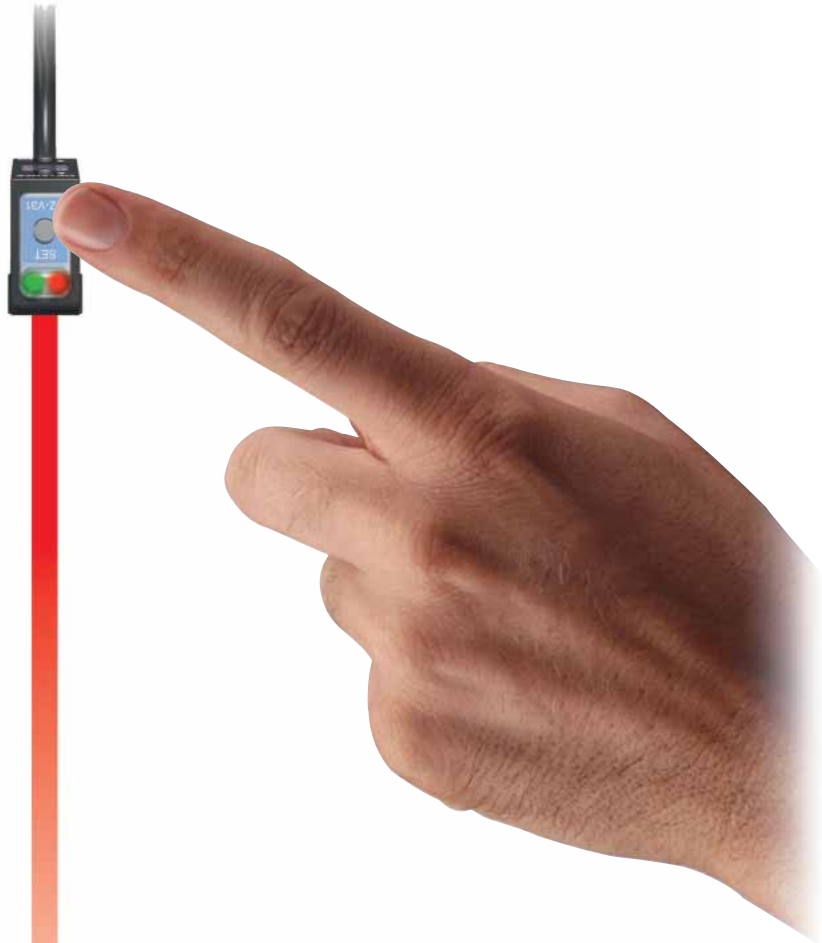


More Stability, *Intelligent Reflective* *Photoelectric Sensor* Less Trouble

One-touch



**Can your sensor
detect these targets?**





Unstable Detection Is Unavoidable with Conventional Photoelectric Sensors

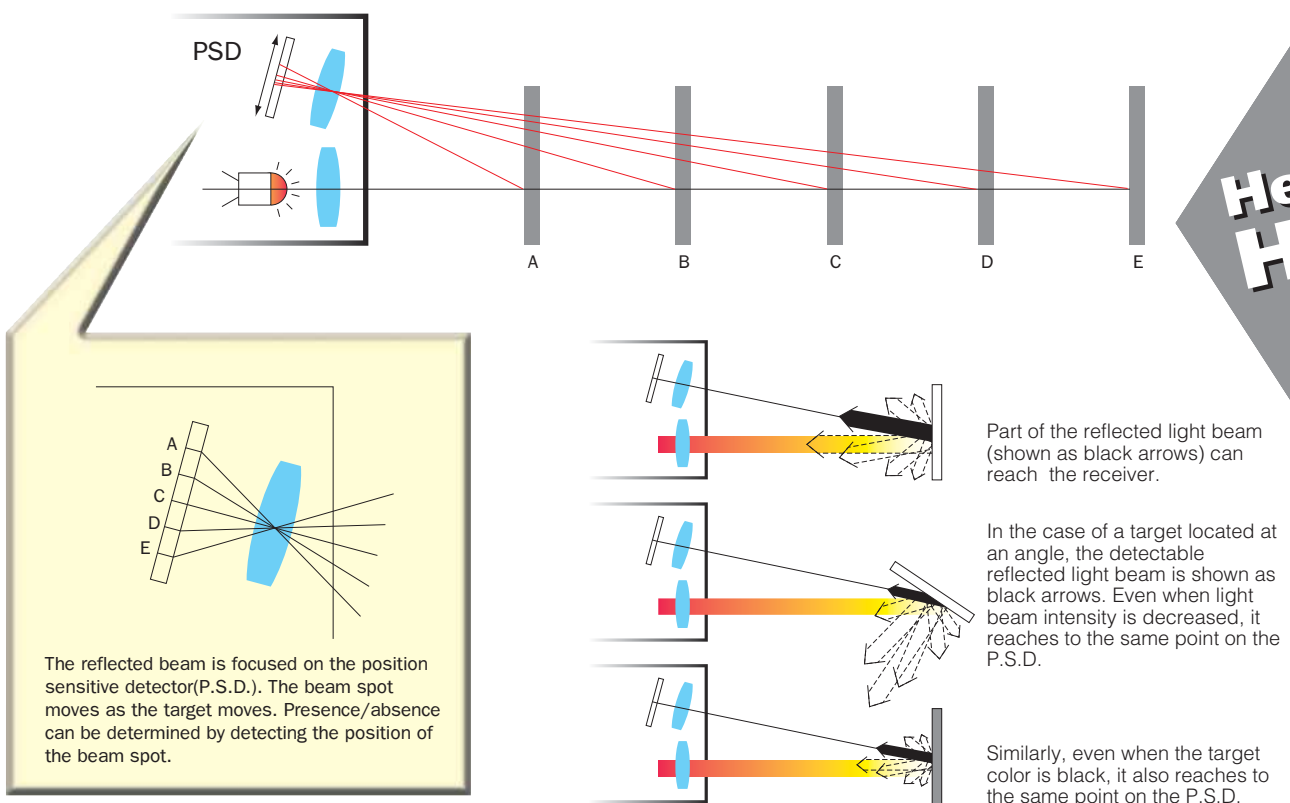


Two New Technologies Enable PZ-V/M to Detect More Reliably

Using P.S.D. & A.P.R. circuit, the PZ-V/M Series is unaffected by a target's color, angle, background, or dirt.

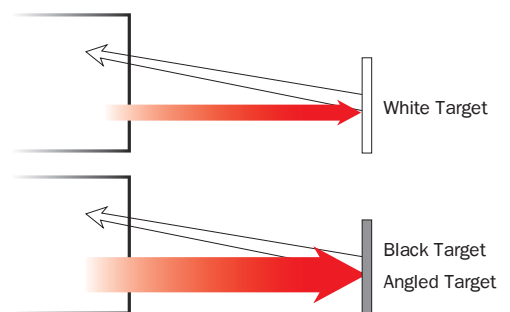
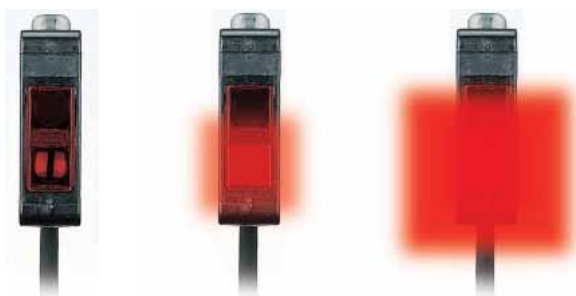
The PZ-V/M Series sets a new standard as the most dependable sensor in harsh environments.

P.S.D. (Position Sensitive Detector)



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

Stable detection is possible due to the A.P.R. circuit which automatically adjusts the amount of light emitted according to the color and angle of the target.



Emitted light intensity is increased when minimum received light intensity cannot be gained.

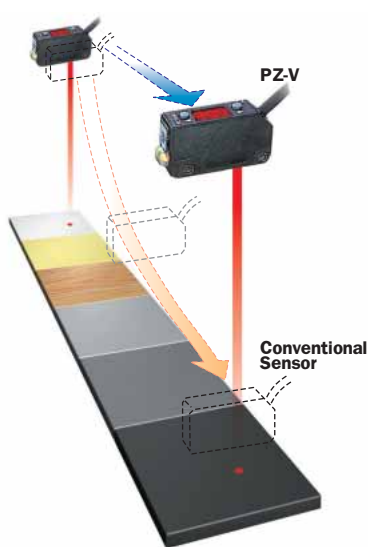
Only the PZ-V/M Series Provides Reliable Detection Without Re-adjusting the Setting



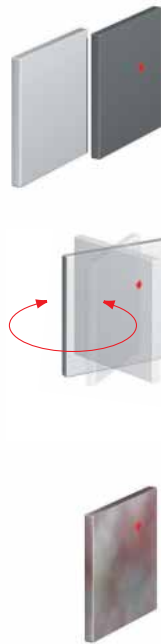
e's
OW

Unaffected by Angle, Color, or Dirt

Introducing Multi-reflective Photoelectric Sensors



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



Stable Detection Unaffected by Variations in Color

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

Excellent Angle Characteristics

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

One-touch, Fully-Automatic Calibration

Allows Anyone to Adjust the Sensor.



Easy calibration to start operation.

Fully-Automatic Calibration (To calibrate on a moving target)
Calibration does not cause a production delay.

Two-Point Calibration (To calibrate on a stationary target)
Two point calibration is used to make minute sensitivity adjustments that cannot be done with conventional automatic calibration.

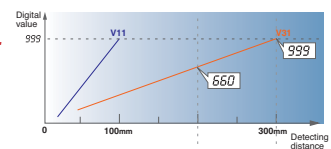
Maximum Sensitivity Setting

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

Digital display allows a visual check of settings

If a problem occurs, the status of the sensor can easily be checked by noting the display value.

Fine sensitivity adjustment is simple.



Available in 36 Models

including thrubeam and retro-reflective types.



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.



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.

Wide model variation

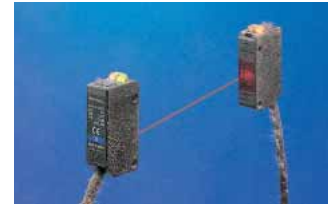


- NPN/PNP type
- Five types of optional brackets
- Optional slit plate/polarizing filter is available
- M8/M12 connector models available

	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.



Waterproof

All models of the PZ-M/V, including the reflector of the retro-reflective type conform to IP67. The sensors can be used in harsh environments where they are subjected to water or other liquids.



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

Intelligent Reflective (fully-automatic push button)
type: 18 models



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

Intelligent Reflective (manual calibration)
type: 12 models



Detecting distance	Output	Model	Cable/Connector
100mm	NPN	PZ-M11	2m Cable
		PZ-M12	M8 connector
		PZ-M13	M12 connector
	PNP	PZ-M11P	2m Cable
		PZ-M12P	M8 connector
		PZ-M13P	M12 connector
300mm	NPN	PZ-M31	2m Cable
		PZ-M32	M8 connector
		PZ-M33	M12 connector
	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
	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)

PZ-B41 Standard L-shaped mounting bracket	PZ-B01 Small L-shaped mounting bracket	PZ-B11 Landscape mounting bracket	PZ-B21(Left Type) PZ-B22(Right Type) Side-mounting bracket L/R	PZ-B31(Left Type) PZ-B32(Right Type) Side-mounting landscape mounting bracket L/R	PZ-B51 Reverse L-shaped
PZ-B61 Protective	PZ-B701(for PZ-V/M7*) Small L-shaped mounting bracket	PZ-B711(for PZ-V/M7*) Landscape mounting bracket	PZ-B761(for PZ-V/M7*) Protective	PZ-S10(100mm Type) PZ-S20(200mm Type) Bracket Support Arm	

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



Detecting distance	Output	Model	Cable/Connector
1500mm	NPN	PZ-M61	2m Cable
		PZ-M62	M8 connector
		PZ-M63	M12 connector
	PNP	PZ-M61P	2m Cable
		PZ-M62P	M8 connector
		PZ-M63P	M12 connector

Thrubeam (manual calibration)
type: 6 models



Detecting distance	Output	Model	Cable/Connector
10000mm	NPN	PZ-M51	2m Cable
		PZ-M52	M8 connector
		PZ-M53	M12 connector
	PNP	PZ-M51P	2m Cable
		PZ-M52P	M8 connector
		PZ-M53P	M12 connector

Specifications

Type	Thrubeam		Polarized retro-reflective		Intelligent reflective					
Model	NPN	PZ-M51	PZ-M61 ¹	PZ-M11 ¹	PZ-M31 ¹	PZ-M71 ¹	PZ-V11 ¹	PZ-V31 ¹	PZ-V71 ¹	
	PNP	PZ-M51P	PZ-M61P	PZ-M11P	PZ-M31P ¹	PZ-M71P	PZ-V11P	PZ-V31P ¹	PZ-V71P	
Detecting distance ²	10 m 32.8'		0.1 to 1.5 m 0.3' to 4.9' (When R-5 reflector is used)	5 to 100 mm 0.20" to 3.94" (100 x 100 mm 3.94" x 3.94" white mat paper)	5 to 300 mm 0.20" to 11.81" (100 x 100 mm 3.94" x 3.94" white mat paper)	20 to 900 mm 0.79" x 35.43" (300 x 300 mm 11.81" x 11.81" white mat paper)	5 to 100 mm 0.20" x 3.94" (100 x 100 mm 3.94" x 3.94" white mat paper)	5 to 300 mm 0.20" x 11.81" (100 x 100 mm 3.94" x 3.94" white mat paper)	20 to 900 mm 0.79" x 35.43" (300 x 300 mm 11.81" x 11.81" white mat paper)	
Setting distance	-			30 to 100 mm 1.18" x 3.94" (100 x 100 mm 3.94" x 3.94" white mat paper)	40 to 300 mm 1.57" to 11.81" (100 x 100 mm 3.94" x 3.94" white mat paper)	150 to 900 mm 5.91" x 35.43" (300 x 300 mm 11.81" x 11.81" white mat paper)	30 to 100 mm 1.18" x 3.94" (100 x 100 mm 3.94" x 3.94" white mat paper)	40 to 300 mm 1.57" to 11.81" (100 x 100 mm 3.94" x 3.94" white mat paper)	150 to 900 mm 5.91" x 35.43" (300 x 300 mm 11.81" x 11.81" white mat paper)	
Light source	Red LED					Infrared LED		Red LED		
Sensitivity adjustment	1-turn trimmer (230°)					Automatic push button				
Response time	1.5 ms max.		1 ms max. (1.2 ms max. with alternate-frequency type, 2 ms max. with M61 only. ¹)							
Operation mode	LIGHT-ON/DARK-ON (switch-selectable)									
Indicators ³	Output and power: Orange LED, Stable operation: Green LED									
Digital monitor	-					7-segment, 3-digit red LED				
Control output	NPN: 100 mA (24 V) max./PNP: 100 mA (24 V) max., Residual voltage: 1 V max.									
Protection circuit	Reversed polarity, overcurrent protection, surge absorber									
Power supply	12 to 24 VDC ±10%, Ripple (P-P): 10% max., Class 2									
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	IP67									
Ambient light	Incandescent lamp 5000 lux max. ⁴ , Sunlight: 20000 lux max.									
Ambient temperature	-20 to +55°C (-4 to +130°F), No condensation									
Relative humidity	35 to 85%, No condensation									
Housing	Glass-fiber reinforced plastic									
Weight (including 2-m 6.6' cable)	T: Approx. 50 g R: Approx. 50 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. 3000 lux max. for **PZ-M71P/V71P**.

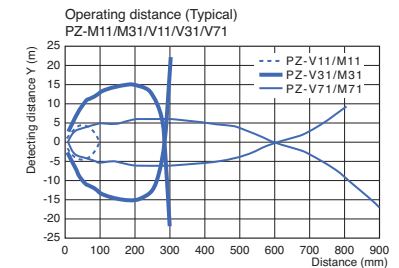
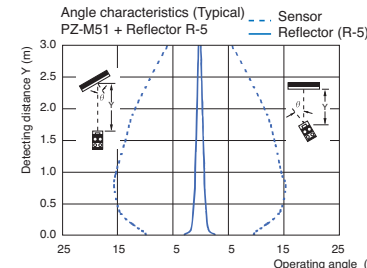
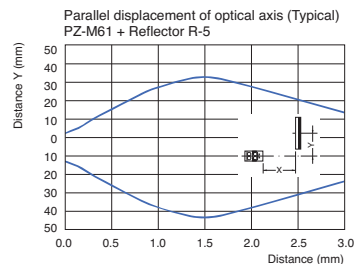
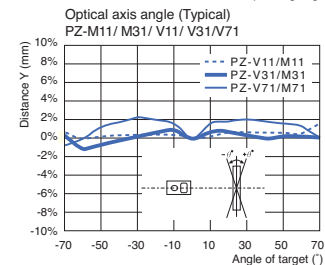
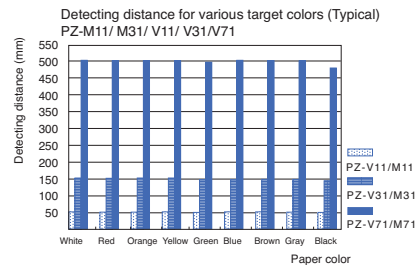
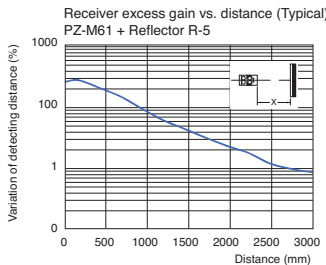
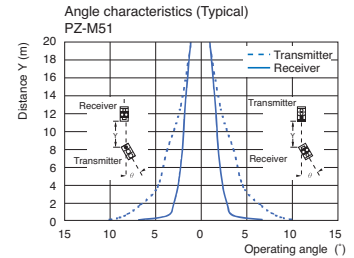
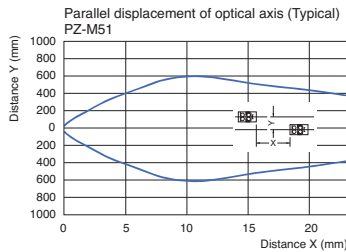
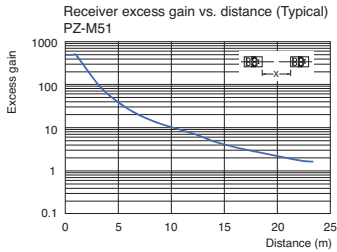
Slit A-4 (Optional)

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

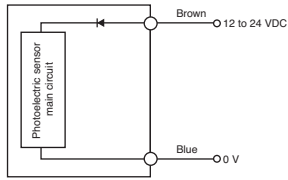
	Slit plate and polarizing filter			
Slit width (mm)	—	0.5	1	2
Detecting distance (mm)	4000	200	600	1300
Target size (mm)	6 X 6	0.5 X 5	1 X 5	2 X 5

Characteristics

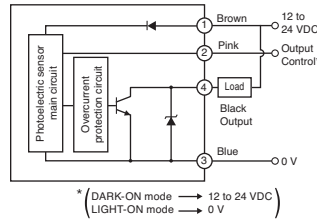


Input/output circuits

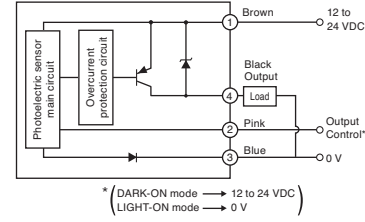
PZ-M51(P) (Transmitter)



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

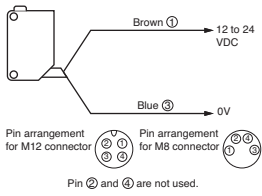


PZ-M51P (Receiver) M61P/M11P/M31P/V11P/V31P/V71P/M71P

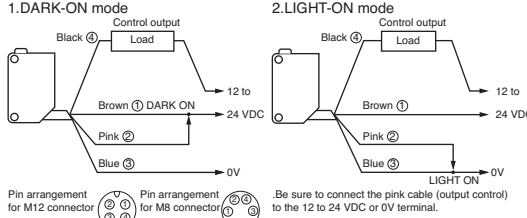


Main circuit

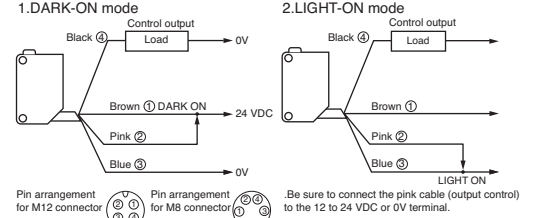
PZ-M51(P) (Transmitter)



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



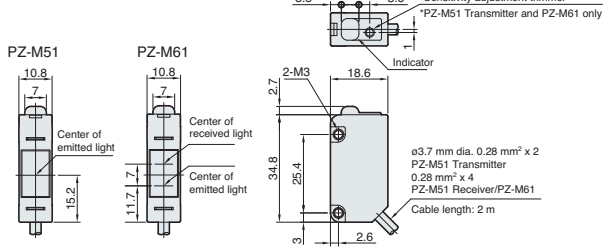
PZ-M51P (Receiver) /M61P/M11P/M31P/V11P/V31P/V71P/M71P



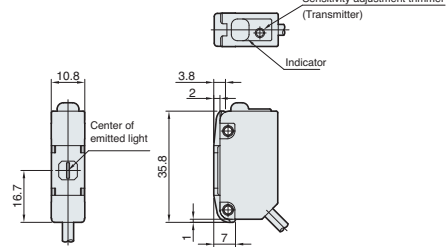
Dimensions

Sensors

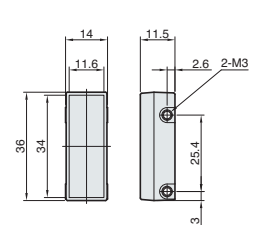
PZ-M51(P)/M61(P)



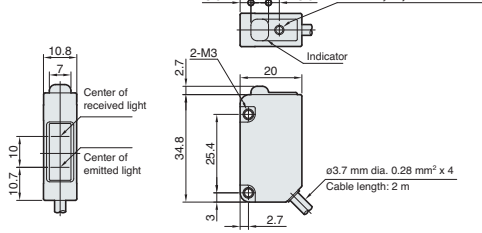
PZ-M51(P)+A-4



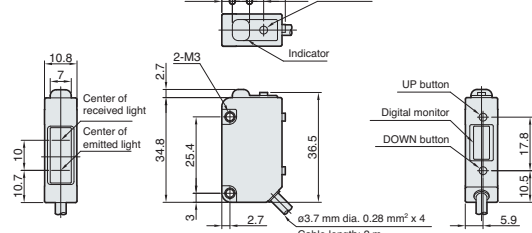
Reflector R-5 (accessory for PZ-M61)



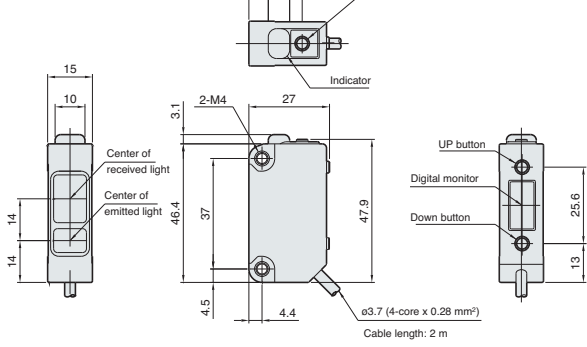
PZ-M11(P)/M31(P)



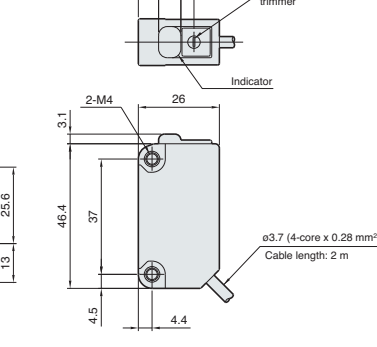
PZ-V11(P)/V31(P)



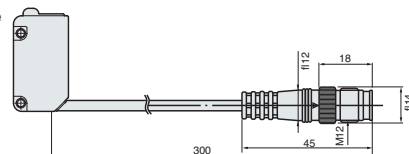
PZ-V71



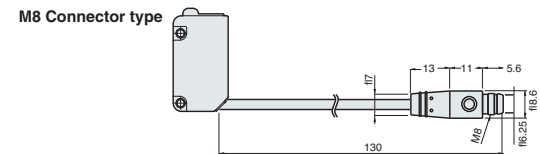
PZ-M71



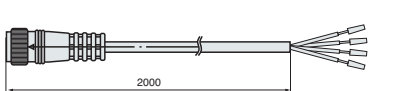
M12 Connector type



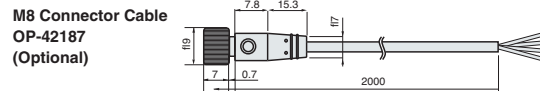
M8 Connector type



M12 Connector Cable OP-94734 (Optional)

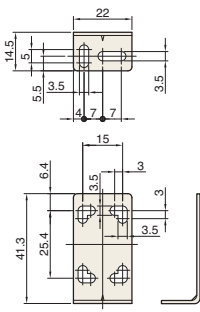


M8 Connector Cable OP-42187 (Optional)

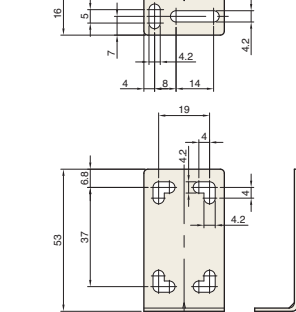


Mounting bracket (Optional)

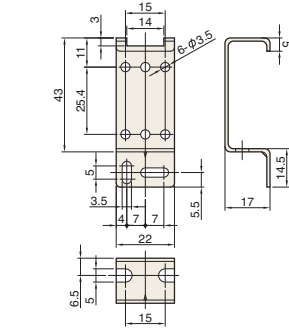
PZ-B01
Stainless steel
t=1.2



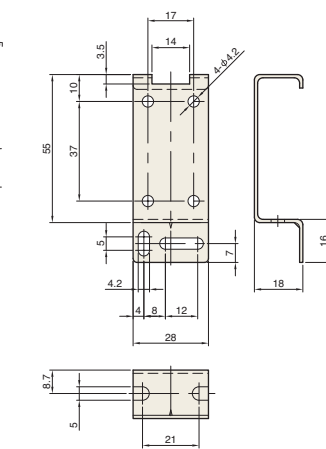
PZ-B701
Stainless steel
t=1.2



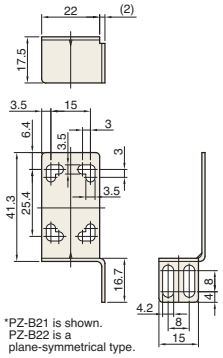
PZ-B11
Stainless steel
t=1.2



PZ-B711
Stainless steel
t=1.2

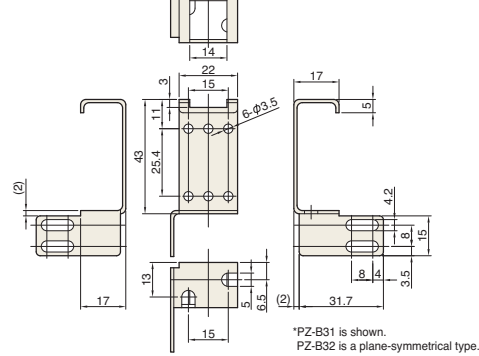


PZ-B21/B22
Stainless steel
t=1.2



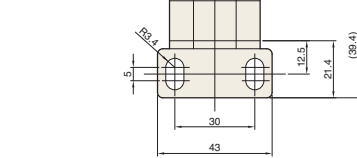
*PZ-B21 is shown.
PZ-B22 is a plane-symmetrical type.

PZ-B31/B32
Stainless steel
t=1.2

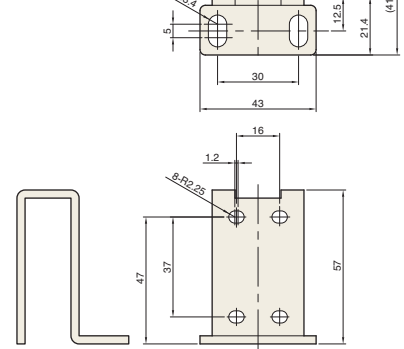


*PZ-B31 is shown.
PZ-B32 is a plane-symmetrical type.

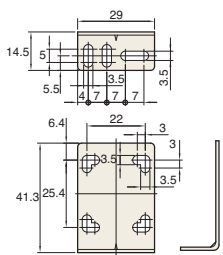
PZ-B61
Stainless steel
t=3.0



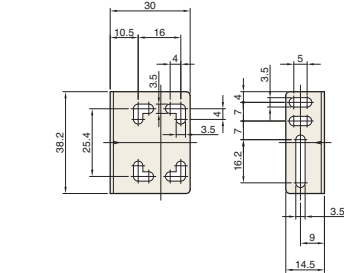
PZ-B761
Stainless steel
t=3.0



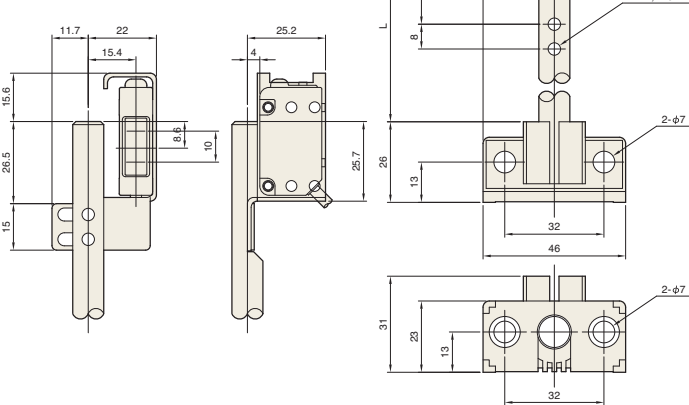
PZ-B41
Stainless steel
t=1.2



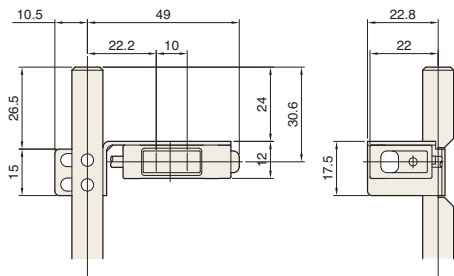
PZ-B51
Stainless steel
t=1.2



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

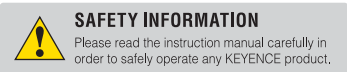


PZ-S□□+PZ-B31
When PZ-V11/V31 are mounted
L=100mm/PZ-S10
L=200mm/PZ-S20



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KEYENCE CORPORATION OF AMERICA

Corporate Office 669 River Drive, Suite 403, Elmwood Park, NJ 07407 PHONE: 201-930-0100 FAX: 201-930-0099 E-mail: keyence@keyence.com
Sales & Marketing Head Office 1100 North Arlington Heights Road, Suite 350, Itasca, IL 60143 PHONE: 888-539-3623 FAX: 630-285-1316

AL Birmingham	CO Denver	IN Indianapolis	MI Detroit	NJ Elmwood Park	OH Cincinnati	SC Greenville	TX Dallas
CA N. California	FL Tampa	KS Kansas City	NY Grand Rapids	NY Rochester	OH Cleveland	TN Knoxville	VA Richmond
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	IL Chicago	MA Boston	MO St. Louis	NC Raleigh	PA Philadelphia	TX Austin	

KEYENCE CANADA INC.

Head Office PHONE: 905-696-9970 FAX: 905-696-8340 E-mail: keyencecanada@keyence.com
Montreal PHONE: 514-694-4740 FAX: 514-694-3206

KEYENCE MEXICO S.A. DE C.V.

PHONE: +52-81-8220-7900 FAX: +52-81-8220-9097
E-mail: keyencemexico@keyence.com

KEYENCE GLOBAL HEADQUARTERS

1-3-14, Higashi-Nakajima, Higashi-Yodogawa-ku, Osaka, 533-8555, Japan PHONE: +81-6-6379-2211

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