Autonics

INDUCTIVE PROXIMITY SENSOR LONG CYLINDRICAL TYPE DC 2WIRE

INSTRUCTION MANUAL



Thank you for choosing our Autonics product. Please read the following safety considerations before use.

Safety Considerations

XPlease 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
- 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.
- Check 'Connections' before wiring.

 Failure to follow this instruction may result in fire.

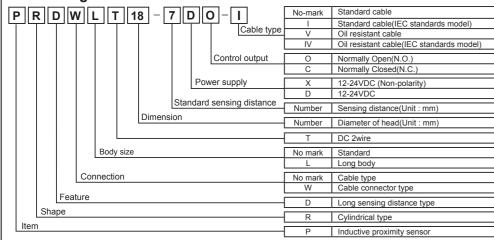
⚠ Caution

- 1. Use the unit within the rated specifications.
- Failure to follow this instruction may result in fire or product damage.

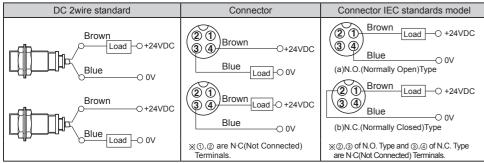
 2. Use dry cloth to clean the unit, and do not use water or organic solvent
- Failure to follow this instruction may result in fire.
- 3. Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.

 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



Connections



XLoad can be wired to any direction.

XNo need to consider polarity for non-polarity type of power supply.

lephThe 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

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Model		PRDT12-IIO PRDT12-IIC PRDT12-IIC PRDT12-IIC PRDT12-IIC PRDLT12-IIC PRDLT12-IIC PRDLT12-IIC PRDLT12-IIC PRDWT12-IIC	PRDT12-8_O PRDT12-8_C PRDT12-8_C PRDT12-8_C PRDT12-8_C PRDLT12-8_C PRDLT12-8_C PRDLT12-8_C PRDLT12-8_C PRDWT12-8_C	PRDWT18-7 C-IV PRDWLT18-7 O-IV	PRDT18-14_O PRDT18-14_C PRDT18-14_C-V PRDT18-14_C-V PRDT18-14_C-V PRDLT18-14_C-V PRDLT18-14_C-V PRDLT18-14_C-V PRDLT18-14_C-V PRDWT18-14_C-V PRDWT18-14_C-V PRDWT18-14_C-IV PRDWT18-14_C-IV PRDWT18-14_C-IV PRDWT18-14_C-IV PRDWT18-14_C-IV PRDWT18-14_C-IV PRDWT18-14_C-IV PRDWT18-14_C-IV	PRDT30-15_0 PRDT30-15_0-V PRDT30-15_0-V PRDT30-15_0-V PRDT30-15_0-V PRDLT30-15_0-V PRDLT30-15_0-V PRDLT30-15_0-V PRDWT30-15_0-V PRDWT30-15_0-V PRDWT30-15_0-V PRDWT30-15_0-V PRDWT30-15_0-V PRDWT30-15_0-V PRDWT30-15_0-V	RRD130-25_0 PRD130-25_0-V PRD130-25_0-V PRD130-25_0-V PRD130-25_0-V PRDL130-25_0-V PRDL130-25_0-V PRDW130-25_0-V PRDW130-25_0-V PRDW130-25_0-V PRDW130-25_0-V PRDW130-25_0-V PRDW130-25_0-V PRDW130-25_0-V			
Sensing d	listance	4mm	8mm	7mm	14mm	15mm	25mm			
Hysteresis	S	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 dis	stance	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 su (Operation	upply ng voltage)	12-24VDC: (10-30VDC:)								
Leakage		Max. 0.6mA (max. 5V for non-polarity type)								
	e frequency ^{×1}	450Hz	400Hz	250Hz	200Hz	100Hz	100Hz			
Residual	voltage*2	Max. 3.5V (Max.5V non-polanity type)								
Affection by Temp.		Within ±10% max. of sensing distance at 20°C in temperature range of -25 to 70°C								
Control output		2 to 100mA								
Insulation resistance Max. 50MQ (at 500VDC megger)										
Dielectric	strength	1,500VAC 50/60Hz for 1 minute								
Vibration		1mm amplitude at frequency 10 to 55Hz in each of X, Y, Z directions for 2 hours								
Shock		500m/s²(approx. 50G) X, Y, Z directions for 3 times								
Indicator		Operating indicator(Red LED)								
	Ambient temp.	-25 to 70°C, Storage: -30 to 80°C								
		35 to 95%RH, Storage: 35 to 95%RH								
Protectio	n circuit	Surge protection circuit, Reverse polarity proteciton circuit, Overcurrent protection								
Protectio	n	IP67(IEC standard)								
	Cable type	Ø4mm, 2 cores, 2m Ø5mm, 2 cores, 2m								
Cable*2		AWG22, core diameter: 0.08mm, number of cores: 60, insulator diameter: Ø1.25mm Ø4mm. 2 cores. 300mm. M12 connector Ø5mm. 2 cores. 300mm. M12 connector								
	Cable connector	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1								
type		AWG22, core diameter: 0.08mm, number of cores: 60, insulator diameter: Ø1.25mm								
Materials		Case/Nut: Nikel plated Brass, Washer: Nikel plated Iron, Sensing surface: Heat-resistant ABS, Standard cable(Black): Polyvinyl chloride(PVC), Oil resistant cable(Gray): Oil resistant Polyvinyl chloride(PVC)								
Approval		C€								
Unit weight		PRDT:Approx. 74g PRDLT:Approx. 94g PRDWT:Approx. 44g	PRDT:Approx. 72g PRDLT:Approx. 92g PRDWT:Approx. 42g	PRDLT:Approx. 145g PRDWT:Approx. 80g	PRDT:Approx. 110g PRDLT:Approx. 140g PRDWT:Approx. 75g PRDWLT:Approx. 105g	PRDT:Approx. 175g PRDLT:Approx. 215g PRDWT:Approx. 140g	PRDT:Approx. 180g PRDLT:Approx. 220g PRDWT:Approx. 145g			

- 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: Do not pull the Ø4mm cable with a tensile strength of 30N or over and the Ø5mm cable with a tensile strength of 50N or over.

- It may result in fire due to the broken wire. When extending wire, use AWG22 cable or over within 200m.

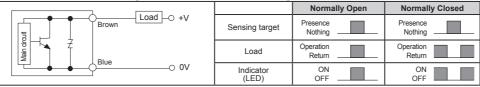
Dimensions

(Unit: mm)

Type	Cable type					Cable connector type					Nut & Washer	
1,500	PRDT(M12, M18, M30)					PRDWT(M12, M18, M30)						
Flush	B F F D A				-	B F G M12×1						
Non- Flush	B F G G M12×1											
	Type		Α	В	С	D	E	F	G	Н	I	J
		PRDT	M12×1	52	31.5	4	-	2,000	ļ-	4		$\overline{}$
	M12	PRDWT	M12×1	52	31.5	4	-	300	43.5	4	17	21
		PRDLT	M12×1	64	44	4	-	2,000	-	4		
		PRDT	M18×1	53	29.5	4	-	2,000	-	5	24	29
Flush	M18	PRDWT	M18×1	62	38.5	4	-	300	43.5	5		
Flush		PRDLT	M18×1	86	62	4	-	2,000	-	5		
		PRDWLT	M18×1	86	62	4	-	300	43.5	5		
		PRDT	M30×1.5	62	38	5	-	2,000	-	5	35	42
	M30	PRDWT	M30×1.5	62	38	5	-	300	43.5	5		
		PRDLT	M30×1.5	84	60	5	-	2,000	-	5		
Non- Flush		PRDT	M12×1	52	24.5	4	7	2,000	-	4	17	21
	M12	PRDWT	M12×1	52	24.5	4	7	300	43.5	4		
		PRDLT	M12×1	64	37	4	7	2,000	-	4		
		PRDT	M18×1	53	19	4	10	2,000	-	5	24	
	M18	PRDWT	M18×1	62	29	4	10	300	43.5	5		29
		PRDLT	M18×1	86	52	4	10	2,000	-	5		²⁹
		PRDWLT	M18×1	86	52	4	10	300	43.5	5		
		PRDT	M30×1.5	62	28	5	10	2,000	-	5		
			M30×1.5	62	28	5	10	300	43.5	5	135	42

Control Output Diagram & Load Operating

PRDLT M30×1.5 84 50



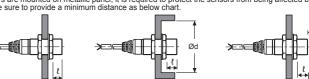
Multi-interference & Influence by Surrounding Metals

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.

Face to Face Parallel

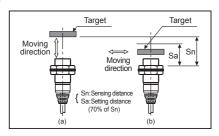
Influence by surrounding metals

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.



Model Item	PRDT12-4 DPRDWT12-4 DPRDLT12-4 DP	PRDT12-8 D PRDWT12-8 PRDLT12-8	PRDT18-7	PRDT18-14	PRDT30-15	PRDT30-25
Α	24	48	42	84	90	150
В	24	36	36	54	60	90
ł	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



[Table 1]

·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%

E.g.)PRDT18-7DO

Setting distance(Sa) = $7mm \times 0.7 = 4.9mm$

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

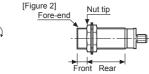
tightening torque for front part.

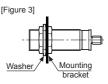
[Table 1] the allowable tightening torque table is for inserting the

washer as [Figure 3].

Rear Strength Torque PRDT12 Flush 13mm 6.37N·m 11.76N·m Series Non-flush 7mm Flush PRDT18 14.7N·m Non-flush Series Flush 26mm PRDT30 Series Non-flush







Cautions during Use

- Follow instructions in 'Cautions' during Use'. Otherwise, it may cause unexpected accidents.
 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.

Graphic/Logic Panels

■ Laser Welding/Cutting System

■ Laser Marking System(Fiber, CO₂, Nd:YAG)

- 5. This unit may be used in the following environments.

② Altitude max. 2,000m

1) Indoors (in the environment condition rated in 'Specifications') ③ Pollution degree 2

Installation category II

Major Products

- Photoelectric Sensors Temperature Controllers ■ Fiber Optic Sensors ■ Temperature/Humidity Transducers ■ Field Network Devices
 - SSRs/Power Controllers
- Door Side Sensors Counters
- ■Area Sensors Timers ■ Panel Meters
- Proximity Sensors
- Pressure Sensors ■ Tachometers/Pulse(Rate) Meters ■ Display Units
- Rotary Encoders
- Connectors/Sockets Sensor Controller
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables ■ Stepper Motors/Drivers/Motion Controllers

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