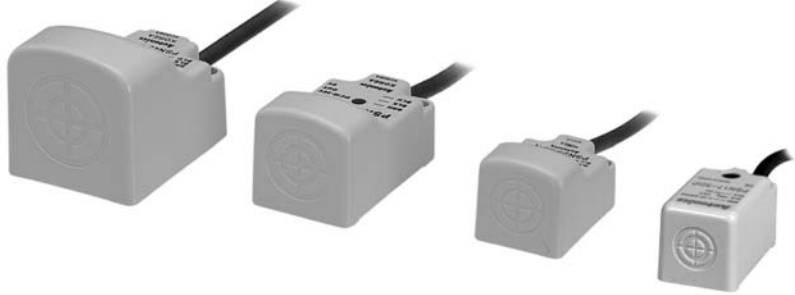


Autonics

INDUCTIVE PROXIMITY SENSOR(SQUARE DC 3WIRE)

PSN 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 flammable, explosive gas, chemical strong alkalis, or acids exist.

It may cause a fire or explosion.

2. Do not impact on this unit.

It may cause malfunction or damage to the product.

3. Please observe the rated specification and do not supply AC power on DC type product.

It may cause serious damage to the product.

Ordering information

P SN 17 - 8 DN U F

Frequency	No mark	Standard type
	F	Differential frequency type
Sensing side	No mark	Standard type
	U	Upper sensing type
Control output	DN	NPN N.O.(Normally Open)
	DN2	NPN N.C.(Normally Closed)
	DP	PNP N.O.(Normally Open)
	DP2	PNP N.C.(Normally Closed)
Sensing distance	Number	Sensing distance(Unit: mm)
Dimension	Number	A side length(Unit: mm)
Shape	SN	Square
Item	P	Inductive proximity sensor

Control output diagram & Load operation

	Main circuit	Sensing target	Normally Open		Normally Closed	
			Operation	Return	Operation	Return
NPN		Presence				
		Nothing				
		Output voltage (Black-Blue)	H	L	H	L
PNP		Presence				
		Nothing				
		Output voltage (Black-Blue)	H	L	H	L
		Indicator (LED)	ON	OFF	ON	OFF

※ The above specifications are subject to change without notice.

Specifications

Model	PSN17-5DN PSN17-5DP PSN17-5DN2 PSN17-5DP2 PSN17-5DNU PSN17-5DN2U PSN17-5DPU PSN17-5DP2U PSN17-5DN-F PSN17-5DP-F	PSN17-8DN PSN17-8DP PSN17-8DN2 PSN17-8DP2 PSN17-8DNU PSN17-8DPU PSN17-8DN2U PSN17-8DP2U PSN17-8DN-F PSN17-8DP-F PSN17-8DN2-F PSN17-8DP2-F PSN17-8DNU-F PSN17-8DPU-F PSN17-8DN2U-F PSN17-8DP2U-F	PSN25-5DN PSN25-5DP PSN25-5DN2 PSN25-5DP2	PSN30-10DN PSN30-10DP PSN30-10DN2 PSN30-10DP2	PSN30-15DN PSN30-15DP PSN30-15DN2 PSN30-15DP2	PSN40-20DN PSN40-20DP PSN40-20DN2 PSN40-20DP2
Sensing distance	5mm	8mm	5mm	10mm	15mm	20mm
Hysteresis	Max. 10% of sensing distance					
Standard sensing target	18×18×1mm(Iron)	25×25×1mm(Iron)		30×30×1mm(Iron)	45×45×1mm(Iron)	60×60×1mm(Iron)
Setting distance	0 to 3.5mm	0 to 5mm	0 to 3.5mm	0 to 7mm	0 to 10.5mm	0 to 14mm
Power supply (Voltage range)	12-24VDC (10-30VDC)					
Current consumption	Max. 10mA					
Response frequency(※1)	700Hz	200Hz	350Hz	250Hz	200Hz	100Hz
Residual voltage	Max. 1.5V					
Effect by Temp.	Within ±10°C max. of sensing distance at 20°C in temperature range of -25 to 70°C					
Control output	Max. 200mA					
Insulation resistance	Min. 50MΩ(at 500VDC megger)					
Dielectric strength	1,500VAC 50/60Hz for 1minute					
Vibration	1mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours					
Shock	500ms(50G) in X, Y, Z directions for 3 times					
Indicator	Operation indicator(Red LED)					
Environment	Ambient temperature: -25 to 70°C, Storage: -30 to 80°C					
	Ambient humidity: 35 to 95%RH, Storage: 35 to 95%RH					
Protection circuit	Surge protection circuit, Overload & Short protection circuit, Reverse polarity protection circuit					
Protection	IP67(IEC standard)					
Materials	Case: Heat-resistant ABS, Standard cable(Black): Polyvinyl chloride(PVC).					
Approval	CE					
Unit Weight	Approx. 71g	Approx. 70g		Approx. 111g		Approx. 158g

※1: The response frequency is the average value. The sensing condition is using the standard sensing target. The interval is set as 2 times of the standard sensing target, and the setting distance is set for 1/2 of the sensing distance.

※Environment resistance is rated at no freezing or condensation.

Dimensions

	PSN17	PSN25, PSN30, PSN40		
A	18	25	30	40
B	30.8	35.5	48.5	47
C	ø3.2	ø4.2	ø4.5	ø5.5
D	11	18	22	30
E	18	25.3	30	40
F	-	16.8	20	25
G	35.6	39	53	53
H	4	4	4	4

※"H" type : ø4, 3 cores(Conductor cross section: 0.3mm², Insulator diameter:ø1.25)

Bracket

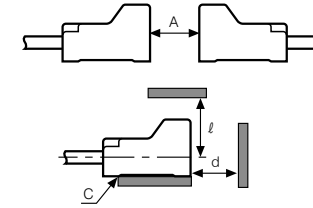
Model	PSN17	PSN25	PSN30	PSN40
Bracket type	2-M3 TAP	2-M4 TAP	2-M4 TAP	2-M5 TAP
Dimensions				

Mutual-interference & Influence by surrounding metals

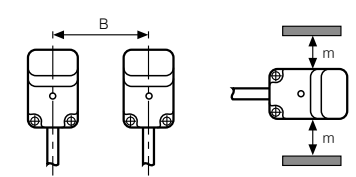
Mutual-interference

When several proximity sensors are mounted closely, malfunction of sensor may be caused due to mutual interference. Therefore, be sure to keep a minimum distance between the two sensors as below chart.

Face to Face



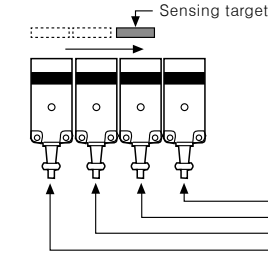
Parallel



Differential frequency type

When install several proximity sensor closely, it may cause malfunction due to mutual interference. Therefore please use differential frequency as below picture.

※Differential frequency type is only for PSN17.



PSN17-8DN-F
PSN17-8DN
PSN17-8DN-F
PSN17-8DN

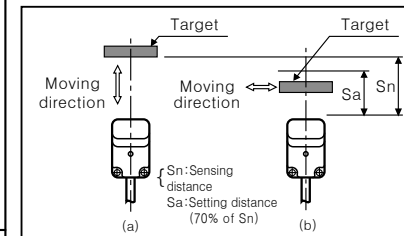
Influence by surrounding metals

When sensors are mounted on metallic panel, it is required to protect the sensors from malfunction by any metallic object. Therefore, be sure to keep a minimum distance as below chart.

(Unit:mm)

Item	Model	PSN17		PSN25	PSN30		PSN40
		5mm	8mm		10mm	15mm	
A	30	48	30	60	90	120	
B	36	40	40	50	65	70	
C	5	5	5	5	5	5	
d	15	24	15	30	45	60	
t	24	33	25	30	45	45	
m	18	20	20	25	35	35	

Setting distance



• Sensing distance can be changed by the shape, size or material of the target. Therefore please check the sensing distance as (a), then pass the target within range of setting distance(Sa) as (b).

• Setting distance(Sa)
= Sensing distance(Sn) × 70%
Ex)PSN30-10DN
Setting distance(Sa) = 10mm × 0.7 = 7mm

Caution for using

- This equipment shall not be used outdoors or beyond specified temperature range.
- Do not apply over tensile strength of cord. (ø4: max. 30N)
- Do not use the same conduit with cord of this unit and electric power line or power line.
- Tighten strength of installing screws should be under 10kgf.cm.(PSN17 Series: max. 5kgf.cm)
- Please check the voltage changes of power source in order not to exceed the rated power input.
- Do not use this unit during transient time(80ms) after applying power.
- It might result in damage to this product, if using autotransformer. So please use insulated transformer.
- Please make wire as short as possible in order to avoid noise.
- Be sure to use cable as indicated specification on this product. If using wrong cable or bended cable, it shall not have waterproof properties.
- 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 cause malfunction by metal particle on product.
- If there are machines(motor, welding, etc.), which occur 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 connecting the load with big inrush current(DC type bulb) to this unit, the big inrush current will flow because 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 current limit resistor in order to protect proximity sensor.
- If making 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
- Photoelectric sensors
- Fiber optic sensors
- Door/Door side sensors
- Sensor controllers
- Graphic/Logic panels
- 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
- Counters
- Timers
- Display units
- Panel meters
- Pressure sensors
- Rotary encoders
- Power controllers

Autonics Corporation
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