

Autonics

INDUCTIVE PROXIMITY SENSOR

DC 2-WIRE 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 cause 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 cause malfunction or damage to the product.
- Do not use this product beyond rated voltage or apply AC power to DC power.**
It may cause serious damage to the product.

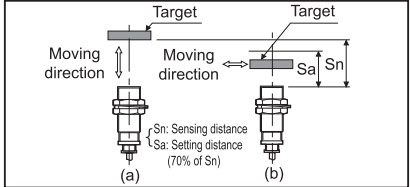
Ordering information

P	R	CMT	12	-	2	D	O	U	-	IV
Cable type										
Sensing side										
Control output										
Power supply										
Sensing distance										
Dimension										
Connection										
Shape										
Item										
		No mark	Standard cable							
		I	Standard cable(IEC standards model)							
		V	Oil resistant cable							
		IV	Oil resistant cable(IEC standards model)							
		No mark	Standard type							
		U	Upper sensing type							
		O	Normally Open(N.O.)							
		C	Normally Closed(N.O.)							
		X	12-24VDC(Non-polarity type)							
		D	12-24VDC							
		Number	Standard sensing distance(Unit: mm)							
		Number	Diameter of head(mm)							
		Number	One side length(mm)							
		T	DC 2-wire, cable outgoing type							
		WT	DC 2-wire, cable outgoing connector type							
		CMT	DC 2-wire, connector type							
		R	Cylindrical type							
		SN	Square new design type							
		P	Inductive proximity sensor							

Control output diagram & Load operation

			Normally Open	Normally Closed
Sensing target	Presence	Nothing		
	Nothing			
Load	Operation	Return		
	Return			
Operation indicator (Red RED)	ON			
	OFF			

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

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

Specifications

Model	PRT08-1.5DO PRT08-1.5DC PRWT08-1.5DO PRWT08-1.5DC PRWT08-1.5DO-V PRWT08-1.5DC-V PRWT08-1.5DO-4V PRWT08-1.5DC-4V	PRT08-2DO PRT08-2DC PRWT08-2DO PRWT08-2DC PRWT08-2DO-V PRWT08-2DC-V PRWT08-2DO-4V PRWT08-2DC-4V	PRT12-2-O PRT12-2-C PRWT12-2-O PRWT12-2-C PRWT12-2-O-4 PRWT12-2-C-4 PRWT12-2-O-4 PRWT12-2-C-4	PRT12-4-O PRT12-4-C PRWT12-4-O PRWT12-4-C PRWT12-4-O-4 PRWT12-4-C-4 PRWT12-4-O-4 PRWT12-4-C-4	PRT18-5-O PRT18-5-C PRWT18-5-O PRWT18-5-C PRWT18-5-O-4 PRWT18-5-C-4 PRWT18-5-O-4 PRWT18-5-C-4	PRT18-8-O PRT18-8-C PRWT18-8-O PRWT18-8-C PRWT18-8-O-4 PRWT18-8-C-4 PRWT18-8-O-4 PRWT18-8-C-4	PRT30-10-O PRT30-10-C PRWT30-10-O PRWT30-10-C PRWT30-10-O-4 PRWT30-10-C-4 PRWT30-10-O-4 PRWT30-10-C-4	PRT30-15-O PRT30-15-C PRWT30-15-O PRWT30-15-C PRWT30-15-O-4 PRWT30-15-C-4 PRWT30-15-O-4 PRWT30-15-C-4	PSNT17-5DO PSNT17-5DC PSNT17-5DO-4 PSNT17-5DC-4					
	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)	45×45×1mm(Iron)	18×18×1mm(Iron)			
Setting distance	0 to 1.05mm	0 to 1.4mm		0 to 2.8mm		0 to 3.5mm		0 to 5.6mm		0 to 7mm	0 to 10.5mm	0 to 3.5mm		
Power supply (Operating voltage)	12-24VDC(10-30VDC)													
Leakage current	Max. 0.6mA													
Response frequency※1	1.5kHz		1.0kHz		1.5kHz		500Hz		350Hz		400Hz		200Hz	700Hz
Residual voltage※2	Max. 3.5V(Non-polarity type is Max. 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 to 100mA													
Insulation resistance	Min. 500MΩ(500VDC megger)													
Dielectric strength	1,500VAC 50/60Hz for 1minute													
Vibration	1mm amplitude at frequency 10~55Hz in each of X, Y, Z directions for 2 hours													
Shock	500m/s(50G) X, Y, Z directions for 3 times													
Indicator	Operating indicator(Red LED)													
Environ-ment	Ambient Temp.	-25 to 70°C, Storage: -30 to 80°C												
	Ambient humidity	35~95%RH, Storage: 35 to 95%RH												
Protection circuit	Surge protection			Surge protection circuit, overload & short circuit protection										
Protection	IP67(IEC Standard)													
Cable	PRT	Ø3.5, 3-wire, 2m (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator diameter: Ø1mm)			Ø4, 2-wire, 2m			Ø5, 2-wire, 2m			Ø4, 2-wire, 2m			
	PRWT	Ø4, 2-wire, 300mm, M12 connector			Ø5, 2-wire, 300mm, M12 connector			Ø5, 2-wire, 300mm, M12 connector			—			
Materials	Case/Nut : Nikel plated Brass, Washer : Nikel plated Iron, Sensing surface : PBT, Standard cable(Black) : Polyvinyl chloride(PVC), Oil resistant cable(Gray) : Oil resistant Polyvinyl chloride(PVC)													
Approval	CE													
Weight※3	PRT	Approx. 64g(Approx. 52g)			Approx. 84g(Approx. 72g)			Approx. 122g(Approx. 110g)			Approx. 207g(Approx. 170g)			PSNT: Approx. 92g (Approx. 71g)
	PRWT	Approx. 44g(Approx. 32g)			Approx. 54g(Approx. 42g)			Approx. 70g(Approx. 58g)			Approx. 134g(Approx. 122g)			

- ※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: Before using non-polarity type, check the condition of connected device because residual voltage is 5V.
- ※3: The weight with packaging and the weight in parentheses is only unit weight.
- ※Environment resistance is rated at no freezing or condensation.

Dimensions

Type	Cable outgoing type PRT(M8, M12, M18, M30)	Cable outgoing connector type PRWT(M8, M12, M18, M30)	Connector type PRCMT(M12, M18, M30)	Cable outgoing type PSNT17
Flush				
Non-flush				
Nut & Washer				

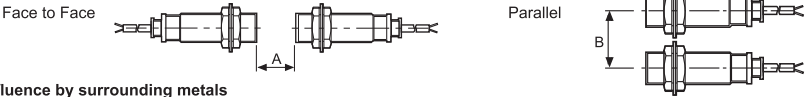
Type		A	B	C	D	E	F	G	H	J
Flush	M8	PRT M8×1	30	30	4	—	3.5	13	15	2,000
		PRWT M8×1	30	30	4	—	4	13	15	300
	M12	PRT M12×1	46	31.5	4	—	4	17	21	2,000
		PRWT M12×1	46	31.5	4	—	4	17	21	300
	M18	PRT M18×1	55.8	31.5	4	—	—	17	21	—
		PRWT M18×1	47.5	29.5	4	—	5	24	29	2,000
Non-flush	M8	PRT M8×1	47.5	29.5	4	—	5	24	29	300
		PRWT M8×1	47.5	29.5	4	—	5	24	29	300
	M12	PRT M12×1	54.3	29.5	4	—	—	24	29	—
		PRWT M12×1	58	38	5	—	5	35	42	2,000
	M18	PRT M18×1	58	38	5	—	5	35	42	300
		PRWT M18×1	58	38	5	—	5	35	42	300

※'J' type standard : Cable outgoing type/2,000mm, Cable outgoing connector type/300mm

Mutual-interference & Influence by surrounding metals

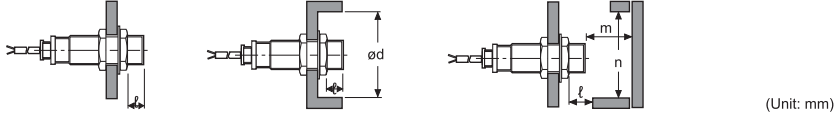
Mutual-interference

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	PRT12-2 PRWT12-2 PRCMT12-2	PRT12-4 PRWT12-4 PRCMT12-4	PRT18-5 PRWT18-5 PRCMT18-5	PRT18-8 PRWT18-8 PRCMT18-8	PRT30-10 PRWT30-10 PRCMT30-10	PRT30-15 PRWT30-15 PRCMT30-15
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
ød	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

Model	PSNT17-5DO
A	30
B	36
C	5
d	15
l	24
m	18

Connections

DC 2-wire standard	Connector connection for standard type model	Connector connection for IEC standards model
	※①, ② are not used terminals.	※②, ③ of N.O. type and ③, ④ of N.C. type are not used terminals.

※Load can be wired to any direction.

※No need to consider polarity for non-polarity type of power supply.

Caution for using

- This equipment shall not be used outdoors or beyond specified temperature range.
- Do not load over than tensile strength of cord.(ø3.5: 25N max., ø4 : 30N max., ø5 : 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 [Figure 1] respectively. The rear part includes a nut on the head side(see above [Figure 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 [Figure 2].

Note3)PSNT17 Series : Tighten strength of installing bolts should be under 15kgf·cm(1.47N·m).

5. Please check the voltage changes of power source in order not to excess rating power input.

6. Do not use this unit during transient time(80ms) after apply power.