

Autonics

INDUCTIVE PROXIMITY SENSOR (CYLINDRICAL DC 3WIRE CONNECTOR)

PRCM SERIES

M A N U A L



Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

Caution for your safety

- Please keep these instructions and review them before using this unit.
- Please observe the cautions that follow:
Warning Serious injury may result if instructions are not followed.
Caution Product may be damaged, or injury may result if instructions are not followed.
- The following is an explanation of the symbols used in the operation manual.
Caution: Injury or danger may occur under special conditions.

Warning

- In case of using this unit with machineries (Nuclear power control, medical equipment vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fall-safe device, or contact us for information on type required. It may result in serious damage, fire or human injury.

Caution

- Do not use this unit in place where there are flammable, explosive gas, chemical or strong alkalis, acids. It may cause a fire or explosion.
- Do not impact on this unit. It may result in malfunction or damage to the product.
- Do not apply AC power and observe specification rating. It may result in serious damage to the product.

Ordering information

P R CM L 18 - 5 DN

- Item: P
- Shape: R
- Connection: CM
- Body size: L
- Dimension: 18
- Standard sensing distance: 5
- Output: DN

DN	NPN N.O. (Normally Open)
DN2	NPN N.C. (Normally Closed)
DP	PNP N.O. (Normally Open)
DP2	PNP N.C. (Normally Closed)

Number	Unit: mm
Number	Diameter of head (mm)

L	Standard
L	Long body

CM	Connector type
R	Cylindrical type
P	Inductive proximity sensor

Control output diagram & Load operating

	Main circuit	Normally Open	Normally Closed
NPN		Sensing target	Presence: [ON], Nothing: [OFF]
		Load (Brown-Black)	Operation: [ON], Return: [OFF]
		Output voltage (Black-Blue)	H: [ON], L: [OFF]
		Indicator (LED)	ON: [ON], OFF: [OFF]
PNP		Sensing target	Presence: [ON], Nothing: [OFF]
		Load (Black-Blue)	Operation: [ON], Return: [OFF]
		Output voltage (Black-Blue)	H: [ON], L: [OFF]
		Indicator (LED)	ON: [ON], OFF: [OFF]

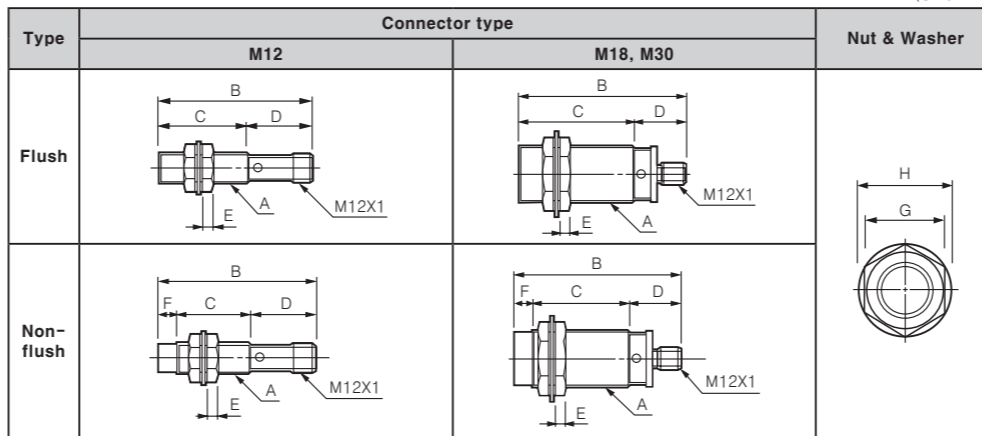
* The above specifications are subject to change without notice.

Specifications

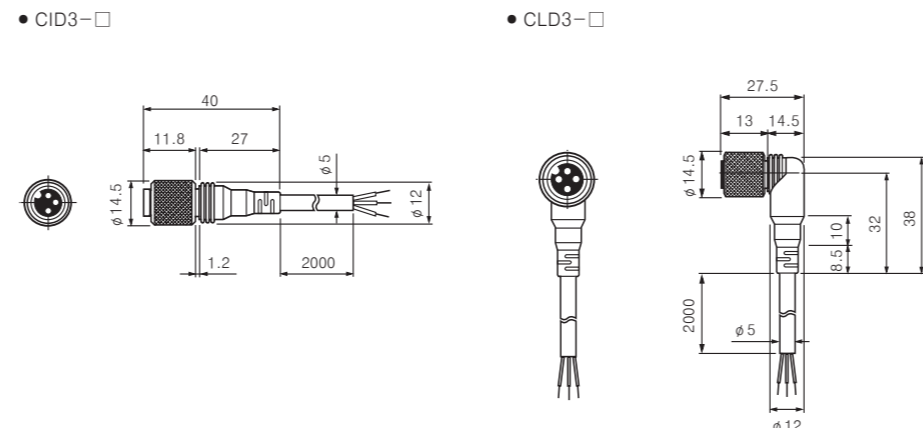
Model	PRCM12-2DN PRCM12-2DP PRCM12-2DN2 PRCM12-2DP2	PRCM12-4DN PRCM12-4DP PRCM12-4DN2 PRCM12-4DP2	PRCM18-5DN PRCM18-5DP PRCM18-5DN2 PRCM18-5DP2 PRCML18-5DN PRCML18-5DP PRCML18-5DN2 PRCML18-5DP2	PRCM18-8DN PRCM18-8DP PRCM18-8DN2 PRCM18-8DP2 PRCML18-8DN PRCML18-8DP PRCML18-8DN2 PRCML18-8DP2	PRCM30-10DN PRCM30-10DP PRCM30-10DN2 PRCM30-10DP2 PRCML30-10DN PRCML30-10DP PRCML30-10DN2 PRCML30-10DP2	PRCM30-15DN PRCM30-15DP PRCM30-15DN2 PRCM30-15DP2 PRCML30-15DN PRCML30-15DP PRCML30-15DN2 PRCML30-15DP2
Sensing distance	2mm	4mm	5mm	8mm	10mm	15mm
Hysteresis	Max. 10% of sensing distance					
Standard sensing target	12×12×1mm (Iron)	18×18×1mm (Iron)	25×25×1mm (Iron)	30×30×1mm (Iron)	45×45×1mm (Iron)	45×45×1mm (Iron)
Setting distance	0~1.4mm	0~2.8mm	0~3.5mm	0~5.6mm	0~7mm	0~10.5mm
Power supply (Operating voltage)	12~24VDC (10~30VDC)					
Current consumption	Max. 10mA					
Response frequency	1.5kHz	500Hz	500Hz	350Hz	400Hz	200Hz
Residual voltage	Max. 1.5V					
Affection by Temp.	Within ±10°C max. of sensing distance at 20°C in temperature range of -25 ~ 70°C					
Control output	Max. 200mA					
Insulation resistance	Min. 50MΩ (500VDC megger)					
Dielectric strength	1,500VAC 50/60Hz for 1 minute					
Vibration	1mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours					
Shock	500m/s ² (50G) X, Y, Z directions for 3 times					
Indicator	Operating indicator (Red LED)					
Environment	Ambient temperature: -25 ~ 70°C, Storage: -30 ~ 80°C					
Environment	Ambient humidity: 35 ~ 95%RH, Storage: 35 ~ 95%RH					
Protection circuit	surge protection circuit, Reverse polarity protection circuit, Overcurrent protection					
Protection	IP67 (IEC Standards)					
Materials	Case/Nut: Nikel plated Brass, Washer: Nikel plated Iron, Sensing surface: Heat-resistant ABS					
Approval	CE					
Unit weight	Approx. 26g		PRCM: Approx. 49g PRCML: Approx. 73g		PRCM: Approx. 134g PRCML: Approx. 169g	

* Condition for use in Environment is no freezing or condensation.

Dimensions



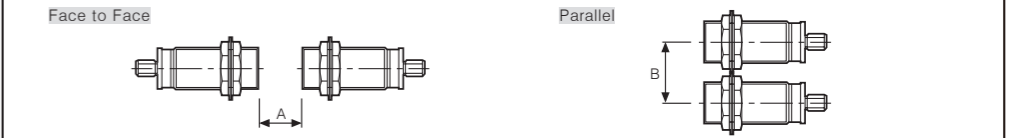
Type	PRCM / PRCML	Model	A	B	C	D	E	F	G	H
			mm	mm	mm	mm	mm	mm	mm	mm
Flush	M12	PRCM	M12×1	55.8	31.5	24.3	4	---	17	21
	M18	PRCM	M18×1	54.3	29.5	24.8	4	---	24	29
	M18	PRCML	M18×1	87.3	62.5	24.8	4	---	24	29
	M30	PRCM	M30×1.5	63.8	38	25.8	5	---	35	42
M30	PRCML	M30×1.5	85.8	60	25.8	5	---	35	42	
Non-flush	M12	PRCM	M12×1	55.8	24.5	24.3	4	7	17	21
	M18	PRCM	M18×1	53.8	19	24.8	4	10	24	29
	M18	PRCML	M18×1	86.8	52	24.8	4	10	24	29
	M30	PRCM	M30×1.5	63.8	28	25.8	5	10	35	42
M30	PRCML	M30×1.5	85.8	50	25.8	5	10	35	42	



Multi-interference & Influence by surrounding metals

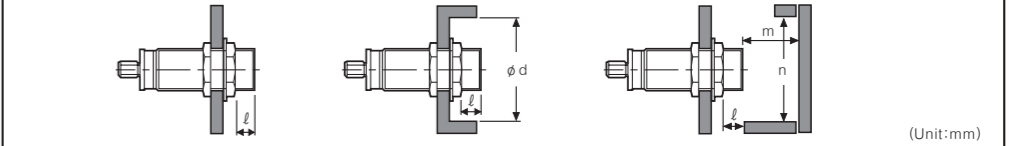
○ Mutual-interference

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

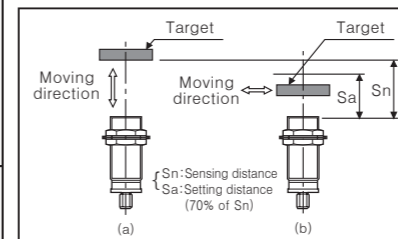
When sensors are mounted on metallic panel, it is required to protect the sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart.



(Unit: mm)

Model	PRCM12-2D□	PRCM12-4D□	PRCM(L)18-5D□	PRCM(L)18-8D□	PRCM(L)30-10D□	PRCM(L)30-15D□
Item						
A	12	24	30	48	60	90
B	24	36	36	54	60	90
ℓ	0	11	0	14	0	15
φ d	12	36	18	54	30	90
m	6	12	15	24	30	45
n	18	36	27	54	45	90

Setting distance

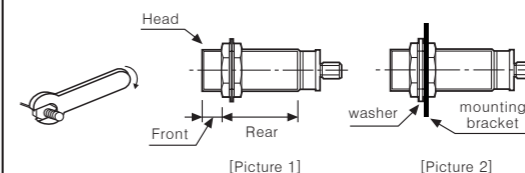


• Sensing distance can be changed by the shape, size or material of the target. Therefore please check the sensing distance like (a), then pass the target within range of setting distance (Sa).

- Setting distance (Sa) = Sensing distance (Sn) × 70%
- Ex) PRCM30-10DN
Setting distance (Sa) = 10mm × 0.7 = 7mm

Caution for using

- This equipment shall not be used outdoors or beyond specified temperature range.
- Do not apply over tensile strength of cord. (φ4: 30N max., φ5: 50N max.)
- Do not use the same conduit with cord of this unit and electric power line or power line.
- Do not put overload to tighten nut, please use the supplied washer for tightening.



Model	Strength	Front		Back
		Size	Torque	Torque
PRCM12 Series	Flush	13mm	65kgf·cm (6.37N·m)	120kgf·cm (11.76N·m)
	Non-flush	7mm		
PRCM18 Series	Flush			150kgf·cm (14.7N·m)
	Non-flush			
PRCM30 Series	Flush	26mm	500kgf·cm (49N·m)	800kgf·cm (78.4N·m)
	Non-flush	12mm		

Note1) 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 [Picture 1] respectively. The rear part includes a nut on the head side (see above [Picture 1]). Please 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 [Picture 2].
5. Please check the voltage changes of power source in order not to exceed rating power input.
 6. Do not use this unit during transient time (80ms) after apply power.
 7. It might result in damage to this product, if use automatic transformer. So please use insulated transformer.
 8. Please make wire as short as possible in order to avoid noise.
 9. Be sure to use cable as indicated specification on this product. If wrong cable or bended cable is used, it shall not maintain the water-proof.
 10. It is possible to extend cable with over 0.3mm² and max. 200m.
 11. If the target is plated, the operating distance can be changed by the plating material.
 12. It may result in malfunction by metal particle on product.
 13. 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.
 14. If connecting the load with big inrush current (DC type bulb) to this unit, the big inrush current will flow since 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 from.
 15. If making a transceiver close to proximity sensor or wire connection, it may cause malfunction.

* It may cause malfunction if above instructions are not followed.

Major products

- Proximity sensors
- Area sensors
- Photoelectric sensors
- Fiber optic sensors
- Door/Door side sensors
- Sensor controllers
- Graphic/Logic panels
- Temperature controllers
- Tachometer/Pulse(Rate) meters
- Temperature/Humidity transducers
- Switching power supplies
- Stepping motors/drivers/motion controllers
- Field network devices
- Laser marking system (CO₂, Nd:YAG)
- Laser welding/soldering system
- Counters
- Timers
- Display units
- Panel meters
- Pressure sensors
- Rotary encoders
- Power controllers

Autonics Corporation
http://www.autonics.com

Satisfiable Partner For Factory Automation

HEAD QUARTERS :
41-5, Yongdang-dong, Yangsan-si, Gyeongnam, 626-847, Korea

OVERSEAS SALES :
Bldg. 402 3rd FL., Buecheon Techno Park, 193, Yakdae-dong, Wormi-gu, Buecheon-si, Gyeongsang-do, 420-734, Korea
TEL : 82-32-610-2730 / FAX : 82-32-329-0726

E-mail : sales@autonics.com

The proposal of a product improvement and development : product@autonics.com