

Operation manual



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 the power-on to the normal detection of the sensor takes a certain period of time to initialize. Please ensure that the power-on is greater than the initialization time before use
- 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

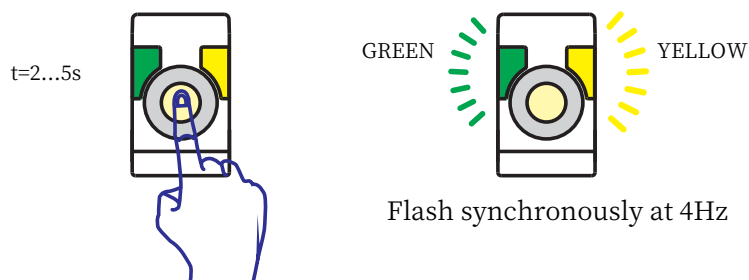
Scrap Treatment

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

■ Button instruction(Only for NPN、PNP)

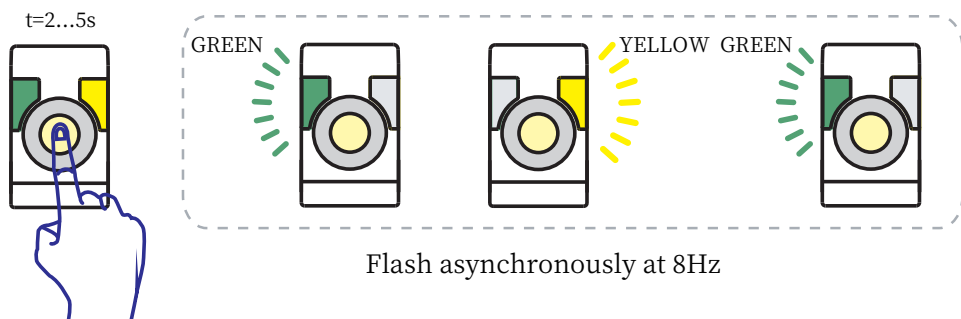
1. Press the button for the duration time "t", if $t < 2s$ or $t \geq 8s$, the setting is invalid, NO/NC maintains in the original state, and the product distance maintains the original;

2. Put the product in face to the detected objects, and press the button for the duration "t", if $2s \leq t < 5s$, 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:

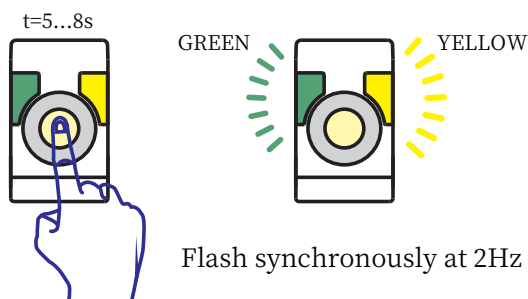


Note: For distancing setting, if the distance between the sensing object and the sensor exceeds the detection ability of the product, in duration $2s \leq t < 5s$, the yellow and green lights flash synchronously at 4Hz, when the button is released to finish the distance setting but not successfully.

If the yellow and green lights flash asynchronously at 8 Hz, meaning that the product distance setting fails, and the product distance maintains the original, as shown in the following figure:

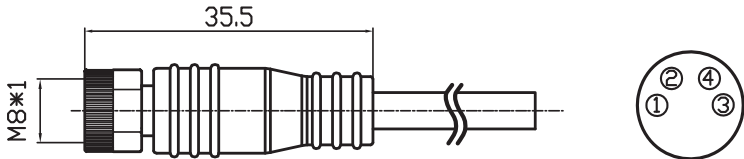
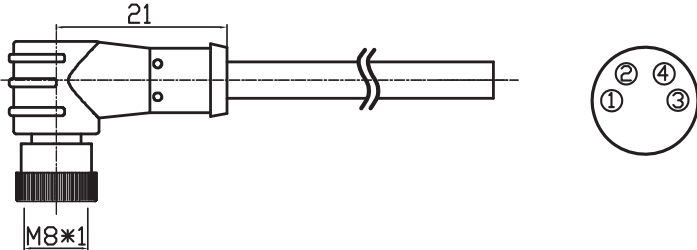
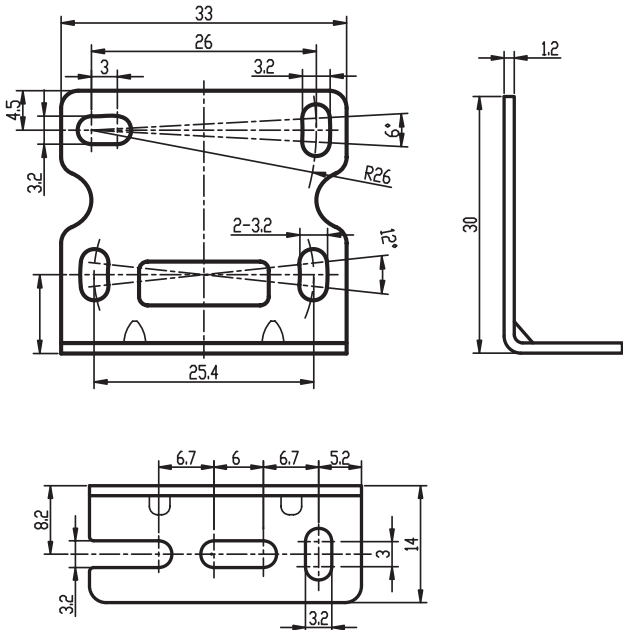


3. Press the button for the duration "t", if $5s \leq t < 8s$, the yellow and green lights flash synchronously at 2 Hz, when the button is released to finish NO/NC state switchover .



■ Accessories Dimensions

The following accessories need to be ordered separately except for the ZJP-8 mounting bracket.

M8 Connector QE8-N4F2

M8 Connector QE8-N4G2

Mounting bracket ZJP-8


■ Technical specifications

Technical specifications

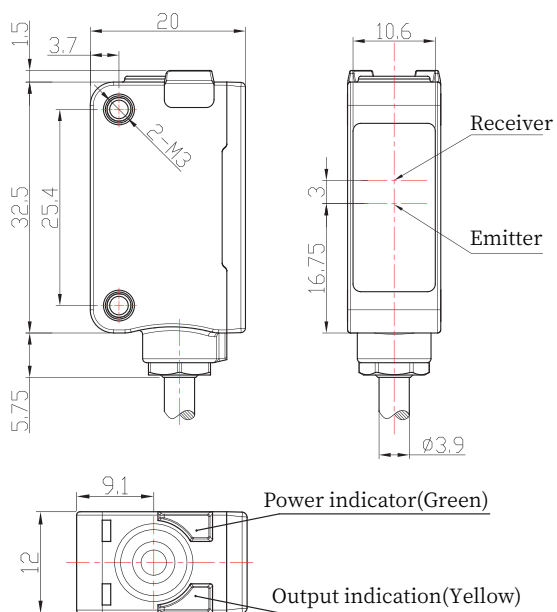
Type		TOF detection			
		Cable		Connector	
Model	NPN	PSE-CC60DNB	PSE-CC60DNB-E3	PSE-CC100DNB	PSE-CC100DNB-E3
	PNP	PSE-CC60DPB	PSE-CC60DPB-E3	PSE-CC100DPB	PSE-CC100DPB-E3
Detection range		0.5...60cm		0.5...100cm	
Adjustment range		8...60cm		8...100cm	
Distance adjustment		Press the button for 2...5s, when the yellow and green light flash synchronously at 4Hz, and lift to finish the distance setting.If the yellow and green lights flash asynchronously at 8Hz for 3s, and the setting fails.			
NO/NC adjust		Press the button for 5...8s, when the yellow and green light flash synchronously at 2Hz, and lift, Finish state switch.			
Hysteresis		3...20%			
Supply voltage		10...30 VDC			
Consumption current		≤20mA			
Load current		≤100mA			
Voltage drop		≤1.5V			
Adjustment method		Button adjustment			
Light source		Infrared laser(940nm)			
Light spot size		Φ130mm@60cm		Φ120mm@100cm	
Circuit protection		Short circuit protection, overload protection, reverse polarity protection,zener protection			
Response time		≤100ms			
Indicator		Green:Power indicator;Yellow:Output indication			
Withstand voltage		1000V/AC 50/60Hz 60s			
Anti ambient light		Fluorescent lamp≤1000Lx		Sunshine ≤10 000Lx、 Incandescent≤3 000Lx、 Fluorescent lamp≤1000Lx	
Operating temperature		-20°C...55 °C			
Storage temperature		-25°C...70 °C			
Humidity range		35%...85%(No condensation)			
Protection degree		IP67			
Material		Housing:PC+ABS;Optical elements:Plastic PMMA			
Connection		2m PVC Cable	M8 connector	2m PVC Cable	M8 connector
Accessories		Mounting bracket ZJP-8、 Operation manual			

Type		TOF detection			
Output type		RS485			
Model	Cable	PSE-CM3DR			
Detection range		0.02...3m			
Repeat accuracy		Within ±1cm(2~30cm); ≤1%(30cm~300cm)			
Detection accuracy		Within ±3cm(2~30cm); ≤2%(30cm~300cm)			
Light source		Infrared laser(940nm)			
Response time		35ms			
Divergence angle		±2°			
Resolution		1mm			
Color sensitivity		<10%			
Supply voltage		10...30 VDC			
Consumption current		≤40mA			
Indicator		Green LED:Power indicator			
Withstand voltage		1000V/AC 50/60Hz 60s			
Anti ambient light		Sunshine ≤10 000Lx, Incandescent≤3 000Lx, Fluorescent lamp≤1000Lx			
Operating temperature		-20°C...55 °C			
Storage temperature		-25°C...70 °C			
Humidity range		35%...85%(No condensation)			
Protection degree		IP67			
Material		PC+ABS			
Connection		0.5m PVC Cable			
Accessories		Mounting bracket ZJP-8, Operation manual			

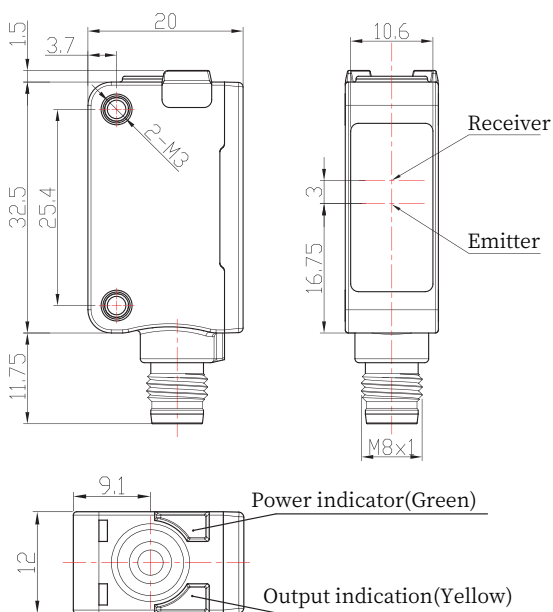
*Power-on initialization time<3s.

■ Dimensions

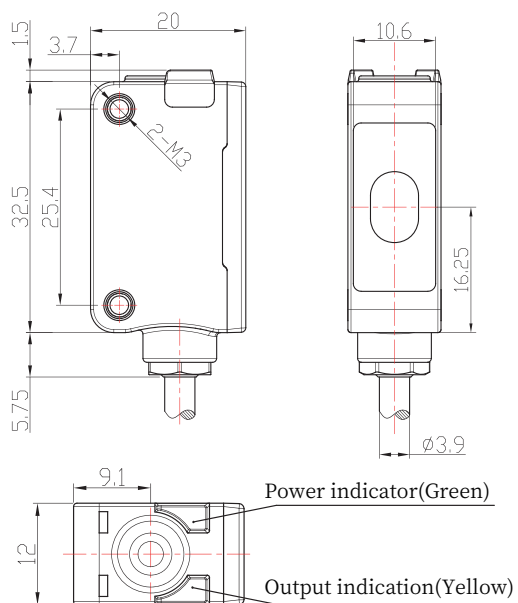
PSE CC60-Cable



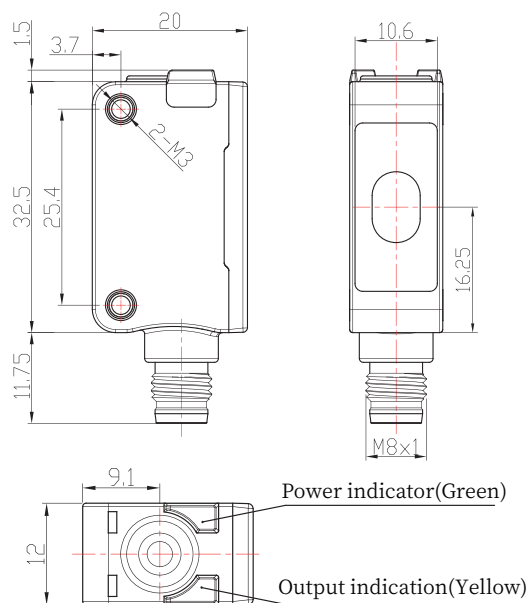
PSE CC60-Connector



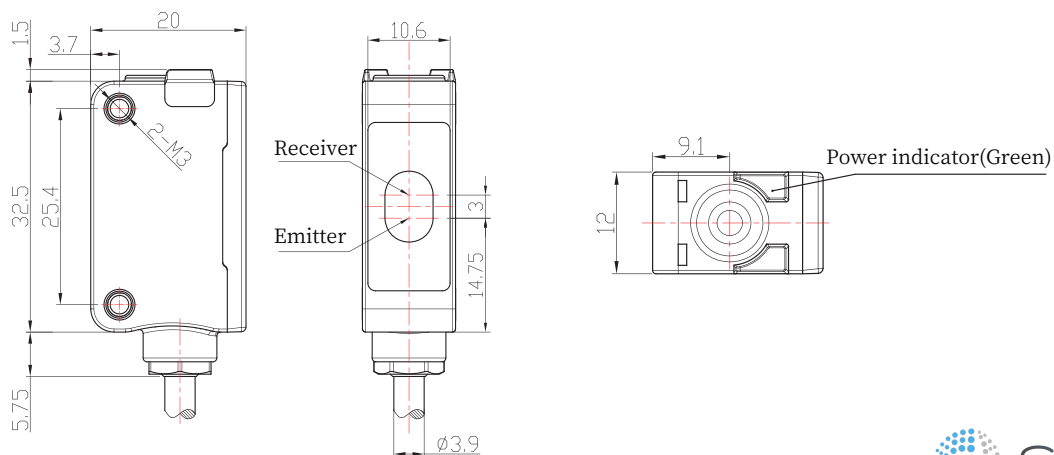
PSE CC100-Cable



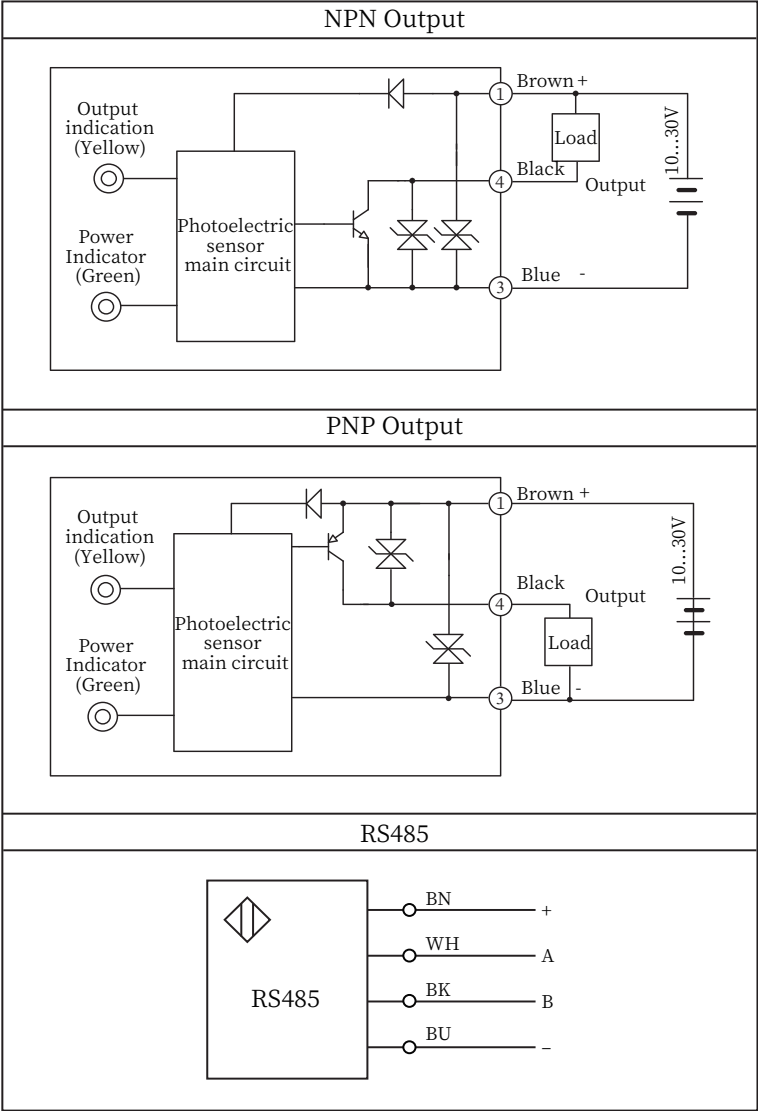
PSE CC100-Connector



PSE CM3-Cable



■ Terminal Wiring Diagram



■ Communication commands (Only for RS485)

- ◆Baud rate:115200(default) ◆Parity check:None ◆Data bits:8
- ◆Stop bit:1 ◆Slave default address:0x80

Note:The default address is 0x80.Different slave addresses or different baud rates will have different redundancy checks.

1.Command to read distance information

Master station request message format:

Slave address	Function code	Data start address	The amount of data (Unit:Word)		Redundancy check	
80	03	D8 D9	MSB	LSB	LSB	MSB

Slave station response message format:

Slave address	Function code	Bytes	Data		Redundancy check	
80	03	02	MSB	LSB	LSB	MSB

For example:

Master request:80 03 D8 D9 00 01 71 40

Slave response:80 03 02 4E 20 B0 22

Distance=0x4E*256+0x20=20000(Decimal,unit:mm)

When the response data from the slave station is 0xFFFF,it means that the current product is in over-range or low signal strength, This distance information is not available,and it is recommended to shield it.

2.Modified address command

to shield it.

2.Modified address command

Master station request message format:

Slave address	Function code	Address where data is stored		Modify value		Redundancy check	
1 bytes	06	00	01	00	Slave address	LSB	MSB

Slave station response message format:

Slave address	Function code	Address where data is stored		Modify value		Redundancy check	
1 bytes	06	00	01	00	Slave address	LSB	MSB

Note:The valid range of address setting is 0x80...0xF4,and the modified address takes effect after powering on.

If the modified address is out of range,the modification is invalid.

Return error command as follows:

Slave address	Function code	Error code	Redundancy check	
1 bytes	86H	02	LSB	MSB

For example:

To change the slave address from the default 0x80 to 0x85:

Master request:80 06 00 01 00 85 07 B8

Slave response:80 06 00 01 00 85 07 B8(Modification sucess)

Or response:80 86 02 93 89(Wanted address is invalid)

Power on again to finish the modification.

3.Check/Read the address of slave station

Master station request message format:

Slave address	Function code	Data start address		The amount of data (Unit:Word)		Redundancy check	
F5	03	00	01	00	01	C0	BE

Slave station response message format:

Slave address	Function code	Bytes	Data		Redundancy check	
F5	03	02	00	Slave address	LSB	MSB

0xF5—broadcast address

For example:master request:F5 03 00 01 00 01 C0 BE

slave response:F5 03 02 01 00 80 08 31

Hence the slave address is 0x80

4.Modify the baud rate

Master station request message format:

Slave address	Function code	Data start address		The amount of data (Unit:Word)		Redundancy check	
1 bytes	06	00	55	MSB	LSB	LSB	MSB

Modify the LSB bit of the value:baud rate setting MSB defaults to 00

115200	57600	38400	19200	9600
01	02	03	04	05

Slave station response message format:

Slave address	Function code	Data start address		Modify value		Redundancy check	
1 bytes	06	MSB	LSB	MSB	LSB	LSB	MSB

Note:The slave baud rate defaults to 0x01(115200),and the baud rate setting has a valid range ftom 0x01~0x05.

If it is not in this range,the operation will be invalid. After power on again,the baud rate modification will take effect.

Return operation error instruction are as follows:

Slave address	Function code	Error code	Redundancy check	
1 bytes	86	02	LSB	MSB

■ Mounting

