

# SENSOR PRODUCTS SELECTION MANUAL



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# Company introduction

Wenzhou Gtric Technology Co., Ltd. is located in Yueqing IoT sensors Park, which covers 5,000 square meters, with over 100 employees. We are focuses on intelligent manufacturing and industrial automation, our main businesses are sensors, encoders, button switch, coupling, expansion set and other industrial automation products, providing standard and individual products and solutions for customers.

Our products cover over 20 series, 1000specificatison, which have passed CCC, CE, UL, ISO9001 certification as well as EU RoHS Environmental Directives.

Based on our technical advantages, Gtric can provide industrial automation solution according to customers' requirements.

**We support OEM & ODM, if you need  
please feel free to contact us**



Installation conditions

Non shielded proximity switches can achieve maximum operating distance (with the diameter of the relevant); but in order to prevent the switch around the metal impact on the switch, the sensor head must be in a certain gap with the surrounding metal (Figure 1).

Due to the special shielding effect inside the shield, the radial magnetic field of the side is reduced, and the induction distance is about 60% of the non shield type, because it can be flush mounted in the metal (Figure 2).

The magnetic sensor is not affected by the conditions of installation, as long as the material around the material is not magnetized.



Output mode and electrical characteristics

DC 2-wire system NO or NC		The load must be connected in series in the sensor to work, there is a polarity and short circuit protection function; in the open circuit state, there is a very small leakage current; in the closed circuit, the switching element has a smaller voltage drop.	
		Detection object	Yes NO NC
		Indicator detected	ON OFF
DC 3-wire system(N,P type) NO or NC		These switches are connected to the load and power supply separately; the polarity, short circuit and overload protection function, and the residual current can be ignored.	
		Detection object	Yes NO NC
		Indicator detected	ON OFF
AC 2-wire system NO or NC		The load must be connected in series in the sensor, in the closed circuit, the switching element has a smaller voltage drop.	
		Detection object	Yes NO NC
		Indicator detected	ON OFF
DC 4-wire system (NPN,PNP Type) NO+NC		Sensor switches can provide 2 groups of output NO+NC	
		Detection object	Yes NO NC
		Indicator detected	ON OFF
DC 4-wire system (NPN,PNP Type) NO/NC		The switches can provide two groups of output NO or NC	
		Detection object	Yes NO NC
		Indicator detected	ON OFF
NO+NC Ac/Dc five wire (relay output) NO + NC		These switches can provide to often open, closed two group relay output.	
		Detection object	Yes NO NC
		Indicator detected	ON OFF

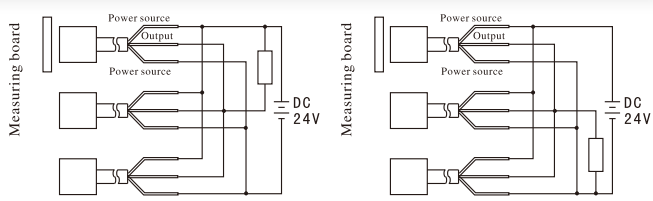


Sensor characteristics

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✦ Series and parallel connection of proximity switch

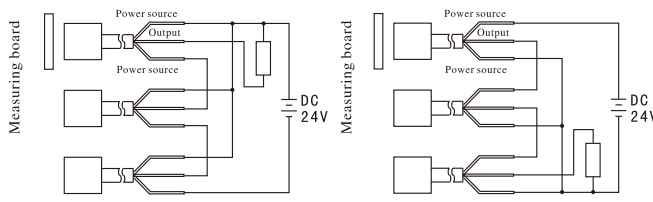
OR connection ( NPN and PNP types can be used mixed ) series When the proximity switch is OR connected, the action of any proximity switch can drive load. The quantity of the proximity switches depends on the sum of leakage current. More connections are available given that it doesn't affect the loading action.



OR connection of NPN output                      OR connection of PNP output

✦ AND connection (series)

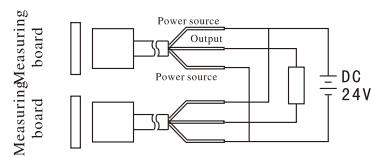
When the proximity switch is AND connected, the action of all proximity switches can drive load. The quantity of the proximity switches depends on the sum of saturation voltage. More connections are available given that it doesn't affect the supply voltage of the proximity switch. The response frequency of the proximity switch is the accumulation of initialized reset of various proximity switch.



NPN connection of AND output                      PNP connection of AND output

✦ Series and parallel connection of proximity switch

AND connection (series) NPN, PNP mixed-use



Promixity switches matters need attention

✦ Cautions when connected or disconnected with the power supply

When connecting the proximity switch with the counter and the programmable controller, there isn't any problem because of the built-in initialized reset circuit. Please avoid the conditions mentioned below

The detection object lies around the detection distance of the proximity switch; For DC voltage type and DC switch type, when power supply is turned on (turned off), time constant rises (drops) greatly; There is self-excitation and noise when the AC switch type proximity switch is power-on (off)

✦ Capacitor, light load

The proximity switch can't have the capacitor or light that has larger jumping current as the load directly connected to be connected through a relay or series connected with a current-limiting resistance. The peak current set by current-limiting resistance R is within the load current of the proximity switch; Make sure to connect through load.

Supply voltage V

Peak load current value of proximity switch mA

≤R(KΩ)

Allowable loss of resistance R (W)

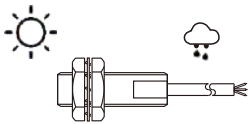
Supply voltage V<sup>2</sup>

≤R(KΩ)

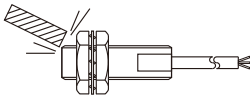
× 2 times above

✦ Installation notice of proximity switch

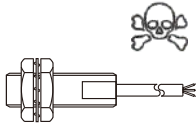
Don't use it in the open air, and use a protective cover, if necessary.



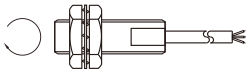
Don't knock the detection surface with hard objects and use a protective cover, if necessary.



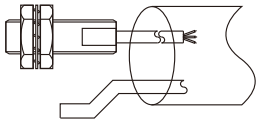
Don't use it in the environment with corrosive objects.



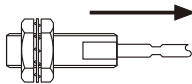
Don't fasten it with a big force, but fasten it with spring washer



The proximity switch must be equipped individually with metal flexible pipe, and don't make it with the electric line and power line in the same metal flexible pipe



Don't stretch the power line of the proximity switch with a big force.



- ※ Background suppression function, the detection is not interfered by the target color and background color
- ※ Small light spots or large light spots can be selected according to application requirements to achieve accurate detection of small objects
- ※ Strong anti-interference and high stability



Specifications

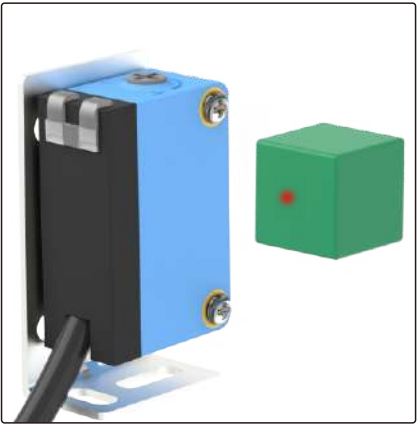
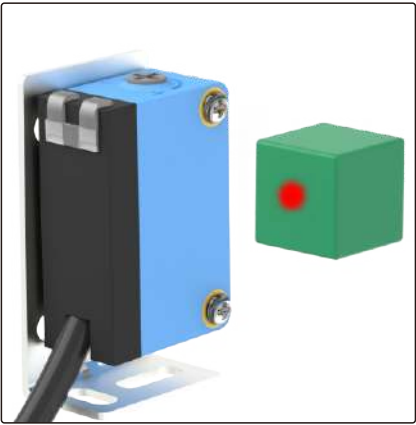
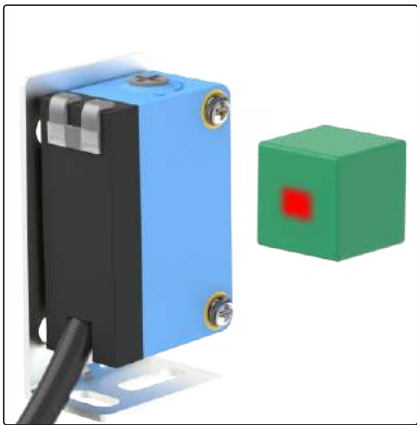
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Specifications				
Model	NPN NO/NC	GT-442N3	GT-442N3-XGD	GT-442N3-JG
	PNP NO/NC	GT-442P3	GT-442P3-XGD	GT-442P3-JG
Detection type	Diffuse reflection		Diffuse reflection	Diffuse reflection
Spot size	≈10mm		≈6mm	≈2mm
Supply voltage	12 to 24 VDC			
Sensing Range	30-300mm (Sensing distance can be adjusted)			
light source	Beam invisible Spot visible			
Hysteresis distance	5% or less of operation distance			
Current Rating	20 mA			
Response Time	1.5ms			
Indicator Type	LED			
Response frequency(F)	500Hz			
load current	100MA			
Residual voltage	<1V			
Circuit protection	Short-circuit , EMI protection rever , sepolarity protection			
Ambient temperature	-25°C~+70°C			
Shock	500m/s(50G) in each XYZ direction for 3 times			
Vibration	1mm amplitude at frequency 10-55Hz (for 1 min) in each X.Y.Z direction for 2 hours			
Protection degree	IP65			
Connection	2m PVC cable			
Mounting Style	Mounting Style			
Material	PBT (Enclosure) Polycarbonate (Lens Cover, Indicator Cover)			

Rated distance [Sn]:5-30CM  
Spot size:≈10mm

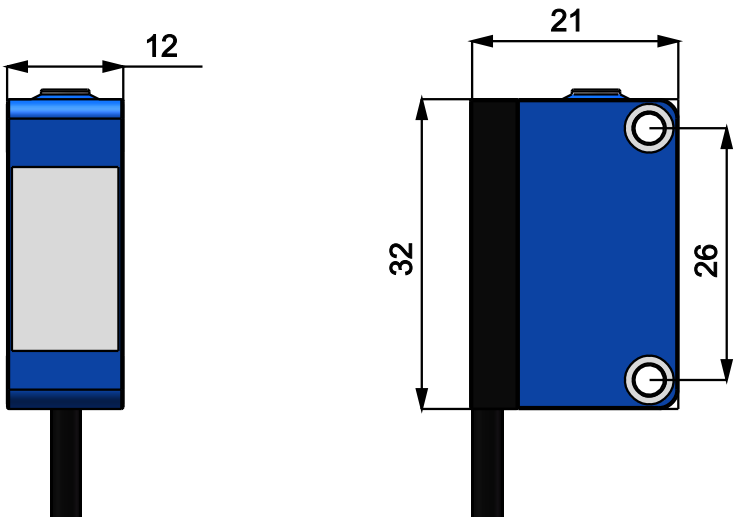
Rated distance [Sn]:5-30CM  
Spot size:≈6mm

Rated distance [Sn]:5-30CM  
Spot size:2mm



Dimension

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