

Ultra-Compact

Built-In Amplifier

Photoelectric Sensor

PL-M/F Series



Ask SENPUM

+86-755-83330055

Fast Delivery Standard Models



Most products are in stock. Upon receiving your order, we will arrange prompt shipment to minimize your downtime-related costs and losses.



WeChat



WhatsApp



LINE

Stable detection

Background suppression (BGS)/Automatic crosstalk prevention

Accurate detection of objects without interference from target color and background colors

The optimal implementation of BGS functionality eliminates detection distance adjustments, even during production changeovers with multi-color workpieces.

Ultra-compact & Ultra-thin, widely used

Ultra-compact photoelectric sensors are easier to use.



Rugged and long life

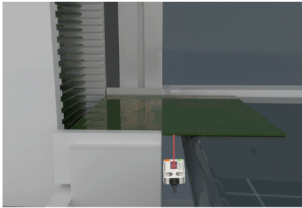
IP67-IP69K through resin-filled housing



M3 screw mounting for simple and easy installation

Highly visible indicator / Simplified part numbering / Easy mounting with standard M3 screws

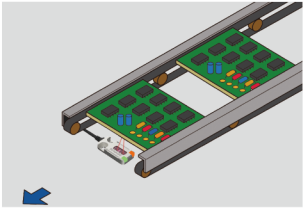
Applications



Confirm the arrival of electronic PCBs



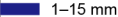
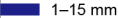
Confirm the passage of cans on the conveyor belt



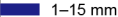
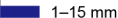
Board positioning in tight spaces

Product List

Cable type

Type	Appearance	Detection distance	Model	
			NPN	PNP
Thrubeam type	 Ultra-thin type	 1500 mm	PL-M51N	PL-M51P
BGS Reflective	 Ultra-thin type	 1-15 mm	PL-MB15N	PL-MB15P
		 1-30 mm	PL-MB30N	PL-MB30P
Thrubeam type	 Flat type	 600 mm	PL-F51N	PL-F51P
BGS Reflective	 Flat type	 1-15 mm	PL-FB15N	PL-FB15P
		 1-30 mm	PL-FB30N	PL-FB30P

Relay type

Type	Appearance	Detection distance	Model	
			NPN	PNP
Thrubeam type	 Ultra-thin type	 1500 mm	PL-M51CAN	PL-M51CAP
BGS Reflective	 Ultra-thin type	 1-15 mm	PL-MB15CAN	PL-MB15CAP
		 1-30 mm	PL-MB30CAN	PL-MB30CAP
Thrubeam type	 Flat type	 600 mm	PL-F51CAN	PL-F51CAP
BGS Reflective	 Flat type	 1-15 mm	PL-FB15CAN	PL-FB15CAP
		 1-30 mm	PL-FB30CAN	PL-FB30CAP

Cable (sold separately)

Appearance	Sensor side	Cable termination	Cable length	Model
	M8 4PIN Straight	Loose wire	3 m	OW-PL3000
			5 m	OW-PL5000

Photoelectric Sensors

- PX-400
- PL-M/F
- PK-L
- PH2-T
- PM-T
- PQ-100
- SE2-*45
- SE2-*25
- SE-400

Fiber Optic Sensors

Photoelectric Sensors

Color Sensors

Laser Sensors

Proximity Sensors

Precision Contact
Sensors

Area Sensors/
Safety Light Curtains

Laser Scanners

Digital Contact Sensors

Laser Displacement
Sensors

Laser Micrometers

Confocal Displacement
Sensors

Barcode Readers

AI Vision Sensors

RFID

Infrared Temperature
Sensors

Pressure Sensors

Flow Sensors

Magnetic Sensors

Ultrasonic Sensors

Magnetic Scales

Static Eliminators



PX-400

PL-M/F

PK-L

PH2-T

PM-T

PQ-100

SE2-45

SE2-25

SE-400

Photoelectric Sensors

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Static Eliminators



SEN
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PL-M/F

Ultra-Compact Built-In Amplifier Photoelectric Sensor

Specifications							
Cable type							
Type		Ultra-thin type			Flat type		
		BGS Reflective		Thrubeam type	BGS Reflective		Thrubeam type
Model	NPN output	PL-MB15N	PL-MB30N	PL-M51N	PL-FB15N	PL-FB30N	PL-F51N
	PNP output	PL-MB15P	PL-MB30P	PL-M51P	PL-FB15P	PL-FB30P	PL-F51P
Detection distance		1-15 mm	1-30 mm	1500 mm	1-15 mm	1-30 mm	600 mm
Disable maximum detection distance (white paper*)		20 mm	47 mm	-	20 mm	47 mm	-
Current consumption		20 mA or less					
Control output		NPN output type: NPN open collector; PNP output type: PNP open collector					
		30 VDC or less, 50 mA or less					
		Residual voltage: 10 mA or less at 1.0 V or less, 10-30 mA or less at 1.5 V or less					
Spot size		Approx. Φ3 mm (at 15 mm)	Approx. Φ5.5 mm (at 30 mm)	-	Approx. Φ3 mm (at 15 mm)	Approx. Φ5 mm (at 30 mm)	-
Hysteresis (white paper*)		1 mm or less	2 mm or less	-	1 mm or less	2 mm or less	-
Light source (wavelength)		4-element point light source red LED (650 nm)					
Power voltage		10 to 30 VDC with ripple current (P-P) 10%					
Response time		0.5 ms					
Operating ambient temperature		-25 to +55 °C (no freezing)					
Storage ambient temperature		-25 to +75 °C (no freezing)					
Ambient humidity		35 to 85% RH (no condensation)					
Vibration (Endurance)		10 to 55 Hz, Double amplitude 1.5 mm, 2 hours in each of the X, Y, and Z directions					
Shock (Endurance)		1,000 m/s², 6 times in each of the X, Y, and Z directions					
Protection class		IP67 IEC60529					
Protection circuit		Power reverse connection protection, output overcurrent protection, power surge protection, output surge protection					
Indicator		Output indicator (orange), stable operation indicator/power indicator (green)					
Sensitivity adjustment		Not supported					
NO/NC mode		Switchable to L-ON or D-ON via input cable					
Connection method		Cable: 3 m					
Housing material		Housing: SUS316L, Indicator lampshade: PC, Lens cap: PMMA, Cable & Sheath: PVC					
Weight		Approx. 45 g		Approx. 90 g		Approx. 40 g	Approx. 80 g

*1 Represents value

Relay type							
Type		Ultra-thin type			Flat type		
		BGS Reflective		Thrubeam type	BGS Reflective		Thrubeam type
Model	NPN output	PL-MB15CAN	PL-MB30CAN	PL-M51CAN	PL-FB15CAN	PL-FB30CAN	PL-F51CAN
	PNP output	PL-MB15CAP	PL-MB30CAP	PL-M51CAP	PL-FB15CAP	PL-FB30CAP	PL-F51CAP
Detection distance		1-15 mm	1-30 mm	1500 mm	1-15 mm	1-30 mm	600 mm
Disable maximum detection distance (white paper*)		20 mm	47 mm	-	20 mm	47 mm	-
Current consumption		20 mA or less					
Control output		NPN output type: NPN open collector; PNP output type: PNP open collector					
		30 VDC or less, 50 mA or less					
		Residual voltage: 10 mA or less at 1.0 V or less, 10-30 mA or less at 1.5 V or less					
Spot size		Approx. Φ3 mm (at 15 mm)	Approx. Φ5.5 mm (at 30 mm)	-	Approx. Φ3 mm (at 15 mm)	Approx. Φ5 mm (at 30 mm)	-
Hysteresis (white paper*)		1 mm or less	2 mm or less	-	1 mm or less	2 mm or less	-
Light source (wavelength)		4-element point light source red LED (650 nm)					
Power voltage		10 to 30 VDC with ripple current (P-P) 10%					
Response time		0.5 ms					
Operating ambient temperature		-25 to +55 °C (no freezing)					
Storage ambient temperature		-25 to +75 °C (no freezing)					
Ambient humidity		35 to 85% RH (no condensation)					
Vibration (Endurance)		10 to 55 Hz, Double amplitude 1.5 mm, 2 hours in each of the X, Y, and Z directions					
Shock (Endurance)		1,000 m/s², 6 times in each of the X, Y, and Z directions					
Protection class		IP67 IEC60529					
Protection circuit		Power reverse connection protection, output overcurrent protection, power surge protection, output surge protection					
Indicator		Output indicator (orange), stable operation indicator/power indicator (green)					
Sensitivity adjustment		Not supported					
NO/NC mode		Switchable to L-ON or D-ON via input cable					
Connection method		M8 Connector 4-Pin					
Housing material		Housing: SUS316L, Indicator lampshade: PC, Lens cap: PMMA, Cable & Sheath: PVC					
Weight		Approx. 45 g		Approx. 90 g		Approx. 40 g	Approx. 80 g

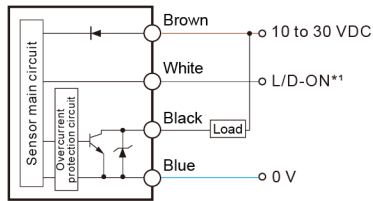
*1 Represents value

I/O Circuit Diagrams

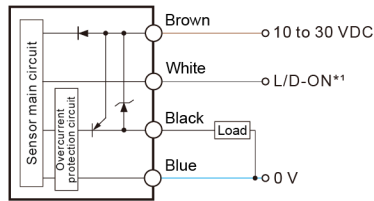
Cable type

BGS Reflective / Receiver of thrubeam type

NPN

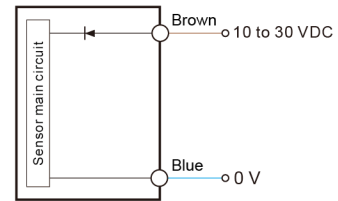


PNP



Transmitter of thrubeam type

NPN / PNP

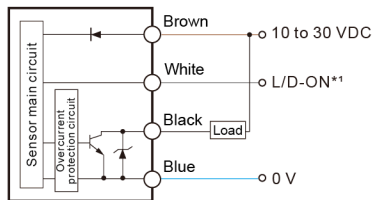


*1 L-ON - Connect white wire to blue wire; D-ON - Connect white wire to brown wire or leave unconnected.

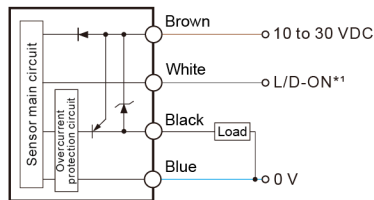
Relay type

BGS Reflective / Receiver of thrubeam type

NPN

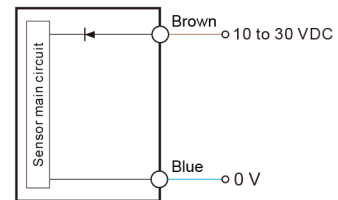


PNP



Transmitter of thrubeam type

NPN / PNP



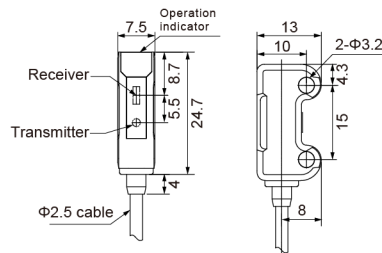
*1 L-ON - Connect white wire to blue wire; D-ON - Connect white wire to brown wire or leave unconnected.

Dimensions

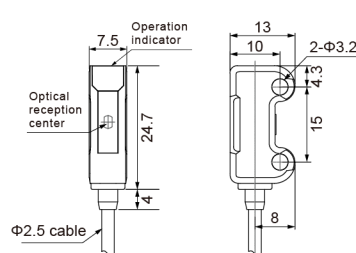
Unit: mm

Cable type

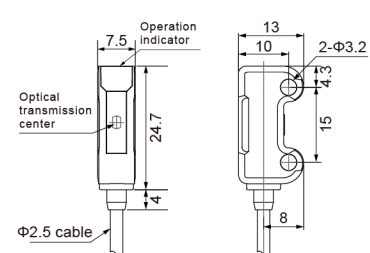
BGS Reflective

PL-MB15N / PL-MB15P
PL-MB30N / PL-MB30P

Thrubeam type

PL-M51N / PL-M51P
Receiver

Transmitter



Photoelectric Sensors

PX-400
PL-M/F
PK-L
PH2-T
PM-T
PQ-100
SE2-*45
SE2-*25
SE-400

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Ultrasonic Sensors

Magnetic Scales

Static Eliminators



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PL-M/F

Ultra-Compact Built-In Amplifier Photoelectric Sensor

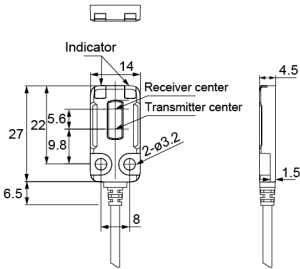
Dimensions

Unit: mm

BGS Reflective

PL-FB15N / PL-FB15P

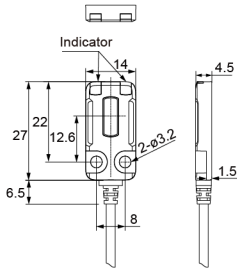
PL-FB30N / PL-FB30P



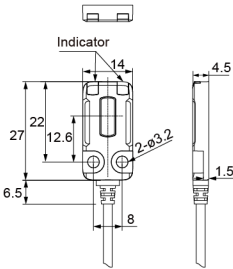
Thrubeam type

PL-F51N / PL-F51P

Receiver



Transmitter

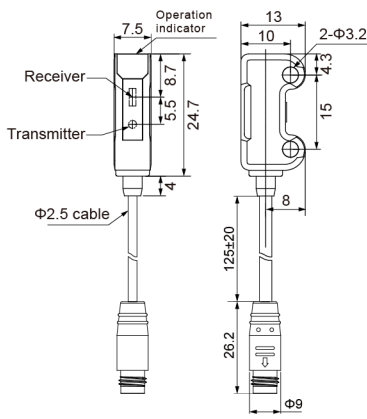


Relay type

BGS Reflective

PL-MB15CAN / PL-MB15CAP

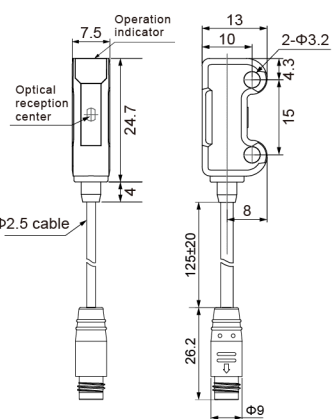
PL-MB30CAN / PL-MB30CAP



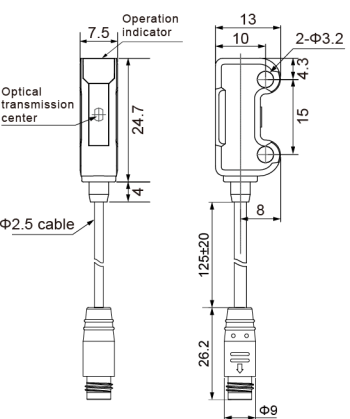
Thrubeam type

PL-M51CAN / PL-M51CAP

Receiver

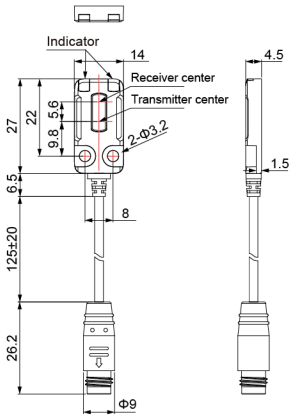


Transmitter

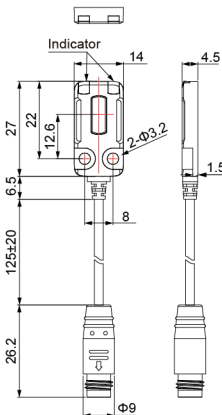


PX-400
PL-M/F
PK-L
PH2-T
PM-T
PQ-100
SE2-45
SE2-25
SE-400

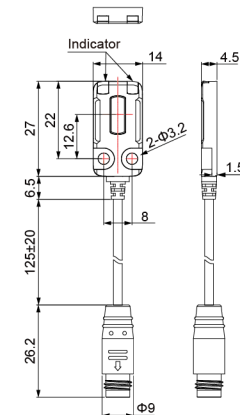
BGS Reflective
PL-FB15CAN / PL-FB15CAP
PL-FB30CAN / PL-FB30CAP



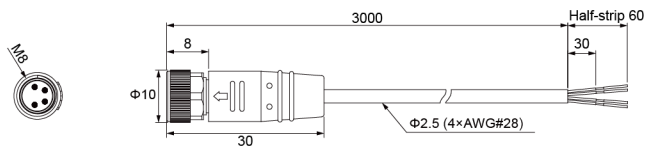
Thrubeam type
PL-F51CAN / PL-F51CAP
Receiver



Transmitter



Cable (sold separately)
OW-PL3000 / OW-PL5000



Fiber Optic Sensors

Photoelectric Sensors

Color Sensors

Laser Sensors

Proximity Sensors

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