

# SENSOR PRODUCTS SELECTION MANUAL



# 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





#### Sensor characteristics

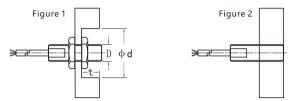
## GTRIC

#### Installation conditions

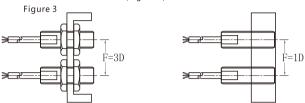
Non shielded proximity switches can achieve maximum operating distance (with the diameter of the relevant); but in order to prevent the switch around the metal impact on the switch, the sensor head must be in a certain gap with the surrounding metal (Figure 1).

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.



In order to prevent mutual interference, we must keep the minimum distance between each other (Figure 3).



Please refer to the specific data of various types of instructions.

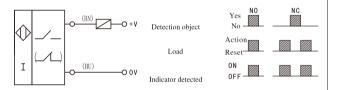
#### Sensor characteristics



#### Output mode and electrical characteristics

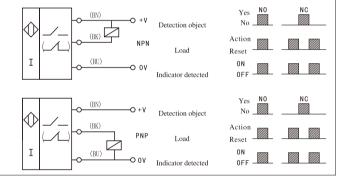
#### DC 2-wire system NO or NC

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.



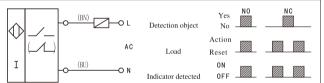
#### DC 3 -wire system(N,P type) NO or NC

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.



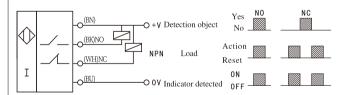
#### AC **2** -wire system NO or NC

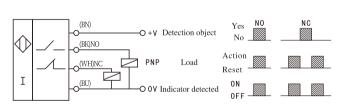
The load must be connected in series in the sensor, in the closed circuit, the switching element has a smaller voltage drop.



#### DC 4-wire system (NPN,PNP Type) NO+NC

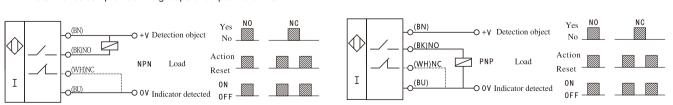
Sensor switches can provide 2 groups of output NO+NC



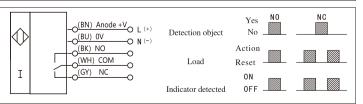


#### ${\sf DC~4-wire~system~(NPN,PNP~Type)~NO/NC}$

The switches can provide two groups of output NO or NC



NO+NC Ac/Dc five wire (relay output) NO + NC
These switches can provide to often open, closed two group relay output.





#### Sensor characteristics

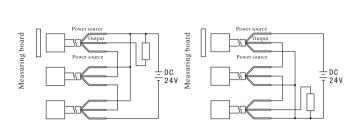
### GTRIC

#### 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.

#### \* 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

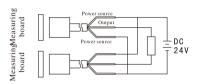
OR connection of NPN output

PNP connection of AND output

OR connection of PNP output



AND connection (series) NPN, PNP mixed-use



#### Promixity switches matters need attention

#### Cautions when connected or disconnected with the power supply

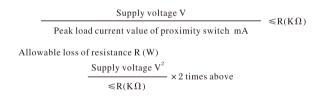
When connecting the proximity switch with the counter and the programmable controller, there isn't any problem because of the built-in initialized reset circui Please avoid the conditions mentioned below

Measuring board

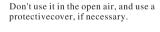
The detection object lies around the detection distance of the proximity switch; For DC voltage type and DC switch type, when power supply is turned on (turned off), time constant rises (drops) greatly; There is self-excitation and noise when the AC switch type proximity switch is power-on (off)

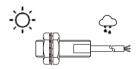
#### Capacitor, light load

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 cuttent set by current-limiting resistance Ris within the load cuttent of the procimity switch; Make sure to connect through load.

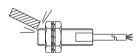


#### installation notice of proximity switch

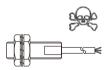




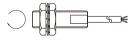
Don't knock the detection surface with hard objects and use a protective cover, if necessary.



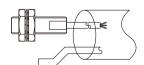
Don't use it in the environment with corrosive objects.



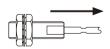
Don't fasten it with a big force, but fasten it with spring washer

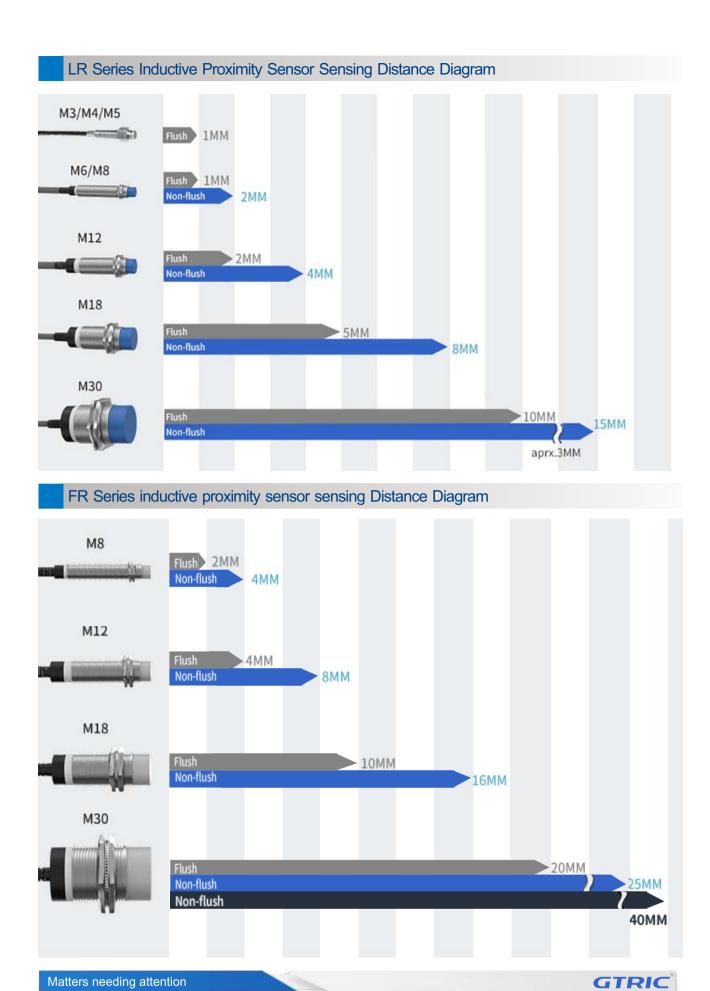


The proximity switch must be equipped individually with metal flexible pipe, and don't make it with the electric line and power line in the same metal flexible pipe

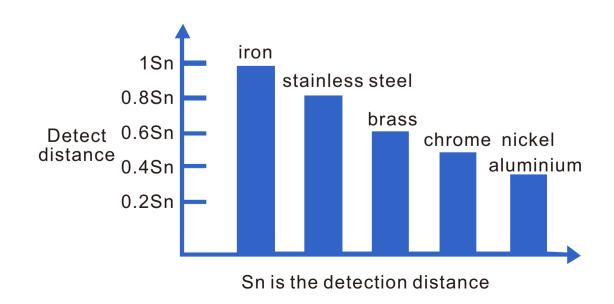


Don't stretch the power line of the proximity switch with a big force.





When detecting objects of different materials, the actualsensing distance of the proximity switchis different, asshown in the figure below





- With overload short circuit, reverse connection protection, surge absorption IP67 protection level
- It has the advantages of water resistance, oil resistance, high temperature resistance, etc. 360° full surround green LED display working status
- ound green LED display working status

  More intuitive and obvious Ultra-long-distance detection, making products more diversified



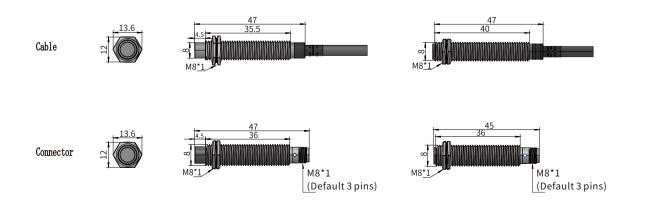
9	Selection Guid	е		Ž.			GTRIC		
	FR	8 08	_	02	N	1			
	1	2		3	4	(5)	6		
①Model:LR: Inductive Sensor、CR: Capacitive Sensor、FR:long Distance							ensor		
	DIA. of sensing side: Number: DIA. of sensing side (unit:mm)								
	③Sensing d	Sensing distance: Number: Sensing distance (unit:mm)							
							wire		
		A: 90-250VA	C 2-wire						
(5)Control output: 1:Normallyopen、2:Normally closed									

Specifications	GTRIC

**©Connection**: Nomark: Cable type、P: Connector type、WP: Cable connector type

Specifications							
	DC 3-wire NPN.NO	FR08-02N1	FR08-04N1				
Model	DC 3-wire NPN.NC	FR08-02N2	FR08-04N2				
Model	DC 3-wire PNP.NO	FR08-02P1	FR08-04P1				
	DC 3-wire PNP.NC	FR08-02P2	FR08-04P2				
Mounting		Flush	Non-Flush				
S	ensing distance	2 M M±1 0 %	4 M M±1 0 %				
Set	ting distance(Sa)	0-1.8MM	0-3.6MM				
	Hysteresis	≤10%					
Stand	dard sensing target	18*18*1MM(iron)					
	Supply voltage	DC:10-30VDC; AC: 90-250V					
L	eakage current	≤0.6mA					
Resp	onse frequency(F)	500Hz (DC) 25Hz (AC)					
Cor	nsunption current	DC3-wireNPNPNP:≤10mA;DC2-wire: ≤3mA; AC2-wire: ≤2mA					
	Load current	200mA					
Voltage drop		≤2.5V					
Circuit protection		Short-circuit,overload,reversepolarityprotection					
C	output indicator	GreenLED					
Ambient temperature		-20~+70°C					
Shock		500m/s(50G)ineachX,Y,Zdirectionfor3times					
Vibration		1mm amplitudeatfre quenc y10~55Hz(for1min) ineachX.Y Zdirection for 2hours					
Protection degree		IP67(IECstandards)					
Connection		2mPVCcable	M8 connector				
Meterial		Nickel-copperalloy					
Sensing side		PBT					

# Dimension





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