

**Autonics**

**INDUCTIVE PROXIMITY SENSOR  
LONG DISTANCE CYLINDRICAL TYPE DC 3WIRE**

**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.

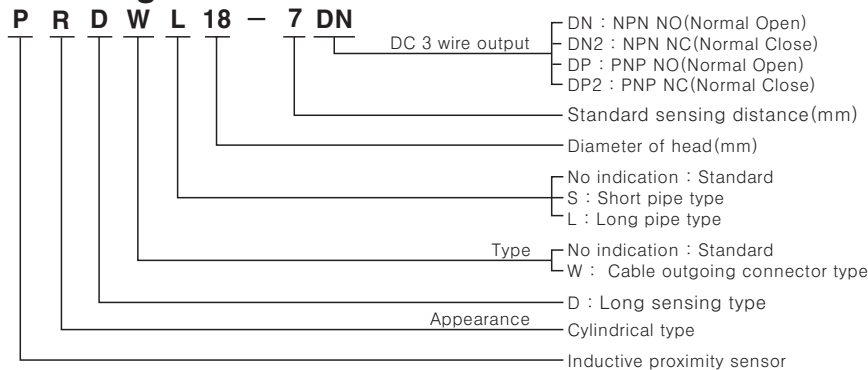
**Warning**

**1. In case of using this unit with machinery(Nuclear power control, medical equipment vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it is required to install fail-safe device.**  
It may rcause a fire, human injury or damage to property.

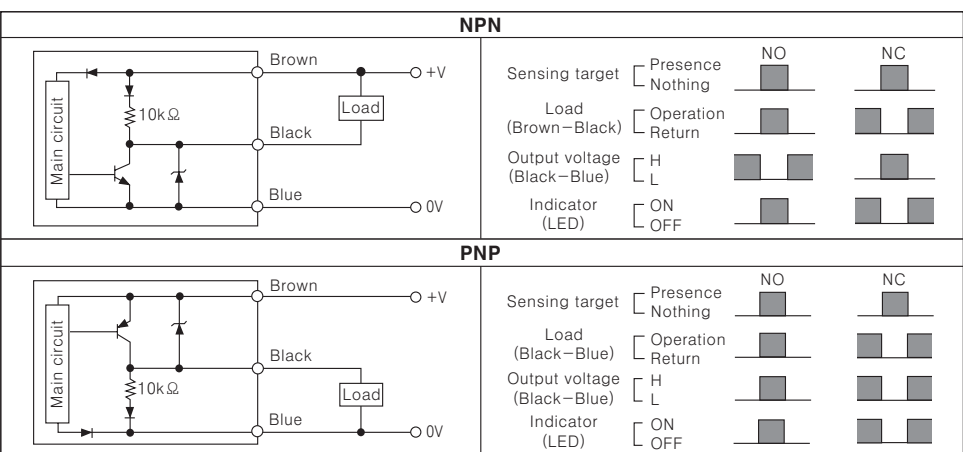
**Caution**

- Do not use this unit in place where there are 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 apply AC power and observe rhe rated specifications.**  
It may result in serious damage to the product.

**Ordering information**



**Control output diagram & Load operating**

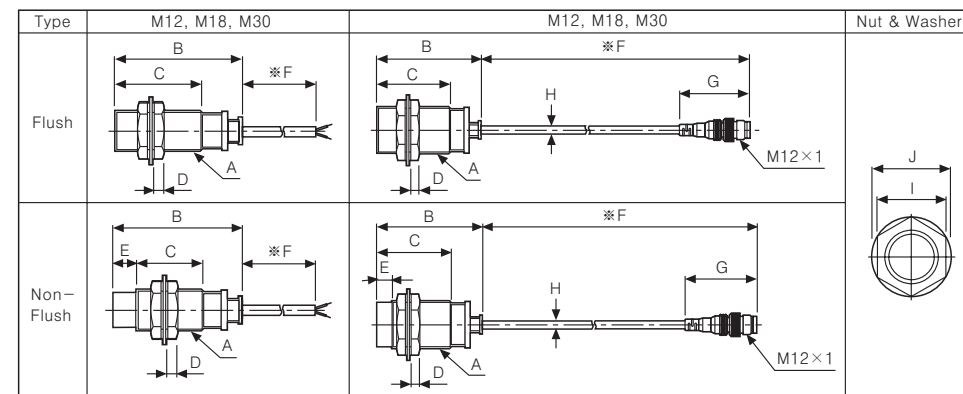


※ The above specifications are changeable at anytime without notice.

**Specifications**

Model	PRD12-4DN PRD12-4DP PRD12-4DN2 PRD12-4DP2 PRDS12-4DN PRDS12-4DP PRD12-4DN2 PRD12-4DP2 PRD12-8DN PRD12-8DP PRD12-8DN2 PRD12-8DP2 PRDS12-8DN PRDS12-8DP PRD12-8DN2 PRD12-8DP2 PRD18-7DN PRD18-7DP PRD18-7DN2 PRD18-7DP2 PRDL18-7DN PRDL18-7DP PRDL18-7DN2 PRDL18-7DP2 PRDW18-7DN PRDW18-7DP PRDW18-7DN2 PRDW18-7DP2 PRDWL18-7DN PRDWL18-7DP PRDWL18-7DN2 PRDWL18-7DP2	PRD12-8DN PRD12-8DP PRD12-8DN2 PRD12-8DP2 PRDS12-8DN PRDS12-8DP PRD12-8DN2 PRD12-8DP2 PRD18-14DN PRD18-14DP PRD18-14DN2 PRD18-14DP2 PRDL18-14DN PRDL18-14DP PRDL18-14DN2 PRDL18-14DP2 PRDW18-14DN PRDW18-14DP PRDW18-14DN2 PRDW18-14DP2 PRDWL18-14DN PRDWL18-14DP PRDWL18-14DN2 PRDWL18-14DP2	PRD18-7DN PRD18-7DP PRD18-7DN2 PRD18-7DP2 PRDL18-7DN PRDL18-7DP PRDL18-7DN2 PRDL18-7DP2 PRDW18-7DN PRDW18-7DP PRDW18-7DN2 PRDW18-7DP2 PRDWL18-7DN PRDWL18-7DP PRDWL18-7DN2 PRDWL18-7DP2	PRD18-14DN PRD18-14DP PRD18-14DN2 PRD18-14DP2 PRDL18-14DN PRDL18-14DP PRDL18-14DN2 PRDL18-14DP2 PRDW18-14DN PRDW18-14DP PRDW18-14DN2 PRDW18-14DP2 PRDWL18-14DN PRDWL18-14DP PRDWL18-14DN2 PRDWL18-14DP2	PRD30-15DN PRD30-15DP PRD30-15DN2 PRD30-15DP2 PRDL30-15DN PRDL30-15DP PRDL30-15DN2 PRDL30-15DP2 PRDW30-15DN PRDW30-15DP PRDW30-15DN2 PRDW30-15DP2 PRDWL30-15DN PRDWL30-15DP PRDWL30-15DN2 PRDWL30-15DP2	PRD30-25DN PRD30-25DP PRD30-25DN2 PRD30-25DP2 PRDL30-25DN PRDL30-25DP PRDL30-25DN2 PRDL30-25DP2 PRDW30-25DN PRDW30-25DP PRDW30-25DN2 PRDW30-25DP2 PRDWL30-25DN PRDWL30-25DP PRDWL30-25DN2 PRDWL30-25DP2
Sensing distance	4mm ±10%	8mm ±10%	7mm ±10%	14mm ±10%	15mm ±10%	25mm ±10%
Hysteresis	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 distance	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)					
Current consumption	Max. 10mA					
Response frequency	500Hz	400Hz	300Hz	200Hz	200Hz	100Hz
Residual voltage	Max. 1.5V					
Affection by Temp.	Within ±10% max. of sensing distance at +20°C in temperature range of -25 to +70°C					
Control output	200mA					
Insulation resistance	Min. 50MΩ (at 500VDC mega)					
Dielectric strength	1500VAC 50/60Hz for 1minute					
Vibration	1mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours					
Shock	500m/s <sup>2</sup> (50G) X, Y, Z directions for 3 times					
Indicator	Operating indicator (Red LED)					
Ambient temperature	-25 ~ +70°C (non-freezing condition)					
Storage temperature	-30 ~ +80°C (non-freezing condition)					
Ambient humidity	35 ~ 95%RH					
Protection circuit	Reverse polarity protection, Surge protection, Over current protection					
Protection	IP67(IEC Standard)					
Unit weight	PRD:Approx. 74g PRDS:Approx. 72g PRDW:Approx. 44g	PRD:Approx. 72g PRDS:Approx. 70g PRDW:Approx. 42g	PRD:Approx. 115g PRDL:Approx. 159g PRDW:Approx. 80g PRDWL:Approx. 110g	PRD:Approx. 110g PRDL:Approx. 140g PRDW:Approx. 75g PRDWL:Approx. 105g	PRD:Approx. 175g PRDL:Approx. 215g PRDW:Approx. 140g PRDWL:Approx. 180g	PRD:Approx. 180g PRDL:Approx. 220g PRDW:Approx. 145g PRDWL:Approx. 185g

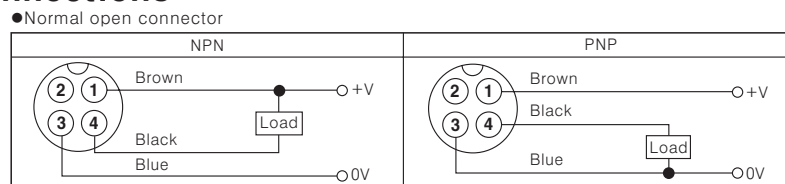
**Dimensions**



Type	A	B	C	D	E	F	G	H	I	J
M12	PRD M12×1	42.5	31.5	4	—	2000	—	4	17	20.5
	PRDS M12×1	35.5	24.5	4	—	2000	—	4	17	20.5
	PRDW M12×1	42.5	31.5	4	—	300	44	4	17	20.5
M18	PRD M18×1	47	29	4	—	2000	—	5	24	29
	PRDL M18×1	80	62	4	—	2000	—	5	24	29
	PRDW M18×1	47	29	4	—	300	44	5	24	29
M30	PRD M30×1.5	58	38	5	—	2000	—	5	35	42
	PRDL M30×1.5	80	60	5	—	2000	—	5	35	42
	PRDW M30×1.5	58	38	5	—	300	44	5	35	42
M12	PRD M12×1	42.5	31.5	4	7	2000	—	4	17	20.5
	PRDS M12×1	35.5	24.5	4	7	2000	—	4	17	20.5
	PRDW M12×1	42.5	31.5	4	7	300	44	4	17	20.5
M18	PRD M18×1	47	29	4	10	2000	—	5	24	29
	PRDL M18×1	80	62	4	10	2000	—	5	24	29
	PRDW M18×1	47	29	4	10	300	44	5	24	29
M30	PRD M30×1.5	58	38	5	10	2000	—	5	35	42
	PRDL M30×1.5	80	60	5	10	2000	—	5	35	42
	PRDW M30×1.5	58	38	5	10	300	44	5	35	42
M30	PRD M30×1.5	80	60	5	10	300	44	5	35	42
	PRDL M30×1.5	80	60	5	10	300	44	5	35	42
	PRDWL M30×1.5	80	60	5	10	300	44	5	35	42

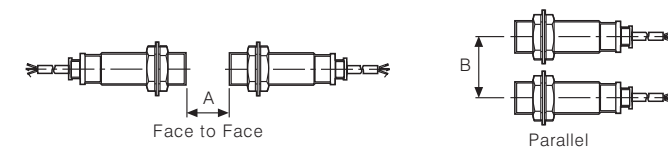
※"F" standard : Normal cable 200mm, cable outgoing connector type 300mm.

**Connections**

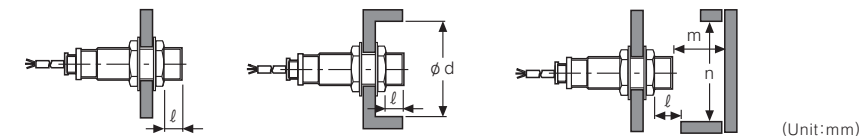


**Mutual interference & Influence by surrounding metals**

○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.

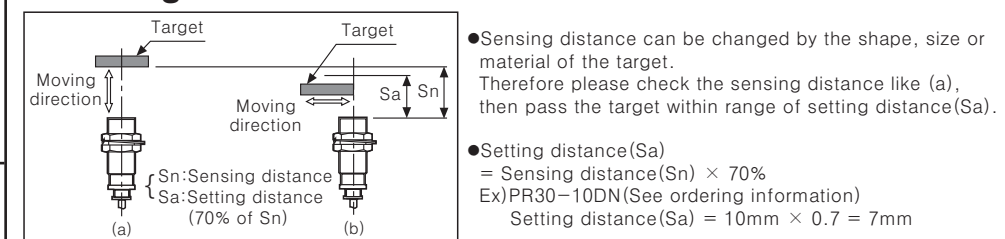


○Influence by surrounding metals  
When sensors are mounted on metallic panel, it is required to protect the sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart.



Model Item	PRD□12-4D□	PRD□12-8D□	PRD□18-7D□ PRDW□18-7D□	PRD□18-14D□ PRDW□18-14D□	PRD□30-15D□ PRDW□30-15D□	PRD□30-25D□ PRDW□30-25D□
A	24	48	42	84	90	150
B	24	36	36	54	60	90
l	0	11	0	14	0	15
φ d	12	36	18	54	30	90
m	12	24	21	42	45	75
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 strength between product and connecting part of cable. (φ4:30N max., φ5:50N max.)
  - Do not use the same conduit with cable of this unit and electric power line and 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) (Chart 1) is for using washer.
  - Please check the voltage changes of power source in order not to excess rating power input.
  - Do not use this unit during transient time(80ms) after apply power.
  - 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<sup>2</sup> 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 machinery), which occurs big surge around this unit, please install the absorber such as varistor 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.
  - 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	Front		Rear
		Size	Torque	Torque
PR12 Series	Flush	13mm	65kgf-cm	120kgf-cm
	Non-flush	7mm	65kgf-cm	120kgf-cm
PR18 Series	Flush	—	150kgf-cm	
PR30 Series	Flush	26mm	500kgf-cm	800kgf-cm
	Non-flush	12mm	500kgf-cm	800kgf-cm

(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
- STEPPING MOTOR & DRIVER & CONTROLLER
- LASER MARKING SYSTEM(CO<sub>2</sub>, Nd:YAG)

**Autonics Corporation**  
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**Satisfiable Partner For Factory Automation**

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