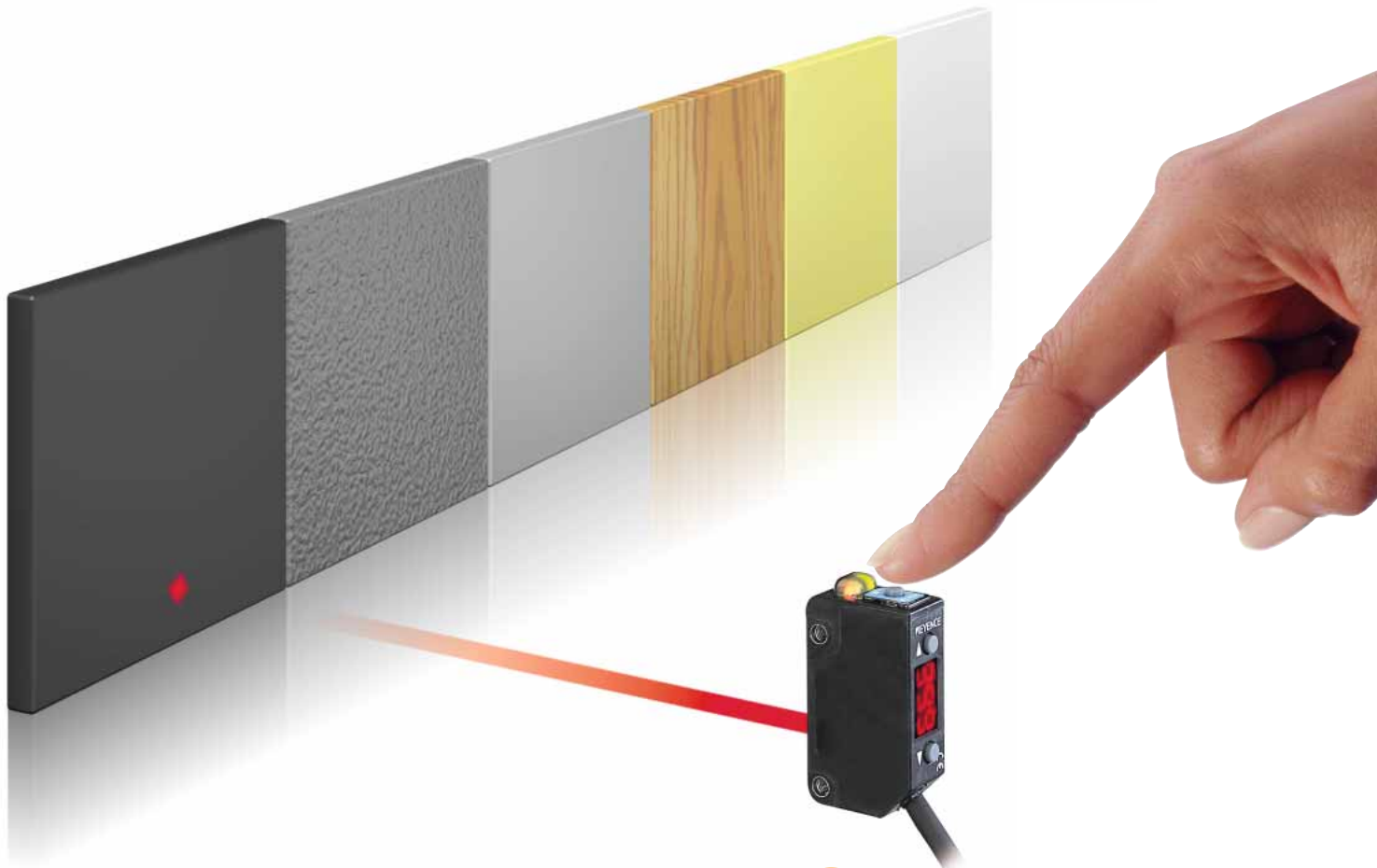


KEYENCE

Self-contained
Photoelectric Sensors
PZ-V/M Series

Smart & Simple *NEW* Photoelectric Sensors

Unaffected by
Angle, Color, or Dirt



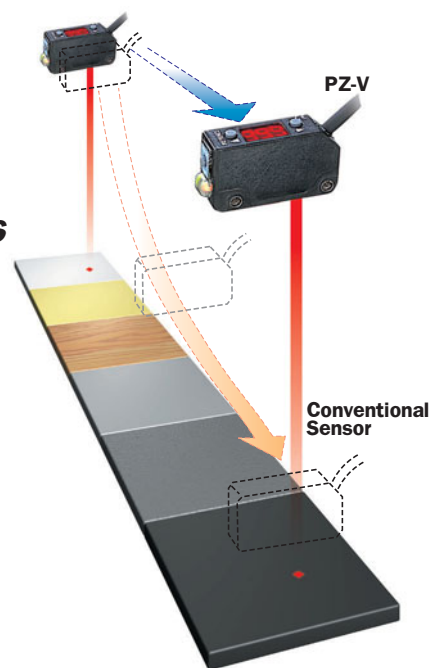
One-touch
fully-automatic calibration

CE

Unaffected by Angle, Colour, or Dirt

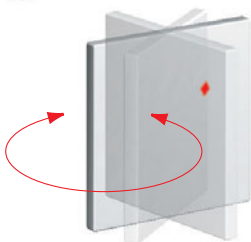
Introducing Multi-reflective Photoelectric Sensors

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.

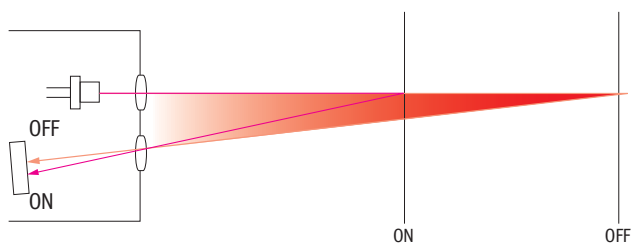


Excellent Resistance to Dust and Dirt

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 :

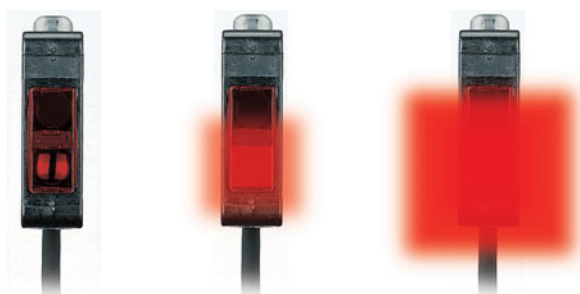
PSD (the Position-Sensitive Detector)



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

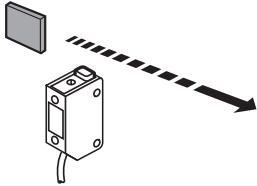
A.P.R. circuit (Automatic Power Reinforcement)



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)

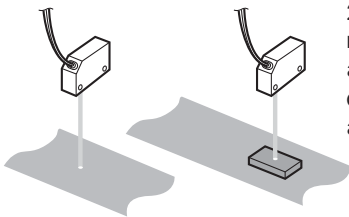


Calibration does not require a production delay.

Easy calibration to start operation.

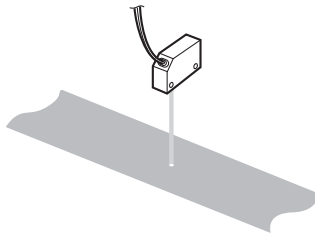


Two-point calibration (To calibrate on a stationary target)



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

Maximum sensitivity setting

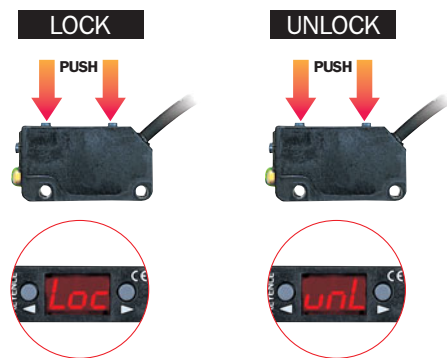


The sensitivity is set to the maximum value so that everything other than the background is detected.

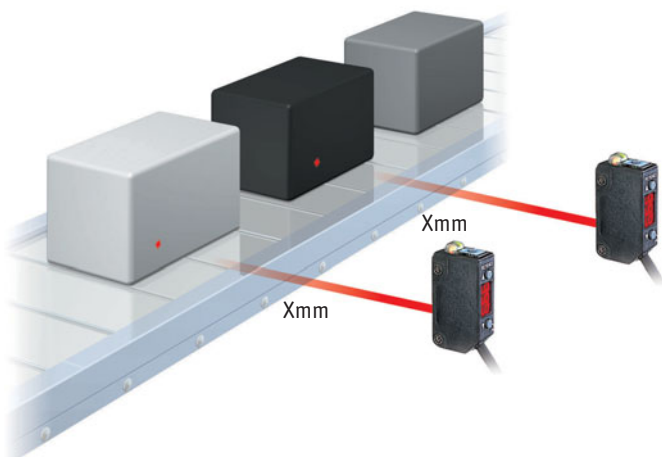
Key lock function

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.

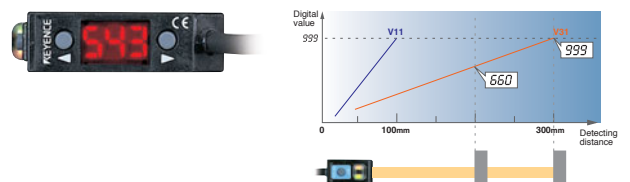


Digital display allows a visual check of settings



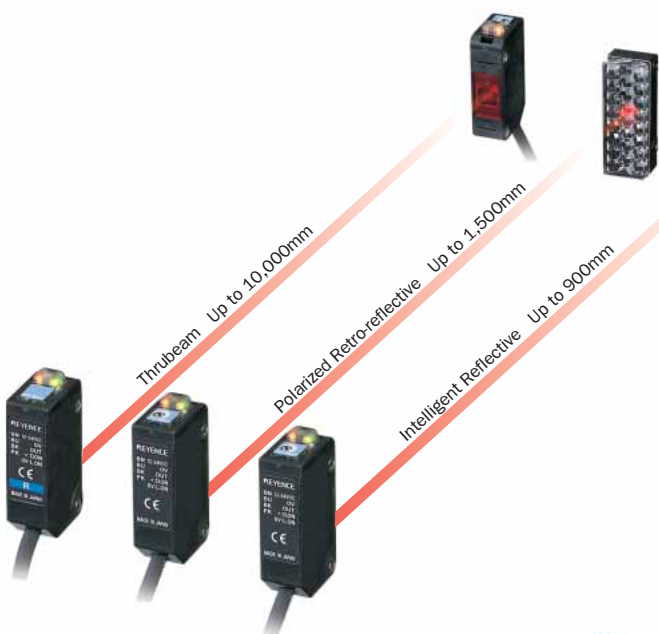
When any problem occurs, the status of the sensor can even be checked by telephone, after the digital value is noted.

Fine sensitivity adjustment is simple.



More than 40 models available

including thrubeam and retro-reflective types.



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

Reflective (fully-automatic calibration)
type: 18 models



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

Reflective (manual calibration)
type: 18 models



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

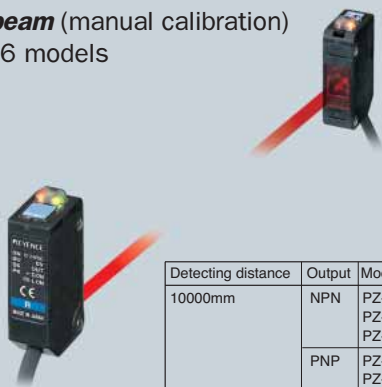
PZ-S10(100mm Type) PZ-S20(200mm Type)
Bracket Support Arm

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 | | Polarised retro-reflective | | | | | | | |
|---------------------------------|---|----------------|---|--|--|---|--|--|---|--------------|
| Model | NPN | PZ-M51 | PZ-M61¹ | PZ-M11¹ | PZ-M31¹ | PZ-M71¹ | PZ-V11¹ | PZ-V31¹ | PZ-V71¹ | |
| | PNP | PZ-M51P | PZ-M61P | PZ-M11P | PZ-M31P¹ | PZ-M71P | PZ-V11P | PZ-V31P¹ | PZ-V71P | |
| Detecting distance ² | 10 m | | 0.1 to 1.5 m (When R-5 reflector is used) | 5 to 100 mm (100 x 100 mm white mat paper) | 5 to 300 mm (100 x 100 mm white mat paper) | 20 to 900 mm (300 x 300 mm white mat paper) | 5 to 100 mm (100 x 100 mm white mat paper) | 5 to 300 mm (100 x 100 mm white mat paper) | 20 to 900 mm (300 x 300 mm white mat paper) | |
| Setting distance | - | | | 30 to 100 mm (100 x 100 mm white mat paper) | 40 to 300 mm (100 x 100 mm white mat paper) | 150 to 900 mm (300 x 300 mm white mat paper) | 30 to 100 mm (100 x 100 mm white mat paper) | 40 to 300 mm (100 x 100 mm white mat paper) | 150 to 900 mm (300 x 300 mm white mat paper) | |
| Light source | Red LED | | | | | Infrared LED | Red LED | | Infrared 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 5,000 lux max. ⁴ , Sunlight: 20,000 lux max. | | | | | | | | | |
| Ambient temperature | -20 to +55°C, No freezing | | | | | | | | | |
| Relative humidity | 35 to 85%, No condensation | | | | | | | | | |
| Housing | Glass-fibre reinforced plastic | | | | | | | | | |
| Weight (including 2-m 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.

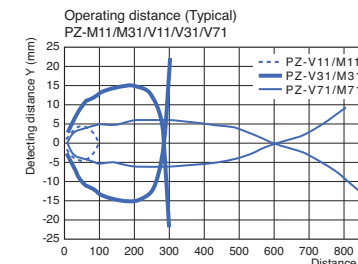
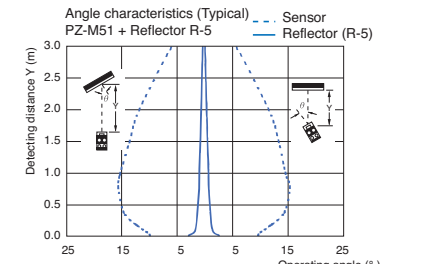
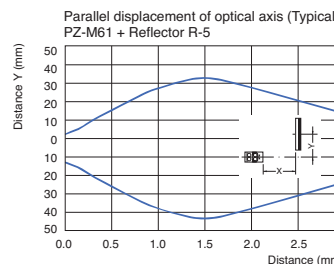
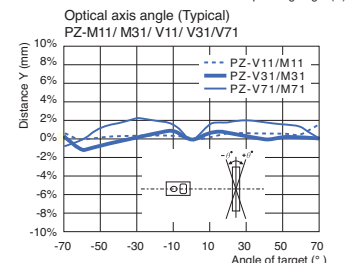
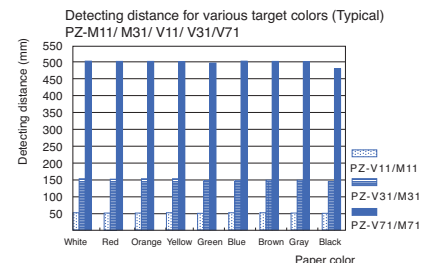
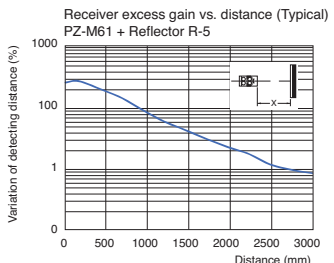
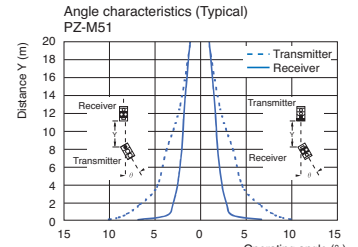
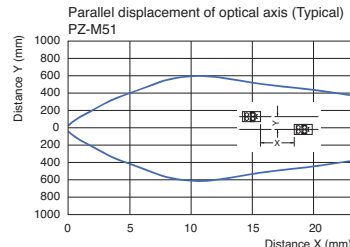
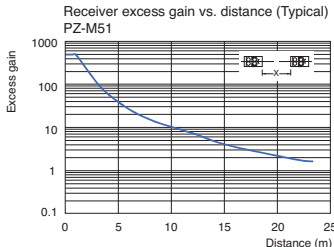
4. 3,000 lux max. for **PZ-M71P/V71P**.

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)

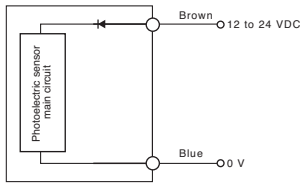
| | Slit plate | | | Slit plate and polarizing filter | | | |
|-------------------------|------------|-------|-------|----------------------------------|---------|-------|-------|
| Slit width (mm) | 0.5 | 1 | 2 | — | 0.5 | 1 | 2 |
| Detecting distance (mm) | 500 | 1000 | 2000 | 4000 | 200 | 600 | 1300 |
| Target size (mm) | 0.5 X 5 | 1 X 5 | 2 X 5 | 6 X 6 | 0.5 X 5 | 1 X 5 | 2 X 5 |

Characteristics

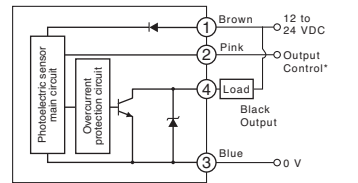


Input/output circuits

PZ-M51(P) (Transmitter)

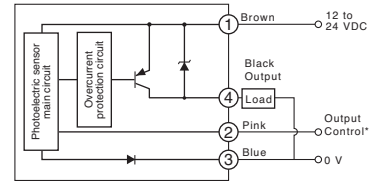


PZ-M51 (Receiver) M61/M11/M31/M71/V11/V31/V71



* (DARK-ON mode → 12 to 24 VDC)
(LIGHT-ON mode → 0 V)

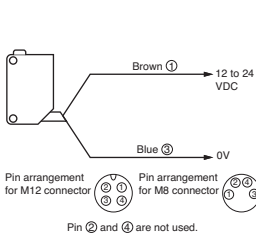
PZ-M51P (Receiver) M61P/M11P/M31P/M71P/V11P/V31P/V71P



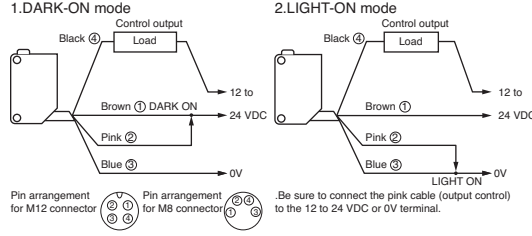
* (DARK-ON mode → 12 to 24 VDC)
(LIGHT-ON mode → 0 V)

Main circuit

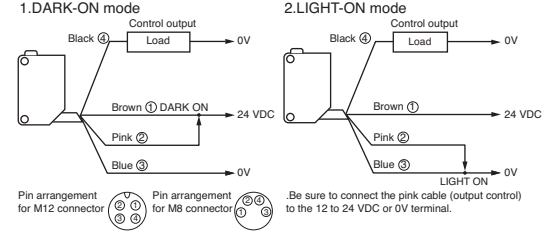
PZ-M51(P) (Transmitter)



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



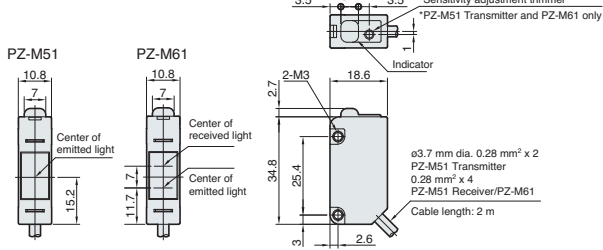
PZ-M51P(Receiver) /M61P/M11P/M31P/V11P/V31P/V71P/M71P



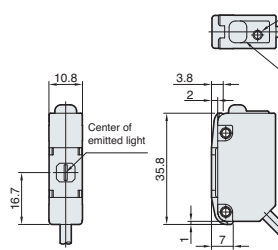
Dimensions

Sensors

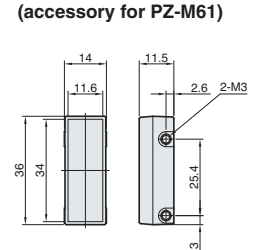
PZ-M51(P)/M61(P)



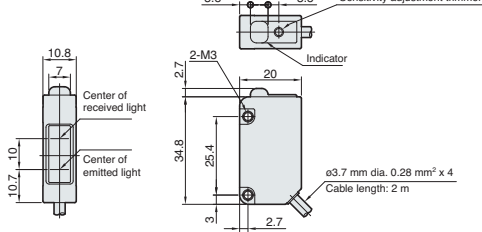
PZ-M51(P)+A-4



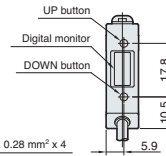
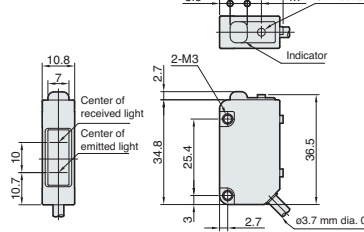
Reflector R-5 (accessory for PZ-M61)



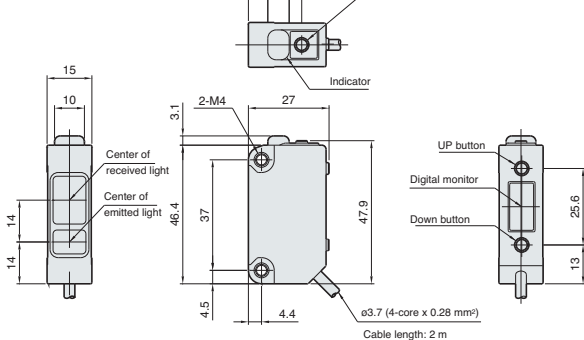
PZ-M11(P)/M31(P)



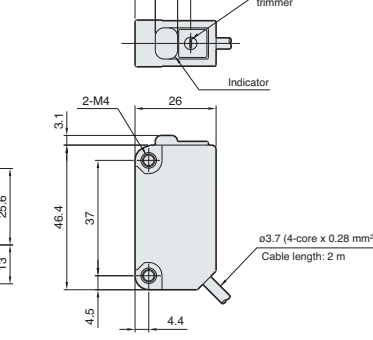
PZ-V11(P)/V31(P)



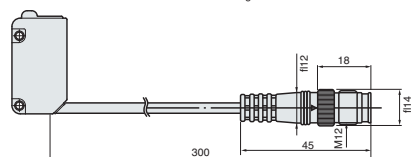
PZ-V71



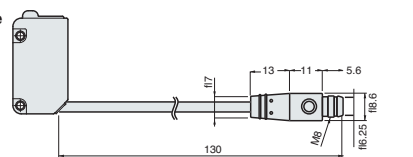
PZ-M71



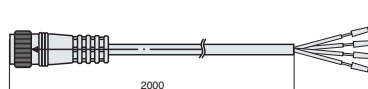
M12 Connector type



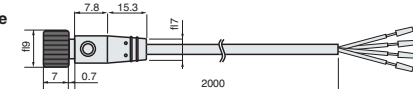
M8 Connector type



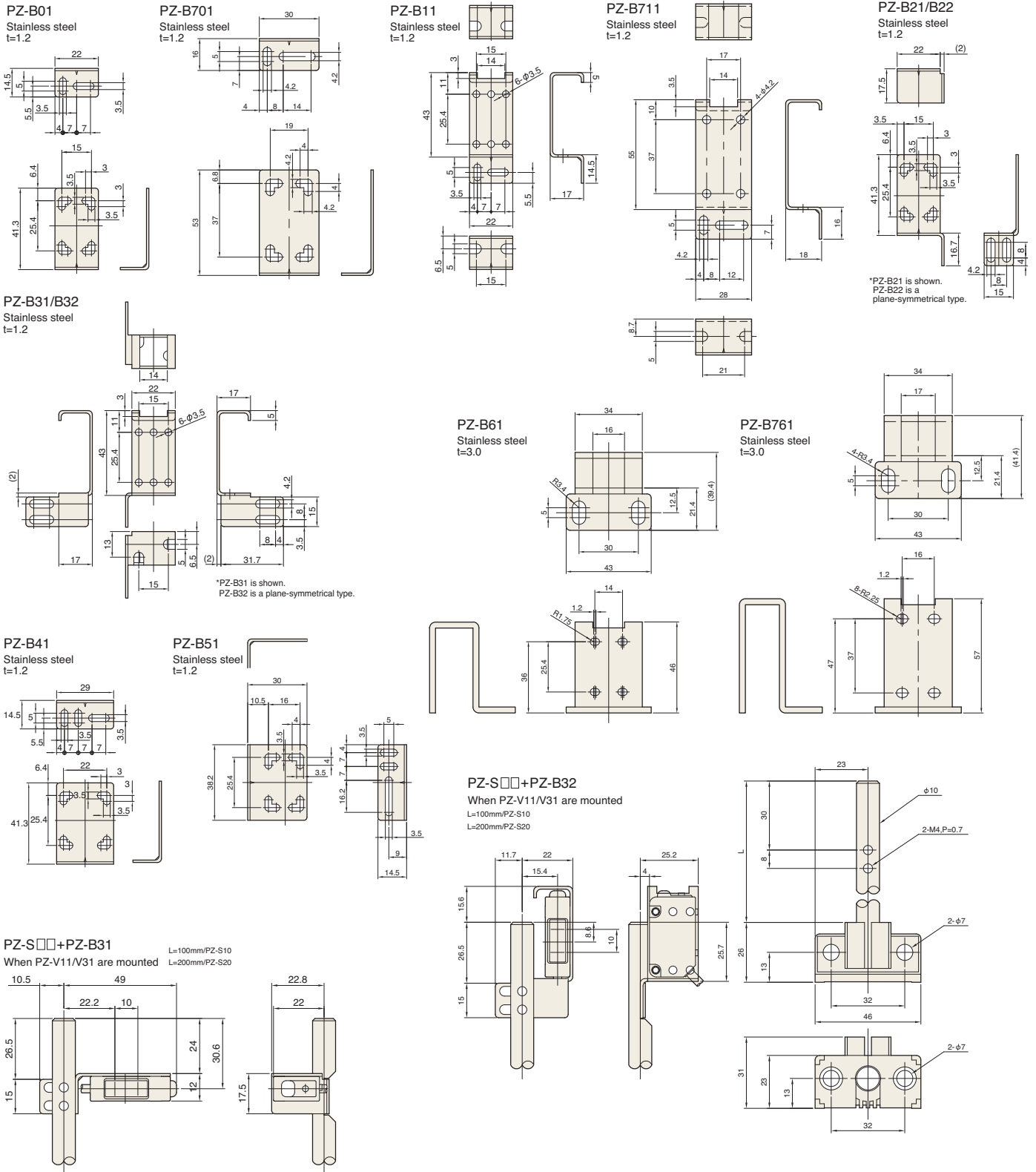
M12 Connector Cable OP-94734 (Optional)




M8 Connector Cable OP-42187 (Optional)



Mounting bracket (Optional)



Please visit: www.keyence.com

SAFETY INFORMATION
 Please read the instruction manual carefully in order to safely operate any KEYENCE product.

KEYENCE GLOBAL HEADQUARTERS

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