

Autonics

**INDUCTIVE PROXIMITY SENSOR
CYLINDRICAL TYPE AC 2WIRE**

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 "Caution for your safety" to avoid accidents or damages as using it correctly.
- *The meaning of 'Warning' and 'Caution' is as follows;
 - Warning** In case a serious injury or dead may be occurred.
 - Caution** In case a little injury or damage of this unit may be occurred.
- *The meaning of the mark on the product and manual is as follows;
 - ⚠ is a caution mark for danger in special condition.

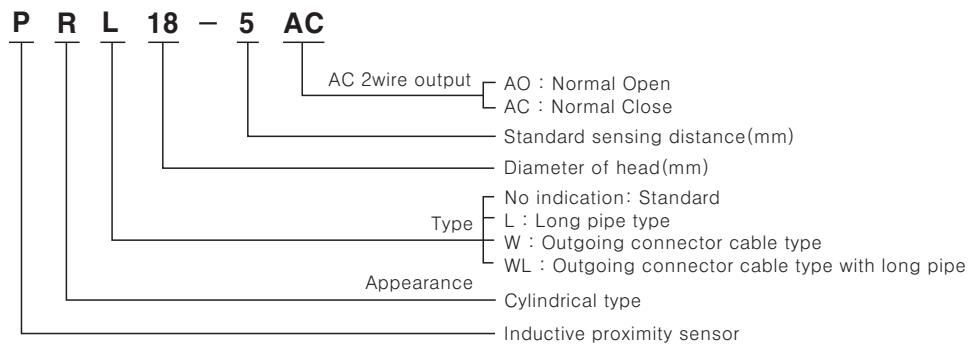
Warning

- Please use it with double safety devices when it is used at the equipments which may cause damages to human life or assets(Ex:Nuclear power control, Medical equipment, Vehicle, Train, Air plane, Combustion apparatus, Entertainment or Safety device etc.)**
It may cause a fire, human life or assets.
- Do not connect power directly without load.**
It may result in damage to inner components or burn them out.

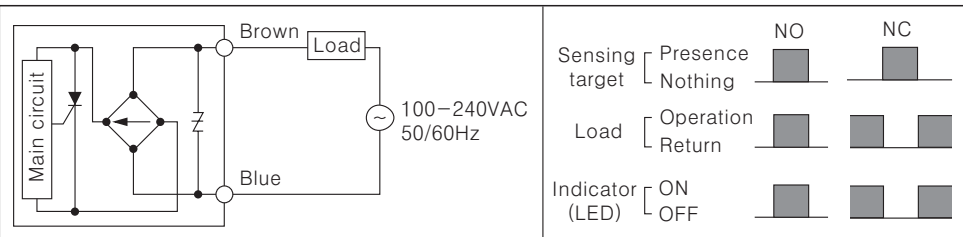
Caution

- 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.
- Please observe specification rating.**
It may result in serious damage to the product.

Ordering information



Control output diagram & Load operating



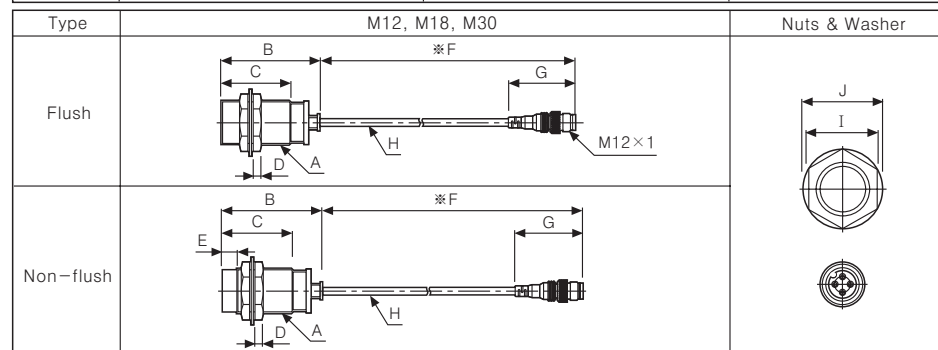
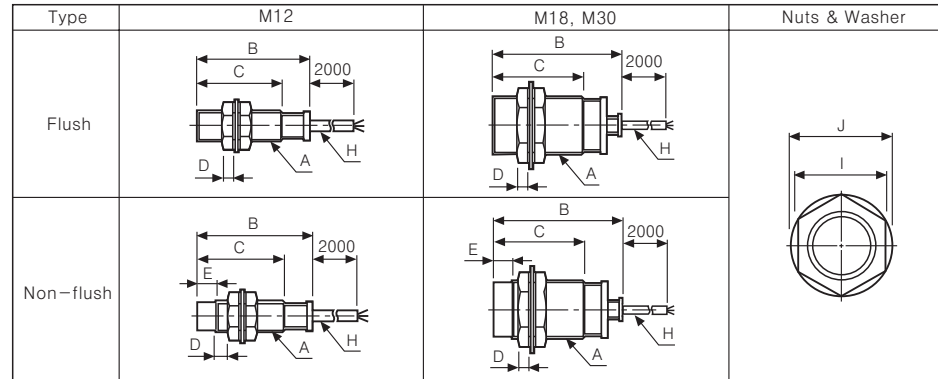
*The above specification are changeable without notice anytime.

Specifications

Model	PR12-2AO PR12-2AC PRW12-2AO PRW12-2AC	PR12-4AO PR12-4AC PRW12-4AO PRW12-4AC	PR18-5AO PR18-5AC PRL18-5AO PRL18-5AC PRW18-5AO PRW18-5AC PRWL18-5AO PRWL18-5AC	PR18-8AO PR18-8AC PRL18-8AO PRL18-8AC PRW18-8AO PRW18-8AC PRWL18-8AO PRWL18-8AC	PR30-10AO PR30-10AC PRL30-10AO PRL30-10AC PRW30-10AO PRW30-10AC PRWL30-10AO PRWL30-10AC	PR30-15AO PR30-15AC PRL30-15AO PRL30-15AC PRW30-15AO PRW30-15AC PRWL30-15AO PRWL30-15AC
Sensing distance	2mm ±10%	4mm ±10%	5mm ±10%	8mm ±10%	10mm ±10%	15mm ±10%
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)	
Setting distance	0 to 1.4	0 to 2.8	0 to 3.5	0 to 5.6	0 to 7	0 to 10.5
Power supply (Operating voltage)	100-240VAC 50/60Hz (85-264VAC)					
Leakage current	Max. 2.5mA					
Response frequency	20Hz					
Residual voltage	Max. 10V					
Affection by Temp.	±10% Max. of sensing distance at +20°C within temperature range of -25 to +70°C					
Control output	150mA				200mA	
Insulation resistance	Min. 50MΩ (500VDC)					
Dielectric strength	1500VAC 50/60Hz for 1minute					
Vibration	1mm amplitude at frequency of 10 to 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					
Ambient temperature	-25 to +70°C (Non-freezing condition)					
Storage temperature	-30 to +80°C (Non-freezing condition)					
Ambient humidity	35 to 95%RH					
Protection circuit	Surge protection					
Insulation type(*1)	□					
Protection	IP67 (IEC standard)					
Unit weight	Approx. 66g		PR: Approx. 130g PRL: Approx. 150g PRW: Approx. 87g PRWL: Approx. 112g	PR: Approx. 130g PRL: Approx. 150g PRW: Approx. 84g PRWL: Approx. 112g	PR: Approx. 185g PRL: Approx. 222g PRW: Approx. 148g PRWL: Approx. 185g	

*(*1) □ Mark indicated that equipment protected throughout by double insulation or reinforced insulation.

Dimensions

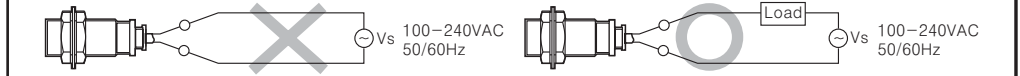


F standard : Cable outgoing connector type 300mm. (Unit:mm)

Item	A	B	C	D	E	F	G	H	I	J	
Flush	M12	PR	M12×1	59.5	48.5	4	—	—	—	—	
		PRW	M12×1	59.5	48.5	4	—	—	—	—	
	M18	PR	M18×1	53.3	35.3	4	—	—	—	—	
		PRW	M18×1	53.3	35.3	4	—	—	—	—	
	M30	PR	M30×1.5	58	38	5	—	—	—	—	—
		PRW	M30×1.5	58	38	5	—	—	—	—	—
Non-flush	M12	PR	M12×1	59.5	48.5	4	7	—	—	—	
		PRW	M12×1	59.5	48.5	4	7	—	—	—	
	M18	PR	M18×1	53.3	35.3	4	10	—	—	—	
		PRW	M18×1	53.3	35.3	4	10	—	—	—	
	M30	PR	M30×1.5	58	38	5	10	—	—	—	—
		PRW	M30×1.5	58	38	5	10	—	—	—	—

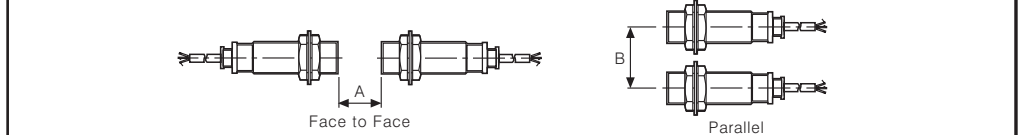
Connection of the power supply

Be sure to connect the power after connecting the load, because direct connection of the proximity sensor may cause damage to the inner elements of this product.

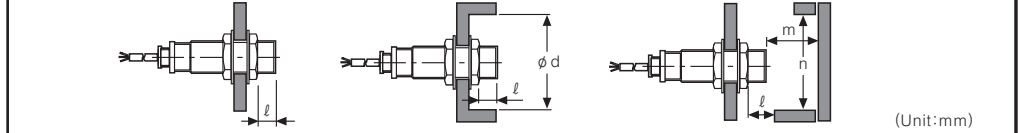


Mutual-interference & Influence by surrounding metals

○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, as below charts.

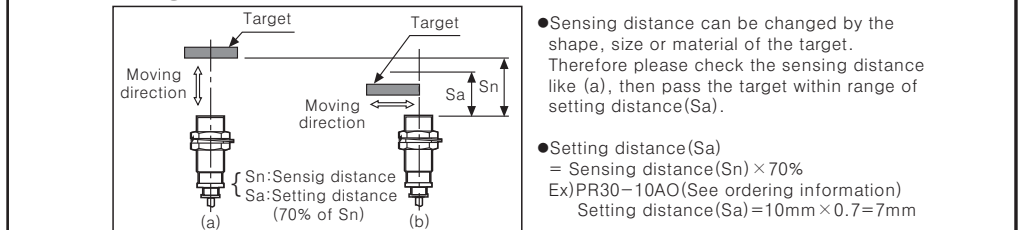


○Influence by surrounding metals
When sensors are mounted on metallic panel, it is required to protect the sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart.



Model Item	PR□12-2A□	PR□12-4A□	PR□18-5A□ PRW□18-5A□	PR□18-8A□ PRW□18-8A□	PR□30-10A□ PRW□30-10A□	PR□30-15A□ PRW□30-15A□
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	54
n	18	36	27	54	45	90

Setting distance



Caution for using

- This equipment shall not be used outdoors or beyond specified temperature range.
 - Do not load over than 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. Also avoid the same connection.
 - Do not put overload to tighten nut, please use washer for tightening. Note1) Allowable strength may be different by the length of head. As see the picture, allowable tightening strength of front part and rear part are in (Chart 1). Rear part includes head nut as like picture. Note2) (Chart1) is for using washer.
 - Please check the voltage changes of power source in order not to excess rating power input.
 - Do not connect capacity load to output part directly.
 - 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 0.3mm² 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 : When the load current is under 5mA, make the residual voltage is less than return voltage to connect the bleeder resistor to load in parallel. *110VAC 50/60Hz : 20kΩ, Min. 3W, 220VAC 50/60Hz : 39kΩ, Min. 5W
 - 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.**

Model	Strength	Size	Torque	
			Front	Rear
PR12	Flush	13mm	65kgf-cm	120kgf-cm
Series	Non-flush	7mm	—	—
PR18	Flush	—	150kgf-cm	150kgf-cm
Series	Non-flush	—	—	—
PR30	Flush	26mm	500kgf-cm	800kgf-cm
Series	Non-flush	12mm	—	—

(Chart 1)

Major products

- PROXIMITY SENSOR ■ PHOTOELECTRIC SENSOR ■ AREA SENSOR
- FIBER OPTIC SENSOR ■ DOOR/DOOR SIDE SENSOR ■ PRESSURE SENSOR
- ROTARY ENCODER ■ COUNTER
- TIMER ■ TEMPERATURE CONTROLLER
- TEMPERATURE/HUMIDITY TRANSDUCER
- POWER CONTROLLER ■ PANEL METER
- TACHO/LINE SPEED/PULSE METER
- DISPLAY UNIT ■ SENSOR CONTROLLER
- SWITCHING POWER SUPPLY
- GRAPHIC PANEL
- 5-PHASE STEPPING MOTOR & DRIVER & CONTROLLER
- LASER MARKING SYSTEM(CO₂, Nd:YAG)

Autonics Corporation
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Satisfiable Partner For Factory Automation

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