

**Autonics**

**INDUCTIVE PROXIMITY SENSOR  
PFI SERIES**

**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.

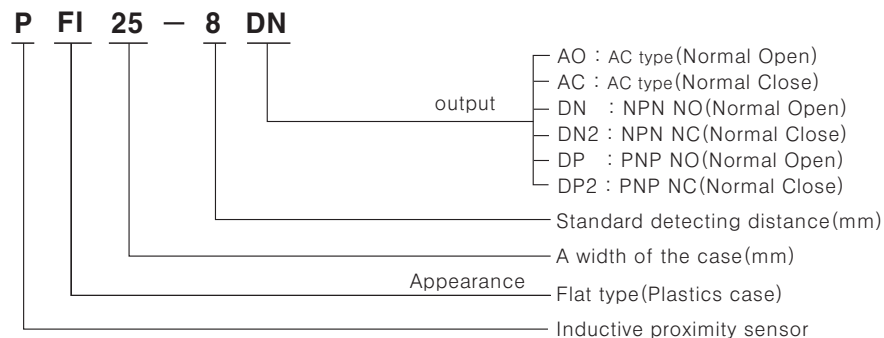
**Warning**

1. 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.
2. Do not connect power directly without load.  
It may result in damage to inner components or burn them out.

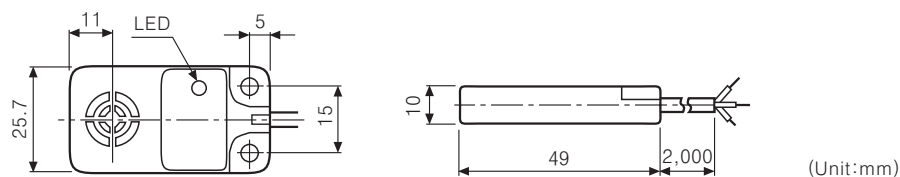
**Caution**

1. 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.
2. Do not impact on this unit.  
It may result in malfunction or damage to the product.
3. Do not use this product beyond rated voltage or apply AC power to DC power.  
It may result in serious damage to the product.

**Ordering information**



**Dimensions**



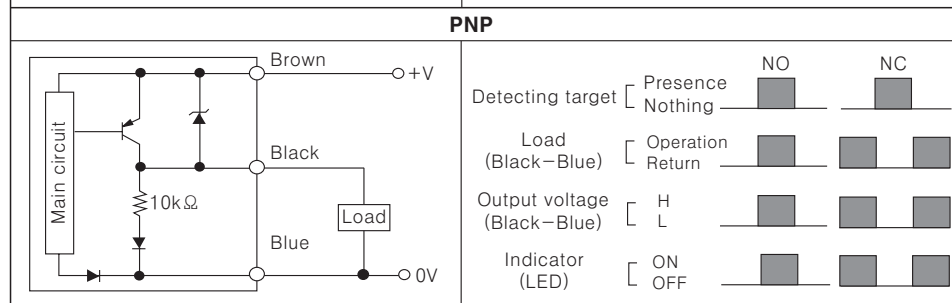
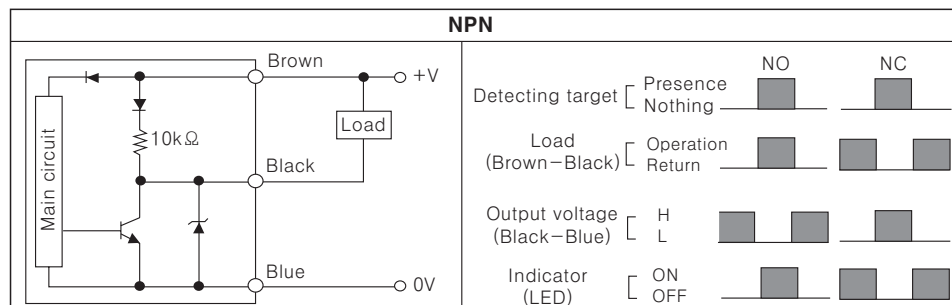
※The above specification are changeable without notice anytime.

**Specifications**

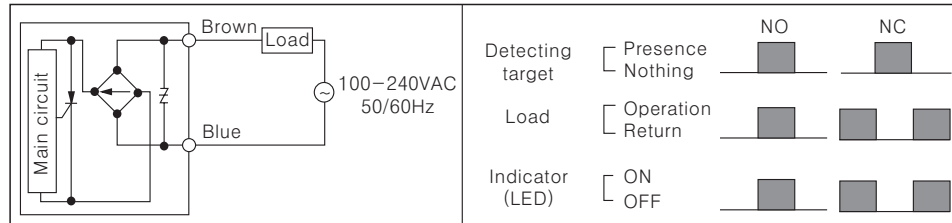
Model	PFI25-8DN PFI25-8DN2	PFI25-8DP PFI25-8DP2	PFI25-8AO PFI25-8AC
Detecting distance	8mm ±10%		
Hysteresis	Max. 10% of detecting distance□		
Standard detecting target	25×25×1mm (Iron)□		
Setting distance	0 to 5.6mm		
Power supply (Operating voltage)	12-24VDC (10-30VDC)	100-240VAC 50-60Hz (85-264VAC)	
Power consumption	Max. 10mA□		
Current consumption	Max. 2.5mA□		
Response frequency	200Hz	20Hz	
Residual voltage	Max. 1.5V□	Max. 10V□	
Affection by Temp.	±10% Max. of detecting distance at +20℃ within temperature range of -25 to +70℃		
Control output	Max. 200mA	Max. 150mA	
Insulation resistance	50MΩ Min (at 500VDC)		
Dielectric strength	1500VAC 50/60Hz for 1 minute	2500VAC 50/60Hz for 1 minute	
Vibration	1mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours		
Shock	500m/s <sup>2</sup> (50G) in X, Y, Z directions for 3 times		
Indicator	Operating indicator : Red LED		
Ambient temperature	-25 to +70℃ (at non-freezing status)□		
Storage temperature	-30 to +80℃ (at non-freezing status)		
Ambient humidity	35 to 95%RH		
Protection circuit	Surge protection circuit, Reverse polarity protection, Overload & Short-circuit protection		Surge protection circuit
Protection	IP67 (IEC specification)		
Weight	Approx. 80g		

**Control output diagram & Load operating**

◎DC 3 wire type



◎AC 2 wire type



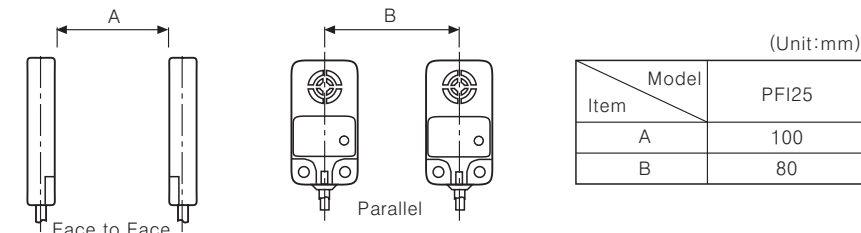
**Connection of the power supply**

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.

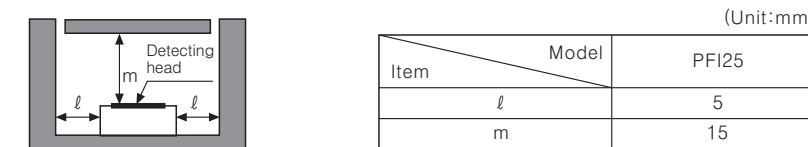


**Mutual-interference & Influence by surrounding metals**

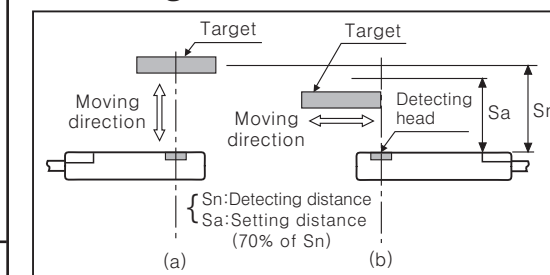
◎Mutual-interference  
When plural proximity sensors are mounted in a close row, malfunction of sensor may be caused due to mutual interference. Therefore, be sure to provide a minimum distance between the two sensors, as below charts.



◎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 as below chart.



**Setting distance**

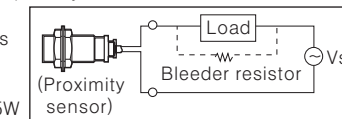


●Detecting distance can be changed by the shape, size or material of the target. Therefore please check the detecting distance like (a), then pass the target within range of setting distance(Sa).

●Setting distance(Sa)  
= Detecting distance(Sn) × 70%  
Ex)PFI25-8DN(See ordering information)  
Detecting distance(Sn)  
= 8mm × 0.7 = 5.6mm

**Caution for using**

1. This equipment shall not be used outdoors or beyond specified temperature range.
2. Do not load over than tensile strength of cord. (φ4:30N max., φ5:50N max.)
3. Do not use the same conduit with cord of this unit and electric power line or power line. Also avoid the same connection.
4. Tighten strength of installing bolts should be under 15kgf · cm.
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.
7. It might result in damage to this product, if use automatic transformer. So please use insulated transformer.
8. Please make wire short as much as possible in order to avoid noise.
9. Be sure to cable as indicated specification on this product. If use wrong cable or bended cable, it shall not maintain the water-proof.
10. It is possible to extend cable with over 0.3mm<sup>2</sup> and max. 200m.
11. If the target is plated, the operating distance can be changed by the plating material.
12. It may result in malfunction by metal particle on product.
13. If there are machines(DC type bulb 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.
14. 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.
15. If make a transceiver close to proximity sensor or wire connection, it may cause malfunction.
16. In case of the load current is small(AC type) :  
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



※It may cause malfunction if above instructions are not followed.

**Main products**

- COUNTER
- TIMER
- TEMPERATURE CONTROLLER
- PANEL METER
- TACHO/LINE SPEED/PULSE METER
- DISPLAY UNIT
- PROXIMITY SENSOR
- PHOTOELECTRIC SENSOR
- FIBER OPTIC SENSOR
- PRESSURE SENSOR
- ROTARY ENCODER
- SENSOR CONTROLLER
- POWER CONTROLLER
- STEPPING MOTOR & DRIVER & CONTROLLER
- LASER MARKING SYSTEM(CO<sub>2</sub>, Nd:YAG)

**Autonics** Corporation  
<http://www.autonics.com>

**Satisfiable Partner For Factory Automation**

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