MTF4020	780	826	MTF4040	1560	1626
42	MTF4210	410	446	MTF4220	820	866	MTF4240	1640	1706
44	MTF4410	430	466	MTF4420	860	906	MTF4440	1720	1786
46	MTF4610	450	486	MTF4620	900	946	MTF4640	1800	1866
48	MTF4810	470	506	MTF4820	940	986	MTF4840	1880	1946
50	MTF5010	490	526	MTF5020	980	1026	MTF5040	1960	2026
52	MTF5210	510	546	MTF5220	1020	1066	MTF5240	2040	2106
54	MTF5410	530	566	MTF5420	1060	1106	MTF5440	2120	2186
56	MTF5610	550	586	MTF5620	1100	1146	MTF5640	2200	2266
58	MTF5810	570	606	MTF5820	1140	1186	MTF5840	2280	2346
60	MTF6010	590	626	MTF6020	1180	1226	MTF6040	2360	2426

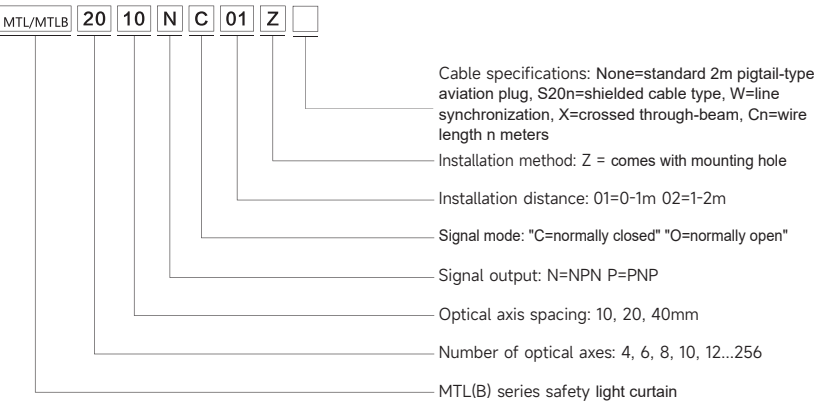
Note: The optical axis spacing of this model includes 2mm, 5mm, 10mm, 20mm, and 40mm. The selection table does not fully cover all options. If your choice is not listed, you can use the selection rules or contact us for assistance in making the selection.

Except for 0805 and 0410, the total height of all products in this series = (optical axis spacing \* number of optical axes) + 26mm

Dimensions



Selection rules



MTL side ultra-thin light curtain selection table

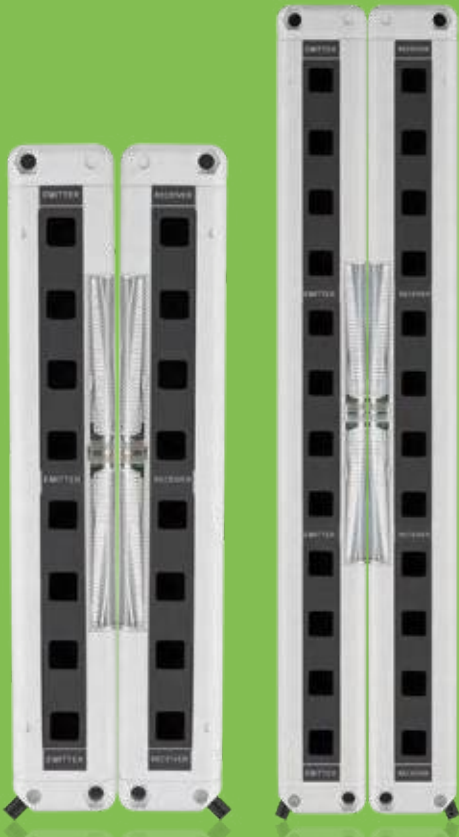
Optical axis spacing	10mm			20mm			40mm		
Number of optical axes	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTL0410	30	101	MTL0420	60	101	MTL0440	120	181
6	MTL0610	50	101	MTL0620	100	141	MTL0640	200	261
8	MTL0810	70	101	MTL0820	140	181	MTL0840	280	341
10	MTL1010	90	121	MTL1020	180	221	MTL1040	360	421
12	MTL1210	110	141	MTL1220	220	261	MTL1240	440	501
14	MTL1410	130	161	MTL1420	260	301	MTL1440	520	581
16	MTL1610	150	181	MTL1620	300	341	MTL1640	600	661
18	MTL1810	170	201	MTL1820	340	381	MTL1840	680	741
20	MTL2010	190	221	MTL2020	380	421	MTL2040	760	821
22	MTL2210	210	241	MTL2220	420	461	MTL2240	840	901
24	MTL2410	230	261	MTL2420	460	501	MTL2440	920	981
26	MTL2610	250	281	MTL2620	500	541	MTL2640	1000	1061
28	MTL2810	270	301	MTL2820	540	581	MTL2840	1080	1141
30	MTL3010	290	321	MTL3020	580	621	MTL3040	1160	1221
32	MTL3210	310	341	MTL3220	620	661	MTL3240	1240	1301
34	MTL3410	330	361	MTL3420	660	701	MTL3440	1320	1381
36	MTL3610	350	381	MTL3620	700	741	MTL3640	1400	1461
38	MTL3810	370	401	MTL3820	740	781	MTL3840	1480	1541
40	MTL4010	390	421	MTL4020	780	821	MTL4040	1560	1621
42	MTL4210	410	441	MTL4220	820	861	MTL4240	1640	1701
44	MTL4410	430	461	MTL4420	860	901	MTL4440	1720	1781
46	MTL4610	450	481	MTL4620	900	941	MTL4640	1800	1861
48	MTL4810	470	501	MTL4820	940	981	MTL4840	1880	1941
50	MTL5010	490	521	MTL5020	980	1021	MTL5040	1960	2021
52	MTL5210	510	541	MTL5220	1020	1061	MTL5240	2040	2101
54	MTL5410	530	561	MTL5420	1060	1101	MTL5440	2120	2181
56	MTL5610	550	581	MTL5620	1100	1141	MTL5640	2200	2261
58	MTL5810	570	601	MTL5820	1140	1181	MTL5840	2280	2341
60	MTL6010	590	621	MTL6020	1180	1221	MTL6040	2360	2421

Note: The table shows the parameters of MTL A type. The protection height of MTLB type is the same as that of A type. The total length = the total length of A type + 5mm  
The optical axis spacing of this model includes 10mm, 20mm, and 40mm. The selection table does not fully cover all options. If your choice is not listed, you can use the selection rules or contact us for assistance in making the selection.

MTL Side Ultra-thin Safety Light Curtain

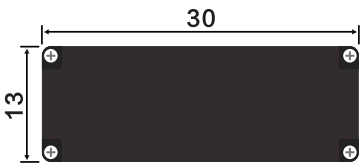
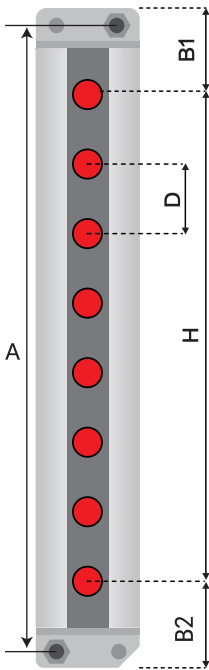


# MTP Plastic Housing Safety Light Curtain



## Plastic Housing Safety Light Curtain

### Dimensions



- B1: Upper blind spot
- B2: Lower blind spot
- D: Optical axis distance
- H: Light curtain protection height
- L: Total height of light curtain

B1=25mm  
B2=25mm

### Selection rules

MTP

16

20

N

C

01

Z

None=direct cable outlet 2m, J=pigtail-type aviation plug, S20n=shielded cable type, W=line synchronization, Cn=wire length n meters

Installation method: Z = comes with mounting hole

Installation distance:01=0-1m 02=1-2m 03=2-3m

Signal mode: "C=normally closed" "O=normally open"

Signal output: N=NPN P=PNP

Optical axis spacing: 20mm

Number of optical axes: 6, 8, 12, 16

MTP series safety light curtain

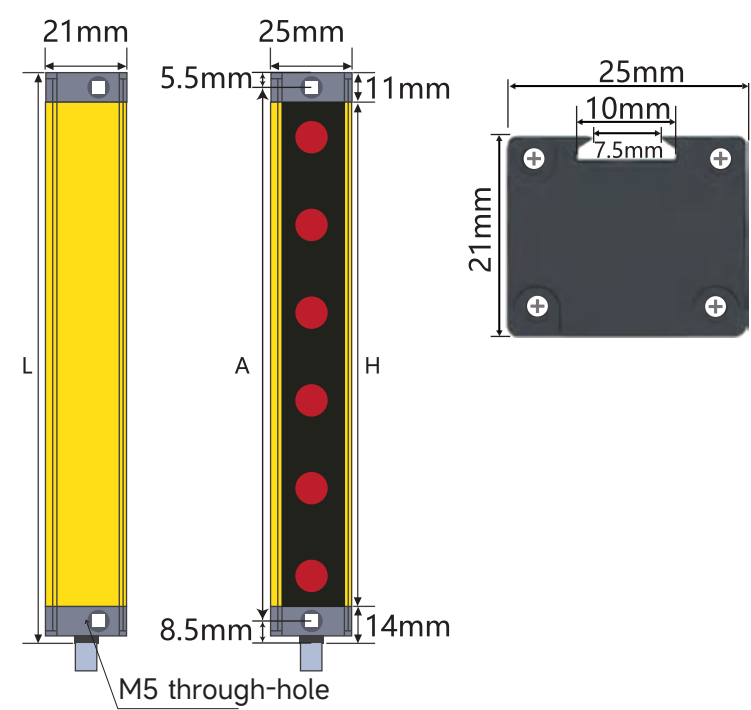
## Plastic Housing Safety Light Curtain

### MTP plastic housing light curtain selection table

Optical axis spacing 20mm			
Number of optical axes	Model	Protection height (mm)	Total height (mm)
6	MTP0620	100	140
8	MTP0820	140	190
12	MTP1220	220	270
16	MTP1620	300	350

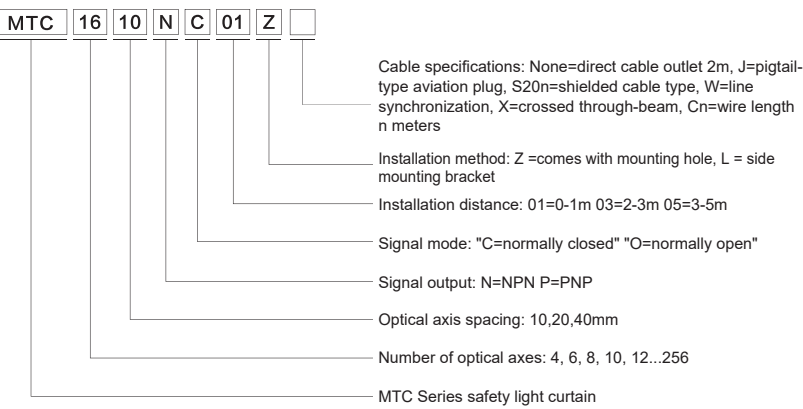


Dimensions



L = number of optical axes \* optical axis spacing + 25mm  
A = L-14mm

Selection rules



MTC Compact Safety Light Curtain

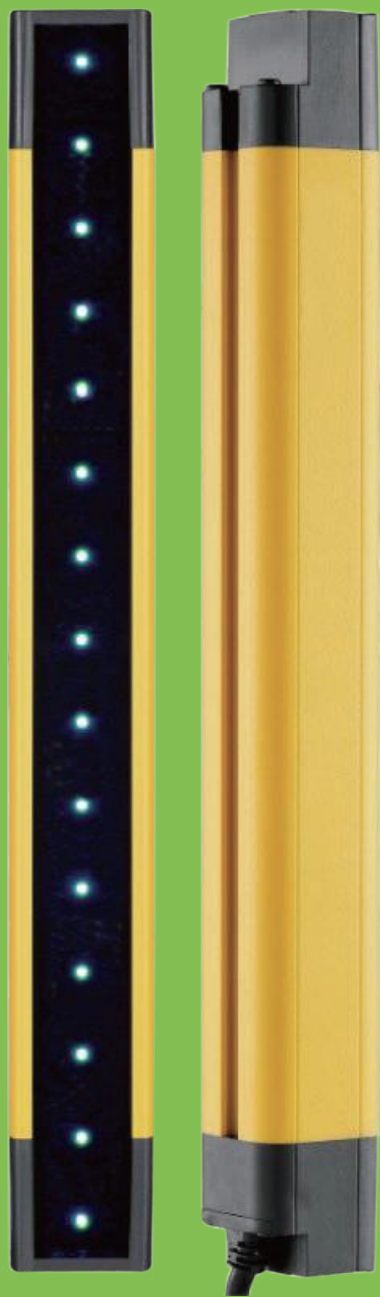
Optical axis spacing	10mm			20mm			40mm		
	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTC0410	30	85	MTC0420	60	105	MTC0440	120	185
6	MTC0610	50	85	MTC0620	100	145	MTC0640	200	265
8	MTC0810	70	105	MTC0820	140	185	MTC0840	280	345
10	MTC1010	90	125	MTC1020	180	225	MTC1040	360	425
12	MTC1210	110	145	MTC1220	220	265	MTC1240	440	505
14	MTC1410	130	165	MTC1420	260	305	MTC1440	520	585
16	MTC1610	150	185	MTC1620	300	345	MTC1640	600	665
18	MTC1810	170	205	MTC1820	340	385	MTC1840	680	745
20	MTC2010	190	225	MTC2020	380	425	MTC2040	760	825
22	MTC2210	210	245	MTC2220	420	465	MTC2240	840	905
24	MTC2410	230	265	MTC2420	460	505	MTC2440	920	985
26	MTC2610	250	285	MTC2620	500	545	MTC2640	1000	1065
28	MTC2810	270	305	MTC2820	540	585	MTC2840	1080	1145
30	MTC3010	290	325	MTC3020	580	625	MTC3040	1160	1225
32	MTC3210	310	345	MTC3220	620	665	MTC3240	1240	1305
34	MTC3410	330	365	MTC3420	660	705	MTC3440	1320	1385
36	MTC3610	350	385	MTC3620	700	745	MTC3640	1400	1465
38	MTC3810	370	405	MTC3820	740	785	MTC3840	1480	1545
40	MTC4010	390	425	MTC4020	780	825	MTC4040	1560	1625
42	MTC4210	410	445	MTC4220	820	865	MTC4240	1640	1705
44	MTC4410	430	465	MTC4420	860	905	MTC4440	1720	1785
46	MTC4610	450	485	MTC4620	900	945	MTC4640	1800	1865
48	MTC4810	470	505	MTC4820	940	985	MTC4840	1880	1945
50	MTC5010	490	525	MTC5020	980	1025	MTC5040	1960	2025
52	MTC5210	510	545	MTC5220	1020	1065	MTC5240	2040	2105
54	MTC5410	530	565	MTC5420	1060	1105	MTC5440	2120	2185
56	MTC5610	550	585	MTC5620	1100	1145	MTC5640	2200	2265
58	MTC5810	570	605	MTC5820	1140	1185	MTC5840	2280	2345
60	MTC6010	590	625	MTC6020	1180	1225	MTC6040	2360	2425

Note: By default, it comes with upper and lower mounting holes. Side-mounted brackets are available as optional accessories.  
The optical axis spacing of this model includes 10mm, 20mm, and 40mm. The selection table does not fully cover all options. If your choice is not listed, you can use the selection rules or contact us for assistance in making the selection.

MTC Compact Safety Light Curtain

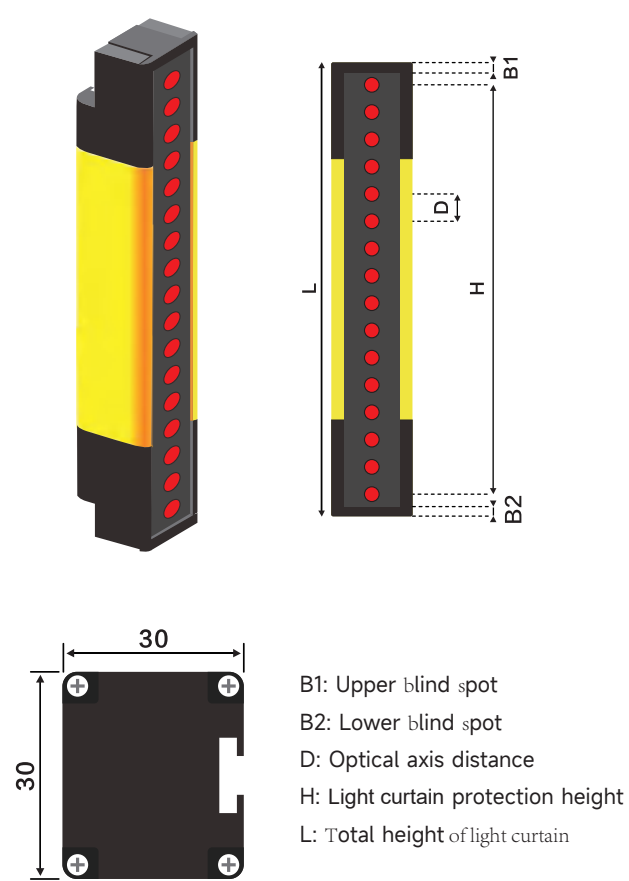


# MTE Type4 Safety Light Curtain



## Type4 Safety Light Curtain

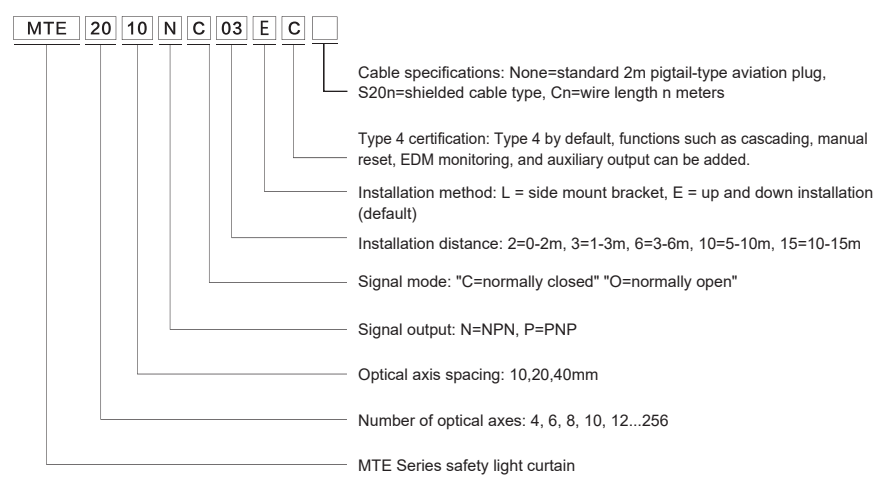
### Dimensions



B1: Upper blind spot  
B2: Lower blind spot  
D: Optical axis distance  
H: Light curtain protection height  
L: Total height of light curtain

B1=1/2 optical axis distance+3mm  
B2=1/2 optical axis distance+3mm  
L=number of optical axes \* optical axis spacing + 6mm

### Selection rules



## Type4 Safety Light Curtain

### MTE Type4 Safety Light Curtain

Optical axis spacing	10mm			20mm			40mm		
Number of optical axes	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
8				MTE0820	140	166	MTE0840	280	326
10				MTE1020	180	206	MTE1040	360	406
12				MTE1220	220	246	MTE1240	440	486
14				MTE1420	260	286	MTE1440	520	566
16	MTE1610	150	166	MTE1620	300	326	MTE1640	600	646
18	MTE1810	170	186	MTE1820	340	366	MTE1840	680	726
20	MTE2010	190	206	MTE2020	380	406	MTE2040	760	806
22	MTE2210	210	226	MTE2220	420	446	MTE2240	840	886
24	MTE2410	230	246	MTE2420	460	486	MTE2440	920	966
26	MTE2610	250	266	MTE2620	500	526	MTE2640	1000	1046
28	MTE2810	270	286	MTE2820	540	566	MTE2840	1080	1126
30	MTE3010	290	306	MTE3020	580	606	MTE3040	1160	1206
32	MTE3210	310	326	MTE3220	620	646	MTE3240	1240	1286
34	MTE3410	330	346	MTE3420	660	686	MTE3440	1320	1366
36	MTE3610	350	366	MTE3620	700	726	MTE3640	1400	1446
38	MTE3810	370	386	MTE3820	740	766	MTE3840	1480	1526
40	MTE4010	390	406	MTE4020	780	806	MTE4040	1560	1606
42	MTE4210	410	426	MTE4220	820	846	MTE4240	1640	1686
44	MTE4410	430	446	MTE4420	860	886	MTE4440	1720	1766
46	MTE4610	450	466	MTE4620	900	926	MTE4640	1800	1846
48	MTE4810	470	486	MTE4820	940	966	MTE4840	1880	1926
50	MTE5010	490	506	MTE5020	980	1006	MTE5040	1960	2006
52	MTE5210	510	526	MTE5220	1020	1046	MTE5240	2040	2086
54	MTE5410	530	546	MTE5420	1060	1086	MTE5440	2120	2166
56	MTE5610	550	566	MTE5620	1100	1126	MTE5640	2200	2246
58	MTE5810	570	586	MTE5820	1140	1166	MTE5840	2280	2326
60	MTE6010	590	606	MTE6020	1180	1206	MTE6040	2360	2406

Note: The optical axis spacing of this model includes 10mm, 20mm, and 40mm. The selection table does not fully cover all options. If your choice is not listed, you can use the selection rules or contact us for assistance in making the selection.

The total height of all products in this series = (optical axis spacing \* number of optical axes) + 6mm.

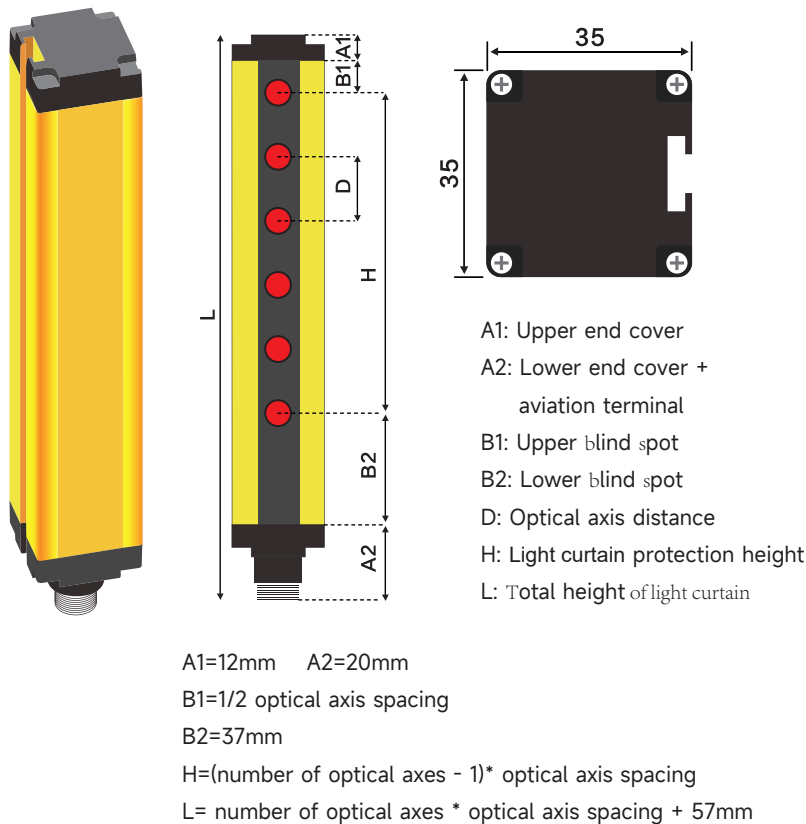
# MTG

## Reinforced safety light curtains



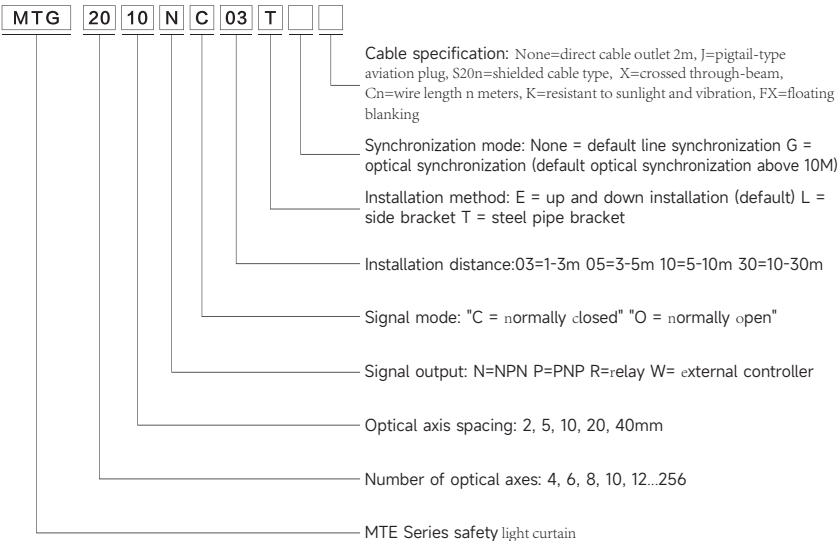
### Reinforced safety light curtains

#### Dimensions



Bracket name and code	Bracket pictures and accessories
Side mounting bracket	
Upper and lower mounting brackets	

#### Selection rules



### Reinforced safety light curtains

#### MTG Reinforced safety light curtains

Optical axis spacing	10mm			20mm			40mm		
Number of optical axes	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTG0410	30	116	MTG0420	60	136	MTG0440	120	206
6	MTG0610	50	116	MTG0620	100	176	MTG0640	200	286
8	MTG0810	70	136	MTG0820	140	216	MTG0840	280	366
10	MTG1010	90	156	MTG1020	180	256	MTG1040	360	446
12	MTG1210	110	176	MTG1220	220	296	MTG1240	440	526
14	MTG1410	130	196	MTG1420	260	336	MTG1440	520	606
16	MTG1610	150	216	MTG1620	300	376	MTG1640	600	686
18	MTG1810	170	236	MTG1820	340	416	MTG1840	680	766
20	MTG2010	190	256	MTG2020	380	456	MTG2040	760	846
22	MTG2210	210	276	MTG2220	420	496	MTG2240	840	926
24	MTG2410	230	296	MTG2420	460	536	MTG2440	920	1006
26	MTG2610	250	316	MTG2620	500	576	MTG2640	1000	1086
28	MTG2810	270	336	MTG2820	540	616	MTG2840	1080	1166
30	MTG3010	290	356	MTG3020	580	656	MTG3040	1160	1246
32	MTG3210	310	376	MTG3220	620	696	MTG3240	1240	1326
34	MTG3410	330	396	MTG3420	660	736	MTG3440	1320	1406
36	MTG3610	350	416	MTG3620	700	776	MTG3640	1400	1486
38	MTG3810	370	436	MTG3820	740	816	MTG3840	1480	1566
40	MTG4010	390	456	MTG4020	780	856	MTG4040	1560	1646
42	MTG4210	410	476	MTG4220	820	896	MTG4240	1640	1726
44	MTG4410	430	496	MTG4420	860	936	MTG4440	1720	1806
46	MTG4610	450	516	MTG4620	900	976	MTG4640	1800	1886
48	MTG4810	470	536	MTG4820	940	1016	MTG4840	1880	1966
50	MTG5010	490	556	MTG5020	980	1056	MTG5040	1960	2046
52	MTG5210	510	576	MTG5220	1020	1096	MTG5240	2040	2126
54	MTG5410	530	596	MTG5420	1060	1136	MTG5440	2120	2206
56	MTG5610	550	616	MTG5620	1100	1176	MTG5640	2200	2286
58	MTG5810	570	636	MTG5820	1140	1216	MTG5840	2280	2366
60	MTG6010	590	656	MTG6020	1180	1256	MTG6040	2360	2446

Note: The optical axis accuracy of this model includes 2mm, 5mm, 10mm, 20mm, and 40mm. The selection table does not fully cover all options. If your choice is not listed, you can use the selection rules or contact us for assistance in making the selection.

The total height of all products in this series = optical axis accuracy \* number of optical axes + 57mm.

# MTG

## Measuringsafety light curtains

### Measuringsafetylightcurtains

- ◆ The high-precision MTMF series measuring light curtains are suitable for high-precision detection and measurement
- ◆ Including online inspection, size measurement, contour inspection, precision correction, aperture inspection, shape inspection, edge and center positioning, tension control, parts counting, online product size inspection and similar inspections and measurements

### Product composition

Light emitter, light receiver, and transmission line



13mm×28mm Ultra-thin

**MTM F**



35mm×35mm Standard

**MTM G**

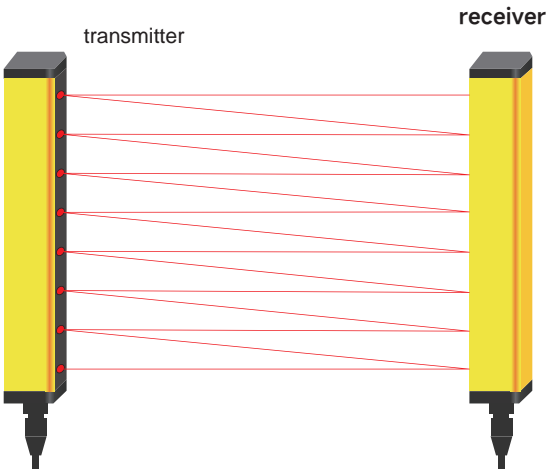
### Measuringsafetylightcurtains

- 1、 Analog signal output: 4 - 20mA, which can be connected to a host computer or other data acquisition systems.
- 2、 Communication function: It has an RS485 communication function and uses the standard MODBUS protocol to communicate with the host computer.

### Scanning method

**Parallel scanning (default):** Scan all beams, one-to-one correspondence between the emission of the transmitter and the reception of the receiver

**Cross scanning:** It consists of parallel scanning and inclined light beams. For the inclined light beams, the second channel of the transmitter corresponds to the first channel of the receiver; the third channel of the transmitter corresponds to the second channel of the receiver, and so on until the last channel of the transmitter corresponds to the second - last channel of the receiver to complete the entire scanning. Therefore, cross scanning can improve the detection accuracy.



MTM F 20 10 T 01 Z W

Synchronization mode: W = line synchronization

Installation method: Z = comes with mounting hole L = side mounting brack

et Installation distance: 01=0.1-0.4m 02=0.4-1m 03=1-3m 20=3-20m

Detection method: default parallel scanning, "X"= cross scanning

Signal output: T = RS485 responsive type, M = RS485 active type, L=4-20mA

Optical axis spacing: 2, 5, 10, 20, 40mm

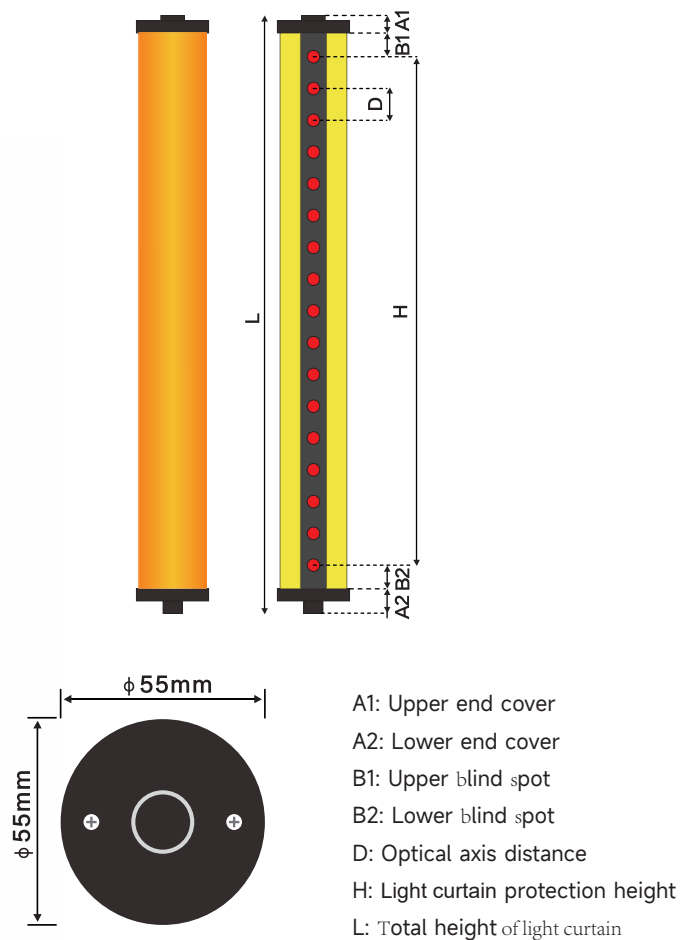
Number of optical axes: 4, 6, 8, 10, 12...256

Section size: F: 13\*28mm High precision (only 5mm spacing can be made)  
G:35\*35mm High precision

MTM series measuring light curtain

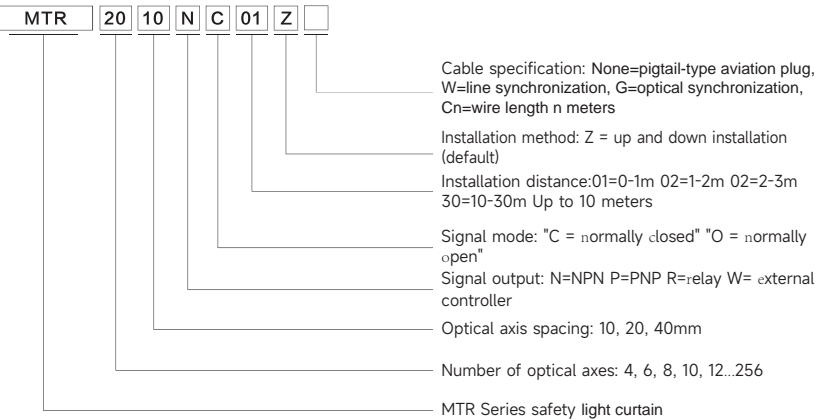


Dimensions



A1=15mm    A2=15mm  
B1=1/2 optical axis spacing  
B2=1/2 optical axis spacing + 25mm(spacing of 10, 20) 1/2 optical axis spacing + 15mm(spacing of 40)  
H=(number of optical axes - 1)\* optical axis spacing  
L= number of optical axes \* optical axis spacing + 30mm + 25mm (spacing of 10, 20) + 15mm(spacing of 40)

Selection rules



MTR Waterproof safety light barriers

Optical axis spacing	10mm			20mm			40mm		
Number of optical axes	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)	Model	Protection height (mm)	Total height (mm)
4	MTR0410	30	115	MTR0420	60	135	MTR0440	120	205
6	MTR0610	50	115	MTR0620	100	175	MTR0640	200	285
8	MTR0810	70	135	MTR0820	140	215	MTR0840	280	365
10	MTR1010	90	155	MTR1020	180	255	MTR1040	360	445
12	MTR1210	110	175	MTR1220	220	295	MTR1240	440	525
14	MTR1410	130	195	MTR1420	260	335	MTR1440	520	605
16	MTR1610	150	215	MTR1620	300	375	MTR1640	600	685
18	MTR1810	170	235	MTR1820	340	415	MTR1840	680	765
20	MTR2010	190	255	MTR2020	380	455	MTR2040	760	845
22	MTR2210	210	275	MTR2220	420	495	MTR2240	840	925
24	MTR2410	230	295	MTR2420	460	535	MTR2440	920	1005
26	MTR2610	250	315	MTR2620	500	575	MTR2640	1000	1085
28	MTR2810	270	335	MTR2820	540	615	MTR2840	1080	1165
30	MTR3010	290	355	MTR3020	580	655	MTR3040	1160	1245
32	MTR3210	310	375	MTR3220	620	695	MTR3240	1240	1325
34	MTR3410	330	395	MTR3420	660	735	MTR3440	1320	1405
36	MTR3610	350	415	MTR3620	700	775	MTR3640	1400	1485
38	MTR3810	370	435	MTR3820	740	815	MTR3840	1480	1565
40	MTR4010	390	455	MTR4020	780	855	MTR4040	1560	1645
42	MTR4210	410	475	MTR4220	820	895	MTR4240	1640	1725
44	MTR4410	430	495	MTR4420	860	935	MTR4440	1720	1805
46	MTR4610	450	515	MTR4620	900	975	MTR4640	1800	1885
48	MTR4810	470	535	MTR4820	940	1015	MTR4840	1880	1965
50	MTR5010	490	555	MTR5020	980	1055	MTR5040	1960	2045
52	MTR5210	510	575	MTR5220	1020	1095	MTR5240	2040	2125
54	MTR5410	530	595	MTR5420	1060	1135	MTR5440	2120	2205
56	MTR5610	550	615	MTR5620	1100	1175	MTR5640	2200	2285
58	MTR5810	570	635	MTR5820	1140	1215	MTR5840	2280	2365
60	MTR6010	590	655	MTR6020	1180	1255	MTR6040	2360	2445

Note: The optical axis accuracy of this model includes 10mm, 20mm and 40mm. The selection table does not fully cover all options. If your choice is not listed, you can use the selection rules or contact us for assistance in making the selection.

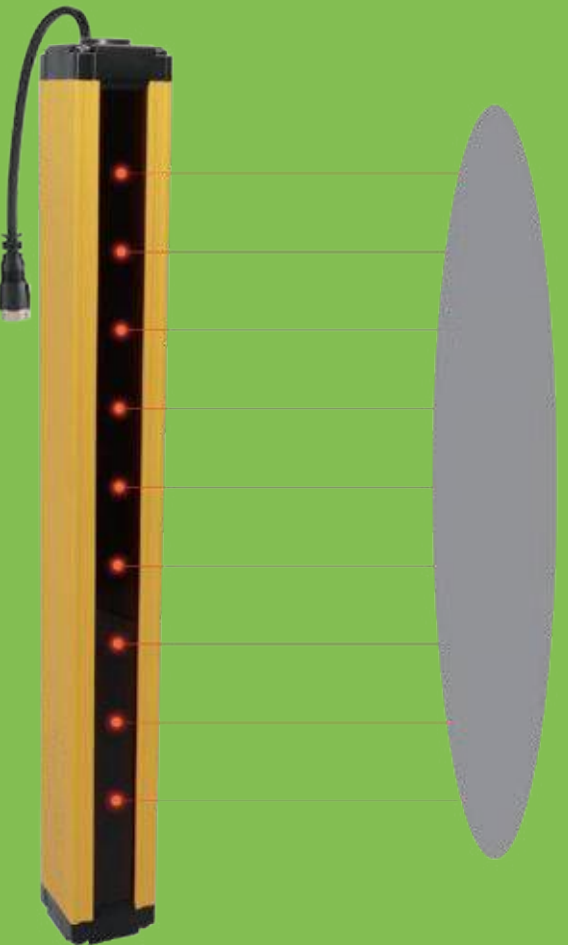
MTR Waterproof safety light curtains



- ※ Tefost Dome Ticali - Madyip 69  
Wotpruf, Andeda, Strepruf, Safertilit  
Curtin
- ※ Meal Besabmerged d'Undwater's Epto  
10 meters for normal use
- ※ Anti-electromagnetic and optical  
Interference Wyth Side/Furksel Tifi  
Cations
- ※ Internal self-test, LED indicator a  
nd fault light

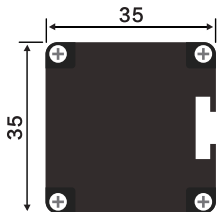
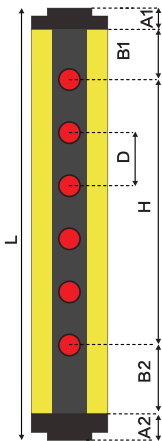
# MTD

## Diffuse safety light curtains



### Diffuse safety light curtains

#### Dimensions



- A1: Upper end cover
- A2: Lower end cover
- B1: Upper blind spot
- B2: Lower blind spot (outlet terminal)
- D: Optical axis distance
- H: Light curtain protection height
- L: Total height of light curtain

- A1=12mm    A2=12mm
- B1=1/2 optical axis spacing
- B2=1/2 optical axis spacing + 25mm
- H=(number of optical axes - 1)\* optical axis spacing
- L= number of optical axes \* optical axis spacing + 49mm

#### Product description

##### LED indicator

Equipped with obvious green LED power indicator, red signal indicator and large size digital display



##### Multiple settings

Match the actual usage distance with gear positions 1 to 9. After selecting the appropriate distance and gear position, press and hold for 1 second to save the gear position, or it will be automatically saved after 30 seconds.

##### Self-learning

When there is a fixed background in the usage environment, press and hold the button for 2 seconds at the default Gear 0. The light curtain will perform self-learning of the distance and automatically select the appropriate emission intensity. The green light will flash during the self-learning process. This mode is not suitable for usage scenarios where the brightness value of the background changes significantly or the background position often changes.

##### Ultra-long distance

The detection distance can reach over 2000 mm at maximum. It adopts a pigtail-type wiring method, featuring a more compact size and a smaller blind zone.

##### Dual signal

Default NPN/PNP dual-channel signal output, normally open and normally closed switchable, supports arbitrary customization of light point number (even number)

Note: This series of reflection light curtain is recommended only for regional detection and cannot be used for safety protection purposes

### Diffuse safety light curtains

#### MTD

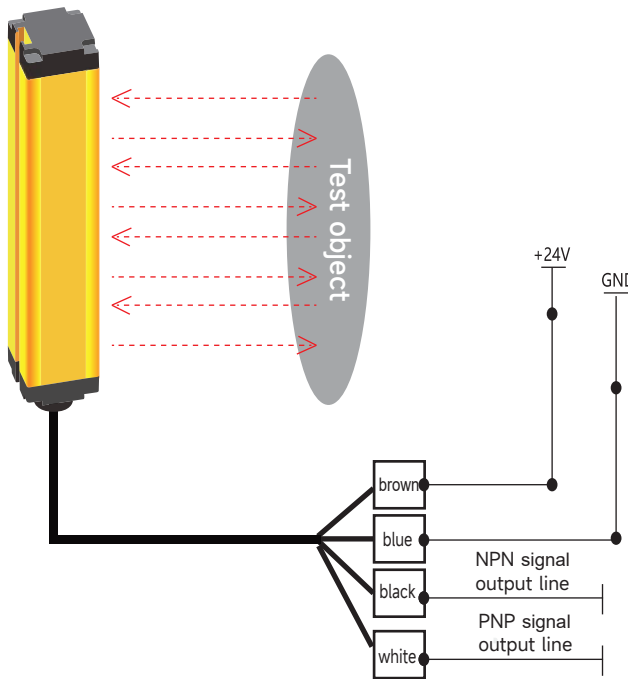
r

light curtain s

t

Number of optical axes	Model	Protection height (mm)	Total height (mm)
4	MTD0440	160	209
6	MTD0640	240	289
8	MTD0840	320	369
10	MTD1040	400	449
12	MTD1240	480	529
14	MTD1440	560	609
16	MTD1640	640	689
18	MTD1840	720	769
20	MTD2040	800	849
22	MTD2240	880	929
24	MTD2440	960	1009
26	MTD2640	1040	1089
28	MTD2840	1120	1169
30	MTD3040	1200	1249
32	MTD3240	1280	1329
34	MTD3440	1360	1409
36	MTD3640	1440	1489
38	MTD3840	1520	1569
40	MTD4040	1600	1649
42	MTD4240	1680	1729
44	MTD4440	1760	1809
46	MTD4640	1840	1889
48	MTD4840	1920	1969
50	MTD5040	2000	2049

#### wiring method



##### Default normally closed signal output

When white and brown are short-circuited, black outputs NPN normally open signal  
When black and blue are short-circuited, black outputs a PNP normally open signal.

# MT-Q Light curtain controller



## Light curtain controller

### Features

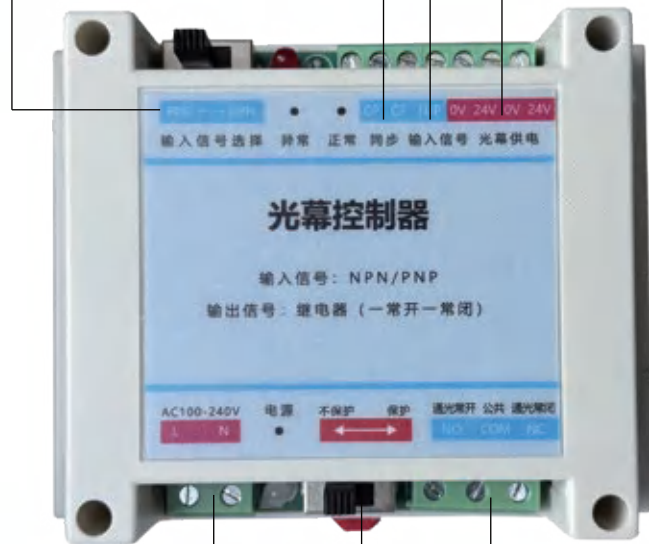
- Wide voltage range
- High power relay
- Customized programs
- Easy installation
- Industrial grade standards
- Wide range of applications

When the light curtain signal is NPN, switch the toggle switch to the NPN position. When the light curtain signal is PNP, switch the toggle switch to the PNP position.

Light curtain synchronization line

Connect light curtain signal

Output 24V to power the light curtain



Input 100-240V AC power supply

Switch the toggle switch to the "Protection" position, light curtain will start working.

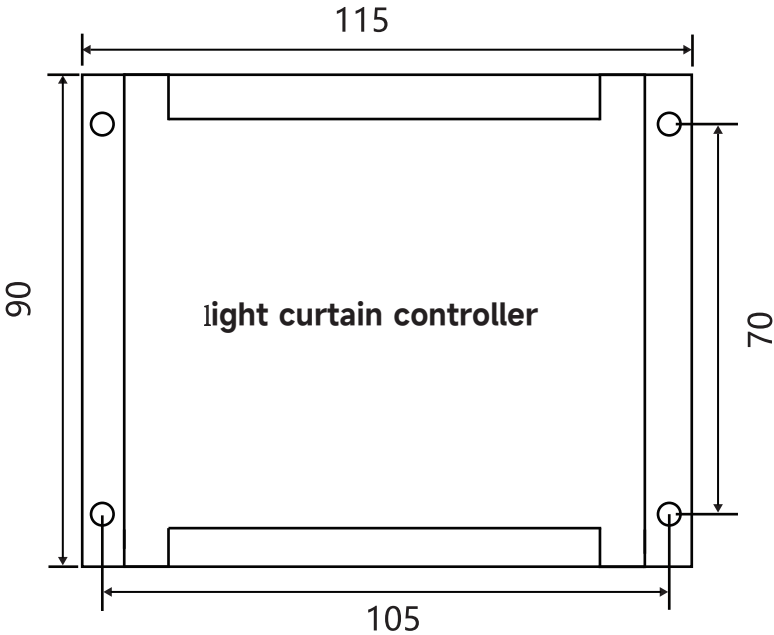
When the light curtain is light-incoming: NC and COM are closed, NO and COM are open  
When the light curtain is light-blocked: NC and COM are open, NO and COM are closed

## Light curtain controller

### Product parameters

Exterior	
Model	MT-KQ
Protection function	✓
Key switch	✓
Number of connectable light curtains	1 set or 2 sets
Installation location	Side of the machine tool body
Self-protection function	✓
Compatible light curtain specifications	All series
Signal output	Normally open/normally closed relay signal
Voltage	110V/220V
Operating temperature	-25°C~65°C
Insulation resistance	>100MΩ
Circuit protection	Reverse polarity protection/output short circuit protection
Anti-interference ability	10000LuX
Relay life	2 million times
Power consumption	5W

### Dimension drawing (unit: mm)



# MT Magnetic door switch



## Door Magnetic Switch

### Features






Magnetic type, square type and terminal block type, response distance 15mm  
Proximity switches with permanent magnets to actuate reed or switching contacts  
Suitable for detecting the opening and closing of doors and suction parts

Dimensions of the cylindrical detection head	50mm×14mm×14mm
Type	Square, magnetic
Detection distance	15mm

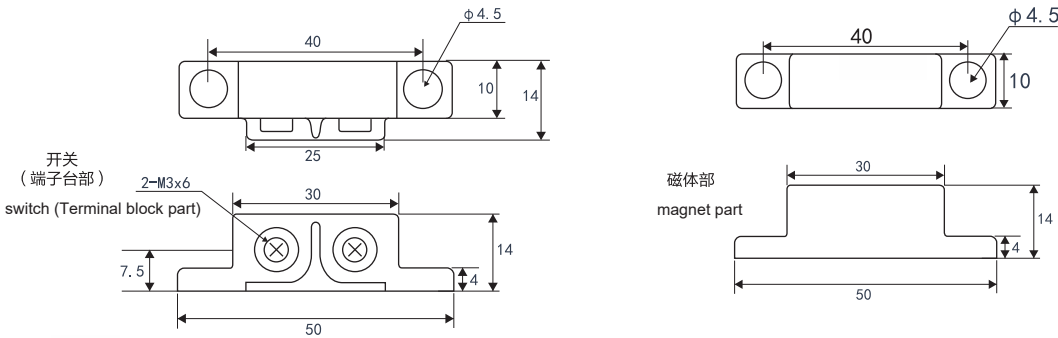
## Door Magnetic Switch

### Product parameters

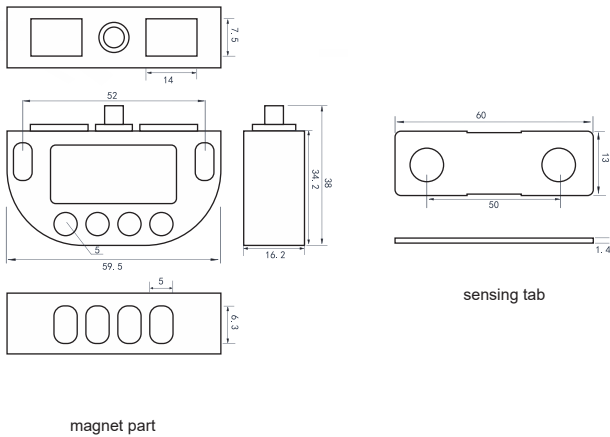
Exterior			
Model	MT-GLS	MT-GLS-NP	MT-AZC
Detection head dimension	50mm × 14mm × 14mm	50mm × 14mm × 14mm	59.5mm × 38mm × 16.2mm
Type	Reed switch/approach conduction	NPN/PNP dual output	Magnetic contact/1 normally open 1 normally closed
Detection distance	15mm		
Response frequency	20Hz以下		
Operating temperature	-20 ~ 60℃		
Storage temperature	-20 ~ 60℃		
Operating humidity	35 ~ 85%RH		
Storage humidity	35 ~ 85%RH		
Withstand voltage	Between each terminal and shell: AC1000V 50/60Hz 1min		
Vibration resistance	Durability: 10-55Hz double amplitude 1.5mm 2 hours for each direction of X, Y, and Z		
Shock resistance	Durability: 300m/s2 three times for each direction of X, Y, and Z		
Protection level	IEC: IP40		
Connection method	Terminal block type		
Material	Sensor: ABS Magnet: ABS		

### Dimension drawing (unit: mm)

#### MT-GLS



#### MT-AZC





# MT-RE13 Series Non-contact Magnetic Coding Safety Switch

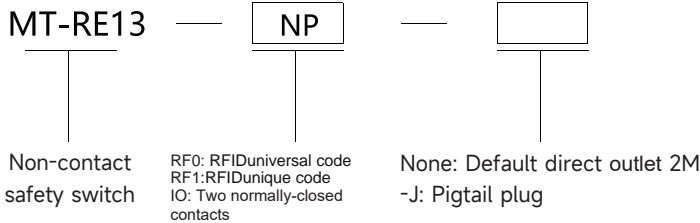


## Magnetic Coding Safety Switch

### Features

In the design of the MT-RE13 magnetic coding safety switch, multiple magnetic-sensitive elements are incorporated. These elements must be triggered in a specific sequence to operate properly in a non-contact manner. It has a high misalignment tolerance, a large detection range, and is easy to install. Multiple switches can be connected in series. It can be used in conjunction with the MSR-N/P safety module to achieve a safety level of Category 4. It is certified by CE and complies with ISO13849-1 SIL3 PLe, Category 4.

### Model description

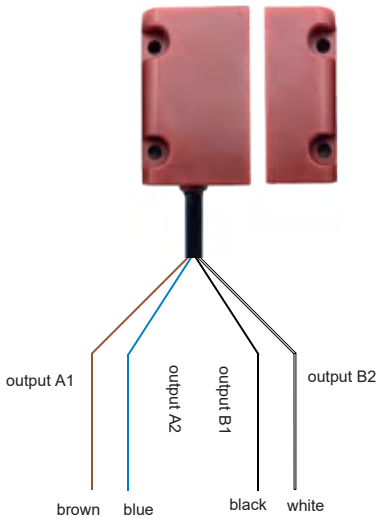


### Technical parameters

Exterior		
Model	RE13-RF0/RF1	RE13-IO
Signal mode	NPN normally closed + PNP normally closed	Two independent normally open contacts
Security Classification	Type 3 switch according to ISO13849-1; CE, SIL3	
Safety standard	ISO13849-1,IEC/EN60947-5-3	
Outlet mode	Direct outlet 2 meters, outlet with aviation plug (-J)	
Working distance	On.Min:8mm; Off.Max:17mm	
Typical tolerance	Above or side	
Output current (max)	100mA	
Response time	5ms	
Protection level	IP67	
Operating frequency	10Hz	
Operating temperature	-10~+55°C	
Relative humidity	5%~95%	
Material	ABS+PC	

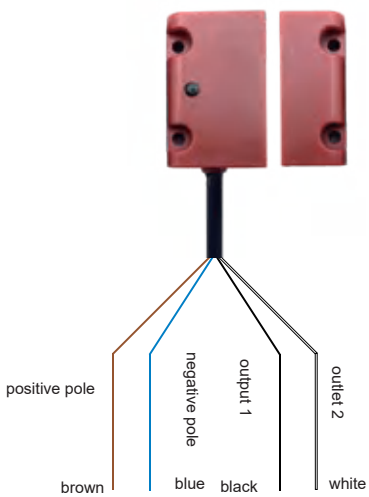
## Magnetic Coding Safety Switch

### Wiring diagram



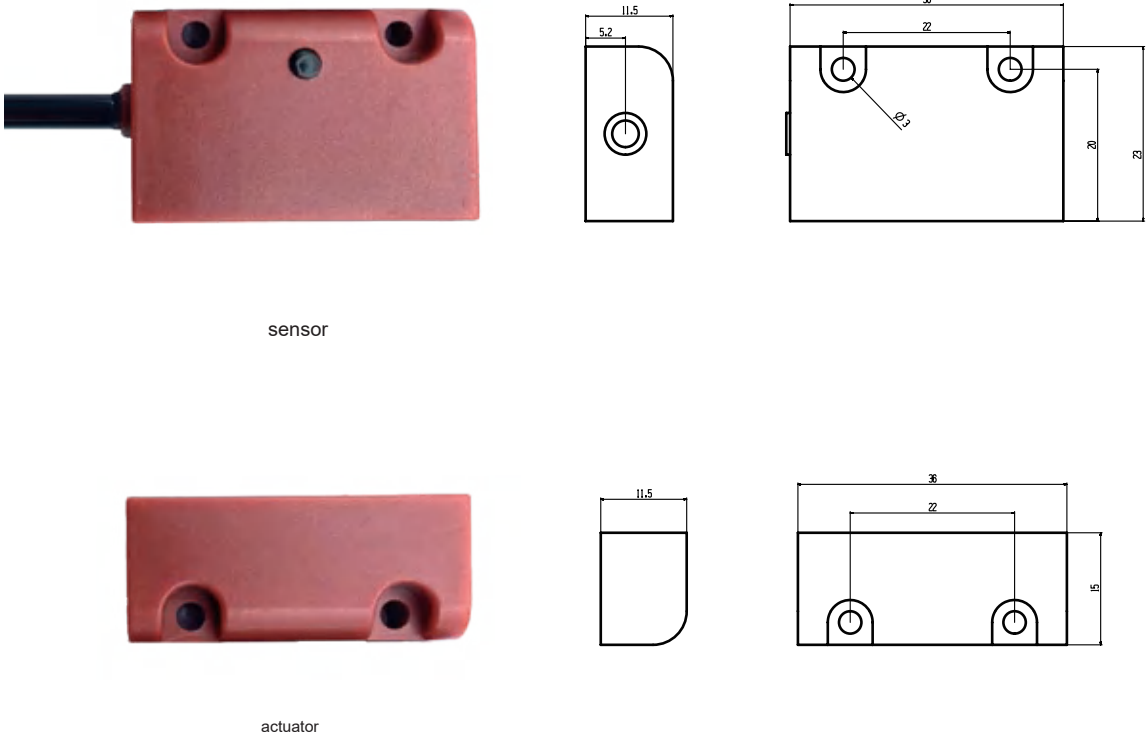
No	Wiring definition	Color
1	output A1	brown
2	output A2	blue
3	output B1	black
4	output B2	white

※ A1 and A2 form a set of contact outputs  
B1 and B2 form a set of contact outputs



No	Wiring definition	Color
1	power supply 24V	brown
2	power supply 0V	blue
3	NPN normally-closed output	black
4	PNP normally-closed output	white

### Product dimensions



※ Affected by product configuration and manufacturing processes, there may be differences in the actual size and weight of the product. Please refer to the physical product.

# MT Series Electromagnetic Locking Safety Door Lock



## Security Door Lock

### Features

Easily and tightly locked by electromagnetic force.

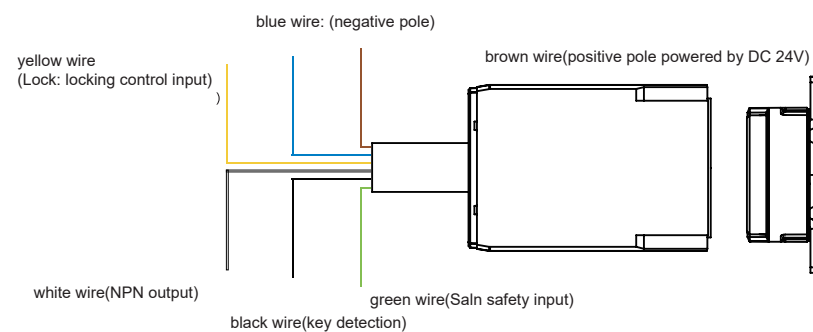
This product features a planar electromagnetic locking structure, which can effectively solve the problem of door offset and is equipped with dual-channel Hall recognition.

The MT-M50 series doesn't require a key, with a simple structure, significantly improving safety.

It is easy to install, with an ultra-compact body, no need to worry about the installation location, and it can be installed and used even in a narrow space.



### Wiring diagram



### Working status:

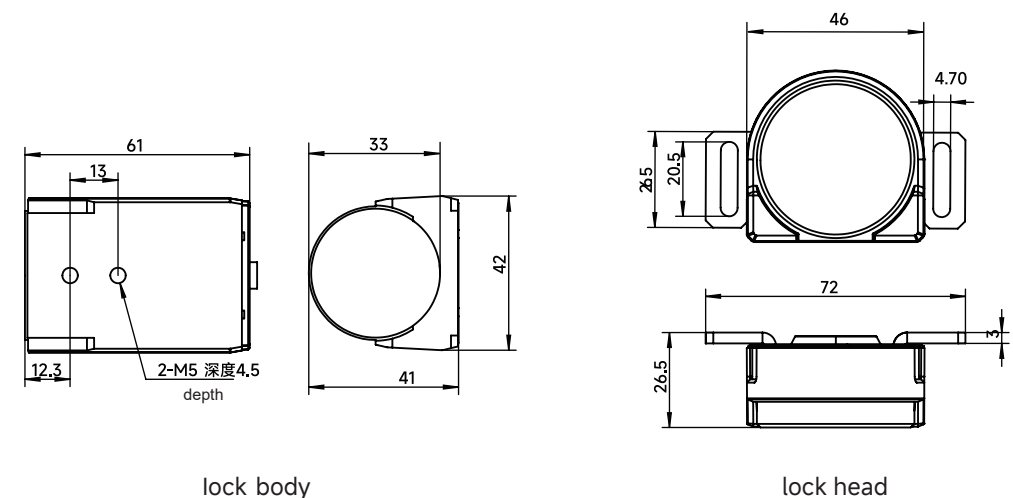
1. When Ena and Lock are grounded:  
When the key end is detected, the green light is on, the electromagnet is powered on, and the black and white wires NPN output signals; when the key end is not detected, the red light is on, the electromagnet is powered off, and the black and white wires have no output.
2. When Ena is grounded and Lock is not grounded:  
When the key end is detected, the green light flashes (once per second), the electromagnet is powered off, the black line outputs NPN, and the white line has no output; when the key end cannot be detected, the red light is on, the electromagnet is powered off, and the black and white lines have no output.
3. When Ena is not grounded and Lock is grounded:  
When the key end is detected, the yellow light is on, the electromagnet is powered on, the black line outputs NPN, and the white line has no output; when the key end is not detected, the red light is on, the electromagnet is powered off, and the black and white lines have no output.
4. When Ena is not grounded and Lock is not grounded:  
When the key end is detected, the yellow light flashes (once per second), the electromagnet is powered off, the black line outputs NPN, and the white line has no output; when the key end cannot be detected, the red light is on, the electromagnet is powered off, and the black and white lines have no output.

## Security Door Lock

### Technical parameters

Model	MT-M50N	MT-M50P
Signal	Dual NPN	Dual PNP
Type	Electromagnetic locking safety door lock	
Holding force when locked	450N	
Holding force when unlocked	About 1N	
Working distance	(OFF → ON)	2 mm
Response time (ms)	Lock → Unlock	250 ms
	Unlock → Lock	50 ms
Control output (OSSD output)	Output type	Transistor output ×2
	Maximum load current	100 mA
	Residual voltage (ON)	Max. 2V(2m cable)
	OFF voltage	Max. 2.0V (5 m cable)
External input	Enable input	About 2mA
	Lock control input	About 2.5mA
Safety certificate	CE SIL3	
Protection circuit	Power reverse connection protection, each output short circuit protection, each output surge protection, output reverse connection protection	
Power supply	Voltage	24 VDC+20% including ripple (PP) 10% Class2
	Power consumption	5 W
Environmental resistance	Shell protection grade	IP65
	Operating ambient temperature	-20 to 55 ° C (no ice)
	Storage temperature	-25 to 70 ° C (no ice)
	Storage humidity	5% to 95%RH
	Shock resistance	10 to 55 Hz, double amplitude 2.0 mm, 5 minutes in each directions X, Y, Z (IEC 60947-5-3)
	Impact resistance	30G 6 times in each direction X, Y, Z (IEC 60947-5-3)

### Product dimensions



MT Series Security Door Lock



Security Door Lock

Features

This series of products contains gold-plated contacts that meet SIL 3 and PLe mechanical safety certifications. They are suitable for safety door locks with standard loads and micro loads.

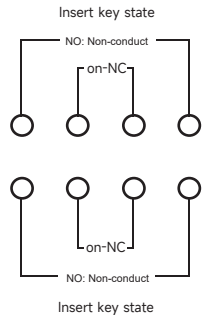
The wiring is simple, labor-saving and easy to replace.

A variety of metal heads are available.



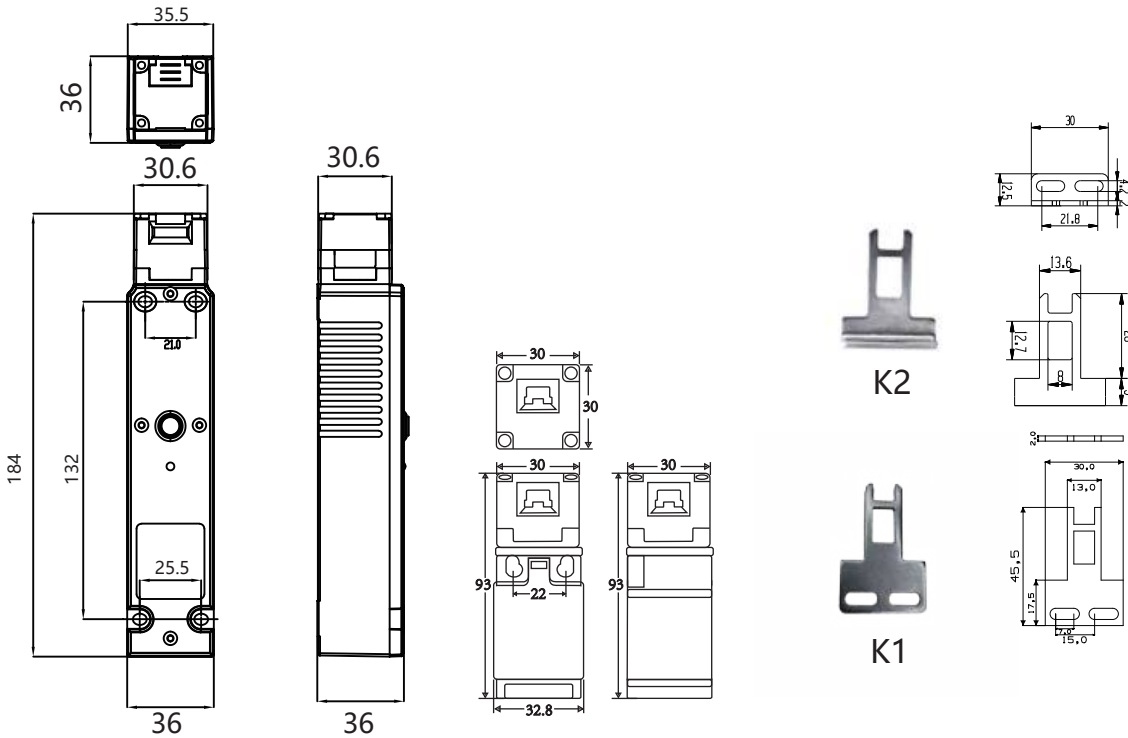
Wiring diagram

Terminal indication



特点

Model		MT-D3NS	MT-D4NS	MT-D3SL-DS	MT-D4SL-DS	MT-D3SL-DK	MT-D4SL-DK
		Small safety door switch		Electromagnetic locking safety door switch		Electromagnetic locking safety door switch	
Interlocking type		2 sets of normally open 2 sets of normally closed contacts		2 sets of normally open 2 sets of normally closed contacts		2 sets of normally open 2 sets of normally closed contacts	
Locking mode		—		Electromagnetic locking mechanical release		Mechanical lock electromagnetic release	
Supply voltage		Solenoid DC24V/ indicator DC24V/ contact DC, AC10-230V					
Life span	machine	1 million times					
	electric	(Standard type) above 500 thousand times(AC250V 3A,resistive load)*3 above 300 thousand times(AC250V 10A,resistive load)		(High-tensile type) above 100 thousand times(AC250V 10A,resistive load)			
Certification standard		Comply with CE, PLe					
Forced breaking force		Locking force above 1300N					
Force disconnect pre-stroke		Above 10mm					
Contact resistance		Below 25mΩ					
Minimum applicable load		DC 5V 1mA resistive load (N-level reference value)					
Rated insulation voltage (Ui)		300V					
Rated frequency		50/60Hz					
Protection level against electric shock		Class II double insulation					
Degree of pollution (environment of use)		3 (EN60947-5-1)					
Pulse withstand voltage	Between the same extremes	2.5 kV					
	Between different extremes	4 kV					
	Between terminals and uncharged metal parts	6 kV					
Insulation resistance		Above 100MΩ					
Contact spacing		Above 2x2mm					
shock-proof	maloperation	10-55Hz, single amplitude 0.75mm					
Impact resistance	durability	Above 1,000m/s²					
	maloperation	Above 300m/s²					
Conditional short-circuit current		100A (EN60947-5-1)					
Rated open thermal current (Ith)		10A (EN60947-5-1)					
Operating ambient temperature		-30~70℃ (no ice)					
Ambient humidity		Below 95%					
Quality		About 96g					



安全传感器

- 槽型传感器
- 光纤传感器
- 位移传感器
- 安全传感器
- 光电传感器
- 接近传感器
- 专用传感器



# MT Series Magnetic Coding Electronic Security Door Lock



## Security Door Lock

### Features

MT-GS51 series safety door locks are based on magnetic coding induction technology and use a monitored stainless steel lock structure for protective door devices involving personnel or machine safety. Adopting the safe dual-channel output technology can achieve the safety level of SIL 3 or PLe, and it can be used in conjunction with safety relays.



### Wiring diagram

#### Magnetic coded electronic locking safety door switch

VCC: Power supply positive 24VDC  
GND: Power supply negative 0V  
UNLOCK: By default, if it is not connected, the door lock is in locked state; if it is connected to 0V, the door lock is in unlocked state.  
0V: Common negative connection with the power supply  
OUT1 and OUT2: Dual NPN normally closed output  
OUT3 and OUT4: Dual PNP normally closed output

VCC	UNLOCK	OUT1	OUT3	empty
GND	0V	OUT2	OUT4	empty



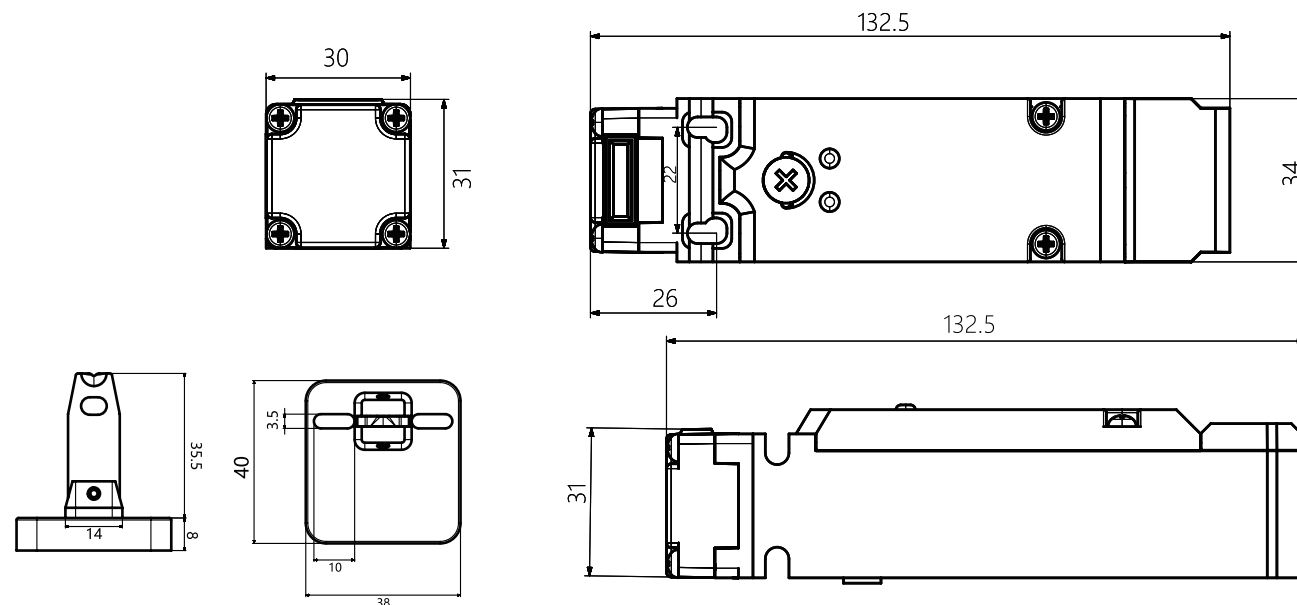
## Security Door Lock

### Technical parameters

Safety level	
Standard	ISO 13849-1 IEC/EN60947-5-3
Security classification	Category 4 switch according to ISO13849-1/SIL3 dual-channel interlock is suitable for PLe/ PLDS
Certificate	CE SIL3
Protection	
Safety short circuit protection, overheat protection stop and restart, current limitation, reverse polarity protection, overload protection, transient noise protection, overvoltage protection, failure pulse protection	
Output	
Safety output	2-channel redundant PNP and 2-channel NPN normally closed signal outputs
Input	1 channel 0V output (door opening/closing, door locking, fault indication, etc.)
Technical parameters	
Lock bolt insertion deviation	Max.: $\pm 2\text{mm}$
Locking holding force $F_{\text{max}}$ (ISO14119)	Above 1300N
Locking holding force $F_{\text{zh}}$ (ISO14119)	Above 1300N
Minimum radius of the revolving door	$\geq 220\text{mm}$
Operating voltage	DC $24\text{V} \pm 15\%$
Rated power	4.6W(no load) ※
Output current	Max.: 200mA
Output conduction voltage drop	$< 2.5\text{V}@200\text{mA}$
Leakage current	$< 100\mu\text{A}$
Operating frequency	0.5Hz
Response time	100ms (independent operation)
Risk time	100ms
Start-up time	3.5s
Protection rating	IP65
Operating temperature	$0 \dots +55^{\circ}\text{C}$
Relative humidity	5...95%
Materials	Nylon/zinc alloy/stainless steel

※ When locking and unlocking action, the maximum power is 10W(no load), duration time is 200ms

### Dimension drawing



# MT Door Lock Handle




## Door Lock Handle

### Features

It can be matched with ordinary safety door locks, or electromagnetic locking safety door locks, with exclusive keys, which can effectively prevent accidental opening. Two-level protection, and can safely keep the door locked or open. You can choose the left handle or the right handle.

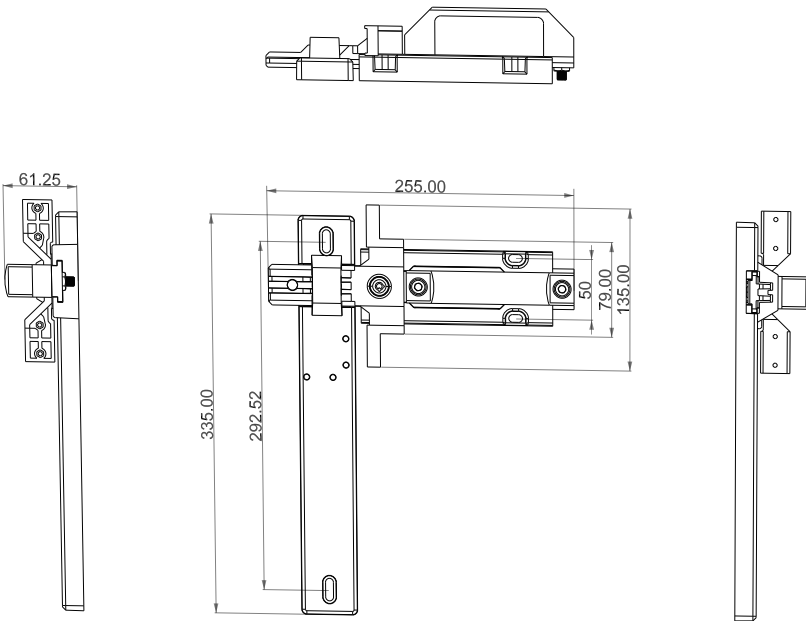


### Specifications

Appearance	Specification	Content	Model number	Applicable door switch
	Mass: about 0.6kg Mechanical life: more than 20,000 times	Sliding key: 1(not installed yet) Door lock mounting plate: 1 Door switch special mounting screws: 4 Operation key: 1 Door switch pull handle: 1 Lock key: 2	MT-NSK10	MT-D4NS  MT-D4SL

## Door Lock Handle

### Dimensions



MT Series  
Safety  
Relays



Safety Relays

Features

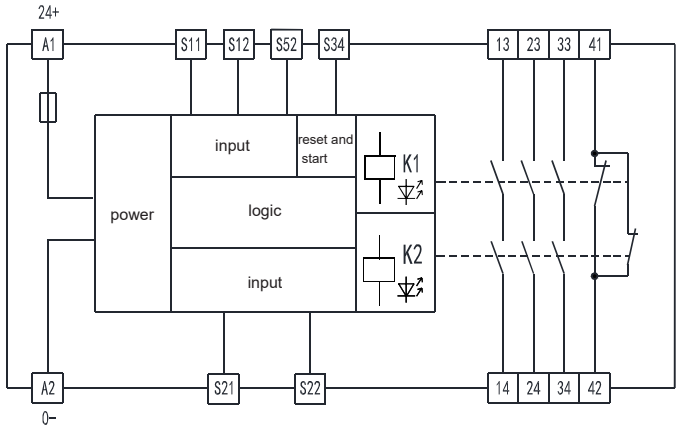
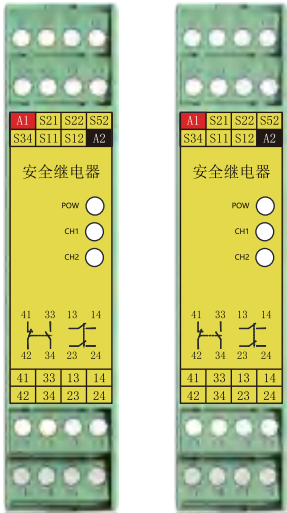
The INCT safety relay MSR - P/MSR - N is a safety relay for safety light curtains, which has 3 normally - open (NO) safety output contacts and 1 normally - closed (NC) auxiliary output contact. It supports single - and dual - channel operation, manual or automatic reset, and features a built - in self - diagnostic function for detecting faults.

Technical parameters

Model number	MSR-N	MSR-P
Type	Match the NPN light curtain	Match the PNP light curtain
Conform the standard	EN ISO 13849-1	
	EN ISO 13849-2	
	EN 62061	
	IEC 61508	
	IEC 62061	
Comply with performance index (PL)	e(EN ISO 13849-1)	
Safety integrity level (SIL)	3(IEC6150、IEC62061)	
Safety categories	4(EN ISO 13849-1)	
Rated power supply voltage	24V AC/DC-15%+10%	
Module power consumption	≤3W(24VDC)	
Overcurrent protection	Built-in, electronic	
Minimum applicable load (reference value)	5VDC/10mA(initial value)	
Release buffer time	Emergency stop switch less than 30ms	
Rated insulation voltage	250V AC	
Rated impulse withstand voltage	6KV(1.2/50us)(input-output)	
6KV vibration resistance	10-55Hz single amplitude 0.35mm	
Overvoltage category	III	
Degree of contamination	2	
Protection level	IP20	
Safety output contacts	Number of contacts	3NO+1NC
	Contact type	Forced orientation
	Contact fuse protection	10AgL/gG(normally open contact) 6AgUgG(normally closed contact)
Mechanical durability		More than 10 million times
Output contact rating	AC-15	5A/230V AC
	DC-13	5A/24V DC
Operating ambient temperature		-20~+60°C(no ice)
Storage ambient temperature		-40~+85°C(no ice)
Operating ambient humidity		10~90%RH(no condensation)
Storage ambient humidity		10~90%RH(no condensation)

Safety Relays

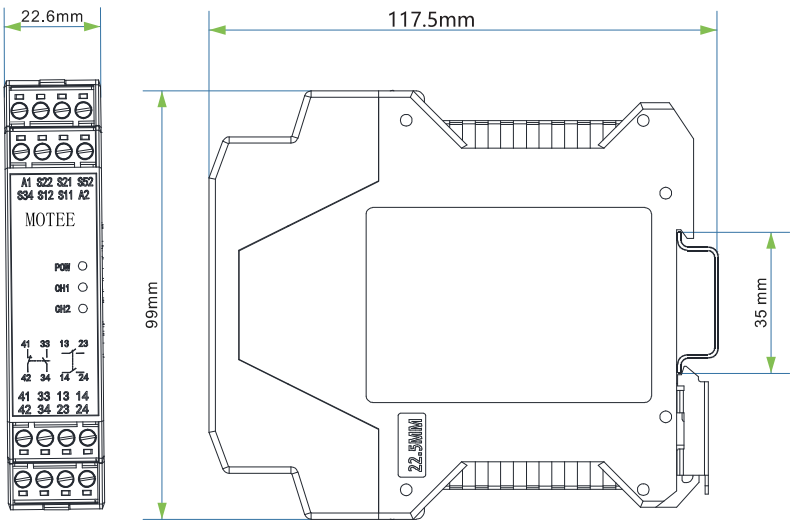
Technical parameters



Panel display	Instructions		Remark
A1	Power supply +24V DC input	Power supply 24V AC input	
A2	Power supply 0V DC input		
S11	Safety input 1		Only connect contact output devices
S12			
S52			
S21	Safety Input 2		
S22			
S34	Reset and start input		
13-14	3-channel normally open safety output contacts (NO)		Rating value AC-15,5A, 230V Dc-13,5A, 24V
23-24			
33-34			
41-42	1 normally closed safety output contact (NC)		
POW	Green LED, lights up when power is on		
Ch1	Green LED, safety relay K1 light up in closed-circuit mode		
Ch2	Green LED, safety relay K2 light up in closed-circuit mode		

Dimension drawing

Overall dimensions: 117.5mm\*99mm\*22.6mm





# MT Laser obstacle avoidance radar



## Laser obstacle avoidance radar

### Characteristic

MT-LR10 series is the latest industrial obstacle avoidance lidar, which has the following features. With a scanning angle of 270°, it can be divided into 64 independent channels, which can support serial connection. (Type-C interface) communication.

#### Excellent anti-light interference ability

The maximum anti-optical interference ability reaches 80000Lux.

#### 2 cm ranging accuracy

Advanced optical path design to achieve high-precision ranging.

#### Small and flexible in size

The volume is 50mm\*50mm\*72mm.

#### IP65 protection level

Can adapt to a variety of complex environments

### Application scenario

Suitable for AGV obstacle avoidance, forklift obstacle avoidance, industrial safety protection and other scenes.

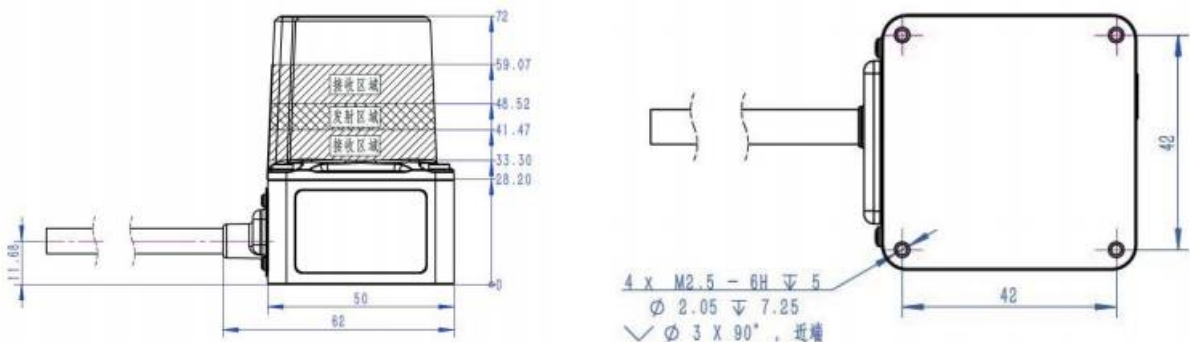


## Laser obstacle avoidance radar

### Product parameter

Category	Laser obstacle avoidance radar	
Model	MT-LR10N	MT-LR10P
Signal	NPN	PNP
Examination Area	270°	
Scanning frequency	25Hz	
Ranging accuracy	±2cm	
Start time	< 10s	
Detect output delay	0~2sCan be set within the range	
Detection size	0~5°Can be set within the range	
Working temperature	-10°C~50°C	
Ambient humidity	Below 80%, no condensation	
The protection grades	IP65	
Data sampling rate	18KHz/54KHz	
Angular resolution	0.5°	
Response time	40ms	
Communication connection	USB-TYPE C	
Detection hold delay	0~2sCan be set within the range	
Switch input	6个 (NPN)	
Storage temperature	-20°C~70°C	
Anti-ambient light	80000Lux	
Power supply	DC 9V~28V	
Communication connection	USB-TYPE C	
Detection hold delay	0~2sCan be set within the range	
Switch input	6个 (NPN)	
Storage temperature	-20°C~70°C	
Equipment size	50mm(L)*50mm(W)*72mm(H)	
Equipment power consumption	Rated power:< 1W (no load)< 3W (no load)Starting power:	
Switch output	4(3 zone signals, 1 fault signal)	
Indicator light	4 (3 regional signals, 1 fault signal)	
Number of channels	64 (each channel contains 3 detection areas)	

### Dimensional Drawing



# EZ Ordinary Square Photoelec tric Sensr

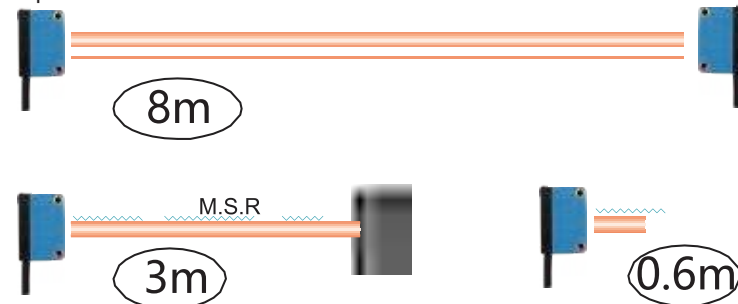


## Square Photoelectric Sensor

■ The detection distance of the amplifier built-in type reaches the top level in the industry.

Through-beam type (red light source, detection distance 8m) products are equipped with filters to prevent mutual interference. Each reflective type product (2 units) is equipped with a function to prevent mutual interference.

A long-range through-beam type with a detection distance of 30m (response time 2ms) is also available.

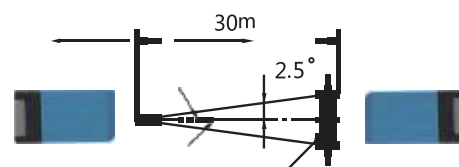


■ Guarantee low temperature performance, and can be used in cold storage warehouses

The operating temperature range is extended to -40~+55°C

■ Improved consistency between optical axis and mechanical axis

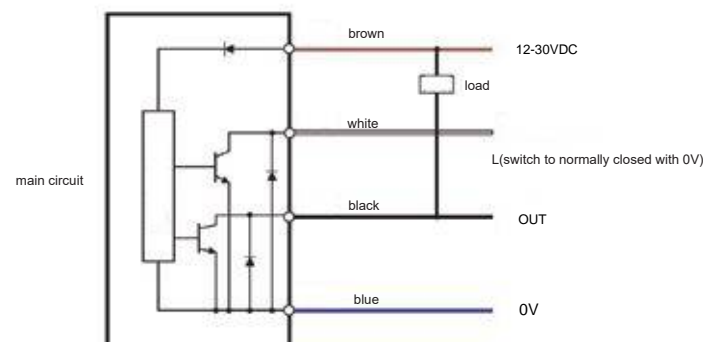
The deviation between the optical axis and the mechanical axis is controlled within +2.5°. It only needs to be installed with the mechanical axis to achieve high-precision alignment with the optical axis (through-beam type, retro-reflective type) to achieve a longer detection distance.



■ Protect the sensor even if incorrect wiring

Equipped with output reverse connection protection function. (Add a reverse connection protection to the output line)

## Wiring diagram



## Square Photoelectric Sensor

### Type

Detection method	Shape	Detection distance	Light source	Model	
				NPN Output	PNP Output
Through-beam type (light emitter + light receiver)		8m	Red light (640nm)	EZ-T61	EZ-T61P
			Infrared light (950nm)	EZ-T51	EZ-T51P
Retro-reflective type (mirror reflection type)		3m	Red light (640nm)	EZ-R61	EZ-R61P
				EZ-R61S	EZ-R61PS
Diffuse reflection type		10CM	Red light (640nm)	EZ-D61	EZ-D61P
			Infrared light (950nm)	EZ-D51	EZ-D51P
Diffuse reflection type		30CM	Red light (640nm)	EZ-D62	EZ-D62P
			Infrared light (950nm)	EZ-D52	EZ-D52P

### Rated Specification Performance

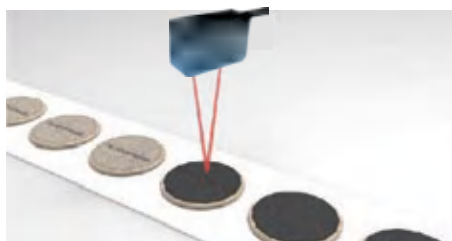
Detection method		Through-beam type	Retro-reflective type		Diffuse reflection	
Model	NPN output	Lead wire	EZ-T61	EZ-R61	EZ-R61S	EZ-D61EZ-D62
Detecting objects		Opaque objects with a diameter of ≥12mm		Opaque objects with a diameter of ≥5mm		100X100White drawing paper light source
Light source (wavelength)		640nm red light				
Voltage		DC12-24V pulsation(pp) below 10%(DC 10-30)				
Current consumption		≤25mA		≤45mA		
Control output		Load power supply current below 100mA (residual voltage below 1V)				
Circuit protection		Surge protection, short circuit protection, reverse power connection protection				
Response time		Operation/reset: less than 1ms each				
Indicator		Operation indicator light (red)				
Ambient temperature		Operation:—25C~+55°C (no ice or condensation) storage: —40C~+70°C (no ice or condensation)				
Influence of ambient illumination		Daylight: below 10000Lx, incandescent lamp: below 3000Lx				
Operating ambient humidity		Operation:-45%—85%RH(no ice) storage: 35%-85%RH(no ice)				
Influence of voltage		When the rated power supply voltage fluctuates within ±15%, the detection distance changes within ±1%				
Insulation resistance		Above 20MΩ(DC500MΩ) between charging part and shell				
Dielectric strength		AC1000Vabove50/60Hz1minBetween charging unit and shell				
Vibration resistance		10 - 55 Hz, double amplitude of 1.5 mm, 1 hour for each direction of X, Y, and Z				
Shock resistance		500 m/s² double amplitude three times for each direction of X. Y. and Z				
Protection structure		IP65				
Connection method		Wire lead-out type (standard lead wire length 2m)				
Shell material		PC				

# EZ-BG BGS Photoelec tric Sensor

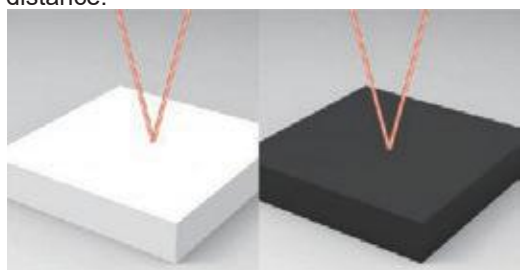
## Background Suppression Photoelectric Sensor

### BGS perfect application of functions

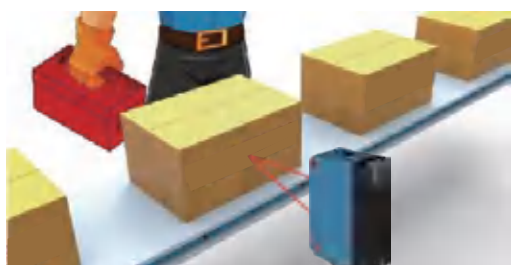
It can detect black and white workpieces at almost the same distance.  
There is no need to adjust the detection distance even when changing production on a production line where workpieces of different colors are processed.



It is not easily affected by the color change of the detected object.  
Both black and white objects can be detected at almost the same distance.



without background



When the workpiece is separated from the background object, it is not affected even if the background color is changed or someone passes by.

### Anti-interference

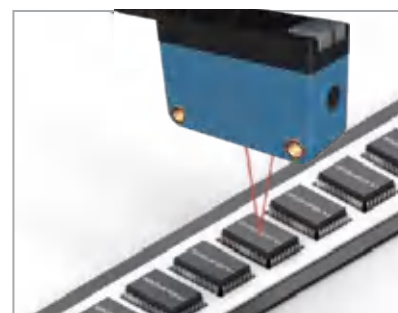
Based on a unique algorithm for avoiding external light interference, it can effectively avoid interference from light of the same frequency and also resist variable-frequency fluorescent lamps.

### High precision

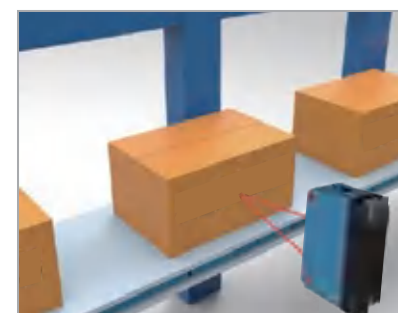
Small light spot with high repeatability

## Background Suppression Photoelectric Sensor

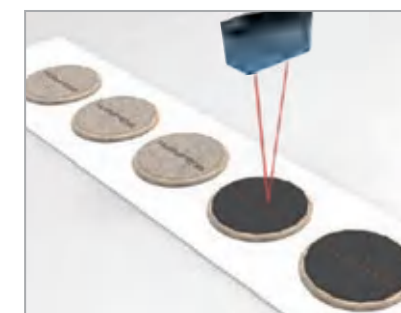
### Application scenarios



Production IC detection



Production line workpiece detection without background



Detection of different colors biscuits production line

### Type

Detection method	Light source	Shape(mm)	Examination range	NPN type	PNP type
Distance detection type	Laser		120mm	EZ-L61-BG	EZ-L61P-BG
			300mm	EZ-L62-BG	EZ-L62P-BG
	Red light LED		100mm	EZ-D61-BG	EZ-D61P-BG
			300mm	EZ-D62-BG	EZ-D62P-BG
			500mm	EZ-D66-BG	EZ-D66P-BG

### Technical parameter

Type		Outlet type				
		EZ-L61-BG	EZ-L62-BG	EZ-D61-BG	EZ-D62-BG	EZ-D66-BG
Project	Model	Laser spot 2mm	Laser spot 2mm	Minimum spot 1mm	Light spot 8-12mm	Collimated spot 8mm
	NPN output					
Detection distance		10-120mm	30-300mm	5-100mm	10-600mm (BGS functions within 300mm)	10-1500mm (BGS functions within 500mm)
Output mode		NPN/PNP integrated electrode open circuit, ≤100mA/30VDC				
Switch mode		L.on (light-incoming action) / D.on (light-blocking action) switchable				
Indicator light		Working indicator light: green, output indicator light: orange				
Response time		< 2ms				
Sensitivity adjustment		Multi-turn potentiometer				
Light source		Laser, red light LED(660nm)				
Operating voltage		10~30V DC±10%				
Current consumption		≤30mA				
Ambient light		Daylight: below 10000LX, incandescent lamps: below 3000LX				
Ambient temperature		-25°C~+55°C				
Ambient humidity		-35%-85% no ice				
Protection rating		IP65				
Material		ABS(shell); PC(lens)				



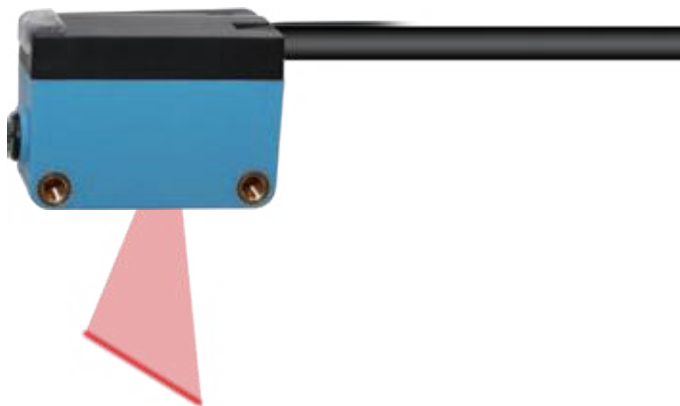
# EZ Diffuse Reflection Bar shaped Photoelectric Sensor



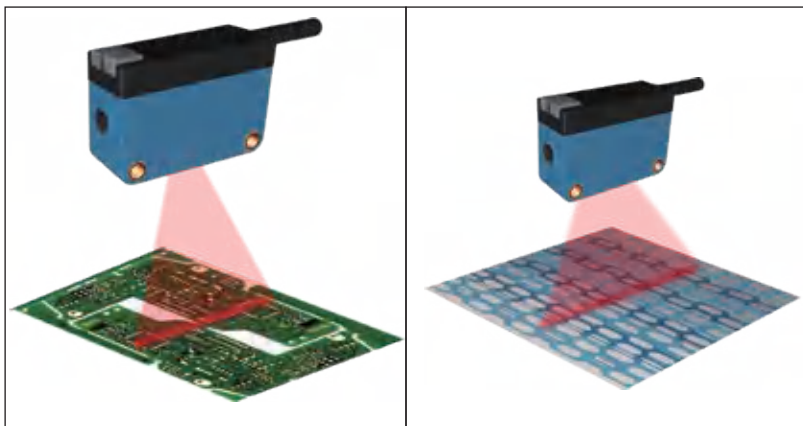
## DiffuseReflectionBar-shapedPhotoelectricSensor

### Features

1. Strip light design with stable detection spot 5×30mm
2. Comes with a BG (Background Suppression) function, especially suitable for detecting products with hollowed-out or uneven surfaces
3. Intuitive high-brightness red light with high-speed response.
4. The default cable length is 2 meters, and customization is supported



### Application scenarios



Detect hollowed-out circuit boards

Detect irregular hardware parts

## DiffuseReflectionBar-shapedPhotoelectricSensor

### Product Parameters

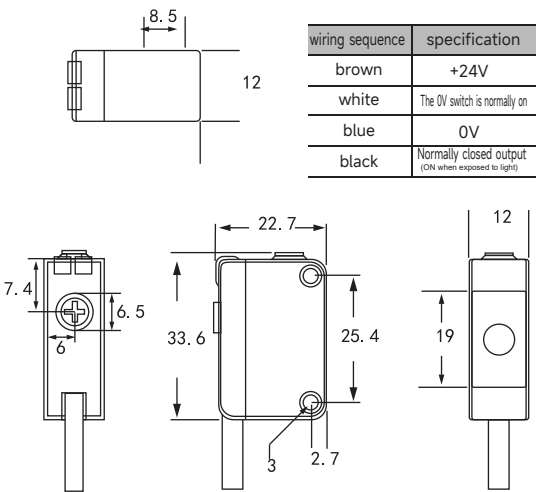
#### Limited reflection type (diffused light type)

Diffuse reflection bar-shaped photoelectric sensor			
Type	NPN signal output	EZ-D461	EZ-D561
	PNP signal output	EZ-D461P	EZ-D561P
Detection distance		5mm-200mm, light spot 4mm	5mm-100mm, light spot 1mm
Light source		640nm red light	640nm laser
Minimum detectable object		φ2mm copper wire (set distance100mm), filter gaps or perforations up to 5mm at most	
Repeatability		Below 1mm	
Power supply voltage		12~24V DC±10%	
Pulse		Below P-P 10%	
Current consumption		Below 13mA	
Output		· Default NPN Signal, maximum inflow current: 50mA	
		· Applied voltage: below 30VDC (between output and 0V)	
		· Residual voltage: below 2V (inflow current 50mA)	
Short circuit protection		Equipped	
Reaction time		Below 0.5ms	
Working status indicator		Power on green LED, sensing orange LED(light up when the output is ON)	
Environmental performance	Protection structure	IP67(IEC)	
	Operating ambient temperature	-25+55°C (no condensation or ice), storage: -30+70°C	
	Operating ambient humidity	35-85%RH, storage: 35-85%RH	
	Ambient illumination	Incandescent lamp: illuminance of the light receiving surface below 3,000R	
Light-emitting element		640nm red LED	
Material		Shell: PC	
Cable		Outer diameter 2.8mm rubber cable, 2m long, customizable extension	
Weight		Body weight: Approx. 50g	

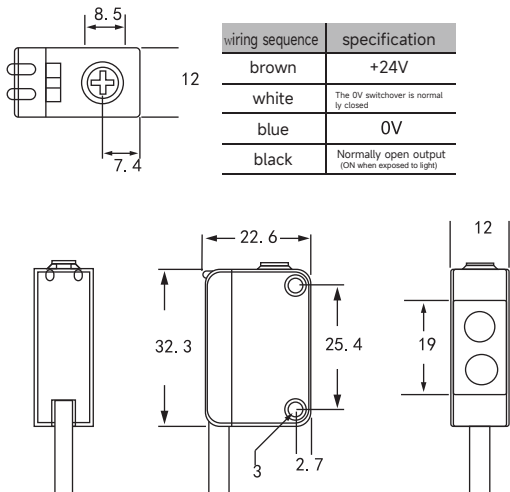


Dimension drawing (unit: mm)

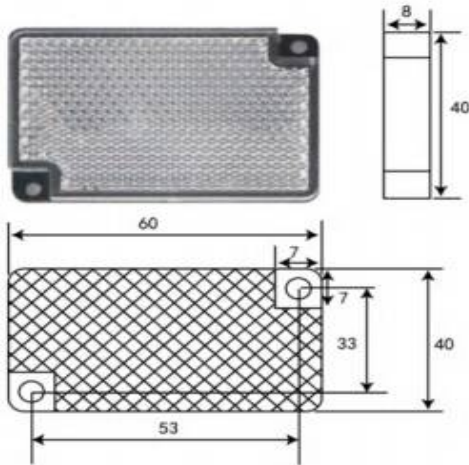
EZ-D61/T61



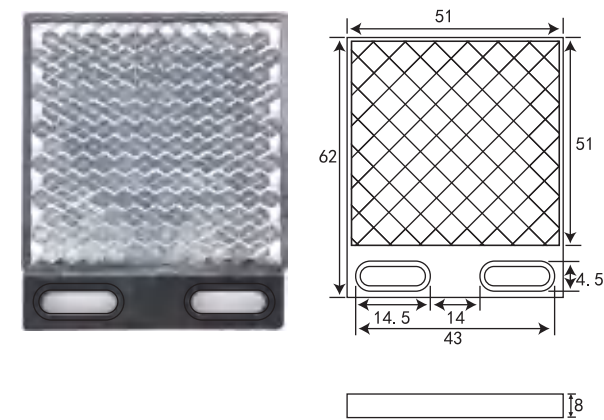
EZ-D62/D62-BG



EZ-TD08



EZ-TD08B



Characteristic

Restricted reflective mirrors, black and transparent objects that are not easily affected by colors and materials will also be detected. Mirror, black and transparent objects will also be detected.

Stability of color

- Stable detection of mirror, black and transparent objects and other objects.
- Without the influence of background, the object to be detected can be detected effectively.

Stability of distance

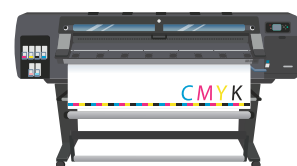
- Wide detection range, so it is resistant to object position deviation.
- Design that is not easily affected by external interference

wiring

- UX1008 four-core wire

Application scenario

Testing printing paper



printing equipment

Detection of subpackaging bags





Drug packaging machine

Detection container

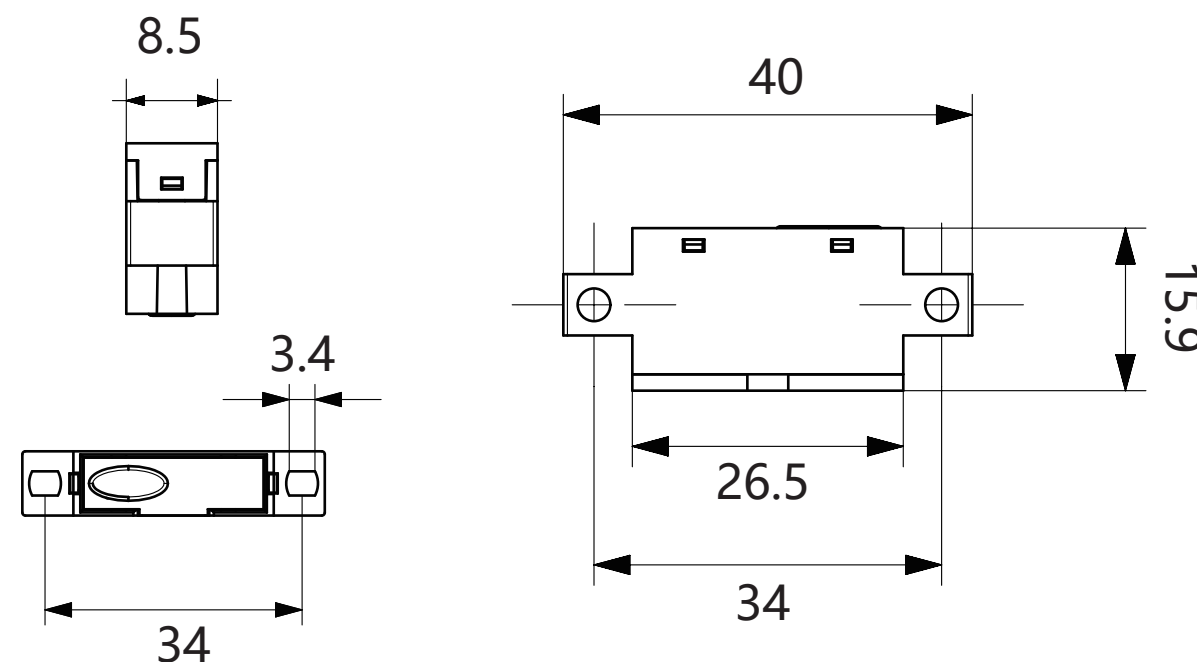


Analytical equipment

Product Parameters

project	Detection mode	Confined reflection type			
		Plug-in		Outlet type	
	model	EZ-B5W	EZ-B5WP	EZ-B6W	EZ-B6WP
	signal	NPN	PNP	NPN	PNP
					
Detection distance	white paper	2 ~ 50mm			
	Black paper	5 ~ 45mm			
		Minimum detection object (reference value) φ0.5mm			
accept an assignment		Below 20%			
		Light source (luminous wavelength) Infrared light emitting diode (850nm)			
Power supply voltage		Dc24v 10% pulse (P-P) below 10%			
Consumption current		Less than 15mA (at DC26.4V)			
Control output		The load power supply voltage is below DC26.4V, the load current is below 50mA (the residual voltage is below 0.8V (when the load current is 50mA), Open collector output (NPN output) with residual voltage below 0.32V (when load current is 10mA)			
Response time		Action and reset: less than 1ms each.			
Use ambient illumination		Incandescent lamp with light receiving surface illumination: less than 3,000lx, and sunlight: less than 10,000lx.			
Ambient temperature range		- 10~ +60℃、- 25~ +80℃			
Vibration (durability)		10~ 55Hz			
Impact (durability)		1.5mm X、Y、Z 2500m/s <sup>2</sup> X、Y、Z			
Protective structure		IP50 (IEC60529			
attended mode		Connector type		Conductor type	
Weight (body only)		1.6g			
texture of wood	shell	PC			
	Lens part	PMMA			
	cover plate	PC			

Dimension drawing (unit:mm)



# EZ Confined reflection photoelectric sensor

# EZ Time-of-Flight Sensor



## Time-of-FlightSensor

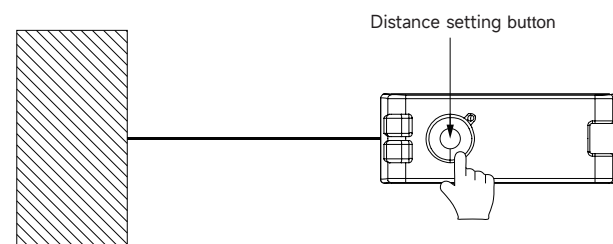
### Teaching

Single-point mode:  
Aim the sensor at the object to be detected and place the object at the farthest detection distance.  
Press and hold the SET button for 1 second and then release it. If the green light flashes slowly twice, the distance setting is successful.  
Note: If the green light flashes slowly three times, the setting fails.

Area mode:  
Aim the sensor at the object to be detected and place the object at the nearest detection distance.  
Press the SET button and wait for the green light to flash rapidly, then release the button. Next, place the detected object at the farthest detection distance, press the SET button and wait for the green light to flash rapidly, then release it. If the green light flashes slowly twice, the area mode setting is successful.  
Note: If the green light flashes slowly three times, the setting fails.

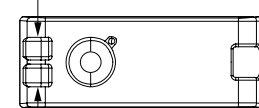


(1) Place the object to be detected at the desired positioning location and press the teach pendant.



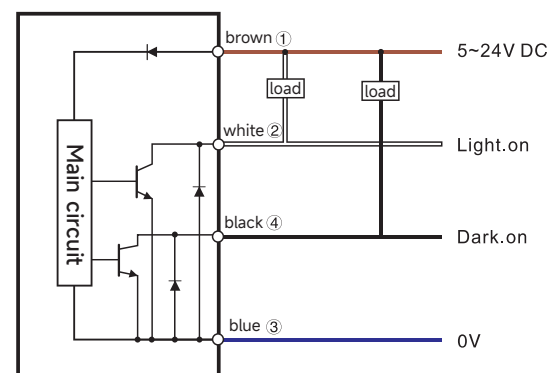
(2) Press and hold the teach button for more than 3 seconds until the red and green lights flash alternately. Release the button, and the teaching process is completed.

Red LED power indicator



Green LED power indicator

### Output loop diagram

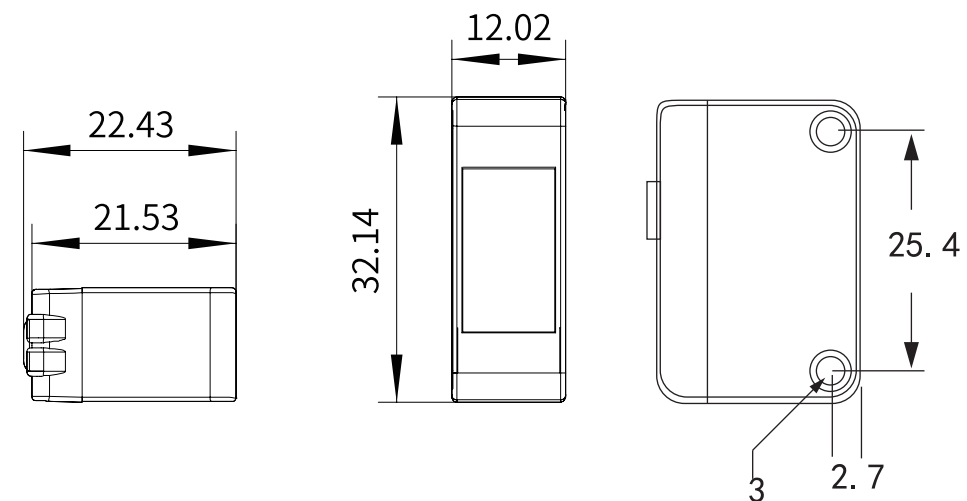


## Time-of-FlightSensor

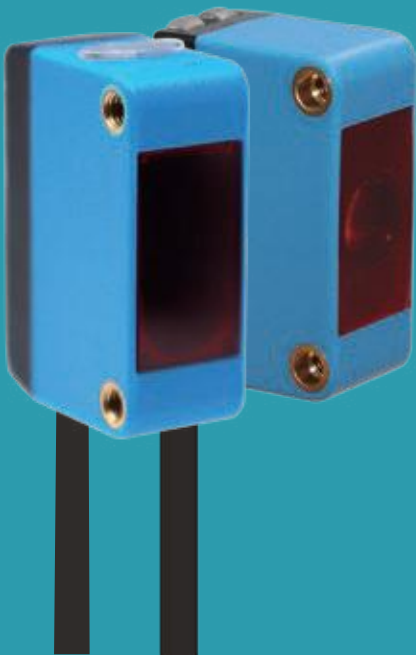
### Product Parameters

Detection method		Reflective type	
Model	NPN output	EZ-TOF2N	EZ-TOF4N
	PNP output	EZ-TOF2P	EZ-TOF4P
Standard test target		100×100mm white drawing paper	
Action mode		One key settingTOF principle	
Detection distance		50~1500mm	50~4000mm
Light source		Infrared light LED(940nm) IEC CLASS1	
Voltage		DC12-24V pulsation(pp) below 10%	
Power consumption		Below power consumption 480mW(below power supply voltage DC24V, consumption current 20mA)	
Control output		Open collector output with load power supply voltage below DC26.4V and the load current below 80mA (NPN/PNP outputs vary by model)	
Output residual voltage		Residual voltage below 1V (load current less than 10mA) Residual voltage below 2V (load current less than 10 ~ 80mA)	
Protection circuit		Reverse power connection protection / load short-circuit protection / reverse output connection protection	
Response time		Operation and reset: less than 1ms each	
Ambient temperature		Operating temperature: -20~+50°C, storage temperature: -40~+70°C (no ice or condensation)	
Ambient humidity		Operating: 55-85%RH, storage: -35-95%RH(no ice or condensation)	
Ambient illumination		Solar light: below 10,000lx	
Protection structure		EC60529 specification IP65	

### Dimension drawing (unit: mm)



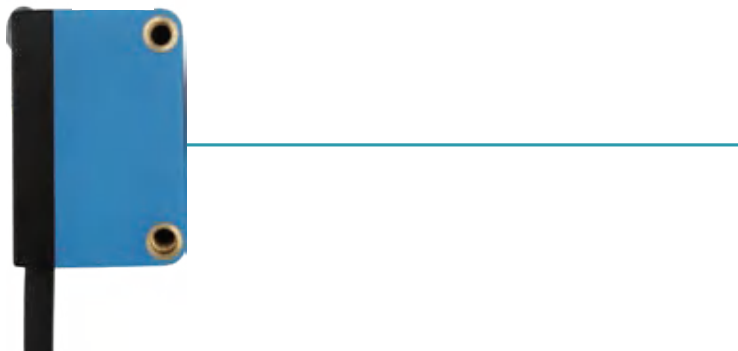
# EZ Laser Photoelectric Sensor



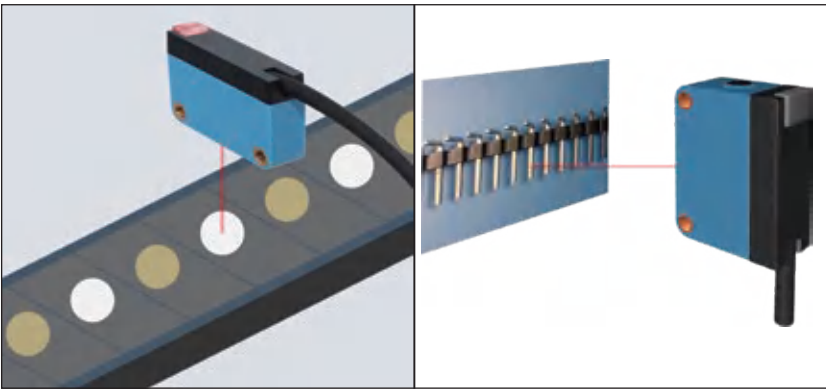
## Laser Photoelectric Sensor

### Features

Advantages: fast response, high accuracy, suitable for detecting small objects.  
Light spot: 1~2mm  
Light source: Visible red laser light source (660nm)



### Application scenarios



High-speed assembly line detection of small objects

Counting of electronic products

## Laser Photoelectric Sensor

### Type

Detection method	Shape	Connection	Detection distance	Model
				NPN output
Through-beam type		Lead wire type (2m)	50m	EZ-LT61
Mirror reflection type		Lead wire type (2m)	5m	EZ-LR61
Diffusion reflection type		Lead wire type (2m)	300mm	EZ-LD61

### Product Parameters

	Output	Through-beam type	Mirror reflection type	Diffusion reflection type
Model	NPN	EZ-LT61	EZ-LR61	EZ-LD61
Detecting objects		100×100mm white drawing paper	100×100mm white drawing paper	Opaque objects with a diameter of ≥2mm
Light source (wavelength)		660nm red laser		
Power supply voltage		DC12-24V pulsation (pp) below 10% (DC10-30)		
Current consumption		≤45mA		≤55mA
Control output		Load power supply current below 150mA (residual voltage below 1V)		
Circuit protection		Surge protection, short circuit protection, reverse power connection protection		
Response time		Operation and reset: less than 1ms each		
Indicator		Operation indicator light (red)		
Ambient temperature		-25°C~+55°C		-40°C~+70°C
Impact of ambient illumination		Incandescent lamps: below 3000LX		
Operating ambient humidity		Operating: -45%—85%(no ice)RH storage: 35%-85%RH(no ice)		
Influence of voltage		When the rated power supply voltage fluctuates within ±15%, the detection distance changes within ±1%		
Insulation resistance		Above 20MΩ(DC500MΩ) between charging part and shell		
Dielectric strength		Above AC1000V 50/60Hz 1 min between charging unit and shell		
Vibration resistance		10 - 55 Hz, double amplitude of 1.5 mm, 1 hour for each direction of X, Y, and Z.		
Shock resistance		500m/s2 double amplitude, three times for each direction of X. Y. and Z		
Protection structure		IP65		
Connection method		Wire lead-out type (standard lead wire length 2m)		
Shell material		ABS		

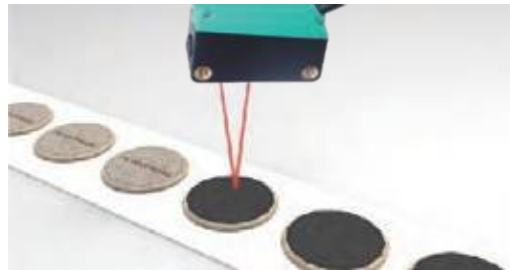


# EZ High-end Background Suppression Photoelectric Sensor

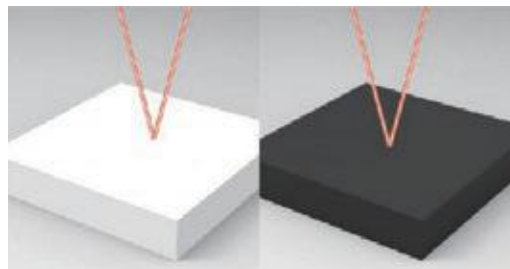


## BGS perfect application of functions

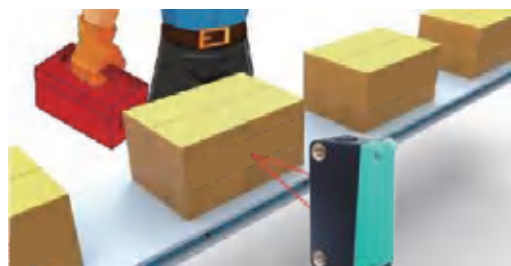
It can detect black and white workpieces at almost the same distance. There is no need to adjust the detection distance even when changing production on a production line where workpieces of different colors are processed.



It is not easily affected by the color change of the detected object, and can detect black or white at almost the same distance.



## without background



When the workpiece is separated from the background object, it is not affected even if the background color is changed or someone passes by.

## Anti-interference

Based on a unique algorithm for avoiding external light interference, it can effectively avoid interference from light of the same frequency and also resist variable-frequency fluorescent lamps.

## High precision

The differential distance of motion is small, and it can detect tiny step differences.

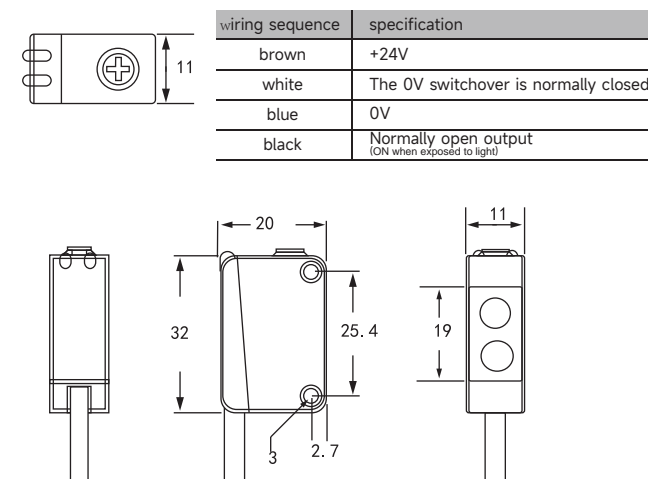
## Protection structure

IP65 protection structure to prevent mutual interference, and complies with EN specifications.

## Technical parameter

Project	Type	Red light background suppression	Laser background suppression	Bar-shaped light background suppression
	Model			
	NPN output	EZ-MR100	EZ-ML100	EZ-MS100
	PNP output	EZ-MR100P	EZ-ML100P	EZ-MS100P
Spot size		8-12mm	1-2mm	5*60mm
Detection distance		10-300mm	10-200mm	10-200mm
Output mode		NPN/PNP integrated electrode open circuit,≤100mA/30VDC		
Switch mode		L.on (light-incoming action)/ D.on (light-blocking action) switchable		
Indicator light		Working indicator light: green, output indicator light: orange		
Response time		< 2ms		
Sensitivity adjustment		Multi-turn potentiometer		
Light source		Red light LED(660nm)		
Operating voltage		10~30V DC±10%		
Current consumption		≤30mA		
Ambient light		Daylight: below 10000LX, incandescent lamps: below 3000LX		
Ambient temperature		-25°C~+55°C		
Operating ambient humidity		-35%-85% no ice		
Protection class		IP65		
Material		ABS(shell); PC(Lens)		

## Dimension drawing (unit: mm)



## Features

Built-in optical lens, intuitive detection status with visible red light. Detection distance up to 1 m, with background elimination effect. High-speed response, one-key setting and easy operation.  
Suitable for transparent object detection with fixed background and product identification with large color difference.



## Application scenarios



Logistics sorting



New energy production line



Warehousing industry

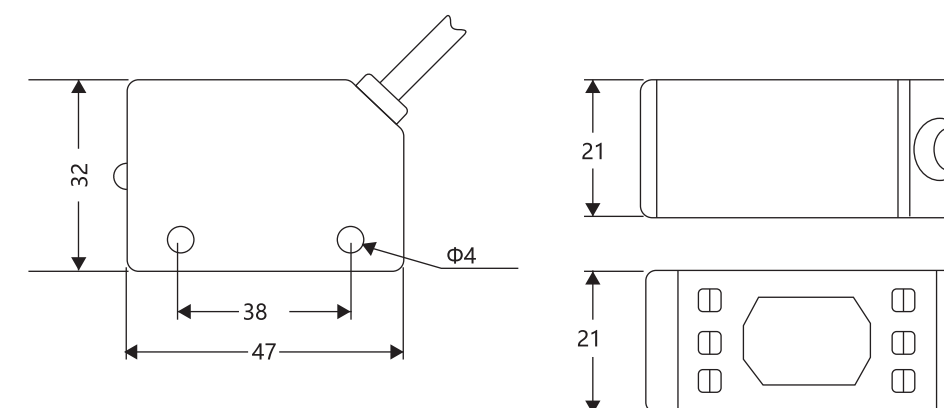
# EZ One-key Setting Photoelect ric Sensors



## Product parameters

	Product category	One-key setting background elimination		
Model	Lead wire	Output	NPN	EZ-DG20S-XJ
			PNP	EZ-DG20SP-XJ
Detection distance		50-1000mm		
Light source（wave length）		640nm red light		
Voltage		DC12-24V pulsation(pp) below 10%(DC 10-30)		
Current consumption		≤45mA		
Control output		Load power supply current below 100mA(switchable between normally open and normally closed)		
Circuit protection		Surge protection, short circuit protection, reverse polarity protection		
Response time		Operation/reset: less than 1ms each		
Indicator		Operation indicator light (red)		
Ambient temperature		-25℃~+55℃		
Influence of ambient illumination		Incandescent lamp: below 3000Lx		
Operating ambient humidity		Operation: -45%—85%RH(no ice) storage:35%-85%RH(no ice)		
Influence of voltage		When the rated power supply voltage fluctuates within ±15%, the detection distance changes within ±1%		
Insulation resistance		Above 20MΩ（DC500MΩ）between charging part and shell		
Dielectric strength		Above AC1000V 50/60Hz 1min between charging unit and shell		
Vibration resistance		10-50Hz, 1.5mm double amplitude, 1 hour for each direction of X, Y, and Z		
Shock resistance		500m/s2 double amplitude, three times for each direction of X. Y. and Z		
Protection structure		IP65		
Connection method		Wire lead-out type (standard lead wire length 2m)		
Shell material		ABS		

## Dimension drawing (unit: mm)



# EZ Long-range Photoelectric Sensor

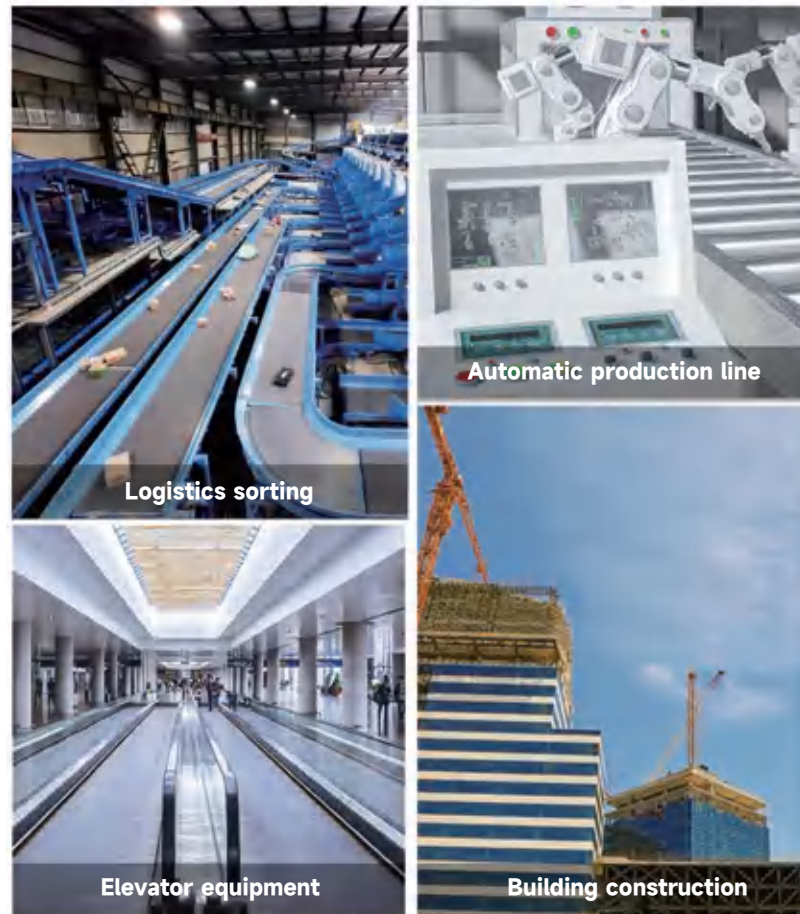


## Features

Built-in optical lens, intuitive detection status with visible red light. Detection distance up to 2 m, with background suppression effect. High-speed response, multi-turn adjustment, and easy operation.



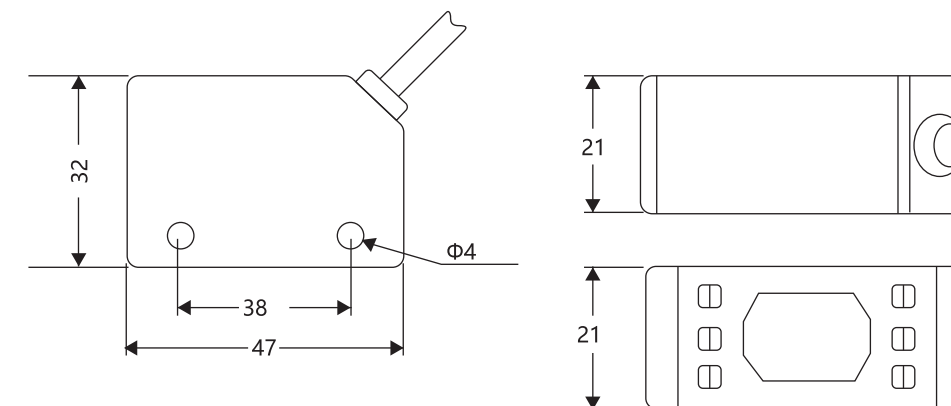
## Application scenarios



## Product parameters

	Product category	Long-distance red light background suppression			Long-distance laser background suppression
Model	Lead wire	Output	NPN	EZ-DG10	EZ-LDG10
			PNP	EZ-DG10P	EZ-LDG10P
Detection distance		30-2000mm(background suppression distance 1000mm)			
Light source (wave length)		640nm red light			660 nm red laser
Voltage		DC12-24V pulsation(p-p) below 10%(DC 10-30)			
Current consumption		≤45mA			≤55mA
Control output		Load power supply current below 150mA (residual voltage below 1V)			
Circuit protection		Surge protection, short circuit protection, reverse polarity protection			
Response time		Operation/reset: less than 1ms each			
Indicator		Operation indicator light (red)			
Ambient temperature		-25°C~+55°C			-10°C~+45°C
Influence of ambient illumination		Incandescent lamp: below 3000Lx			
Operating ambient humidity		Operating: -45%-85%RH (no ice) storage: 35%-85% RH(no ice)			
Influence of voltage		When the rated power supply voltage fluctuates within ±15%, the detection distance changes within ±1%			
Insulation resistance		Above 20MΩ (DC500MΩ) between charging part and shell			
Dielectric strength		Above AC1000V 50/60Hz 1min between charging unit and shell			
Vibration resistance		10-50Hz,1.5mm double amplitude, 1 hour for each direction of X, Y, and Z			
Shock resistance		500m/s2 double amplitude, three times for each direction of X. Y. and Z			
Protection structure		IP65			
Connection method		Wire lead-out type (standard lead wire length 2m)			
shell material		ABS			

## Dimension drawing (unit: mm)





# EZ Thin Photoelectric Sensor



## Thin Photoelectric Sensor

### Features

#### Sturdy body

Made of PBT solid body, durable and long service life

#### Ultra-small size

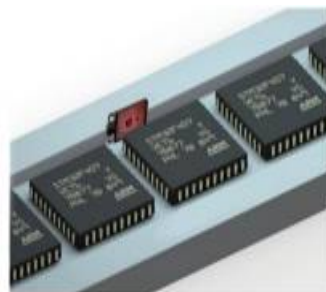
Small size, small detection blind zone. It can detect even when c lose to the detection window.

#### Easy installation

Easy installation using standard M2 screws



### Application scenarios



Chip detection or counting



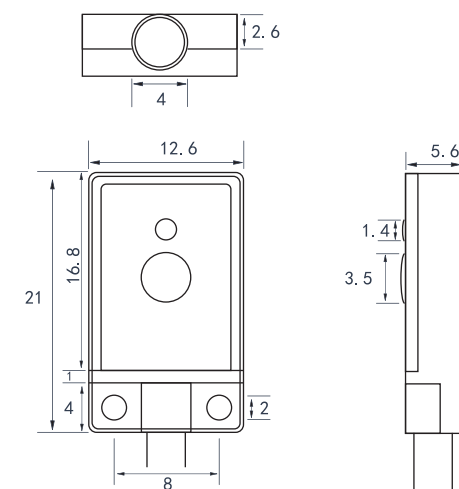
Origin arrival signal

## Thin Photoelectric Sensor

### Product Parameters

Appearance drawing (pictures are for reference only)			
Appearance		Flat F	
Model	NPN	EZ-FT11	EZ-FD11
	PNP	EZ-FT11P	EZ-FD11P
	types	Through-beam type	Reflective type
Detection distance		0.6M	2~30mm
Spot diameter		3~8mm (the farther the larger)	About 5mm(distance of 30mm)
Light source		Point light red LED(650nm)	
Reaction time		Max. 1ms	
Status indicator		Output: red; stable operation: green; through-beam emitter power supply: green	
Voltage		10-30VDC	
Current consumption		15mA	20mA
Control output		NPN output type: NPN open collector, below 30VDC and 50mA ; Residual voltage: below 1.5 V at below 30mA, below 2.0V at 30-50mA.	

### Dimension drawing (unit: mm)





Ultra-thin and ultra-compact specification

It can be installed anywhere with little space required

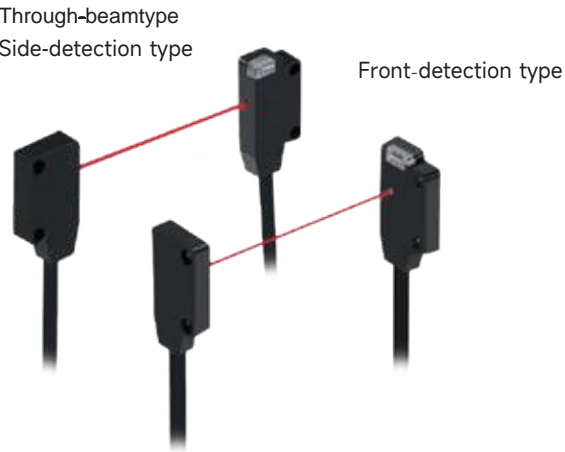
Flexible installation

The diffuse reflection sensor is a front-detection type and can be used as if it were stuck on the wall.  
The through-beam sensor is available in two types: front-detection and side-detection, allowing for flexible installation.

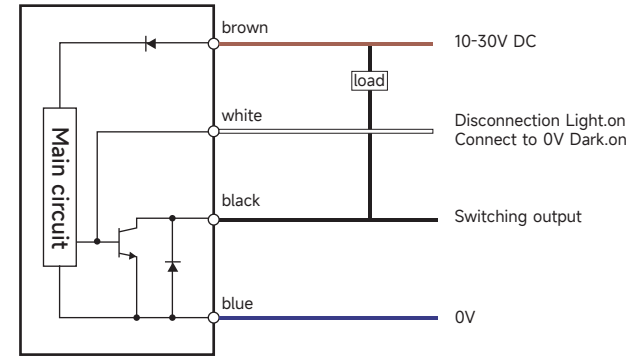


Red light: working status indicator  
Green light: stability indicator light



Clearly visible dual-color indicator lights



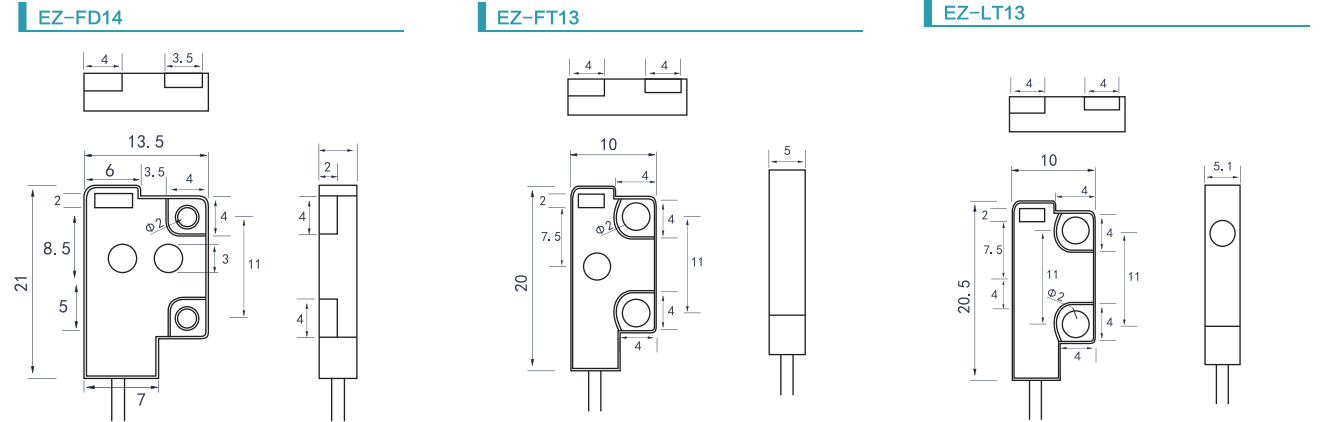
Compatible signal switching



Product parameters

Product indication						
Model	NPN output	Diffuse reflection type	Front through-beam		Side through-beam	
		EZ-FD14	EZ-FT13	EZ-FT19	EZ-LT13	EZ-LT19
Detection distance		25mm(BGS function)	500mm	1000mm	500mm	1000mm
Light source wavelength		650nm red LED				
Detecting objects		Opaque objects with a diameter of ≥4mm				
Contrast		Detection distance≥20%				
Control output		Black wire for signal output; normally open/closed switching via white wire				
Response frequency		below 1ms				
Voltage		DC12-24V pulsation(pp) below 10%(DC 10-30)				
Current consumption		≤25mA				
Control output	Switching capacity	≤3W				
	Residual voltage	Below 1V (load power supply current 100mA)				
Circuit protection		Surge protection, short circuit protection, reverse polarity protection				
Indicator		Operation indicator light (red)				
Ambient temperature		Operating: - 25°C~+70°C (no ice or condensation) storage: - 40C~+85°C (no ice or condensation)				
Influence of ambient illumination		Daylight: below 10000LX, incandescent lamp: below 3000LX				
Operating ambient humidity		Operating: -45%-85%RH(no ice) storage: 35%-85%RH(no ice)				
Influence of voltage		When the rated power supply voltage fluctuates within ±15%, the detection distance changes within ±1%				
Insulation resistance		Above 50MΩ (DC500MΩ) between charging part and shell				
Dielectric strength		Above AC1000V 50/60Hz 1min between charging unit and shell				
Vibration resistance		10-50Hz,1.5mm double amplitude, 2 hours for each direction of X, Y, and Z				
Shock resistance		500m/s2 double amplitude, ten times for each direction of X. Y. and Z				
Protection structure		IP65				
Connection method		Wire lead-out type (standard lead wire length 2m)				
Shell material		PC				

Dimension drawing (unit: mm)



# EZ

## Small Photoelectric Sensor



### Small Photoelectric Sensor

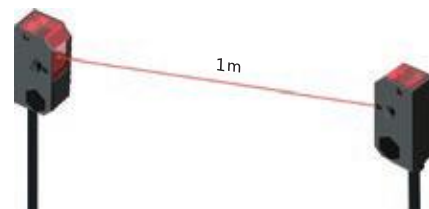
#### Ultra-compact specification

It's ultra-small and ultra-thin, fingertip-sized sensor, suitable for installation in various narrow spaces.

#### Long distance detection

Despite its small size, the EZ series can perform long-distance detection. Therefore, it can also be effective in wide conveyor systems.

##### Through-beam type



##### Diffuse reflection



#### Type

Detection method	Shape	Type	Detection distance	Model	
				NPN Output	PNP Output
Through-beam		Infrared light (940nm)	1m	EZ-T21	EZ-T21P
Diffuse reflection		Infrared light (940nm)	100mm	EZ-D21	EZ-D21P

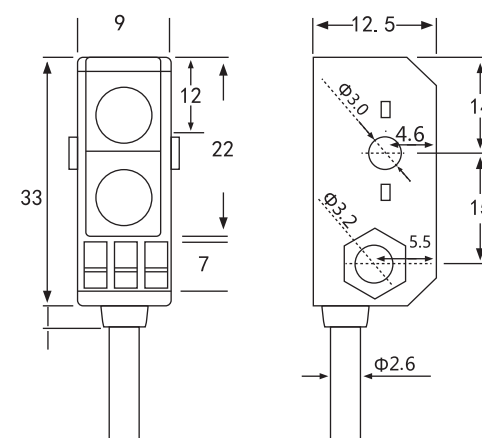
### Small Photoelectric Sensor

#### Product Parameters

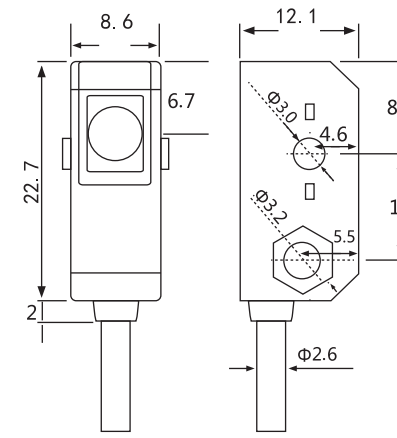
Model	NPN output t	Detection method	Through-beam type	Diffuse reflection
		Lead wire	EZ-T21	EZ-D21
Detection distance		1.5m		100m
Detecting objects		Opaque objects with a diameter of ≥4mm		
Contrast		detection distance≥20%		
Control output		Simultaneously match two independent outputs.		NPN/PNP transistor collector output
Response frequency		≤1ms		
Voltage		DC12-24V pulsation (p-p) below 10% (DC 10-30)		
Current consumption		≤25mA		
Control output	Switching capacity	≤3W		
	Residual voltage	Below 1V (load power supply current 100mA)		
Circuit protection		Surge protection, short circuit protection, reverse polarity protection		
Light source		Infrared modulated light		
Indicator		Operation indicator light (red)		
Ambient temperature		Operating: - 25°C~+70°C (no ice or condensation) storage: - 40°C~+80°C (no ice or condensation)		
Influence of ambient illumination		Daylight: below 10000LX, incandescent lamp: below 3000LX		
Operating ambientv humidity		Operating: -45%-85% RH (no ice) storage: 35%-85%RH(no ice)		
Influence of voltage		When the rated power supply voltage fluctuates within ±15%, the detection distance changes within - 1%		
Insulation resistance		Above 50MΩ (DC500MΩ) between charging part and shell		
Dielectric strength		Above AC1000VA 50/60Hz 1min between charging unit and shell		
Vibration resistance		10-50Hz, 1.5mm double amplitude 2 hours for each direction ofX, Y, and Z		
Impact (durability)		500m/s2 double amplitude ten times for each direction ofX. Y. and Z		
Shock resistance		IP65		
Connection method		Wire lead-out type (standard lead wire length 2m)		
Shell material		PC		

#### Dimension drawing (unit: mm)

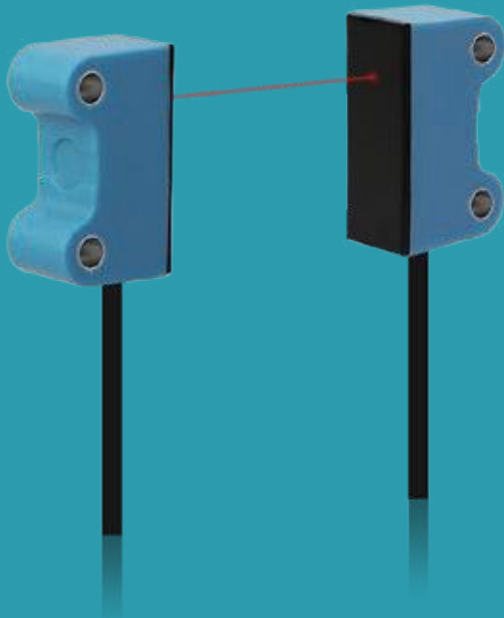
##### EZ-D21



##### EZ-T21



# EZ Micro-small Photoelectric Sensor



## Micro-smallPhotoelectricSensor

### Features

#### Ultra-compact body

International standard 15mm hole pitch

#### Complete range of types

Complete range of detection methods with reflective type and through-beam type

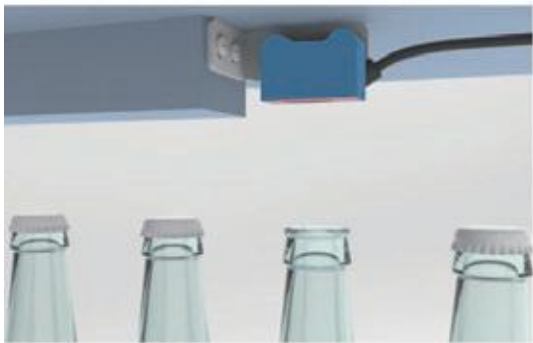
#### Optical lens

Built-in optical lens can detect tiny objects as small as 0.5mm

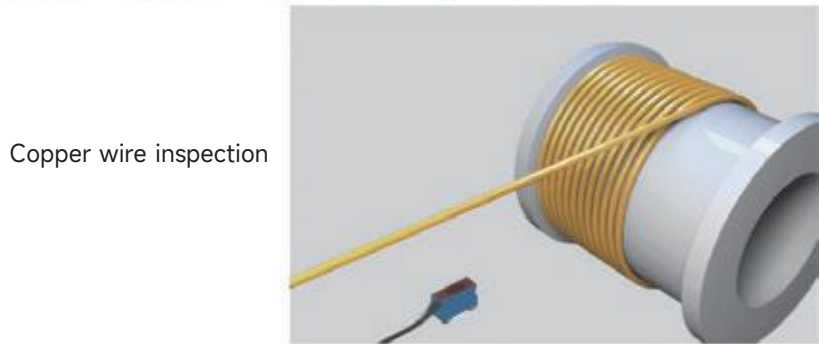


### Application scenarios

Application scenarios



Bottle cap inspection



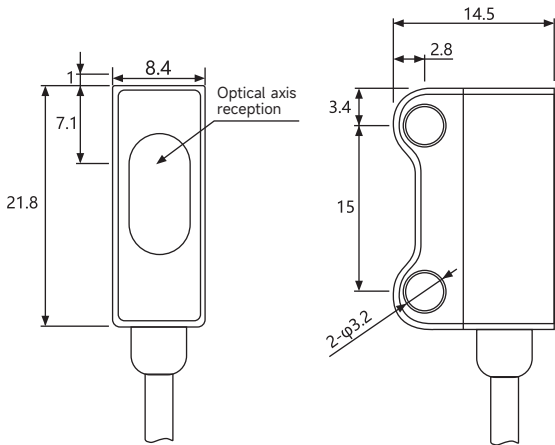
Copper wire inspection

## Micro-smallPhotoelectricSensor

### Product parameters

Model	Through-beam type	Diffuse reflection type
NPN.NO lead wire type	EZ-T31	EZ-D31
PNP.NO lead wire type	EZ-T31P	EZ-D31P
Detection distance	1500mm	100mm
Detecting objects	Opaque objects with a diameter of above 4mm	
Contrast	detection distance above 20%	
Control output	Switchable between normally open and normally closed	
Response frequency	≤1ms	
Voltage	DC12-24V pulsation (p-p) below 10% (DC10-30)	
Current consumption	≤25mA	
Control output	Switching capacity	≤3W
	Residual voltage	Below 1V(load power supply current100mA)
Circuit protection	Surge protection, short circuit protection, reverse polarity protection	
Light source	960nm Infrared light	
Indicator	Operation indicator light (red)	
Ambient temperature	Operation: -25°C~+70°C (no ice or condensation) storage: -40°C~+85°C (no ice or condensation)	
Influence of ambient illumination	Daylight: below 10000LX, incandescent lamp: below 3000LX	
Operating ambient humidity	Operation: -45%-85% RH(no ice) storage:35%-85%RH(no ice)	
Influence of voltage	When the rated power supply voltage fluctuates within ±15%, the detection distance changes within±1%	
Insulation resistance	Above 50MΩ between charging part and shell	
Dielectric strength	Above AC1000V 50/60Hz 1min between charging unit and shell	
Vibration resistance	10-50Hz, 1.5mm double amplitude 2 hours for each direction ofX, Y, and Z	
Shock resistance	500m/s2 double amplitude ten times for each direction ofX. Y. and Z	
Protection structure	IP65	
Connection method	Wire lead-out type (standard lead wire length 2m)	
Shell material	PC	

### Dimension drawing (unit: mm)



# EZ Micro-small Photoelectric Sensor



## Micro-small Photoelectric Sensor

### Features

#### Ultra-compact body

Metal mounting holes with a hole pitch ranging from 13- 18 mm for flexible in stallation.

#### Complete range of types

Red light diffuse reflection, with BGS function, complete detection methods

#### Optical lens

Built-in optical lens can detect tiny objects as small as 0.5m m



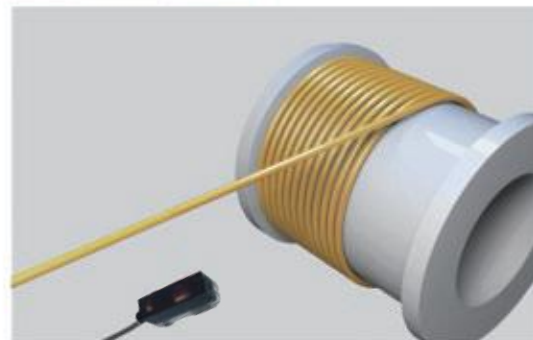
### Application scenarios

#### Application scenarios



Bottle cap inspection

Copper wire inspection

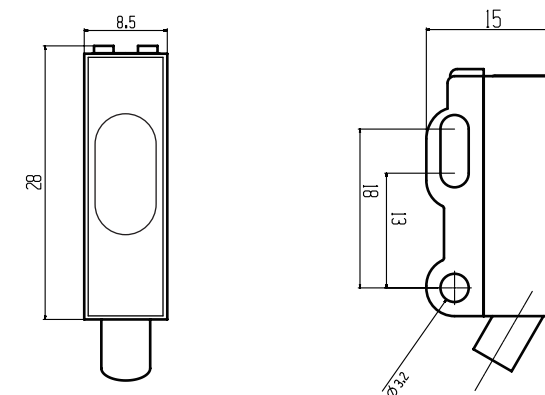


## Micro-small Photoelectric Sensor

### Product parameters

Model		Through-beam type	Diffuse reflection	Laser reflection type
NPN		EZ-T41	EZ-D41	EZ-LD41
PNP		EZ-T41P	EZ-D41P	EZ-LD41P
Detection distance		5000mm100mm		
Spot size		6mm~12mm	Limited position up to 1mm	2mm nondiffusion
Detecting objects		Opaque objects with a diameter above 1mm		
Contrast		detection distance above 20%		
Control output		Normally open/closed switching		
Response frequency		≤1ms		
Voltage		DC12-24V pulsation (p-p) below 10% (DC10-30)		
Current consumption		≤25mA		
Control output	Switching capacity	≤3W		
	Residual voltage	Below 1V(load power supply current100mA)		
Circuit protection		Surge protection, short circuit protection, reverse polarity protection		
Light source		640nm infrared light		660nm red laser
Indicator		Operation indicator light (red)		
Ambient temperature		Operating: - 25℃~+70℃ (no ice or condensation) storage: - 40℃~+85℃ (no ice or condensation)		
Influence of ambient illumination		Daylight: below 10000LX, incandescent lamp: below 3000LX		
perating ambient humidity		Operating: -45%-85% RH(no ice) storage: 35%-85%RH(no ice)		
Influence of voltage		When the rated power supply voltage fluctuates within ± 15%, the detection distance changes within ±1%		
Insulation resistance		Above 50MΩ between charging part and shell		
Dielectric strength		Above AC1000V 50/60Hz 1min between charging unit and shell		
Vibration resistance		10-50Hz, 1.5mm double amplitude 2 hours for each direction ofX, Y, and Z		
Shock resistance		500m/s2 double amplitude ten times for each direction ofX. Y. and Z		
Protection structure		IP65		
Connection method		Wire lead-out type (standard lead wire length 2m)		
Shell material		PC		

### Dimension drawing (unit: mm)





# EZ Flat Photoelectric sensors

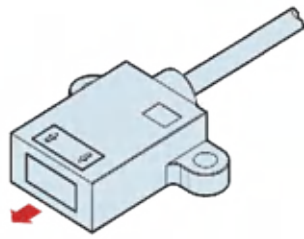
## Flat Photoelectric sensors

### Ultra-small & space-saving

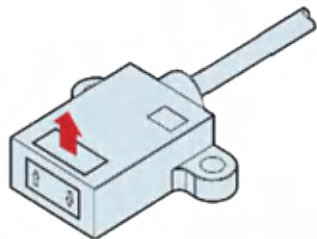
Ultra-small size, suitable for installation in various narrow spaces.

### Equipped with two detection methods

There are 2 detection methods, you can choose the model that meets your installation conditions.



Front-end detection

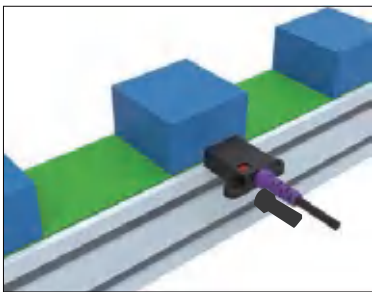


Upper end detection

### Application scenarios



Detect capacitance inside the tray





Position and passing detection of workpieces



Confirm the pallet positioning and passed inspection

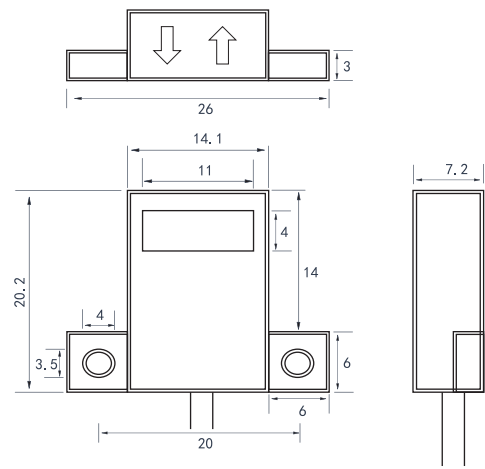
## Flat Photoelectric sensors

### Product parameters

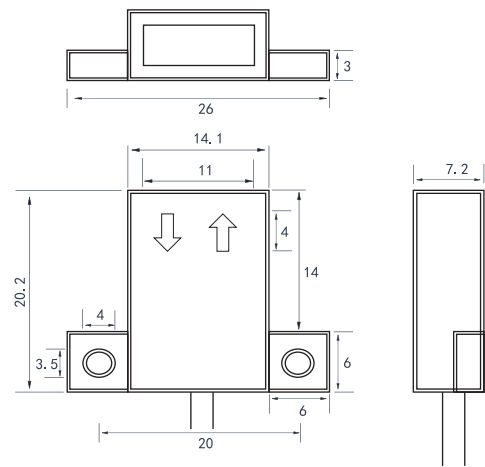
Product information			
Model	NPN output	EZ-WD05	EZ-QD05
		Upper end detection	Front-end detection
Detection distance		Black>5mm, white > 10mm	
Detection method		Diffuse reflection	
Detection light source		940nm infrared light	
Detecting objects		Opaque objects with a diameter above 4mm	
Contrast		Detection distance above 20%	
Control output		Light entry on	
Response frequency		Below 1ms	
Voltage		DC12-24V pulsation (p-p) below 10% (DC10-30)	
Current consumption		≤25mA	
Circuit protection		Surge protection, short circuit protection, reverse polarity protection	
Indicator		Operation indicator light (red)	
Ambient temperature		Operating: - 25°C~-+70°C (no ice or condensation) storage: - 40°C~-+85°C (no ice or condensation)	
Influence of ambient illumination		Daylight: below 10000LX, incandescent lamp: below 3000LX	
Protection structure		IP65	
Connection method		Wire lead-out type (standard lead wire length 2m)	
Shell material		PC	

### Dimension drawing (unit :mm) Dimension drawing (unit: mm)

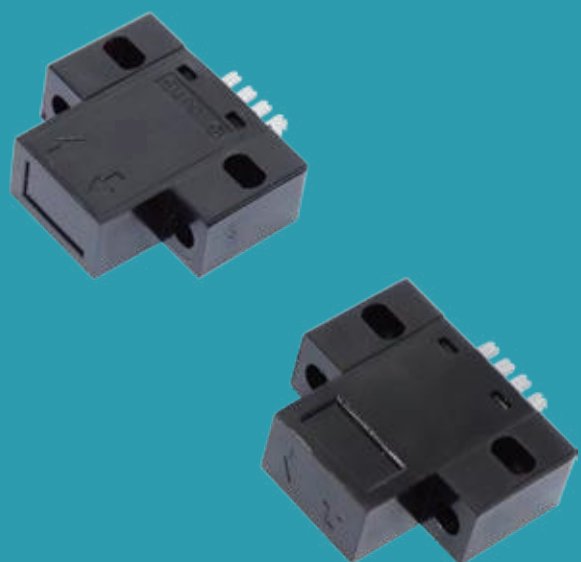
#### EZ-WD05



#### EZ-QD05



# EZ Flat Photoelectric sensors



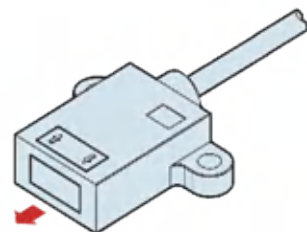
## FlatPhotoelectricSensors

### Ultra-small & space-saving

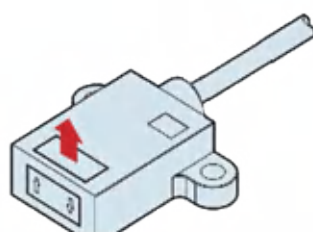
Ultra-small size, suitable for installation in various narrow spaces.

### Equipped with two detection methods

There are 2 detection methods, you can choose the model that meets your installation conditions.



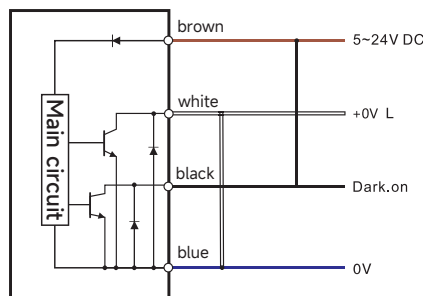
Front-end detection



Upper end detection

### Connection mode

Dc 4-wire NPN output




### Connection cables



UX1010

## Flat Photoelectric Sensors

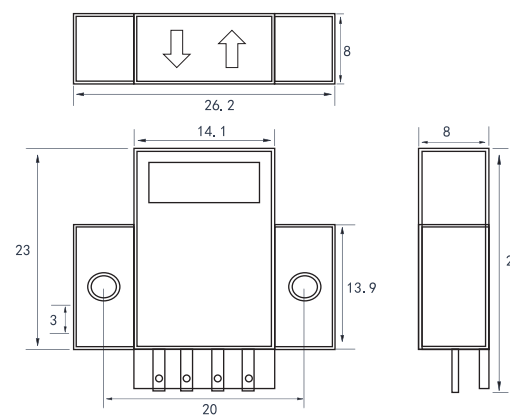
### Product Parameters

Product information			
Model	NPN output	EZ-WD15	EZ-QD15
		Upper end detection	Front-end detection
Detection distance		Black>5mm, white>10mm	
Detection method		Diffuse reflection	
Detection light source		940nm infrared light	
Detecting objects		Opaque objects with diameter above 4mm	
Contrast		Detection distance above 20%	
Control output		Light-incomingON	
Response frequency		Below 1ms	
Voltage		DC12-24V pulsation (p-p) below 10% (DC10-30)	
Current consumption		≤25mA	
Circuit protection		Surge protection, short circuit protection, reverse polarity protection	
Indicator		Operation indicator light (red)	
Ambient temperature		Operating: - 25°C~+70°C (no ice or condensation) storage: - 40°C~+85°C (no ice or condensation)	
Influence of ambient illumination		Daylight: below 10000LX, incandescent lamp: below 3000LX	
Protection structure		IP65	
Connection method		Wire lead-out type (standard lead wire length 2m)	
Shell material		PC	

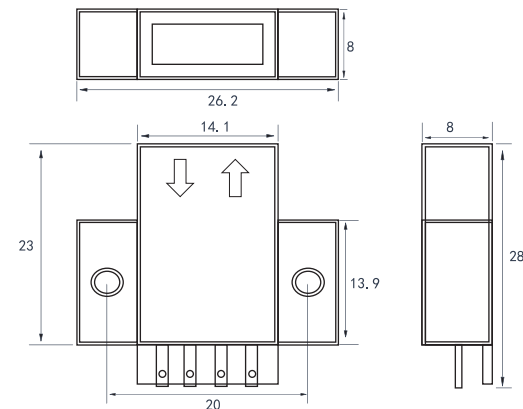
### Dimension drawing (unit :mm)

### Dimension drawing (unit: mm)

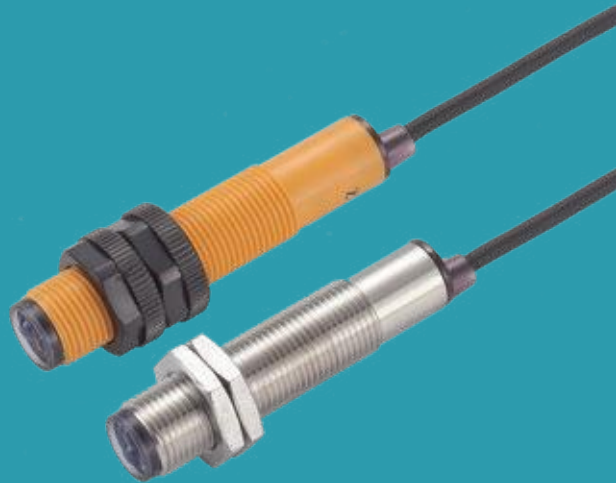
#### EZ-WD15



#### EZ-QD15



# E3F Cylindrical Photoelectric Senso



## Cylindrical Photoelectric Senso

### Cost savings

Complete variety and specification, cost-effective

### Sturdy body

Default plastic shell, optional metal shell -J

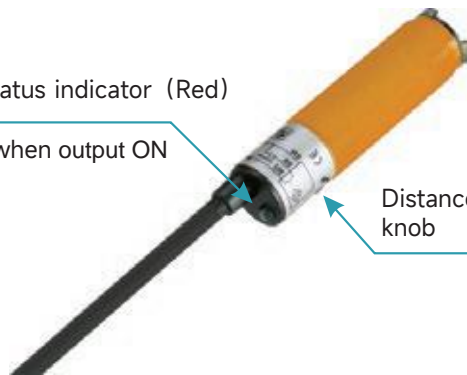
### Adjustable detection distance & clearly visible working status indicator light

Adjustable detection distance, easy installation, space saving, and suitable for small installation space

Working status indicator (Red)

Lights up when output ON

Distance adjustment knob



## Selection rules

Detection method	Shape(mm)	Light source	Detection distance	NPN Type	Size
Diffuse reflection		Infrared light	100mm	E3F-DM12	M12
			400mm	E3F-DM18	M18
Through-beam type		Infrared light	5m	E3F-TM12	M12
			10m	E3F-TM18	M18
Through-beam type		Laser	20m	E3F-LTM12	M12
			40m	E3F-LTM18	M18

Default ABS shell, optional metal shell -M;

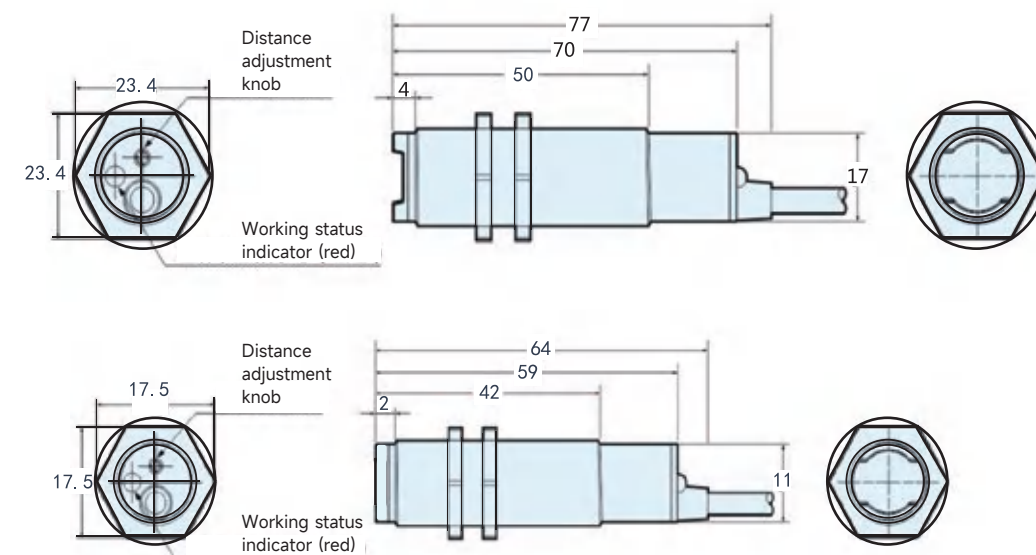
Comes with a potentiometer adjustment knob by default. In a humid environment, the potentiometer can be removed at a fixed distance to improve the IP rating.

## Cylindrical Photoelectric Senso

## Product Parameters

Model	NPN Output	Detection method	Diffuse reflection		Through-beam type			
		Lead wire	E3F-DM12	E3F-DM18	E3F-TM12	E3F-TM18	E3F-LTM12	E3F-LTM18
Detection distance		100mm		400mm	5m	10m	20m	40m
Detecting objects		100X100 white drawing paper			Opaque objects with diameter above 12mm			
Contrast		detection distance below 20%						
Light source (wavelength)		GaAs infrared LED(850nm)			660nm red laser			
Voltage		DC12-24V pulsation(p-p) below 10%(DC10-30)						
Current consumption		≤25mA			≤45mA			
Control output		Load power supply current below 100mA(residual voltage below 1V)						
Response time		Action/reply each below 1.0ms						
Circuit protection		Surge protection, short circuit protection, reverse polarity protection						
Indicator		Action indicator light (red)						
Ambient temperature		Operating: -25°C~+55°C storage: -30C~+70°C (no ice)						
Influence of ambient illumination		Daylight: below 10000LX, incandescent lamp: below 3000LX						
Operating ambient humidity		Operating: -45%-85%RH (no ice) storage: 35%-95%RH(no ice)						
Influence of voltage		When the rated power supply voltage fluctuates within ±15%, the detection distance changes within ±1%						
Insulation resistance		Above 50MΩ (DC500 MΩ) between charging part and shell						
Dielectric strength		Above AC1000V50/60Hz 1min between charging unit and shell						
Vibration resistance		10-50Hz,1.5mm double amplitude 1 hour for each direction ofX, Y, and Z.						
Shock resistance		500m/s2 double amplitude three times for each direction ofX. Y. and Z						
Protection structure		IP65						
Connection method		Wire lead-out type (standard lead wire length 2m)						
Shell material		Shell: metal, light emitting part/receiving part: PC						

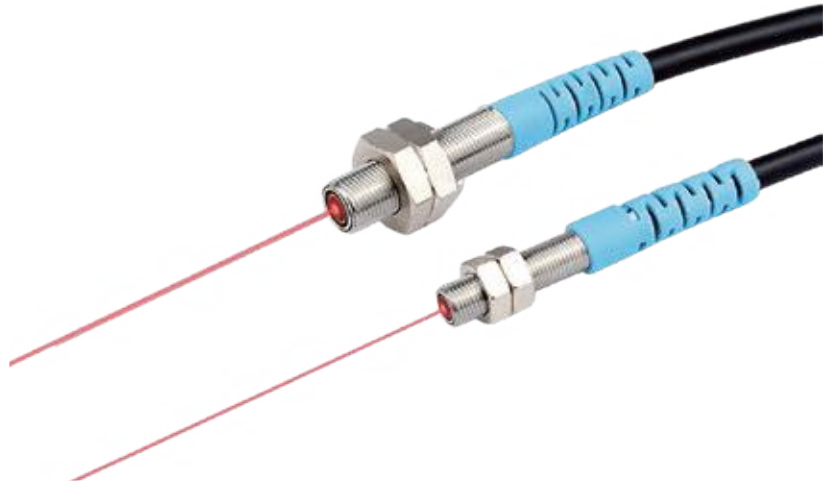
## Dimension drawing (unit: mm)



# E3F Laser Fiber Optic Photoelectric Sensor

Features

- Sturdy body**  
Small laser diffuse reflection photoelectric sensor
- Visible laser**  
(660nm) visible red light, intuitive, compact and stable



Multiple models







M5漫反射

M5对射

直角M5漫反射Z

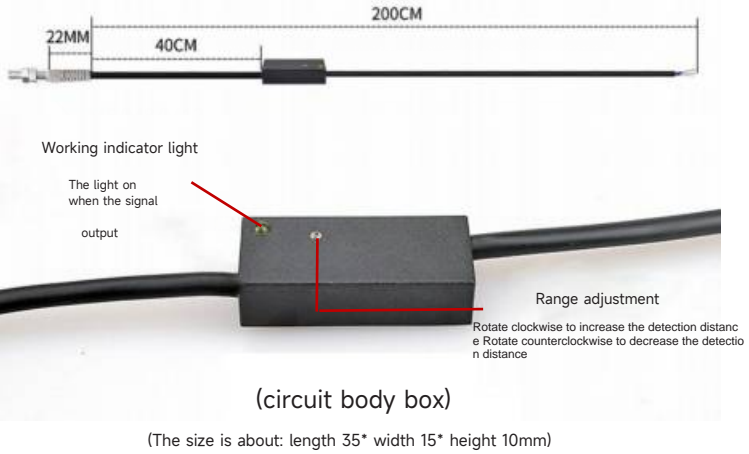
直角M5对射Z

Product parameters

外观				
NPN型号 PNP型号	E3F-LDM5 E3F-LDM5P	E3F-LDM5Z E3F-LDM5ZP	E3F-LTM5 E3F-LTM5P	E3F-LTM5Z E3F-LTM5ZP
Detection distance	0-100mm		0-3000mm	
Output mode	NPN/PNP      Normally open/normally closed			
Spot size	The standard is about 2.0MM			
Operating voltage	10-30VDC			
Unloaded current	<10mA			
Maximum load	150mA			
Leakage current	<0.01mA			
Voltage drop	<1.5V			
Switching frequency	100HZ			
Response time	5ms			
Switching lag	<15%(Sr)			
Repeatability	<5-10%(Sr)			
Protection class	IP65			
Operating temperature	0°C-50°C			
Temperature drift Short	<10%(Sr)			
circuit protection	YES			
Overload protection	100mA			
Standard wiring length	2 meters			

Dimension drawing

E3F Sensor





# E3F Photoelectric Liquid Level Sensor




## Photoelectric Liquid Level Sensor

### Features



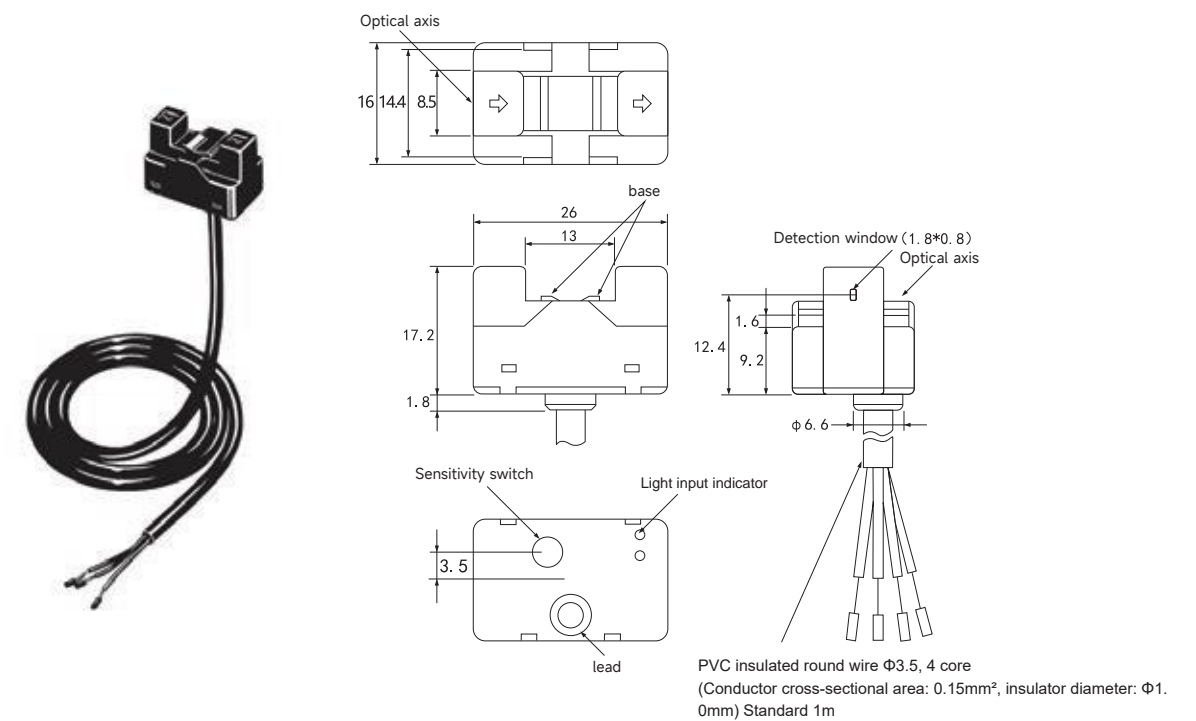
- With output action switching function and sensitivity switching function, the liquid level sensor is more convenient to use.
- One-key setting makes the sensor more intelligent
- Applicable to transparent or translucent tube with diameters of  $\phi 6\sim 13\text{mm}$  and thickness of 1mm.
- Environmentally friendly wires are used (without powder stripping agent).

Shape	Detection method	Output form	Action Mode	Wire length	Model
	Through-beam type	NPN	Light-blocking ON	2m	E3F-SPX613
		PNP	Light-incoming ON		E3F-SPX613P

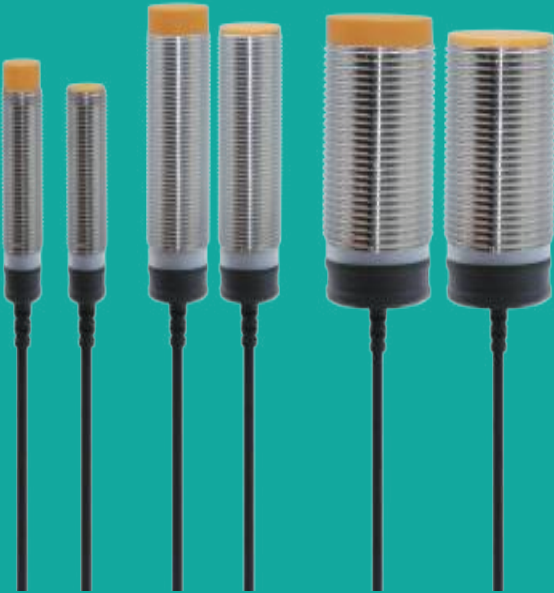
## Photoelectric Liquid Level Sensor

### Product Parameters

Model	E3F-SPX613	
Suitable conduit	Transparent tube with outer diameter $\Phi 6\sim 13\text{mm}$ (thickness 1mm) (FEP(fluororesin) or material with equivalent transparency)	
Standard test object	Fluid in the tube (If the liquid has high viscosity or is mixed with suspended solids, it may not be detected)	
light source <small>(Maximum luminous wavelength)</small>	GaAs Infrared LED(940nm)	
Action indicator light	GaP lights up when light enters(red LED: maximum luminous wavelength 700nm)	
Voltage	DC12~24V $\pm 10\%$ ripple (p-p) below 5%	
Current consumption	The average value is below 30mA, and the maximum value is below 80mA	
Control output	Load power supply voltage DC5-24V, load current below 100mA NPN collector open output type	
Ambient illumination	Incandescent lamp, daylight: below 3,000lx each	
Ambient temperature	Operating: $-10^{\circ}\text{C}\sim +55^{\circ}\text{C}$ storage: $-25^{\circ}\text{C}\sim +65^{\circ}\text{C}$ (no ice or condensation)	
Ambient humidity	Operating: $-5\%\sim 85\%\text{RH}$ storage: $5\%\sim 95\%\text{RH}$ (no condensation)	
Vibration resistance	10~500Hz single amplitude 1.0mm or acceleration 150m/s X, Y, Z three frequency sweeps in each direction (11min/ sweep)	
Shock resistance	500m/s three times for each direction of X. Y. and Z	
Protection structure	IEC specification IP50	
Connection method	Wire lead-out type (standard lead wire length 1m)	
Weight (after packing)	About 55g	
Material	Shell	ABS+PC
	Cover	



EB-M three-wire  
cylindrical proximity sensor



Cylindrical proximity sensor

Full range

Product specifications and sizes are complete, and models can be selected according to installation requirements.

Quality assurance

Using special IC, the service life is longer.

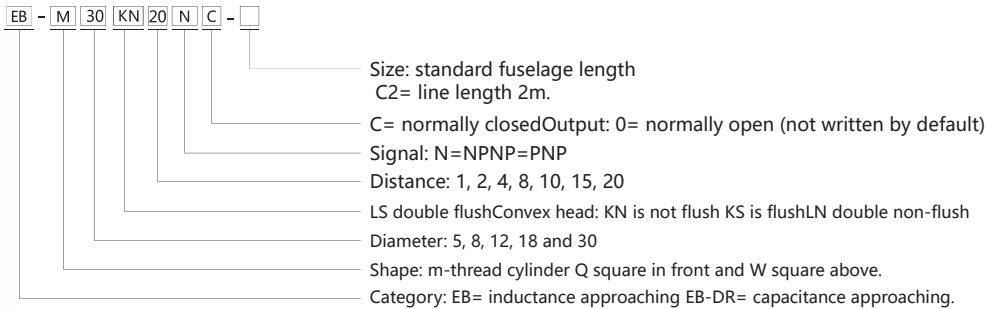
Protection loop

Surge protection circuit, short circuit protection, polarity reverse protection.

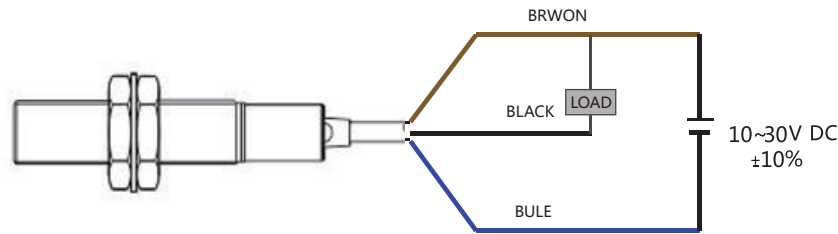
Protection level IP67

IP67 protection structure and excellent water and oil resistance are realized.

Selection rules



connected graph








Cylindrical proximity sensor

Kind

Standard distance type	Kind	Size	Detection distance	NPN	PNP	Output action
	Flush	M5	1mm	EB-M05KS01N	EB-M05KS01P	常开
				EB-M05KS01NC	EB-M05KS01PC	常闭
	Flush	M8	1.5mm	EB-M08KS01N	EB-M08KS01P	常开
				EB-M08KS01NC	EB-M08KS01PC	常闭
	Noflush	M8	2mm	EB-M08KN02N	EB-M08KN02P	常开
				EB-M08KN02NC	EB-M08KN02PC	常闭
	Flush	M12	2mm	EB-M12KS02N	EB-M12KS02P	常开
				EB-M12KS02NC	EB-M12KS02PC	常闭
	Noflush	M12	4mm	EB-M12KN04N	EB-M12KN04P	常开
				EB-M12KN04NC	EB-M12KN04PC	常闭
	Flush	M18	4mm	EB-M18KS04N	EB-M18KS04P	常开
				EB-M18KS04NC	EB-M18KS04PC	常闭
	Noflush	M18	8mm	EB-M18KN08N	EB-M18KN08P	常开
				EB-M18KN08NC	EB-M18KN08PC	常闭
	Flush	M30	10mm	EB-M30KS10N	EB-M30KS10P	常开
				EB-M30KS10NC	EB-M30KS10PC	常闭
	Noflush	M30	16mm	EB-M30KN16N	EB-M30KN16P	常开
				EB-M30KN16NC	EB-M30KN16PC	常闭

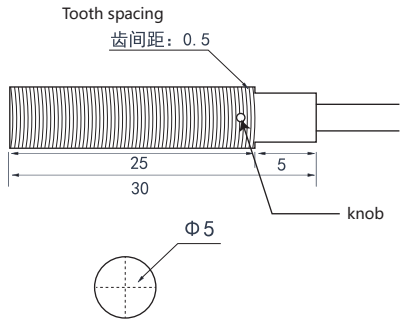
Cylindrical proximity sensor

Cylindrical proximity sensor

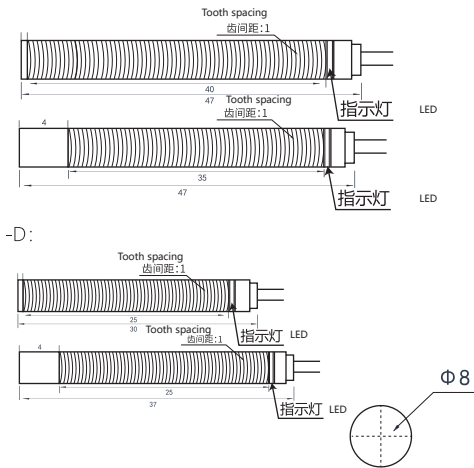
Product parameter												
Model						Project						
												
Outside diameter												
5mm		8mm		12mm			18mm		30mm			
Detection distance		1.0mm±10%		2mm±10%			4mm±10%		8mm±10%		15mm±10%	
Set distance		0~1.2mm		0~1.6mm			0~4mm		0~8mm		0~14mm	
Detecting objects (iron)		8x8x1mm		12x12x1mm			18x18x1mm		30x30x1mm		54x54x1mm	
Answer frequency		1KHZ					500HZ					
Repeatability		0.01mm										
Detection object		Magnetic metal (detection distance of non-magnetic metal is reduced)										
Contrast distance		Less than 10% of the detection distance										
Power supply voltage		10~30VDC										
Power consumption current		Less than 10mA										
Control output		Load power supply current is less than 100mA (residual voltage is less than 1V)										
LED		Action indicator (red)										
Action form		NC: normally closedNO: always open										
Protection loop		Surge protection circuit, short circuit protection, polarity reversal protection										
Ambient temperature		Action time: -25~+70℃ Storage time: -40~85℃ (no icing)										
Ambient humidity		During operation and storage: 35~90%RH each (no frost)										
Temperature influence		The temperature range is -25 ~ 70℃, and the detection distance changes within 15% for every 23℃ change.										
Influence of voltage		When the rated power supply voltage fluctuates within +15%, the detection distance changes within +1%.										
Insulation impedance		50MΩ										
Voltage withstand		Above AC1000V, between 50/60 Hz and 1 min charging part and shell.										
Vibration (durability)		10~55Hz,1.5mm double amplitude, reaching 2 hours in X,Y,Z Y and Z directions.										
Impact (durability)		500m/s2 double amplitude, 10 times in X,Y,Z Y and Z directions.										
Protective structure		IP67										
Link mode		Lead-out type (standard 2m)										
Texture of wood	Shell	Copper plating										
	Detection surface	PBT										
	Clamp nut	Brass plating										
	Toothed washer	Ferrous coating										

Dimension drawing (unit: mm)

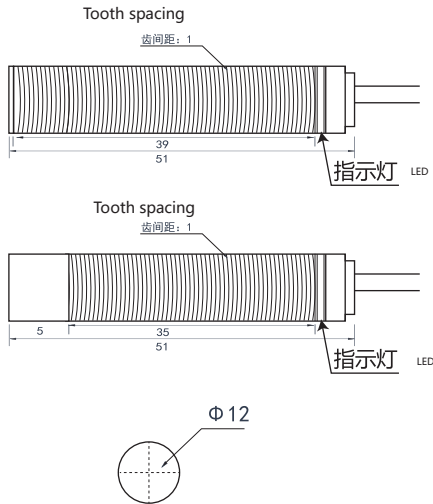
EB-M05KS/KN



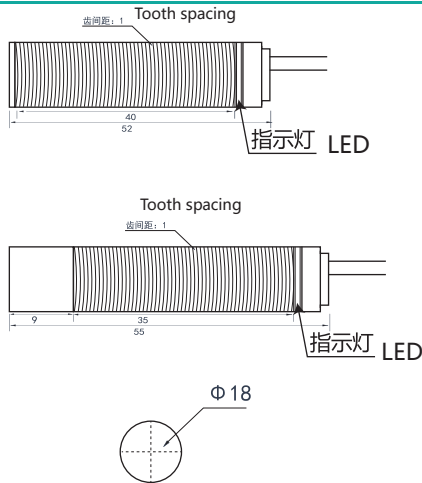
EB-M08KS/KN



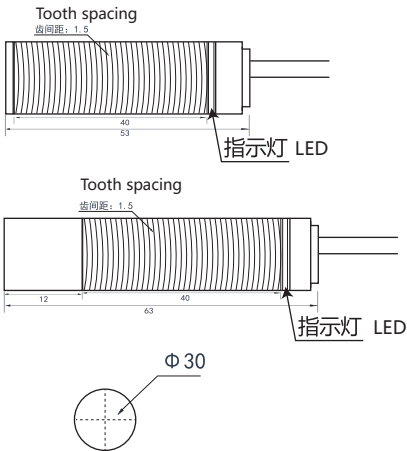
EB-M12KS/KN



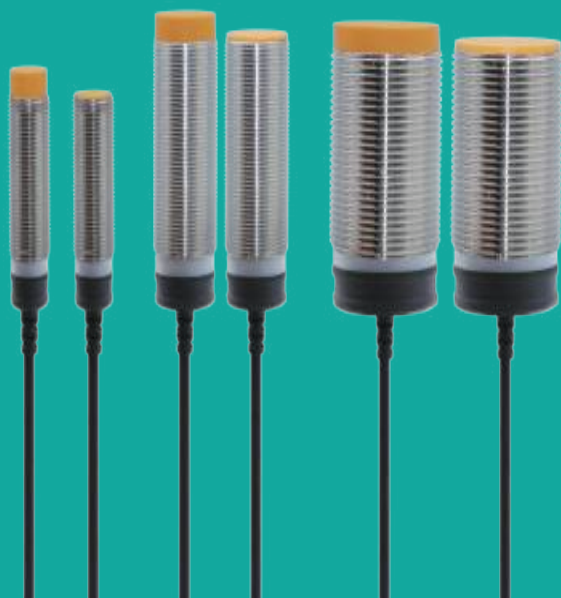
EB-M18KS/KN



EB-M30KS/KN



## EB-M Double Distance Cylindrical Proximity Sensor



### Cylindrical proximity sensor

#### Full range

Product specifications and sizes are complete, and models can be selected according to installation requirements.

#### Quality assurance

Using special IC, the service life is longer.

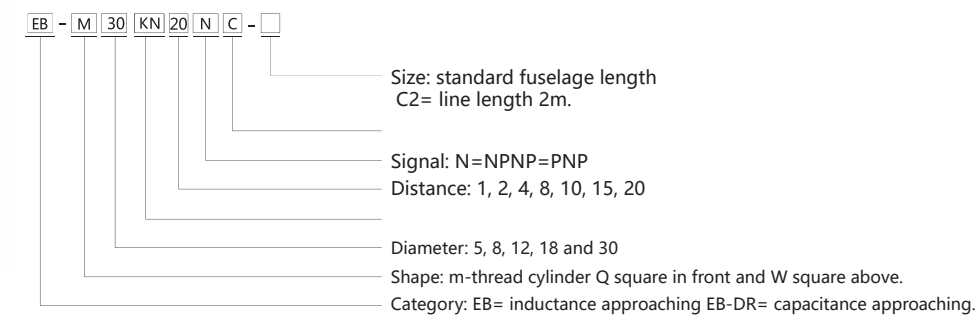
#### Protection loop

Surge protection circuit, short circuit protection, polarity reverse protection.

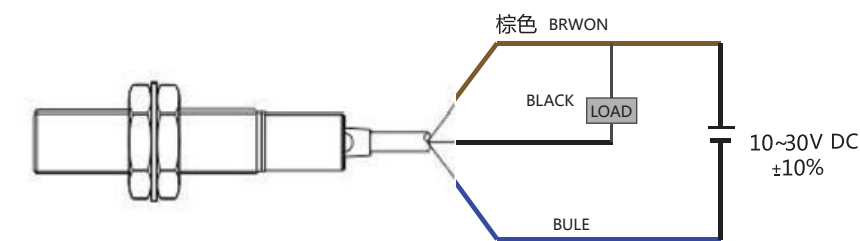
#### Protection level IP67

IP67 protection structure and excellent water and oil resistance are realized.

#### Selection rules



#### connected graph



### Cylindrical proximity sensor

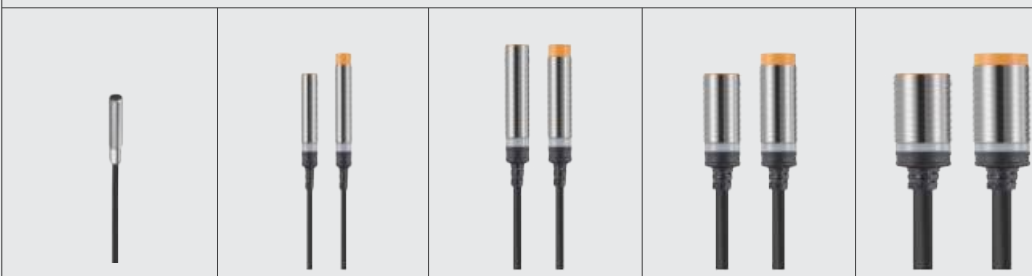
#### Kind

Standard distance type	Kind	Size	Detection distance	NPN	PNP	Output action
	Flush	M5	1.5mm	EB-M05LS015N	EB-M05LS015P	常开
				EB-M05LS015NC	EB-M05LS015PC	常闭
	Flush	S6	2mm	EB-S06LS02N	EB-S06LS02P	常开
				EB-S06LS02NC	EB-S06LS02PC	常闭
	Noflush	S6	4mm	EB-S06LN04N	EB-S06LN04P	常开
				EB-S06LN04NC	EB-S06LN04PC	常闭
	Flush	M8	2mm	EB-M08LS02N	EB-M08LS02P	常开
				EB-M08LS02NC	EB-M08LS02PC	常闭
	Noflush	M8	4mm	EB-M08LN04N	EB-M08LN04P	常开
				EB-M08LN04NC	EB-M08LN04PC	常闭
	Flush	M12	4mm	EB-M12LS04N	EB-M12LS04P	常开
				EB-M12LS04NC	EB-M12LS04PC	常闭
	Noflush	M12	8mm	EB-M12LN08N	EB-M12LN08P	常开
				EB-M12LN08NC	EB-M12LN08PC	常闭
	Flush	M18	8mm	EB-M18LS08N	EB-M18LS08P	常开
				EB-M18LS08NC	EB-M18LS08PC	常闭
	Noflush	M18	15mm	EB-M18LN15N	EB-M18LN15P	常开
				EB-M18LN15NC	EB-M18LN15PC	常闭
	Flush	M30	15mm	EB-M30LS15N	EB-M30LS15P	常开
				EB-M30LS15NC	EB-M30LS15PC	常闭
	Noflush	M30	25mm	EB-M30LN25N	EB-M30LN25P	常开
				EB-M30LN25NC	EB-M30LN25PC	常闭



Cylindrical proximity sensor

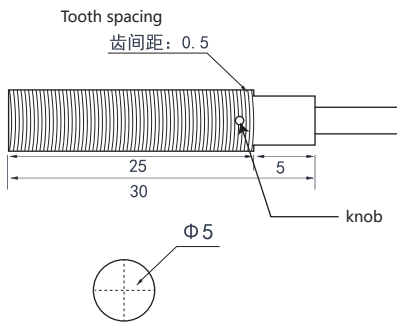
Product parameter

Model						
	EB-M05KS	EB-M08KS EB-M08KN	EB-M12KS EB-M12KN	EB-M18KS EB-M18KN	EB-M30KS EB-M30KN	
Project						
Outside diameter	5mm	8mm	12mm	18mm	30mm	
Detection distance	2.0mm±10%		4mm±10%	8mm±10%	16mm±10%	30mm±10%
Set distance	0~1.2mm		0~1.6mm	0~4mm	0~8mm	0~14mm
Detecting objects (iron)	8x8x1mm		12x12x1mm	18x18x1mm	30x30x1mm	54x54x1mm
Answer frequency	1KHZ				500HZ	
Repeatability	0.01mm					
Detection object	Magnetic metal (detection distance of non-magnetic metal is reduced)					
Contrast distance	Less than 10% of the detection distance					
Power supply voltage	10~30VDC					
Power consumption current	Less than 10mA					
Control output	Load power supply current is less than 100mA (residual voltage is less than 1V)					
LED	Action indicator (red)					
Action form	NC: normally closedNO: always open					
Protection loop	Surge protection circuit, short circuit protection, polarity reversal protection					
Ambient temperature	Action time: -25~+70℃ Storage time: -40~85℃ (no icing)					
Ambient humidity	During operation and storage: 35~90%RH each (no frost)					
Temperature influence	The temperature range is -25 ~ 70℃, and the detection distance changes within 15% for every 23℃ change.					
Influence of voltage	When the rated power supply voltage fluctuates within +15%, the detection distance changes within +1%.					
Insulation impedance	50MΩ					
Voltage withstand	Above AC1000V, between 50/60 Hz and 1 min charging part and shell.					
Vibration (durability)	10~55Hz,1.5mm double amplitude, reaching 2 hours in X,Y,Z Y and Z directions.					
Impact (durability)	500m/s2 double amplitude, 10 times in X,Y,Z Y and Z directions.					
Protective structure	IP67					
Link mode	Lead-out type (standard 2m)					
Texture of wood	Shell	Copper plating				
	Detection surface	PBT				
	Clamp nut	Brass plating				
	Toothed washer	Ferrous coating				

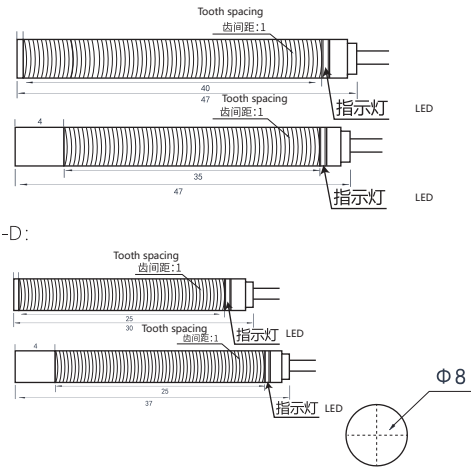
Cylindrical proximity sensor

Dimension drawing (unit: mm)

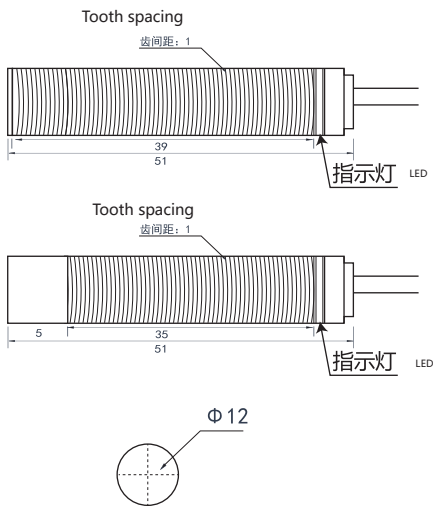
EB-M05LS/LN



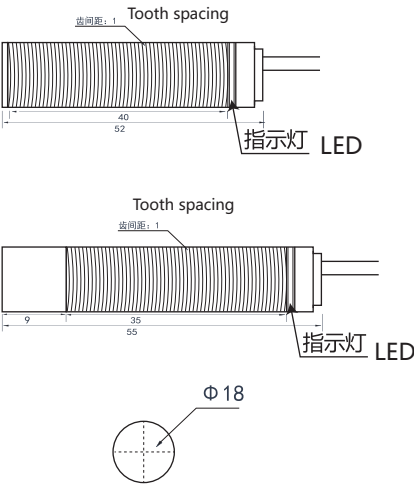
EB-M08LS/LN



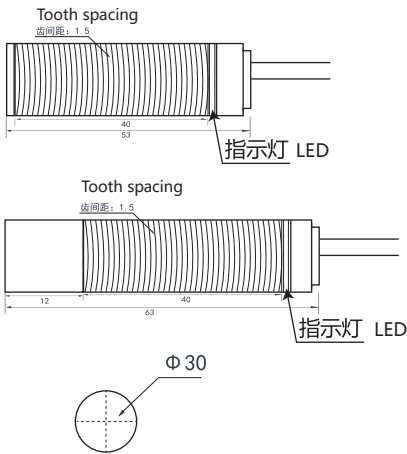
EB-M12LS/LN



EB-M18LS/LN



EB-M30LS/LN



EB square proximity sensor



Square proximity sensor

Full range

There are a wide range of products, which are suitable for all kinds of limit control and counting control, and the models can be selected according to the installation requirements.

Quality assurance

Using special IC, the service life is longer.

Easy installation

Simple installation, can be used for high-speed pulse generator, high-speed rotation controller and so on.

Cost advantage

Realize the standard proximity sensor with high performance and high cost performance.

Kind

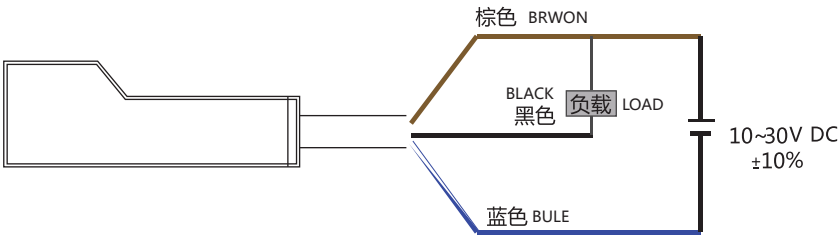
Kind			Detection distance	Output form	Model	
					Action mode	
					NO	NC
		□ 8	2mm	DC 3-wire type  NPN	EB-Q2N	EB-Q2NC
		□ 12	3mm		EB-Q3N	EB-Q3NC
		□ 17	4mm		EB-Q4N	EB-Q4NC
		□ 17	5mm		EB-Q5N	EB-Q5NC
		□ 25	10mm		EB-Q10N	EB-Q10NC

Square proximity sensor

Product parameter

Model		EB-Q2N	EB-Q3N	EB-Q4N	EB-Q5N	EB-Q10N
Detection distance		2mm	3mm	4mm	5mm	10mm
Set distance		0-1.5mm	0-2.5mm	0-3.5mm	0-4.5mm	0-9mm
Accept an assignment		Less than 10% of the detection distance				
Detectable object		magnetic metal				
Standard inspection object		Iron 8×8×1mm	Iron 15×15×1mm			
Response time		--	Less than 2ms			
Response frequency		500Hz				
Power supply voltage (Use voltage range)		DC12 ~ 24VRipple (p-p) below 10%(DC10~ 30V)				
Consumption current		Less than 15mA (at DC24V and no load)			Less than 10mA (at DC24V)	
Control output	Switching capacity	NPN open collectorBelow 100mA (below DC30V)			NPN open collector, less than 50mA (less than DC30V) PNP open collector, below 50mA (below DC30V)	
	Residual voltage	1V or less (when the load current is 100mA and the conductor length is 2m)			1V or less (when the load current is 100mA and the conductor length is 2m)	
Indicator light		Test display (red)				
Action mode (When detecting the approach of an object)		NO			NO	
		Detect only metals				
Protection loop		Reverse connection protection, surge absorption				
Ambient temperature range		At work,Storage time: -10~+60°C (no ice and dew)			Dew)Working time and storage time: -25~+70°C (no icing,	
Ambient humidity range		Working time and storage time: 35 ~ 95% RH each (no condensation)				
Effect of temperature		At +23°C in the temperature range of -10~+60°C, the detection distance is less than+10%.			At +23°C in the temperature range of-25 ~+70°C, the detection distance is less than+20%.	
Influence of voltage		Within 10% of the rated power supply voltage, the detection distance is less than 2.5% of the rated power supply voltage.				
Insulance		50MΩ (DC500V megohmmeter) Between the whole charging part and the shell			50MΩ (DC500V megohmmeter) Between the whole charging part and the shell	
Voltage withstand		AC1,000V1min between the whole charging part and the shell			AC500V50/60Hz1min between the whole charging part and the shell.	
Vibration (durability)		Z 2h in all directions10 ~ 55 Hz up and down amplitude of 1.5mmX, y,				
Impact (durability)		1,000m/s2×、YZ all directions10 times			2,000m/s2X、YZ all directions10 times	
Protective structure		IEC standard IP67, company internal standard oil resistance			IEC standard IP67	
Outlet mode		Direct outlet 2 meters				
Quality (after packaging)		60g			90g	
Texture of wood	Texture of wood	Heat-resistant ABS				
	Detection surface					

Hookup



EB  
flat proximity sensor



Square proximity sensor

Installation mode

There are upper end detection/front end detection types.

Can be installed anywhere.

The sensor is only the size of a fingertip and is not limited by any installation space.

Cost advantage

Realize the standard proximity sensor with high performance and high cost performance.

Equipped with bending resistant cable type

The bending resistance is improved by 10 times (Note: -GR). It is most suitable for mobile parts such as robot arms.

Kind

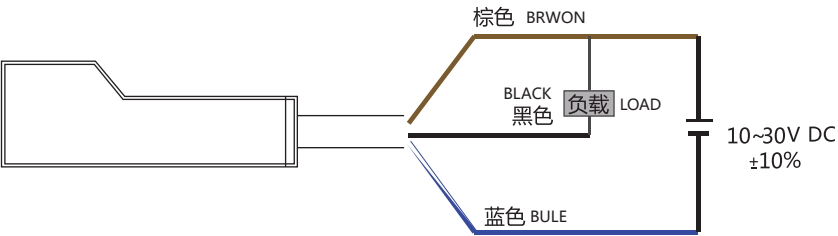
Kind			Detection distance	Output form	Model	
					Action mode	
					NO	NC
		□ 8	2mm	DC 3-wire type NPN	EB-W2N	EB-W2NC
		□ 8	2mm		EB-WS2N	EB-WS2NC
		□ 10	3mm		EB-W3N	EB-W3NC
		□ 12	4mm		EB-W4N	EB-W4NC
		□ 17	5mm		EB-W5N	EB-W5NC

Square proximity sensor

Product parameter

Model		EB-W2N	EB-WS2N	EB-W3N	EB-W4N	EB-W5N
Detection distance		2mm		3mm		5mm
Set distance		0-1.5mm		0-2.5mm		0-4.5mm
Accept an assignment		Less than 10% of the detection distance				
Detectable object		magnetic metal				
Standard inspection object		Iron 8×8×1mm	Iron 15×15×1mm			
Response time		--	Less than 2ms			
Response frequency		500Hz				
Power supply voltage (Use voltage range)		DC12 ~ 24VRipple (p-p) below 10%(DC10~ 30V)				
Consumption current		Less than 15mA (at DC24V and no load)			Less than 10mA (at DC24V)	
Control output	Switching capacity	NPN open collectorBelow 100mA (below DC30V)			NPN open collector, less than 50mA (less than DC30V) PNP open collector, below 50mA (below DC30V)	
	Residual voltage	1V or less (when the load current is 100mA and the conductor length is 2m)			1V or less (when the load current is 100mA and the conductor length is 2m)	
Indicator light		Test display (red)				
Action mode (When detecting the approach of an object)		NO			NO	
		Detect only metals				
Protection loop		Reverse connection protection, surge absorption				
Ambient temperature range		At work,Storage time: -10~ +60°C (no ice and dew)			Dew)Working time and storage time: -25~ +70°C (no icing,	
Ambient humidity range		Working time and storage time: 35 ~ 95% RH each (no condensation)				
Effect of temperature		At +23°C in the temperature range of -10~ +60°C, the detection distance is less than+10%.			At +23°C in the temperature range of-25 ~+70°C, the detection distance is less than+20%.	
Influence of voltage		Within 10% of the rated power supply voltage, the detection distance is less than 2.5% of the rated power supply voltage.				
Insulance		50MΩ (DC500V megohmmeter) Between the whole charging part and the shell			50MΩ (DC500V megohmmeter) Between the whole charging part and the shell	
Voltage withstand		AC1,000V1min between the whole charging part and the shell			AC500V50/60Hz1min between the whole charging part and the shell.	
Vibration (durability)		Z 2h in all directions10 ~ 55 Hz up and down amplitude of 1.5mmX, y,				
Impact (durability)		1,000m/s2×、YZ all directions10 times			2,000m/s2X、YZ all directions10 times	
Protective structure		IEC standard IP67, company internal standard oil resistance			IEC standard IP67	
Outlet mode		Direct outlet 2 meters				
Quality (after packaging)		60g			90g	
Texture of wood	Texture of wood	Heat-resistant ABS				
	Detection surface					

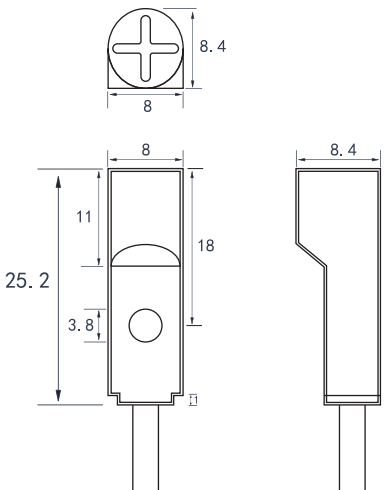
Hookup



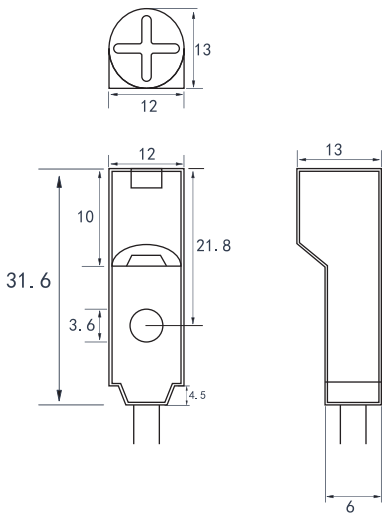
Square proximity sensor

Dimension drawing (unit: mm)

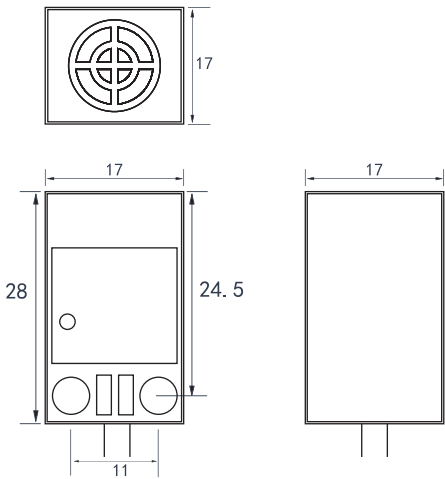
EB-Q2N



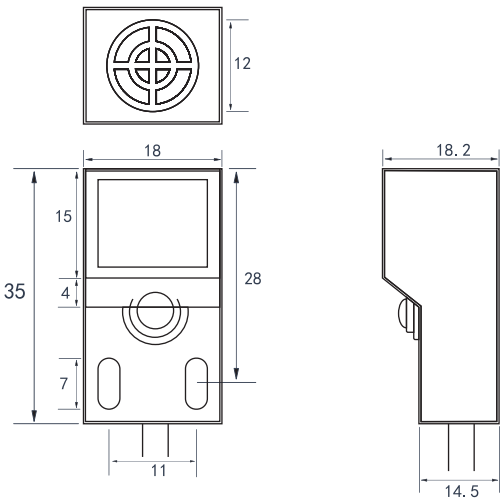
EB-Q3N



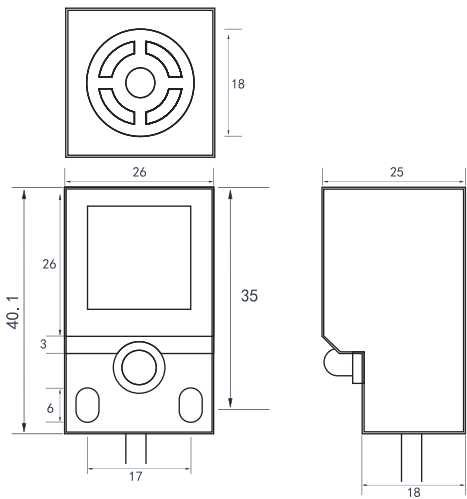
EB-Q4N



EB-Q5N



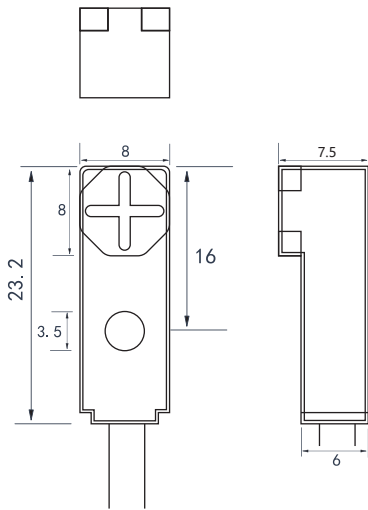
EB-Q10N



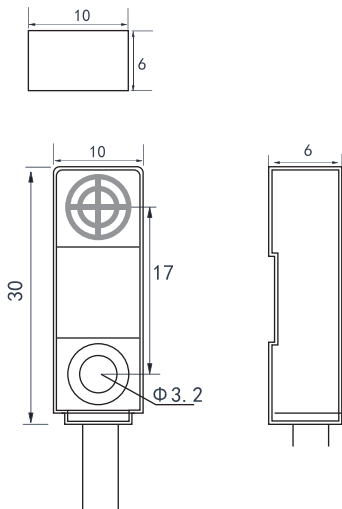
Square proximity sensor

Dimension drawing (unit: mm)

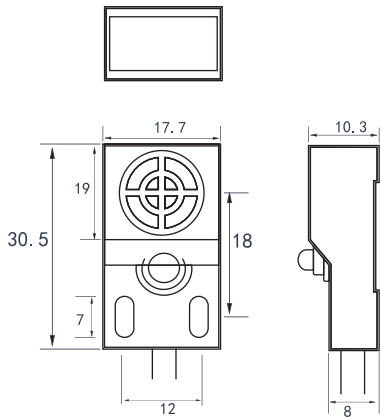
EB-W2N



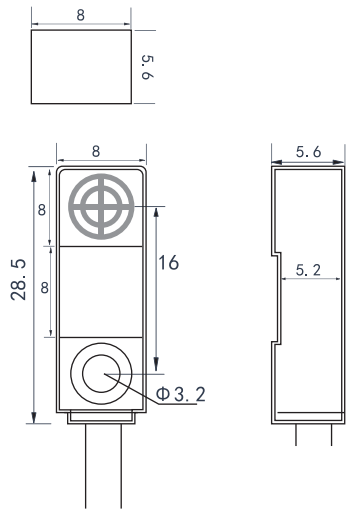
EB-W3N



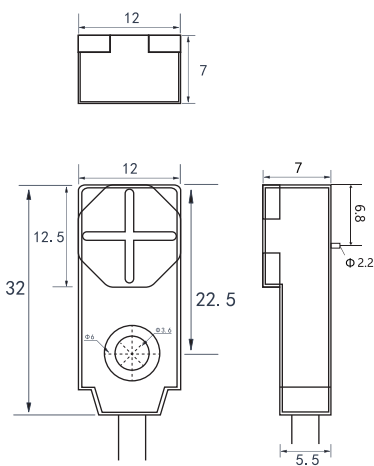
EB-W5N



EB-WS2N



EB-W4N





# EB-C three-wire typeRing proximity sensor

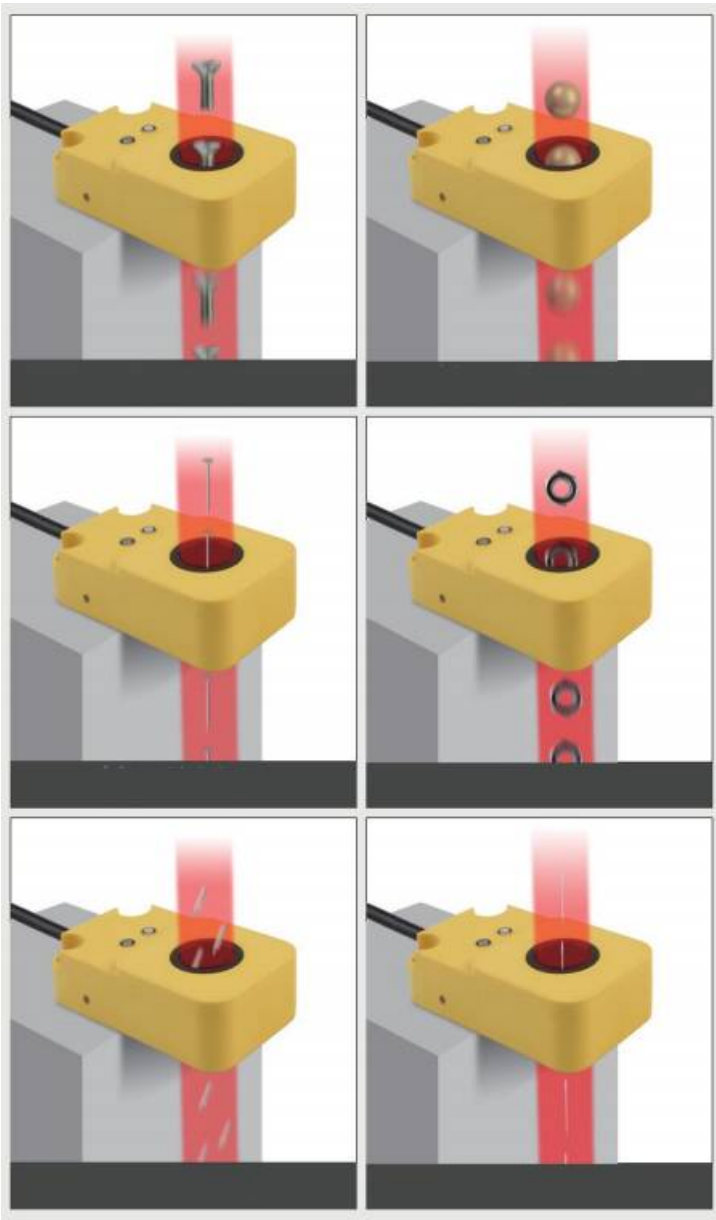


## Ring proximity sensor

### Kind




- ▶ Non-contact position detection, no wear, high reliability
- ▶ High sensitivity and high repeatability, and the service life of the product is as long as 8 years.
- ▶ A variety of shell materials, from stainless steel, nickel-copper alloy to plastic, Teflon coating everything..
- ▶ Complete specifications and sizes, covering almost all sizes.
- ▶ IP67 protection grade design, excellent water and oil resistance.

### Application scenario

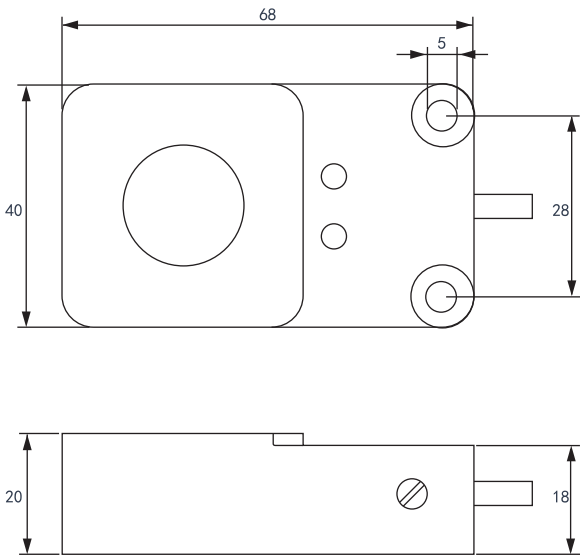


## Ring proximity sensor

### Product parameter

			
Model	EB-C06	EB-C10	EB-C15
Hole diameter	6mm	10mm	15mm
Hole height	20mm		
Operating voltage	10~30VDC(< 10%)		
Residual voltage	< 1.5V		
Maximum load current	150mA		
Consumption current	< 15mA		
Drain current	< 10mA		
Switching frequency	2KHz	1.5KHz	1KHz
Minimum detection substance	D=2.5mm;L=4mm	D=3mm;L=6mm	D=6mm;L=12mm
Repeatability	< 2.0%(Sr)		
Sluggish	< 15%(Sr)		
Shell material	PBT		
Working temperature	-25℃~+75℃		
Protective circuit	Short circuit protection/reverse polarity protection		
The protection grades	IP67		

### Dimension drawing (unit: mm)



EB-DRM  
Capacitance proximity sensor



Square proximity sensor

Kind

Can sense any object.



Metal conductor



Nonmetallic plastics



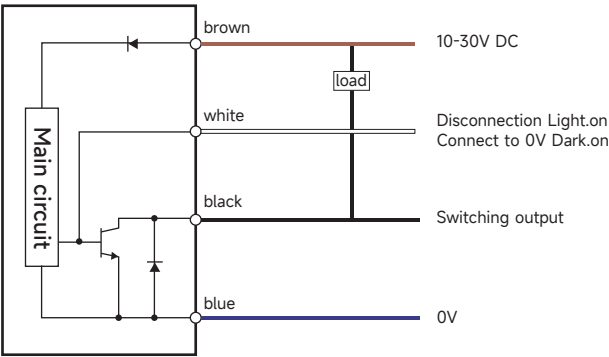
liquid

- ▶ Sensitivity can be adjusted
- ▶ Can detect all objects such as water, plastic and human body.
- ▶ Strong anti-interference and adaptability to various complex industrial environments.

The detection distance is affected by the conductivity of objects with different materials, Dielectric constant, the distance is different.



material	water	alcohol	glass	wood	paper	eraser	crystal	nylon
Action distance	100%	85%	40%	30%	25%	30%	20%	20%

Circuit



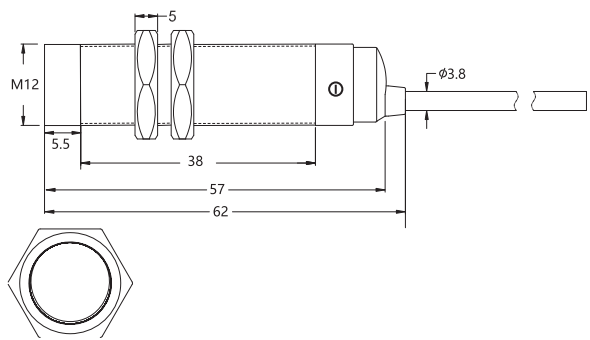
Square proximity sensor

Product parameter

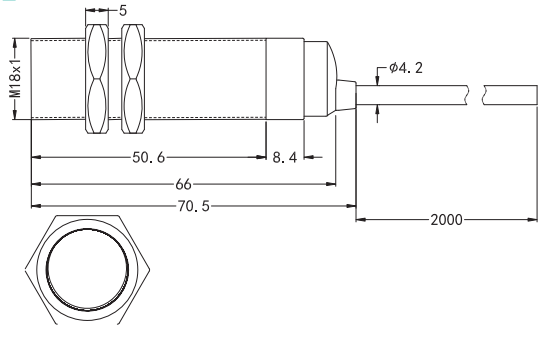
Exterior		
model	EB-DRM12	EB-DRM18
measure	M12 front induction	M18 front induction
Detection distance	0 ~ 6mm distance is adjustable.	0 ~ 12mm distance is adjustable.
Detectable substance	Metal, water, oil, glass, plastic, paper.	
Operating voltage	12~24VDC (voltage fluctuation 10%)	
Residual voltage	< 1.5V	
Maximum load current	100mA	
Consumption current	< 22m	
Drain current	< 1.1mA	
Reaction time	≤ 14ms	
Lsolation impedance	≥ 20MΩ ( 500VDC )	
Sluggish	< 10% ( Sr )	
Insulation withstand voltage	AC 1000V 60Hz	
Working temperature	-20℃~+60℃	
The protection grades	IP66	
Outlet mode	Medium 4.2*2m4 core wire	
weight	78g	

Dimension drawing (unit: mm)

EB-DRM12



EB-DRM18



EB-DRF  
Capacitance proximity sensor



Square proximity sensor

Kind

Can sense any object.



Metal conductor



Nonmetallic plastics



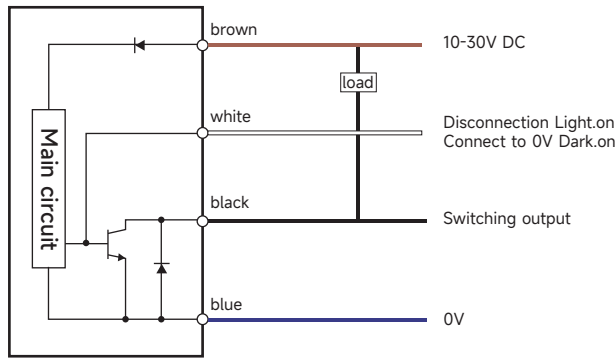
liquid

- Sensitivity can be adjusted
- Can detect all objects such as water, plastic and human body.
- Strong anti-interference and adaptability to various complex industrial environments.

The detection distance is affected by the conductivity of objects with different materials, Dielectric constant, the distance is different.



material	water	alcohol	glass	wood	paper	eraser	crystal	nylon
Action distance	100%	85%	40%	30%	25%	30%	20%	20%

Circuit



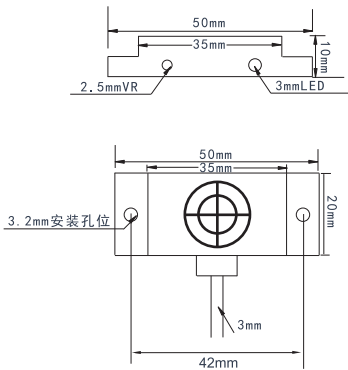
Square proximity sensor

Product parameter

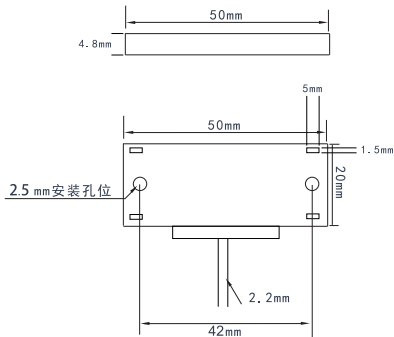
		
model	EB-DRF10	EB-DRF05
measure	Flat top induction	Flat top induction
Detection distance	0 ~10mm distance is adjustable.	0 ~ 5mm
Detectable substance	Metal, water, oil, glass, plastic, paper.	
Operating voltage	12~24VDC (voltage fluctuation 10%)	
Residual voltage	< 1.5V	
Maximum load current	100mA	
Consumption current	< 22m	
Drain current	< 1.1mA	
Reaction time	≤14ms	
Lsolation impedance	≥20MΩ ( 500VDC )	
Sluggish	< 10% ( Sr )	
Insulation withstand voltage	AC 1000V 60Hz	
Working temperature	-20℃~+60℃	
The protection grades	IP66	
Outlet mode	Medium 4.2*2m4 core wire	
weight	78g	

Dimension drawing (unit: mm)

EB-DRF10



EB-DRF05



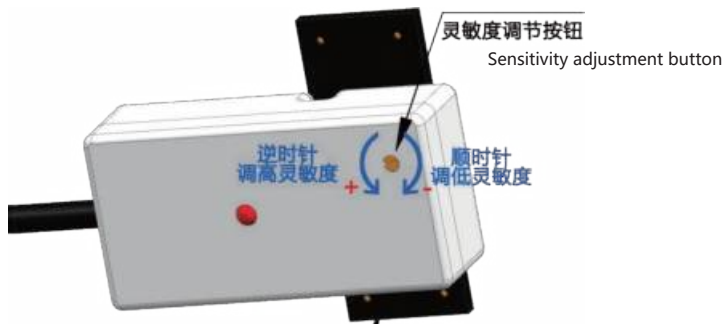
EB-DRY  
Capacitive liquid level sensor



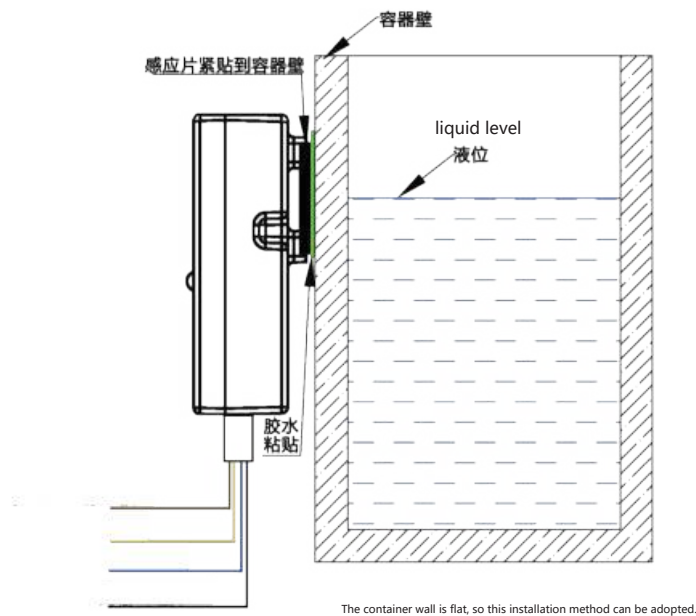
Square proximity sensor

Kind

- ▶ Intelligent non-contact liquid level sensor(hereinafter referred to as liquid level sensor)
- ▶ Advanced signal processing technology and high-speed signal processing chip are adopted,
- ▶ The real non-contact detection of the liquid level height in the closed container is realized.



Circuit



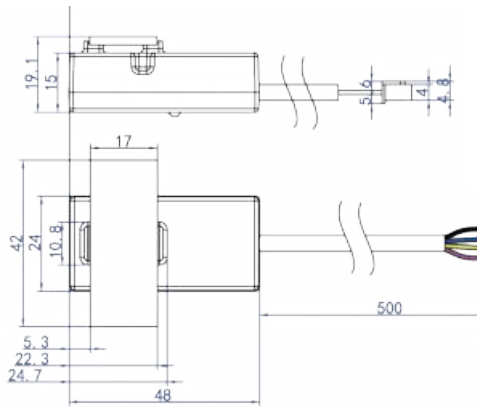
Brown: positive pole of power supply  
Yellow: signal output  
Blue: GND power supply negative electrode  
Black: forward and backward output selection

TRemarks: The yellow default output relay signal.  
Black and blue short circuit output NPN signal  
Black and brown short circuit output PNP signal.

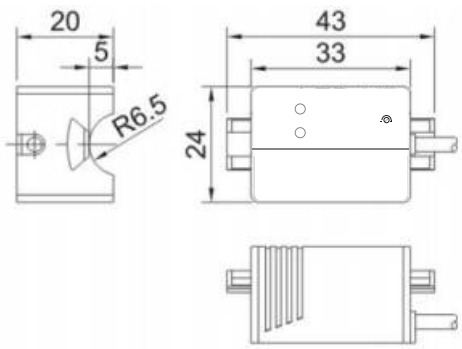
Product parameter

Project name	EB-DRY capacitive liquid level sensor			
Product specifications and models	EB-DRY28NO	EB-DRY28NC	EB-DRY15N	EB-DRY15P
DC input voltage	5-24VDC	5-24VDC	5-24VDC	5-24VDC
Output mode	NO	NC	NPN	PNP
Current consumption	13mA			
Output current	DC24V/2A			
Response time	500mS			
operating ambient temperature	-20~105℃			
Induction sensitivity	Outside diameter of pipeline D(mm)		Thickness of induction tube wall L(mm)	
	D≥100		20±3	
	100>D≥80		15±2	
	80>D≥60		12±1.5	
	60>D≥40		7±1.0	
	40>D≥30		5±1.0	
	30>D≥20		3±1.0	
	20>D≥10		1.5±0.5	
Diameter range of applicable pipes	≥11mm			
Liquid level accuracy	±1.5mm			
humidity	5%~100%			
line supervisor	500MM (10MM) (batch can be customized)			
Line end definition	Brown (positive power supply) and yellow (signal output)			
	Blue (negative power supply) and black (COM terminal)			
texture of wood	PC-VO			
waterproof	IP65			
Safety standard certification	CE			
Environmental certification	ROHS2.0			

Dimension drawing (unit: mm)



EB-DRY28



EB-DRY15



# EB-HE Hall proximity switch

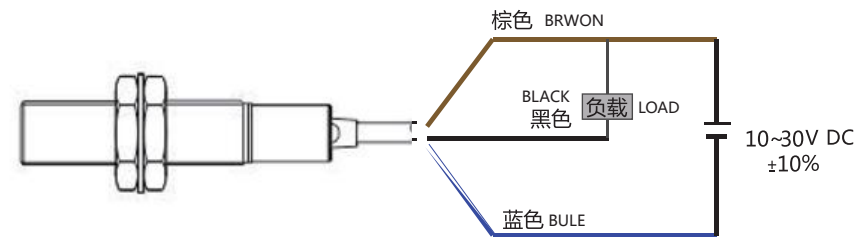


## Hall proximity switch

### Kind



Working principle of Hall proximity switch:  
When a metal or semiconductor sheet with current is placed vertically in a magnetic field, a potential difference will occur at both ends of the sheet. This phenomenon is called Hall effect, and the sensitivity of Hall effect is directly proportional to the magnetic induction intensity of the external magnetic field.Hall switch belongs to this kind of active magnetoelectric conversion device, which is made by integrated packaging and assembly technology on the basis of Hall effect principle. It can easily convert magnetic input signals into electrical signals in practical applications, and at the same time, it has the requirements of easy operation and reliability in industrial applications. Hall switch has the characteristics of no electric shock, low power consumption, long service life, high response frequency, etc., and its interior is sealed with epoxy resin, so it can work reliably in various harsh environments.Overall dimensions: M8M12M18, etc.Detection polarity: N-pole S-pole unipolar or all-pole (default)

### Circuit



## Hall proximity switch

### Product parameter

		
Model	EB-HEM08N EB-HEM08P	EB-HEM12N EB-HEM12P
Output mode	NPN/PNP	
Detection distance	10mm (the detection distance mainly depends on the magnetic force of magnetic steel)	
Working frequency	3000HZ	
Load current	< 200mA	
Loop protection	Polarity protection output short circuit protection (more than 200mA)	
LED	have	
Temperature drift	< ±10%	
Shell material	Nickel plating on brass	
Cable length	2m standard	
Type	embed	
Standard target	alnico	
Voltage drop	Less than 1.5V	
Working temperature	-20°C~70°C	
Operating voltage	-20°C~70°C	
The protection grades	12~30V DC	
Consumption current	Less than 15mA	
Detection surface material	Nickel plating on brass	