

Autonics INDUCTIVE PROXIMITY SENSOR (Spatter Resistant DC 2-wire Connector Type) PRACMT/PRDACMT SERIES INSTRUCTION MANUAL



Thank you for choosing our Autonics products.
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 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.

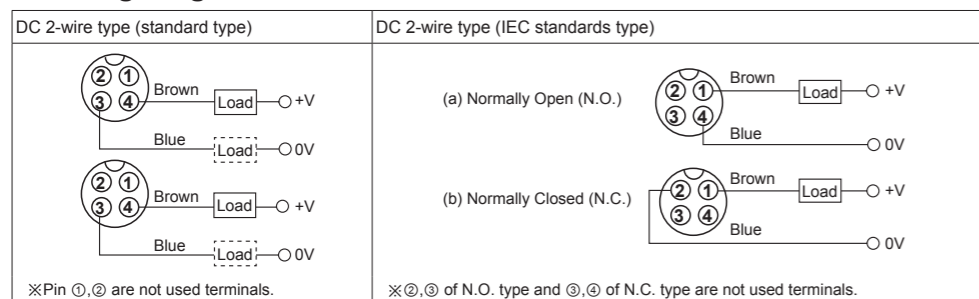
4. **Do not supply power without load.**
Failure to follow this instruction may result in fire or product damage.

■ Ordering Information

P R DA CMT 18 - 7 D O - I

Cable type	No mark	Connector type
	I	Connector type (IEC standards type)
Output	O	Normally Open (N.O.)
	C	Normally Closed (N.C.)
Power supply	D	12-24VDC
Sensing distance	Number	Standard sensing distance (unit: mm)
Dimension	Number	Diameter of head (unit: mm)
Connection	CMT	DC 2-wire connector type
Feature	A	Spatter resistant type
	DA	Long sensing distance spatter resistant type
Shape	R	Cylindrical type
Item	P	Inductive proximity sensor

■ Wiring Diagram



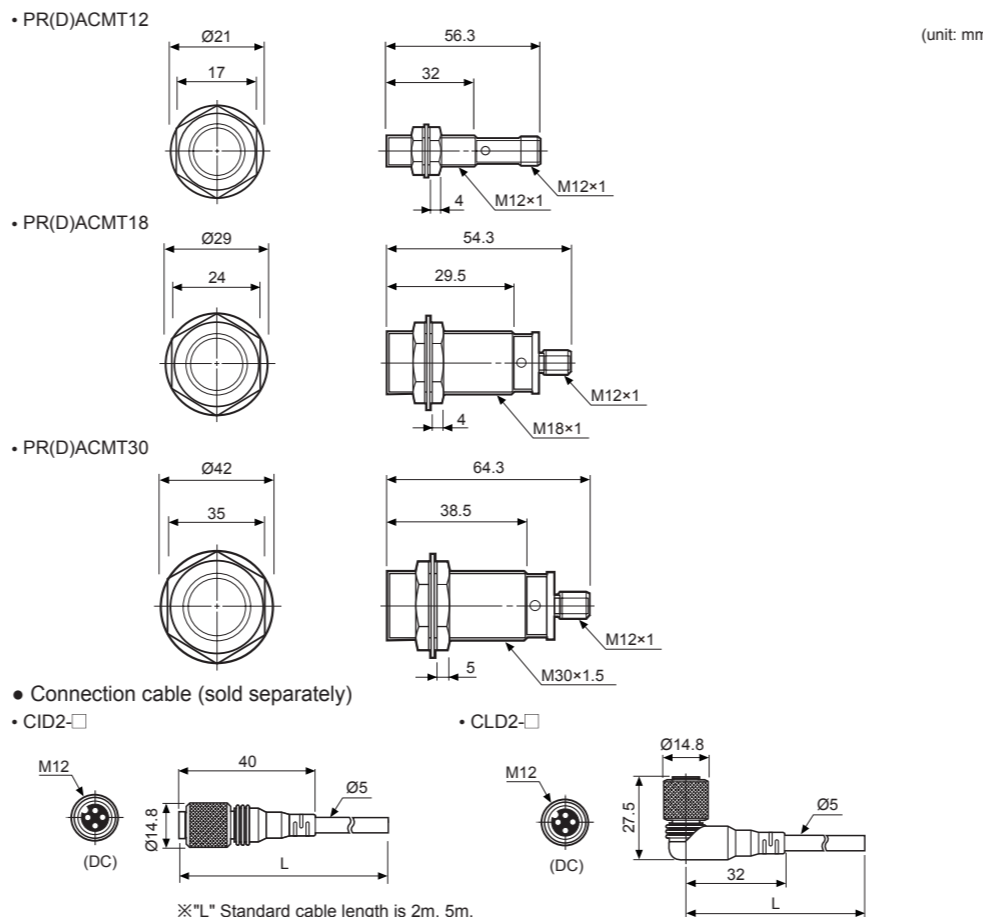
※The above specifications are subject to change and some models may be discontinued without notice.
※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

■ Specifications

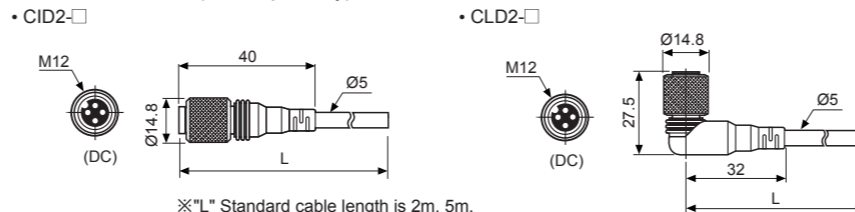
Model	PRACMT12-2DO PRACMT12-2DC PRACMT12-2DO-I PRACMT12-2DC-I	PRDACMT12-4DO PRDACMT12-4DC PRDACMT12-4DO-I PRDACMT12-4DC-I	PRACMT18-5DO PRACMT18-5DC PRACMT18-5DO-I PRACMT18-5DC-I	PRDACMT18-7DO PRDACMT18-7DC PRDACMT18-7DO-I PRDACMT18-7DC-I	PRACMT30-10DO PRACMT30-10DC PRACMT30-10DO-I PRACMT30-10DC-I	PRDACMT30-15DO PRDACMT30-15DC PRDACMT30-15DO-I PRDACMT30-15DC-I
Sensing distance	2mm	4mm	5mm	7mm	10mm	15mm
Hysteresis	Max. 10% of sensing distance					
Standard sensing target	12×12×1mm (iron)	18×18×1mm (iron)	20×20×1mm (iron)	30×30×1mm (iron)	45×45×1mm (iron)	
Setting distance	0 to 1.4mm	0 to 2.8mm	0 to 3.5mm	0 to 4.9mm	0 to 7mm	0 to 10.5mm
Power supply (operating voltage)	12-24VDC= (10-30VDC=)					
Leakage current	Max. 0.6mA					
Response frequency*1	1.5kHz	450Hz	500Hz	250Hz	400Hz	100Hz
Residual voltage	Max. 3.5V					
Affection by temp.	Max. ±10% for sensing distance at ambient temperature 20°C					
Control output	2 to 100mA					
Insulation resistance	Min. 500MΩ (at 500VDC megger)					
Dielectric strength	1,500VAC 50/60Hz for 1 minute					
Vibration	1mm amplitude at frequency of 10 to 55Hz in each X, Y, Z direction for 2 hours					
Shock	500m/s ² (approx. 50G) in each X, Y, Z direction for 3 times					
Indicator	Operation indicator (red LED)					
Environment	Ambient temperature	-25 to 70°C, storage: -30 to 80°C				
	Ambient humidity	35 to 95%RH, storage: 35 to 95%RH				
Protection circuit	Surge protection circuit, Overcurrent protection circuit					
Protection	IP67 (IEC standards)					
Materials	Case/Nut: Teflon coated brass, Washer: Teflon coated iron, Sensing surface: Teflon					
Approval	CE					
Weight*2	Approx. 38g (approx. 26g)		Approx. 61g (approx. 49g)		Approx. 146g (approx. 134g)	

※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 parentheses is for unit only.
※Environment resistance is rated at no freezing or condensation.

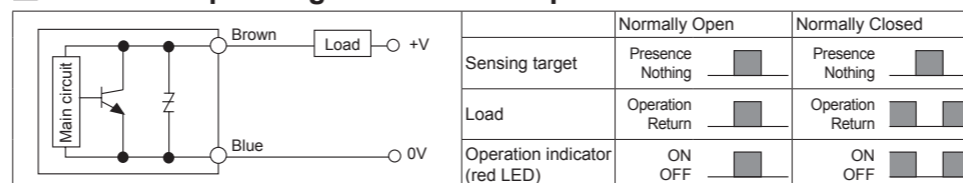
■ Dimensions



● Connection cable (sold separately)



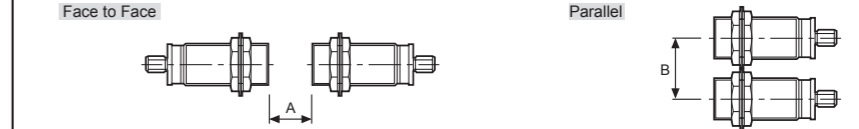
■ Control Output Diagram and Load Operation



■ Multi-interference and Influence By Surrounding Metals

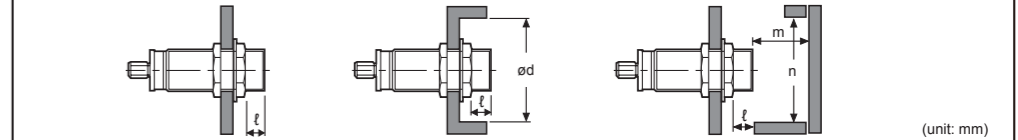
● Mutual-interference

When several proximity sensors are mounted closely, malfunction of sensor may be caused due to mutual interference. Therefore, be sure to provide a minimum distance between the two sensors with referring to the chart below.



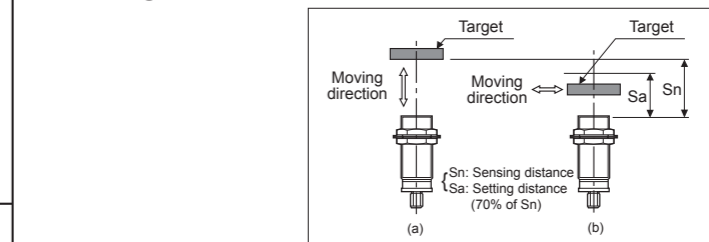
● Influence by surrounding metals

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.



Model	PRACMT12-2D□	PRDACMT12-4D□	PRACMT18-5D□	PRDACMT18-7D□	PRACMT30-10D□	PRDACMT30-15D□
A	12	24	30	42	60	90
B	24	24	36	36	60	60
ℓ	0	0	0	0	0	0
∅d	12	12	18	18	30	30
m	6	12	15	21	30	45
n	18	18	27	27	45	45

■ Setting Distance



● Sensing distance can be changed by the shape, size or material of the target.
Check the sensing distance like (a), then pass the target within range of setting distance (Sa).

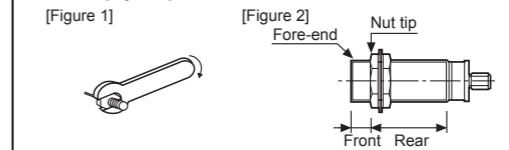
● Setting distance (Sa) : Sensing distance (Sn) × 70%
E.g.) PRDACMT18-7DO
Setting distance (Sa) = 7mm × 0.7 = 4.9mm

■ Installation and Tightening Torque

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. [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].



Model	Strength	Front		Rear
		Size	Torque	Torque
PR(D)ACMT12 Series	Flush	13mm	6.37N·m	11.76N·m
PR(D)ACMT18 Series				14.7N·m
PR(D)ACMT30 Series		26mm	49N·m	78.4N·m

■ Caution During Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- 12-24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Use the product, after 0.8 sec of supplying power.
- 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.
- If the surface of the product is rubbed with a hard object, PTFE coating can be worn out.
- This unit may be used in the following environments.
 - Ⓐ Indoors (in the environment condition rated in 'Specifications')
 - Ⓑ Altitude max. 2,000m
 - Ⓒ Pollution degree 2
 - Ⓓ Installation category II

■ Major Products

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

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