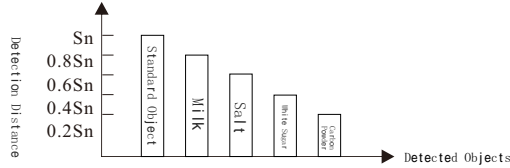


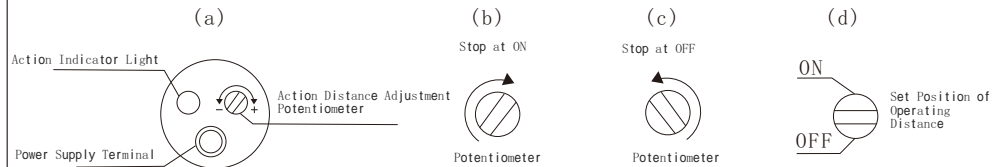
VII. Relationship Between Material of Detected Object and Detection Distance

1. The volume of the object detected by the capacitive proximity switch must be larger than the sensing surface of the capacitive proximity switch; otherwise, the detection distance will decrease or even the object cannot be detected.
2. When the switch is used in high-frequency operation or high-speed scenarios, please set the operating distance of the switch outside 1/2 of the standard operating distance. At this position, the maximum operating frequency can be obtained.
3. When detecting different objects, the switch has different operating distances. Please refer to the following diagram for the correction coefficients of the proximity switch for different detected bodies.

Correction Coefficients of Capacitive Proximity Switch for Different Detected Bodies (Sn is the detection operating distance)



4. Capacitive proximity switches can detect not only metals but also substances such as plastics, glass, water, and oil. Due to differences in conductivity, dielectric constant, water absorption rate, and volume of various detected objects, the detection distance also varies. The maximum detection distance can be achieved for grounded metals.
5. The operating distance of capacitive proximity switches is generally adjustable to suit the detection of different detected bodies. Therefore, please make adjustments as needed during installation. The adjustment methods are as follows:



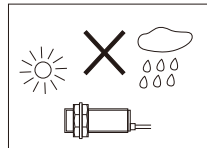
a. When the potentiometer rotates to the right, the detection distance increases; when it rotates to the left, the detection distance decreases. The maximum number of adjustment turns is 10.

b. Potentiometer (Stop at ON): In the non-detection state, slowly rotate the potentiometer to the right until the proximity switch is just turned ON.

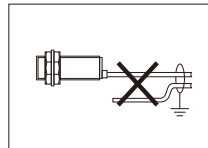
c. Potentiometer (Stop at OFF): Then, when the detected body approaches, slowly rotate the potentiometer to the left until the proximity switch is just turned OFF.

d. Set Position of Action Distance (ON and OFF): Set the potentiometer between ON and OFF. At this point, the adjustment is completed.

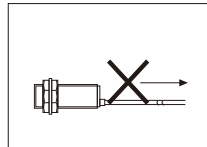
VIII. Instructions for Incorrect Usage



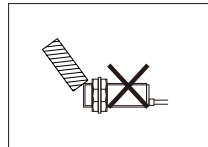
Please do not use it in open-air environments or places where water splashes, and try to avoid using it outdoors as much as possible.



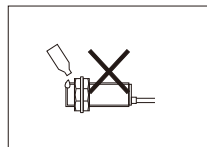
Please do not route wires together with power lines or power cables. They should be wired separately.



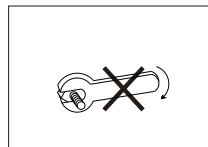
Please do not pull the power cord of the proximity switch with great force.



Please do not strike the detection surface with hard objects.



Please do not use the proximity switch in places with corrosive substances.



Please do not tighten it with excessive force. When tightening, please add a washer.

③

IX. Requirements of Proximity Switch for Power Supply and Load

1. This product cannot be used within 100ms after the power supply is turned on.
2. Surge Protection: When the proximity switch is used near areas with surge interference (such as welding operations of electric welders), an additional surge absorption device should be installed.
3. Capacitive proximity switches should not be installed near high-frequency electromagnetic fields, such as high-frequency welders, frequency converters, ultrasonic generators, etc., to avoid misoperation. If necessary, a shielded wire type proximity switch should be used.
4. When connecting a large-current load (such as a light bulb, motor), the initial resistance decreases due to current impact. Only when the current increases, the load resistance increases and the current returns to normal. The current impact in this case will damage the proximity switch. Please use a small relay for conversion to protect the proximity switch.
5. Proximity switches cannot be powered by autotransformers; isolated transformers should be used.
6. The connecting wires of the proximity switch should be as short as possible to reduce interference.
7. The power cord of the two-wire AC proximity switch cannot be directly connected to the power supply; it must be connected in series with the load, otherwise the proximity switch will be damaged.

X. Maintenance and Inspection

To ensure the long-term stable operation of the proximity switch, like general controllers, please conduct the following regular inspections:

1. Check whether the installation positions of the detected object and the proximity switch are shifted, loose, or deformed.
2. Check whether the wiring and connection parts are loose, have poor contact, or are broken.
3. Check whether there are deposits such as metal dust adhering to the detection surface.
4. Check whether there are abnormalities in the operating temperature and surrounding environmental conditions.

④

XI. Environmental Protection and Other Legal Provisions

To protect the environment, when this product or its components are scrapped, please dispose of them properly as industrial waste; or hand them over to a recycling and disposal station for classified disassembly, recycling and reuse, etc., in accordance with relevant national regulations.

XII. Order Instructions (Conventional Wire Length: 1.5 Meters)

1. CM30-15N1 2 meters 100 pieces;
2. CM30-15A1 2 meters 100 pieces;

C-Lin
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XINLING ELECTRICAL CO., LTD.

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Technical Consultation: 400-838-775



RECYCLABLE

C-Lin 欣灵

使用说明书
Products Instructions

产品合格证



产品合格证

符合标准: GB/T 14048.10

检验员: []

出厂日期: 见产品或包装

本产品经检验合格, 准予出厂。

C-Lin 欣灵电气股份有限公司
XINLING ELECTRICAL CO., LTD.

CM Cylindrical Type
Capacitive Proximity Switch

Thank you very much for using C-Lin Brand Sensors.
Please read the instruction manual before using the product!

13A009P2

I. Overview

A proximity switch is a displacement sensor with switch output. Its outputs include types such as NPN, PNP, normally open, normally closed, and relay. It can detect both transparent and opaque objects, including metals (e.g., iron, steel, copper), plastic, glass, wood, water, paper, and magnets. It can be connected to PLCs, servo controllers, frequency converters, counters, and other controllers to realize automatic signal input. It is widely used in industries such as machinery, textiles, light industry, papermaking, printing, and packaging.

Inductive proximity switches detect metal objects (e.g., iron, steel, copper, etc.);

Capacitive proximity switches detect any objects (e.g., glass, metal, plastic, water, oil, paper, etc.);

Hall-effect proximity switches detect magnetic metal objects (e.g., magnets);

This series of capacitive proximity switches complies with the GB/T 14048.10 standard.

II. Model Explanation

CM 30-15 A 1 □ - □

: For NPN and PNP types, the voltage is DC10~30V; For the AC two-wire type, the voltage is AC90~250V; G: AC200~380V; Z: AC24~36V

: Regular model; Other letters: Customized

1: Normally open (NO); 2: Normally closed (NC)

N: NPN type; P: PNP type; A: AC two-wire type

Detection distance: 15mm

30: Diameter size: 30mm

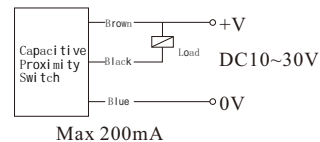
Capacitive type

III. Model Types and Technical Data

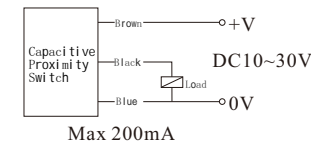
Type		CM30 Series
DC Type	NPN	NO CM30-15N1
		NC CM30-15N2
	PNP	NO CM30-15P1
		NC CM30-15P2
AC Type	Two-wire	NO CM30-15A1
	NC CM30-15A2	
Detection Distance		0~15mm
Response Frequency		DC: 50Hz; AC: 25Hz
Detectable Objects		Yellow LED
Hysteresis Distance		≤20%
Repeatability Error		≤3%
Indicator Status		Any objects: metal, plastic, glass, wood, water, oil, etc.
Power Supply Voltage		DC three-wire NPN, PNP: Rated voltage DC12~34V (operating voltage range DC10~30V); AC two-wire: Rated voltage AC110~220V (operating voltage range AC90~250V)
Control Output		≤200mA
Circuit Protection		Surge absorption protection, overcurrent protection
Operating Ambient Temperature		-25℃~+70℃ (without freezing)
Operating Ambient Humidity		35~95%RH
Temperature Influence		-25℃~+70℃ (within the temperature range, the detection distance change is within ±15% at rated power supply voltage)
Voltage Influence		When the power supply voltage is within ±15% of the rated power supply voltage, the detection distance change is within ±15%
Residual Voltage		DC 3-wire NPN, PNP: 1.5V; AC 2-wire: 10V
Insulation Resistance		Above 50MΩ (with DC500V) between live parts and the housing
Withstand Voltage		2000V 50/60Hz, for one minute, between live parts and the housing
Vibration		Endurance: 10~55Hz, double amplitude 1.5mm, 2 hours each in X, Y, Z directions
Shock		Endurance: 500m/s ² (about 50g), 10 times in X, Y, Z directions
Protection Class		IP67
Material	Housing	ABS
	Detection Surface	ABS

IV. Classification by Output Form

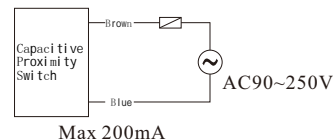
1. Three-wire DC NPN Type (Normally Open or Normally Closed)



2. Three-wire DC PNP Type (Normally Open or Normally Closed)



3. Two-wire AC Type (Normally Open or Normally Closed)

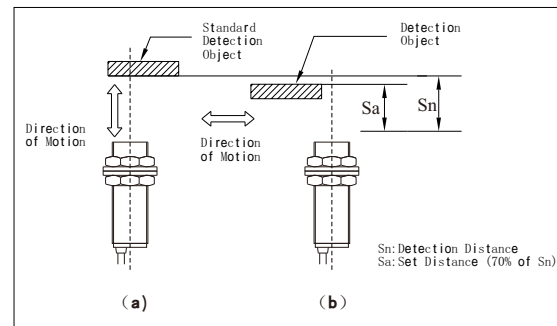


Note: NO stands for Normally Open, and NC stands for Normally Closed.

V. Outline Dimension Drawing (Unit: mm)

CM30 Series (Plastic Housing)							
Housing Material	Model	a	b	c	d	e	f
Plastic Housing	CM30 Series	M30×1.5	71±0.5	58	10	34.6	39.5

VI. Set Distance and Detection Distance



1. Please set the operating distance of the switch within 70% of the standard operating distance (S_n) to avoid the switch operation being affected by temperature, voltage, etc.

2. Detection Distance: Detect the object according to the specified method. It refers to the distance from the reference position (reference plane) to the measured operation (reset).

3. Set Distance (S_a):

$S_a = (S_n) \times 70\%$

Example: CM30-15N1

$S_a = 15\text{mm} \times 0.7 = 10.5\text{mm}$