

Autonics

INDUCTIVE PROXIMITY SENSOR

LONG CYLINDRICAL 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.
- ※△ 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**
- 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.
 - Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
Failure to follow this instruction may result in explosion or fire.
 - Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire.
 - 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

- Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
- Use dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire.
- Do not supply power without load.**
Failure to follow this instruction may result in fire or product damage.

Ordering Information

P	R	D	W	L	T	18	-	7	D	O	-	I	
													Standard/ Cable material
													Control output
													Power supply
													Sensing distance
													Dimension
													Cable form
													Body size
													Cable type
													Feature
													Shape
													Item
													No-mark
													I
													V
													IV
													O
													C
													X
													D
													Number
													Number
													T
													No mark
													L
													No mark
													W
													D
													R
													P

Connections

Cable type (standard)	Cable connector type (standard)	Cable connector type (IEC standard)

- ※Load can be wired to any direction.
- ※No need to consider polarity for non-polarity type of power supply.
- ※The 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

Model		PRDT08-2DO PRDT08-2DC PRDT08-2DO-V PRDT08-2DC-V PRDWT08-2DO PRDWT08-2DC PRDWT08-2DO-I PRDWT08-2DC-I PRDWT08-2DO-V PRDWT08-2DC-V PRDWT08-2DO-I-V PRDWT08-2DC-I-V	PRDT08-4DO PRDT08-4DC PRDT08-4DO-V PRDT08-4DC-V PRDWT08-4DO PRDWT08-4DC PRDWT08-4DO-I PRDWT08-4DC-I PRDWT08-4DO-V PRDWT08-4DC-V PRDWT08-4DO-I-V PRDWT08-4DC-I-V	PRDT12-4DO PRDT12-4DC PRDT12-4DO-V PRDT12-4DC-V PRDLT12-4DO PRDLT12-4DC PRDLT12-4DO-I PRDLT12-4DC-I PRDLT12-4DO-V PRDLT12-4DC-V PRDLT12-4DO-I-V PRDLT12-4DC-I-V	PRDT12-8DO PRDT12-8DC PRDT12-8DO-V PRDT12-8DC-V PRDLT12-8DO PRDLT12-8DC PRDLT12-8DO-I PRDLT12-8DC-I PRDLT12-8DO-V PRDLT12-8DC-V PRDLT12-8DO-I-V PRDLT12-8DC-I-V	PRDT18-7DO PRDT18-7DC PRDT18-7DO-V PRDT18-7DC-V PRDLT18-7DO PRDLT18-7DC PRDLT18-7DO-I PRDLT18-7DC-I PRDLT18-7DO-V PRDLT18-7DC-V PRDLT18-7DO-I-V PRDLT18-7DC-I-V	PRDT18-14DO PRDT18-14DC PRDT18-14DO-V PRDT18-14DC-V PRDLT18-14DO PRDLT18-14DC PRDLT18-14DO-I PRDLT18-14DC-I PRDLT18-14DO-V PRDLT18-14DC-V PRDLT18-14DO-I-V PRDLT18-14DC-I-V	PRDT30-15DO PRDT30-15DC PRDT30-15DO-V PRDT30-15DC-V PRDLT30-15DO PRDLT30-15DC PRDLT30-15DO-I PRDLT30-15DC-I PRDLT30-15DO-V PRDLT30-15DC-V PRDLT30-15DO-I-V PRDLT30-15DC-I-V	PRDT30-25DO PRDT30-25DC PRDT30-25DO-V PRDT30-25DC-V PRDLT30-25DO PRDLT30-25DC PRDLT30-25DO-I PRDLT30-25DC-I PRDLT30-25DO-V PRDLT30-25DC-V PRDLT30-25DO-I-V PRDLT30-25DC-I-V
	Diameter of sensing side	8mm		12mm		18mm		30mm	
	Sensing distance	2mm	4mm	4mm	8mm	7mm	14mm	15mm	25mm
	Installation	Shield (flush)	Non-Shield (non-flush)	Shield (flush)	Non-Shield (non-flush)	Shield (flush)	Non-Shield (non-flush)	Shield (flush)	Non-Shield (non-flush)
	Hysteresis	Max. 15% of sensing distance		Max. 10% of sensing distance					
	Standard sensing target	8×8×1mm (iron)	12×12×1mm (iron)	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 1.4mm	0 to 2.8mm	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. 0.8mA		Max. 0.6mA					
	Response frequency ^{*1}	1kHz	800Hz	450Hz	400Hz	250Hz	200Hz	100Hz	100Hz
	Residual voltage ^{*2}	Max. 3.5V (Max.5V non-polarity type)							
	Affection by Temp.	Max. ±15% for sensing distance at ambient temperature 20℃		Max. ±20% for sensing distance at ambient temperature 20℃					
Control output	2 to 100mA								
Insulation resistance	Max. 50MΩ (at 500VDC megger)								
Dielectric strength	1,500VAC 50/60Hz for 1 min								
Vibration	1mm amplitude at frequency 10 to 55Hz in each X, Y, Z direction for 2 hours								
Shock	500m/s ² (approx. 50G) in each X, Y, Z direction for 3 times								
Indicator	Operating indicator: red LED								
Environment	Ambient temp.	-25 to 70℃, storage: -30 to 80℃							
	Ambient humi.	35 to 95%RH, storage: 35 to 95%RH							
Protection circuit	Surge protection circuit, reverse polarity protection circuit, output short over current protection circuit								
Protection	IP67 (IEC standard)								
Cable ^{*3}	Cable type	Standard	Ø3.5mm, 2-wire, 2m (AWG24, core diameter: 0.08mm, number of cores: 40, insulator diameter: Ø1.0mm)		Ø4mm, 2-wire, 2m (AWG22, core diameter: 0.08mm, number of cores: 60, insulator diameter: Ø1.25mm)		Ø5mm, 2-wire, 2m (AWG22, core diameter: 0.08mm, number of cores: 60, insulator diameter: Ø1.25mm)		
	Cable connector type	Oil resistant	Ø3.5mm, 2-wire, 300mm, M12 (AWG24, core diameter: 0.08mm, number of cores: 40, insulator diameter: Ø1.0mm)		Ø4mm, 2-wire, 300mm, M12 connector		Ø5mm, 2-wire, 300mm, M12 connector		
Materials	Case/Nut: Nikel plated Brass (case of PRD...T08: SUS303), Washer: Nikel plated Iron, Sensing surface: Polybutylene terephthalate, Standard cable(Black): Polyvinyl chloride(PVC), Oil resistant cable(Gray): Oil resistant Polyvinyl chloride(PVC)								
Approval	CE								
Weight ^{*4}	PRDT	Approx. 58g (approx. 50g)		Approx. 74g (approx. 62g)	Approx. 72g (approx. 60g)	Approx. 115g (approx. 97g)	Approx. 110g (approx. 92g)	Approx. 175g (approx. 138g)	Approx. 180g (approx. 143g)
	PRDLT	—		Approx. 94g (approx. 82g)	Approx. 92g (approx. 80g)	Approx. 145g (approx. 127g)	Approx. 140g (approx. 122g)	Approx. 215g (approx. 178g)	Approx. 220g (approx. 183g)
	PRDWT	Approx. 28g (approx. 20g)		Approx. 44g (approx. 32g)	Approx. 42g (approx. 30g)	Approx. 80g (approx. 62g)	Approx. 75g (approx. 57g)	Approx. 140g (approx. 108g)	Approx. 145g (approx. 108g)
	PRDWT	—		—	—	—	Approx. 110g (approx. 92g)	—	—

- ※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 Ø3.5mm cable with a tensile strength of 25N, 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.
- ※4: The weight includes packaging. The weight in parenthesis is for unit only.
- ※The temperature and humidity of environment resistance are rated at non-freezing or condensation.

Dimensions

Type	Cable type	Cable connector type	Nut & Washer
	PRDT(M8, M12, M18, M30)	PRDWT(M8, M12, M18, M30)	
Flush			
Non-Flush			

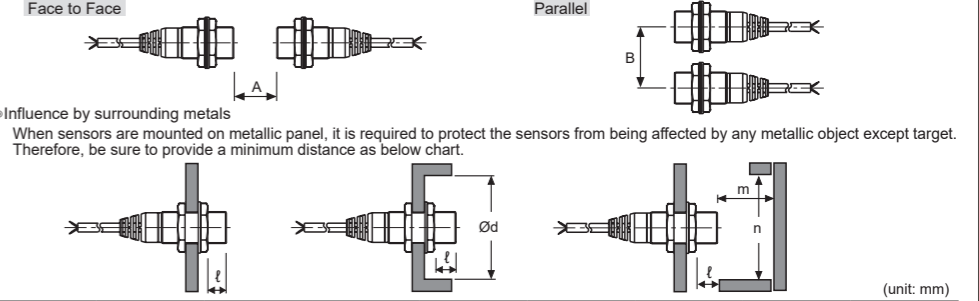
Type		A	B	C	D	E	F	G	H	I	J
Flush	M8	PRDT M8×1	46	30	4	—	2,000	—	3.5	13	15
		PRDWT M8×1	46	30	4	—	300	43.5	4		
	M12	PRDT M12×1	52.1	31.7	4	—	2,000	—	4	17	21
		PRDWT M12×1	52.1	31.7	4	—	300	43.5	4		
		PRDLT M12×1	64.6	44.2	4	—	2,000	—	4		
Non-Flush	M8	PRDT M18×1	53.2	29.5	4	—	2,000	—	5	24	29
		PRDWT M18×1	53.2	29.5	4	—	300	43.5	5		
		PRDLT M18×1	86.2	62.5	4	—	2,000	—	5		
		PRDWT M18×1	86.2	62.5	4	—	300	43.5	5		
		PRDLT M30×1.5	63.7	38	5	—	2,000	—	5		
Non-Flush	M8	PRDT M8×1	46	24	4	6	2,000	—	3.5	13	15
		PRDWT M8×1	46	24	4	6	300	43.5	4		
	M12	PRDT M12×1	51.9	24.5	4	7	2,000	—	4	17	21
		PRDWT M12×1	51.9	24.5	4	7	300	43.5	4		
		PRDLT M12×1	64.4	37	4	7	2,000	—	4		
Non-Flush	M18	PRDT M18×1	52.7	19	4	10	2,000	—	5	24	29
		PRDWT M18×1	52.7	19	4	10	300	43.5	5		
		PRDLT M18×1	85.7	52	4	10	2,000	—	5		
		PRDT M30×1.5	63.7	28	5	10	2,000	—	5		
		PRDWT M30×1.5	63.7	28	5	10	300	43.5	5	35	42
		PRDLT M30×1.5	85.7	50	5	10	2,000	—	5		

Control Output Diagram & Load Operating

	Normally Open		Normally Closed
	Sensing target		Presence Nothing
	Load		Operation Return
	Indicator (LED)		ON OFF

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.



Model	PRDT08-2DO PRDWT08-2DO	PRDT08-4DO PRDWT08-4DO	PRDT12-4DO PRDLT12-4DO	PRDT12-8DO PRDLT12-8DO	PRDT18-7DO PRDLT18-7DO	PRDT18-14DO PRDLT18-14DO	PRDT30-15DO PRDLT30-15DO	PRDT30-25DO PRDLT30-25DO
A	20	80	25	120	50	200	110	350
B	15	60	25	100	35	110	90	300
ℓ	0	12	2.5	15	3.5	14	6	20
Ød	8	24	18	40	27	70	45	1