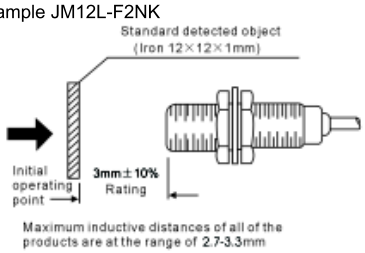
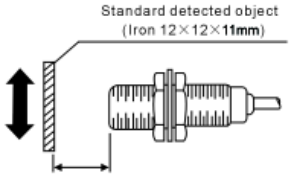
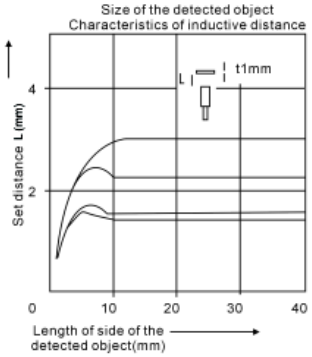
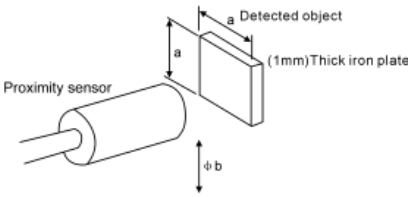
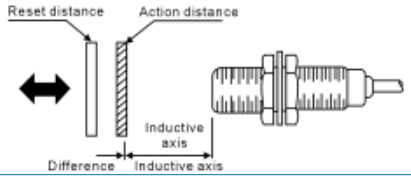
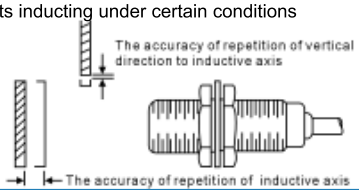
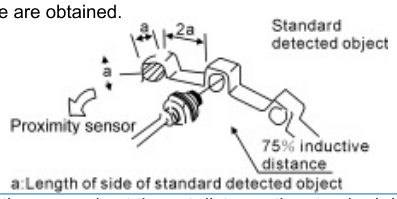
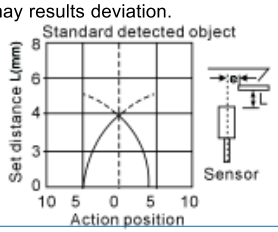
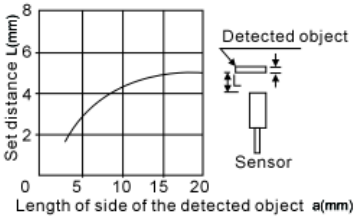
HONGHUA ELECTRIC

Inductive Proximity Sensor

Explanation to terms

Terms	Explanations
Inductive distance (Rating)	Indicated as below, it is the distance from the sensor to the point (maximum inductive distance) which is just detected when the standard detected object approaches slowly to the inductive part of the approach sensor. For example JM12L-F2NK 
Inductive distance (Actual)	The distance at which the sensor is capable of stable detecting after taking into consideration of the ambient temperature, variation of supply voltage. and so on factors (In general, it is 70%-80% of rated inductive distance) Used at the set distances: 0-24mm. For example JM12L-F2NK 
Standard inducted object	The smallest detected object within the certain inductive distance. The inductive distance, differences, and so on specifications and characteristics are made according to the standard detected object. The standard detected object is made of iron (aluminium for plain metal proximity sensor and selective metal proximity sensor) Dimension of standard detected object (aXamm) flash (Scaled). similar to the size of the detecting part(b) Non-flash (Non-scaled)about 1.5 times of the size of the detecting part(b).  

Terms	Explanations
Difference	When the standard detected object approaches the sensor along the inductive axis. it is the difference between the initial distance (action distance) and the distance leaving to beyond and just reset (reset distance). It is presented by the ratio (%) to the action distance. The difference should be remained in 10-20%. rated distance generally in order to prevent against the output skip caused by the vibration of the detected object. 
Accuracy of repetition	The deviation of action positions is resulted when the sensor repeats inducting under certain conditions 
Maximum response frequency	It is indicated as below that the standard detected objects are attached to the rotating plate by the specified spacing distance and then placed right ahead to the proximity sensor. Have the plate rotated while the output of the sensor is made sure,then the maximum inductive times of stable output per minute are obtained. 
Frequency of detecting field	when the sensor is at the set distance,the standard detected object approaches it from the right or the left respectively. The diagram presents the locus composed of the position points at which the sensor operates. (With the sensitivity button at the highest sensitive status) The diagram is for determination of the installation position of the sensor. Actual operation may results deviation. 
Size of detected odject characteris-tics of inductive distance	It indicates how the inductive distance is influenced by the size of the detected object. The sensitivity of the sensor provided with a sensitivity button should be adjusted for exact inducting. Characteristics of correspondent positions of the maximum inductive distance of the detected object are for determination of the stable inductive distance,which is correspondent to the size of the detected object.(Note:The diagram is only an example. Actual operation may results deviation.) For example:JM18L-F5NK 

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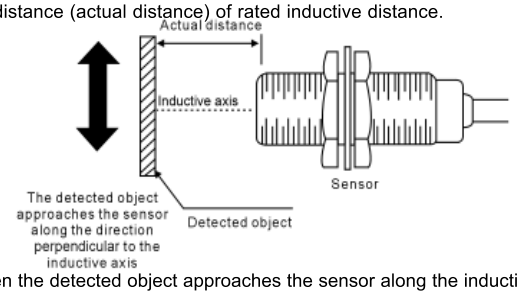
Inductive Proximity Sensor

Attentions to operation:

Setting of distance

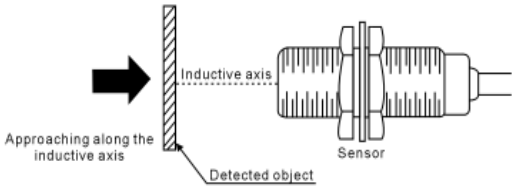
When the detected object approaches the sensor perpendicularly along the inductive axis.

The method that the detected object approaches to the sensor perpendicularly along the inductive axis is usually adopted. The distance between the sensor head and the detected object should be regulated to slightly shorter than the set distance (actual distance) of rated inductive distance.



When the detected object approaches the sensor along the inductive axis

When adopting the method that the detected object approaches the sensor along the inductive axis the inducting may be done by the rated inductive distance (Max. In ductive distance). But it shall be noted that danger will occur by the bump caused by the detected object and proximity sensor because of the moving speed or others.



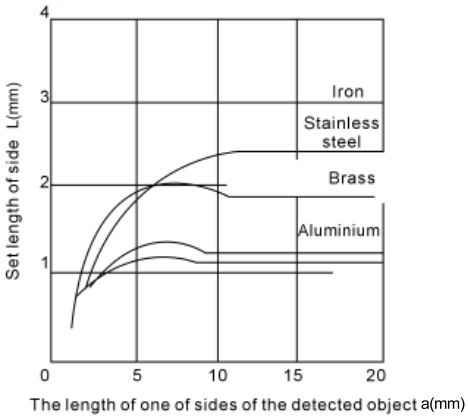
The metal category and inductive distance

The inductive distance is the relative value of the standard detected object. If the sensor is smaller than the detected object or is nonmetallic. the inductive distance will be relatively shortened.

It may be sensed by the equidistance if the plain metal approach sensor is not affected by the materials used.

The iron magnetic body can not be sensed by the selective metal approach sensor, except the aluminum and copper nonmagnetic body .

Size of the detected object --characteristics of the inductive distance



The correction parameter of materials used in the detected object

Detected object	Correction parameter
Iron	10
Stainless steel (SU304)	About 0.76
Brass	About 0.5
Aluminium	About 0.48

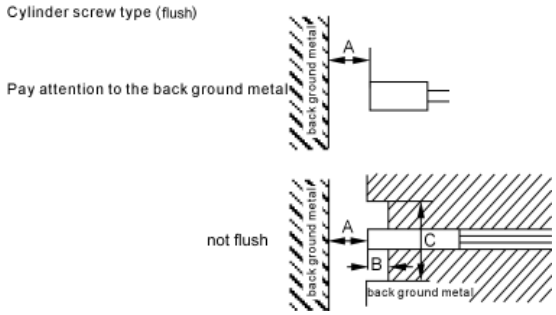
In addition.it shall be noted that the inductive distance will be changed it the detected object is plated.

Installation

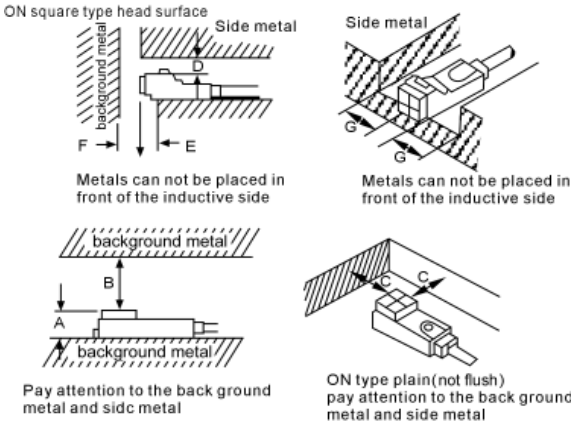
The influence to the sensor made by the ambient metal

The sensor will be affected if there are metals around the approach sensor. With the special positions between the metal and the sensor, keep the specified distance between them according to the requirement.

For the details, please refer to the product brochure (the correct operation method).

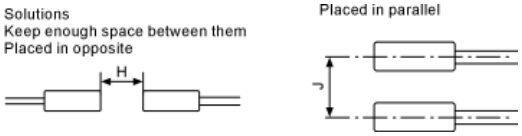


Pay attention to the background metal and the metal around the Plunger

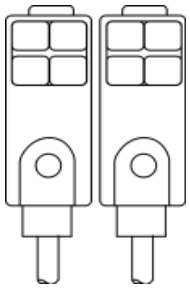


Mutual interference

When proximity sensors are placed closely to each other in the state of rest. the high frequency magnetic field created by one proximity sensor will affect the electromagnetism to another, which will lead unsteady operation to each other (That is mutual interference)



For the details, please refer to the product brochure (the correct operation methods) Two sets of sensors can be used closely provided that the frequency type and oscillation frequency are different.



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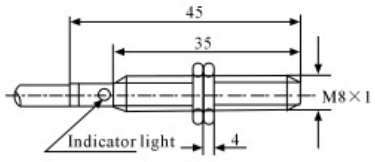
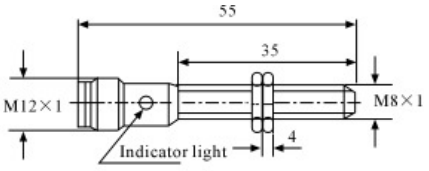
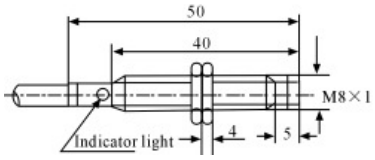
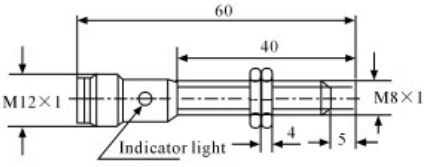
JM8L Inductive Sensor









Detected Distance Sn			1mm	2mm	1mm	2mm
Setting Distance Sn			0-0.8mm	0-1.6mm	0-0.8mm	0-1.6mm
Standard Detected Object A3 Steel			6×6×1mm³	6×6×1mm³	6×6×1mm³	6×6×1mm³
Installation Mode			Flush Type	Not flush Type	Flush Type	Not flush Type
DC power	NPN	NO	JM8L-F1NK	JM8L-Y2NK	JM8L-F1NKE	JM8L-Y2NKE
		NC	JM8L-F1NB	JM8L-Y2NB	JM8L-F1NBE	JM8L-Y2NBE
		NO/NC				
	PNP	NO	JM8L-F1PK	JM8L-Y2PK	JM8L-F1PKE	JM8L-Y2PKE
		NC	JM8L-F1PB	JM8L-Y2PB	JM8L-F1PBE	JM8L-Y2PBE
		NO/NC				
	Two-wire system NO		JM8L-F1TK	JM8L-Y2TK	JM8L-F1TKE	JM8L-Y2TKE
	Two-wire system NC		JM8L-F1TB	JM8L-Y2TB	JM8L-F1TBE	JM8L-Y2TBE
AC power	Two-wire system NO					
	Two-wire system NC					
	Three-wire system NO/NC					
Supply voltage			DC10-30V			
Current consumption			NPN/PNP Transistor 10---15mA,DC two-wire ≤ 0.8mA			
Output current			NPN/PNP Transistor ≤ 200mA,DC two-wire60---80mA			
Output voltage drop			NPN/PNP Transistor ≤ 1.5V,DC two-wire ≤ 7V			
Response frequency			NPN/PNP Transistor400---800Hz,DC two-wire200Hz			
Detected objection			Metal			
Housing material			Brass, nickel-plated			
Ambient temperature			-25~70℃			
Insulation resistance			≥30M Ω			
Protection degree			IP67			

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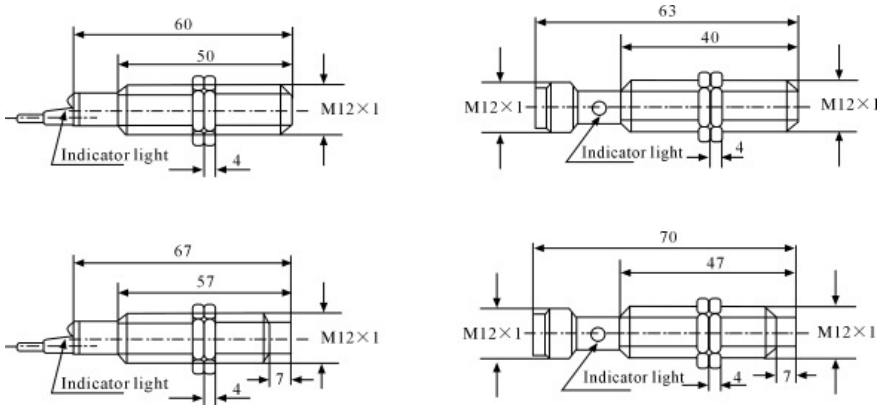
JM12L Inductive Proximity Sensor



Detected Distance Sn			2mm	4mm	2mm	4mm
Setting Distance Sn			0-1.6mm	0-3.2mm	0-1.6mm	0-3.2mm
Standard Detected A3 Steel			12 × 12 × 1mm³	12 × 12 × 1mm³	12 × 12 × 1mm³	12 × 12 × 1mm³
Installation mode			Flush Type	Not flush Type	Flush Type	Not flush Type
DC power	NPN	NO	JM12L-F2NK	JM12L-Y4NK	JM12L-F2NKE	JM12L-Y4NKE
		NC	JM12L-F2NB	JM12L-Y4NB	JM12L-F2NBE	JM12L-Y4NBE
		NO/NC	JM12L-F2NH	JM12L-Y4NH	JM12L-F2NHE	JM12L-Y4NHE
	PNP	NO	JM12L-F2PK	JM12L-Y4PK	JM12L-F2PKE	JM12L-Y4PKE
		NC	JM12L-F2PB	JM12L-Y4PB	JM12L-F2PBE	JM12L-Y4PBE
		NO/NC	JM12L-F2PH	JM12L-Y4PH	JM12L-F2PHE	JM12L-Y4PHE
	Two-wire system NO		JM12L-F2TK	JM12L-Y4TK	JM12L-F2TKE	JM12L-Y4TKE
	Two-wire system NC		JM12L-F2TB	JM12L-Y4TB	JM12L-F2TBE	JM12L-Y4TBE
AC power	Two-wire system NO		JM12L-F2AK	JM12L-Y4AK	JM12L-F2AKE	JM12L-Y4AKE
	Two-wire system NC		JM12L-F2AB	JM12L-Y4AB	JM12L-F2ABE	JM12L-Y4ABE
	Three-wire System Open/Close					
Supply voltage			DC10-30V AC90-250V			
Current consumption			NPN/PNP Transistor 10---15mA,DC two-wire ⩽ 0.8mA,AC ⩽ 2mA			
Output current			NPN/PNP Transistor ⩽ 200mA,DC two-wire60---80mA,AC ⩽ 300mA			
Output voltage drop			NPN/PNP Transistor ⩽ 1.5V,DC two-wire ⩽ 7V,AC ⩽ 8V			
Response frequency			NPN/PNP Transistor400---800Hz,DC two-wire200Hz,AC10---15Hz			
Detected object			Metal			
Housing material			Metal			
Ambient temperature			-25~70℃			
Insulation resistance			⩾ 30M Ω above			
Protection degree			IP67			

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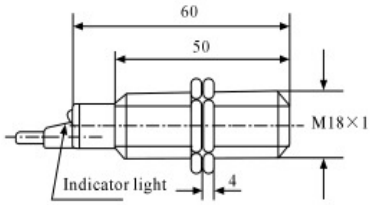
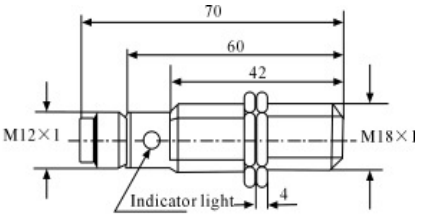
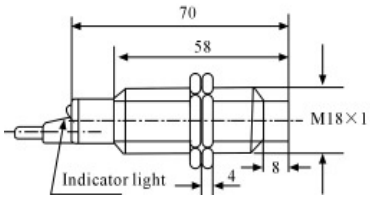
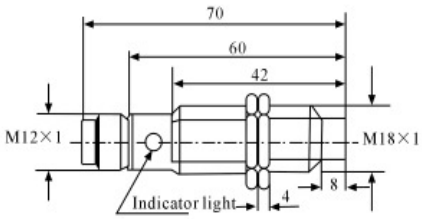
JM18L Inductive Proximity Sensor









Detected Distance Sn			5mm	8mm	5mm	8mm
Setting Distance Sn			0-1.6mm	0-6.4mm	0-4mm	0-6.4mm
Standard Detected A3 Steel			24 × 24 × 1mm³	24 × 24 × 1mm³	24 × 24 × 1mm³	24 × 24 × 1mm³
Installation mode			Flush Type	Not flush Type	Flush Type	Not flush Type
DC power	NPN	NO	JM18L-F5NK	JM18L-Y8NK	JM18L-F5NKE	JM18L-Y8NKE
		NC	JM18L-F5NB	JM18L-Y8NB	JM18L-F5NBE	JM18L-Y8NBE
		NO/NC	JM18L-F5NH	JM18L-Y8NH	JM18L-F5NHE	JM18L-Y8NBE
	PNP	NO	JM18L-F5PK	JM18L-Y8PK	JM18L-F5PKE	JM18L-Y8PKE
		NC	JM18L-F5PB	JM18L-Y8PB	JM18L-F5PBE	JM18L-Y8PBE
		NO/NC	JM18L-F5PH	JM18L-Y8PH	JM18L-F5PHE	JM18L-Y8PHE
	Two-wire system NO		JM18L-F5TK	JM18L-Y8TK	JM18L-F5TKE	JM18L-Y8TKE
	Two-wire system NC		JM18L-F5TB	JM18L-Y8TB	JM18L-F5TBE	JM18L-Y8TBE
AC power	Two-wire system NO		JM18L-F5AK	JM18L-Y8AK	JM18L-F5AKE	JM18L-Y8AKE
	Two-wire system NC		JM18L-F5AB	JM18L-Y8AB	JM18L-F5ABE	JM18L-Y8ABE
	Three-wire System Open/Close					
Supply voltage			DC10-30V AC90-250V			
Current consumption			NPN/PNP Transistor 10---15mA,DC two-wire ⩽ 0.8mA,AC ⩽ 2mA			
Output current			NPN/PNP Transistor ⩽ 200mA,DC two-wire60---80mA,AC ⩽ 300mA			
Output voltage drop			NPN/PNP Transistor ⩽ 1.5V,DC two-wire ⩽ 7V,AC ⩽ 8V			
Response frequency			NPN/PNP Transistor400---800Hz,DC two-wire200Hz,AC10---15Hz			
Detected object			Metal			
Housing material			ABS Resin/Metal			
Ambient temperature			-25~70℃			
Insulation resistance			⩾ 30M Ω above			
Protection degree			IP67			

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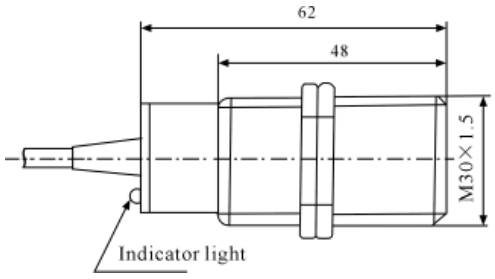
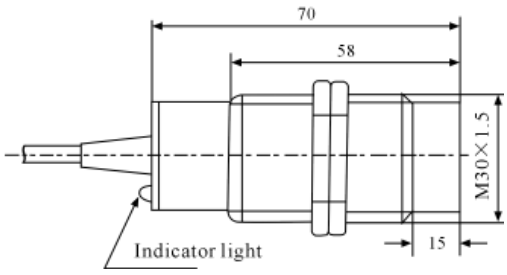
JM30L Inductive Proximity Sensor

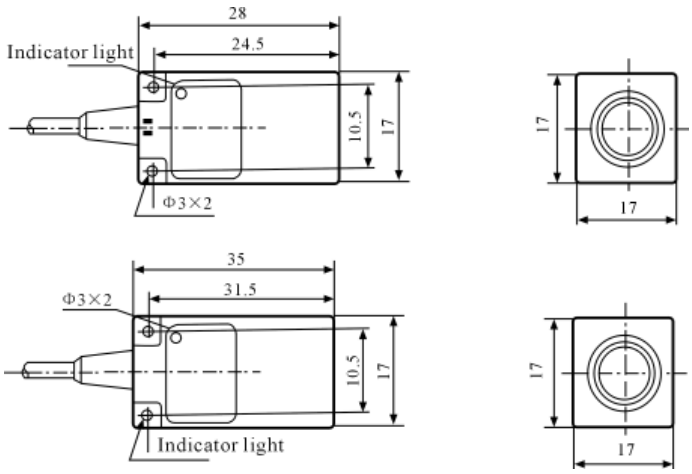




Detected Distance Sn			10mm	15mm	5mm	15mm
Setting Distance Sn			0-8mm	0-12mm	0-4mm	0-12mm
Standard Detected A3 Steel			45 × 45 × 1mm³	45 × 45 × 1mm³	24 × 24 × 1mm³	45 × 45 × 1mm³
Installation mode			Flush Type	Not flush Type	Flush Type	Not flush Type
DC power	NPN	NO	JM30L-F10NK	JM30L-Y15NK	JM30L-F10NKE	JM30L-Y15NKE
		NC	JM30L-F10NB	JM30L-Y15NB	JM30L-F10NBE	JM30L-Y15NBE
		NO/NC	JM30L-F10NH	JM30L-Y15NH	JM30L-F10NHE	JM30L-Y15NKE
	PNP	NO	JM30L-F10PK	JM30L-Y15PK	JM30L-F10PKE	JM30L-Y15PKE
		NC	JM30L-F10PB	JM30L-Y15PB	JM30L-F10PBE	JM30L-Y15PBE
		NO/NC	JM30L-F10PH	JM30L-Y15PH	JM30L-F10PHE	JM30L-Y15PHE
	Two-wire system NO		JM30L-F10TK	JM30L-Y15TK	JM30L-F10TKE	JM30L-Y15TKE
	Two-wire system NC		JM30L-F10TB	JM30L-Y15TB	JM30L-F10TBE	JM30L-Y15TBE
AC power	Two-wire system NO		JM30L-F10AK	JM30L-Y15AK	JM30L-F10AKE	JM30L-Y15AKE
	Two-wire system NC		JM30L-F10AB	JM30L-Y15AB	JM30L-F10ABE	JM30L-Y15ABE
	Three-wire System Open/Close					
Supply voltage			DC10-30V AC90-250V			
Current consumption			NPN/PNP Transistor 10---15mA,DC two-wire ⩽ 0.8mA,AC ⩽ 2mA			
Output current			NPN/PNP Transistor ⩽ 200mA,DC two-wire60---80mA,AC ⩽ 300mA			
Output voltage drop			NPN/PNP Transistor ⩽ 1.5V,DC two-wire ⩽ 7V,AC ⩽ 8V			
Response frequency			NPN/PNP Transistor400---800Hz,DC two-wire200Hz,AC10---20Hz			
Detected object			Metal			
Housing material			ABS Resin/Metal			
Ambient temperature			-25~70℃			
Insulation resistance			⩾30M Ω			
Protection degree			IP67			

HONGHUA ELECTRIC

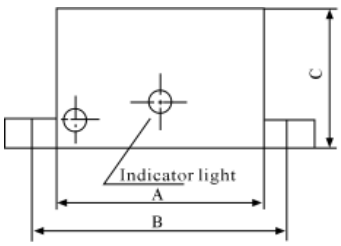
JG17L/JG17L-L Inductive Proximity Sensor

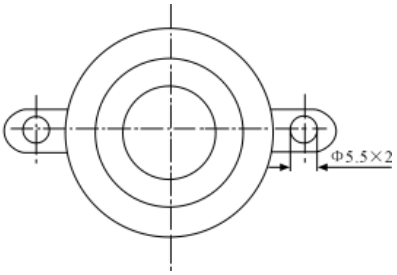


Detected Distance Sn			5mm		5mm	
Setting Distance Sn			0-4.2mm		0-4.2mm	
Standard Detected A3 Steel			17 × 17 × 1mm³		17 × 17 × 1mm³	
Installation mode			Not flush Type		Not flush Type	
DC power	NPN	NO	JG17L-F5NK		JG17L-F5NKL	
		NC	JG17L-F5NB		JG17L-F5NBL	
		NO/NC				
	PNP	NO	JG17L-F5PK		JG17L-F5PKL	
		NC	JG17L-F5PB		JG17L-F5PBL	
		NO/NC				
	Two-wire system NO		JG17L-F5TK		JG17L-F5TKL	
	Two-wire system NC		JG17L-F5TB		JG17L-F5TBL	
AC power	Two-wire system NO		JG17L-F5AK		JG17L-F5AKL	
	Two-wire system NC		JG17L-F5AB		JG17L-F5ABL	
	Three-wire System Open/Close					
Supply voltage			DC10-30V AC90-250V			
Current consumption			NPN/PNP Transistor 10---15mA,DC two-wire ≤ 0.8mA,AC ≤ 2mA			
Output current			NPN/PNP Transistor ≤ 200mA,DC two-wire60---80mA,AC ≤ 300mA			
Output voltage drop			NPN/PNP Transistor ≤ 1.5V,DC two-wire ≤ 7V,AC ≤ 8V			
Response frequency			NPN/PNP Transistor400---800Hz,DC two-wire200Hz,AC10---20Hz			
Detected object			Metal			
Housing material			ABS Resin			
Ambient temperature			-25~70℃			
Insulation resistance			≥30M Ω			
Protection degree			IP67			

HONGHUA ELECTRIC

JR48L/JR54L-L Inductive Proximity Sensor

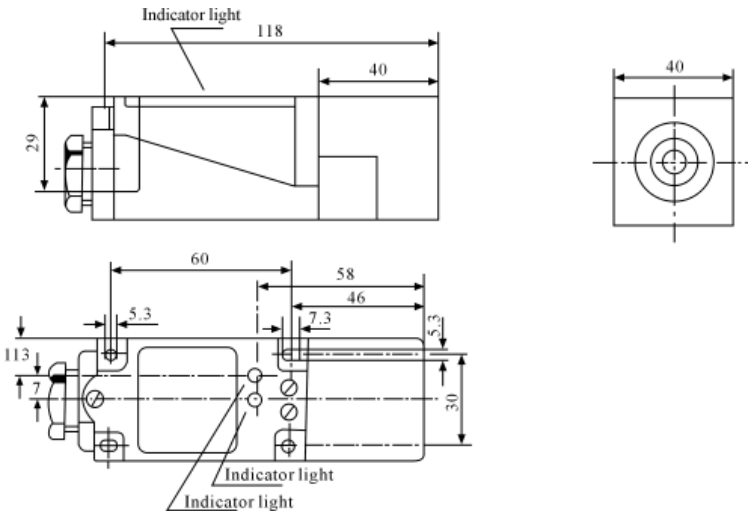




Detected Distance Sn			20mm		25mm	
Setting Distance Sn			0-16mm		0-20mm	
Standard Detected A3 Steel			75 × 75 × 1mm³		75 × 75 × 1mm³	
Installation mode			Not flush Type		Not flush Type	
DC power	NPN	NO	JR48L-Y20NK		JR54L-Y25NK	
		NC	JR48L-Y20NB		JR54L-Y25NB	
		NO/NC	JR48L-Y20NH		JR54L-Y25NH	
	PNP	NO	JR48L-Y20PK		JR54L-Y25PK	
		NC	JR48L-Y20PB		JR54L-Y25PB	
		NO/NC	JR48L-Y20PH		JR54L-Y25PH	
	Two-wire system NO		JR48L-Y20TK		JR54L-Y25TK	
	Two-wire system NC		JR48L-Y20TB		JR54L-Y25TB	
AC power	Two-wire system NO		JR48L-Y20AK		JR54L-Y25AK	
	Two-wire system NC		JR48L-Y20AB		JR54L-Y25AB	
	Three-wire System Open/Close					
Supply voltage			DC10-30V AC90-250V			
Current consumption			NPN/PNP Transistor 10---15mA,DC two-wire ≤ 0.8mA,AC ≤ 2mA			
Output current			NPN/PNP Transistor ≤ 200mA,DC two-wire60---80mA,AC ≤ 300mA			
Output voltage drop			NPN/PNP Transistor ≤ 1.5V,DC two-wire ≤ 7V,AC ≤ 8V			
Response frequency			NPN/PNP Transistor400---800Hz,DC two-wire200Hz,AC10---20Hz			
Detected object			Metal			
Housing material			ABS Resin			
Ambient temperature			-25~70℃			
Insulation resistance			≥30M Ω			
Protection degree			IP67			
Outside dimensions(mm)		A	48		54	
		B	62		70	
		C	32		35	

HONGHUA ELECTRIC

JG40L-Z Inductive Proximity Sensor



Detected Distance Sn			15mm		20mm	
Setting Distance Sn			0-12mm		0-16mm	
Standard Detected A3 Steel			60 × 60 × 1mm³		60 × 60 × 1mm³	
Installation mode			Flush Type		Not flush Type	
DC power	NPN	NO	JG40L-Z20NK		JG40L-Z20NK	
		NC	JG40L-Z20NB		JG40L-Z20NB	
		NO/NC	JG40L-Z20NH		JG40L-Z20NH	
	PNP	NO	JG40L-Z20PK		JG40L-Z20PK	
		NC	JG40L-Z20PB		JG40L-Z20PB	
		NO/NC	JG40L-Z20PH		JG40L-Z20PH	
	Two-wire system NO		JG40L-Z20TK		JG40L-Z20TK	
	Two-wire system NC		JG40L-Z20TB		JG40L-Z20TB	
AC power	Two-wire system NO		JG40L-Z20AK		JG40L-Z20AK	
	Two-wire system NC		JG40L-Z20AB		JG40L-Z20AB	
	Three-wire System Open/Close					
Supply voltage			DC10-30V AC90-250V			
Current consumption			NPN/PNP Transistor 10---15mA,DC two-wire ⩽ 0.8mA,AC ⩽ 2mA			
Output current			NPN/PNP Transistor ⩽ 200mA,DC two-wire60---80mA,AC ⩽ 300mA			
Output voltage drop			NPN/PNP Transistor ⩽ 1.5V,DC two-wire ⩽ 7V,AC ⩽ 8V			
Response frequency			NPN/PNP Transistor400---800Hz,DC two-wire200Hz,AC10---20Hz			
Detected object			Metal			
Housing material			ABS Resin			
Ambient temperature			-25~70℃			
Insulation resistance			⩾30M Ω			
Protection degree			IP67			