Autonics

Inductive Proximity Sensor
Cylindrical, Long Sensing Distance, Connector Type DC 2-wire

INSTRUCTION MANUAL

CE

Thank you for choosing our Autonics product.
Please read the following safety considerations before use.

■ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

| ⚠Warning | Failure to follow these instructions may result in serious injury or death. |
| ⚠Caution | Failure to follow these instructions may result in personal injury or product damage. |

⚠ Warning
1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
   Failure to follow this instruction may result in fire, personal injury, or economic loss.
2. **Do not disassemble or modify the unit.**
   Failure to follow this instruction may result in fire.
3. **Do not connect, repair, or inspect the unit while connected to a power source.**
   Failure to follow this instruction may result in fire.
4. **Check 'Connections' before wiring.**
   Failure to follow this instruction may result in fire.

⚠ Caution
1. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
2. **Use dry cloth to clean the unit, and do not use water or organic solvent.**
   Failure to follow this instruction may result in electric shock or fire.
3. **Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
   Failure to follow this instruction may result in fire or explosion.
4. **Do not supply power without load.**
   Failure to follow this instruction may result in fire or product damage.

■ Ordering Information

P R D CM T 18 – 7 DO – I

Standard	I	IEC Standard type
Output	DO	DC 2-wire N.O.(Normally Open)
	DC	DC 2-wire N.C.(Normally Closed)
Sensing distance	Number	Standard sensing distance (unit: mm)
Dimension	Number	Diameter of head (unit: mm)
Cable form	T	DC 2-wire
Cable type	CM	Connector type
Feature	D	Long sensing distance type
Shape	R	Cylindrical type
Item	P	Inductive proximity sensor

■ Control Output Diagram & Load Operating

		Normally Open	Normally Closed
Sensing target		Presence / Nothing	Presence / Nothing
Load		Operation / Return	Operation / Return
Operation indicator(red LED)		ON / OFF	ON / OFF

Brown — Load — +V
Blue — 0V

■ Connections
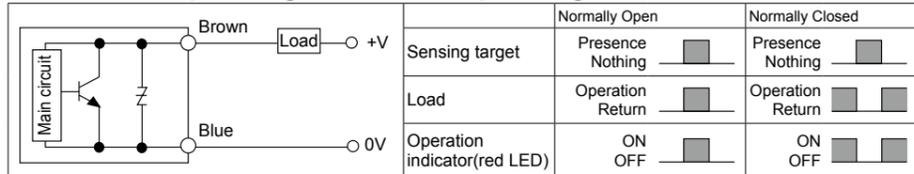
	IEC Standard type	
N.O. (Normally Open)	Brown — Load — +V, Blue — 0V	※②,③ are N·C (Not Connected) terminals.
N.C. (Normally Closed)	Brown — Load — +V, Blue — 0V	※③,④ are N·C (Not Connected) terminals.
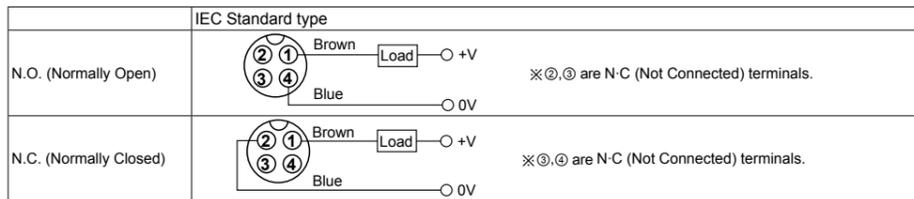
※The above specifications are subject to change and some models may be discontinued without notice.
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

■ Specifications

Model	PRDCMT12-4DO-I PRDCMT12-4DC-I	PRDCMT12-8DO-I PRDCMT12-8DC-I	PRDCMT18-7DO-I PRDCMT18-7DC-I	PRDCMT18-14DO-I PRDCMT18-14DC-I	PRDCMT30-15DO-I PRDCMT30-15DC-I	PRDCMT30-25DO-I PRDCMT30-25DC-I
Diameter of the sensing side	12mm		18mm		30mm	
Sensing distance	4mm	8mm	7mm	14mm	15mm	25mm
Installation	Shield (flush)	Non-shield (non-flush)	Shield (flush)	Non-shield (non-flush)	Shield (flush)	Non-shield (non-flush)
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	100Hz
Residual voltage	Max. 3.5V					
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 min					
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 each X, Y, Z direction for 3 times					
Indicator	Operation indicator: red LED (4 sides)					
Environment — Ambient temperature	-25 to 70℃, storage: -30 to 80℃					
Environment — Ambient humidity	35 to 95%RH, storage: 35 to 95%RH					
Protection circuit	Surge protection circuit, power reverse polarity protection circuit, output short over current protection circuit					
Material	Case/Nut: nikel plated brass, washer: nikel plated iron, sensing side: polybutylene terephthalate					
Protection	IP67 (IEC standard)					
Approval	CE					
Weight※2	Approx. 28g (approx. 18g)		Approx. 60g (approx. 42g)		Approx. 150g (approx. 110g)	

※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: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

■ Dimensions
(unit: mm)

◎ PRDCMT12-4□-I

◎ PRDCMT12-8□-I

◎ PRDCMT18-7□-I

◎ PRDCMT18-14□-I

◎ PRDCMT30-15□-I

◎ PRDCMT30-25□-I
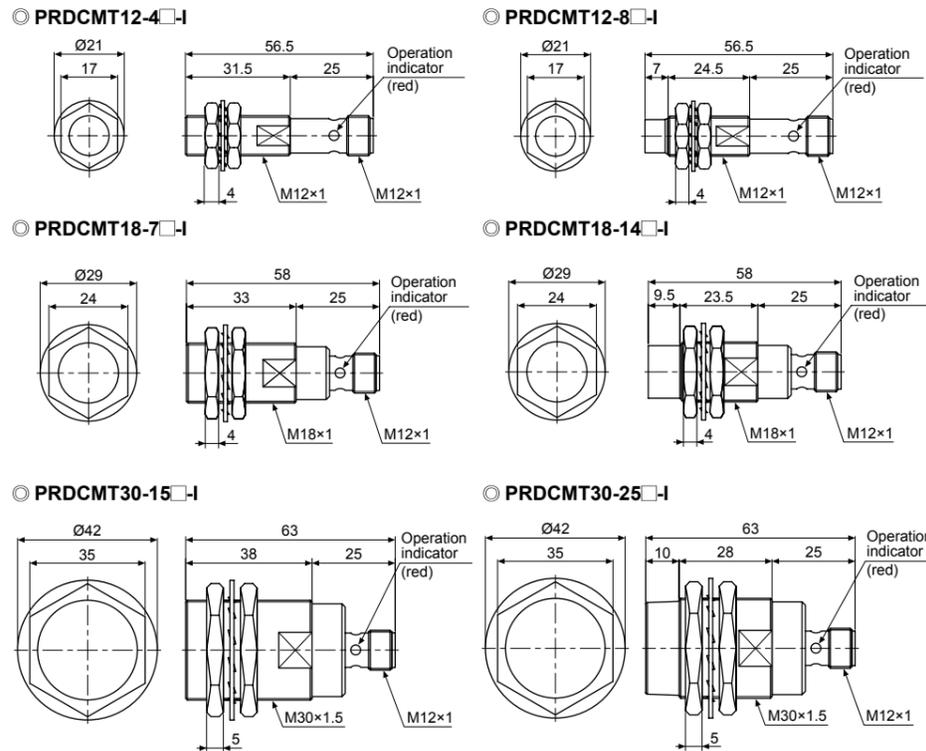
◎ Connector cable (sold separately)
• CID2-□□

• CLD2-□□

2000 or 5000
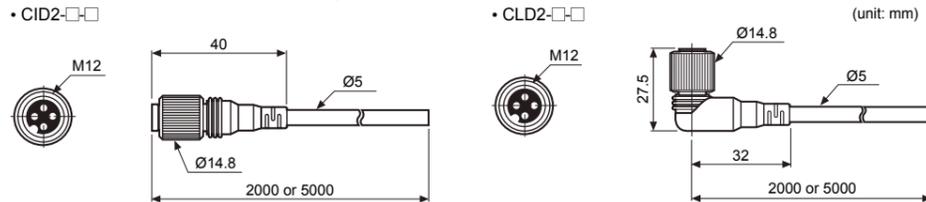
■ Mutual-Interference & Influence by Surrounding Metals

◎Mutual-interference
When more than 2 proximity sensors are mounted closely, malfunction of sensor may be caused due to mutual frequency interference. Therefore, be sure to set a minimum distance between the two sensors by referring to the chart below.
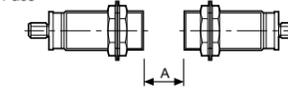
・Face to Face ・Parallel
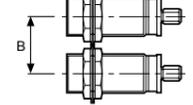
◎Influence by surrounding metals
When sensors are mounted on metallic panel, it is required to prevent sensors from being affected by any metallic object except target. Therefore, be sure to set a minimum distance as below chart.

(unit: mm)

Item \ Model	PRDCMT12-4D□	PRDCMT12-8D□	PRDCMT18-7D□ PRDCMLT18-7D□	PRDCMT18-14D□ PRDCMLT18-14D□	PRDCMT30-15D□ PRDCMLT30-15D□	PRDCMT30-25D□ PRDCMLT30-25D□
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

■ Setting Distance

Sn: Sensing distance
Sa: Setting distance (70% of Sn)
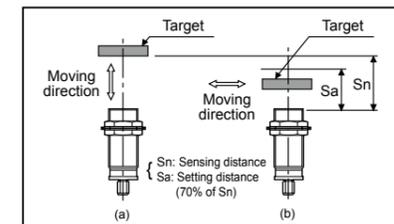
・Sensing distance can be changed by the shape, size or material of the target. Therefore please check the sensing distance like (a), then pass the target within range of setting distance (Sa) of (b).

・Setting distance (Sa): Sensing distance×70%
  E.g.)PRDCMT18-7DO-I
  Setting distance(Sa) = 7mm × 0.7 = 4.9mm

■ Installation and Tightening Torque

When tightening the nut, use the provided washer as [Figure 1].
When installing the product, the tightening torque of the nut varies according to the distance from the fore-end.
The front part of the product is from the fore-end to the dimension on the below table, and the rear part is from the tip of the nut to the end of the product. [Figure 2]
In case the nut is placed in the front part of the product, apply tightening torque for front part.
[Table 1] the allowable tightening torque table is for inserting the washer as [Figure 3].

[Table 1]

Model	Strength	Front Size	Front Torque	Rear Torque
PRDCMT12	Flush	13mm	6N·m	11N·m
	Non-flush	7mm		
PRDCMT18	Flush	—	14N·m	
	Non-flush	—		
PRDCMT30	Flush	26mm	49N·m	78N·m
	Non-flush	12mm		

[Figure 1]
[Figure 2] Nut tip / Fore-end / Front Rear
[Figure 3] Washer / Mounting bracket
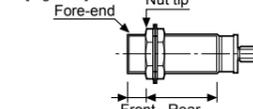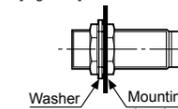
■ Cautions during Use
1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
2. 12-24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. Use the product, after 0.8 sec of supplying power.
4. Wire as short as possible and keep away from high voltage lines or power lines, to prevent surge and inductive noise.
   Do not use near the equipment which generates strong magnetic force or high frequency noise (transceiver, etc.).
   In case installing the product near the equipment which generates strong surge (motor, welding machine, etc.), use diode or varistor to remove surge.
5. This unit may be used in the following environments.
   ① Indoors (in the environment condition rated in 'Specifications')
   ② Altitude max. 2,000m
   ③ Pollution degree 2
   ④ Installation category II

■ Major Products

■ Photoelectric Sensors	■ Temperature Controllers	■ Switching Mode Power Supplies
■ Fiber Optic Sensors	■ Temperature/Humidity Transducers	■ Control Switches/Lamps/Buzzers
■ Door Sensors	■ SSRs/Power Controllers	■ I/O Terminal Blocks & Cables
■ Door Side Sensors	■ Counters	■ Stepper Motors/Drivers/Motion Controllers
■ Area Sensors	■ Timers	■ Graphic/Logic Panels
■ Proximity Sensors	■ Panel Meters	■ Field Network Devices
■ Pressure Sensors	■ Tachometers/Pulse (Rate) Meters	■ Laser Marking System (Fiber, Co₂, Nd: YAG)
■ Rotary Encoders	■ Display Units	■ Laser Welding/Cutting System
■ Connector/Sockets	■ Sensor Controllers	

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