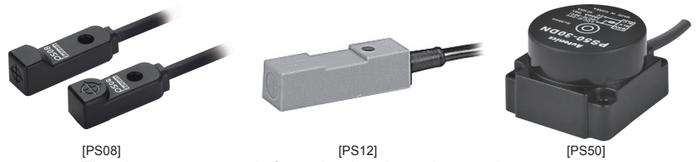
DRW160733AC

Autonics

INDUCTIVE PROXIMITY SENSOR

PS SERIES

INSTRUCTION MANUAL



[PS08] [PS12] [PS50]

Thank you very much for selecting Autonics products.

For your safety, please read the following before using.

■ Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

⚠**Warning** Failure to follow these instructions may result in serious injury or death.
⚠**Caution** Failure to follow these instructions may result in personal injury or product damage.

⚠ Warning

1. **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**
   Failure to follow this instruction may result in fire, personal injury, or economic loss.
2. **Do not disassemble or modify the unit.**
   Failure to follow this instruction may result in fire.
3. **Do not connect, repair, or inspect the unit while connected to a power source.**
   Failure to follow this instruction may result in fire.
4. **Check 'Connections' before wiring.**
   Failure to follow this instruction may result in fire.

⚠ Caution

1. **Use the unit within the rated specifications.**
   Failure to follow this instruction may result in fire or product damage.
2. **Use dry cloth to clean the unit, and do not use water or organic solvent.**
   Failure to follow this instruction may result in electric shock or fire.
3. **Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
   Failure to follow this instruction may result in fire or explosion.
4. **Do not supply power without load.**
   Failure to follow this instruction may result in fire or product damage.

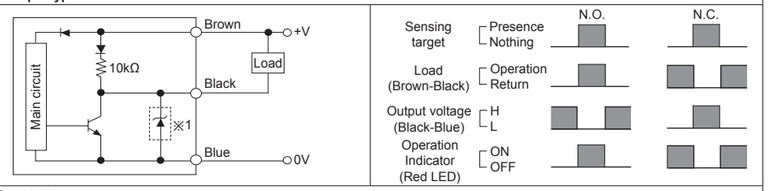
■ Ordering Information

P S 08 — 2.5 D N □

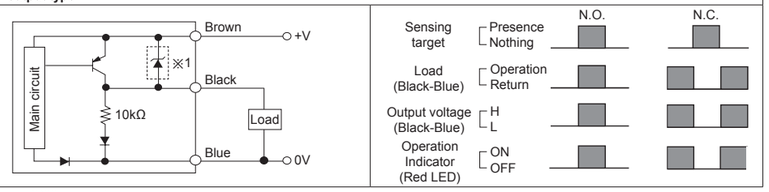
Sensing position	No mark	Standard type
	U	Upper sensing type
Output	N	NPN Normally Open (N.O.)
	N2	NPN Normally Closed (N.C.)
	P	PNP Normally Open (N.O.)
	P2	PNP Normally Closed (N.C.)
Power supply	D	12-24VDC
Sensing distance	Number	Sensing distance (unit: mm)
Dimension	Number	A side length of sensing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

■ Control Output Diagram and Load Operation

NPN output type



PNP output type



※1: For PS08 model, there is no zener diode.

※The above specifications are subject to change and some models may be discontinued without notice.

※Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

■ Specifications

Model		PS08-2.5DN PS08-2.5DP PS08-2.5DN2 PS08-2.5DP2	PS08-2 5DNU PS08-2 5DPU PS08-2 5DN2U PS08-2 5DP2U	PS12-4DN PS12-4DP PS12-4DN2	PS12-4DNU PS12-4DPU PS12-4DN2U	PS50-30DN PS50-30DN2 PS50-30DP PS50-30DP2
Sensing distance		2 5mm		4mm		30mm
Hysteresis		Max. 20% of sensing distance		Max. 10% of sensing distance		
Standard sensing target		8×8×1mm (Iron)		12×12×1mm (Iron)		90×90×1mm (Iron)
Setting distance		0 to 1.7mm		0 to 2.8mm		0 to 21mm
Power supply (Operating voltage)		12-24VDC⎓ (10-30VDC⎓)				
Current consumption		Max. 10mA				
Response frequency※1		1,000Hz		500Hz		50Hz
Residual voltage		Max. 1.5V				
Affection by Temp.		Max. ±10% for sensing distance at ambient temperature 20℃				
Control output		Max. 100mA		Max. 200mA		
Insulation resistance		Min. 50MΩ (at 500VDC megger)				
Dielectric strength		1,500VAC 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 (approx. 50G) in X, Y, Z directions for 3 times				
Indicator		Operation indicator: Red LED				
Environment	Ambient temperature	-25 to 70℃, Storage: -30 to 80℃				
	Ambient humidity	35 to 95%RH, Storage: 35 to 95%RH				
Protection circuit		Reverse polarity protection, Surge protection circuit, Overcurrent protection				
Protection structure		IP67 (IEC standard)				
Cable※2		Ø2.5mm, 3-wire, 1m		Ø4mm, 3-wire, 2m		Ø5mm, 3-wire, 2m
		AWG28, Core diameter: 0.08mm, Number of cores: 19, Insulator diameter: Ø0.9mm		AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator diameter: Ø1 25mm		
Material		Case: Polycarbonate General cable (gray): Polyvinyl chloride (PVC)		Case: Heat-resistant ABS General cable (gray): Polyvinyl chloride (PVC)		Case: Polybutylene terephthalate General cable (gray): Polyvinyl chloride (PVC)
Approval		CE				
Weight※3		Approx. 30g (approx. 16g)		Approx. 77g (approx. 62g)		Approx. 265g (approx. 220g)

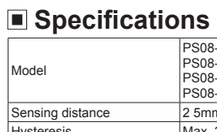
※1: The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.
※2: Do not pull the Ø4mm cable with a tensile strength of 30N or over and the Ø5mm cable with a tensile strength of 50N or over. t may result in fire due to the broken wire. When extending wire, use AWG22 cable or over within 200m.
※3: The weight includes packaging. The weight in parentheses in for unit only.
※Environment resistance is rated at no freezing or condensation.

■ Dimensions

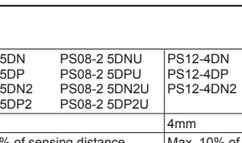
(unit: mm)

● PS08

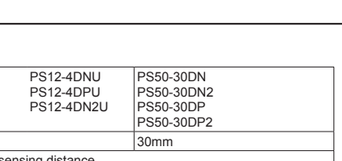
● Standard type



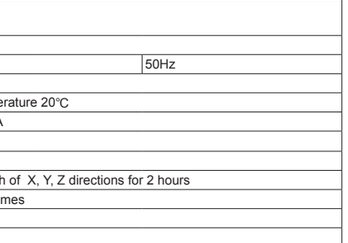
● Upper sensing type



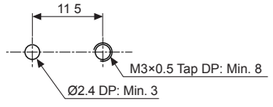
● Bracket



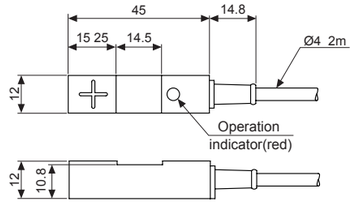
※Installing bolts must be a M3×12mm truss bolt and tightening strength should be max. 0.49N m. If installing this unit not as this method, it may cause damage to the functions.



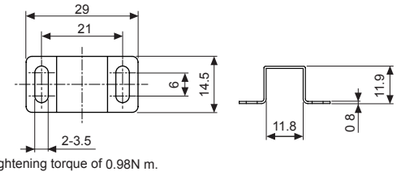
● Mounting hole cut-out



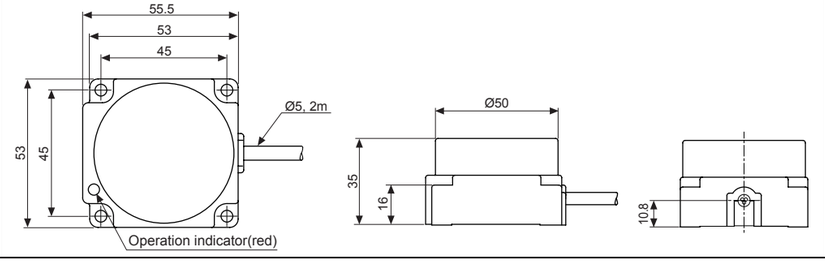
● PS12 ※When installing the product, tighten the screw with a tightening torque of 0.49N m.



● Bracket



● PS50 ※When installing the product, tighten the screw with a tightening torque of 0.98N m.



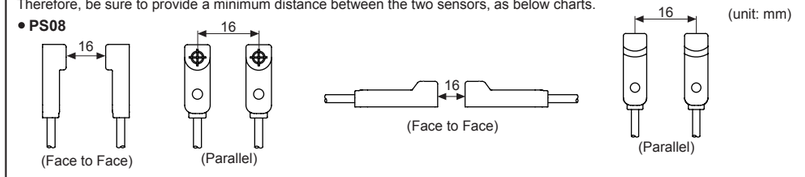
■ Mutual-Interference and Influence By Surrounding Metals

◎ **Mutual-interference**

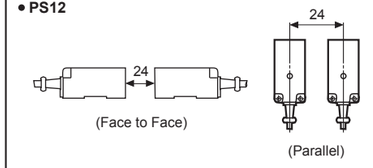
When plural proximity sensors are mounted in a close row, malfunction of sensor may be caused due to mutual interference. Therefore, be sure to provide a minimum distance between the two sensors, as below charts.

(unit: mm)

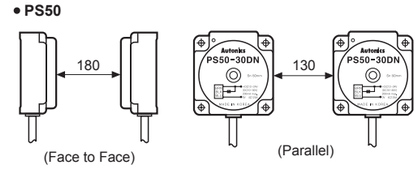
● PS08



● PS12



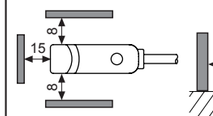
● PS50



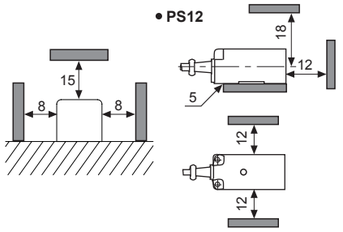
◎ **Influence by surrounding metals**

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.

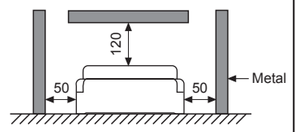
● PS08



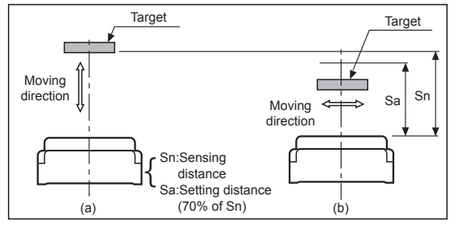
● PS12



● PS50



■ 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%
E.g.)PS50-30DN
Setting distance(Sa)= 30mm × 0.7 = 21mm

■ Caution during Use

1. Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
2. 12-24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
3. Use the product, after 0.8 sec of supplying power.
4. Wire as short as possible and keep away from high voltage lines or power lines, to prevent surge and inductive noise.
   Do not use near the equipment which generates strong magnetic force or high frequency noise (transceiver, etc.).
   In case installing the product near the equipment which generates strong surge (motor, welding machine, etc.), use diode or varistor to remove surge.
5. This unit may be used in the following environments.
   ① Indoors (in the environment condition rated in 'Specifications')
   ② Altitude max. 2,000m
   ③ Pollution degree 2
   ④ Installation category II

■ Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connectors/Sockets
- 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, Co_2, Nd: YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometers/Pulse (Rate) Meters
- Display Units
- Sensor Controllers

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