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

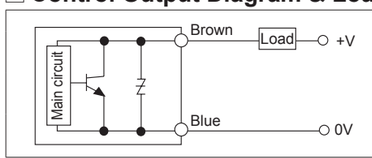
1. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
2. **Use dry cloth to clean the unit, and do not use water or organic solvent.**
   Failure to follow this instruction may result in fire.
3. **Do not use the unit in the place 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	**No mark**	Standard type
	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
Body size	**No mark**	Standard type
	L	Long body
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
Indicator (red LED)	ON / OFF	ON / OFF

▣ Connections

	Standard type	IEC Standard type
N.O. (Normally Open)	②①③④ Load +V, Brown, Blue 0V	Brown Load +V, Blue 0V ※②,③ are N·C (Not Connected) terminals.
N.C. (Normally Closed)	②①③④ Brown +V, Blue Load 0V	Brown Load +V, Blue 0V ※③,④ are N·C (Not Connected) terminals.
	※①,② 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).**

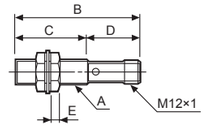
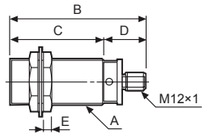
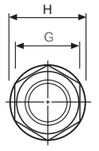
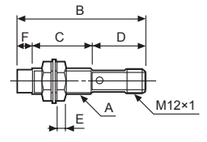
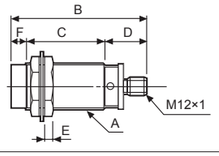
▣ Specifications

Model	PRDCMT12-4DO PRDCMT12-4DC PRDCMT12-4DO-I PRDCMT12-4DC-I	PRDCMT12-8DO PRDCMT12-8DC PRDCMT12-8DO-I PRDCMT12-8DC-I	PRDCMT18-7DO PRDCMT18-7DC PRDCMT18-7DO-I PRDCMT18-7DC-I PRDCMLT18-7DO PRDCMLT18-7DC PRDCMLT18-7DO-I PRDCMLT18-7DC-I	PRDCMT18-14DO PRDCMT18-14DC PRDCMT18-14DO-I PRDCMT18-14DC-I PRDCMLT18-14DO PRDCMLT18-14DC PRDCMLT18-14DO-I PRDCMLT18-14DC-I	PRDCMT30-15DO PRDCMT30-15DC PRDCMT30-15DO-I PRDCMT30-15DC-I PRDCMLT30-15DO PRDCMLT30-15DC PRDCMLT30-15DO-I PRDCMLT30-15DC-I	PRDCMT30-25DO PRDCMT30-25DC PRDCMT30-25DO-I PRDCMT30-25DC-I PRDCMLT30-25DO PRDCMLT30-25DC PRDCMLT30-25DO-I PRDCMLT30-25DC-I
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	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					
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, Reverse polarity protection circuit, over-current protection circuit					
Material	Case/Nut: Nikel plated brass, Washer: Nikel plated iron, Sensing side: Heat-resistant acrylonitrile butadiene styrene					
Approval	CE					
Protection	IP67 (IEC standard)					
Weight※2	Approx. 38g (approx. 26g)		PRDCMT: Approx. 60g (approx. 48g) PRDCMLT: Approx. 78g (approx. 66g)		PRDCMT: Approx. 154g (approx. 142g) PRDCMLT: Approx. 194g (approx. 182g)	

※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

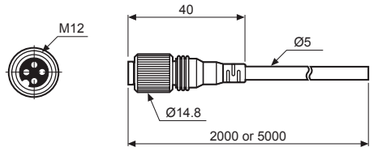
(unit: mm)

Type	Connector type M12	Connector type M18, M30	Nut, Washer
Flush			
Non-flush			

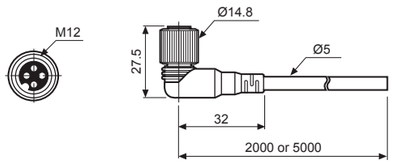
Type			A	B	C	D	E	F	G	H
Flush	M12	PRDCMT	M12×1	55.8	31.5	24.3	4	—	17	21
	M18	PRDCMT	M18×1	54.3	29.5	24.3	4	—	24	29
		PRDCMLT	M18×1	87.3	62	24.3	4	—	24	29
	M30	PRDCMT	M30×1.5	63.8	38	25.8	5	—	35	42
		PRDCMLT	M30×1.5	85.8	60	25.8	5	—	35	42
Non-flush	M12	PRDCMT	M12×1	55.8	24.5	24.3	4	7	17	21
	M18	PRDCMT	M18×1	53.8	19	24.3	4	10	24	29
		PRDCMLT	M18×1	86.8	52	24.3	4	10	24	29
	M30	PRDCMT	M30×1.5	63.8	28	25.8	5	10	35	42
		PRDCMLT	M30×1.5	85.8	50	25.8	5	10	35	42

◎ Connector cable (sold separately)

• CID2-☐-☐



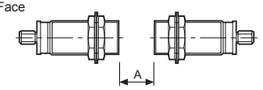
• CLD2-☐-☐ (unit: mm)



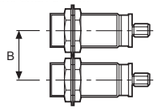
▣ Mutual-Interference & Influence By Surrounding Metals

◎**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.

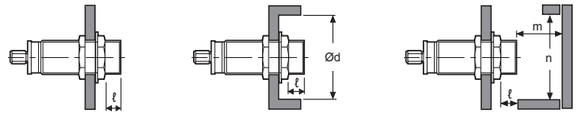
• Face to Face



• Parallel



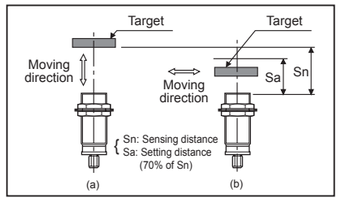
◎**Influence by surrounding metals**
When sensors are mounted on metallic panel, it is required to prevent sensors from being affected by any metallic object except target. Therefore, be sure to set a minimum distance as below chart.



(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



• 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
Setting distance(Sa) = 7mm × 0.7 = 4.9mm

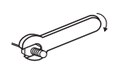
▣ Installation and Tightening Torque

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].

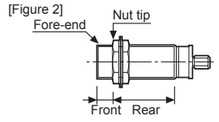
[Table 1]

Model \ Strength		Front Size	Front Torque	Rear Torque
PRDCMT12 Series	Flush	13mm	6.37N·m	11.76N·m
	Non-flush	7mm		
PRDCMT18 Series	Flush	—	14.7N·m	
	Non-flush	—		
PRDCMT30 Series	Flush	26mm	49N·m	78.4N·m
	Non-flush	12mm		

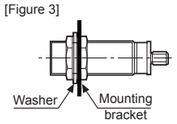
[Figure 1]



[Figure 2]



[Figure 3]



▣ 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
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometers/Pulse (Rate) Meters
- Display Units
- Sensor Controllers
- 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_2, Nd: YAG)
- Laser Welding/Cutting System

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