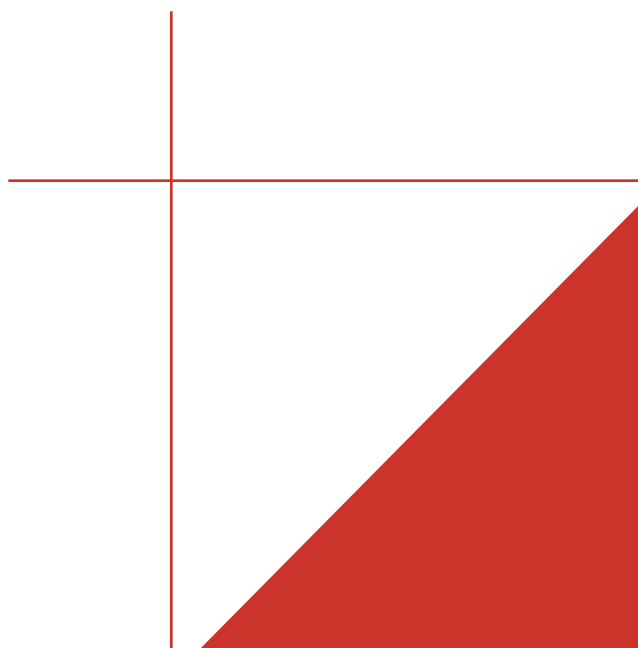
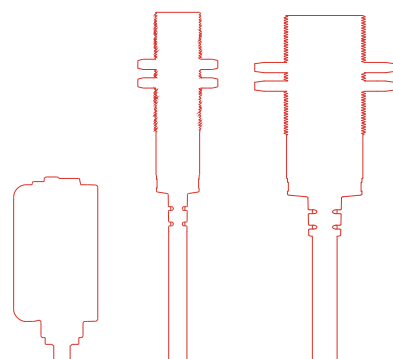
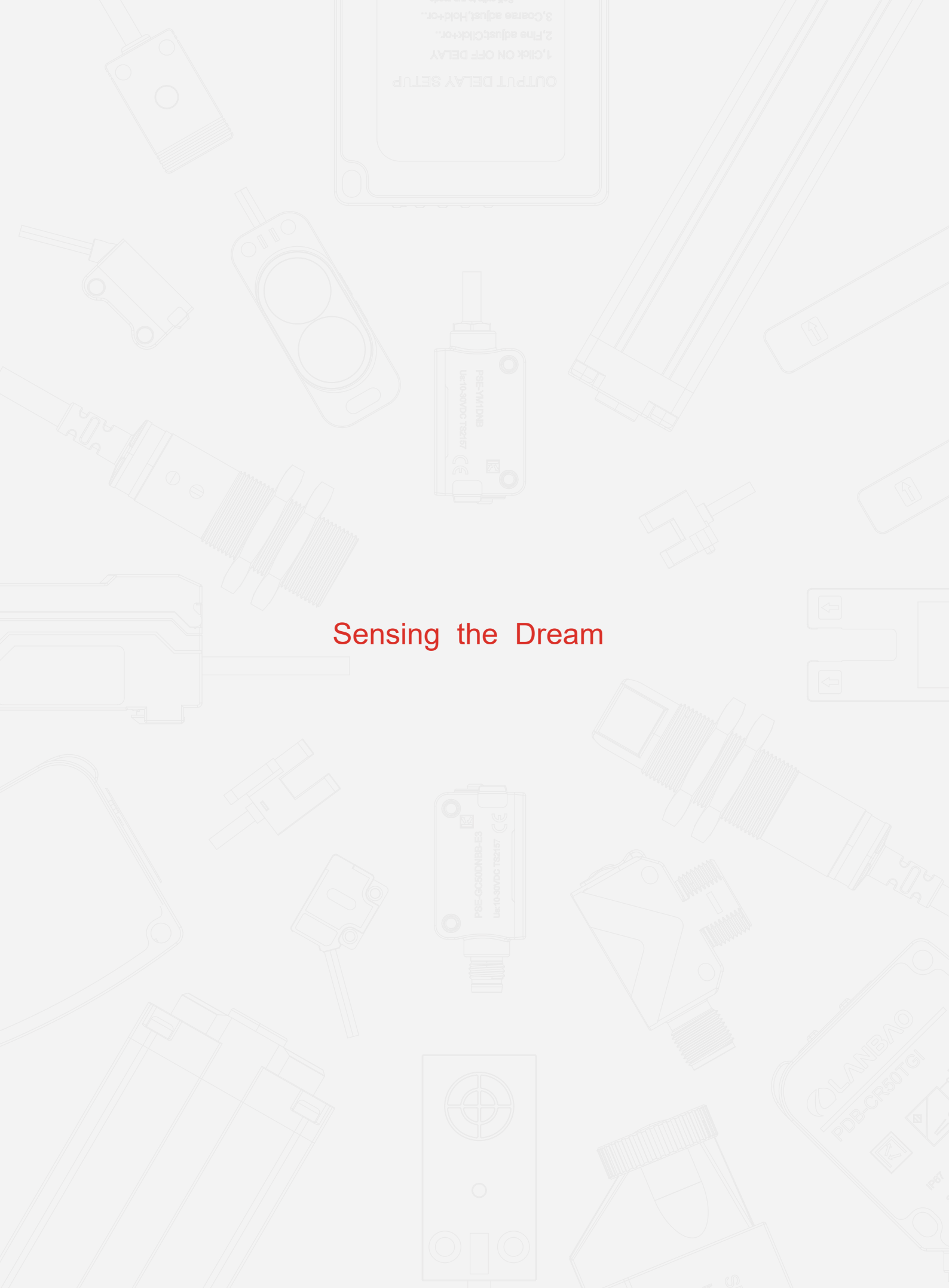


PHOTOELECTRIC SENSORS





Sensing the Dream



About Us

Shanghai Lanbao Sensing Technology Co., Ltd., established in 1998, is a leading Chinese provider of industrial automation solutions. We specialize in developing innovative sensing technologies and systems, driving advancements in intelligent manufacturing. Our products are widely used across various industries, including electronics, automotive and energy, enhancing efficiency, safety and sustainability.

Lanbao offers a comprehensive range of sensors, including photoelectric, inductive, capacitive, laser, millimeter wave, ultrasonic and 3D laser measurement. Our solutions cater to diverse applications, from industrial robotics and automation to advanced manufacturing processes.

Recognized for our commitment to quality and innovation, Lanbao sensors are a preferred choice for replacing imported products, contributing to the localization of Chinese industrial automation sector.



In 1998
Established



360+
Patents and
Copyrights



120+
Countries



99,000m²
Factory



15,000,000
Pcs/year



CORE PRODUCTS



Based on intelligent sensing technology, internet of things, cloud computing, big data, mobile internet and other advanced technologies, Lanbao improved the intelligence level of various products to help customers to transform their production modes from artificial to intelligent and digital. In this way, we're able to elevate the level of intelligent manufacturing to empower customers with high competitiveness.



Inductive Sensors

- Standard function cylindrical series
- Standard function square series
- High protection series
- Temperature extended series
- Factor one series
- Welding immune series
- Extended distance series
- Full metal housing series
- Clamp position series
- Analog output series
- Self-diagnosis series
- Speed monitoring series
- NAMUR series
- High pressure resistant series
- Inductive distance measuring series



Capacitive Sensors

- Standard function cylindrical series
- Standard function square series
- Extended sensing distance series
- Pipe liquid level series
- High temperature resistant material level series
- Corrosion resistant series
- Frequency enhanced series



Photoelectric Sensors

- Ultra thin series
- Micro square series
- Slot series
- Optical fiber series
- Little square series
- Large square series
- Color series
- Label series
- Round and square series
- Cylindrical series
- Color mark series

Measurement and Vision Sensors



Laser distance measuring sensor
PDA/PDB

OLED digital display, convenient operation, button/remote teach-in, multiple specifications available.



Laser displacement sensor
PDA/PDB/PDE

OLED digital display, easy operation, small size with high precision, flexible output mode, multiple specifications available.



CCD Laser diameter measuring sensor
PDT/PDM

Exquisite wide range, high precision, a variety of measurement modes, compatible with one-to-two, multi-controller cascading.



2D Laser scanner sensor
PDL

High-performance lidar to meet multiple applications widely used in manufacturing, warehousing, logistics, medical and service robot industries.



LVDT displacement sensor
LVR/LVA

Digital/analog/RS48 measurement accuracy reaches micron level.



Ultrasonic sensor
UR12/18/30/US40

With features as anti-pollution, antidust, anti-moisture, and strong penetration ability, widely used in fields like liquid level monitoring, robot anti-collision, single and double sheet detection, etc.



Millimeter wave radar sensor
MRA

Long-distance and high-precision ranging to meet micro-change monitoring in complex environments.



Code reader
PID

Wide resolution coverage and multiple series to meet industrial-level information traceability needs.



3D line scan sensor
PHM

In use of high-precision CMOS sensors and unique algorithms, with ultra high linear accuracy to realize non-contact and wear-free measurement.

Sensing the Dream

Safety and Control



Light curtain

SFB/SFE/SFG/SFN/SFS
MH20/MH40

SFx series high-level safety protective light curtains are widely used in forging and stamping industries, automotive manufacturing, and electrical and electronics manufacturing industries. MHxx series measuring light curtains can measure the size of objects and are extensively used in product quality inspection and passing detection.



Safety door switch

SLB-D/SLC-D/SLAS-D/SLD/
Operation keys

Combining ease of use and reliability, with various sizes and contact points available for selection.



Encoder

ENI38K/38S/50S/58K/58S
ENA39S/58S

Applied to machine tool feed axes, servo motion control, and industrial robots, the encoder features high rigidity, high response, and high positioning accuracy.



Gas Pressure Sensor

DPG

Gas pressure sensors, with their high precision, rapid response, strong environmental adaptability, and diverse outputs, have become the core device for gas pressure monitoring.

Industrial Network Module and Connection System



Industrial network module

Master/hub

Stable and reliable communication transmission, robust metal casing, excellent cost-performance ratio, aiding in the realization of Industry 4.0.



Junction box

DB08/DB12

Consolidate multiple power and data signals, reducing the amount of wiring needed.



Connection cable

QE8/QE12

Designed to connect various electronic devices for data transmission and power supply.



Connector

QE8/QE12

For electric connections, making the design and production process more convenient and flexible.

Contents

01 Ultra-thin

PSV Series P01-005

02 Micro square

PST Series P02-004

PSJ Series P02-007

03 Little square

PSE Series P03-001

04 Large square

PTE Series P04-004

PTL Series P04-007

PTB Series P04-009

PTG Series P04-011

05 Round and square

PSR Series P05-001

06 Cylindrical

PSM Series P04-012

PSS Series P04-014

PR12 Series P04-016

PR18 Series P04-017

PR30 Series P04-022

P **R** **12** ☐ ☐ **B** **C15** **D** **N** **O** ☐ - ☐ ☐ ☐
 ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

1、Classification code

P: Photoelectric sensors

2、Shape

1~2 letters for different shapes

e.g.:

R: Threaded cylindrical

Q: Smooth cylindrical

TE: Large square

SE: Little square

SS: Plastic M18 cylindrical

SM: Metal M18 cylindrical

3、Size code

Number: Housing diameter

e.g.:

18: Outer diameter 18mm

4、Housing material

N/A: Copper

S: Plastic

5、Housing length

N/A: standard

L: Long

S: Short

6、Mounting

B: Diffuse reflection

D: Retro reflection

G: Glass bottle detection

P: Polarized reflection

S: Limited reflection

T: Through beam reflection

Y: Background suppression

C: TOF reflection

7、Sensing distance

C10: 10cm

C40: 40cm

M5: 5m

M10: 10m

...

8、Supply voltage

A: 20...250V AC

A1: 110V AC

A2: 220V AC

B: 90...250V AC

D: 10...30V DC

J: 5V DC

Q: 12...24V AC/DC

S: 12...240V DC/24...240V AC

T: 12...24V DC

V: 18...30V DC

9、Output logic

P: PNP

N: NPN

E: NPN/PNP

F: NPN+PNP

K: Relay

G: Push-Pull

T: AC 2 wires

10、Output status

O: NO

C: NC

R: NO+NC

A: NO/NC Reversible

B: NO/NC Optional

L: IO-Link

11、Light source type

N/A: Infrared light source

R/S: Red point light source

B: Blue point light source

L: Red laser light source

V: Red Vcsel laser light source

W: White point light source

X: Red line light source

12、Cable length

N/A: 2m

3M: 3m

...

13、Connection

N/A: 2m cable

xM: xm cable (x: number)

e.g.: 3M : 3m cable

E1: M8 3 pins connector

E2: M12 4 pins connector

E3: M8 4 pins connector

E4: M12 4 pins connector

E5: M12 5 pins connector

D: Terminal

F3: M8 3 pins connector+0.2m cable

14、Special requirement

4 Digits or letters

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official Website

Product Family

Photoelectric Sensors

Photoelectric

Ultra-thin series

Ultra-thin, suitable for small installation conditions

P01-003 PSV Series



Micro Square Series

Compact appearance, easy to install, bright 360° LED indicator, easy to identify special working conditions

P02-001 PST/PSJ Series



Little square series

Universal little square, comprehensive product line coverage

P03-001 PSE Series



Large square series

Various output methods to meet different needs

P04-001 PTE/PTL/PTB/PTG Series



Round and square series

Thread and mounting hole design, easy to install and use

P05-001 PSR Series



Cylindrical series

M12, M18, M30 multiple dimensions optional

P06-001 PSM/PSS PR18/PR18/PR30 Series



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical Guide



Official Website

Detection distance Light source Name	Through-beam			Diffuse		Retro-reflection	Background suppression			Polarized reflection			Limited reflection	Transparent object detection	TOF
PSE Series	5m/10m Red light	20m Infrared	30m Red laser	10cm/100cm Infrared	30cm Red light		15cm Red Vcsel	5cm/25cm/35cm Red light	15cm/35cm Red laser	1m Red Vcsel	3m Red light	5m/10m Red laser	30cm Red light	50cm/2m Blue	20cm/60cm/100cm/3m Infrared
PST Series	50cm/2m Red Vcsel	2m Red light			25cm Red light		16mm/30mm/10cm Red light						25mm Red light		
PSJ Series	1.5m/3m Infrared														
PSV Series	15cm/50cm/1m Red light (side light)			10cm Red light			15mm/30mm Red light						25mm Red light		
PSR Series	20m Infrared			30cm Red light			10cm Red light			3m Red light					
PSM Series	20m Infrared			10cm/40cm/100cm Infrared	40cm Red light		10cm Red light			3m Red light			40cm Red light	2m Red light	
PSS Series	20m Infrared			10cm/40cm/100cm Infrared	40cm Red light		10cm Red light			3m Red light			40cm Red light	2m Red light	
PR12 Series	5m/10m Infrared			15cm Infrared		3m Infrared									
PR18 Series	10m/20m Infrared			10cm/40cm Infrared		5m Infrared									
PR30 Series	20m/40m/100m/150m Infrared			50cm/100cm Infrared			10cm Red light								
PTE Series	60m Infrared			30cm/200cm Infrared						5m Red light					
PTL Series				80cm/200cm Infrared						12m Red light					
PTB Series							2m Infrared								
PTG Series															0.05...15m 0.05...10m Red Laser

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical Guide



Official Website

Photoelectric Sensors

Ultra-thin Series



For specifications, certification, usage and model list, please scan the product QR code.



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical Guide

Complete product line to meet different installation needs

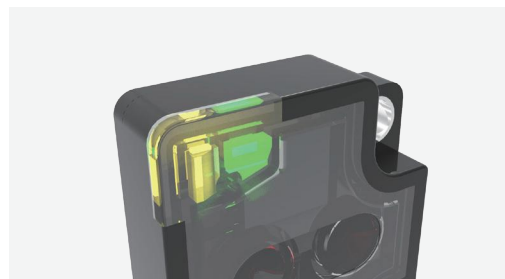
Rich product line, including through beam reflection (front sensing and side emission optional), diffuse reflection, background suppression, limited reflection optional.

Ultra-Fast Response: Designed for high-precision detection of swiftly moving small objects

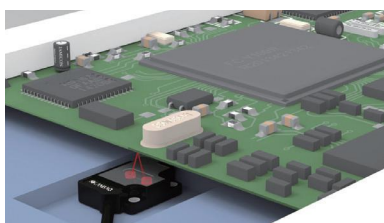
Ensures reliable identification of opaque objects $\geq \phi 2\text{mm}$ with $< 1\text{ms}$ response time.

Equipped with a dual-color, 360° visible LED for clear, bright illumination and easy monitoring

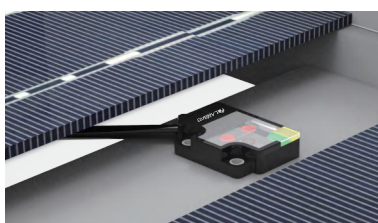
Features a user-friendly red light design for effortless alignment and detection, even in challenging environments.



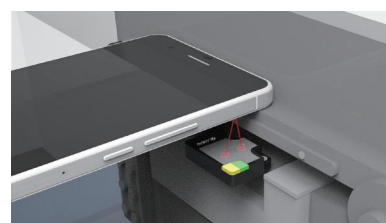
Application



Tiny component presence check

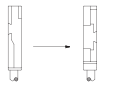
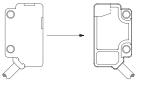
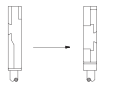
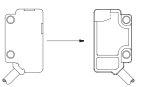


Silicon wafer recognition



Mobile cover plate inspection



Detection method	Shape	Connection	Detection distance	Output	Model	
					NPN Output	PNP Output
Through beam type		2m cable (Front sensing)	15cm	NO	Emitter PSV-TC15DR	Emitter PSV-TC15DR
				NC	Receiver PSV-TC15DNOR	Receiver PSV-TC15DPOR
		2m cable (Front sensing)	50cm	NO	Emitter PSV-TC50DR	Emitter PSV-TC50DR
				NC	Receiver PSV-TC50DNOR	Receiver PSV-TC50DPOR
		2m cable (Side sensing)	50cm	NO	Emitter PSV-TC50DR-S	Emitter PSV-TC50DR-S
				NC	Receiver PSV-TC50DNOR-S	Receiver PSV-TC50DPOR-S
		2m cable (Front sensing)	1m	NO	Emitter PSV-TM1DR	Emitter PSV-TM1DR
				NC	Receiver PSV-TM1DNOR	Receiver PSV-TM1DPOR
		2m cable (Side sensing)	1m	NO	Emitter PSV-TM1DR-S	Emitter PSV-TM1DR-S
				NC	Receiver PSV-TM1DNOR-S	Receiver PSV-TM1DPOR-S
Diffuse reflection type		2m cable	10cm	NO	PSV-BC10DNOR	PSV-BC10DPOR
				NC	PSV-BC10DNCR	PSV-BC10DPCR
Background suppression type		2m cable	15mm	NO	PSV-YR15DNOR	PSV-YR15DPOR
				NC	PSV-YR15DNCR	PSV-YR15DPCR
		2m cable	30mm	NO	PSV-YR30DNOR	PSV-YR30DPOR
				NC	PSV-YR30DNCR	PSV-YR30DPCR
Limited reflection type		2m cable	25mm	NO	PSV-SR25DNOR	PSV-SR25DPOR
				NC	PSV-SR25DNCR	PSV-SR25DPCR

Ultra-thin

Micro Square

Little square

Large square

Round and square

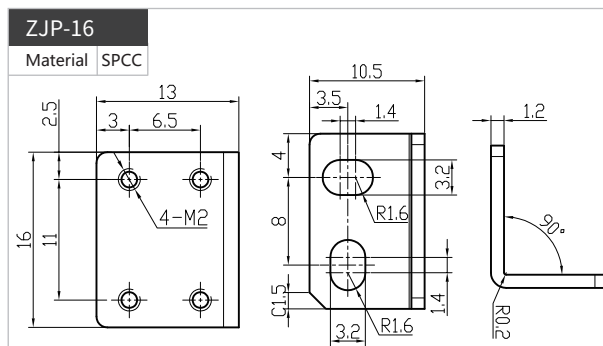
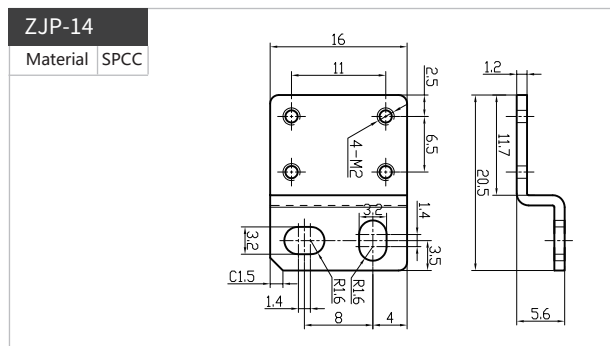
Cylindrical

Naming rules

Product family

Technical Guide

Product Accessories (Narrow Slit, Mounting Brackets)



Official Website

I PSV Through beam

Model	PSV-T□□D□□R-S		
Detection principle	Through beam		
Sensing distance	50cm		1m
Light source type	Red point light source(Side sensing)		
Standard target	φ2mm above opaque objects		
Spot size	7*7cm@50cm		
Blind area	/		
Hysteresis	/		
Adjustment method	Not adjustable		
Power Supply	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: Emitter≤10mA, Receiver≤12mA		
Output characteristic	Load current: ≤50mA; Voltage drop : ≤1.5V; Leakage current: ≤0.1mA		
Protection circuit	Short circuit protection, Reverse polarity protection, Overload protection, Zener protection		
Indicator light	Green light: Power indication; Yellow light: Output indication		
Response time	T-on: ≤1ms; T-off: ≤1ms		
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux		
Working environment	working temperature: -20...55°C; Storage temperature: -30...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)		
Protection level	IP65		
Shell material	PC+PBT		
Connection method	Cable type(Standard length 2m)		
Dimensional drawing	See page P01-013 for details		

I PSV Through beam

Model	PSV-T□□D□□R		
Detection principle	Through beam		
Sensing distance	15cm	50cm	1m
Light source type	Red point light source(Front emitted light)		
Standard target	φ2mm above opaque objects		
Spot size	1*1cm@5cm	10*10cm@50cm	10*10cm@50cm
Blind area	/		
Hysteresis	/		
Adjustment method	Not adjustable		
Power Supply	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: Emitter≤10mA, Receiver≤12mA		
Output characteristic	Load current: ≤50mA; Voltage drop : ≤1.5V; Leakage current: ≤0.1mA		
Protection circuit	Short circuit protection, Reverse polarity protection, Overload protection, Zener protection		
Indicator light	Green light: Power indication; Yellow light: Output indication		
Response time	T-on: ≤1ms; T-off: ≤1ms		
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux		
Working environment	Working temperature: -20...55°C; Storage temperature: -30...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)		
Protection level	IP65		
Shell material	PC+PBT		
Connection method	Cable type(Standard length 2m)		
Dimensional drawing	See page P01-013 for details		



PSV Diffuse reflection/Background suppression

Model	PSV-BC□D□□R		PSV-YR□D□□R	
Detection principle	Diffuse reflection		Background suppression	
Sensing distance	10cm ^①		2-16mm ^①	4-33mm ^①
Light source type	Red point light source			
Standard target	50*50mm White card			
Spot size	15mm@10cm		2mm@30cm	
Blind area	<5mm		<2mm	<4mm
Hysteresis	3...20%		<20%	
Adjustment method	Not adjustable			
Power Supply	10...30V DC (RippleP-P: ≤10%) ;Current consumption: ≤15mA			
Output characteristic	Load current:≤50mA;Voltage drop : ≤1.5V;Leakage current: ≤0.1mA			
Protection circuit	Short circuit protection,Reverse polarity protection, Overload protection, Zener protection			
Indicator light	Green light:Power indication;Yellow light:Output indication			
Response time	T-on: ≤1ms;T-off: ≤1ms			
Ambient light resistance	Anti-sunlight interference ≤10,000Lux;Anti-incandescent light interference≤3,000Lux			
Working environment	Working temperature:-20...55℃;Storage temperature:-30...70℃; Ambient humidity:35...95% (No condensation or dew on optical surfaces)			
Protection level	IP65			
Shell material	PC+PBT			
Connection method	Cable type(Standard length 2m)			
Dimensional drawing	See page P01-013 for details			

Note: ① Measured using a 50*50mm white card with a reflectivity of 90%.

PSV Limited reflection

Model	PSV-SR□D□□R
Detection principle	Limited reflection
Sensing distance	2...28mm ^①
Light source type	Red point light source
Standard target	0.1mm Copper wire
Spot size	8mm@25mm
Blind area	<2mm
Hysteresis	<20%
Adjustment method	Not adjustable
Power Supply	10...30V DC (RippleP-P: ≤10%) ; Current consumption: ≤15mA
Output characteristic	Load current: ≤50mA; Voltage drop : ≤1.5V; Leakage current: ≤0.1mA
Protection circuit	Short circuit protection, Reverse polarity protection, Overload protection, Zener protection
Indicator light	Green light: Power indication; Yellow light: Output indication
Response time	T-on: ≤1ms; T-off: ≤1ms
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux
Working environment	Working temperature: -20...55°C; Storage temperature: -30...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)
Protection level	IP65
Shell material	PC+PBT
Connection method	Cable type(Standard length 2m)
Dimensional drawing	See page P01-013 for details

Note: ① Measured using a 50*50mm white card with a reflectivity of 90%.

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

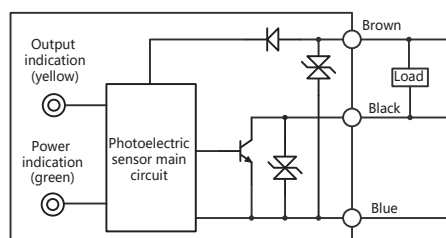
Technical Guide



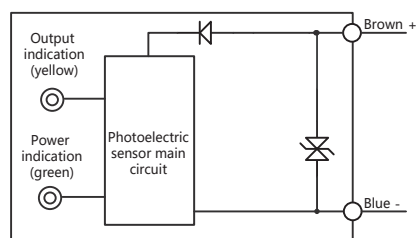
Official Website

I PSV Through beam/Diffuse reflection/ Background suppression/Limited reflection

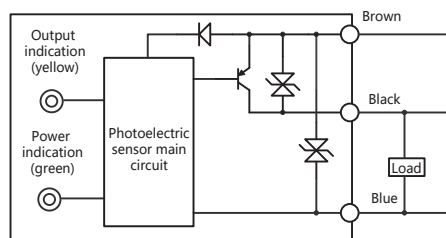
Receiver NPN



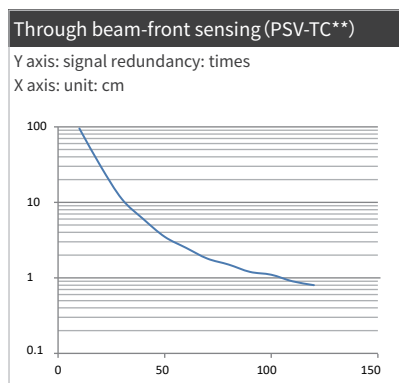
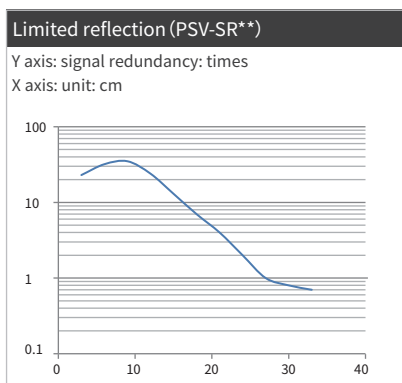
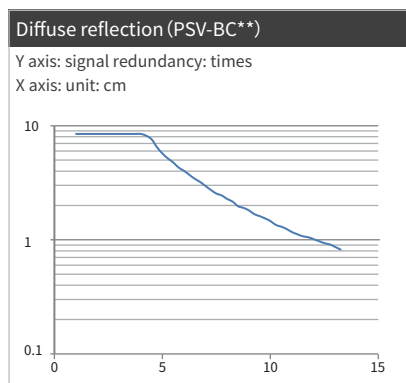
Emitter



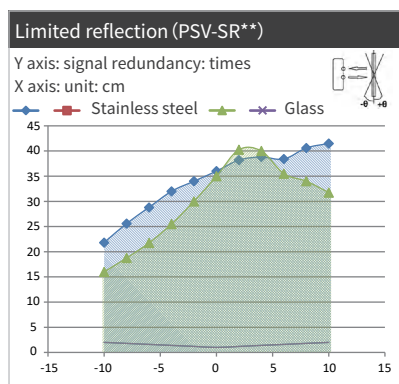
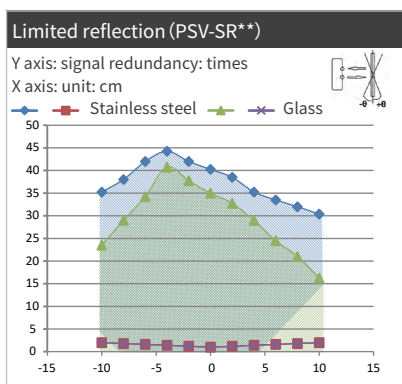
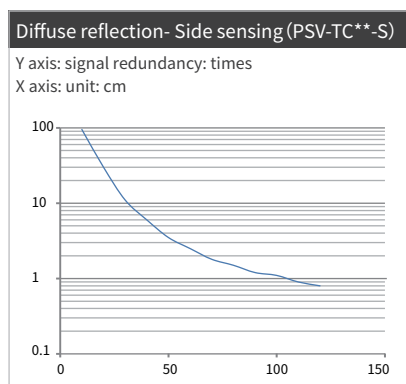
Receiver PNP



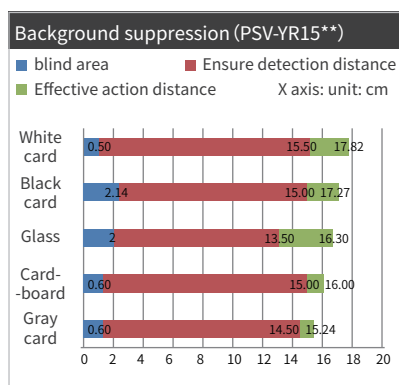
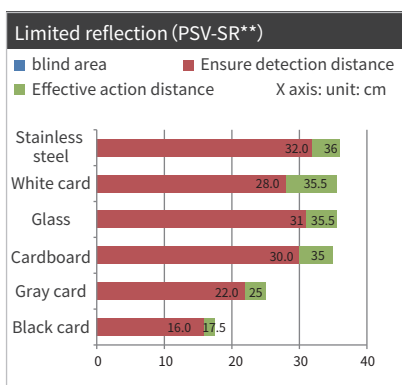
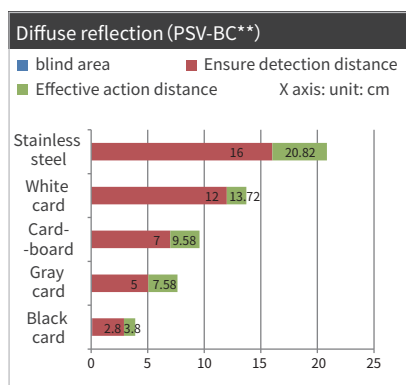
Signal redundancy



Angle detection area characteristics



Color sensitivity



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

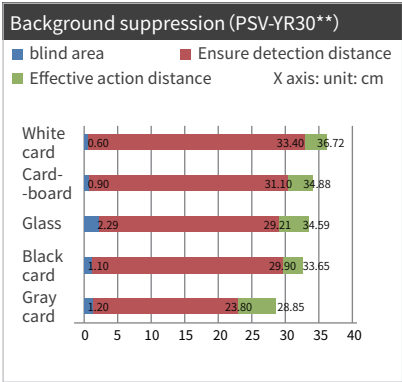
Product family

Technical Guide

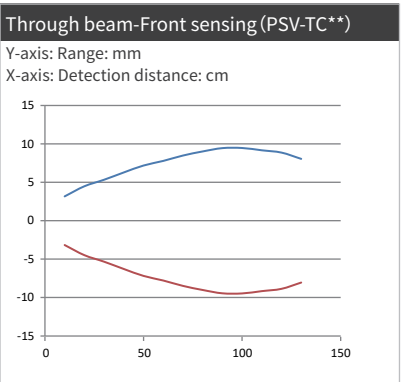
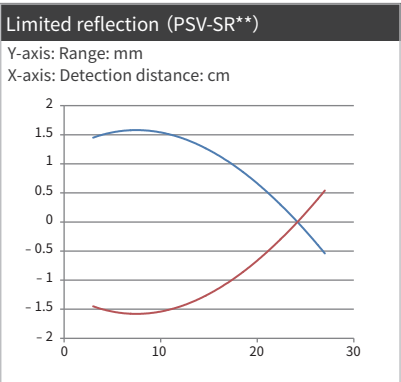
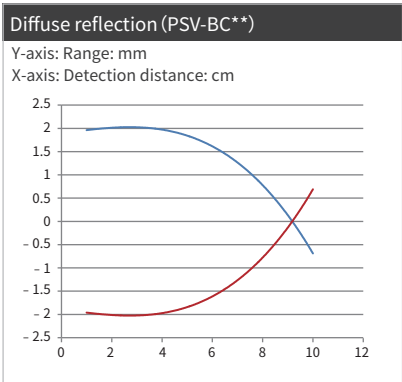


Official Website

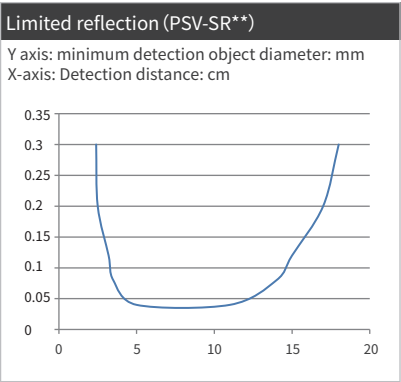
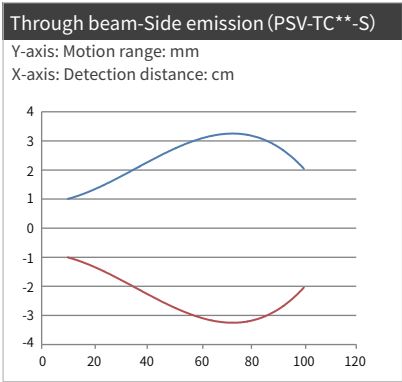
Color sensitivity



Operating



Minimum detection object



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

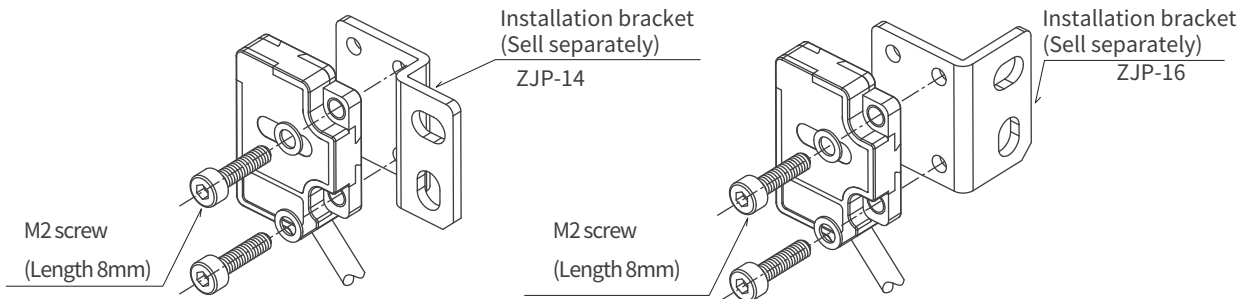
Technical Guide



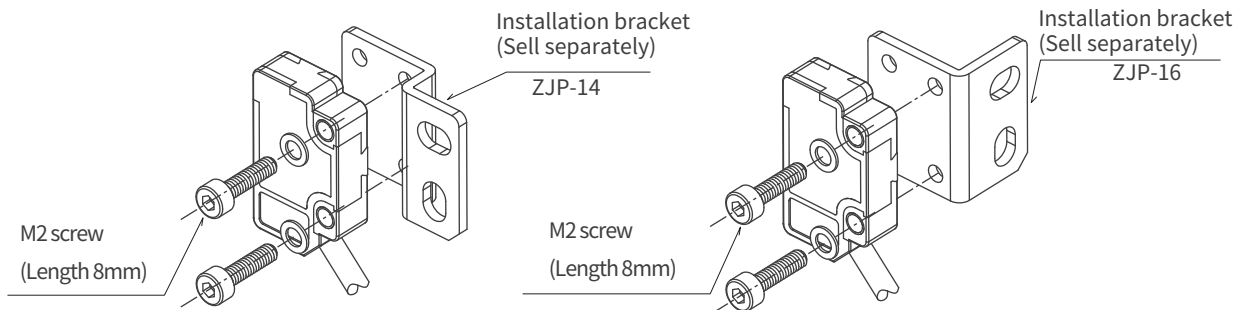
Official Website

Product Installation Diagram

- Through beam type(Front), Diffuse reflection type, Background suppression type, Limited reflection type



- Through beam type (Side emission)



Note: When installing this product, please keep the tightening torque below 0.5N·m.

Precaution

- Please make sure that the power supply voltage is within the rated value before powering on.
- The time from powering-on to normal detection is 100ms. Please make sure to use the sensor after 100ms of powering-on.
- When using different power sources for the sensor and load, be sure to turn on the power of the sensor first.
- When the sensor is not used, it is recommended to cut off the power on the load first, and then cut off the power of the sensor.
- Do not subject the sensor to severe external forces (such as hammer hits, etc.) during installation, so as not to damage the sensor performance.
- Avoid using thinner, alcohol or other organic solvents when cleaning the sensor.

Safety Warning

- Do not use in an environment with flammable, explosive or corrosive gases.
- Do not use in an environment with oil or chemicals.
- Do not use in a high humidity environment.
- Do not use in direct sunlight.
- Do not use in other environmental conditions that exceed the rated value.
- Do not disassemble, repair or modify this product without authorization.

Scrap Disposition

- When the product is scrapped, please dispose of it as industrial waste.

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

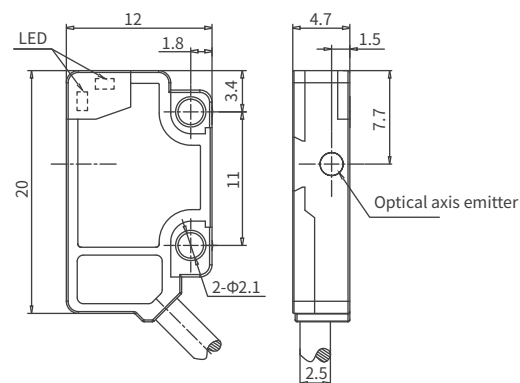
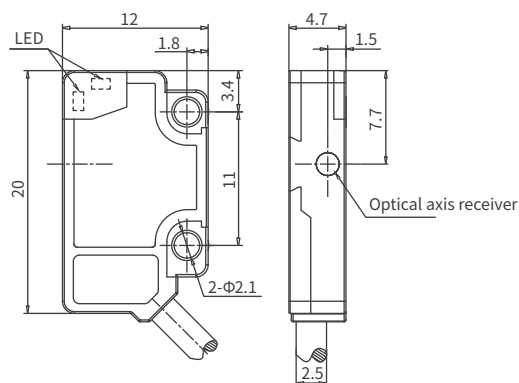
Technical Guide



Official Website

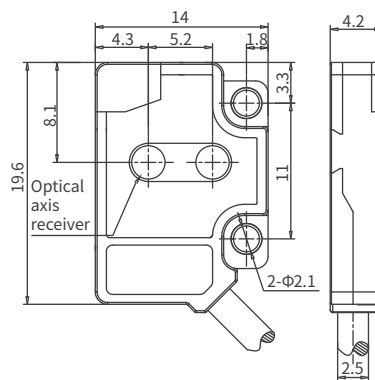
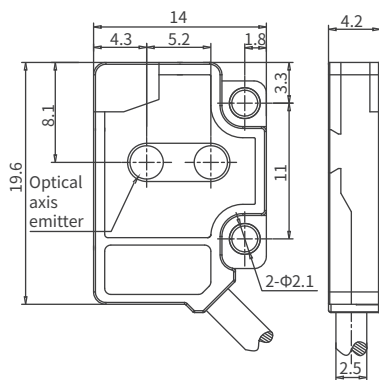
I PSV Through beam (Side sensing)

Cable



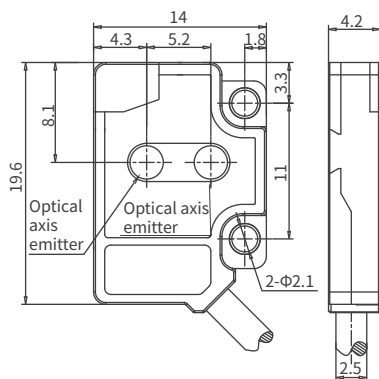
I PSV Through beam (Front sensing)

Cable



I PSV Diffuse reflection / Background suppression / Limited reflection

Cable



Photoelectric

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical Guide



Photoelectric Sensors

Micro Square Series



For specifications, certification, usage and model list, please scan the product QR code.



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide

M3 Through-hole design for easy application

Features a plastic square body with a standard M3 threaded hole and an internal stainless steel core for a compact design that's simple to install.

Highlighted 360° LED indicator

The bright LED light provides clear visibility in various working conditions.

Precise distance adjustment with multi-turn potentiometer

A multi-turn potentiometer allows for fine-tuning of the distance setting.

Versatile color recognition

The sensor's advanced optics ensure reliable detection of objects, regardless of color variation.

Effortless targeting and positioning

The laser-like beam in the background suppression series offers quick response and accurate positioning for easy alignment.

Robust integrated circuit design

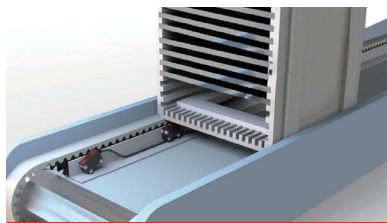
The PST mini sensor is built to last with an IP65 rating, featuring an integrated circuit that provides strong resistance to light interference, suitable for tough industrial environments.

Flexible connection options

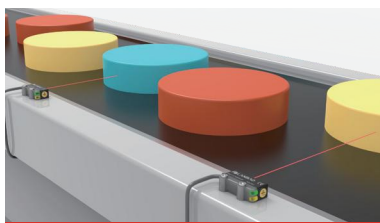
Includes a standard 2-meter cable and offers the option for a customized pigtail connection to meet specific needs.



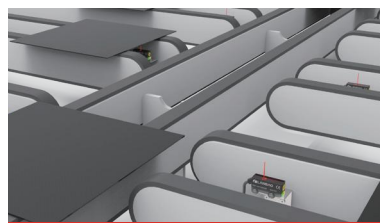
Official website



Wafer pass detection



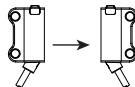
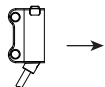
Thin edge detection



Detection through slits or holes

Selection list

PST series

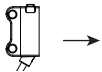
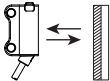
Detection method	Shape	Connection	Detection distance	Type	Model	
					NPN Output	PNP Output
Through beam type		2m cable	50cm		Emitter PST-TC50DRV	Emitter PST-TC50DRV
				NO	Receiver PST-TC50DNOR	Receiver PST-TC50DPOR
				NC	Receiver PST-TC50DNCR	Receiver PST-TC50DPCR
		20cm cable with connector	50cm		Emitter PST-TC50DRV-F3	Emitter PST-TC50DRV-F3
				NO	Receiver PST-TC50DNOR-F3	Receiver PST-TC50DPOR-F3
				NC	Receiver PST-TC50DNCR-F3	Receiver PST-TC50DPCR-F3
		2m cable	2m		Emitter PST-TM2DR	Emitter PST-TM2DR
				NO	Receiver PST-TM2DNOR	Receiver PST-TM2DPOR
				NC	Receiver PST-TM2DNCR	Receiver PST-TM2DPCR
		20cm cable with connector	2m		Emitter PST-TM2DR-F3	Emitter PST-TM2DR-F3
				NO	Receiver PST-TM2DNOR-F3	Receiver PST-TM2DPOR-F3
				NC	Receiver PST-TM2DNCR-F3	Receiver PST-TM2DPCR-F3
Background suppression type		2m cable	15mm	NO	PST-YR15DNOR	PST-YR15DPOR
				NC	PST-YR15DNCR	PST-YR15DPCR
		20cm cable with connector	15mm	NO	PST-YR15DNOR-F3	PST-YR15DPOR-F3
				NC	PST-YR15DNCR-F3	PST-YR15DPCR-F3
		2m cable	15mm	NO	PST-YR15DNOS	PST-YR15DPOS
				NC	PST-YR15DNCS	PST-YR15DPCS
		20cm cable with connector	15mm	NO	PST-YR15DNOS-F3	PST-YR15DPOS-F3
				NC	PST-YR15DNCS-F3	PST-YR15DPCS-F3
		2m cable	16mm	NO	PST-YR16DNOR	PST-YR16DPOR
				NC	PST-YR16DNCR	PST-YR16DPCR
		20cm cable with connector	16mm	NO	PST-YR16DNOR-F3	PST-YR16DPOR-F3
				NC	PST-YR16DNCR-F3	PST-YR16DPCR-F3
		2m cable	30mm	NO	PST-YR30DNOR	PST-YR30DPOR
				NC	PST-YR30DNCR	PST-YR30DPCR
		20cm cable with connector	30mm	NO	PST-YR30DNOR-F3	PST-YR30DPOR-F3
				NC	PST-YR30DNCR-F3	PST-YR30DPCR-F3
		2m cable	30mm	NO	PST-YR30DNOS	PST-YR30DPOS
				NC	PST-YR30DNCS	PST-YR30DPCS



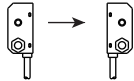
Selection List

Micro Square Series

Photoelectric

Detection method	Shape	Connection	Detection distance	Type	Model	
					NPN Output	PNP Output
Background suppression type		20cm cable with connector	30mm	NO	PST-YR30DNOS-F3	PST-YR30DPOS-F3
				NC	PST-YR30DNCS-F3	PST-YR30DPCS-F3
		2m cable	10cm	NO	PST-YC10DNOR	PST-YC10DPOR
				NC	PST-YC10DNCR	PST-YC10DPCR
		20cm cable with connector	10cm	NO	PST-YC10DNOR-F3	PST-YC10DPOR-F3
				NC	PST-YC10DNCR-F3	PST-YC10DPCR-F3
		2m cable	10cm	NO	PST-YC10DNOS	PST-YC10DPOS
				NC	PST-YC10DNCS	PST-YC10DPCS
Retro reflection type		2m cable	25cm	NO	PST-DC25DNOR	PST-DC25DPOR
				NC	PST-DC25DNCR	PST-DC25DPCR
		20cm cable with connector	25cm	NO	PST-DC25DNOR-F3	PST-DC25DPOR-F3
				NC	PST-DC25DNCR-F3	PST-DC25DPCR-F3
Limited reflection type		2m cable	25cm	NO	PST-SR25DNOR	PST-SR25DPOR
				NC	PST-SR25DNCR	PST-SR25DPCR
		20cm cable with connector	25cm	NO	PST-SR25DNOR-F3	PST-SR25DPOR-F3
				NC	PST-SR25DNCR-F3	PST-SR25DPCR-F3

PSJ Sensor

Detection method	Shape	Connection	Detection distance		Model	
					NPN Output	PNP Output
Through beam type		2m cable	1.5m		Emitter PSJ-TM15T	Emitter PSJ-TM15T
				NO	Receiver PSJ-TM15TNO	Receiver PSJ-TM15TPO
				NC	Receiver PSJ-TM15TNC	Receiver PSJ-TM15TPC

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

I PST Through beam

Model	PST-TM□□□□□□		
Detection principle	Through beam		
Detection distance	50cm	2m	
Light source type	Red Vcsel	Red Vcsel	Red point light source
Detecting objects	φ4mm Above opaque objects ^①	φ4mm Above opaque objects ^①	φ5mm Above opaque objects ^②
Spot size	4mm@50cm	4mm@50cm	80mm@2m
Blind area	/		
Hysteresis	/		
Adjustment method	Not adjustable		
Power supply	10...30V DC (RippleP-P: ≤10%) ; Current consumption: Emitter ≤10mA, Receiver ≤15mA		
Output characteristic	Load current: ≤50mA; Voltage drop: ≤1.5V; Leakage current: ≤0.1mA		
Protection circuit	Short circuit protection, reverse polarity protection, overload protection		
Indicator light	Green light: Power indication; Yellow light: Output indication		
Response time	T-on: ≤1ms; T-off: ≤1ms		
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3000Lux		
Working environment	Working temperature: -10...45°C; Storage temperature: -30...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)		Working temperature: -25...55°C
Protection level	IP65		
Shell material	ABS		
Connection method	Cable (standard length 2m) or pigtail connection optional		
Dimensional drawing	See page P02-012 for details		

Note: ① The minimum detection object can only be detected under appropriate sensitivity conditions.

② The minimum detection object is an opaque object with a diameter of more than 3mm, which can only be detected under appropriate sensitivity conditions.

I PST Retro reflection/Limited reflection

Model	PST-DC□□□□□□	PST-SR□□□□□□
Detection principle	Retro reflection	Limited reflection
Detection distance	25cm ^①	2...25mm
Light source type	Red point light source /	
Detecting objects	φ2mm Above opaque objects	
Spot size	10mm@25cm	8mm@30cm
Blind area	/	<2mm
Hysteresis	/	<20%
Adjustment method	Not adjustable	
Power supply	10...30V DC (RippleP-P: ≤10%) ; Current consumption: ≤15mA	
Output characteristic	Load current: ≤50mA; Voltage drop: ≤1.5V; Leakage current: ≤0.1mA	
Protection circuit	Short circuit protection, reverse polarity protection, overload protection	
Indicator light	Green light: Power indication; Yellow light: Output indication	
Response time	T-on: ≤1ms; T-off: ≤1ms	
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3000Lux	
Working environment	Working temperature: -20...55°C; Storage temperature: -30...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)	
Protection level	IP65	
Shell material	ABS	
Connection method	cable (standard length 2m) or pigtail connection optional	
Dimensional drawing	See page P02-013 for details	

Note: ① Measured using reflector TD-11.

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

I PST Background suppression

Model	PST-Y□□D□□R-□			
Detection principle	Background suppression			
Detection distance	16mm ^①	4...18mm ^①	4...36mm ^①	10cm ^①
Ight source type	Red point light source			
Detecting objects	100*100mm White card			
Spot size	<3mm@16mm	5mm@15mm	5mm@30mm	8mm@100mm
Blind area	<1mm ^②	<4mm		<1.5cm ^②
Hysteresis	<15%	<20%		
Adjustment method	Not adjustable	Knob adjust		
Power supply	10...30V DC (RippleP-P: ≤10%) ;Current consumption : ≤15mA			
Output characteristic	Load current: ≤50mA;Voltage drop: ≤1.5V;Leakage current: ≤0.1mA			
Protection circuit	Short circuit protection, reverse polarity protection, overload protection			
Indicator light	Green light:Power indication;Yellow light:Output indication			
Response time	T-on: ≤0.5ms;T-off: ≤0.5ms	T-on: ≤5ms;T-off: ≤5ms		
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3000Lux			
Working environment	Working temperature: -20...55°C;Storage temperature: -30...70°C; Ambient humidity:35...95% (No condensation or dew on optical surfaces)			
Protection level	IP67	IP65		
Shell material	PC+ABS	ABS		
Connection method	Cable (standard length 2m) or pigtail connection optional			
Dimensional drawing	See page P02-013 for details			

Note: ① Measured using a 100*100mm white card with a reflectivity of 90% (16mm: It is recommended to use it at 1-15mm. The detection distance may fluctuate due to the characteristics of the detected object and application environment).
② 16mm: When testing with 90% white cards, the blind area is less than 1mm; when testing with 6% black cards, the blind area is less than 3mm.

I PST Background suppression

Model	PST-Y□□D□□S-□		
Detection principle	Background suppression		
Detection distance	4...18mm ^①	4...36mm ^①	10cm ^①
Light source type	Red point light source		
Detecting objects	100*100mm White card		
Spot size	5mm@15mm	5mm@30mm	8mm@100mm
Blind area	<4mm		<1.5cm
Hysteresis	<20%		
Adjustment method	Knob adjust		
Power supply	10...30V DC (RippleP-P: ≤10%) ;Current consumption: ≤15mA		
Output characteristic	Load current: ≤50mA;Voltage drop: ≤1.5V; Leakage current: ≤0.1mA		
Protection circuit	Short circuit protection, reverse polarity protection, overload protection		
Indicator light	Green light:Power indication;Yellow light:Output indication		
Response time	T-on: ≤1ms;T-off: ≤1ms		
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3000Lux		
Working environment	Working temperature: -20...55°C;Storage temperature: -30...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)		
Protection level	IP65		
Shell material	ABS		
Connection method	Cable (standard length 2m) or pigtail connection optional		
Dimensional drawing	See page P02-013 for details		

Note: ① Measured using reflector TD-11.

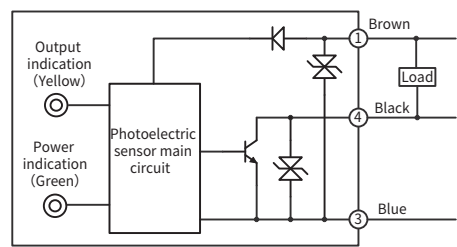
Ultra-thin
Micro square
Little square
Large square
Round and square
Cylindrical

Naming rules
Product family
Technical guide

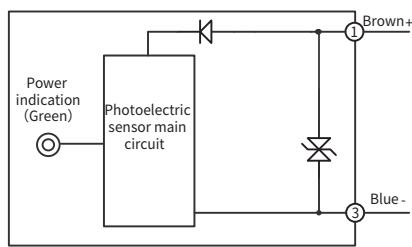


PST Through beam/Background suppression/Retro reflection/
Limited reflection

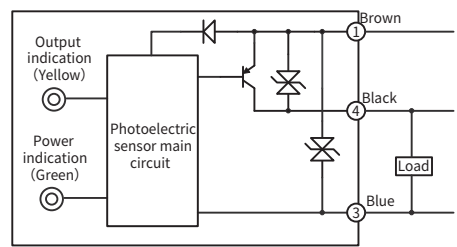
Receiver NPN



Emitter



Receiver PNP



Photoelectric

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

Specification Parameters/Electrical Wiring Diagram

Micro Square Series

I PSJ Through beam

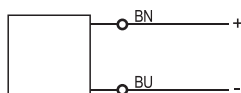
Model	PSJ-TM15T□□
Detection principle	Through beam
Detection distance	1.5m (Not adjustable)
Light source type	Infrared light
Detecting objects	φ6mm Above opaque objects
Spot size	/
Blind area	/
Hysteresis	/
Adjustment method	Not adjustable
Power supply	12...24V DC (Ripple P-P: ≤10%) ; Current consumption : ≤20mA
Output characteristic	Load current: ≤100mA; Voltage drop: ≤2.5V (Receiver) ; Leakage current: ≤0.1mA
Protection circuit	Reverse polarity protection
Indicator light	Red LED
Response time	T-on: ≤1ms; T-off: ≤1ms
Ambient light resistance	Anti-sunlight interference ≤10,000Lux
Working environment	Working temperature: -20...55°C; Storage temperature: -25...65°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)
Protection level	IP40
Shell material	PC/ABS
Connection method	Cable type(Standard length 2m)
Dimensional drawing	See page P02-014 for details

Electrical Wiring Diagram

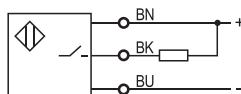
Micro square series

I PSJ Through beam

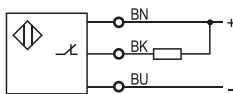
Emitter



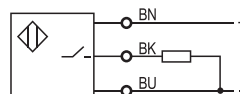
NPN NO



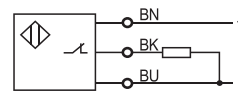
NPN NC



PNP NO



PNP NC



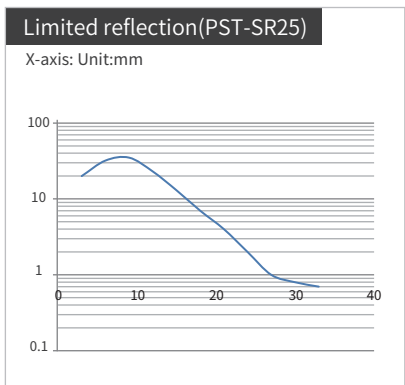
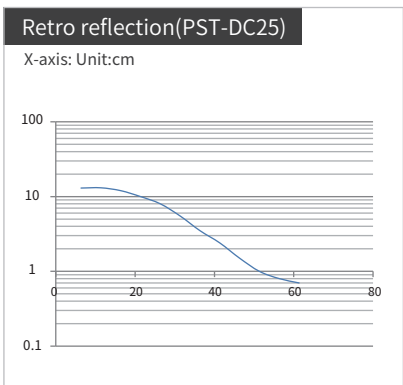
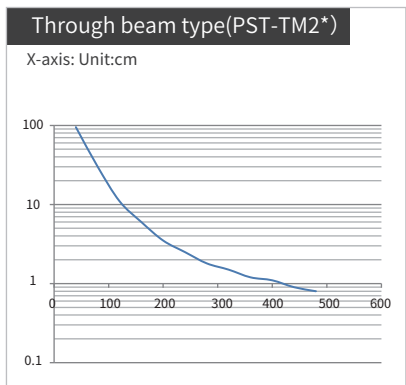
Naming rules

Product family

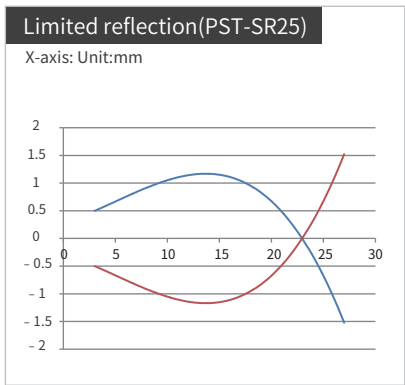
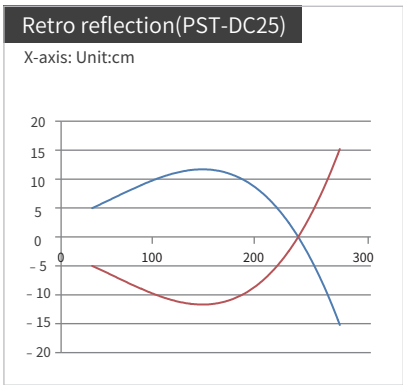
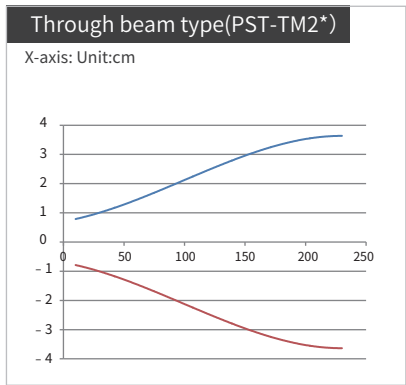
Technical
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Official website

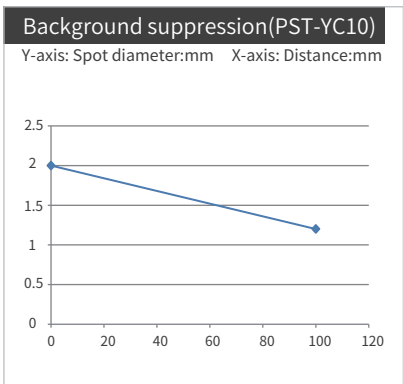
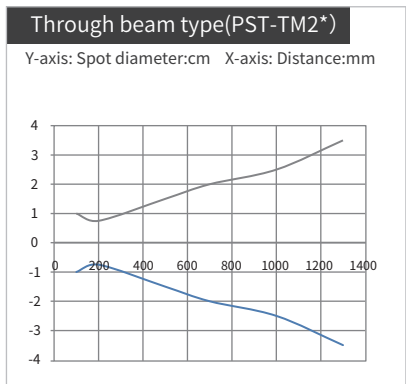
Signal redundancy



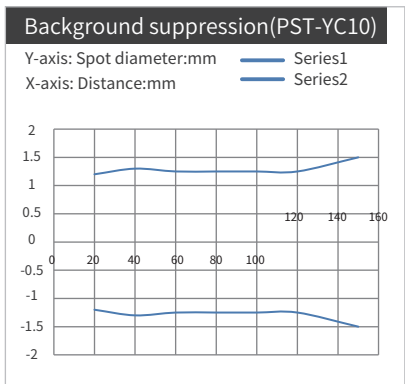
Motion range



Spot size



Distance-Spot diameter



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

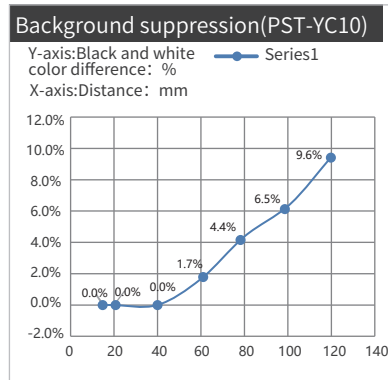
Product family

Technical guide

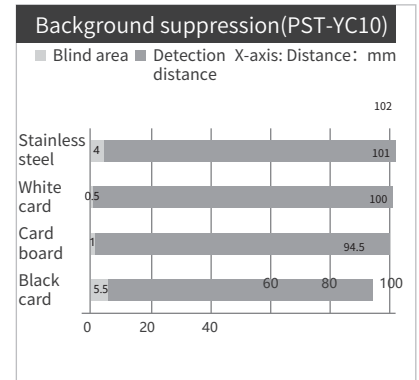
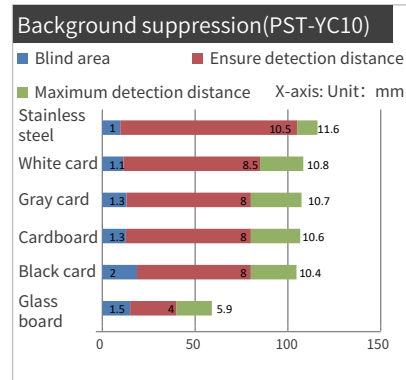


Official website

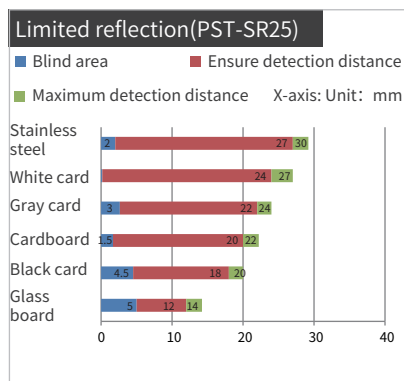
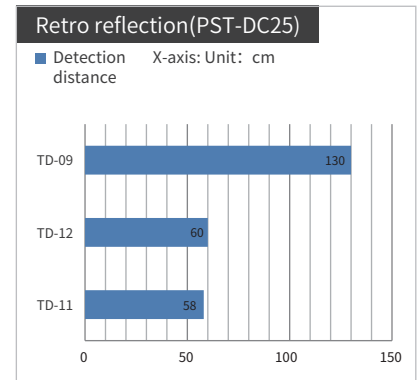
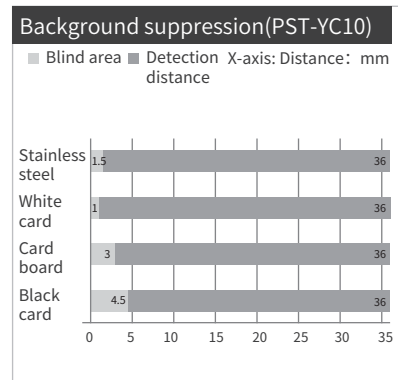
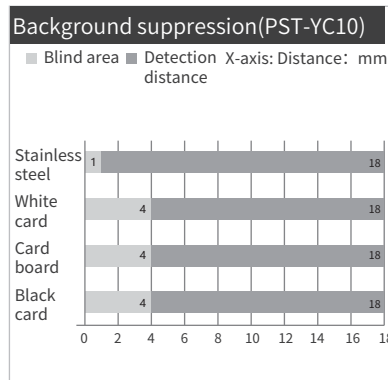
Black and white color difference



Color sensitivity



Detection distance



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

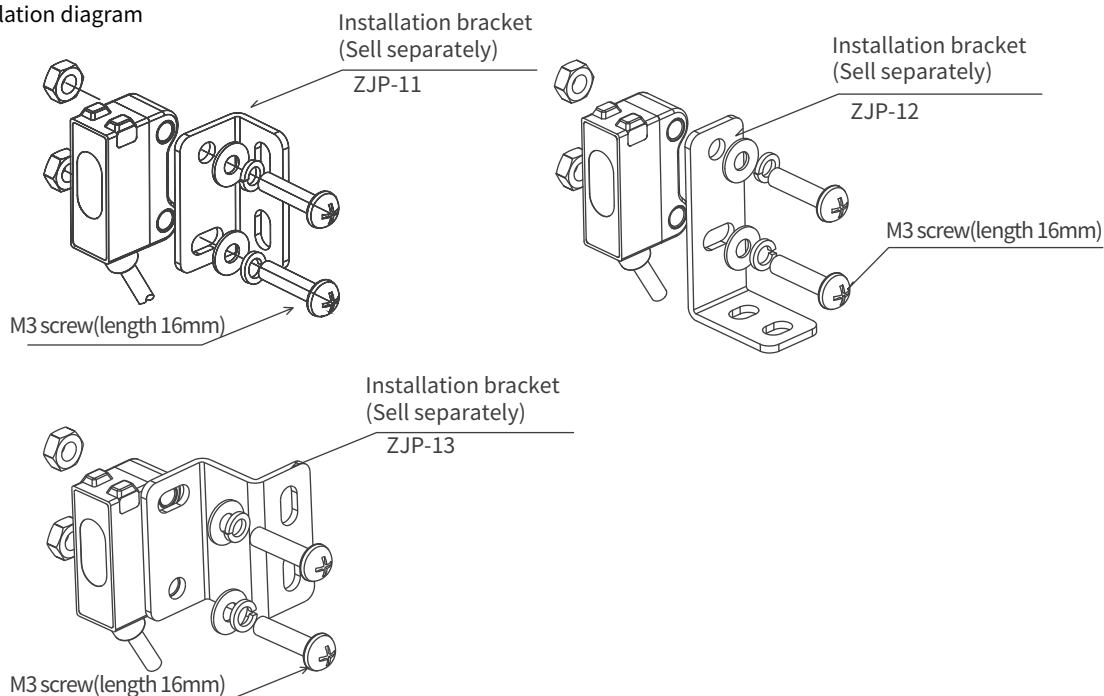
Technical guide



Official website

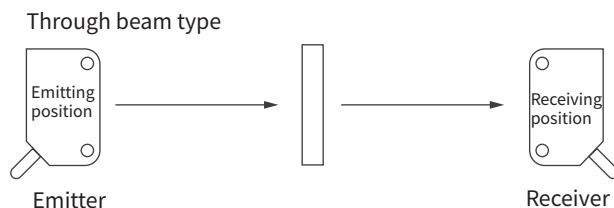
Product Installation diagram

■ PST Installation diagram



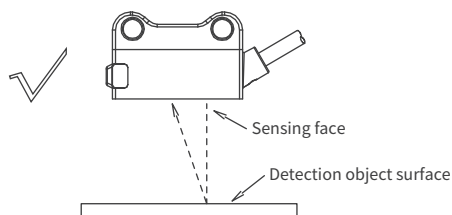
Note: When installing this product, please keep the tightening torque below $0.5\text{N} \cdot \text{m}$.

■ PSJ Installation diagram

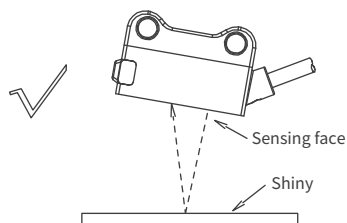


Considerations for background suppression products

- During installation, please make sensing face parallel to the object (not inclined to the detected object, except for the shiny objects)



- To detect shiny objects (or shiny surfaces), please tilt the sensor by $5\ldots 10^\circ$ as shown



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



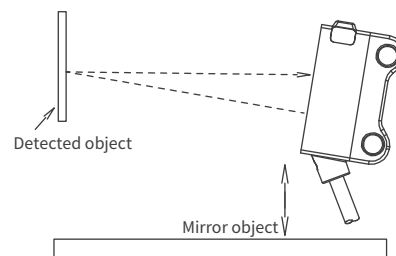
Official website

Installation Method

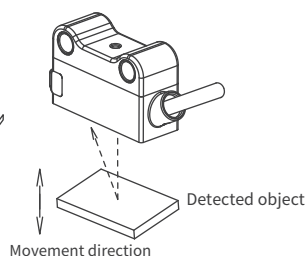
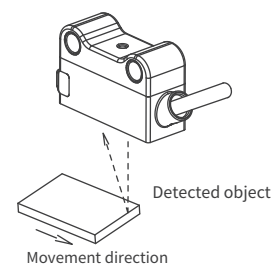
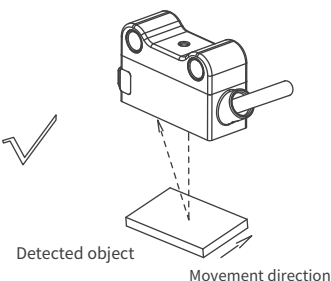
Micro Square Series

- When sensor faces down to mirror body objects, the light emitted from sensing object is reflected to the mirror body and then returned to the sensor, which may sometimes cause unstable action.

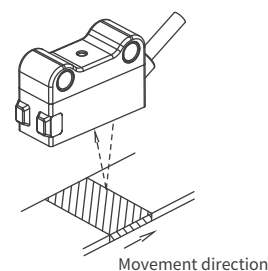
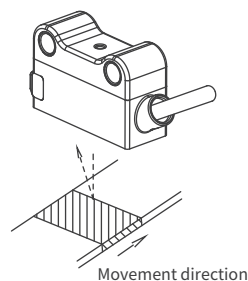
To avoid it, please install the sensor by tilting or keeping a certain distance from the sensor as shown in the right figure



- Regarding to the installation direction, please pay attention to the movement direction of sensing object, and install it as shown below



- When detecting objects with big color differences or different materials, please refer to the following methods for installation



Precaution

- Please make sure that the power supply voltage is within the rated voltage range before powering on.
- The time from powering-on to normal detection is 100ms. Please make sure to use the sensor after 100ms of powering-on.
- When using different power sources for the sensor and load, be sure to turn on the power of the sensor first.
- When the sensor is not used, it is recommended to cut off the power on the load first, and then cut off the power of the sensor.
- Do not subject the sensor to severe external forces (such as hammer hits, etc.) during installation, so as not to damage the sensor performance.
- Avoid using thinner, alcohol or other organic solvents when cleaning the sensor.

Safety warning

- Do not use in an environment with flammable, explosive or corrosive gases.
- Do not use in an environment with oil or chemicals.
- Do not use in a high humidity environment.
- Do not use in direct sunlight.
- Do not use in other environmental conditions that exceed the rated value.
- Do not disassemble, repair or modify this product without authorization.

Scrap treatment

- When the product is scrapped, please dispose of it as industrial waste.

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

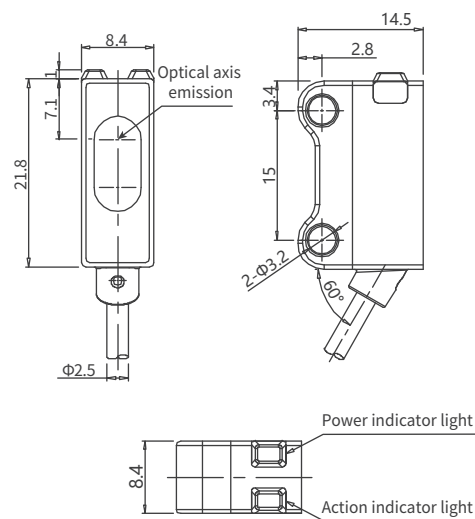
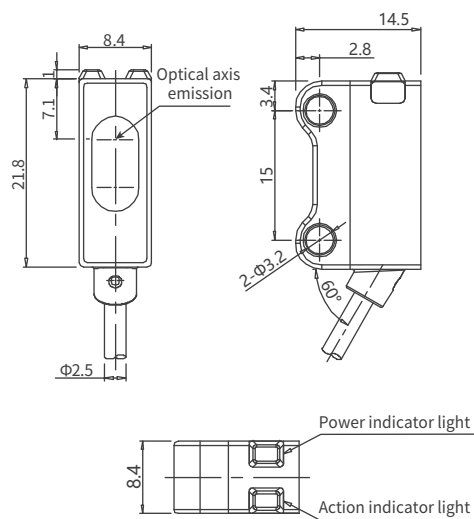
Technical guide



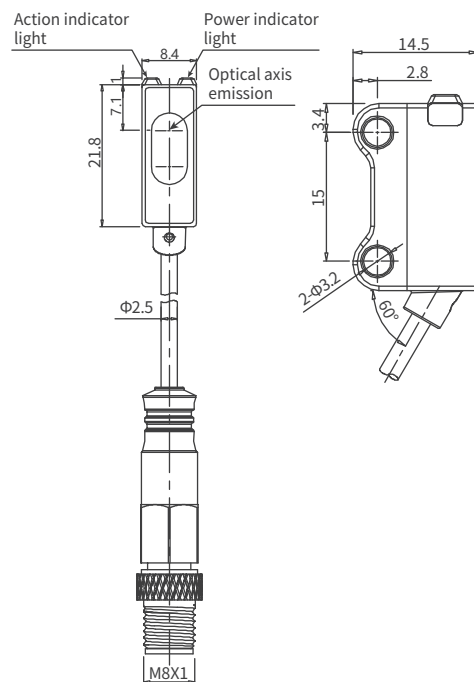
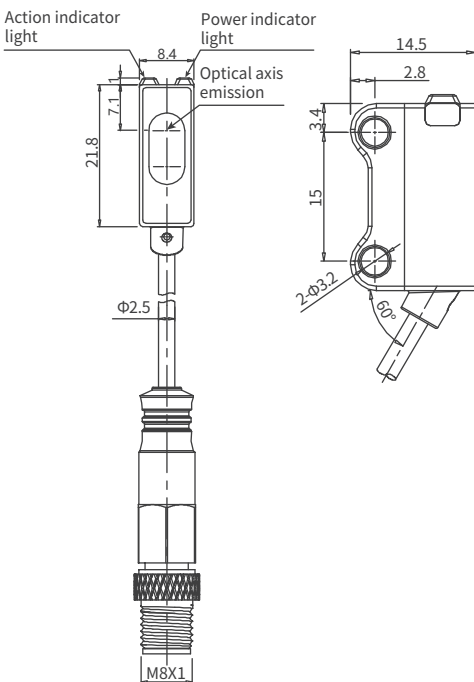
Official website

PST Through beam

Cable



Pigtail cable



Photoelectric

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

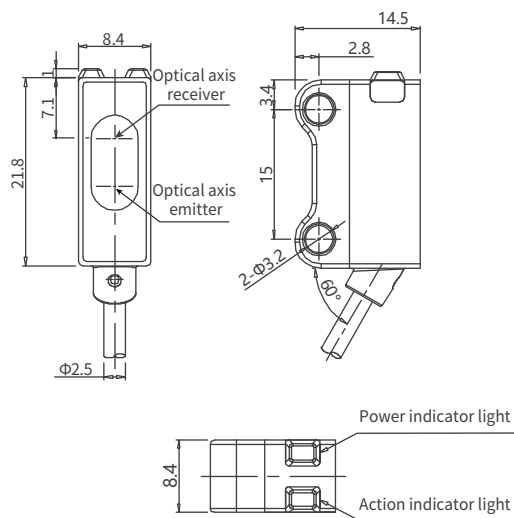
Technical guide



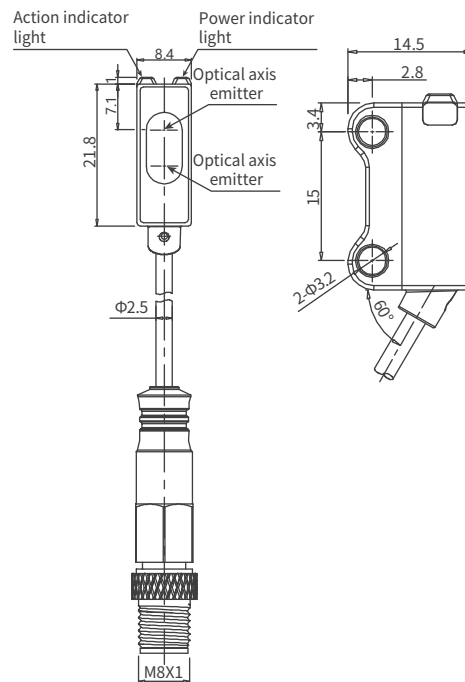
Official website

I PST Retro reflection/Limited reflection

Cable

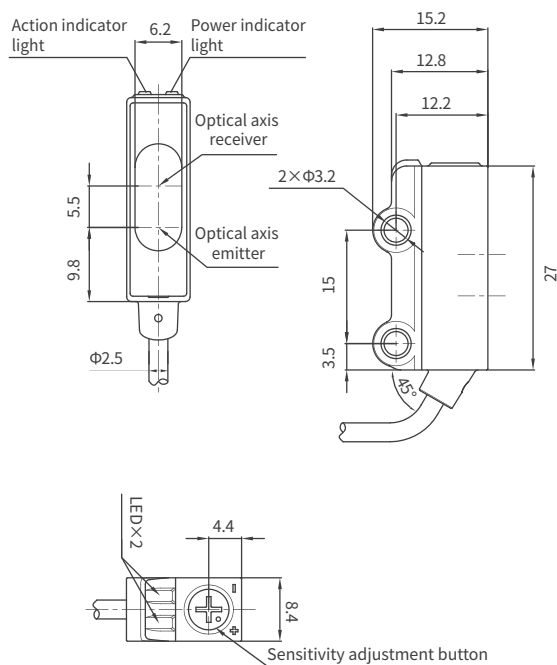


Pigtail cable

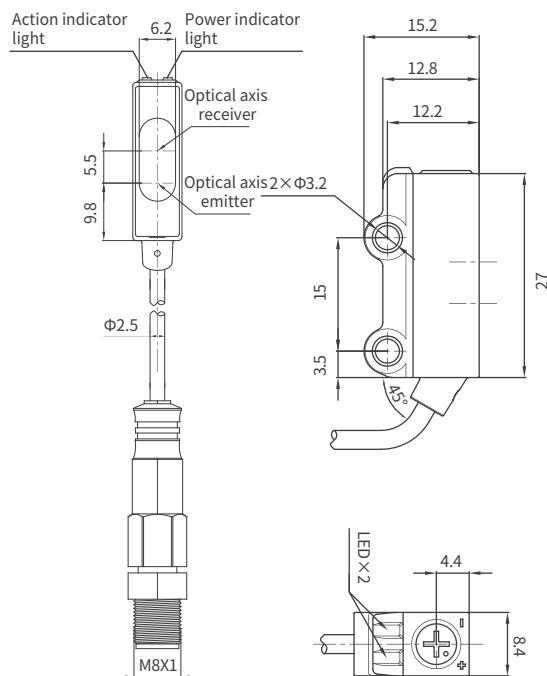


I PST Background suppression

Cable



Pigtail cable



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

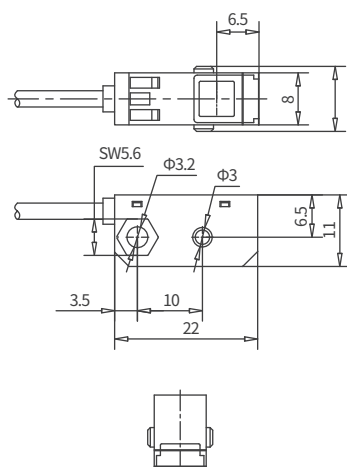
Technical guide



Official website

PSJ Through beam

Cable



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

Photoelectric Sensors

Little Square Series



For specifications, certification, usage and model list, please scan the product QR code.



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical Guide

Comprehensive specifications with universal housing for broad applications

Featuring an M3 threaded hole design, the compact housing is available in various models including through-beam, diffuse reflection, background suppression, polarized reflection and wide-angle detection, with a detection range from 10cm to 20m. Options for cable or plug-in types facilitate quick selection for diverse applications.



Large knob and button design for easy distance adjustment

Lanbao PSE Mini Square Photoelectric Sensor allows for precise and convenient sensitivity and detection distance adjustment through a knob or buttons.



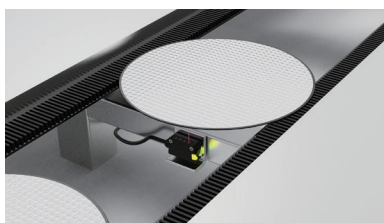
Ultra-Small spot for accurate positioning

With a range of laser products, Lanbao PSE little square photoelectric sensor offers an ultra-small spot size for reliable detection of minute objects with accurate positioning.

IP67 Protection rating for harsh environments

This high protection level ensures excellent waterproof and dustproof performance, making it suitable for adverse conditions.

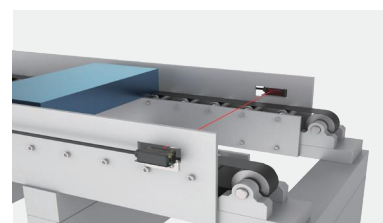
Application



Wafer pass detection



Thin edge detection



Detection through slits or holes



Official Website

Detection method	Shape	Connection	Detection distance	Type	Model	
					NPN Output	PNP Output
Laser through beam type		2m cable	30m	NO+NC	Emitter PSE-TM30DL	Emitter PSE-TM30DL
		Connector			Emitter PSE-TM30DL-E3	Emitter PSE-TM30DL-E3
		2m cable			Receiver PSE-TM30DNRL	Receiver PSE-TM30DPRL
		Connector			Receiver PSE-TM30DNRL-E3	Receiver PSE-TM30DPRL-E3
Through beam type		2m cable	5m	NO/NC	Emitter PSE-TM5DR	Emitter PSE-TM5DR
		Connector			Emitter PSE-TM5DR-E3	Emitter PSE-TM5DR-E3
		2m cable			Receiver PSE-TM5DNBR	Receiver PSE-TM5DPBR
		Connector			Receiver PSE-TM5DNBR-E3	Receiver PSE-TM5DPBR-E3
		2m cable	10m	NO/NC	Emitter PSE-TM10DR	Emitter PSE-TM10DR
		Connector			Emitter PSE-TM10DR-E3	Emitter PSE-TM10DR-E3
		2m cable			Receiver PSE-TM10DNBR	Receiver PSE-TM10DPBR
		Connector			Receiver PSE-TM10DNBR-E3	Receiver PSE-TM10DPBR-E3
		2m cable	20m	NO/NC	Emitter PSE-TM20D	Emitter PSE-TM20D
		Connector			Emitter PSE-TM20D-E3	Emitter PSE-TM20D-E3
		2m cable			Receiver PSE-TM20DNB	Receiver PSE-TM20DPB
		Connector			Receiver PSE-TM20DNB-E3	Receiver PSE-TM20DPB-E3
Laser background suppression type		2m cable	15cm	NO+NC	PSE-YC15DNRL	PSE-YC15DPRL
		Connector		NO+NC	PSE-YC15DNRL-E3	PSE-YC15DPRL-E3
		2m cable	35cm	NO+NC	PSE-YC35DNRL	PSE-YC35DPRL
		Connector		NO+NC	PSE-YC35DNRL-E3	PSE-YC35DPRL-E3
Laser polarized reflection type		2m cable	5m	NO+NC	PSE-PM5DNRL	PSE-PM5DPRL
		Connector		NO+NC	PSE-PM5DNRL-E3	PSE-PM5DPRL-E3
		2m cable	10m	NO+NC	PSE-PM10DNRL	PSE-PM10DPRL
		Connector		NO+NC	PSE-PM10DNRL-E3	PSE-PM10DPRL-E3
Diffuse reflection type		2m cable	10m	NO/NC	PSE-BC10DNB	PSE-BC10DPB
		Connector			PSE-BC10DNB-E3	PSE-BC10DPB-E3
		2m cable	30cm	NO/NC	PSE-BC30DNBR	PSE-BC30DPBR
		Connector			PSE-BC30DNBR-E3	PSE-BC30DPBR-E3
		2m cable	100cm	NO/NC	PSE-BC100DNB	PSE-BC100DPB
		Connector			PSE-BC100DNB-E3	PSE-BC100DPB-E3
Background suppression type		2m cable	5cm	NO	PSE-YC5DNOR	PSE-YC5DPOR
				NC	PSE-YC5DNCR	PSE-YC5DPCR
		Connector	5cm	NO	PSE-YC5DNOR-E3	PSE-YC5DPOR-E3
				NC	PSE-YC5DNCR-E3	PSE-YC5DPCR-E3
		2m cable	25cm	NO/NC	PSE-YC25DNBR	PSE-YC25DPBR
		Connector		NO/NC	PSE-YC25DNBR-E3	PSE-YC25DPBR-E3
		2m cable	35cm	NO/NC	PSE-YC35DNBR	PSE-YC35DPBR
		Connector		NO/NC	PSE-YC35DNBR-E3	PSE-YC35DPBR-E3
Polarized reflection type		2m cable	3m	NO/NC	PSE-PM3DNBR	PSE-PM10DPRL
		Connector			PSE-PM3DNBR	PSE-PM3DNBR-E3
Limited reflection type		2m cable	5cm	NO/NC	PSE-SC5DNBX	PSE-SC5DPBX
		Connector			PSE-SC5DNBX-E3	PSE-SC5DPBX-E3

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical Guide



Official Website

Ultra-thin

Micro Square

Little square

Large square

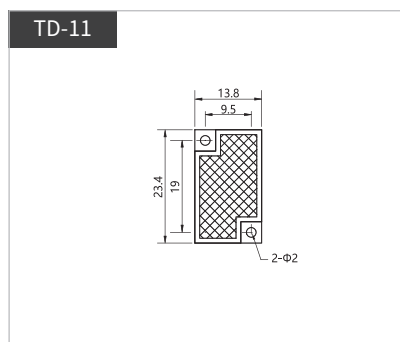
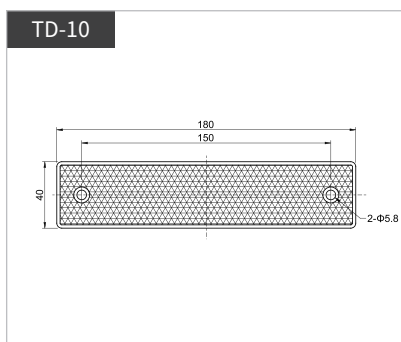
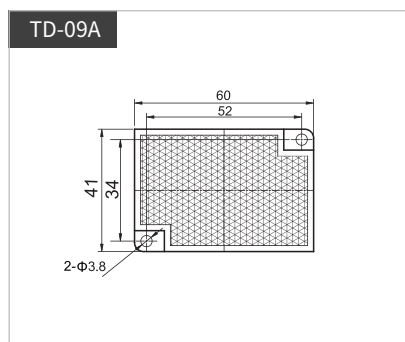
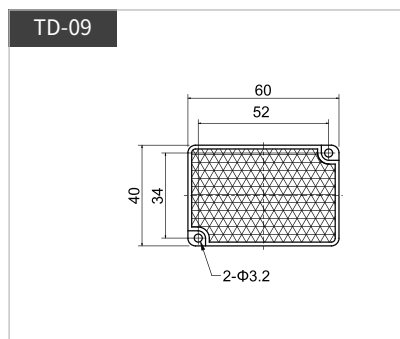
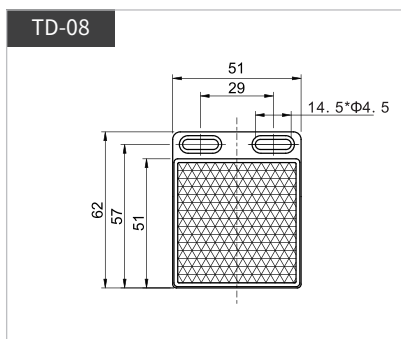
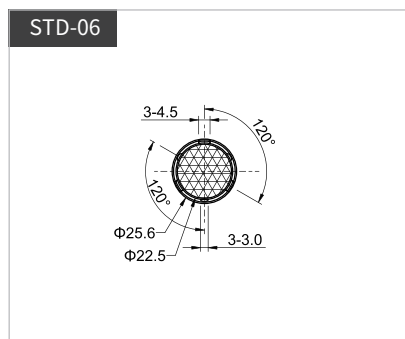
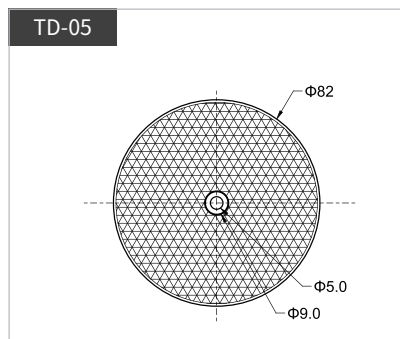
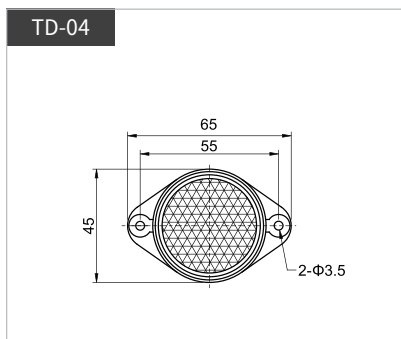
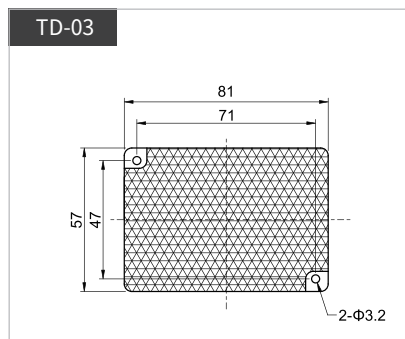
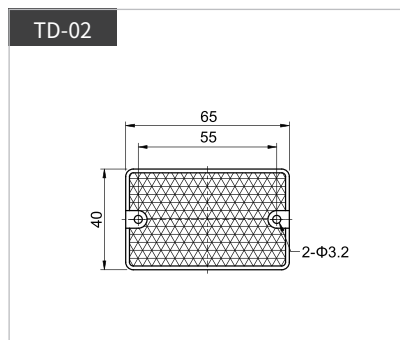
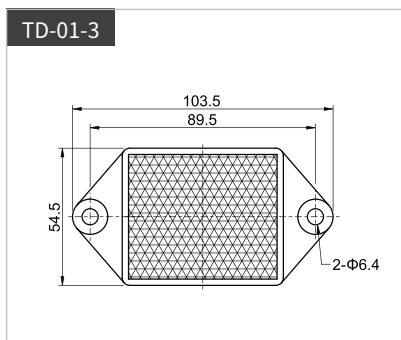
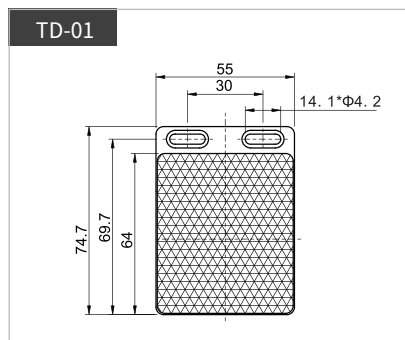
Round and

Guide

Product accessorie

Narrow slit FJP-02	
Model	FJP-01A
	FJP-01B
	FJP-01C
Dimension	φ0.5mm
	φ1.0mm
	φ2.0mm
Material	Stainless steel (SUS304)

[illegible]



I PSE Laser

Model	PSE-TM30D□□□□-□	PSE-YC□D□RL-□	PSE-PM□D□RL-□
Detection principle	Laser through beam	Laser background suppression	Laser polarized reflection
Sensing distance	30m	15cm 35cm	5m ^② 10m ^②
Light source type	Red laser		
Standard target	≥φ3mm@0~2m, ≥φ15mm@2~30m	/	≥φ3mm@0~2m, ≥φ6mm@>2m
Spot size	36mm@30m	≤2mm@15cm ≤2mm@35cm	10mm@5m 20mm@10m
Blind area	/	<10mm ^①	/
Hysteresis	/	<5%	/
Adjustment method	Single-turn knob adjustment	Multi-turn knob adjustment	Single-turn knob adjustment
Power Supply	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: ≤20mA		
Output characteristic	Load current: ≤100mA; Voltage drop : ≤1.5V; Leakage current: ≤0.1mA		
Protection circuit	Short circuit protection, Reverse polarity protection, Overload protection, Zener protection		
Indicator light	Green light: Power indication; Yellow light: Output indication		
Response time	T-on: ≤1ms; T-off: ≤1ms	T-on: ≤0.5ms; T-off: ≤0.5ms	T-on: ≤1ms; T-off: ≤1ms
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux		
Working environment	Working temperature: -10...55°C; Storage temperature: -40...70°C; Ambient humidity: 35...85% (No condensation or dew on optical surfaces)		
Protection level	IP67		
Shell material	PC+ABS		
Connection method	Cable type (standard length 2m), connector type optional		
Dimensional drawing	See page P03-017/018 for details		

Note: ① Blind area: 90% reflectivity white card blind area <2mm, 6% reflectivity black card blind area <5mm.

② Detection distance: related to the reflector, the reflector is sold separately (TD-09: applicable distance 4-8m, TD-09A: applicable distance 8-10m, TD-24: applicable distance 0.2-4m, if the detection distance needs to be greater than 10m, please contact Lanbao sales staff).

I PSE Through beam/Diffuse reflection

Model	PSE-TM□D□□□□-□			PSE-BC□D□B□-□		
Detection principle	Through beam			Diffuse reflection		
Sensing distance	5m	10m	20m	10cm	30cm	100cm
Light source type	Red point light source		Infrared light	Infrared light	Red point light source	Infrared light
Standard target	φ10mm Above opaque objects (within Sn)			/		
Spot size	/			7cm	8mm@30cm	/
Blind area	/			/		
Hysteresis	/			3...20%		
Adjustment method	Button adjustment (see page P03-014 for details)					
Power Supply	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: ≤25mA					
Output characteristic	Load current: ≤200mA; Voltage drop : ≤1V; Leakage current: ≤0.1mA					
Protection circuit	Short circuit protection, Reverse polarity protection, Overload protection, Zener protection					
Indicator light	Green light: Power indication; Yellow light: Output indication					
Response time	T-on: ≤0.5ms; T-off: ≤0.5ms					
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux					
Working environment	working temperature: -25...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...85% (No condensation or dew on optical surfaces)					
Protection level	IP67					
Shell material	PC+ABS					
Connection method	Cable type (standard length 2m), connector optional					
Dimensional drawing	See page P03-019/020 for details					

Naming rules

Product family

Technical Guide



Official Website

PSE Background suppression/Polarized reflection

Model	PSE-YC□D□□R-□			PSE-PM□D□BR-□
Detection principle	Background suppression			Polarized reflection
Sensing distance	0.2...5cm	25cm	35cm	3m
Light source type	Red point light source			
Standard target	/			
Spot size	φ2mm@5cm	7mm@25cm	10mm@35cm	8mm@30cm
Blind area	≤5mm ^①			/
Hysteresis	≤2%	≤5%		/
Adjustment method	5-turn knob adjustment			button adjustment (see page P03-014 for details)
Power Supply	10...30V DC (RippleP-P: ≤10%) ; Current consumption: ≤20mA			10...30V DC (Ripple P-P: ≤10%) ; Current consumption: ≤25mA
Output characteristic	Load current: ≤100mA; Voltage drop : ≤1V; Leakage current: ≤0.1mA			Load current: ≤200mA; Voltage drop : ≤1V; Leakage current: ≤0.1mA
Protection circuit	Short circuit protection, Reverse polarity protection, Overload protection, Zener protection			
Indicator light	Green light: Power indication; Yellow light: Output indication			
Response time	T-on: ≤3.5ms; T-off: ≤3.5ms			T-on: ≤0.5ms; T-off: ≤0.5ms
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux			
Working environment	working temperature: -25...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...85% (No condensation or dew on optical surfaces)			
Protection level	IP67			
Shell material	PC+ABS			
Connection method	Cable type (standard length 2m), connector optional			
Dimensional drawing	See page P03-020/021 for details			

Note: ① Measured using a 100*100mm white card with a reflectivity of 90%; room temperature 25°C.

PSE Limited reflection/Transparent object detection

Model	PSE-SC5D□BX-□	PSE-G□□D□BB-□	
Detection principle	Limited reflection	Transparent object detection	
Sensing distance	5cm ^①	50cm	2m
Light source type	Red line light source	Blue point light source	
Standard target	100*100 White card	/	
Spot size	3*40mm@50mm	≤14mm@0.5m	≤60mm@2m
Blind area	≤5mm	/	
Hysteresis	≤5% ^①	/	
Adjustment method	button adjustment (see page P03-014 for details)		
Power Supply	10...30V DC (Ripple P-P: ≤10%) ;Current consumption: ≤25mA		
Output characteristic	Load current:≤200mA;Voltage drop : ≤1.5V;Leakage current: ≤0.1mA		
Protection circuit	Short circuit protection,Reverse polarity protection, Overload protection		
Indicator light	Green light:Power indication;Yellow light:Output indication		
Response time	T-on: ≤0.5ms; T-off: ≤0.5ms		
Ambient light resistance	Anti-sunlight interference ≤10,000Lux;Anti-incandescent light interference≤3,000Lux		
Working environment	working temperature: -25...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...85% (No condensation or dew on optical surfaces)		
Protection level	IP67		
Shell material	PC+ABS		
Connection method	Cable type (standard length 2m), connector optional		
Dimensional drawing	See page P03-022 for details		

Note: ① Measured using a 100*100mm white card with a reflectivity of 90%; room temperature 25°C.

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical Guide



Official Website

I PSE TOF Reflection

Model	PSE-C□□□D□B-□		
Detection principle	TOF Reflection		
Sensing distance	0.5...60cm ^①	0.5...100cm ^②	0.5...300cm
Light source type	Infrared light		
Standard target	/		
Spot size	φ130mm@60cm	φ120mm@100cm	90×120mm@300cm
Blind area	≤0.5cm		
Hysteresis	3...20%		
Adjustment method	button adjustment (see page P03-014 for details)		
Power Supply	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: ≤20mA		
Output characteristic	Load current: ≤100mA; Voltage drop : ≤1.5V; Leakage current: ≤0.1mA		
Protection circuit	Short circuit protection, Reverse polarity protection, Overload protection, Zener protection		
Indicator light	Green light: Power indication; Yellow light: Output indication		
Response time	T-on: ≤100ms; T-off: ≤100ms		
Ambient light resistance	Anti-sunlight interference ≤5000Lux; Anti-incandescent light interference ≤300Lux		
Working environment	working temperature: -25...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...85% (No condensation or dew on optical surfaces)		
Protection level	IP67		
Shell material	PC+ABS		
Connection method	Cable type (standard length 2m), connector optional		
Dimensional drawing	See page P03-023 for details		

Note: ①0.5...60cm (measured using a white card with a reflectivity of 90%).

②Measured using a 30*30cm white card with a reflectivity of 90%.

③It is not recommended to use the sensor in a sunlight (outdoor) environment.

I PSE TOF Reflection

Model	PSE-CM3DR
Detection principle	TOF Reflection
Sensing distance	0.02...3m
Light source type	Infrared light
Spot size	/
Repeat accuracy	Within ±1cm (2-30cm) ; ≤1% (30-300cm)
Detection accuracy	Within ±3cm (2-30cm) ; ≤2% (30-300cm)
Resolution	1mm
Color sensitivity	<10%
Adjustment method	Not adjustable
Power Supply	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: Emitter ≤40mA ; Leakage current: ≤0.1%
Output characteristic	RS485
Protection circuit	/
Indicator light	Green light: Power indication
Response time	35ms
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux
Working environment	working temperature: -25...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...85% (No condensation or dew on optical surfaces)
Protection level	IP67
Shell material	PC+ABS
Connection method	0.5m PVC cable
Dimensional drawing	See page P03-024 for details

Note: The initial value after power-on is <3s.

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

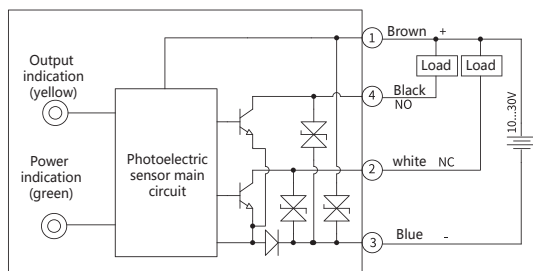
Technical Guide



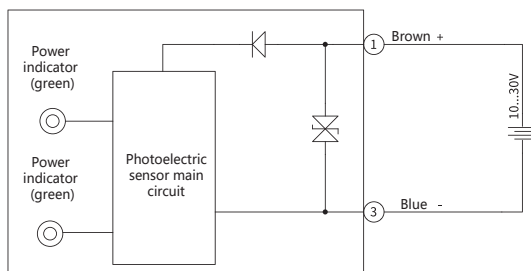
Official Website

PSE Laser through beam/Laser background suppression/ Laser polarized reflection

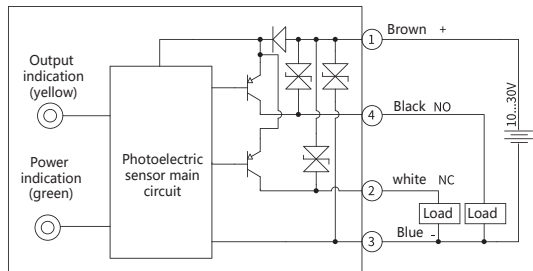
Receiver NPN



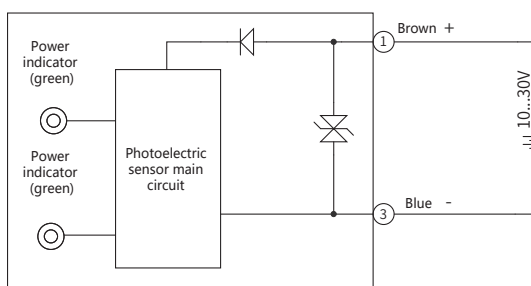
Emitter



Receiver PNP

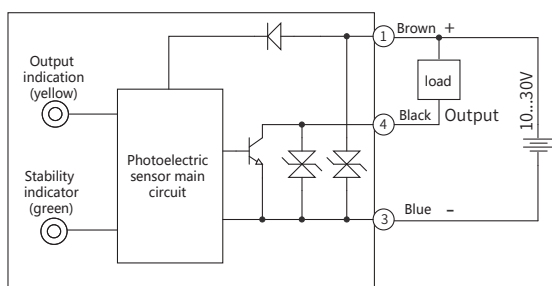


Emitter

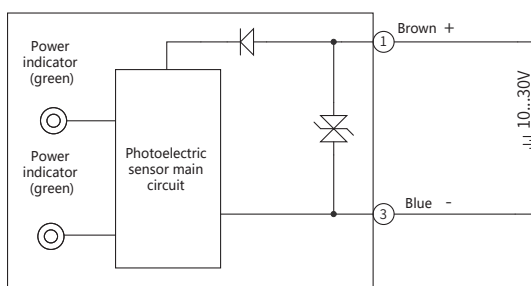


PSE Through beam/Diffuse reflection/Polarized reflection/ Limited reflection/TOF Reflection

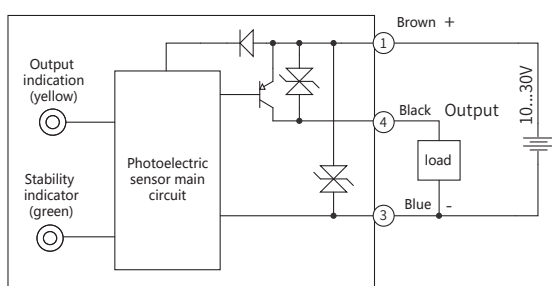
Receiver NPN



Emitter



Receiver PNP



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

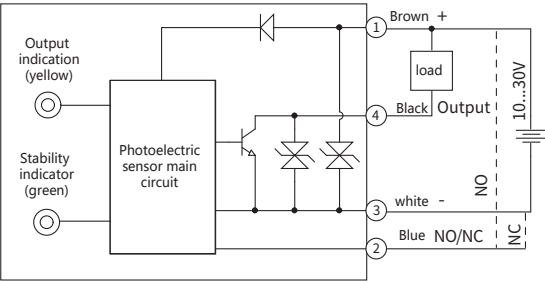
Technical Guide



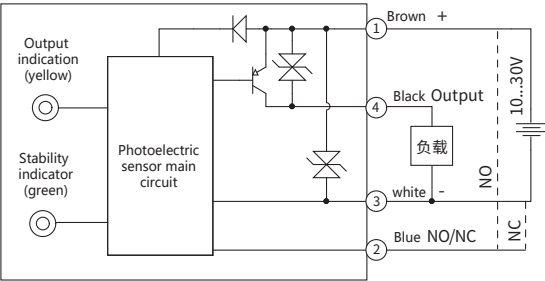
Official Website

PSE Background suppression

NPN

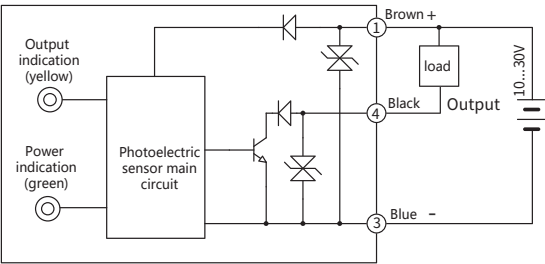


PNP

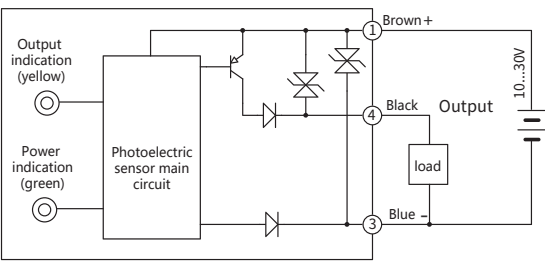


PSE Transparent object detection

NPN

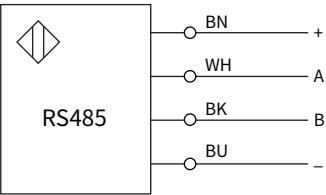


PNP



PSE TOF detection

RS485



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

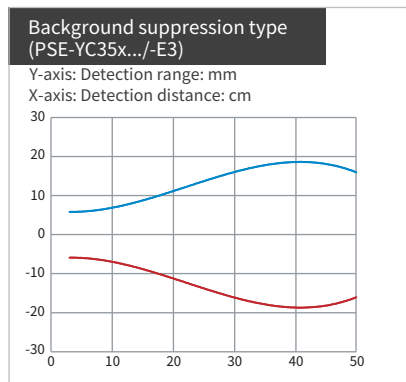
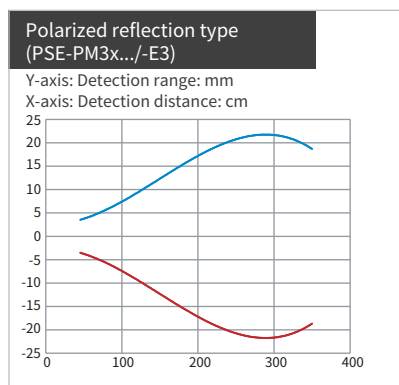
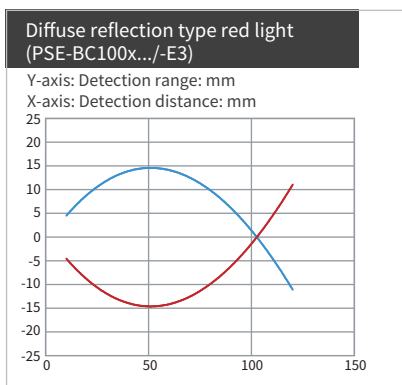
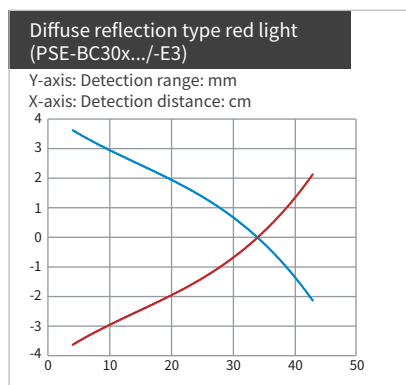
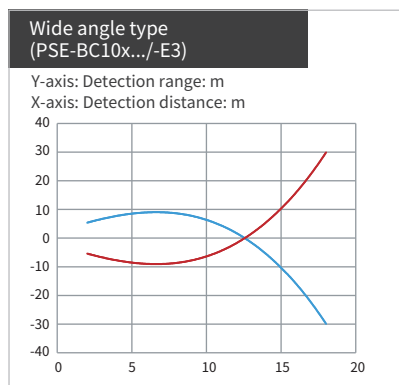
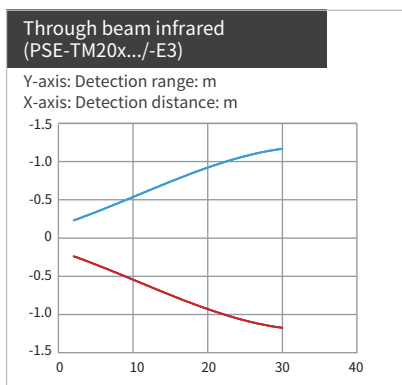
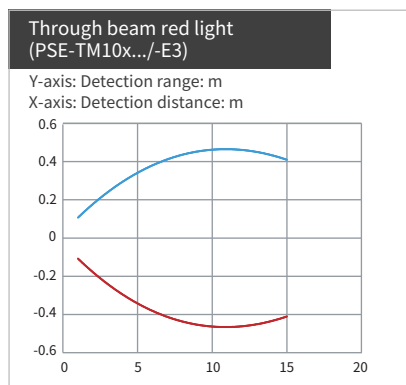
Product family

Technical Guide

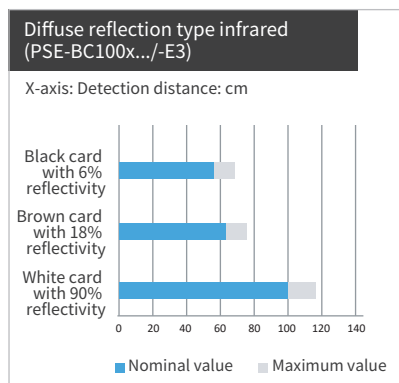
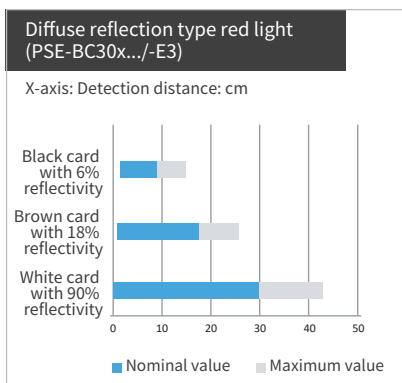
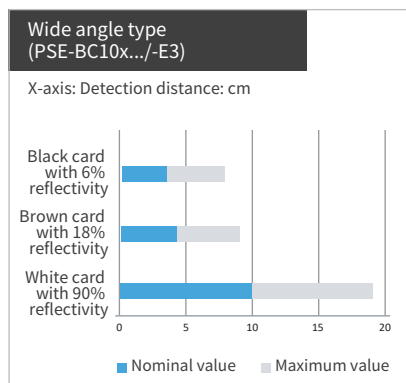


Official Website

Detection range



Detection distance



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

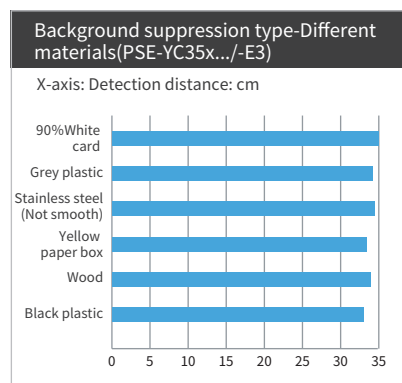
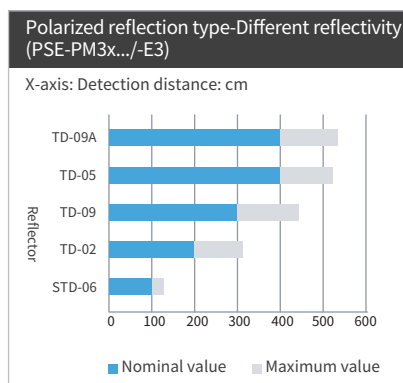
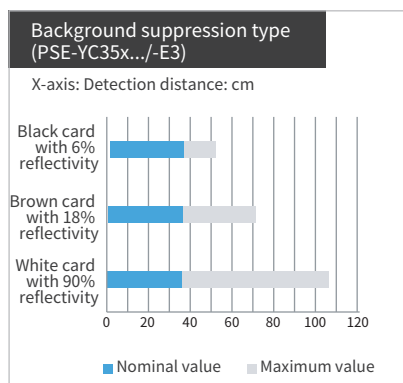
Product family

Technical Guide

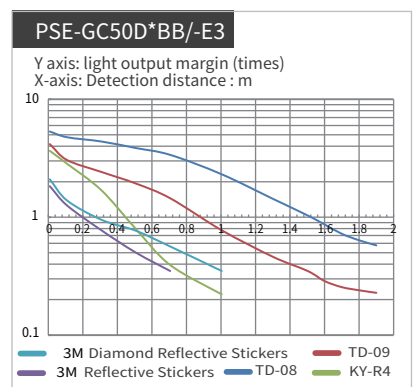
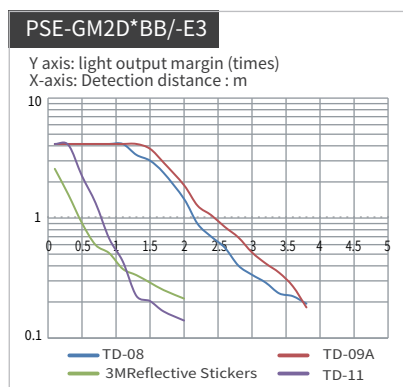
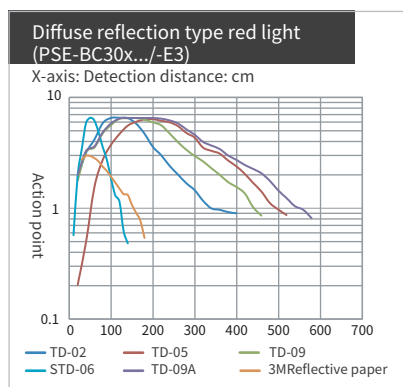
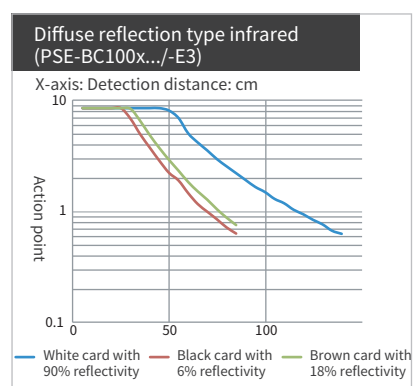
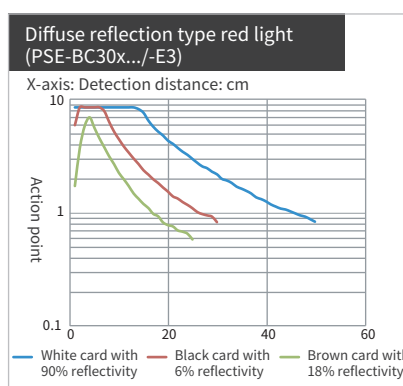
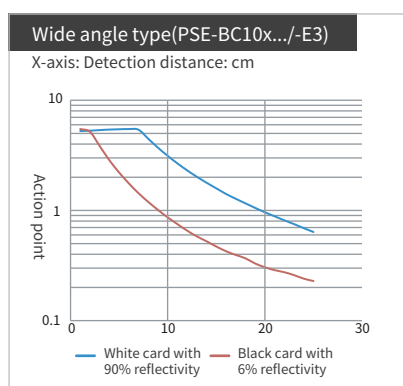


Official Website

I Detection distance



I Signal redundancy



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

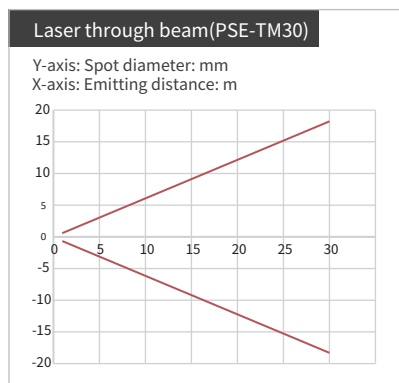
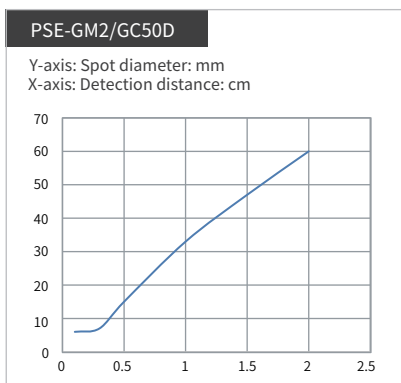
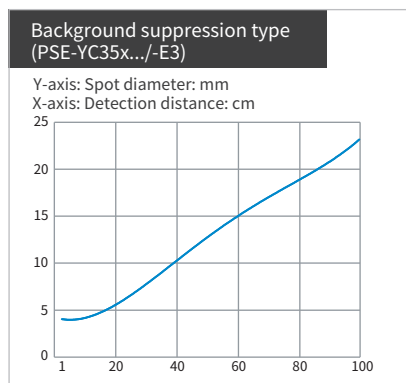
Product family

Technical Guide

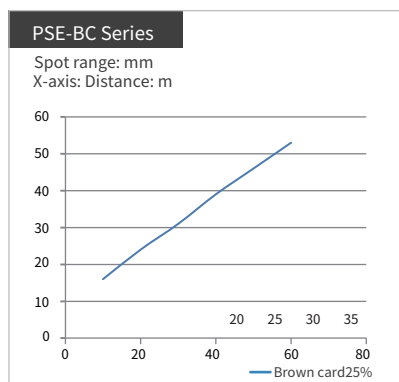
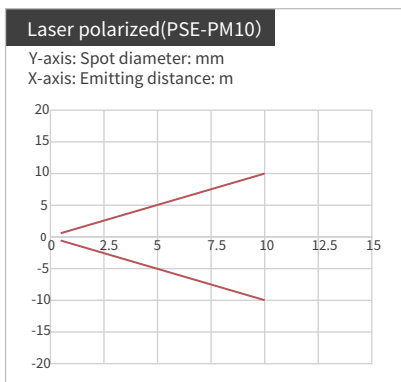
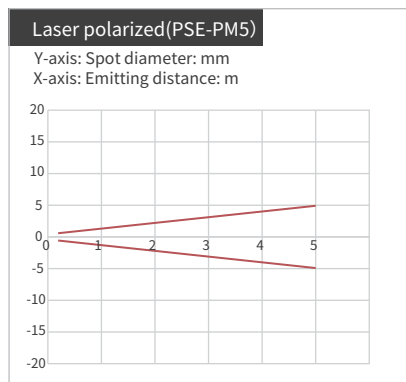


Official Website

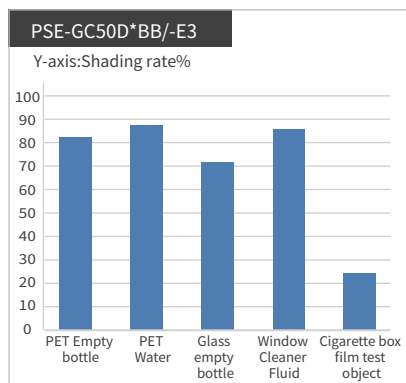
Spot size



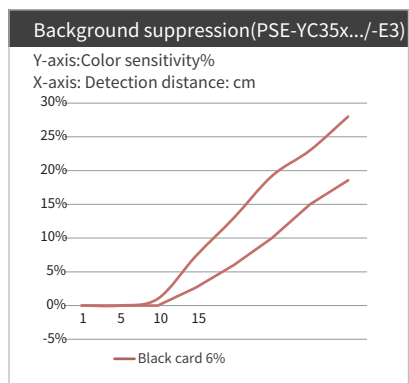
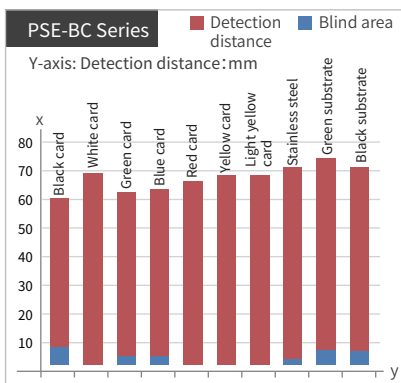
Light spot length and distance characteristics



Shading rate



Color sensitivity



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

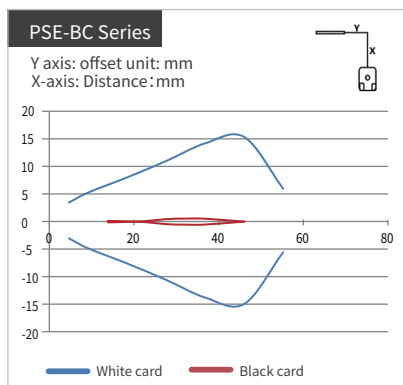
Product family

Technical Guide

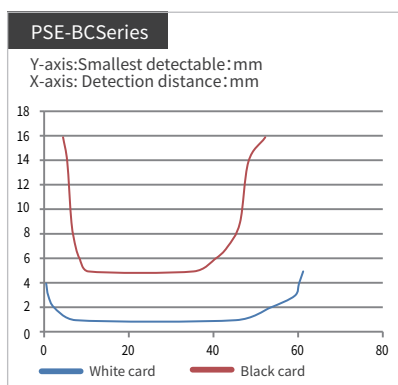


Official Website

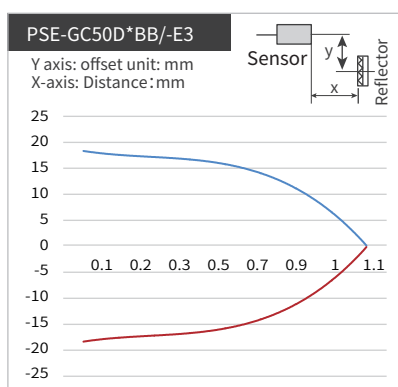
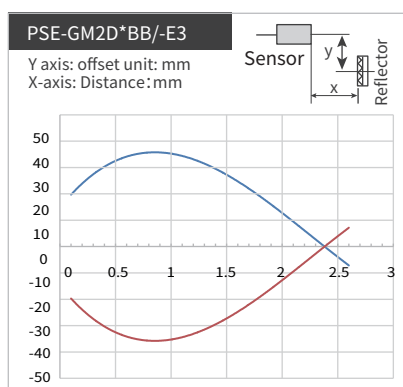
I Operating range



I Minimum detection object



I Parallel movement characteristics



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

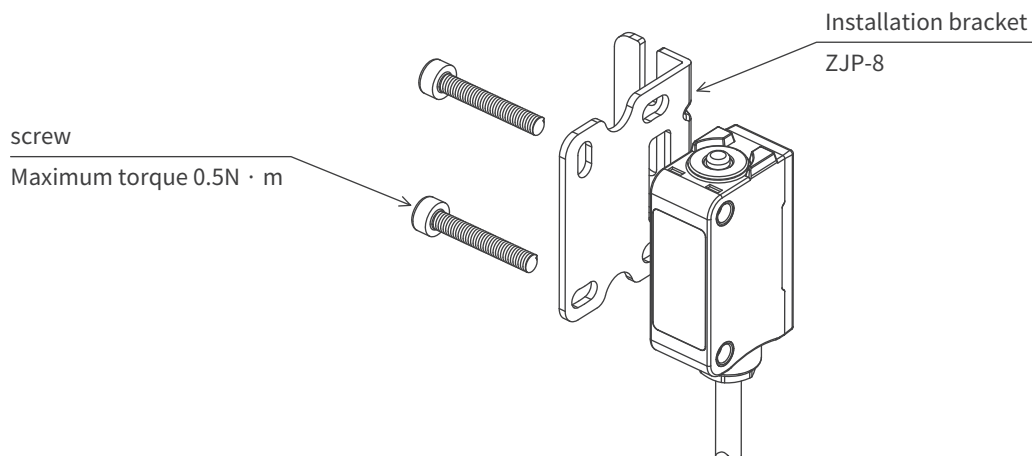
Naming rules

Product family

Technical Guide



Product installation diagram

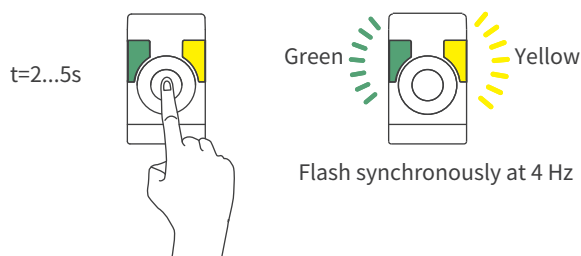


Button instruction

1 The button is pressed for a duration of t . When $t < 2s$ or $t \geq 8s$, the product is set invalidly, NO/NC remains in its original state, and the product distance remains in its original state.

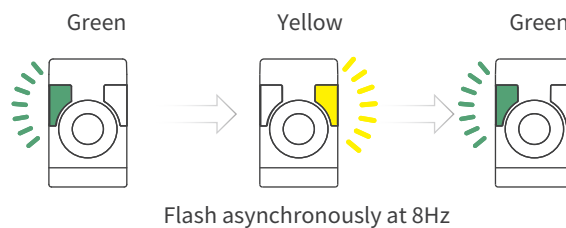
2 The product faces the test object, and the button is pressed for a duration of t . When $2s \leq t < 5s$, yellow and green flash synchronously at 4Hz. Release the button at this time, and the product distance is set successfully.

Refer to the figure on right:



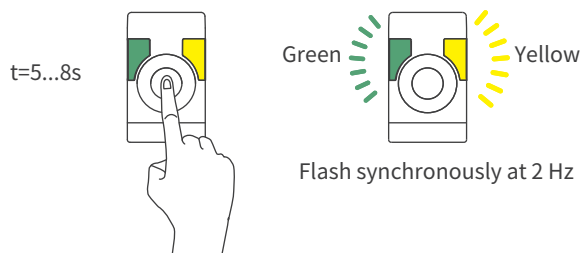
Note: When setting the distance, if the distance between the detected object and the sensor exceeds the detection capability of the product, the yellow and green lights flash synchronously at 4Hz when $2s \leq t < 5s$. If you release the button, the yellow and green lights flash asynchronously at 8Hz, indicating that the product distance setting has failed. The product distance is automatically set to the maximum value of the product.

Refer to the figure on right:



3 The button is pressed for a duration of t . When $5s \leq t < 8s$, the yellow and green lights flash synchronously at 2Hz. Release the button at this time and the NO/NC state switch is completed.

Refer to the figure on right:



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

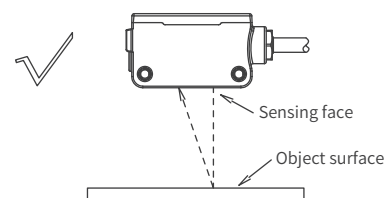
Technical Guide



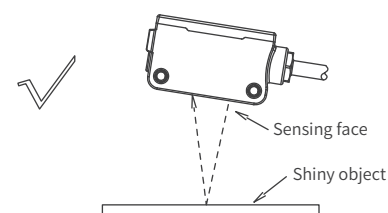
Official Website

I Special attention for background suppression products

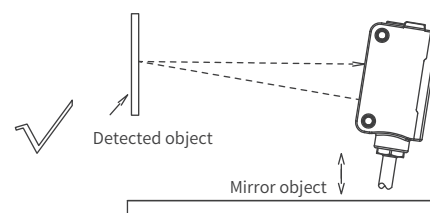
- During installation, please make sensing face parallel to the object (not inclined to the detected object, except for the shiny objects).



- To detect shiny objects (or shiny surfaces), please tilt the sensor by 5...10° as shown.



- When sensor faces down to mirror objects, the light emitted from sensing object is reflected to the mirror object and then returned to the sensor, which may sometimes cause unstable action. To avoid it, please install the sensor by tilting or keeping a certain distance from the sensor as shown in the right figure.



- Regarding to the installation direction, please pay attention to the movement direction of sensing object, and install it as shown below.

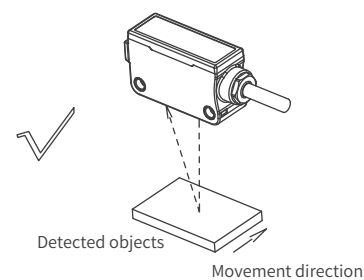


Figure 1

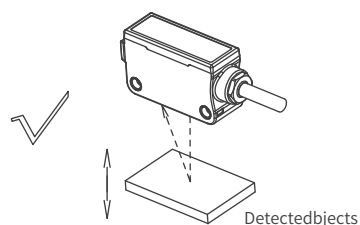


Figure 2

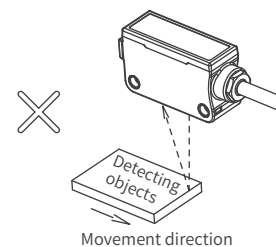


Figure 3



- When detecting objects with big color differences or different materials, please refer to the following methods for installation.



Precaution

- Please make sure that the power supply voltage is within the rated voltage range before powering on.
- The time from powering-on to normal detection is 100ms. Please make sure to use the sensor after 100ms of powering-on.
- When using different power sources for the sensor and load, be sure to turn on the power of the sensor first.
- When the sensor is not used, it is recommended to cut off the power on the load first, and then cut off the power of the sensor.
- Do not subject the sensor to severe external forces (such as hammer hits, etc.) during installation, so as not to damage the sensor performance.
- Avoid using thinner, alcohol or other organic solvents when cleaning the sensor.

Safety warning

- Do not use in an environment with flammable, explosive or corrosive gases.
- Do not use in an environment with oil or chemicals.
- Do not use in a high humidity environment.
- Do not use in direct sunlight.
- Do not use in other environmental conditions that exceed the rated value.
- Do not disassemble, repair or modify this product without authorization.

Scrap Treatment

- When the product is scrapped, please dispose of it as industrial waste.

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

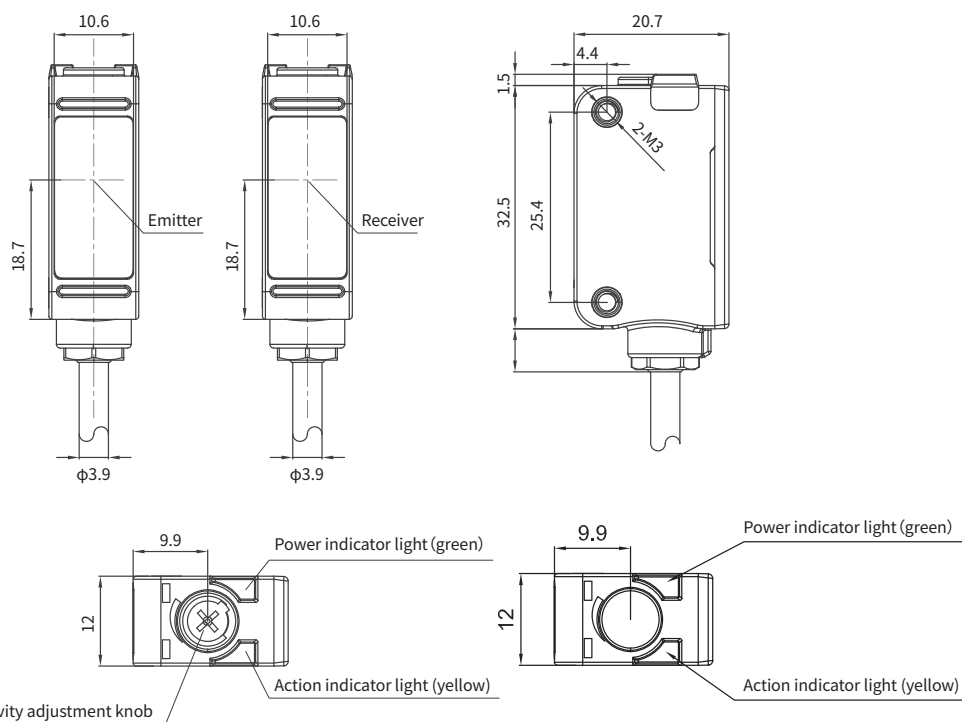
Technical Guide



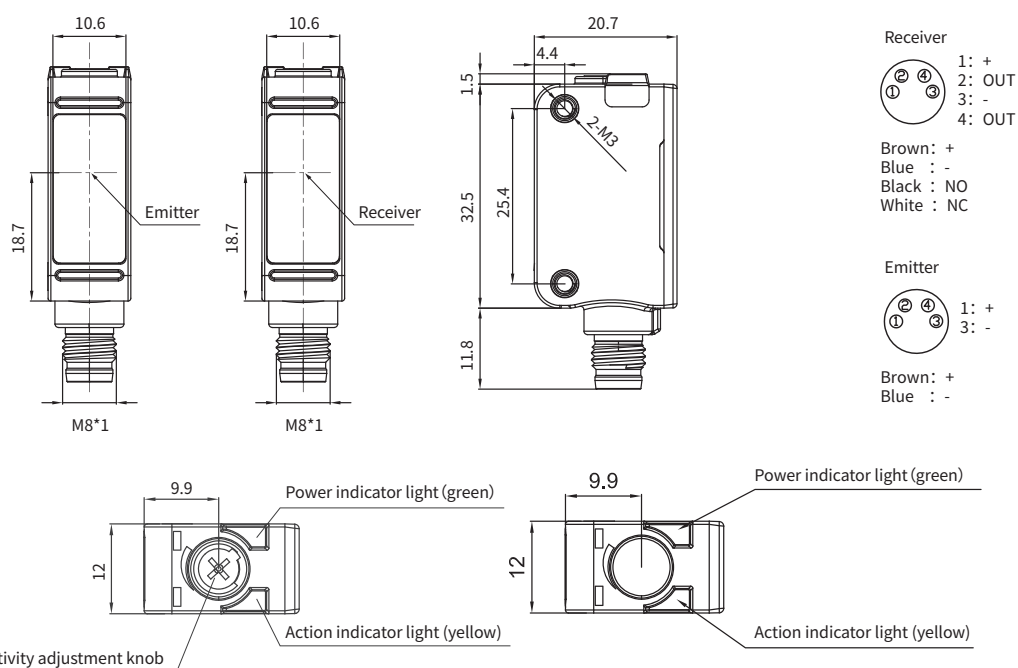
Official Website

I PSE Laser through beam

Cable

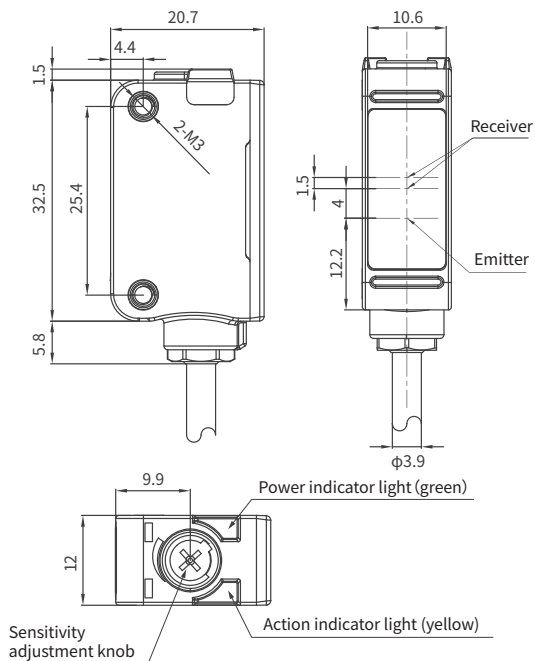


Connector

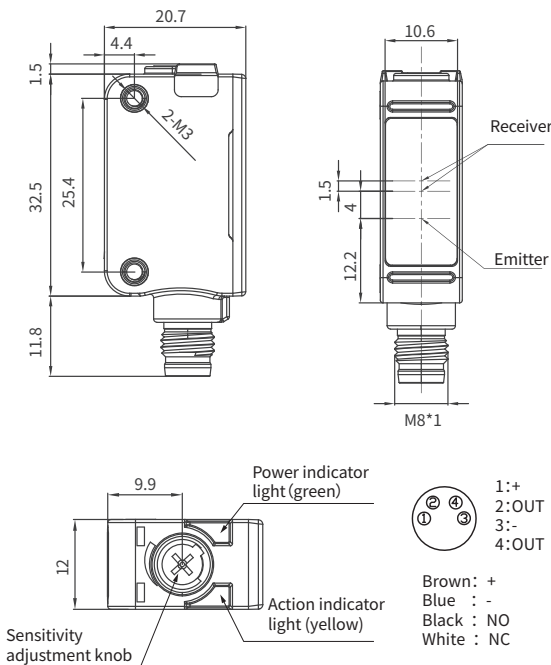


PSE Laser background suppression

Cable

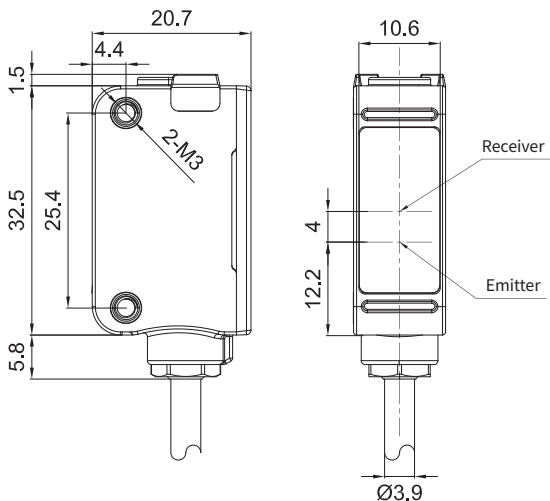


Connector

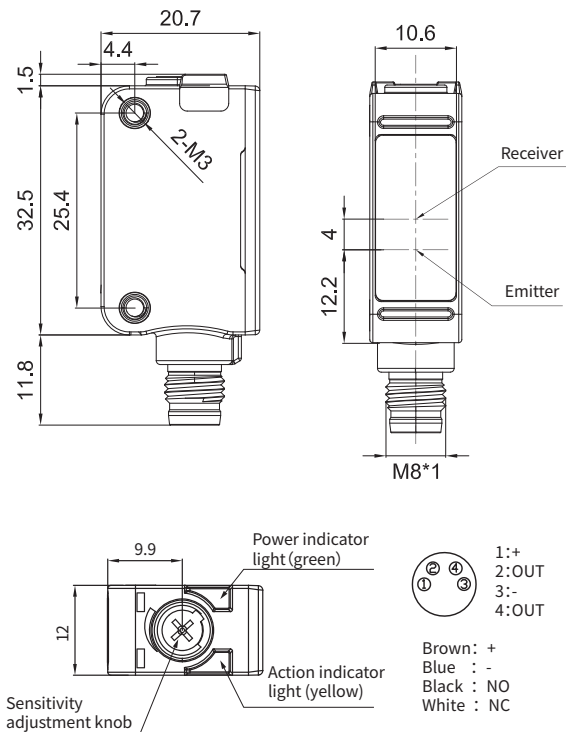


PSE Laser polarized reflection

Cable



Connector



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

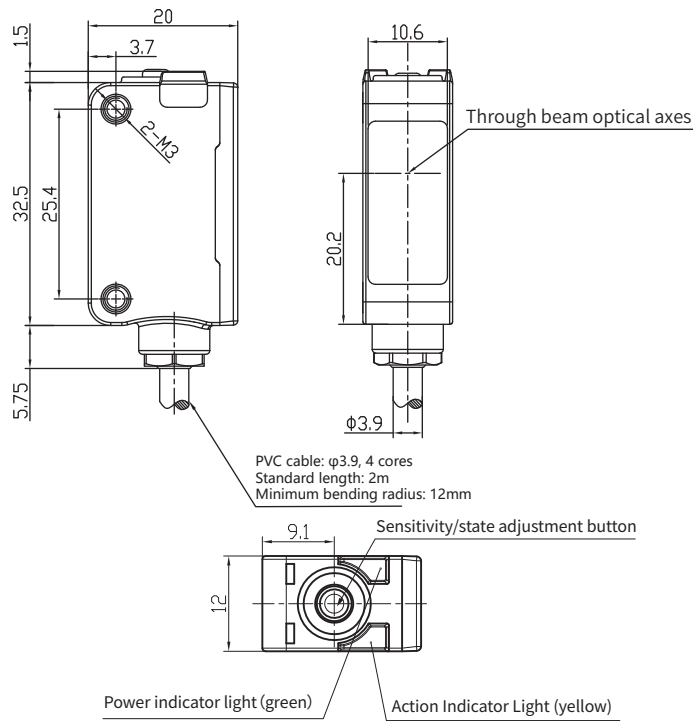
Technical Guide



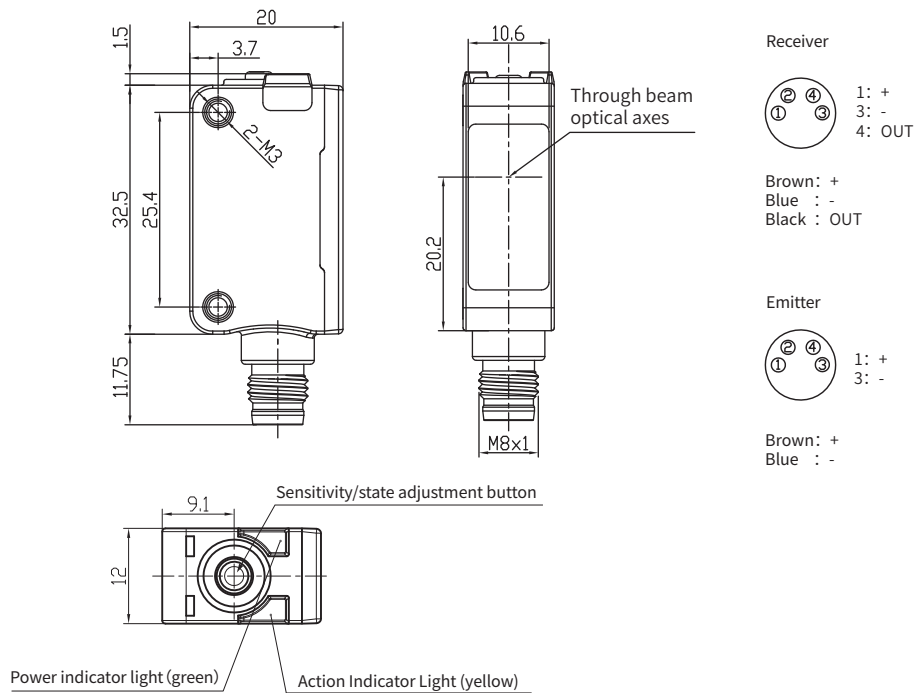
Official Website

PSE Through beam

Cable

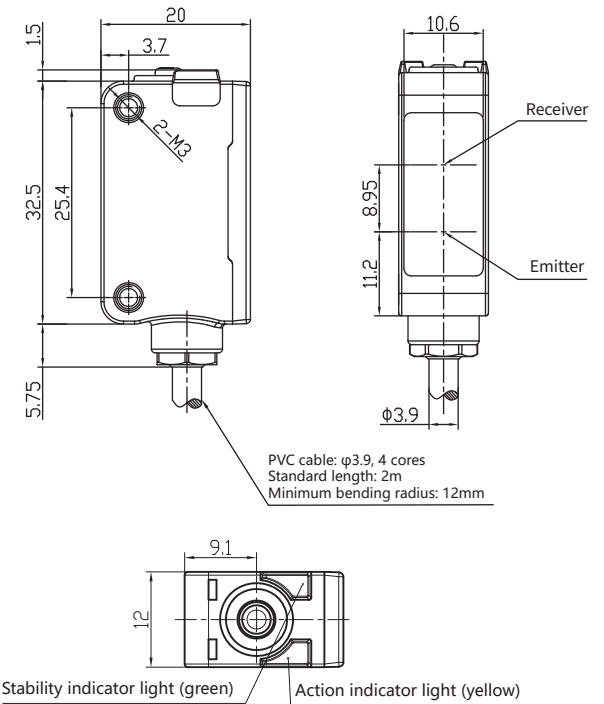


Connector

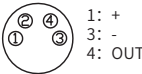
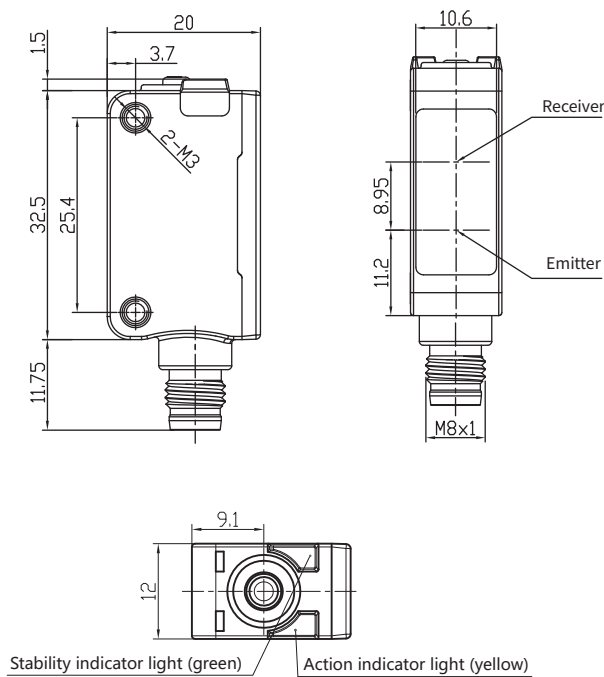


PSE Diffuse reflection/Polarized reflection

Cable

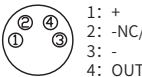


Connector



1: +
2: -
3: -
4: OUT

Brown: +
Blue : -
Black : OUT



1: +
2: -NC/+NO
3: -
4: OUT

Brown: +
Blue : -
Black : OUT
White : -NC/+NO

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

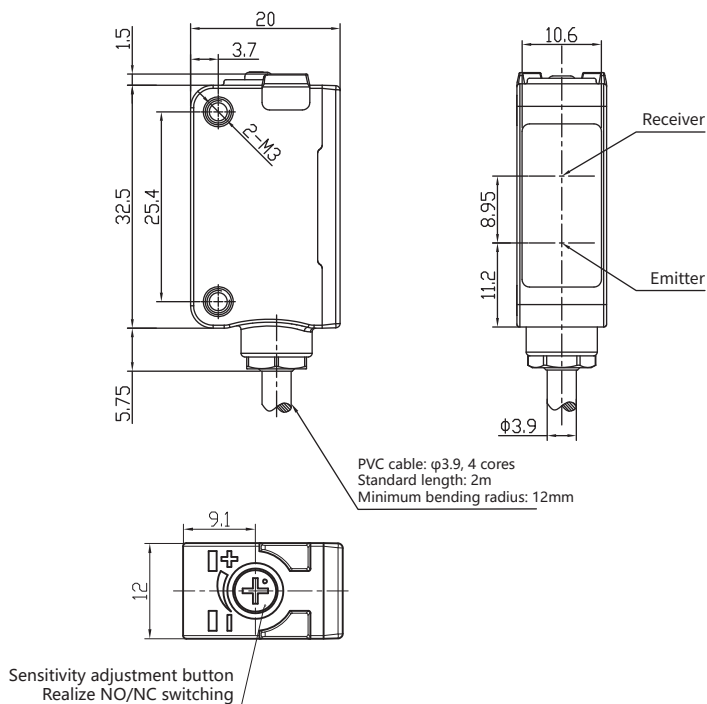
Technical Guide



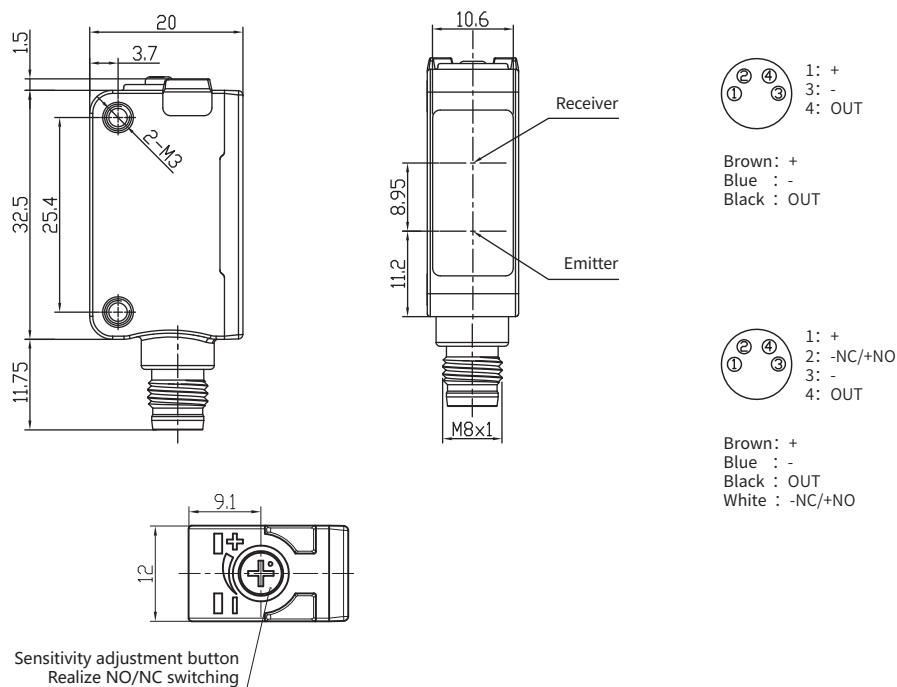
Official Website

I PSE Background suppression

Cable

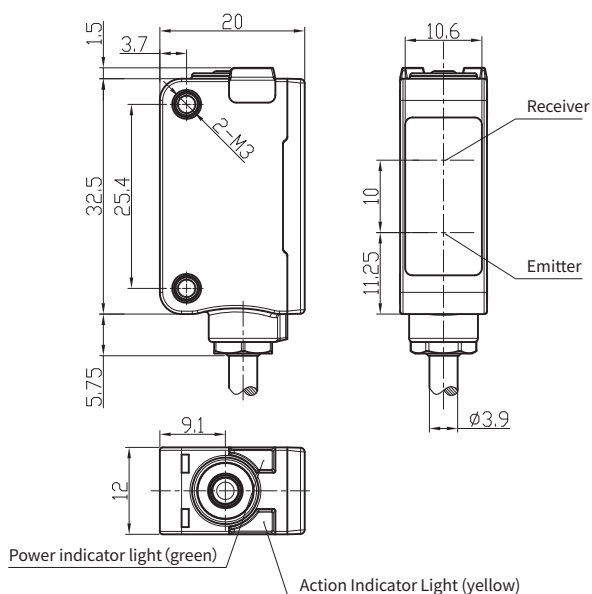


Connector

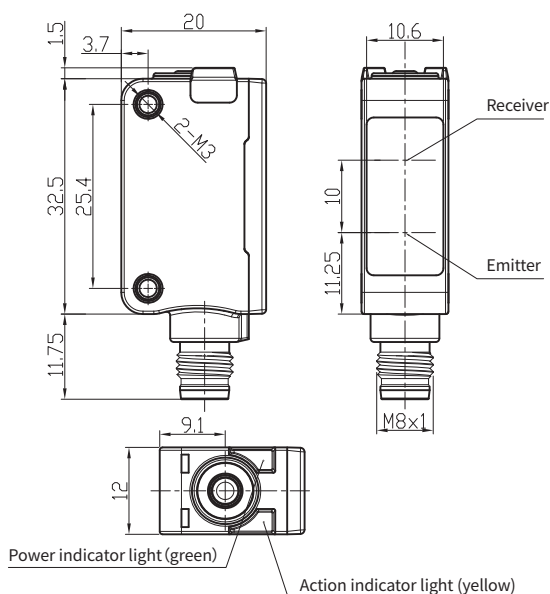


PSE Limited reflection

Cable

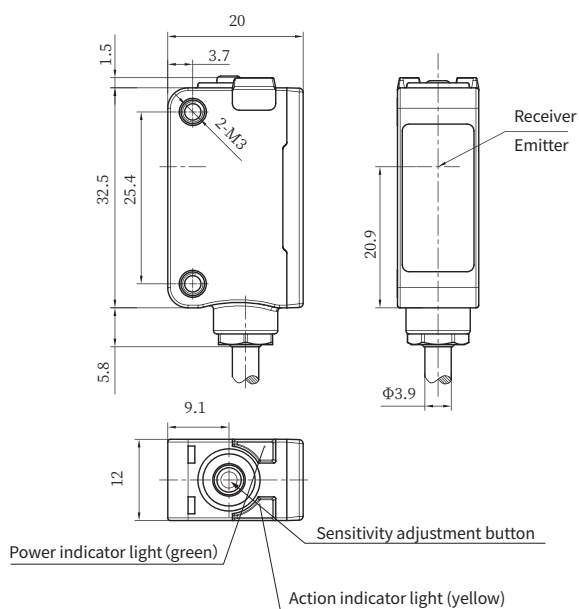


Connector

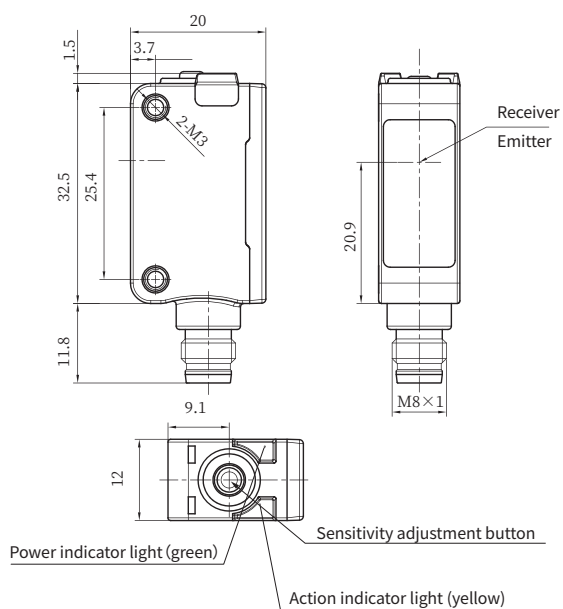


PSE Transparent object detection

Cable



Connector



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

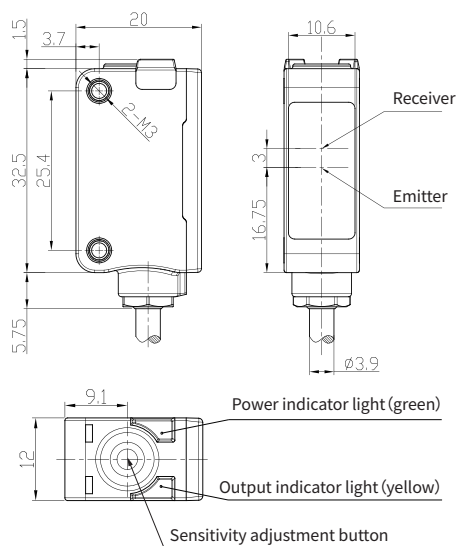
Technical Guide



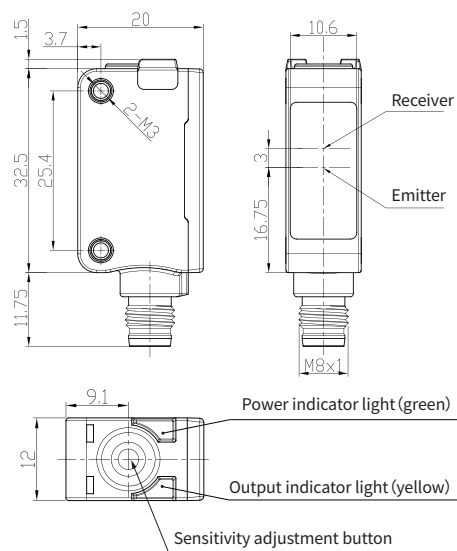
Official Website

I PSE TOF Reflection

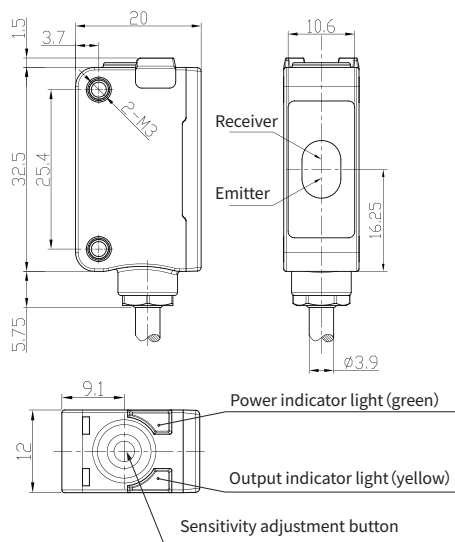
60cm-Cable



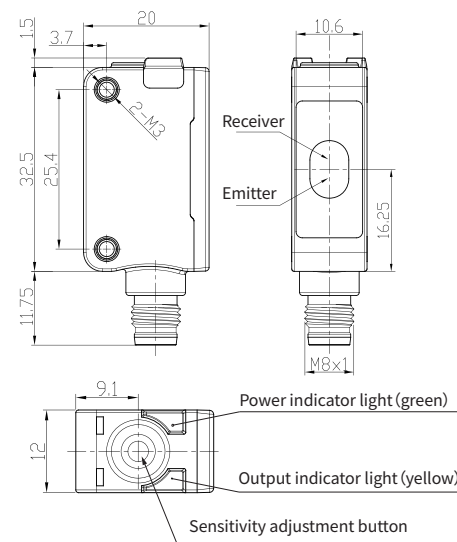
60cm-Connector



100/300cm-Cable



100/300cm-Connector



Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

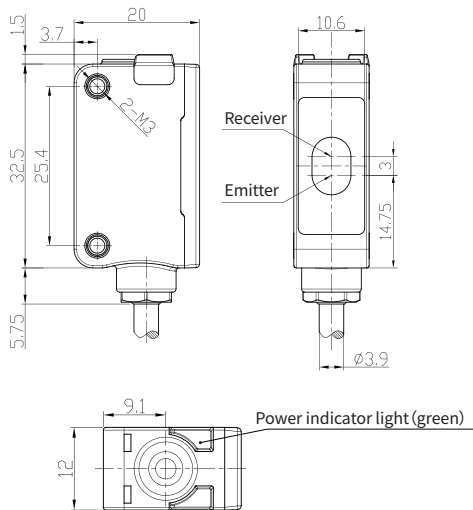
Technical Guide



Official Website

PSE TOF Reflection(RS485)

3m-Cable



Photoelectric

Ultra-thin

Micro Square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical Guide



Official Website

Photoelectric Sensors

Large Square Series



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

Comprehensive specifications for broad application scenarios

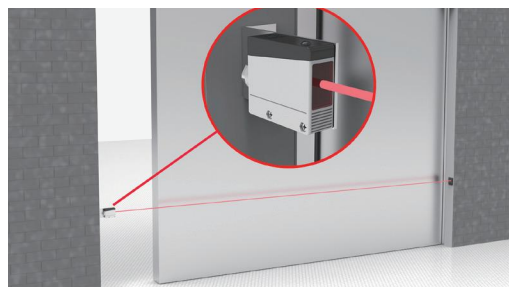
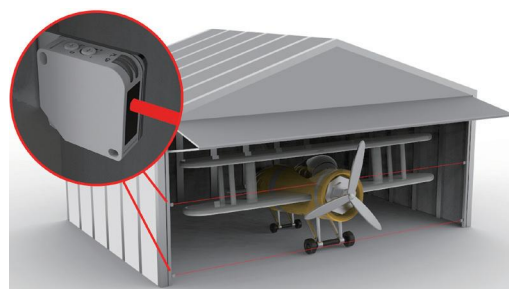
Choose from various models including diffuse reflection and polarized reflection, with a full coverage of detection distances. Options for cable, plug-in, and terminal types are available for quick selection across diverse applications.

Versatile output options to meet all needs

Lanbao Large Square Photoelectric Sensor offers not only switching output but also relay output options, catering to a wide range of customer requirements.

Universal AC/DC power supply

With a flexible power input (DC24-240V/AC24-240V), the sensor boasts enhanced applicability.



PTE Series

Detection method	Shape	Connection	Detection distance	Type	Model	
					NPN+PNP	Relay output
Through beam type		2m cable	60m		Emitter PTE-TM60D	
		Connector			Emitter PTE-TM60D-E2	
		2m cable		NO/NC	Receiver PTE-TM60DFB	
		Connector		NO/NC	Receiver PTE-TM60DFB-E2	
		2m cable	60m			Emitter PTE-TM60S
		Connector				Emitter PTE-TM60S-E2
		2m cable		NO+NC		Receiver PTE-TM60SK
		Connector		NO+NC		Receiver PTE-TM60SK-E5
Diffuse reflection type		2m cable	30cm	NO/NC	PTE-BC30DFB	
		Connector		NO/NC	PTE-BC30DFB-E2	
		2m cable	200cm	NO/NC	PTE-BC200DFB	
		Connector		NO/NC	PTE-BC200DFB-E2	
Polarized reflection type		2m cable	30cm	NO+NC		PTE-BC30SK
		Connector		NO+NC		PTE-BC30SK-E5
		2m cable	200cm	NO+NC		PTE-BC200SK
		Connector		NO+NC		PTE-BC200SK-E5
		2m cable	5m	NO/NC	PTE-PM5DFB	
		Connector		NO/NC	PTE-PM5DFB-E2	
		2m cable	5m	NO+NC		PTE-PM5SK
		Connector		NO+NC		PTE-PM5SK-E5

PTL Series

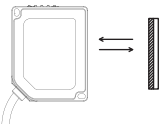
Detection method	Shape	Connection	Detection distance	Type	Model	
					NPN Output	PNP Output
Diffuse reflection type		Terminal	80cm	NO+NC	PTL-BC80DNRT3-D	PTL-BC80DPRT3-D
			200cm	NO+NC	PTL-BC200DNRT3-D	PTL-BC200DPRT3-D
			80cm	NO+NC	PTL-BC80SKT3-D(Relay output)	
			200cm	NO+NC	PTL-BC200SKT3-D(Relay output)	
Polarized reflection type		Terminal	12m	NO+NC	PTL-PM12DNR-D	PTL-PM12DPR-D
			12m	NO+NC	PTL-PM12SK-D(Relay output)	



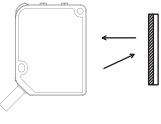
Selection List

Large Square Series

PTB Series

Detection method	Shape	Connection	Detection distance	Type	Model
					NPN+PNP
Laser background suppression type		2m cable	200cm	NO/NC	PTB-YC200DFBT3
		Connector		NO/NC	PTB-YC200DFBT3-E5

PTG Series

Detection method	Shape	Connection	Detection distance	Type	Model
					NPN+PNP
TOF reflection type		2m cable	0.05...15m	NO/NC	PTG-CM15SK
			0.05...10m	NO/NC	PTG-CM15SK 4001

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

I PTE Through beam (DC/AC)

Model	PTE-TM60D□□-□	PTE-TM60S□-□
Detection principle	Through beam	
Detection distance	60m (Adjustable)	
Light source type	Infrared light	
Detecting objects	φ15mm Above opaque objects	
Spot size	/	
Blind area	/	
Hysteresis	/	
Adjustment method	Potentiometer adjustment	
Power supply	10...30V DC (RippleP-P: ≤10%) ; Current consumption: ≤40mA	24...240V AC/DC (RippleP-P: ≤10%) ; Current consumption: ≤35mA
Output characteristic	Load current: ≤200mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA	Load current: ≤3mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA
Protection circuit	Short circuit protection, reverse polarity protection, overload protection	/
Indicator light	Output indication: Green light for transmitter, yellow light for receiver	
Response time	T-on: ≤2ms; T-off: ≤2ms	T-on: ≤10ms; T-off: ≤10ms
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3000Lux	
Working environment	Working temperature: -25...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)	
Protection level	IP67	
Shell material	PC/ABS	
Connection method	Cable type(Standard length 2m), Plug-in type optional	
Dimensional drawing	See page P04-014 for details	

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

I PTE Diffuse reflection (DC/AC)

Model	PTE-BC□DFB-□		PTE-BC□SK-□	
Detection principle	Diffuse reflection			
Detection distance	30cm (Adjustable)	200cm (Adjustable)	30cm (Adjustable)	200cm (Adjustable)
Light source type	Infrared light			
Detecting objects	Opaque material			
Spot size	White card with 90% reflectivity			
Blind area	20mm			
Hysteresis	3...20%			
Adjustment method	Potentiometer adjustment			
Power supply	10...30V DC (RippleP-P: ≤10%) ; Current consumption: ≤40mA		24...240V AC/DC (RippleP-P: ≤10%) ; Current consumption: ≤35mA	
Output characteristic	Load current: ≤200mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA		Load current: ≤3mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA	
Protection circuit	Short circuit protection, reverse polarity protection, overload protection		/	
Indicator light	Green: Power indication; Yellow: Output indication			
Response time	T-on: ≤2ms; T-off: ≤2ms		T-on: ≤10ms; T-off: ≤10ms	
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3000Lux			
Working environment	Working temperature: -25...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)			
Protection level	IP67			
Shell material	PC/ABS			
Connection method	Cable type(Standard length 2m), Plug-in type optional			
Dimensional drawing	See page P04-014 for details			

Naming rules

Product family

Technical guide



Official website

Large Square Series

Photoelectric

I PTE Polarized reflection (DC/AC)

Model	PTE-PM5DFB-□	PTE-PM5SK-□
Detection principle	Polarized reflection	
Detection distance	5m (Adjustable)	
Light source type	Red light	
Detecting objects	Transparent, semi transparent, opaque material	
Spot size	Reflector TD-09	
Blind area	/	
Hysteresis	/	
Adjustment method	Potentiometer adjustment	
Power supply	10...30V DC (RippleP-P: ≤10%) ; Current consumption: ≤40mA	24...240V AC/DC (RippleP-P: ≤10%) ; Current consumption: ≤35mA
Output characteristic	Load current: ≤200mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA	Load current: ≤3mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA
Protection circuit	Short circuit protection, reverse polarity protection, overload protection	/
Indicator light	Green: Power indication; Yellow: Output indication	Yellow: Output indication
Response time	T-on: ≤2ms; T-off: ≤2ms	T-on: ≤10ms; T-off: ≤10ms
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3000Lux	
Working environment	Working temperature: -25...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)	
Protection level	IP67	
Shell material	PC/ABS	
Connection method	Cable type(Standard length 2m), Plug-in type optional	
Dimensional drawing	See page P04-014 for details	

Ultra-thin

Micro square

Little square

Large square

Round and
square

Cylindrical

Naming rules

Product family

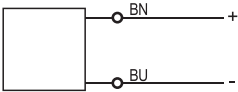
Technical
guide

Official website

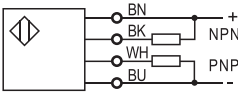
PTE Through beam/Diffuse reflection/Polarized reflection-DC 4 lines

Cable

Emitter

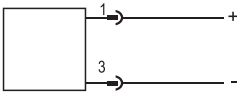


NPN+PNP NO/NC

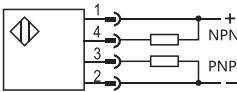


Connector

Emitter



NPN+PNP NO/NC



Ultra-thin

Micro square

Little square

Large square

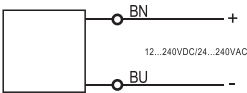
Round and square

Cylindrical

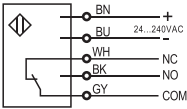
PTE Through beam/Diffuse reflection/Polarized reflection-AC/DC 5 lines

Cable

Emitter

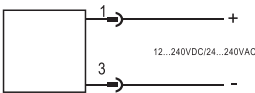


Relay output

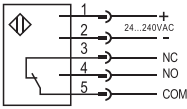


Connector

Emitter



Relay output



Naming rules

Product family

Technical guide



Official website

Large Square Series

Photoelectric

I PTL Diffuse reflection (DC/AC)

Model	PTL-BC□□RT3-D		PTL-BC□□SKT3-D	
Detection principle	Diffuse reflection			
Detection distance	80cm (Adjustable)	200cm (Adjustable)	80cm (Adjustable)	200cm (Adjustable)
Light source type	Infrared light			
Detecting objects	Opaque material			
Spot size	White card with 90% reflectivity			
Delay time	0.1...5s (P2 Potentiometer)			
Hysteresis	5...20%		3...20%	
Blind area	/			
Adjustment method	Potentiometer adjustment			
Power supply	10...30V DC (RippleP-P: ≤10%) ; Current consumption: ≤25mA		24...240V/12...240V AC/DC (RippleP-P: ≤10%) ; Current consumption: ≤35mA	
Output characteristic	Load current: ≤200mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA		Load current: ≤3mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA	
Protection circuit	Short circuit protection, reverse polarity protection, overload protection		/	
Indicator light	Green: Power indication; Yellow: Output indication			
Response time	T-on: ≤8.2ms; T-off: ≤8.2ms		T-on: ≤30ms; T-off: ≤30ms	
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3000Lux			
Working environment	Working temperature: -15...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)			
Protection level	IP67			
Shell material	PC/ABS			
Connection method	Terminal connection			
Dimensional drawing	See page P04-014 for details			

I PTL Polarized reflection (DC/AC)

Model	PTL-PM12D□R-D		PTL-PM12SK-D	
Detection principle	Polarized reflection			
Detection distance	12m (Not adjustable)			
Light source type	Infrared light			
Detecting objects	Transparent, semi transparent, opaque material			
Spot size	ReflectorTD-05			
Delay time	/			
Hysteresis	/			
Blind area	/			
Adjustment method	Not adjustable			
Power supply	10...30V DC (RippleP-P: ≤10%) ; Current consumption: ≤25mA		24...240V/12...240V AC/DC (RippleP-P: ≤10%) ; Current consumption: ≤35mA	
Output characteristic	Load current: ≤200mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA		Load current: ≤3mA; Voltage drop: ≤2.5V; Leakage current: ≤0.1mA	
Protection circuit	Short circuit protection, reverse polarity protection, overload protection		/	
Indicator light	Yellow: Output indication			
Response time	T-on: ≤8.2ms; T-off: ≤8.2ms		T-on: ≤30ms; T-off: ≤30ms	
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3000Lux			
Working environment	Working temperature: -15...55°C; Storage temperature: -25...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)			
Protection level	IP67			
Shell material	PC/ABS			
Connection method	Terminal connection			
Dimensional drawing	See page P04-014 for details			

Naming rules

Product family

Technical guide

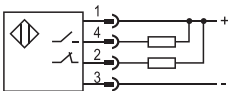


Official website

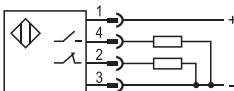
PTL Diffuse reflection/Polarized reflection-DC 4 liens

Terminal connection

NPN NO+NC



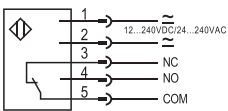
PNP NO+NC



PTL Diffuse reflection/Polarized reflection-AC/DC 5 liens

Terminal connection

Relay output



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

Large Square Series

Photoelectric

I PTB Background suppression

Model	PTB-YC200DFBT3-□
Detection principle	Background suppression
Detection distance	2m (Adjustable)
Light source type	Infrared light
Detecting objects	/
Spot size	Reflection rate: White 90% Black:10%
WH&BK color variation	≤10%
Hysteresis	≤5%
Adjustment method	Potentiometer adjustment
Power supply	10...30V DC (RippleP-P: ≤10%) ;Current consumption: ≤50mA
Output characteristic	Load current: ≤150mA; Voltage drop: ≤2.5V
Protection circuit	Short circuit protection, reverse polarity protection, overload protection
Indicator light	Yellow light : Output indication
Response time	T-on: ≤2ms; T-off: ≤2ms
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3000Lux
Working environment	Ambient temperature: -15...55°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)
Protection level	IP65
Shell material	ABS
Connection method	Cable type(Standard length 2m), Plug-in type optional
Dimensional drawing	See page P04-015 for details

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide

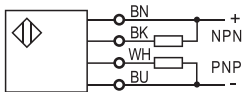


Official website

PTB Background suppression

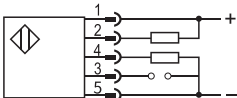
Cable

NPN+PNP NO/NC



Connector

NPN+PNP NO/NC



Photoelectric

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website



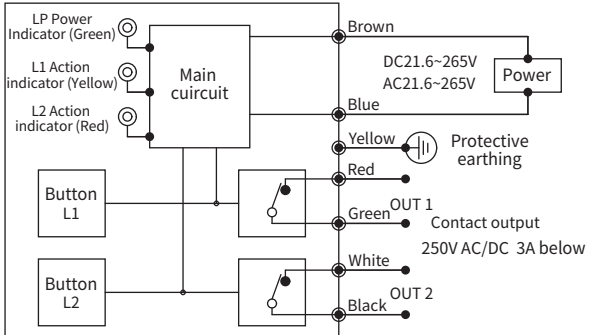
PTG TOF reflection

Model	PTG-CM15SK	PTG-CM15SK 4001
Detection principle	TOF reflection	
Detection distance	0.05...15m@RF ^②	0.05...10m@SS ^①
Light source type	Red Laser	
Spot size	About Φ11mm@15m	
Repeat accuracy	±5cm (@0.05m~4m) , ±1.25% (@4m~Sn)	
Hysteresis	0.5...15cm (@0.05m~4m) , 0.5...5% (@4m~Sn)	
Adjustment method	Potentiometer adjustment	
Power supply	10...30V DC (RippleP-P: ≤10%) ;Current consumption: <100mA@24V DC, <20mA@220V AC	
Output characteristic	Contact output: <250V AC/DC 3A;Voltage drop: <2.5V (3A);	
Protection circuit	Surge protection	
Indicator light	Green: power indication; Yellow/Red: output indication	
Response time	Ton+Toff<100ms	
Ambient light resistance	Anti-sunlight interference ≤5000Lux; Anti-incandescent light interference≤350Lux	Anti-sunlight interference ≤3000Lux; Anti-incandescent light interference≤350Lux
Working environment	Working temperature: -20...50°C; Ambient humidity:35...85% (No condensation or dew on optical surfaces)	
Protection level	IP67	
Shell material	Housing: Zinc alloy; Optical elements: PMMA	
Connection method	Cable type(Standard length 2m)	
Dimensional drawing	See page P04-015 for details	

Note: ①SS is brushed stainless steel surface (with magnet column).
②RF is diamond-grade reflective film (with adhesive backing).

PTG TOF reflection

Cable



L1 Corresponds OUT 1, L2 Corresponds OUT 2

Photoelectric

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

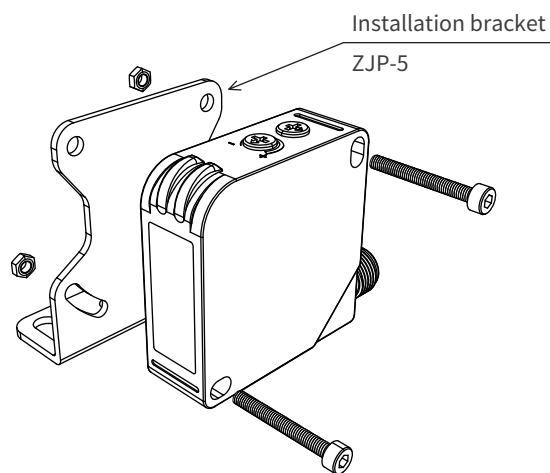
Naming rules

Product family

Technical guide



I Product installation diagram



I Precaution

- The maximum allowable power supply voltage of the sensor is 10% of the rated voltage. Please confirm that the power supply voltage is less than the maximum allowable value before powering on.
- The maximum allowable power supply voltage for the sensor is 10% above the rated voltage. Please confirm that the power supply voltage is less than the maximum allowable value before powering on.
- When the sensor and the load use different power supplies, please make sure to turn on the power supply of the sensor first.
- When the sensor is not in use, it is recommended to cut off the power supply of the load first, and then cut off the power supply of the sensor.
- During installation, do not subject the sensor to severe external force (such as hammering, etc.), which may damage the performance of the sensor.
- Avoid using thinners, alcohol or other organic solvents when cleaning.

Safety warning

- Do not use in an environment with flammable, explosive or corrosive gases.
- Do not use in an environment with oil or chemicals .
- Do not use in a high humidity environment.
- Do not use in direct sunlight.
- Do not use in other environmental conditions that exceed the rated value.
- Do not disassemble, repair or modify this product without authorization.

Scrap treatment

- When the product is scrapped, please dispose of it as industrial waste.

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

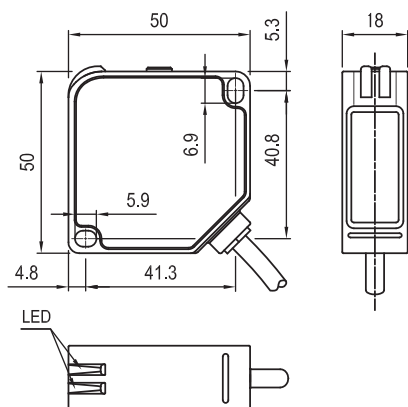
Product family

Technical guide

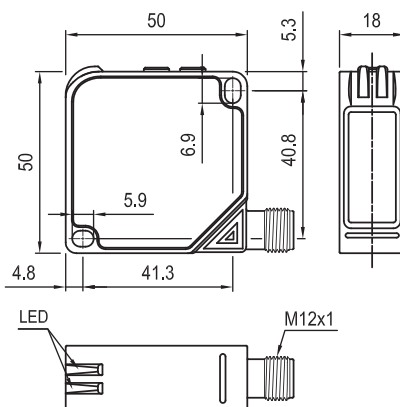


PTE Through beam/Diffuse reflection/Polarized reflection

Cable

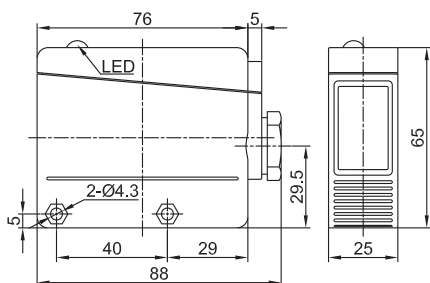


Connector



PTL Diffuse reflection/Polarized reflection

Terminal connection



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

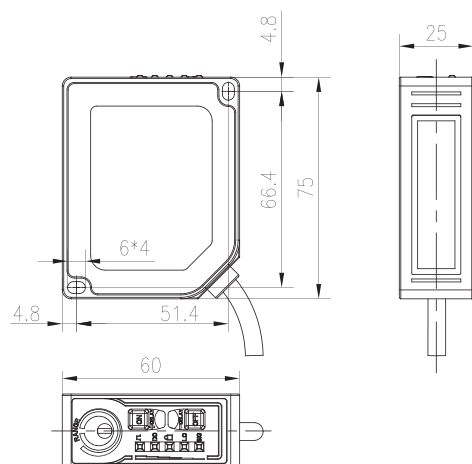
Technical guide



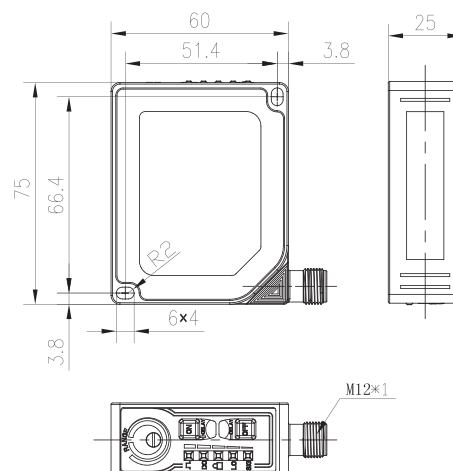
Official website

I PTB Background suppression

Cable

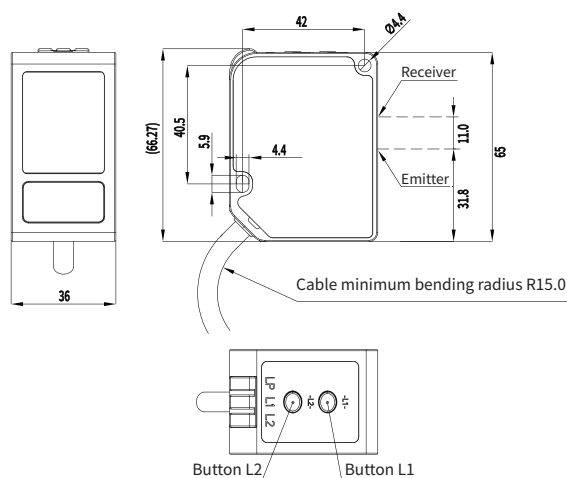


Connector



I PTG TOF reflection

Cable



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

Photoelectric

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Photoelectric Sensors

Round and Square Series



For specifications, certification, usage and model list, please scan the product QR code.



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

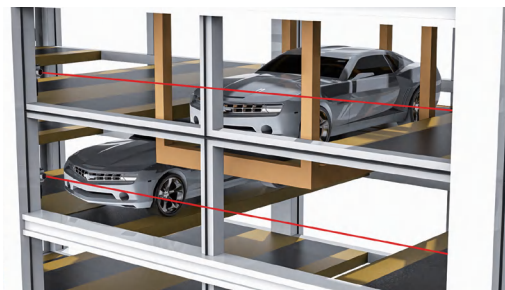
Naming rules

Product family

Technical guide

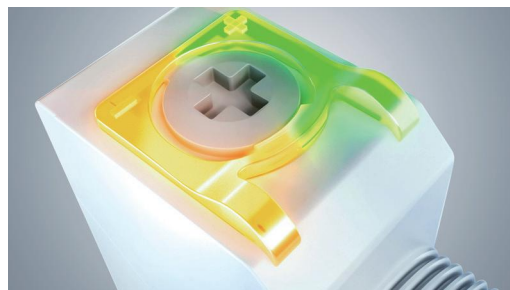
Comprehensive specifications for versatile and easy replacement applications

Lanbao PSR Series Photoelectric Sensors offer a range of specifications including through-beam, diffuse reflection, background suppression, and polarized reflection. With a rich product line and detection distances ranging from 10cm to 20m, options for cable and plug-in types facilitate quick selection for various application scenarios.



Bright LED status indicator visible from 360°

Lanbao PSR Series Photoelectric Sensors feature a high-brightness 360° LED indicator light, making it easy to identify the working condition.



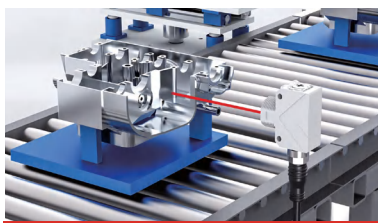
Two Installation Options to Suit Different Scenarios

Lanbao PSR Series offers two mounting options: can be locked by mounting screw holes or M18 threads.

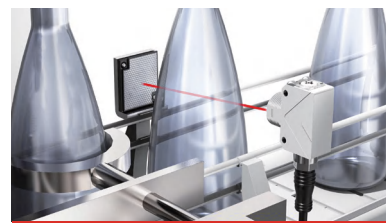
Application diagram



Wafer passes inspection



Passing object detection



Transparent target detection



Official website

Detection method	Shape	Connection	Detection distance	Type	Model	
Through beam type		Cable 2m	20m		NPN Output	PNP Output
		Cable 2m			Emitter PSR-TM20D	Emitter PSR-TM20D
		Cable 2m			Emitter PSR-TM20D-E2	Emitter PSR-TM20D-E2
		Connector		NO/NC	Receiver PSR-TM20DNB	Receiver PSR-TM20DPB
		Connector		NO/NC	Receiver PSR-TM20DNB-E2	Receiver PSR-TM20DPB-E2
Diffuse reflection type		Cable 2m	30cm	NO/NC	PSR-BC30DNBR	PSR-BC30DPBR
		Connector		NO/NC	PSR-BC30DNBR-E2	PSR-BC30DPBR-E2
Background suppression type		Cable 2m	10cm	NO/NC	PSR-YC10DNBR	PSR-YC10DPBR
		Connector		NO/NC	PSR-YC10DNBR-E2	PSR-YC10DPBR-E2
Polarized reflection type		Cable 2m	3m	NO/NC	PSR-PM3DNBR	PSR-PM3DPBR
		Connector		NO/NC	PSR-PM3DNBR-E2	PSR-PM3DPBR-E2

Ultra-thin

Micro square

Little square

Large square

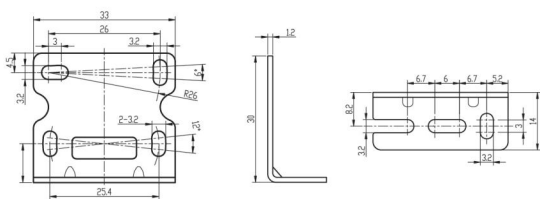
Round and square

Cylindrical

Product accessorie (Installation bracket, reflector, connector)

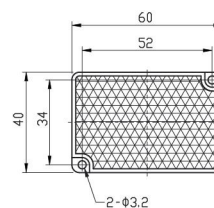
Installation bracket ZJP-8

Dimensional	33*30*14mm
Materials	Cold rolled steel SPCC



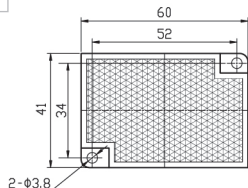
Reflector TD-09

Dimensional	60*40mm
Shape	Square



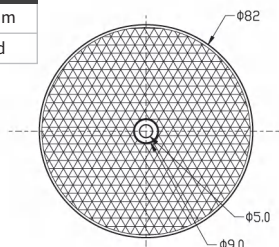
Reflector TD-09A

Dimensional	60*40mm
Shape	Square



Reflector TD-05

Dimensional	φ82mm
Shape	Round



Naming rules

Product family

Technical guide



Official website

Reflector TD-02

Dimensional	65*40mm
Shape	Square

Reflector STD-06

Dimensional	φ25.6mm
Shape	Round

Connector QE12-N4F2

Dimensional	2 meters φ5.2mm PVC cable
Specification	4-core M12 female connector

Connector QE12-N4G2

Dimensional	2 meters φ5.2mm PVC cable
Specification	4-core M12 female connector

- Ultra-thin
- Micro square
- Little square
- Large square

Round and square

- Cylindrical

- Naming rules
- Product family

- Technical guide



PSR Through beam/Diffuse reflection

Model	PSR-TM20D□□-□	PSR-BC30D□BR-□
Detection principle	Through beam	Diffuse reflection
Through beam	0...20m (Adjustable)	0.5...30cm (Adjustable)
Light source type	Infrared light	Red point light source
Detecting objects	φ15mm Above opaque objects	/
Spot size	/	18*18mm@30cm
Blind area	/	0
Hysteresis	/	3...20%
Adjustment method	Single-turn potentiometer	
Power Supply	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: Emitter ≤15mA, Receiver ≤18mA	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: ≤100mA
Output characteristic	Load current: ≤100mA; Voltage drop : ≤1V; Leakage current: ≤0.1mA	
Protection circuit	Short circuit protection, Reverse polarity protection, Overload protection, Zener protection	
Indicator light	Green light: Power indication; Yellow light: Output indication	
Response time	T-on: ≤1ms; T-off: ≤1ms	
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux	
Working environment	working temperature: -15...60°C; Storage temperature: -25...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)	
Protection level	IP67	
Shell material	ABS	
Connection method	Cable type (standard length 2m), plug-in type optional	
Dimensional drawing	See page P05-011 for details	

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

PSR Background suppression/Polarized reflection

Model	PSR-YC10D□BR-□	PSR-PM3D□BR-□
Detection principle	Background suppression	Polarized reflection
Through beam	10cm (Not adjustable)	0...3m (Adjustable)
Light source type	Red point light source	
Detecting objects	/	
Spot size	8*8mm@100mm	180*180mm@3m
Blind area	7mm	/
Hysteresis	≤5%	/
Adjustment method	Not adjustable	Single-turn potentiometer
Power Supply	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: ≤25mA	10...30V DC (Ripple P-P: ≤10%) ; Current consumption: ≤100mA
Output characteristic	Load current: ≤100mA; Voltage drop : ≤1.8V; Leakage current: ≤0.1mA	Load current: ≤100mA; Voltage drop : ≤1V; Leakage current: ≤0.1mA
Protection circuit	Short circuit protection, Reverse polarity protection, Overload protection, Zener protection	
Indicator light	Green light: Power indication; Yellow light: Output indication	
Response time	T-on: ≤0.5ms; T-off: ≤0.5ms	T-on: ≤1ms; T-off: ≤1ms
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux	
Working environment	working temperature: -15...60°C; Storage temperature: -25...70°C; Ambient humidity: 35...95% (No condensation or dew on optical surfaces)	
Protection level	IP67	
Shell material	ABS	
Connection method	Cable type (standard length 2m), plug-in type optional	
Dimensional drawing	See page P05-011/012 for details	

Naming rules

Product family

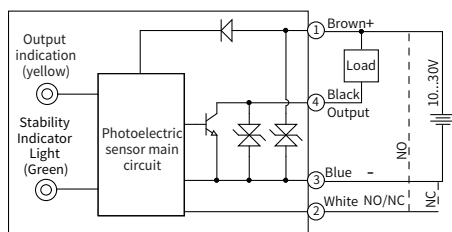
Technical guide



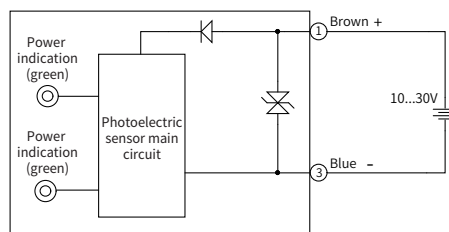
Official website

PSR Through beam/Diffuse reflection/Background suppression/ Polarized reflection

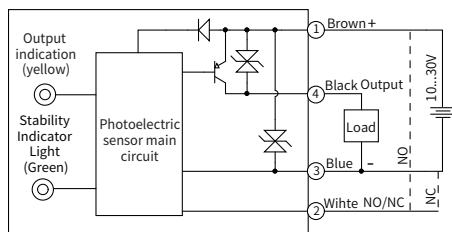
Receiver NPN



Emitter



Receiver PNP



Ultra-thin

Micro square

Little square

Large square

**Round and
square**

Cylindrical

Naming rules

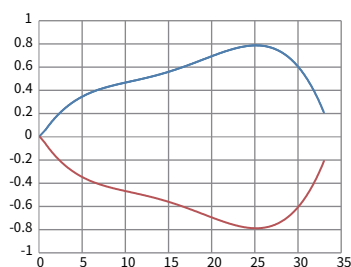
Product family

 Technical
guide


Detection range

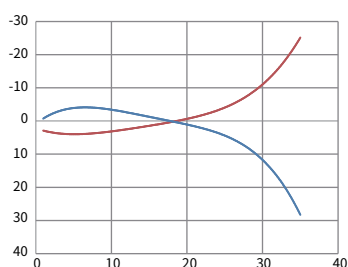
Through beam type(PSR-TM20)

Y-axis: Detection range: m
X-axis: Detection distance: m



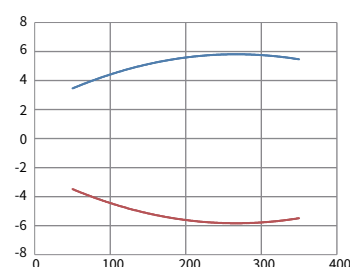
Diffuse reflection type(PSR-BC30)

Y-axis: Detection range: cm
X-axis: Detection distance: cm



Polarized reflection type(PSR-PM3)

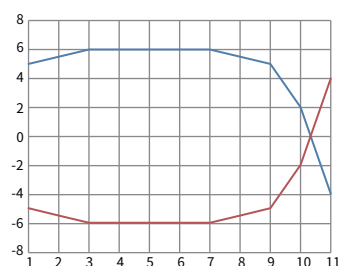
Y-axis: Detection range: cm
X-axis: Detection distance: cm



Signal redundancy

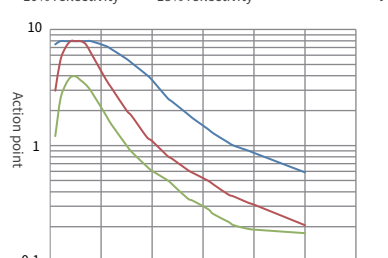
Background suppression type(PSR-YC10)

Y-axis: Detection range: mm
X-axis: Detection distance: cm



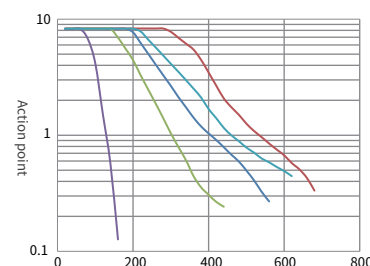
Diffuse reflection type(PSR-BC30)

X-axis: Detection distance: cm
— Black card with 10% reflectivity — Gray card with 18% reflectivity — White card with 90% reflectivity



Limited reflection type (PSV-SR**)

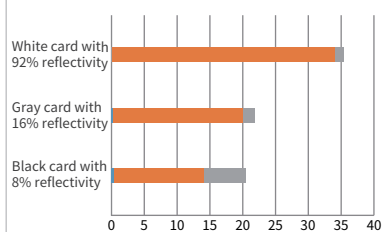
X-axis: Detection distance: cm — TD-05 — TD-09 — STD-06 — TD-09A — TD-02



Detection distance

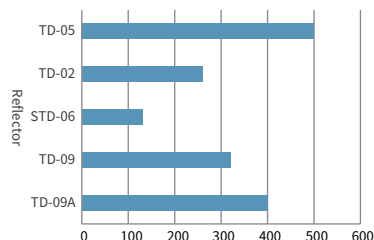
Diffuse reflection type(PSR-BC20)

X-axis: Detection distance: cm



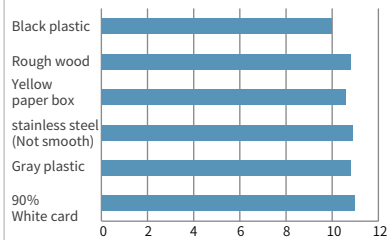
Polarized reflection type (PSR-PM3)

X-axis: Detection distance: cm



Background suppression type(PSR-YC10)

X-axis: Detection distance: cm



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

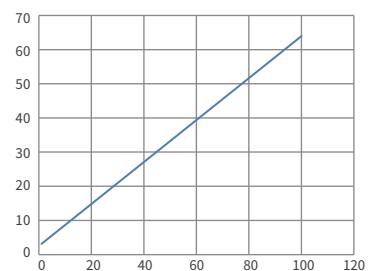
Graph

Round and Square Series

I Spot diameter

Diffuse reflection type,
Background suppression type,
Polarized reflection type

Y-axis: Spot diameter: mm
X-axis: Detection distance: cm



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

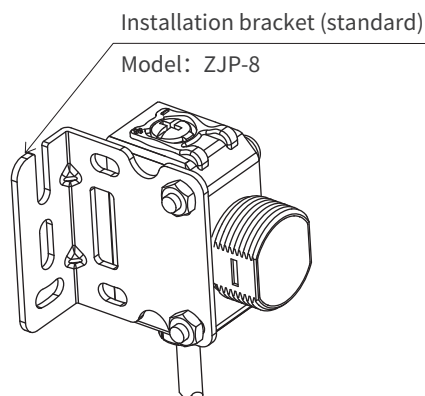
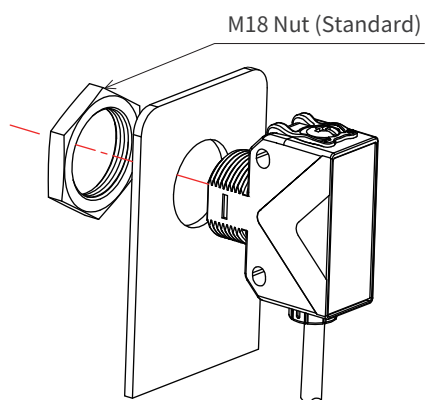
Naming rules

Product family

 Technical
guide

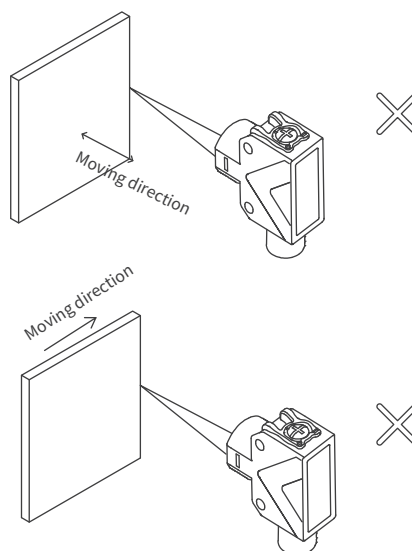
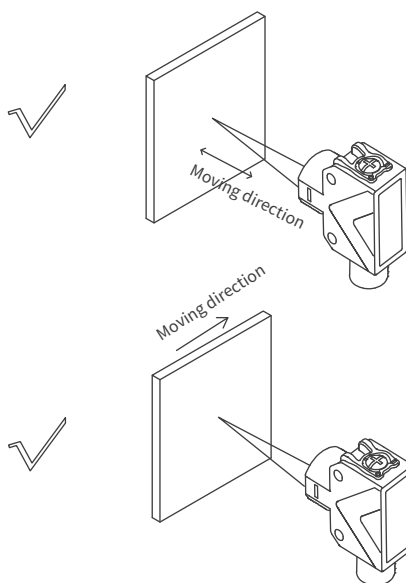

Official website

Product installation diagram

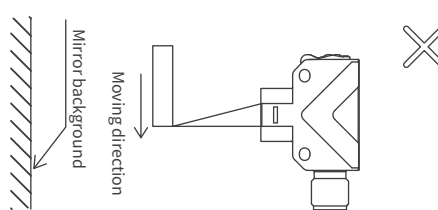
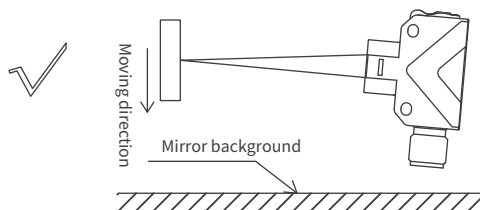


Installation precaution

- In order to accurately detect moving objects, the optical axis should be aligned with the middle of the object, not the edge. Please refer to the following installation method.



- To avoid the influence of mirror background on the sensor, please refer to the following installation method.



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

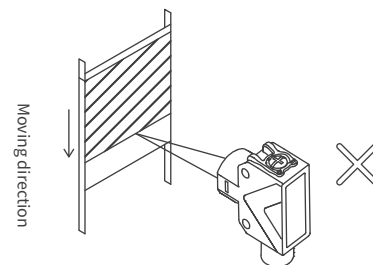
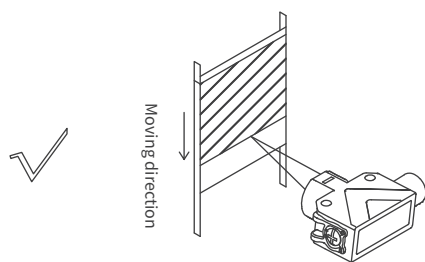
Product family

Technical guide

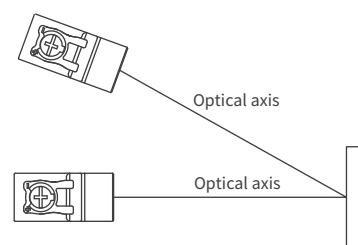
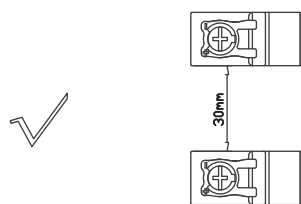


Official website

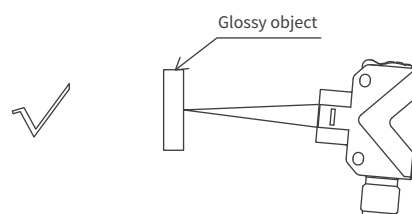
- For Background Suppression Type Sensors, when detecting objects with significant color differences or of different materials, please follow the installation method below:



- When installing products side by side, please follow these guidelines: The products should be installed parallel to each other with a minimum spacing of 30mm to prevent overlapping of the light spots and mutual optical interference.



- When installing products side by side, please follow these guidelines: The products should be installed parallel to each other with a minimum spacing of 30mm to prevent overlapping of the light spots and mutual optical interference.



I Precaution

- The maximum allowable power supply voltage of the sensor is 10% of the rated voltage. Please confirm that the power supply voltage is less than the maximum allowable value before powering on.
- The maximum allowable power supply voltage for the sensor is 10% above the rated voltage. Please confirm that the power supply voltage is less than the maximum allowable value before powering on.
- When the sensor and the load use different power supplies, please make sure to turn on the power supply of the sensor first.
- When the sensor is not in use, it is recommended to cut off the power supply of the load first, and then cut off the power supply of the sensor.
- During installation, do not subject the sensor to severe external force (such as hammering, etc.), which may damage the performance of the sensor.
- Avoid using thinner, alcohol or other organic solvents when cleaning.

Safety Warning

- Do not use in an environment with flammable, explosive or corrosive gases.
- Do not use in an environment with oil or chemicals.
- Do not use in a high humidity environment.
- Do not use in direct sunlight.
- Do not use in other environmental conditions that exceed the rated value.
- Do not disassemble, repair or modify this product without authorization.

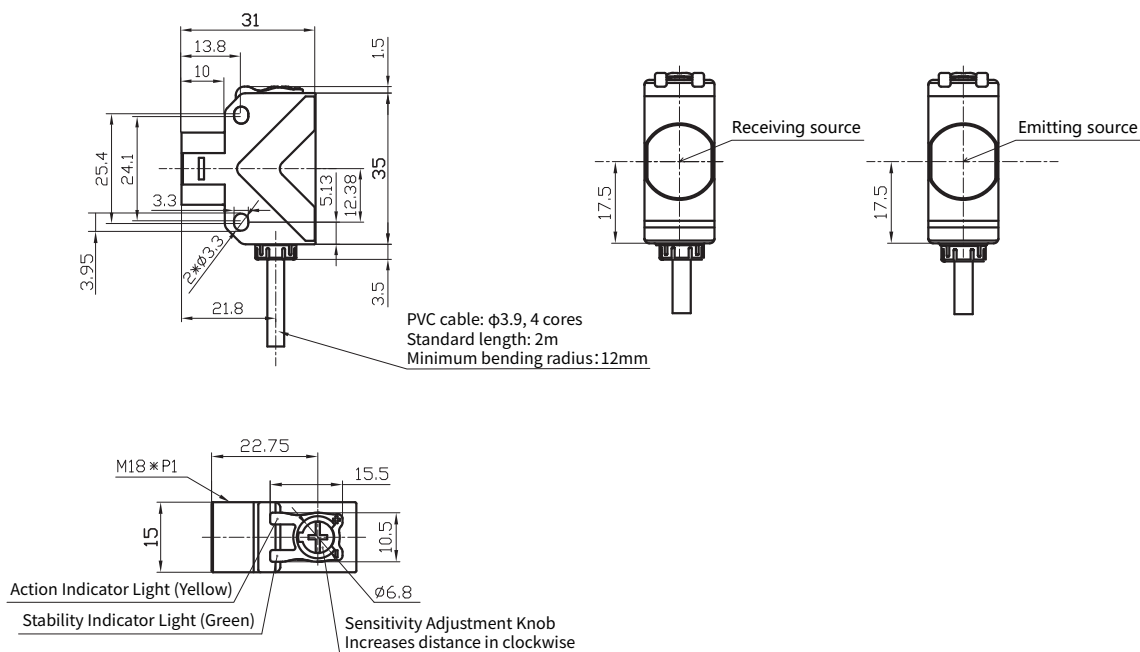
Scrap Treatment

When the product is scrapped, please dispose of it as industrial waste.

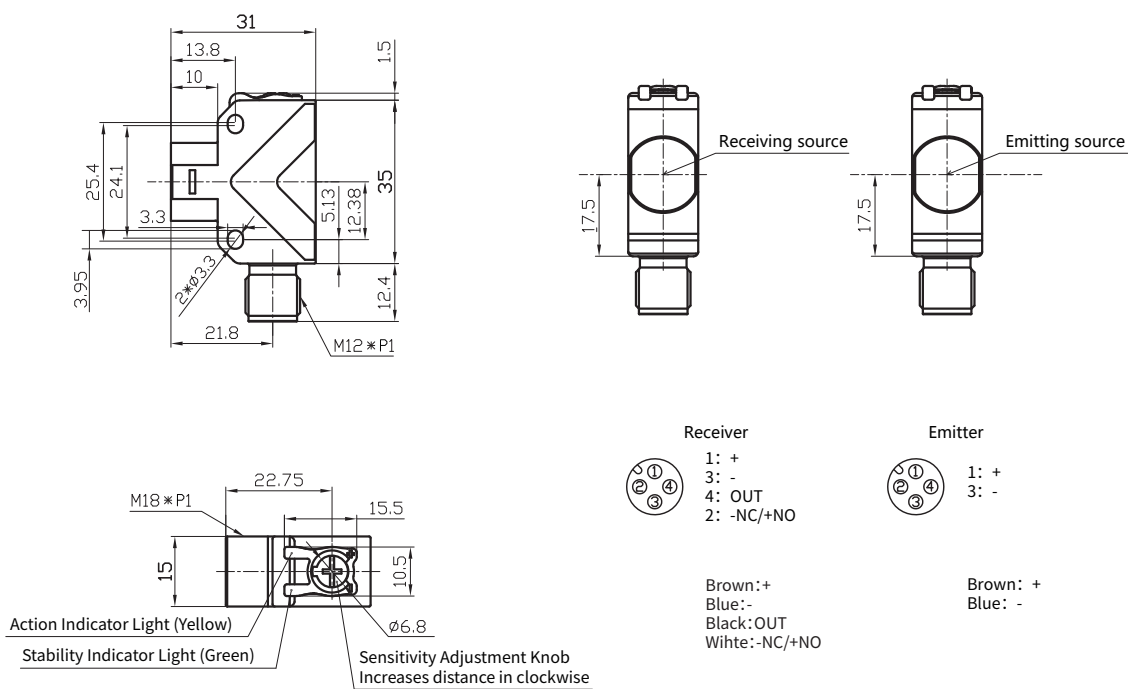


PSR Through beam

Cable



Connector



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

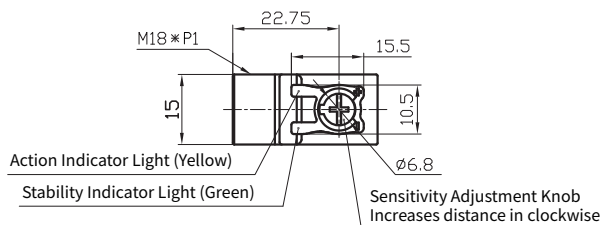
Naming rules

Product family

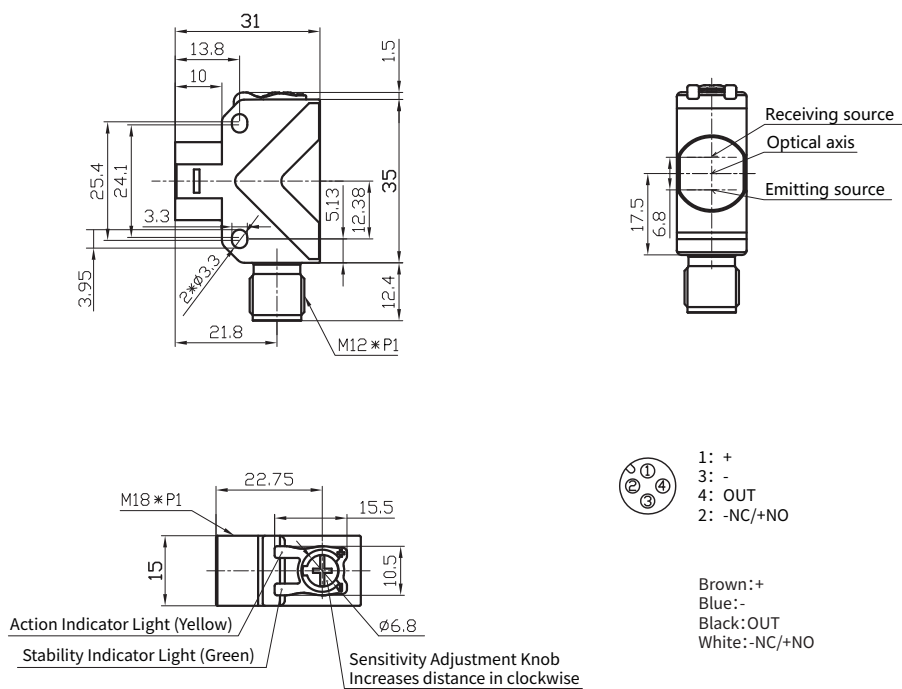
Technical
guide

Official website

Cable

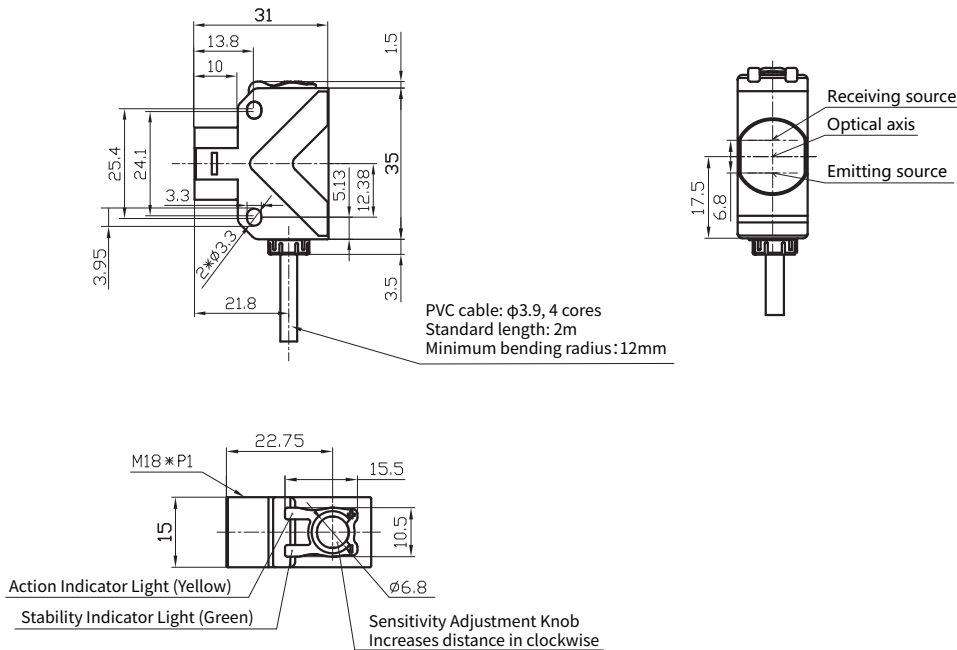


Connector

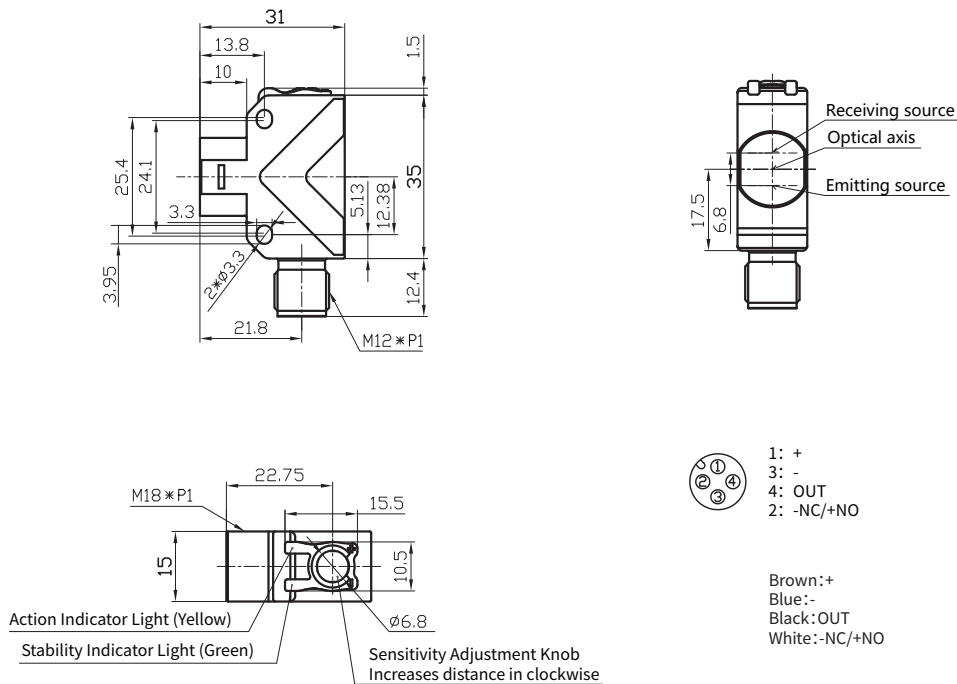


PSR Background suppression

Cable



Connector



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

Photoelectric Sensors

Cylindrical Series



For specifications, certification, usage and model list, please scan the product QR code.



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide

Comprehensive specifications with universal housing for diverse applications

Offering a variety of sizes including M12, M18 and M30, our sensors come in through-beam, diffuse reflection, background suppression and polarized reflection models. The extensive product line meets the needs of different scenarios.

Metal housing for impact resistance and excellent performance

Made of high-quality materials, our sensors are robust and durable, significantly outperforming standard products and capable of withstanding harsh conditions.

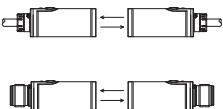
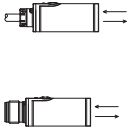
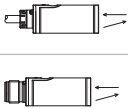
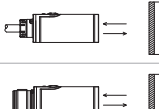
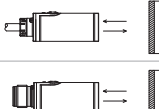
Threaded design for easy installation

The threaded design, catering to a wide range of applications and scenarios.

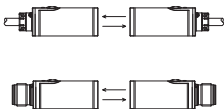
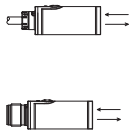


Official website

PSM Series

Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Through beam type		2m Cable	20m	NO/NC	Emitter PSM-TM20D	Emitter PSM-TM20D
		Connector			Emitter PSM-TM20D-E2	Emitter PSM-TM20D-E2
		2m Cable			Receiver PSM-TM20DNB	Receiver PSM-TM20DPB
		Connector			Receiver PSM-TM20DNB-E2	Receiver PSM-TM20DPB-E2
Diffuse reflection type		2m Cable	10cm	NO/NC	PSM-BC10DNB	PSM-BC10DPB
		Connector		NO/NC	PSM-BC10DNB-E2	PSM-BC10DPB-E2
		2m Cable	40cm	NO/NC	PSM-BC40DNB	PSM-BC40DPB
		Connector		NO/NC	PSM-BC40DNB-E2	PSM-BC40DPB-E2
		2m Cable		NO/NC	PSM-BC40DNBR	PSM-BC40DPBR
		Connector		NO/NC	PSM-BC40DNBR-E2	PSM-BC40DPBR-E2
		2m Cable	100cm	NO/NC	PSM-BC100DNB	PSM-BC100DPB
		Connector		NO/NC	PSM-BC100DNB-E2	PSM-BC100DPB-E2
Background suppression type		2m Cable	10cm	NO/NC	PSM-YC10DNBR	PSM-YC10DPBR
		Connector		NO/NC	PSM-YC10DNBR-E2	PSM-YC10DPBR-E2
Polarized reflection type		2m Cable	3m	NO/NC	PSM-PM3DNBR	PSM-PM3DPBR
		Connector		NO/NC	PSM-PM3DNBR-E2	PSM-PM3DPBR-E2
Transparent bottle detection type		2m Cable	2m	NO/NC	PSM-GM2DNBR	PSM-GM2DPBR
		Connector		NO/NC	PSM-GM2DNBR-E2	PSM-GM2DPBR-E2

PSS Series

Detection method	Shape	Connection		Type	Mode		
					NPN Output	PNP Output	
Through beam type		2m Cable	20m		Emitter PSM-TM20D	EmitterPSM-TM20D	
		Connector			Emitter PSM-TM20D-E2	Emitter PSM-TM20D-E2	
		2m Cable		NO/NC	Receiver PSM-TM20DNB	Receiver PSM-TM20DPB	
		Connector		NO/NC	Receiver PSM-TM20DNB-E2	Receiver PSM-TM20DPB-E2	
Diffuse reflection type		2m Cable	10cm	NO/NC	PSM-BC10DNB	PSM-BC10DPB	
		Connector		NO/NC	PSM-BC10DNB-E2	PSM-BC10DPB-E2	
		2m Cable	40cm	NO/NC	PSM-BC40DNB	PSM-BC40DPB	
		Connector		NO/NC	PSM-BC40DNBR	PSM-BC40DPBR	
				NO/NC	PSM-BC40DNB-E2	PSM-BC40DPB-E2	
				NO/NC	PSM-BC40DNBR-E2	PSM-BC40DPBR-E2	
		2m Cable	100cm	NO/NC	PSM-BC100DNB	PSM-BC100DPB	
		Connector		NO/NC	PSM-BC100DNB-E2	PSM-BC100DPB-E2	



Selection List

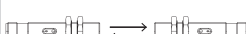
Cylindrical Series

Photoelectric

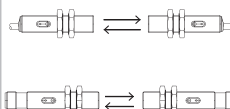
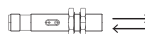
PSS Series

Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Background suppression type		2m Cable	10cm	NO/NC	PSM-YC10DNBR	PSM-YC10DPBR
		Connector		NO/NC	PSM-YC10DNBR-E2	PSM-YC10DPBR-E2
Polarized reflection type		2m Cable	3m	NO/NC	PSM-PM3DNBR	PSM-PM3DPBR
		Connector		NO/NC	PSM-PM3DNBR-E2	PSM-PM3DPBR-E2
Transparent bottle detection type		2m Cable	2m	NO/NC	PSM-GM2DNBR	PSM-GM2DPBR
		Connector		NO/NC	PSM-GM2DNBR-E2	PSM-GM2DPBR-E2

PR12 Series

Detection method	Shape	Connection	Sensing distance	Type	Mode		
					NPN Output	PNP Output	
Through beam type		2m Cable	5m		Emitter PR12-TM5D	Emitter PR12-TM5D	
		Connector			Emitter PR12-TM5D-E2	Emitter PR12-TM5D-E2	
		2m Cable		NO	Receiver PR12-TM5DNO	Receiver PR12-TM5DPO	
				NC	Receiver PR12-TM5DNC	Receiver PR12-TM5DPC	
		Connector		NO+NC	Receiver PR12-TM5DNR	Receiver PR12-TM5DPR	
				NO	Receiver PR12-TM5DNO-E2	Receiver PR12-TM5DPO-E2	
				NC	Receiver PR12-TM5DNC-E2	Receiver PR12-TM5DPC-E2	
				NO+NC	Receiver PR12-TM5DNR-E2	Receiver PR12-TM5DPR-E2	
		2m Cable	10m		Emitter PR12-TM10D	Emitter PR12-TM10D	
		Connector			Emitter PR12-TM10D-E2	Emitter PR12-TM10D-E2	
		2m Cable		NO	Receiver PR12-TM10DNO	Receiver PR12-TM10DPO	
				NC	Receiver PR12-TM10DNC	Receiver PR12-TM10DPC	
		Connector		NO+NC	Receiver PR12-TM10DNR	Receiver PR12-TM10DPR	
				NO	Receiver PR12-TM10DNO-E2	Receiver PR12-TM10DPO-E2	
				NC	Receiver PR12-TM10DNC-E2	Receiver PR12-TM10DPC-E2	
				NO+NC	Receiver PR12-TM10DNR-E2	Receiver PR12-TM10DPR-E2	
		2m Cable	5m		Emitter PR12S-TM5D	Emitter PR12S-TM5D	
		Connector			Emitter PR12S-TM5D-E2	Emitter PR12S-TM5D-E2	
		2m Cable		NO	Receiver PR12S-TM5DNO	Receiver PR12S-TM5DPO	
				NC	Receiver PR12S-TM5DNC	Receiver PR12S-TM5DPC	
		Connector		NO+NC	Receiver PR12S-TM5DNR	Receiver PR12S-TM5DPR	
				NO	Receiver PR12S-TM5DNO-E2	Receiver PR12S-TM5DPO-E2	
				NC	Receiver PR12S-TM5DNC-E2	Receiver PR12S-TM5DPC-E2	
				NO+NC	Receiver PR12S-TM5DNR-E2	receiver PR12S-TM5DPR-E2	

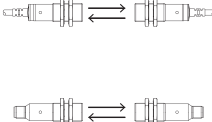
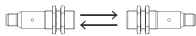


Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Through beam type		2m Cable	10m		Emitter PR12S-TM10D	Emitter PR12S-TM10D
		Connector			Emitter PR12S-TM10D-E2	Emitter PR12S-TM10D-E2
		2m Cable		NO	Receiver PR12S-TM10DNO	Receiver PR12S-TM10DPO
				NC	Receiver PR12S-TM10DNC	Receiver PR12S-TM10DPC
		Connector		NO+NC	Receiver PR12S-TM10DNR	Receiver PR12S-TM10DPR
				NO	Receiver PR12S-TM10DNO-E2	Receiver PR12S-TM10DPO-E2
				NC	Receiver PR12S-TM10DNC-E2	Receiver PR12S-TM10DPC-E2
				NO+NC	Receiver PR12S-TM10DNR-E2	Receiver PR12S-TM10DPR-E2
Diffuse reflection type		2m Cable	15m	NO	PR12-BC15DNO	PR12-BC15DPO
		Connector		NC	PR12-BC15DNC	PR12-BC15DPC
				NO+NC	PR12-BC15DNR	PR12-BC15DPR
				NO	PR12-BC15DNO-E2	PR12-BC15DPO-E2
				NC	PR12-BC15DNC-E2	PR12-BC15DPC-E2
				NO+NC	PR12-BC15DNR-E2	PR12-BC15DPR-E2
		2m Cable	15m	NO	PR12S-BC15DNO	PR12S-BC15DPO
		Connector		NC	PR12S-BC15DNC	PR12S-BC15DPC
				NO+NC	PR12S-BC15DNR	PR12S-BC15DPR
				NO	PR12S-BC15DNO-E2	PR12S-BC15DPO-E2
				NC	PR12S-BC15DNC-E2	PR12S-BC15DPC-E2
				NO+NC	PR12S-BC15DNR-E2	PR12S-BC15DPR-E2

Ultra-thin
Micro square
Little square
Large square
Round and square

Cylindrical

PR18 Series

Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Through beam type		2m Cable	10m		Emitter PR18-TM10D	Emitter PR18-TM10D
		Connector			Emitter PR18-TM10D-E2	Emitter PR18-TM10D-E2
		2m Cable		NO	Receiver PR18-TM10DNO	Receiver PR18-TM10DPO
				NC	Receiver PR18-TM10DNC	Receiver PR18-TM10DPC
		Connector		NO+NC	Receiver PR18-TM10DNR	Receiver PR18-TM10DPR
				NO	Receiver PR18-TM10DNO-E2	Receiver PR18-TM10DPO-E2
				NC	Receiver PR18-TM10DNC-E2	Receiver PR18-TM10DPC-E2
				NO+NC	Receiver PR18-TM10DNR-E2	Receiver PR18-TM10DPR-E2
		2m Cable	20m	NO	Emitter PR18-TM20D	Emitter PR18-TM20D
		Connector		NC	Emitter PR18-TM20D-E2	Emitter PR18-TM20D-E2
		2m Cable		NO+NC	Receiver PR18-TM20DNO	Receiver PR18-TM20DPO
				NO	Receiver PR18-TM20DNC	Receiver PR18-TM20DPR
		Connector		NC	Receiver PR18-TM20DNR	Receiver PR18-TM20DPC
				NO+NC	Receiver PR18-TM20DNO-E2	Receiver PR18-TM20DPO-E2
				NO	Receiver PR18-TM20DNC-E2	Receiver PR18-TM20DPC-E2
				NC	Receiver PR18-TM20DNR-E2	Receiver PR18-TM20DPR-E2
		2m Cable	10m		Emitter PR18-TM10A	Emitter PR18-TM10A
		Connector			Emitter PR18-TM10A-E2	Emitter PR18-TM10A-E2
		2m Cable		AC2wiresNO	Receiver PR18-TM10ATO	Receiver PR18-TM10ATC
		Connector		AC2wiresNC	Receiver PR18-TM10ATO-E2	Receiver PR18-TM10ATC-E2

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Cylindrical Series

Photoelectric

Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Through beam type		2m Cable	10m		Emitter PR18S-TM10D	Emitter PR18S-TM10D
		Connector			Emitter PR18S-TM10D-E2	Emitter PR18S-TM10D-E2
		2m Cable		NO	Receiver PR18S-TM10DNO	Receiver PR18S-TM10DPO
				NC	Receiver PR18S-TM10DNC	Receiver PR18S-TM10DPC
				NO+NC	Receiver PR18S-TM10DNR	Receiver PR18S-TM10DPR
		Connector		NO	Receiver PR18S-TM10DNO-E2	Receiver PR18S-TM10DPO-E2
			NC	Receiver PR18S-TM10DNC-E2	Receiver PR18S-TM10DPC-E2	
			NO+NC	Receiver PR18S-TM10DNR-E2	Receiver PR18S-TM10DPR-E2	
		2m Cable	20m		Emitter PR18S-TM20D	Emitter PR18S-TM20D
				NO	Emitter PR18S-TM20D-E2	Emitter PR18S-TM20D-E2
				NC	Receiver PR18S-TM20DNO	Receiver PR18S-TM20DPO
				NO+NC	Receiver PR18S-TM20DNC	Receiver PR18S-TM20DPR
				NO	Receiver PR18S-TM20DNR	Receiver PR18S-TM20DPC
				NC	Receiver PR18S-TM20DNO-E2	Receiver PR18S-TM20DPO-E2
			Connector	NO+NC	Receiver PR18S-TM20DNC-E2	Receiver PR18S-TM20DPC-E2
				Receiver PR18S-TM20DNR-E2	Receiver PR18S-TM20DPR-E2	
	2m Cable	10m		Emitter PR18S-TM10A	Emitter PR18S-TM10A	
				Emitter PR18S-TM10A-E2	Emitter PR18S-TM10A-E2	
			AC2wiresNO	Receiver PR18S-TM10ATO	Receiver PR18S-TM10ATC	
			AC2wiresNC	Receiver PR18S-TM10ATO-E2	Receiver PR18S-TM10ATC-E2	
			10m		Emitter PR18G-TM10D	Emitter PR18G-TM10D
		Connector			Emitter PR18G-TM10D-E2	Emitter PR18G-TM10D-E2
		2m Cable		NO	Receiver PR18G-TM10DNO	Receiver PR18G-TM10DPO
				NC	Receiver PR18G-TM10DNC	Receiver PR18G-TM10DPC
				NO+NC	Receiver PR18G-TM10DNR	Receiver PR18G-TM10DPR
		Connector		NO	Receiver PR18G-TM10DNO-E2	Receiver PR18G-TM10DPO-E2
			NC	Receiver PR18G-TM10DNC-E2	Receiver PR18G-TM10DPC-E2	
			NO+NC	Receiver PR18G-TM10DNR-E2	Receiver PR18G-TM10DPR-E2	
			2m Cable	20m		Emitter PR18G-TM20D
					Emitter PR18G-TM20D-E2	Emitter PR18G-TM20D-E2
		NO			Receiver PR18G-TM20DNO	Receiver PR18G-TM20DPO
		NC			Receiver PR18G-TM20DNC	Receiver PR18G-TM20DPR
NO+NC		Receiver PR18G-TM20DNR			Receiver PR18G-TM20DPC	
NO		Receiver PR18G-TM20DNO-E2			Receiver PR18G-TM20DPO-E2	
Connector		NC		Receiver PR18G-TM20DNC-E2	Receiver PR18G-TM20DPC-E2	
		NO+NC		Receiver PR18G-TM20DNR-E2	Receiver PR18G-TM20DPR-E2	
2m Cable		10m		Emitter PR18G-TM10A	Emitter PR18G-TM10A	
			Emitter PR18G-TM10A-E2	Emitter PR18G-TM10A-E2		
	AC2wiresNO		Receiver PR18G-TM10ATO	Receiver PR18GS-TM10ATC		
	AC2wiresNC		Receiver PR18G-TM10ATO-E2	Receiver PR18GS-TM10ATC-E2		

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

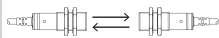
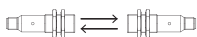
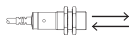
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Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Through beam type		2m Cable	10m		Emitter PR18GS-TM10D	Emitter PR18GS-TM10D
		Connector			Emitter PR18GS-TM10D-E2	Emitter PR18GS-TM10D-E2
		2m Cable		NO	Receiver PR18GS-TM10DNO	Receiver PR18GS-TM10DPO
				NC	Receiver PR18GS-TM10DNC	Receiver PR18GS-TM10DPC
		Connector		NO+NC	Receiver PR18GS-TM10DNR	Receiver PR18GS-TM10DPR
				NO	Receiver PR18GS-TM10DNO-E2	Receiver PR18GS-TM10DPO-E2
		Connector	NC	Receiver PR18GS-TM10DNC-E2	Receiver PR18GS-TM10DPC-E2	
			NO+NC	Receiver PR18GS-TM10DNR-E2	Receiver PR18GS-TM10DPR-E2	
		2m Cable	20m		Emitter PR18GS-TM20D	Emitter PR18GS-TM20D
		Connector			Emitter PR18GS-TM20D-E2	Emitter PR18GS-TM20D-E2
		2m Cable		NO	Receiver PR18GS-TM20DNO	Receiver PR18GS-TM20DPO
				NC	Receiver PR18GS-TM20DNC	Receiver PR18GS-TM20DPR
		Connector		NO+NC	Receiver PR18GS-TM20DNR	Receiver PR18GS-TM20DPC
				NO	Receiver PR18GS-TM20DNO-E2	Receiver PR18GS-TM20DPO-E2
		Connector	NC	Receiver PR18GS-TM20DNC-E2	Receiver PR18GS-TM20DPC-E2	
			NO+NC	Receiver PR18GS-TM20DNR-E2	Receiver PR18GS-TM20DPR-E2	
	2m Cable	10m		Emitter PR18GS-TM10A	Emitter PR18GS-TM10A	
	Connector			Emitter PR18GS-TM10A-E2	Emitter PR18GS-TM10A-E2	
	2m Cable		AC2wiresNO	Receiver PR18GS-TM10ATO	Receiver PR18GS-TM10ATC	
	Connector		AC2wiresNC	Receiver PR18GS-TM10ATO-E2	Receiver PR18GS-TM10ATC-E2	
Diffuse reflection type		2m Cable	10cm	NO	PR18-BC10DNO	PR18-BC10DPO
				NC	PR18-BC10DNC	PR18-BC10DPC
				NO+NC	PR18-BC10DNR	PR18-BC10DPR
		Connector		NO	PR18-BC10DNO-E2	PR18-BC10DPO-E2
				NC	PR18-BC10DNC-E2	PR18-BC10DPC-E2
				NO+NC	PR18-BC10DNR-E2	PR18-BC10DPR-E2
		2m Cable	40cm	NO	PR18-BC40DNO	PR18-BC40DPO
				NC	PR18-BC40DNC	PR18-BC40DPC
				NO+NC	PR18-BC40DNR	PR18-BC40DPR
		Connector		NO	PR18-BC40DNO-E2	PR18-BC40DPO-E2
				NC	PR18-BC40DNC-E2	PR18-BC40DPC-E2
				NO+NC	PR18-BC40DNR-E2	PR18-BC40DPR-E2
		2m Cable	10cm	AC2wiresNO	PR18-BC10ATO	PR18-BC10ATC
		Connector		AC2wiresNC	PR18-BC10ATO-E2	PR18-BC10ATC-E2
		2m Cable	40cm	AC2wiresNO	PR18-BC40ATO	PR18-BC40ATC
		Connector		AC2wiresNC	PR18-BC40ATO-E2	PR18-BC40ATC-E2
		2m Cable	10cm	NO	PR18S-BC10DNO	PR18S-BC10DPO
				NC	PR18S-BC10DNC	PR18S-BC10DPC
				NO+NC	PR18S-BC10DNR	PR18S-BC10DPR
		Connector		NO	PR18S-BC10DNO-E2	PR18S-BC10DPO-E2
NC	PR18S-BC10DNC-E2			PR18S-BC10DPC-E2		
NO+NC	PR18S-BC10DNR-E2			PR18S-BC10DPR-E2		
2m Cable	40cm	NO	PR18S-BC40DNO	PR18S-BC40DPO		
		NC	PR18S-BC40DNC	PR18S-BC40DPC		
		NO+NC	PR18S-BC40DNR	PR18S-BC40DPR		

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

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- Ultra-thin
- Micro square
- Little square
- Large square
- Round and square

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Detection method	Shape	Connection	Sensing distance	Type	Mode		
					NPN Output	PNP Output	
Diffuse reflection type		Connector	40m	NO	PR18S-BC40DNO-E2	PR18S-BC40DPO-E2	
				NC	PR18S-BC40DNC-E2	PR18S-BC40DPC-E2	
				NO+NC	PR18S-BC40DNR-E2	PR18S-BC40DPR-E2	
		2m Cable	10cm	AC 2wires NO	PR18S-BC10ATO	PR18S-BC10ATC	
		Connector		AC 2wires NC	PR18S-BC10ATO-E2	PR18S-BC10ATC-E2	
		2m Cable	40cm	AC 2wires NO	PR18S-BC40ATO	PR18S-BC40ATC	
		Connector		AC 2wires NC	PR18S-BC40ATO-E2	PR18S-BC40ATC-E2	
		2m Cable	10cm	NO	PR18G-BC10DNO	PR18G-BC10DPO	
				NC	PR18G-BC10DNC	PR18G-BC10DPC	
				NO+NC	PR18G-BC10DNR	PR18G-BC10DPR	
				Connector	NO	PR18G-BC10DNO-E2	PR18G-BC10DPO-E2
					NC	PR18G-BC10DNC-E2	PR18G-BC10DPC-E2
					NO+NC	PR18G-BC10DNR-E2	PR18G-BC10DPR-E2
		2m Cable	40cm	NO	PR18G-BC40DNO	PR18G-BC40DPO	
				NC	PR18G-BC40DNC	PR18G-BC40DPC	
				NO+NC	PR18G-BC40DNR	PR18G-BC40DPR	
				Connector	NO	PR18G-BC40DNO-E2	PR18G-BC40DPO-E2
					NC	PR18G-BC40DNC-E2	PR18G-BC40DPC-E2
					NO+NC	PR18G-BC40DNR-E2	PR18G-BC40DPR-E2
		2m Cable	10cm	AC 2wires NO	PR18G-BC10ATO	PR18G-BC10ATC	
		Connector		AC 2wires NC	PR18G-BC10ATO-E2	PR18G-BC10ATC-E2	
		2m Cable	40cm	AC 2wires NO	PR18G-BC40ATO	PR18G-BC40ATC	
		Connector		AC 2wires NC	PR18G-BC40ATO-E2	PR18G-BC40ATC-E2	
		2m Cable	10cm	NO	PR18GS-BC10DNO	PR18GS-BC10DPO	
				NC	PR18GS-BC10DNC	PR18GS-BC10DPC	
				NO+NC	PR18GS-BC10DNR	PR18GS-BC10DPR	
				Connector	NO	PR18GS-BC10DNO-E2	PR18GS-BC10DPO-E2
					NC	PR18GS-BC10DNC-E2	PR18GS-BC10DPC-E2
					NO+NC	PR18GS-BC10DNR-E2	PR18GS-BC10DPR-E2
	2m Cable	40cm	NO	PR18GS-BC40DNO	PR18GS-BC40DPO		
			NC	PR18GS-BC40DNC	PR18GS-BC40DPC		
			NO+NC	PR18GS-BC40DNR	PR18GS-BC40DPR		
			Connector	NO	PR18GS-BC40DNO-E2	PR18GS-BC40DPO-E2	
				NC	PR18GS-BC40DNC-E2	PR18GS-BC40DPC-E2	
				NO+NC	PR18GS-BC40DNR-E2	PR18GS-BC40DPR-E2	
	2m Cable	10cm	AC 2wires NO	PR18GS-BC10ATO	PR18GS-BC10ATC		
	Connector		AC 2wires NC	PR18GS-BC10ATO-E2	PR18GS-BC10ATC-E2		
	2m Cable	40cm	AC 2wires NO	PR18GS-BC40ATO	PR18GS-BC40ATC		
	Connector		AC 2wires NC	PR18GS-BC40ATO-E2	PR18GS-BC40ATC-E2		
Background suppression type		2m Cable	10cm	NO	PR18-YC10DNR	PR18-YC10DPR	
		Connector		NC	PR18-YC10DNR-E2	PR18-YC10DPR-E2	
Retro-reflection type		2m Cable	3m	NO	PR18-DM3DNO	PR18-DM3DPO	
				NC	PR18-DM3DNC	PR18-DM3DPC	
				NO+NC	PR18-DM3DNR	PR18-DM3DPR	
		Connector		NO	PR18-DM3DNO-E2	PR18-DM3DPO-E2	
				NC	PR18-DM3DNC-E2	PR18-DM3DPC-E2	



Official website

Detection method	Shape	Connection	Sensing distance	Type	Mode		
					NPN Output	PNP Output	
Retro-reflection type		Connector	3m	NO+NC	PR18-DM3DNR-E2	PR18-DM3DPR-E2	
		2m Cable	3m	NO	PR18-DM3ATO	PR18-DM3ATC	
		Connector		NC	PR18-DM3ATO-E2	PR18-DM3ATC-E2	
		2m Cable	3m	NO	PR18S-DM3DNO	PR18S-DM3DPO	
				NC	PR18S-DM3DNC	PR18S-DM3DPC	
				NO+NC	PR18S-DM3DNR	PR18S-DM3DPR	
		Connector	3m	NO	PR18S-DM3DNO-E2	PR18S-DM3DPO-E2	
				NC	PR18S-DM3DNC-E2	PR18S-DM3DPC-E2	
				NO+NC	PR18S-DM3DNR-E2	PR18S-DM3DPR-E2	
		2m Cable	3m	NO	PR18S-DM3ATO	PR18S-DM3ATC	
		Connector		NC	PR18S-DM3ATO-E2	PR18S-DM3ATC-E2	
		2m Cable	3m	NO	PR18G-DM3DNO	PR18G-DM3DPO	
				NC	PR18G-DM3DNC	PR18G-DM3DPC	
				NO+NC	PR18G-DM3DNR	PR18G-DM3DPR	
		Connector		NO	PR18G-DM3DNO-E2	PR18G-DM3DPO-E2	
				NC	PR18G-DM3DNC-E2	PR18G-DM3DPC-E2	
				NO+NC	PR18G-DM3DNR-E2	PR18G-DM3DPR-E2	
		2m Cable	3m	NO	PR18G-DM3ATO	PR18G-DM3ATC	
		Connector		NC	PR18G-DM3ATO-E2	PR18G-DM3ATC-E2	
		2m Cable	3m	NO	PR18GS-DM3DNO	PR18GS-DM3DPO	
				NC	PR18GS-DM3DNC	PR18GS-DM3DPC	
				NO+NC	PR18GS-DM3DNR	PR18GS-DM3DPR	
		Connector		NO	PR18GS-DM3DNO-E2	PR18GS-DM3DPO-E2	
				NC	PR18GS-DM3DNC-E2	PR18GS-DM3DPC-E2	
				NO+NC	PR18GS-DM3DNR-E2	PR18GS-DM3DPR-E2	
		2m Cable	3m	NO	PR18GS-DM3ATO	PR18GS-DM3ATC	
		Connector		NC	PR18GS-DM3ATO-E2	PR18GS-DM3ATC-E2	

Ultra-thin

Micro square

Little square

Large square

Round and square

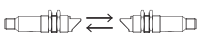
Cylindrical

Naming rules

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PR30 Series

Detection method	Shape	Connection	Sensing distance	Type	Mode		
					NPN Output	PNP Output	
Through beam type		2m Cable	20m		Emitter PR30-TM20D	Emitter PR30-TM20D	
		Connector			Emitter PR30-TM20D-E2	Emitter PR30-TM20D-E2	
		2m Cable		NO	Receiver PR30-TM20DNO	Receiver PR30-TM20DPO	
				NC	Receiver PR30-TM20DNC	Receiver PR30-TM20DPC	
				NO+NC	Receiver PR30-TM20DNR	Receiver PR30-TM20DPR	
		Connector		NO	Receiver PR30-TM20DNO-E2	Receiver PR30-TM20DPO-E2	
				NC	Receiver PR30-TM20DNC-E2	Receiver PR30-TM20DPC-E2	
				NO+NC	Receiver PR30-TM20DNR-E2	Receiver PR30-TM20DPR-E2	
		2m Cable	40m		Emitter PR30-TM40D	Emitter PR30-TM40D	
		Connector			Emitter PR30-TM40D-E2	Emitter PR30-TM40D-E2	
		2m Cable		NO	Receiver PR30-TM40DNO	Receiver PR30-TM40DPO	
				NC	Receiver PR30-TM40DNC	Receiver PR30-TM40DPC	
				NO+NC	Receiver PR30-TM40DNR	Receiver PR30-TM40DPR	
		Connector		NO	Receiver PR30-TM40DNO-E2	Receiver PR30-TM40DPO-E2	



Official website

Selection List

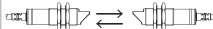
Cylindrical Series

Photoelectric

- Ultra-thin
- Micro square
- Little square
- Large square
- Round and square

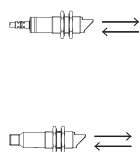
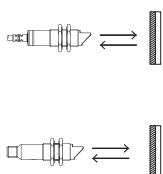
Cylindrical

- Naming rules
- Product family
- Technical guide

Detection method	Shape	Connection	Sensing distance	Type	Mode			
					NPN Output	PNP Output		
Through beam type		Connector	40m	NC	Receiver PR30-TM40DNC-E2	Receiver PR30-TM40DPC-E2		
				NO+NC	Receiver PR30-TM40DNR-E2	Receiver PR30-TM40DPR-E2		
		2m Cable	20m		Emitter PR30-TM20A	Emitter PR30-TM20A		
		Connector			Emitter PR30-TM20A-E2	Emitter PR30-TM20A-E2		
		2m Cable		AC 2wiresNC	Receiver PR30-TM20ATO	Receiver PR30-TM20ATC		
		Connector		AC 2wiresNO	Receiver PR30-TM20ATO-E2	Receiver PR30-TM20ATC-E2		
		2m Cable	40m		Emitter PR30S-TM20D	Emitter PR30S-TM20D		
		Connector			Emitter PR30S-TM20D-E2	Emitter PR30S-TM20D-E2		
		2m Cable		NO	Receiver PR30S-TM20DNO	Receiver PR30S-TM20DPO		
				NC	Receiver PR30S-TM20DNC	Receiver PR30S-TM20DPC		
		2m Cable	40m	NO+NC	Receiver PR30S-TM20DNR	Receiver PR30S-TM20DPR		
				Connector	20m	NO	Receiver PR30S-TM20DNO-E2	Receiver PR30S-TM20DPO-E2
					NC	Receiver PR30S-TM20DNC-E2	Receiver PR30S-TM20DPC-E2	
					NO+NC	Receiver PR30S-TM20DNR-E2	Receiver PR30S-TM20DPR-E2	
		2m Cable	40m		Emitter PR30S-TM40D	Emitter PR30S-TM40D		
		Connector			Emitter PR30S-TM40D-E2	Emitter PR30S-TM40D-E2		
		2m Cable		NO	Receiver PR30S-TM40DNO	Receiver PR30S-TM40DPO		
				NC	Receiver PR30S-TM40DNC	Receiver PR30S-TM40DPC		
		2m Cable	40m	NO+NC	Receiver PR30S-TM40DNR	Receiver PR30S-TM40DPR		
				Connector	40m	NO	Receiver PR30S-TM40DNO-E2	Receiver PR30S-TM40DPO-E2
					NC	Receiver PR30S-TM40DNC-E2	Receiver PR30S-TM40DPC-E2	
					NO+NC	Receiver PR30S-TM40DNR-E2	Receiver PR30S-TM40DPR-E2	
		2m Cable	20m		Emitter PR30S-TM20A	Emitter PR30S-TM20A		
		Connector			Emitter PR30S-TM20A-E2	Emitter PR30S-TM20A-E2		
		2m Cable		AC 2wiresNO	Receiver PR30S-TM20ATO	Receiver PR30S-TM20ATC		
		Connector		AC 2wiresNC	Receiver PR30S-TM20ATO-E2	Receiver PR30S-TM20ATC-E2		
		2m Cable	40m		Emitter PR30S-TM40A	Emitter PR30S-TM40A		
		Connector			Emitter PR30S-TM40A-E2	Emitter PR30S-TM40A-E2		
2m Cable	AC 2wiresNO	Receiver PR30S-TM40ATO		Receiver PR30S-TM40ATC				
Connector	AC 2wiresNC	Receiver PR30S-TM40ATO-E2		Receiver PR30S-TM40ATC-E2				
Diffuse reflection type	 	2m Cable	50cm	NO	PR30-BC50DNO	PR30-BC50DPO		
				NC	PR30-BC50DNC	PR30-BC50DPC		
				NO+NC	PR30-BC50DNR	PR30-BC50DPR		
		Connector		NO	PR30-BC50DNO-E2	PR30-BC50DPO-E2		
				NC	PR30-BC50DNC-E2	PR30-BC50DPC-E2		
				NO+NC	PR30-BC50DNR-E2	PR30-BC50DPR-E2		
		2m Cable	100cm	NO	PR30-BC100DNO	PR30-BC100DPO		
				NC	PR30-BC100DNC	PR30-BC100DPC		
				NO+NC	PR30-BC100DNR	PR30-BC100DPR		
		Connector		NO	PR30-BC100DNO-E2	PR30-BC100DPO-E2		
				NC	PR30-BC100DNC-E2	PR30-BC100DPC-E2		
				NO+NC	PR30-BC100DNR-E2	PR30-BC100DPR-E2		
		2m Cable	50cm	AC 2wiresNC	PR30-BC50ATO	PR30-BC50ATC		
		Connector		AC 2wiresNO	PR30-BC50ATO-E2	PR30-BC50ATC-E2		
		2m Cable	100cm	AC 2wiresNC	PR30-BC100ATO	PR30-BC100ATC		
		Connector		AC 2wiresNO	PR30-BC100ATO-E2	PR30-BC100ATC-E2		



Official website

Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Diffuse reflection type		2m Cable	50cm	NO	PR30S-BC50DNO	PR30S-BC50DPO
				NC	PR30S-BC50DNC	PR30S-BC50DPC
				NO+NC	PR30S-BC50DNR	PR30S-BC50DPR
		Connector		NO	PR30S-BC50DNO-E2	PR30S-BC50DPO-E2
				NC	PR30S-BC50DNC-E2	PR30S-BC50DPC-E2
				NO+NC	PR30S-BC50DNR-E2	PR30S-BC50DPR-E2
		2m Cable	100cm	NO	PR30S-BC100DNO	PR30S-BC100DPO
				NC	PR30S-BC100DNC	PR30S-BC100DPC
				NO+NC	PR30S-BC100DNR	PR30S-BC100DPR
		Connector		NO	PR30S-BC100DNO-E2	PR30S-BC100DPO-E2
				NC	PR30S-BC100DNC-E2	PR30S-BC100DPC-E2
				NO+NC	PR30S-BC100DNR-E2	PR30S-BC100DPR-E2
		2m Cable	50cm	AC 2wiresNC	PR30S-BC50ATO	PR30S-BC50ATC
		Connector		AC 2wiresNO	PR30S-BC50ATO-E2	PR30S-BC50ATC-E2
		2m Cable	100cm	AC 2wiresNC	PR30S-BC100ATO	PR30S-BC100ATC
		Connector		AC 2wiresNO	PR30S-BC100ATO-E2	PR30S-BC100ATC-E2
Retro-reflection type		2m Cable	5m	NO	PR30-DM5DNO	PR30-DM5DPO
				NC	PR30-DM5DNC	PR30-DM5DPC
				NO+NC	PR30-DM5DNR	PR30-DM5DPR
		Connector		NO	PR30-DM5DNO-E2	PR30-DM5DPO-E2
				NC	PR30-DM5DNC-E2	PR30-DM5DPC-E2
				NO+NC	PR30-DM5DNR-E2	PR30-DM5DPR-E2
		2m Cable	5m	NO	PR30-DM5ATO	PR30-DM5ATC
		Connector		NC	PR30-DM5ATO-E2	PR30-DM5ATC-E2
		2m Cable	5m	NO	PR30S-DM5DNO	PR30S-DM5DPO
				NC	PR30S-DM5DNC	PR30S-DM5DPC
				NO+NC	PR30S-DM5DNR	PR30S-DM5DPR
		Connector		NC	PR30S-DM5DNO-E2	PR30S-DM5DPO-E2
				NO	PR30S-DM5DNC-E2	PR30S-DM5DPC-E2
				NO+NC	PR30S-DM5DNR-E2	PR30S-DM5DPR-E2
		2m Cable	5m	NO	PR30S-DM5ATO	PR30S-DM5ATC
		Connector		NC	PR30S-DM5ATO-E2	PR30S-DM5ATC-E2

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

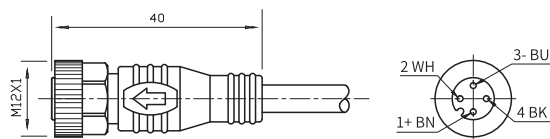
Product family

Technical guide

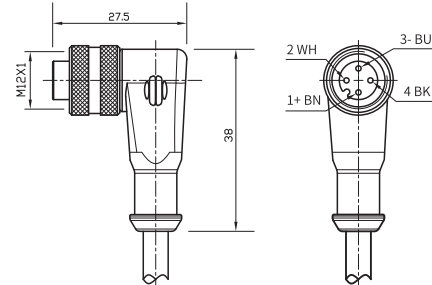


Official website

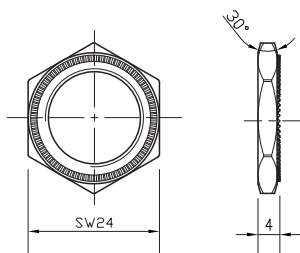
M12 Connector QE12-N4F2



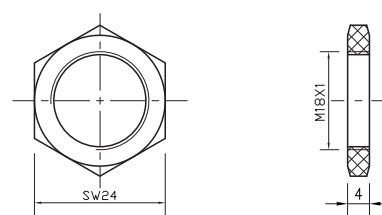
M12 Connector QE12-N4G2



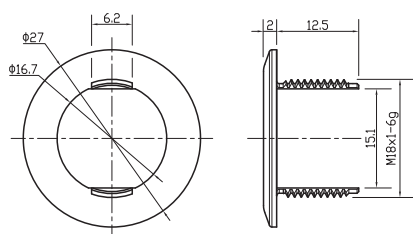
M18 Nut-PSM



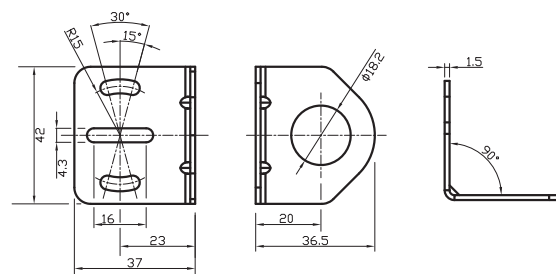
M18 Nut-PSS



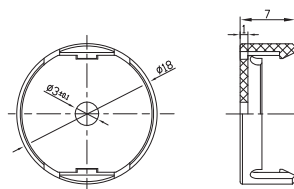
Installation bracket ZJP-10



Installation bracket ZJP-9



Narrow slot FJP-03A



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

PSM Through beam/Diffuse reflection

Model	PSM-TM□□□□-□	PSM-BC□□□□□-□			
Detection principle	Through beam	Diffuse reflection			
Detection distance	20m	10cm ^①	40cm ^①		100cm ^②
Light source type	Infrared light	Infrared light	Red point light source	Infrared light	Infrared light
Detecting objects	φ15mm Above opaque objects	/			
Spot size	/	10mm	15*15mm@40cm ^③		/
Blind area	/	7mm			3mm
Hysteresis	/	3...20%			
Adjustment method	Single-turn potentiometer				
Power supply	10...30V DC (Ripple P-P: ≤10%) ;Current consumption: ≤20mA				
Output characteristic	Load current: ≤200mA;Voltage drop: ≤1V;Leakage current: ≤0.1mA				
Protection circuit	Short circuit protection,reverse polarity protection,overload protection				
Indicator light	Green light:Power indication;Yellow light:Output indication				
Response time	T-on: ≤1ms;T-off: ≤1ms		T-on: ≤0.5ms;T-off: ≤0.5ms		
Ambient light resistance	Anti-sunlight interference ≤10,000Lux;Anti-incandescent light interference ≤3,000Lux				
Working environment	Working Temperature:-25...55℃;storage Temperature:-35...70℃;ambient Humidity:35...95% (No condensation or dew on optical surfaces)				
Protection level	IP67				
Shell material	Nickel copper alloy				
Connection method	Cable type(Standard length 2m), plug-in type optional				
Dimensional drawing	See page P06-031 for details				

Note: ① Measured using a 20*20cm white card with a reflectivity of 90%.
 ② Measured using a 30*30cm white card with a reflectivity of 90%.
 ③ This data is the red point light source data.

PSM Background suppression/Polarized reflection/Transparent bottle detection

Model	PSM-YC□D□BR-□	PSM-PM3D□BR-□	PSM-GM2D□BR-□
Detection principle	Background suppression	Polarized reflection	Transparent bottle detection
Detection distance	10cm ^①	3m ^②	2m ^②
Light source type	Red point light source		Blue point light source
Detecting objects	/		>φ35mm Objects with a transmittance of more than 15% ^③
Spot size	8*8mm@10cm	45*45mm@100cm	
Blind area	4mm ^①	/	
Hysteresis	≤5%	/	
Adjustment method	Not adjustable	Single-turn potentiometer	
Power supply	10...30V DC (Ripple P-P: ≤10%);Current consumption:≤20mA		
Output characteristic	Load current:≤100mA;Voltage drop:≤1.8V	Load current:≤200mA;Voltage drop:≤1V;Leakage current:≤0.1mA	
Protection circuit	Short circuit protection,reverse polarity protection,overload protection		
Indicator light	Green light:Power indication;Yellow light:Output indication		
Response time	T-on: ≤0.5ms; T-off: ≤0.5ms		
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux		
Working environment	Working temperature:-20...55°C;Storage temperature:-30...70°C;ambient humidity:35...95% (No condensation or dew on optical surfaces)		
Protection level	IP67		
Shell material	Nickel copper alloy		
Connection method	Cable type(Standard length 2m),plug-in type optional		
Dimensional drawing	See page P06-030 for details		

Note: ① Measured using a 20*20cm white card with a reflectivity of 90%.
 ② Measured using a reflector TD-09.
 ③ Smaller object detection can be achieved through adjustment.

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

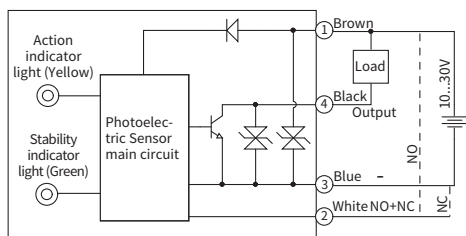
Technical guide



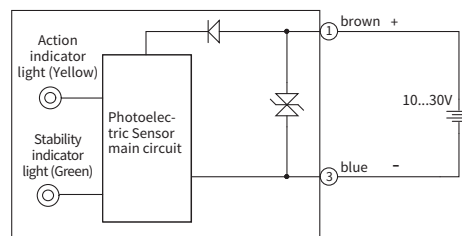
Official website

PSM Through beam /Diffuse reflection / Background suppression /Polarized reflection/Transparent bottle detection type

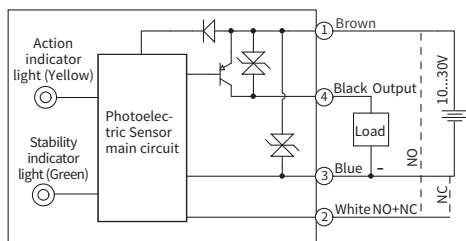
Receiver NPN



Emitter



Receiver PNP



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

I PSS Through beam /Diffuse reflection

Model	PSS-TM□D□□□-□	PSS-BC□D□□□-□			
Detection principle	Through beam	Diffuse reflection			
Detection distance	20m	10cm ^①	40cm ^①		100cm ^②
Light source type	Infrared light	Infrared light	Red point light source	Infrared light	Infrared light
Detecting objects	φ15mm Above opaque objects	/			
Spot size	/	/	15*15mm@40cm ^③		/
Blind area	/	5mm			
Hysteresis	/	3...20%			
Adjustment method	Single-turn potentiometer				
Power supply	10...30V DC (Ripple P-P:≤10%) ;Current consumption:≤20mA				
Output characteristic	Load current:≤200mA;Voltage drop:≤1V;Leakage current:≤0.1mA				
Protection circuit	Short circuit protection,reverse polarity protection,overload protection				
Indicator light	Green light:Power indication;Yellow light:Output indication				
Response time	T-on:≤1ms;T-off:≤1ms		T-on:≤0.5ms;T-off:≤0.5ms		
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux				
Working environment	Working Temperature:-25...55°C;storage Temperature:-35...70°C;ambi-ent Humidity:35...95% (No condensation or dew on optical surfaces)				
Protection level	IP67				
Shell material	PC+ABS				
Connection method	Cable type(Standard length 2m),plug-in type optional				
Dimensional drawing	See page P06-031 for details				

Note: ① Measured using a 20*20cm white card with a reflectivity of 90%.
 ② Measured using a 30*30cm white card with a reflectivity of 90%.
 ③ This data is the red point light source data.

I PSS Background suppression/Polarized reflection/Transparent bottle detection

Model	PSS-YC□D□BR-□	PSS-PM3D□BR-□	PSS-GM2D□BR-□
Detection principle	Background suppression	Polarized reflection	Transparent bottle detection
Detection distance	10cm ^①	3m ^②	2m ^②
Light source type	Red point light source		Blue point light source
Detecting objects	/		>φ35mm Objects with a transmittance of more than 15% ^③
Spot size	8*8mm@10cm	45*45mm@100cm	
Blind area	4mm ^①	/	
Hysteresis	≤5%	/	
Adjustment method	Not adjustable	Single-turn potentiometer	
Power supply	10...30V DC (Ripple P-P: ≤10%);Current consumption:≤20mA		
Output characteristic	Load current:≤100mA;Voltage drop:≤1.8V	Load current:≤200mA;Voltage drop:≤1V;Leakage current:≤0.1mA	
Protection circuit	Short circuit protection,reverse polarity protection,overload protection		
Indicator light	Green light:Power indication;Yellow light:Output indication		
Response time	T-on: ≤0.5ms;T-off: ≤0.5ms		
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux		
Working environment	Working temperature:-20...55°C;Storage temperature:-30...70°C;ambient humidity:35...95% (No condensation or dew on optical surfaces)		
Protection level	IP67		
Shell material	PC+ABS		
Connection method	Cable type(Standard length 2m),plug-in type optional		
Dimensional drawing	See page P06-031 for details		

Note: ① Measured using a 20*20cm white card with a reflectivity of 90%.
 ② Measured using a reflector TD-09.
 ③ Smaller object detection can be achieved through adjustment.

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

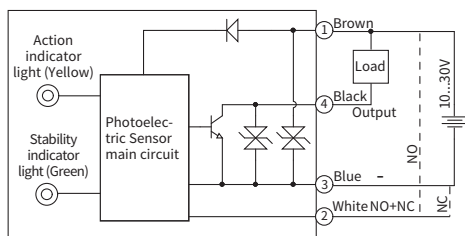
Technical guide



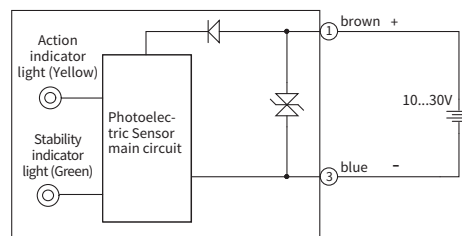
Official website

I PSS Through beam/Diffuse reflection/Background suppression/Polarized reflection/Transparent bottle detection type

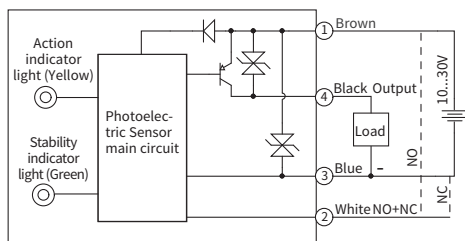
Receiver NPN



Emitter



Receiver PNP



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

PR 12 Through beam

Model	PR12-TM□D□□-□		PR12S-TM□D□□-□	
Detection principle	Through beam			
Detection distance	5m (Not adjustable)	10m (Not adjustable)	5m (Not adjustable)	10m (Not adjustable)
Light source type	Infrared light			
Detecting objects	φ10mm Above opaque objects			
Target	/			
Blind area	/			
Hysteresis	/			
Adjustment method	Not adjustable			
Power supply	10...30V DC (Ripple P-P:≤10%);Current consumption:≤25mA			
Output characteristic	Load current:≤200mA (receiver);Voltage drop:≤2.5V (receiver);Leakage current:≤0.1mA			
Protection circuit	Short circuit protection,reverse polarity protection,overload protection			
Indicator light	Output indication:Green light for transmitter, yellow light for receiver			
Response time	T-on:≤8.2ms;T-off:≤8.2ms			
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux			
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C;ambient Humidity:35...95% (No condensation or dew on optical surfaces)			
Protection level	IP67			
Shell material	Nickel copper alloy		PBT	
Connection method	Cable type(Standard length 2m),plug-in type optional			
Dimensional drawing	See page P06-032 for details			

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

PR12 Diffuse reflection

Model	PR12-BC15D□□-□	PR12S-BC15D□□-□
Detection principle	Diffuse reflection	
Detection distance	15cm (Adjustable)	
Light source type	Infrared light	
Detecting objects	opaque material	
Target	White card with 90% reflectivity	
Blind area	2mm	
Hysteresis	3...20%	
Adjustment method	Knob adjustment	
Power supply	10...30V DC (Ripple P-P:≤10%);Current consumption:≤25mA	
Output characteristic	Load current:≤200mA (receiver) ;Voltage drop:≤2.5V (receiver) ;Leakage current:≤0.1mA	
Protection circuit	Short circuit protection,reverse polarity protection,overload protection	
Indicator light	Yellow light: Output indicator	
Response time	T-on : ≤8.2ms;T-off: ≤8.2ms	
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux	
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C; ambient Humidity:35...95% (No condensation or dew on optical surfaces)	
Protection level	IP67	
Shell material	Nickel copper alloy	PBT
Connection method	Cable type(Standard length 2m),plug-in type optional	
Dimensional drawing	See page P06-032 for details	

Naming rules

Product family

Technical guide



Official website

I PR 18 Through beam

Model	PR18-TM□D□□-□		PR18S-TM□D□□-□	
Detection principle	Through beam			
Detection distance	10m (Not adjustable)	20m (Not adjustable)	10m (Not adjustable)	20m (Not adjustable)
Light source type	Infrared light			
Detecting objects	φ15mm Above opaque objects			
Target	/			
Blind area	/			
Hysteresis	/			
Adjustment method	Not adjustable			
Power supply	10...30V DC (Ripple P-P:≤10%) ;Current consumption:≤25mA			
Output characteristic	Load current:≤200mA (receiver) ;Voltage drop:≤2.5V (receiver) ;Leakage current:≤0.1mA			
Protection circuit	Short circuit protection,reverse polarity protection,overload protection			
Indicator light	Output indication:Green light for transmitter, yellow light for receiver			
Response time	T-on:≤8.2ms;T-off:≤8.2ms			
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux			
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C;ambient Humidity:35...95% (No condensation or dew on optical surfaces)			
Protection level	IP67			
Shell material	Nickel copper alloy		PBT	
Connection method	Cable type(Standard length 2m),plug-in type optional			
Dimensional drawing	See page P06-033 for details			

I PR18 Diffuse reflection

Model	PR18-BC□D□□-□		PR18S-BC□D□□-□	
Detection principle	Diffuse reflection			
Detection distance	10m (Not adjustable)	40m (Adjustable)	10m (Not adjustable)	40m (Adjustable)
Light source type	Infrared light			
Detecting objects	Opaque objects			
Target	white card with a reflectivity of 90%			
Blind area	2mm			
Hysteresis	3...20%			
Adjustment method	Knob adjustment			
Power supply	10...30V DC (Ripple P-P:≤10%) ;Current consumption:≤25mA			
Output characteristic	Load current:≤200mA (receiver) ;Voltage drop:≤2.5V (receiver) ;Leakage current:≤0.1mA			
Protection circuit	Short circuit protection,reverse polarity protection,overload protection			
Indicator light	Yellow light: Output indicator			
Response time	T-on:≤8.2ms;T-off:≤8.2ms			
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux			
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C; ambient Humidity:35...95% (No condensation or dew on optical surfaces)			
Protection level	IP67			
Shell material	Nickel copper alloy		PBT	
Connection method	Cable type(Standard length 2m),plug-in type optional			
Dimensional drawing	See page P06-033 for details			

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

I PR 18 Background suppression

Model	PR18-YC10D□R-□
Detection principle	Background suppression
Detection distance	10cm (Adjustable)
Light source type	Infrared light
Detecting objects	/
Target	White card with 90% reflectivity,Black card with 90% reflectivity
Black and white color difference	≤10%
Blind area	2mm
Adjustment method	Knob adjustment
Power supply	10...30V DC (Ripple P-P:≤10%);Current consumption:≤35mA
Output characteristic	Load current:≤200mA (receiver);Voltage drop:≤2.5V (receiver);Leakage current:≤0.1mA
Protection circuit	Short circuit protection,reverse polarity protection,overload protection
Indicator light	Yellow light: Output indicator
Response time	T-on: ≤2ms; T-off: ≤2ms
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C;ambient Humidity:35...95% (No condensation or dew on optical surfaces)
Protection level	IP67
Shell material	Nickel copper alloy
Connection method	Cable type(Standard length 2m),plug-in type optional
Dimensional drawing	See page P06-033 for details

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

I PR 18 Retro reflection

Model	PR18-DM3D □□-□	PR18S-DM3D□□-□
Detection principle	Retro reflection	
Detection distance	3m (Not adjustable)	
Light source type	Infrared light	
Detecting objects	Opaque material	
Target	reflector TD-09	
Blind area	/	
Hysteresis	/	
Adjustment method	Not adjustable	
Power supply	10...30V DC (Ripple P-P:≤10%);Current consumption:≤25mA	
Output characteristic	Load current:≤200ma;Voltage Drop:≤2.5v;Leakage current:≤0.1ma	
Protection circuit	Short circuit protection,reverse polarity protection,overload protection	
Indicator light	Yellow light: Output indicator	
Response time	T-on: ≤8.2ms; T-off: ≤8.2ms	
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux	
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C;ambient Humidity:35...95% (No condensation or dew on optical surfaces)	
Protection level	IP67	
Shell material	Nickel copper alloy	PBT
Connection method	Cable type(Standard length 2m),plug-in type optional	
Dimensional drawing	See page P06-033 for details	

Naming rules

Product family

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Official website

I PR18 Through beam

Model	PR18-TM10AT □-□	PR18S-TM10AT□-□
Detection principle	Through beam	
Detection distance	10m (Not adjustable)	
Light source type	Infrared light	
Detecting objects	φ15mm Above opaque objects	
Target	/	
Blind area	/	
Hysteresis	/	
Adjustment method	Not adjustable	
Power supply	20...250V AC (Ripple P-P: ≤10%); Current consumption: ≤25mA	
Output characteristic	Load current: ≤300mA; Voltage drop: ≤10V; Leakage current: ≤0.1mA (receiver)	
Protection circuit	/	
Indicator light	Output indication: Green light for transmitter, yellow light for receiver	
Response time	T-on: ≤50ms; T-off: ≤50ms	
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux	
Working environment	Working Temperature: -15...55°C; storage Temperature: -25...65°C; ambient Humidity: 35...95% (No condensation or dew on optical surfaces)	
Protection level	IP67	
Shell material	Nickel copper alloy	PBT
Connection method	Cable type (Standard length 2m), plug-in type optional	
Dimensional drawing	See page P06-033 for details	

I PR18 Diffuse reflection/Retro reflection

Model	PR18-BC□AT□-□		PR18S-BC□AT□-□		PR18-DM3AT□-□	PR18S-DM3AT□-□
Detection principle	Diffuse reflection				Retro reflection	
Detection distance	10m (Not adjustable)	40m (Adjustable)	10m (Not adjustable)	40m (Adjustable)	3m (Not adjustable)	
Light source type	Infrared light					
Detecting objects	Opaque material					
Target	White card with a reflectivity of 90%				Reflector TD-09	
Blind area	2mm				/	
Hysteresis	3...20%				/	
Adjustment method	Knob adjustment				Not adjustable	
Power supply	20...250V AC (Ripple P-P:≤10%) ;Current consumption:≤25mA					
Output characteristic	Load current:≤300mA;Voltage drop:≤10V;Leakage current:≤0.1mA				Load current:≤200mA;Voltage drop:≤2.5V;Leakage current:≤0.1mA	
Protection circuit	/					
Indicator light	Yellow light: Output indicator					
Response time	T-on: ≤50ms;T-off: ≤50ms					
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux					
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C;ambient Humidity:35...95% (No condensation or dew on optical surfaces)					
Protection level	IP65					
Shell material	Nickel copper alloy		PBT		Nickel copper alloy	PBT
Connection method	Cable type(Standard length 2m),plug-in type optional					
Dimensional drawing	See page P06-033 for details					

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

PR 18 Through beam

Model	PR18-TM□□□-□		PR18GS-TM□□□-□	
Detection principle	Through beam			
Detection distance	10m (Not adjustable)	20m (Not adjustable)	10m (Not adjustable)	20m (Not adjustable)
Light source type	Infrared light			
Detecting objects	φ15mm Above opaque objects			
Target	/			
Blind area	/			
Hysteresis	/			
Adjustment method	Not adjustable			
Power supply	10...30V DC (Ripple P-P:≤10%) ;Current consumption:≤25mA			
Output characteristic	Load current:≤200mA (receiver) ;Voltage drop:≤2.5V (receiver) ;Leakage current:≤0.1mA			
Protection circuit	Short circuit protection,reverse polarity protection,overload protection			
Indicator light	Output indication:Green light for transmitter, yellow light for receiver			
Response time	T-on:≤8.2ms;T-off:≤8.2ms			
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux			
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C;ambient Humidity:35...95% (No condensation or dew on optical surfaces)			
Protection level	IP65			
Shell material	Nickel copper alloy		PBT	
Connection method	Cable type(Standard length 2m),plug-in type optional			
Dimensional drawing	See page P06-034 for details			

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

PR18G Diffuse reflection/Retro reflection

Model	PR18-BC□□□-□		PR18GS-BC□□□-□		PR18G-DM3D□□-□	PR18GS-DM3D□□-□
Detection principle	Diffuse reflection				Retro reflection	
Detection distance	10m (Not adjustable)	40m (Adjustable)	10m (Not adjustable)	40m (Adjustable)	3m (Not adjustable)	
Light source type	Infrared light					
Detecting objects	Opaque material					
Target	White card with a reflectivity of 90%				Reflector TD-09	
Blind area	2mm				/	
Hysteresis	3...20%				/	
Adjustment method	Knob adjustment				Not adjustable	
Power supply	10...30V AC (Ripple P-P:≤10%);Current consumption:≤25mA					
Output characteristic	Load current:≤200mA;Voltage drop:≤2.5V;Leakage current:≤0.1mA					
Protection circuit	Short circuit protection,reverse polarity protection,overload protection					
Indicator light	Yellow light: Output indicator					
Response time	T-on: ≤8.2ms; T-off: ≤8.2ms					
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux					
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C; ambient Humidity:35...95% (No condensation or dew on optical surfaces)					
Protection level	IP65					
Shell material	Nickel copper alloy		PBT		Nickel copper alloy	PBT
Connection method	Cable type(Standard length 2m),plug-in type optional					
Dimensional drawing	See page P06-034 for details					

Naming rules

Product family

Technical guide



Official website

I PR18G Through beam

Model	PR18G-TM10AT□-□	PR18GS-TM10AT□-□
Detection principle	Through beam	
Detection distance	10m (Not adjustable)	
Light source type	Infrared light	
Detecting objects	φ15mm Above opaque objects	
Target	/	
Blind area	/	
Hysteresis	/	
Adjustment method	Not adjustable	
Power supply	20...250V AC (Ripple P-P: ≤10%); Current consumption: ≤25mA	
Output characteristic	Load current: ≤300mA; Voltage drop: ≤10V; Leakage current: ≤0.1mA (receiver)	
Protection circuit	/	
Indicator light	Output indication: Green light for transmitter, yellow light for receiver	
Response time	T-on: ≤50ms; T-off: ≤50ms	
Ambient light resistance	Anti-sunlight interference ≤10,000Lux; Anti-incandescent light interference ≤3,000Lux	
Working environment	Working Temperature: -15...55°C; storage Temperature: -25...65°C; ambient Humidity: 35...95% (No condensation or dew on optical surfaces)	
Protection level	IP65	
Shell material	Nickel copper alloy	PBT
Connection method	Cable type (Standard length 2m), plug-in type optional	
Dimensional drawing	See page P06-034 for details	

I PR18G Diffuse reflection/Retro reflection

Model	PR18G-BC□AT□-□		PR18GS-BC□AT□-□		PR18G-DM3AT□-□	PR18GS-DM3AT□-□
Detection principle	Diffuse reflection				Retro reflection	
Detection distance	10m (Not adjustable)	40m (Adjustable)	10m (Not adjustable)	40m (Adjustable)	3m (Not adjustable)	
Light source type	Infrared light					
Detecting objects	Opaque objects					
Target	White card with a reflectivity of 90%				Reflector TD-09	
Blind area	2mm				/	
Hysteresis	3...20%				/	
Adjustment method	Knob adjustment				Not adjustable	
Power supply	20...250V AC (Ripple P-P:≤10%) ;Current consumption:≤25mA					
Output characteristic	Load Current:≤300mA;voltage Drop:≤10V;leakage Current:≤0.1mA					
Protection circuit	/					
Indicator light	Yellow light: Output indicator					
Response time	T-on: ≤50ms; T-off: ≤50ms					
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux					
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C; ambient Humidity:35...95% (No condensation or dew on optical surfaces)					
Protection level	IP65					
Shell material	Nickel copper alloy		PBT		Nickel copper alloy	PBT
Connection method	Cable type(Standard length 2m),plug-in type optional					
Dimensional drawing	See page P06-034 for details					

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

PR30 Through beam

Model	PR30-TM□D□□-□		PR30S-TM□D□□-□	
Detection principle	Through beam			
Detection distance	20m (Not adjustable)	40m (Not adjustable)	20m (Not adjustable)	40m (Not adjustable)
Light source type	Infrared light			
Detecting objects	φ15mm Above opaque objects			
Target	/			
Blind area	/			
Hysteresis	/			
Adjustment method	Not adjustable			
Power supply	10...30V DC (Ripple P-P:≤10%) ;Current consumption:≤25mA			
Output characteristic	Load current:≤200mA (receiver) ;Voltage drop:≤2.5V (receiver) ;Leakage current:≤0.1mA(Receiver)			
Protection circuit	Short circuit protection,reverse polarity protection,overload protection			
Indicator light	Output indication:Green light for transmitter, yellow light for receiver			
Response time	T-on:≤8.2ms;T-off:≤8.2ms			
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux			
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C; ambient Humidity:35...95% (No condensation or dew on optical surfaces)			
Protection level	IP67			
Shell material	Nickel copper alloy		PBT	
Connection method	Cable type(Standard length 2m),plug-in type optional			
Dimensional drawing	See page P06-035 for details			

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

PR30 Diffuse reflection/Retro reflection

Model	PR30-BC□□□□-□		PR30S-BC□□□□-□		PR30-DM5D□□□□-□	PR30S-DM5D□□□□-□
Detection principle	Diffuse reflection				Retro reflection	
Detection distance	50m (Adjustable)	100m (Adjustable)	50m (Adjustable)	40m (Adjustable)	5m (Not adjustable)	
Light source type	Infrared light					
Detecting objects	Opaque objects					
Target	White card with a reflectivity of 90%				Reflector TD-09	
Blind area	/				/	
Hysteresis	3...20%				/	
Adjustment method	Knob adjustment				Not adjustable	
Power supply	10...30V DC (Ripple P-P:≤10%) ;Current consumption:≤25mA					
Output characteristic	Load current:≤200mA;Voltage drop:≤2.5V;Leakage current:≤0.1mA					
Protection circuit	Short circuit protection,reverse polarity protection,overload protection					
Indicator light	Yellow light: Output indicator					
Response time	T-on: ≤50ms; T-off: ≤50ms					
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux					
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C; ambient Humidity:35...95% (No condensation or dew on optical surfaces)					
Protection level	IP67					
Shell material	Nickel copper alloy		PBT		Nickel copper alloy	PBT
Connection method	Cable type(Standard length 2m),plug-in type optional					
Dimensional drawing	See page P06-035 for details					

Naming rules

Product family

Technical guide



Official website

I PR30 Through beam

Model	PR30-TM20AT□-□	PR30S-TM20AT□-□
Detection principle	Through beam	
Detection distance	20m (Not adjustable)	
Light source type	Infrared light	
Detecting objects	φ15mm Above opaque objects	
Target	/	
Blind area	/	
Hysteresis	/	
Adjustment method	Not adjustable	
Power supply	20...250V AC (Ripple P-P:≤10%);Current consumption:≤25mA	
Output characteristic	Load current:≤300mA;Voltage drop:≤10V;Leakage current:≤0.1mA(Receiver)	
Protection circuit	/	
Indicator light	Output indication:Green light for transmitter, yellow light for receiver	
Response time	T-on:≤50ms;T-off:≤50ms	
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux	
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C;ambient Humidity:35...95% (No condensation or dew on optical surfaces)	
Protection level	IP67	
Shell material	Nickel copper alloy	PBT
Connection method	Cable type(Standard length 2m),plug-in type optional	
Dimensional drawing	See page P06-035 for details	

I PR30 Diffuse reflection/Retro reflection

Model	PR30-BC□AT□-□		PR30S-BC□AT□-□		PR30-DM5AT□-□	PR30S-DM5AT□-□
Detection principle	Diffuse reflection				Retro reflection	
Detection distance	50m (Adjustable)	100m (Adjustable)	50m (Adjustable)	40m (Adjustable)	5m (Not adjustable)	
Light source type	Infrared light					
Detecting objects	Opaque objects					
Target	White card with a reflectivity of 90%				Reflector TD-09	
Blind area	/				/	
Hysteresis	3...20%				/	
Adjustment method	Knob adjustment				Not adjustable	
Power supply	20...250V AC (Ripple P-P:≤10%);Current consumption:≤25mA					
Output characteristic	Load current:≤300mA;Voltage drop:≤10V;Leakage current:≤0.1mA					
Protection circuit	/					
Indicator light	Yellow light: Output indicator					
Response time	T-on: ≤50ms; T-off: ≤50ms					
Ambient light resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux					
Working environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C; ambient Humidity:35...95% (No condensation or dew on optical surfaces)					
Protection level	IP67					
Shell material	Nickel copper alloy		PBT		Nickel copper alloy	PBT
Connection method	Cable type(Standard length 2m),plug-in type optional					
Dimensional drawing	See page P06-035 for details					

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

PR30L Through beam

Model	PR30L-TM□D□□		PR30SL-TM□D□□	
Detection Principle	Through beam			
Detection Distance	100m (Not adjustable)	150m (Not adjustable)	100m (Not adjustable)	150m (Not adjustable)
Light Source Type	Infrared light			
Detecting Objects	φ15mm Above opaque objects			
Target	/			
Blind Area	/			
Hysteresis	/			
Adjustment Method	Not adjustable			
Power Supply	10...30V DC (Ripple P-P:≤10%);Current consumption:≤25mA			
Output Characteristic	Load current:≤200mA (receiver);Voltage drop:≤2.5V (receiver);Leakage current:≤0.1mA(Receiver)			
Protection Circuit	Short circuit protection,reverse polarity protection,overload protection			
Indicator Light	Output indication:Green light for transmitter, yellow light for receiver			
Response Time	T-on:≤8.2ms;T-off:≤8.2ms			
Ambient Light Resistance	Anti-sunlight interference≤10,000Lux;Anti-incandescent light interference≤3,000Lux			
Working Environment	Working Temperature:-15...55°C;storage Temperature:-25...65°C;ambient Humidity:35...95% (No condensation or dew on optical surfaces)			
Protection Level	IP67			
Shell Material	Nickel copper alloy		PBT	
Connection Method	Cable type(Standard length 2m),plug-in type optional			
Dimensional Drawing	See page P06-035 for details			

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide

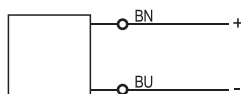


Official website

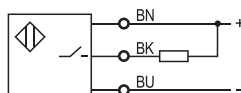
PR12/18/30 Through beam/Diffuse reflection/Background suppression/Retro reflection-DC 3/4 lines

Cable

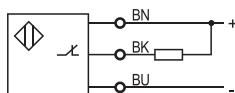
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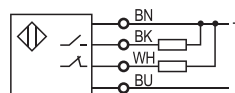
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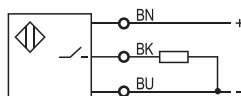
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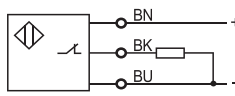
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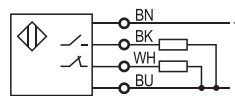
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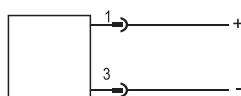


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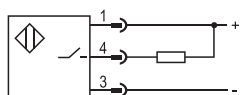


Connector

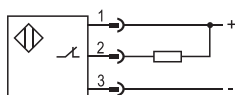
Emitter



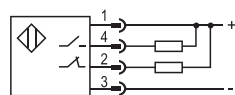
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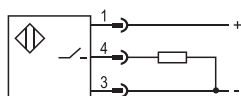
NPN NC



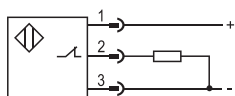
NPN NO+NC



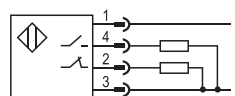
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PNP NC



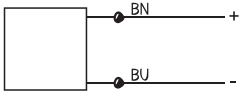
PNP NO+NC



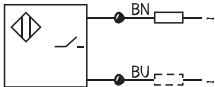
PR12/18/30 Through beam/Diffuse reflection/Background suppression/Retro reflection-AC 2 lines

Cable

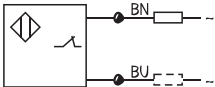
Emitter



NO

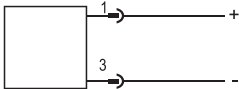


NC

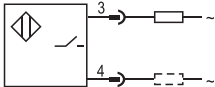


Connector

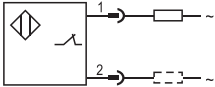
Emitter



NO



NC



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

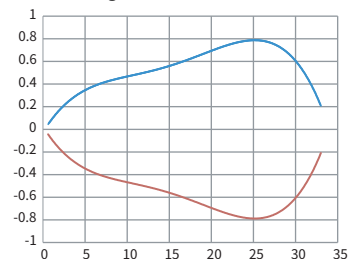
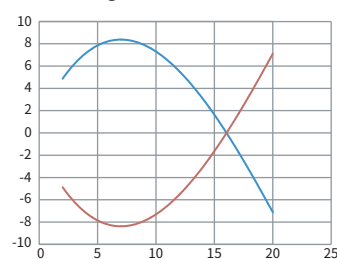
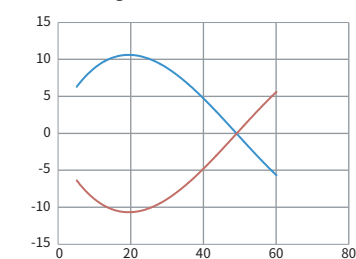
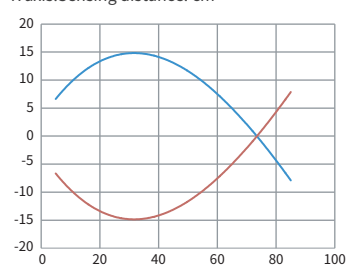
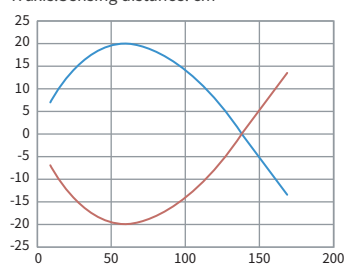
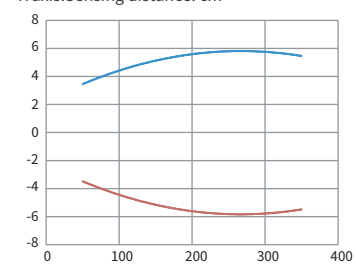
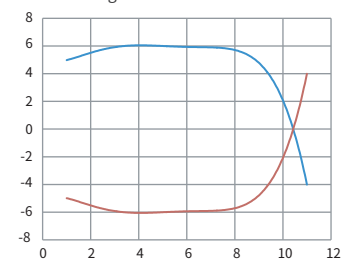
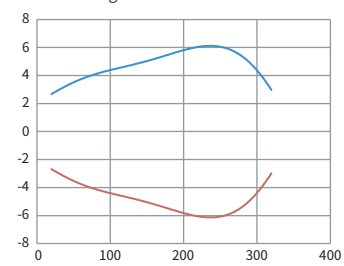
Product family

Technical guide

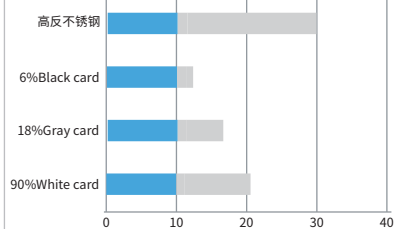
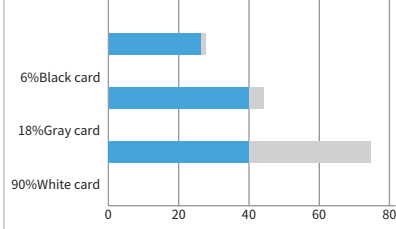
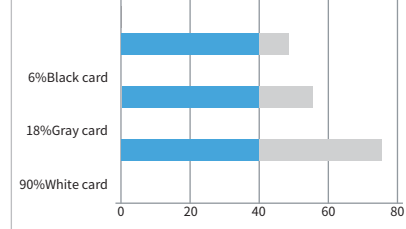


Official website

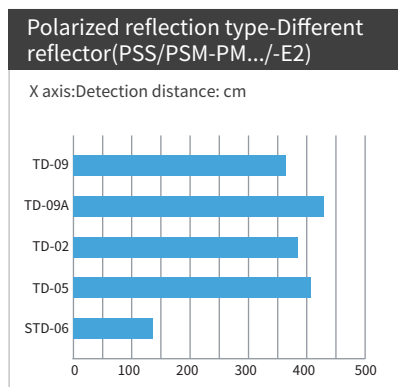
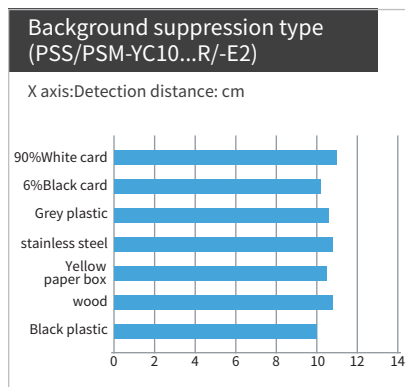
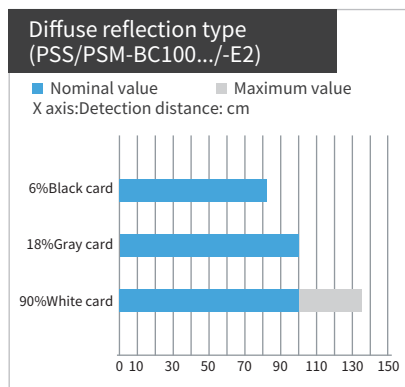
I Detection range

Through beam type
(PSS/PSM-TM20.../-E2)Y axis:Spot diameter: m
X axis:Sensing distance: mDiffuse reflection type
(PSS/PSM-BC10.../-E2)Y axis:Spot diameter: mm
X axis:Sensing distance: cmDiffuse reflection type
(PSS/PSM-BC40...R/-E2)Y axis:Spot diameter: mm
X axis:Sensing distance: cmDiffuse reflection type
(PSS/PSM-BC40.../-E2)Y axis:Spot diameter: mm
X axis:Sensing distance: cmDiffuse reflection type
(PSS/PSM-BC100.../-E2)Y axis:Spot diameter: mm
X axis:Sensing distance: cmPolarized reflection type
(PSS/PSM-PM3.../-E2)Y axis:Spot diameter: cm
X axis:Sensing distance: cmBackground suppression
type (PSS/PSM-BC40.../-E2)Y axis:Spot diameter: mm
X axis:Sensing distance: cmTransparent bottle detection
type (PSS/PSM-BC40.../-E2)Y axis:Spot diameter: mm
X axis:Sensing distance: cm

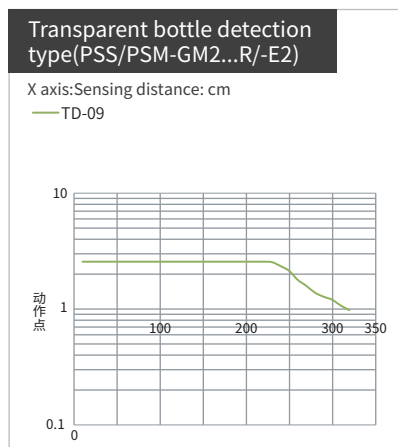
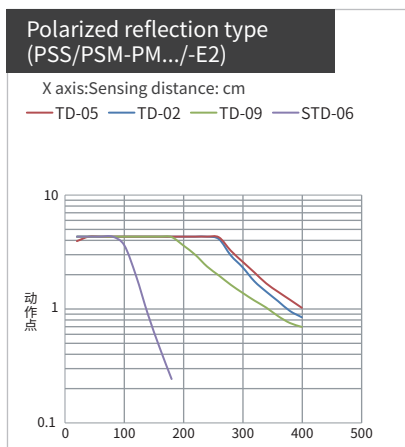
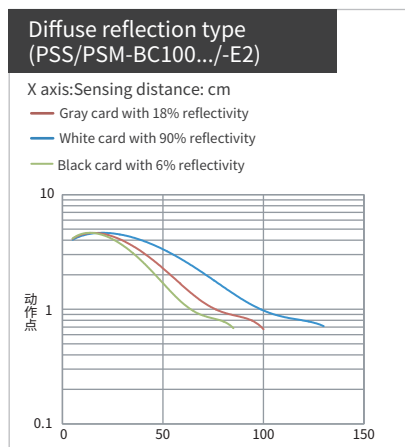
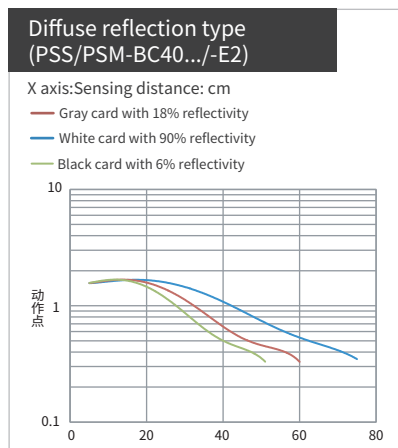
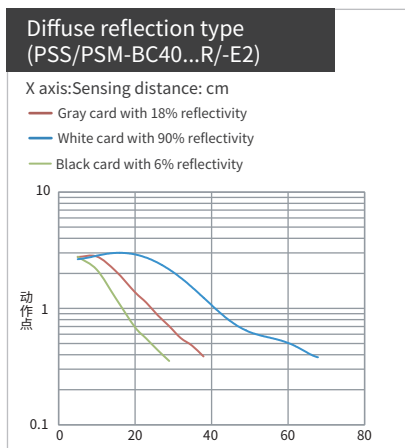
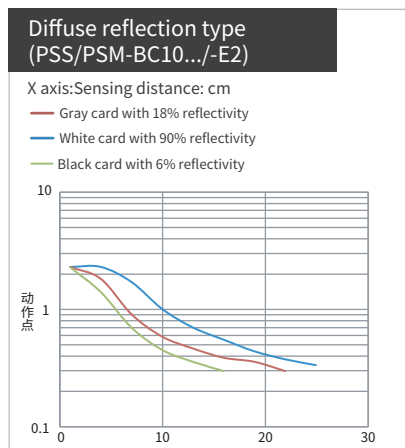
I Detection distance

Diffuse reflection type
(PSS/PSM-BC10.../-E2)■ Nominal value ■ Maximum value
X axis:Detection distance: cmDiffuse reflection type
(PSS/PSM-BC40...R/-E2)■ Nominal value ■ Maximum value
X axis:Detection distance: cmDiffuse reflection type
(PSS/PSM-BC40.../-E2)■ Nominal value ■ Maximum value
X axis:Detection distance: cm

Detection distance



Signal redundancy



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

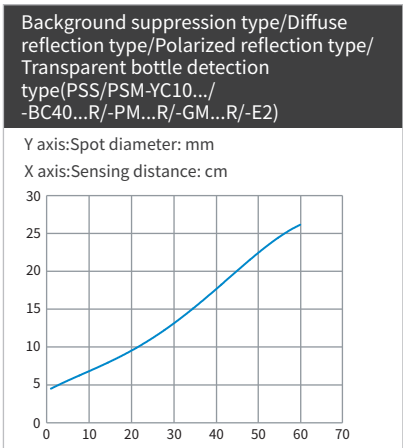
Product family

Technical guide

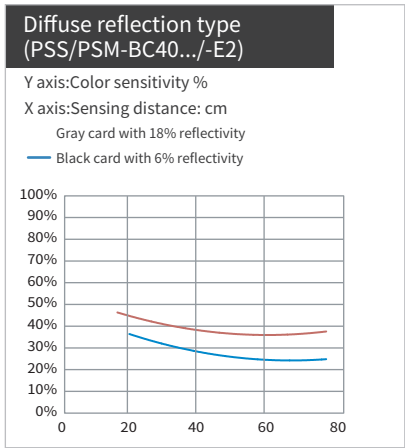
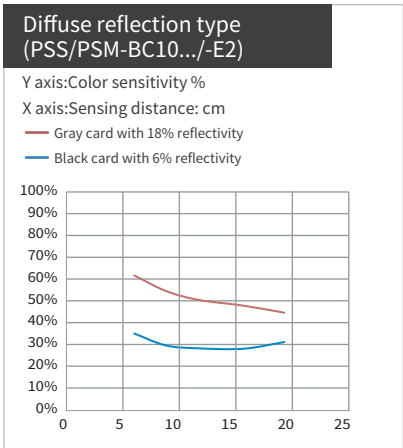


Official website

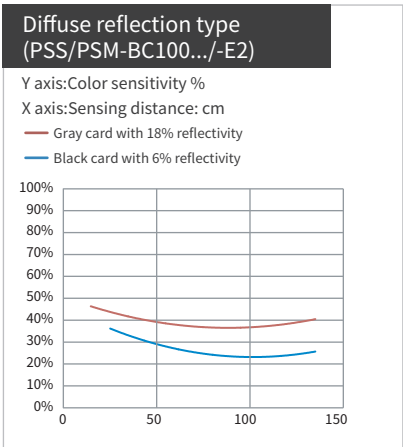
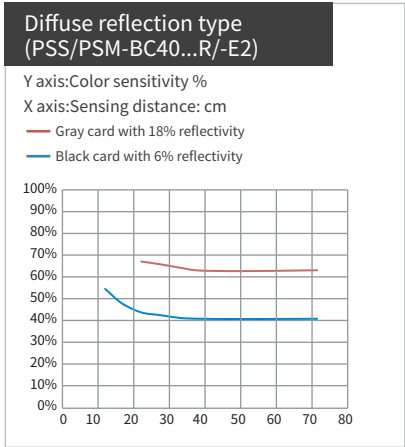
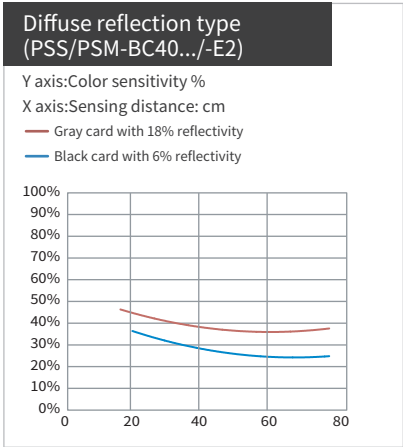
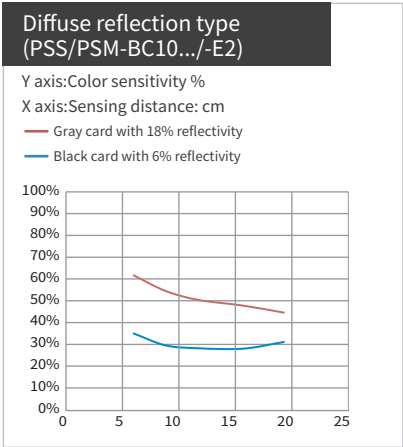
Spot size



Color sensitivity



Color sensitivity



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

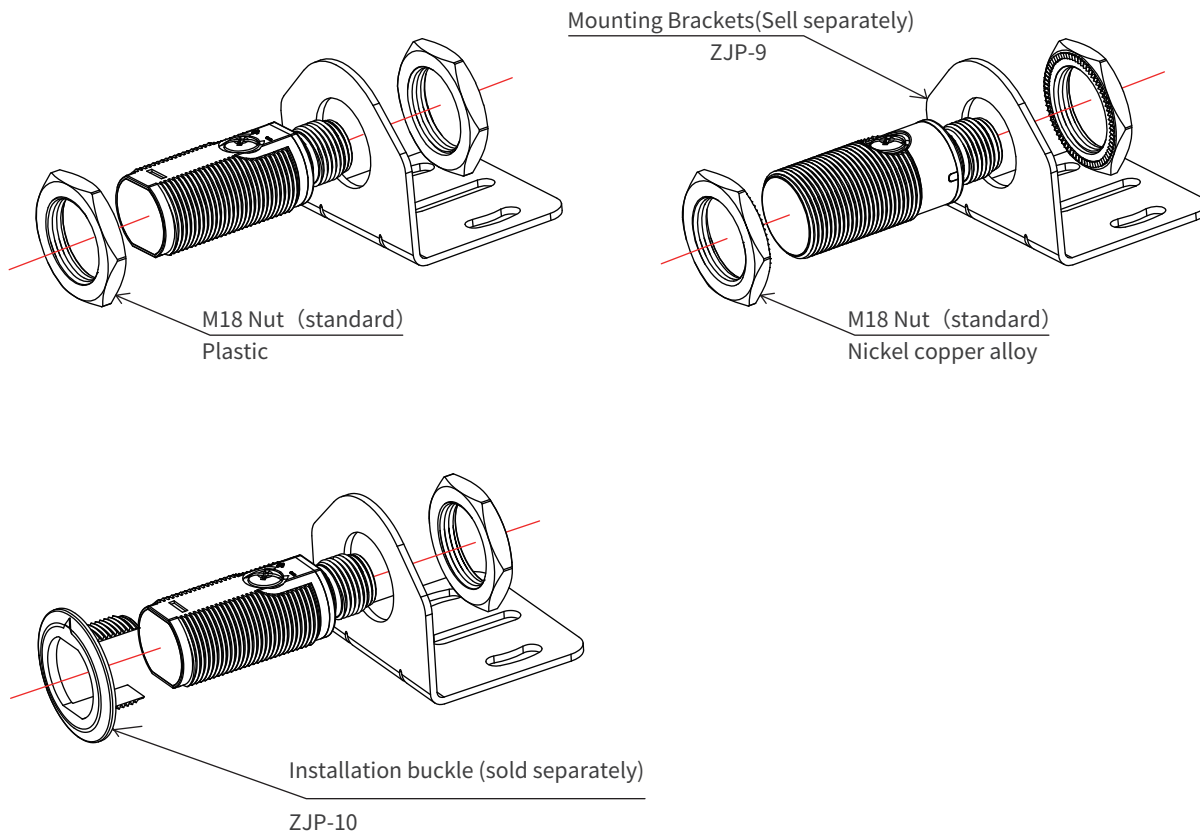
Product family

Technical guide



Official website

Product installation diagram



Precaution

- To ensure signal strength, when using polarized products, it is not recommended to set the adjustment knob to the minimum value.
- The maximum allowable power supply voltage for the sensor is 10% above the rated voltage. Please confirm that the power supply voltage is less than the maximum allowable value before powering on.
- It takes 100ms for the sensor to transition from power-on to normal detection. Please ensure that the sensor is powered for at least 100ms before use.
- When the sensor and the load are powered by different sources, please ensure that the sensor's power is connected first.
- When not using the sensor, it is recommended to cut off the power to the load before cutting off the power to the sensor.
- When installing the sensor, avoid subjecting it to severe external forces (such as hammering), as this may damage the sensor's performance.
- Avoid using thinners, alcohol, or other organic solvents when cleaning.

Safety warning

- Do not use in an environment with flammable, explosive or corrosive gases.
- Do not use in an environment with oil or chemicals.
- Do not use in a high humidity environment.
- Do not use in direct sunlight.
- Do not use in other environmental conditions that exceed the rated value.
- Do not disassemble, repair or modify this product without authorization.

Scrap treatment

- When the product is scrapped, please dispose of it as industrial waste.

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



Official website

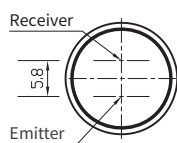
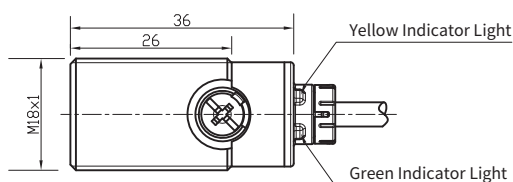
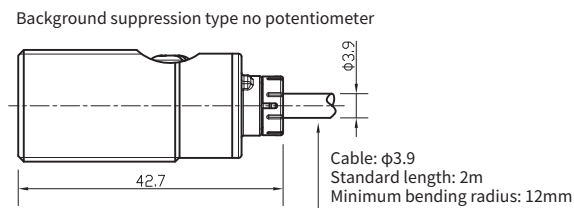
Product Dimension Diagram

Cylindrical Series

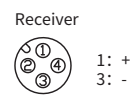
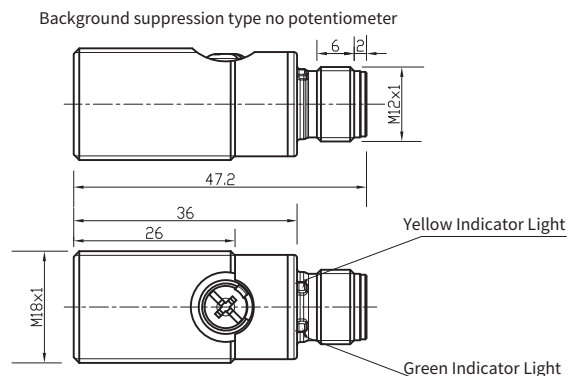
Photoelectric

I PSM Through beam/Diffuse reflection/Background suppression/ Polarized reflection/Transparent bottle detection

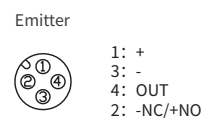
Cable



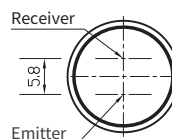
Connector



Brown: +
Blue: -

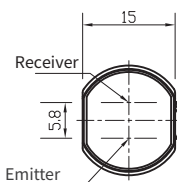
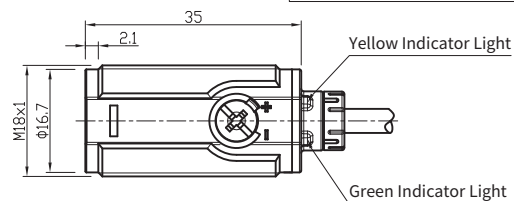
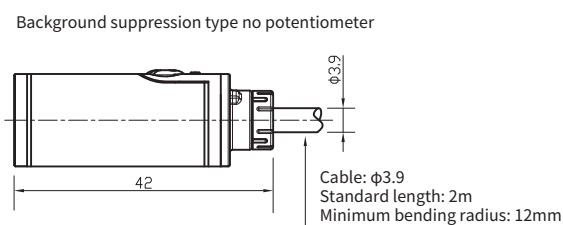


Brown: +
Blue: -
Black: OUT
White: -NC/+NO

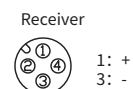
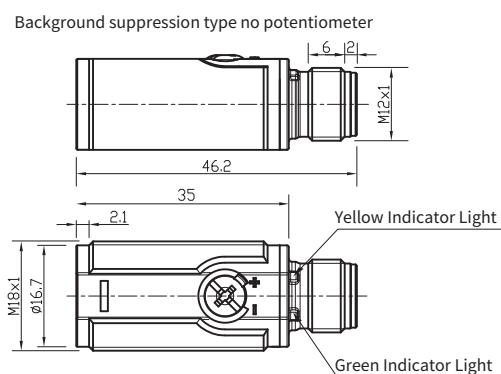


I PSS Through beam/Diffuse reflection/Background suppression/ Polarized reflection/Transparent bottle detection

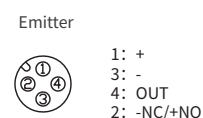
Cable



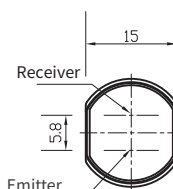
Connector



Brown: +
Blue: -



Brown: +
Blue: -
Black: OUT
White: -NC/+NO



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

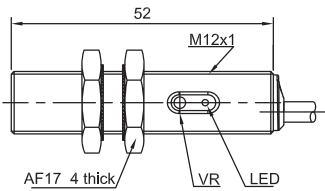
Technical guide



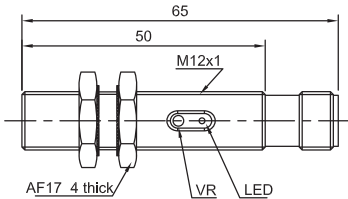
Official website

PR12 Through beam/Diffuse reflection

Cable

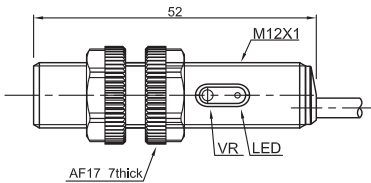


Connector

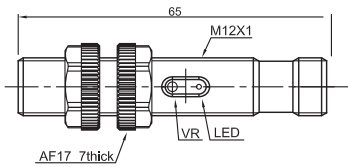


PR12S Through beam/Diffuse reflection

Cable



Connector



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



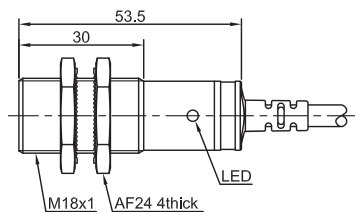
Official website

Product Dimension Diagram

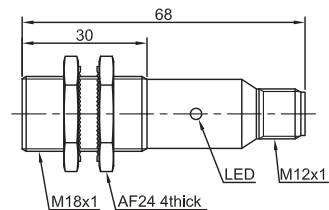
Cylindrical Series

PR18 Through beam/Diffuse reflection/Retro reflection/Background suppression

Cable



Connector



Ultra-thin

Micro square

Little square

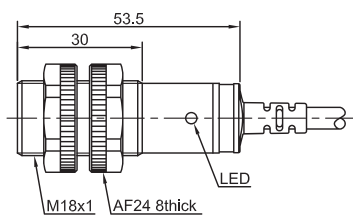
Large square

Round and square

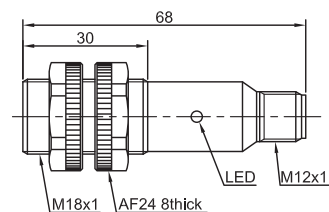
Cylindrical

PR18S Through beam/Diffuse reflection/Retro reflection

Cable



Connector



Naming rules

Product family

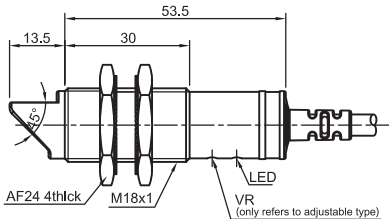
Technical guide



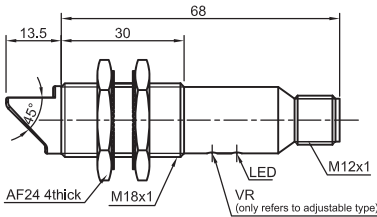
Official website

PR18G Through beam/Diffuse reflection/Retro reflection

Cable

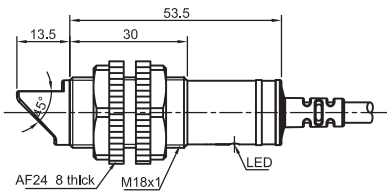


Connector

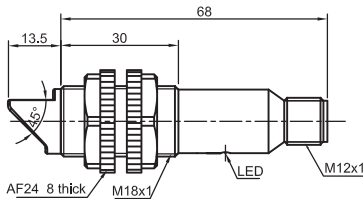


PR18GS Through beam/Diffuse reflection/Retro reflection

Cable



Connector



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

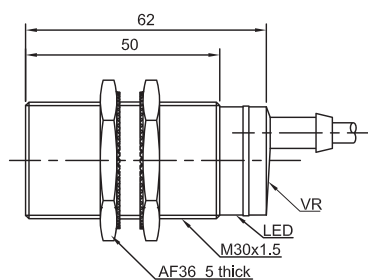
Technical guide



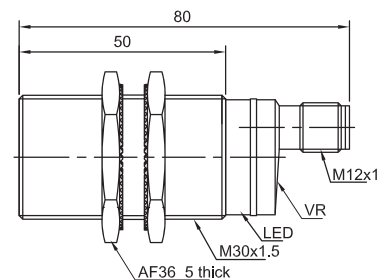
Official website

PR30 Through beam/Diffuse reflection/Retro reflection

Cable

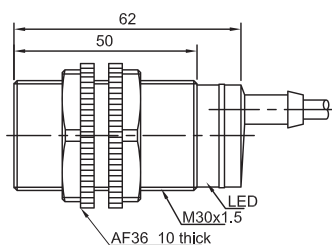


Connector

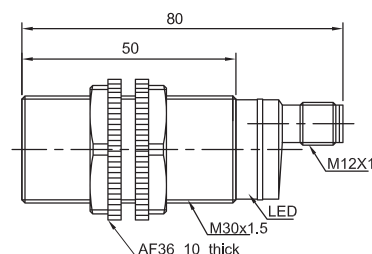


PR30S Through beam/Diffuse reflection/Retro reflection

Cable

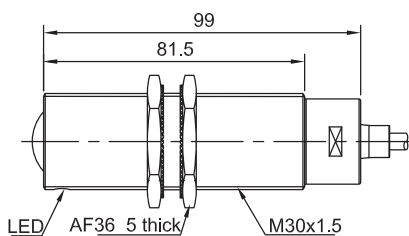


Connector



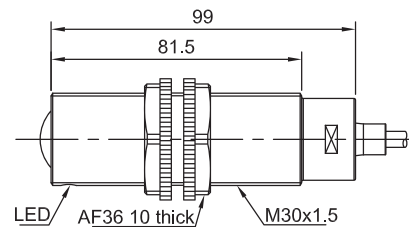
PR30L Through beam

Cable



PR30SL Through beam

Cable



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

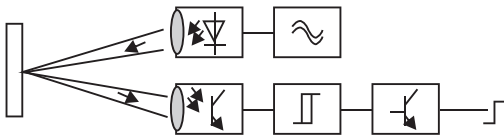
Product family

Technical guide



Photoelectric sensor concept

Photoelectric sensor is a general term for sensors that use light to detect objects. It is a device that emits light signals from the emitting part of the sensor and is reflected, blocked and absorbed by the detected object, and then detected by the receiving part and converted into corresponding electrical signals to achieve control. Photoelectric sensors are generally composed of three parts, which are divided into: transmitter, receiver and detection circuit.



Features of photoelectric sensors

- ❶ Non-contact detection, long service life, no damage to the detected object.
- ❷ Suitable for long-distance detection and widely used.
- ❸ There are many types of objects to be inspected, and objects that have an impact on light transmission can be used.
- ❹ High response frequency, suitable for high-speed pipeline inspection.
- ❺ The detection accuracy is high and can be used for different color resolution.

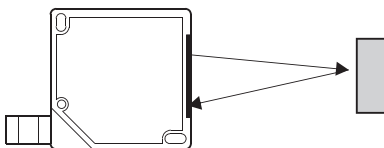
Basic concept of photoelectric sensor

Diffuse reflection photoelectric sensor

Diffuse reflection photoelectric sensor is the transmitter and receiver integrated, under normal circumstances, the receiver cannot receive the light signal sent by the transmitter; when the detected object passes through, the light is blocked, and the light is partially reflected back, and the receiver receives the light signal and output a switch control signal.

Features:

- ❶ It is not necessary to align the optical path during installation and use.
- ❷ Save installation space.
- ❸ Easy installation and wiring.
- ❹ Large detection area.



Through beam photoelectric sensor

Through beam photoelectric sensors are photoelectric sensors composed of independent transmitters and receivers. Since the transmitter and receiver are separated, the detection distance of the sensor is increased, whose detection distance can reach several meters or even tens of meters. During using, the transmitter and receiver are installed on both sides of the passage of the detected object, and the two sensors must be aligned to establish an optical path. When the detected object passes through, the optical path is blocked, and the receiver acts to output a switch control signal.

Features:

- ❶ Long-distance detection, high-precision detection.
- ❷ Can detect small objects.
- ❸ Not affected by the shape, color and material of the inspected object.
- ❹ Suitable for harsh working environment.



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

Technical guide



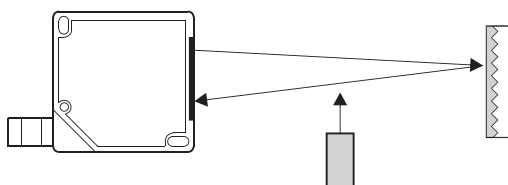
Official website

Retro reflection photoelectric sensor

The retro-reflection sensor is a photoelectric sensor that integrates the transmitter and the receiver into the same device, and installs a reflector in front of it, and uses the reflection principle to complete the photoelectric control function. Under normal circumstances, the light emitted by the transmitter is reflected by the reflector and received by the receiver; once the light path is blocked by the detection object, the light signal detected by the receiver changes, and the photoelectric sensor will output a switch control signal.

Features:

- ① It is easy to align the optical path during installing and using.
- ② Compared with the through-beam photoelectric sensor, it saves installation and use space.
- ③ Easy to install and wire.
- ④ Not affected by the shape, color and material of the inspected object.

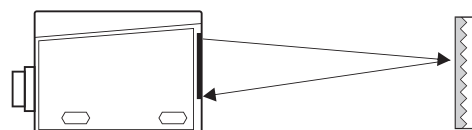


Polarized reflection photoelectric sensor

Polarized reflection photoelectric sensor is to put the transmitter and receiver into the same device, and add a polarization filter system, and install a prism reflector in front of it to ensure that when the light meets the polarization filter, only the light that vibrates in the parallel direction of the polarization filter grid can pass through, so as to prevent the high reflectivity object from reflecting the light back to the receiver of the photoelectric sensor, causing the sensor misoperation, so that the high reflectivity object can be reliably detected when entering the detection area.

Features:

- ① Suitable for detecting objects with high surface reflectivity and high gloss.
- ② Easy to align the optical path during installing and using.
- ③ Easy to install and wire.
- ④ Not affected by the shape, color and material of the detected objects.



Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

**Technical
guide**

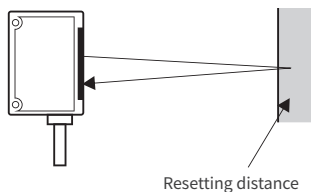

Official website

Focus reflection

The limit reflection type photoelectric sensor is that the transmitter and the receiver are integrated, the transmitter emits a light signal, and the receiver receives the light reflected by the detected object within a limited range, and causes the photoelectric sensor to act and output the switch control signal.

Features:

- ① Strong resistance to environmental and background interference, high-precision detection.
- ② It is not necessary to align the optical path during installing and using.
- ③ Save installation space.
- ④ Easy to install and wire.

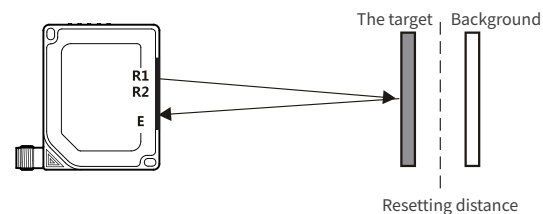


Background suppression photoelectric sensor

Due to the difference in color and reflectivity of the target detection object, conventional diffuse reflection sensors cannot be reliably detected in many occasions, such as detecting a black target object in front of a white background. The background suppression function makes the detection result only related to the detection distance, but independent of the object surface color and reflectivity, so it is suitable for detecting dark objects on bright color conveyor belts.

Features:

- ① No attenuation for detection objects of various colors and materials.
- ② Adjustable detection distance, easy to install and stable performance.
- ③ Strong anti-interference ability, suitable for various environments.



Standard detected target

The standard target of diffuse reflection photoelectric sensor is generally white matte paper.

Detection distance

- For diffuse reflection sensor (including limit reflection and background suppression) - The detection distance means the distance between the sensor and the standard object.
- For through-beam sensor - The detection distance means the distance between the transmitter and the receiver.
- For retro-reflection sensor (including polarized reflection) - The detection distance means the distance between the sensor and the reflector.

Load current

The load current is the working current that passes through the sensor under normal conditions.

Voltage drop

Voltage drop is the voltage measured at 2 ends of the sensor or at the output when the sensor is turned on.

Current consumption

The current required for the sensor to work.

Ultra-thin

Micro square

Little square

Large square

Round and square

Cylindrical

Naming rules

Product family

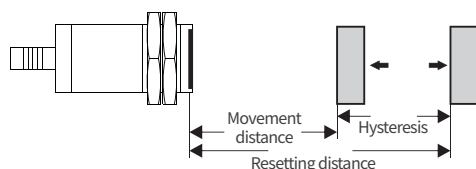
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Hysteresis

The difference between the sensing distance that triggers the sensor action when the detection body is close to the sensor sensing surface and the resetting distance when the detection body is far away from the sensor.



Surge protection

Surge mainly refers to the instantaneous overvoltage in the circuit that exceeds the normal working voltage, which is likely to cause the circuit to burn out at the moment of the surge. Surge protection devices can effectively absorb or divert sudden bursts of energy to protect equipment from damage.

Short circuit protection

If the limit current is exceeded, the output will be closed and released periodically until the short circuit condition is released.

Leakage current

When the sensor is not turned on, the current remaining in its load is called leakage current.

Repeated accuracy

The repeated accuracy refers to the variation of the effective working distance when the shell temperature is $(23 \pm 5)^\circ\text{C}$, the relative humidity is random, the power supply voltage is $\pm 5\%$ of the rated measurement voltage, and the measurement is performed within the range of 8 hours.

Switch frequency

The switch frequency refers to the maximum number of sensor actions per second.

Polarity protection

The protection function of the DC sensor against reverse polarity connection.

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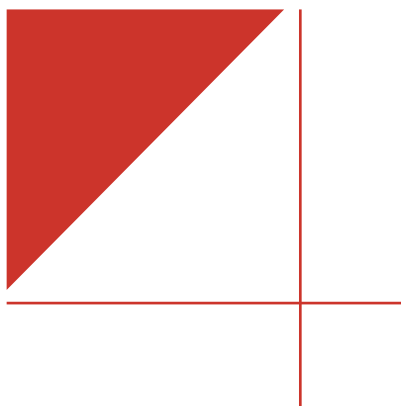
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