

Autonics

INDUCTIVE LONG DISTANCE PROXIMITY SENSOR PS 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. In case of using this unit with machinery(Ex: nuclear power control, medical equipment, 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.

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 apply AC power and observe specification rating.

It may result in serious damage to the product.

Ordering information

PS12-5DN2U

Sensing position	No mark	Standard type
	U	Upper sensing type
Output	N	NPN Normally Open(N.O.)
	N2	NPN Normally Closed(N.C.)
	P	PNP Normally Open(N.O.)
	P2	PNP Normally Closed(N.C.)
Power supply	D	12-24VDC
Sensing distance	Number	Sensing distance(Unit: mm)
Dimension	Number	one side length of sensing side(Unit: mm)
Shape	S	Square
Item	P	Inductive proximity sensor

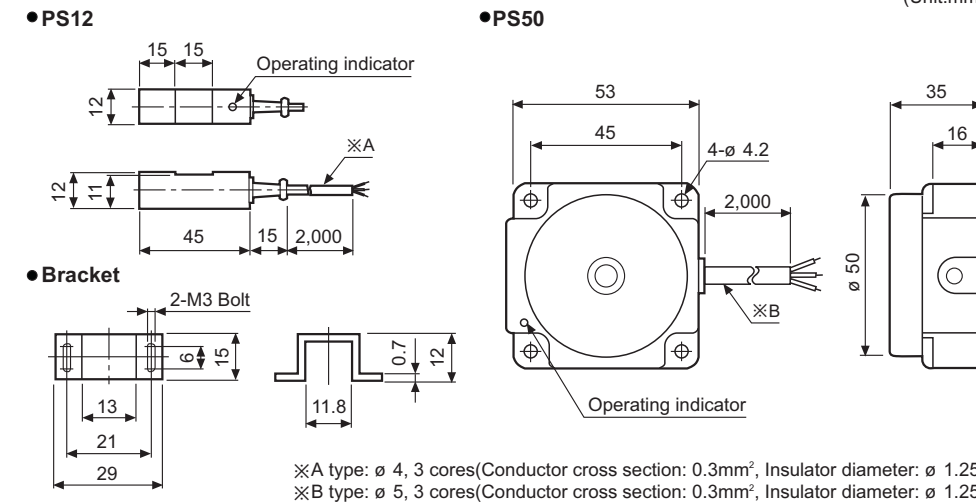
※The above specifications are changeable at anytime without notice.

Specifications

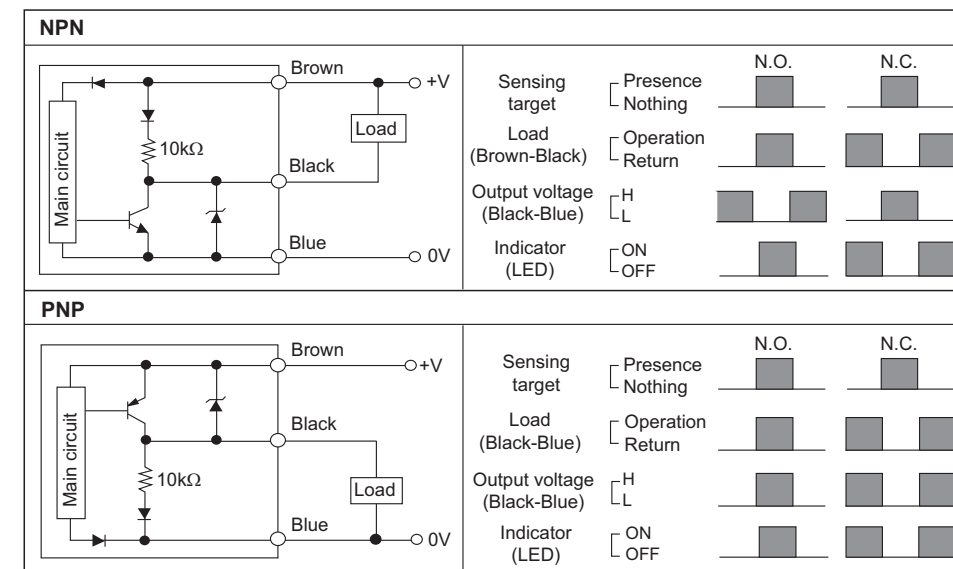
Model	PS12-4DN PS12-4DP PS12-4DN2 PS12-4DN2U	PS12-4DNU PS12-4DPU PS12-4DN2U	PS50-30DN PS50-30DN2	PS50-30DP PS50-30DP2
Sensing distance	4mm		30mm	
Hysteresis	Max. 10% of sensing distance			
Standard sensing target	12X12X1mm(Iron)		90X90X1mm(Iron)	
Setting distance	0 to 2.8mm		0 to 21mm	
Power supply (Operating voltage)	12-24VDC(10-30VDC)			
Current consumption	Max. 10mA			
Response frequency*1	500Hz		50Hz	
Residual voltage	Max. 1.5V			
Affection by Temp.	± 10% Max. of sensing distance at 20°C within temperature range of -25 to 70°C			
Control output	Max. 200mA			
Insulation resistance	Min. 50MΩ (at 500VDC megger)			
Dielectric strength	1500VAC 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 ² (50G) in X, Y, Z directions for 3 times			
Indicator	Operating indicator(Red LED)			
Environ-ment	Ambient temperature	-25 to 70°C, Storage: -30 to 80°C		
	Ambient humidity	35 to 95%RH, Storage: 35 to 95%RH		
Protection circuit	Reverse polarity protection, Surge protection circuit, Overload & Short-circuit protection			
Protection	IP67(IEC standards)			
Material	Case: Heat-resistant ABS General cable(gray): Polyvibyl chloride(PVC)	Case: PBT General cable(gray): Polyvibyl chloride(PVC)		
Approval	CE			
Unit weight	Approx. 62g		Approx. 220g	

※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.
※Condition for use in Environment is no freezing or condensation

Dimensions



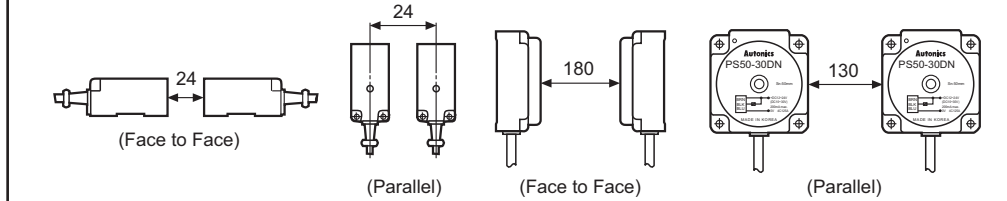
Control output diagram & Load operating



Mutual-interference & Influence by surrounding metals

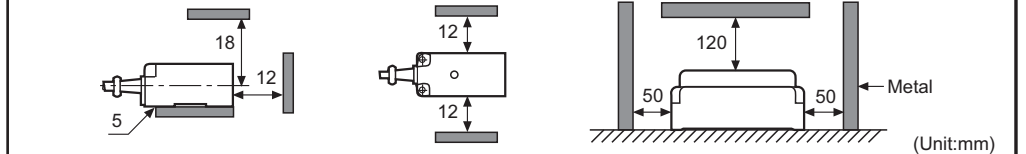
Mutual-interference

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.

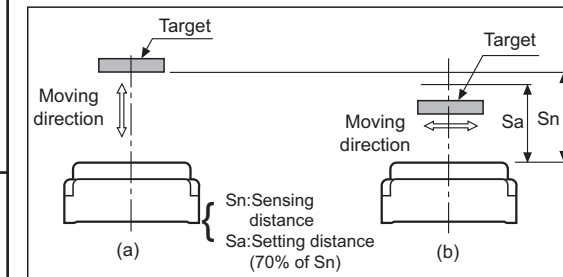


Influence by surrounding metals

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 distance as a right picture.



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) X 70%
Ex)PS50-30DN(See ordering information)
Setting distance(Sa)
= 30mm X 0.7 = 21mm

Caution for using

- This equipment shall not be used outdoors or beyond specified temperature range.
- Do not load over than tensile strength of cord. (ø 4: max. 30N, ø 5: max. 50N)
- Do not use the same conduit with cord of this unit and electric power line or power line. Also avoid the same connection.
- Tighten strength of installing bolts should be under 10kgf-cm. (PS12 Series max. 5kgf-cm)
- 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.
- It might result in damage to this product, if use automatic transformer. So please use insulated transformer.
- 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(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.
- 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.
- 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.

Major products

- Proximity sensors
- Area sensors
- Door/Door side sensors
- Counters
- Rotary encoders
- Power controllers
- Panel meters
- Temperature controllers
- Tachometer/Pulse(Rate) meters
- Temperature/Humidity transducers
- Switching power supplies
- Stepping motors/drivers/motion controllers
- Field network devices
- Laser marking system(CO₂, Nd: YAG)
- Laser welding/soldering system
- Photoelectric sensors
- Fiber optic sensors
- Pressure sensors
- Timers
- Display units
- Sensor controllers
- Graphic/Logic panels

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