LANBAO

Hotline
0086-400-820-8259
0086-800-820-8259

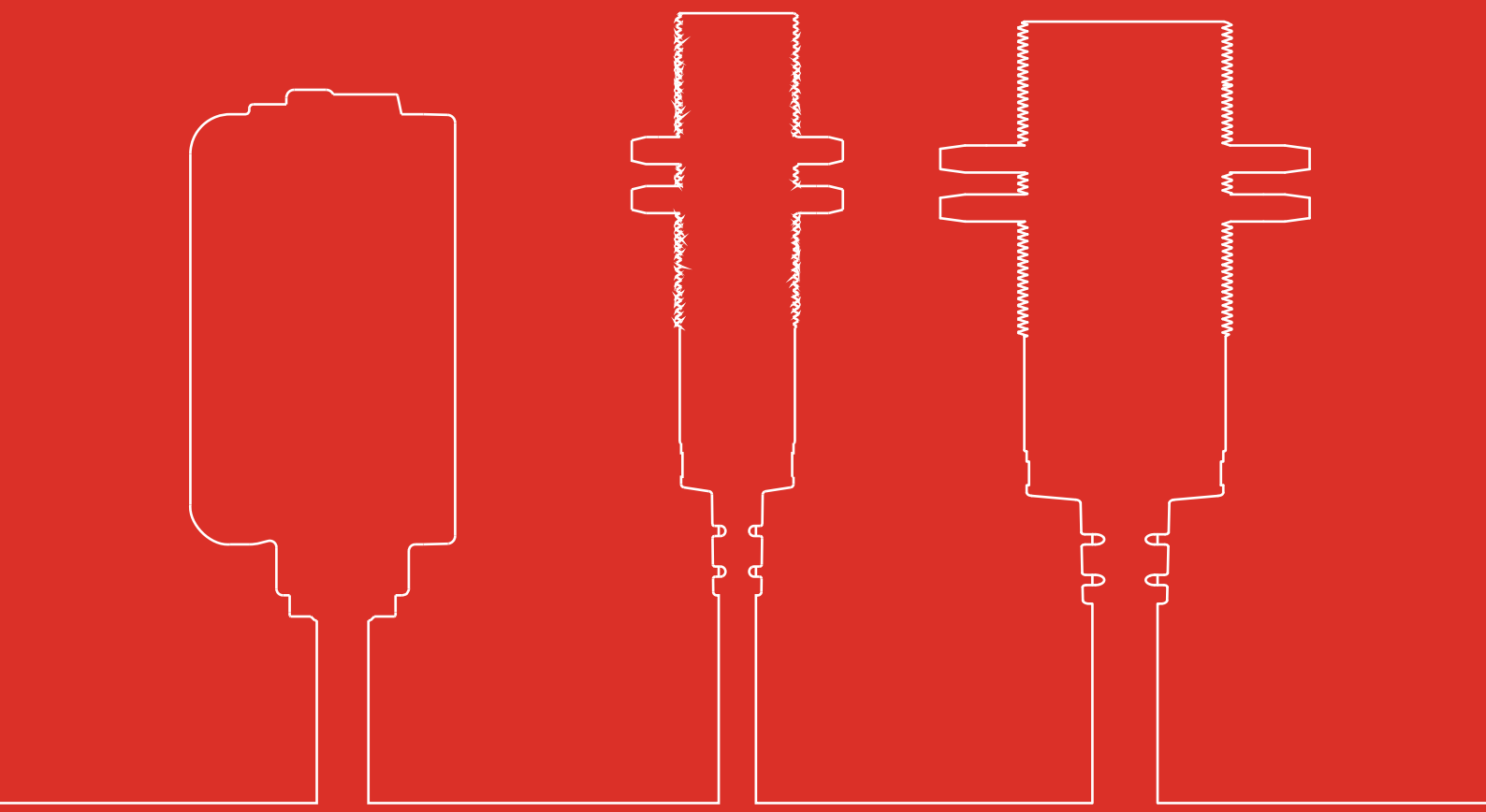
LANBAO CATALOG 2024-11

Add:No.228 jinbi Road, Jinhui Industrial Park,
Fengxian Area, Shanghai, China 202404
Tel:86-21-57486188
Fax:86-21-57486199
E-mail:market@shlanbao.cn
Web:www.lanbaosensor.com

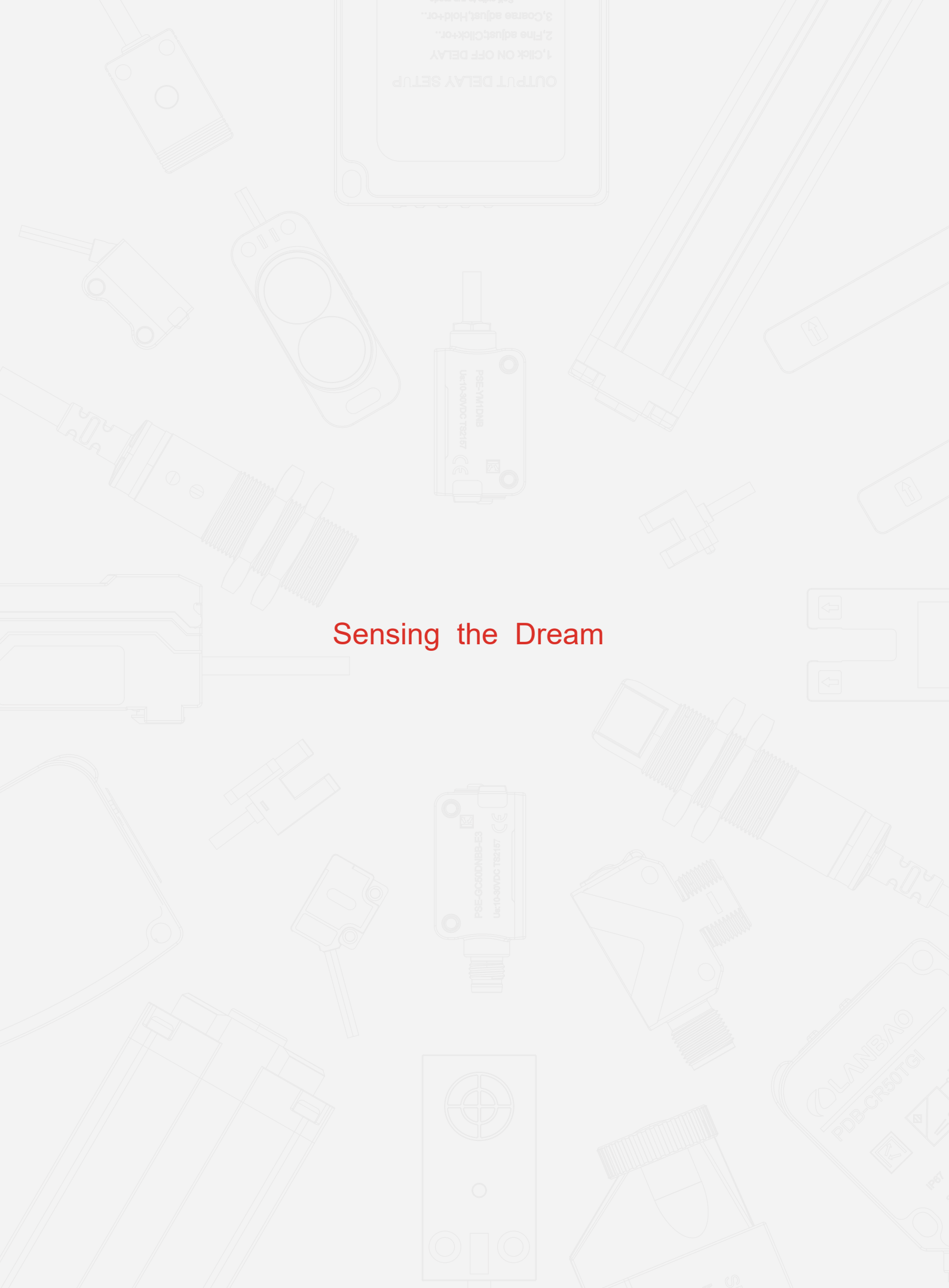
Sensing the Dream

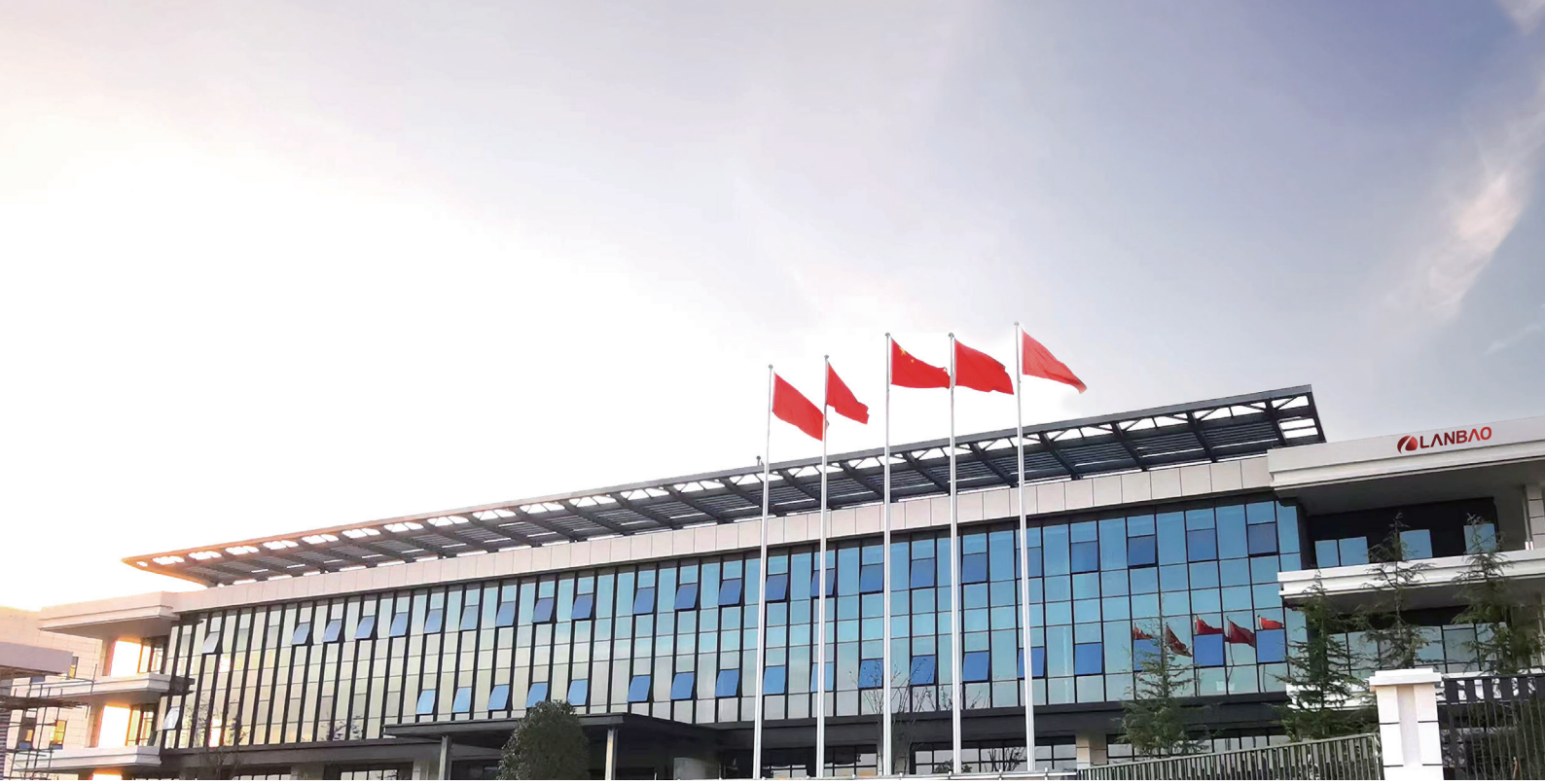
LANBAO

Photoelectric Sensors



Shanghai Lanbao Sensing Technology Co., Ltd.


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

99,000m²
Factory

120+
Countries and regions

10,000+
Product models

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 series
- Extended sensing distance series
- Tube liquid detection series
- Time delay function series
- High temperature material detection series
- Corrosion resistance detection 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

LANBAO

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,com-patible with one-to-two, multi-control-ler 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 electri cal 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.

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

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

Standard function cylindrical series

QE8/QE12

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

Contents

Naming Rules

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 diameter18mm

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

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

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 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/PR12 PR18/PR30 Series

Official Website

Quick Selection

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

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

Naming rules
Product family
Technical Guide

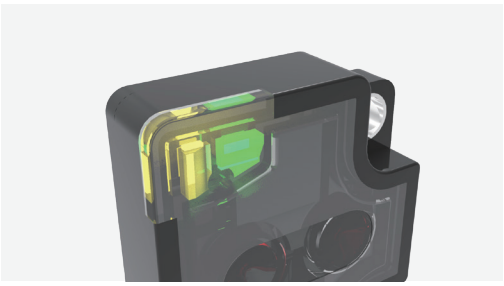
Official Website

Ultra-thin Series

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

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.



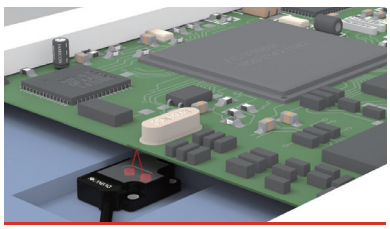
Ultra-Fast Response: Designed for high-precision detection of swiftly moving small objects

Ensures reliable identification of opaque objects ⩾ϕ2mm with ＜1ms response time.

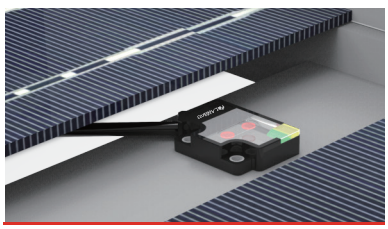
Equipped with a dual-color, 360° visible LED for clear, bright illumination and easy monitoring

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

Application



Tiny component presence check

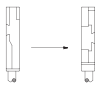
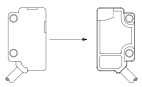
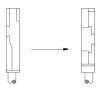
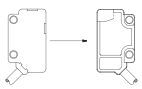


Silicon wafer recognition

Mobile cover plate inspection

Official Website

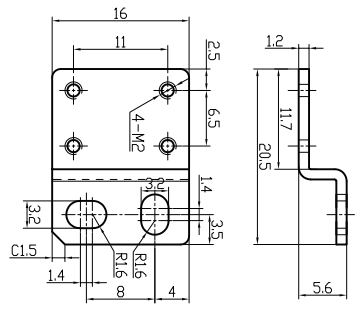
Selection List

Detection method	Shape	Connection	Detection distance	Output	Model	
					NPN Output	PNP Output
Through beam type		2m cable (Front sensing)	15cm	NO	Emitter PSV-TC15DR Receiver PSV-TC15DNOR	Emitter PSV-TC15DR Receiver PSV-TC15DPOR
				NC	Receiver PSV-TC15DNCR	Receiver PSV-TC15DPCR
		2m cable (Front sensing)	50cm	NO	Emitter PSV-TC50DR Receiver PSV-TC50DNOR	Emitter PSV-TC50DR Receiver PSV-TC50DPOR
				NC	Receiver PSV-TC50DNCR	Receiver PSV-TC50DPCR
		2m cable (Side sensing)	50cm	NO	Emitter PSV-TC50DR-S Receiver PSV-TC50DNOR-S	Emitter PSV-TC50DR-S Receiver PSV-TC50DPOR-S
				NC	Receiver PSV-TC50DNCR-S	Receiver PSV-TC50DPCR-S
		2m cable (Front sensing)	1m	NO	Emitter PSV-TM1DR Receiver PSV-TM1DNOR	Emitter PSV-TM1DR Receiver PSV-TM1DPOR
				NC	Receiver PSV-TM1DNCR	Receiver PSV-TM1DPCR
		2m cable (Side sensing)	1m	NO	Emitter PSV-TM1DR-S Receiver PSV-TM1DNOR-S	Emitter PSV-TM1DR-S Receiver PSV-TM1DPOR-S
				NC	Receiver PSV-TM1DNCR-S	Receiver PSV-TM1DPCR-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

Product Accessories (Narrow Slit, Mounting Brackets)

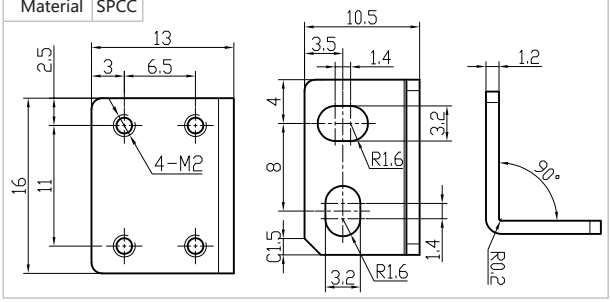
ZJP-14

Material	SPCC



ZJP-16

Material	SPCC



Official Website

Specification Parameters

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	

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	10cm①	2-16mm①	4-33mm①
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°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%.

PSV Limited reflection

Model	PSV-SR□D□□R
Detection principle	Limited reflection
Sensing distance	2...28mm①
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

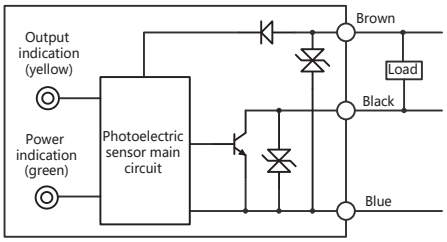
Note: ① Measured using a 50*50mm white card with a reflectivity of 90%.

Ultra-thin
Micro Square
Little square
Large square
Round and square
Cylindrical
Naming rules
Product family
Technical Guide
Official Website

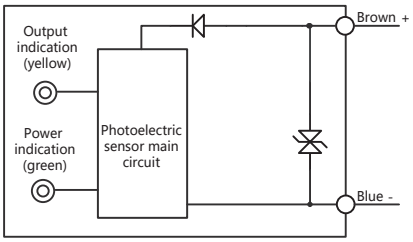
Electrical Wiring Diagram

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

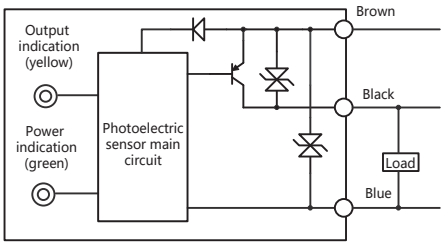
Receiver NPN



Emitter



Receiver PNP

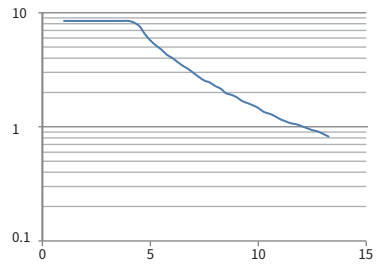


Official Website

Signal redundancy

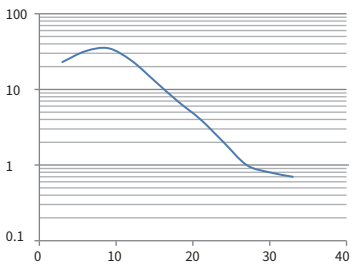
Diffuse reflection (PSV-BC**)

Y axis: signal redundancy: times
X axis: unit: cm



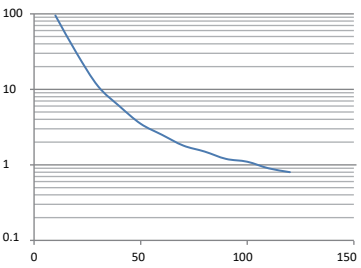
Limited reflection (PSV-SR**)

Y axis: signal redundancy: times
X axis: unit: cm



Through beam-front sensing (PSV-TC**)

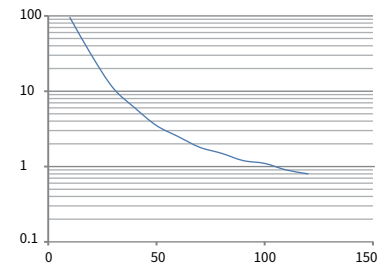
Y axis: signal redundancy: times
X axis: unit: cm



Angle detection area characteristics

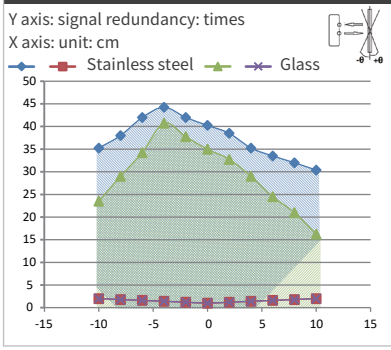
Diffuse reflection- Side sensing (PSV-TC**-S)

Y axis: signal redundancy: times
X axis: unit: cm



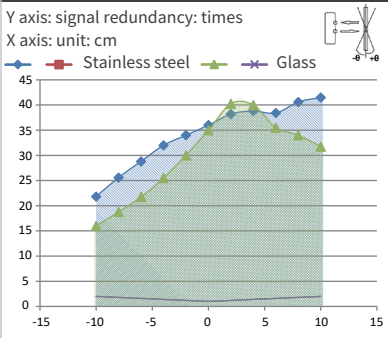
Limited reflection (PSV-SR**)

Y axis: signal redundancy: times
X axis: unit: cm



Limited reflection (PSV-SR**)

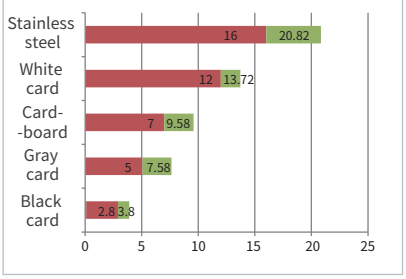
Y axis: signal redundancy: times
X axis: unit: cm



Color sensitivity

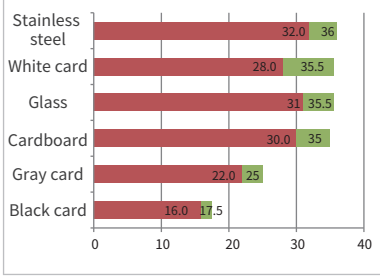
Diffuse reflection (PSV-BC**)

blind area
Ensure detection distance
Effective action distance
X axis: unit: cm



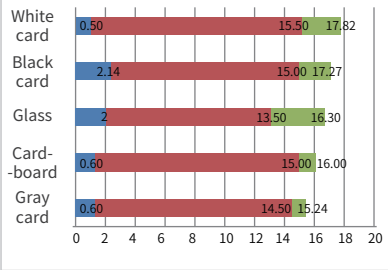
Limited reflection (PSV-SR**)

blind area
Ensure detection distance
Effective action distance
X axis: unit: cm



Background suppression (PSV-YR15**)

blind area
Ensure detection distance
Effective action distance
X axis: unit: cm



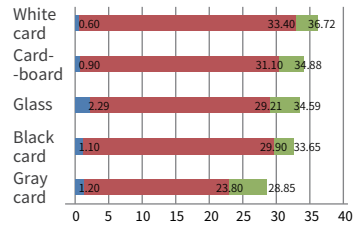
Official Website

Graph

Color sensitivity

Background suppression (PSV-YR30**)

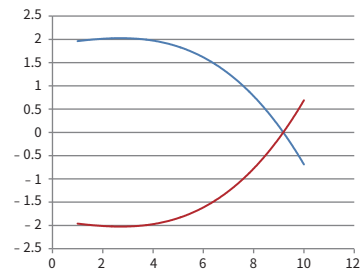
blind area Ensure detection distance
Effective action distance X axis: unit: cm



Operating

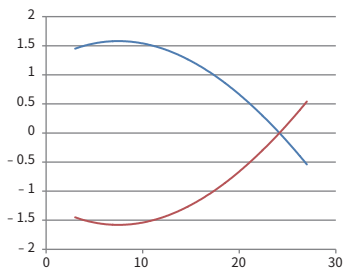
Diffuse reflection (PSV-BC**)

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



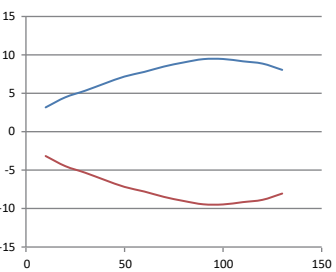
Limited reflection (PSV-SR**)

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



Through beam-Front sensing (PSV-TC**)

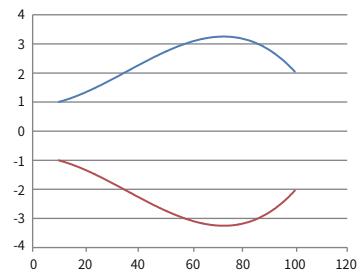
Y-axis: Range: mm
X-axis: Detection distance: cm



Minimum detection object

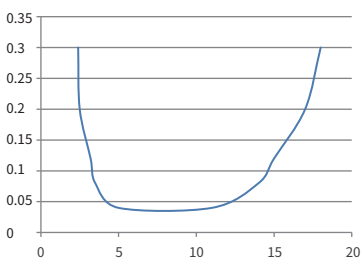
Through beam-Side emission (PSV-TC**-S)

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



Limited reflection (PSV-SR**)

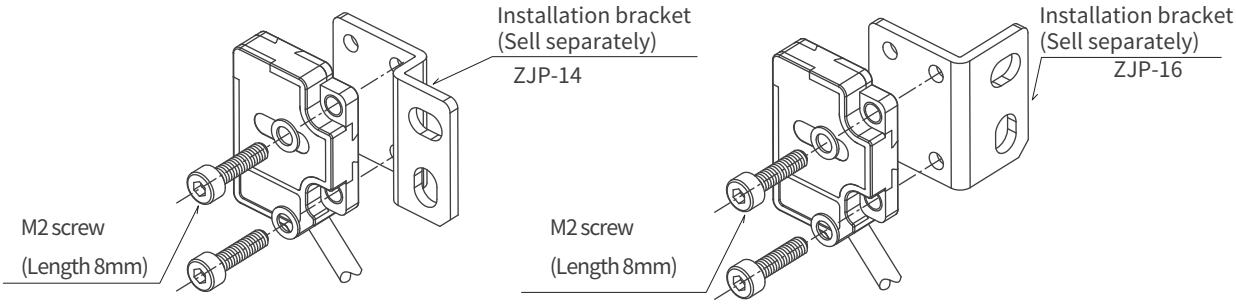
Y axis: minimum detection object diameter: mm
X-axis: Detection distance: cm



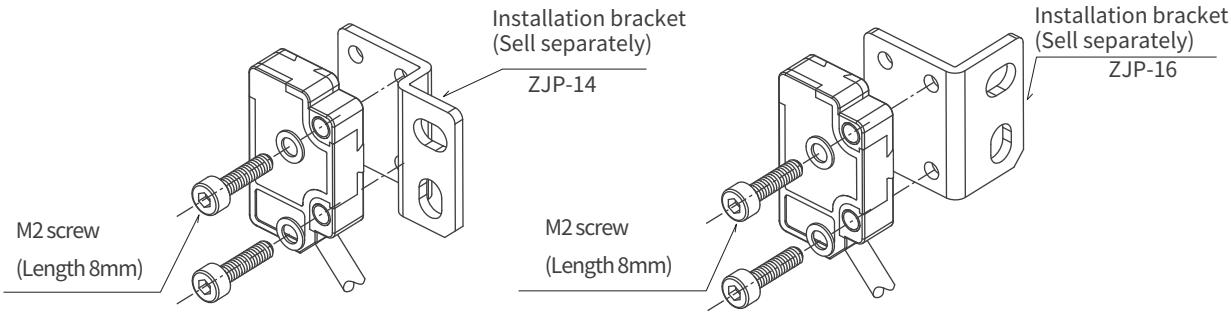
Official Website

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.

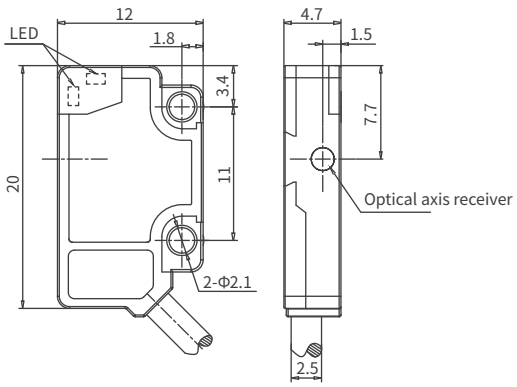
Scrap Disposition

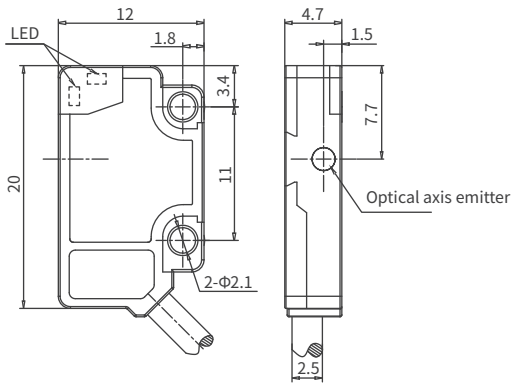
- When the product is scrapped, please dispose of it as industrial waste.

Product dimension diagram

PSV Through beam (Side sensing)

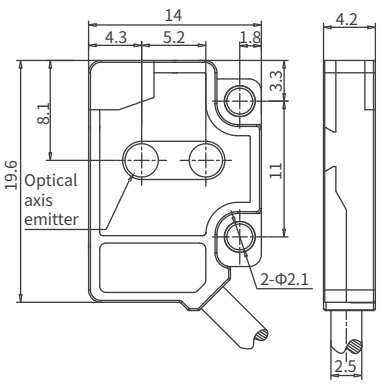
Cable

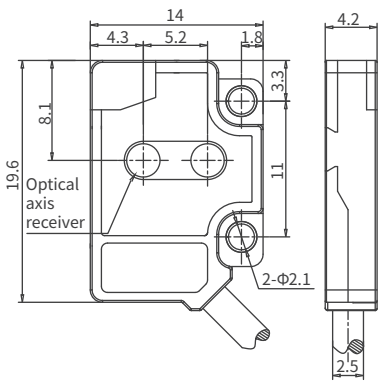




PSV Through beam (Front sensing)

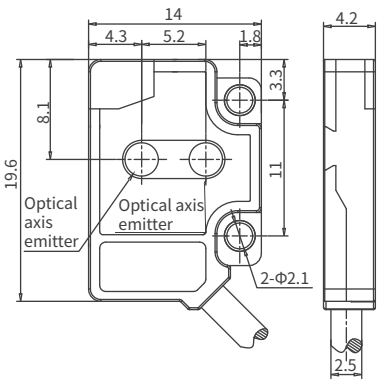
Cable





PSV Diffuse reflection / Background suppression /Limited reflection

Cable



Ultra-thin
Micro Square
Little square
Large square
Round and square
Cylindrical
Naming rules
Product family
Technical Guide

Official Website

Memo

Official Website

Photoelectric Sensors

Micro Square Series

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

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

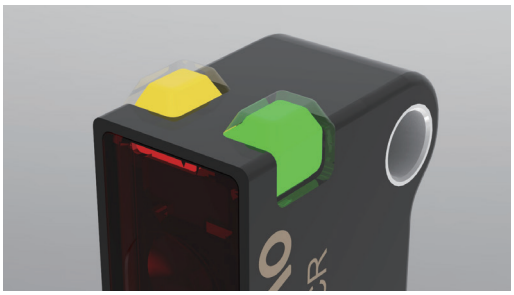
A multi-turn potentiometer allows for fine-tuning of the distance setting.

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

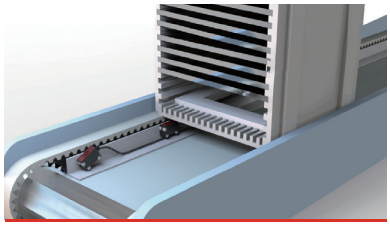
The PST mini sensor is built to last with an IP65 rating, featuring an integrated circuit that provides strong resistance to light interference, suitable for tough industrial environments.

Flexible connection options

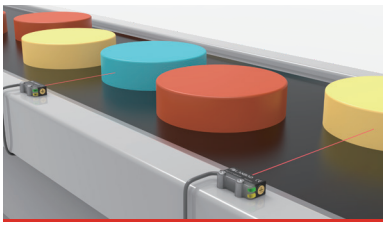
Includes a standard 2-meter cable and offers the option for a customized pigtail connection to meet specific needs.

Official website

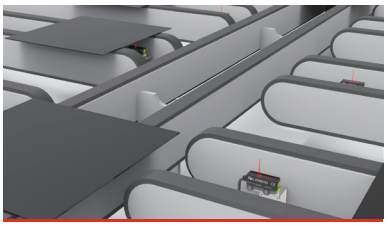
Application/Quick selection



Wafer pass detection



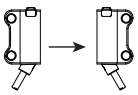
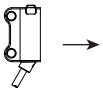
Thin edge detection



Detection through slits or holes

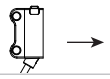
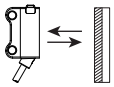
Selection list

PST series

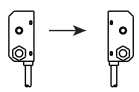
Detection method	Shape	Connection	Detection distance	Type	Model	
					NPN Output	PNP Output
Through beam type		2m cable	50cm		Emitter PST-TC50DRV	Emitter PST-TC50DRV
				NO	Receiver PST-TC50DNOR	Receiver PST-TC50DPOR
				NC	Receiver PST-TC50DNCR	Receiver PST-TC50DPCR
		20cm cable with connector	50cm		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
					Emitter PST-TM2DRV	Emitter PST-TM2DRV
				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
					Emitter PST-TM2DRV-F3	Emitter PST-TM2DRV-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

Official website

Selection List

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
Retro reflection type		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
		20cm cable with connector	10cm	NO	PST-YC10DNOS-F3	PST-YC10DPOS-F3
				NC	PST-YC10DNCS-F3	PST-YC10DPCS-F3
		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

Official website

PST Through beam

Model	PST-TM□D□□□-□		
Detection principle	Through beam		
Detection distance	50cm	2m	
Light source type	Red Vcsel	Red Vcsel	Red point light source
Detecting objects	ϕ4mm Above opaque objects①	ϕ4mm Above opaque objects①	ϕ5mm Above opaque objects②
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.

PST Retro reflection/Limited reflection

Model	PST-DC□D□□R-□	PST-SR□D□□R-□
Detection principle	Retro reflection	Limited reflection
Detection distance	25cm①	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: ①Measured using reflector TD-11.

Ultra-thin
Micro square
Little square
Large square
Round and square
Cylindrical
Naming rules
Product family
Technical guide
Official website

Specification Parameter

PST Background suppression

Model	PST-Y□□D□□R-□			
Detection principle	Background suppression			
Detection distance	16mm①	4...18mm①	4...36mm①	10cm①
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	＜1mm②	＜4mm		＜1.5cm②
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).
②16mm: 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.

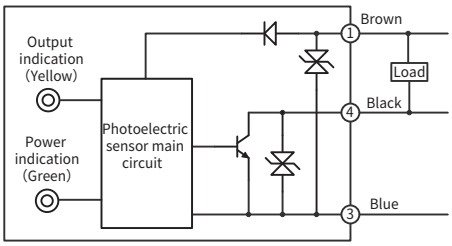
PST Background suppression

Model	PST-Y□□D□□S-□		
Detection principle	Background suppression		
Detection distance	4...18mm①	4...36mm①	10cm①
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		

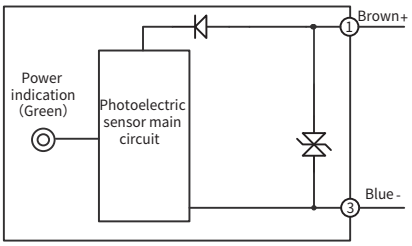
Note: ①Measured using reflector TD-11.

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

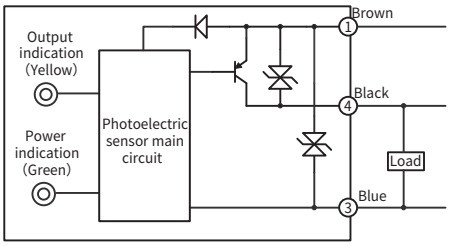
Receiver NPN



Emitter



Receiver PNP



Official website

Specification Parameters/Electrical Wiring Diagram

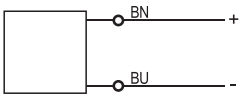
PST Through beam

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 (RippleP-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

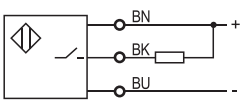
Electrical Wiring Diagram

PSJ Through beam

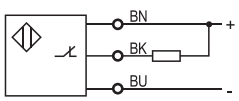
Emitter



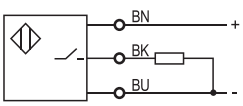
NPN NO



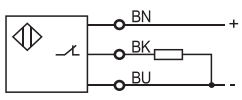
NPN NC



PNP NO



PNP NC

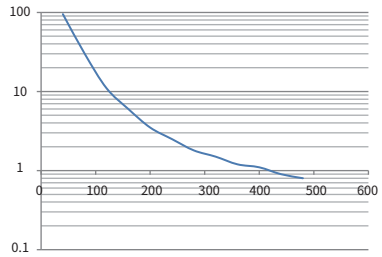


Official website

Signal redundancy

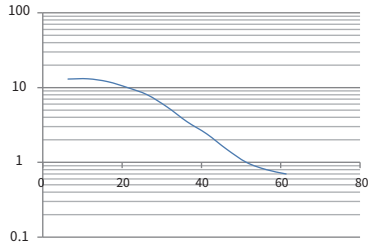
Through beam type(PST-TM2*)

X-axis: Unit:cm



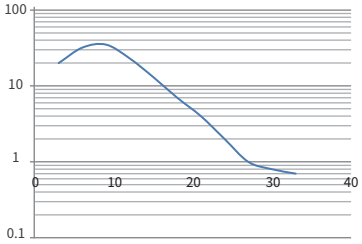
Retro reflection(PST-DC25)

X-axis: Unit:cm



Limited reflection(PST-SR25)

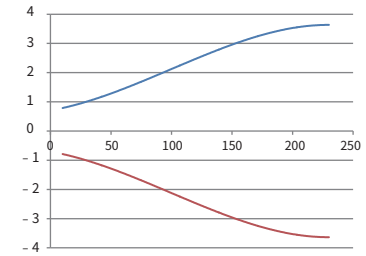
X-axis: Unit:mm



Motion range

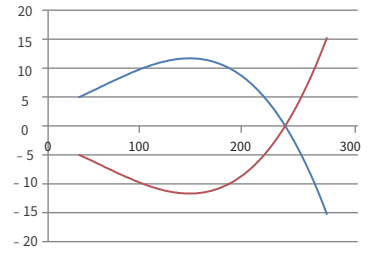
Through beam type(PST-TM2*)

X-axis: Unit:cm



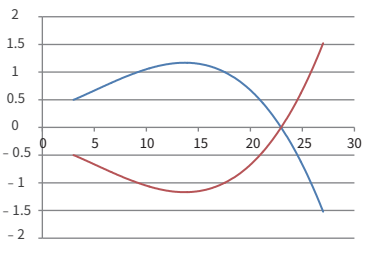
Retro reflection(PST-DC25)

X-axis: Unit:cm



Limited reflection(PST-SR25)

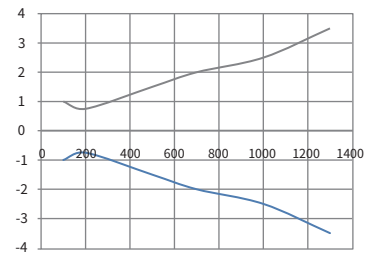
X-axis: Unit:mm



Spot size

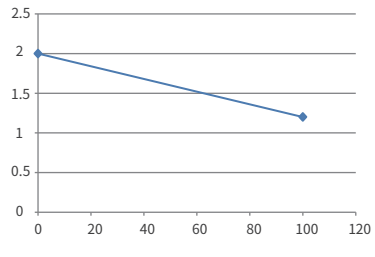
Through beam type(PST-TM2*)

Y-axis: Spot diameter:cm X-axis: Distance:mm



Background suppression(PST-YC10)

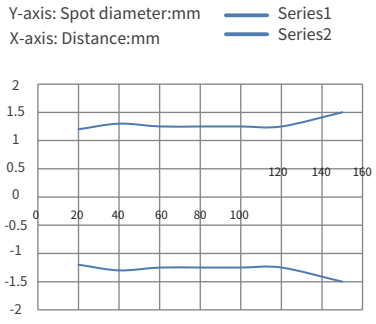
Y-axis: Spot diameter:mm X-axis: Distance:mm



Distance-Spot diameter

Background suppression(PST-YC10)

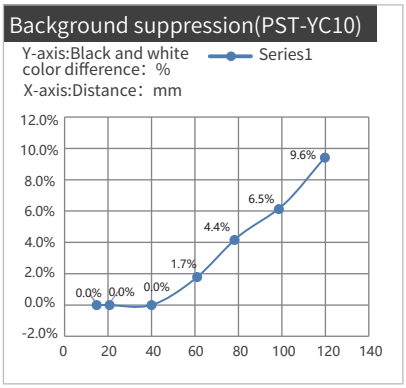
Y-axis: Spot diameter:mm
X-axis: Distance:mm



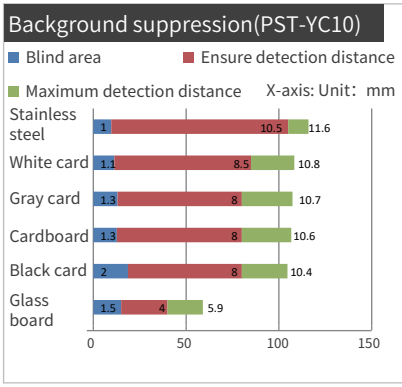
Official website

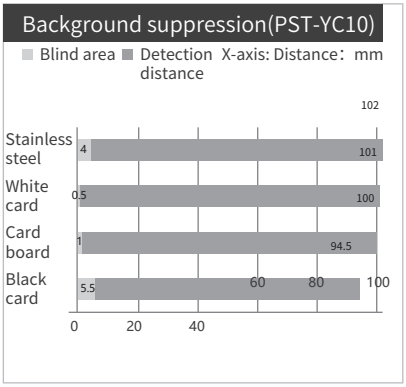
Graph

Black and white color difference

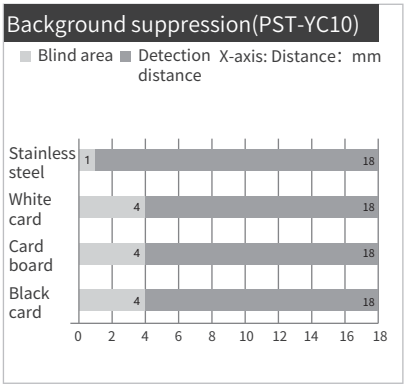


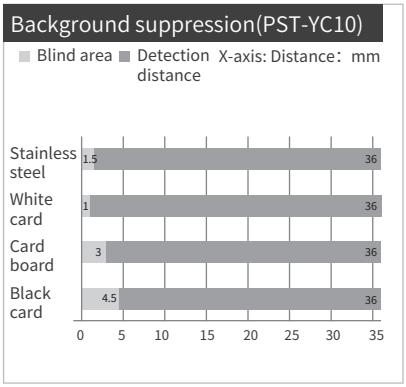
Color sensitivity

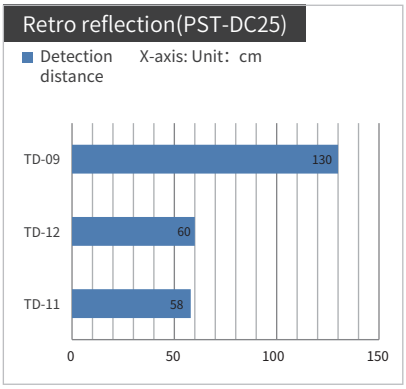


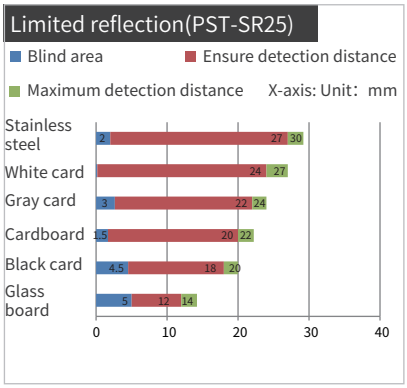


Detection distance





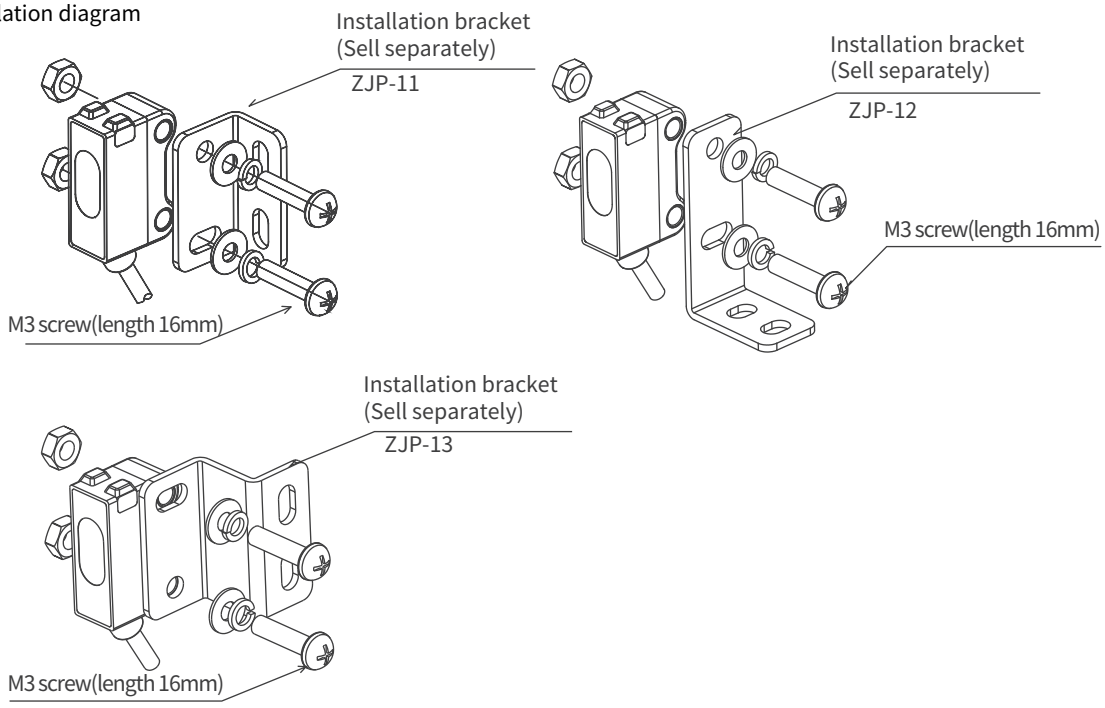




Official website

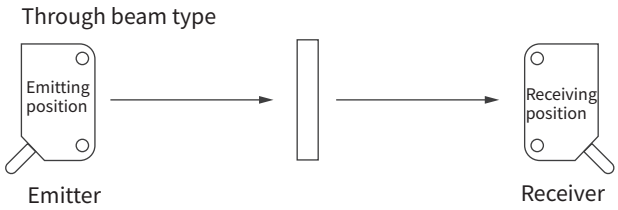
Product Installation diagram

■ PST Installation diagram



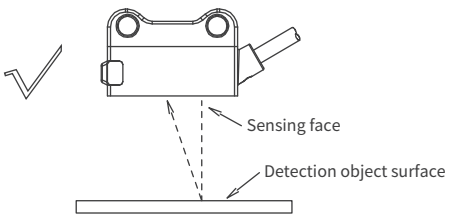
Note: When installing this product, please keep the tightening torque below 0.5N · m.

■ PSJ Installation diagram

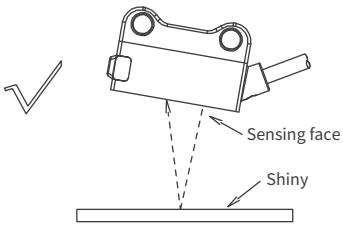


Considerations for background suppression products

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



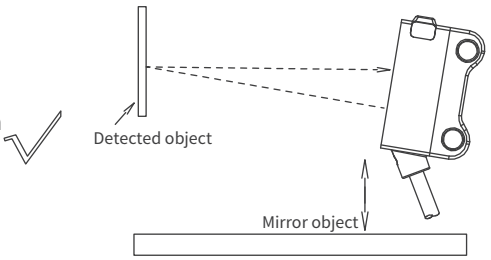
■ To detect shiny objects (or shiny surfaces), please tilt the sensor by 5...10° as shown



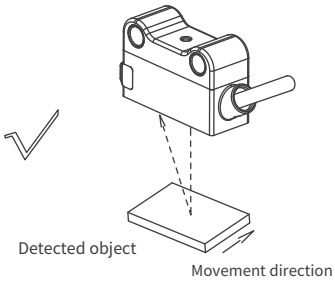
Official website

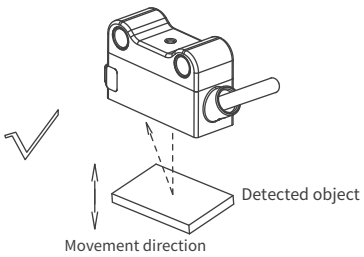
Installation Method

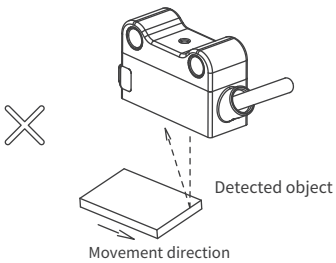
■ When sensor faces down to mirror body objects,the light emitted from sensing object is reflected to the mirror body and then returned to the sensor, which may sometimes cause unstable action.
To avoid it, please install the sensor by tilting or keeping a certain distance from the sensor as shown in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



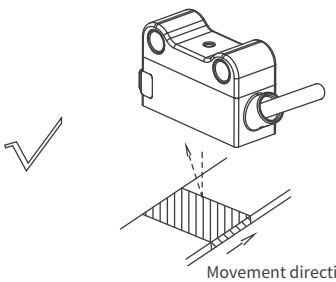
■ Regarding to the installation direction, please pay attention to the movement direction of sensing object, and install it as shown below

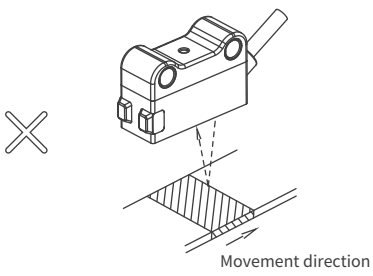






■ When detecting objects with big color differences or different materials, please refer to the following methods for installation





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.

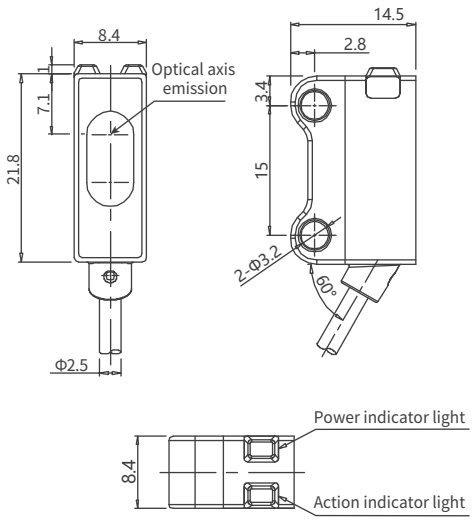
Scrap treatment

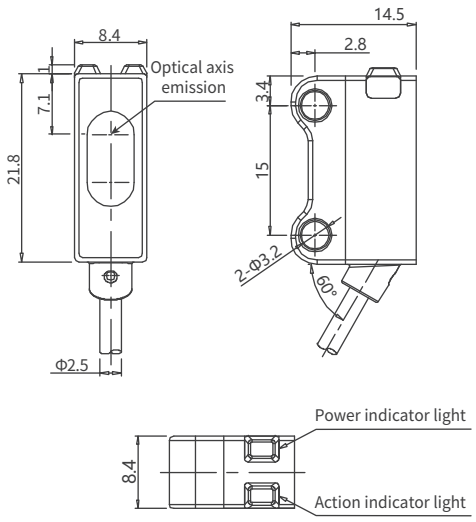
- When the product is scrapped, please dispose of it as industrial waste.

Ultra-thin
Micro square
Little square
Large square
Round and square
Cylindrical
Naming rules
Product family
Technical guide
Official website

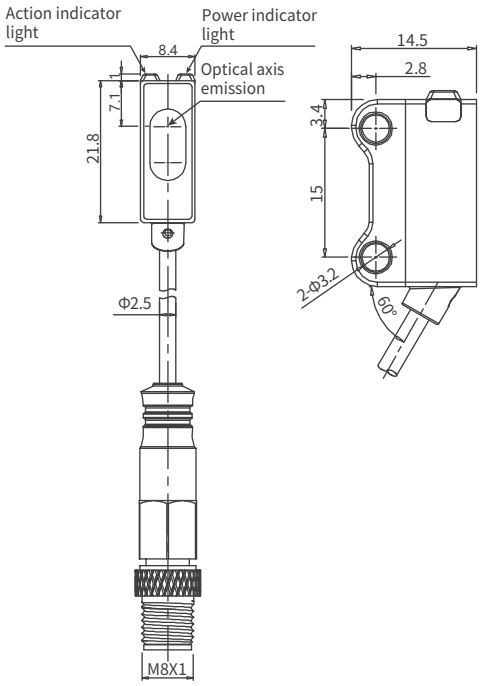
PST Through beam

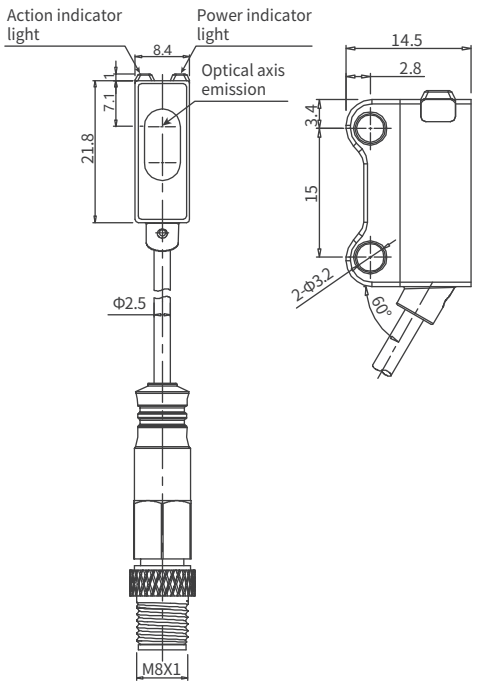
Cable





Pigtail cable





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

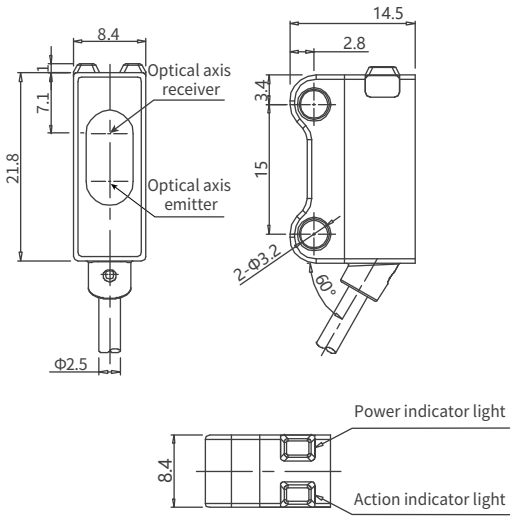
Naming rules
Product family
Technical guide

Official website

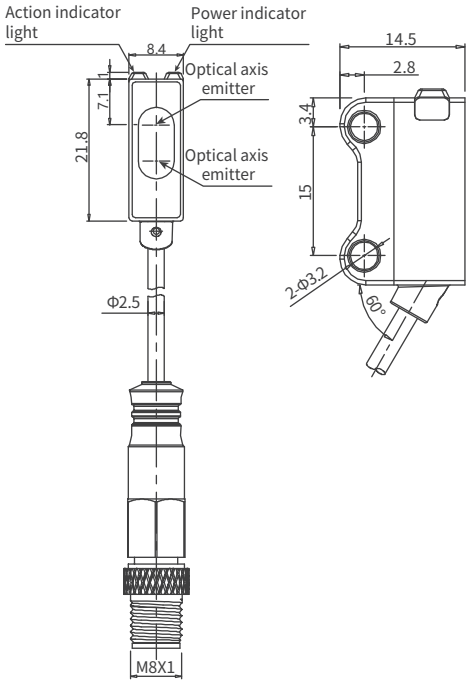
Product Dimension Diagram

PST Retro reflection/Limited reflection

Cable

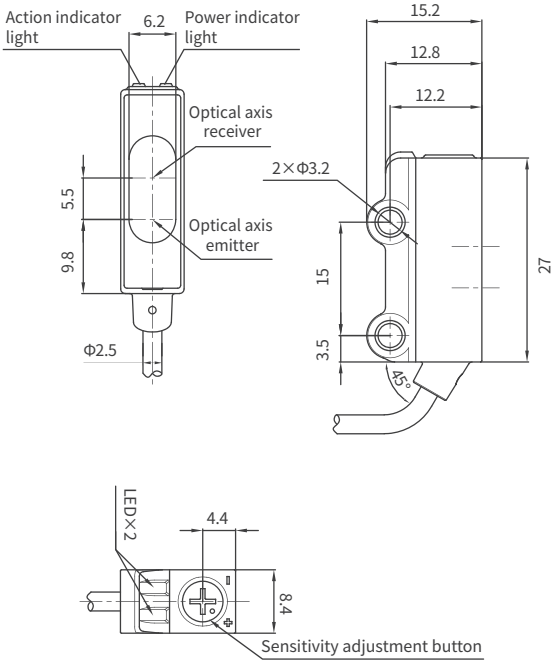


Pigtail cable

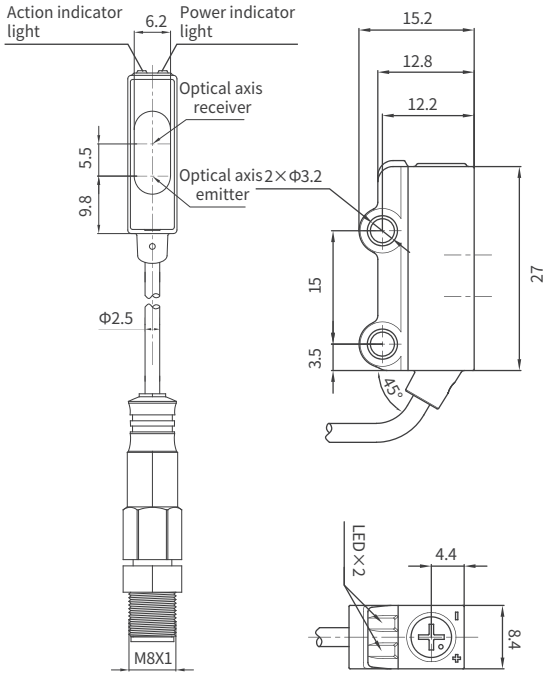


PST Background suppression

Cable



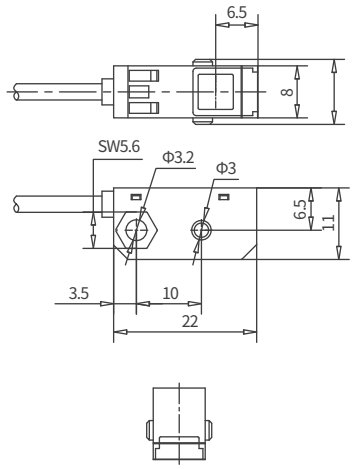
Pigtail cable



Official website

PSJ Through beam

Cable



Official website

Photoelectric Sensors

Little Square Series

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

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.

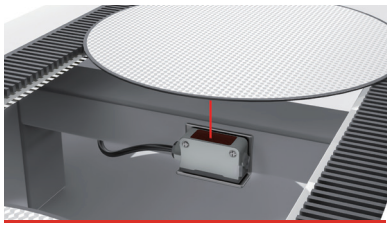
Ultra-Small spot for accurate positioning

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.

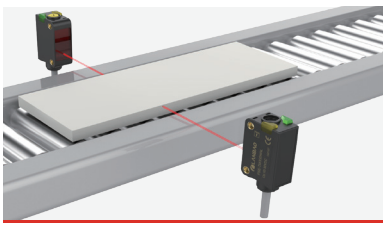
IP67 Protection rating for harsh environments

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

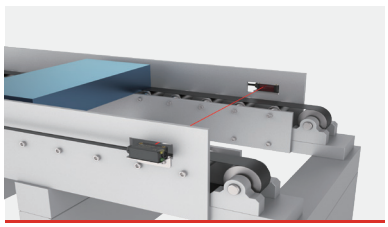
Application



Wafer pass detection



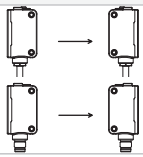
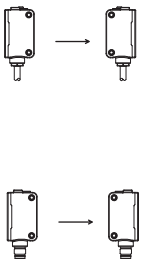
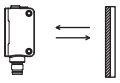
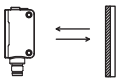
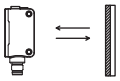
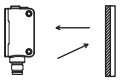
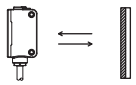
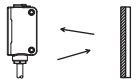
Thin edge detection



Detection through slits or holes

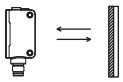
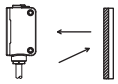
Official Website

Selection List

Detection method	Shape	Connection	Detection distance	Type	Model	
					NPN Output	PNP Output
Laser through beam type		2m cable	30m		Emitter PSE-TM30DL	Emitter PSE-TM30DL
		Connector			Emitter PSE-TM30DL-E3	Emitter PSE-TM30DL-E3
		2m cable		NO+NC	Receiver PSE-TM30DNRL	Receiver PSE-TM30DPRL
		Connector		NO+NC	Receiver PSE-TM30DNRL-E3	Receiver PSE-TM30DPRL-E3
Through beam type		2m cable	5m		Emitter PSE-TM5DR	Emitter PSE-TM5DR
		Connector			Emitter PSE-TM5DR-E3	Emitter PSE-TM5DR-E3
		2m cable		NO/NC	Receiver PSE-TM5DNBR	Receiver PSE-TM5DPBR
		Connector		NO/NC	Receiver PSE-TM5DNBR-E3	Receiver PSE-TM5DPBR-E3
		2m cable	10m		Emitter PSE-TM10DR	Emitter PSE-TM10DR
		Connector			Emitter PSE-TM10DR-E3	Emitter PSE-TM10DR-E3
		2m cable		NO/NC	Receiver PSE-TM10DNBR	Receiver PSE-TM10DPBR
		Connector		NO/NC	Receiver PSE-TM10DNBR-E3	Receiver PSE-TM10DPBR-E3
		2m cable	20m		Emitter PSE-TM20D	Emitter PSE-TM20D
		Connector			Emitter PSE-TM20D-E3	Emitter PSE-TM20D-E3
		2m cable		NO/NC	Receiver PSE-TM20DNB	Receiver PSE-TM20DPB
		Connector		NO/NC	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

Official Website

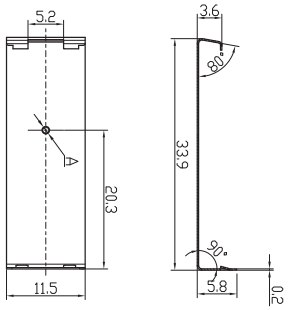
Selection List

Detection method	shape	Connection	Detection distance	Type	Model	
					NPN Output	PNP Output
Transparent object detection type		2m cable	50cm	NO/NC	PSE-GC50DNBB	PSE-GC50DPBB
		Connector		NO/NC	PSE-GC50DNBB-E3	PSE-GC50DPBB-E3
		2m cable	2m	NO/NC	PSE-GM2DNBB	PSE-GM2DPBB
		Connector		NO/NC	PSE-GM2DNBB-E3	PSE-GM2DPBB-E3
TOF reflection type		2m cable	60cm	NO/NC	PSE-CC60DNB	PSE-CC60DPB
		Connector		NO/NC	PSE-CC60DNB-E3	PSE-CC60DPB-E3
		2m cable	100cm	NO/NC	PSE-CC100DNB	PSE-CC100DPB
		Connector		NO/NC	PSE-CC100DNB-E3	PSE-CC100DPB-E3
		2m cable	3m	NO/NC	PSE-CM3DNB	PSE-CM3DPB
		Connector			PSE-CM3DNB-E3	PSE-CM3DPB-E3
		0.5m cable	3m	NO/NC	PSE-CM3DR(RS485 Output)	

Product accessorie

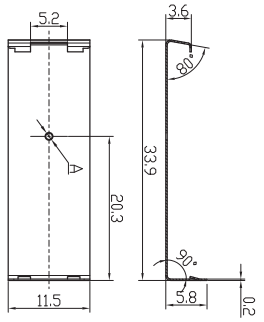
Narrow slit FJP-01

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

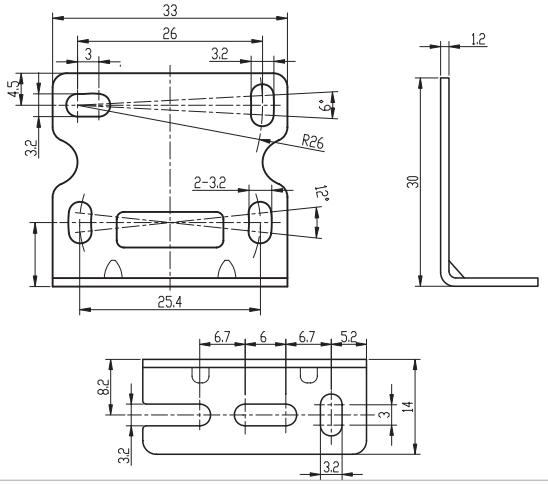


Narrow slit FJP-02

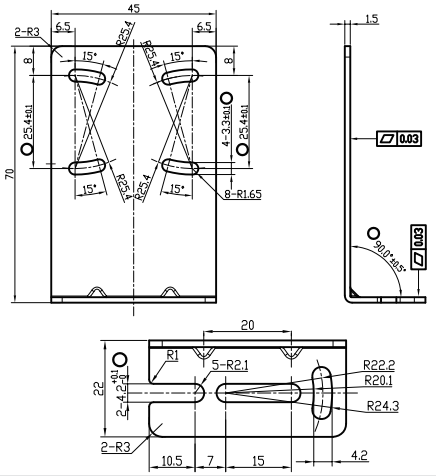
Model	FJP-01A
	FJP-01B
	FJP-01C
Dimension	ϕ0.5mm
	ϕ1.0mm
	ϕ2.0mm
Material	Stainless steel (SUS304)



Installation bracket ZJP-8



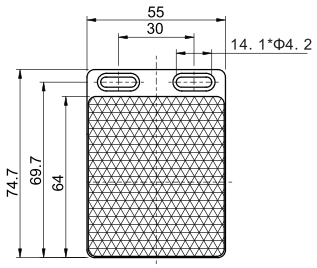
Installation bracket ZJP-17



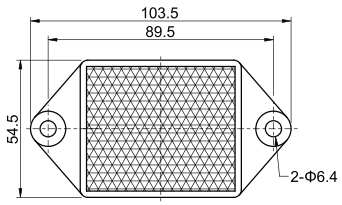
Official Website

Product Accessorie

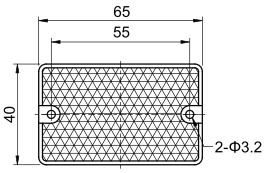
TD-01



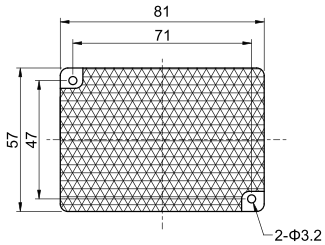
TD-01-3



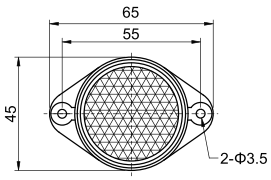
TD-02



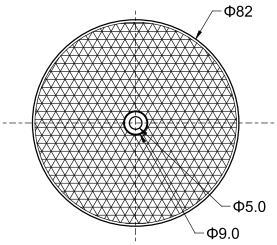
TD-03



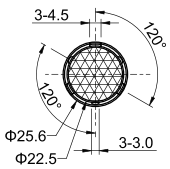
TD-04



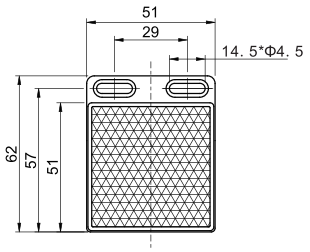
TD-05



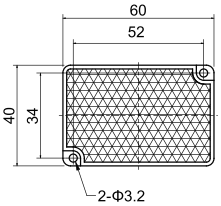
STD-06



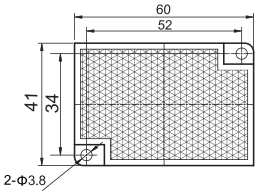
TD-08



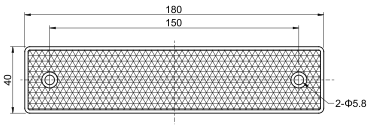
TD-09



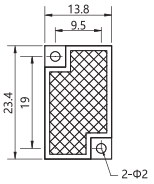
TD-09A



TD-10



TD-11



Official Website

Specification Parameter

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	5m②	10m②
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	/	＜10mm①		/	
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).

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					

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	⩽5mm①			/
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℃;Storage temperature：-25...70℃; 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℃.

PSE Limited reflection/Transparent object detection

Model	PSE-SC5D□BX-□	PSE-G□□D□BB-□	
Detection principle	Limited reflection	Transparent object detection	
Sensing distance	5cm①	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℃;Storage temperature：-25...70℃; 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℃.

Ultra-thin
Micro Square
Little square
Large square
Round and square
Cylindrical
Naming rules
Product family
Technical Guide
Official Website

Specification parameter

PSE TOF Reflection

Model	PSE-C□□D□B-□		
Detection principle	TOF Reflection		
Sensing distance	0.5...60cm①	0.5...100cm②	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.

PSE TOF Reflection

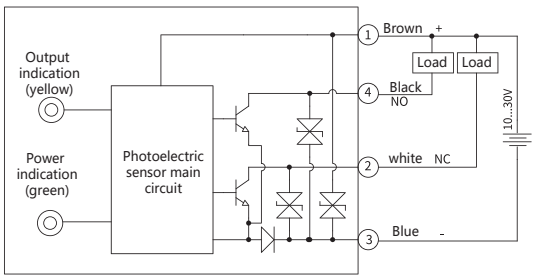
Model	PSE-CM3DR
Detection principle	TOF Reflection
Sensing distance	0.02...3m
Light source type	Infrared light
Standard target	/
Spot size	Within ±1cm (2-30cm)；≤1% (30-300cm)
Blind area	Within ±3cm (2-30cm)；≤2% (30-300cm)
Hysteresis	1mm
Adjustment method	＜10%
Power Supply	Not adjustable
Output characteristic	10...30V DC (Ripple P-P：≤10%)；Current consumption：Emitter≤40mA；Leakage current：≤0.1%
Protection circuit	RS485
Indicator light	Short circuit protection,Reverse polarity protection, Overload protection, Zener protection
Response time	Green light:Power indication
Ambient light resistance	T-on：≤100ms;T-off：≤100ms
	Anti-sunlight interference ≤10,000Lux;Anti-incandescent light interference≤3,000Lux
Working environment Protection level	working temperature：-25...55°C;Storage temperature：-25...70°C; Ambient humidity：35...85% (No condensation or dew on optical surfaces)
Shell material	IP67
Connection method	PC+ABS
Dimensional drawing	0.5m PVC cable
	See page P03-024 for details

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

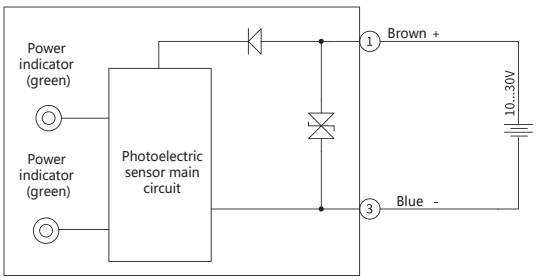
Electrical Wiring Diagram

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

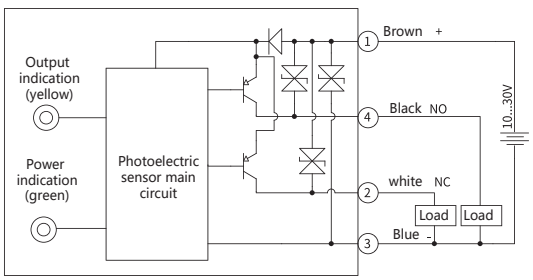
Receiver NPN



Emitter

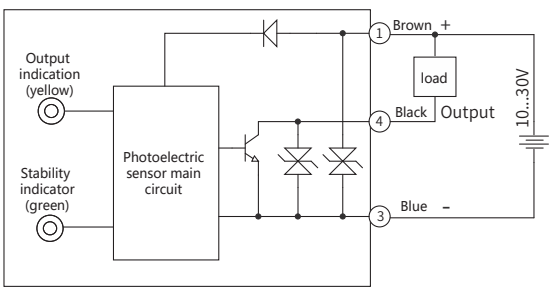


Receiver PNP

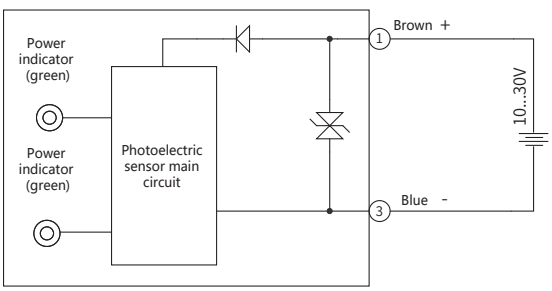


PSE Through beam/Diffuse reflection/Polarized reflection/ Limited reflection/TOF Reflection

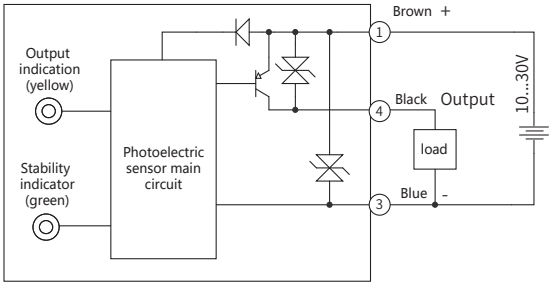
Receiver NPN



Emitter



Receiver PNP



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

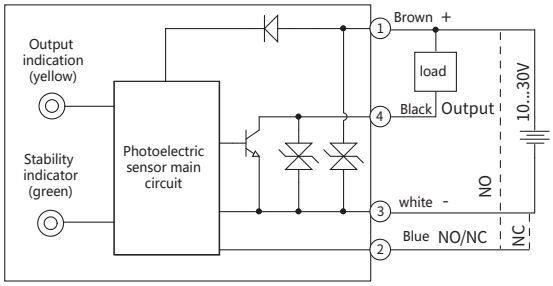
Naming rules
Product family
Technical Guide

Official Website

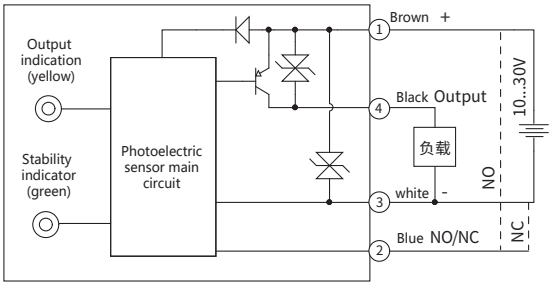
Electrical Wiring Diagram

PSE Background suppression

NPN

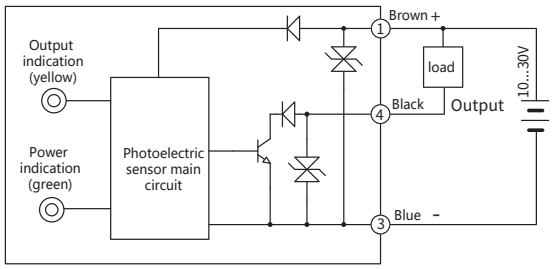


PNP

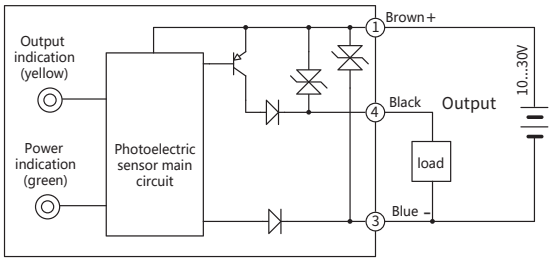


PSE Transparent object detection

NPN

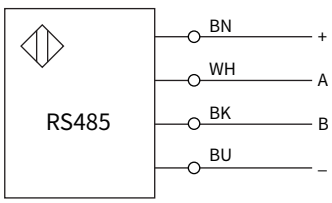


PNP



PSE TOF detection

RS485

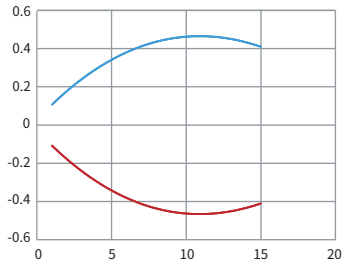


Official Website

Detection range

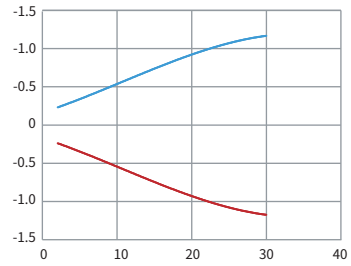
Through beam red light (PSE-TM10x.../-E3)

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



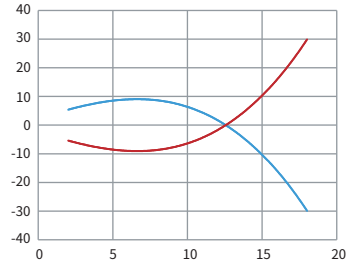
Through beam infrared (PSE-TM20x.../-E3)

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



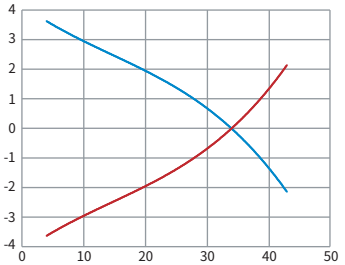
Wide angle type (PSE-BC10x.../-E3)

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



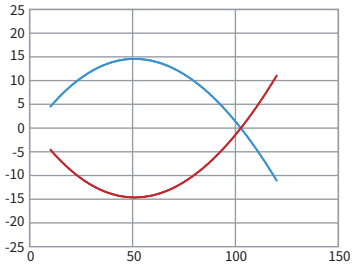
Diffuse reflection type red light (PSE-BC30x.../-E3)

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



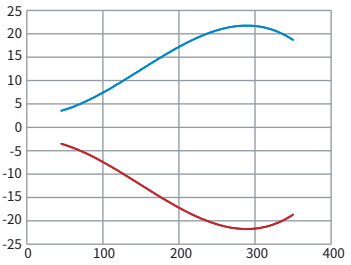
Diffuse reflection type red light (PSE-BC100x.../-E3)

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



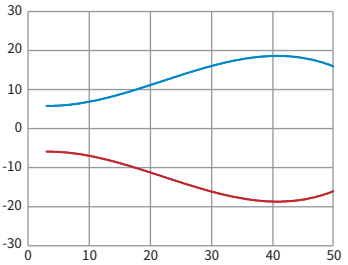
Polarized reflection type (PSE-PM3x.../-E3)

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



Background suppression type (PSE-YC35x.../-E3)

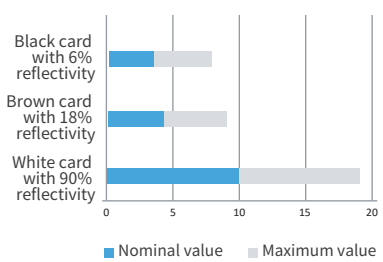
Y-axis: Detection range: mm
X-axis: Detection distance: cm



Detection distance

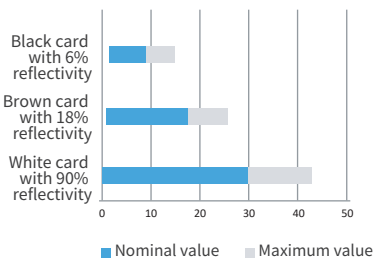
Wide angle type (PSE-BC10x.../-E3)

X-axis: Detection distance: cm



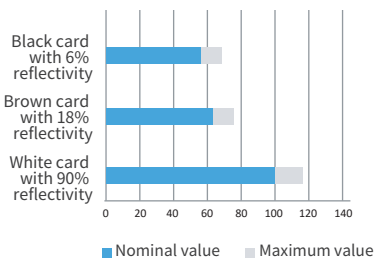
Diffuse reflection type red light (PSE-BC30x.../-E3)

X-axis: Detection distance: cm



Diffuse reflection type infrared (PSE-BC100x.../-E3)

X-axis: Detection distance: cm



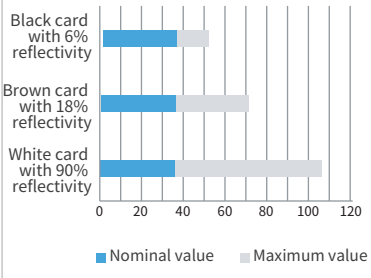
Official Website

Graph

Detection distance

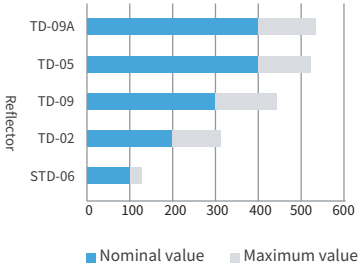
Background suppression type (PSE-YC35x.../-E3)

X-axis: Detection distance: cm



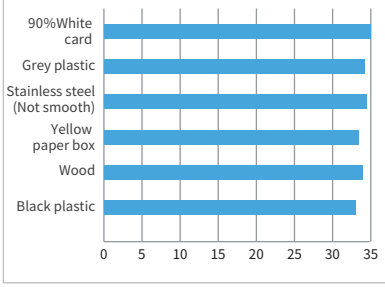
Polarized reflection type-Different reflectivity (PSE-PM3x.../-E3)

X-axis: Detection distance: cm



Background suppression type-Different materials(PSE-YC35x.../-E3)

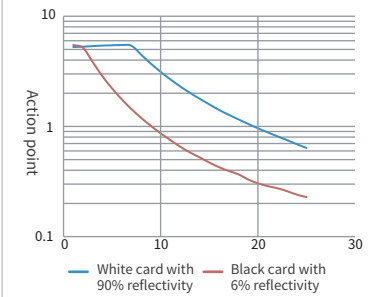
X-axis: Detection distance: cm



Signal redundancy

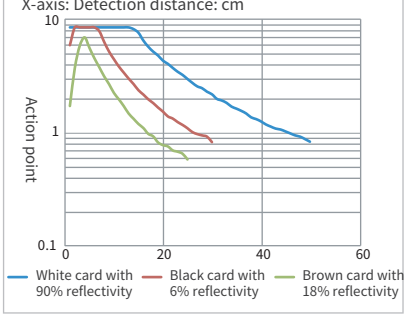
Wide angle type(PSE-BC10x.../-E3)

X-axis: Detection distance: cm



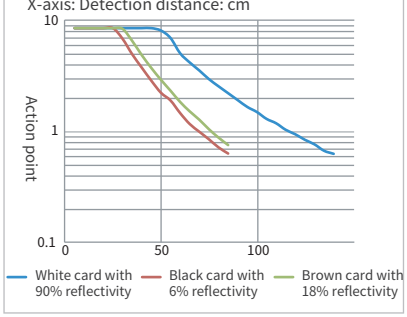
Diffuse reflection type red light (PSE-BC30x.../-E3)

X-axis: Detection distance: cm



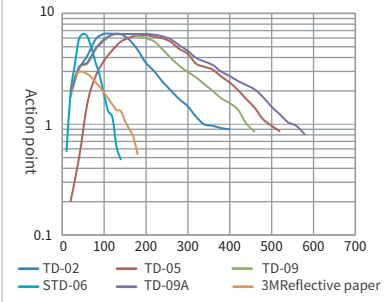
Diffuse reflection type infrared (PSE-BC100x.../-E3)

X-axis: Detection distance: cm



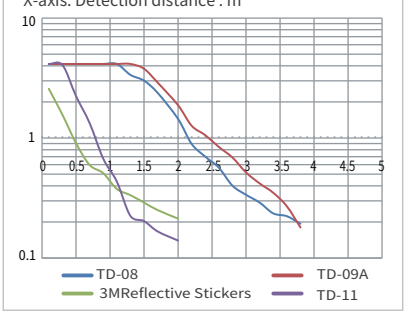
Diffuse reflection type red light (PSE-BC30x.../-E3)

X-axis: Detection distance: cm



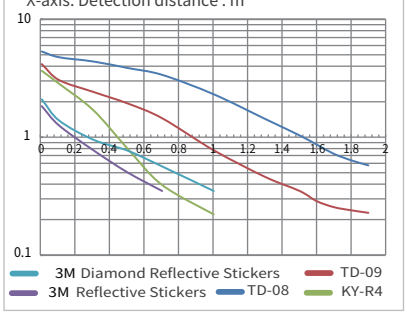
PSE-GM2D*BB/-E3

Y axis: light output margin (times)
X-axis: Detection distance : m



PSE-GC50D*BB/-E3

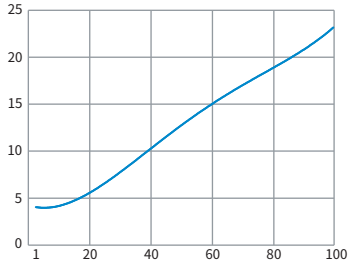
Y axis: light output margin (times)
X-axis: Detection distance : m



Spot size

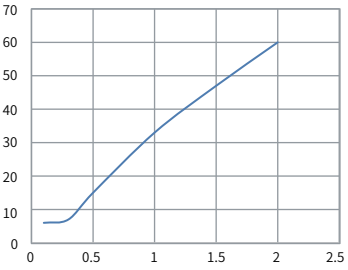
Background suppression type (PSE-YC35x.../-E3)

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



PSE-GM2/GC50D

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



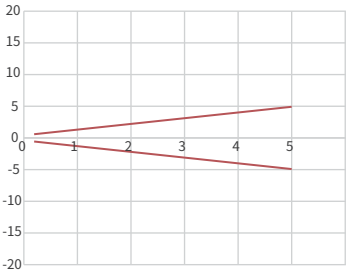
Laser through beam(PSE-TM30)

Y-axis: Spot diameter: mm
X-axis: Emitting distance: m

Light spot length and distance characteristics

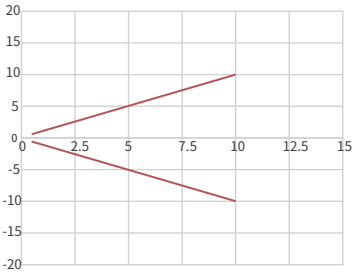
Laser polarized(PSE-PM5)

Y-axis: Spot diameter: mm
X-axis: Emitting distance: m



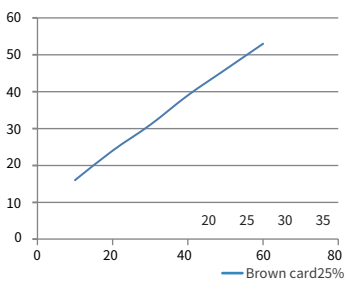
Laser polarized(PSE-PM10)

Y-axis: Spot diameter: mm
X-axis: Emitting distance: m



PSE-BC Series

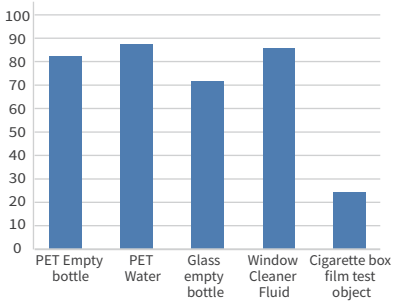
Spot range: mm
X-axis: Distance: m



Shading rate

PSE-GC50D*BB/-E3

Y-axis:Shading rate%

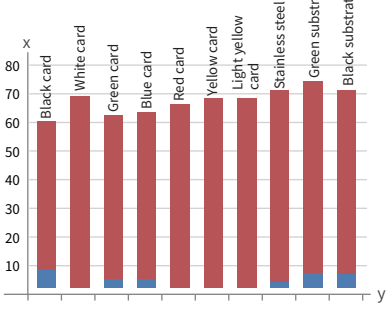


Color sensitivity

PSE-BC Series

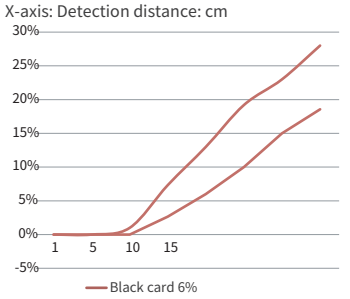
Detection distance
Blind area

Y-axis: Detection distance:mm



Background suppression(PSE-YC35x.../-E3)

Y-axis:Color sensitivity%
X-axis: Detection distance: cm



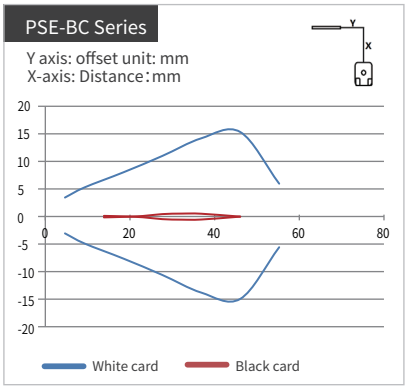
Ultra-thin
Micro Square
Little square
Large square
Round and square
Cylindrical

Naming rules
Product family
Technical Guide

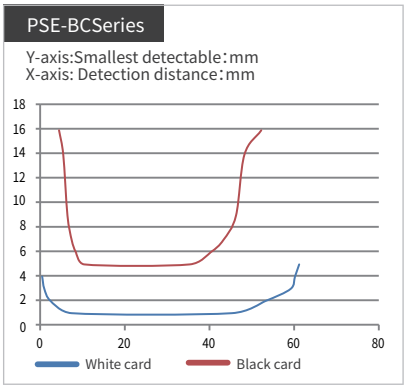
Official Website

Graph

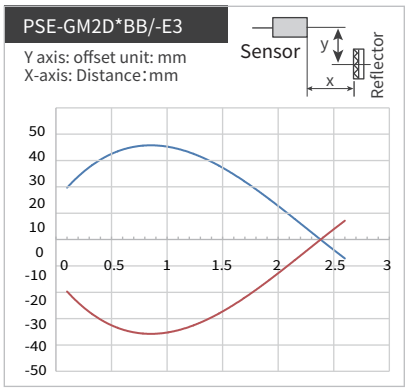
Operating range

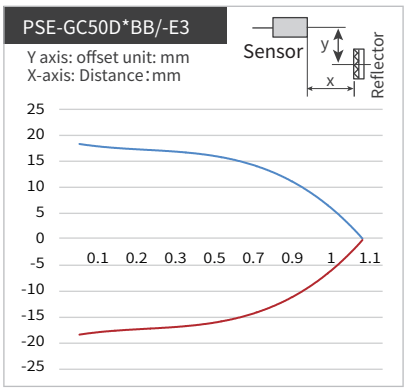


Minimum detection object



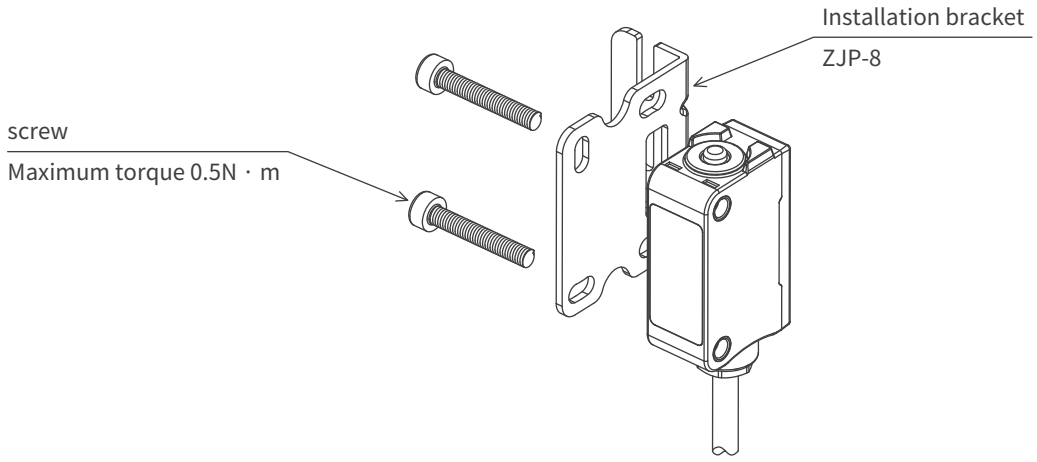
Parallel movement characteristics





Official Website

Product installation diagram

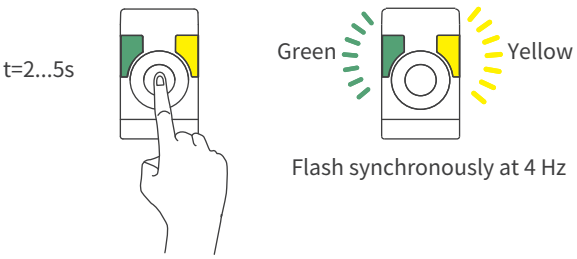


Button instruction

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

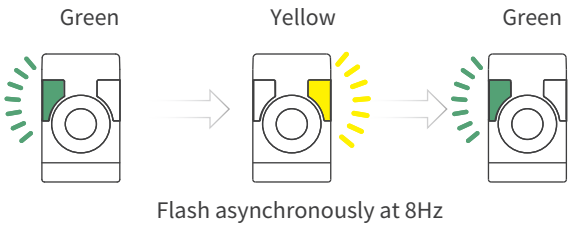
2 The product faces the test object, and the button is pressed for a duration of t. When 2s⩽t<5s, yellow and green flash synchronously at 4Hz. Release the button at this time, and the product distance is set successfully.

Refer to the figure on right:



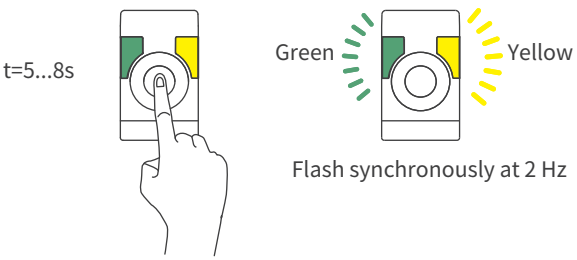
Note: When setting the distance, if the distance between the detected object and the sensor exceeds the detection capability of the product, the yellow and green lights flash synchronously at 4Hz when 2s⩽t<5s. If you release the button, the yellow and green lights flash asynchronously at 8Hz, indicating 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:



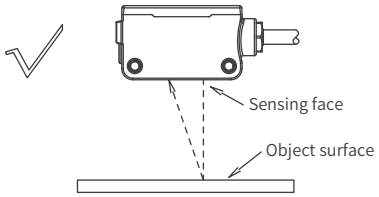
3 The button is pressed for a duration of t. When 5s⩽t<8s, the yellow and green lights flash synchronously at 2Hz. Release the button at this time and the NO/NC state switch is completed.

Refer to the figure on right:

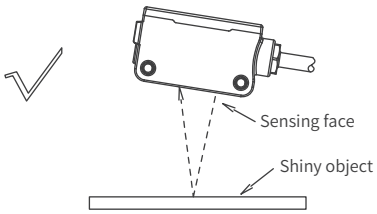


Special attention for background suppression products

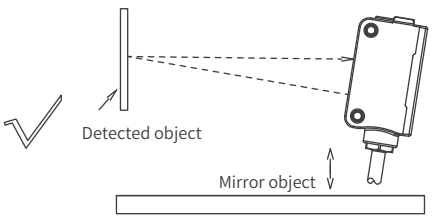
■ During installation, please make sensing face parallel to the object (not inclined to the detected object, except for the shiny objects).



■ 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.

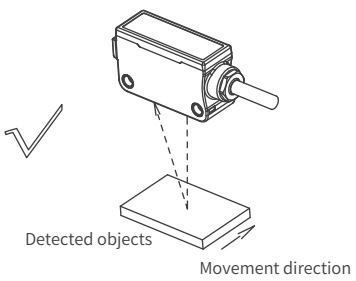


Figure 1

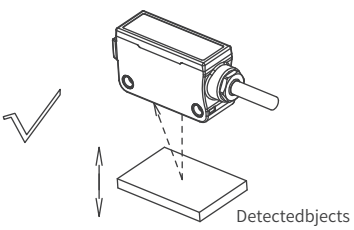


Figure 2

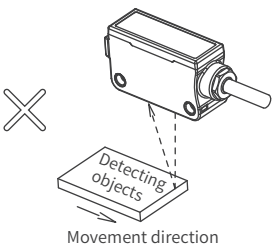


Figure 3

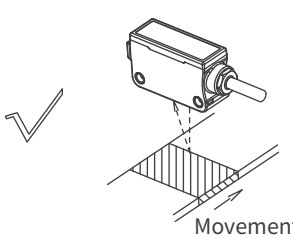
Ultra-thin
Micro Square
Little square
Large square
Round and square
Cylindrical

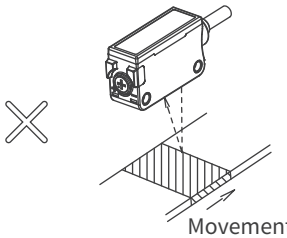
Naming rules
Product family
Technical Guide

Official Website

Installation Method

■ 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

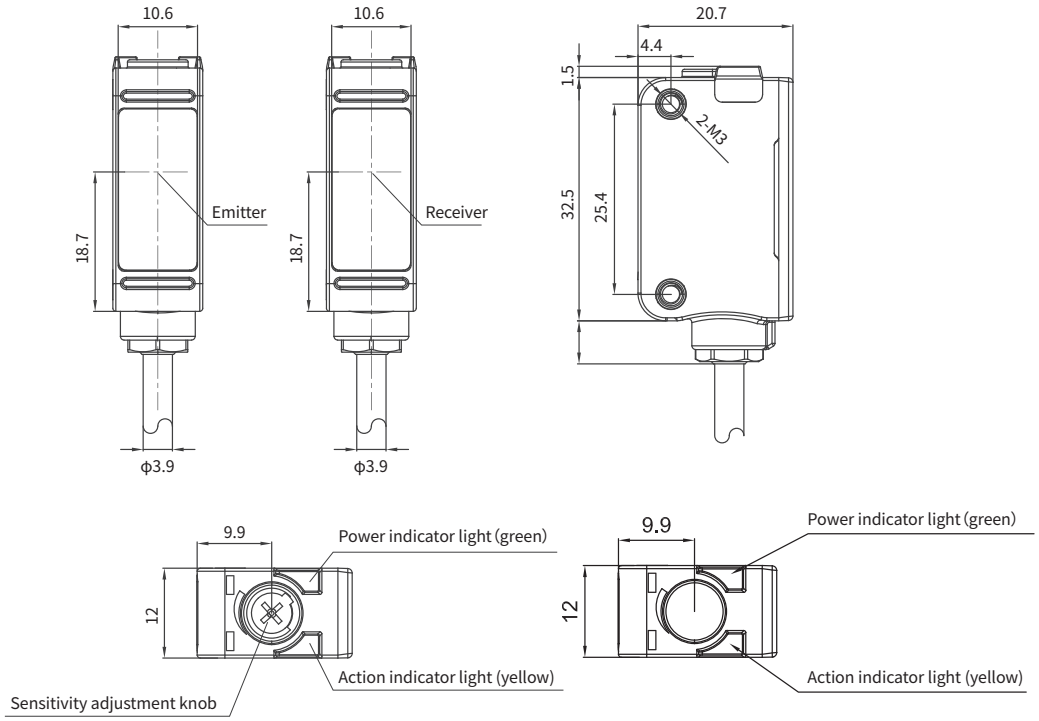
- When the product is scrapped, please dispose of it as industrial waste.

Official Website

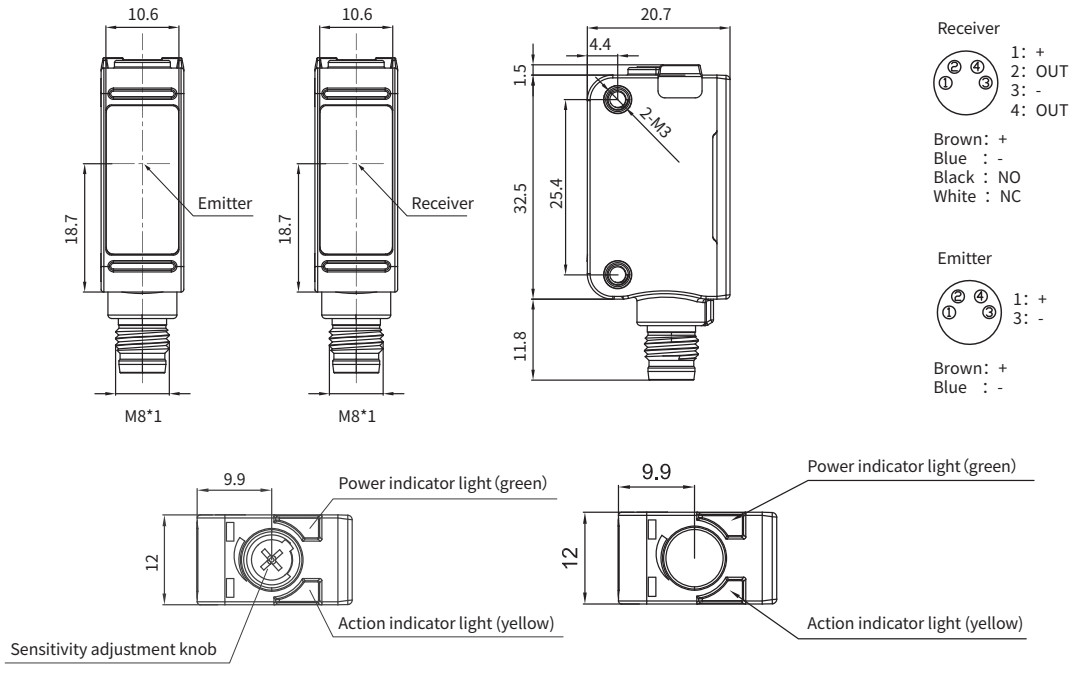
Product Dimension Diagram

PSE Laser through beam

Cable



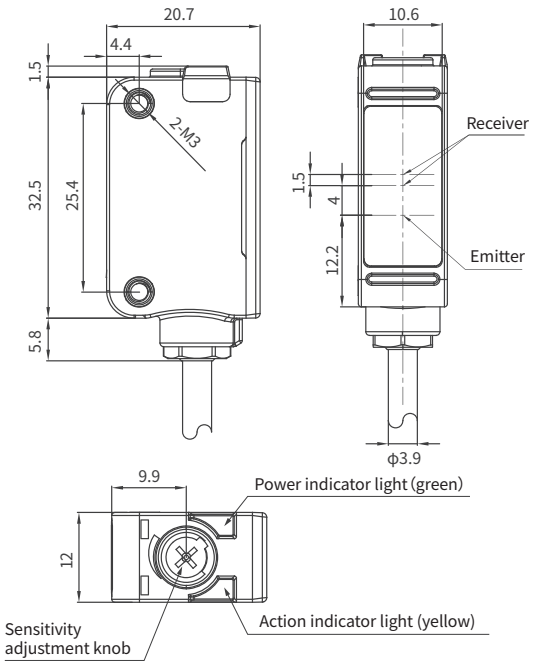
Connector



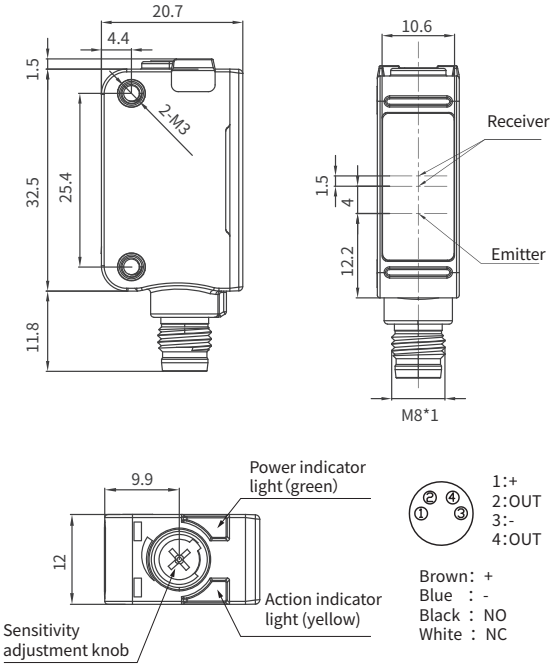
Product Dimension Diagram

PSE Laser background suppression

Cable

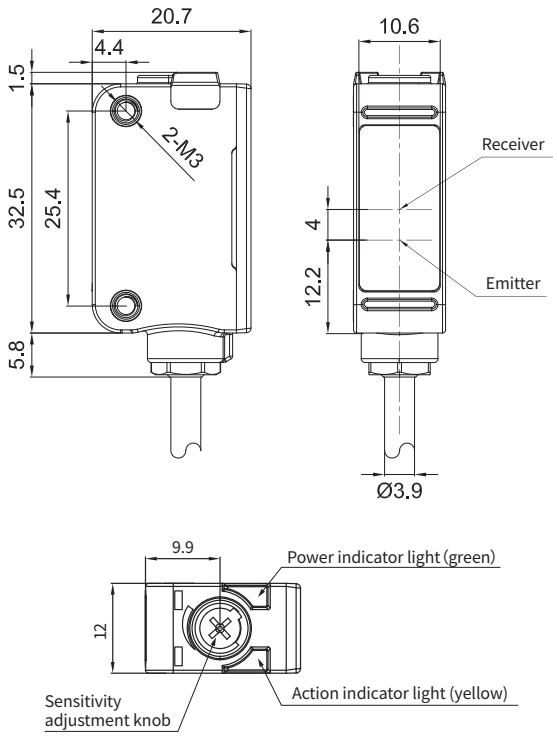


Connector

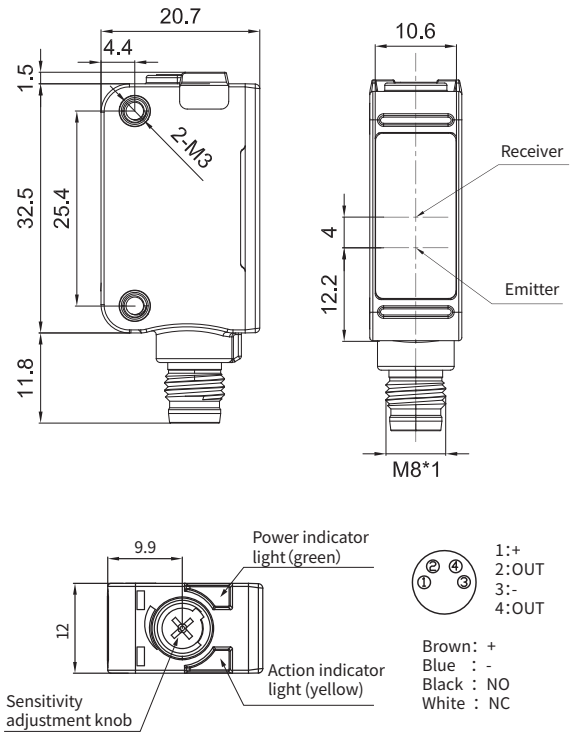


PSE Laser polarized reflection

Cable



Connector

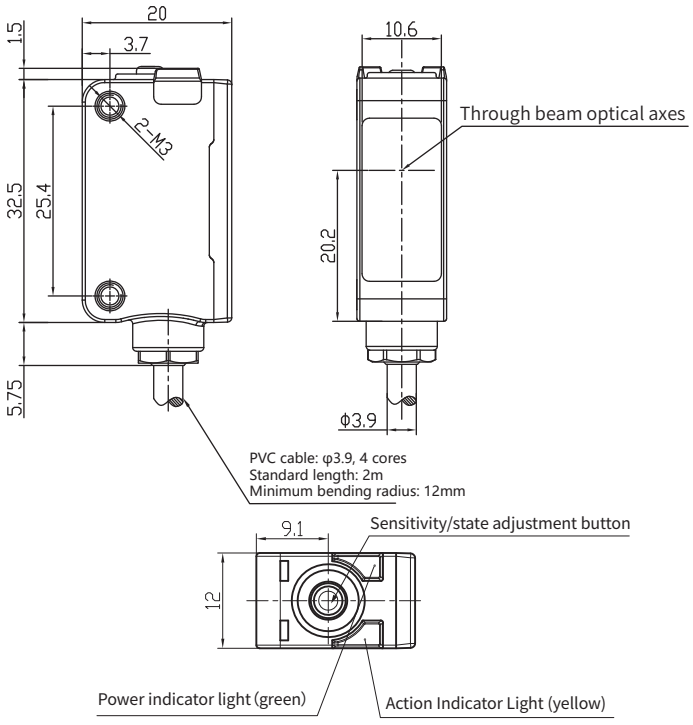


Official Website

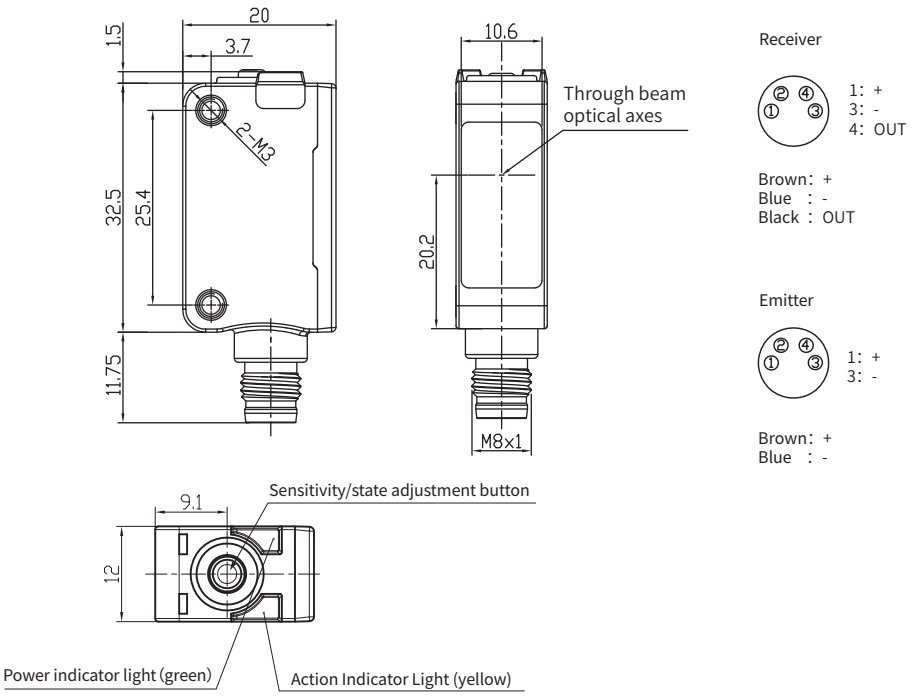
Product Dimension Diagram

PSE Through beam

Cable

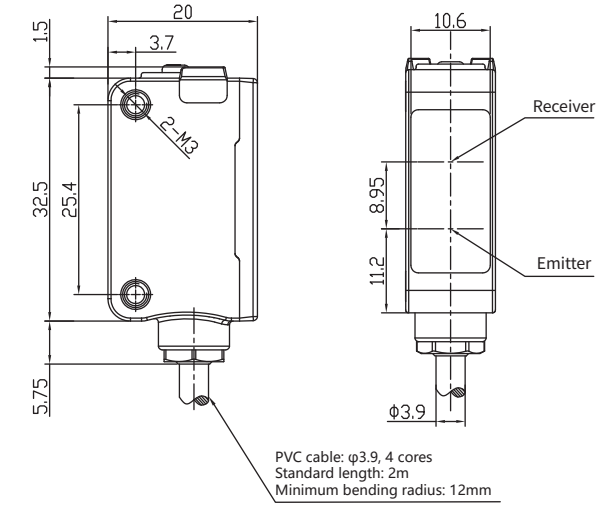


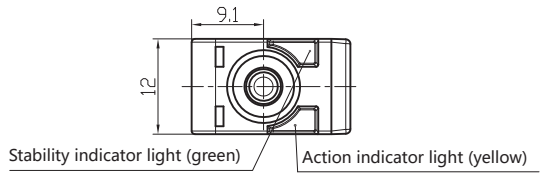
Connector



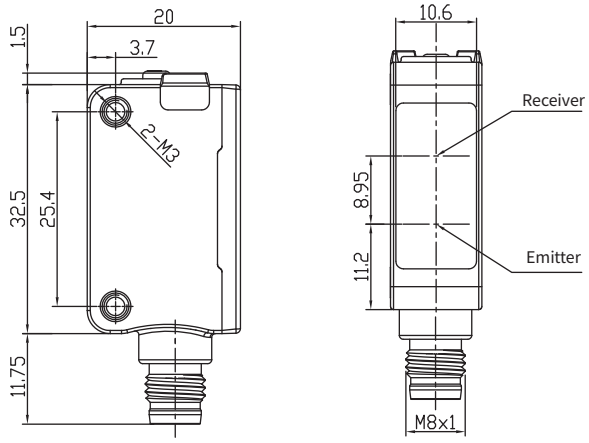
PSE Diffuse reflection/Polarized reflection

Cable



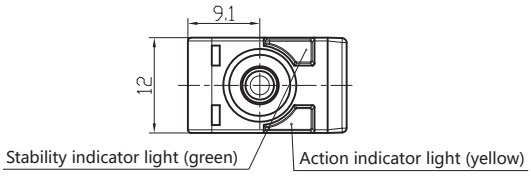


Connector



Brown: +
Blue : -
Black : OUT

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

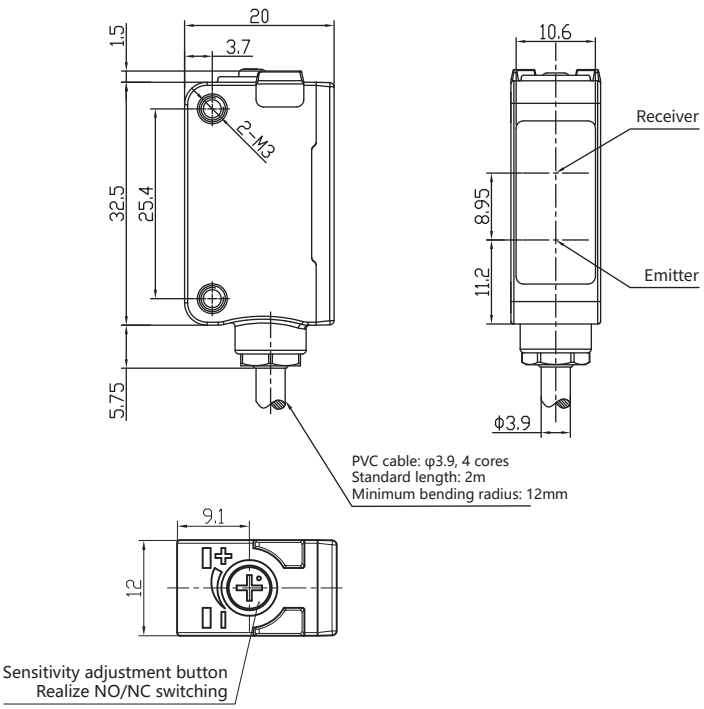


Official Website

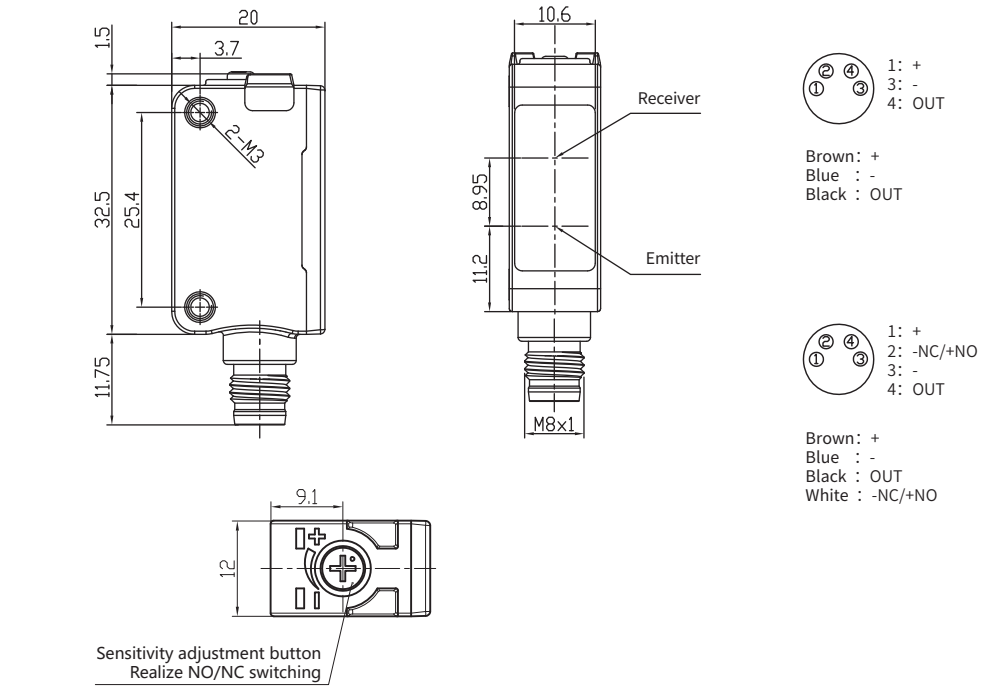
Product Dimension Diagram

PSE Background suppression

Cable

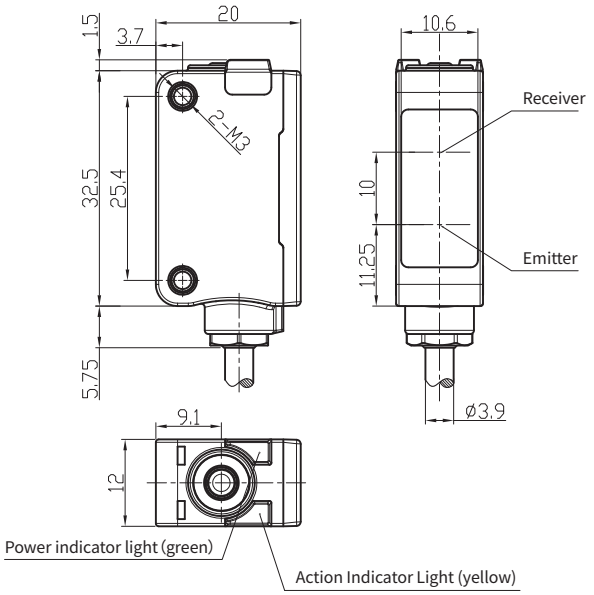


Connector

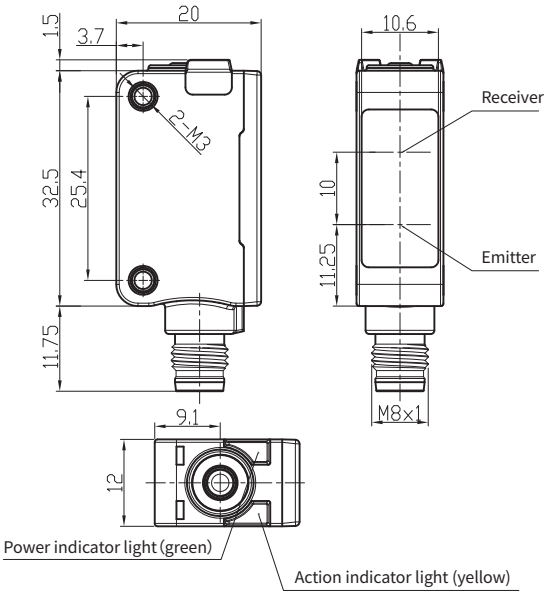


PSE Limited reflection

Cable

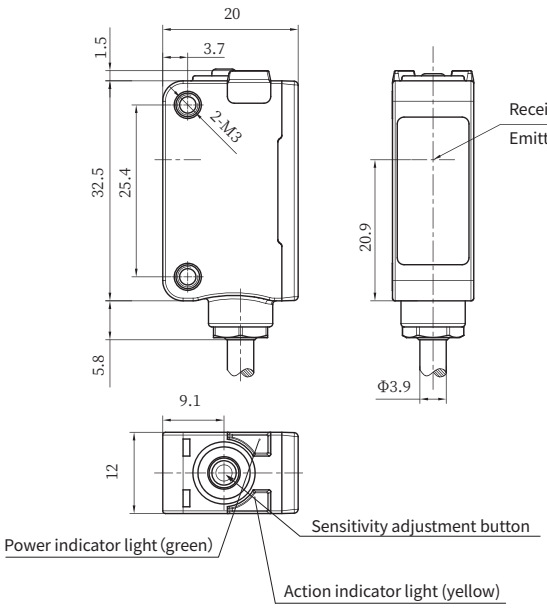


Connector

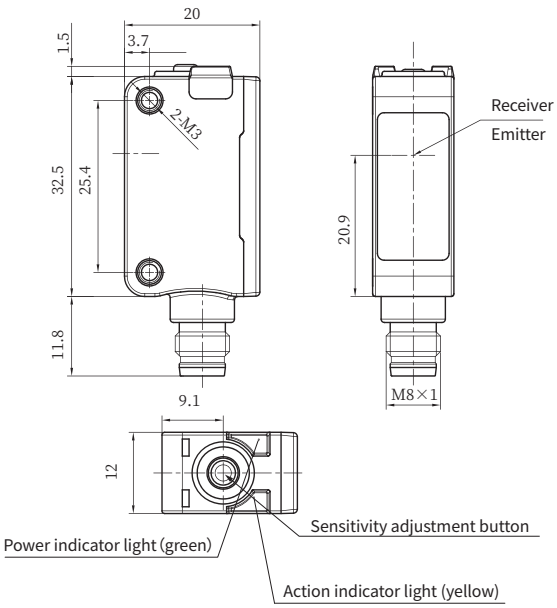


PSE Transparent object detection

Cable



Connector

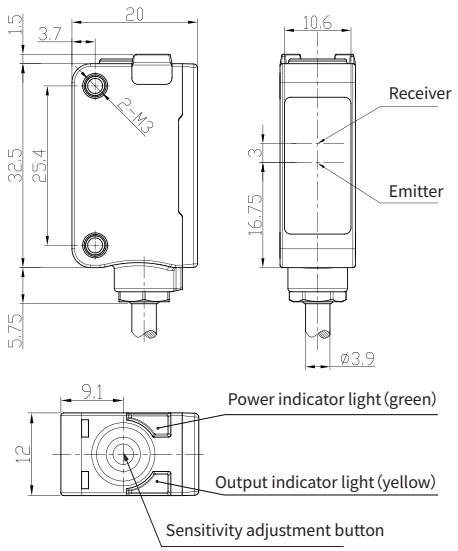


Official Website

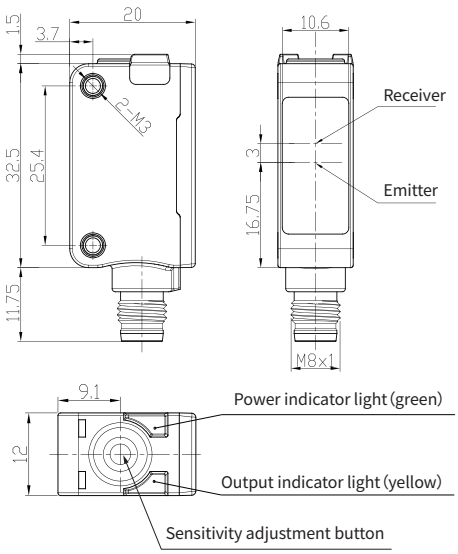
Product Dimension Diagram

PSE TOF Reflection

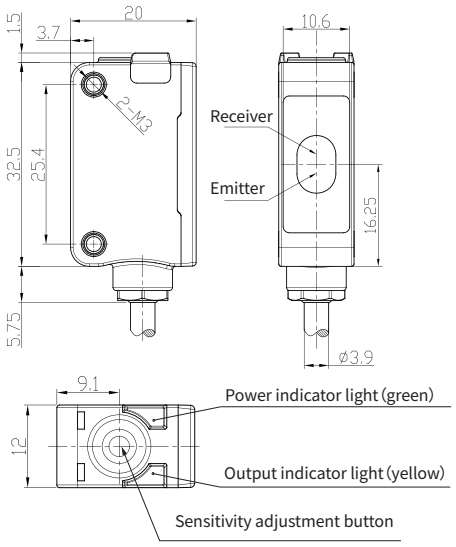
60cm-Cable



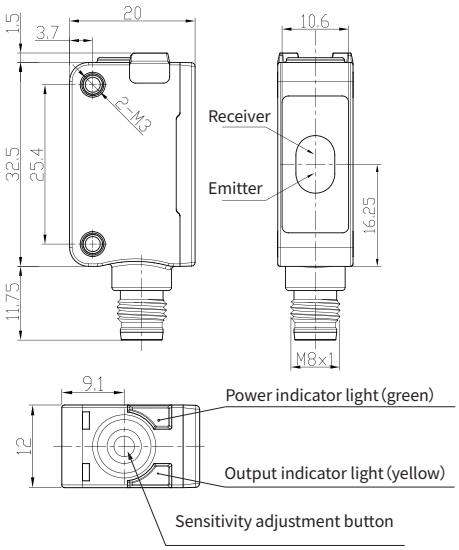
60cm-Connector



100/300cm-Cable



100/300cm-Connector

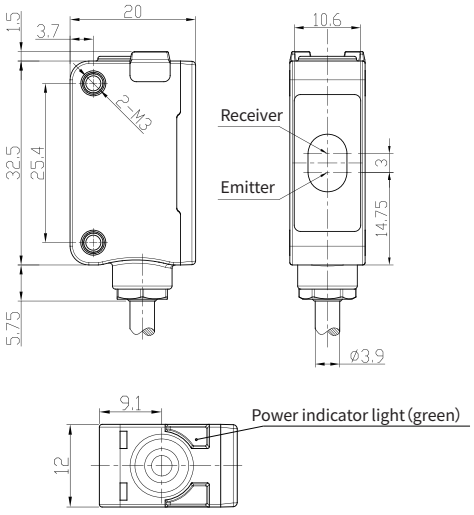


Official Website

Product Dimension Diagram

PSE TOF Reflection(RS485)

3m-Cable



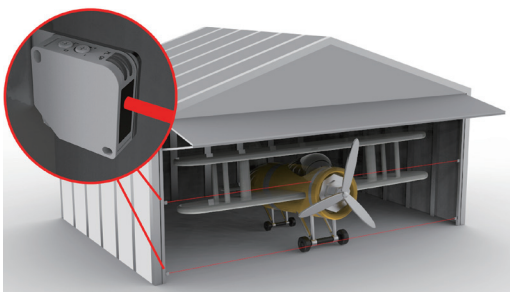
Official Website

Large Square Series

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

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.

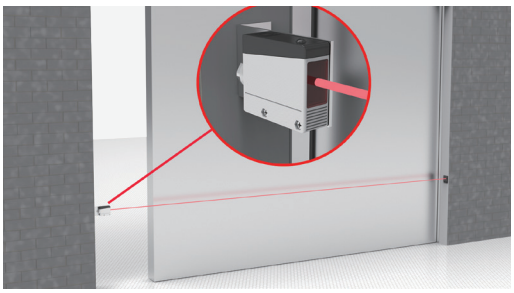


Versatile output options to meet all needs

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

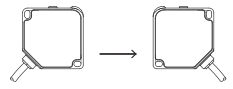
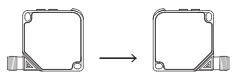
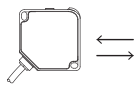
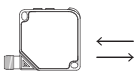
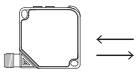
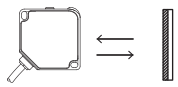
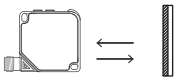
With a flexible power input (DC24-240V/AC24-240V), the sensor boasts enhanced applicability.



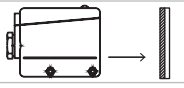
Official website

Selection List

PST Series

Detection method	Shape	Connection	Detection distance	Type	Model	
					NPN+PNP	Relay output
Through beam typ		2m cable	60m		Emitter PTE-TM60D	
		with 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)	

Official website

Specification Parameter

PTE Through beam (DC/AC)

Type	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 P04-009 for details	

PTE Diffuse reflection (DC/AC)

Type	PTE-BC□DFB-□		PTE-BC□SK-□
Detection principle	Diffuse reflection		
Detection distance	30cm (Adjustable)	200cm (Adjustable)	30cm (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	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 P04-009 for details		

PTE Polarized reflection (DC/AC)

Type	PTE-PM5DFB-□	PTE-PM5SK-□
Detection principle	Through beam	
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	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 P04-009 for details	

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

Naming rules
Product family
Technical guide

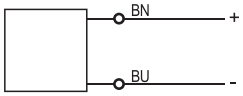
Official website

Electrical Wiring Diagram

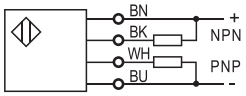
PTE Through beam/Diffuse reflection/Polarized reflection-DC 4 lines

Cable

Emitter

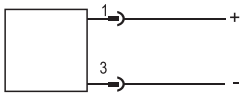


NPN+PNP NO/NC

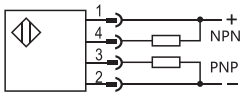


Connector

Emitter



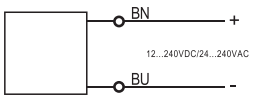
NPN+PNP NO/NC



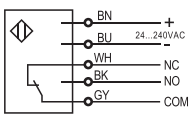
PTE Through beam/Diffuse reflection/Polarized reflection-AC/DC 5 lines

Cable

Emitter

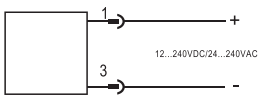


Relay output

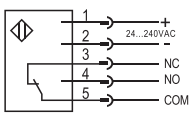


Connector

Emitter



Relay output



Official website

PTL Diffuse reflection (DC/AC)

Type	PTL-BC□D□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 (P2Potentiometer)			
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	Output indication:Green light for transmitter, yellow light for receiver			
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 P04-009 for details			

PTL Polarized reflection (DC/AC)

Type	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 light for receiver	
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 P04-009 for details	

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

Naming rules
Product family
Technical guide

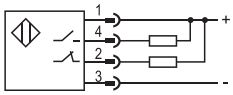
Official website

Electrical Wiring Diagram

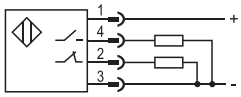
PTL Diffuse reflection/Polarized reflection-DC 4 liens

Terminal connection

NPN NO+NC



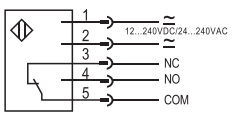
PNP NO+NC



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

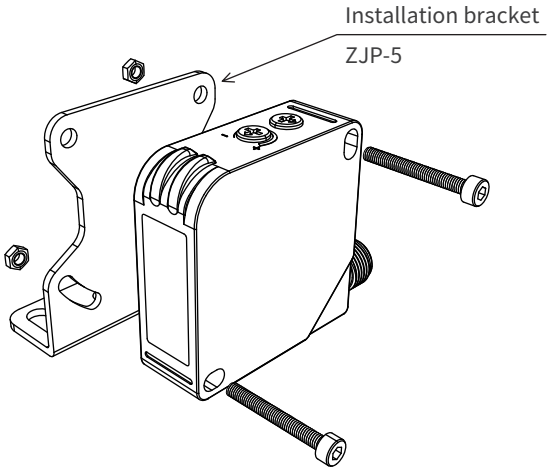
Terminal connection

Relay output



Official website

Product installation diagram



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

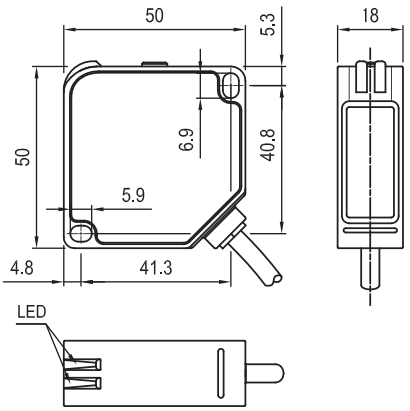
▪ When the product is scrapped,please dispose of it as industrial waste.

Official website

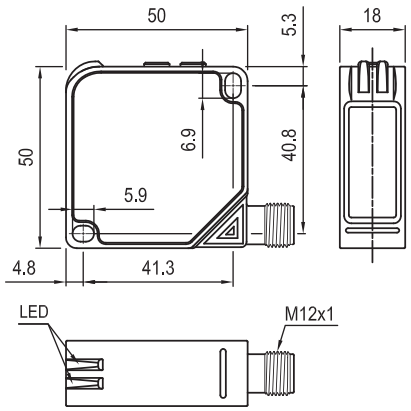
Product Dimension Diagram

PTE Through beam/Diffuse reflection/Polarized reflection

Cable

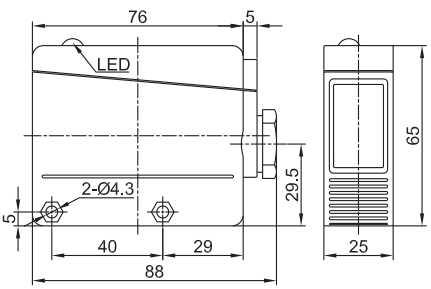


Connector



PTL Diffuse reflection/Polarized reflection

Terminal connection



Official website

Memo

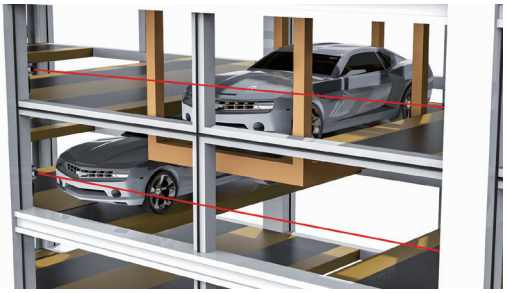
Official website

Round and Square Series

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

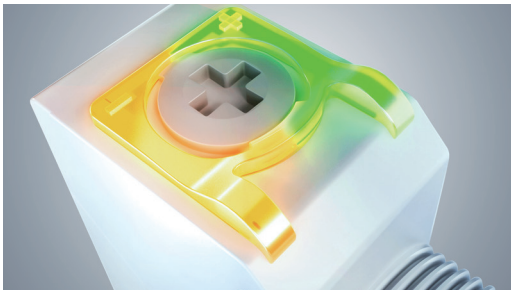
Comprehensive specifications for versatile and easy replacement applications

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°

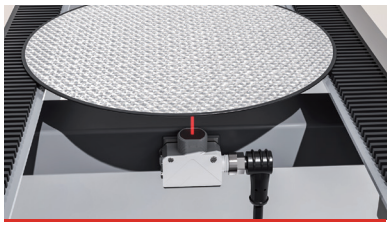
Lanbao PSR Series Photoelectric Sensors feature a high-brightness 360° LED indicator light, making it easy to identify the working condition.



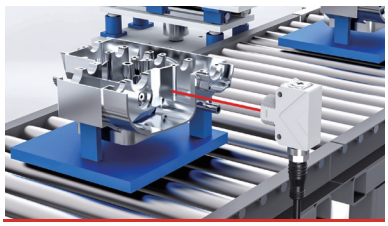
Two Installation Options to Suit Different Scenarios

Lanbao PSR Series offers two mounting options: flush mounting and M3 knob mounting, allowing customers the flexibility to choose based on their specific needs.

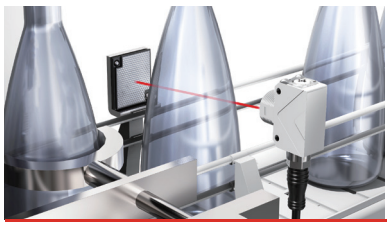
Application diagram



Wafer passes inspection



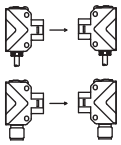
Passing object detection



Transparent target detection

Official website

Selection List/Product accessorie

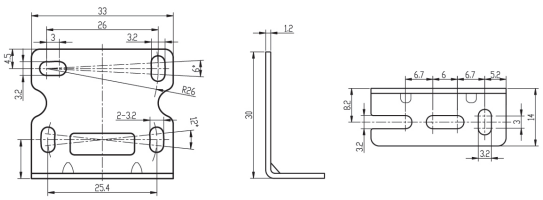
Detection method	Shape	Connection	Detection distance	Type	Model	
					NPN Output	PNP Output
Through beam type		Cable 2m	20m		Emitter PSR-TM20D	Emitter PSR-TM20D
		Cable 2m			Emitter PSR-TM20D-E2	Emitter PSR-TM20D-E2
		Cable 2m		NO/NC	Receiver PSR-TM20DNB	Receiver PSR-TM20DPB
		Connector		NO/NC	Receiver 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)

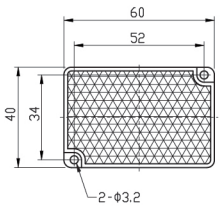
Installation bracket ZJP-8

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



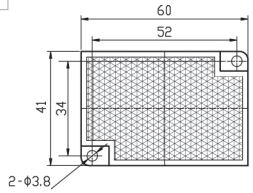
Reflector TD-09

Dimensional	60*40mm
Shape	Square



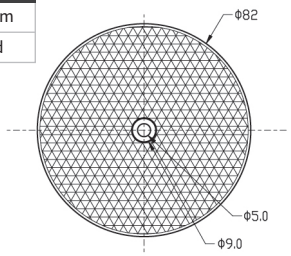
Reflector TD-09A

Dimensional	60*40mm
Shape	Square



Reflector TD-05

Dimensional	ϕ82mm
Shape	Round



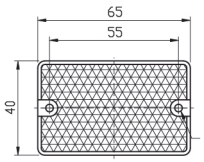
Naming rules
Product family
Technical guide

Official website

Product Accessorie

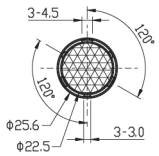
Reflector TD-02

Dimensional	65*40mm
Shape	Square



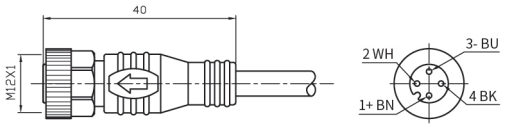
Reflector STD-06

Dimensional	ϕ25.6m
Shape	Round



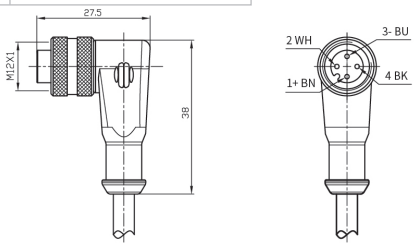
Connector QE12-N4F2

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



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 (RippleP-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	

PSR Background suppression/Polarized reflection

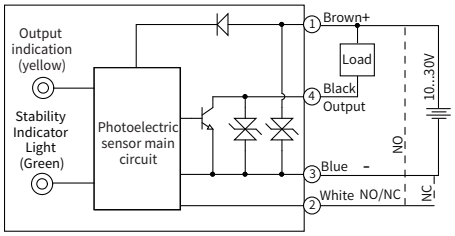
Model	PSR-YC10D□BR-□	PSR-PM3D□BR-□
Detection principle	Background suppression	Polarized reflection
Through beam	10cm (Not adjustable)	0...3m (Adjustable)
Light source type	Red point light source	
Detecting objects	/	
Spot size	8*8mm@100mm	180*180mm@3m
Blind area	7mm	/
Hysteresis	≤5%	/
Adjustment method	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	

Ultra-thin
Micro square
Little square
Large square
Round and square
Cylindrical
Naming rules
Product family
Technical guide
Official website

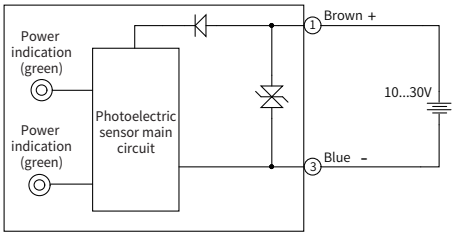
Electrical Wiring Diagram

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

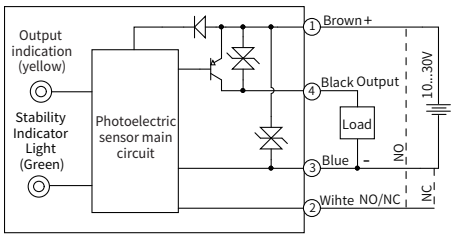
Receiver NPN



Emitter



Receiver PNP

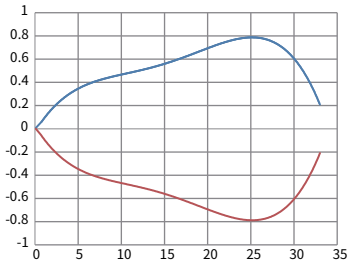


Official website

Detection range

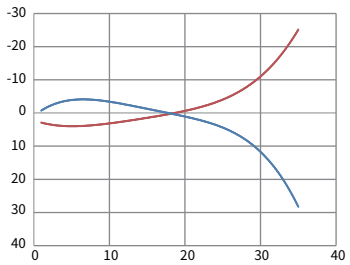
Through beam type(PSR-TM20)

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



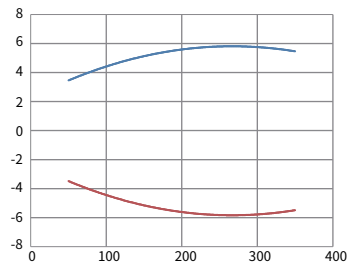
Diffuse reflection type(PSR-BC30)

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



Polarized reflection type(PSR-PM3)

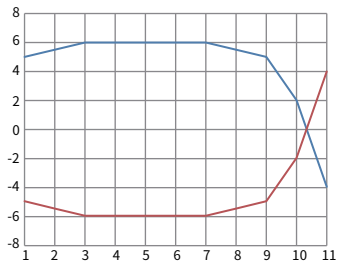
Y-axis: Detection range: cm
X-axis: Detection distance: cm



Signal redundancy

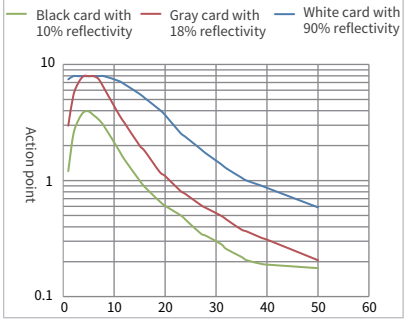
Background suppression type(PSR-YC10)

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



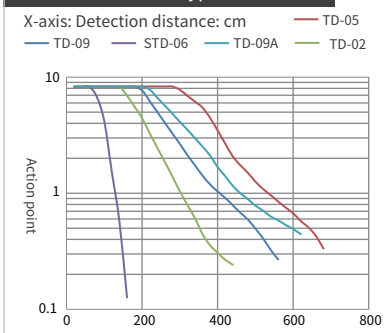
Diffuse reflection type(PSR-BC30)

X-axis: Detection distance: cm



Limited reflection type (PSV-SR**)

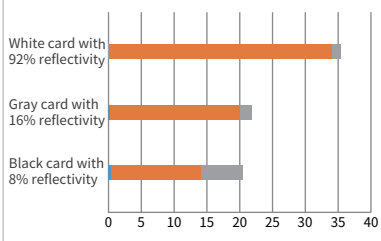
X-axis: Detection distance: cm



Detection distance

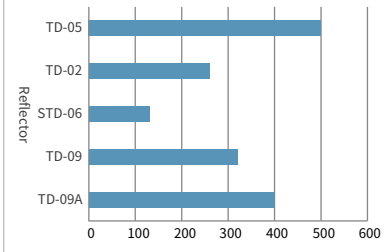
Diffuse reflection type(PSR-BC20)

X-axis: Detection distance: cm



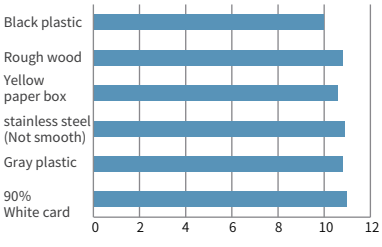
Polarized reflection type (PSR-PM3)

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

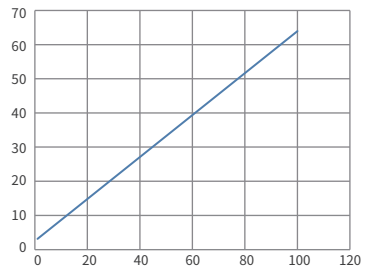
Official website

Graph

Spot diameter

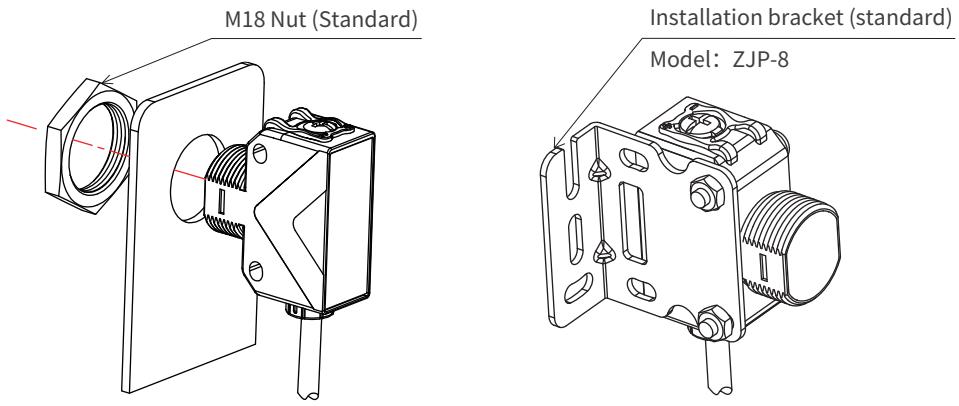
Diffuse reflection type,
Background suppression type,
Polarized reflection type

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



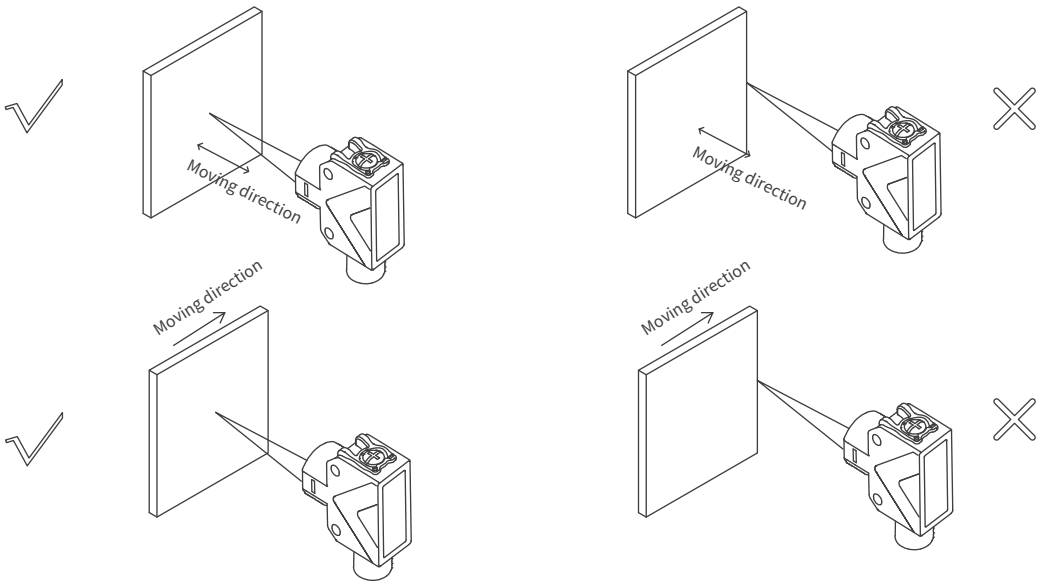
Official website

Product installation diagram

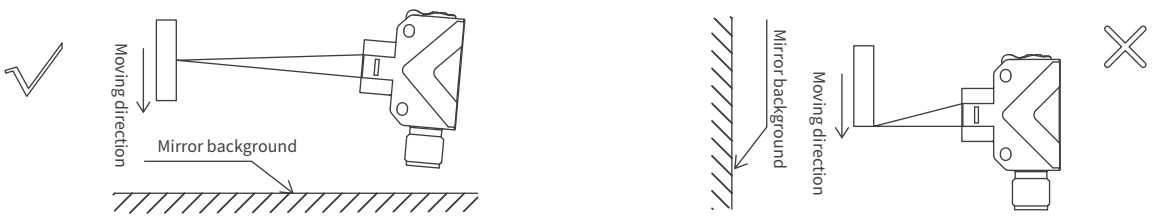


Installation precaution

■ 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.



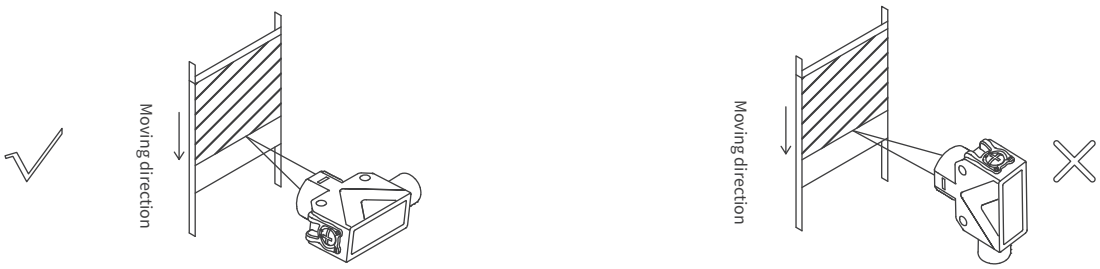
■ To avoid the influence of mirror background on the sensor, please refer to the following installation method.



Official website

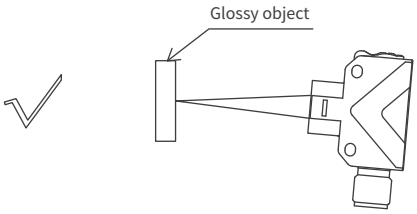
Installation Method

■ 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.



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

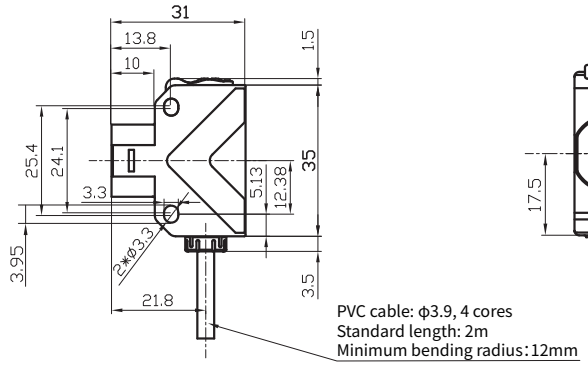
When the product is scrapped,please dispose of it as industrial waste.

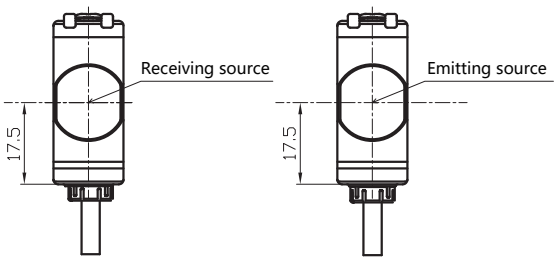
Official website

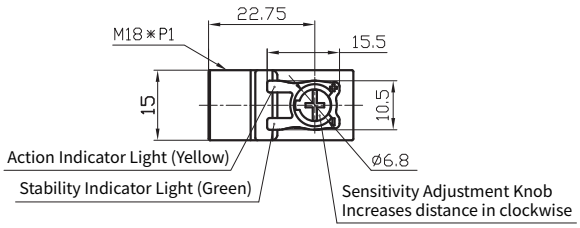
Product Dimension Diagram

PSR Through beam

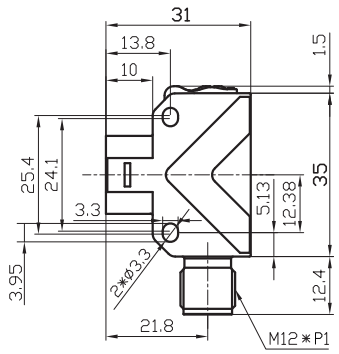
Cable

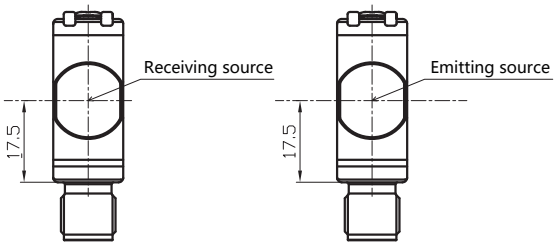


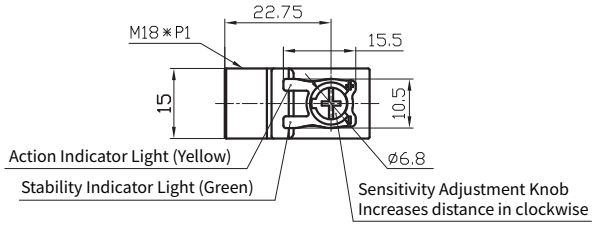




Connector







Receiver

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

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

Emitter

1: +
3: -

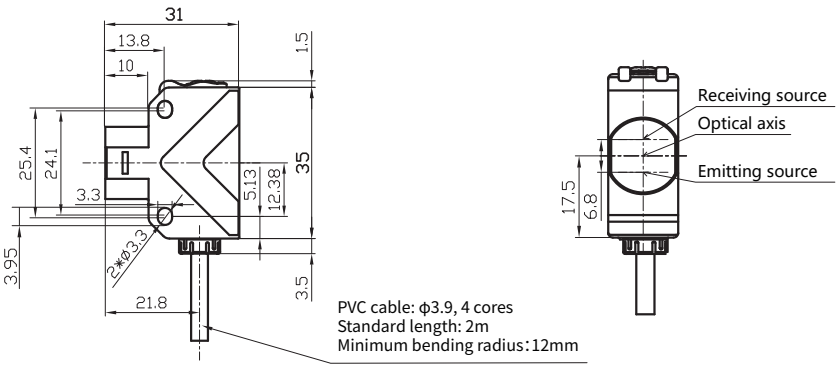
Brown: +
Blue: -

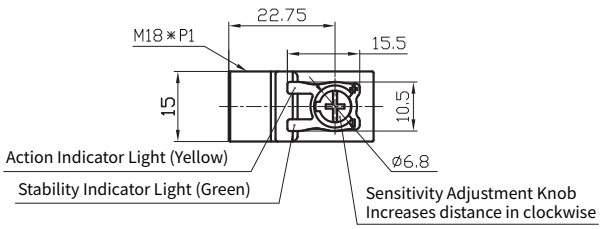
Official website

Product Dimension Diagram

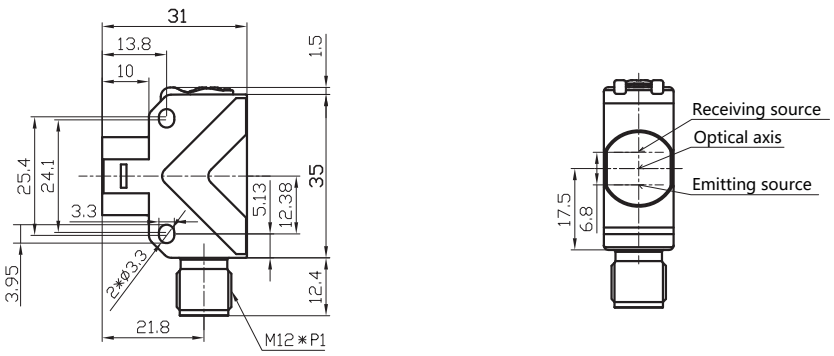
PSR Diffuse reflection/Polarized reflection

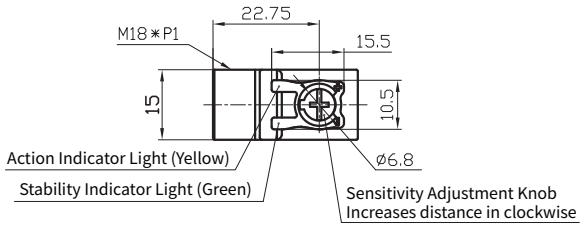
Cable





Connector



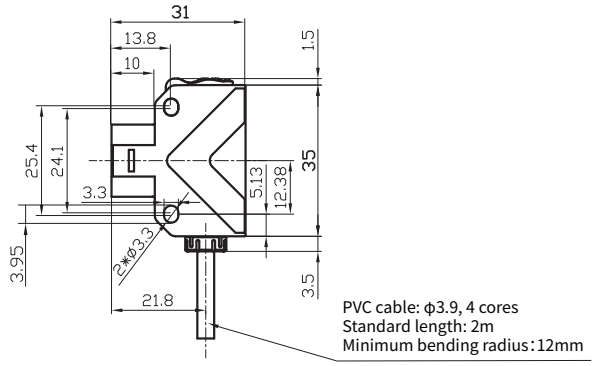


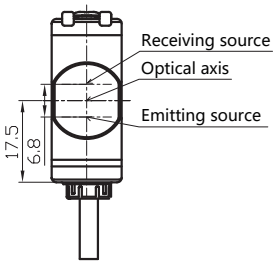
1: +
3: -
4: OUT
2: -NC/+NO

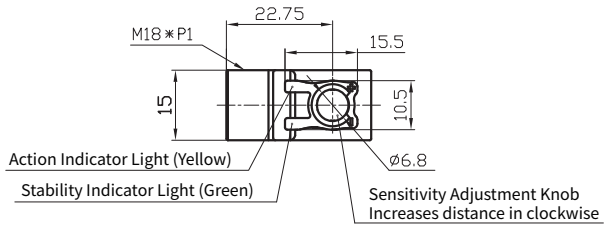
Brown:+
Blue:-
Black:OUT
White:-NC/+NO

PSR Background suppression

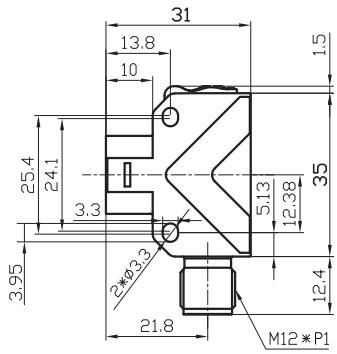
Cable

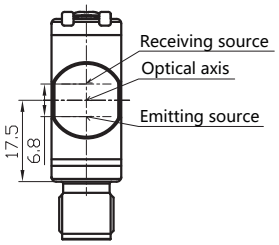


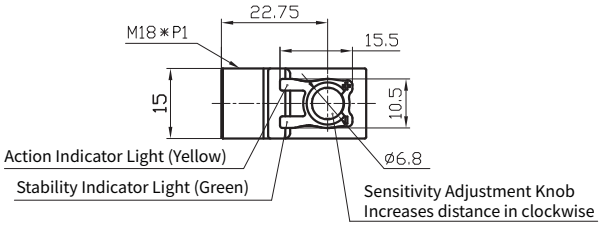




Connector







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

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

Official website

Photoelectric Sensors

Cylindrical Series

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

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.

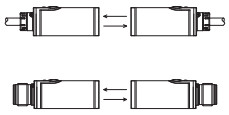
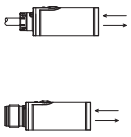
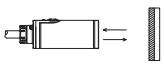
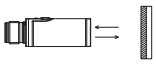
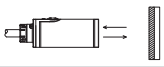
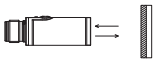
Threaded design for easy installation

The threaded design allows for flush mounting, catering to a wide range of applications and scenarios.

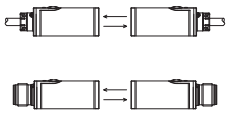
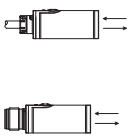
Official website

Selection List

PSM Series

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

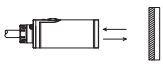
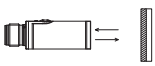
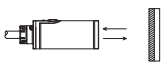
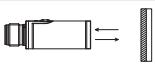
PSS Series

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

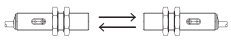
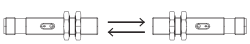
Official website

Selection List

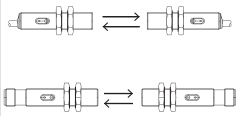
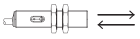
PSS Series

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

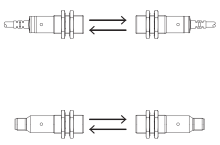
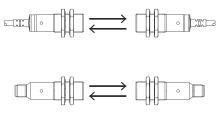
PR12 Series

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

Selection List

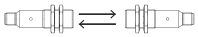
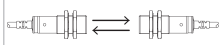
Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Through beam type		Cable type 2m	10m		Emitter PR12S-TM10D	Emitter PR12S-TM10D
		Connector			Emitter PR12S-TM10D-E2	Emitter PR12S-TM10D-E2
		Cable type 2m		NO	Receiver PR12S-TM10DNO	Receiver PR12S-TM10DPO
				NC	Receiver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

PR18 Series

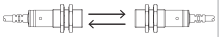
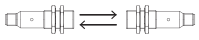
Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Through beam type		Cable type 2m	10m		Emitter PR18-TM10D	Emitter PR18-TM10D
		Connector			Emitter PR18-TM10D-E2	Emitter PR18-TM10D-E2
		Cable type 2m		NO	Receiver PR18-TM10DNO	Receiver PR18-TM10DPO
				NC	Receiver PR18-TM10DNC	Receiver PR18-TM10DPC
				NO+NC	Receiver PR18-TM10DNR	Receiver PR18-TM10DPR
		Connector		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
		Cable type 2m	20m	NO	Emitter PR18-TM20D	Emitter PR18-TM20D
		Connector		NC	Emitter PR18-TM20D-E2	Emitter PR18-TM20D-E2
		Cable type 2m		NO+NC	Receiver PR18-TM20DNO	Receiver PR18-TM20DPO
				NO	Receiver PR18-TM20DNC	Receiver PR18-TM20DPR
				NC	Receiver PR18-TM20DNR	Receiver PR18-TM20DPC
		Connector		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
		Cable type 2m	10m		Emitter PR18-TM10A	Emitter PR18-TM10A
		Connector			Emitter PR18-TM10A-E2	Emitter PR18-TM10A-E2
		Cable type 2m		AC2 wires NO	Receiver PR18-TM10ATO	Receiver PR18-TM10ATC
		Connector		AC2 wires NC	Receiver PR18-TM10ATO-E2	Receiver PR18-TM10ATC-E2

Official website

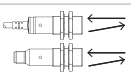
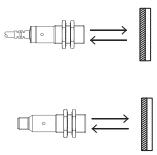
Selection List

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

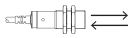
Selection List

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

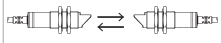
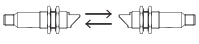
Selection List

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
		Cable type 2m	10cm	AC2wiresNO	PR18S-BC10ATO	PR18S-BC10ATC
		Connector		AC2wiresNC	PR18S-BC10ATO-E2	PR18S-BC10ATC-E2
		Cable type 2m	40cm	AC2wiresNO	PR18S-BC40ATO	PR18S-BC40ATC
		Connector		AC2wiresNC	PR18S-BC40ATO-E2	PR18S-BC40ATC-E2
		Cable type 2m	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
		Cable type 2m	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
		Cable type 2m	10cm	AC2wiresNO	PR18G-BC10ATO	PR18G-BC10ATC
		Connector		AC2wiresNC	PR18G-BC10ATO-E2	PR18G-BC10ATC-E2
		Cable type 2m	40cm	AC2wiresNO	PR18G-BC40ATO	PR18G-BC40ATC
		Connector		AC2wiresNC	PR18G-BC40ATO-E2	PR18G-BC40ATC-E2
		Cable type 2m	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
		Cable type 2m	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
		Cable type 2m	10cm	AC2wiresNO	PR18GS-BC10ATO	PR18GS-BC10ATC
		Connector		AC2wiresNC	PR18GS-BC10ATO-E2	PR18GS-BC10ATC-E2
		Cable type 2m	40cm	AC2wiresNO	PR18GS-BC40ATO	PR18GS-BC40ATC
		Connector		AC2wiresNC	PR18GS-BC40ATO-E2	PR18GS-BC40ATC-E2
Background suppression type		Cable type 2m	10cm	NO	PR18-YC10DNR	PR18-YC10DPR
		Connector		NC	PR18-YC10DNR-E2	PR18-YC10DPR-E2
Retro-reflection type		Cable type 2m	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

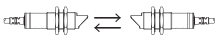
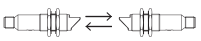
Selection List

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
		Cable type 2m	3m	NO	PR18-DM3ATO	PR18-DM3ATC
		Connector		NC	PR18-DM3ATO-E2	PR18-DM3ATC-E2
		Cable type 2m	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
		Cable type 2m	3m	NO	PR18S-DM3ATO	PR18S-DM3ATC
		Connector		NC	PR18S-DM3ATO-E2	PR18S-DM3ATC-E2
		Cable type 2m	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
		Cable type 2m	3m	NO	PR18G-DM3ATO	PR18G-DM3ATC
		Connector		NC	PR18G-DM3ATO-E2	PR18G-DM3ATC-E2
		Cable type 2m	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
		Cable type 2m	3m	NO	PR18GS-DM3ATO	PR18GS-DM3ATC
		Connector		NC	PR18GS-DM3ATO-E2	PR18GS-DM3ATC-E2

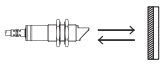
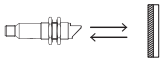
PR30 Series

Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Through beam type		Cable type 2m	20m		Emitter PR30-TM20D	Emitter PR30-TM20D
		connector			Emitter PR30-TM20D-E2	Emitter PR30-TM20D-E2
		Cable type 2m		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
		Cable type 2m	40m		Emitter PR30-TM40D	Emitter PR30-TM40D
		connector			Emitter PR30-TM40D-E2	Emitter PR30-TM40D-E2
		Cable type 2m		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

Selection List

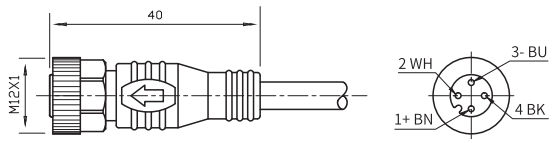
Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Through beam type		Connector	40m	NC	Receiver PR30-TM40DNC-E2	Receiver PR30-TM40DPC-E2
				NO+NC	Receiver PR30-TM40DNR-E2	Receiver PR30-TM40DPR-E2
		Cable type 2m	20m		Emitter PR30-TM20A	Emitter PR30-TM20A
		Connector			Emitter PR30-TM20A-E2	Emitter PR30-TM20A-E2
		Cable type 2m		AC 2 wires NC	Receiver PR30-TM20ATO	Receiver PR30-TM20ATC
		Connector		AC 2 wires NO	Receiver PR30-TM20ATO-E2	Receiver PR30-TM20ATC-E2
		Cable type 2m	40m		Emitter PR30S-TM20D	Emitter PR30S-TM20D
		Connector			Emitter PR30S-TM20D-E2	Emitter PR30S-TM20D-E2
		Cable type 2m		NO	Receiver PR30S-TM20DNO	Receiver PR30S-TM20DPO
				NC	Receiver PR30S-TM20DNC	Receiver PR30S-TM20DPC
				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
		Cable type 2m	40m		Emitter PR30S-TM40D	Emitter PR30S-TM40D
		Connector			Emitter PR30S-TM40D-E2	Emitter PR30S-TM40D-E2
		Cable type 2m		NO	Receiver PR30S-TM40DNO	Receiver PR30S-TM40DPO
				NC	Receiver PR30S-TM40DNC	Receiver PR30S-TM40DPC
				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
		Cable type 2m	20m		Emitter PR30S-TM20A	Emitter PR30S-TM20A
		Connector			Emitter PR30S-TM20A-E2	Emitter PR30S-TM20A-E2
		Cable type 2m		AC 2 wires NO	Receiver PR30S-TM20ATO	Receiver PR30S-TM20ATC
		Connector		AC 2 wires NC	Receiver PR30S-TM20ATO-E2	Receiver PR30S-TM20ATC-E2
		Cable type 2m			Emitter PR30S-TM40A	Emitter PR30S-TM40A
		Connector	40m		Emitter PR30S-TM40A-E2	Emitter PR30S-TM40A-E2
		Cable type 2m		AC 2 wires NO	Receiver PR30S-TM40ATO	Receiver PR30S-TM40ATC
		Connector		AC 2 wires NC	Receiver PR30S-TM40ATO-E2	Receiver PR30S-TM40ATC-E2
Diffuse reflection type		Cable type 2m	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
		Cable type 2m	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
		Cable type 2m	50cm	AC 2 wires NC	PR30-BC50ATO	PR30-BC50ATC
		Connector		AC 2 wires NO	PR30-BC50ATO-E2	PR30-BC50ATC-E2
		Cable type 2m	100cm	AC 2 wires NC	PR30-BC100ATO	PR30-BC100ATC
		Connector		AC 2 wires NO	PR30-BC100ATO-E2	PR30-BC100ATC-E2

Selection List

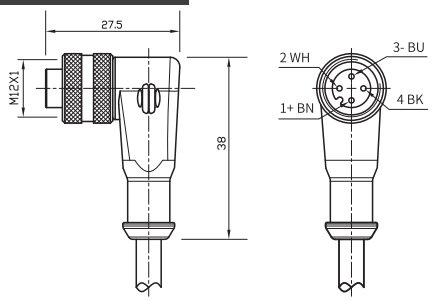
Detection method	Shape	Connection	Sensing distance	Type	Mode	
					NPN Output	PNP Output
Diffuse reflection type	 	Cable type 2m	50cm	NO	PR30S-BC50DNO	PR30S-BC50DPO
				NC	PR30S-BC50DNC	PR30S-BC50DPC
				NO+NC	PR30S-BC50DNR	PR30S-BC50DPR
		Connector		NO	PR30S-BC50DNO-E2	PR30S-BC50DPO-E2
				NC	PR30S-BC50DNC-E2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

Product accessorie

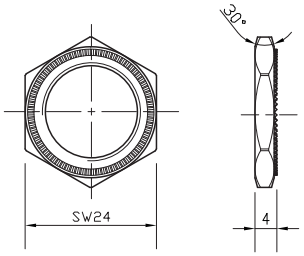
M12 Connector QE12-N4F2



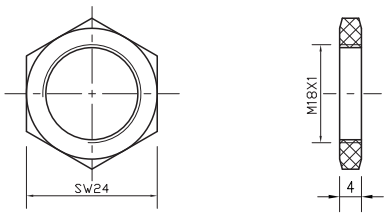
M12 Connector QE12-N4G2



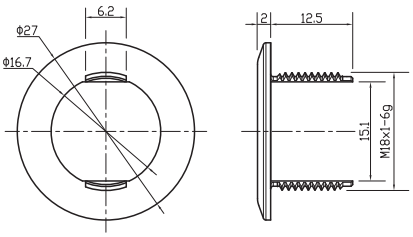
M18 Nut-PSM



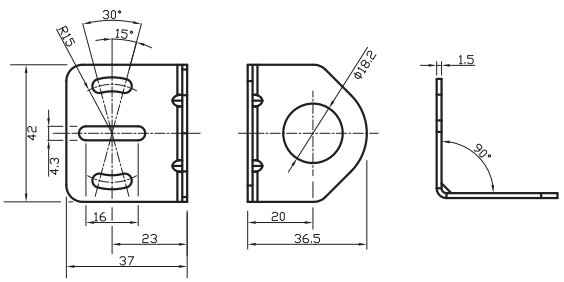
M18 Nut-PSS



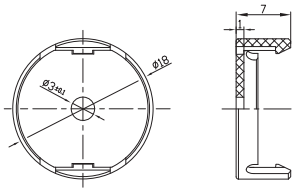
Installation bracket ZJP-10



Installation bracket ZJP-9



Narrow slot FJP-03A



PSM Through beam/Diffuse reflection

Model	PSM-TM□D□□-□	PSM-BC□D□□□-□			
Detection principle	Through beam	Diffuse reflection			
Detection distance	20m	10cm①	40cm①		100cm②
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@40cm③		/
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°c;storage Temperature:-35...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 P06-031 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/Glass bottle detection

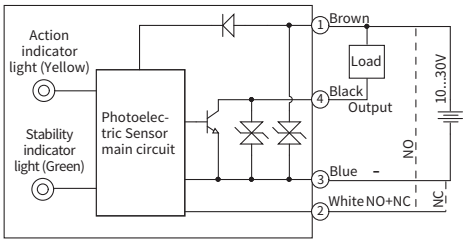
Model	PSM-YC□D□BR-□	PSM-PM3D□BR-□	PSM-GM2D□BR-□
Detection principle	Background suppression	Polarized reflection	Transparent bottle detection
Detection distance	10cm①	3m②	2m②
Light source type	Red point light source		Blue point light source
Detecting objects	/		＞ϕ35mm Objects with a transmittance of more than 15%③
Spot size	8*8mm@10cm	45*45mm@100cm	
Blind area	4mm①	/	
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;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.

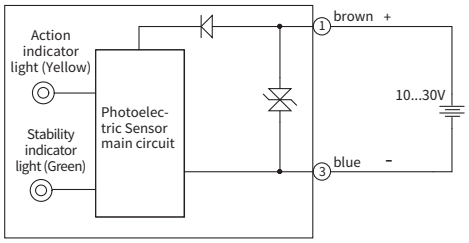
Electrical Wiring Diagram

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

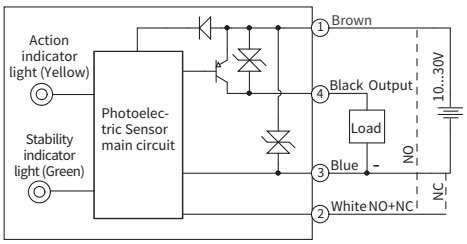
Receiver NPN



Emitter



Receiver PNP



PSM Through beam /Diffuse reflection

Model	PSM-TM□D□□-□	PSM-BC□D□□□-□			
Detection principle	Through beam	Diffuse reflection			
Detection distance	20m	10cm①	40cm①		100cm②
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@40cm③		/
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°c;storage Temperature:-35...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 P06-031 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.

PSS Background suppression/Polarized reflection/Glass bottle detection

Model	PSM-YC□D□BR-□	PSM-PM3D□BR-□	PSM-GM2D□BR-□
Detection principle	Background suppression	Polarized reflection	Glass bottle detection
Detection distance	10cm①	3m②	2m②
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	4mm①	/	
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;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		

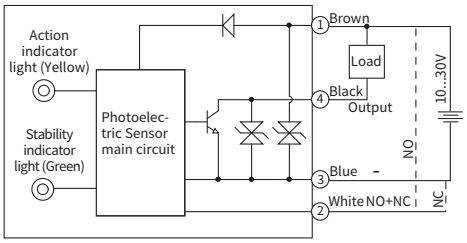
Note: ① Measured using a 20*20cm white card with a reflectivity of 90%.
② Measured using a reflector TD-09.
③ Smaller object detection can be achieved through adjustment.

Ultra-thin
Micro square
Little square
Large square
Round and square
Cylindrical
Naming rules
Product family
Technical guide
Official website

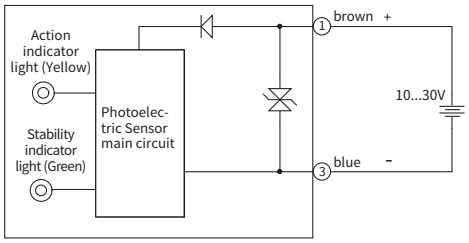
Electrical Wiring Diagram

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

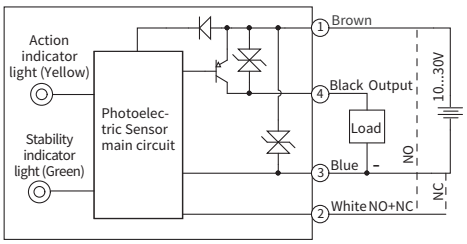
Receiver NPN



Emitter



Receiver PNP



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			

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	

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

Naming rules
Product family
Technical guide

Official website

Specification Parameter

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			

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			

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

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	

Specification Parameter

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	

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					

PR 18 Through beam

Model	PR18-TM□D□□-□		PR18GS-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	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			

PR18G Diffuse reflection/Retro reflection

Model	PR18-BC□D□□-□		PR18GS-BC□D□□-□		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					

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

Naming rules
Product family
Technical guide

Official website

Specification Parameter

PR18 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	

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 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				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 P06-034 for details					

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			

PR30 Diffuse reflection/Retro reflection

Model	PR30-BC□D□□-□		PR30S-BC□D□□-□		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					

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

Naming rules
Product family
Technical guide

Official website

Specification Parameter

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	

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					

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

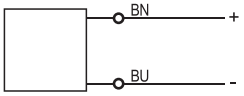
Official website

Electrical Wiring Diagram

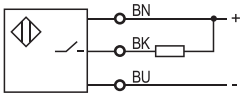
PR12/18/30 Through beam/Diffuse reflection/Background suppression/ Retro reflection-DC 3/4 lines

Cable

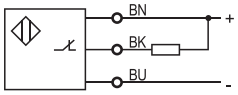
Emitter



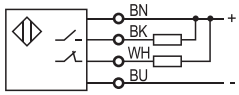
NPN NO



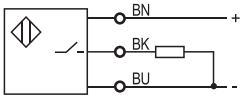
NPN NC



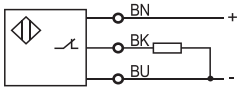
NPN NO+NC



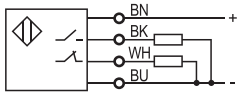
PNP NO



PNP NC

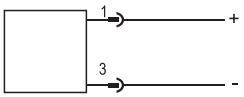


PNP NO+NC

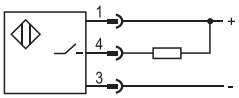


Connector

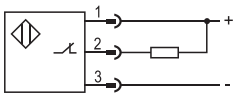
Emitter



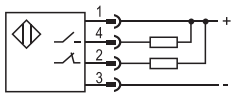
NPN NO



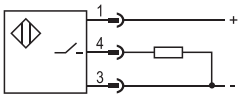
NPN NC



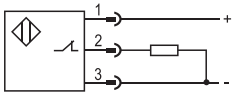
NPN NO+NC



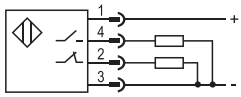
PNP NO



PNP NC



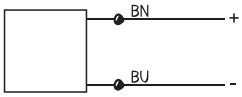
PNP NO+NC



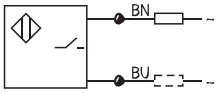
PR12/18/30 Through beam/Diffuse reflection/Background suppression/ Retro reflection-AC 2 lines

Cable

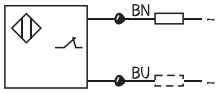
Emitter



NO

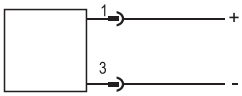


NC

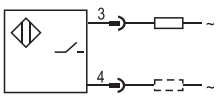


Connector

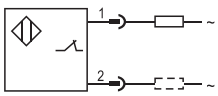
Emitter



NO



NC



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

Naming rules
Product family
Technical guide

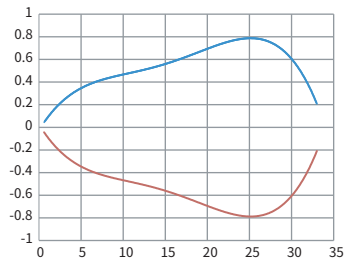
Official website

Graph

Detection range

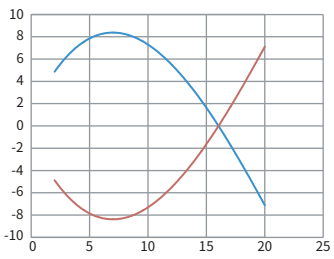
Through beam type (PSS/PSM-TM20.../-E2)

Y axis:Spot diameter: m
X axis:Sensing distance: m



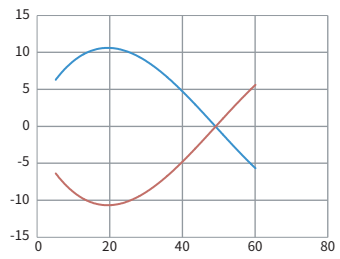
Diffuse reflection type (PSS/PSM-BC10.../-E2)

Y axis:Spot diameter: mm
X axis:Sensing distance: cm



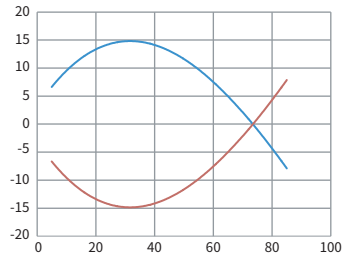
Diffuse reflection type (PSS/PSM-BC40...R/-E2)

Y axis:Spot diameter: mm
X axis:Sensing distance: cm



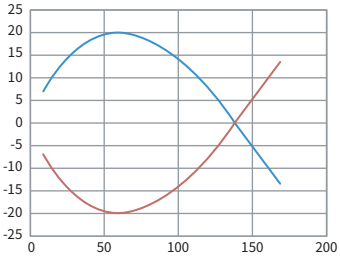
Diffuse reflection type (PSS/PSM-BC40.../-E2)

Y axis:Spot diameter: mm
X axis:Sensing distance: cm



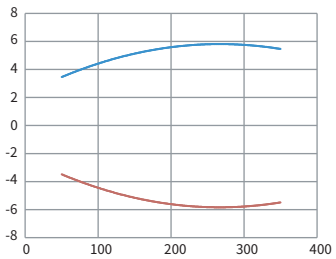
Diffuse reflection type (PSS/PSM-BC100.../-E2)

Y axis:Spot diameter: mm
X axis:Sensing distance: cm



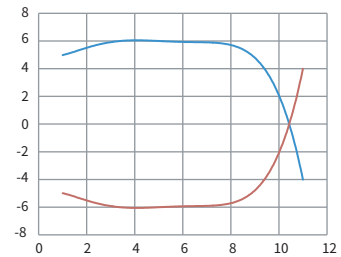
Polarized reflection type (PSS/PSM-PM3.../-E2)

Y axis:Spot diameter: cm
X axis:Sensing distance: cm



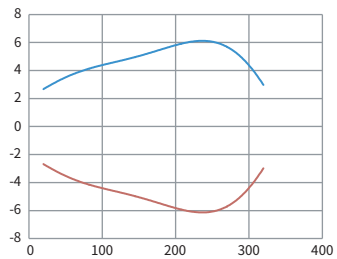
Background suppression type (PSS/PSM-BC40.../-E2)

Y axis:Spot diameter: mm
X axis:Sensing distance: cm



Transparent bottle detection type (PSS/PSM-BC40.../-E2)

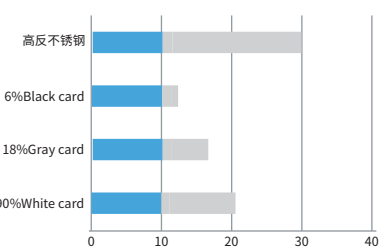
Y axis:Spot diameter: mm
X axis:Sensing distance: cm



Detection distance

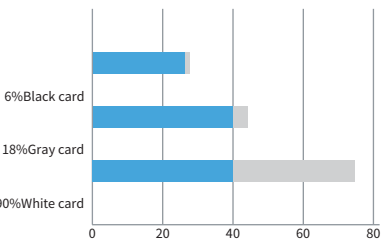
Diffuse reflection type (PSS/PSM-BC10.../-E2)

Nominal value Maximum value
X axis:Detection distance: cm



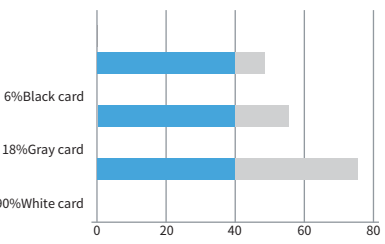
Diffuse reflection type (PSS/PSM-BC40...R/-E2)

Nominal value Maximum value
X axis:Detection distance: cm



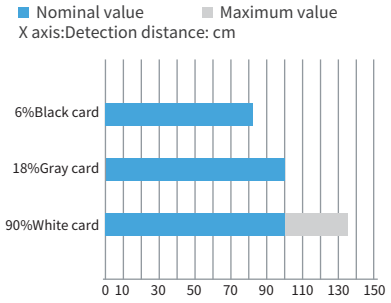
Diffuse reflection type (PSS/PSM-BC40.../-E2)

Nominal value Maximum value
X axis:Detection distance: cm

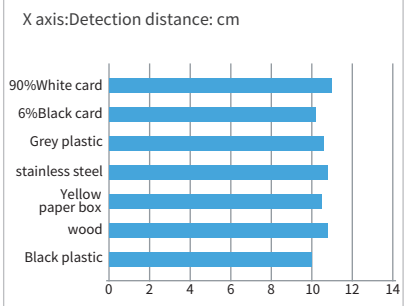


Detection distance

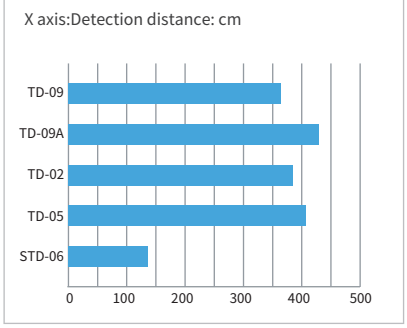
Diffuse reflection type (PSS/PSM-BC100.../-E2)



Background suppression type (PSS/PSM-YC10...R/-E2)

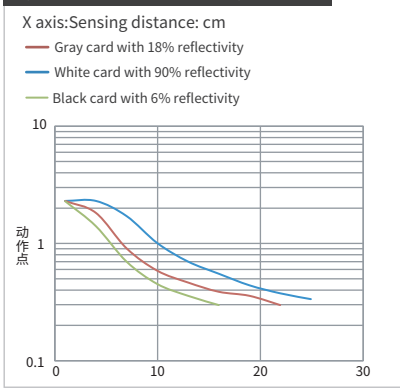


Polarized reflection type-Different reflector(PSS/PSM-PM.../-E2)

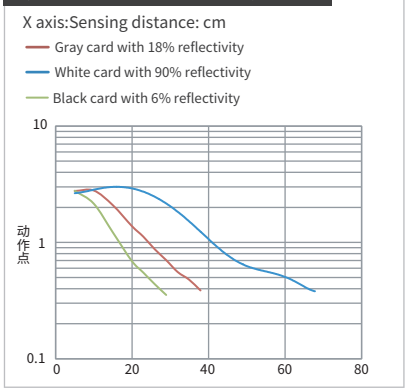


Signal redundancy

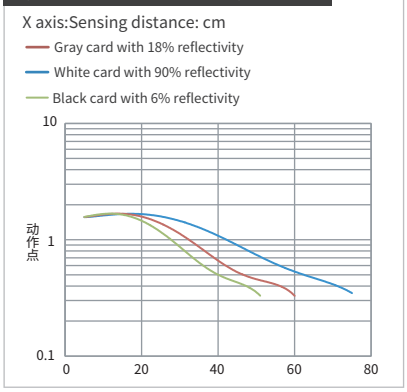
Diffuse reflection type (PSS/PSM-BC10.../-E2)



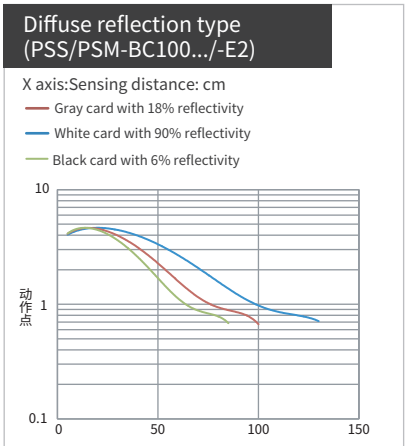
Diffuse reflection type (PSS/PSM-BC40...R/-E2)



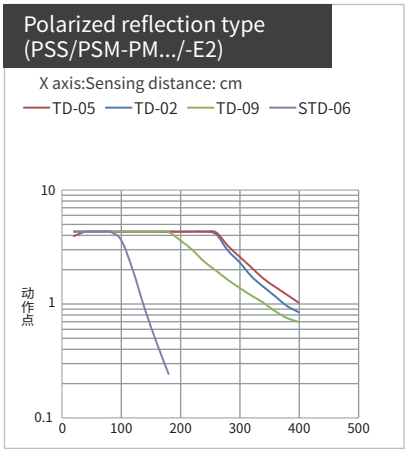
Diffuse reflection type (PSS/PSM-BC40.../-E2)



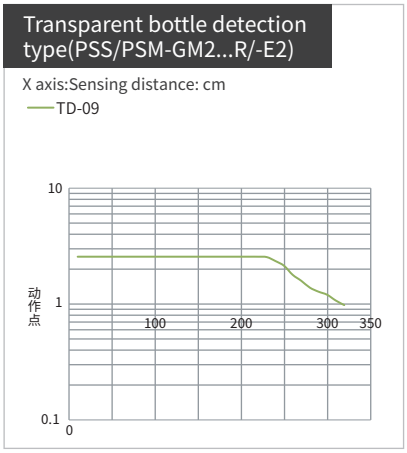
Diffuse reflection type (PSS/PSM-BC100.../-E2)



Polarized reflection type (PSS/PSM-PM.../-E2)



Transparent bottle detection type(PSS/PSM-GM2...R/-E2)



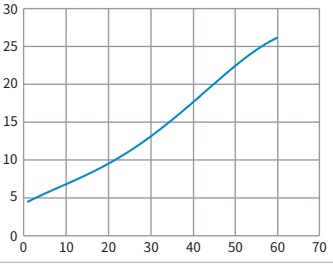
Official website

Graph

Spot size

Background suppression type/Diffuse reflection type/Polarized reflection type/ Transparent bottle detection type(PSS/PSM-YC10.../ -BC40...R/-PM...R/-GM...R/-E2)

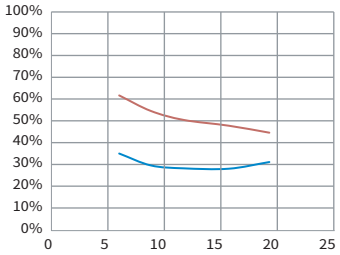
Y axis:Spot diameter: mm
X axis:Sensing distance: cm



Color sensitivity

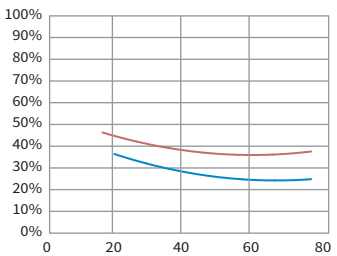
Diffuse reflection type (PSS/PSM-BC10.../-E2)

Y axis:Color sensitivity %
X axis:Sensing distance: cm
Gray card with 18% reflectivity
Black card with 6% reflectivity



Diffuse reflection type (PSS/PSM-BC40.../-E2)

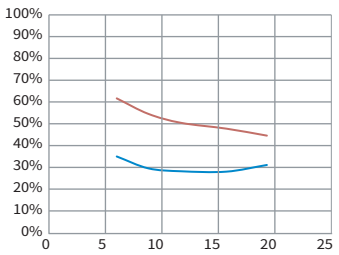
Y axis:Color sensitivity %
X axis:Sensing distance: cm
Gray card with 18% reflectivity
Black card with 6% reflectivity



Color sensitivity

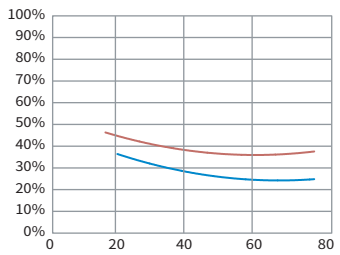
Diffuse reflection type (PSS/PSM-BC10.../-E2)

Y axis:Color sensitivity %
X axis:Sensing distance: cm
Gray card with 18% reflectivity
Black card with 6% reflectivity



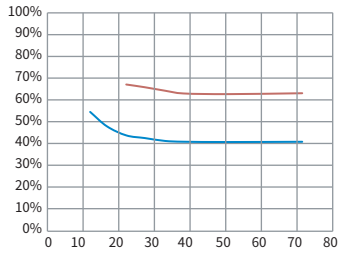
Diffuse reflection type (PSS/PSM-BC40.../-E2)

Y axis:Color sensitivity %
X axis:Sensing distance: cm
Gray card with 18% reflectivity
Black card with 6% reflectivity



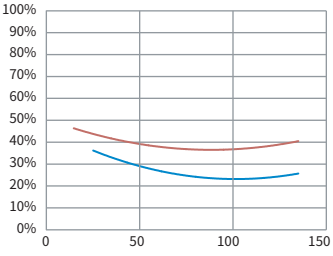
Diffuse reflection type (PSS/PSM-BC40...R/-E2)

Y axis:Color sensitivity %
X axis:Sensing distance: cm
Gray card with 18% reflectivity
Black card with 6% reflectivity

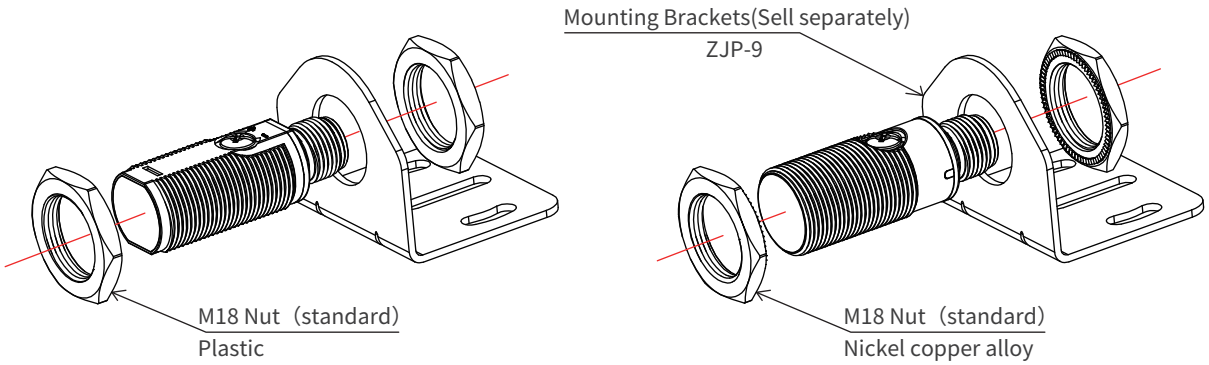


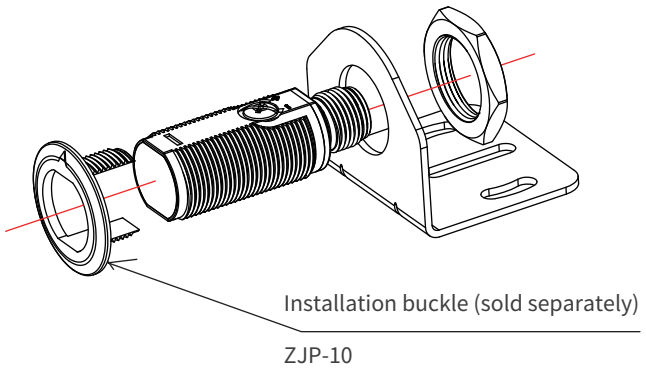
Diffuse reflection type (PSS/PSM-BC100.../-E2)

Y axis:Color sensitivity %
X axis:Sensing distance: cm
Gray card with 18% reflectivity
Black card with 6% reflectivity



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

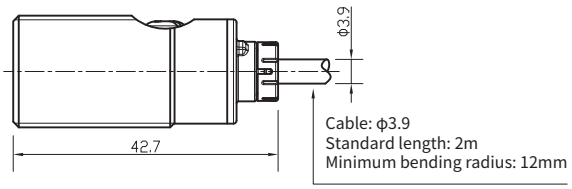
Official website

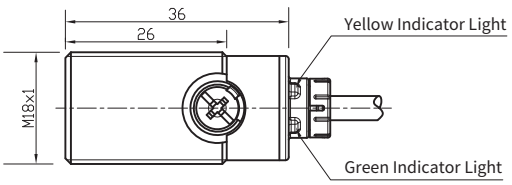
Product Dimension Diagram

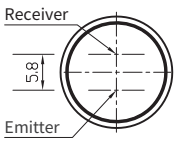
PSM Through beam/Diffuse reflection/Background suppression/ Polarized reflection/Transparent bottle detection

Cable

Background suppression type no potentiometer

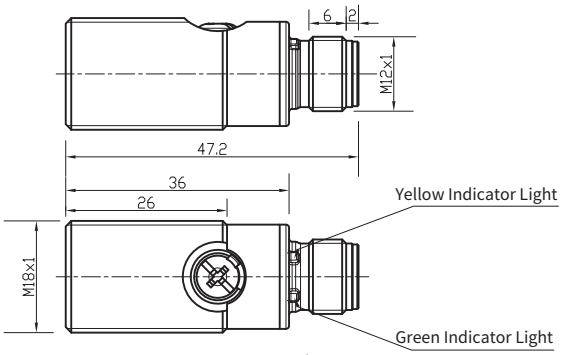






Connector

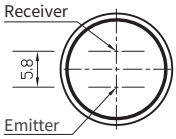
Background suppression type no potentiometer



Receiver

1: +
3: -

Brown: +
Blue: -



Emitter

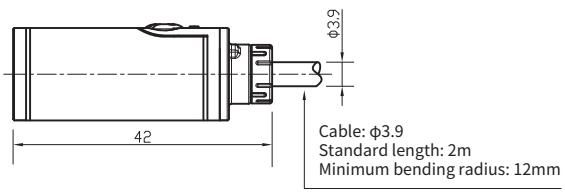
1: +
3: -
4: OUT
2: -NC/+NO

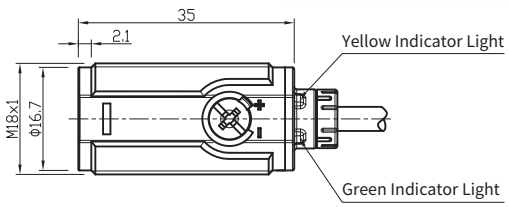
Brown: +
Blue: -
Black: OUT
White: -NC/+NO

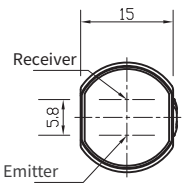
PSS Background suppression

Cable

Background suppression type no potentiometer

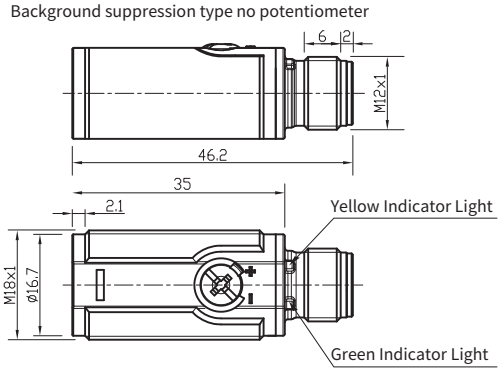






Connector

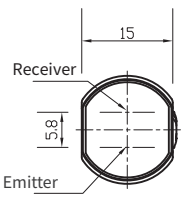
Background suppression type no potentiometer



Receiver

1: +
3: -

Brown: +
Blue: -



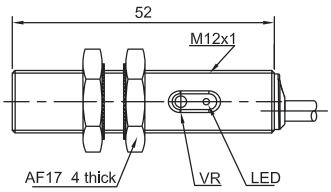
Emitter

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

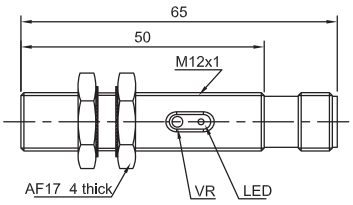
Brown: +
Blue: -
Black: OUT
White: -NC/+NO

PR12 Through beam/Diffuse reflection

Cable

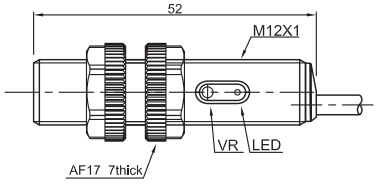


Connector

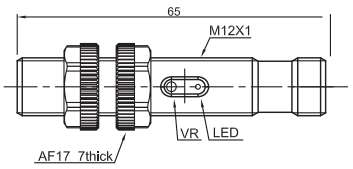


PR12S Through beam/Diffuse reflection

Cable



Connector

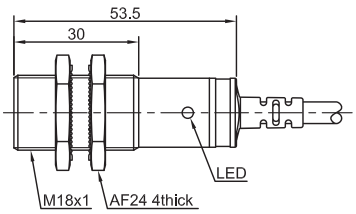


Official website

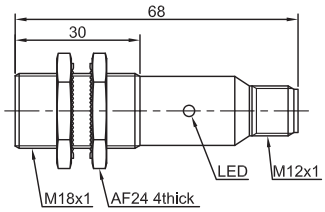
Product Dimension Diagram

PR18 Through beam/Diffuse reflection/Retro reflection

Cable

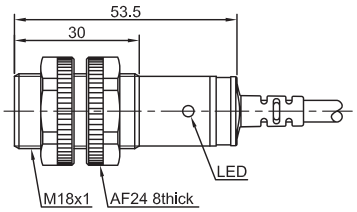


Connector

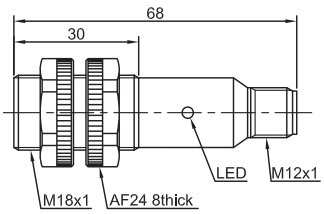


PR18S Through beam/Diffuse reflection/Retro reflection

Cable



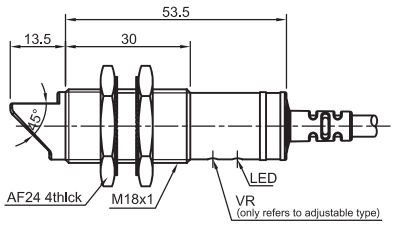
Connector



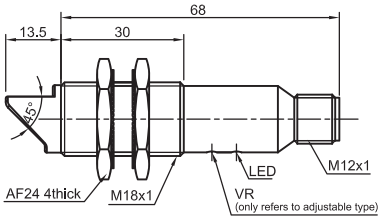
Product Dimension Diagram

PR18G Through beam/Diffuse reflection/Retro reflection

Cable

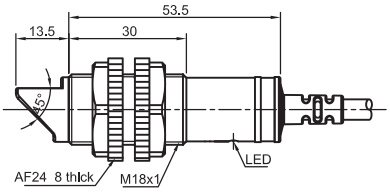


Connector

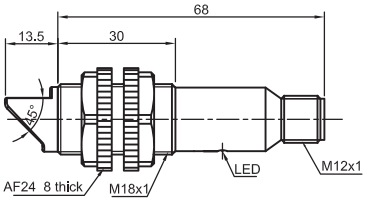


PR18GS Through beam/Diffuse reflection/Retro reflection

Cable



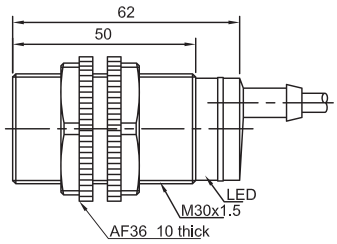
Connector



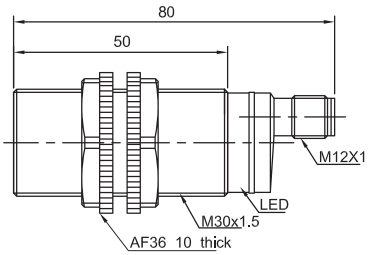
Product Dimension Diagram

PR30S Through beam/Diffuse reflection/Retro reflection

Cable

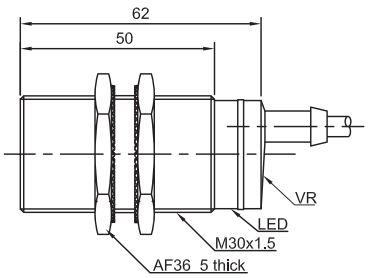


Connector

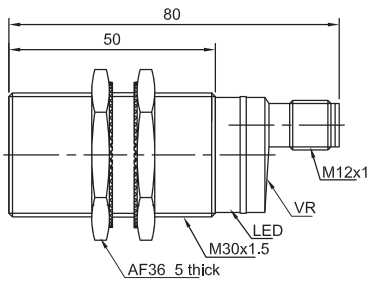


PR30 PR30S Through beam/Diffuse reflection/Retro reflection

Cable

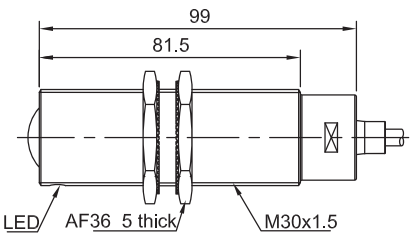


Connector



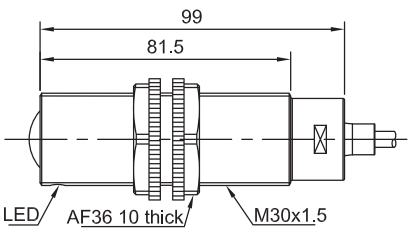
PR30L Through beam

Cable



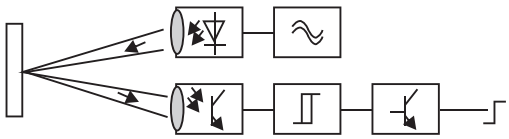
PR30SL Through beam

Cable



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.

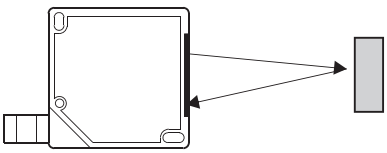
Basic concept of photoelectric sensor

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 useing, 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.

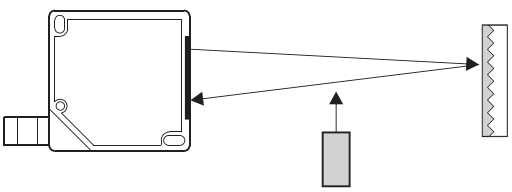
Official website

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:

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

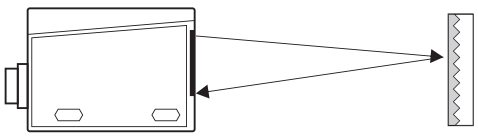


Polarized reflection photoelectric sensor

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:

❶ Suitable for detecting objects with high surface reflectivity and high gloss.
❷ Easy to align the optical path during installing and using.
❸ Easy to install and wire.
❹ Not affected by the shape, color and material of the detected objects.



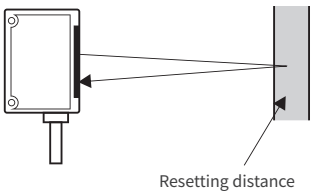
Official website

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:

❶ Strong resistance to environmental and background interference, high-precision detection.
❷ It is not necessary to align the optical path during installing and using.
❸ Save installation space.
❹ Easy to install and wire.

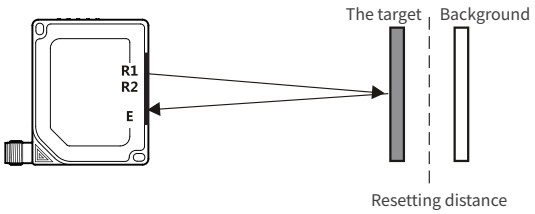


Background suppression photoelectric sensor

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:

❶ No attenuation for detection objects of various colors and materials.
❷ Adjustable detection distance, easy to install and stable performance.
❸ 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

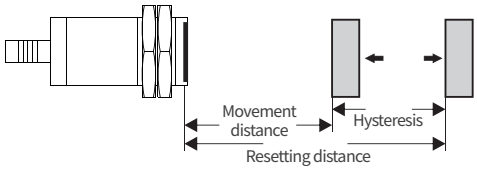
The current required for the sensor to work.

Official website

Technical Guide

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±5) °C, the relative humidity is random, the power supply voltage is ±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.