



SHANGHAI YONGXING ELECTRONIC SWITCH CO., LTD.



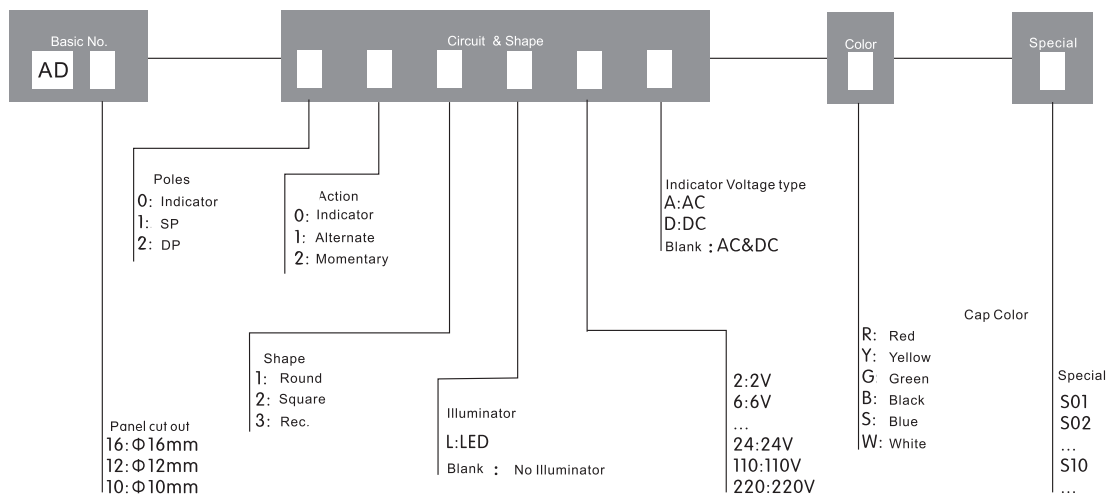
SHANGHAI YONGXING ELECTRONIC



SPECIFICATION

|   |  |                            |
|---|--|----------------------------|
| Max. Rating Current & Voltage(Resistive Load) | 3A 250V AC                                     |                            |
| Contact Resistance                            | ≤50mΩ  |                            |
| Insulation Resistance                         | ≥100MΩ   |                            |
| Dielectric Strength                           | 1,500V   |                            |
| Electronic Life(cycles)                       | 50,000<br>Momentary:50,000                     | 25,000<br>Alternate:25,000 |
| Mechanical Life(cycles)                       | :200,000<br>Momentary:200,000 Alternate:50,000 |                            |
| Operating temperature                         | -5℃~+75℃                                       |                            |
| IP code                                       | IP40   |                            |

HOW TO ORDER



Example : Switch Type :AD16-111L2D-R

Indicator type) :AD16-001L6D-R

Lighting pieces of performance indicators

LED

| Operating voltage | 2V                                | 6V | 12V                  | 24V | 110V  | 220V | Life | Equivalent circuit |
|-------------------|-----------------------------------|----|----------------------|-----|---|------|------|--------------------|
| Current           | 15mA<br>Less than 15mA            |    | 5mA<br>Less than 5mA |     | About 50,000 hours (but the brightness will be weaken as the life of using plus.) |      |      |                    |
| LED color         | Red Green Blue Orange             |    |                      |     |   |      |      |                    |
| Cap Color         | Red Green Blue Orange Black White |    |                      |     |   |      |      |                    |

(Neon)

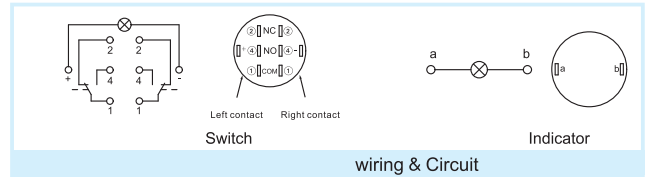
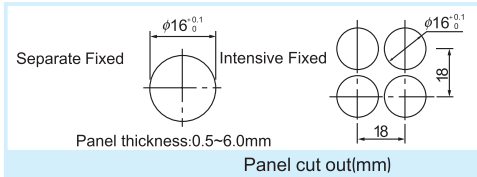
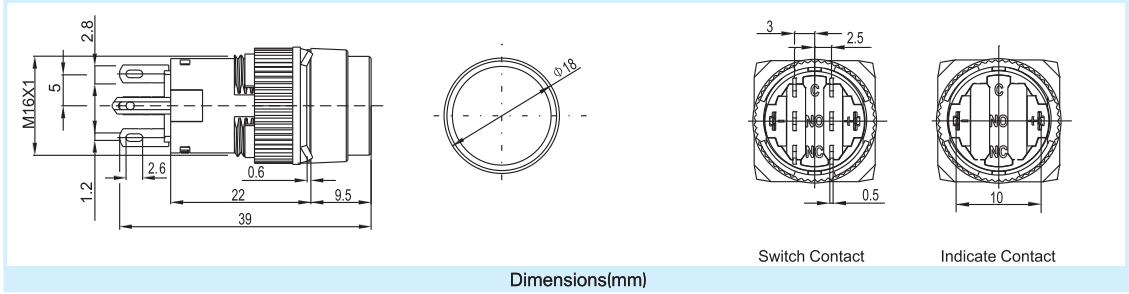
| Operating voltage | 110V AC              | 220V AC              |
|-------------------|----------------------|----------------------|
| Current           | 1mA<br>Less than 1mA | 1mA<br>Less than 1mA |
| Neon color        | Red Green            |                      |
| Cap Color         | Red Green            |                      |



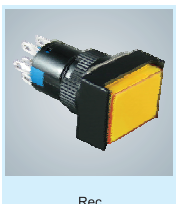
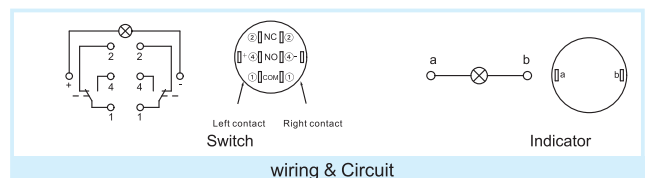
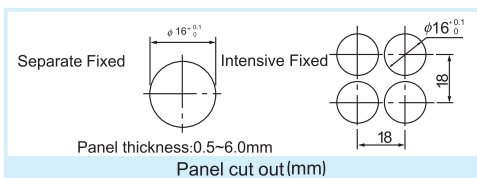
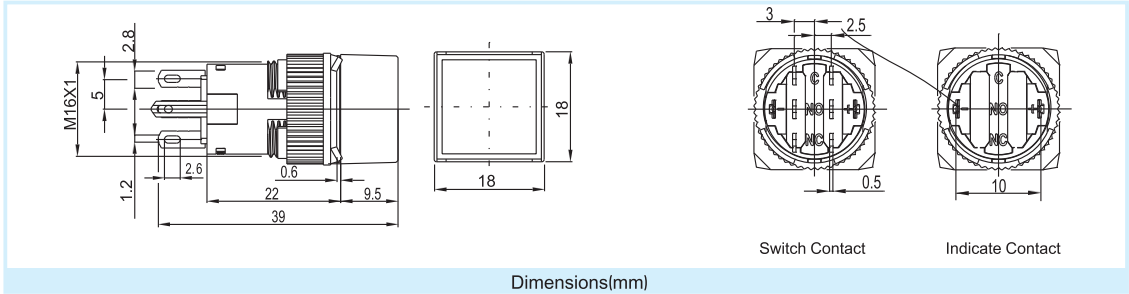
Φ16 Overall & Dimensions(mm)



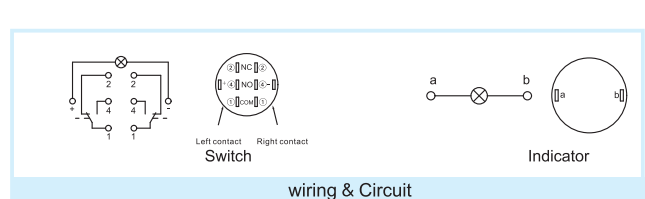
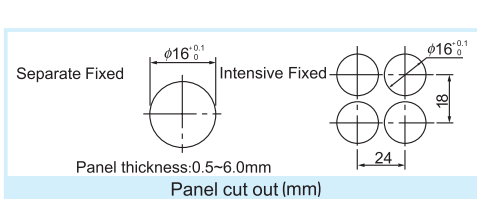
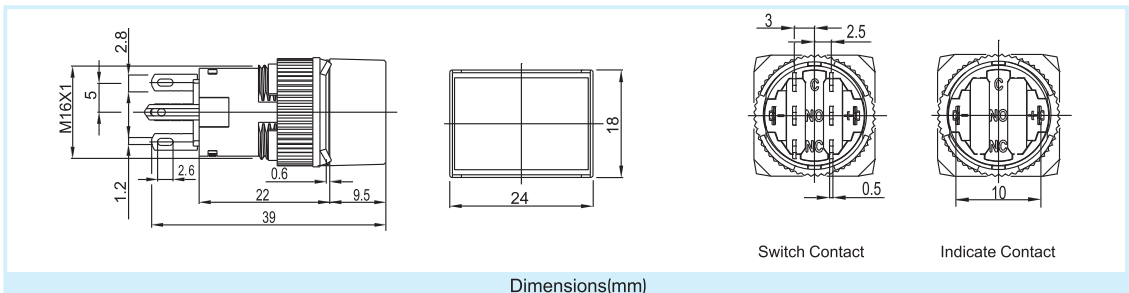
Round



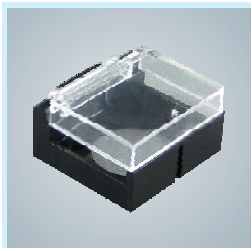
Square



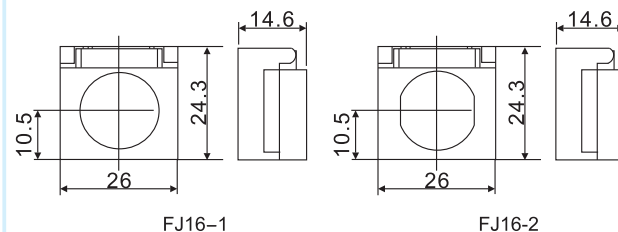
Rec.



Φ16 Attachment



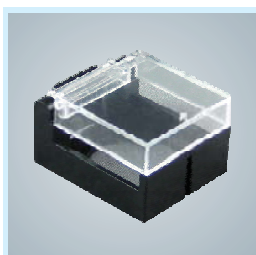
FJ16-1 FJ16-2



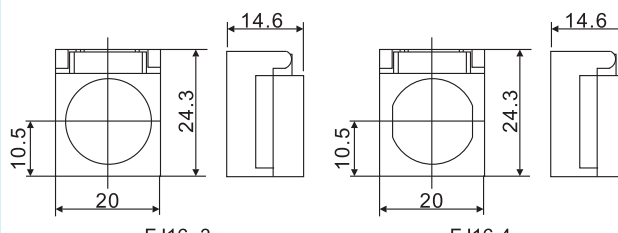
FJ16-1

FJ16-2

Dimensions(mm)



FJ16-3 FJ16-4



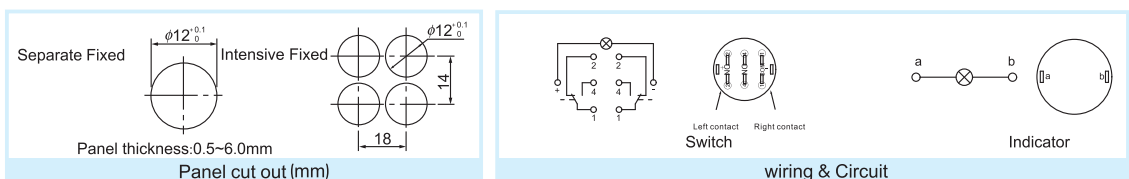
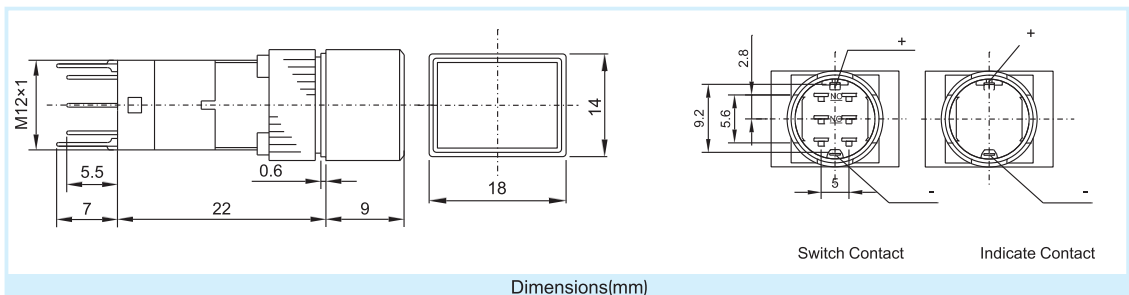
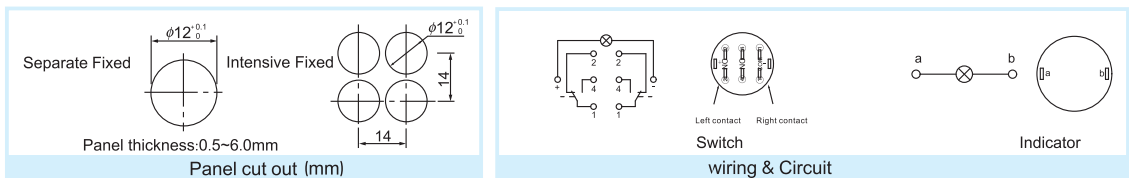
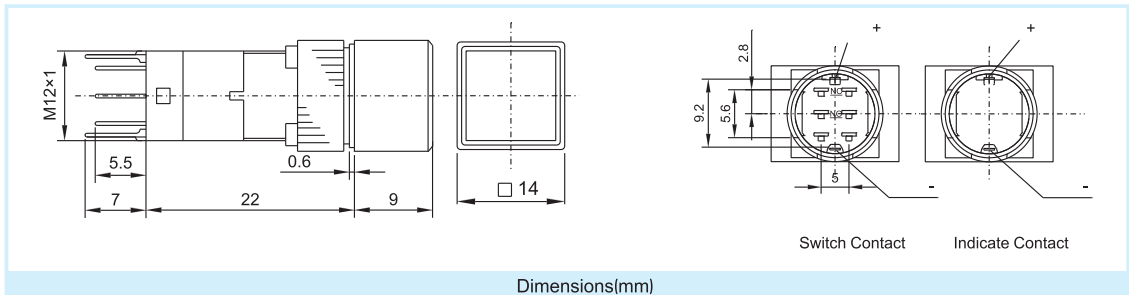
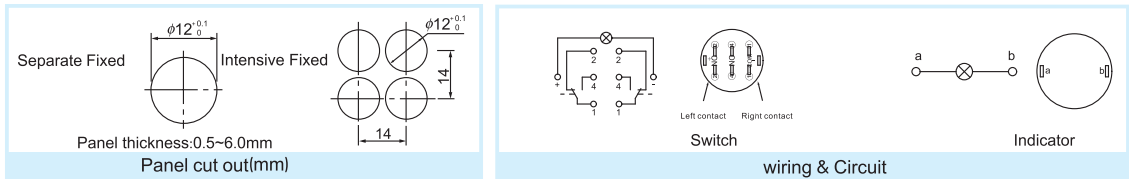
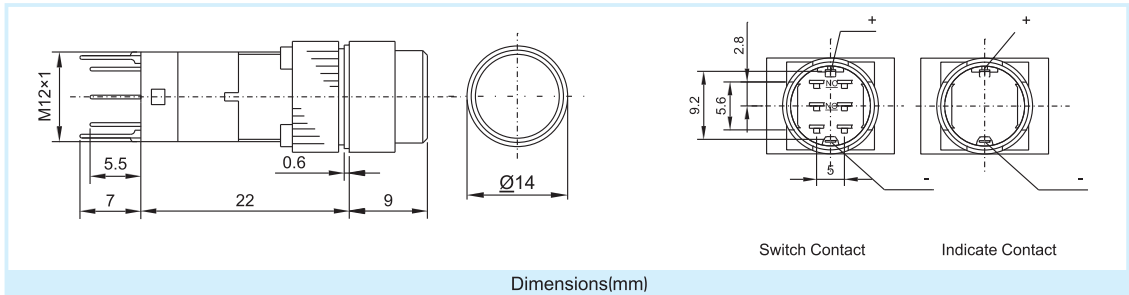
FJ16-3

FJ16-4

Dimensions(mm)



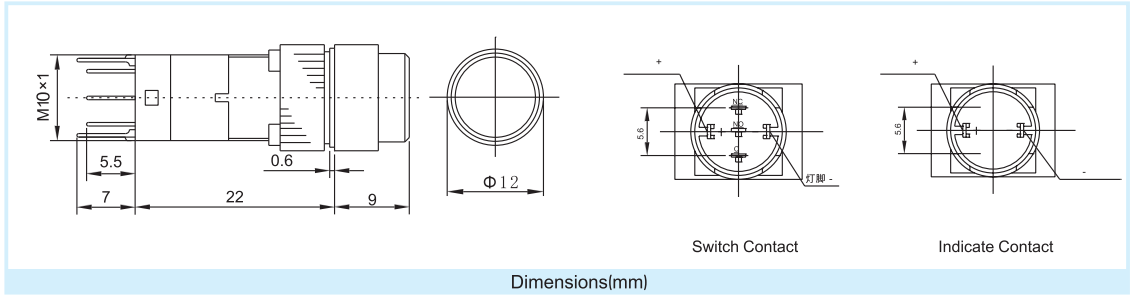
Φ12 Overall & Dimensions(mm)



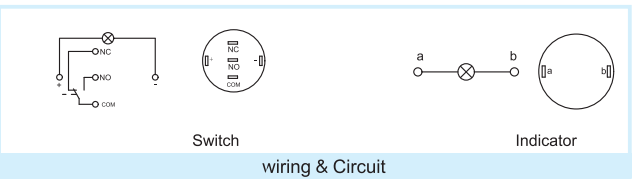
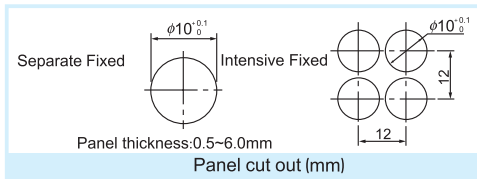
Φ10 Overall & Dimensions(mm)



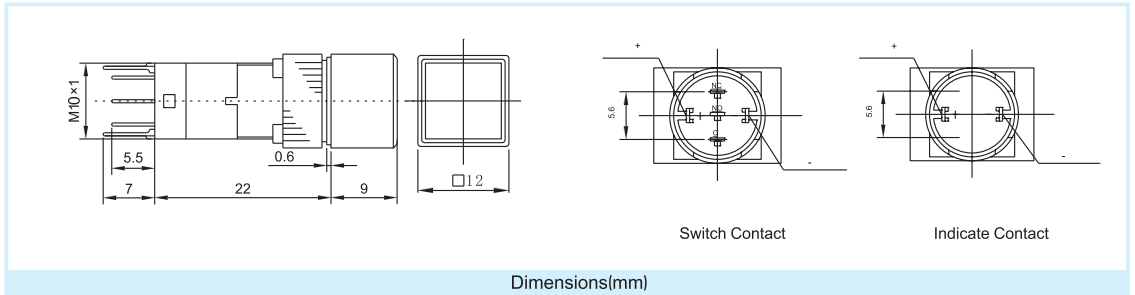
Round



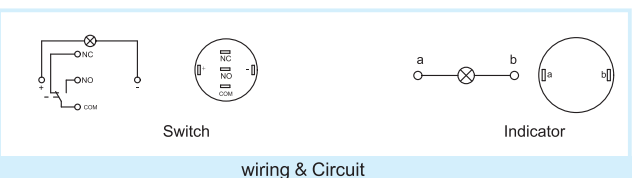
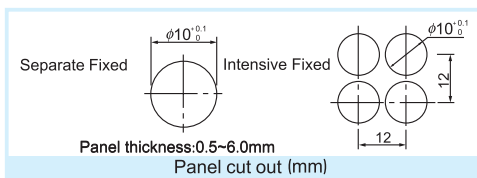
Dimensions(mm)



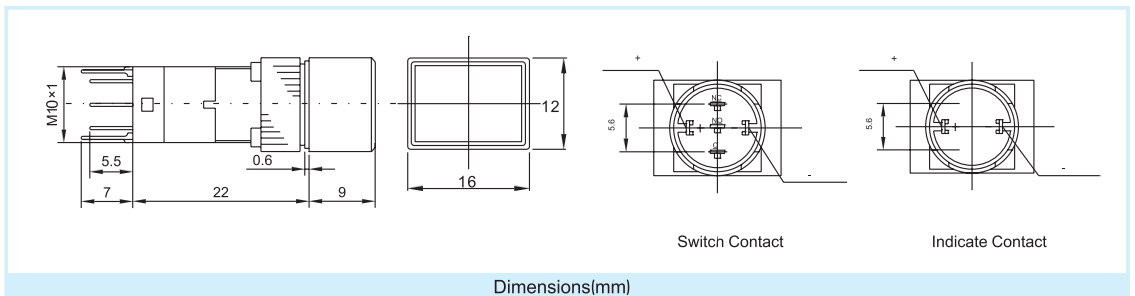
Square



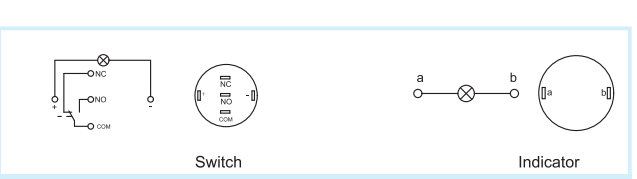
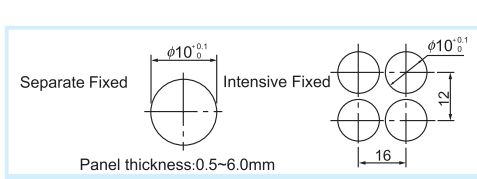
Dimensions(mm)



Rec.



Dimensions(mm)



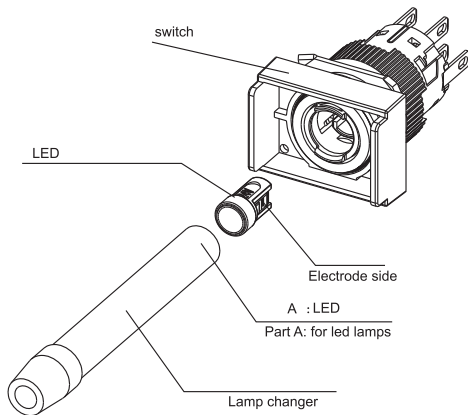
-Note and using Method-

■ Method of replacing lamp

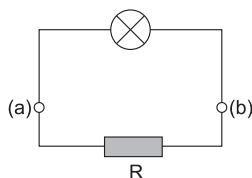
● To remove the LED lamp, insert the lamp change in the LED lamp and pull out the LED lamp. To mount the LED lamp, align the lamp terminal side of the main unit with the electrode side of the LED lamp, lightly hold the lamp by hand or with the head of the lamp changer, and insert the lamp. The LED lamp has no polarity, so it can be powered by either AC or DC

● Handling of LEDs

LED whose luminous color is green or blue is sensitive to static electricity. Be careful when handling the LED. Take thorough measures against static electricity and surges when handling the product. The following anti-electrostatic measure is recommended. Use a wristband or anti-electrostatic glove when replacing LED lamps.



■ LED



Shunt Resistor

■ Wiring

- Wiring to tab terminal
  - Use 110 (2.8mm) series receptacles for tab terminals.
- Pay attention to the following points when soldering.
  - Type of solder: Use resin-core solder.
  - Use a soldering iron with a maximum power consumption of 30W (300 °C) within five seconds. Make sure that the terminal is free of tension during soldering. Also, do not deform the terminal.
- The melting point of lead-free solder is slightly high, which may make soldering difficult. Use a soldering iron that has a large soldering tip or high heat generation.
- Connectable wires
  - Two solid wires with a maximum diameter of 0.8 mm (solder) One stranded wire with a maximum area of 0.75 mm<sup>2</sup> (solder) Flat-type connection terminal (2.8 -1.25-5) 0.5 to 1.25mm<sup>2</sup> (2.8 -0.5-5) 0.2 to 0.5mm<sup>2</sup>
- Use of contact blocks
  - When using NO and NC contacts in the same contact block, avoid connection that involves opposite polarity or wiring from different types of power supply.
- For wiring to adjacent terminals, use the terminal cover to prevent short-circuit, or an insulation tube to assure isolation. For solder terminals, caution is required if thick wires, in particular, are connected or a large quantity of solder is used.

- LED lamp malfunctioning (incorrect lighting)
  - The LED lamp incorporates a circuit to prevent malfunctioning. Compared with conventional models, this LED lamp is less likely to malfunction, but it incorporates no absolute countermeasures. A minute current (approximately 0.25 mA) turns on the LED lamp. A leakage current from the surge absorption circuit or noncontact circuit, or stray capacitance between cables, may also turn on the LED lamp. In this case, a countermeasure (e.g., attaching a resistor in parallel with the LED lamp) is required.
- Countermeasure against malfunctioning
  - Malfunctioning can be prevented by connecting a shunt resistor® in parallel. The resistance in that case varies with the model and operating conditions.

Note and using Method-

● The permissible fluctuation range for the operating voltage of the 6V model is  $\pm 5\%$  and that for the 12V or 24V model is  $\pm 10\%$ . If the operating voltage is always 5% or 10% higher, select a resistor that will make the operating current the same as or lower than the rated current, and connect the resistor in series to the LED lamp.

● Calculation of external resistance

Example: Connecting a 24V red LED to a 48V circuit

$$\text{External resistance } [\Omega] = \frac{\text{Circuit voltage [V]} - \text{Rated voltage [V]}}{\text{Rated current [A]}}$$

$$= \frac{48-24}{3 \times 10^{-3}} = 8000[\Omega]$$

⇒ Therefore, use an external resistor of 8k $\Omega$  1W.  
(Select a resistor with sufficient wattage.)

● Surges

High-brightness LED products use elements that are sensitive to static electricity. Keep in mind that an unusual voltage, such as a surge voltage, may cause the product to malfunction.

● Operation

Do not hit or flip the button, or the button may be damaged. Be sure to operate the button by hand. Do not pull the button if the switch is an alternate action type.

● High-density mounting of illuminated type

When continuously lighting pilot lights or pressing illuminated pushbuttons, keep in mind that the ambient temperature may exceed the rated value due to the heat radiated by the lamp. Be sure to ventilate the lamp /switch if the mounting panel is not made of metal or if the mounting panel is an enclosed type.

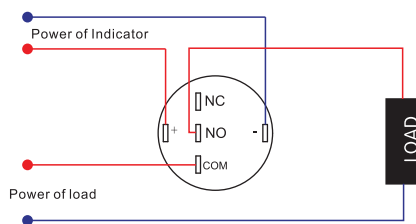
● Usage locations

- Be sure to use and store the product within the rated ambient temperature and humidity ranges.
- Although the product resists ordinary cutting oils and coolant oils, do not use the unit in places where special oils may be sprayed onto the product.
- If dusts or filings accumulate in the gap between the button and the frame, the switch may fail to operate normally. Take appropriate measures, such as using a dust-proof protective cover, if the switch is to be used in places that are subject to dusts or filings.
- The AD16 series and AD12,AD10 series are for indoor use. Make sure that the product is not exposed to direct sunlight.
- Do not use the product in the places that are subject to the adverse effects of ozone or corrosive gases.

Circuit wiring ( examples )

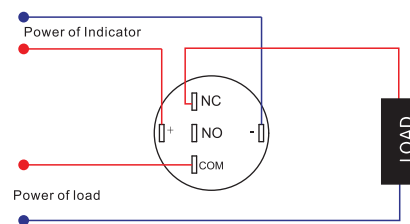
● Normally Open Circuit wiring

Feature implementation : switch light is always bright, it is operating with load when the switch acted. The switch control the single circuit The voltage of the indicator is different from the load voltage.



● Normally Close Circuit wiring

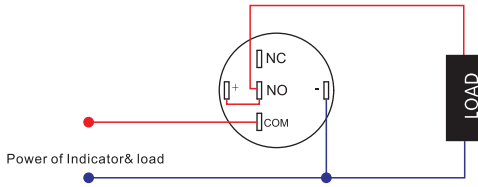
Feature implementation : switch light is always bright, the load stops when the switch acted. The switch controls the single circuit. The voltage of the indicator is different from the load voltage.





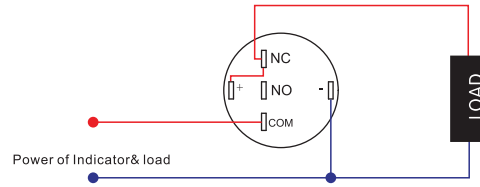
● Normally Open Circuit wiring

Feature implementation : it is operating with load and the indicator is brighting when the switch acts.The switch control the single circuit, on the condition that the voltage of load and indicator power is the same.

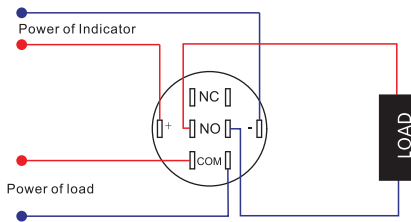


● Normally Close Circuit wiring

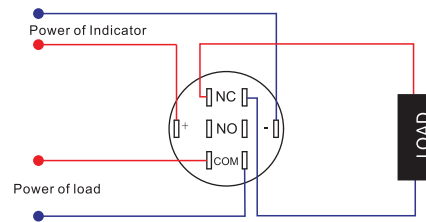
Feature implementation:The load stops and the indicator turns off when the switch acting.The switch control the single circuit ,on the condition that the voltage of load and indicator power is the same.



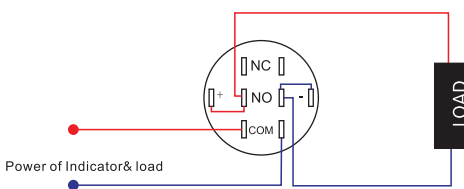
Feature implementation : switch light is always bright,it is operating with load when the switch acted. The switch control the two circuit. The voltage of the indicator is different from the load voltage.



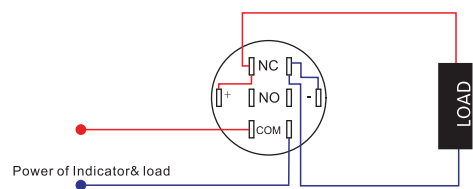
Feature implementation : switch light is always bright,The loadstops and the indicator turns off when the switch acting. The switch control the two circuit . The voltage of the indicator is different from the load voltage.



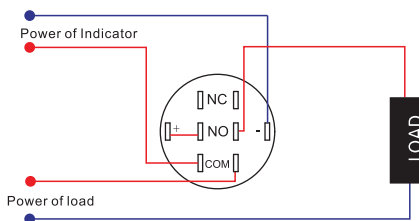
Feature implementation : it is operating with load and the indicator is brighting when the switch acts.The switch control the two circuit, on the condition that the voltage of load and indicator power is the same.



Feature implementation : The load stops and the indicator turns off when the switch acting.The switch control the two circuit ,on the condition that the voltage of load and indicator power is the same.



Feature implementation : it is operating with load and the indicator is brighting when the switch acts. The switch control the two circuit ,one controls the load cricuit,the other controls the indicator.the voltage of indicator is different from the load's



Feature implementation : The load stops and the indicator turns off when the switch acting.The switch control the two circuit ,one controls the load cricuit, the other controls the indicator.the voltage of indicator is different from the load's

