



- Fiber Optic
- Slot Sensors
- Photoelectric**
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

### Guidance

### Photoelectric

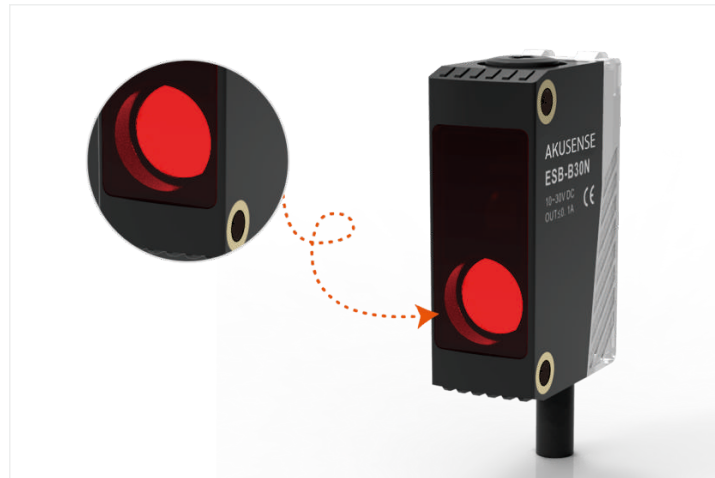
- Cylindrical
- IP69K high protection type
- Square
- Flat type
- Thin type
- BGS
- Color/Mark Detection
- TOF type

### Reflectors

- Reflectors

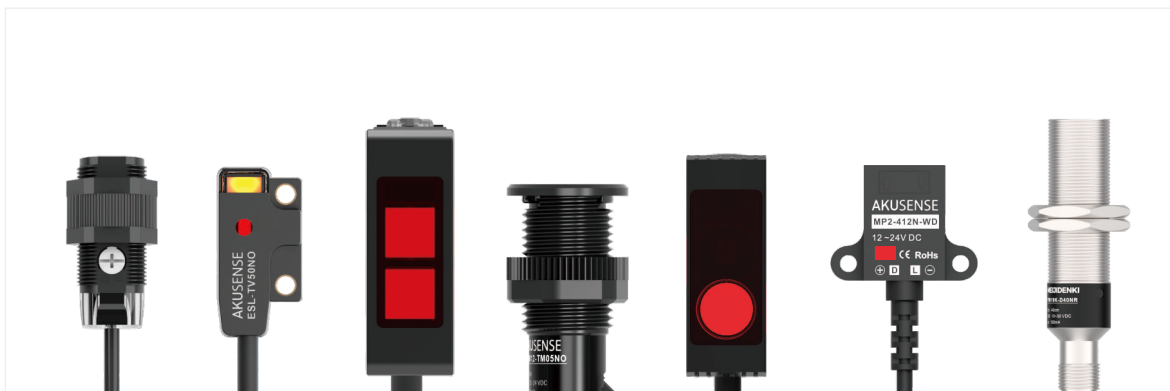
## Precision Optical Design

Reduced stray light interference, resulting in a clearer and brighter light spot



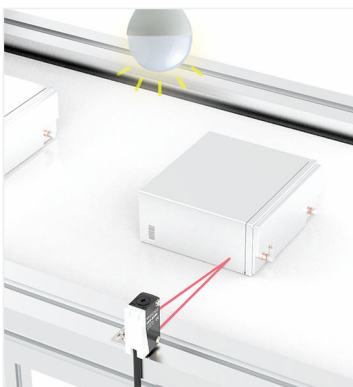
## Meets the needs of various detection scenarios

Comprehensive specifications and sizes, including thin, square, cylindrical, and transparent types



## Strong Anti-interference and Stability

Powerful software algorithms, noise filtering design, enhancing resistance to light interference



## Protection rating up to IP69K\*

Fully prevents dust intrusion while capable of withstanding high-pressure water/steam cleaning, enabling normal operation of the equipment

\* PM18K Series

# Guidance



**NEW!**

### Cylindrical Type (PM/PSM/PXM Series)

- Epoxy resin fillings ,powerful in shock resistance
- The smallest diameter(8mm) in the industry
- Through-beam detection distance up to 20M

**P.C-07**



### IP69K High Protection Type (PM18K Series)

- AISI 316L stainless steel housing material
- Protection grade IP69K, excellent mechanical performance
- Applied in harsh environments.

**P.C-17**



**HOT NEW!**

### Square Type (PTE/PTEW/PTV/PTVW/PTN/PTJ-I Series)

- Identifying the action clearly with dual LED indicators
- Diffuse reflection detection distance up to 1M
- Retroreflective detection distance up to 3M

**P.C-19**



**HOT**

### Flat Type (MP2 Series)

- Sensing surfaces on top side and front side support various detections
- Can switch L.on and D.on switch flexibly
- Long distance detection up to 40mm(white cardboard)

**P.C-35**



**HOT NEW!**

Thickness is only 3.5mm

### Thin Type (ESL series)

- 3.5mm ultra-thin design, greatly saves installation space
- IP67 Protection degree , excellent mechanical performance
- LED indicator is bright and can be clearly seen from the back

**P.C-38**



**HOT NEW!**

Not affected by background color

### BGS Type (ESB Series)

- High-precision optical lenses for clearer and brighter spot, eliminating stray light interference
- Dynamic filtering algorithm, achieving optimal detection results in various environments

**P.C-40**



RGB Light Source

### Color/Mark Detection (ESE Series)

- RGB tricolor light source for stable detection of color characteristics
- Equipped with color mode and color reference mode, suitable for various detection scenarios

**P.C-44**

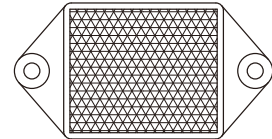


**NEW!**

### TOF Type (ELT Series)

- High-speed TOF principle ranging chip, achieving precise detection up to 2m long distance
- Unaffected by object and background colors, stable adaptation to more scenarios

**P.C-46**





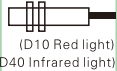
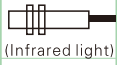


### Reflectors

- Made of special material (robust housing)
- Shapes as circular, square and combination etc
- Customization is available as requested by clients

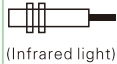
**P.C-48**

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Reflectors






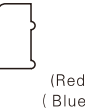
Cylindrical

Series	Sensing type	Sensing distance	Model No.		Pages
			NPN L.on&D.on	PNP L.on&D.on	
PM08	 (Infrared light) Diffuse reflection	3cm	L.on:PM08-D03NO 	L.on:PM08-D03PO	C-07
PXM18 (PBT housing)	 (D10 Red light) (D40 Infrared light) Diffuse reflection	10cm	PXM18-D10N	PXM18-D10P	C-15
		40cm	PXM18-D40N	PXM18-D40P	
PSM12	 (Infrared light) Thru-beam	500cm	PSM12-TM05NO PSM12-TM05NC	PSM12-TM05PO PSM12-TM05PC	C-09
PSM18	 (Red light) Diffuse reflection	40cm	PSM18-D40N	PSM18-D40P	C-11
	 (Red light) Diffuse reflection	40cm	PSM18-DV40N	PSM18-DV40P	C-13

IP69K high protection type

Series	Sensing type	Sensing distance	Model No.		Pages
			NPN L.on&D.on	PNP L.on&D.on	
PM18	 (Infrared light) Diffuse reflection	400mm	PM18K-D40NR		C-17

Square

Series	Sensing type	Sensing distance	Model No.		Pages	
			NPN L.on&D.on	PNP L.on&D.on		
PTE	 (Red light)	Diffuse reflection	1~30cm	PTE-DV30NR 	PTE-DV30PR	C-19
			0.5~100cm	PTE-DV100NR	PTE-DV100PR	
		Convergent reflective	0.5~14cm	PTE-XE15NR 	PTE-XE15PR	C-20
			Retro-reflection	200cm	PTE-RM2N	
		300cm		PTE-RM3N	PTE-RM3P	
Thru-beam	1000cm	PTE-TEM10NR	PTE-TEM10PR	C-21		
PTEW	 (PTEW Red light) (PTVW Infrared light)	Diffuse reflection	0.5~20cm	PTEW-D20N	PTEW-D20P	C-24
PTVW			10cm	PTVW-D10N	PTVW-D10P	
			20cm	PTVW-D20N	PTVW-D20P	
PTV	 (Infrared light)	Diffuse reflection	1~30cm	PTV-D30N	PTV-D30P	C-26
			0.5~100cm	PTV-D70N	PTV-D70P	
		Convergent reflective	0.5~14cm	PTV-X09N	PTV-X09P	C-27
			Thru-beam	500cm	PTV-T500N	
		2000cm		PTV-TM20NO	PTV-TM20PO	
				PTV-TM20NC	PTV-TM20PC	
PTV-TM20AN	PTV-TM20AP					
PTN	 (Red light) (Blue light)	Diffuse reflection	10cm	PTN-B10NO PTN-B10NC	PTN-B10PO PTN-B10PC	C-29
			Thru-beam	10cm	PTN-BY10NO PTN-BY10NC	
		150cm		PTN-T150NO	PTN-T150PO	
				PTN-T150NC	PTN-T150PC	

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Guidance

Photoelectric



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Reflectors



- Reflectors

# Guidance


## Square

PTN	 (Red light)	Diffuse reflection	5cm	PTN-D05N	PTN-D05P	C-31
		Thru-beam	50cm	PTN-T50N	PTN-T50P	
PTJ-I	 (Infrared light)	Thru-beam	80cm	D.on:PTJ-T80NO-I	D.on:PTJ-T80PO-I	C-33
			L.on:PTJ-T80NC-I	L.on:PTJ-T80PC-I		
		Thru-beam	150cm	D.on:PTJ-T150NO-I	D.on:PTJ-T150PO-I	
			L.on:PTJ-T150NC-I	L.on:PTJ-T150PC-I		


## Flat

Series	Sensing type	Sensing distance	Model No.		Pages	
			NPN L.on&D.on	PNP L.on&D.on		
MP2 (Connector)	 (Infrared light)	Diffuse reflection	40mm	MP2-410N-E	MP2-410P-E	C-36
		Diffuse reflection	40mm	MP2-412N-E	MP2-412P-E	
MP2 (Pre-wired)	 (Infrared light)	Diffuse reflection	2.5~8mm	D.on: MP2-410N-WD	D.on: MP2-410P-WD	C-35
			L.on: MP2-410N-WL	L.on: MP2-410P-WL		
		Diffuse reflection	2.5~8mm	D.on: MP2-412N-WD	D.on: MP2-412P-WD	
			L.on: MP2-412N-WL	L.on: MP2-412P-WL		

## Thin Type

Series	Sensing type	Sensing distance	Model No.		Pages	
			NPN L.on&D.on	PNP L.on&D.on		
ESL	 (Infrared light)	Diffuse reflection	1~25mm	ESL-25NO	ESL-25PO	C-38
				ESL-25NC	ESL-25PC	
	Thru-beam	0~500mm	ESL-TV50NO	ESL-TV50PO		
			ESL-TV50NC	ESL-TV50PC		





## BGS

Series	Sensing type	Sensing distance	Model No.		Pages	
			NPN L.on&D.on	PNP L.on&D.on		
ESB	 (Red light)	Diffuse reflection	0.2~15cm	ESB-BS15N	ESB-BS15P	C-40
		Diffuse reflection	0.2~15cm	ESB-BS15AN	ESB-BS15AN	
		Diffuse reflection	0.2~30cm	ESB-BS30N	ESB-BS30P	
		Diffuse reflection	0.2~30cm	ESB-BS30AN	ESB-BS30AN	
		Diffuse reflection	0.1~10cm	ESB-BL10N	ESB-BL10P	
	Diffuse reflection	0.1~30cm	ESB-BV30N	ESB-BV30P	C-41	



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**BGS**

Series	Sensing type	Sensing distance	Model No.		Pages	
			NPN L.on&D.on	PNP L.on&D.on		
ESB	 (Red light)	Diffuse reflection	 0.2~30cm	ESB-B30N	ESB-B30P	C-42
	 (Blue light)	Diffuse reflection	 0.2~30cm	ESB-BY30N	ESB-BY30P	

**Color/Mark Detection**

Series	Sensing type	Sensing distance	Model No.		Pages	
			NPN	PNP		
ESE	 (RGB)	Diffuse reflection	 7~13mm	ESE-10N	ESE-10P	C-44

**TOF Type**

Series	Sensing type	Sensing distance	Model No.		Pages	
			NPN	PNP		
ELT		TOF	 0.05~2m	ELT-M3BN	ELT-M3BP	C-46

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**Guidance**

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**Reflectors**

- Reflectors

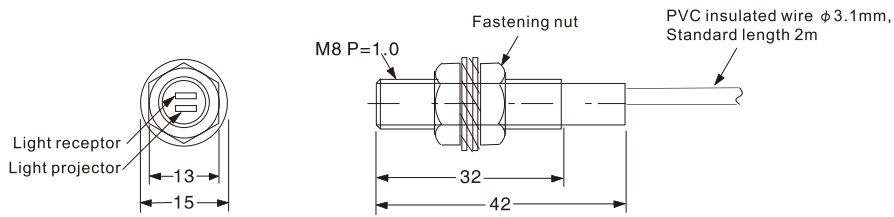
# Cylindrical

## PM08 Series



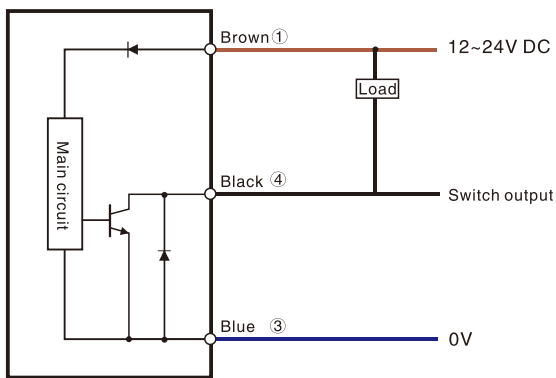
Basic Features	Working Principle	Photoelectric Sensor
	Housing Style	Cylinder Shape
	Optical Working Principle	Diffuse Reflection
	Detection Range	30mm (White paper 30x30mm)
	Spot Size	Not Applicable (Infrared Light)
	Detected Object	White paper 30x30mm
	Light Source	Infrared Light 940nm
	Indicator Light	No Display
	Sensitivity Adjustment	None
Electrical data	Switching Mode	Light.on(light-on action)
	Output Mode	NPN or PNP collector open
	Response Time	3ms
	Switching Frequency	0.67kHz
	Repeatability	5%
	Hysteresis	≤20%
	Operating Voltage	12~24V DC±10%
	Current Consumption	≤30mA
	Residual Voltage	≤2.0V(50mA)
	Load Current	50mA
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 20MΩ (500VDC)
	Withstand Voltage	500VAC (50/60Hz), 1 Minute between Power Terminal and Housing
	Protection Circuit	Short Circuit Protection/Reverse Polarity Protection/Protection against Mutual Interference
Environmental conditions	Operating Temperature	-25~+55°C(no freezing)
	Storage Temperature	-30~+70°C(no freezing)
	Operating Humidity	30~85%RH(no condensation)
	Storage Humidity	35~95%RH(no condensation)
	Ambient Light	Incandescent light ≤3000 Lux; LED light ≤1000 Lux; Sunlight ≤10000 Lux
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP65
Mechanical data	Maximum Tightening Torque	-
	Connection Method	2m/3-core Cable
	Dimensions	M8x42.0mm
	Material	Stainless Steel
	Weight	about 0.08kg
	Accessories	Nut M8x1
Model	NPN	<b>PM08-D03NO</b>
	PNP	<b>PM08-D03PO</b>

Unit: mm

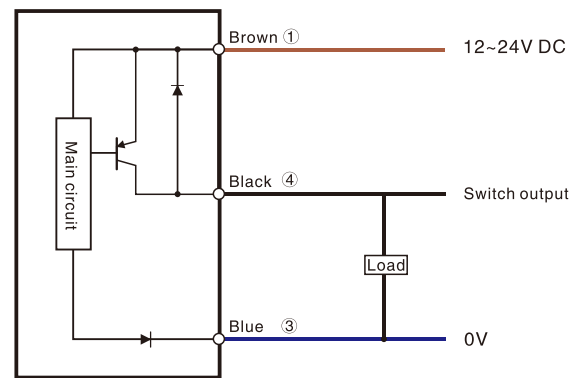


### Circuit diagram

#### NPN Output



#### PNP Output



Fiber Optic

Slot Sensors

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#### Reflectors

Reflectors



# Cylindrical

## PSM12 Series

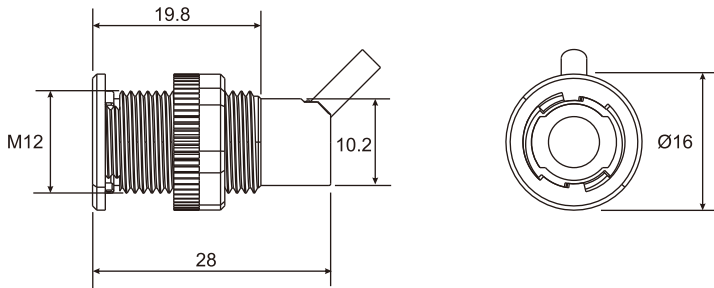


Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Cylindrical	
	Optical Working Principle	Through-beam	
	Detection Range	5000mm	
	Spot Size	-	
	Detected Object	8mm	
	Light Source	Infrared Light	
	Indicator Light	Output Function: Orange LED, Operation Status: Green LED	
	Sensitivity Adjustment	None	
	Electrical data	Switching Mode	L.on (light-on action)
Output Mode		NPN or PNP collector open	
Response Time		2ms	
Switching Frequency		1 kHz	
Repeatability		-	
Hysteresis		-	
Operating Voltage		12~24V DC±10%	
Current Consumption		Transmitter ≤ 18mA, Receiver ≤ 15mA	
Residual Voltage		≤ 1.0V (50mA)	
Load Current		≤ 50mA (24VDC)	
Insulation Resistance		Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
Withstand Voltage		1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
Protection Circuit		Short Circuit Protection/Reverse Polarity Protection	
Environmental conditions		Operating Temperature	-25~+55°C(No Freezing)
	Storage Temperature	-30~+70°C(No Freezing)	
	Operating Humidity	35~85%RH(No Condensation)	
	Storage Humidity	30~90%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; LED Lamp ≤ 5000 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP67	
Mechanical data	Maximum Tightening Torque	-	
	Connection Method	2M/2-core Rubber-insulated Flexible Cable (Emitter) 2M/3-core Rubber-insulated Flexible Cable (Receiver)	
	Dimensions	M12x28.0mm	
	Material	PC	
	Weight	0.025kg	
	Accessories	Nut M12	
Model	NPN	<b>PSM12-TM05NO</b>	<b>PSM12-TM05NC</b>
	PNP	<b>PSM12-TM05PO</b>	<b>PSM12-TM05PC</b>

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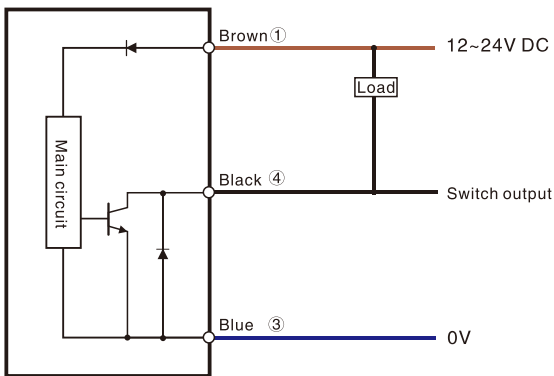
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- Color/Mark Detection
- TOF type
- Reflectors
- Reflectors

Unit: mm

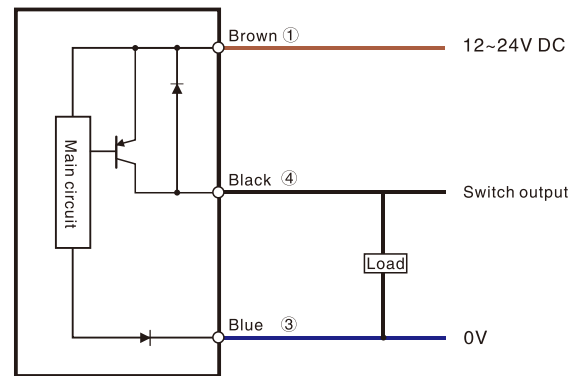


### Circuit diagram

#### NPN Output



#### PNP Output



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Reflectors

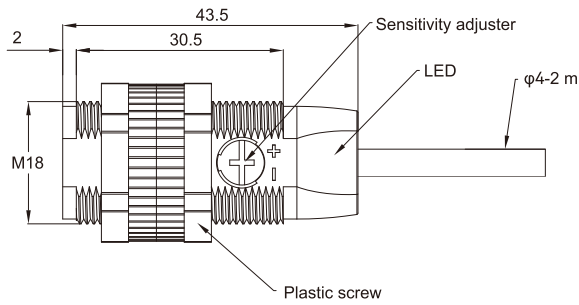
# Cylindrical

## PSM18 Series



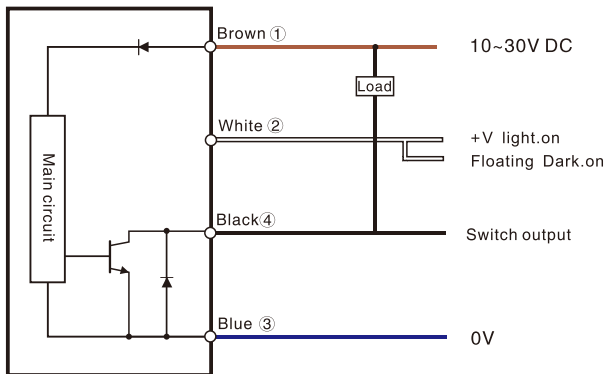
Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Cylindrical	
	Optical Working Principle	Diffuse Reflection	
	Detection Range	100~400mm	
	Spot Size	Ø36.0mm/0.40m	
	Detected Object	7mm	
	Light Source	Red LED	
	Indicator Light	Power Status: Green LED, Operation Status: Red LED	
	Sensitivity Adjustment	1-turn Potentiometer	
	Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable
Output Mode		NPN or PNP collector open	
Response Time		2ms	
Switching Frequency		1 kHz	
Repeatability		5%	
Hysteresis		≤20%	
Operating Voltage		10~30V DC	
Current Consumption		≤25mA	
Residual Voltage		≤1.5V(120mA)	
Load Current		≤120mA(30VDC)	
Insulation Resistance		Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
Withstand Voltage		1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
Protection Circuit		Reverse Polarity Protection/Short Circuit Protection	
Environmental conditions		Operating Temperature	-15~55°C(No Freezing)
		Storage Temperature	-25~80°C(No Freezing)
	Operating Humidity	30~90%RH(No Condensation)	
	Storage Humidity	35~95%RH(No Condensation)	
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; LED Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP67	
Mechanical data	Maximum Tightening Torque	-	
	Connection Method	2m/4-core Cable	
	Dimensions	M18X43.5mm	
	Material	PC	
	Weight	0.05kg	
	Accessories	Nut M18x1	
Model	NPN	<b>PSM18-D40N</b>	
	PNP	<b>PSM18-D40P</b>	

Unit: mm

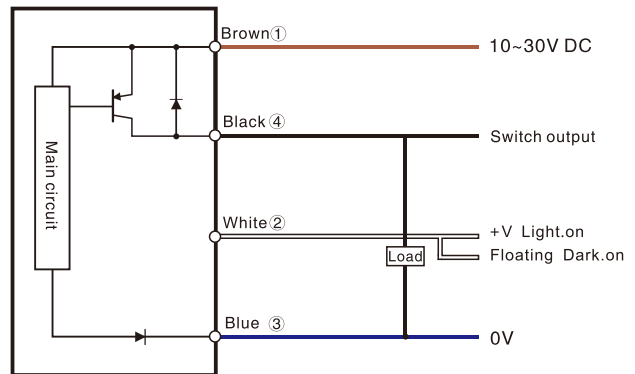


### Circuit diagram

#### NPN Output



#### PNP Output



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Reflectors
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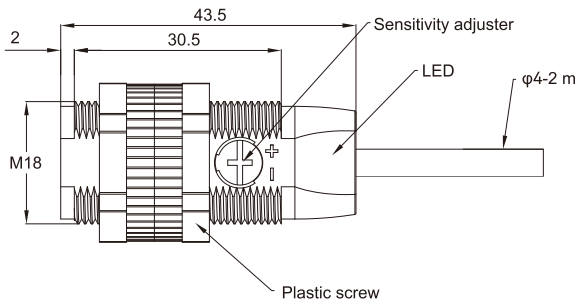
# Cylindrical

## PSM18 Series



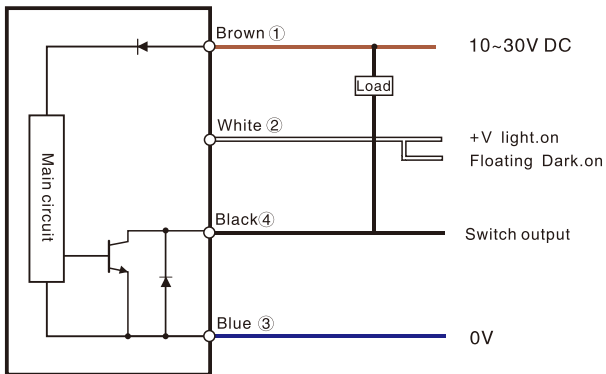
Basic Features	Working Principle	Photoelectric Sensor
	Housing Style	Cylindrical
	Optical Working Principle	Diffuse Reflection
	Detection Range	100~400mm
	Spot Size	Ø36.0mm/0.40m
	Detected Object	7mm
	Light Source	Infrared LED
	Indicator Light	Power Status: Green LED, Operation Status: Red LED
	Sensitivity Adjustment	1-turn Potentiometer
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable
	Output Mode	NPN or PNP collector open
	Response Time	2ms
	Switching Frequency	1 kHz
	Repeatability	5%
	Hysteresis	≤20%
	Operating Voltage	10~30V DC
	Current Consumption	≤25mA
	Residual Voltage	≤1.5V(120mA)
	Load Current	≤120mA(30VDC)
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing
	Protection Circuit	Reverse Polarity Protection/Short Circuit Protection
	Environmental conditions	Operating Temperature
Storage Temperature		-25~80°C(No Freezing)
Operating Humidity		30~90%RH(No Condensation)
Storage Humidity		35~95%RH(No Condensation)
Ambient Light		Incandescent Lamp ≤ 3000 Lux; LED Lamp ≤ 1000 Lux; Sunlight ≤ 10000 Lux
Vibration Resistance		10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes
Protection Rating		IP67
Mechanical data	Maximum Tightening Torque	-
	Connection Method	2m/4-core Cable
	Dimensions	M18X43.5mm
	Material	PC
	Weight	0.05kg
	Accessories	Nut M18x1
Model	NPN	<b>PSM18-DV40N</b>
	PNP	<b>PSM18-DV40P</b>

Unit: mm

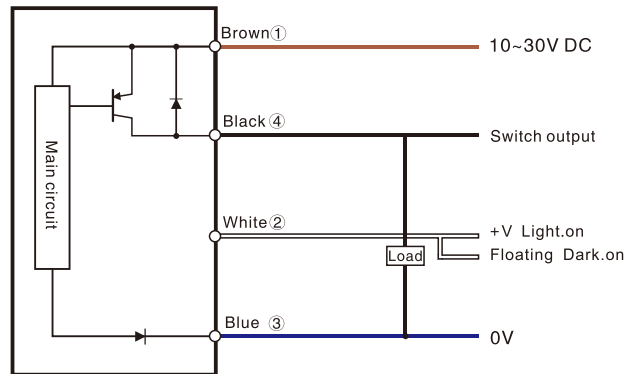


### Circuit diagram

#### NPN Output



#### PNP Output



Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

#### Guidance

#### Photoelectric

Cylindrical

IP69K high protection type

Square

Flat type

Thin type

BGS

Color/Mark Detection

TOF type

#### Reflectors

Reflectors

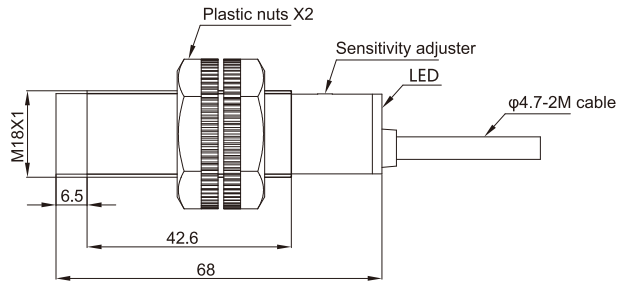
# Cylindrical

## PXM18 Series



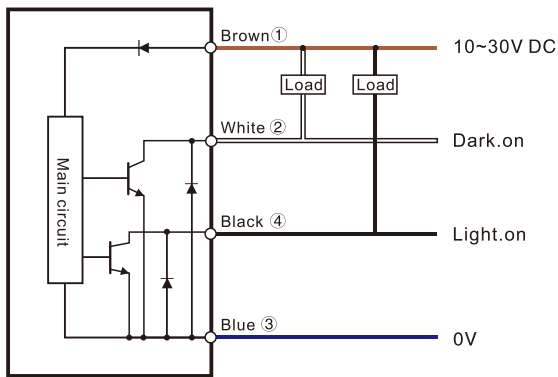
Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Cylindrical	
	Optical Working Principle	Diffuse Reflection	
	Detection Range	100mm	400mm
	Spot Size	Ø8.0mm/0.10m	Not Applicable (Infrared Light)
	Detected Object	-	
	Light Source	-	
	Indicator Light	Power Status: Green LED, Operation Status: Red LED	
	Sensitivity Adjustment	Multi-turn Potentiometer	
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN or PNP collector open	
	Response Time	20ms	
	Switching Frequency	0.1 kHz	
	Repeatability	5%	
	Hysteresis	≤ 10%	
	Operating Voltage	10~30V DC±10%	
	Current Consumption	≤ 30mA	
	Residual Voltage	≤ 2V(100mA)	
	Load Current	≤ 100mA(30VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/Output Short Circuit Protection/Pulse Overvoltage Protection	
	Environmental conditions	Operating Temperature	-25~70°C(No Freezing)
Storage Temperature		-30~80°C(No Freezing)	
Operating Humidity		35~85%RH(No Condensation)	
Storage Humidity		35~95%RH(No Condensation)	
Ambient Light		Incandescent Lamp ≤ 3000 Lux; LED Lamp ≤ 1000 Lux; Sunlight ≤ 10000 Lux	
Vibration Resistance		10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
Protection Rating		IP67	
Mechanical data	Maximum Tightening Torque	1Nm	
	Connection Method	2m/4-core Cable	
	Dimensions	M18X68mm	
	Material	Housing: PBT, Lens: PC	
	Weight	0.091/0.050kg	0.089/0.050kg
	Accessories	Nut M18x1	
Model	NPN	<b>PXM18-D10N</b>	<b>PXM18-D40N</b>
	PNP	<b>PXM18-D10P</b>	<b>PXM18-D40P</b>

Unit: mm

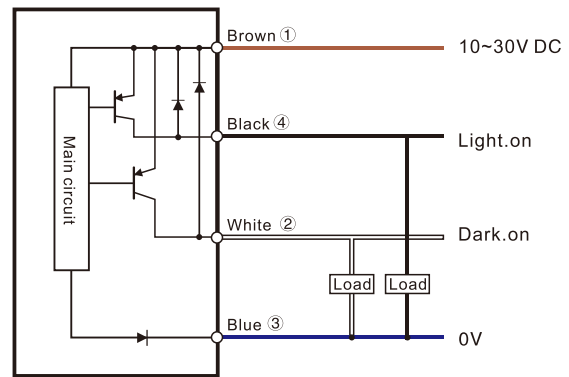


### Circuit diagram

#### NPN Output



#### PNP Output



Fiber Optic

Slot Sensors

**Photoelectric**

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

#### Guidance

#### Photoelectric

Cylindrical

IP69K high protection type

Square

Flat type

Thin type

BGS

Color/Mark Detection

TOF type

#### Reflectors

Reflectors



# IP69K

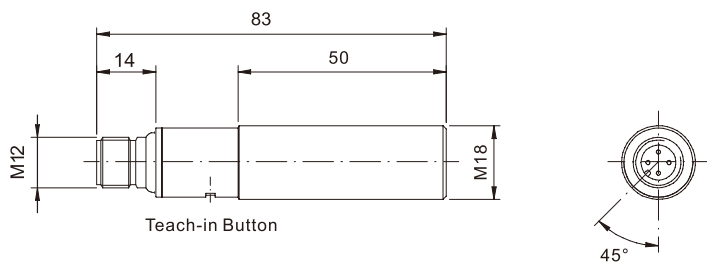
## PM18K Series



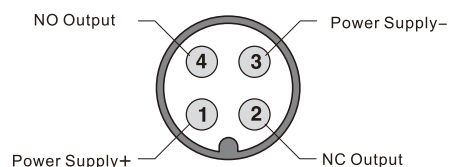
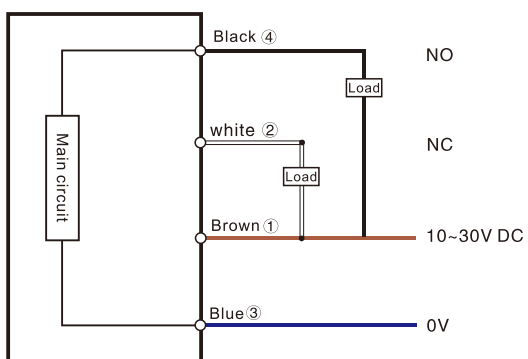
IP69K



Basic Features	Working Principle	Photoelectric Sensor
	Housing Style	Cylindrical
	Optical Working Principle	Diffuse Reflection
	Detection Range	400mm
	Spot Size	-
	Detected Object	-
	Light Source	Infrared Light 880nm
	Indicator Light	Output Function: Yellow LED, Automatic Sensitivity Setting: Green LED
	Sensitivity Adjustment	None
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable
	Output Mode	NPN
	Response Time	2ms
	Switching Frequency	1KHz
	Repeatability	5%
	Hysteresis	≤10%
	Operating Voltage	10~30V DC±10%
	Current Consumption	≤35mA
	Residual Voltage	≤2.0V(100mA)
	Load Current	≤100mA(30VDC)
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing
	Protection Circuit	Reverse Polarity Protection/Transient Overvoltage Protection
	Environmental conditions	Operating Temperature
Storage Temperature		-30~80°C(No Freezing)
Operating Humidity		35~85%RH(No Condensation)
Storage Humidity		35~95%RH(No Condensation)
Ambient Light		Incandescent Lamp ≤ 5000 Lux; Sunlight ≤ 10000 Lux
Vibration Resistance		10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes
Protection Rating		IP67, IP68 (1M, 7M/day); IP69K (meets DIN 40050-9 standard)
Maximum Tightening Torque		-
Mechanical data	Connection Method	M12/4-pin Connector
	Dimensions	M18X83mm
	Material	Stainless Steel 316
	Weight	0.05kg
	Accessories	Nut M18x1
	Model	<b>PM18K-D40NR</b>



Circuit diagram



Fiber Optic
Slot Sensors
<b>Photoelectric</b>
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

<b>Guidance</b>
<b>Photoelectric</b>
Cylindrical
<b>IP69K high protection type</b>
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type
<b>Reflectors</b>
Reflectors

## PTE Series



**NEW!**

**Economical Type**



Basic Features	Working Principle	Photoelectric Sensor			
	Housing Style	Square			
	Optical Working Principle	Diffuse Reflection		Retro-reflective Type	
	Detection Range	5~300mm(Matte White Paper)	1~1000mm(Matte White Paper)	0.5~150mm	
	Spot Size	at 50cm: 1cm x 1cm	at 50cm: 1.8cm x 1.6cm	1cm(150mm)	
	Detected Object	≤5mm		-	
	Light Source	Infrared LED 940nm		Red LED 660nm	
	Indicator Light	Operation Indicator: Green; Action Indicator: Red			
	Sensitivity Adjustment	6-turn Potentiometer			
	Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
Output Mode		NPN or PNP collector open			
Response Time		≤2.5ms	≤1.6ms	≤1ms	
Switching Frequency		2000Hz	300Hz	≥500Hz	
Repeatability		≤5%SN		≤15%	
Hysteresis		< 15%Sr			
Operating Voltage		10~30V DC			
Current Consumption		≤20mA	≤25mA	≤20mA	
Residual Voltage		< 1.5V			
Load Current		100mA			
Insulation Resistance		20MΩ			
Withstand Voltage		≤0.1mA (1000V AC)			
Protection Circuit		Reverse Polarity Protection/Short Circuit Protection/surge protection			
Environmental conditions		Operating Temperature	-25~55°C(No Freezing)		
		Storage Temperature	-30~+70°C		
	Operating Humidity	35~85%RH(No Condensation)			
	Storage Humidity	35~95%RH			
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux			
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes			
	Protection Rating	IP67			
Mechanical data	Maximum Tightening Torque	≤0.1Nm	≤0.5Nm		
	Connection Method	2m/4-core cable, Ø4mm			
	Dimensions	20.0x31.0x11.0mm			
	Material	PBT+Glass Fiber			
	Weight	0.05kg			
	Accessories	Screwdriver			
	Model	NPN	<b>PTE-DV30NR</b>	<b>PTE-DV100NR</b>	<b>PTE-XE15NR</b>
PNP		<b>PTE-DV30PR</b>	<b>PTE-DV100PR</b>	<b>PTE-XE15PR</b>	



**NEW!**

**Economical Type**



Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Retroreflective		
	Detection Range	2m	3m	
	Spot Size	At 2m: 4cm x 4cm		
	Detected Object	18mm		
	Light Source	Red LED 660nm(modulated)		
	Indicator Light	Light Source Indicator Light: Green; Action Indicator Light: Red	Operating indicator light: green, Action indicator light: red	
	Sensitivity Adjustment	Single-turn potentiometer		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN or PNP collector open		
	Response Time	≤1ms		
	Switching Frequency	2Khz		
	Repeatability	-		
	Hysteresis	-		
	Operating Voltage	10~30V DC		
	Current Consumption	≤21mA		
	Residual Voltage	<1.5V (Load Current ≤ 100mA)		
	Load Current	≤100mA		
	Insulation Resistance	-	20MΩ	
	Withstand Voltage	-	0.1mA(1000VAC)	
	Protection Circuit	Reverse Polarity Protection/Short Circuit Protection/ surge protection		
	Environmental conditions	Operating Temperature	-25~55°C(No Freezing)	
Storage Temperature		-30~70°C(No Freezing)		
Operating Humidity		35~85%RH(No Condensation)		
Storage Humidity		35~95%RH		
Ambient Light		Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux		
Vibration Resistance		10~50Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes	
Protection Rating		IP67		
Mechanical data	Maximum Tightening Torque	≤0.5Nm		
	Connection Method	2m/3-core cable, Ø4mm		
	Dimensions	20.0x31.0x11.0mm		
	Material	PBT		
	Weight	0.050kg		
	Accessories	Screwdriver, Bracket, Screws and Nuts		
Model	NPN	<b>PTE-RM2N</b>	<b>PTE-RM3N</b>	
	PNP	<b>PTE-RM2P</b>	<b>PTE-RM3P</b>	

- Fiber Optic
- Slot Sensors
- Photoelectric**
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

**Guidance**

**Photoelectric**

Cylindrical  
IP69K high protection type

**Square**

Flat type  
Thin type  
BGS  
Color/Mark Detection  
TOF type

**Reflectors**

Reflectors



**NEW!**

**Economical Type**

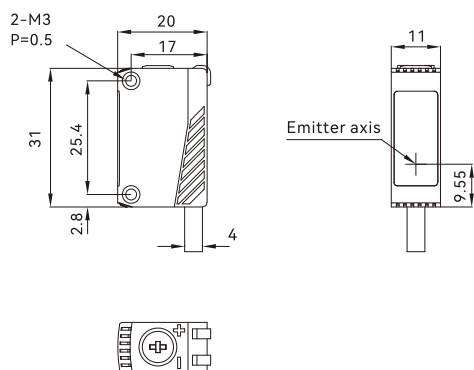


Basic Features	Working Principle	Photoelectric Sensor
	Housing Style	Square
	Optical Working Principle	Through-beam
	Detection Range	10m
	Spot Size	at 1m: 4cm x 4cm
	Detected Object	Ø60mm
	Light Source	Infrared LED
	Indicator Light	Operation Indicator: Green; Action Indicator: Red
	Sensitivity Adjustment	None
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable
	Output Mode	NPN or PNP collector open
	Response Time	≤3.4ms
	Switching Frequency	150Hz
	Repeatability	-
	Hysteresis	-
	Operating Voltage	10~30V DC
	Current Consumption	≤120mA
	Residual Voltage	< 1.5V
	Load Current	15mA
	Insulation Resistance	± 1000V 50/60Hz 60s
	Withstand Voltage	1000VAC (50/60Hz)
	Protection Circuit	Reverse Polarity Protection/Short Circuit Protection
	Environmental conditions	Operating Temperature
Storage Temperature		-30~70°C
Operating Humidity		35~90%RH(No Condensation)
Storage Humidity		35~95%RH
Ambient Light		LED Lamp ≤ 10000 Lux
Vibration Resistance		10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes
Protection Rating		IP67
Mechanical data	Maximum Tightening Torque	≤0.5Nm
	Connection Method	2m/4-core cable
	Dimensions	20.0x31.0x11.0mm
	Material	PC
	Weight	0.05kg
	Accessories	Bracket, Screws
	Model	NPN
	PNP	<b>PTE-TEM10PR</b>

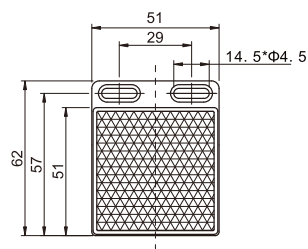
- Fiber Optic
- Slot Sensors
- Photoelectric**
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories
- Guidance
- Photoelectric
  - Cylindrical
  - IP69K high protection type
  - Square**
  - Flat type
  - Thin type
  - BGS
  - Color/Mark Detection
  - TOF type
- Reflectors
  - Reflectors

Unit: mm

PTE-DV30/DV100/XE15

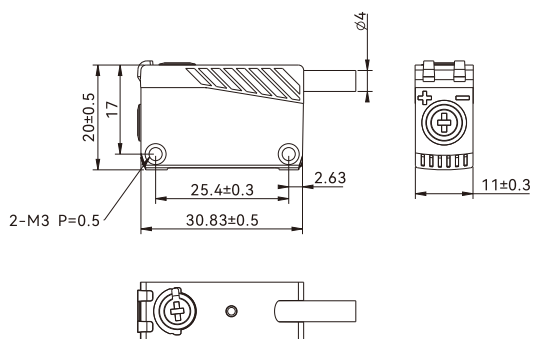


Standard TD-08

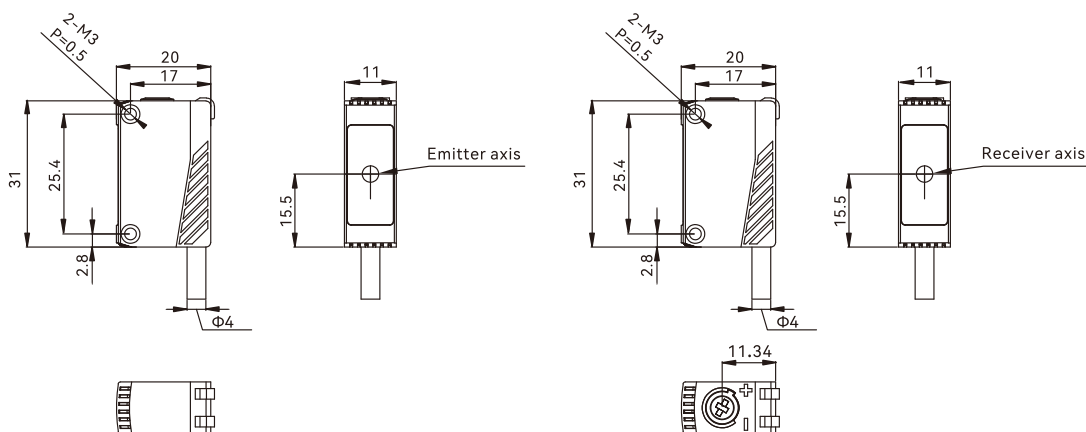


(PTE-RM2/RM3 Standard TD-08)

PTE-RM2/RM3



PTE-TEM10



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
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- Area
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- Temperature
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- Pressure Switch
- Communication
- Accessories

Guidance

Photoelectric

- Cylindrical
- IP69K high protection type
- Square
- Flat type
- Thin type
- BGS
- Color/Mark Detection
- TOF type

Reflectors

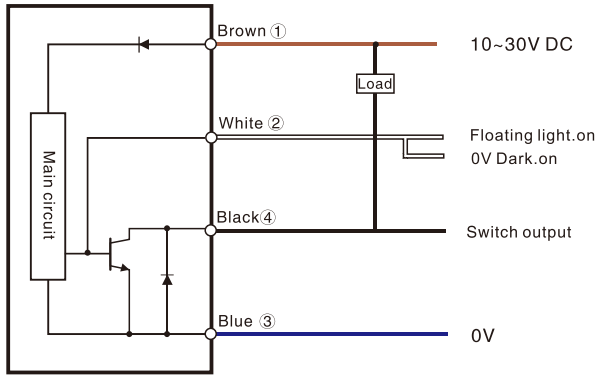
- Reflectors

# Square

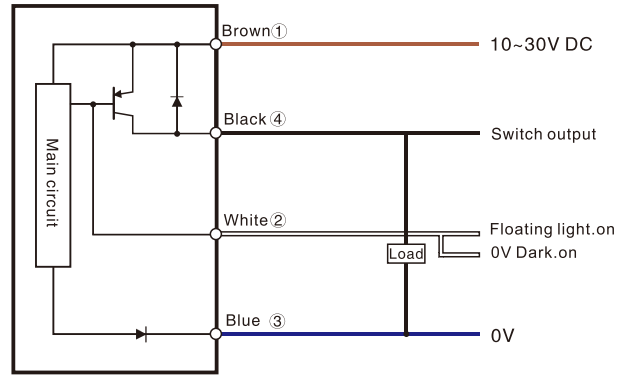
## Circuit diagram

### PTE-DV30/DV100/XE15/TEM10

#### NPN Output

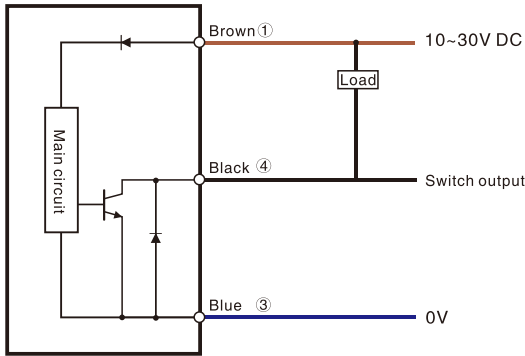


#### PNP Output

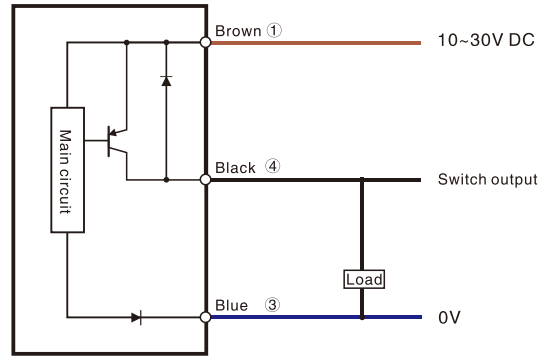


### PTE-RM2/RM3

#### NPN Output



#### PNP Output



Fiber Optic

Slot Sensors

**Photoelectric**

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

#### Guidance

#### Photoelectric

Cylindrical

IP69K high protection type

**Square**

Flat type

Thin type

BGS

Color/Mark Detection

TOF type

#### Reflectors

Reflectors



Wide Facula Type



Basic Features	Working Principle	Photoelectric Sensor			
	Housing Style	Square			
	Optical Working Principle	Diffuse Reflection			
	Detection Range	5~200mm	100mm	200mm	
	Spot Size	Ø130.0mm/0.20m	Not Applicable (Infrared Light)		
	Detected Object	-			
	Light Source	Infrared LED 940nm(modulated)			
	Indicator Light	Output Function: Red LED, Operation Status: Green LED			
	Sensitivity Adjustment	6-turn Potentiometer			
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable			
	Output Mode	NPN or PNP collector open			
	Response Time	< 1ms			
	Switching Frequency	2 kHz			
	Repeatability	≤5%			
	Hysteresis	≤20%			
	Operating Voltage	10~30V DC			
	Current Consumption	≤25mA	≤20mA		
	Residual Voltage	≤1.5V(100mA)			
	Load Current	≤100mA(30VDC)			
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)			
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing			
	Protection Circuit	Reverse Polarity Protection/Output Reverse Polarity Protection/Short Circuit Protection/Surge Protection			
	Environmental conditions	Operating Temperature	-25~55°C(No Freezing)		
		Storage Temperature	-30~70°C(No Freezing)		
Operating Humidity		35~85%RH(No Condensation)			
Storage Humidity		35~95%RH(No Condensation)			
Ambient Light		Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux			
Vibration Resistance		10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes			
Protection Rating		IP65			
Mechanical data	Maximum Tightening Torque	≤0.5Nm			
	Connection Method	2m/3-core cable			
	Dimensions	11.0x31.0x20.0mm			
	Material	PBT+Glass Fiber			
	Weight	0.05kg	0.049kg	0.05kg	
	Accessories	Screwdriver			
Model	NPN	<b>PTEW-D20N</b>	<b>PTVW-D10N</b>	<b>PTVW-D20N</b>	
	PNP	<b>PTEW-D20P</b>	<b>PTVW-D10P</b>	<b>PTVW-D20P</b>	

- Fiber Optic
- Slot Sensors
- Photoelectric**
- Laser
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Guidance

**Photoelectric**

Cylindrical  
IP69K high protection type

**Square**

Flat type  
Thin type  
BGS  
Color/Mark Detection  
TOF type

**Reflectors**

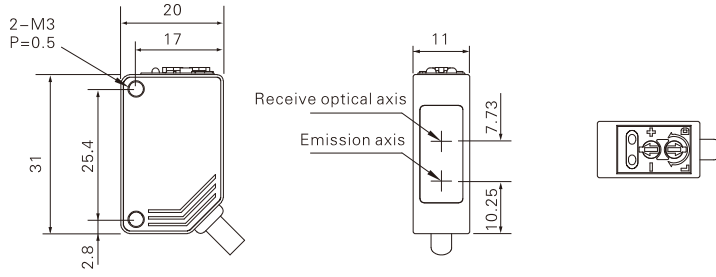
Reflectors



# Square

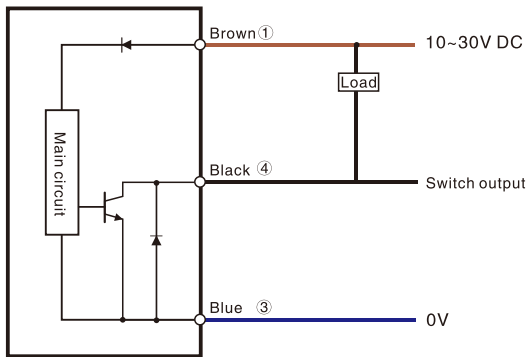
## Dimensions

Unit: mm

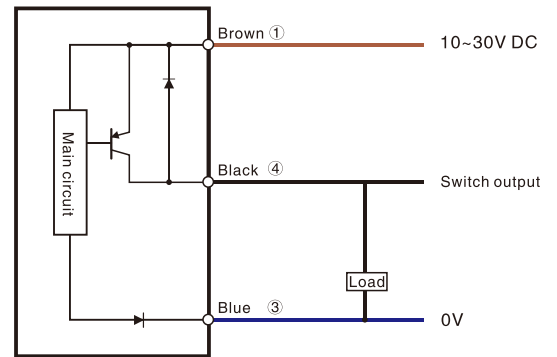


## Circuit diagram

### NPN Output



### PNP Output



### Guidance

#### Photoelectric

Cylindrical  
IP69K high protection type

#### Square

Flat type

Thin type

BGS

Color/Mark Detection

TOF type

#### Reflectors

Reflectors



Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Diffuse Reflection		Retro-reflective Type
	Detection Range	10~300mm	5~1000mm	5~140mm
	Spot Size	Not Applicable (Infrared Light)		
	Detected Object	-		
	Light Source	Infrared LED 940nm(modulated)		
	Indicator Light	Output Function: Red LED, Operation Status: Green LED		
	Sensitivity Adjustment	1-turn Potentiometer		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN or PNP collector open		
	Response Time	< 1ms		
	Switching Frequency	2 kHz		
	Repeatability	5%		
	Hysteresis	≤20%		
	Operating Voltage	10~30V DC		
	Current Consumption	≤25mA		
	Residual Voltage	≤1.5V(100mA)		
	Load Current	≤100mA(30VDC)		
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)		
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing		
	Protection Circuit	Reverse Polarity Protection/Output Reverse Polarity Protection/Short Circuit Protection/Surge Protection		
	Environmental conditions	Operating Temperature	-25~55°C(No Freezing)	
Storage Temperature		-30~70°C(No Freezing)		
Operating Humidity		35~85%RH(No Condensation)		
Storage Humidity		35~95%RH(No Condensation)		
Ambient Light		LED Lamp ≤ 600 Lux	LED Lamp ≤ 1000 Lux	
Vibration Resistance		10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes		
Protection Rating		IP65		
Mechanical data	Maximum Tightening Torque	≤0.5Nm		
	Connection Method	2m/3-core cable		
	Dimensions	11.0x31.0x20.0mm		
	Material	PBT+Glass Fiber		
	Weight	0.05kg		
	Accessories	Screwdriver		
Model	NPN	PTV-D30N	PTV-D70N	PTV-X09N
	PNP	PTV-D30P	PTV-D70P	PTV-X09P

- Fiber Optic
- Slot Sensors
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- Accessories

Guidance

Photoelectric

- Cylindrical
- IP69K high protection type

Square

- Flat type
- Thin type
- BGS
- Color/Mark Detection
- TOF type

Reflectors

- Reflectors

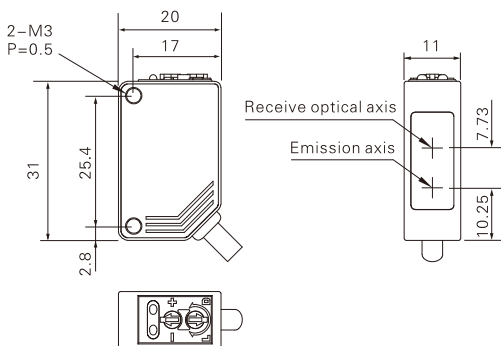


Basic Features	Working Principle	Photoelectric Sensor			
	Housing Style	Square			
	Optical Working Principle	Through-beam			
	Detection Range	20000mm (Fixed)	20000mm	5000mm	
	Spot Size	Not Applicable (Infrared Light)			
	Detected Object	Ø10mm		Ø60mm	
	Light Source	Infrared LED 940nm(modulated)			
	Indicator Light	Output Function: Red LED, Operation Status: Green LED			
	Sensitivity Adjustment	None			
	Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
Output Mode		NPN or PNP collector open			
Response Time		≤ 5ms			
Switching Frequency		0.4 kHz			
Repeatability		-			
Hysteresis		-			
Operating Voltage		10~30V DC			
Current Consumption		≤ 20mA			
Residual Voltage		≤ 1.5V(100mA)			
Load Current		-			
Insulation Resistance		Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)			
Withstand Voltage		1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing			
Protection Circuit		Reverse Polarity Protection/short Circuit Protection/surge Protection			
Environmental conditions		Operating Temperature	-25~55°C(No Freezing)		
	Storage Temperature	-30~70°C(No Freezing)			
	Operating Humidity	35~85%RH(No Condensation)			
	Storage Humidity	35~95%RH(No Condensation)			
	Ambient Light	LED Lamp ≤ 600 Lux	-		
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes			
	Protection Rating	IP65			
Mechanical data	Maximum Tightening Torque	≤ 0.5Nm			
	Connection Method	2m/3-core cable			
	Dimensions	11.0x31.0x20.0mm			
	Material	PBT+Glass Fiber			
	Weight	0.095/0.05kg	0.05kg	0.095/0.05kg	0.095/0.05kg
	Accessories	Screwdriver			
	Model	NPN	<b>PTV-TM20NO</b>	<b>PTV-TM20NC</b>	<b>PTV-TM20AN</b>
PNP		<b>PTV-TM20PO</b>	<b>PTV-TM20PC</b>	<b>PTV-TM20AP</b>	<b>PTV-T500P</b>

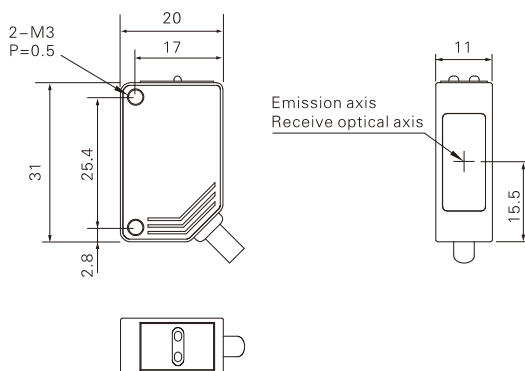
Unit: mm

Dimensions

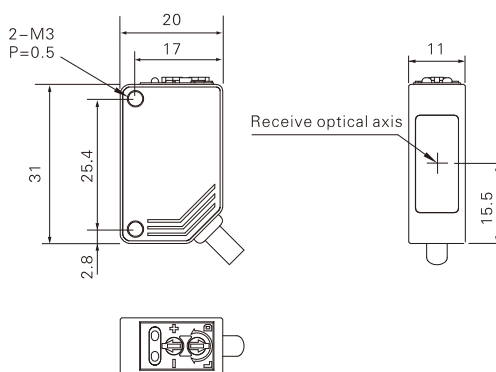
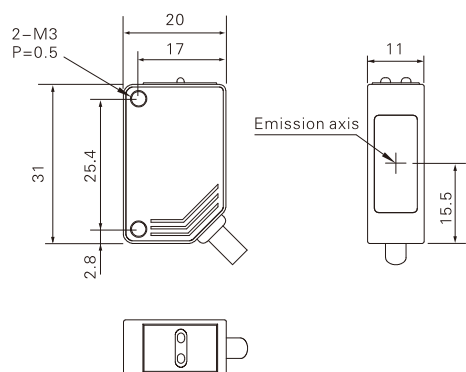
PTV-D30、PTV-D70、PTV-X09



PTV-TM20NO/PO/NC/PC

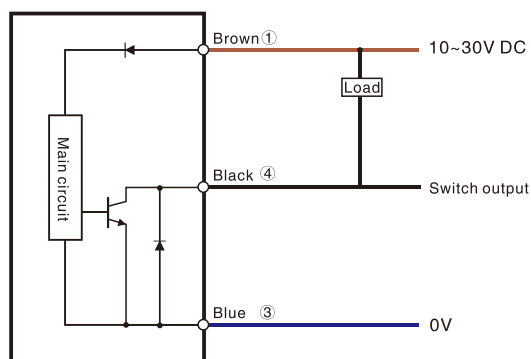


PTV-TM20AN/AP、PTV-T500

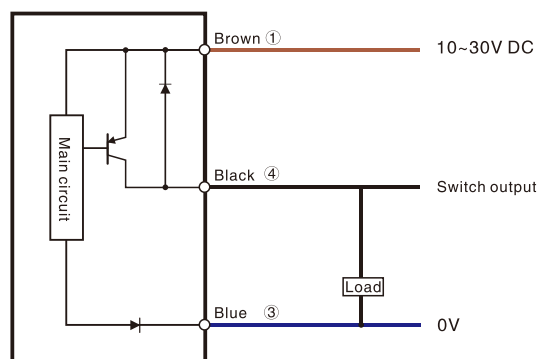


Circuit diagram

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric

Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

Reflectors

Reflectors
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# Square

## PTN Series



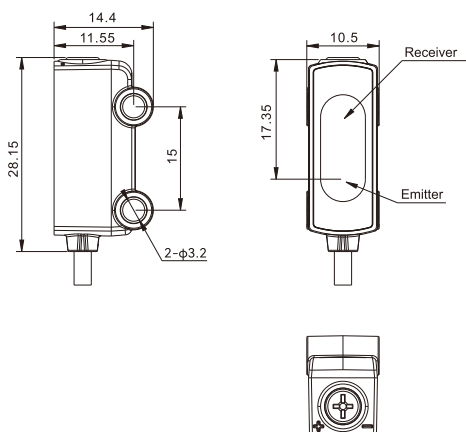
- Fiber Optic
- Slot Sensors
- Photoelectric**
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories
- Guidance

Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Background suppression diffuse reflection		Through-beam
	Detection Range	Adjustable up to 100mm, >5mm objects	White Paper: 1-100mm, Blue Paper: 1-95mm, Black Paper: 10-80mm (White Paper set at 100mm)	Fixed at 1.5m, >5mm objects
	Spot Size	-		
	Detected Object	Objects >5mm	Φ5mm Opaque Objects	-
	Light Source	Red LED 637nm	Blue LED 465nm (Modulated)	Red LED 637nm
	Indicator Light	-		
	Sensitivity Adjustment	-		
	Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
Output Mode		NPN or PNP collector open		
Response Time		≤1.2ms	≤1ms	≤1.2ms
Switching Frequency		850Hz	-	850Hz
Repeatability		< 1%Sr		
Hysteresis		≤20%MAX		
Operating Voltage		12~24DC±10%		
Current Consumption		≤18mA	<20mA	≤15mA
Residual Voltage		<2V (Load current <100mA)	<1V	<2V (Load current <100mA/ <100mA/<50mA/<50mA)
Load Current		<100mA	≤100mA(24V)	<100mA/<100mA/<50mA/<50mA
Insulation Resistance		≥50MΩ(500VDC)		
Withstand Voltage		± 500V 50/60Hz60s		
Protection Circuit		Reverse Polarity Protection/short Circuit Protection/ surge Protection		
Environmental conditions		Operating Temperature	-25°C~55°C, No Freezing; No Condensation	
	Storage Temperature	-10°C~55°C		
	Operating Humidity	35~85%RH		
	Storage Humidity	35~95%RH		
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux		Incandescent Lamp ≤500 Lux; Sunlight ≤ 10000 Lux
	Vibration Resistance	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP67	IP65	-
	Mechanical data	Maximum Tightening Torque	≤0.5Nm	
Connection Method		Φ2.5*2m/3cable		
Dimensions		28.15x14.7x10.5mm		
Material		-		
Weight		-	about 0.024kg	-
Accessories		Installation Screws		
Model	NPN D.on	<b>PTN-B10NC</b>	<b>PTN-BY10NC</b>	<b>PTN-T150NC</b>
	PNP L.on	<b>PTN-B10NO</b>	<b>PTN-BY10NO</b>	<b>PTN-T150NO</b>
	PNP D.on	<b>PTN-B10PC</b>	<b>PTN-BY10PC</b>	<b>PTN-T150PC</b>
	NPN L.on	<b>PTN-B10PO</b>	<b>PTN-BY10PO</b>	<b>PTN-T150PO</b>

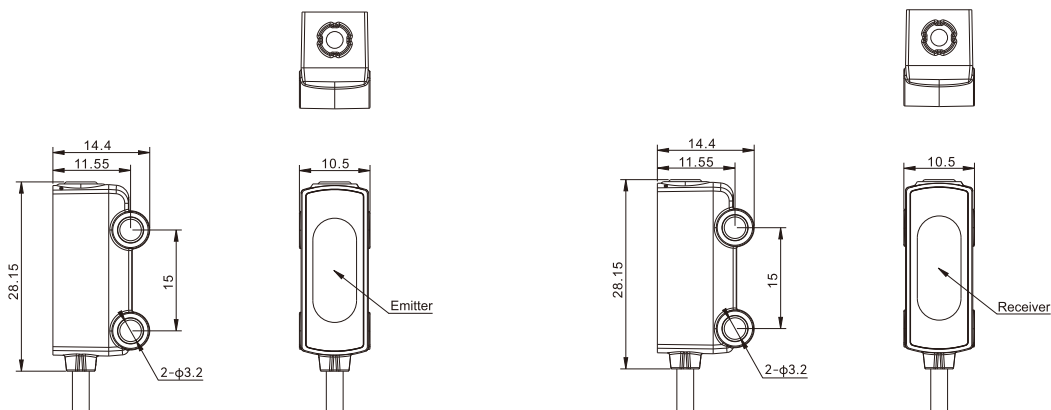
- Photoelectric**
- Cylindrical
- IP69K high protection type
- Square**
- Flat type
- Thin type
- BGS
- Color/Mark Detection
- TOF type
- Reflectors**
- Reflectors

Unit: mm

PTN-B10/BY10

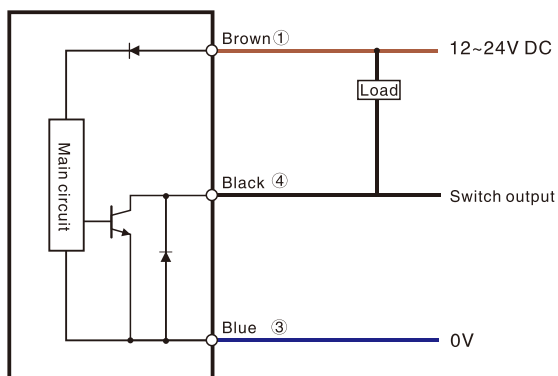


PTN-T150

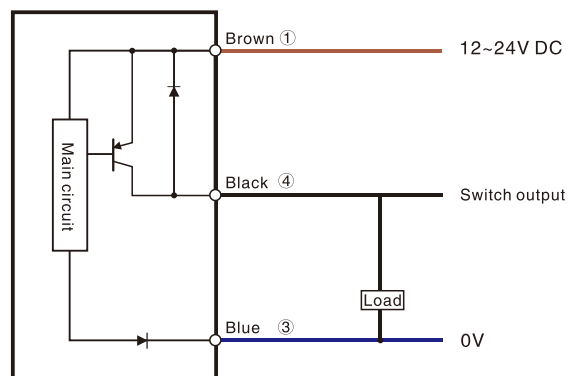


Circuit diagram

NPN Output



PNP Output



Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

Guidance

Photoelectric

Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

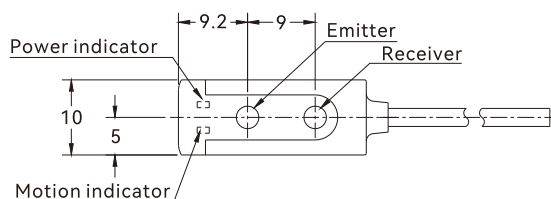
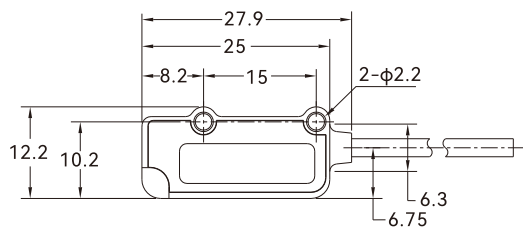
Reflectors

Reflectors
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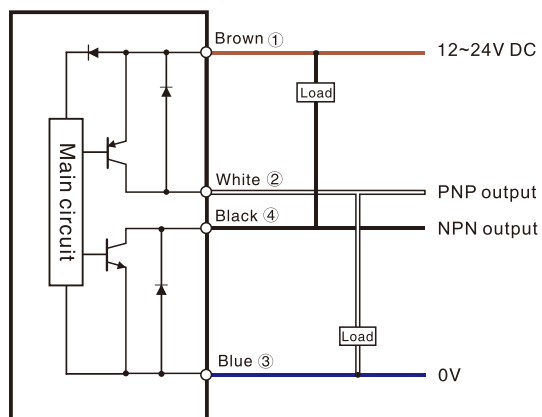


Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Square	
	Optical Working Principle	Diffuse Reflection	Through-beam
	Detection Range	5cm, White Paper 100*100mm(≥5cm)	50cm
	Spot Size	Not Applicable (Infrared Light)	
	Detected Object	White Paper: 100x100mm	Ø1mm
	Light Source	Infrared LED 940nm	
	Indicator Light	Output Function: Red LED, Operation Status: Green LED	
	Sensitivity Adjustment	None	
	Electrical data	Switching Mode	L.on (light-on action)
Output Mode		NPN or PNP collector open	
Response Time		≤1ms	
Switching Frequency		2 kHz	
Repeatability		5%	-
Hysteresis		≤20%	-
Operating Voltage		12~24V DC±10%	
Current Consumption		≤20mA	≤30mA
Residual Voltage		≤1.5V(100mA)	
Load Current		≤100mA(24VDC)	
Insulation Resistance		Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
Withstand Voltage		1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
Protection Circuit		Reverse Power Protection, Output Short Circuit Protection	
Environmental conditions		Operating Temperature	-10~45°C(No Freezing)
	Storage Temperature	-10~55°C(No Freezing)	
	Operating Humidity	35~85%RH(No Condensation)	
	Storage Humidity	35~95%RH(No Condensation)	
	Ambient Light	-	LED Lamp ≤ 600 Lux
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP64	
Mechanical data	Maximum Tightening Torque	-	
	Connection Method	2m/3-core cable	2m/4-core cable, 2m/3-core cable
	Dimensions	10.0x27.9x12.2mm	
	Material	ABS	
	Weight	0.019/0.02kg	0.038/0.040kg
	Accessories	Installation Screws	
Model	NPN	<b>PTN-D05N</b>	<b>PTN-T50N</b>
	PNP	<b>PTN-D05P</b>	<b>PTN-T50P</b>

Unit: mm



### Circuit diagram



Fiber Optic
Slot Sensors
<b>Photoelectric</b>
Laser
Proximity
Displacement
Magnetic
Contact
Area
Ultrasonic
AI Image
Code Readers
Vibration
Temperature
RFID
Safety door lock
Pressure Switch
Communication
Accessories

#### Guidance

#### Photoelectric

Cylindrical
IP69K high protection type
<b>Square</b>
Flat type
Thin type
BGS
Color/Mark Detection
TOF type

#### Reflectors

Reflectors
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# Square

## PTJ-I Series

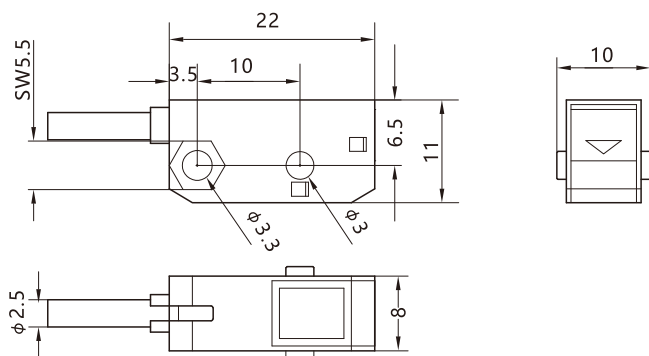


Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Through-beam		
	Detection Range	800mm (Fixed)	1500mm (Fixed)	
	Spot Size	Not Applicable (Infrared Light)		
	Detected Object	Ø6mm		
	Light Source	Infrared Light 850nm		
	Indicator Light	Output function: Yellow LED(Receiver end),operational status: Green LED(Transmitter end)		
	Sensitivity Adjustment	None		
	Electrical data	Switching Mode	L.on (Light On Action) / D.on (Darkening Action) Model Optional	
Output Mode		NPN or PNP collector open		
Response Time		< 33ms		
Switching Frequency		0.06 kHz		
Repeatability		-		
Hysteresis		-		
Operating Voltage		12~24V DC		
Current Consumption		Transmitter end ≤20mA, Receiver end ≤20mA		
Residual Voltage		≤2.0V(50mA)		
Load Current		≤50mA(24VDC)		
Insulation Resistance		Insulation Resistance between Power Terminal and Housing ≥ 20MΩ (500VDC)		
Withstand Voltage		1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing		
Protection Circuit		Reverse Polarity Protection/short Circuit Protection		
Environmental conditions		Operating Temperature	-20~50°C(No Freezing)	
		Storage Temperature	-30~70°C(No Freezing)	
	Operating Humidity	35~90%RH(No Condensation)		
	Storage Humidity	35~90%RH(No Condensation)		
	Ambient Light	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux		
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes		
	Protection Rating	IP64		
Mechanical data	Maximum Tightening Torque	-		
	Connection Method	2m/3-core cable		
	Dimensions	10.0x22.0x11.0mm		
	Material	PC/ABS		
	Weight	0.045kg	0.042kg	
	Accessories	None		
	Model	NPN L.on	<b>PTJ-T80NO-I</b>	<b>PTJ-T150NO-I</b>
NPN D.on		<b>PTJ-T80NC-I</b>	<b>PTJ-T150NC-I</b>	
PNP L.on		<b>PTJ-T80PO-I</b>	<b>PTJ-T150PO-I</b>	
PNP D.on		<b>PTJ-T80PC-I</b>	<b>PTJ-T150PC-I</b>	

- Fiber Optic
- Slot Sensors
- Photoelectric**
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories
- Guidance

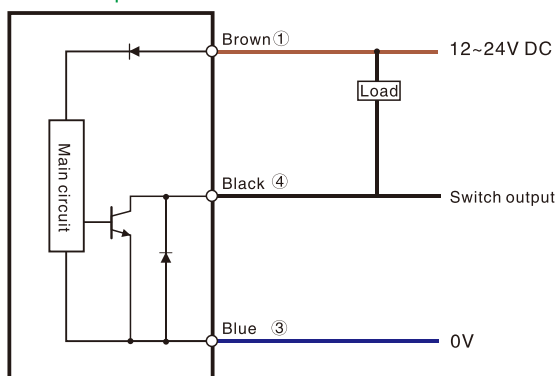
- Photoelectric**
- Cylindrical
- IP69K high protection type
- Square**
- Flat type
- Thin type
- BGS
- Color/Mark Detection
- TOF type
- Reflectors**
- Reflectors

Unit: mm

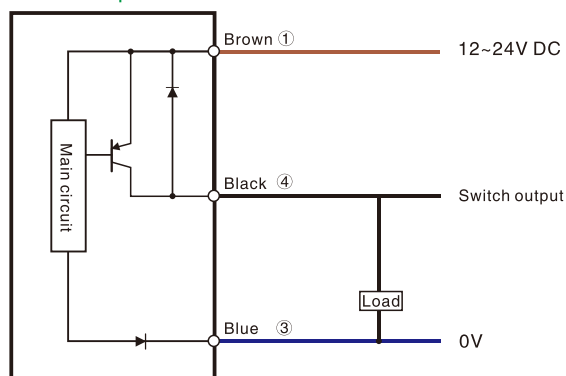


### Circuit diagram

#### NPN Output



#### PNP Output



- Fiber Optic
- Slot Sensors
- Photoelectric**
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

#### Guidance

#### Photoelectric

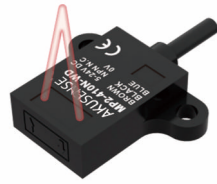
- Cylindrical
- IP69K high protection type
- Square**
- Flat type
- Thin type
- BGS
- Color/Mark Detection
- TOF type

#### Reflectors

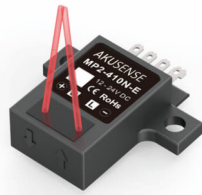
- Reflectors

# Flat Type

## MP2 Series



Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Flat Square	
	Optical Working Principle	Diffuse Reflection	
	Detection Range	2.5~8.0mm	
	Spot Size	Not Applicable (Infrared Light)	
	Detected Object	-	
	Light Source	Red LED 880nm	
	Indicator Light	Red LED	
	Sensitivity Adjustment	None	
Electrical data	Switching Mode	L.on (Light On Action) / D.on (Darkening Action) Model Optional	
	Output Mode	NPN or PNP collector open	
	Response Time	≤1ms	
	Switching Frequency	2 kHz	
	Repeatability	5%	
	Hysteresis	≤20%	
	Operating Voltage	12~24V DC	
	Current Consumption	-	
	Residual Voltage	≤3.0V(100mA)	
	Load Current	≤100mA(24VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/surge Protection	
	Environmental conditions	Operating Temperature	-10~55°C(No Freezing)
Storage Temperature		-25~80°C(No Freezing)	
Operating Humidity		45~85%RH(No Condensation)	
Storage Humidity		35~90%RH(No Condensation)	
Ambient Light		Incandescent Lamp ≤ 3500 Lux; Sunlight ≤ 3500 Lux	
Vibration Resistance		10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
Protection Rating		IP50	
Mechanical data	Maximum Tightening Torque	-	
	Connection Method	2m/3-core cable	
	Dimensions	26.0x20.5x7.0mm	
	Material	PC	
	Weight	0.023kg	
	Accessories	-	
	Model	NPN D.on	<b>MP2-410N-WD</b>
NPN L.on		<b>MP2-410N-WL</b>	<b>MP2-412N-WL</b>
PNP D.on		<b>MP2-410P-WD</b>	<b>MP2-412P-WD</b>
PNP L.on		<b>MP2-410P-WL</b>	<b>MP2-412P-WL</b>



Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Flat Square	
	Optical Working Principle	Diffuse Reflection	
	Detection Range	40mm	
	Spot Size	Not Applicable (Infrared Light)	
	Detected Object	-	
	Light Source	Infrared Light 850nm	
	Indicator Light	operational status: Green LED	
	Sensitivity Adjustment	None	
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
	Output Mode	NPN or PNP collector open	
	Response Time	≤1ms	
	Switching Frequency	2 kHz	
	Repeatability	5%	
	Hysteresis	≤20%	
	Operating Voltage	12~24V DC	
	Current Consumption	≤20mA	≤25mA
	Residual Voltage	<2.5V(Load current 100mA)	
	Load Current	≤100mA(24VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 20MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/surge Protection	
	Environmental conditions	Operating Temperature	-20~55°C(No Freezing)
Storage Temperature		-25~80°C(No Freezing)	
Operating Humidity		45~85%RH(No Condensation)	
Storage Humidity		35~90%RH(No Condensation)	
Ambient Light		Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux	
Vibration Resistance		10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	
Protection Rating		IP50	
Mechanical data	Maximum Tightening Torque	-	
	Connection Method	4-pin Connector	
	Dimensions	26.0x20.0x8.0mm	26.0x20.0x9.0mm
	Material	PC	
	Weight	0.003kg	
	Accessories	Installation Screws	
Model	NPN	<b>MP2-410N-E</b> <span style="color: red; font-size: small;">(HOT)</span>	<b>MP2-412N-E</b>
	PNP	<b>MP2-410P-E</b>	<b>MP2-412P-E</b>

- Fiber Optic
- Slot Sensors
- Photoelectric**
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

#### Guidance

#### Photoelectric

Cylindrical  
IP69K high protection type

Square

**Flat type**

Thin type

BGS

Color/Mark Detection

TOF type

#### Reflectors

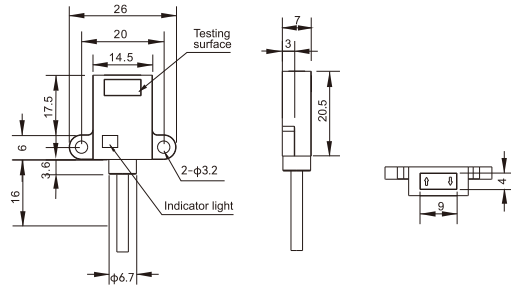
Reflectors

# Flat Type

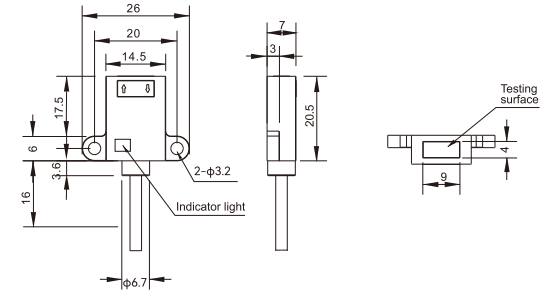
## Dimensions

Unit: mm

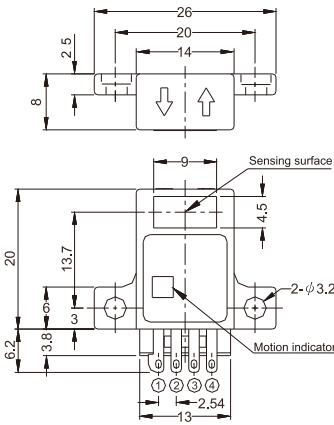
MP2-410□-W□



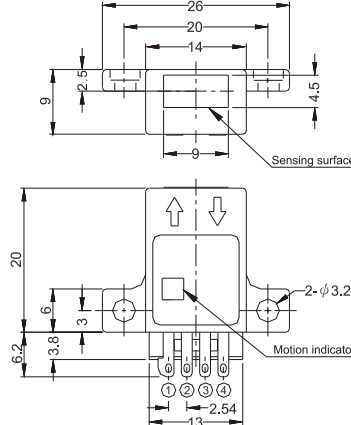
MP2-412□-W□



MP2-410N(P)-E



MP2-412N(P)-E

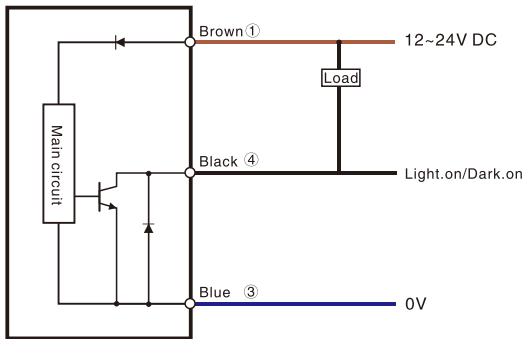


- ①: ○ Brown
- ②: ○ OUT1 White
- ③: ○ OUT2 Black
- ④: ○ Blue

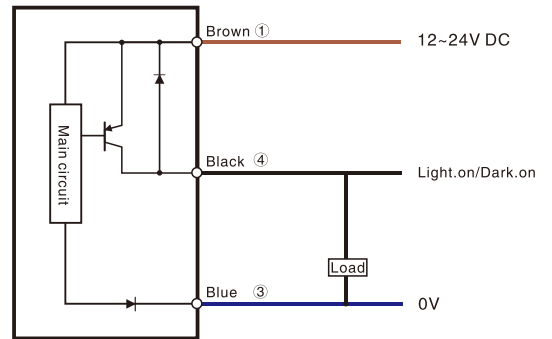
Connection cable: ME-1007

## Circuit diagram

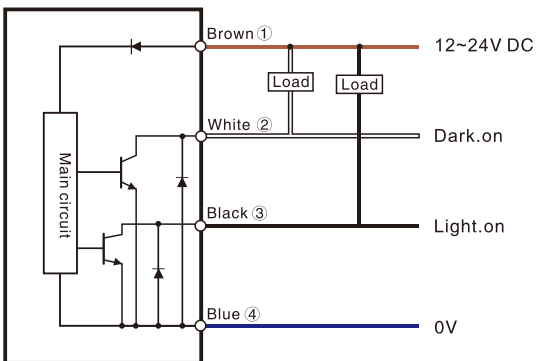
MP2-410□-W□ MP2-412□-W□  
NPN



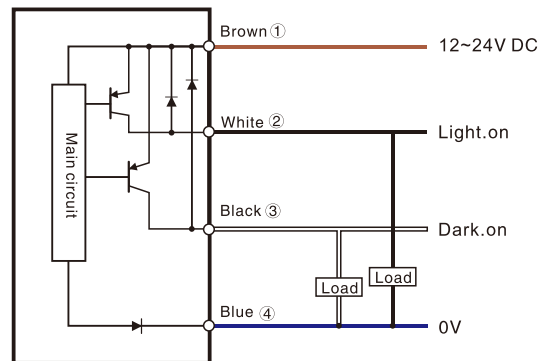
PNP



MP2-410N(P)-E MP2-412N(P)-E  
NPN Output



PNP Output





Basic Features	Working Principle	Photoelectric Sensor	
	Housing Style	Flat Square	
	Optical Working Principle	Diffuse Reflection	Through-beam
	Detection Range	White Paper:1~25mm	0~500mm
	Spot Size	Not Applicable (Infrared Light)	
	Detected Object	φ1.5mm opaque object(at 10mm) ,φ20mm opaque object(at 25mm)	φ1.5mm opaque object
	Light Source	Infrared LED 950nm(modulated)	Infrared LED 945nm(modulated)
	Indicator Light	Output Indicator Light: Orange Power Indicator Light: Green	
Sensitivity Adjustment	None		
Electrical data	Switching Mode	L.on (Light On Action) / D.on (Darkening Action) Model Optional	
	Output Mode	NPN or PNP collector open	
	Response Time	≤2ms	≤1ms
	Switching Frequency	250Hz	800Hz
	Repeatability	<5%	
	Hysteresis	<15%Sr	
	Operating Voltage	10~30V DC±10%	
	Current Consumption	≤20mA	—
	Residual Voltage	≤2.0V(50mA)	
	Load Current	≤50mA(30VDC)	
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 50MΩ (500VDC)	
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing	
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection/surge Protection	
	Environmental conditions	Operating Temperature	-20~55°C(No Freezing)
Storage Temperature		-30°C~+60°C	
Operating Humidity		35~85%RH(No Condensation)	
Storage Humidity		35~95%RH(No Condensation)	
Ambient Light		Incandescent Lamp ≤ 3000 Lux; LED Lamp ≤ 1000/3000/200 Lux; Sunlight ≤ 10000 Lux	
Vibration Resistance		10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes	
Protection Rating		IP67	
Mechanical data	Maximum Tightening Torque	—	
	Connection Method	2m/3-core cable	
	Dimensions	13.25x20.5x3.5mm	10.25x20.5x4.0mm
	Material	PC	
	Weight	0.022kg	0.044kg
	Accessories	Installation Screws	
Model	NPN L.on	<b>ESL-25NO</b>	<b>ESL-TV50NO</b>
	NPN D.on	<b>ESL-25NC</b>	<b>ESL-TV50NC</b>
	PNP L.on	<b>ESL-25PO</b>	<b>ESL-TV50PO</b>
	PNP D.on	<b>ESL-25PC</b>	<b>ESL-TV50PC</b>

Fiber Optic  
Slot Sensors  
**Photoelectric**  
Laser  
Proximity  
Displacement  
Magnetic  
Contact  
Area  
Ultrasonic  
AI Image  
Code Readers  
Vibration  
Temperature  
RFID  
Safety door lock  
Pressure Switch  
Communication  
Accessories

## Guidance

## Photoelectric

Cylindrical  
IP69K high protection type

Square

Flat type

**Thin type**

BGS

Color/Mark Detection

TOF type

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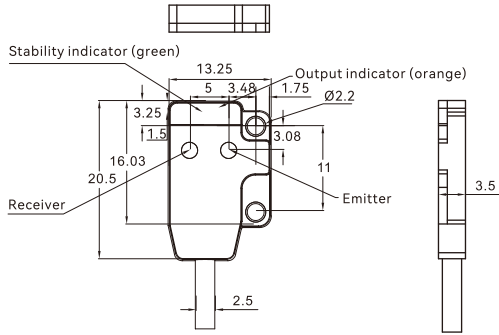
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# Thin Type

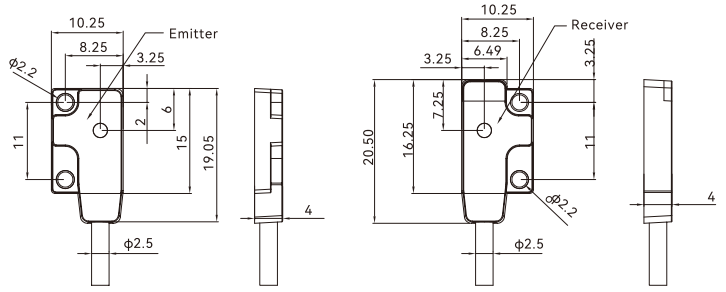
## Dimensions

Unit: mm

ESL-25

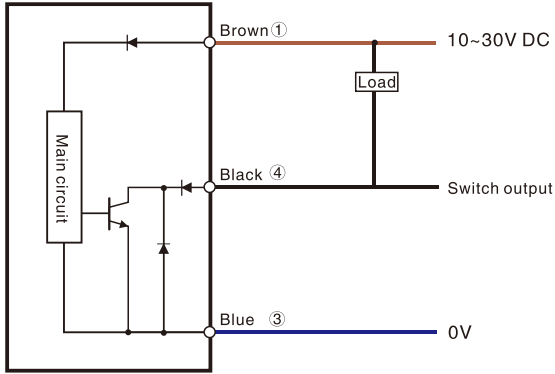


ESL-TV50

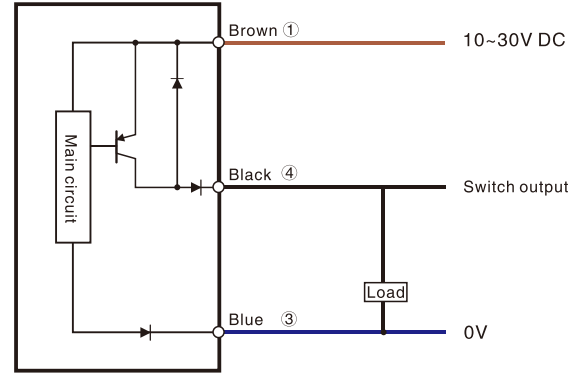


## Circuit diagram

NPN Output



PNP Output



Guidance

Photoelectric

Cylindrical  
IP69K high protection type

Square

Flat type

Thin type

BGS

Color/Mark Detection

TOF type

Reflectors

Reflectors



NEW!



NEW!



Basic Features	Working Principle	Photoelectric Sensor			
	Housing Style	Square			
	Optical Working Principle	Background suppression diffuse reflection			
	Detection Range	2~150mm	2~300mm(Matte White Paper)		
	Spot Size	–	Ø2mm/150m	Ø8mm/300mm	
	Detected Object	–			
	Light Source	Red LED 660nm(modulated)			
	Indicator Light	Operation Indicator: Green; Action Indicator: Red	Have	Operation Indicator: Green; Action Indicator: Red	
	Sensitivity Adjustment	6-turn Potentiometer			
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable			
	Output Mode	NPN or PNP collector open			
	Response Time	≤1ms			
	Switching Frequency	–			
	Repeatability	–			
	Hysteresis	≤5%	≤5%(Matte White Paper)	–	
	Operating Voltage	10~30V DC			
	Current Consumption	≤25mA	≤20mA		
	Residual Voltage	< 1.5V			
	Load Current	≤100mA			
	Insulation Resistance	20MΩ			
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing			
	Protection Circuit	Reverse Polarity Protection/ short Circuit Protection/surge Protection	Reverse Polarity Protection/short Circuit Protection/ surge Protection/Interference Light Protection		
	Environmental conditions	Operating Temperature	–25°C~+55°C	–10~70°C(No Freezing)	
Storage Temperature		–30°C~+70°C	–25~80°C(No Freezing)		
Operating Humidity		35~85%RH(No Condensation)			
Storage Humidity		35~95%RH(No Condensation)			
Ambient Light		Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux			
Vibration Resistance		10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes			
Protection Rating		IP67			
Mechanical data	Maximum Tightening Torque	–			
	Connection Method	–			
	Dimensions	31*20*11mm			
	Material	PBT + Glass Fiber (Housing); PMMA (Lens)			
	Weight	0.05kg			
	Accessories	Screwdriver	Screwdriver, Bracket, Screws and Nuts	Screwdriver	
Model	NPN	<b>ESB-BS15N</b>	<b>ESB-BS15AN</b>	<b>ESB-BS30N</b>	<b>ESB-BS30AN</b>
	PNP	<b>ESB-BS15P</b>	<b>ESB-BS15AP</b>	<b>ESB-BS30P</b>	<b>ESB-BS30AP</b>

Fiber Optic  
Slot Sensors  
Photoelectric  
Laser  
Proximity  
Displacement  
Magnetic  
Contact  
Area  
Ultrasonic  
AI Image  
Code Readers  
Vibration  
Temperature  
RFID  
Safety door lock  
Pressure Switch  
Communication  
Accessories

## Guidance

## Photoelectric

Cylindrical

IP69K high protection type

Square

Flat type

Thin type

BGS

Color/Mark Detection

TOF type

## Reflectors

Reflectors



ESB Series



**NEW!**



Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Background suppression diffuse reflection		
	Detection Range	1~100mm	1~300mm	
	Spot Size	65x0.5mm/100m	Ø8mm/300mm	
	Detected Object	Ø5mm(at 50mm)	≤5mm	
	Light Source	Red LED	Infrared LED 940nm(modulated)	
	Indicator Light	Output Indicator Light: Orange; Light Source Indicator Light: Green	Output Function: Red LED, Operation Status: Green LED	
	Sensitivity Adjustment	4-turn Potentiometer	6-turn Potentiometer	
	Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable	
Output Mode		NPN or PNP collector open		
Response Time		≤0.3ms	1ms	
Switching Frequency		≤2000Hz	2kHz	
Repeatability		≤5%		
Operating Voltage		10~24V DC	10~30V DC	
Current Consumption		≤20mA	≤25mA	
Residual Voltage		<1V	≤1.5V	
Load Current		100mA	≤100mA(30VDC)	
Insulation Resistance		≥20MΩ(250V DC)	20MΩ	
Withstand Voltage		≤0.1mA (1000V AC)		
Protection Circuit		Reverse Polarity Protection/short Circuit Protection/surge Protection/Interference Light Protection	Reverse Polarity Protection/short Circuit Protection/surge Protection	
Environmental conditions		Operating Temperature	-30℃~+70℃(No Freezing)	-25℃~+55℃(No Freezing)
		Storage Temperature	-30~70℃(No Freezing)	
	Operating Humidity	35%~85%RH(No Condensation)		
	Storage Humidity	35%~95%RH		
	Ambient Light	Incandescent Lamp ≤ 5000 Lux; LED Lamp ≤2000 Lux; Sunlight ≤ 20000 Lux	Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux	
	Vibration Resistance	10~50Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes	10~50Hz, amplitude 0.5mm, 2 hours each in X/Y/Z axes	
	Protection Rating	IP66	IP65	
Mechanical data	Maximum Tightening Torque	-		
	Connection Method	-		
	Dimensions	11.0x20.0x31.0mm		
	Material	Housing: ABS with Glass Fiber, Lens: PMMA	ABS with Glass Fiber	
	Weight	0.044kg	0.049kg	
	Accessories	Screwdriver		
	Model	NPN	<b>ESB-BL10N</b>	<b>ESB-BV30N</b>
PNP		<b>ESB-BL10P</b>	<b>ESB-BV30P</b>	

- Fiber Optic
- Slot Sensors
- Photoelectric**
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories
- Guidance
- Photoelectric**
  - Cylindrical
  - IP69K high protection type
  - Square
  - Flat type
  - Thin type
  - BGS**
  - Color/Mark Detection
  - TOF type
- Reflectors
  - Reflectors



Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Background suppression diffuse reflection		
	Detection Range	White Paper:2~300mm		
	Spot Size	Ø16mm/300mm		
	Detected Object	-	5mm/0.05m	
	Light Source	Red LED 623nm(modulated)	Blue LED 465nm(modulated)	
	Indicator Light	Operation Indicator: Green; Action Indicator: Red		
	Sensitivity Adjustment	6-turn Potentiometer		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN or PNP collector open		
	Response Time	≤1.5ms		
	Switching Frequency	≤500Hz		
	Repeatability	≤5%		
	Hysteresis	≤5%		
	Operating Voltage	10~30V DC		
	Current Consumption	≤25mA	≤20mA	
	Residual Voltage	≤1.5V(100mA)		
	Load Current	≤100mA		
	Insulation Resistance	50MΩ	≥50MΩ(500VDC)	
	Withstand Voltage	≤0.1mA (1000V AC)		
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection/surge Protection/Interference Light Protection		
	Environmental conditions	Operating Temperature	-25°C~+55°C(No Freezing)	
		Storage Temperature	-30°C~+70°C(No Freezing)	
Operating Humidity		35%~85%RH(No Condensation)		
Storage Humidity		35%~95%RH(No Condensation)		
Ambient Light		Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux		
Vibration Resistance		10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes		
Protection Rating		IP67		
Mechanical data	Maximum Tightening Torque	-		
	Connection Method	-		
	Dimensions	11.0x31.0x20.0mm		
	Material	PBT + Glass Fiber		
	Weight	0.045kg		
	Accessories	Screwdriver		
Model	NPN	<b>ESB-B30N</b>	<b>ESB-BY30N</b>	
	PNP	<b>ESB-B30P</b>	<b>ESB-BY30P</b>	

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

Contact

Area

Ultrasonic

AI Image

Code Readers

Vibration

Temperature

RFID

Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Photoelectric

Cylindrical

IP69K high protection type

Square

Flat type

Thin type

BGS

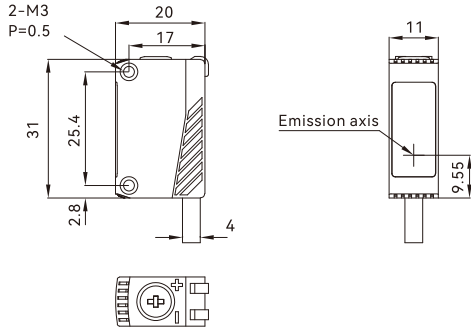
Color/Mark Detection

TOF type

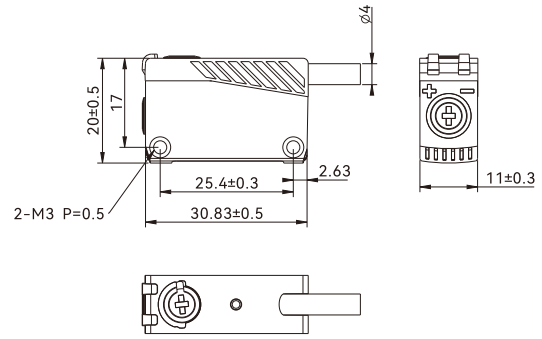
Reflectors

Reflectors

ESB-B30/BL10/BS15/BS30/BV30/BY30N(P)



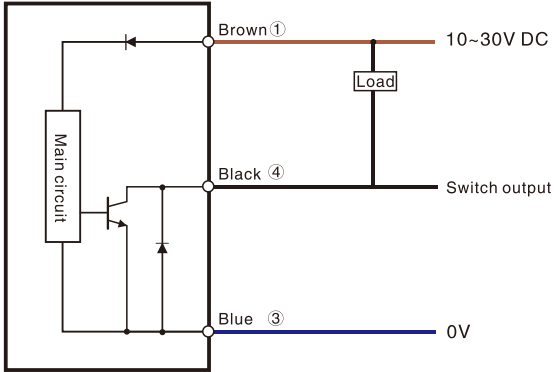
ESB-BS15AN/AP  
ESB-BS30AN/AP



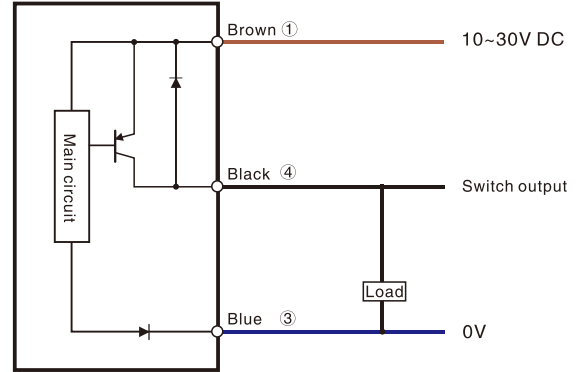
Circuit diagram

ESB-BS15AN/AP ESB-BS30AN/AP

NPN Output

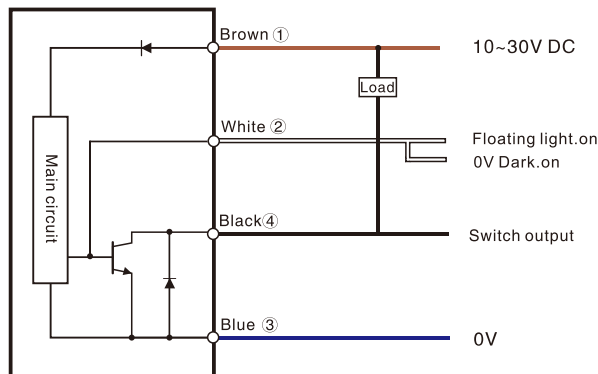


PNP Output

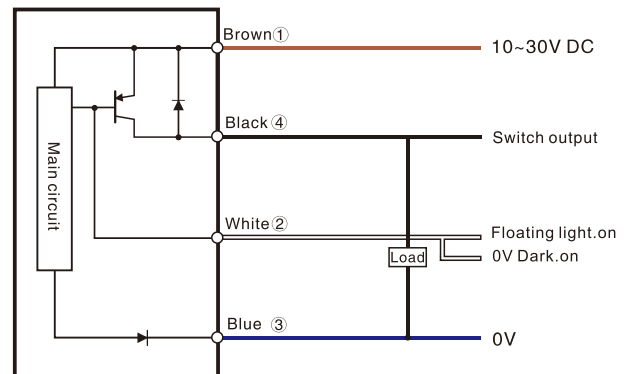


ESB-B30/BL10/BS15/BS30/BV30/BY30N(P)

NPN Output



PNP Output



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

Guidance

- Photoelectric
  - Cylindrical
  - IP69K high protection type
  - Square
  - Flat type
  - Thin type
  - BGS**
  - Color/Mark Detection
  - TOF type
- Reflectors
  - Reflectors



Basic Features	Working Principle	Photoelectric Sensor		
	Housing Style	Square		
	Optical Working Principle	Diffuse Reflection		
	Detection Range	10mm(±3mm)		
	Spot Size	1*6mm (Set Distance: 10mm)		
	Detected Object	-		
	Light Source	Red/Blue/Green Composite LED (Wavelength 625nm/470nm/525nm)		
	Indicator Light	Output Status - Orange		
	Sensitivity Adjustment	7-segment 8-digit Display (Red: 4 digits, Green: 4 digits)		
Electrical data	Switching Mode	L.on (light-on action)/D.on (dark-on action) switchable		
	Output Mode	NPN collector open	PNP collector open	
	Response Time	Color Mark Mode 0.05ms, Color Mode 0.2ms		
	Switching Frequency	≤6kHz		
	Repeatability	5%SN		
	Hysteresis	5%		
	Operating Voltage	12-24V DC±10%		
	Current Consumption	≤35mA(24V DC)		
	Residual Voltage	<1.5V(Load current < 50mA)		
	Load Current	< 50mA		
	Insulation Resistance	Insulation Resistance between Power Terminal and Housing ≥ 20MΩ (250VDC)		
	Withstand Voltage	1000VAC (50/60Hz), 1 Minute between Power Terminal and Housing		
	Protection Circuit	Reverse Polarity Protection/short Circuit Protection/surge Protection		
	Environmental conditions	Operating Temperature	-10°C~+50°C(No Freezing)	
		Storage Temperature	-20°C~+70°C(No Freezing)	
Operating Humidity		35%~95%RH(No Condensation)		
Storage Humidity		35%~85%RH(No Condensation)		
Ambient Light		Incandescent Lamp ≤ 3000 Lux; Sunlight ≤ 10000 Lux		
Vibration Resistance		10~50Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes		
Protection Rating		IP67		
Mechanical data	Maximum Tightening Torque	-		
	Connection Method	2m/3-core cable, Ø4mm		
	Dimensions	57*35*24mm		
	Material	PC		
	Weight	0.05kg		
	Accessories	Installation Screws		
Model	NPN	<b>ESE-10N</b>		
	PNP	<b>ESE-10P</b>		

Fiber Optic
Slot Sensors
<b>Photoelectric</b>
Laser
Proximity
Displacement
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Safety door lock
Pressure Switch
Communication
Accessories

### Guidance

#### Photoelectric

Cylindrical
IP69K high protection type
Square
Flat type
Thin type
BGS
<b>Color/Mark Detection</b>
TOF type

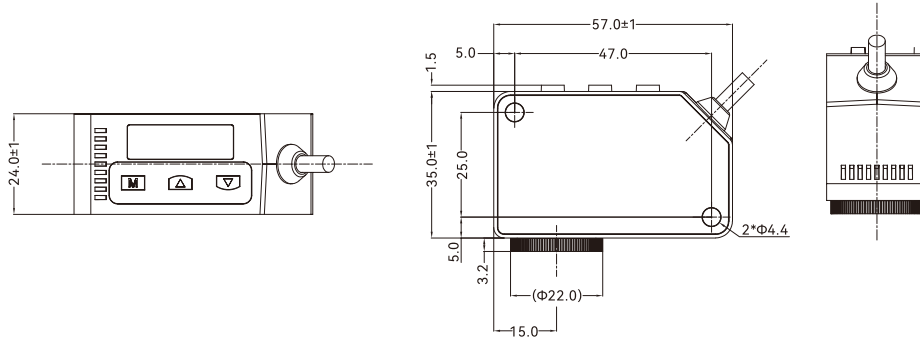
#### Reflectors

Reflectors
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# Color/Mark Detection

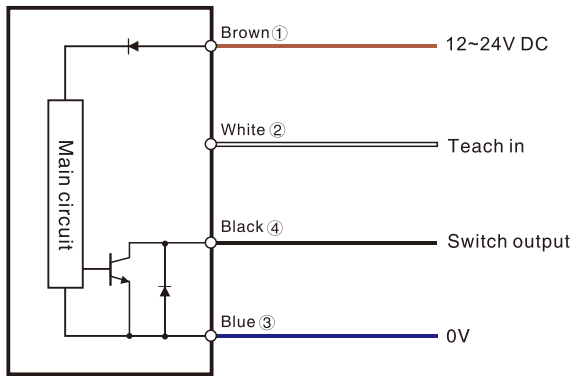
## Dimensions

Unit: mm

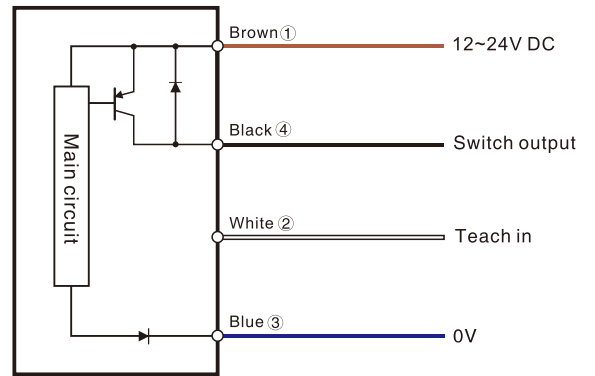


## Circuit diagram

### NPN Output



### PNP Output



### Guidance

#### Photoelectric

Cylindrical

IP69K high protection type

Square

Flat type

Thin type

BGS

#### Color/Mark Detection

TOF type

#### Reflectors

Reflectors



Basic Features	Working Principle	TOF Principle
	Housing Style	Square
	Optical Working Principle	D-TOF Principle
	Detection Range	0.05-1m @5% Reflectance; 0.05-2m @30% Reflectance
	Spot Size	<5mm@2m
	Detected Object	-
	Light Source	Laser Diode 650nm, Class 2
	Indicator Light	Action Indicator (Orange), Stability/Communication Indicator (Green)
	Sensitivity Adjustment	-
Electrical data	Switching Mode	NC/NO switchable
	Output Mode	Instant/Delayed Response Mode, switching by pressing the button for different durations
	Response Time	1ms
	Switching Frequency	1000HZ
	Repeatability	± 5mm
	Hysteresis	-
	Operating Voltage	9~30VDC
	Current Consumption	≤30mA
	Residual Voltage	<1V
	Load Current	≤100mA
	Insulation Resistance	≥50MΩ(500VDC)
	Withstand Voltage	1000VAC (50/60Hz)
	Protection Circuit	Reverse Power Protection, Output Short Circuit Protection, Output Reverse Connection Protection
Environmental conditions	Operating Temperature	-20°C~+55°C
	Storage Temperature	-40~+70°C
	Operating Humidity	35%~85%RH(No Condensation)
	Storage Humidity	35%~95%RH(No Condensation)
	Ambient Light	Ambient light >3000 lux
	Vibration Resistance	10~55Hz, amplitude 1.5mm, 2 hours each in X/Y/Z axes
	Protection Rating	IP67
Mechanical data	Maximum Tightening Torque	-
	Connection Method	0.2mm 3-core PVC Cable, Length 2 meters (Customizable cable length)
	Dimensions	37x30x15mm
	Material	Housing: PC+ABS; Lens: PMMA
	Weight	0.045kg
Model	Accessories	-
	NPN	<b>ELT-M3BN</b>
PNP	<b>ELT-M3BP</b>	

Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

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Safety door lock

Pressure Switch

Communication

Accessories

Guidance

Photoelectric

Cylindrical

IP69K high protection type

Square

Flat type

Thin type

BGS

Color/Mark Detection

TOF type

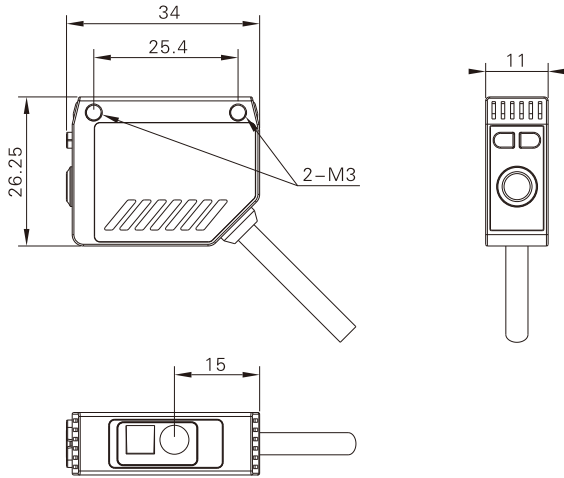
Reflectors

Reflectors

# TOF

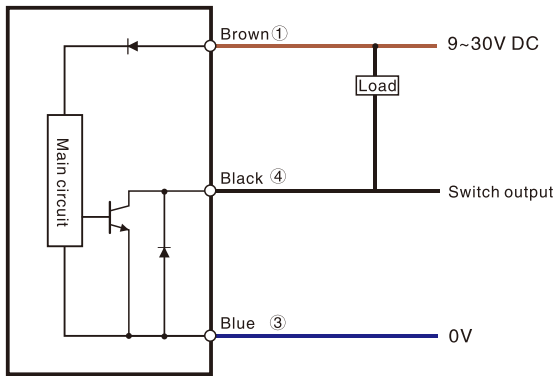
## Dimensions

Unit: mm

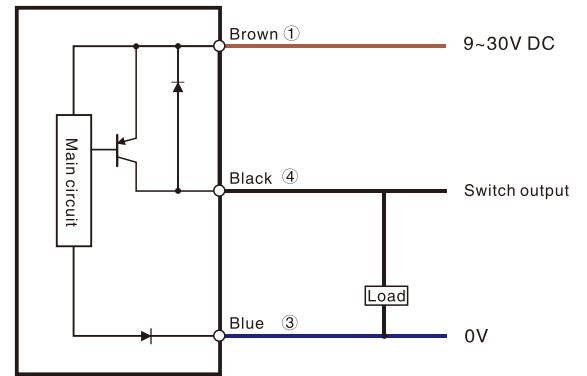


## Circuit diagram

### NPN Output



### PNP Output



### Guidance

#### Photoelectric

Cylindrical

IP69K high protection type

Square

Flat type

Thin type

BGS

Color/Mark Detection

TOF type

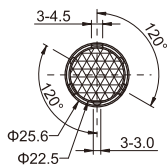
#### Reflectors

Reflectors

Unit: mm

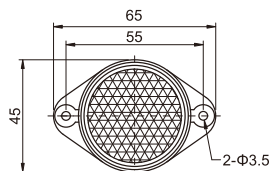
Dimensions

**STD-06**



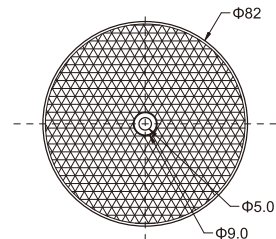
Thickness: 8mm

**TD-04**



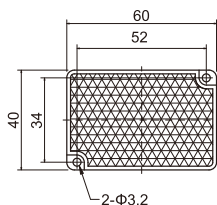
Thickness: 8mm

**TD-05**



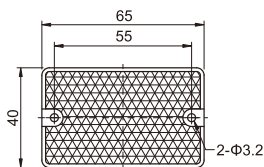
Thickness: 8mm

**TD-09**



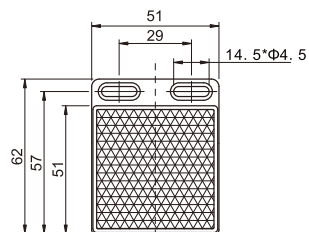
Thickness: 8mm

**TD-02**



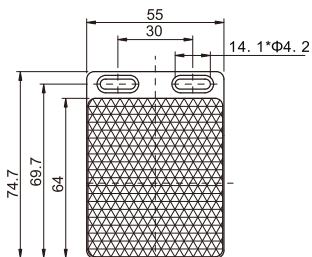
Thickness: 8mm

**TD-08**



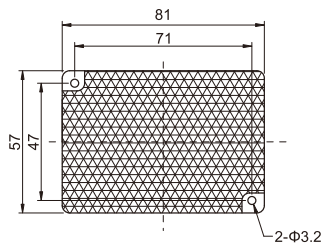
Thickness: 8mm

**TD-01**



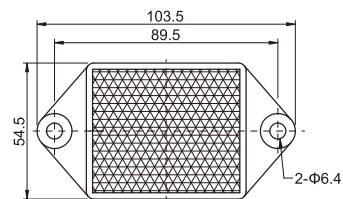
Thickness: 8mm

**TD-03**



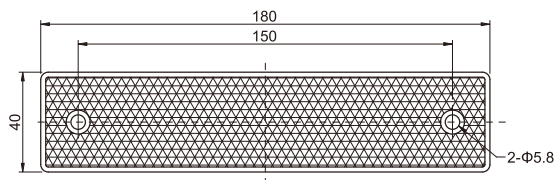
Thickness: 8mm

**TD-01-3**



Thickness: 8mm

**TD-10**



Thickness: 8mm

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
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- Ultrasonic
- AI Image
- Code Readers
- Vibration
- Temperature
- RFID
- Safety door lock
- Pressure Switch
- Communication
- Accessories

**Guidance**

**Photoelectric**

- Cylindrical
- IP69K high protection type
- Square
- Flat type
- Thin type
- BGS
- Color/Mark Detection
- TOF type

**Reflectors**

- Reflectors

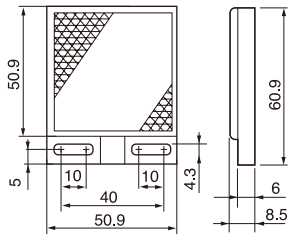


# Reflectors

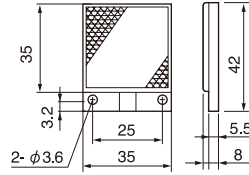
Dimensions

Unit: mm

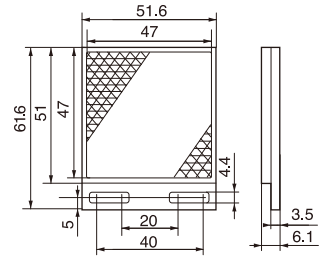
TD-11



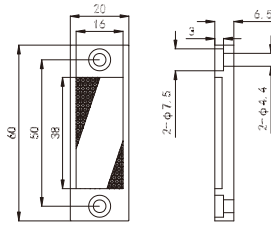
TD-12



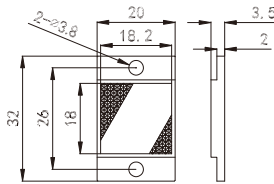
TD-13



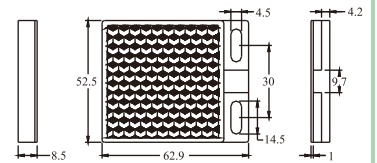
TD-14



TD-15



TD-22



Fiber Optic

Slot Sensors

Photoelectric

Laser

Proximity

Displacement

Magnetic

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