LANBAO

Photoelectric sensor PSE series

Operation manual

CE

Precautions

- The maximum allowable voltage of the sensor is 10% of the rated voltage, Please confirm that the supply voltage is less than the maximum allowable value before powering on
- The time from powering-on to normal detection of the sensor is 100ms, please ensure that the sensor is used 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 of the load first and then turn off the power of the sensor
- When installing the sensor, do not subject the sensor to severe external force (such as hammering, etc.), which may damage the sensor performance
- 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 oil or chemical environments
- 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

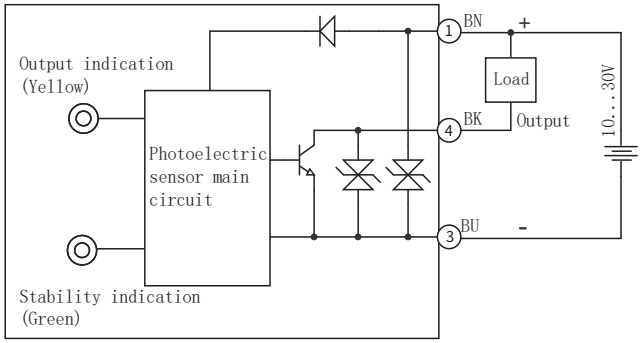
■ Technical specifications

Detection type		Through beam						Polarized reflection	Diffuse reflection		Wide-angle
Model	NPN cable	Emitter PSE-TM20D	Receiver PSE-TM20DNB	Emitter PSE-TM10DR	Receiver PSE-TM10DNBR	Emitter PSE-TM5DR	Receiver PSE-TM5DNBR	PSE-PM3DNBR	PSE-BC100DNB	PSE-BC30DNBR	PSE-BC10DNB
	NPN connector	Emitter PSE-TM20D-E3	Receiver PSE-TM20DNB-E3	Emitter PSE-TM10DR-E3	Receiver PSE-TM10DNBR-E3	Emitter PSE-TM5DR-E3	Receiver PSE-TM5DNBR-E3	PSE-PM3DNBR-E3	PSE-BC100DNB-E3	PSE-BC30DNBR-E3	PSE-BC10DNB-E3
	PNP cable	Emitter PSE-TM20D	Receiver PSE-TM20DPB	Emitter PSE-TM10DR	Receiver PSE-TM10DPBR	Emitter PSE-TM5DR	Receiver PSE-TM5DPBR	PSE-PM3DPBR	PSE-BC100DPB	PSE-BC30DPBR	PSE-BC10DPB
	PNP connector	Emitter PSE-TM20D-E3	Receiver PSE-TM20DPB-E3	Emitter PSE-TM10DR-E3	Receiver PSE-TM10DPBR-E3	Emitter PSE-TM5DR-E3	Receiver PSE-TM5DPBR-E3	PSE-PM3DPBR-E3	PSE-BC100DPB-E3	PSE-BC30DPBR-E3	PSE-BC10DPB-E3
Sensing distance		0...20m		0...10m		0...5m		0...3m*	0...100cm	0...30cm	0...10cm
Spot diameter		/								8mm@30cm	/
Sensing object		≥ φ10mm opaque object(within Sn range)						/			
Hysteresis range		/							3...20%		
Direction angle		>2°				<±2°		/			
Light source		Infrared(850nm)		Red light(630nm)		Red light(640nm)		Red light(640nm)	Infrared(860nm)	Red light(640nm)	Infrared(860nm)
Distance adjustment		Press the button for 2...5s, when the yellow and green light flash synchronously at 4Hz, and lift to finish the distance setting. If the yellow and green light flash asynchronously @8Hz for 3s, setting fails and the product distance goes to the maximum.									
Supply voltage		10...30 VDC									
Consumption current		Emitter: ≤20mA; Receiver: ≤20mA						≤25mA			
Load current		≤200mA									
Voltage drop		≤1V									
Circuit protection		Short circuit, Reverse polarity, Overload, Zener protection									
NO/NC adjustment		Press the button for 5...8s, when the yellow and green light flash synchronously at 2Hz,and lift to finish the state switching.									
Response time		≤1ms						≤0.5ms			
Indicator	Green	Power, stable signal(unstable signal flash)									
	Yellow	Output, overload or short circuit(flash)									
Anti-ambient light		Anti-ambient light interference≤10,000lux; Anti-incandescent light interference≤3,000lux									
Ambient temperature		-25℃...55℃									
Storage temperature		-25℃...70℃									
Protection degree		IP67									
Certification		CE									
Production standards		EN60947-5-2:2012、IEC60947-5-2:2012									
Material		Housing material: ABS; Filter: PMMA									
Weight		Cable:about 50g; Connector:about 10g									
Accessories		Operation manual,screw,reflector TD-09(only for polarized reflection sensor)、Mounting bracket ZJP-8									

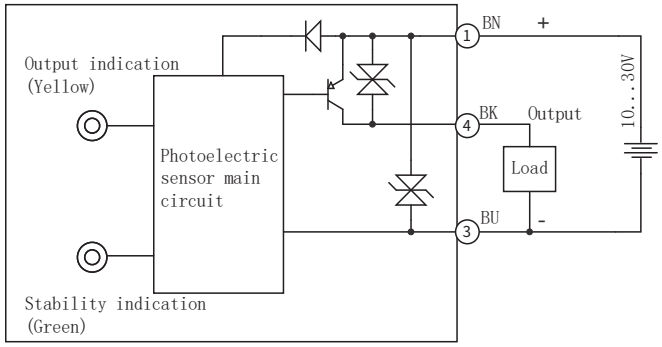
*The data is the result of the Lanbao PSE polarized reflection sensor with standard reflector TD-09.

■ Wiring diagram

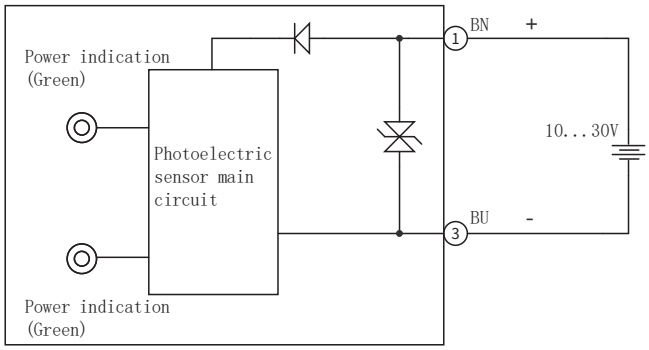
Through Beam-receiver, Diffuse Reflection, Polarized Reflection, Wide-angle-NPN Output



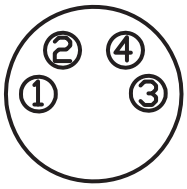
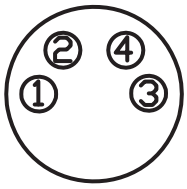
Through Beam-receiver, Diffuse Reflection, Polarized Reflection, Wide-angle-PNP Output



Through Beam-Emitter

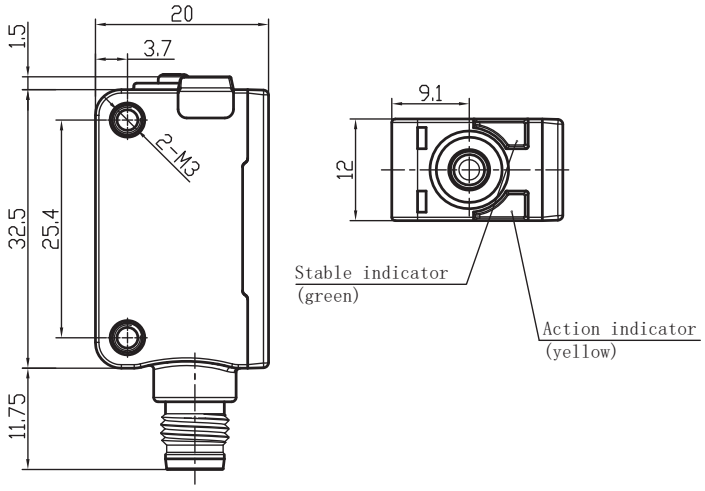


■ **Terminal Wiring Diagram**

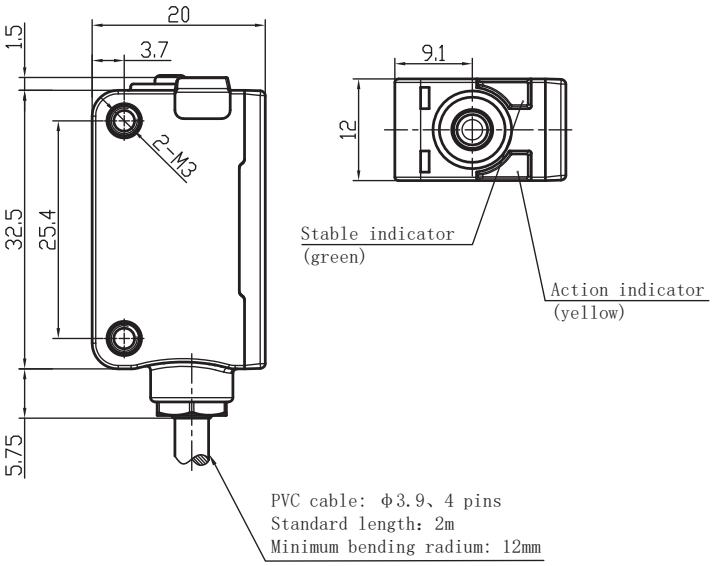
Through Beam-Emitter	Diffuse Reflection,Wide-angle, Polarized Reflection, Through Beam-Receiver
 1: + 3: −	 1: + 3: − 4: OUT
BN: + BU: −	BN: + BU: − BK: OUT

■ Dimensions

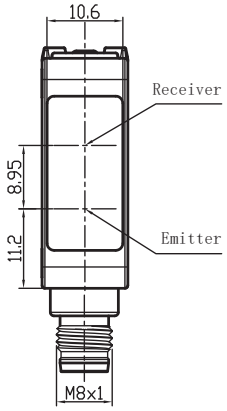
Through Beam, Diffuse Reflection,Polarized Reflection, Wide-angle



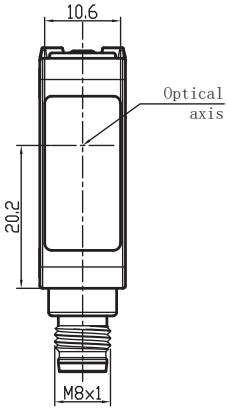
Through Beam, Diffuse Reflection,Polarized Reflection, Wide-angle



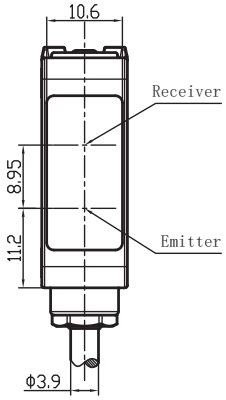
Diffuse Reflection, Wide-angle, Polarized Reflection



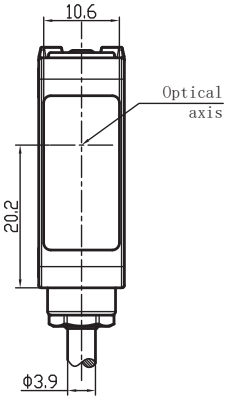
Through Beam



Diffuse Reflection, Wide-angle, Polarized Reflection

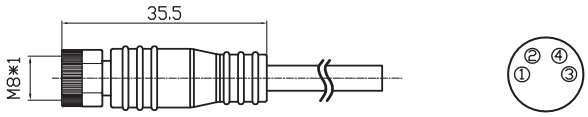


Through Beam

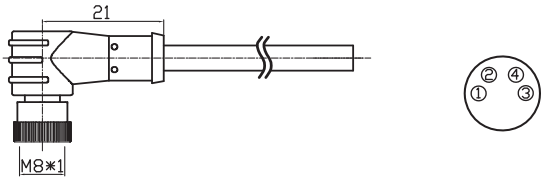


■ Accessory Dimensions (Sold Separately)

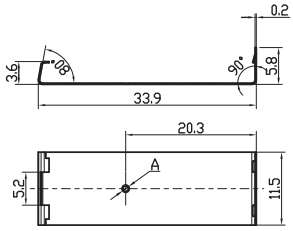
M8 Connector:QE8-N4F2



M8 Connector:QE8-N4G2

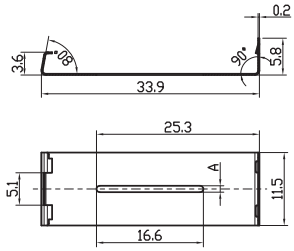


Narrow Slit:FJP-01



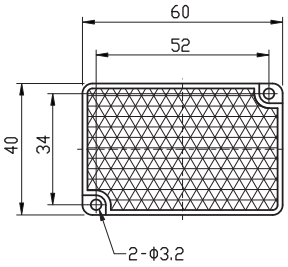
Model	A Size	Material
FJP-01A	Φ0.5mm	Stainless steel (SUS304)
FJP-01B	Φ1.0mm	
FJP-01C	Φ2.0mm	

Narrow Slit:FJP-02

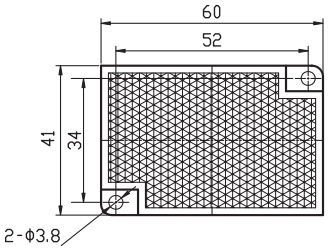


Model	A Size	Material
FJP-02A	0.5mm	Stainless steel (SUS304)
FJP-02B	1.0mm	
FJP-02C	2.0mm	

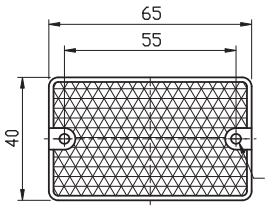
Reflector:TD-09(accessory)



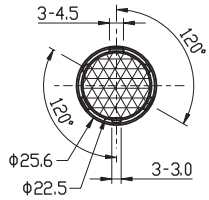
Reflector:TD-09A



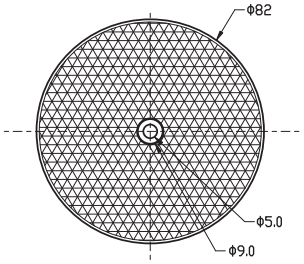
Reflector:TD-02



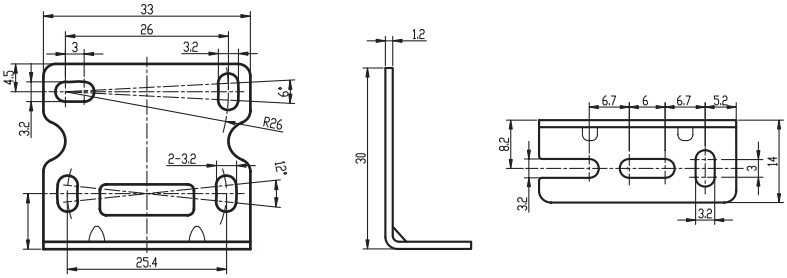
Reflector:STD-06



Reflector:TD-05



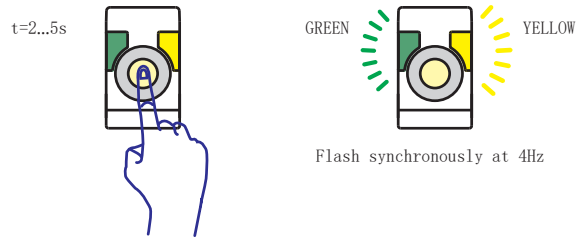
Mounting Bracket:ZJP-8(accessory)



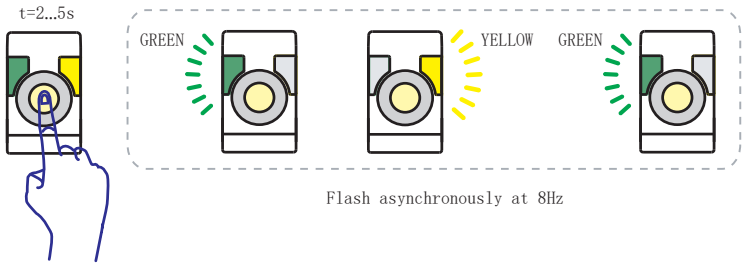
■ Button instruction

1. Press the button for the duration time "t", if t<2s or t≥8s, the setting is invalid, NO/NC maintains in the original state, and the product distance maintains the original;

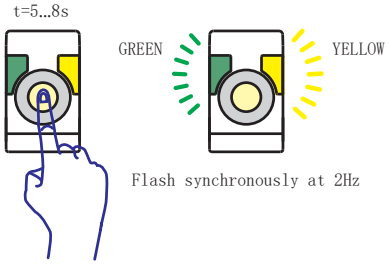
2. Put the product in face to the sensing object, and press the button for the duration "t", if 2s ≤ t < 5s, the yellow and green lights flash synchronously at 4 Hz, when the button is released to finish distance setting.
as shown in the following figure



Note: For distancing setting, if the distance between the sensing object and the sensor exceeds the detection ability of the product, in duration 2s ≤ t < 5s, the yellow and green lights flash synchronously at 4Hz, when the button is released to finish the distance setting but not successfully.
If the yellow and green lights flash asynchronously at 8 Hz, meaning that the product distance setting fails, and the product distance is automatically set to the maximum value, as shown in the following figure:



3. Press the button for the duration "t", if 5s≤t<8s, the yellow and green lights flash synchronously at 2 Hz, when the button is released to finish NO/NC state switchover .



■ Mounting