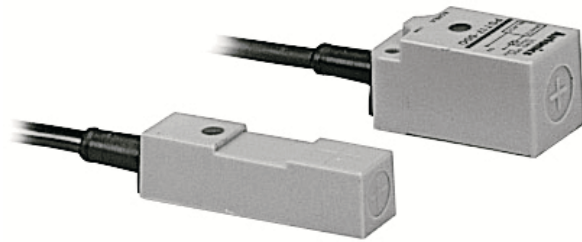


**Autonics**

**INDUCTIVE PROXIMITY SENSOR(SQUARE DC 3 WIRE)  
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.

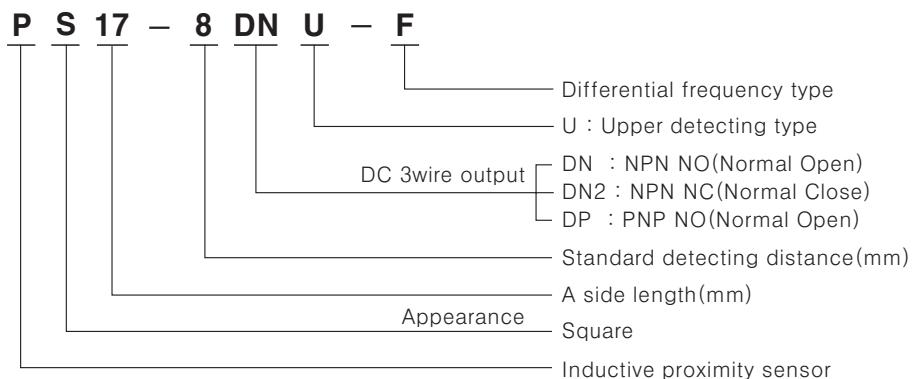
**Warning**

- In case of using this unit with machineries(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, equipment entertainment or safety device etc), it requires installing fail-safe device, or contact us for information on type required.**  
It may result in serious damage, fire or human injury.

**Caution**

- Do not use this unit in place where there are flammable, explosive gas, chemical or strong alkalis, acids.**  
It may cause a fire or explosion.
- Do not impact on this unit.**  
It may result in malfunction or damage to the product.
- Do not apply AC power and observe specification rating.**  
It may result in serious damage to the product.
- Do not connect power directly without load.**  
It may result in in damage to inner components or burn them out.

**Ordering information**

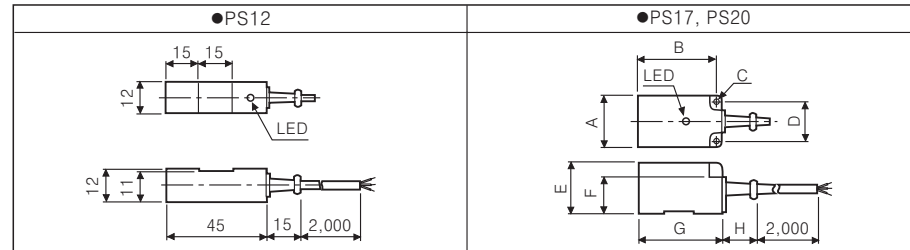


※ The above specification are changeable without notice anytime.

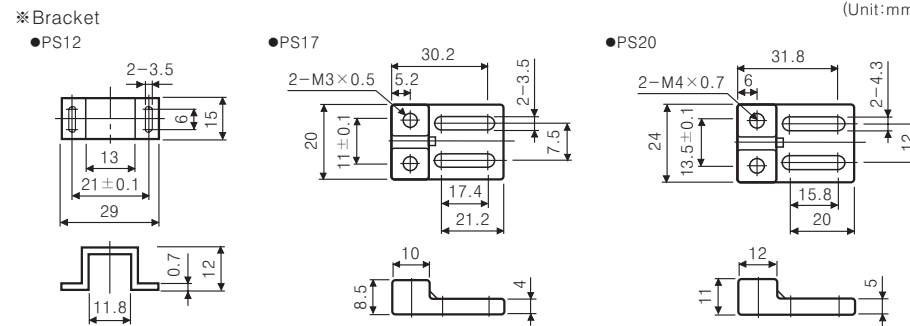
**Specifications**

Model	PS12-4DN PS12-4DP PS12-4DN2 PS12-4DNU PS12-4DPU PS12-4DN2U	PS17-3DN PS17-3DP PS17-3DN2 PS17-3DNU PS17-3DPU PS17-3DN2U	PS17-5DN PS17-5DP PS17-5DN2 PS17-5DNU PS17-5DPU PS17-5DN2U PS17-5DN-F	PS17-8DN PS17-8DP PS17-8DPU PS17-8DN2U PS17-8DN-F PS17-8DN2-F PS17-8DNU-F PS17-8DPU-F PS17-8DN2U-F	PS20-8DN PS20-8DP PS20-8DNU PS20-8DPU PS20-8DN2U PS20-8DN-F PS20-8DN2-F PS20-8DNU-F PS20-8DPU-F PS20-8DN2U-F
Detecting distance	4mm ±10%	3mm ±10%	5mm ±10%	8mm ±10%	8mm ±10%
Hysteresis	Max. 10% of detecting distance				
Standard detecting target	12×12×1mm(Iron)	18×18×1mm(Iron)	25×25×1mm(Iron)		
Setting distance	0 to 2.8	0 to 2.1	0 to 3.5	0 to 5.6	
Power supply (Operating voltage)	12-24VDC (10-30VDC)				
Current consumption	Max. 10mA				
Response frequency	500Hz	700Hz	500Hz	200Hz	
Residual voltage	Max. 1.5V				
Affection by Temp.	±10% Max. of detecting distance at +20°C within temperature range of -25 to +70°C				
Control output	200mA				
Insulation resistance	Min. 50MΩ(500VDC)				
Dielectric strength	1500VAC 50/60Hz for 3 times				
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) X, Y, Z directions for 3 times				
Indicator	Operating indicator(Red LED)				
Ambient temperature	-25 to +70°C(non-freezing condition)				
Storage temperature	-30 to +80°C(non-freezing condition)				
Ambient humidity	35 to 95%RH				
Protection circuit	Reverse polarity protection, Surge protection, Overload & shot circuit protection(PS12 Series only)				
Protection	IP67(IEC specification)				
Weight	Approx. 62g	Approx. 69g	Approx. 71g	Approx. 70g	Approx. 66g
Approval	CE (except PS20)				

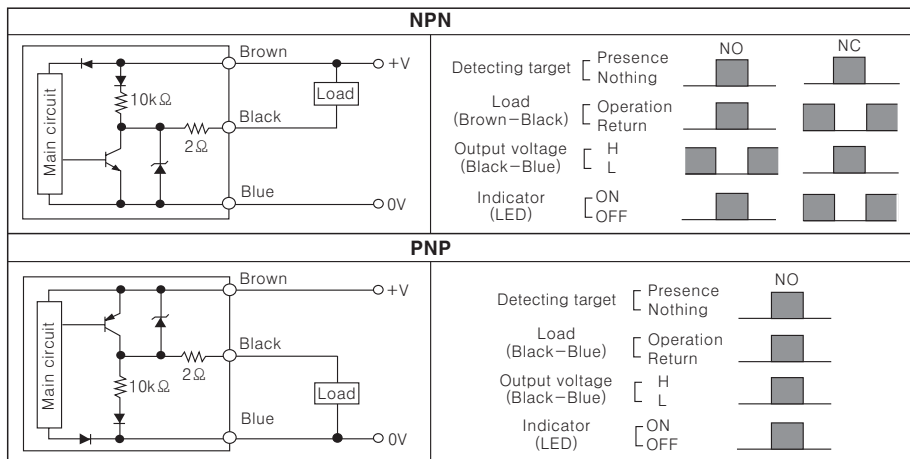
**Dimensions**



Model	A	B	C	D	E	F	G	H
PS17	17	31	2-φ3.2	11	17	14	36	15
PS20	20	34.5	2-φ4.2	13.5	20	13	40	15



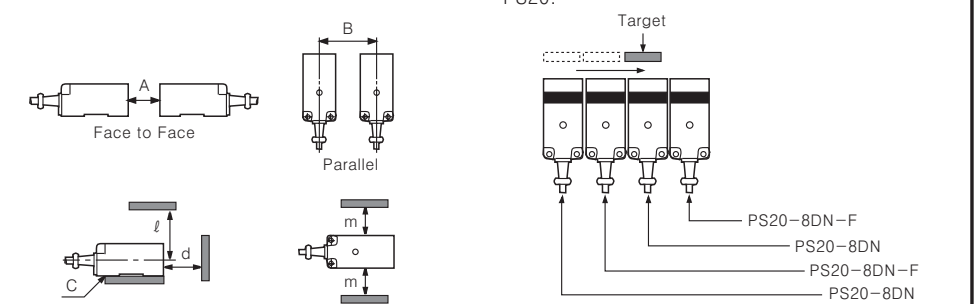
**Control output diagram & Load operating**



**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.

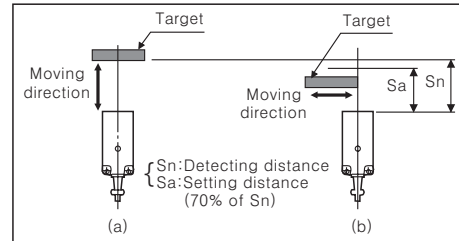
○ Differential frequency  
When install several proximity sensor near by, it may cause malfunction due to mutual interference. Therefore please use differential frequency for the application.  
※ Differential frequency type is only for PS17 and PS20.



○ 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 below < Chart 1 > .  
(Unit:mm)

Model Item	PS12	PS17			PS20
		3mm	5mm	8mm	
A	24	21	30	48	48
B	24	36	36	40	40
C	5	5	5	5	10
d	12	9	15	24	24
ℓ	18	18	24	33	34
m	12	18	18	20	20

**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) PS17-5DN(See ordering information)  
Setting distance(Sa) = 5mm × 0.7 = 3.5mm

**Caution for using**

- This equipment shall not be used outdoors or beyond specified temperature range.
- Do not load over than tensile strength of cord. (φ4:30N max., φ5:50N max.)
- 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 15kgf·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 0.3mm<sup>2</sup> 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.

**Main products**

- COUNTER
- TIMER
- TEMPERATURE CONTROLLER
- PANEL METER
- TACHOMETER/LINE SPEED METER/ PULSE METER
- DISPLAY UNIT
- PROXIMITY SENSOR
- PHOTOELECTRIC SENSOR
- FIBER OPTIC SENSOR
- PRESSURE SENSOR
- ROTARY ENCODER
- SENSOR CONTROLLER
- POWER CONTROLLER
- STEPPING MOTOR & DRIVER & CONTROLLER

**Autonics Corporation**  
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