Autonics

INDUCTIVE PROXIMITY SENSOR

PFI SERIES

M A N U A L

CE

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(Ex: nuclear power control, medical equpment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.
   It may cause a fire, human injury or damage to property.
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

P FI 25 – 8 D N

O	Normally open
C	Normally closed
N	NPN Normally open
N2	NPN Normally closed
P	PNP Normally open
P2	PNP Normally closed

Output

D	12~24VDC
A	100~240VAC

Power supply

Number	Sensing distance(Unit: mm)

Sensing distance

Number	A width of the case(Unit: mm)

Body size

FI	Flat type(Plastic case)

Shape

P	Inductive proximity sensor

Item

■ Dimensions

(Unit:: mm)
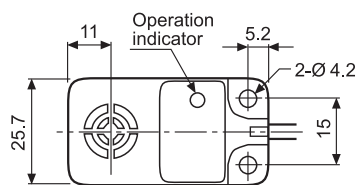
※'A' type: ø 4, 2 cores/ø 4, 3 cores
(Conductor cross section: 0.3㎟, Insulator diameter: ø 1.25)
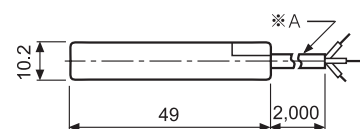
※The above specifications are subject to change and some models may be discontinued without notice.

■ Specifications

| Model	PFI25-8DN, PFI25-8DN2, PFI25-8DP, PFI25-8DP2	PFI25-8AO, PFI25-8AC
sensing distance	8mm	
Hysteresis	Max. 10% of sensing distance	
Standard sensing target	25X25X1mm(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※1	200Hz	20Hz
Residual voltage	Max. 1.5V	Max. 10V
Affection by Temp.	When it is 20℃ at the rated ambient temperature, it is below 10%.	
Control output	Max. 200mA	5 to 150mA
Insulation resistance	50MΩ Min(at 500VDC megger)	
Dielectric strength	1,500VAC 50/60Hz for 1 minute	2,500VAC 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/s² (50G) in X, Y, Z directions for 3 times	
Indicator	Operating indicator : Red LED	
Environ -ment	Ambient temperature	-25 to 70℃, Storage: -30 to 80℃	
	Ambient humidity	35 to 95%RH, Storage: 35 to 95%RH	
Protection circuit	Surge protection circuit, Reverse polarity protection, Overload & Short protection circuit	Surge protection circuit
Protection	IP67(IEC standards)	
Material	Case: PPS, General cable(Black): Polyvinyl chioride(PVC)	
Approval	CE	
Weight	Approx. 70g	

※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.
※Environment resistance is rated at no freezing or condensation.

■ Control output diagram & Load operating

◎ DC 3 wire type
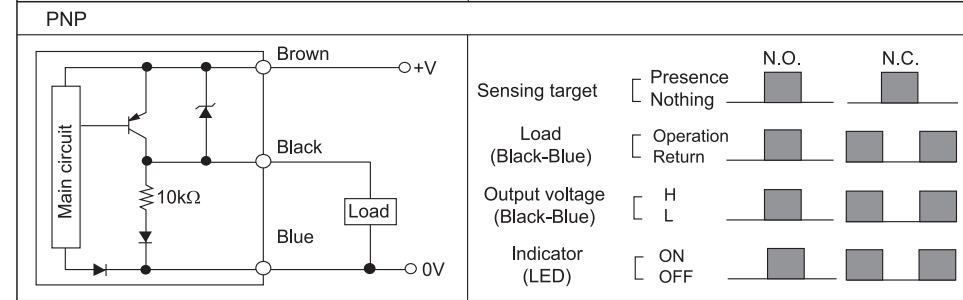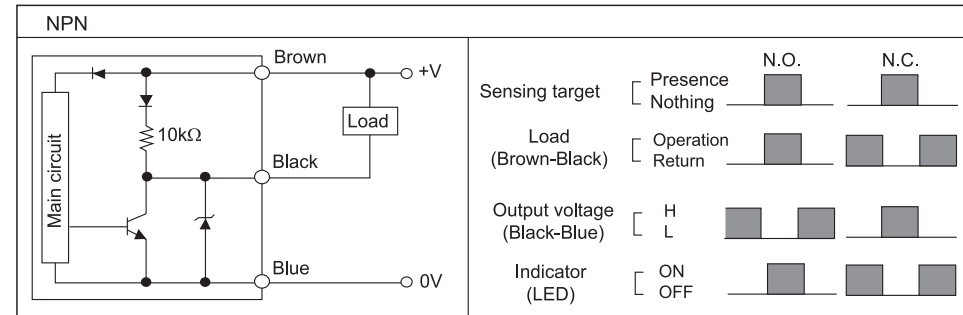
◎ AC 2 wire type
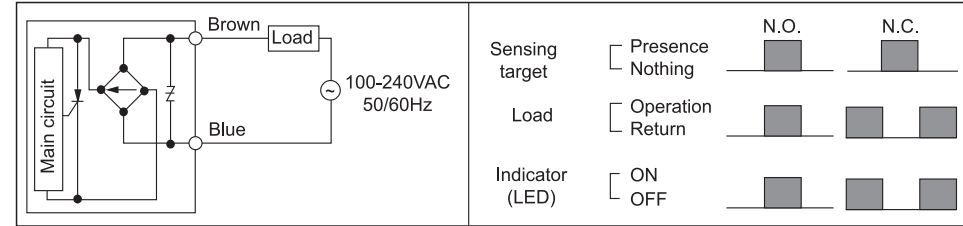
■ Connection of the power supply

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 several proximity sensors are mounted closely, sensors may cause a malfunction due to mutual interference. Therefore, be sure to provide a minimum distance between the two sensors, as below chart.

Item	Model	PFI25
A		100
B		80

(Unit:mm)
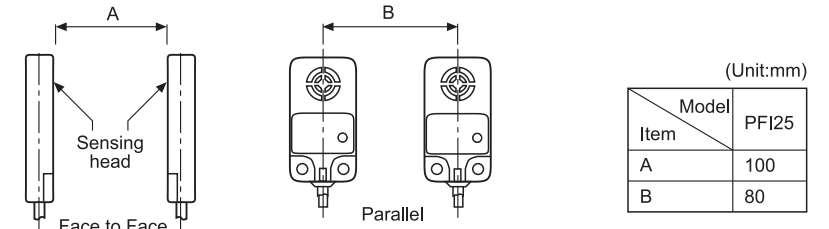
◎ Influence by surrounding metals
When sensors are mounted on metallic panel, it may cause malfunction affected by any metallic object except target. Therefore, be sure to provide a minimum as below chart.


Item	Model	PFI25
ℓ		5
m		15

(Unit:mm)

■ Setting distance

{ Sn:sensing distance
{ Sa:Setting distance
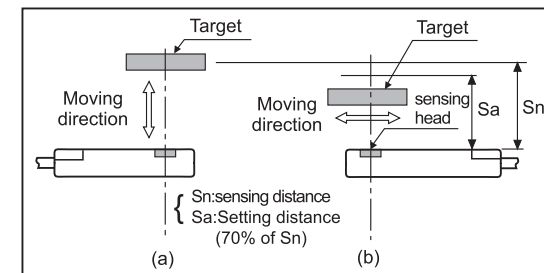
• Sensing distance can be changed by the shape, size or material of the target.
  Therefore please check the sensing distance like (a), then pass the target within range of setting distance(Sa).
• Setting distance(Sa)
  = sensing distance(Sn) × 70%
  Ex)PFI25-8DN sensing distance(Sa)
  = 8mm × 0.7 = 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. (ø 4: 30N 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 0.3mm² 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
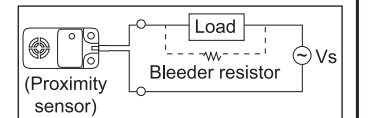
※It may cause malfunction if above instructions are not followed.

■ Major products

■ Photoelectric sensors	■ Temperature controllers
■ Fiber optic sensors	■ Temperature/Humidity transducers
■ Door sensors	■ SSR/Power controllers
■ Door side sensors	■ Counters
■ Area sensors	■ Timers
■ Proximity sensors	■ Panel meters
■ Pressure sensors	■ Tachometer/Pulse(Rate)meters
■ Rotary encoders	■ Display units
■ Connector/Sockets	■ Sensor controllers
■ Switching mode power supplies	
■ Control switches/Lamps/Buzzers	
■ I/O Terminal Blocks & Cables	
■ Stepper motors/drivers/motion controllers	
■ Graphic/Logic panels	
■ Field network devices	
■ Laser marking system(Fiber, CO₂, Nd:YAG)	
■ Laser welding/soldering system	

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