Cylindrical, Long Sensing Distance, Cable Type Proximity Sensor

▣ Features

- Long sensing distance
  (1.5 to 2 times longer sensing distance guaranteed compared to existing models)
- Improved the noise immunity with dedicated IC
- Built-in surge protection, reverse polarity protection, over-current protection circuit
- Long life cycle and high reliability, and simple operation
- Red LED operation indicator
- IP67 protection structure (IEC standard)
- Replaceable for micro switches and limit switches
- Strain relief cables: improved flexural strength of cable connecting component

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

CE

▣ Specifications

● DC 2-wire type

※When the □ model name is X, it is non-polarity model.

Model	PRDT12-4 D O PRDT12-4 D C PRDT12-4DO-V PRDT12-4 D C-V PRDLT12-4DO PRDLT12-4DC PRDLT12-4DO-V PRDLT12-4DC-V	PRDT12-8 D O PRDT12-8 D C PRDT12-8 D O-V PRDT12-8 D C-V PRDLT12-8DO PRDLT12-8DC PRDLT12-8DO-V PRDLT12-8DC-V	PRDT18-7 D O PRDT18-7 D C PRDT18-7 D O-V PRDT18-7 D C-V PRDLT18-7 D O PRDLT18-7 D C PRDLT18-7 D O-V PRDLT18-7 D C-V	PRDT18-14 D O PRDT18-14 D C PRDT18-14 D O-V PRDT18-14 D C-V PRDLT18-14 D O PRDLT18-14 D C PRDLT18-14 D O-V PRDLT18-14 D C-V	PRDT30-15 D O PRDT30-15DC PRDT30-15 D O-V PRDT30-15DC-V PRDLT30-15DO PRDLT30-15DC PRDLT30-15DO-V PRDLT30-15DC-V	PRDT30-25 D O PRDT30-25 D C PRDT30-25 D O-V PRDT30-25 D C-V PRDLT30-25DO PRDLT30-25DC PRDLT30-25DO-V PRDLT30-25DC-V
Sensing distance	4mm	8mm	7mm	14mm	15mm	25mm
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※2	Max. 3.5V (non-polarity type is Max. 5V)					
Affection by Temp.	Max. ±10% for sensing distance at ambient temperature 20℃					
Control output	2 to 100mA					
Insulation resistance	Over 50MΩ (at 500VDC megger)					
Dielectric strength	1,500VAC 50/60Hz for 1 minute					
Vibration	1mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours					
Shock	500m/s² (approx. 50G) in X, Y, Z direction for 3 times					
Indicator	Operation indicator: Red LED					
Environment: Ambient temp.	-25 to 70℃, storage: -30 to 80℃					
Environment: Ambient humi.	35 to 95% RH, storage: 35 to 95% RH					
Protection circuit	Surge protection circuit, Reverse polarity protection circuit, Over-current protection circuit					
Material	Case/Nut: Nickel plated brass, Washer: Nickel plated iron, Sensing surface: Heat-resistant Acrylonitrile butadiene styrene Standard cable (black): Polyvinyl chloride (PVC), Oil resistant cable (gray): Oil resistant polyvinyl chloride (PVC)					
Cable	Ø4mm, 2-wire, 2m		Ø5mm, 2-wire, 2m			
	AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator diameter: Ø1.25mm					
Approval	CE					
Protection structure	IP67 (IEC standard)					
Unit weight	PRDT: Approx. 74g PRDLT: Approx. 94g	PRDT: Approx. 72g PRDLT: Approx. 92g	PRDT: Approx. 115g PRDLT: Approx. 145g	PRDT: Approx. 110g PRDLT: Approx. 140g	PRDT: Approx. 175g PRDLT: Approx. 215g	PRDT: Approx. 180g PRDLT: Approx. 220g

※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.
※2: Before using non-polarity type, check the condition of connected divice ※because residual voltage is 5V.
※The '□' of model name is for power type. 'D' is 12-24VDC, 'X' is non-polarity 12-24VDC.
※The last 'V' of model name is for the model with oil-resistance reinforced cable.
※Environment resistance is rated at no freezing or condensation.

▣ Specifications

● DC 3-wire type

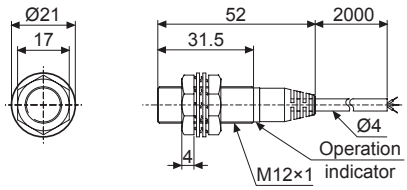
Model	PRD12-4DN PRD12-4DP PRD12-4DN2 PRD12-4DP2 PRDL12-4DN PRDL12-4DP PRDL12-4DN2 PRDL12-4DP2	PRD12-8DN PRD12-8DP PRD12-8DN2 PRD12-8DP2 PRDL12-8DN PRDL12-8DP PRDL12-8DN2 PRDL12-8DP2	PRD18-7DN PRD18-7DP PRD18-7DN2 PRD18-7DP2 PRDL18-7DN PRDL18-7DP PRDL18-7DN2 PRDL18-7DP2	PRD18-14DN PRD18-14DP PRD18-14DN2 PRD18-14DP2 PRDL18-14DN PRDL18-14DP PRDL18-14DN2 PRDL18-14DP2	PRD30-15DN PRD30-15DP PRD30-15DN2 PRD30-15DP2 PRD30-15DN-V PRD30-15DP-V PRD30-15DN2-V PRD30-15DP2-V PRDL30-15DN PRDL30-15DP PRDL30-15DN2 PRDL30-15DP2	PRD30-25DN PRD30-25DP PRD30-25DN2 PRD30-25DP2 PRD30-25DN-V PRD30-25DP-V PRD30-25DN2-V PRD30-25DP2-V PRDL30-25DN PRDL30-25DP PRDL30-25DN2 PRDL30-25DP2
Sensing distance	4mm	8mm	7mm	14mm	15mm	25mm
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. 10mA					
Response frequency※1	500Hz	400Hz	300Hz	200Hz	100HZ	100Hz
Residual voltage	Max. 1.5V					
Affection by Temp.	Max. ±10% for sensing distance at ambient temperature 20℃					
Control output	200mA					
Insulation resistance	Over 50MΩ (at 500VDC megger)					
Dielectric strength	1,500VAC 50/60Hz for 1 minute					
Vibration	1mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2 hours					
Shock	500m/s² (approx. 50G) in X, Y, Z direction for 3 times					
Indicator	Operation indicator: Red LED					
Environment – Ambient temp.	-25 to 70℃, storage: -30 to 80℃					
Environment – Ambient humi.	35 to 95%RH, storage: 35 to 95%RH					
Protection circuit	Surge protection circuit, Reverse polarity protection circuit, Over-current protection circuit					
Protection structure	IP67 (IEC standard)					
Material	Case/Nut: Nickel plated Brass, Washer: Nickel plated Iron, Sensing surface: Heat-resistant Acrylonitrile butadiene styrene, Standard cable (black): Polyvinyl chloride (PVC), Oil resistant cable (gray): Oil resistant Polyvinyl chloride (PVC)					
Cable	Ø4mm, 3-wire, 2m		Ø5mm, 3-wire, 2m			
	AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator diameter: Ø1.25mm					
Approval	CE					
Unit weight	PRD: Approx. 74g PRDL: Approx. 94g	PRD: Approx. 72g PRDL: Approx. 92g	PRD: Approx. 115g PRDL: Approx. 145g	PRD: Approx. 110g PRDL:Approx. 140g	PRD: Approx. 175g PRDL: Approx. 215g	PRD: Approx. 180g PRDL: Approx. 220g

※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.
※The last 'V' of model name is for the model with oil-resistance reinforced cable.
※Environment resistance is rated at no freezing or condensation.

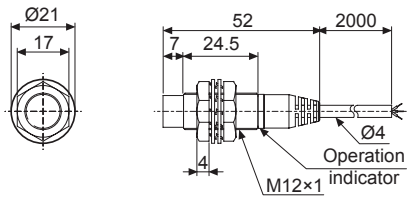
▣ Dimensions

(unit: mm)

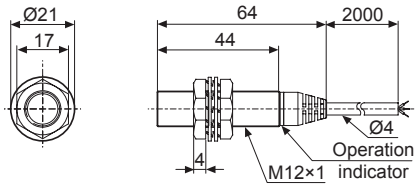
● **PRD(T)12-4D□**



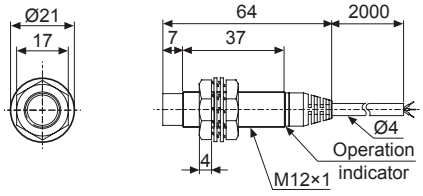
● **PRD(T)12-8D□**



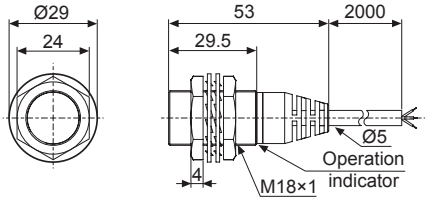
● **PRDL(T)12-4D□**



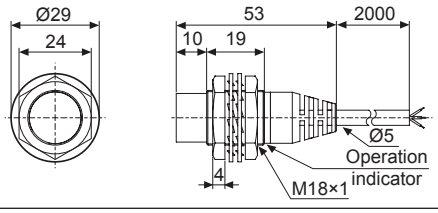
● **PRDL(T)12-8D□**



● **PRD(T)18-7D□**



● **PRD(T)18-14D□**



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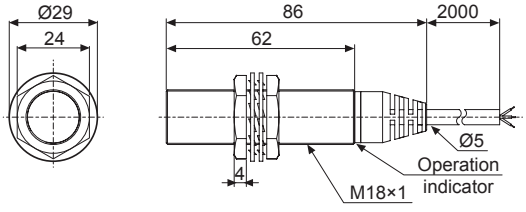
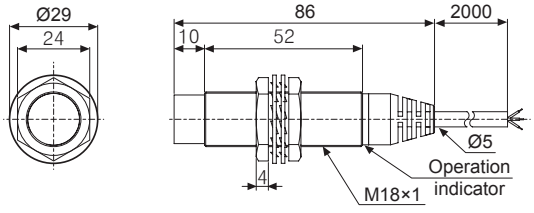
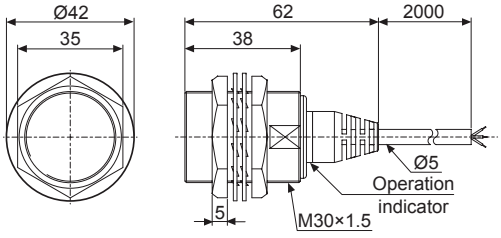


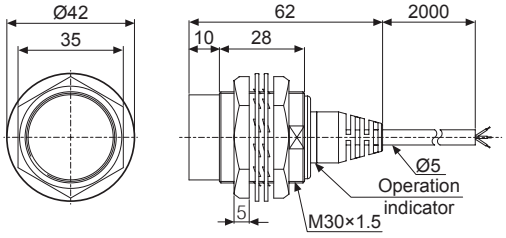
● **PRDL(T)18-14D□**



● **PRD(T)30-15D□**



● **PRD(T)30-25D□**



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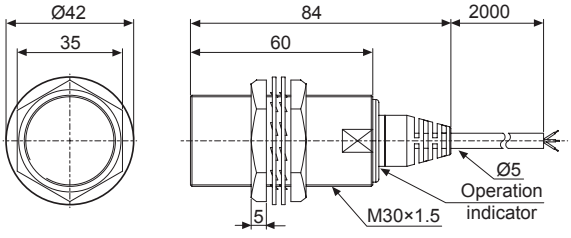
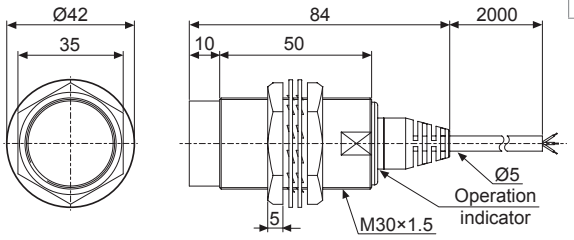
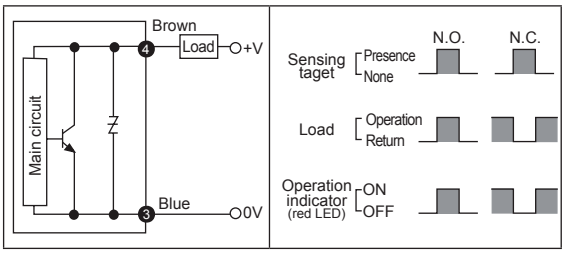


● **PRDL(T)30-25D□**



▣ Control Output Diagram And Load Operation

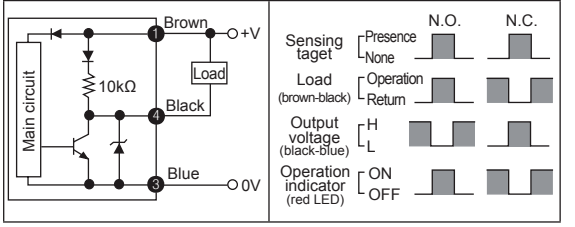
◎ DC 2-wire type



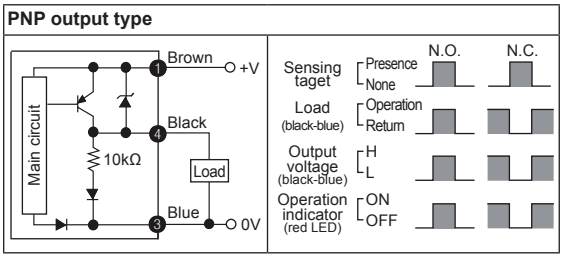
※The number in a circle is pin no. of connector.

◎ DC 3-wire type

NPN output type

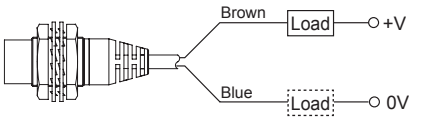


PNP output type



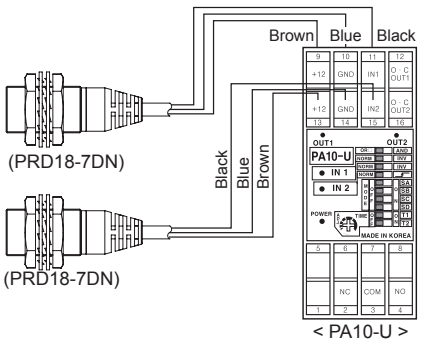
▣ Connections

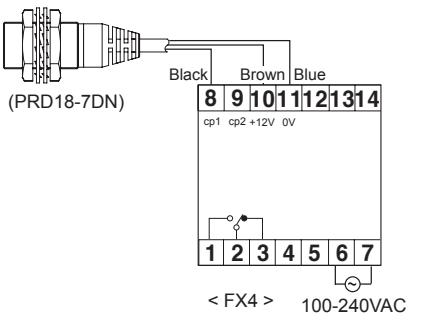
◎ DC 2-wire type



※The load can be connected to either wire.

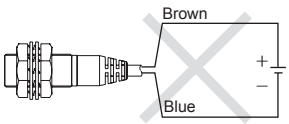
◎ DC 3-wire type



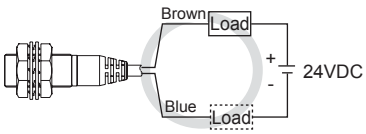


▣ Proper Usage

◎ Load connections



< DC 2-wire type >

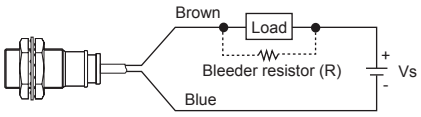


< DC 2-wire type >

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.

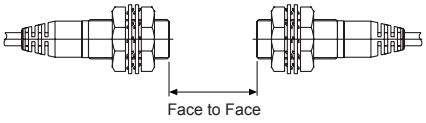
※W value of Bleeder resistor should be bigger for proper heat dissipation.

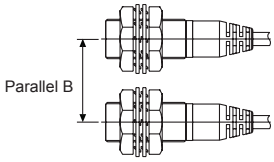
$$R \leq \frac{Vs}{Io\text{-}Ioff}\ (k\Omega) \qquad P > \frac{Vs^2}{R}\ (W)$$

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

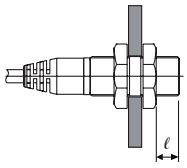
◎ Mutual-interference & Influence by surrounding metals

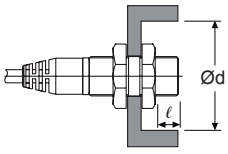
When several proximity sensors are mounted close to one another a malfunction of the may be caused due to mutual interference. Therefore, be sure to keep a minimum distance between the two sensors as below chart indicates.

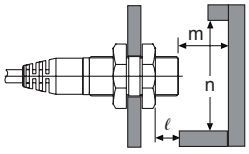




When sensors are mounted on metallic panel, it is required to protect the sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart indicates.







(unit: mm)

Item \ Model	PRDT12-4□□ PRDLT12-4□□	PRDT12-8□□ PRDLT12-8□□	PRDT18-7□□ PRDLT18-7□□	PRDT18-14□□ PRDLT18-14□□	PRDT30-15□□ PRDLT30-15□□	PRDT30-25□□ PRDLT30-25□□
A	24	48	42	84	90	150
B	24	36	36	54	60	90
ℓ	0	11	0	14	0	15
Ød	12	36	18	54	30	90
m	12	24	21	42	45	75
n	18	36	27	54	45	90