

# PR Series Cylindrical Type Proximity Sensor

## Cylindrical type proximity sensor

### ■ Features

- Improved the noise resistance with dedicated IC
- Integrated surge protection circuit
- Integrated overload & short protection circuit (DC 2-wire, 3-wire type)
- Integrated reverse polarity protection circuit (DC 3-wire type)
- Long life cycle and high reliability, and simple operation
- Red LED status indication
- Protection structure IP67 (IEC standard)
- Replaceable for micro switches and limit switches

**⚠ Please read "Caution for your safety" in operation manual before using.**



### ■ Specifications

#### ● DC 2-wire type

| Model                               | PRT08-1.5DO<br>PRT08-1.5DC                                                                                                                                                                                     | PRT08-2DO<br>PRT08-2DC | PRT12-2DO<br>PRT12-2DC                                        | PRT12-4DO<br>PRT12-4DC | PRT18-5DO<br>PRT18-5DC | PRT18-8DO<br>PRT18-8DC | PRT30-10DO<br>PRT30-10DC | PRT30-15DO<br>PRT30-15DC |
|-------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---------------------------------------------------------------|------------------------|------------------------|------------------------|--------------------------|--------------------------|
| Sensing distance                    | 1.5mm                                                                                                                                                                                                          | 2mm                    | 2mm                                                           | 4mm                    | 5mm                    | 8mm                    | 10mm                     | 15mm                     |
| Hysteresis                          | Max. 10% of sensing distance                                                                                                                                                                                   |                        |                                                               |                        |                        |                        |                          |                          |
| Standard sensing target             | 8×8×1mm(Iron)                                                                                                                                                                                                  |                        | 12×12×1mm(Iron)                                               |                        | 18×18×1mm(Iron)        | 25×25×1mm(Iron)        | 30×30×1mm(Iron)          | 45×45×1mm(Iron)          |
| Setting distance                    | 0 to 1.05mm                                                                                                                                                                                                    | 0 to 1.4mm             | 0 to 1.4mm                                                    | 0 to 2.8mm             | 0 to 3.5mm             | 0 to 5.6mm             | 0 to 7mm                 | 0 to 10.5mm              |
| Power supply<br>(Operation voltage) | 12-24VDC<br>(10-30VDC)                                                                                                                                                                                         |                        |                                                               |                        |                        |                        |                          |                          |
| Leakage current                     | Max. 0.6mA                                                                                                                                                                                                     |                        |                                                               |                        |                        |                        |                          |                          |
| Response frequency(★1)              | 1.5kHz                                                                                                                                                                                                         | 1kHz                   | 1.5kHz                                                        | 500Hz                  |                        | 350Hz                  | 400Hz                    | 200Hz                    |
| Residual voltage                    | Max. 3.5V                                                                                                                                                                                                      |                        |                                                               |                        |                        |                        |                          |                          |
| Affection by Temp.                  | ±10% Max. for sensing distance at 20℃(For PRT08 series : ±20% Max.)                                                                                                                                            |                        |                                                               |                        |                        |                        |                          |                          |
| Control output                      | 2 to 100mA                                                                                                                                                                                                     |                        |                                                               |                        |                        |                        |                          |                          |
| Insulation resistance               | Min. 50MΩ(at 500VDC megger)                                                                                                                                                                                    |                        |                                                               |                        |                        |                        |                          |                          |
| Dielectric strength                 | 1500VAC 50/60Hz for 1minute                                                                                                                                                                                    |                        |                                                               |                        |                        |                        |                          |                          |
| Vibration                           | 1mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours                                                                                                                             |                        |                                                               |                        |                        |                        |                          |                          |
| Shock                               | 500m/s <sup>2</sup> (50G) in X, Y, Z direction for 3 times                                                                                                                                                     |                        |                                                               |                        |                        |                        |                          |                          |
| Indicator                           | Output operation indicator (Red LED)                                                                                                                                                                           |                        |                                                               |                        |                        |                        |                          |                          |
| Ambient temperature                 | -25 to 70℃(at non-freezing status)                                                                                                                                                                             |                        |                                                               |                        |                        |                        |                          |                          |
| Storage temperature                 | -30 to 80℃(at non-freezing status)                                                                                                                                                                             |                        |                                                               |                        |                        |                        |                          |                          |
| Ambient humidity                    | 35 to 95%RH                                                                                                                                                                                                    |                        |                                                               |                        |                        |                        |                          |                          |
| Protection circuit                  | Surge protection circuit                                                                                                                                                                                       |                        | Surge protection circuit, Overload & Short protection circuit |                        |                        |                        |                          |                          |
| Protection                          | IP67 (IEC standard)                                                                                                                                                                                            |                        |                                                               |                        |                        |                        |                          |                          |
| Cable spec.                         | φ 3.5×2P, 2m                                                                                                                                                                                                   |                        | φ 4×2P, 2m                                                    |                        |                        | φ 5×2P, 2m             |                          |                          |
| Material                            | Case/Nut: Nikel plated Brass, Washer: Nikel plated Iron, Sensing surface: Heat-resistant ABS, Standard cable(Black): Polyvinyl chloride(PVC), Oil resistant cable(Gray): Oil resistant Polyvinyl chloride(PVC) |                        |                                                               |                        |                        |                        |                          |                          |
| Approval                            | CE                                                                                                                                                                                                             |                        |                                                               |                        |                        |                        |                          |                          |
| Unit weight                         | Approx. 52g                                                                                                                                                                                                    |                        | Approx. 72g                                                   |                        | Approx. 110g           |                        | Approx. 170g             |                          |

\*(\*1) The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

|     |                                          |
|-----|------------------------------------------|
| (A) | Photo electric sensor                    |
| (B) | Fiber optic sensor                       |
| (C) | Door/Area sensor                         |
| (D) | Proximity sensor                         |
| (E) | Pressure sensor                          |
| (F) | Rotary encoder                           |
| (G) | Connector/Socket                         |
| (H) | Temp. controller                         |
| (I) | SSR/Power controller                     |
| (J) | Counter                                  |
| (K) | Timer                                    |
| (L) | Panel meter                              |
| (M) | Tacho/Speed/Pulse meter                  |
| (N) | Display unit                             |
| (O) | Sensor controller                        |
| (P) | Switching power supply                   |
| (Q) | Stepping motor & Driver & Controller     |
| (R) | Graphic/Logic panel                      |
| (S) | Field network device                     |
| (T) | Production stoppage models & replacement |

# PR Series

## ●DC 3-wire type

|                       |                                                                                                                                                                                                                   |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-----------------|
| Model                 | PR08-1.5DN<br>PR08-1.5DP<br>PR08-1.5DN2<br>PR08-1.5DP2<br>PRL08-1.5DN<br>PRL08-1.5DP<br>PRL08-1.5DN2<br>PRL08-1.5DP2                                                                                              | PR08-2DN<br>PR08-2DP<br>PR08-2DN2<br>PR08-2DP2<br>PRL08-2DN<br>PRL08-2DP<br>PRL08-2DN2<br>PRL08-2DP2 | PR12-2DN<br>PR12-2DP<br>PR12-2DN2<br>PR12-2DP2<br>PRS12-2DN<br>PRS12-2DP<br>PRS12-2DN2<br>PRS12-2DP2 | PR12-4DN<br>PR12-4DP<br>PR12-4DN2<br>PR12-4DP2<br>PRS12-4DN<br>PRS12-4DP<br>PRS12-4DN2<br>PRS12-4DP2<br>PRL12-4DN<br>PRL12-4DP | PR18-5DN<br>PR18-5DP<br>PR18-5DN2<br>PR18-5DP2<br>PRL18-5DN<br>PRL18-5DP<br>PRL18-5DN2<br>PRL18-5DP2 | PR18-8DN<br>PR18-8DP<br>PR18-8DN2<br>PR18-8DP2<br>PRL18-8DN<br>PRL18-8DP<br>PRL18-8DN2<br>PRL18-8DP2 | PR30-10DN<br>PR30-10DP<br>PR30-10DN2<br>PR30-10DP2<br>PRL30-10DN<br>PRL30-10DP<br>PRL30-10DN2<br>PRL30-10DP2 | PR30-15DN<br>PR30-15DP<br>PR30-15DN2<br>PR30-15DP2<br>PRL30-15DN<br>PRL30-15DP<br>PRL30-15DN2<br>PRL30-15DP2 |                 |
|                       | Sensing distance                                                                                                                                                                                                  | 1.5mm                                                                                                | 2mm                                                                                                  | 2mm                                                                                                                            | 4mm                                                                                                  | 5mm                                                                                                  | 8mm                                                                                                          | 10mm                                                                                                         | 15mm            |
|                       | Hysteresis                                                                                                                                                                                                        | Max. 10% of sensing distance                                                                         |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
|                       | Standard sensing target                                                                                                                                                                                           | 8×8×1mm(Iron)                                                                                        |                                                                                                      | 12×12×1mm(Iron)                                                                                                                |                                                                                                      | 18×18×1mm(Iron)                                                                                      | 25×25×1mm(Iron)                                                                                              | 30×30×1mm(Iron)                                                                                              | 45×45×1mm(Iron) |
|                       | Setting distance                                                                                                                                                                                                  | 0 to 1.05mm                                                                                          | 0 to 1.4mm                                                                                           | 0 to 1.4mm                                                                                                                     | 0 to 2.8mm                                                                                           | 0 to 3.5mm                                                                                           | 0 to 5.6mm                                                                                                   | 0 to 7mm                                                                                                     | 0 to 10.5mm     |
|                       | Power supply (Operation voltage)                                                                                                                                                                                  | 12-24VDC (10-30VDC)                                                                                  |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
|                       | Leakage current                                                                                                                                                                                                   | Max. 10mA                                                                                            |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
|                       | Response frequency(★1)                                                                                                                                                                                            | 1.5kHz                                                                                               | 1kHz                                                                                                 | 1.5kHz                                                                                                                         | 500Hz                                                                                                |                                                                                                      | 350Hz                                                                                                        | 400Hz                                                                                                        | 200Hz           |
| Residual voltage      | Max. 1.5V                                                                                                                                                                                                         |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Affection by Temp.    | ±10% Max. for sensing distance at 20℃ within temperature range of -25 to 70℃, PR08 Series : Max. ±20%                                                                                                             |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Control output        | Max. 200mA                                                                                                                                                                                                        |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Insulation resistance | Min. 50MΩ (at 500VDC megger)                                                                                                                                                                                      |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Dielectric strength   | 1500VAC 50/60Hz for 1minute                                                                                                                                                                                       |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Vibration             | 1mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Shock                 | 500m/s² (50G) in X, Y, Z direction for 3 times                                                                                                                                                                    |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Indicator             | Output operation indicator (Red LED)                                                                                                                                                                              |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Ambient temperature   | -25 to 70℃ (at non-freezing status)                                                                                                                                                                               |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Storage temperature   | -30 to 80℃ (at non-freezing status)                                                                                                                                                                               |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Ambient humidity      | 35 to 95%RH                                                                                                                                                                                                       |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Protection circuit    | Surge protection circuit, Reverse polarity proteciton circuit, Overload & Short protection circuit                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Protection            | IP67 (IEC standard)                                                                                                                                                                                               |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Material              | Case/Nut: Nikel plated Brass, Washer: Nikel plated Iron, Sensing surface: Heat-resistant ABS, Standard cable (Black): Polyvinyl chloride (PVC), Oil resistant cable (Gray): Oil resistant Polyvinyl chlorde (PVC) |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Cable spec.           | φ 3.5×3P, 2m                                                                                                                                                                                                      |                                                                                                      | φ 4×3P, 2m                                                                                           |                                                                                                                                |                                                                                                      | φ 5×3P, 2m                                                                                           |                                                                                                              |                                                                                                              |                 |
| Approval              | CE                                                                                                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                                                |                                                                                                      |                                                                                                      |                                                                                                              |                                                                                                              |                 |
| Unit weight           | PR:Approx. 52g<br>PRL:Approx. 54g                                                                                                                                                                                 |                                                                                                      | PR:Approx. 72g, PRS:Approx. 70g,<br>PRL:Approx. 76g                                                  |                                                                                                                                | PR:Approx. 110g<br>PRL:Approx. 130g                                                                  |                                                                                                      | PR:Approx. 170g<br>PRL:Approx. 210g                                                                          |                                                                                                              |                 |

※(★1) The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

## ●AC 2-wire type

| Model                            | PR12-2AO<br>PR12-2AC                                                                                                                           | PR12-4AO<br>PR12-4AC | PR18-5AO<br>PR18-5AC<br>PRL18-5AO<br>PRL18-5AC | PR18-8AO<br>PR18-8AC<br>PRL18-8AO<br>PRL18-8AC | PR30-10AO<br>PR30-10AC<br>PRL30-10AO<br>PRL30-10AC | PR30-15AO<br>PR30-15AC<br>PRL30-15AO<br>PRL30-15AC |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------|------------------------------------------------|----------------------------------------------------|----------------------------------------------------|
| Sensing distance                 | 2mm                                                                                                                                            | 4mm                  | 5mm                                            | 8mm                                            | 10mm                                               | 15mm                                               |
| Hysteresis                       | Max. 10% of sensing distance                                                                                                                   |                      |                                                |                                                |                                                    |                                                    |
| Standard sensing target          | 12×12×1mm (Iron)                                                                                                                               |                      | 18×18×1mm (Iron)                               | 25×25×1mm (Iron)                               | 30×30×1mm (Iron)                                   | 45×45×1mm (Iron)                                   |
| Setting distance                 | 0 to 1.4mm                                                                                                                                     | 0 to 2.8mm           | 0 to 3.5mm                                     | 0 to 5.6mm                                     | 0 to 7mm                                           | 0 to 10.5mm                                        |
| Power supply (Operation voltage) | 100-240VAC<br>(85-264VAC)                                                                                                                      |                      |                                                |                                                |                                                    |                                                    |
| Leakage current                  | Max. 2.5mA                                                                                                                                     |                      |                                                |                                                |                                                    |                                                    |
| Response frequency(★1)           | 20Hz                                                                                                                                           |                      |                                                |                                                |                                                    |                                                    |
| Residual voltage                 | Max. 10V                                                                                                                                       |                      |                                                |                                                |                                                    |                                                    |
| Affection by Temp.               | ±10% Max. for sensing distance at 20℃ within temperature range of -25 to 70℃                                                                   |                      |                                                |                                                |                                                    |                                                    |
| Control output                   | 5 to 150mA                                                                                                                                     |                      | 5 to 200mA                                     |                                                |                                                    |                                                    |
| Insulation resistance            | Min. 50MΩ (at 500VDC megger)                                                                                                                   |                      |                                                |                                                |                                                    |                                                    |
| Dielectric strength              | 2,500VAC 50/60Hz for 1minute                                                                                                                   |                      |                                                |                                                |                                                    |                                                    |
| Vibration                        | 1mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours                                                             |                      |                                                |                                                |                                                    |                                                    |
| Shock                            | 500m/s² (50G) in X, Y, Z direction for 3 times                                                                                                 |                      |                                                |                                                |                                                    |                                                    |
| Indicator                        | Operation indicator (Red LED)                                                                                                                  |                      |                                                |                                                |                                                    |                                                    |
| Ambient temperature              | -25 to 70℃ (at non-freezing status)                                                                                                            |                      |                                                |                                                |                                                    |                                                    |
| Storage temperature              | -30 to 80℃ (at non-freezing status)                                                                                                            |                      |                                                |                                                |                                                    |                                                    |
| Ambient humidity                 | 35 to 95%RH                                                                                                                                    |                      |                                                |                                                |                                                    |                                                    |
| Protection circuit               | Surge protection circuit                                                                                                                       |                      |                                                |                                                |                                                    |                                                    |
| Protection                       | IP67 (IEC standard)                                                                                                                            |                      |                                                |                                                |                                                    |                                                    |
| Cable spec.                      | φ 4×2P, 2m                                                                                                                                     |                      | φ 5×2P, 2m                                     |                                                |                                                    |                                                    |
| Material                         | Case/Nut: Nikel plated Brass, Washer: Nikel plated Iron, Sensing surface: Heat-resistant ABS, Standard cable (Black): Polyvinyl chloride (PVC) |                      |                                                |                                                |                                                    |                                                    |
| Approval                         | CE                                                                                                                                             |                      |                                                |                                                |                                                    |                                                    |
| Unit weight                      | Approx. 66g                                                                                                                                    |                      | PR : Approx. 133g<br>PRL : Approx. 150g        |                                                | PR : Approx. 185g<br>PRL : Approx. 222g            |                                                    |

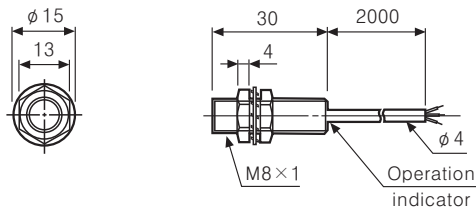
※(★1) The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

# Cylindrical Type Proximity Sensor

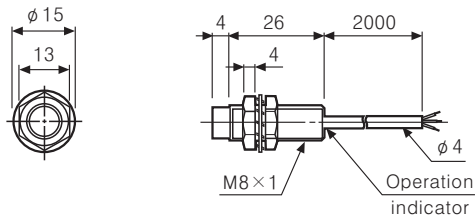
## ■ Dimensions

(Unit:mm)

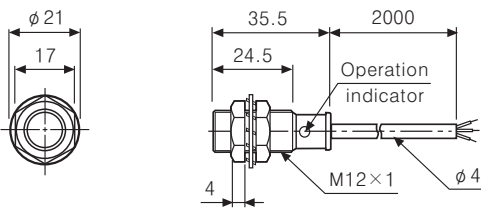
### ●PR(T)08-1.5D□



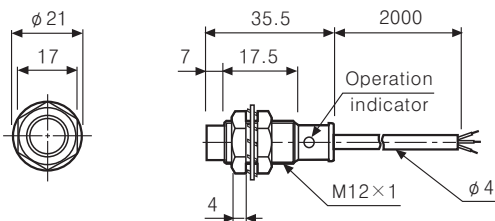
### ●PR(T)08-2D□



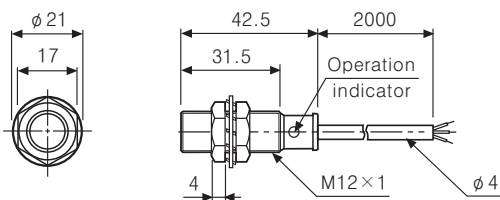
### ●PRS12-2D□



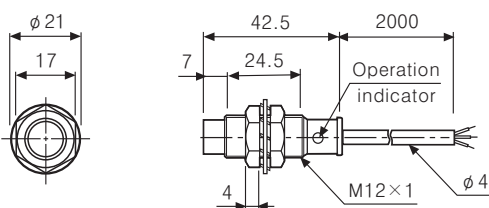
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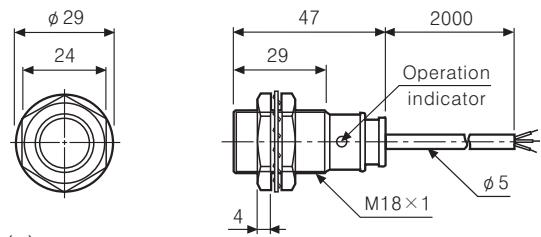
### ●PR(T)12-2D□



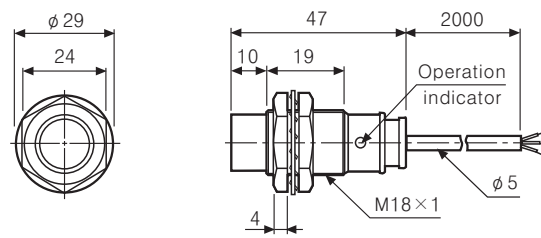
### ●PR(T)12-4D□



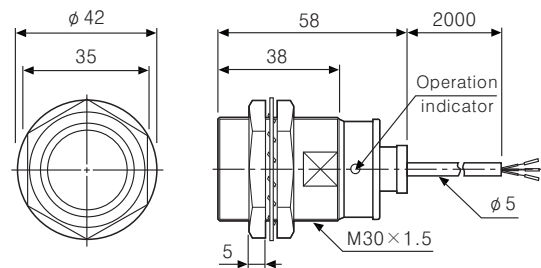
### ●PR(T)18-5D□



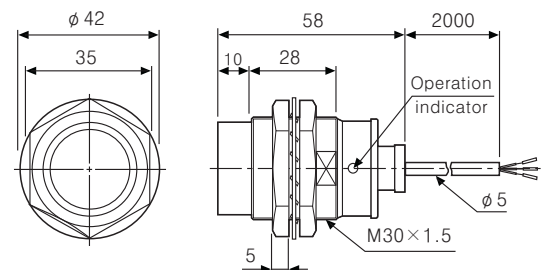
### ●PR(T)18-8D□



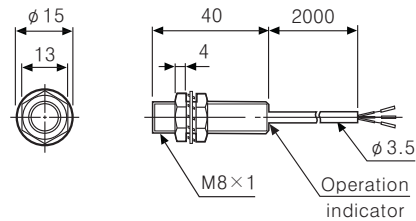
### ●PR(T)30-10D□



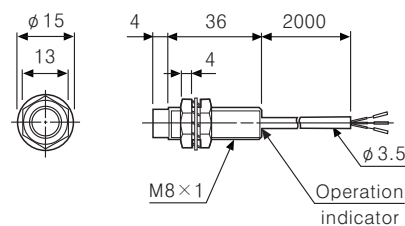
### ●PR(T)30-15D□



### ●PRL08-1.5D□



### ●PRL08-2D□



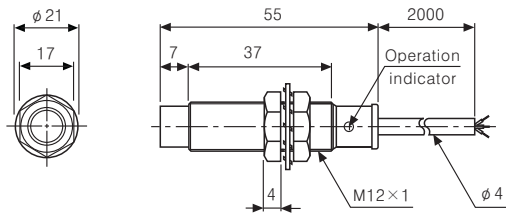
|     |                                          |
|-----|------------------------------------------|
| (A) | Photo electric sensor                    |
| (B) | Fiber optic sensor                       |
| (C) | Door/Area sensor                         |
| (D) | Proximity sensor                         |
| (E) | Pressure sensor                          |
| (F) | Rotary encoder                           |
| (G) | Connector/Socket                         |
| (H) | Temp. controller                         |
| (I) | SSR/Power controller                     |
| (J) | Counter                                  |
| (K) | Timer                                    |
| (L) | Panel meter                              |
| (M) | Tacho/Speed/Pulse meter                  |
| (N) | Display unit                             |
| (O) | Sensor controller                        |
| (P) | Switching power supply                   |
| (Q) | Stepping motor & Driver & Controller     |
| (R) | Graphic/Logic panel                      |
| (S) | Field network device                     |
| (T) | Production stoppage models & replacement |

# PR Series

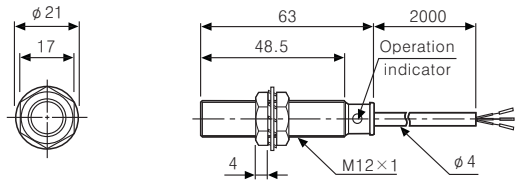
## ■ Dimensions

(Unit:mm)

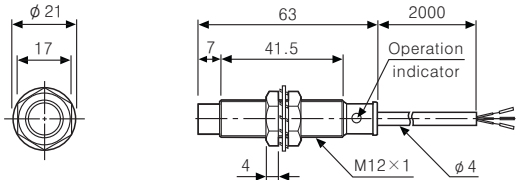
●PRL12-4D□



●PR12-2A□

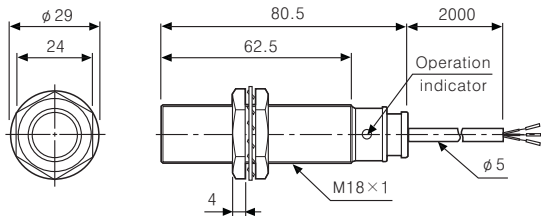


●PR12-4A□

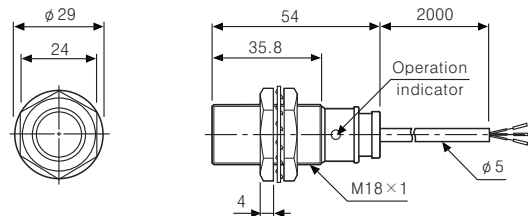


●PRL18-5D□

●PRL18-5A□

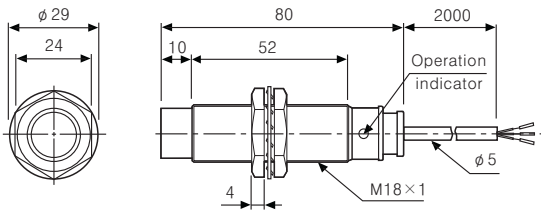


●PR18-5A□

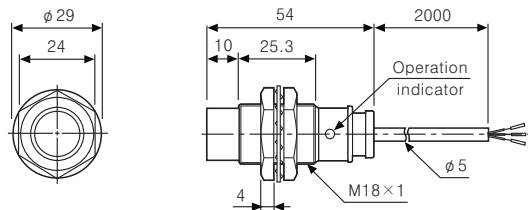


●PRL18-8D□

●PRL18-8A□

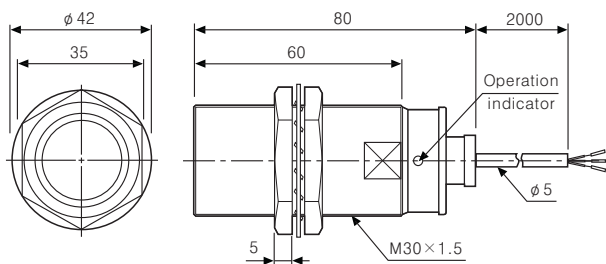


●PR18-8A□

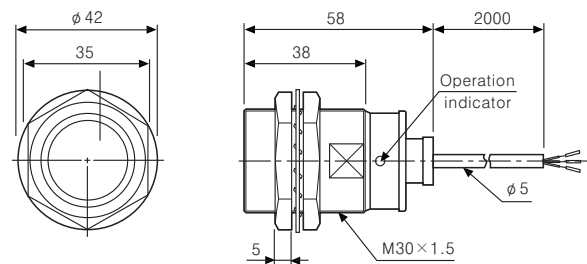


●PRL30-10D□

●PRL30-10A□

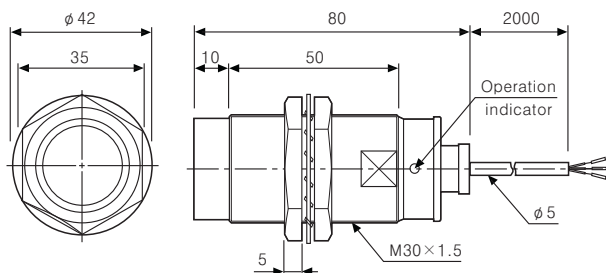


●PR30-10A□

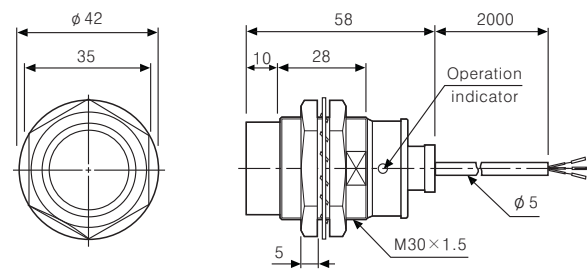


●PRL30-15D□

●PRL30-15A□



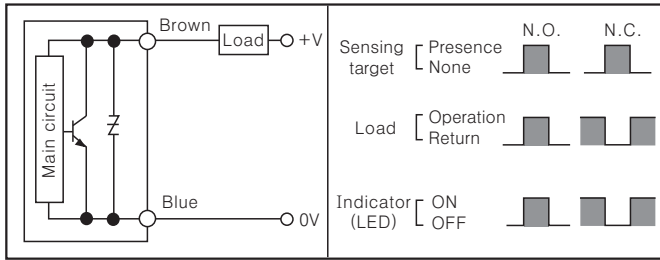
●PR30-15A□



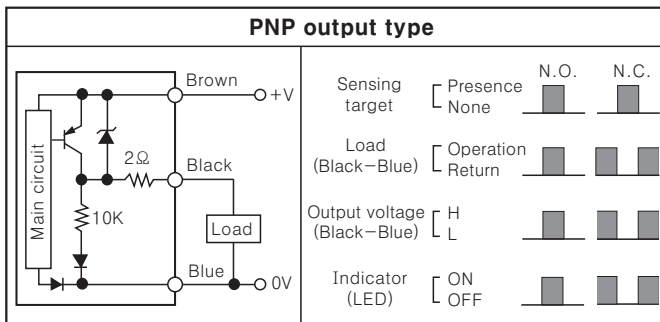
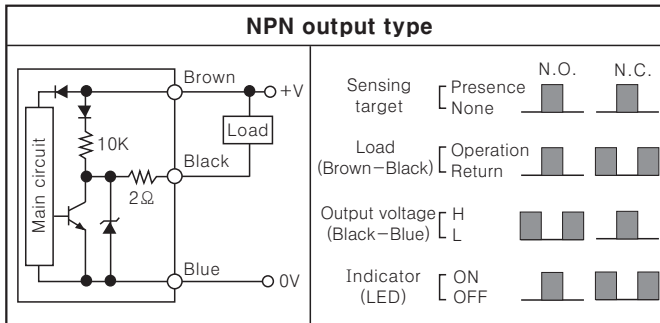
# Cylindrical Type Proximity Sensor

## ■ Control output diagram

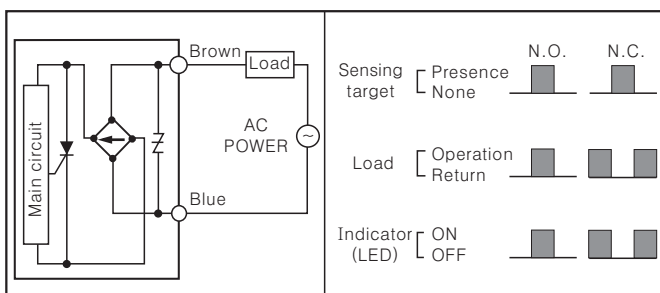
### ◎ DC 2-wire type



### ◎ DC 3-wire type

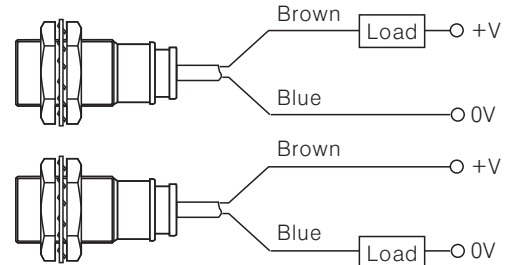


### ◎ AC 2-wire type



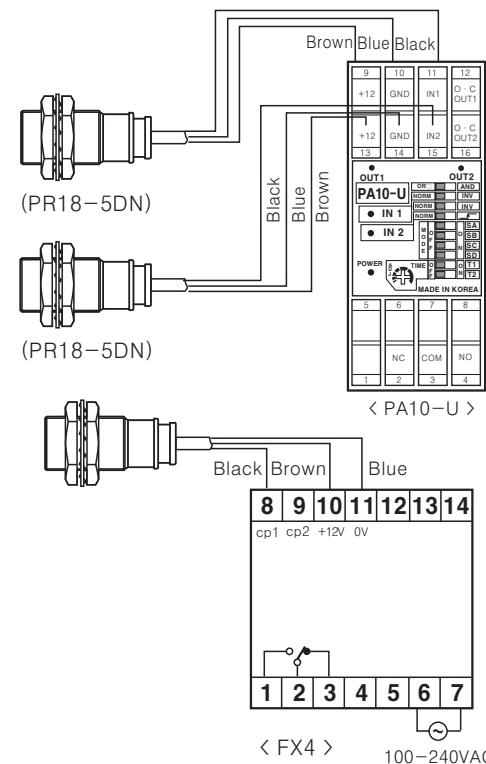
## ■ Connections

### ◎ DC 2-wire type

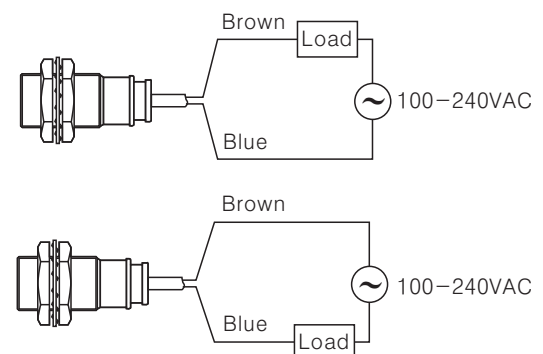


※ The load can be connected to either wire.

### ◎ DC 3-wire type



### ◎ AC 2-wire type



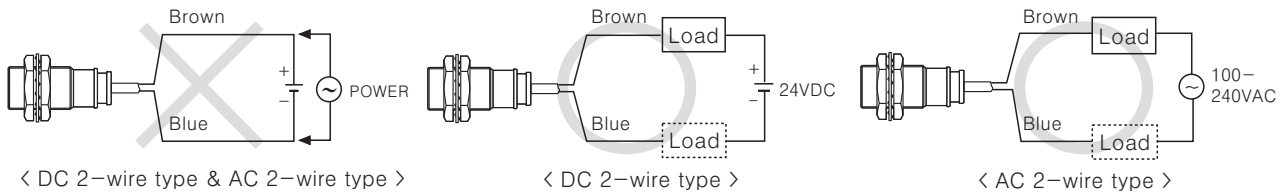
※ The load can be connected to either wire.

- (A) Photo electric sensor
- (B) Fiber optic sensor
- (C) Door/Area sensor
- (D) Proximity sensor
- (E) Pressure sensor
- (F) Rotary encoder
- (G) Connector/Socket
- (H) Temp. controller
- (I) SSR/Power controller
- (J) Counter
- (K) Timer
- (L) Panel meter
- (M) Tacho/Speed/Pulse meter
- (N) Display unit
- (O) Sensor controller
- (P) Switching power supply
- (Q) Stepping motor & Driver & Controller
- (R) Graphic/Logic panel
- (S) Field network device
- (T) Production stoppage models & replacement

# PR Series

## ■ Proper usage

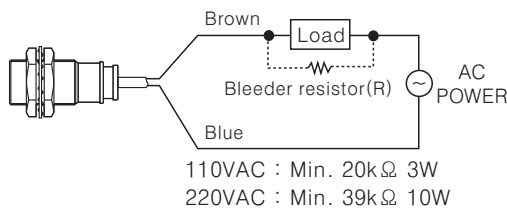
### ◎ Load connections



When using DC or AC 2-wire type proximity sensor, the load must be connected, otherwise internal components may be damaged. The load can be connected to either wire.

### ◎ In case of the load current is small

#### ● AC 2-wire type

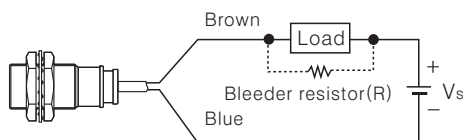


It may cause return failure of load by residual voltage. If the load current is under 5mA, please make sure the residual voltage is less than the return voltage of the load by connecting a bleeder resistor in parallel with the load as shown in the diagram.

$$R = \frac{V_s}{I} (\Omega) \quad P = \frac{V_s^2}{R} (W)$$

[ I: Action current of load, R: Bleeder resistance, P: Permissible power ]

#### ● DC 2-wire type



Please make the current on proximity sensor smaller than the return current of load by connecting a bleeder resistor in parallel.

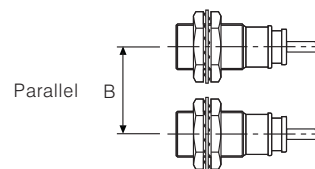
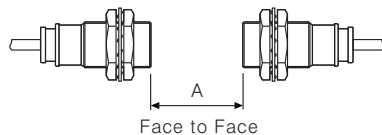
※ W value of Bleeder resistor should be bigger for proper heat dissipation.

$$R = \frac{V_s}{I_o - I_{off}} (\Omega) \quad P = \frac{V_s^2}{R} (W)$$

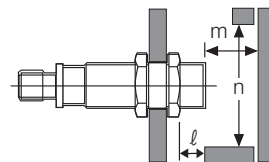
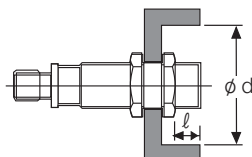
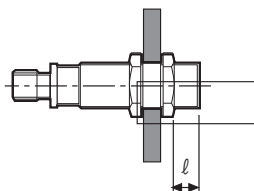
[ Vs : Power supply, Io : Min. action current of proximity sensor  
Ioff : Return current of load, P : Number of Bleeder resistance watt ]

### ◎ Mutual-interference & Influence by surrounding metals

When several proximity sensors are mounted close to one another a malfunction of the may be caused due to mutual interference. Therefore, be sure to keep a minimum distance between the two sensors as below chart indicates.



When sensors are mounted on metallic panel, it is required to protect the sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart indicates.



(Unit:mm)

| Model | PR08-1.5D□<br>PRT08-1.5D□ | PR08-2D□<br>PRT08-2D□ | PR(T)12-2D□<br>PRS12-2D□<br>PR12-2A□ | PR(T)12-4D□<br>PRS12-4D□<br>PR12-4A□ | PR(T)18-5D□<br>PRL18-5D□<br>PR18-5A□<br>PRL18-5A□ | PR(T)18-8D□<br>PRL18-8D□<br>PR18-8A□<br>PRL18-8A□ | PR(T)30-10D□<br>PRL30-10D□<br>PR30-10A□<br>PRL30-10A□ | PR(T)30-15D□<br>PRL30-15D□<br>PR30-15A□<br>PRL30-15A□ |
|-------|---------------------------|-----------------------|--------------------------------------|--------------------------------------|---------------------------------------------------|---------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|
| A     | 9                         | 12                    | 12                                   | 24                                   | 30                                                | 48                                                | 60                                                    | 90                                                    |
| B     | 16                        | 24                    | 24                                   | 36                                   | 36                                                | 54                                                | 60                                                    | 90                                                    |
| l     | 0                         | 8                     | 0                                    | 11                                   | 0                                                 | 14                                                | 0                                                     | 15                                                    |
| ø d   | 8                         | 24                    | 12                                   | 36                                   | 18                                                | 54                                                | 30                                                    | 90                                                    |
| m     | 4.5                       | 6                     | 6                                    | 12                                   | 15                                                | 24                                                | 30                                                    | 45                                                    |
| n     | 12                        | 24                    | 18                                   | 36                                   | 27                                                | 54                                                | 45                                                    | 90                                                    |