DRW170205AA

Autonics

INDUCTIVE PROXIMITY SENSOR
Cylindrical, Long Sensing Distance, Connector Type DC 2-wire
INSTRUCTION MANUAL

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.

※Safety considerations are categorized as follows.
⚠**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.

※The symbols used on the product and instruction manual represent the following
⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠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 personal injury, fire, or economic loss.
2. **Do not supply power directly without load.**
   Failure to follow this instruction may result in burn or damage internal components.

⚠Caution

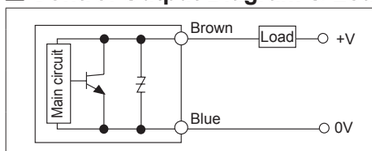
1. **Do not use the unit where flammable or explosive gas, chemical, strong alkalis, or acids may be present.**
   Failure to follow this instruction may result in fire or explosion.
2. **Do not impact on the unit.**
   Failure to follow this instruction may result in product damage or malfunction.
3. **Do not use loads beyond the rated voltage range. Do not supply AC power to DC power unit.**
   Failure to follow this instruction may result in product damage.

▣ Ordering Information

P R D CM ☐ T 18 – 7 DO – I

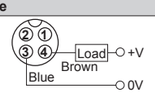
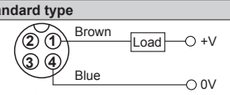
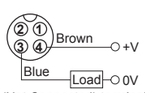
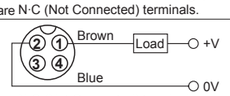
Item	P	Inductive proximity sensor
Shape	R	Cylindrical type
Feature	D	Long sensing distance type
Cable type	CM	Connector type
Body size	No mark	Standard type
	L	Long body
Cable form	T	DC 2-wire
Dimension	Number	Diameter of head (unit: mm)
Sensing distance	Number	Standard sensing distance (unit: mm)
Output	DO	DC 2-wire N.O.(Normally Open)
	DC	DC 2-wire N.C.(Normally Closed)
Standard	No mark	Standard type
	I	IEC Standard type

▣ 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)		
N.C. (Normally Closed)		
	※①,② are N·C (Not Connected) terminals.	※②,③ are N·C (Not Connected) terminals. ※③,④ are N·C (Not Connected) terminals.

※**The above specifications are subject to change and some models may be discontinued without notice.**

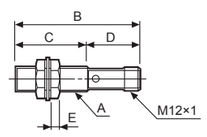
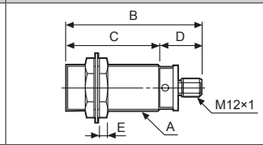
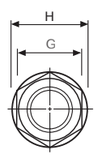
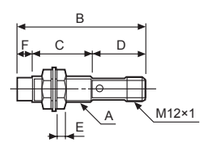
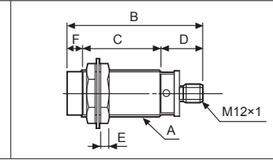
▣ Specifications

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)

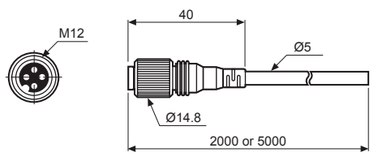
Type	Connector type M12	Connector type M18, M30	Nut, Washer
Flush			
Non-flush			

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

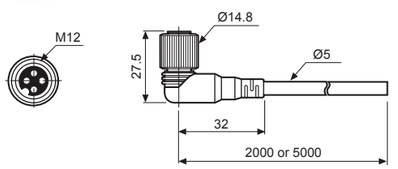
◎ Connector cable (sold separately)

(unit: mm)

• CID2-☐-☐



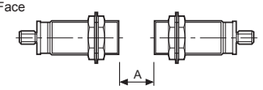
• CLD2-☐-☐



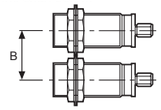
▣ Mutual-Interference & Influence By Surrounding Metals

◎**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.

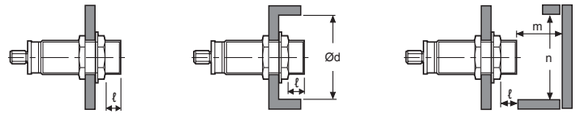
• Face to Face



• Parallel



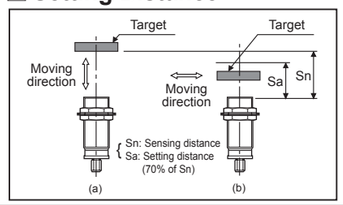
◎**Influence by surrounding metals**
When sensors are mounted on metallic panel, it is required to prevent sensors from being affected by any metallic object except target. Therefore, be sure to set a minimum distance as below chart.



(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

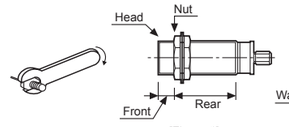


• Sensing distance can be changed by the shape, size or material of the target.
Therefore please check the sensing distance like (a), then pass the target within range of setting distance (Sa) of (b).

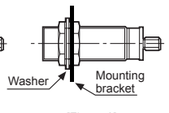
• Setting distance (Sa): Sensing distance×70%
E.g.)PRDCMT18-7DO
Setting distance(Sa) = 7mm × 0.7 = 4.9mm

▣ Cautions During Use

1. This equipment shall not be used outdoors or beyond specified temperature range.
2. Do not apply over tensile strength of cord. (Ø4mm: Max. 30N, Ø5mm: Max. 50N)
3. Do not use the same conduit with cord of this unit and electric power line or power line.
4. Do not apply overload to tighten nut, please use the provided washer for tightening.



[Figure 1]



[Figure 2]

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		

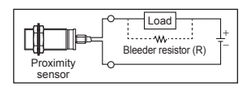
[Table 1]

Note 1) Allowable tightening torque of a nut may be different by the distance from the head.
For allowable tightening torque and the range of front and rear parts, refer to [Table 1] and above [Figure 1] respectively.
The rear part includes a nut on the head side (see above [Figure 1]).
Apply a tightening torque of the front part when the nut on the front is located in the front part.
Note2) The allowable tightening torque denotes a torque value when using a provided washer as above [Figure 2].

5. Please check the voltage changes of power source in order not to excess the rated power input.
6. DC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
7. Do not use this unit during transient time (80ms) after applying power.
8. It might result in damage to this product, if use automatic transformer. So please use insulated transformer.
9. Please make wire as short as possible in order to avoid noise.
10. If the target is plated, the operating distance can be changed by the plating material.
11. It may result in malfunction by metal particle on product.
12. If there are machines (motor, welding etc), which occurs big surge around this unit, please install the varistor or absorber to source of surge, even though there is built-in surge absorber in this unit.
13. If connecting the load with big inrush current (DC type bulb) to this unit, the big inrush current will flow because the initial resistance is low. If the current flows, the resistance of load will be bigger, then it will return to standard current. In this case, proximity sensor might be damaged by inrush current. If you use DC type bulb, please connect extra relay or resistance in order to protect proximity sensor.
14. If making a transceiver close to proximity sensor or wire connection, it may cause malfunction.
15. In case of the load current is small : Make the residual current is less than return current to connect the bleeder resistor to load in parallel.

Vs: Power supply,
Io: Min. operating current for proximity sensor,
Ioff: Return current of load,
P: Resistance W of bleeder resistor

※$R \leq \frac{Vs}{Io - Ioff}$ (kΩ) $P > \frac{Vs^2}{R}$ (mW)



※**Failure to follow these instructions may result in product damage.**

▣ 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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