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

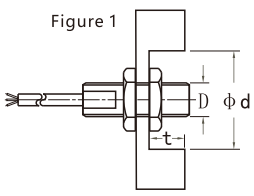
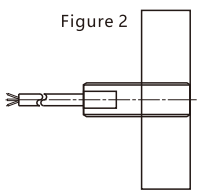
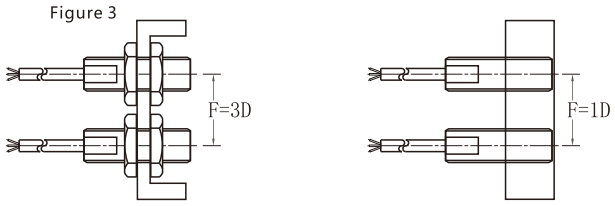


Figure 2



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

Figure 3



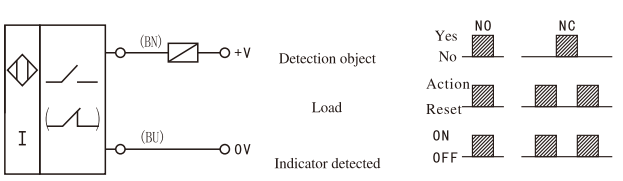
Please refer to the specific data of various types of instructions.

Sensor characteristics

Output mode and electrical characteristics

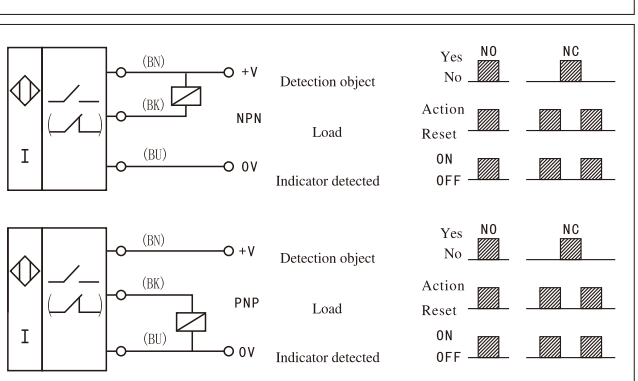
DC **2**-wire system NO or NC

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.



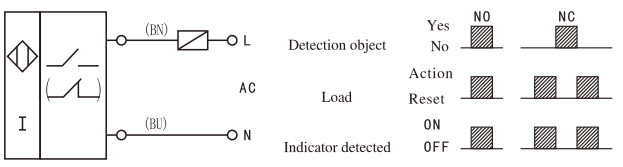
DC **3** -wire system(N,P type) NO or NC

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.



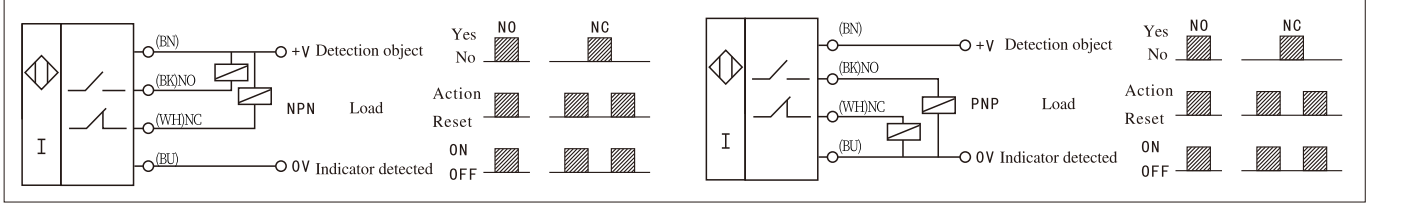
AC **2** -wire system NO or NC

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



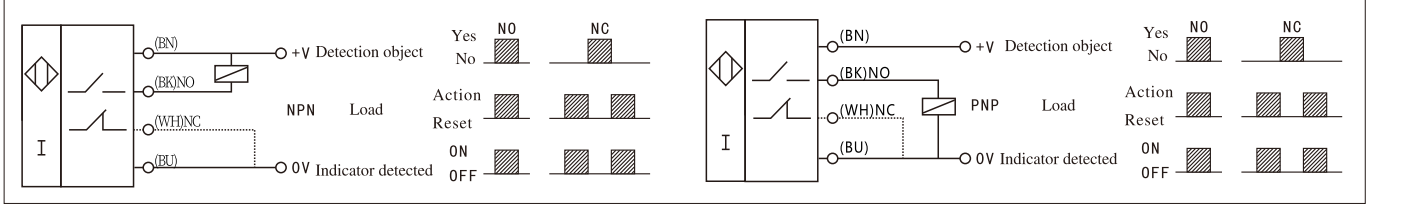
DC 4-wire system (NPN,PNP Type) NO+NC

Sensor switches can provide 2 groups of output NO+NC



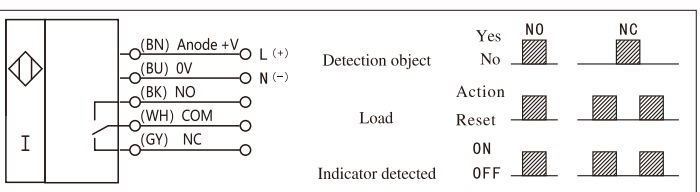
DC **4**-wire system (NPN,PNP Type) NO/NC

The switches can provide two groups of output NO or NC



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

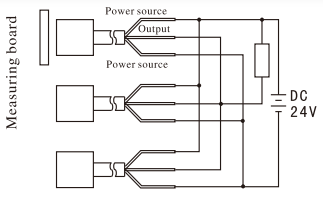
These switches can provide to often open, closed two group relay output.



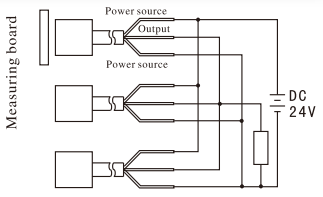
Sensor characteristics

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.



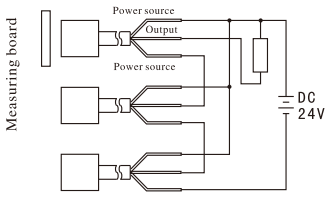
OR connection of NPN output



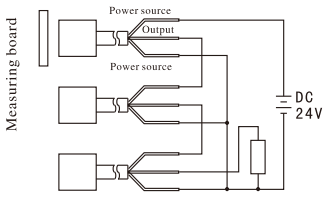
OR connection of PNP output

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.



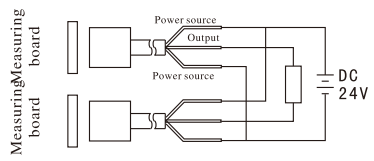
NPN connection of AND output



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.

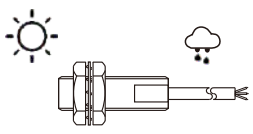
$$\frac{\text{Supply voltage V}}{\text{Peak load current value of proximity switch mA}} \leqslant R(K\Omega)$$

Allowable loss of resistance R (W)

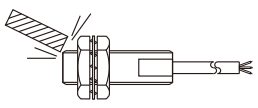
$$\frac{\text{Supply voltage } V^2}{\leqslant R(K\Omega)} \times 2 \text{ times above}$$

Installation notice of proximity switch

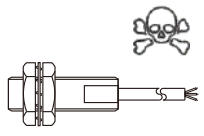
Don't use it in the open air, and use a protectivecover, if necessary.



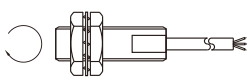
Don't knock the detection surface with hard objects and use a protective cover, if necessary.



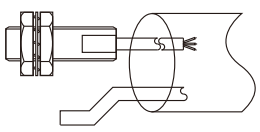
Don't use it in the environment with corrosive objects.



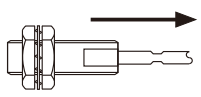
Don't fasten it with a big force, but fasten it with spring washer



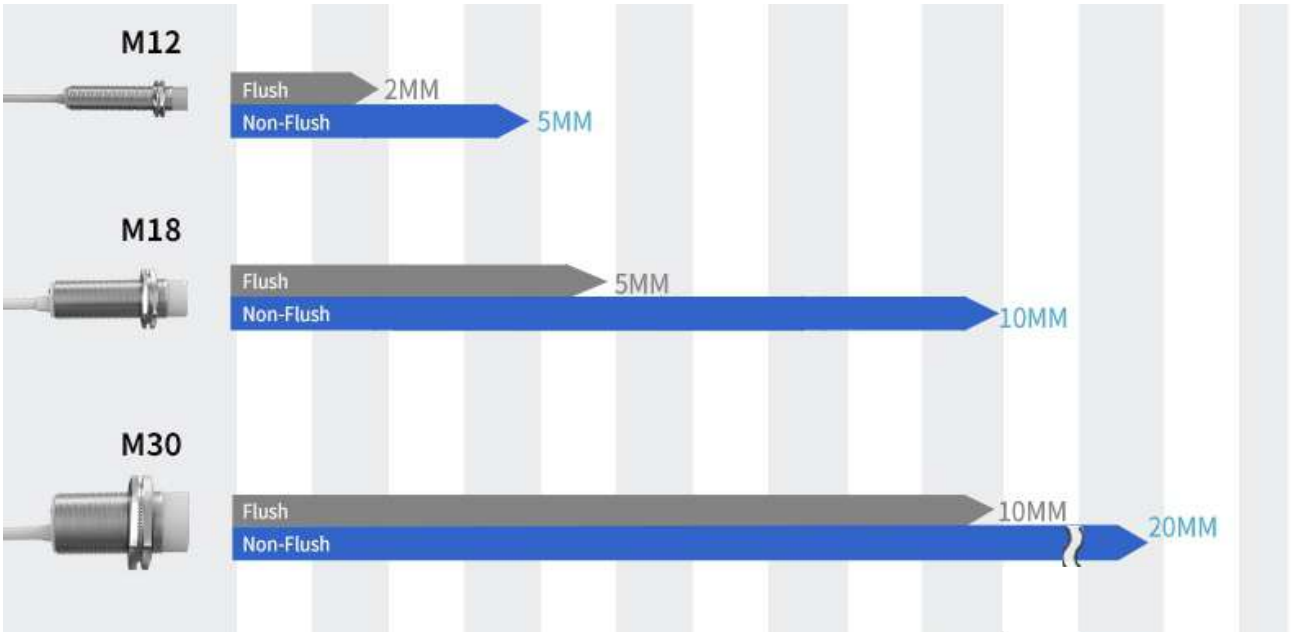
The proximity switch must be equipped individually with metal flexible pipe, and don't make it with the electric line and power line in the same metal flexible pipe



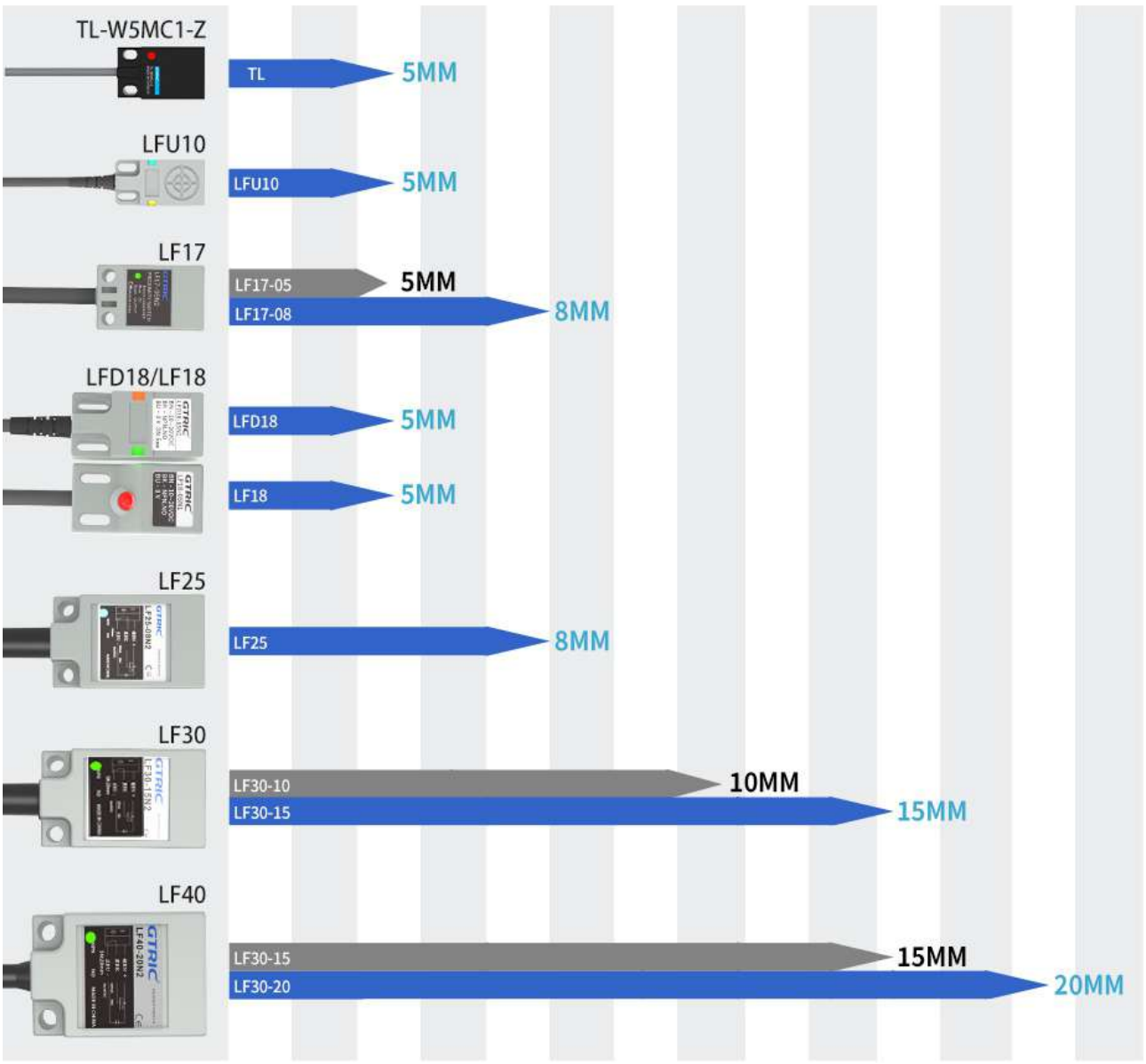
Don't stretch the power line of the proximity switch with a big force.



CR Series Capacitive Proximity Sensor sensing distance diagram



LF Series Square Inductive Proximity Sensor sensing distance diagram



GTRIC LF17 Square Inductive Proximity Sensors

※ With overload short circuit, reverse connection protection, surge absorption IP67 protection level, with the advantages of water resistance, oil resistance, high temperature resistance, etc.

※ LED display working status, more intuitive and obvious

Selection Guide

LF	17	–	05	N	1
①	②		③	④	⑤

①Model:LF：Square Inductive Sensor LFD:Double lamp square inductive sensor

②**Sensing surface size**:Nunmber:Sensing surface size17*17(unit:mm)

③**Sensing distance**:Number: Sensing distance (unit:mm)

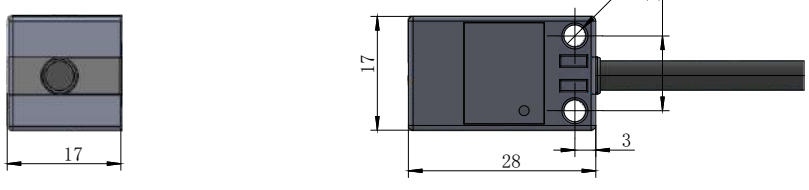
④**Power supply**:N: NPN 10-30VDC 3-wire、P: PNP 10-30VDC 3-wire、D: 10-30VDC 2-wire
A: 90-250VAC 2-wire

⑤**Control output**:1: Normally open、2: Normally closed

Specifications

Model	Specifications		
	DC3-wireNPN.NO	LF17-05N1	LF17-08N1
	DC3-wireNPN.NC	LF17-05N2	LF17-08N2
	DC3-wirePNP.NO	LF17-05P1	LF17-08P1
	DC3-wirePNPNC	LF17-05P2	LF17-08P2
	DC2-wireNO	LF17-05D1	LF17-08D1
	DC2-wireNC	LF17-05D2	LF17-08D2
	AC2-wireNO	\	\
	AC2-wireNC	\	\
Sensing distance		5MM±10%	10MM±10%
Setting distance(Sa)		0-4.5MM	0-7.2MM
Hysteresis		≤10%	
Standar dsensing target		Magnetic metal (non-magnetic metal has a shorter detection distance)	
Supply voltage		DC:10-30VDC;AC:90-250V	
Leakage current		DC:≤0.6mA;AC:≤1.2mA	
Response frequency(F)		500Hz(DC)20Hz(AC)	
Consunption current		DC3-wireNPNPNP:≤10mA;DC2-wire:≤3mA;AC2-wire:≤2mA	
Load current		200mA	
Voltagedrop		DC3-wire NPN PNP:≤1V;DC 2-wire:≤3V;AC 2-wire:≤10V	
Circuitprotection		Short-circuit,overload,reversepolarityprotection	
Outputindicator		Power-on green LED,induction red LED	
Ambienttemperature		-20~+70°C	
Shock		500m/s(50G)ineachX,Y,Zdirectionfor3times	
Vibration		1mm amplitudeatfre quenc y10~55Hz(for1min) ineachX.Y Zdirection for 2hours	
Protectiondegree		IP67(IECstandards)	
Connection		2mPVCcable	
Sensingside		PBT	

Dimension



GTRIC LF18 Square Inductive Proximity Sensors

※ With overload short circuit, reverse connection protection, surge absorption IP67 protection level, with the advantages of water resistance, oil resistance, high temperature resistance, etc.

※ LED display working status, more intuitive and obvious

Selection Guide

LF	18	–	05	N	1
①	②		③	④	⑤

①Model:LF：Square Inductive Sensor LFD:Double lamp square inductive sensor

②**Sensing surface size**:Nunmber:Sensing surface size18*18(unit:mm)

③**Sensing distance**:Number: Sensing distance (unit:mm)

④**Power supply**:N: NPN 10-30VDC 3-wire、P: PNP 10-30VDC 3-wire、D: 10-30VDC 2-wire
A: 90-250VAC 2-wire

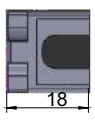
⑤**Control output**:1: Normally open、2: Normally closed

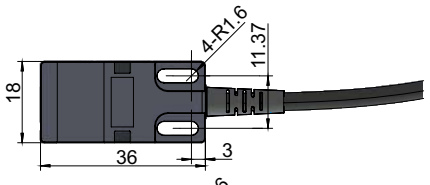
Specifications

Model	Specifications		
	DC3-wireNPN.NO	LF18-05N1	LFD18-05N1
	DC3-wireNPN.NC	LF18-05N2	LFD18-05N2
	DC3-wirePNP.NO	LF18-05P1	LFD18-05P1
	DC3-wirePNPNC	LF18-05P2	LFD18-05P2
	DC2-wireNO	LF18-05D1	LFD18-05D1
	DC2-wireNC	LF18-05D2	LFD18-05D2
	AC2-wireNO	/	/
	AC2-wireNC	/	/
Sensing distance		5MM+10%	5MM±10%
Setting distance(Sa)		0-4.5MM	0-4.5MM
Display method		single lamp	Dual lights
Hysteresis		⩽10%	
Detectable objects		Magnetic metal (non-magnetic metal has a shorter detection distance)	
Sensing surface size		18*18MM	
Supply voltage		DC:10-30VDC;AC:90-250V	
Leakage current		DC:≤0.6mAAC:≤1.2mA	
Responsefrequency(F)		250Hz(DC)20Hz(AC)	
Consunption current		DC3-wireNPNPNP:≤10mA;DC2-wire:≤3mA;AC2-wire:≤2mA	
Load current		200mA	
Voltagedrop		DC3-wireNPNPNP:≤0.7V;DC2-wire:≤3V;AC2-wire:≤7V	
Circuitprotection		Short-circuit,overload,reversepolarityprotection	
Outputindicator		Power-on green light,induction yellowlight	
Ambienttemperature		-20~+70°C	
Shock		500m/s(50G)ineachX,Y,Zdirectionfor3times	
Vibration		1mm amplitudeatfre quenc y10~55Hz(for1min) ineachX.Y Zdirection for 2hours	
Protectiondegree		IP67(IECstandards)	
Connection		2mPVCcable	
Surface material		PBT	

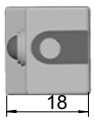
Dimension

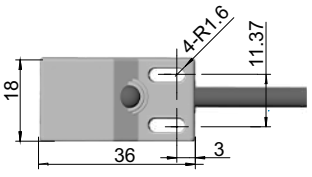
LFD18





LF18





GTRIC LF25 Square Inductive Proximity Sensors

※ With overload short circuit, reverse connection protection, surge absorption IP67 protection level, with the advantages of water resistance, oil resistance, high temperature resistance, etc.

※ LED display working status, more intuitive and obvious

Selection Guide

LF	25	–	05	N	1
①	②		③	④	⑤

①Model:LF：Square Inductive Sensor LFD:Double lamp square inductive sensor

②**Sensing surface size**:Nunmber:Sensing surface size25*25(unit:mm)

③**Sensing distance**:Number: Sensing distance (unit:mm)

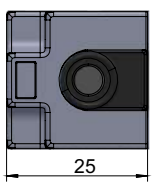
④**Power supply**:N: NPN 10-30VDC 3-wire、P: PNP 10-30VDC 3-wire、D: 10-30VDC 2-wire
A: 90-250VAC 2-wire

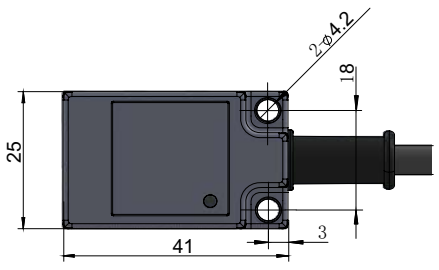
⑤**Control output**:1: Normally open、2: Normally closed

Specifications

Model	Specifications	
	DC3-wireNPN.NO	LF25-08N1
	DC3-wireNPN.NC	LF25-08N2
	DC3-wirePNP.NO	LF25-08P1
	DC3-wirePNPNC	LF25-08P2
	DC2-wireNO	LF25-08D1
	DC2-wireNC	LF25-08D2
	AC2-wireNO	\
	AC2-wireNC	\
Sensing distance		8MM±10%
Setting distance(Sa)		0-7.2MM
Hysteresis		≤10%
Standar dsensing target		Magnetic metal (non-magnetic metal has a shorter detection distance)
Supply voltage		DC:10-30VDC;AC:90-250V
Leakage current		DC:≤0.6mA;AC:≤1.2mA
Response frequency(F)		500Hz(DC)20Hz(AC)
Consunption current		DC3-wireNPNPNP:≤10mA;DC2-wire:≤3mA;AC2-wire:≤2mA
Load current		200mA
Voltagedrop		DC3-wire NPN PNP:≤1V;DC 2-wire:≤3V;AC 2-wire:≤10V
Circuitprotection		Short-circuit,overload,reversepolarityprotection
Outputindicator		Power-on green LED,induction red LED
Ambienttemperature		-20~+70°C
Shock		500m/s(50G)ineachX,Y,Zdirectionfor3times
Vibration		1mm amplitudeatfre quenc y10~55Hz(for1min) ineachX.Y Zdirection for 2hours
Protectiondegree		IP67(IECstandards)
Connection		2mPVCcable
Sensingside		PBT

Dimension





GTRIC LF30 Square Inductive Proximity Sensors

※ With overload short circuit, reverse connection protection, surge absorption IP67 protection level, with the advantages of water resistance, oil resistance, high temperature resistance, etc.

※ LED display working status, more intuitive and obvious

Selection Guide

LF	30	–	05	N	1
①	②		③	④	⑤

①Model:LF：Square Inductive Sensor LFD:Double lamp square inductive sensor

②**Sensing surface size**:Nunmber:Sensing surface size30*30(unit:mm)

③**Sensing distance**:Number: Sensing distance (unit:mm)

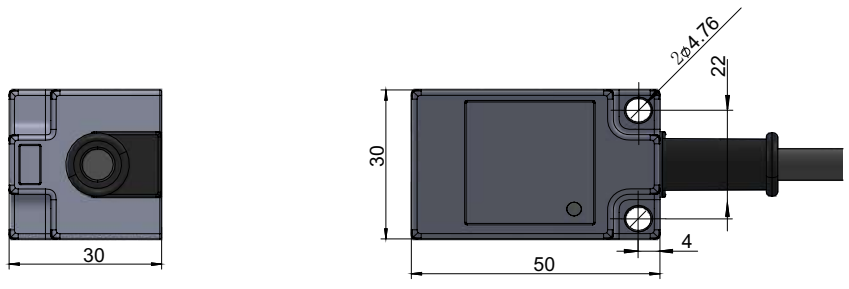
④**Power supply**:N: NPN 10-30VDC 3-wire、P: PNP 10-30VDC 3-wire、D: 10-30VDC 2-wire
A: 90-250VAC 2-wire

⑤**Control output**:1: Normally open、2: Normally closed

Specifications

Model	Specifications		
	DC3-wireNPN.NO	LF30-10N1	LF30-15N1
	DC3-wireNPN.NC	LF30-10N2	LF30-15N2
	DC3-wirePNP.NO	LF30-10P1	LF30-15P1
	DC3-wirePNPNC	LF30-10P2	LF30-15P2
	DC2-wireNO	LF30-10D1	LF30-15D1
	DC2-wireNC	LF30-10D2	LF30-15D2
	AC2-wireNO	\	\
	AC2-wireNC	\	\
Sensing distance		5MM±10%	10MM±10%
Setting distance(Sa)		0-4.5MM	0-7.2MM
Hysteresis		≤10%	
Standar dsensing target		Magnetic metal (non-magnetic metal has a shorter detection distance)	
Supply voltage		DC:10-30VDC;AC:90-250V	
Leakage current		DC:≤0.6mA;AC:≤1.2mA	
Response frequency(F)		500Hz(DC)20Hz(AC)	
Consunption current		DC3-wireNPNPNP:≤10mA;DC2-wire:≤3mA;AC2-wire:≤2mA	
Load current		200mA	
Voltagedrop		DC3-wire NPN PNP:≤1V;DC 2-wire:≤3V;AC 2-wire:≤10V	
Circuitprotection		Short-circuit,overload,reversepolarityprotection	
Outputindicator		Power-on green LED,induction red LED	
Ambienttemperature		-20~+70°C	
Shock		500m/s(50G)ineachX,Y,Zdirectionfor3times	
Vibration		1mm amplitudeatfre quenc y10~55Hz(for1min) ineachX.Y Zdirection for 2hours	
Protectiondegree		IP67(IECstandards)	
Connection		2mPVCcable	
Sensingside		PBT	

Dimension



GTRIC LF40 Square Inductive Proximity Sensors

※ With overload short circuit, reverse connection protection, surge absorption IP67 protection level, with the advantages of water resistance, oil resistance, high temperature resistance, etc.

※ LED display working status, more intuitive and obvious

Selection Guide

LF	40	–	05	N	1
①	②		③	④	⑤

①Model:LF：Square Inductive Sensor LFD:Double lamp square inductive sensor

②**Sensing surface size**:Nunmber:Sensing surface size40*40(unit:mm)

③**Sensing distance**:Number: Sensing distance (unit:mm)

④**Power supply**:N: NPN 10-30VDC 3-wire、P: PNP 10-30VDC 3-wire、D: 10-30VDC 2-wire
A: 90-250VAC 2-wire

⑤**Control output**:1: Normally open、2: Normally closed

Specifications

Model	Specifications		
	DC3-wireNPN.NO	LF40-20N1	LF40-15N1
	DC3-wireNPN.NC	LF40-20N2	LF40-15N2
	DC3-wirePNP.NO	LF40-20P1	LF40-15P1
	DC3-wirePNPNC	LF40-20P2	LF40-15P2
	DC2-wireNO	LF40-20D1	LF40-15D1
	DC2-wireNC	LF40-20D2	LF40-15D2
	AC2-wireNO	\	\
	AC2-wireNC	\	\
Sensing distance		20MM±10%	15MM±10%
Setting distance(Sa)		0-18MM	0-13.5MM
Hysteresis		≤10%	
Standar dsensing target		Magnetic metal (non-magnetic metal has a shorter detection distance)	
Supply voltage		DC:10-30VDC;AC:90-250V	
Leakage current		DC:≤0.6mA;AC:≤1.2mA	
Response frequency(F)		500Hz(DC)20Hz(AC)	
Consunption current		DC3-wireNPNPNP:≤10mA;DC2-wire:≤3mA;AC2-wire:≤2mA	
Load current		200mA	
Voltagedrop		DC3-wire NPN PNP:≤1V;DC 2-wire:≤3V;AC 2-wire:≤10V	
Circuitprotection		Short-circuit,overload,reversepolarityprotection	
Outputindicator		Power-on green LED,induction red LED	
Ambienttemperature		-20~+70°C	
Shock		500m/s(50G)ineachX,Y,Zdirectionfor3times	
Vibration		1mm amplitudeatfre quenc y10~55Hz(for1min) ineachX.Y Zdirection for 2hours	
Protectiondegree		IP67(IECstandards)	
Connection		2mPVCcable	
Sensingside		PBT	

Dimension