

Autonics

INDUCTIVE PROXIMITY SENSOR

DC 2WIRE TYPE

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 machinery (Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device. It may cause a fire, human injury or damage to property.
- Do not connect power directly without load. It may result in damage to inner components or burn them out.

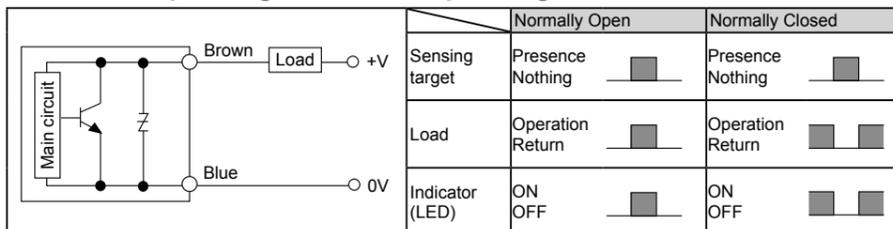
Caution

- Do not use this unit in place where there is 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 use this product beyond rated voltage or apply AC power to DC power. It may result in serious damage to the product.

Ordering information

P	R	CMT	12	-	2	DO	U	-	IV
Item	Shape	Connection	Dimension	Sensing distance	Output type	Sensing side	Cable type		
			Number	Number	Number	Number	No mark		
			Number	Number	Number	Number	Standard cable		
			Number	Number	Number	Number	Standard cable(IEC standards model)		
			Number	Number	Number	Number	Oil resistant cable		
			Number	Number	Number	Number	Oil resistant cable(IEC standards model)		
			Number	Number	Number	Number	Standard type		
			Number	Number	Number	Number	Upper detecting type		
			Number	Number	Number	Number	Normally Open		
			Number	Number	Number	Number	Normally Closed		
			Number	Number	Number	Number	Standard sensing distance(Unit: mm)		
			Number	Number	Number	Number	Diameter of head(mm)		
			Number	Number	Number	Number	A side length(mm)		
			Number	Number	Number	Number	DC 2 wire, cable outgoing type		
			Number	Number	Number	Number	DC 2 wire, cable outgoing connector type		
			Number	Number	Number	Number	DC 2 wire, connector type		
			Number	Number	Number	Number	Cylindrical type		
			Number	Number	Number	Number	Square new design type		
			Number	Number	Number	Number	Inductive proximity sensor		

Control output diagram & Load operating



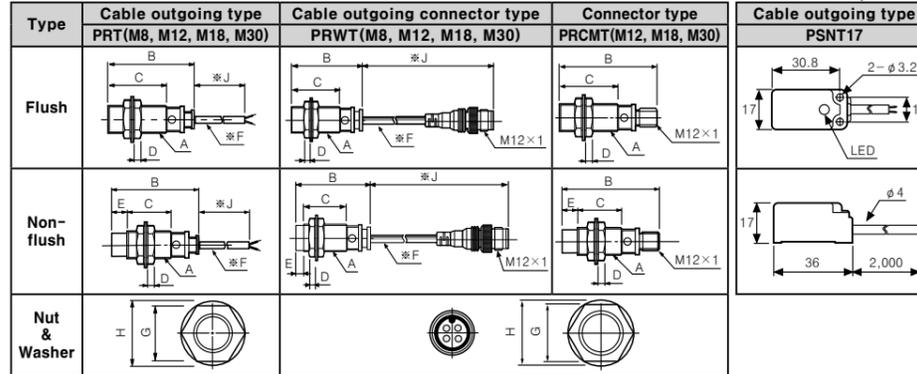
※The above specifications are subject to change without notice.

Specifications

Model	PRT08-1.5DO PRT08-1.5DC PRWT08-1.5DO PRWT08-1.5DC-V	PRT08-2DO PRT08-2DC PRWT08-2DO PRWT08-2DC-V	PRT12-2DO PRT12-2DC PRWT12-2DO PRWT12-2DC-V	PRT12-4DO PRT12-4DC PRWT12-4DO PRWT12-4DC-V	PRT18-5DO PRT18-5DC PRWT18-5DO PRWT18-5DC-V	PRT18-8DO PRT18-8DC PRWT18-8DO PRWT18-8DC-V	PRT30-10DO PRT30-10DC PRWT30-10DO PRWT30-10DC-V	PRT30-15DO PRT30-15DC PRWT30-15DO PRWT30-15DC-V	PSNT17-5DO PSNT17-5DC PSNT17-5DOU PSNT17-5DCU
Sensing distance	1.5mm	2mm	2mm	4mm	5mm	8mm	10mm	15mm	5mm
Hysteresis	Max. 10% of sensing distance								
Standard sensing target	8×8×1mm(Iron)		12×12×1mm(Iron)		18×18×1mm(Iron)		25×25×1mm(Iron)		30×30×1mm(Iron)
Setting distance	0~1.05mm	0~1.4mm	0~2.8mm	0~3.5mm	0~5.6mm	0~7mm	0~10.5mm	0~3.5mm	
Power supply (Operating voltage)	12~24VDC(10~30VDC)								
Leakage current	Max. 0.6mA								
Response frequency	1.5KHz	1.0KHz	1.5KHz	500Hz	350Hz	400Hz	200Hz	700Hz	
Residual voltage	Max. 3.5V								
Affection by Temp.	Within ±10°C max. of sensing distance at 20°C in temperature range of -25 to 70°C (PRT08 Series: Max. ±20%)								
Control output	2 ~ 100mA								
Insulation resistance	Min. 500MΩ(500VDC megger)								
Dielectric strength	1,500VAC 50/60Hz for 1 minute								
Vibration	1mm amplitude at frequency 10~55Hz in each of X, Y, Z directions for 2 hours								
Shock	500ms(50G) X, Y, Z directions for 3 times								
Indicator	Operating indicator(RED LED)								
Environ-ment	Ambient Temp. -25~70°C, Storage: -30~80°C Ambient humidity 35~95%RH, Storage: 35~95%RH								
Protection circuit	Surge protection / Surge protection circuit, overload & short circuit protection								
Protection	IP67(IEC Standard)								
Materials	Case/Nut: Nickel plated Brass, Washer: Nickel plated Iron, Sensing surface: Heat-resistant ABS, Standard cable(Black): Polyvinyl chloride(PVC), Oil resistant cable(Gray): Oil resistant Polyvinyl chloride(PVC)								
Approval	CE								
Weight	PRT: Approx. 52g PRWT: Approx. 32g	PRT: Approx. 72g PRWT: Approx. 42g PRCMT: Approx. 26g	PRT: Approx. 110g PRWT: Approx. 58g PRCMT: Approx. 48g	PRT: Approx. 170g PRWT: Approx. 122g PRCMT: Approx. 142g	PSNT: Approx. 71g				

※Environment resistance is rated at no freezing or condensation.

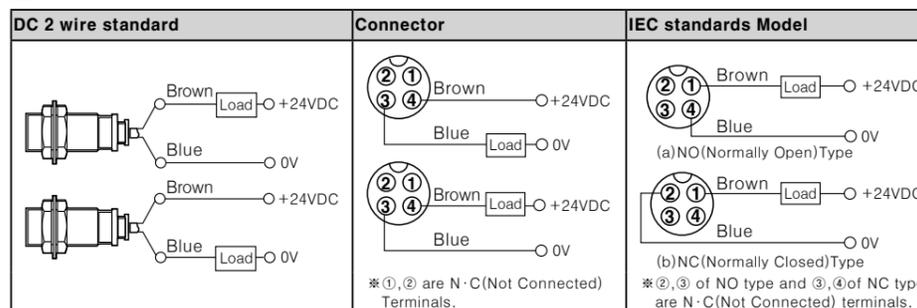
Dimensions



Type		A	B	C	D	E	F	G	H	J	
Flush	M8	PRT	M8×1	30	30	4	-	3.5	13	15	2,000
		PRWT	M8×1	30	30	4	-	4	13	15	300
	M12	PRT	M12×1	46	31.5	4	-	4	17	21	2,000
		PRWT	M12×1	46	31.5	4	-	4	17	21	300
	M18	PRT	M18×1	47.5	29.5	4	-	5	24	29	2,000
		PRWT	M18×1	47.5	29.5	4	-	5	24	29	300
M30	PRT	M30×1.5	58	38	5	-	5	35	42	2,000	
	PRWT	M30×1.5	58	38	5	-	5	35	42	300	
Non-flush	M8	PRT	M8×1	30	26	4	4	3.5	13	15	2,000
		PRWT	M8×1	30	26	4	4	4	13	15	300
	M12	PRT	M12×1	46	24.5	4	7	4	17	21	2,000
		PRWT	M12×1	46	24.5	4	7	4	17	21	300
	M18	PRT	M18×1	47	19	4	10	5	24	29	2,000
		PRWT	M18×1	47	19	4	10	5	24	29	300
M30	PRT	M30×1.5	58	28	5	10	5	35	42	2,000	
	PRWT	M30×1.5	58	28	5	10	5	35	42	300	

※'J' type standard: Cable outgoing type/2,000mm, Cable outgoing connector type/300mm
※'F' type: φ3.5, 2 cores(Conductor cross section:0.2mm², Insulator diameter:φ1), φ4, 2 cores/φ5, 2 cores(Conductor cross section:0.3mm², Insulator diameter:φ1.25)

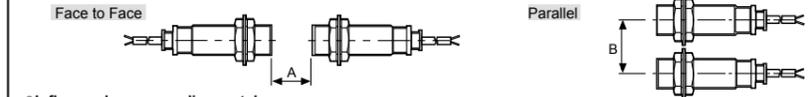
Connections



Mutual-interference & Influence by surrounding metals

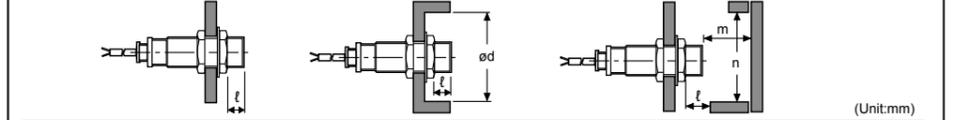
Mutual-interference

When plural proximity sensors are mounted in a close row, malfunction of sensor may be caused due to mutual interference. Therefore, be sure to provide a minimum distance between the two sensors, as below table.

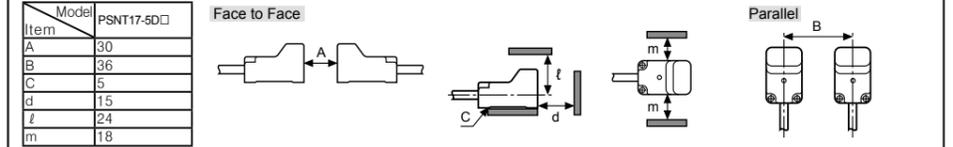


Influence by surrounding metals

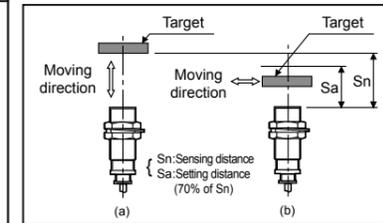
When sensors are mounted on metallic panel, it must be prevented sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart.



Model	PRT08-1.5DO PRWT08-1.5DO	PRT08-2DO PRWT08-2DO	PRT12-2DO PRWT12-2DO PRCMT12-2DO	PRT12-4DO PRWT12-4DO PRCMT12-4DO	PRT18-5DO PRWT18-5DO PRCMT18-5DO	PRT18-8DO PRWT18-8DO PRCMT18-8DO	PRT30-10DO PRWT30-10DO PRCMT30-10DO	PRT30-15DO PRWT30-15DO PRCMT30-15DO
A	9	12	12	24	30	48	60	90
B	16	24	24	36	36	54	60	90
l	0	8	0	11	0	14	0	15
φd	8	24	12	36	18	54	30	90
m	4.5	6	6	12	15	24	30	45
n	12	24	18	36	27	54	45	90



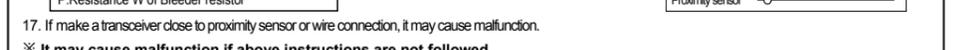
Setting distance



- Detecting distance can be changed by the shape, size or material of the target. Therefore please check the detecting distance like (a), then pass the target within range of setting distance(Sa).
- Setting distance(Sa) = Sensing distance(Sn) × 70%
Ex) PRCMT12-2DC
Setting distance(Sa) = 2mm × 0.7 = 1.4mm

Caution for using

- This equipment shall not be used outdoors or beyond specified temperature range.
- Do not load over than tensile strength of cord.(φ3.5: 25N max., φ4: 30N max., φ5: 50N max.)
- Do not use the same conduit with cord of this unit and electric power line or power line. Also avoid the same connection.
- Do not put overload to tighten nut, please use washer for tightening.
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].
Note3) PSNT17 Series: Tighten strength of installing bolts should be under 15kgf-cm(1.47N-m).
- Please check the voltage changes of power source in order not to exceed rating power input.
- Do not use this unit during transient time(80ms) after apply power.
- Do not connect capacity load to output part directly.
- It may result in damage to the product, if use automatic transformer.
So please use insulated transformer.
- Please make wire short as much as possible in order to avoid noise.
- Be sure to cable as indicated specification on this product. If use wrong cable or bended cable, it shall not maintain the water-proof.
- It is possible to extend cable with over 0.3mm and max. 200m.
- If the target is plated, the operating distance can be changed by the plating material.
- It may result in malfunction by metal particle on product.
- 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.
- If connect the load with big inrush current(DC type bulb) to this unit, the big inrush current will flow due to 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.
- 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.



17. If make 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
- Temperature/Humidity transducers
- Stepping motors/drivers/motion controllers
- Laser marking system(CO₂, Nd:YAG)
- Laser welding/soldering system
- Counters
- Timers
- Display units
- Panel meters
- Pressure sensors
- Rotary encoders
- Power controllers
- Tachometer/Pulse(Rate) meters
- Switching power supplies
- Field network devices

Autonics Corporation

Satisfiable Partner For Factory Automation
 HEAD QUARTERS: 41-5 Yongdang-dong, Yangsan-si, Gyeongsang, 626-847, Korea
 OVERSEAS SALES: Bldg. 402 3rd FL., Bucheon Techno Park, 193, Yaksae-dong, Wonn-gu, Bucheon-si, Gyeonggi-do, 420-734, Korea
 TEL: 82-32-610-2730 / FAX: 82-32-329-0728
 E-mail: sales@autonics.com
 The proposal of a product improvement and development. product@autonics.com