

# PRD/PRDW Series

## Long distance proximity sensor

Line-up

### Features

- Long sensing distance  
(1.5 to 2 times longer sensing distance guaranteed compared to existing models)
- Improved the noise resistance with dedicated IC
- Integrated surge protection, reverse polarity protection, overload & short protection circuit
- Long life cycle and high reliability
- Red LED status indication
- Protection structure IP67 (IEC standard)
- Replaceable for micro switches and limit switches
- Improved cable strain relief : More reliable flexural strength of sensor/cable connecting part



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



### Specifications

#### DC 2-wire type

Model	PRDT12-4DO PRDT12-4DC PRDT12-4DO-V PRDT12-4DC-V PRDLT12-4DO PRDLT12-4DC PRDLT12-4DO-V PRDLT12-4DC-V PRDWT12-4DO PRDWT12-4DC PRDWT12-4DO-I PRDWT12-4DC-I PRDWT12-4DO-IV PRDWT12-4DC-IV	PRDT12-8DO PRDT12-8DC PRDT12-8DO-V PRDT12-8DC-V PRDLT12-8DO PRDLT12-8DC PRDLT12-8DO-V PRDLT12-8DC-V PRDWT12-8DO PRDWT12-8DC PRDWT12-8DO-I PRDWT12-8DC-I PRDWT12-8DO-IV PRDWT12-8DC-IV	PRDT18-7DO PRDT18-7DC PRDT18-7DO-V PRDT18-7DC-V PRDLT18-7DO PRDLT18-7DC PRDLT18-7DO-V PRDLT18-7DC-V PRDWT18-7DO PRDWT18-7DC PRDWT18-7DO-I PRDWT18-7DC-I PRDWT18-7DO-IV PRDWT18-7DC-IV	PRDT18-14DO PRDT18-14DC PRDT18-14DO-V PRDT18-14DC-V PRDLT18-14DO PRDLT18-14DC PRDLT18-14DO-V PRDLT18-14DC-V PRDWT18-14DO PRDWT18-14DC PRDWT18-14DO-I PRDWT18-14DC-I PRDWT18-14DO-IV PRDWT18-14DC-IV	PRDT30-15DO PRDT30-15DC PRDT30-15DO-V PRDT30-15DC-V PRDLT30-15DO PRDLT30-15DC PRDLT30-15DO-V PRDLT30-15DC-V PRDWT30-15DO PRDWT30-15DC PRDWT30-15DO-I PRDWT30-15DC-I PRDWT30-15DO-IV PRDWT30-15DC-IV	PRDT30-25DO PRDT30-25DC PRDT30-25DO-V PRDT30-25DC-V PRDLT30-25DO PRDLT30-25DC PRDLT30-25DO-V PRDLT30-25DC-V PRDWT30-25DO PRDWT30-25DC PRDWT30-25DO-I PRDWT30-25DC-I PRDWT30-25DO-IV PRDWT30-25DC-IV
Sensing distance	4mm ±10%	8mm ±10%	7mm ±10%	14mm ±10%	15mm ±10%	25mm ±10%
Hysteresis	Max. 10% of sensing distance					
Standard sensing target	12×12×1mm (Iron)	25×25×1mm (Iron)	20×20×1mm (Iron)	40×40×1mm (Iron)	45×45×1mm (Iron)	75×75×1mm (Iron)
Setting distance	0 to 2.8mm	0 to 5.6mm	0 to 4.9mm	0 to 9.8mm	0 to 10.5mm	0 to 17.5mm
Power supply (Operating voltage)	12-24VDC (10-30VDC)					
Leakage current	Max. 0.6mA					
Response frequency (*1)	450Hz	400Hz	250Hz	200Hz	100Hz	
Residual voltage	Max. 3.5V					
Affection by Temp.	Within ±10% max. of sensing distance at 20°C in temperature range of -25 to 70°C					
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) X, Y, Z directions for 3 times					
Indicator	Output operation indicator (Red LED)					
Ambient temperature	-25 to 70°C (non-freezing condition)					
Storage temperature	-30 to 80°C (non-freezing condition)					
Ambient humidity	35 to 95%RH (at non-dew status)					
Protection circuit	Surge protection circuit, Reverse polarity protection circuit, Overload & Short protection circuit					
Material	Case/Nut: Nickel plated Brass, Washer: Nickel plated Iron, Sensing surface: Heat-resistant ABS, Standard cable (Black): Polyvinyl chloride (PVC), Oil resistant cable (Gray): Oil resistant Polyvinyl chloride (PVC)					
Approval	<b>CE</b>					
Protection	IP67 (IEC Standard)					
Unit weight	PRDT:Approx. 74g PRDLT:Approx. 94g PRDWT:Approx. 44g	PRDT:Approx. 72g PRDLT:Approx. 92g PRDWT:Approx. 42g	PRDT:Approx. 115g PRDLT:Approx. 145g PRDWT:Approx. 80g	PRDT:Approx. 110g PRDLT:Approx. 140g PRDWT:Approx. 75g	PRDT:Approx. 175g PRDLT:Approx. 215g PRDWT:Approx. 140g	PRDT:Approx. 180g PRDLT:Approx. 220g PRDWT:Approx. 145g

\* (\*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.

# Long Distance Type

## ■ Specifications

### ● DC 3-wire type

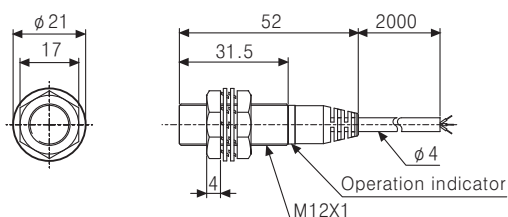
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Sensing distance	4mm ±10%	8mm ±10%	7mm ±10%	14mm ±10%	15mm ±10%	25mm ±10%
Hysteresis	Max. 10% of sensing distance					
Standard sensing target	12×12×1mm (Iron)	25×25×1mm (Iron)	20×20×1mm (Iron)	40×40×1mm (Iron)	45×45×1mm (Iron)	75×75×1mm (Iron)
Setting distance	0 to 2.8mm	0 to 5.6mm	0 to 4.9mm	0 to 9.8mm	0 to 10.5mm	0 to 17.5mm
Power supply (Operating voltage)	12-24VDC (10-30VDC)					
Current consumption	Max. 10mA					
Response frequency(*1)	500Hz	400Hz	300Hz	200Hz	100Hz	100Hz
Residual voltage	Max. 1.5V					
Affection by Temp.	Within ±10% max. of sensing distance at 20°C in temperature range of -25 to 70°C					
Control output	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/s <sup>2</sup> (50G) X, Y, Z directions for 3 times					
Indicator	Output operation indicator (Red LED)					
Ambient temperature	-25 to 70°C (non-freezing condition)					
Storage temperature	-30 to 80°C (non-freezing condition)					
Ambient humidity	35 to 95%RH					
Protection circuit	Surge protection circuit, Reverse polarity protection circuit, Overload & Short protection circuit					
Protection	IP67 (IEC Standard)					
Material	Case/Nut: Nickel plated Brass, Washer: Nickel 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	PRD:Approx. 74g PRDL:Approx. 94g PRDW:Approx. 44g PRDWL:Approx. 64g	PRD:Approx. 72g PRDL:Approx. 92g PRDW:Approx. 42g PRDWL:Approx. 62g	PRD:Approx. 115g PRDL:Approx. 145g PRDW:Approx. 80g PRDWL:Approx. 110g	PRD:Approx. 110g PRDL:Approx. 140g PRDW:Approx. 75g PRDWL:Approx. 105g	PRD:Approx. 175g PRDL:Approx. 215g PRDW:Approx. 140g PRDWL:Approx. 180g	PRD:Approx. 180g PRDL:Approx. 220g PRDW:Approx. 145g PRDWL:Approx. 185g

※(\*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.

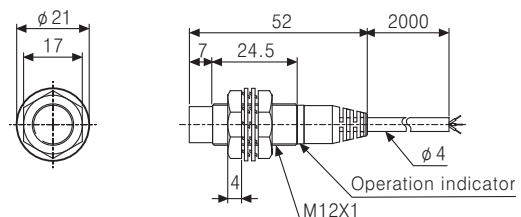
## ■ Dimensions

(Unit: mm)

### ● PRD(T)12-4D□



### ● PRD(T)12-8D□



(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

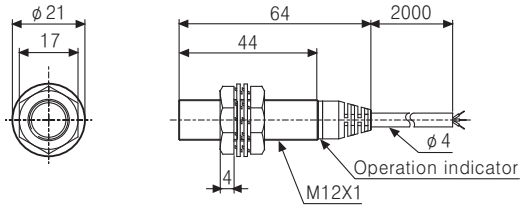
(T) Production stoppage models & replacement

# PRD/PRDW Series

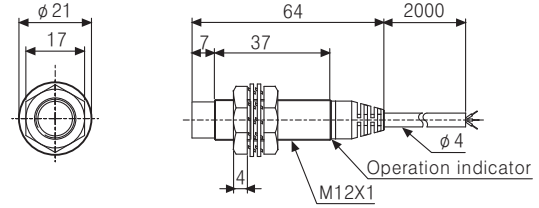
## ■ Dimensions

(Unit:mm)

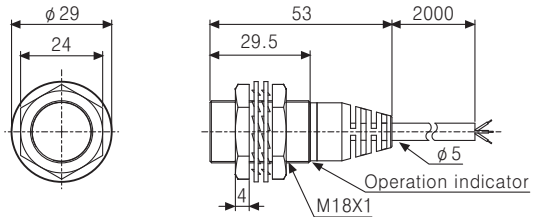
●PRDL(T)12-4D□



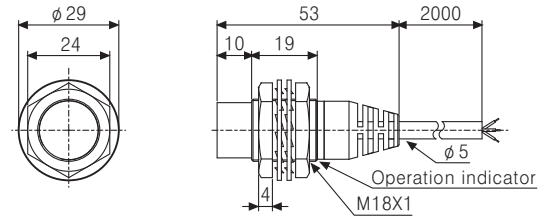
●PRDL(T)12-8D□



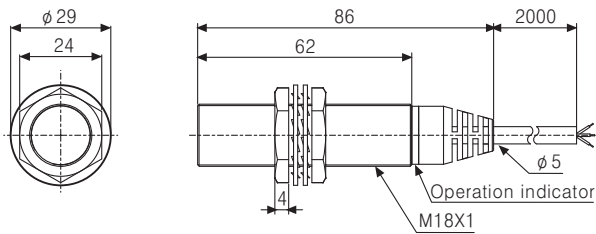
●PRD(T)18-7D□



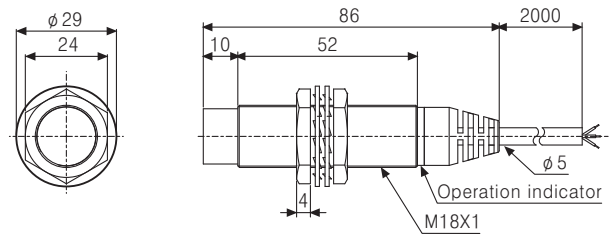
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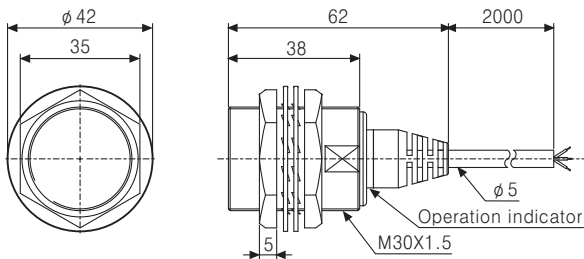
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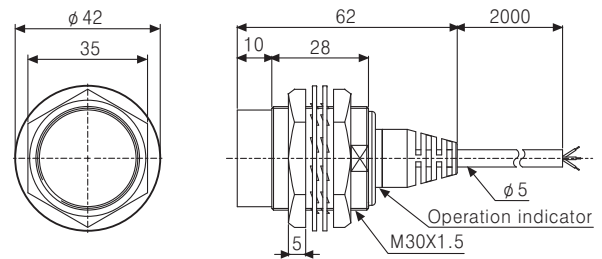
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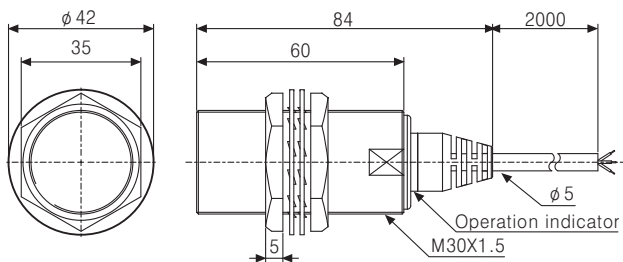
●PRD(T)30-15D□



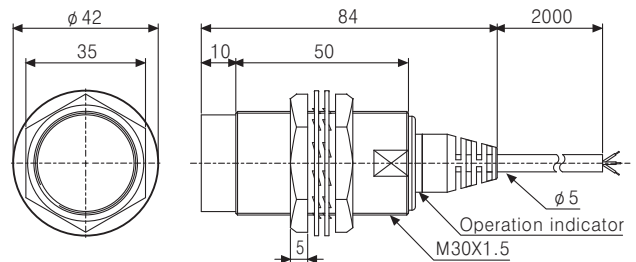
●PRD(T)30-25D□



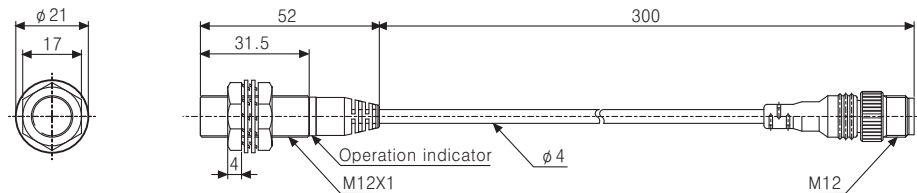
●PRDL(T)30-15D□



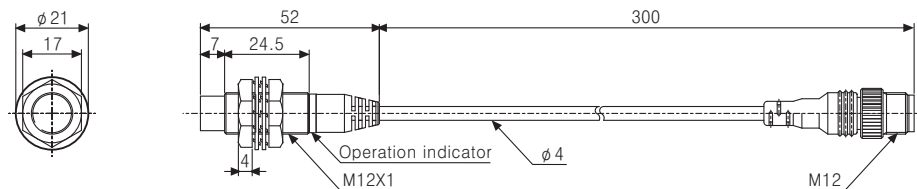
●PRDL(T)30-25D□



●PRDW(T)12-4D□



●PRDW(T)12-8D□



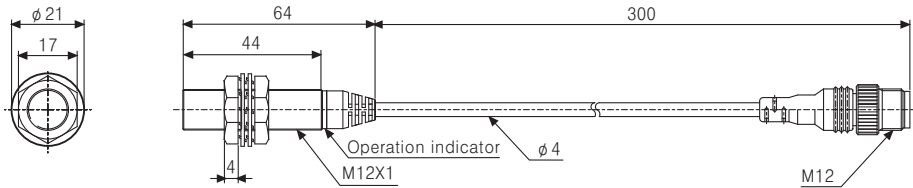
# Long Distance Type

## Dimensions

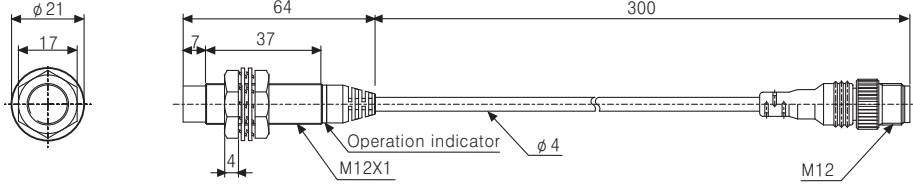
(Unit:mm)

- (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

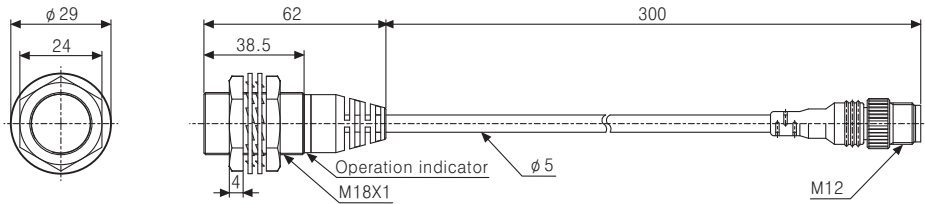
● PRDWL12-4D□



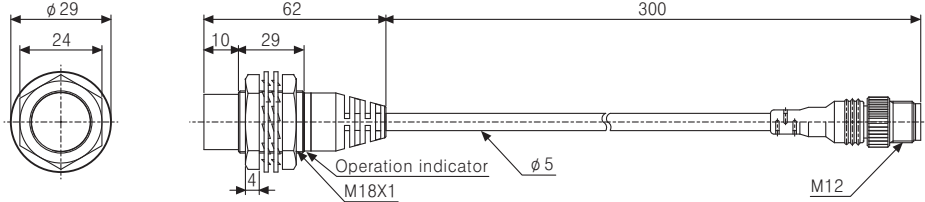
● PRDWL12-8D□



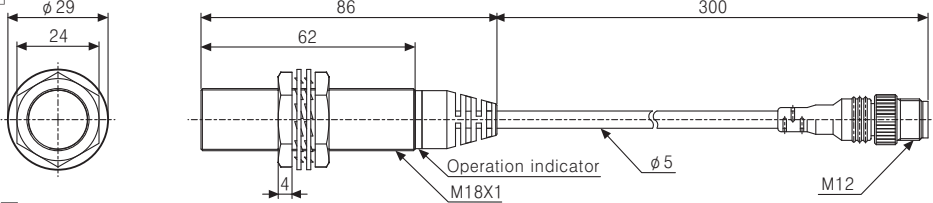
● PRDW(T)18-7D□



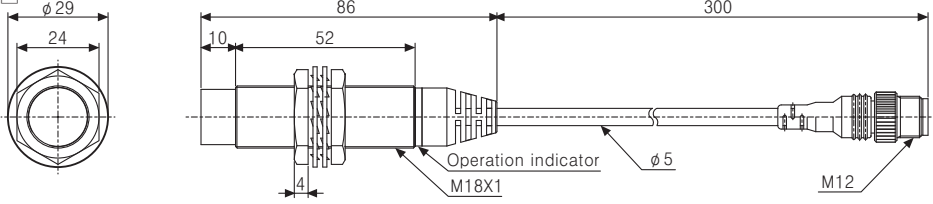
● PRDW(T)18-14D□



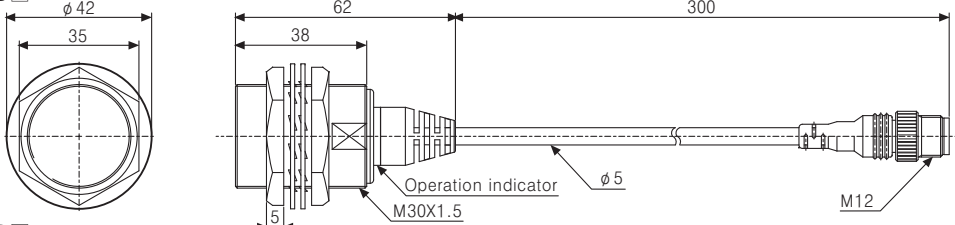
● PRDWL(T)18-7D□



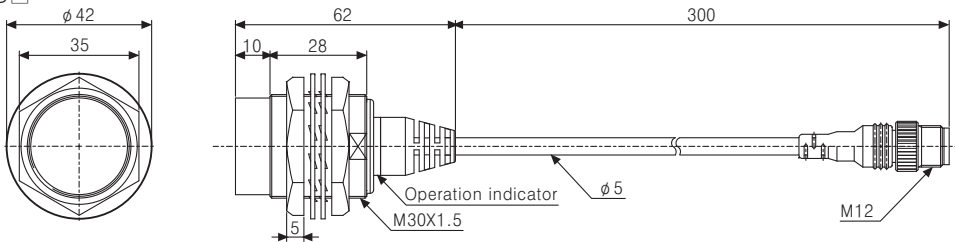
● PRDWL(T)18-14D□



● PRDW(T)30-15D□



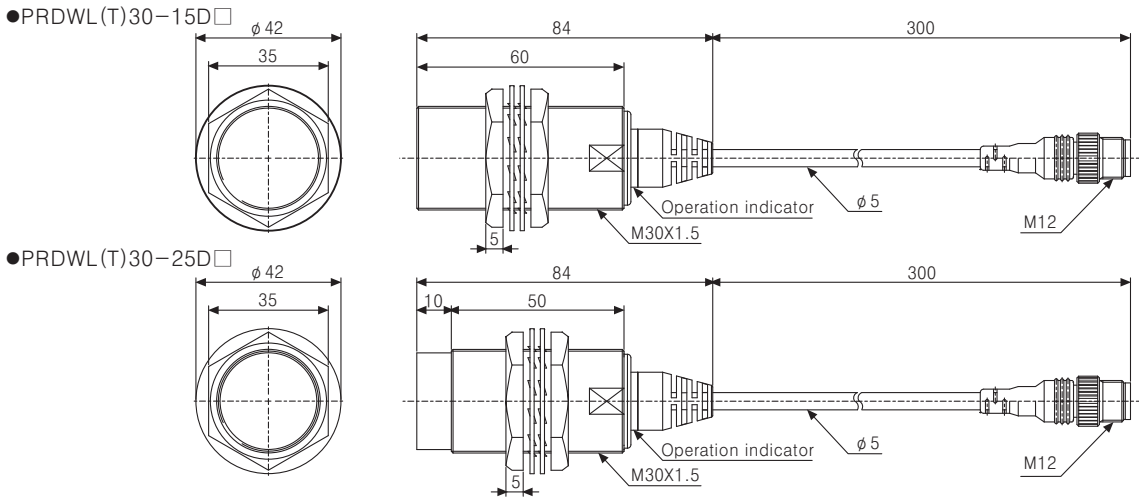
● PRDW(T)30-25D□



# PRD/PRDW Series

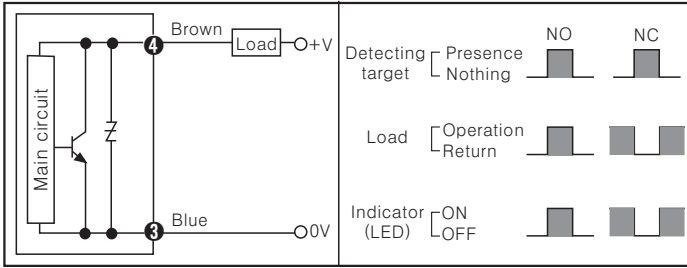
## Dimensions

(Unit:mm)



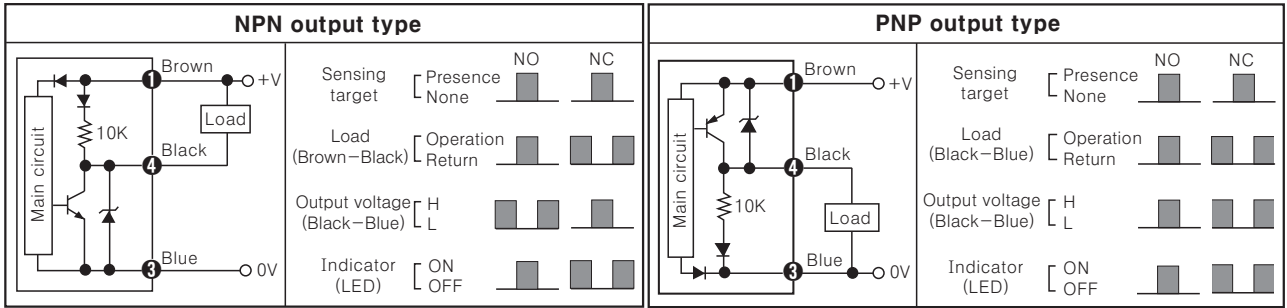
## Control output diagram

### DC 2-wire type



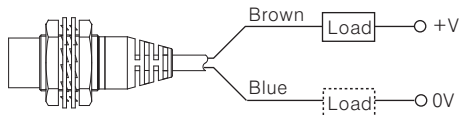
※The number in a circle is pin no. of connector.

### DC 3-wire type



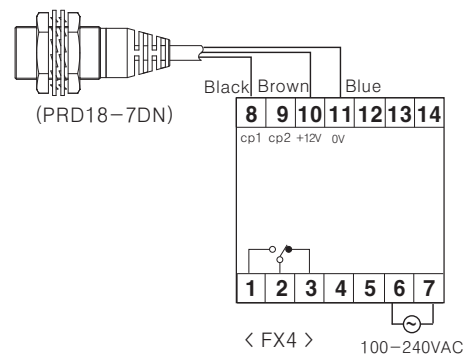
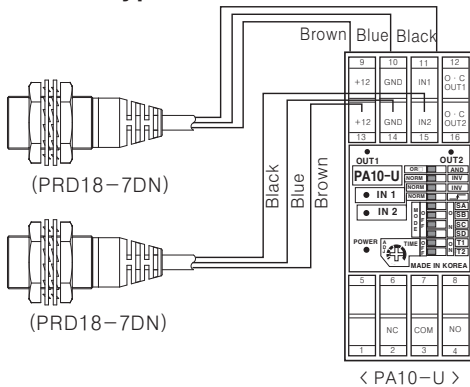
## Connections

### DC 2-wire type



※The load can be connected to either wire.

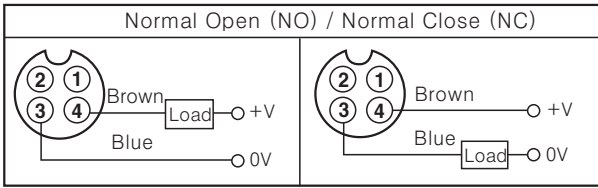
### DC 3-wire type



# Long Distance Type

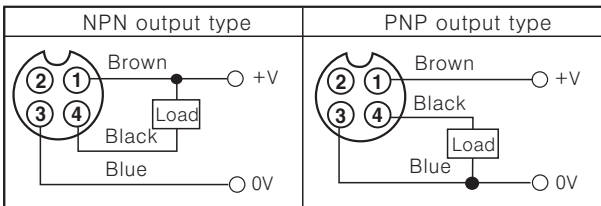
## Wiring diagram

### DC 2-wire type (Standard type)



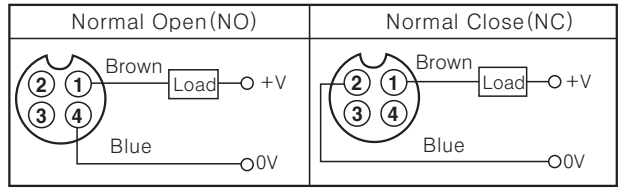
- \*Pin ①, ② are N.C (Not Connected) terminals.
- \*For DC 3-wire type connector cable, it is available to use with black wire (12-24VDC) and blue wire (0V).

### DC 3-wire type



- \*Please fasten the cleat of connector not to shown the thread. (0.39 to 0.49N · m)
- \*Please fasten the vibration part with Teflon tape.
- \*See G-2 about IEC standard connector wires and specifications.

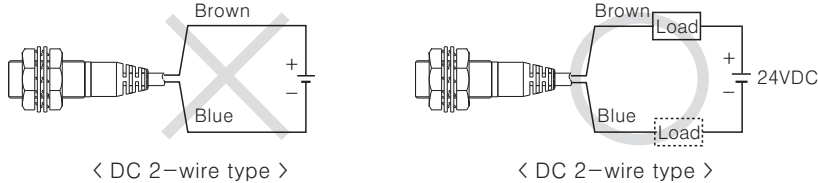
### DC 2-wire type (IEC standard type)



- \*The pin arrangement of connector applying IEC standard is being developed.
- \*Please attach "I" at the end of the name of standard type for purchasing the IEC standard product. Ex) PRDWT12-4DO-I
- \*The connector cable for IEC standard is being developed. Please attach "I" at the end of the name of standard type. Ex) CID2-2-I, CLD2-5-I

## Proper usage

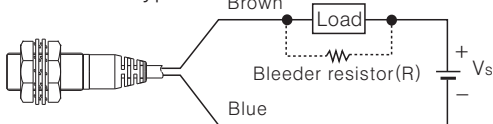
### Load connections



When using DC 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

#### DC 2-wire type



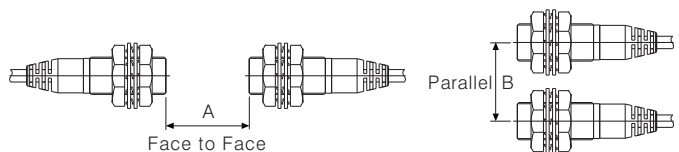
Please make the current on proximity sensor smaller than the return current of load by connecting a bleeder resistor in parallel.  
\*W value of Bleeder resistor should be bigger for proper heat dissipation.

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

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

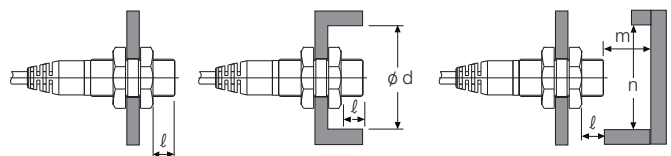
### Mutual-interference

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



### Influence by surrounding metals

When sensors are mounted on metallic panel, you must prevent 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)

Item	Model	PRD□(T)12-4D□	PRD□(T)12-8D□	PRD□(T)18-7D□	PRD□(T)18-14D□	PRD□(T)30-15D□	PRD□(T)30-25D□
A		24	48	42	84	90	150
B		24	36	36	54	60	90
l		0	11	0	14	0	15
φd		12	36	18	54	30	90
m		12	24	21	42	45	75
n		18	36	27	54	45	90

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- (T) Production stoppage models & replacement