GTRIC®

SENSOR PRODUCTS SELECTION MANUAL

Wenzhou Gtric Technology Co., Ltd.
TEL:0577-62734566
Web:http://www.gtric.com
Mail：yaohaofeng@gtric.com

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

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.

Figure 1

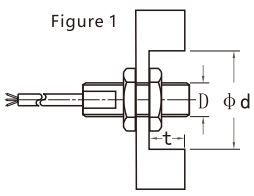
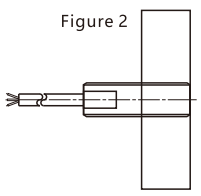
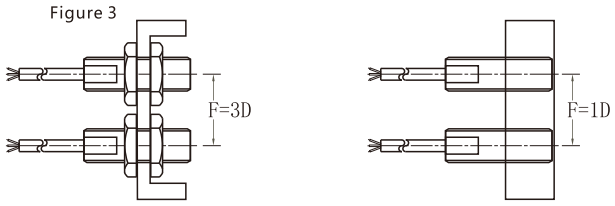


Figure 2



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

Figure 3



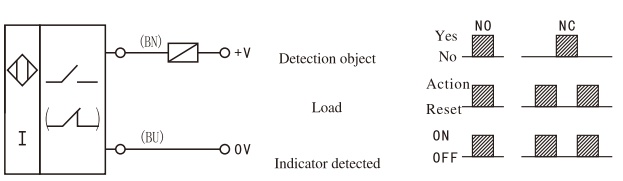
Please refer to the specific data of various types of instructions.

Sensor characteristics

Output mode and electrical characteristics

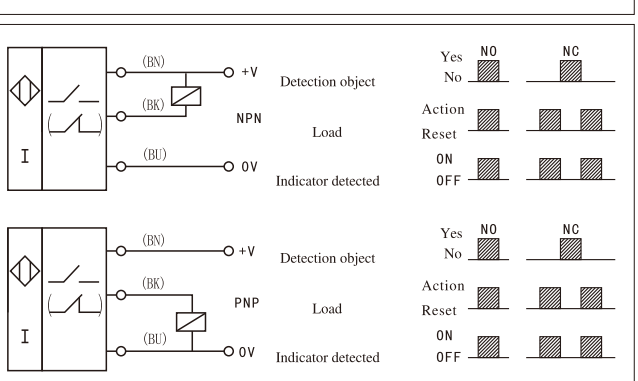
DC **2**-wire system NO or NC

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.



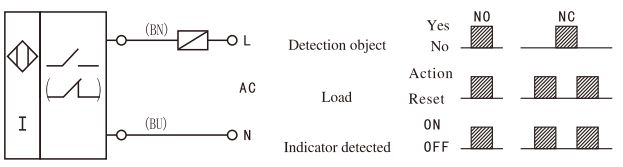
DC **3** -wire system(N,P type) NO or NC

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.



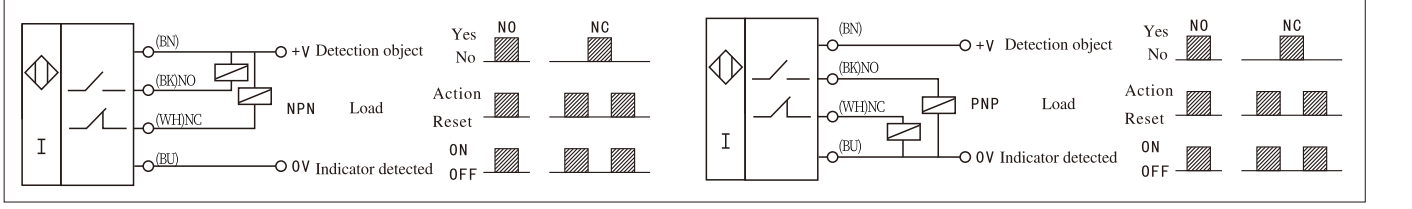
AC **2** -wire system NO or NC

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



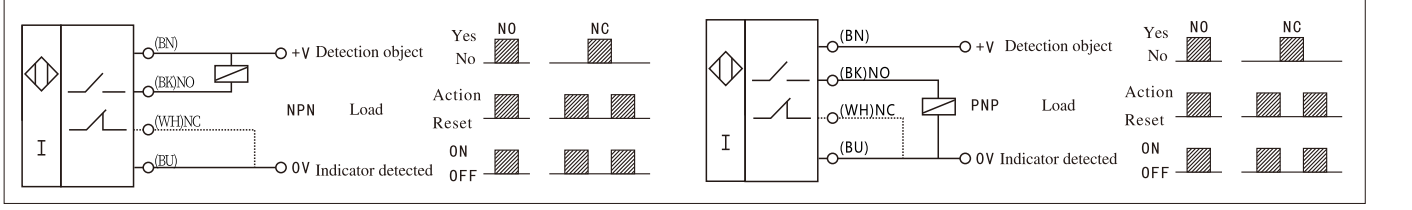
DC 4-wire system (NPN,PNP Type) NO+NC

Sensor switches can provide 2 groups of output NO+NC



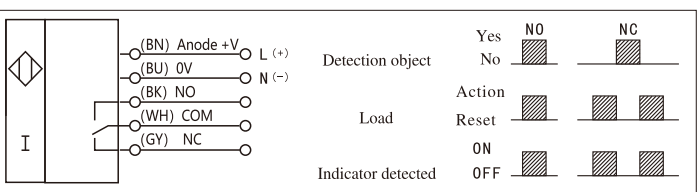
DC **4**-wire system (NPN,PNP Type) NO/NC

The switches can provide two groups of output NO or NC



NO+NC Ac/Dc five wire (relay output) NO + NC

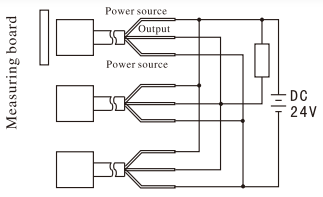
These switches can provide to often open, closed two group relay output.



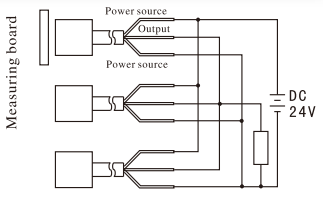
Sensor characteristics

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.



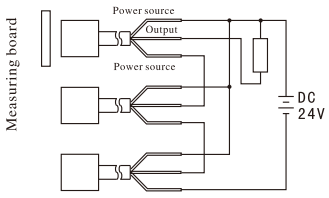
OR connection of NPN output



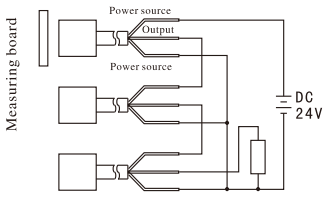
OR connection of PNP output

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.



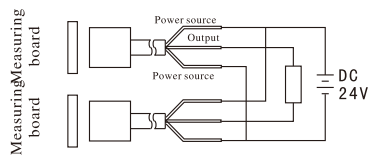
NPN connection of AND output



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

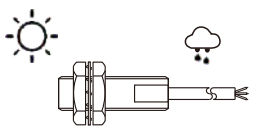
$$\frac{\text{Supply voltage V}}{\text{Peak load current value of proximity switch mA}} \leqslant R(K\Omega)$$

Allowable loss of resistance R (W)

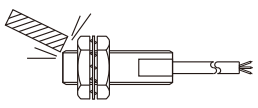
$$\frac{\text{Supply voltage } V^2}{\leqslant R(K\Omega)} \times 2 \text{ times above}$$

Installation notice of proximity switch

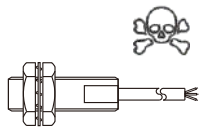
Don't use it in the open air, and use a protectivecover, if necessary.



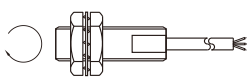
Don't knock the detection surface with hard objects and use a protective cover, if necessary.



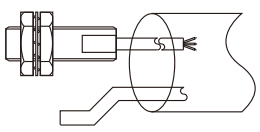
Don't use it in the environment with corrosive objects.



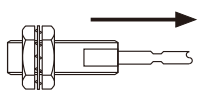
Don't fasten it with a big force, but fasten it with spring washer



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.



GTRIC KS-C series color mark photoelectric sensor

※ Adjustable spot size and sensing distanceIP67 protection class

Selection Guide

KS-C	–	2	W
①		②	③

①**Model**:KS-C: Coaxial reflex color sensor

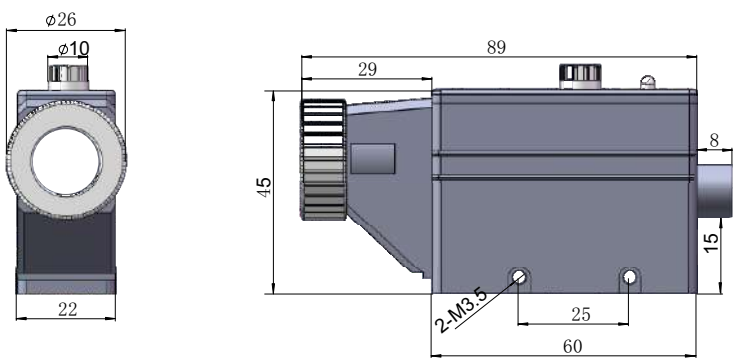
②**Control output**:2: NO+NC

③**Light source chromatogram:**W:White light、G:Green light、R:Red light、B:Blue light

Specifications

Model	Specifications							
	KS-C2W	KS-C2G	KS-C2R	KS-C2B	KS-C2RG	KS-C2WG	KS-C2WB	KS-C2GB
Lamp color	White	Green	Red	Blue	Red Green	White Green	White Blue	Green Blue
Output type	NPN							
Conrol Output	Light on + Dark on							
Sensing method	Coaxial reflex							
Light source chromatogram	Red,green,blue,white							
Light spot(color)	Φ1-Φ1.5							
Detection distance	12mm±2mm							
Sensitivity adjustment	Adjustable							
Action indicator	Red LED							
Supply voltage	10-30Vdc±10%							
Sensing object	Opaque object							
Response frequency	2KHz							
Consumption current	< 30mA							
Output current	≤200mA							
Protection circuit	Reverse polarity protection,Surge suppressor,Short-circuit protection							
Dielectric strength	1000 VAC max.,50/60 Hz for 1 min between energized parts and case							
Temperature influence	±10%max.of sensing distance at 23C within temperature range of-25°C to 60°C ±15% max.of sensing distance at 23°C within temperature range of-30°C to 65°C							
Voltage influence	±10% max.of sensing distance in rated voltage range ±15%							
IP Rating Material	IP67							
Material	Case:Aluminum die-cast (ABS); Sensing surface (lens):PMMA							
Operating temperature	-30 to 65℃(with no icing or condensation)							
Operating humidity	Storage:35% to 95%(without condensation)							
Connection	2m PVC cable							
Sensing side	PBT							

Dimension



Green LED(O: Easy to be detected X:Hard tobe detected)

Mark / Background	Black	Silver	Red	Orange	Yellow	Green	Blue	Indigo	Purple	White
Black	—	○	○	○	○	×	×	×	○	○
Silver	○	—	○	×	×	○	○	○	○	×
Red	○	○	—	×	×	×	×	×	×	○
Orange	○	×	×	—	○	○	○	○	×	○
Yellow	○	×	×	×	—	○	○	○	×	×
Green	×	○	×	○	○	—	×	×	×	○
Blue	×	○	×	○	○	×	—	×	×	○
Indigo	×	○	×	○	○	×	×	—	×	○
Purple	○	○	×	×	×	×	×	×	—	○
White	○	×	○	○	×	○	○	○	○	—

Red LED(O: Easy to be detected X:Hard tobe detected)

Mark / Background	Black	Silver	Red	Orange	Yellow	Green	Blue	Indigo	Purple	White
Black	—	○	○	○	○	×	×	×	○	○
Silver	○	—	×	×	×	○	○	○	×	×
Red	○	×	—	×	×	○	○	○	×	×
Orange	○	×	×	—	×	○	○	○	×	×
Yellow	○	×	×	×	—	○	○	○	×	×
Green	×	○	○	○	○	—	○	○	○	○
Blue	×	○	○	○	○	×	—	×	○	○
Indigo	×	○	○	○	○	×	×	—	○	○
Purple	○	×	×	×	×	○	○	○	—	
White	○	×	×	×	×	○	○	○	○	—

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