

# SENSOR PRODUCTS SELECTION MANUAL



Wenzhou Gtric Technology Co., Ltd.  
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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.			<table><tr><td>Detection object</td><td>Yes</td><td>NO</td><td>NC</td></tr><tr><td>Load</td><td>No</td><td></td><td></td></tr><tr><td>Indicator detected</td><td>Action</td><td></td><td></td></tr><tr><td></td><td>Reset</td><td></td><td></td></tr><tr><td></td><td>ON</td><td></td><td></td></tr><tr><td></td><td>OFF</td><td></td><td></td></tr></table>	Detection object	Yes	NO	NC	Load	No			Indicator detected	Action				Reset				ON				OFF		
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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.			<table><tr><td>Detection object</td><td>Yes</td><td>NO</td><td>NC</td></tr><tr><td>Load</td><td>No</td><td></td><td></td></tr><tr><td>Indicator detected</td><td>Action</td><td></td><td></td></tr><tr><td></td><td>Reset</td><td></td><td></td></tr><tr><td></td><td>ON</td><td></td><td></td></tr><tr><td></td><td>OFF</td><td></td><td></td></tr></table>	Detection object	Yes	NO	NC	Load	No			Indicator detected	Action				Reset				ON				OFF		
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NO+NC Ac/Dc five wire (relay output) NO + NC		These switches can provide to often open, closed two group relay output.			<table><tr><td>Detection object</td><td>Yes</td><td>NO</td><td>NC</td></tr><tr><td>Load</td><td>No</td><td></td><td></td></tr><tr><td>Indicator detected</td><td>Action</td><td></td><td></td></tr><tr><td></td><td>Reset</td><td></td><td></td></tr><tr><td></td><td>ON</td><td></td><td></td></tr><tr><td></td><td>OFF</td><td></td><td></td></tr></table>	Detection object	Yes	NO	NC	Load	No			Indicator detected	Action				Reset				ON				OFF		
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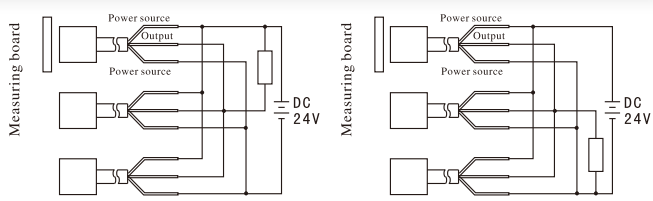


Sensor characteristics

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✦ Series and parallel connection of proximity switch

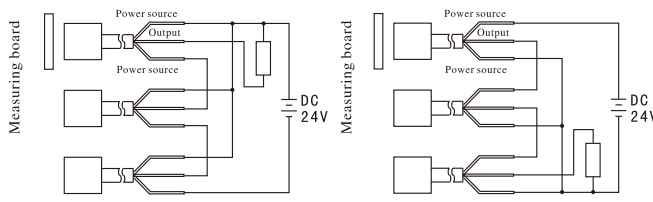
OR connection ( NPN and PNP types can be used mixed ) series When the proximity switch is OR connected, the action of any proximity switch can drive load. The quantity of the proximity switches depends on the sum of leakage current. More connections are available given that it doesn't affect the loading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



OR connection of NPN output                      OR connection of PNP output

✦ AND connection (series)

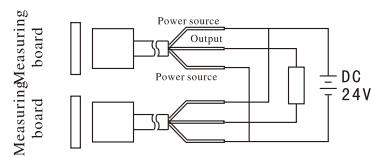
When the proximity switch is AND connected, the action of all proximity switches can drive load. The quantity of the proximity switches depends on the sum of saturation voltage. More connections are available given that it doesn't affect the supply voltage of the proximity switch. The response frequency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

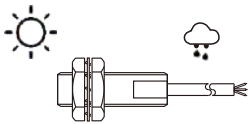
Supply voltage V<sup>2</sup>

≤R(KΩ)

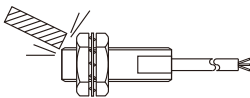
× 2 times above

✦ Installation notice of proximity switch

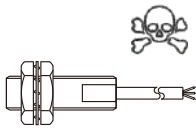
Don't use it in the open air, and use a protective cover, if necessary.



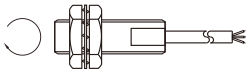
Don't knock the detection surface with hard objects and use a protective cover, if necessary.



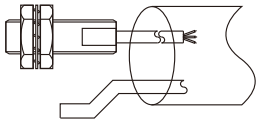
Don't use it in the environment with corrosive objects.



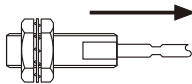
Don't fasten it with a big force, but fasten it with spring washer



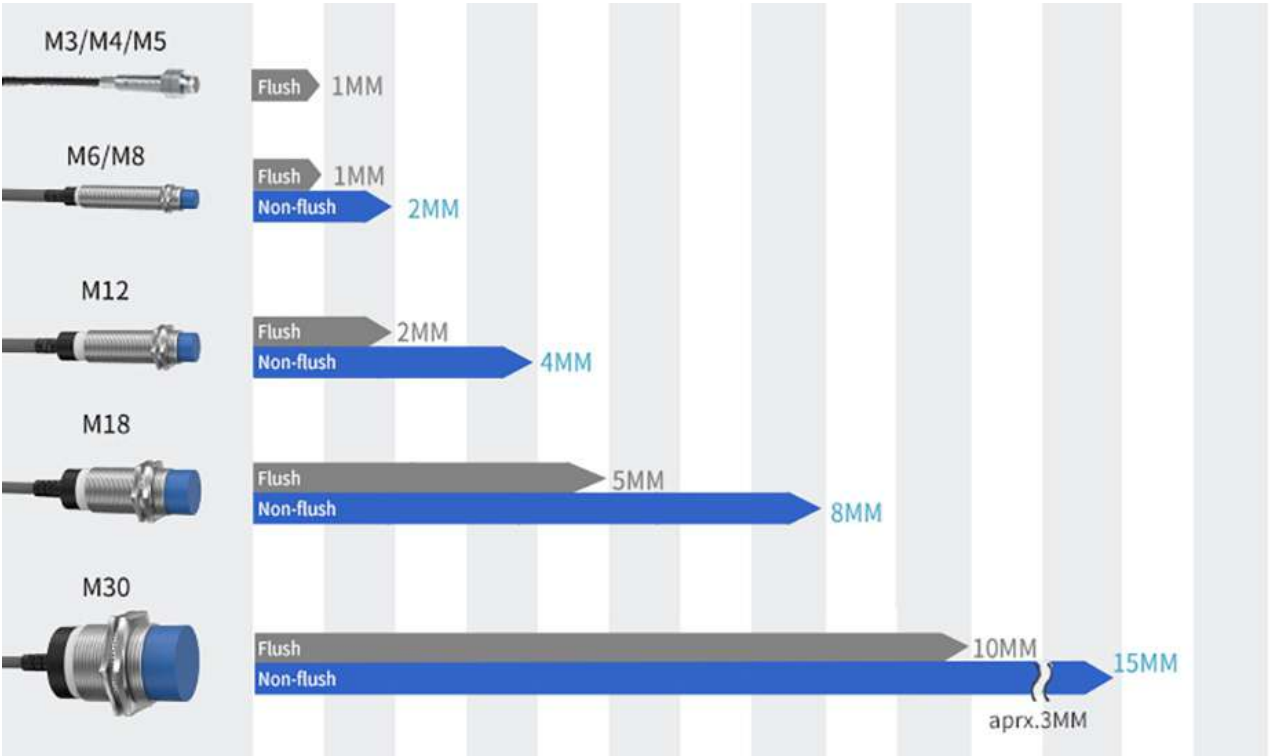
The proximity switch must be equipped individually with metal flexible pipe, and don't make it with the electric line and power line in the same metal flexible pipe



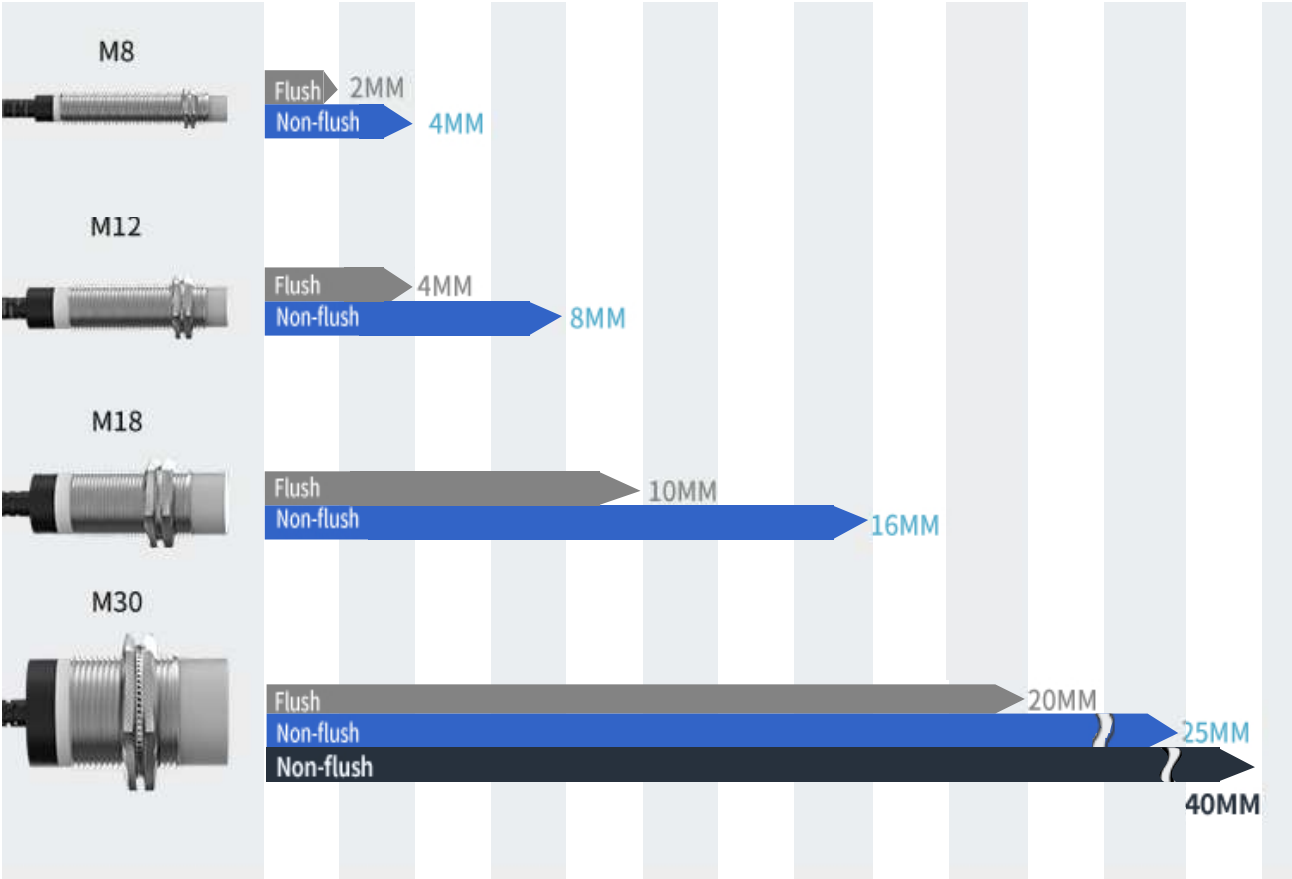
Don't stretch the power line of the proximity switch with a big force.



LR Series Inductive Proximity Sensor Sensing Distance Diagram

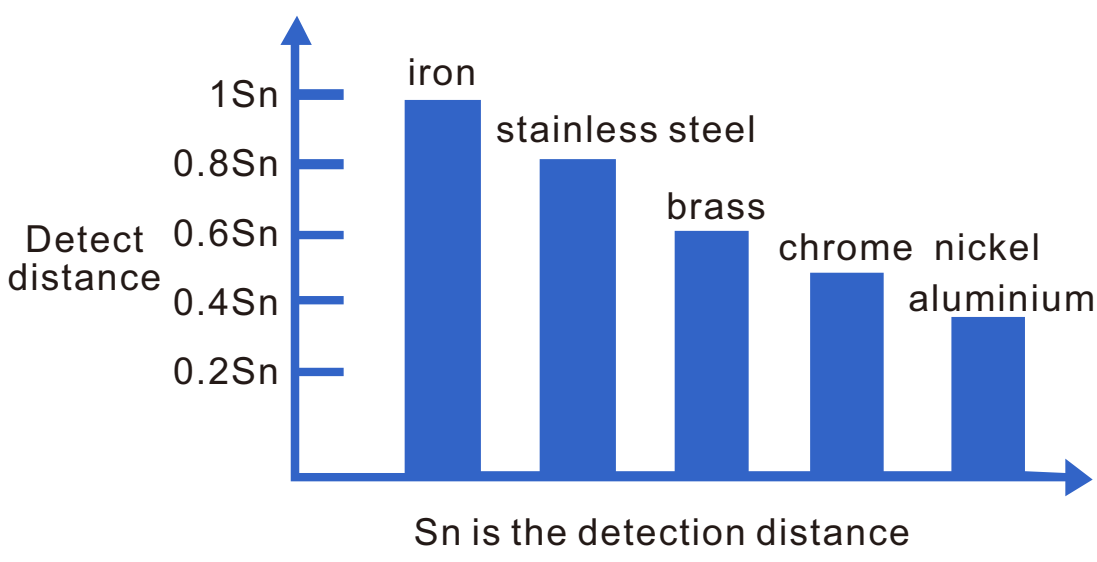


FR Series inductive proximity sensor sensing Distance Diagram



Matters needing attention

When detecting objects of different materials, the actual sensing distance of the proximity switch is different, as shown in the figure below



- ※ Small size, suitable for all kinds of small space occasions
- ※ IP65 level of protection



Selection Guide

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LS	06	—	S	20	N	1
①	②		③	④	⑤	⑥
① <b>Model:</b> LS: Laser Sensor						
② <b>DIA. of sensing side:</b> Number: DIA. of sensing side (unit:mm)						
③ <b>Sensing type:</b> S: Diffuse reflective type   R: Retroreflective type   D: Through-beam type						
④ <b>Sensing distance:</b> Number: Sensing distance (unit:cm)						
⑤ <b>Control output:</b> N: NPN   P: PNP						
⑥ <b>Operation mode:</b> 1: Light ON   2: Dark ON						

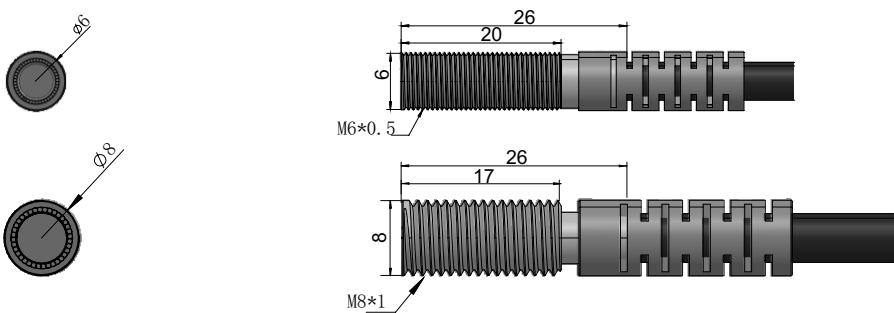
Specifications

GTRIC®

Specifications			
Model	NPN.NO	LS06-S20N1	LS08-S20N1
	NPN.NC	LS06-S20N2	LS08-S20N2
	PNP.NO	LS06-S20P1	LS08-S20P1
	PNP.NC	LS06-S20P2	LS08-S20P2
Detection type		Diffuse reflection	Diffuse reflection
Sensing distance		0-200mm	0-200mm
Setting distance (Sa)		0-1MM	
Spot and beam		beam invisible Spot visible size: 2/1/0.5mm	
Adjustment method		Tail potentiometer	
Hysteresis		≤10%	
Light pointing angle		3°	
Standard target		white card reficetion rate 90%	
Detection target		Opaque Objects and Transparent Objects	
Supply voltage		DC:10-30VDC	
Leakage current		≤0.6mA	
Response frequency (F)		600Hz(DC)	
Ambient illuminance incandescent		incandescent lights 3000Lux sunshines 100Lu	
Consunption current		Diffuse reflection and Retro-reflective ≤15mA; Through-beam ≤25mA	
Load current		200mA	
Voltage drop		DC ≤1V	
Circuit protection		short-circuit. EMl protection revers Epolarity protection	
Output indicator		Red LED	
Ambient temperature		-20~+55℃	
Shock		500m/s(50G) in each XYZ direction for 3 times	
Vibration		1mm amplitude at frequency 10~55Hz (for lmin) in each XYZ direction for 2 hours	
Protection degree		IP65	
Connection		2m PVC cable or connector	
Material		Nickel-copper alloy	
Sensing side		PC	

Dimension

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