

PRW Series

Takes up little space, cable outgoing type proximity sensor

■ Features

- Wiring man-hours greatly reduced
- Enhanced noise-resistance by using exclusive IC (DC power)
- Upgraded DC2-wire type :
Residual voltage (Max. 4VDC), Control output range (2~100mA),
Operation voltage (10~30VDC)
- Polarity free DC2-wire type
- Reverse polarity protection and overload protection (DC),
surge absorption (DC/AC)
- Operation confirmed easily by a red indicator lamp
- Wide range of applications (for replacement of micro switch,
limit switch, etc.)
- IP67 (IEC standard)



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



■ Specifications

● DC 2-wire type

* A blacked () item is upgraded function.

Model (※1)	PRWT12-2DO PRWT12-2DC PRWT12-2DO-NP PRWT12-2DC-NP	PRWT12-4DO PRWT12-4DC PRWT12-4DO-NP PRWT12-4DC-NP	PRWT18-5DO PRWT18-5DC PRWT18-5DO-NP PRWT18-5DC-NP	PRWT18-8DO PRWT18-8DC PRWT18-8DO-NP PRWT18-8DC-NP	PRWT30-10DO PRWT30-10DC PRWT30-10DO-NP PRWT30-10DC-NP	PRWT30-15DO PRWT30-15DC PRWT30-15DO-NP PRWT30-15DC-NP
Detecting distance	2mm ±10%	4mm ±10%	5mm ±10%	8mm ±10%	10mm ±10%	15mm ±10%
Hysteresis	Max. 10% of detecting distance					
Standard detecting target	12×12×1mm (Iron)		18×18×1mm (Iron)	25×25×1mm (Iron)	30×30×1mm (Iron)	45×45×1mm (Iron)
Setting distance	0 ~ 1.4mm	0 ~ 2.8mm	0 ~ 3.5mm	0 ~ 5.6mm	0 ~ 7mm	0 ~ 10.5mm
Power supply (Operation voltage)	24VDC (10~30VDC)					
Leakage current	Max. 0.9mA					
Response frequency	800Hz	400Hz	350Hz	200Hz	250Hz	100Hz
Residual voltage(※2)	Max. 4V					
Affection by Temp.	±10% Max. for detecting distance at +20℃ within temperature range of -25 ~ +70℃					
Control output	2~100mA					
Insulation resistance	Min. 50MΩ (at 500VDC)					
Dielectric strength	1500VAC 50/60Hz for 1 minute					
Vibration	1mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours					
Shock	500m/s ² (50G) in X, Y, Z directions for 3 times					
Indicator	Operation indicator (Red LED)					
Ambient temperature	-25 ~ +70℃ (at non-freezing status)					
Storage temperature	-30 ~ +80℃ (at non-freezing status)					
Ambient humidity	35 ~ 95%RH					
Protection circuit	Surge protection circuit, Overload & short circuit protection					
Protection	IP67 (IEC specification)					
Approval	CE					
Weight	Approx. 45g		Approx. 65g		Approx. 169g	

(※1) The "-I" is for IEC specification, and the "-NP" is for non-polar type.

(※2) For non-polar type, the residual voltage is below 5V.

Connector Cable Type

●DC 3-wire type

Model	PRW12-2DN PRW12-2DP PRW12-2DN2 PRW12-2DP2	PRW12-4DN PRW12-4DP PRW12-4DN2 PRW12-4DP2	PRW18-5DN PRW18-5DP PRW18-5DN2 PRW18-5DP2 PRWL18-5DN PRWL18-5DP PRWL18-5DN2 PRWL18-5DP2	PRW18-8DN PRW18-8DP PRW18-8DN2 PRW18-8DP2 PRWL18-8DN PRWL18-8DP PRWL18-8DN2 PRWL18-8DP2	PRW30-10DN PRW30-10DP PRW30-10DN2 PRW30-10DP2 PRWL30-10DN PRWL30-10DP PRWL30-10DN2 PRWL30-10DP2	PRW30-15DN PRW30-15DP PRW30-15DN2 PRW30-15DP2 PRWL30-15DN PRWL30-15DP PRWL30-15DN2 PRWL30-15DP2
Detecting distance	2mm ±10%	4mm ±10%	5mm ±10%	8mm ±10%	10mm ±10%	15mm ±10%
Hysteresis	Max. 10% of detecting distance					
Standard detecting target	12×12×1mm (Iron)		18×18×1mm (Iron)	25×25×1mm (Iron)	30×30×1mm (Iron)	45×45×1mm (Iron)
Setting distance	0 ~ 1.4mm	0 ~ 2.8mm	0 ~ 3.5mm	0 ~ 5.6mm	0 ~ 7mm	0 ~ 10.5mm
Power supply (Operation voltage)	12-24VDC (10-30VDC)					
Current consumption	Max. 10mA					
Residual frequency	800Hz	400Hz	350Hz	200Hz	250Hz	100Hz
Residual voltage	Max. 1.5V					
Affection by Temp.	±10% Max. for detecting distance at +20°C within temperature range of -25 ~ +70°C					
Control output	200mA					
Insulation resistance	Min. 50MΩ (at 500VDC)					
Dielectric strength	1500VAC 50/60Hz for 1 minute					
Vibration	1mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours					
Shock	500m/s ² (50G) in X, Y, Z directions for 3 times					
Indicator	Operation indicator (Red LED)					
Ambient temperature	-25 ~ 70°C (at non-freezing status)					
Storage temperature	-30 ~ 80°C (at non-freezing status)					
Ambient humidity	35 ~ 95%RH					
Protection circuit	Reverse polarity protection, Surge protection circuit, Overload & short circuit protection					
Protection	IP67 (IEC specification)					
Approval	CE					
Weight	Approx. 40g		PRW18 : Approx. 84g PRWL18 : Approx. 108g		PRW30 : Approx. 143g PRWL30 : Approx. 178g	

(A) Counter
(B) Timer
(C) Temp. controller
(D) Power controller
(E) Panel meter
(F) Tacho/Speed/Pulse meter
(G) Display unit
(H) Sensor controller

●AC 2-wire type

Model	PRW12-2AO PRW12-2AC	PRW12-4AO PRW12-4AC	PRW18-5AO PRW18-5AC PRWL18-5AO PRWL18-5AC	PRW18-8AO PRW18-8AC PRWL18-8AO PRWL18-8AC	PRW30-10AO PRW30-10AC PRWL30-10AO PRWL30-10AC	PRW30-15AO PRW30-15AC PRWL30-15AO PRWL30-15AC
Detecting distance	2mm ±10%	4mm ±10%	5mm ±10%	8mm ±10%	10mm ±10%	15mm ±10%
Hysteresis	Max. 10% of detecting distance					
Standard detecting target	12×12×1mm (Iron)		18×18×1mm (Iron)	25×25×1mm (Iron)	30×30×1mm (Iron)	45×45×1mm (Iron)
Setting distance	0 ~ 1.4mm	0 ~ 2.8mm	0 ~ 3.5mm	0 ~ 5.6mm	0 ~ 7mm	0 ~ 10.5mm
Power supply (Operation voltage)	100-240VAC (85-264VAC)					
Current consumption	Max. 2.5mA					
Residual frequency	20Hz					
Residual voltage	Max. 10V					
Affection by Temp.	±10% Max. for detecting distance at +20°C within temperature range of -25 ~ +70°C					
Control output	5~150mA		5~200mA			
Insulation resistance	Min. 50MΩ (at 500VDC)					
Dielectric strength	2500VAC 50/60Hz for 1 minute					
Vibration	1mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours					
Shock	500m/s ² (50G) in X, Y, Z directions for 3 times					
Indicator	Operation indicator (Red LED)					
Ambient temperature	-25 ~ 70°C (at non-freezing status)					
Storage temperature	-30 ~ 80°C (at non-freezing status)					
Ambient humidity	35 ~ 95%RH					
Protection circuit	Surge protection circuit built-in					
Protection	IP67 (IEC specification)					
Approval	CE					
Weight	Approx. 42g		PRW18 : Approx. 87g PRWL18 : Approx. 112g		PRW30 : Approx. 143g PRWL30 : Approx. 185g	

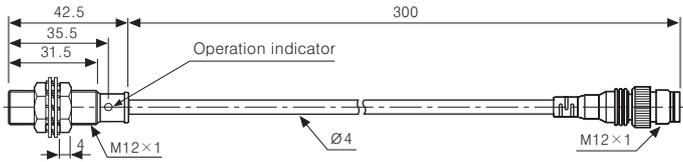
(I) Proximity sensor
(J) Photo electric sensor
(K) Pressure sensor
(L) Rotary encoder
(M) 5-Phase stepping motor & Driver & Controller

PRW Series

■ Dimensions

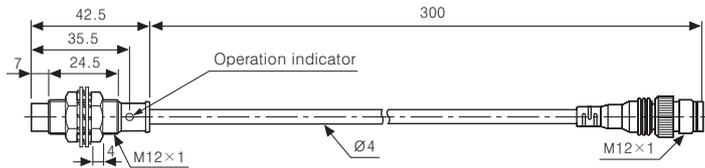
Unit:mm

●PRWT12-2D□



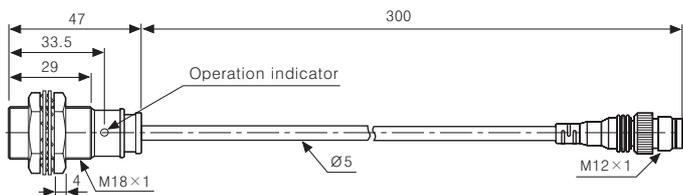
●PRW12-2D□

●PRWT12-4D□



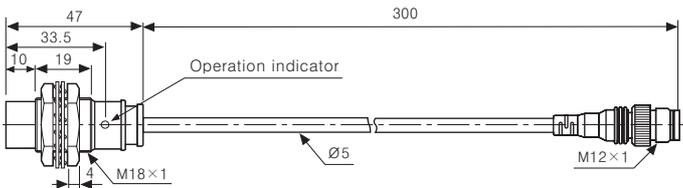
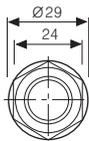
●PRW12-4D□

●PRWT18-5D□



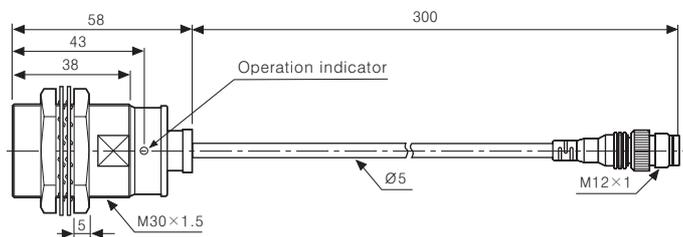
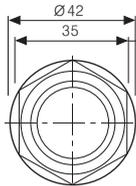
●PRW18-5D□

●PRWT18-8D□



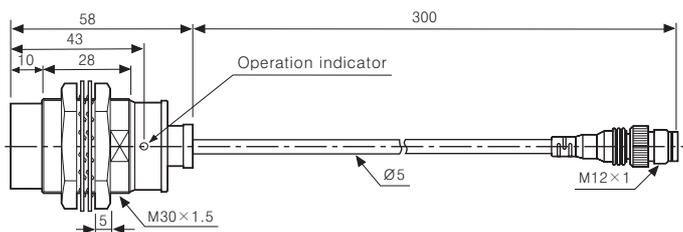
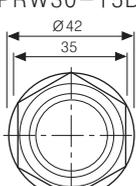
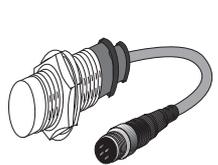
●PRW18-8D□

●PRWT30-10D□



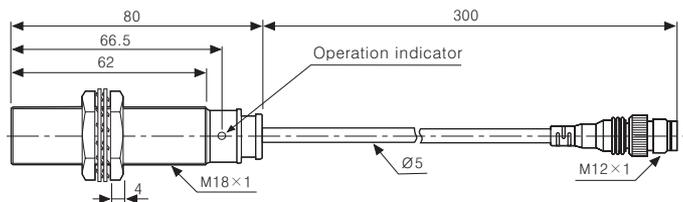
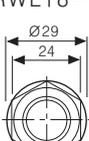
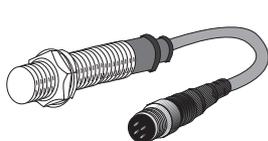
●PRW30-10D□

●PRWT30-15D□



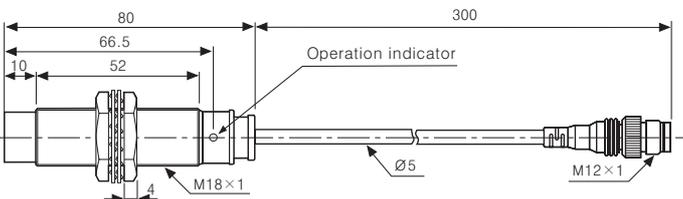
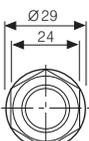
●PRW30-15D□

●PRWL18-5D□



●PRWL18-5A□

●PRWL18-8D□



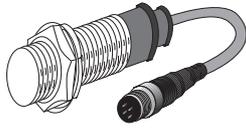
●PRWL18-8A□

Connector Cable Type

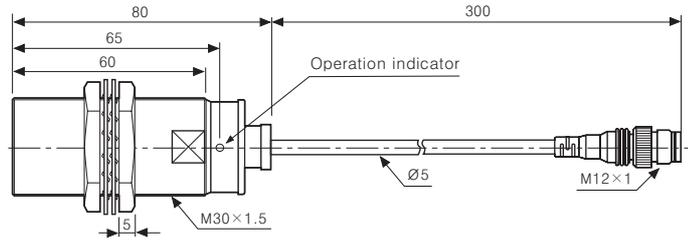
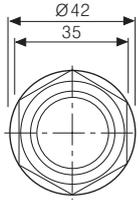
Dimensions

Unit:mm

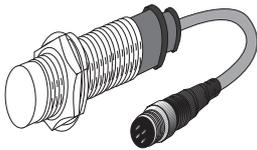
●PRWL30-10D□



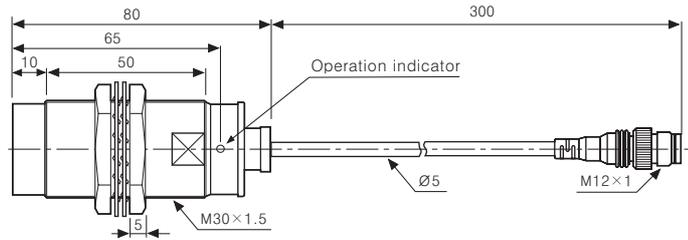
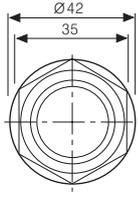
●PRWL30-10A□



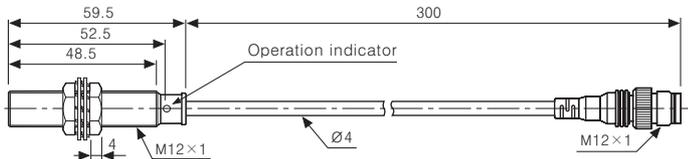
●PRWL30-15D□



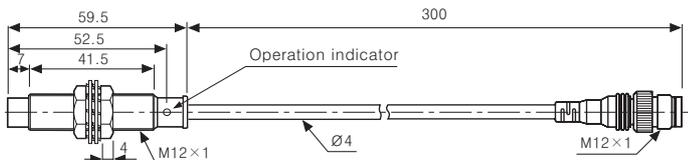
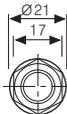
●PRWL30-15A□



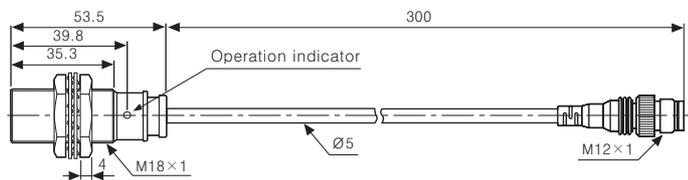
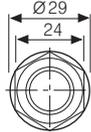
●PRW12-2A□



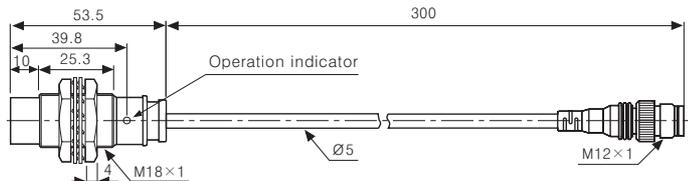
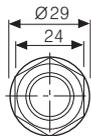
●PRW12-4A□



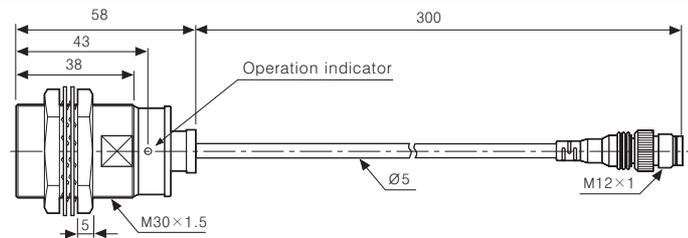
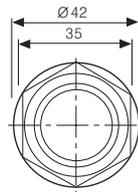
●PRW18-5A□



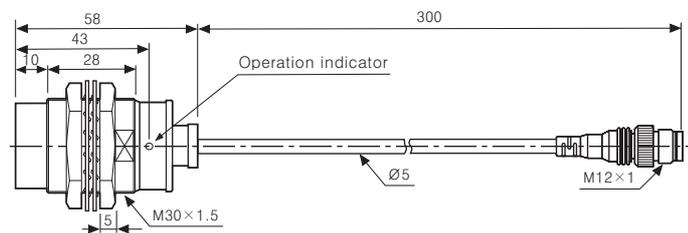
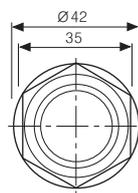
●PRW18-8A□



●PRW30-10A□



●PRW30-15A□



(A)
Counter

(B)
Timer

(C)
Temp.
controller

(D)
Power
controller

(E)
Panel
meter

(F)
Tacho/
Speed/
Pulse
meter

(G)
Display
unit

(H)
Sensor
controller

(I)
Proximity
sensor

(J)
Photo
electric
sensor

(K)
Pressure
sensor

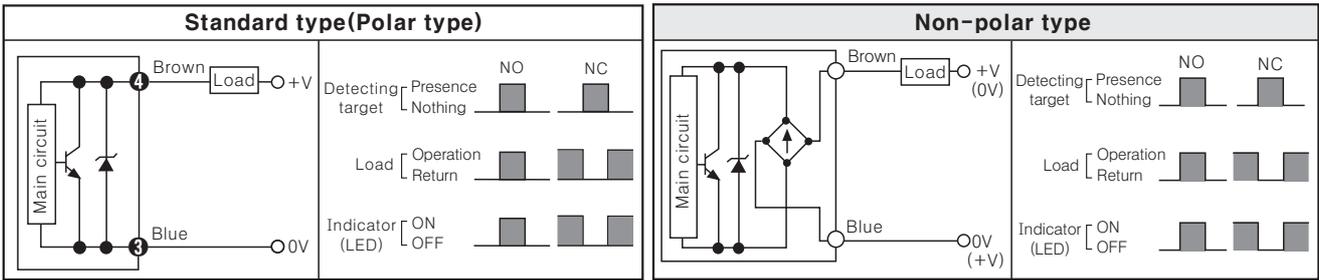
(L)
Rotary
encoder

(M)
5-Phase
stepping
motor &
Driver &
Controller

PRW Series

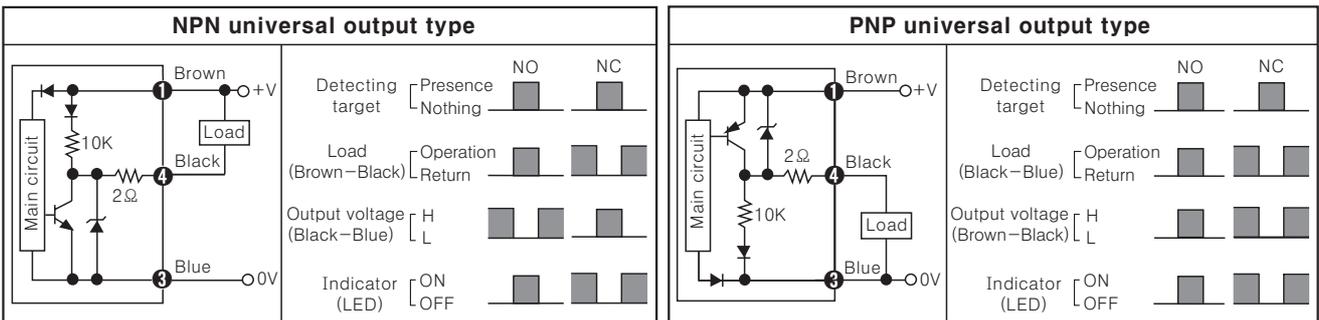
Control output diagram

DC 2-wire type

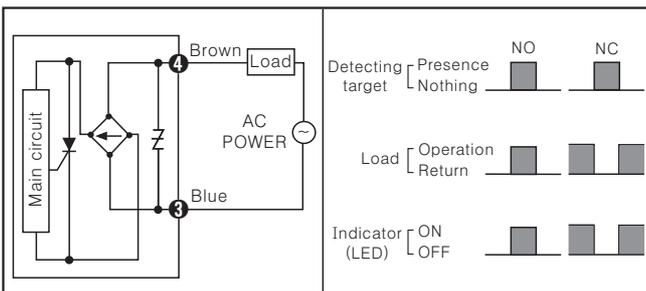


※ It is connectable without affecting polarity.

DC 3-wire type



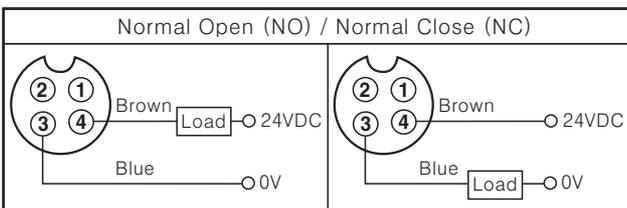
AC 2-wire type



※ Number in circle are pin number.

Wiring diagram

DC 2-wire type(Standard/non-polar type)

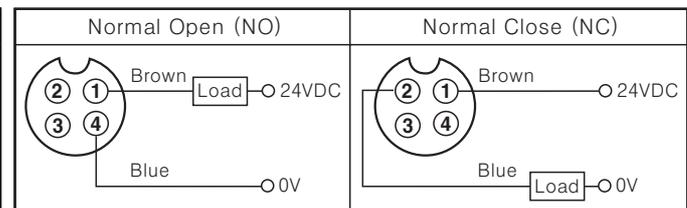


※ Pin ① and ② are not connected.

※ Non-polar type has the same connections.

※ When using DC 3-wire type of connector cable, black(24VDC) and blue(0V) cables can be used.

DC 2-wire type(IEC standard/IEC standard non-polar type)

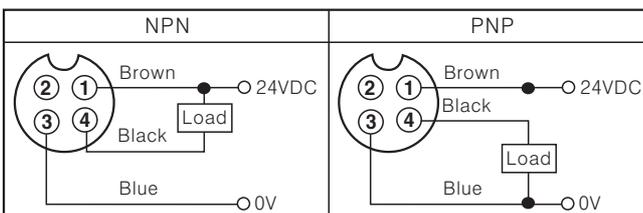


※ Non-polar type by IEC standard has the same connections.

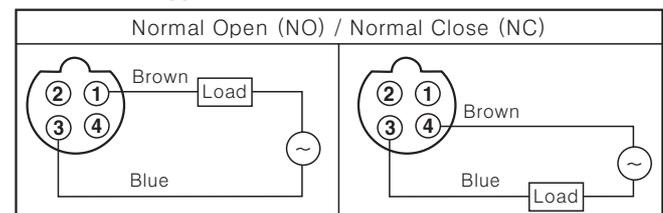
※ Please put "I" behind of model name for selecting proximity sensor by IEC standard.

Ex) CID2-2-I, CLD2-2-I

DC 3-wire type



AC 2-wire type

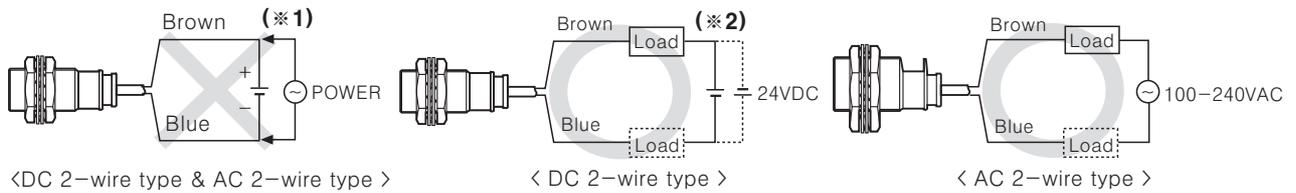


※ In case of AC switching type, ② and ③, ① and ④ are connected to each other inside.

Connector Cable Type

■ Proper usage

○ Load connections

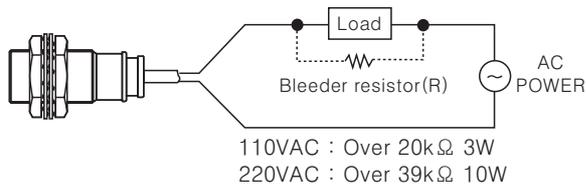


※ 1. When using DC 2-wire and AC 2-wire type, a load must be connected before applying power; otherwise, components can be damaged. The load is connectable without affecting polarity.

※ 2. For non-polar type of DC-2 wire type, it is connectable without affecting polarity.

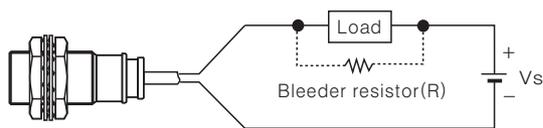
○ In case of the load current is small

● 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.

● 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.

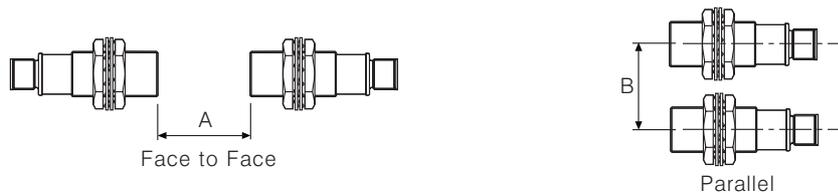
$$R \leq \frac{V_s}{I_o - I_{off}} \quad (\text{k}\Omega) \quad * V_s : \text{Power supply}$$

$$P > \frac{V_s^2}{R} \quad (\text{mW}) \quad P : \text{Bleeder resistor, number of W}$$

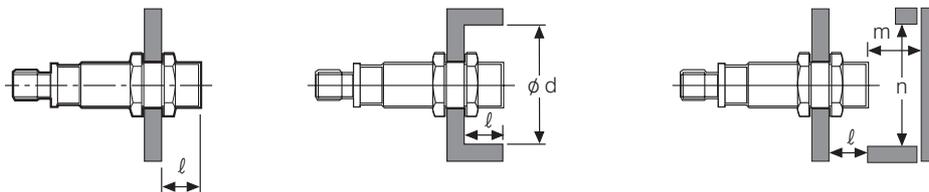
I_o : Operating current 2mA of proximity sensor
 I_{off} : Return current of load

○ Mutual-interference & Influence by surrounding metals

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



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



Unit:mm

Model Item	PRWT12-2D□ PRW12-2A□	PRWT12-4D□ PRW12-4A□	PRWT18-5D□ PRW(L)18-5D□ PRW(L)18-5A□	PRWT18-8D□ PRW(L)18-8D□ PRW(L)18-8A□	PRWT30-10D□ PRW(L)30-10D□ PRW(L)30-10A□	PRWT30-15D□ PRW(L)30-15D□ PRW(L)30-15A□
A	12	24	30	48	60	90
B	24	36	36	54	60	90
l	0	11	0	14	0	15
φd	12	36	18	54	30	90
m	6	12	15	24	30	54
n	18	36	27	54	45	90

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/Speed/Pulse meter

(G) Display unit

(H) Sensor controller

(I) Proximity sensor

(J) Photo electric sensor

(K) Pressure sensor

(L) Rotary encoder

(M) 5-Phase stepping motor & Driver & Controller