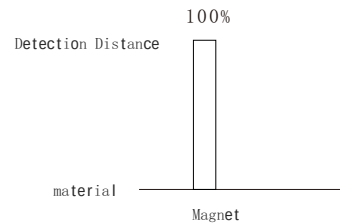


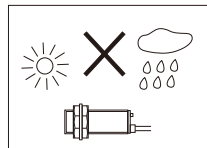
## VII. Relationship between the Material of the Detected Object and Detection Distance

The standard detected object shall be confirmed by measuring the detection distance  $x$  (mm), considering the influences caused by its shape, size, material, or various coatings.

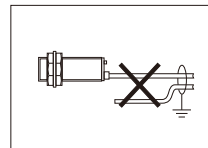


**Note:** The Hall element type with “-N” can only detect the N pole of a magnet. If a magnet cannot be detected, please reverse the direction of the magnet first.

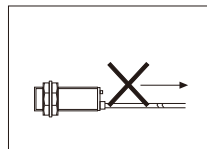
## VIII. Instructions for Incorrect Usage



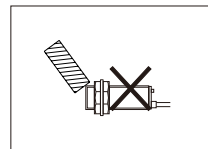
Do not use in open-air environments or places with water splashing, and try to avoid outdoor use as much as possible.



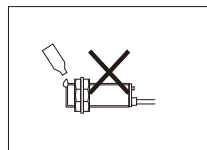
Do not route together with power lines or power cables in the same conduit; separate wiring should be used.



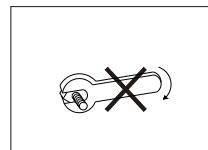
Do not pull the power cord of the proximity switch with great force.



Do not strike the detection surface with hard objects.



Do not use the proximity switch in places with corrosive substances.



Do not use the proximity switch in places with corrosive substances.

## IX. Requirements for Proximity Switches on Power Supply and Load

1. This product must not be used at the moment when the power supply is turned on (within 100ms).
2. Surge protection: When the proximity switch is used near places with surge interference (such as welding operations of electric welders), please add an additional surge absorption device.
3. When connecting a load with large current (such as a light bulb or a motor), the initial resistance decreases due to the impact of the current. 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.
4. Proximity switches cannot be powered by autotransformers; isolation transformers should be used.
5. The connecting wires of the proximity switch should be as short as possible to reduce interference.
6. The power cord of AC/DC two-wire proximity switches must not be directly connected to the power supply; a load must be connected in series, otherwise the proximity switch will be damaged.

## X. Maintenance and Inspection

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

1. Check whether the installation positions of the detected object and the proximity switch are displaced, 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 adherent metal dust on the detection surface.
4. Check whether the operating temperature and surrounding environmental conditions are abnormal.

## XI. Environmental Protection and Other Legal Regulations

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

## XII. Order Instructions (Standard Cable Length: 1.5 Meters)

1. SJM12-10N1: 1.5 meters, 100 pieces;
2. SJM18-10N1: 1.5 meters, 100 pieces.

1. This product must not be used at the moment when the power supply is turned on (within 100ms).
2. Surge protection: When the proximity switch is used near places with surge interference (such as welding operations of electric welders), please add an additional surge absorption device.
3. When connecting a load with large current (such as a light bulb or a motor), the initial resistance decreases due to the impact of the current. 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.
4. Proximity switches cannot be powered by autotransformers; isolation transformers should be used.
5. The connecting wires of the proximity switch should be as short as possible to reduce interference.
6. The power cord of AC/DC two-wire proximity switches must not be directly connected to the power supply; a load must be connected in series, otherwise the proximity switch will be damaged.



产品合格证

符合标准: GB/T 14048.10

检验员: 检 07

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.

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

地址: 浙江省乐清经济开发区纬十九路328号  
电话: 0577-62735555 传真: 0577-62722963  
Http://www.c-lin.cn E-mail: xl@xinling.com  
技术咨询: 400-8236-775



RECYCLABLE



使用说明书  
Products Instructions

SJM/FC-1/YG-1  
Magnetic Proximity Switch

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

16A009S1

## I. Overview

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

Inductive proximity switches detect metallic objects (e.g., iron, steel, copper, etc.);  
Capacitive proximity switches detect any objects (e.g., glass, metals, plastics, water, oil, paper, etc.);  
Magnetic proximity switches detect magnetic metals (e.g., magnets);  
This series of magnetic proximity switches complies with the GB/T14048.10 standard.

## II. Model Description

### SJM12-10N1-N

- : Reed switch type; N: Hall element type  
1: Normally Open (NO); 2: Normally Closed (NC)  
N: NPN type; P: PNP type; D: DC two-wire type; A: AC two-wire type  
Detection distance: 10mm  
Diameter size: 12mm, 18mm  
Cylindrical type  
Magnetic type

**Note:** The “-N” type is preferred in vibration environments. The “-N” type can only detect the N pole of a magnet. If the magnet cannot be detected, please reverse the direction of the magnet first.

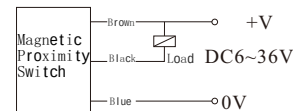
## III. Model Types and Technical Data

| Type                                      |          |            | SJM12 Series                                                                                                                               |              | SJM18 Series |              | FC-1              | YG-1     |
|-------------------------------------------|----------|------------|--------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|--------------|-------------------|----------|
| DC Type                                   | NPN      | NO         | SJM12-10N1                                                                                                                                 | SJM12-10N1-N | SJM18-10N1   | SJM18-10N1-N | /                 | /        |
|                                           |          | NC         | SJM12-10N2                                                                                                                                 | SJM12-10N2-N | SJM18-10N2   | SJM18-10N2-N | /                 | /        |
|                                           | PNP      | NO         | SJM12-10P1                                                                                                                                 | SJM12-10P1-N | SJM18-10P1   | SJM18-10P1-N | /                 | /        |
|                                           |          | NC         | SJM12-10P2                                                                                                                                 | SJM12-10P2-N | SJM18-10P2   | SJM18-10P2-N | /                 | /        |
|                                           | Two-wire | NO         | SJM12-10D1                                                                                                                                 | SJM12-10D1-N | SJM18-10D1   | SJM18-10D1-N | FC-1              | /        |
|                                           |          | NC         | SJM12-10D2                                                                                                                                 | SJM12-10D2-N | SJM18-10D2   | SJM18-10D2-N | /                 | /        |
| AC Two-wire Type                          | NO       | SJM12-10A1 | SJM12-10A1-N                                                                                                                               | SJM18-10A1   | SJM18-10A1-N | /            | /                 |          |
|                                           | NC       | SJM12-10A2 | SJM12-10A2-N                                                                                                                               | SJM18-10A2   | SJM18-10A2-N | /            | /                 |          |
| AC-DC Relay NO+NC                         |          |            | /                                                                                                                                          | /            | /            | /            | /                 | YG-1     |
| Detection Distance                        |          |            | 10mm±15%                                                                                                                                   |              |              |              | 8mm±15%           | 15mm±15% |
| Standard Detection Object                 |          |            | Permanent magnet φ12×2mm                                                                                                                   |              |              |              | A3 iron 30×68×1mm |          |
| Response Frequency                        | AC       |            | 0.3kHz                                                                                                                                     |              |              |              | 5Hz               |          |
|                                           | DC       |            | 25Hz                                                                                                                                       |              |              |              | 5Hz               |          |
| Detectable Objects                        |          |            | Magnets, Magnetic Metals                                                                                                                   |              |              |              |                   |          |
| Differential Distance                     |          |            | Within 10% of the detection distance                                                                                                       |              |              |              |                   |          |
| Power Supply Voltage                      |          |            | DC type: Rated voltage DC10~30V (operating voltage range DC6~36V)<br>AC type: Rated voltage AC110~220V (operating voltage range AC90~250V) |              |              |              |                   |          |
| Operating Current                         |          |            | Load current of DC two-wire type ≤100mA, other models ≤200mA; Quiescent current <10mA                                                      |              |              |              |                   |          |
| Residual Voltage                          |          |            | DC (NPN, PNP) type: ≤1.5V; DC two-wire: ≤4V; AC two-wire: ≤7V (@100mA load, wire length 2m)                                                |              |              |              |                   |          |
| Protection Circuit                        |          |            | DC type: Polarity protection; AC type: Surge absorption protection                                                                         |              |              |              |                   |          |
| Ambient Temperature Range                 |          |            | Working: -25~+70°C (no icing, no condensation); Storage: -40~+85°C (no icing, no condensation)                                             |              |              |              |                   |          |
| Ambient Humidity Range                    |          |            | Working, Storage: 35~95% (no condensation)                                                                                                 |              |              |              |                   |          |
| Temperature Influence (Temperature Drift) |          |            | Within the temperature range of -25~+70°C, the detection distance is within ±15% of the detection distance at +23°C                        |              |              |              |                   |          |
| Voltage Influence                         |          |            | When the power supply voltage is within ±18% of the rated power supply voltage, the change of detection distance is within ±18%            |              |              |              |                   |          |
| Insulation Resistance                     |          |            | Above 50MΩ, between the entire live part and the housing (measured with a DC500V megohmmeter).                                             |              |              |              |                   |          |
| Withstand Voltage                         |          |            | DC (NPN, PNP, two-wire) type: AC1000V, 50/60HzAC (two-wire) type: 2000V, 50/60Hz, 1 minute between the live part and the housing           |              |              |              |                   |          |
| Vibration                                 |          |            | Endurance: 10~55Hz (double amplitude 1.5mm), 2 hours for each of X, Y, Z directions.                                                       |              |              |              |                   |          |
| Impact                                    |          |            | Endurance: 500m/s <sup>2</sup> (approx. 50g), 10 times for X, Y, Z directions.                                                             |              |              |              |                   |          |
| Protection Structure                      |          |            | IP67                                                                                                                                       |              |              |              | IP54              |          |
| Housing Material                          |          |            | SJM12, SJM18 series, FC-1: Brass with nickel plating; YG-1: Heat-resistant ABS                                                             |              |              |              |                   |          |
| Detection Surface Material                |          |            | Heat-resistant ABS                                                                                                                         |              |              |              |                   |          |

①

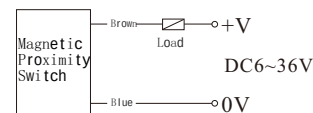
## IV. Classification by Output Form

### 1. DC 3-wire NPN Type



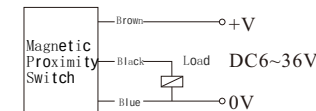
Max 200mA

### 2. DC 2-wire Type



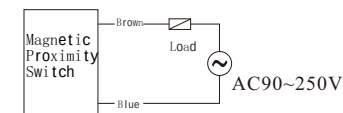
Max 100mA

### 2. DC 3-wire PNP Type



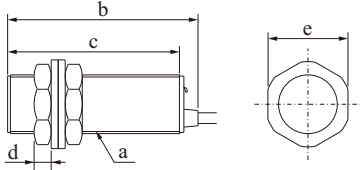
Max 200mA

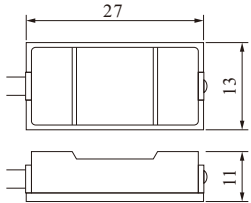
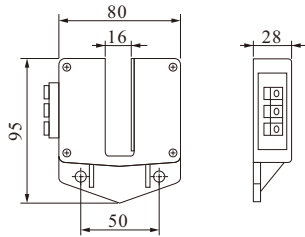
### 4. AC 2-wire Type



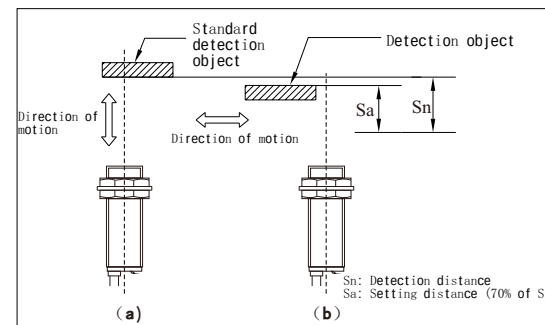
Max 200mA

## V. Outline Dimension Drawings (Unit: mm)

| Outline Dimensions of SJM12 and SJM18 Series                                        |  |                |        |        |   |    |
|-------------------------------------------------------------------------------------|--|----------------|--------|--------|---|----|
|  |  | Dimension Code |        |        |   |    |
|                                                                                     |  | a              | b      | c      | d | e  |
|                                                                                     |  | M12×1          | 53±0.5 | 47±0.5 | 4 | 17 |
|                                                                                     |  | M18×1          | 62±0.5 | 53±0.5 | 4 | 24 |

| Outline Dimensions of FC-1                                                           |  | Outline Dimensions of YG-1                                                           |  |
|--------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------|--|
|  |  |  |  |

## VI. Setting Distance and Detection Distance



1) Please set the operating distance of the switch within 70% of the standard operating distance (Sn) to prevent the switch operation from being affected by temperature, voltage, etc. Detection distance:

2) Detect the object according to the specified method; it refers to the distance from the reference position (reference surface) to the measured action (reset).

3) Setting distance (Sa):

$$Sa = (Sn) \times 70\%$$

**Example:** SJM12-10N1

$$Sa = 10\text{mm} \times 0.7 = 7\text{mm}$$

②