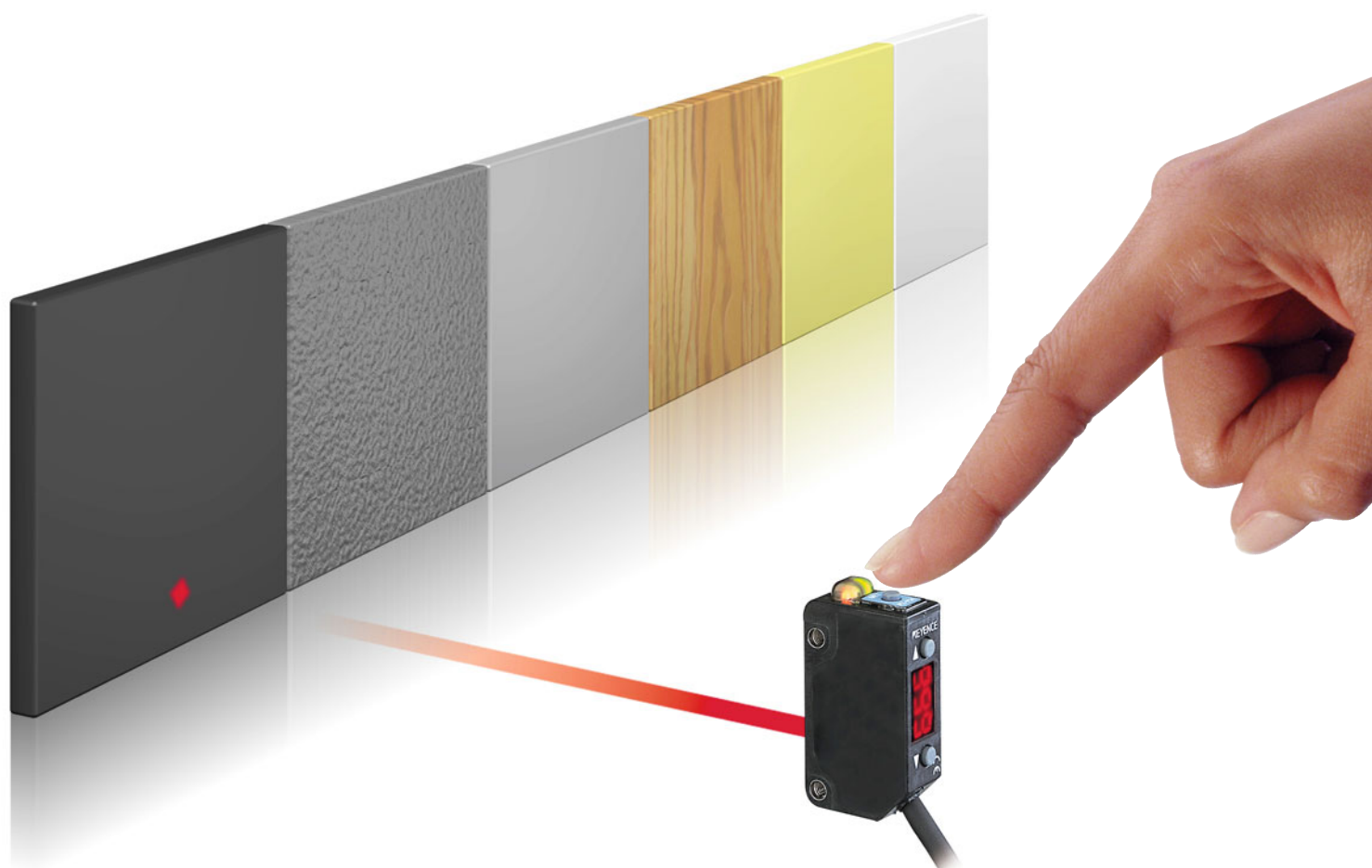


Smart & Simple ***NEW Photoelectric Sensors***

Unaffected by
Angle, Color, or Dirt

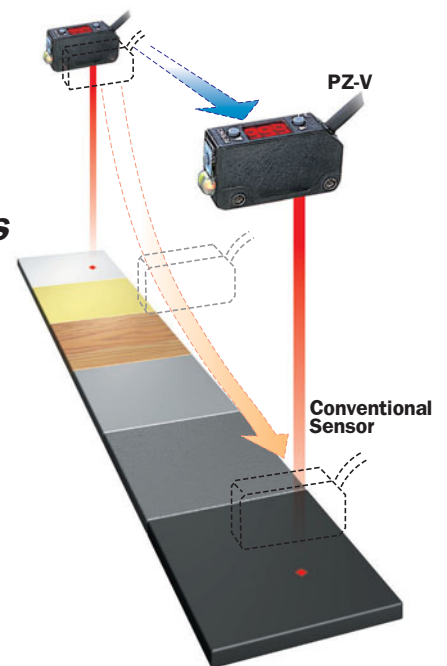


One-touch
fully-automatic calibration

Unaffected by Angle, Colour, or Dirt

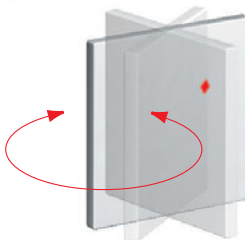
Introducing Multi-reflective Photoelectric Sensors

Provide Solutions to All the Problems Experienced with Conventional Reflective Types.



Stable Detection Unaffected by Variations in Colour

With conventional reflective type sensors, the detecting distance greatly varies for some dark-coloured targets such as black rubber. However, the PZ-M/V multi-functional reflective type offer almost the same detecting distance for all targets.



Excellent Angle Characteristics

With conventional reflective type sensors, the detecting distance greatly varies when a target is tilted or has a slanted surface. However, the PZ-M/V multi-functional reflective type offer almost the same detecting distance regardless of target orientation.

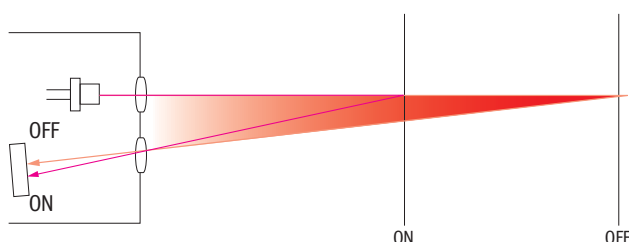


Excellent Resistance to Dust and Dirt

With conventional reflective type sensors, the detecting distance varies greatly when the sensor head surface becomes dirty due to harsh environments. However, the PZ-M/V multi-functional reflective type sensors offer almost the same detecting distance even when the surface of the sensor head is dirty.

Here's How :

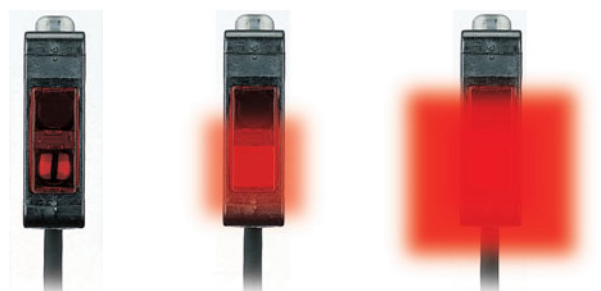
PSD (the Position-Sensitive Detector)



Target distance is detected according to the angle of the reflected light beam.

- Unaffected by highly reflective target background
- Stable detection of targets with colours and materials of varying reflectance
- Highly accurate detection of minute objects

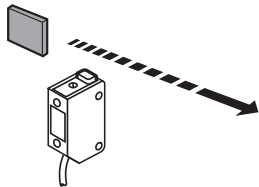
A.P.R. circuit (Automatic Power Reinforcement)



Stable detection is possible due to the A.P.R. circuit that automatically adjust the amount of light emitted according to the colour and angle of the target.

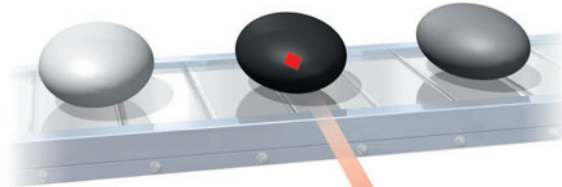
One-touch, fully-automatic calibration allows anyone to adjust the sensor.

Fully-automatic calibration (To calibrate on a moving target)

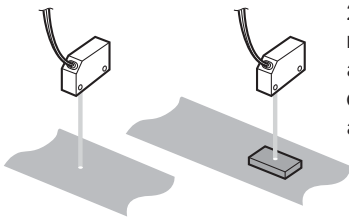


Calibration does not require a production delay.

Easy calibration to start operation.

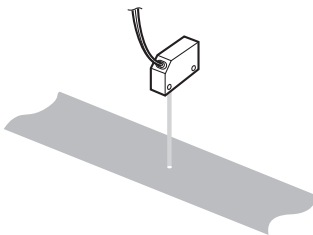


Two-point calibration (To calibrate on a stationary target)



2 point calibration is used to make minute sensitivity adjustments that cannot be done with conventional automatic calibration.

Maximum sensitivity setting



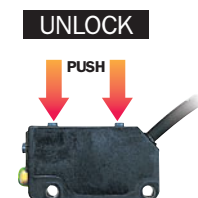
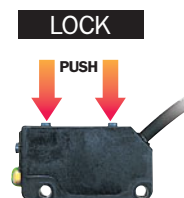
The sensitivity is set to the maximum value so that everything other than the background is detected.



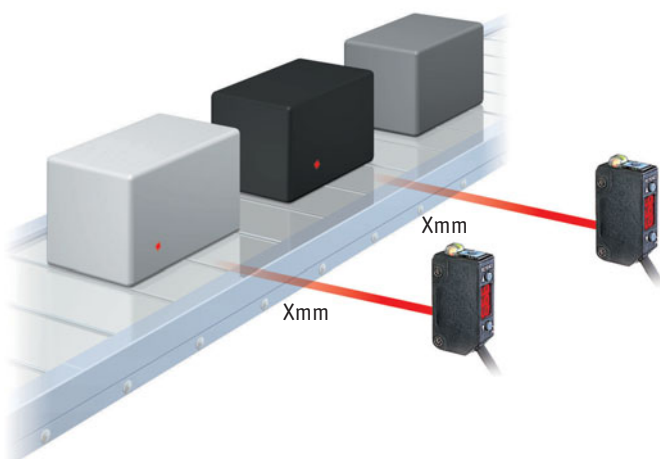
Key lock function

During facility operation, the key-lock function prevents the setting from being accidentally changed.

Lock the operation buttons to avoid the preset value from being changed accidentally.

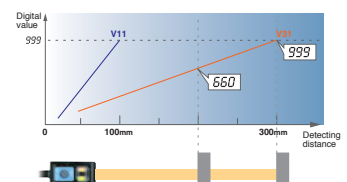


Digital display allows a visual check of settings



When any problem occurs, the status of the sensor can even be checked by telephone, after the digital value is noted.

Fine sensitivity adjustment is simple.



More than 40 models available

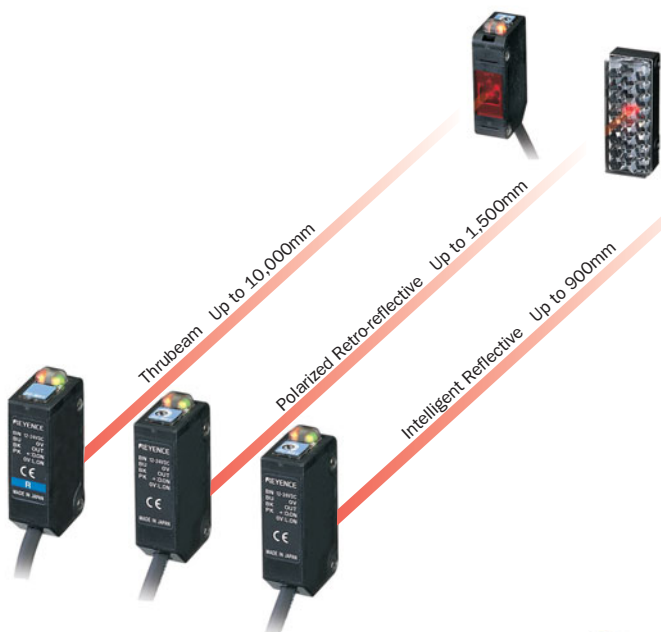
including thrubeam and retro-reflective types.

Wide model variation



- NPN/PNP type
- Five types of optional brackets
- Optional slit plate/polarizing filter is available
- M8/M12 connector models available

	Cable Length	Model Name
M8 connector cable	2m	OP-42187
	10m	OP-42188
M12 connector cable	2m	OP-94734
	5m	OP-97491



High-power custom E-max LED

Unbeatable detecting distance of 10m. All models feature a high-power red LED as the light source to achieve radically high power so unaffected by dust.



Visible red beam*

Enables quick and easy alignment of optical axis or positioning of beam spot on the target.

★Not available on PZ-V7* or PZ-M7* models.



Waterproof

All models of the PZ-M/V, including the reflector of the retro-reflective type conform to IP-67. The sensors can be used in harsh environments where they are subjected to water or other liquids.



M3 S.Steel internal thread

To ensure that the device is securely mounted, an M3 thread is integrally moulded within the PZ-V/M in order to double the mounting strength.



High-intensity indicator

The indicator features a large-size smoke lens and high-intensity LED to dramatically improve visibility. The improved visibility allows you to monitor the sensor operation from a remote position.



Sensor Variations

Reflective (fully-automatic calibration)
type: 18 models



Detecting distance	Output	Model	Cable/Connector
100mm	NPN	PZ-V11	2m Cable
		PZ-V12	M8 connector
		PZ-V13	M12 connector
300mm	PNP	PZ-V11P	2m Cable
		PZ-V12P	M8 connector
		PZ-V13P	M12 connector
900mm	NPN	PZ-V31	2m Cable
		PZ-V32	M8 connector
		PZ-V33	M12 connector
900mm	PNP	PZ-V31P	2m Cable
		PZ-V32P	M8 connector
		PZ-V33P	M12 connector
900mm	NPN	PZ-V71	2m Cable
		PZ-V72	M8 connector
		PZ-V73	M12 connector
900mm	PNP	PZ-V71P	2m Cable
		PZ-V72P	M8 connector
		PZ-V73P	M12 connector

Reflective (manual calibration)
type: 18 models



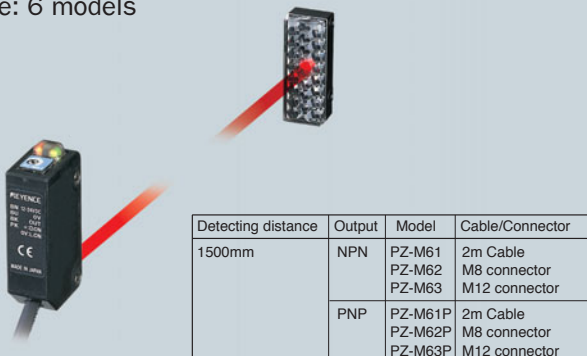
Detecting distance	Output	Model	Cable/Connector
100mm	NPN	PZ-M11	2m Cable
		PZ-M12	M8 connector
		PZ-M13	M12 connector
300mm	PNP	PZ-M11P	2m Cable
		PZ-M12P	M8 connector
		PZ-M13P	M12 connector
900mm	NPN	PZ-M31	2m Cable
		PZ-M32	M8 connector
		PZ-M33	M12 connector
900mm	PNP	PZ-M31P	2m Cable
		PZ-M32P	M8 connector
		PZ-M33P	M12 connector
900mm	NPN	PZ-M71	2m Cable
		PZ-M72	M8 connector
		PZ-M73	M12 connector
900mm	PNP	PZ-M71P	2m Cable
		PZ-M72P	M8 connector
		PZ-M73P	M12 connector

All models designed for toughness and for ease of use.

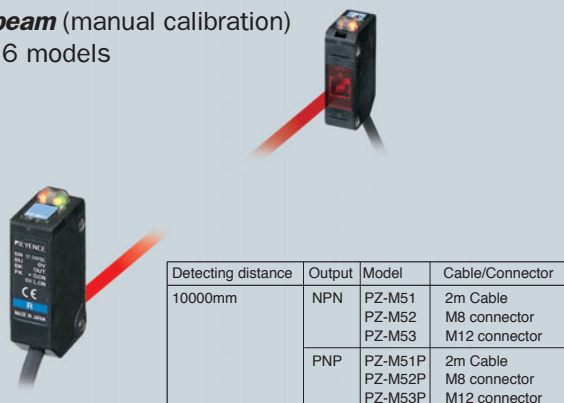
Mounting brackets (Optional)



Polarized Retro-reflective (manual calibration) type: 6 models



Thrubeam (manual calibration) type: 6 models



Specifications

Type	Thrubeam	Retroreflective	Multi-reflective					
Model	PZ-M51	PZ-M61 ^{1.}	PZ-M11 ^{1.}	PZ-M31 ^{1.}	PZ-M71 ^{1.}	PZ-V11 ^{1.}	PZ-V31 ^{1.}	PZ-V71 ^{1.}
Detecting distance ^{2.}	10 m	0.1 to 1.5 m (When R-5 reflector is used)	5 to 100 mm (10 x 10 cm white paper)	5 to 300 mm (10 x 10 cm white paper)	20 to 900 mm (30 x 30 cm white paper)	5 to 100 mm (10 x 10 cm white paper)	5 to 300 mm (10 x 10 cm white paper)	20 to 900 mm (30 x 30 cm white paper)
Setting distance	—	—	30 to 100 mm (10 x 10 cm white paper)	40 to 300 mm (10 x 10 cm white paper)	150 to 900 mm (10 x 10 cm white paper)	30 to 100 mm (10 x 10 cm white paper)	40 to 300 mm (10 x 10 cm white paper)	150 to 900 mm (10 x 10 cm white paper)
Light source	Red LED				Infrared LED	Red LED		Infrared LED
Sensitivity adjustment	1-turn trimmer (230°)					Automatic calibration		
Response time	1.5 ms max.	1 ms max. (1.2 ms max. with alternate-frequency type, 2 ms max. with M65 only ^{1.})						
Operation mode	LIGHT-ON/DARK-ON (selectable by wiring)							
Indicators ^{3.}	Output: Orange LED, Stable operation: Green LED							
Digital monitor	—					7-segment 3-digit red LED		
Control output	NPN open-collector 100 mA max. (30 V max.), Residual voltage 1 V max. PNP open-collector ^{4.} 100mA max. (26.4V max.), Residual voltage 1 V max.							
Protective circuit	Reversed polarity protection, Overcurrent protection, Surge absorber							
Power supply	12 to 24 VDC ±10%, Ripple (P-P) 10% max.							
Current consumption	T: 24 mA max. R: 27 mA max.	34 mA max.	30 mA max.		38 mA max.	37 mA max.		45 mA max.
Enclosure rating	IP-67							
Ambient light	Incandescent lamp: 5000 lux max., Sunlight: 20000 lux max							
Ambient temperature	-20 to +55°C (-4 to 158°F), No freezing							
Relative humidity	35 to 85%, No condensation							
Vibration	10 to 55 Hz, 1.5 mm double amplitude in X, Y and Z directions, 2 hours respectively							
Shock	1000 m/s ² in X, Y and Z directions, six times each							
Housing material	Glass-fiber reinforced resin							
Weight (including 2-m cable)	T: Approx.50 g R: Approx.55 g	Approx.55 g			Approx.70 g	Approx.55 g		Approx.70 g

1. The alternate-frequency type is indicated by replacing "1" at the end of model name with "5". The models are PZ-M65, M15, M35, M75, V15 V35 and V75. 2. The detecting distance is obtained with the maximum sensitivity. 3. The transmitter of the PZ-M51 features a power indicator only. 4. The PNP-output type sensor is suffixed with P after the model name.

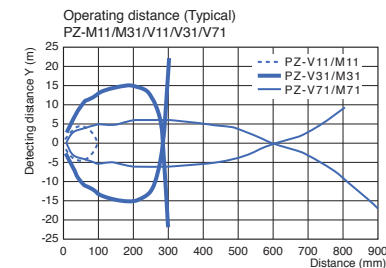
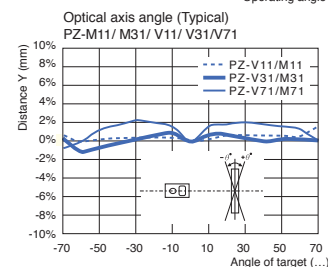
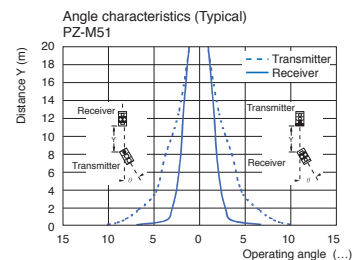
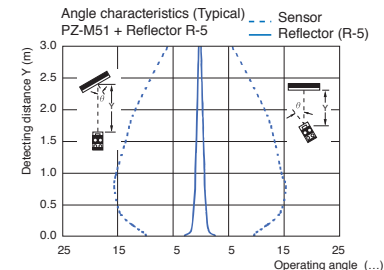
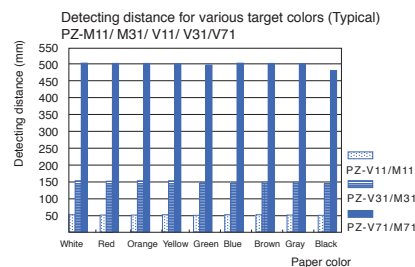
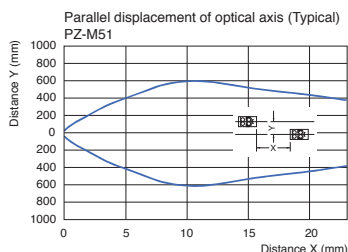
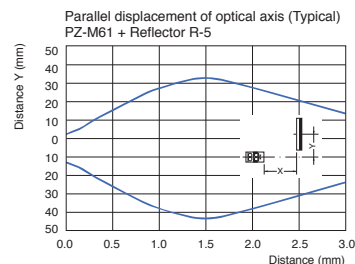
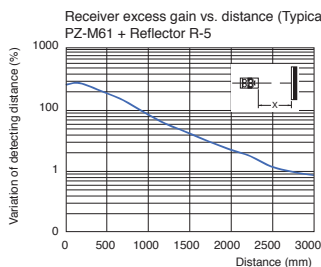
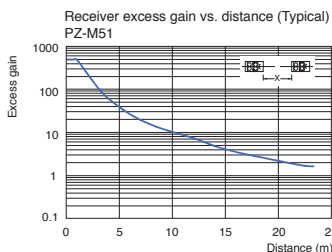
Slit A-4 (Optional)

An optional slit plate and/or polarizing filter is available for the thrubeam type sensors (PZ-M51). Model No.: A-4 (Set of 3 types of slit plates and a polarizing filter)

	Slit plate		
Slit width (mm)	0.5	1	2
Detecting distance (mm)	500	1000	2000
Target size (mm)	0.5 X 5	1 X 5	2 X 5

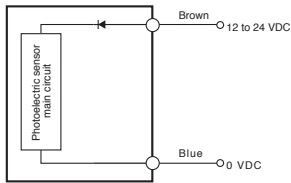
	Slit plate and polarizing filter			
Slit width (mm)	—	0.5	1	2
Detecting distance (mm)	4000	200	600	1300
Target size (mm)	6 X 6	0.5 X 5	1 X 5	2 X 5

Characteristics

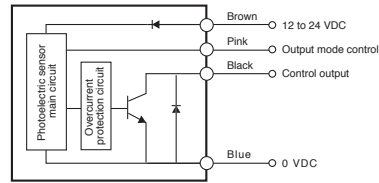


Input/output circuits

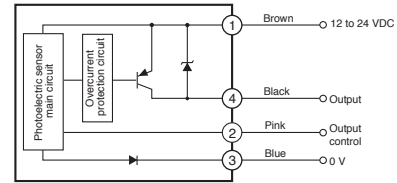
PZ-M51(P) (Transmitter)



PZ-M51 (Receiver) /M61/M11/M31/V11/V31/V71/M71

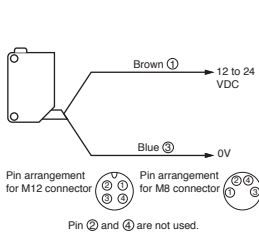


PZ-M51P (Receiver) M61P/M11P/M31P/V11P/V31P/V71P/M71P



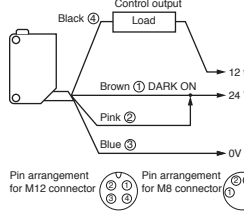
Main circuit

PZ-M51(P) (Transmitter)

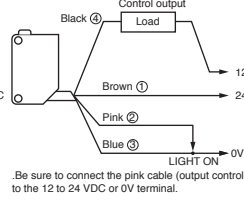


PZ-M51(Receiver) /M61/M11/M31/V11/V31/V71/M71

1.DARK-ON mode

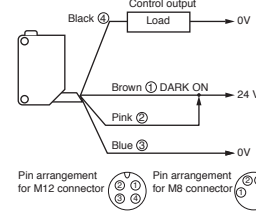


2.LIGHT-ON mode

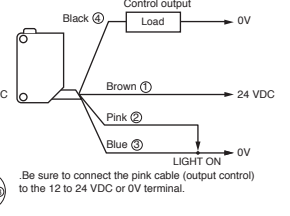


PZ-M51P(Receiver) /M61P/M11P/M31P/V11P/V31P/V71P/M71P

1.DARK-ON mode



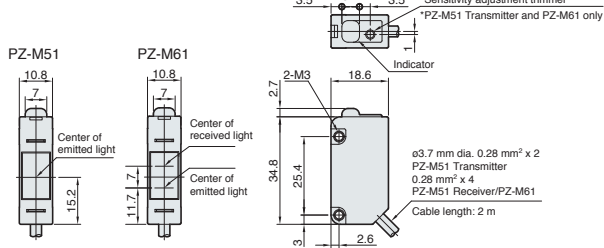
2.LIGHT-ON mode



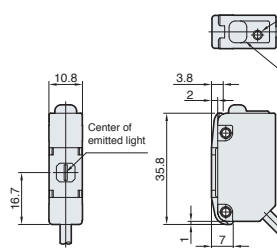
Dimensions

Sensors

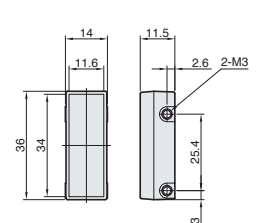
PZ-M51(P)/M61(P)



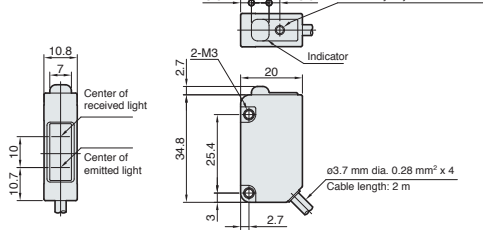
PZ-M51(P)+A-4



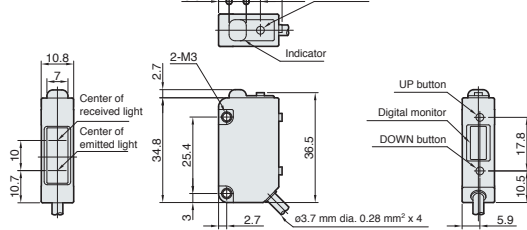
Reflector R-5
(accessory for PZ-M61)



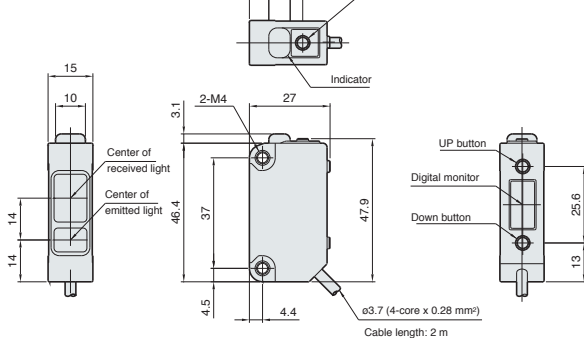
PZ-M11(P)/M31(P)



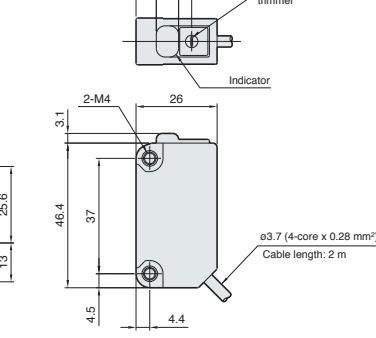
PZ-V11(P)/V31(P)



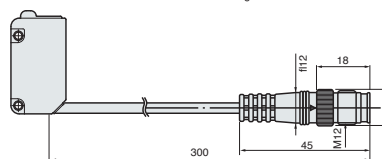
PZ-V71



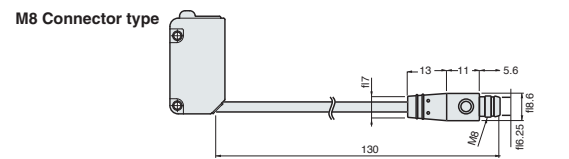
PZ-M71



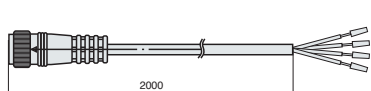
M12 Connector type



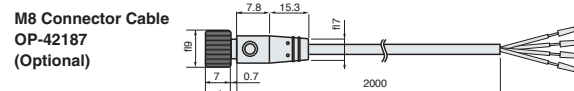
M8 Connector type



M12 Connector Cable
OP-94734
(Optional)

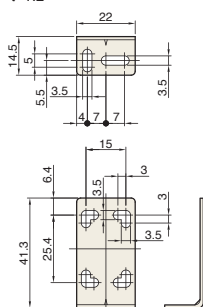


M8 Connector Cable
OP-42187
(Optional)

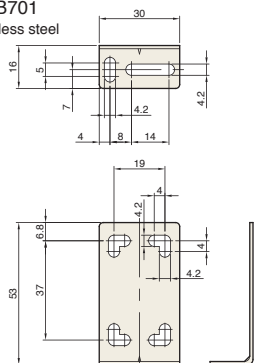


Mounting bracket (Optional)

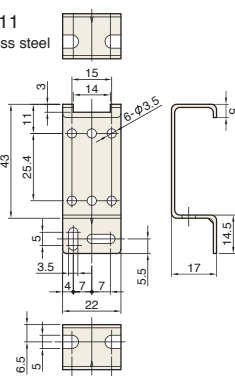
PZ-B01
Stainless steel
t=1.2



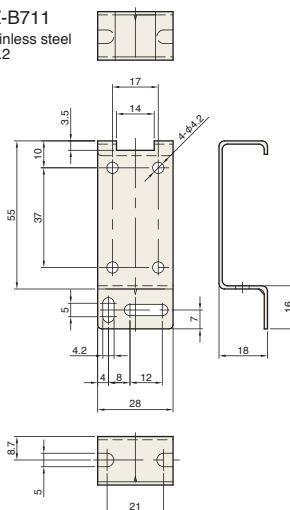
PZ-B701
Stainless steel
t=1.2



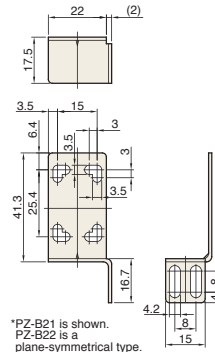
PZ-B11
Stainless steel
t=1.2



PZ-B711
Stainless steel
t=1.2

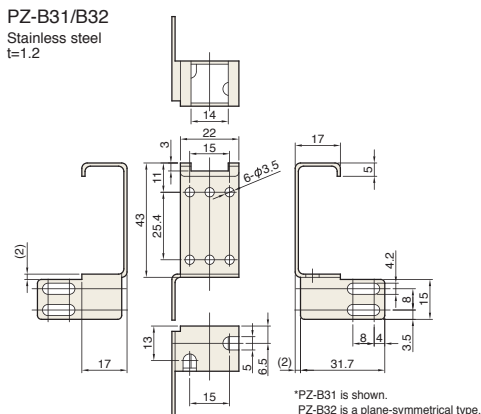


PZ-B21/B22
Stainless steel
t=1.2



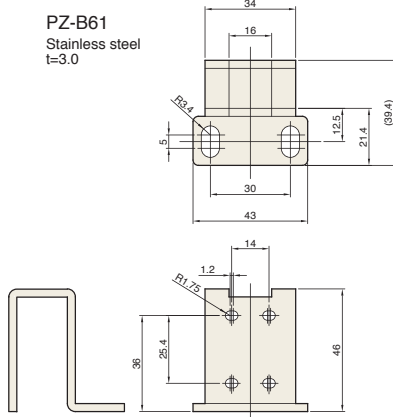
*PZ-B21 is shown.
PZ-B22 is a
plane-symmetrical type.

PZ-B31/B32
Stainless steel
t=1.2

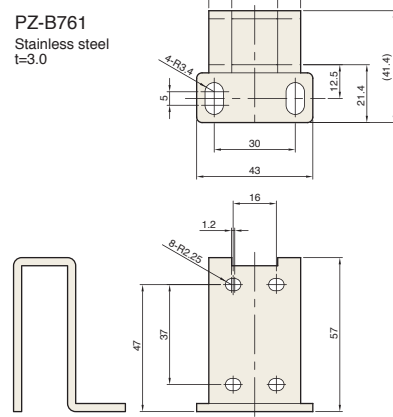


*PZ-B31 is shown.
PZ-B32 is a plane-symmetrical type.

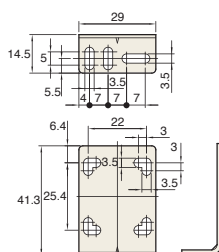
PZ-B61
Stainless steel
t=3.0



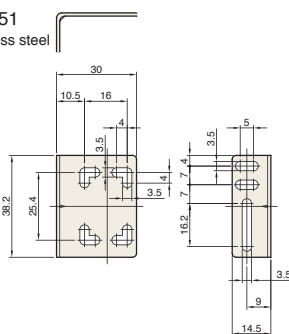
PZ-B761
Stainless steel
t=3.0



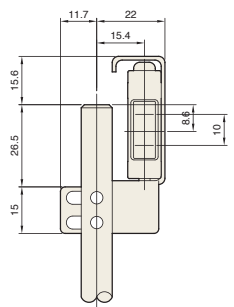
PZ-B41
Stainless steel
t=1.2



PZ-B51
Stainless steel
t=1.2

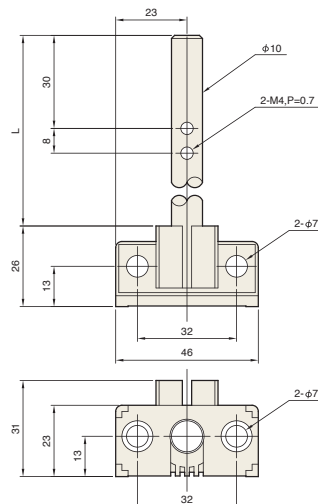
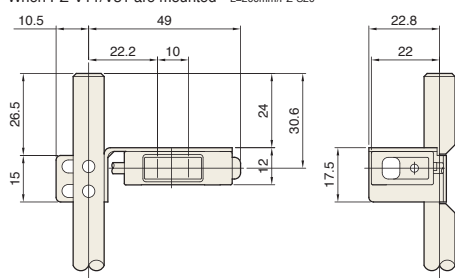


PZ-S□□+PZ-B32
When PZ-V11/V31 are mounted
L=100mm/PZ-S10
L=200mm/PZ-S20



PZ-S□□+PZ-B31
When PZ-V11/V31 are mounted

L=100mm/PZ-S10
L=200mm/PZ-S20



Specifications are subject to change without notice.

KEYENCE

For other countries, please visit: www.keyence.com

AUSTRIA
Phone: +43 22 36-3782 66-0 Fax: +43 22 36-3782 66-30

BELGIUM
Phone: +32 27 16 40 63 Fax: +32 27 16 47 27

CANADA
Phone: +1-905-696-9970 Fax: +1-905-696-8340

CHINA
Phone: +86-21-68757500 Fax: +86-21-68757550

CZECH REPUBLIC
Phone: +420 222 191 483 Fax: +420 222 191 505

FRANCE
Phone: +33 1 56 37 78 00 Fax: +33 1 56 37 78 01

GERMANY
Phone: +49 61 02 36 89-0 Fax: +49 61 02 36 89-100

HONG KONG
Phone: +852-3104-1010 Fax: +852-3104-1080

HUNGARY
Phone: +36 1 802 73 60 Fax: +36 1 802 73 61

ITALY
Phone: +39-02-6688220 Fax: +39-02-66825099

JAPAN
Phone: +81-6-6379-2211 Fax: +81-6-6379-2131

KOREA
Phone: +82-31-642-1270 Fax: +82-31-642-1271

MALAYSIA
Phone: +60-3-2092-2211 Fax: +60-3-2092-2131

MEXICO
Phone: +52-81-8220-7900 Fax: +52-81-8220-9097

NETHERLANDS
Phone: +31 40 20 66 100 Fax: +31 40 20 66 112

POLAND
Phone: +48 71 36861 60 Fax: +48 71 36861 62

SINGAPORE
Phone: +65-6392-1011 Fax: +65-6392-5055

SLOVAKIA
Phone: +421 2 5939 6461 Fax: +421 2 5939 6200

SWITZERLAND
Phone: +41 43-45577 30 Fax: +41 43-45577 40

TAIWAN
Phone: +886-2-2718-8700 Fax: +886-2-2718-8711

THAILAND
Phone: +66-2-369-2777 Fax: +66-2-369-2775

UK & IRELAND
Phone: +44-1908-696900 Fax: +44-1908-696777

USA
Phone: +1-201-930-0100 Fax: +1-201-930-0099

WW1-0019