

PR Series

●DC 3-wire type

Model	PR08-1.5DN PR08-1.5DP PR08-1.5DN2 PR08-1.5DP2 PRL08-1.5DN PRL08-1.5DP PRL08-1.5DN2 PRL08-1.5DP2	PR08-2DN PR08-2DP PR08-2DN2 PR08-2DP2 PRL08-2DN PRL08-2DP PRL08-2DN2 PRL08-2DP2	PR12-2DN PR12-2DP PR12-2DN2 PR12-2DP2 PRS12-2DN PRS12-2DP PRS12-2DN2	PR12-4DN PR12-4DP PR12-4DN2 PR12-4DP2 PRS12-4DN PRS12-4DP PRS12-4DN2 PRL12-4DN PRL12-4DP	PR18-5DN PR18-5DP PR18-5DN2 PR18-5DP2 PRL18-5DN PRL18-5DP PRL18-5DN2 PRL18-5DP2	PR18-8DN PR18-8DP PR18-8DN2 PR18-8DP2 PRL18-8DN PRL18-8DP PRL18-8DN2 PRL18-8DP2	PR30-10DN PR30-10DP PR30-10DN2 PR30-10DP2 PRL30-10DN PRL30-10DP PRL30-10DN2 PRL30-10DP2	PR30-15DN PR30-15DP PR30-15DN2 PR30-15DP2 PRL30-15DN PRL30-15DP PRL30-15DN2 PRL30-15DP2	
	Sensing distance	1.5mm ±10%	2mm ±10%	2mm ±10%	4mm ±10%	5mm ±10%	8mm ±10%	10mm ±10%	15mm ±10%
	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 ~ 1.05mm	0 ~ 1.4mm	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)							
	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 ~ +70℃, PR08 Series:Max. ±20%								
Control output	200mA								
Insulation resistance	Min. 50MΩ (at 500VDC mega)								
Dielectric strength	1500VAC 50/60Hz for 1minute								
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 direction 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, Reverse power polarity, Overcurrent protection circuit								
Protection	IP67 (IEC standard)								
Cable spec.	φ 3.5×3P, 2m		φ 4×3P, 2m		φ 5×3P, 2m				
Approval	CE								
Unit weight	Approx. 36g	Approx. 36g	PR:Approx. 70g PRS:Approx. 68g	PR:Approx. 70g PRS:Approx. 68g	PR:Approx. 119g PRL:Approx. 150g	PR:Approx. 118g PRL:Approx. 150g	PR:Approx. 184g PRL:Approx. 222g	PR:Approx. 181g PRL:Approx. 227g	

※(★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 PR12-2AC	PR12-4AO PR12-4AC	PR18-5AO PR18-5AC PRL18-5AO PRL18-5AC	PR18-8AO PR18-8AC PRL18-8AO PRL18-8AC	PR30-10AO PR30-10AC PRL30-10AO PRL30-10AC	PR30-15AO PR30-15AC PRL30-15AO PRL30-15AC
Sensing distance	2mm ±10%	4mm ±10%	5mm ±10%	8mm ±10%	10mm ±10%	15mm ±10%
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 ~ 1.4mm	0 ~ 2.8mm	0 ~ 3.5mm	0 ~ 5.6mm	0 ~ 7mm	0 ~ 10.5mm
Power supply (Operation voltage)	100~240VAC (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 ~ +70℃					
Control output	5 ~ 150mA		5 ~ 200mA			
Insulation resistance	Min. 50MΩ (at 500VDC mega)					
Dielectric strength	2500VAC 50/60Hz for 1minute					
Vibration	1mm amplitude at frequency of 10 ~ 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 ~ +70℃ (at non-freezing status)					
Storage temperature	-30 ~ +80℃ (at non-freezing status)					
Ambient humidity	35 ~ 95%RH					
Protection circuit	Surge protection circuit					
Protection	IP67 (IEC standard)					
Cable spec.	ø 4×2P, 2m		ø 5×2P, 2m			
Approval	CE					
Unit weight	Approx. 66g	Approx. 66g	PR : Appox. 130g PRL : Appox. 150g	PR : Appox. 130g PRL : Appox. 150g	PR : Appox. 185g PRL : Appox. 224g	PR : Appox. 117g PRL : Appox. 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.

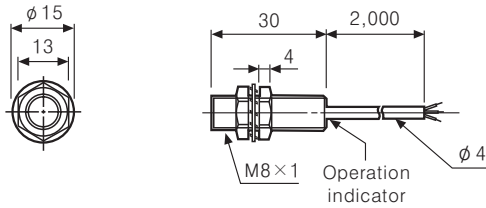
Cylindrical Type Proximity Sensor

■ Dimensions

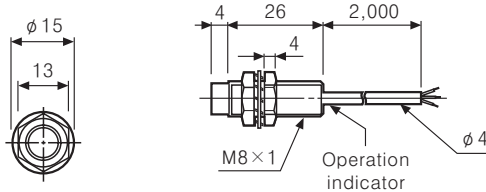
(Unit:mm)

(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)	Switching power supply
(J)	Proximity sensor
(K)	Photo electric sensor
(L)	Pressure sensor
(M)	Rotary encoder
(N)	Stepping motor & Driver & Controller
(O)	Graphic panel
(P)	Field network device
(Q)	Production stoppage models & replacement

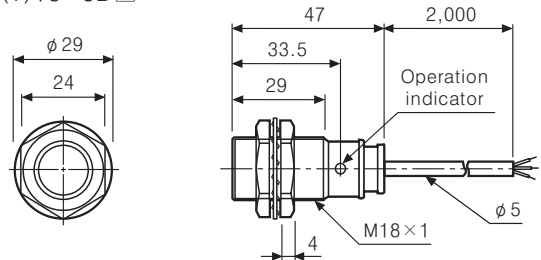
●PR(T)08-1.5D□



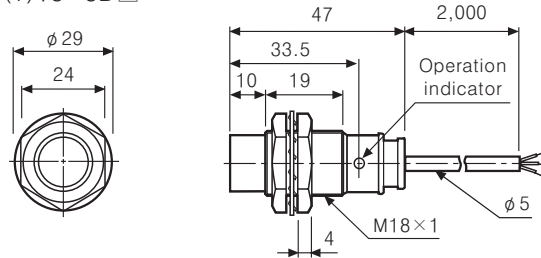
●PR(T)08-2D□



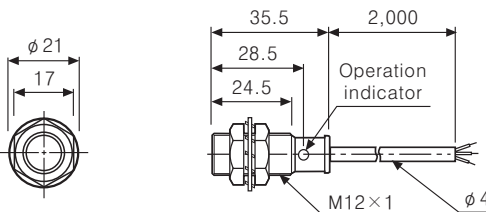
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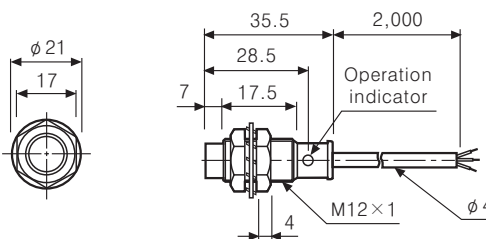
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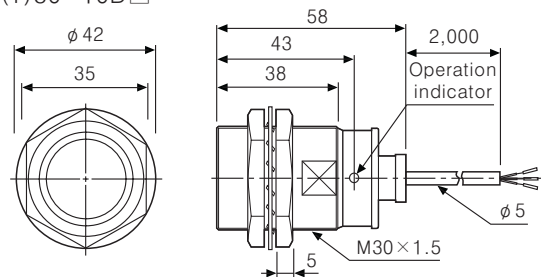
●PRS12-2D□



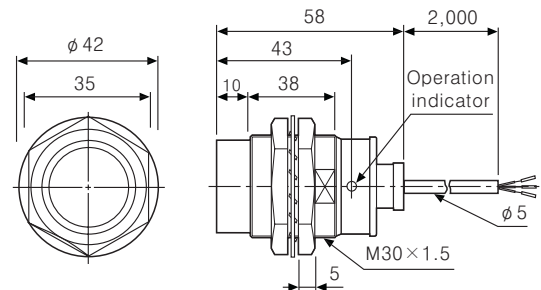
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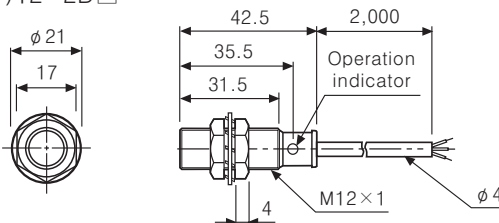
●PR(T)30-10D□



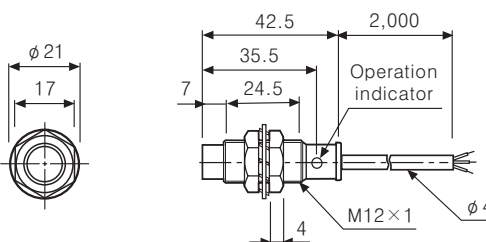
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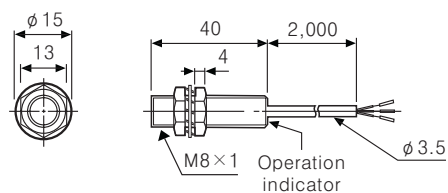
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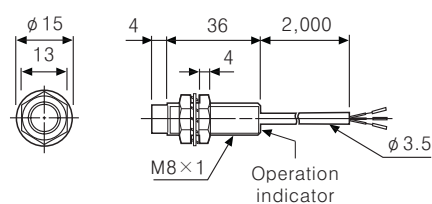
●PR(T)12-4D□



●PRL08-1.5D□



●PRL08-2D□

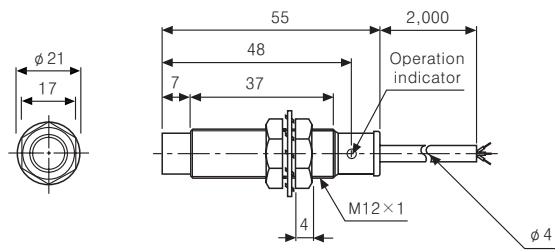


PR Series

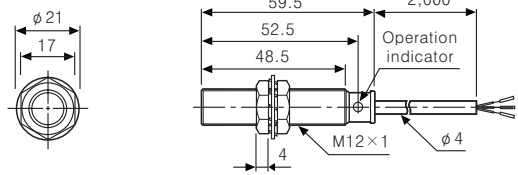
■ Dimensions

(Unit:mm)

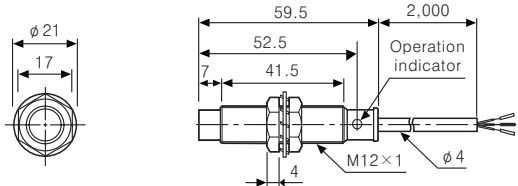
●PRL12-4D□



●PR12-2A□

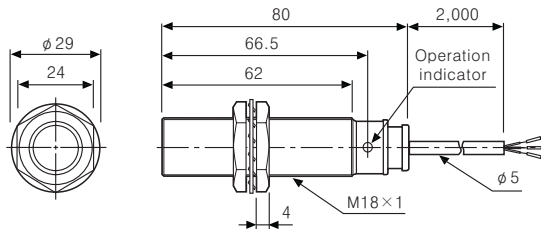


●PR12-4A□

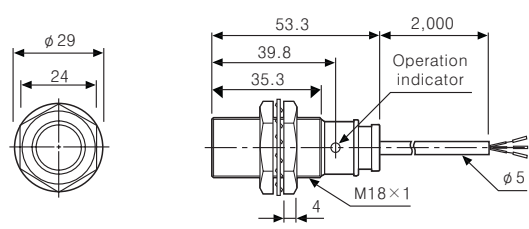


●PRL18-5D□

●PRL18-5A□

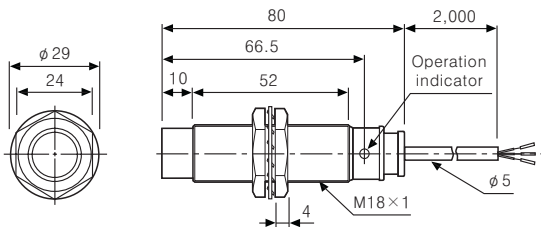


●PR18-5A□

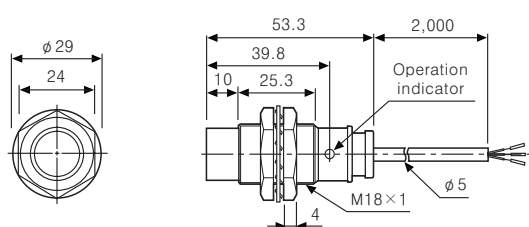


●PRL18-8D□

●PRL18-8A□

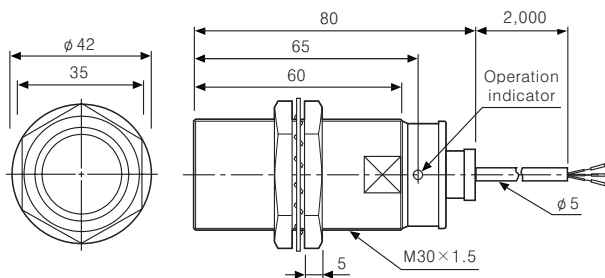


●PR18-8A□

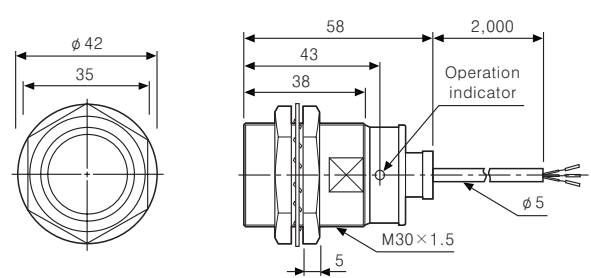


●PRL30-10D□

●PRL30-10A□

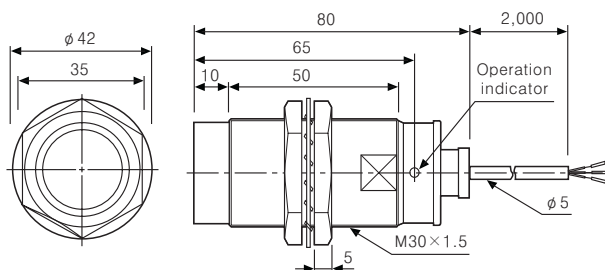


●PR30-10A□

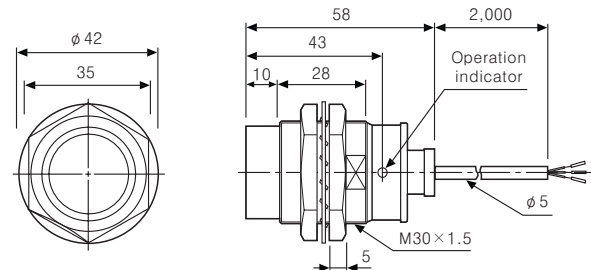


●PRL30-15D□

●PRL30-15A□



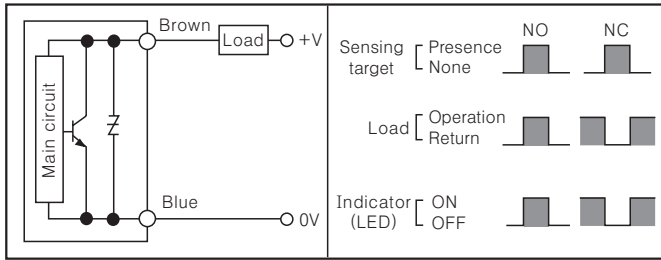
●PR30-15A□



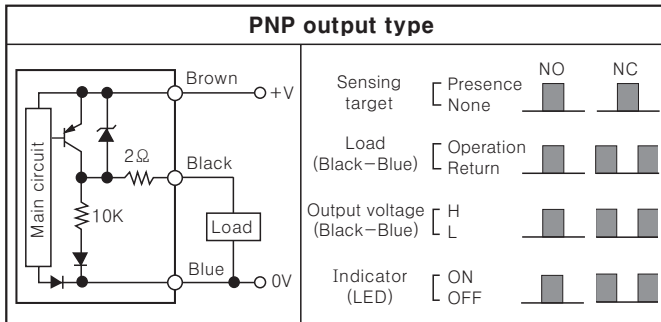
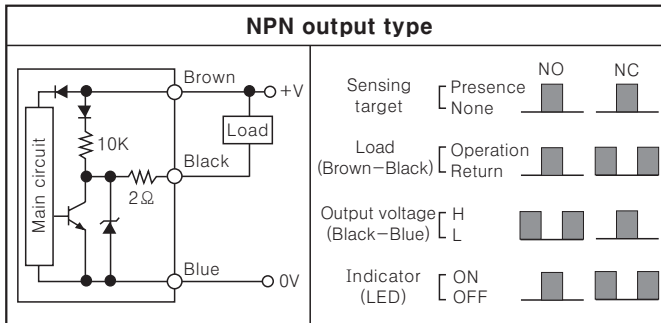
Cylindrical Type Proximity Sensor

■ Control output diagram

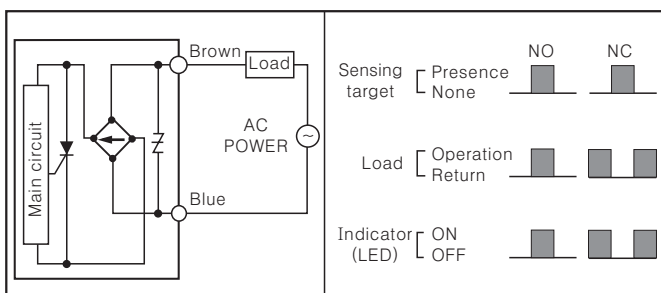
◎ DC 2-wire type



◎ DC 3-wire type

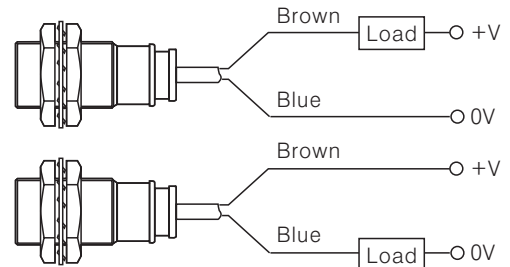


◎ AC 2-wire type



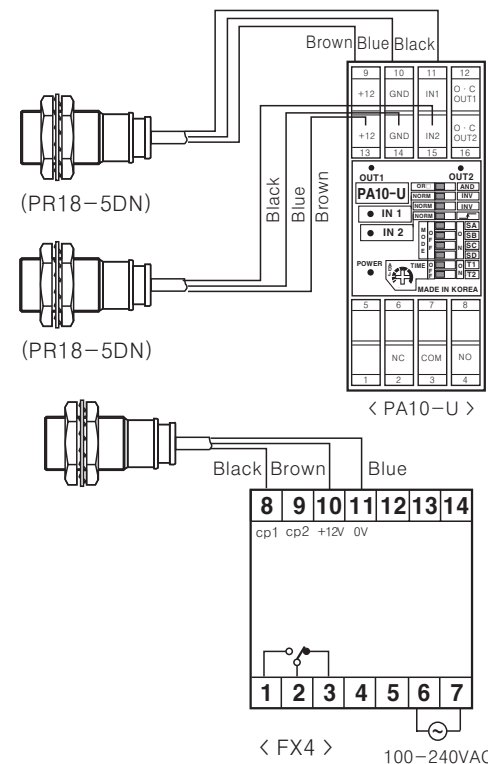
■ Connections

◎ DC 2-wire type

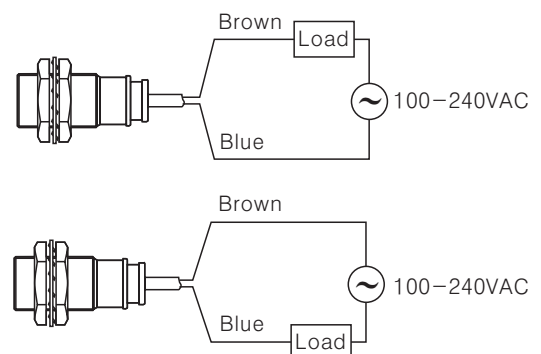


※ The load can be connected to either wire.

◎ DC 3-wire type



◎ AC 2-wire type



※ The load can be connected to either wire.

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/Speed/Pulse meter

(G) Display unit

(H) Sensor controller

(I) Switching power supply

(J) Proximity sensor

(K) Photo electric sensor

(L) Pressure sensor

(M) Rotary encoder

(N) Stepping motor & Driver & Controller

(O) Graphic panel

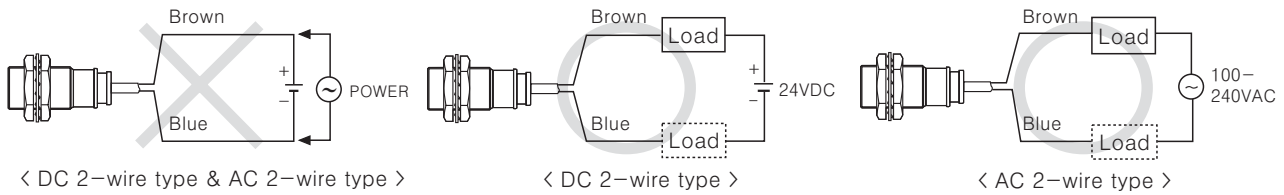
(P) Field network device

(Q) Production stoppage models & replacement

PR Series

■ Proper usage

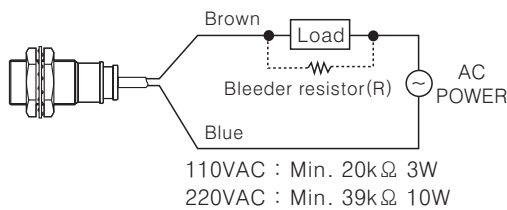
◎ Load connections



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

◎ In case of the load current is small

● AC 2-wire type

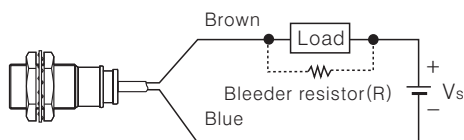


It may cause return failure of load by residual voltage. If the load current is under 5mA, please make sure the residual voltage is less than the return voltage of the load by connecting a bleeder resistor in parallel with the load as shown in the diagram.

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

[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.

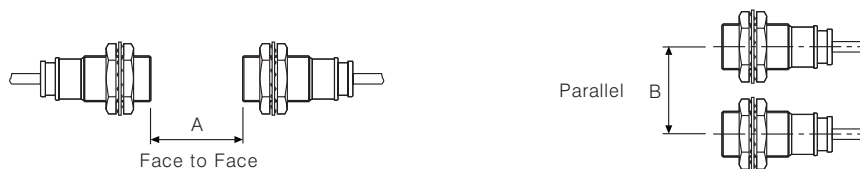
※ W value of Bleeder resistor should be bigger for proper heat dissipation.

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

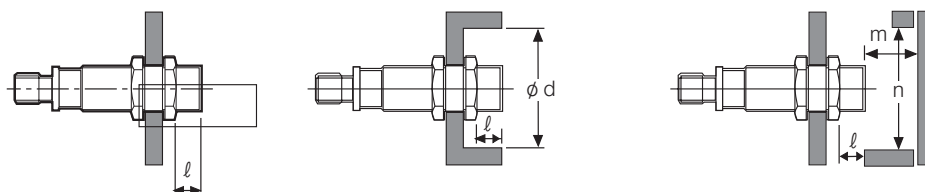
[Vs : Power supply, Io : Min. action current of proximity sensor
Ioff : Return current of load, P : Number of Bleeder resistance watt]

◎ Mutual-interference & Influence by surrounding metals

When several proximity sensors are mounted closely, malfunction may be caused due to mutual interference. Therefore, be sure to keep a minimum distance between the two sensors, as below charts.



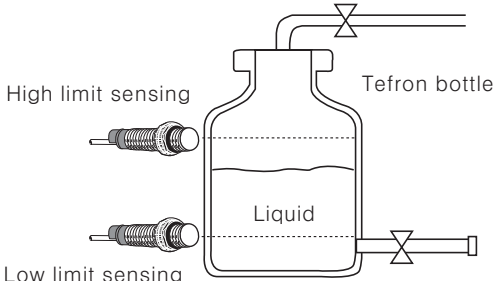
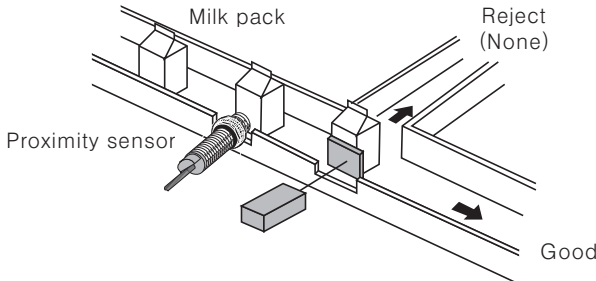
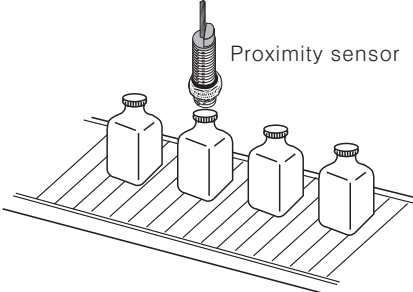
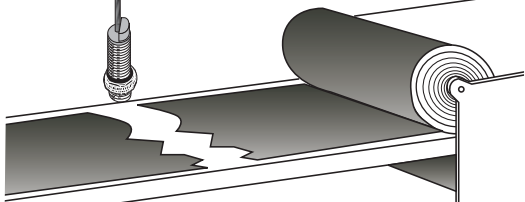
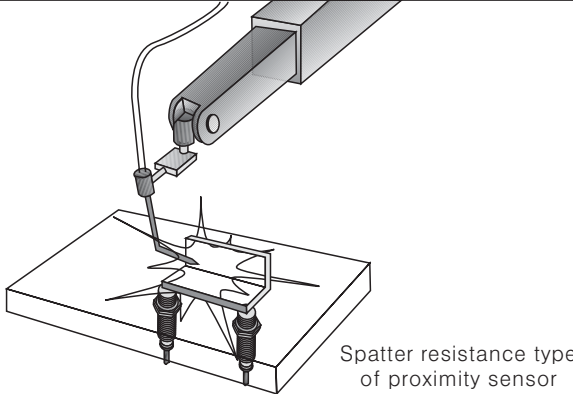
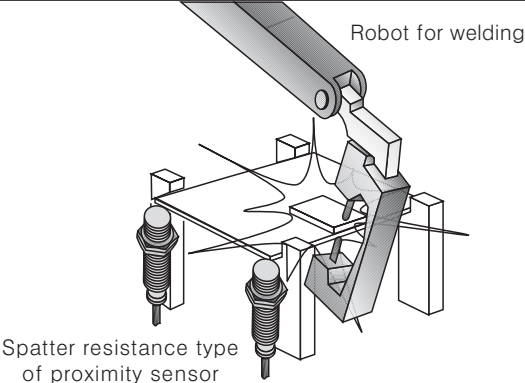
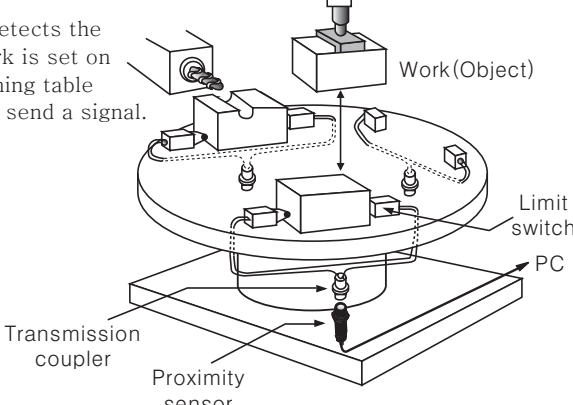
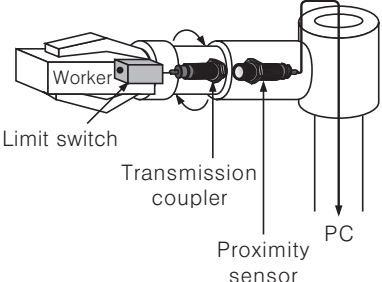
When sensors are mounted on metallic panel, it is required to protect the sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart.



(Unit:mm)

Model	PR08-1.5D□ PRT08-1.5D□	PR08-2D□ PRT08-2D□	PR(T)12-2D□ PRS12-2D□ PR12-2A□	PR(T)12-4D□ PRS12-4D□ PR12-4A□	PR(T)18-5D□ PRL18-5D□ PR18-5A□ PRL18-5A□	PR(T)18-8D□ PRL18-8D□ PR18-8A□ PRL18-8A□	PR(T)30-10D□ PRL30-10D□ PR30-10A□ PRL30-10A□	PR(T)30-15D□ PRL30-15D□ PR30-15A□ 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	54
n	12	24	18	36	27	54	45	90

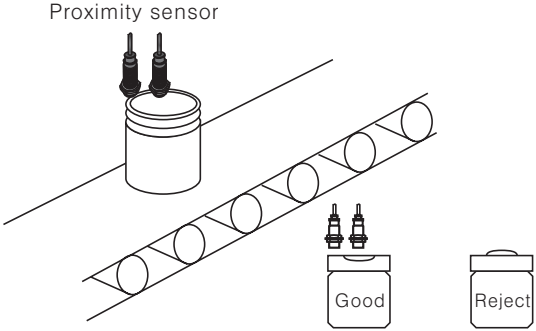
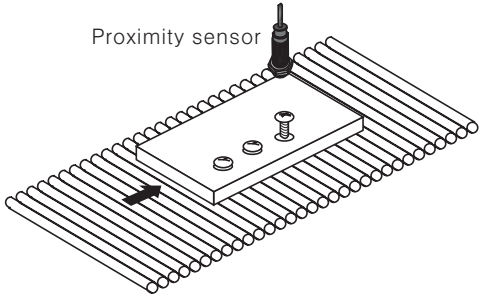
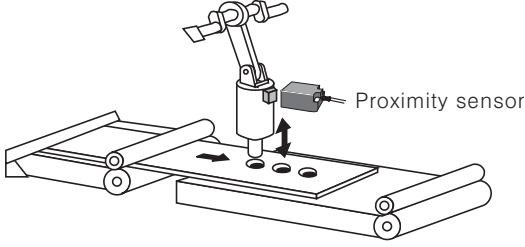
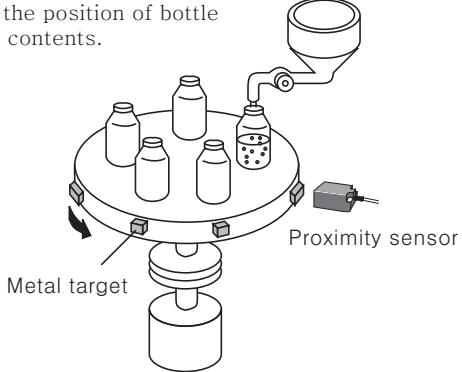
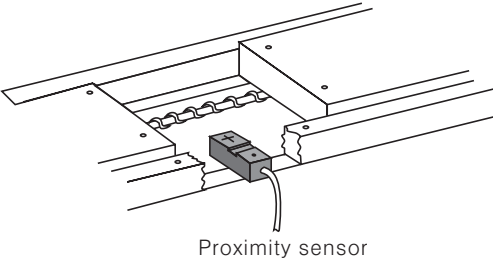
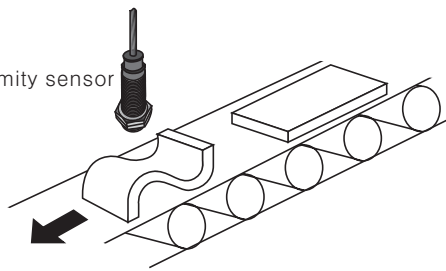
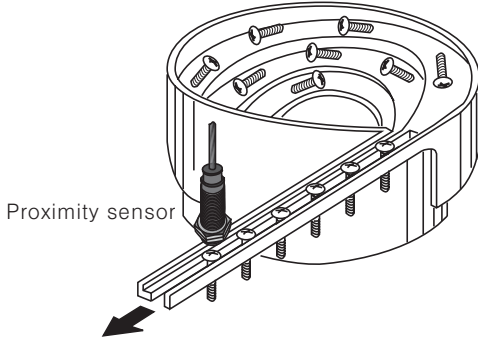
■ Applications

Detection of liquid level(Capacitive type) It is able to detect the level of liquid inside of bottle from outside.  High limit sensing Teflon bottle Liquid Low limit sensing	Detecting Milk in paper pack(Capacitive type) It is able to detect milk in side of pack by capacitive proximity sensor.  Milk pack Reject (None) Proximity sensor Good
Detection of cap of bottles(Capacitive)  Proximity sensor	Detection of band defects(Capacitive)  Proximity sensor
Fixing the point to be welded(Arc)  Spatter resistance type of proximity sensor	Checking the position for Spot welding  Robot for welding Spatter resistance type of proximity sensor
Turning table(Transmission coupler) It detects the work is set on turning table and send a signal.  Work(Object) Limit switch PC Transmission coupler Proximity sensor	Transmitting the signal of checking(Transmission coupler) It detects if the robot arm is holding the work and send a signal.  Worker Limit switch Transmission coupler Proximity sensor PC

- (A) Counter
- (B) Timer
- (C) Temp. controller
- (D) Power controller
- (E) Panel meter
- (F) Tacho/ Speed/ Pulse meter
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- (I) Switching power supply
- (J) Proximity sensor
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- (L) Pressure sensor
- (M) Rotary encoder
- (N) Stepping motor & Driver & Controller
- (O) Graphic panel
- (P) Field network device
- (Q) Production stoppage models & replacement

Applications

■ Applications

Detecting condition of cans 	Measuring the height of screw Detecting the status of screw 
Controlling a press Making a hole on panel by constant distance 	Positioning control Detecting the position of bottle for fill the contents. 
Detecting position of target Automatic assembly conveyor line 	Sensing incorrect shape of target 
Counting screws 	Detecting position of target(PFI 25) Automatic assembly conveyor line 