

## Cylindrical connector type proximity sensor

### ■ Features

- Shorten the time of maintenance by changing the body.
- When use connector wire, water proof structure will be IP 67.
- Reverse power polarity protection, over current protection, surge protection function.
- Able to check the status of operation by Red LED indicator.
- Driving the load of under 200mA directly within range of 10–30VDC, 90–250VAC power source (Resistive load).



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



### ■ Specifications

#### ● DC 2-wire type

Model	PRCMT12-2DO PRCMT12-2DC	PRCMT12-4DO PRCMT12-4DC	PRCMT18-5DO PRCMT18-5DC	PRCMT18-8DO PRCMT18-8DC	PRCMT30-10DO PRCMT30-10DC	PRCMT30-15DO PRCMT30-15DC
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 (15–30VDC)					
Leakage current	Max. 0.9mA					
Response frequency	800Hz	400Hz	350Hz	200Hz	250Hz	100Hz
Residual voltage	Max. 7V					
Affection by Temp.	±10% Max. of detecting distance at +20°C within temperature range of –25 ~ +70°C					
Control output	2~50mA					
Dielectric strength	Min. 50MΩ (at 500VDC)					
Insulation resistance	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 <sup>2</sup> (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, Overload & short circuit protection					
Protection	IP67 (IEC specification)					
Approval	CE					
Weight	Approx. 26g		Approx. 49g		Approx. 134g	

※Specification and functions of IEC standard product and standard are the same.

(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

# Cylindrical connector type

## ■ Specifications

### ● DC 3-wire type

Model	PRCM12-2DN PRCM12-2DP PRCM12-2DN2 PRCM12-2DP2	PRCM12-4DN PRCM12-4DP PRCM12-4DN2 PRCM12-4DP2	PRCM18-5DN PRCM18-5DP PRCM18-5DN2 PRCM18-5DP2 PRCML18-5DN PRCML18-5DP PRCML18-5DN2 PRCML18-5DP2	PRCM18-8DN PRCM18-8DP PRCM18-8DN2 PRCM18-8DP2 PRCML18-8DN PRCML18-8DP PRCML18-8DN2 PRCML18-8DP2	PRCM30-10DN PRCM30-10DP PRCM30-10DN2 PRCM30-10DP2 PRCML30-10DN PRCML30-10DP PRCML30-10DN2 PRCML30-10DP2	PRCM30-15DN PRCM30-15DP PRCM30-15DN2 PRCM30-15DP2 PRCML30-15DN PRCML30-15DP PRCML30-15DN2 PRCML30-15DP2
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					
Response frequency	800Hz	400Hz	350Hz	200Hz	250Hz	100Hz
Residual voltage	Max. 1.5V					
Affection by Temp.	±10% Max. of 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 <sup>2</sup> (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. 26g		PRCM18 : Approx. 49g PRCML18 : Approx. 73g		PRCM30 : Approx. 134g PRCML : Approx. 169g	

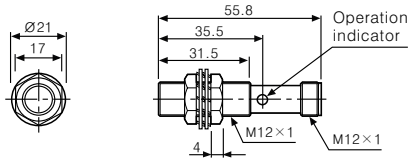
### ● AC 3-wire type

Model	PRCM12-2AO PRCM12-2AC	PRCM12-4AO PRCM12-4AC	PRCM18-5AO PRCM18-5AC PRCML18-5AO PRCML18-5AC	PRCM18-8AO PRCM18-8AC PRCML18-8AO PRCML18-8AC	PRCM30-10AO PRCM30-10AC PRCML30-10AO PRCML30-10AC	PRCM30-15AO PRCM30-15AC PRCML30-15AO PRCML30-15AC
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 (Operating voltage)	100-240VAC (85-264VAC)					
Current consumption	Max. 2.5mA					
Response frequency	20Hz					
Residual voltage	Max. 10V					
Affection by Temp.	±10% Max. of 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 <sup>2</sup> (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. 30g		PRCM18 : Approx. 53g PRCML18 : Approx. 74g		PRCM30 : Approx. 134g PRCML : Approx. 169g	

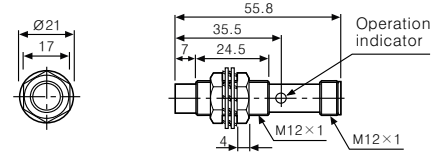
## ■ Dimensions

Unit:mm

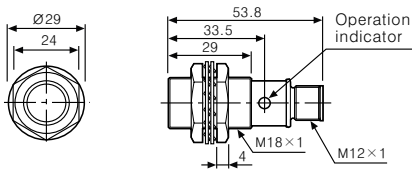
●PRCM(T)12-2D□



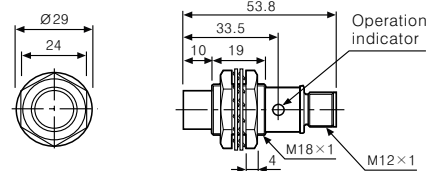
●PRCM(T)12-4D□



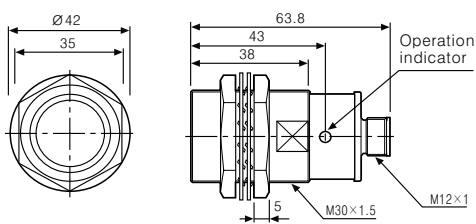
●PRCM(T)18-5D□



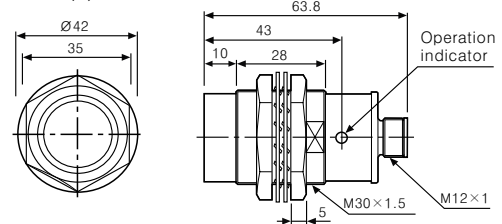
●PRCM(T)18-8D□



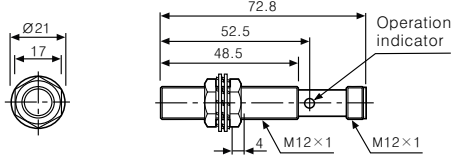
●PRCM(T)30-10D□



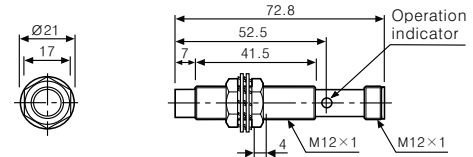
●PRCM(T)30-15D□



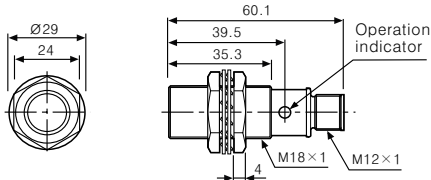
●PRCM12-2A□



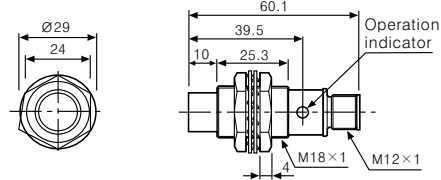
●PRCM12-4A□



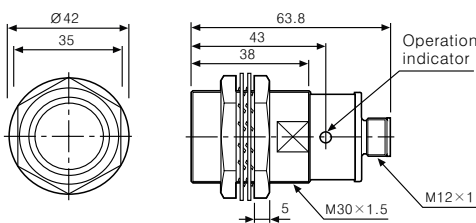
●PRCM18-5A□



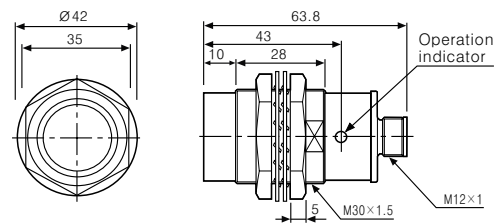
●PRCM18-8A□



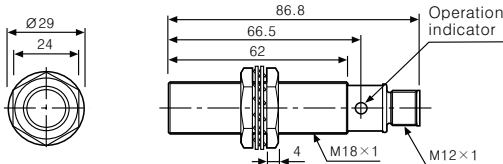
●PRCM30-10A□



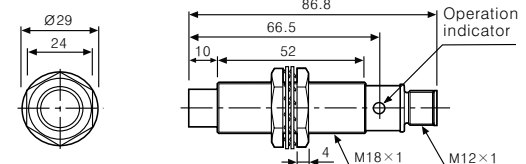
●PRCM30-15A□



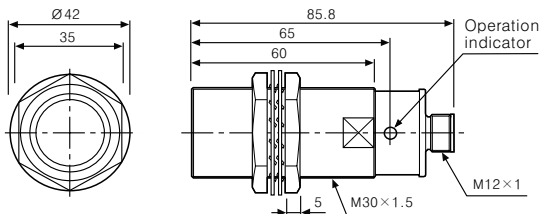
●PRCML18-5D□ / PRCML18-5A□



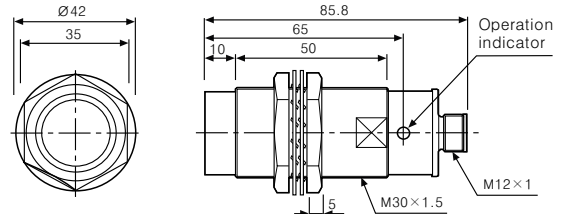
●PRCML18-8D□ / PRCML18-8A□



●PRCML30-10D□ / PRCML30-10A□



●PRCML30-15D□ / PRCML30-15A□



(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

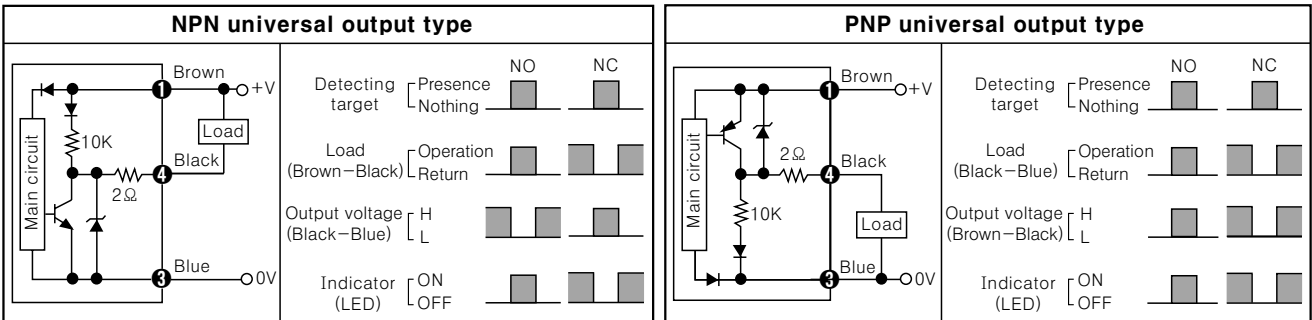
(L)  
Rotary  
encoder

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

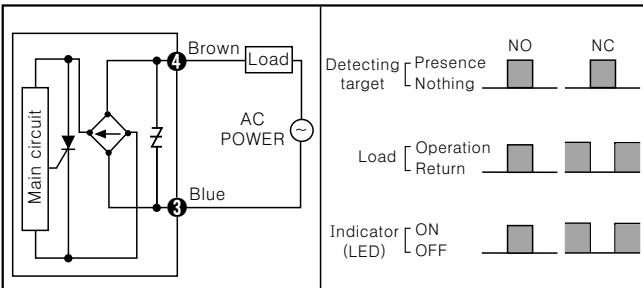
# Cylindrical connector type

## Control output diagram

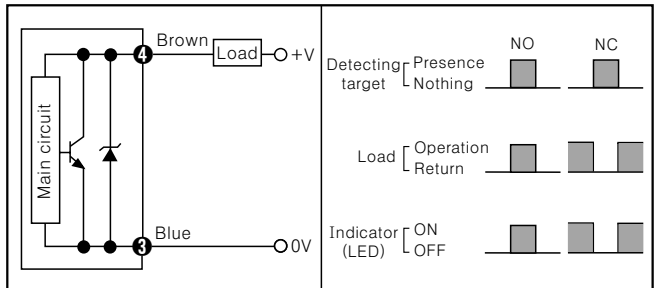
### DC 3-wire type



### AC 2-wire type



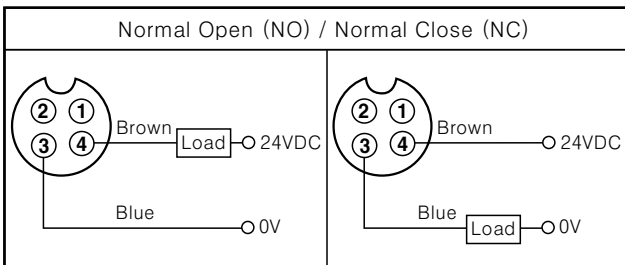
### DC 2-wire type



※Number in circle is pin number.

## Wiring diagram

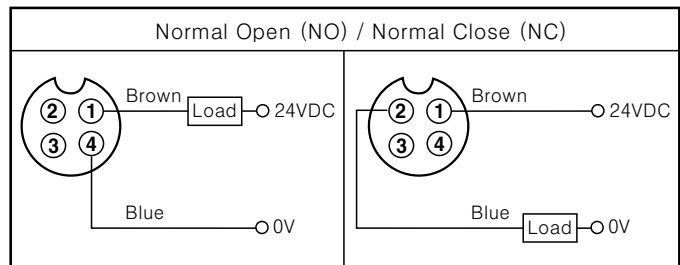
### DC 2-wire type(Standard type)



※Pin ①, ② are N.C(Not Connected).

※When use DC 3-wire connection cable, black(24VDC) and blue(0V) can be used.

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

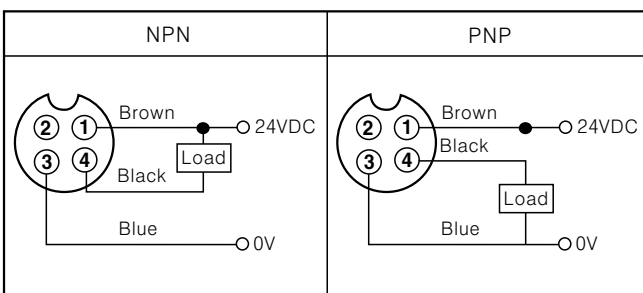


※Ordering of connector pin according to IEC standard is available.

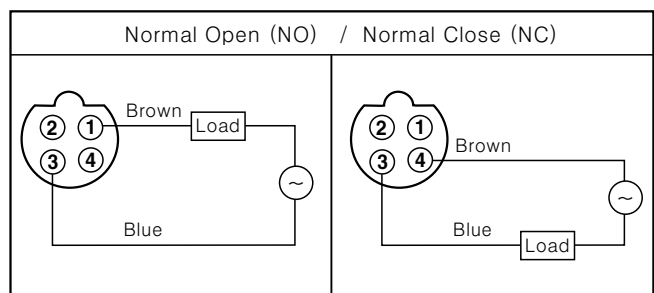
※Please put " I " behind of model name for selecting proximity sensor by IEC standard. Ex)PRWT12-4DO-I

※Connector cable by IEC standard is also available. Please put " I " behind of model name for selecting proximity sensor by IEC standard. Ex)CID2-2-I, CLD2-5-I

### DC 3-wire type



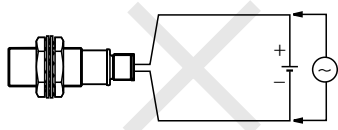
### AC 2-wire type



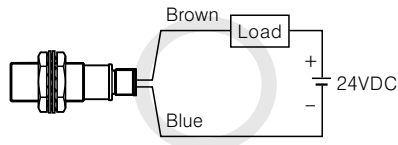
※In case of AC switching type, ② and ③, ① and ④ are connected to each other inside.

## ■ Proper usage

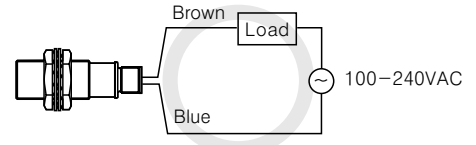
### ◎ Load connections



< DC 2-wire type & AC 2-wire type >



< DC 2-wire type >

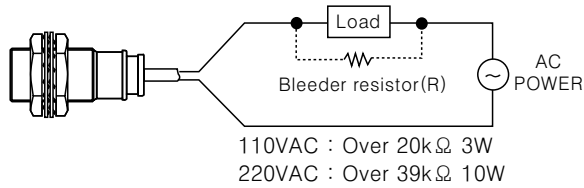


< AC 2-wire type >

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.

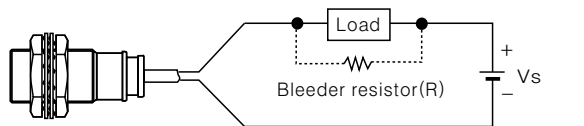
### ◎ In case of the load current is small

#### ● 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.

#### ● 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.

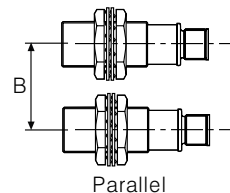
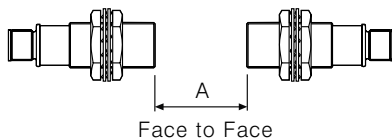
$$R \leq \frac{V_s}{I_o - I_{off}} \quad (\text{k}\Omega)$$

$$P > \frac{V_s^2}{R} \quad (\text{mW})$$

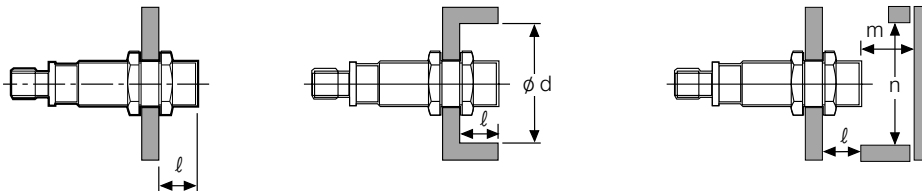
\*  $V_s$  : Power supply  
 $P$  : Bleeder resistor, number of W  
 $I_o$  : Operating current of proximity sensor (2.5mA but, PRT08, PST17 is 0.9mA)  
 $I_{off}$  : Return current of load

### ◎ 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	PRCMT12-2D□ PRCM12-2D□ PRCM12-2A□	PRCMT12-4D□ PRCM12-4D□ PRCM12-4A□	PRCMT18-5D PRCM(L)18-5D PRCM(L)18-5A	PRCMT18-8D□ PRCM(L)18-8D□ PRCM(L)18-8A□	PRCMT30-10D□ PRCM(L)30-10D□ PRCM(L)30-10A□	PRCMT30-15D PRCM(L)30-15D PRCM(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