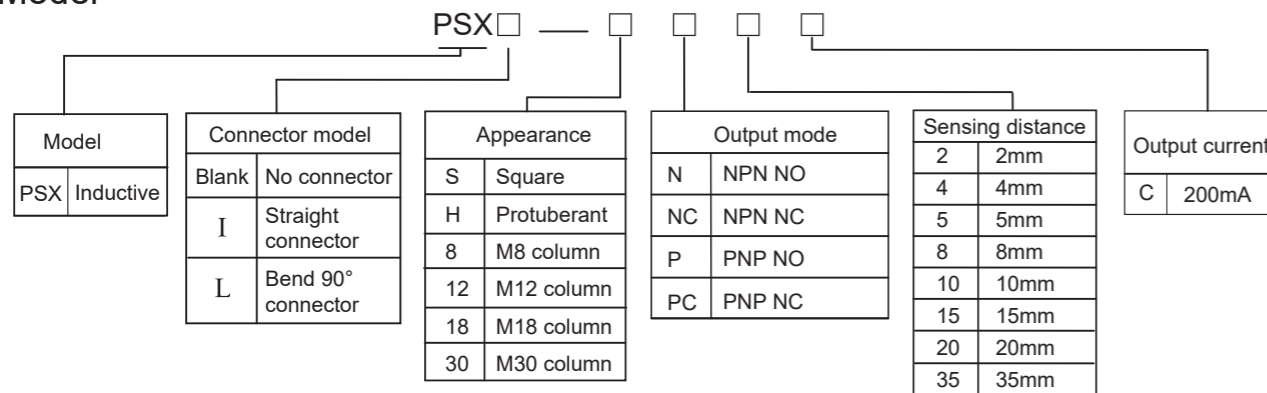


Proximity Sensor User Manual

Thank you for your trust in the products of Toky Electrical Co., Ltd. please refer to this instruction when using our products, so as to avoid unnecessary loss caused by operation error.

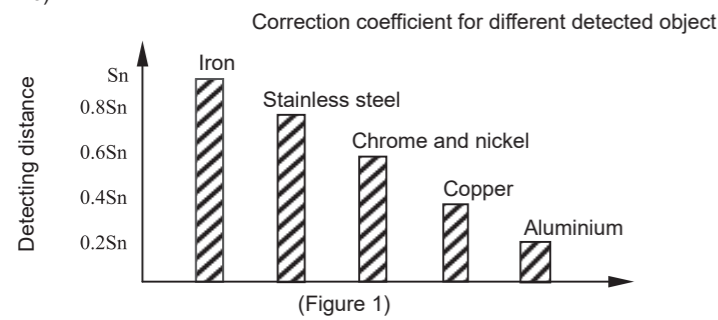
1. Model



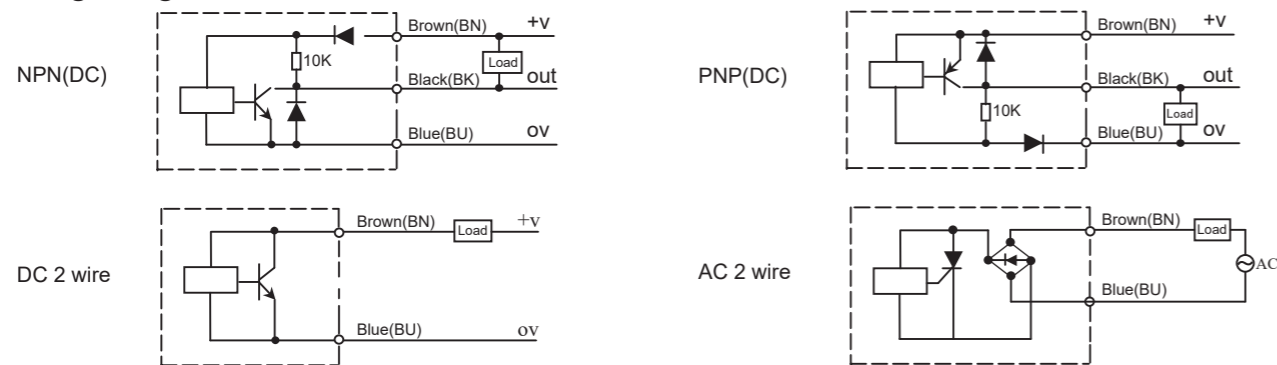
For example: PSXI-12N4C means inductive proximity sensor with straight connector, 12mm in diameter, NPN NO, sensing distance is 4mm, max output current is 200mA.

2. Detecting Distance

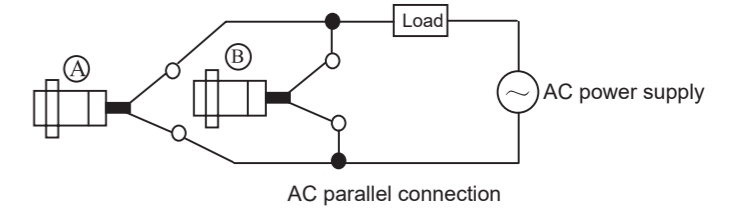
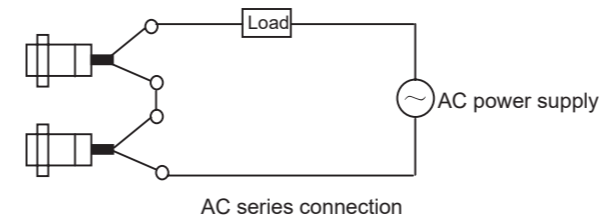
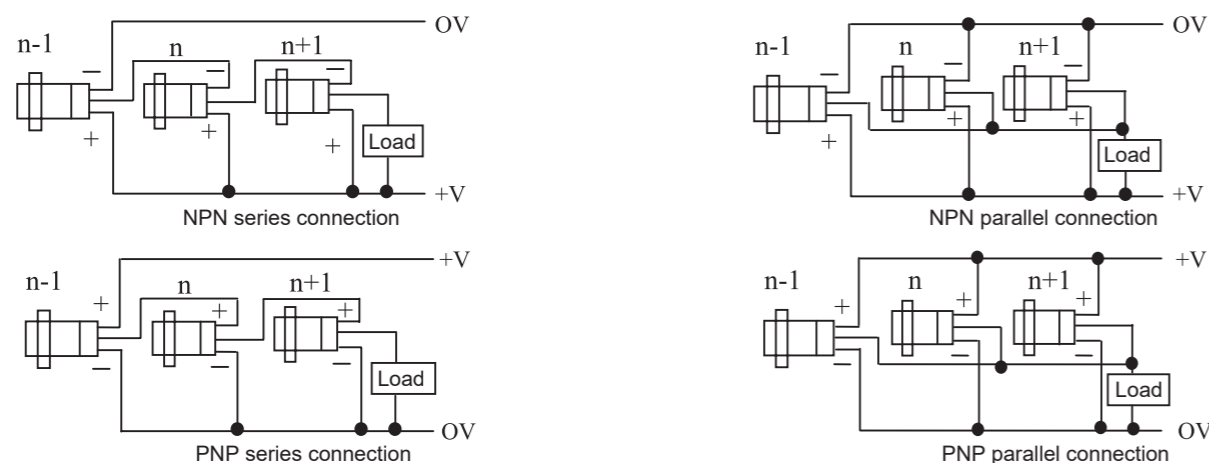
- ※To set operating distance within 80% of sensing distance (SN), to avoid the influence of temperature and voltage on the sensor operation.
- ※Operating distance varies with different measured metals. (Figure 1)
- ※When the sensor is used to measure the action frequency or used on the high-speed occasions, please set the operating distance of the sensor at 1 / 2 sensing distance (SN), where the sensor can obtain the maximum action frequency.
- ※Please refer to the operation instructions of capacitive proximity sensor for the operating distance setting of capacitive proximity sensor. (See 6)



3. Wiring Diagram

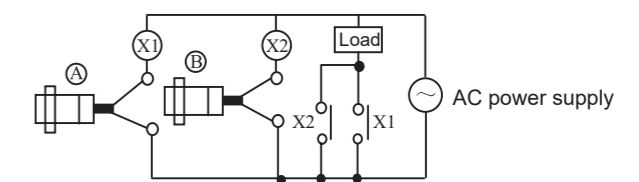
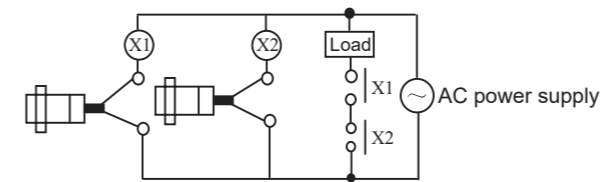


4. Series Connection and Parallel Connection



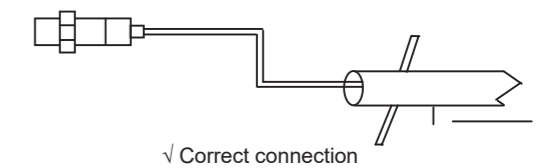
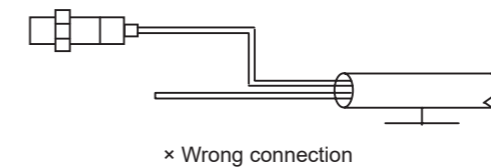
If power voltage is 220V, and the number of series connection is less than 3, the connection method in the figure above can be used. Otherwise, please connect the relay in series according to the following method.

For sensor A and B in parallel, if the detected body is close to sensor A, sensor A acts, load current flows through sensor A, and voltage at both ends of sensor A (B) drops to 10V. If the detected body approaches sensor B at this time, because the voltage at both ends of the sensor is 10V, sensor B will not act due to insufficient voltage. Only when sensor A is turned off and the voltage at both ends of A (B) is increased to the working voltage, sensor B will act. The time interval between the closing of sensor A and the action of sensor B is about 10ms. Therefore, attention should be paid to the mutual influence of sensors when multiple proximity sensors are needed in parallel. In general, please connect the relay in parallel according to the figure below.

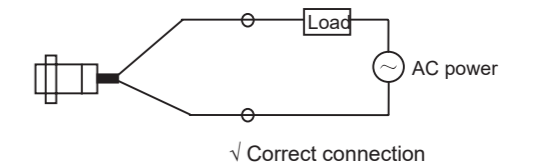
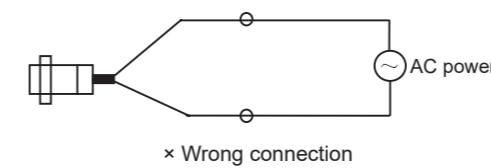


5. Cautions

- ※AC power must be connected with insulated transformer, cannot be connected with self-couple transformer.
- ※In order to prevent misoperation and damage, please use metal pipeline.



- ※For AC proximity sensor, if power voltage is 110V, the relay must be connected in series connection.
- ※AC proximity sensor must be connected with load, otherwise, the sensor will be damaged.

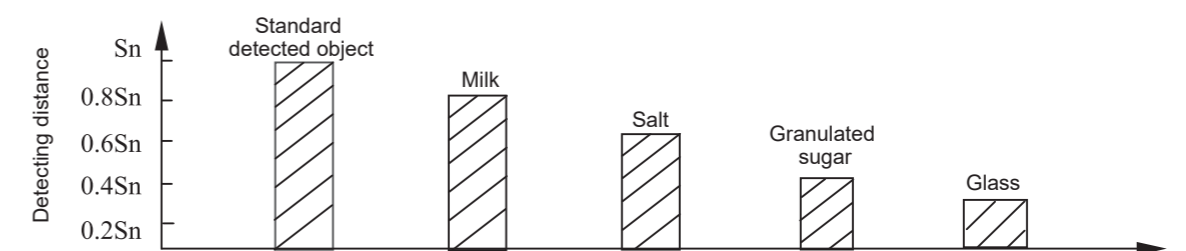


- ※Connection wire should be shorter than 200m to avoid excessive voltage drop

6. Capacitive Proximity Sensor User Manual

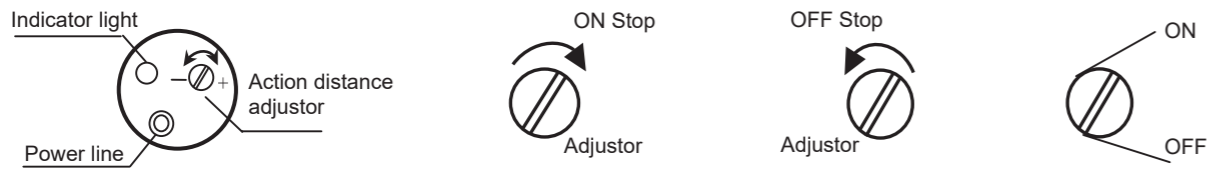
※Capacitive proximity sensor can measure metal, plastic, glass, water, oil, etc. The detecting distance changes according to the object, because their conductivity, size, absorption constant are different. If metal connects with ground (GND), we can get the max detecting distance.

※Different detecting distance for different detected object



※The sensor should be installed far away from high-frequency electric field, such as high-frequency welding machine and ultrasonic generator, etc, so as to avoid misoperation.

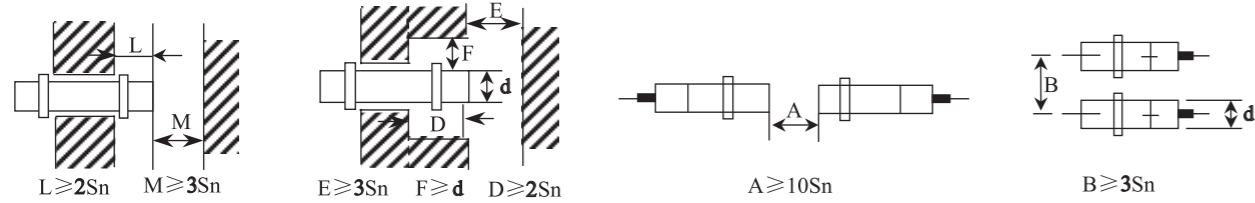
※The action distance of the sensor is generally adjustable to suit the detection of different detected objects. Therefore, it must be adjusted during installation. Please follow the steps below for adjustment method.



- Rotating the adjuster clockwise, the sensing distance (Sn) increases. Otherwise, it decreases. The rotation number is about 10 rounds.
- When there is no object, turn the adjuster clockwise until the light turns on.
- In detecting state, turn the adjuster counterclockwise until the light turns off.
- Set the adjuster between on and off, at this time the detecting distance adjustment is finished.

7. Installation Demand

If the sensor is installed in the area surrounded by metal, and the sensors are placed in opposite or parallel, please install them with a size larger than that shown in below figure, so as to not affect the reliable action of the sensor. (Sn: detecting distance)



8. Specification

■Squar type plastic case inductive proximity sensor(power line is perpendicular to the detection surface)

Code	PSX-S□□□	PSX-S□□□	PSX-S□□□	PSX-S□□□
Dimension				
Output	DC(3 wires)		DC(3 wires)	
	NPN	PNP	NPN	PNP
Model	NO PSX-SN5C	PSX-SP5C	PSX-SN10C	PSX-SP10C
	NC PSX-SNC5C	PSX-SPC5C	PSX-SNC10C	PSX-SPC10C
			PSX-SN20C	PSX-SP20C
			PSX-SNC20C	PSX-SPC20C
			PSX-SN35C	PSX-SP35C
			PSX-SNC35C	PSX-SPC35C
Sensing distance	5.0mm		10.0mm	
Operating distance	0~4.0mm		0~8.0mm	
Power supply	DC 10~30V		DC 10~30V	
Frequency	≤400Hz		≤200Hz	
Output current	≤200mA(DC24V)		≤200mA(DC24V)	
Mounting	Non-flush			

■Protuberant type plastic case inductive proximity sensor(power line is perpendicular to the detection surface)

Code	PSX-H□□□	PSX-H□□□	PSX-H□□□	
Dimension				
Output	DC(3 wires)		DC(3 wires)	
	NPN	PNP	NPN	PNP
Model	NO PSX-HN10C	PSX-HP10C	PSX-HN20C	PSX-HP20C
	NC PSX-HNC10C	PSX-HPC10C	PSX-HNC20C	PSX-HPC20C
			PSX-HN35C	PSX-HP35C
			PSX-HNC35C	PSX-HPC35C
Sensing distance	10.0mm		20.0mm	
Operating distance	0~8.0mm		0~16.0mm	
Power supply	DC 10~30V		DC 10~30V	
Frequency	≤200Hz		≤100Hz	
Output current	≤200mA(DC24V)		≤200mA(DC24V)	
Mounting	Non-flush			

■ Metal case inductive proximity sensor

Code	PSX-8□□□	PSX□-12□□□	PSX□-18□□□	
Dimension				
Output	DC(3 wires)		DC(3 wires)	
	NPN	PNP	NPN	PNP
Model	NO PSX-8N2B	PSX-8P2B	PSX(I, L)-12N2(4)C	PSX(I, L)-12P2(4)C
	NC PSX-8NC2B	PSX-8PC2B	PSX(I, L)-12NC2(4)C	PSX(I, L)-12PC2(4)C
Sensing distance	2mm		2mm/4mm	
Operating distance	0~1.6mm		5mm: 0~4.0mm 8mm: 0~6.4mm	
Power supply	DC 10~30V		DC 10~30V	
Frequency	≤800Hz		2mm≤600Hz 4mm≤400Hz	
Output current	≤100mA		≤200mA(DC24V)	
Mounting	Non-flush		2mm:Flush 4mm:Non-flush	

Code	TKX□-30□□□
Dimension	
Output	DC(3 wires)
	NPN
	PNP
Model	NO PSX(I/L)-30N10(15)C
	NC PSX(I/L)-30NC10(15)C
Sensing distance	10.0mm/15.0mm
Operating distance	10mm: 0~8.0mm 15mm: 0~12.0mm
Power supply	DC 10~30V
Frequency	≤200Hz
Output current	≤200mA(DC24V)
Mounting	10mm:Flush 15mm:Non-flush

Note: Number in brackets means optional sensing distance, straight connector and bend 90° connector are optional. The size with ★ in brackets indicates the size of AC sensor.