

# FM Series

Flush Metal Pushbutton & Indicator

FM\*N/E/S/L Series

Φ12 / Φ16 / Φ19 / Φ22 / Φ25 / Φ30





# Industry Application

- ⊙ Medical equipment
- ⊙ Automobile industry
- ⊙ Logistics equipment
- ⊙ Industrial robot
- ⊙ Communication equipment
- ⊙ Testing equipment
- ⊙ Numerical control machine tool
- ⊙ Building management
- ⊙ Laser equipment
- ⊙ Commercial kitchenware
- ⊙ Charging pile
- ⊙ Civil equipment



F1

F3

F5



Schutzzone  
300mm

Warnzone  
600mm

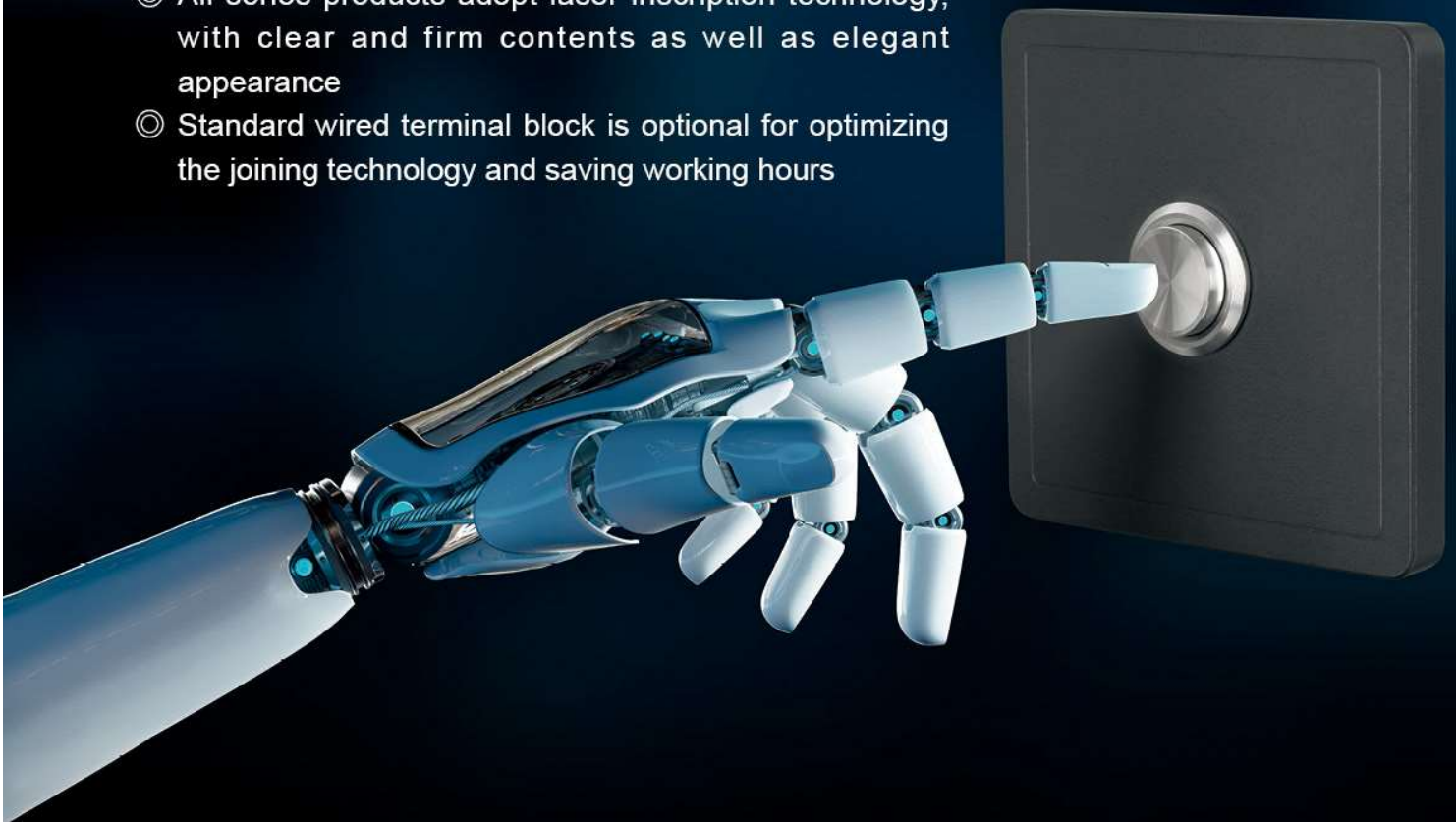
Bin Picking

Start Stop Reset



# Product Features

- ◎ It is featured by ultrathin flat round installation, metal enclosure and button sheet, with exquisite appearance
- ◎ The product type is rich, with complete specifications and series
- ◎ Ergonomic simulation is applied for excellent operating experience
- ◎ It adopts high-quality stainless steel enclosure, with mechanical collision protection class up to IK10
- ◎ Advanced grinding and polishing technologies are adopted for button sheet for permanent smoothness and cleanliness
- ◎ The connecting terminals are copper and plated with silver, easy for welding, and with reliable contact and high resistance to oxidation
- ◎ The product is equipped with V0 grade flame-retardant nylon base, with high temperature resistance and structural strength
- ◎ All series products adopt laser inscription technology, with clear and firm contents as well as elegant appearance
- ◎ Standard wired terminal block is optional for optimizing the joining technology and saving working hours





**High-brightness LED**

# FM\*N Series

Functional Pushbutton

## Metal Pushbutton

Φ12 / Φ16 / Φ19 / Φ22 / Φ25

CCC CQC CE RoHS





N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

## Functional Pushbutton

- ◎ Diverse installation hole diameters ( $\Phi 12/\Phi 16/\Phi 19/\Phi 22/\Phi 25$ )
- ◎ Rich types of products, complete specifications and series
- ◎ The protection class is up to IP65
- ◎ Annular illuminated type, bidirectional conduction structure LED, no need to distinguish the positive and negative polarities during use
- ◎ Bicolor illuminated structure is available for momentary or latching pushbutton
- ◎ All series products adopt the plug-in wiring method, with  $\Phi 16/\Phi 19/\Phi 22/\Phi 25$  optional for standard wired terminal block
- ◎ Aluminum alloy anodic oxidation coloring products can be customized for all series products
- ◎ Laser engraving of pattern and text can be carried out according to the customer's drawing

### Details



High-precision NC machining for fitting your fingers



Thickened and silver plated pins for better electrical conductivity



The protection class is up to IP65



# FM\*N Functional Pushbutton

FM\*N Series Metal Pushbutton

## Technical Feature










| Product order code                                    | FM12N   | FM16N   | FM19N  | FM22N  | FM25N  |
|---|---|---|--|--|--|
| Total length  | Max 40mm  |   |  |  |  |
| Panel front thickness                                 | About 1.5mm for flat head<br>About 3.0mm for high head      | About 1.5mm for flat head<br>About 3.5mm for high head  | About 1.5mm for flat head<br>About 4.0mm for high head | About 2.0mm for flat head<br>About 5.0mm for high head | About 2.5mm for flat head<br>About 5.5mm for high head |
| Panel thickness                                       | 1-6mm   |   |  |  |  |
| Conventional thermal current                          | 3A  |   |  |  | 5A   |
| Rated insulation voltage                              | 250V  |   |  |  |  |
| Rated impulse withstand voltage                       | 2500V   |   |  |  |  |
| Insulation resistance                                 | 100MΩ   |   |  |  |  |
| Contact resistance of contact (initial value)         | ≤50mΩ   |   |  |  |  |
| Rated voltage/ current under various usage categories | AC-15   | 24V/1A 110V/1A<br>220V/0.5A   | 24V/3A   | 110V/1A  | 220V/0.5A  |
|   | DC-13   |   | 24V/0.7A   | 110V/0.2A  | 220V/0.1A  |
| Contact type  | 1NO   | 1NO1NC  |  | 1NO1NC   | 2NO2NC   |
| Contact material                                      | Silver alloy  |   |  |  |  |
| Operation type  | Momentary, latching   | Momentary, latching, knob, key switch, emergency stop button  |  |  |  |
| Operating travel                                      | About 2mm   |   |  |  |  |
| Operating pressure                                    | ≤5N   |   |  |  |  |
| Minimum applicable load of contact ★                  | 5V AC/DC  |   | 5mA  |  |  |
| Power frequency withstand voltage                     | 1500V AC, 50Hz, 1min  |   |  |  |  |
| Vibration resistance                                  | 10-50Hz, amplitude of 1.5mm                                 |   |  |  |  |
| Impact resistance                                     | 10g   |   |  |  |  |
| Electrical endurance                                  | Momentary for 100,000 times<br>Latching for 50,000 times    | Momentary for 200,000 times, latching, knob, key switch, emergency stop button for 50,000 times   |  |  |  |
| Mechanical endurance                                  | Momentary for 1,000,000 times<br>Latching for 300,000 times | Momentary for 1,000,000 times, latching for 300,000 times Knob and key switch for 100,000 times, emergency stop button for 50,000 times |  |  |  |
| Working temperature                                   | -25° C~+55° C   |   |  |  |  |
| Working humidity                                      | 45~90%RH  |   |  |  |  |
| Storage temperature                                   | -40° C~+70° C   |   |  |  |  |
| Storage humidity                                      | 45~90%RH  |   |  |  |  |
| Protection class                                      | IP65  | IP65 for momentary and latching, IP40 for knob, IP54 for key switch, IP54 for emergency stop button (with IP65 customizable)            |  |  |  |
| Anti-collision class                                  | IK10  |   |  |  |  |
| Enclosure material                                    | Stainless steel, aluminum anodic oxidation (customized)     |   |  |  |  |
| Compliance  | GB14048.5   |   | IEC60947-5   |  |  |

## Parameters of illuminated pushbutton

| Voltage code             | 21  | 22  | 23  | 24  | 25  | 26   | 28   |
|--------------------------|---|-----|-----|-----|-----|------|------|
| Voltage AC/DC (V)        | 6V  | 12V | 24V | 36V | 48V | 110V | 220V |
| LED current (A)          | ≤20mA   |     |     |     |     |      |      |
| LED endurance            | More than 50,000 hours (reference value)  |     |     |     |     |      |      |
| LED type                 | Monochromatic light: bidirectional LED, no distinction between positive and negative poles; bicolor light: unidirectional LED, with distinction between positive and negative poles |     |     |     |     |      |      |
| Voltage reduction method | Built-in resistance (FM12N type, external resistance for 24V or more)   |     |     |     |     |      |      |

★ indicates the approximate benchmark value of switchable limit in small load level such as electronic circuit, rather than the guaranteed value. Such value may vary with switching frequency, environment and expected reliability benchmark, please confirm the actual equipment under actual conditions of use.

## Order code description

| Corresponding number | FM □ N — □ □ □ — □ □ □ □ / □ □ □ — □   |  |   |   |   |   |   |   |   |    |    |    |    |    |
|----------------------|--|--|---|---|---|---|---|---|---|----|----|----|----|----|
|                      | 1                                      | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| 1                    | FM                                     | Flat-mounted metal pushbutton  |   |   |   |   |   |   |   |    |    |    |    |    |
| 2                    | Installation hole diameter             | 12 : Φ12    16 : Φ16    19 : Φ19    22 : Φ22    25 : Φ25   |   |   |   |   |   |   |   |    |    |    |    |    |
| 3                    | Product series                         | N: functional type   |   |   |   |   |   |   |   |    |    |    |    |    |
| 4                    | Enclosure material                     | S: stainless steel<br>A: aluminum anodic oxidation (customized)  |   |   |   |   |   |   |   |    |    |    |    |    |
| 5                    | Head shape                             | F: flat round    H: high round   |   |   |   |   |   |   |   |    |    |    |    |    |
| 6                    | Tail wiring                            | P: plug-in type  |   |   |   |   |   |   |   |    |    |    |    |    |
| 7                    | Contact type                           | 10: 1NO    11: 1NO1NC    22: 2NO2NC  |   |   |   |   |   |   |   |    |    |    |    |    |
| 8                    | Function code                          | No marking: momentary normal button<br>T: latching button                      X: two-position knob<br>XS: three-position knob                Z: emergency stop button<br>Y: two-position key switch              YS: three-position key switch  |   |   |   |   |   |   |   |    |    |    |    |    |
| 9                    | Illumination method                    | D1 :  annular illumination  |   |   |   |   |   |   |   |    |    |    |    |    |
| 10                   | Marking code                           | No marking: no symbol mark<br>S1: power supply identification        S99: lettering as required by the customer  |   |   |   |   |   |   |   |    |    |    |    |    |
| 11                   | LED color                              |  red  green  yellow  blue  white<br> red & green  red & blue  green & blue |   |   |   |   |   |   |   |    |    |    |    |    |
| 12                   | Voltage code                           | 21 : AC/DC 6V    22 : AC/DC12V    23 : AC/DC 24V<br>24 : AC/DC36V    25 : AC/DC48V    26 : AC/DC110V    28 : AC/DC220V   |   |   |   |   |   |   |   |    |    |    |    |    |
| 13                   | Action position of knob and key switch | fu: right momentary    ffu: left and right momentary   |   |   |   |   |   |   |   |    |    |    |    |    |
| 14                   | Auxiliary code                         | No indication: standard type<br>2~10-digit character: special character  |   |   |   |   |   |   |   |    |    |    |    |    |

## Order code example

### FM19N-SFP-22XSD1/y22

Order code explanation:

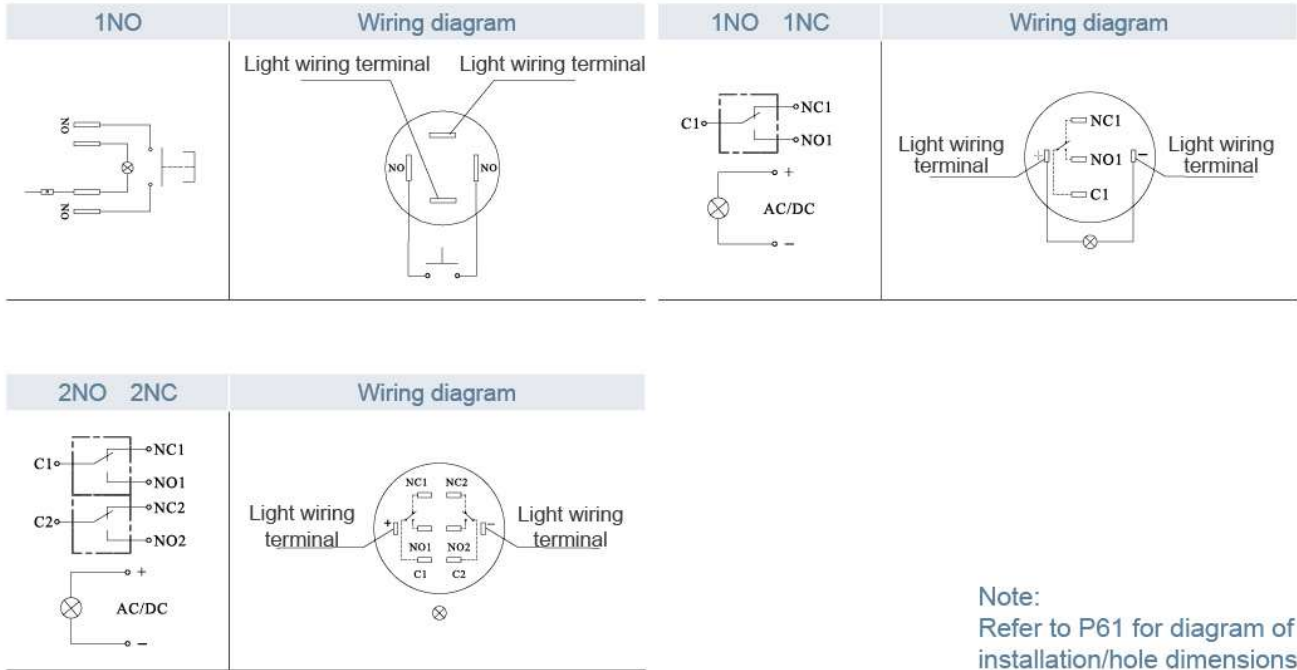
Installation hole diameter of Φ19mm, N type, stainless steel, flat round, plug-in type

Three-position yellow annular illuminated knob, supply voltage of AC/DC12V

# FM\*N Functional Pushbutton

FM\*N Series Metal Pushbutton

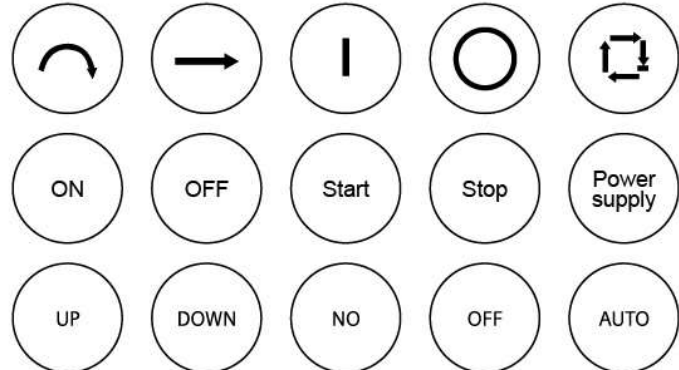
## Contact type and wiring diagram



## Symbol customization

The key surface of metal pushbutton can be customized for laser inscription with pattern or text according to the customer's requirements, which is permanent and aesthetic, and can take the role of signage.

Example of symbol customization:



Note: Please consult the APT sales personnel or distributor if customization is required.

**Φ12 product pushbuttons**

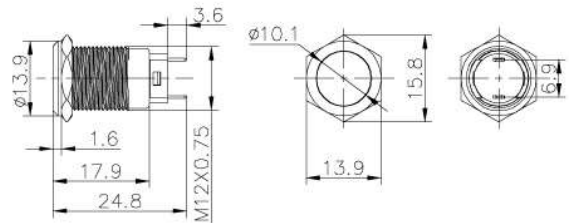
**Specification**

**Dimension**








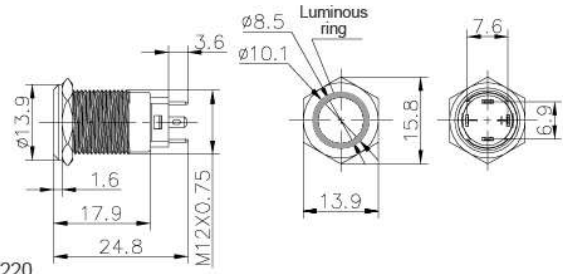
FM12N-SFP-10  
FM12N-SFP-10T

**Installation hole diameter :** Φ12mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type :** 1NO  
**Wiring method :** plug-in



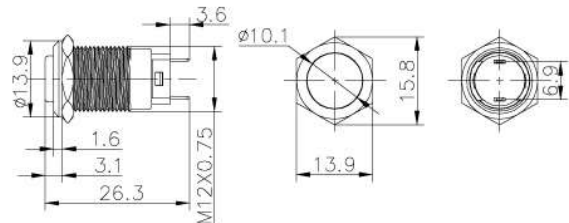
FM12N-SFP-10D1/ ▲ ■  
FM12N-SFP-10TD1/ ▲ ■

**Installation hole diameter :** Φ12mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**       
**Working voltage ■ :** 6/12/24/36/48/110/220








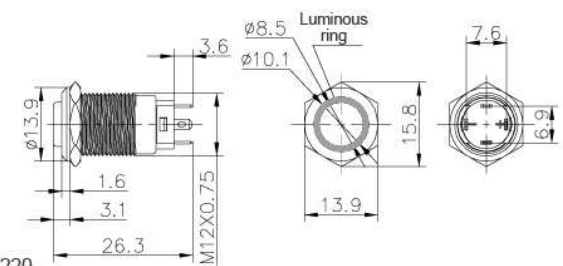
FM12N-SHP-10  
FM12N-SHP-10T

**Installation hole diameter :** Φ12mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type :** 1NO  
**Wiring method :** plug-in



FM12N-SHP-10D1/ ▲ ■  
FM12N-SHP-10TD1/ ▲ ■

**Installation hole diameter :** Φ12mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**       
**Working voltage ■ :** 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■, refer to P11 for details

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

# FM\*N Functional Pushbutton

FM\*N Series Metal Pushbutton

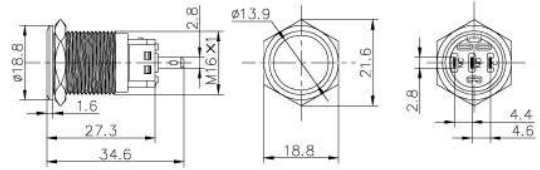
## Φ16 product pushbuttons Specification Dimension

N Series Pushbutton  
 E Series Pushbutton  
 S Series Pushbutton  
 L Series Indicator  
 Installation Instructions and Accessories  
 Protection Class Instructions



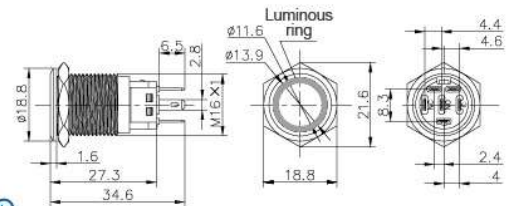
FM16N-SFP-11  
FM16N-SFP-11T

**Installation hole diameter :** Φ16mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in



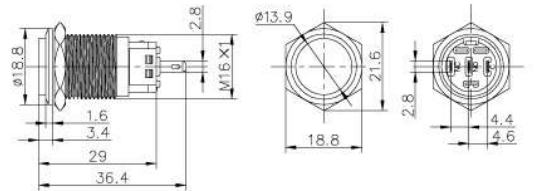
FM16N-SFP-11D1/ ▲■  
FM16N-SFP-11TD1/ ▲■

**Installation hole diameter :** Φ16mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in  
**Light color ▲ :** ● ● ● ● ● ● ● ● ●  
**Working voltage ■ :** 6/12/24/36/48/110/220



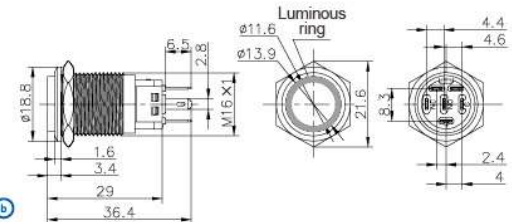
FM16N-SHP-11  
FM16N-SHP-11T

**Installation hole diameter :** Φ16mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in



FM16N-SHP-11D1/ ▲■  
FM16N-SHP-11TD1/ ▲■

**Installation hole diameter :** Φ16mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in  
**Light color ▲ :** ● ● ● ● ● ● ● ● ●  
**Working voltage ■ :** 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■ , refer to P11 for details

**Φ16 product pushbuttons**

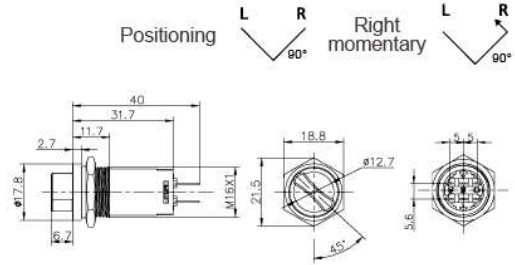
**Specification**

**Dimension**



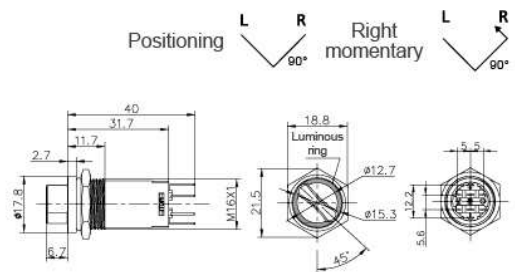
FM16N-SFP-★ X  
FM16N-SFP-★ X/fu

**Installation hole diameter :** Φ16mm  
**Head shape :** two-position knob  
**Operating type :** positioning/right resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



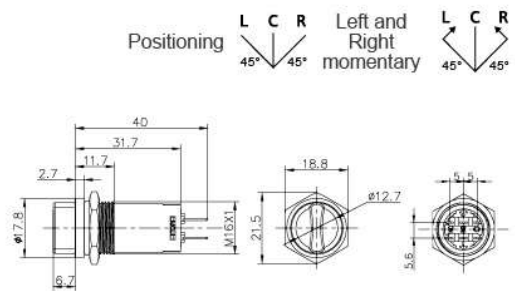
FM16N-SFP-★ XD1/▲  
FM16N-SFP-★ XD1/▲ /ffu

**Installation hole diameter :** Φ16mm  
**Head shape :** two-position knob  
**Operating type :** positioning/right resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



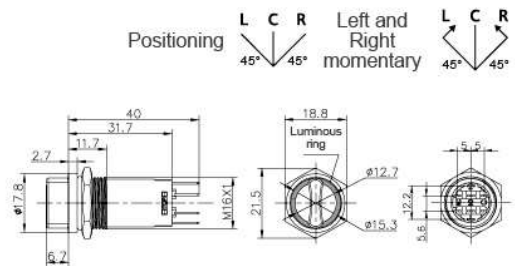
FM16N-SFP-22XS/  
FM16N-SFP-22XS/ffu

**Installation hole diameter :** Φ16mm  
**Head shape :** three-position knob  
**Operating type :** positioning/left and right momentary  
**Contact type :** 2NO2NC  
**Wiring method :** plug-in



FM16N-SFP-22XSD1/▲  
FM16N-SFP-22XSD1/▲ /ffu

**Installation hole diameter :** Φ16mm  
**Head shape :** three-position knob  
**Operating type :** positioning/left and right momentary  
**Contact type :** 2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■ , refer to P11 for details L: Left C: Center R: Right

# FM\*N Functional Pushbutton

FM\*N Series Metal Pushbutton

## Φ16 product pushbuttons

## Specification

## Dimension

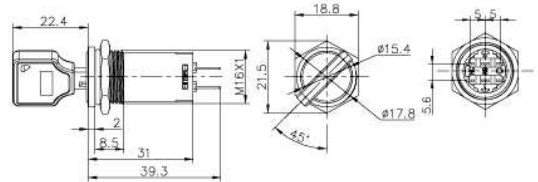
N Series Pushbutton



FM16N-SFP-★ Y  
FM16N-SFP-★ Y/fu

**Installation hole diameter :** Φ16mm  
**Head shape :** two-position key switch  
**Operating type :** positioning/right resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in

Positioning Right momentary



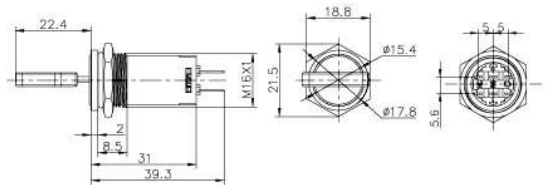
E Series Pushbutton



FM16N-SFP-22YS  
FM16N-SFP-22YS/ffu

**Installation hole diameter :** Φ16mm  
**Head shape :** three-position key switch  
**Operating type :** positioning/left and right momentary  
**Contact type :** 2NO2NC  
**Wiring method :** plug-in

Positioning Left and Right momentary

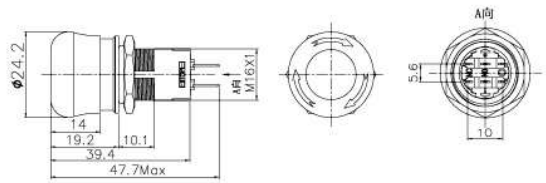


S Series Pushbutton



FM16N-SFP-★ Z

**Installation hole diameter :** Φ16mm  
**Head shape :** emergency stop  
**Operating type :** rotation and resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

Note: Indicate the voltage code at ■ , refer to P11 for details L: Left C: Center R: Right

**Φ19 product pushbuttons**

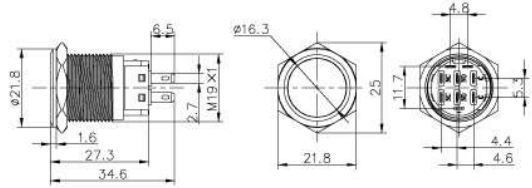
**Specification**

**Dimension**



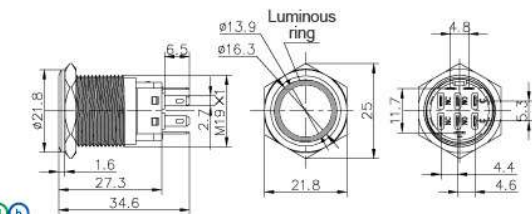
FM19N-SFP-★  
FM19N-SFP-★ T

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



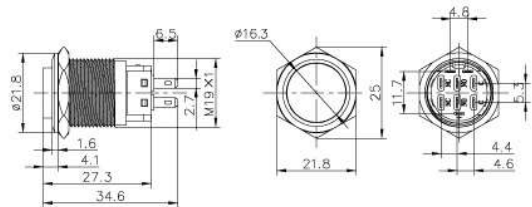
FM19N-SFP-★ D1/▲■  
FM19N-SFP-★ TD1/▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



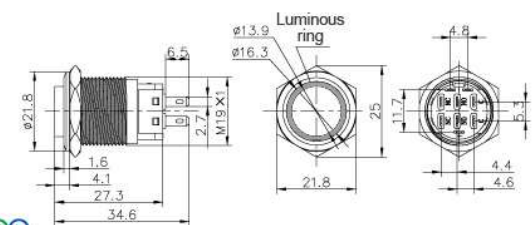
FM19N-SHP-★  
FM19N-SHP-★ T

**Installation hole diameter :** Φ19mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



FM19N-SHP-★ D1/▲■  
FM19N-SHP-★ TD1/▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■ , refer to P11 for details



# FM\*N Functional Pushbutton

FM\*N Series Metal Pushbutton

## Φ19 product pushbuttons

## Specification

## Dimension

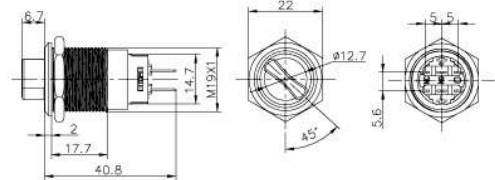
N Series Pushbutton



FM19N-SFP-★ X  
FM19N-SFP-★ X/fu

**Installation hole diameter:** Φ19mm  
**Head shape:** two-position knob  
**Operating type:** positioning/right resetting  
**Contact type ★:** 1NO1NC/2NO2NC  
**Wiring method:** plug-in

Positioning Right momentary



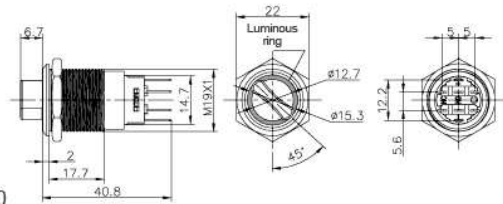
E Series Pushbutton



FM19N-SFP-★ XD1/▲  
FM19N-SFP-★ XD1/▲/fu

**Installation hole diameter:** Φ19mm  
**Head shape:** two-position knob  
**Operating type:** positioning/right resetting  
**Contact type ★:** 1NO1NC/2NO2NC  
**Wiring method:** plug-in  
**Light color ▲:**   
**Working voltage ■:** 6/12/24/36/48/110/220

Positioning Right momentary



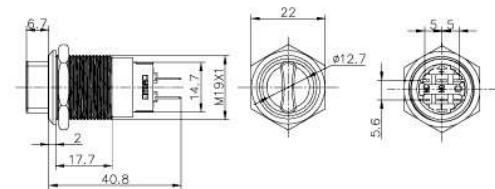
S Series Pushbutton



FM19N-SFP-22XS  
FM19N-SFP-22XS/fu

**Installation hole diameter:** Φ19mm  
**Head shape:** three-position knob  
**Operating type:** positioning/left and right momentary  
**Contact type:** 2NO2NC  
**Wiring method:** plug-in

Positioning Left and Right momentary



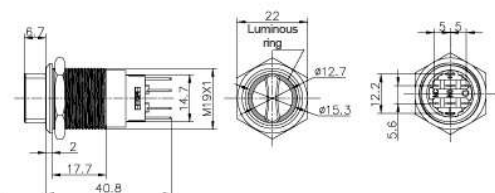
L Series Indicator



FM19N-SFP-★ XSD1/▲  
FM19N-SFP-★ XSD1/▲/fu

**Installation hole diameter:** Φ19mm  
**Head shape:** three-position knob  
**Operating type:** positioning/left and right momentary  
**Contact type ★:** 1NO1NC/2NO2NC  
**Wiring method:** plug-in  
**Light color ▲:**   
**Working voltage ■:** 6/12/24/36/48/110/220

Positioning Left and Right momentary



Installation Instructions and Accessories

Protection Class Instructions

Note: Indicate the voltage code at ■, refer to P11 for details    L: Left    C: Center    R: Right

**Φ19 product pushbuttons**

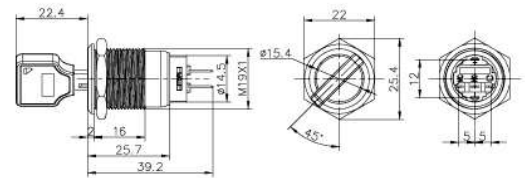
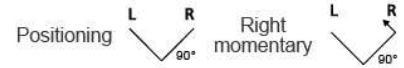
**Specification**

**Dimension**



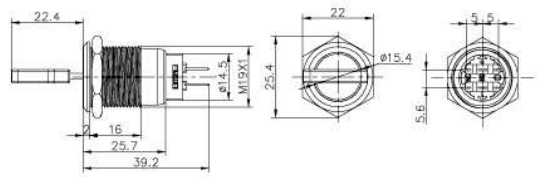
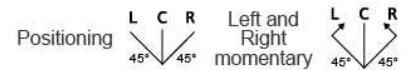
FM19N-SFP-★ Y  
FM19N-SFP-★ Y/fu

**Installation hole diameter :** Φ19mm  
**Head shape :** two-position key switch  
**Operating type :** positioning/right resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



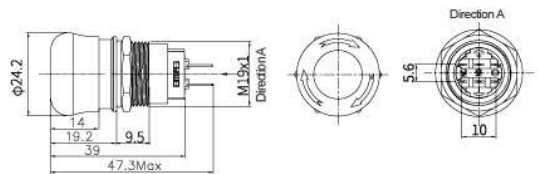
FM19N-SFP-22YS  
FM19N-SFP-22YS/ffu

**Installation hole diameter :** Φ19mm  
**Head shape :** three-position key switch  
**Operating type :** positioning/left and right momentary  
**Contact type :** 2NO2NC  
**Wiring method :** plug-in



FM19N-SFP-★ Z

**Installation hole diameter :** Φ19mm  
**Head shape :** emergency stop  
**Operating type :** rotation and resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



Note: Indicate the voltage code at ■ , refer to P11 for details

L: Left C: Center R: Right

# FM\*N Functional Pushbutton

FM\*N Series Metal Pushbutton

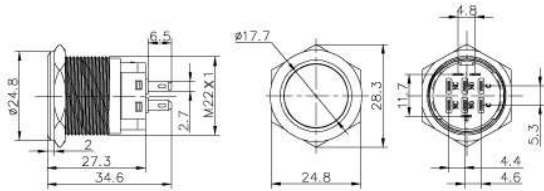
## Φ22 product pushbuttons Specification Dimension

N Series Pushbutton  
 E Series Pushbutton  
 S Series Pushbutton  
 L Series Indicator  
 Installation Instructions and Accessories  
 Protection Class Instructions



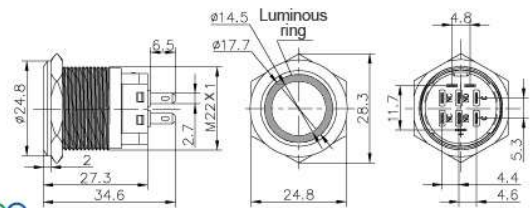
FM22N-SFP-★  
FM22N-SFP-★ T

Installation hole diameter : Φ22mm  
 Head shape : flat round  
 Operating type : momentary/latching  
 Contact type ★ : 1NO1NC/2NO2NC  
 Wiring method : plug-in



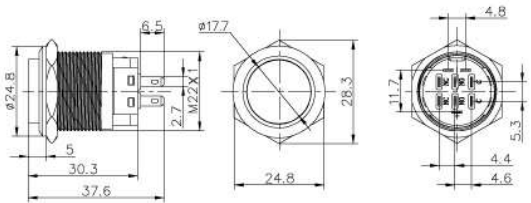
FM22N-SFP-★ D1/▲  
FM22N-SFP-★ TD1/▲

Installation hole diameter : Φ22mm  
 Head shape : flat round  
 Operating type : momentary/latching  
 Contact type ★ : 1NO1NC/2NO2NC  
 Wiring method : plug-in  
 Light color ▲ : ● ● ● ● ● ● ● ●  
 Working voltage ■ : 6/12/24/36/48/110/220



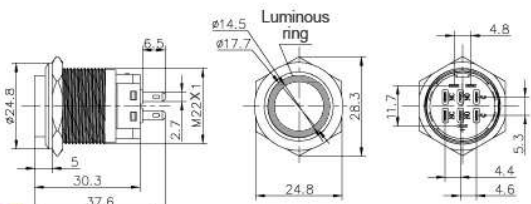
FM22N-SHP-★  
FM22N-SHP-★ T

Installation hole diameter : Φ22mm  
 Head shape : high round  
 Operating type : momentary/latching  
 Contact type ★ : 1NO1NC/2NO2NC  
 Wiring method : plug-in



FM22N-SHP-★ D1/▲  
FM22N-SHP-★ TD1/▲

Installation hole diameter : Φ22mm  
 Head shape : high round  
 Operating type : momentary/latching  
 Contact type ★ : 1NO1NC/2NO2NC  
 Wiring method : plug-in  
 Light color ▲ : ● ● ● ● ● ● ● ●  
 Working voltage ■ : 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■ , refer to P11 for details

**Φ22 product pushbuttons**

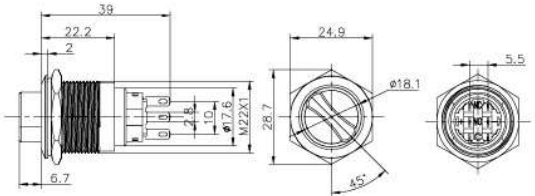
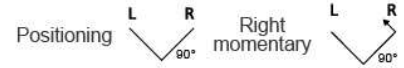
**Specification**

**Dimension**



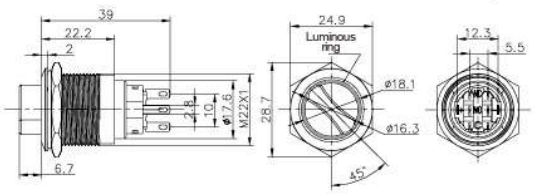
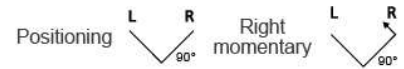
FM22N-SFP-★ X  
FM22N-SFP-★ X/fu

**Installation hole diameter :** Φ22mm  
**Head shape :** two-position knob  
**Operating type :** positioning/right resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



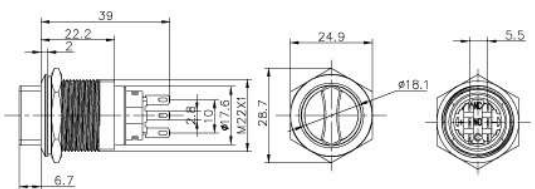
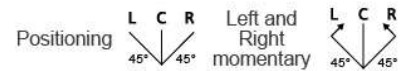
FM22N-SFP-★ XD1/▲  
FM22N-SFP-★ XD1/▲/fu

**Installation hole diameter :** Φ22mm  
**Head shape :** two-position knob  
**Operating type :** positioning/right resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



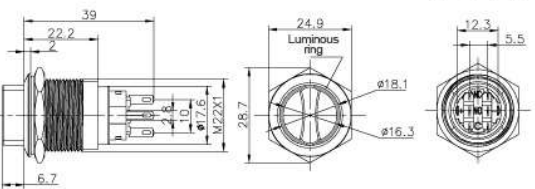
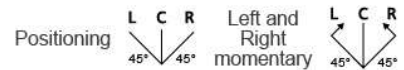
FM22N-SFP-22XS  
FM22N-SFP-22XS/fu

**Installation hole diameter :** Φ22mm  
**Head shape :** three-position knob  
**Operating type :** positioning/left and right momentary  
**Contact type :** 2NO2NC  
**Wiring method :** plug-in



FM22N-SFP-22XSD1/▲  
FM22N-SFP-22XSD1/▲/fu

**Installation hole diameter :** Φ22mm  
**Head shape :** three-position knob  
**Operating type :** positioning/left and right momentary  
**Contact type :** 2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■ , refer to P11 for details L: Left C: Center R: Right

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

# FM\*N Functional Pushbutton

FM\*N Series Metal Pushbutton

## Φ22 product pushbuttons

## Specification

## Dimension

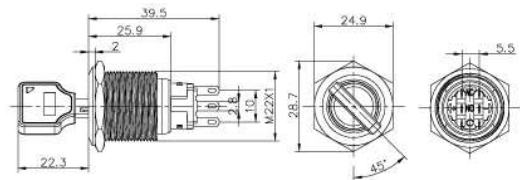
N Series Pushbutton



FM22N-SFP-★ Y  
FM22N-SFP-★ Y/fu

**Installation hole diameter :** Φ22mm  
**Head shape :** two-position key switch  
**Operating type :** positioning/right resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in

Positioning Right momentary



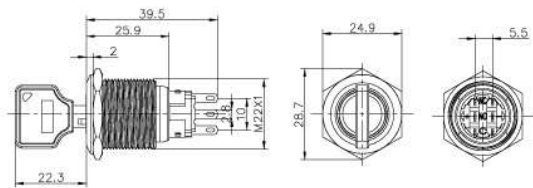
E Series Pushbutton



FM22N-SFP-22YS  
FM22N-SFP-22YS/ffu

**Installation hole diameter :** Φ22mm  
**Head shape :** three-position key switch  
**Operating type :** positioning/left and right momentary  
**Contact type :** 2NO2NC  
**Wiring method :** plug-in

Positioning Left and Right momentary

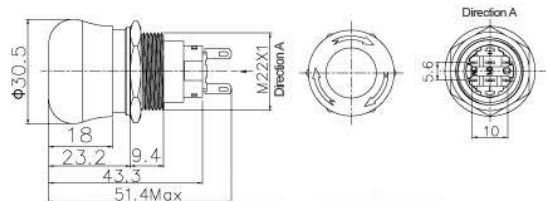


S Series Pushbutton



FM22N-SFP-★ Z

**Installation hole diameter :** Φ22mm  
**Head shape :** emergency stop  
**Operating type :** rotation and resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



L Series Indicator

Installation Instructions and Accessories

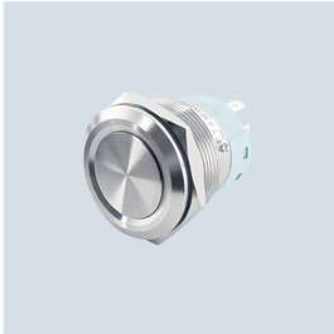
Protection Class Instructions

Note: Indicate the voltage code at ■, refer to P11 for details L: Left C: Center R: Right

**Φ25 product pushbuttons**

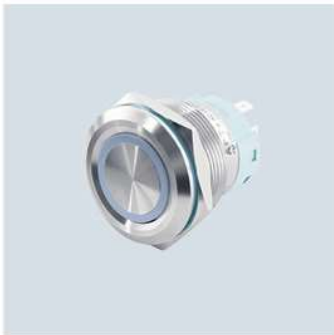
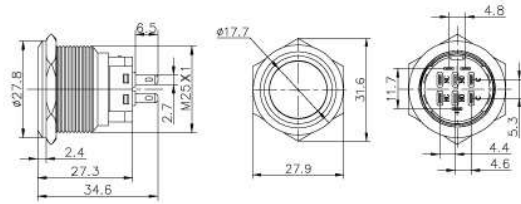
**Specification**

**Dimension**



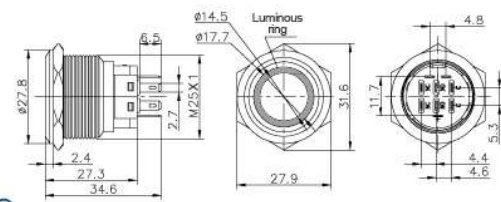
FM25N-SFP-★  
FM25N-SFP-★ T

**Installation hole diameter :** Φ25mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



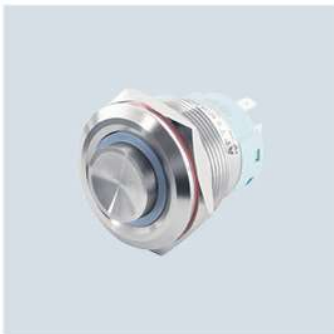
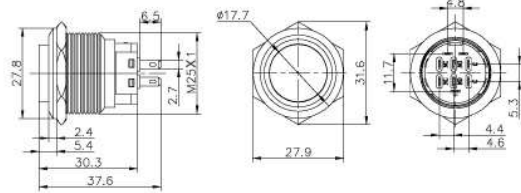
FM25N-SFP-★ D1/▲■  
FM25N-SFP-★ TD1/▲■

**Installation hole diameter :** Φ25mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



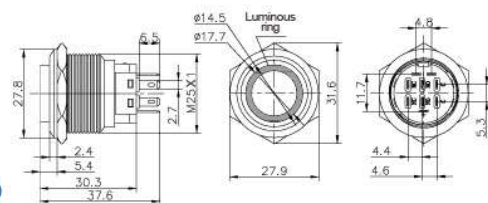
FM25N-SHP-★  
FM25N-SHP-★ T

**Installation hole diameter :** Φ25mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



FM25N-SHP-★ D1/▲■  
FM25N-SHP-★ TD1/▲■

**Installation hole diameter :** Φ25mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■ , refer to P11 for details

# FM\*N Functional Pushbutton

FM\*N Series Metal Pushbutton

## Φ25 product pushbuttons

## Specification

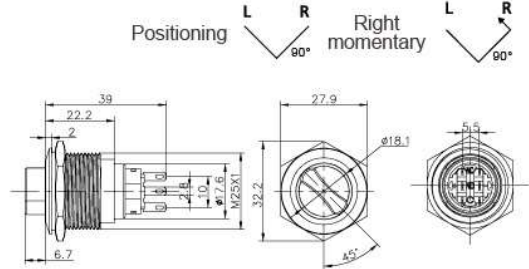
## Dimension

N Series Pushbutton



FM25N-SFP-★ X  
FM25N-SFP-★ X/fu

**Installation hole diameter :** Φ25mm  
**Head shape :** two-position knob  
**Operating type :** positioning/right resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in

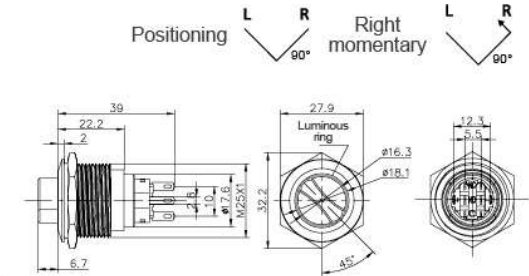


E Series Pushbutton



FM25N-SFP-★ XD1/▲  
FM25N-SFP-★ XD1/▲/fu

**Installation hole diameter :** Φ25mm  
**Head shape :** two-position knob  
**Operating type :** positioning/right resetting  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :** (R) (G) (Y) (B) (W)  
**Working voltage ■ :** 6/12/24/36/48/110/220

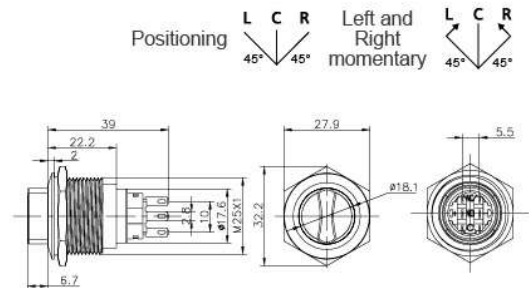


S Series Pushbutton



FM25N-SFP-22XS  
FM25N-SFP-22XS/fu

**Installation hole diameter :** Φ25mm  
**Head shape :** three-position knob  
**Operating type :** positioning/left and right momentary  
**Contact type :** 2NO2NC  
**Wiring method :** plug-in

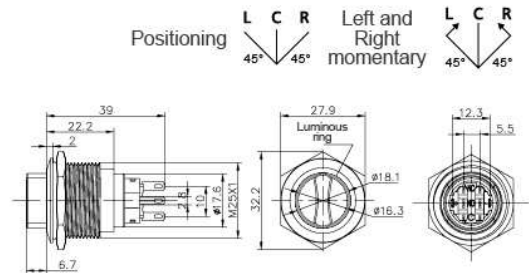


L Series Indicator



FM25N-SFP-22XSD1/▲  
FM25N-SFP-22XSD1/▲/fu

**Installation hole diameter :** Φ25mm  
**Head shape :** three-position knob  
**Operating type :** positioning/left and right momentary  
**Contact type :** 2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :** (R) (G) (Y) (B) (W)  
**Working voltage ■ :** 6/12/24/36/48/110/220



Installation Instructions and Accessories

Protection Class Instructions

Note: Indicate the voltage code at ■, refer to P11 for details    L: Left    C: Center    R: Right

**Φ25 product pushbuttons**

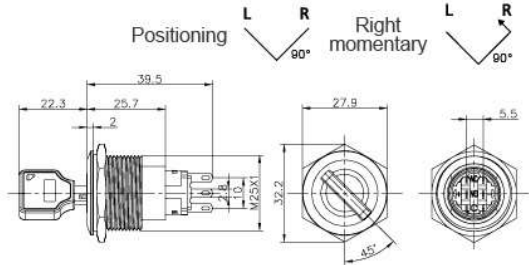
**Specification**

**Dimension**



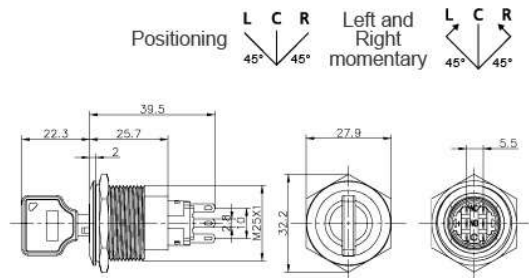
FM25N-SFP-★ Y/  
FM25N-SFP-★ Y/fu

**Installation hole diameter** : Φ25mm  
**Head shape** : two-position key switch  
**Operating type** : positioning/right resetting  
**Contact type** ★ : 1NO1NC/2NO2NC  
**Wiring method** : plug-in



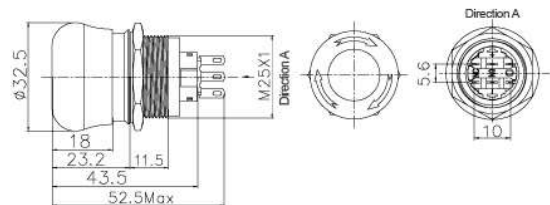
FM25N-SFP-22YS  
FM25N-SFP-22YS/ffu

**Installation hole diameter** : Φ25mm  
**Head shape** : three-position key switch  
**Operating type** : positioning/left and right momentary  
**Contact type** : 2NO2NC  
**Wiring method** : plug-in



FM25N-SFP-★ Z

**Installation hole diameter** : Φ25mm  
**Head shape** : emergency stop  
**Operating type** : rotation and resetting  
**Contact type** ★ : 1NO1NC/2NO2NC  
**Wiring method** : plug-in



Note: Indicate the voltage code at ■ , refer to P11 for details L: Left C: Center R: Right



# FM\*E Series

Standard Pushbutton

## Metal Pushbutton

Φ12 / Φ16 / Φ19 / Φ22 / Φ25 / Φ30



CCC CQC CE RoHS



N Series Pushbutton  
E Series Pushbutton  
S Series Pushbutton  
L Series Indicator  
Installation Instructions and Accessories  
Protection Class Instructions

## Standard Pushbutton

- Diverse installation hole diameters (Φ12/Φ16/Φ19/Φ22/Φ25/Φ30)
- Diverse head shapes
- Protection class of IP65
- Annular or dotted illuminated type, bidirectional conduction structure LED, no need to distinguish the positive and negative polarities during use
- Screw wiring or plug-in wiring method is optional
- Φ22/Φ25 can be provided with standard wired terminal block
- Aluminum alloy anodic oxidation coloring products can be customized for all series products
- Laser engraving of pattern and text can be carried out according to the customer's drawing

### Details



Rich type of contacts, with up to 2NO2NC available



Diverse head shapes



Annular or dotted illuminated type, bidirectional conduction structure LED, no need to distinguish the positive and negative polarities during use



Protection class of IP65



Rich installation hole diameters, from Φ12 to Φ30

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

## Technical Feature






| Product order code                                    | FM12E   | FM16E   | FM19E  | FM22E  | FM25E     | FM30E |
|---|---|---|--|--|-----------|-------|
| Total length  | Max 22mm  | Max 25mm  | Max 36mm   | Max 45mm   |           |       |
| Panel front thickness                                 | 7.2mm   | About 1.5mm for flat head<br>About 3.5mm for high head<br>About 2.5mm for arc-shaped head | About 2.0mm for flat head<br>About 3.5mm for high head | About 2.0mm for flat head<br>About 5.0mm for high head and arc-shaped head |           |       |
| Panel thickness                                       | 1-3mm   | 1-6mm   |  |  |           |       |
| Conventional thermal current                          | 5A  |   |  |  |           |       |
| Rated insulation voltage                              | 250V  |   |  |  |           |       |
| Rated impulse withstand voltage                       | 2500V   |   |  |  |           |       |
| Insulation resistance                                 | 100MΩ   |   |  |  |           |       |
| Contact resistance of contact (initial value)         | ≤50mΩ   |   |  |  |           |       |
| Rated voltage/ current under various usage categories | AC-15   | 24V/2A<br>110V/1A<br>220V/0.5A  | 24V/3A   | 110V/1A  | 220V/0.5A |       |
|   | DC-13   | 24V/0.7A  |  | 110V/0.2A  | 220V/0.1A |       |
| Contact type  | 1NO   |   | 1NO<br>1NO1NC  | 1NO1NC 2NO2NC  |           |       |
| Contact material                                      | Silver alloy  |   |  |  |           |       |
| Operating travel                                      | About 1.5mm   | About 2mm   |  |  |           |       |
| Operating pressure                                    | ≤5N   |   |  |  |           |       |
| Minimum applicable load of contact ★                  | 5V AC/DC  |   | 5mA  |  |           |       |
| Power frequency withstand voltage                     | 1500V AC, 50Hz, 1min                                    |   |  |  |           |       |
| Vibration resistance                                  | 10-50Hz, amplitude of 1.5mm                             |   |  |  |           |       |
| Impact resistance                                     | 10g   |   |  |  |           |       |
| Electrical endurance                                  | Momentary for 200,000 times                             |   |  | Momentary for 200,000 times, latching for 50,000 times                     |           |       |
| Mechanical endurance                                  | Momentary for 1,000,000 times                           |   |  | Momentary for 1,000,000 times, latching for 300,000 times                  |           |       |
| Working temperature                                   | -25°C~ +55°C  |   |  |  |           |       |
| Working humidity                                      | 45 ~ 90%RH  |   |  |  |           |       |
| Storage temperature                                   | -40°C~ +70°C  |   |  |  |           |       |
| Storage humidity                                      | 45 ~ 90%RH  |   |  |  |           |       |
| Protection class                                      | IP65  |   |  |  |           |       |
| Anti-collision class                                  | IK10  |   |  |  |           |       |
| Enclosure material                                    | Stainless steel, aluminum anodic oxidation (customized) |   |  |  |           |       |
| Compliance  | GB14048.5   |   | IEC60947-5   |  |           |       |

## Parameters of illuminated pushbutton

| Voltage code             | 21  | 22  | 23  | 24  | 25  | 26   | 28   |
|--------------------------|---|-----|-----|-----|-----|------|------|
| Voltage AC/DC (V)        | 6V  | 12V | 24V | 36V | 48V | 110V | 220V |
| LED current (A)          | ≤20mA   |     |     |     |     |      |      |
| LED endurance            | More than 50,000 hours (reference value)                              |     |     |     |     |      |      |
| LED type                 | Bidirectional LED, no distinction between positive and negative poles |     |     |     |     |      |      |
| Voltage reduction method | Built-in resistance (for FM16E type, external resistance)             |     |     |     |     |      |      |

★ indicates the approximate benchmark value of switchable limit in small load level such as electronic circuit, rather than the guaranteed value. Such value may vary with switching frequency, environment and expected reliability benchmark, please confirm the actual equipment under actual conditions of use.

## Order code description

| Corresponding number | FM<br>1                    | <input type="checkbox"/> 2  | E<br>3 | — <input type="checkbox"/> 4 | <input type="checkbox"/> 5 | <input type="checkbox"/> 6 | — <input type="checkbox"/> 7 | <input type="checkbox"/> 8 | <input type="checkbox"/> 9 | <input type="checkbox"/> 10 | / <input type="checkbox"/> 11 | <input type="checkbox"/> 12 | — <input type="checkbox"/> 13 |
|----------------------|----------------------------|---|--------|------------------------------|----------------------------|----------------------------|------------------------------|----------------------------|----------------------------|-----------------------------|-------------------------------|-----------------------------|-------------------------------|
| 1                    | FM                         | Flat-mounted metal pushbutton   |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 2                    | Installation hole diameter | 12 : $\Phi$ 12    16 : $\Phi$ 16    19 : $\Phi$ 19    22 : $\Phi$ 22    25 : $\Phi$ 25    30 : $\Phi$ 30  |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 3                    | Product series             | E: standard type  |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 4                    | Enclosure material         | S: stainless steel<br>A: aluminum anodic oxidation (customized)   |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 5                    | Head shape                 | F: flat round    H: high round    D: arc-shaped   |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 6                    | Tail wiring                | P: plug-in type    S: screw wiring  |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 7                    | Contact type               | 10: 1NO    11: 1NO1NC    22: 2NO2NC   |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 8                    | Function code              | No marking: momentary normal button<br>T: latching button   |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 9                    | Illumination method        | D1 :  annular illumination    D2 : dotted illumination   |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 10                   | Marking code               | No marking: no symbol mark<br>S1: power supply identification    S99: lettering as required by the customer   |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 11                   | LED color                  |  red  green  yellow  blue  white |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 12                   | Voltage code               | 21 : AC/DC 6V    22 : AC/DC12V    23 : AC/DC 24V<br>24 : AC/DC36V    25 : AC/DC48V    26 : AC/DC110V    28 : AC/DC220V  |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |
| 13                   | Auxiliary code             | No indication: standard type<br>2~10-digit character: special character   |        |                              |                            |                            |                              |                            |                            |                             |                               |                             |                               |

## Order code example

### FM30E-SDP-22TD1/w28

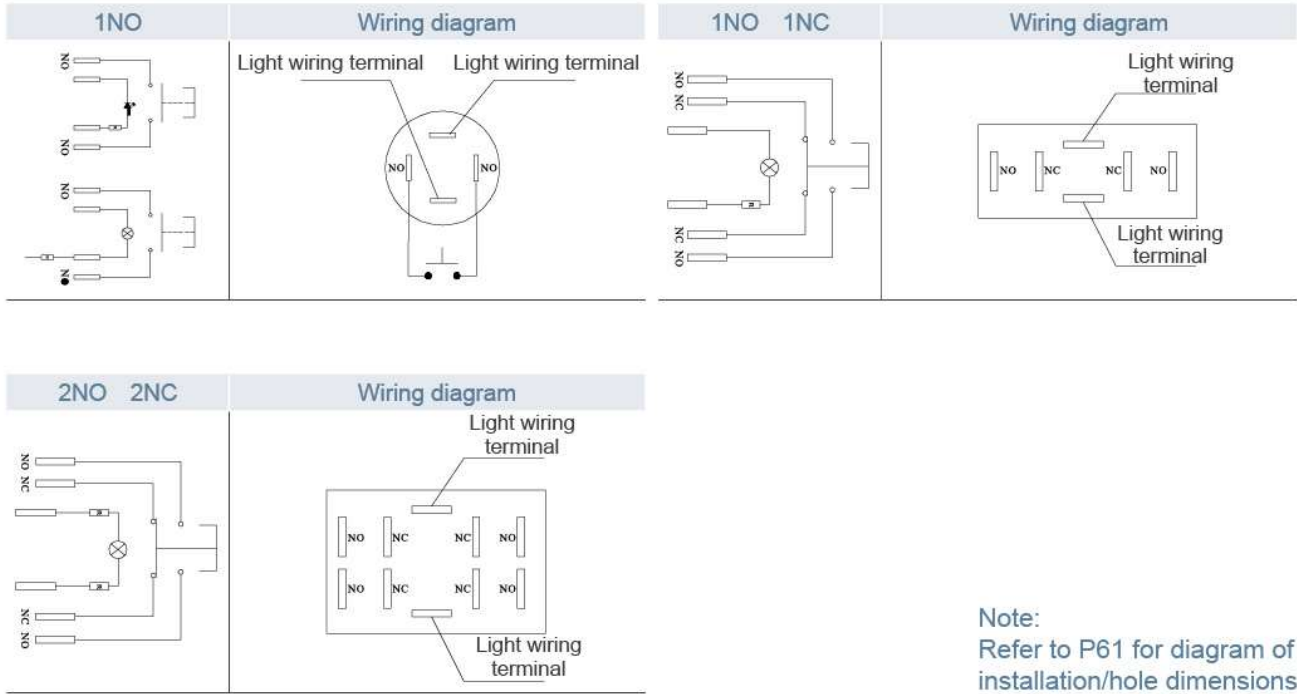
Order code explanation:

Installation hole diameter of  $\Phi$ 30, E type, stainless steel enclosure, arc-shaped, plug-in type 2NO2NC contact, white annular light, latching button, supply voltage of AC/DC220V

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

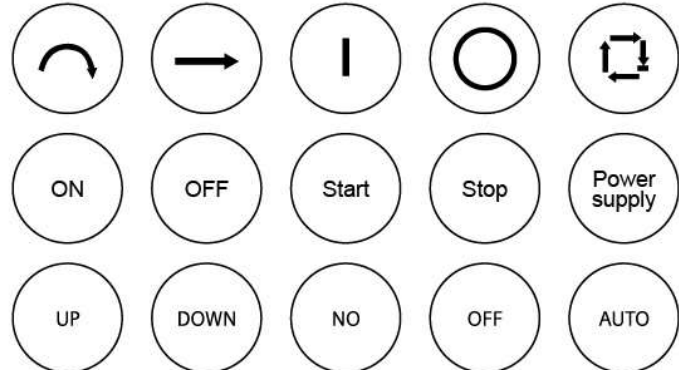
## Contact type and wiring diagram



## Symbol customization

The key surface of metal pushbutton can be customized for laser inscription with pattern or text according to the customer's requirements, which is permanent and aesthetic, and can take the role of signage.

Example of symbol customization:



Note: Please consult the APT sales personnel or distributor if customization is required.

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

**Φ12 product pushbuttons**

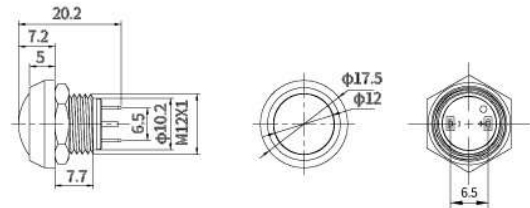
**Specification**

**Dimension**



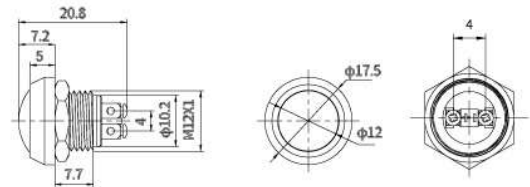
**FM12E-SDP-10**

**Installation hole diameter :** Φ12mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in



**FM12E-SDS-10**

**Installation hole diameter :** Φ12mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw



**Φ16 product pushbuttons**

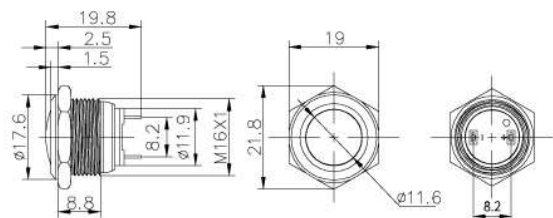
**Specification**

**Dimension**



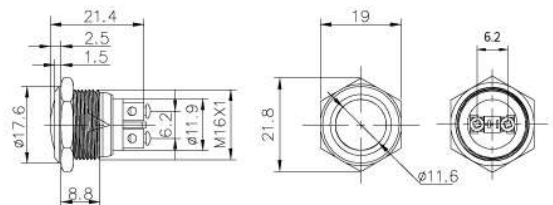
**FM16E-SDP-10**

**Installation hole diameter :** Φ16mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in



**FM16E-SDS-10**

**Installation hole diameter :** Φ16mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw



Note: Indicate the voltage code at ■ , refer to P29 for details

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

## Φ16 product pushbuttons

## Specification

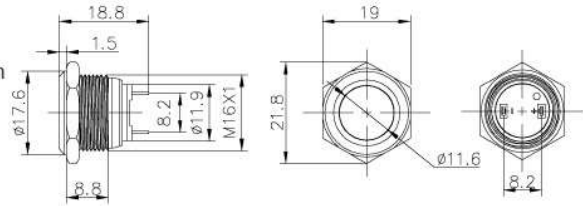
## Dimension

N Series Pushbutton

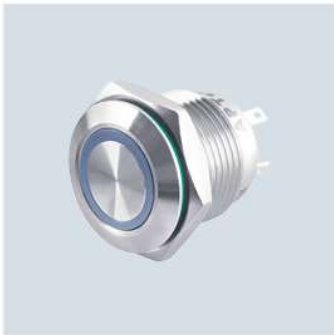


**FM16E-SFP-10**

**Installation hole diameter :** Φ16mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in

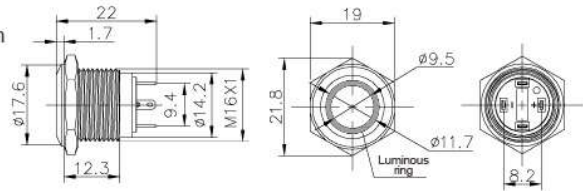


E Series Pushbutton

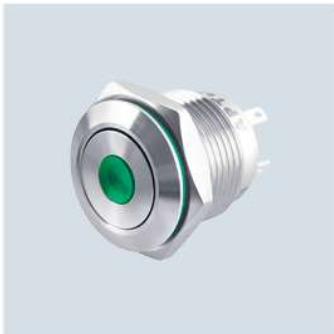


**FM16E-SFP-10D1/ ▲■**

**Installation hole diameter :** Φ16mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :** ● ● ● ● ●  
**Working voltage ■ :** 6/12/24/36/48/110/220

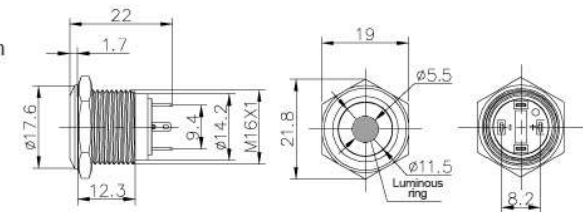


S Series Pushbutton



**FM16E-SFP-10D2/ ▲■**

**Installation hole diameter :** Φ16mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :** ● ● ● ● ●  
**Working voltage ■ :** 6/12/24/36/48/110/220

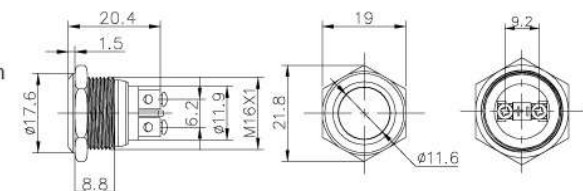


L Series Indicator



**FM16E-SFS-10**

**Installation hole diameter :** Φ16mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw



Installation Instructions and Accessories

Protection Class Instructions

Note: Indicate the voltage code at ■, refer to P29 for details

**Φ16 product pushbuttons**

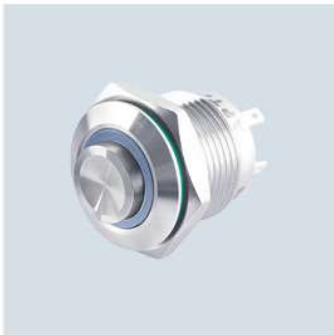
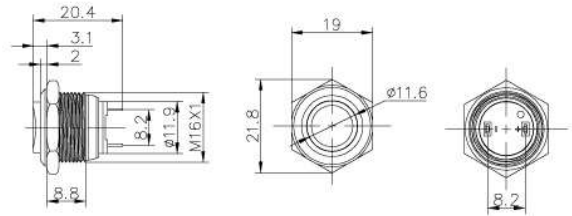
**Specification**

**Dimension**



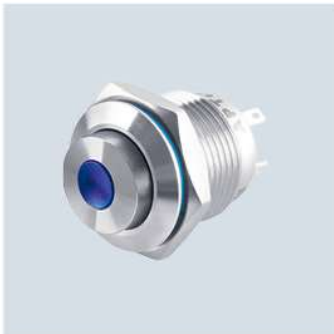
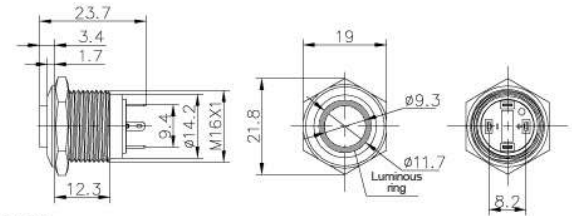
**FM16E-SHP-10**

**Installation hole diameter :** Φ16mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in



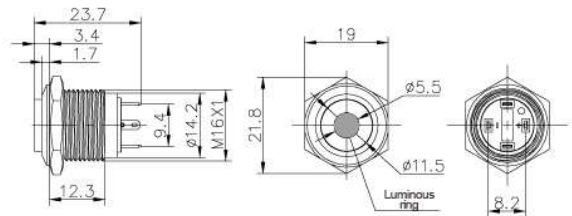
**FM16E-SHP-10D1/ ▲■**

**Installation hole diameter :** Φ16mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



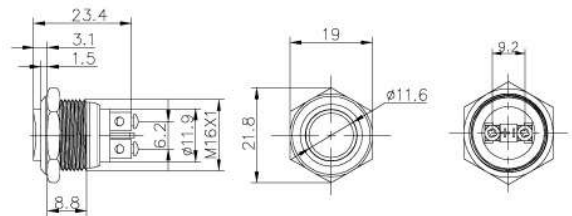
**FM16E-SHP-10D2/ ▲■**

**Installation hole diameter :** Φ16mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



**FM16E-SHS-10**

**Installation hole diameter :** Φ16mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw



Note: Indicate the voltage code at ■, refer to P29 for details

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions



# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

## Φ19 product pushbuttons

## Specification

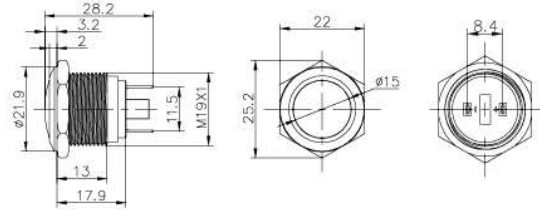
## Dimension

N Series Pushbutton

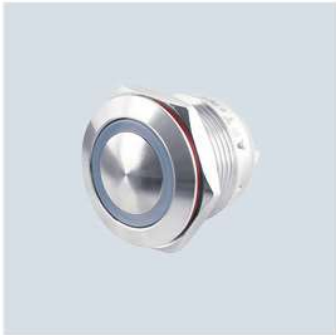


### FM19E-SDP-10

**Installation hole diameter :** Φ19mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in

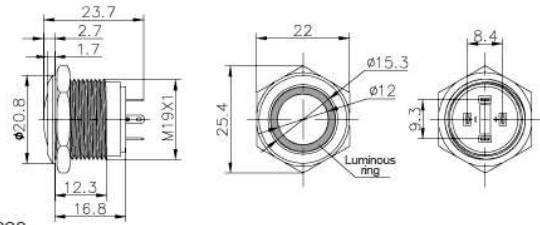


E Series Pushbutton



### FM19E-SDP-10D1/ ▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :** ● ● ● ● ●  
**Working voltage ■ :** 6/12/24/36/48/110/220

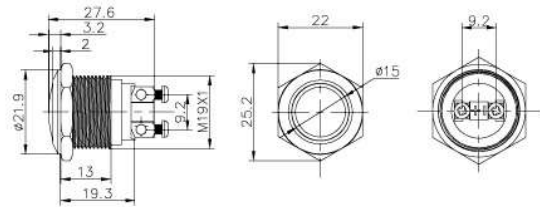


S Series Pushbutton



### FM19E-SDS-10

**Installation hole diameter :** Φ19mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw

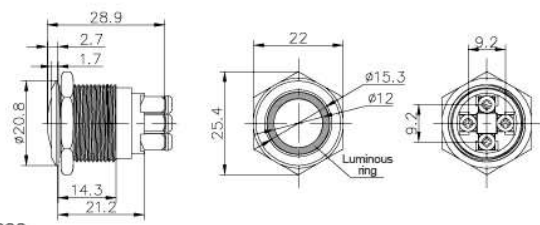


Installation Instructions and Accessories



### FM19E-SDS-10D1/ ▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw  
**Light color ▲ :** ● ● ● ● ●  
**Working voltage ■ :** 6/12/24/36/48/110/220



Protection Class Instructions

Note: Indicate the voltage code at ■, refer to P29 for details

**Φ19 product pushbuttons**

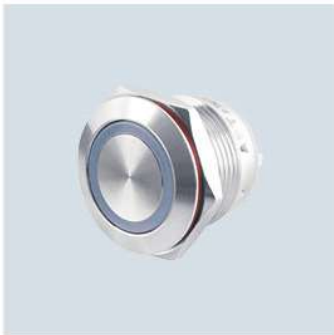
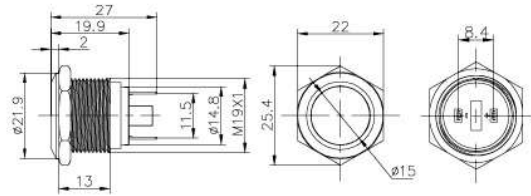
**Specification**

**Dimension**



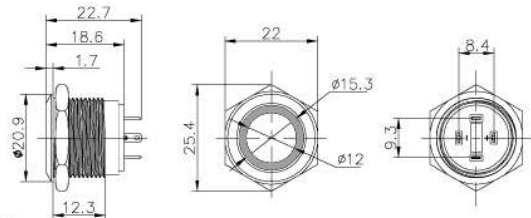
**FM19E-SFP-10**

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in



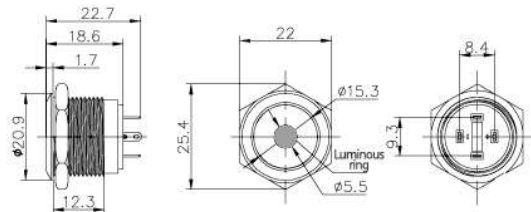
**FM19E-SFP-10D1/ ▲■**

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



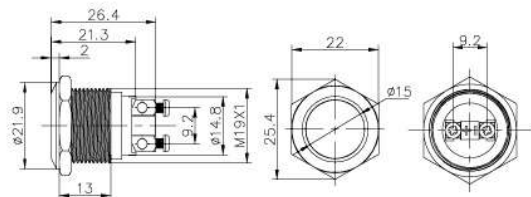
**FM19E-SFP-10D2/ ▲■**

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



**FM19E-SFS-10**

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw



Note: Indicate the voltage code at ■, refer to P29 for details

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

# FM\*E Standard Pushbutton

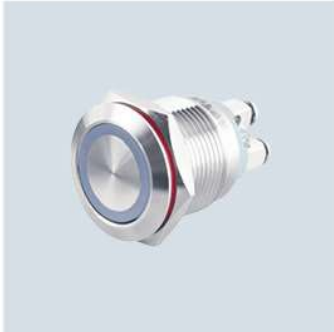
FM\*E Series Metal Pushbutton

## Φ19 product pushbuttons

## Specification

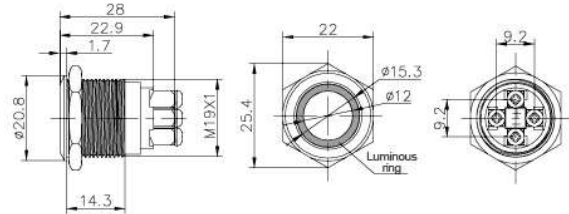
## Dimension

N Series Pushbutton



### FM19E-SFS-10D1/ ▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw  
**Light color ▲ :** ● ● ● ● ●  
**Working voltage ■ :** 6/12/24/36/48/110/220

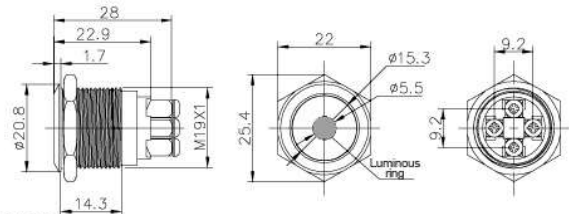


E Series Pushbutton



### FM19E-SFS-10D2/ ▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw  
**Light color ▲ :** ● ● ● ● ●  
**Working voltage ■ :** 6/12/24/36/48/110/220

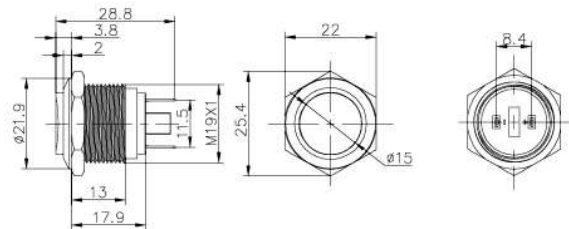


S Series Pushbutton

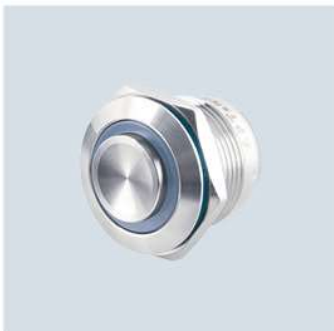


### FM19E-SHP-10

**Installation hole diameter :** Φ19mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in

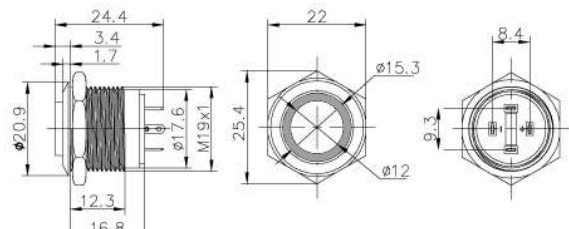


L Series Indicator



### FM19E-SHP-10D1/ ▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :** ● ● ● ● ●  
**Working voltage ■ :** 6/12/24/36/48/110/220



Installation Instructions and  
Accessories

Protection Class Instructions

Note: Indicate the voltage code at ■, refer to P29 for details

**Φ19 product pushbuttons**

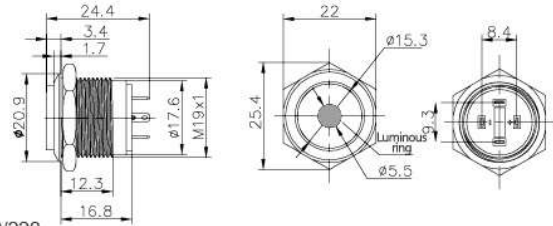
**Specification**

**Dimension**



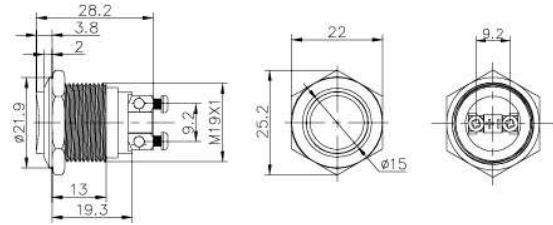
**FM19E-SHP-10D2/ ▲■**

**Installation hole diameter :** Φ19mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :** r g y b w  
**Working voltage ■ :** 6/12/24/36/48/110/220



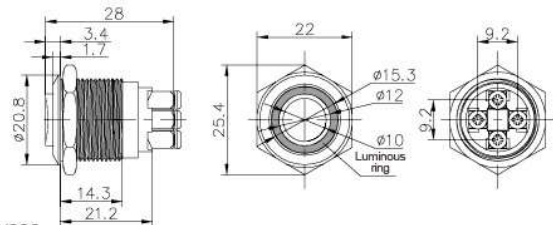
**FM19E-SHS-10**

**Installation hole diameter :** Φ19mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw



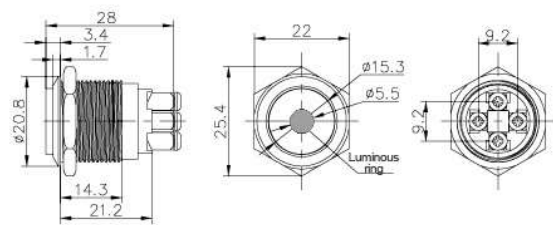
**FM19E-SHS-10D1/ ▲■**

**Installation hole diameter :** Φ19mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw  
**Light color ▲ :** r g y b w  
**Working voltage ■ :** 6/12/24/36/48/110/220



**FM19E-SHS-10D2/ ▲■**

**Installation hole diameter :** Φ19mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw  
**Light color ▲ :** r g y b w  
**Working voltage ■ :** 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■, refer to P29 for details

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

## Φ22 product pushbuttons

## Specification

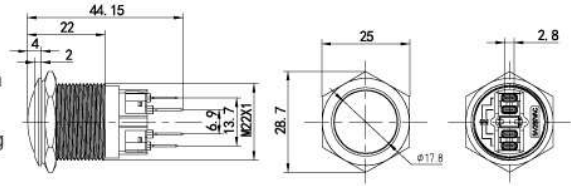
## Dimension

N Series Pushbutton

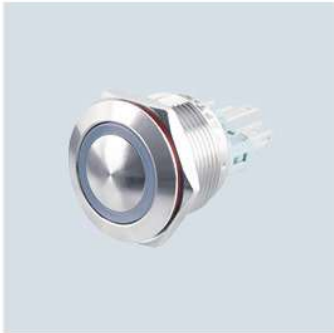


FM22E-SDP-11  
FM22E-SDP-11T

**Installation hole diameter :** Φ22mm  
**Head shape :** arc-shaped  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in

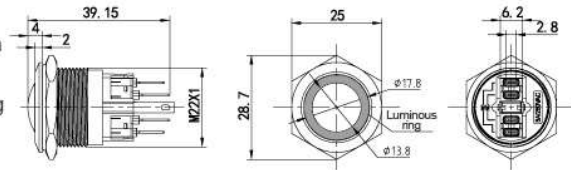


E Series Pushbutton



FM22E-SDP-11D1/ ▲ ■  
FM22E-SDP-11TD1/ ▲ ■

**Installation hole diameter :** Φ22mm  
**Head shape :** arc-shaped  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220

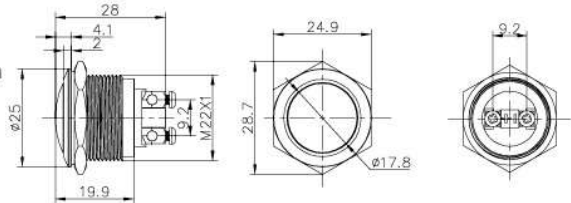


S Series Pushbutton



FM22E-SDS-10

**Installation hole diameter :** Φ22mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw

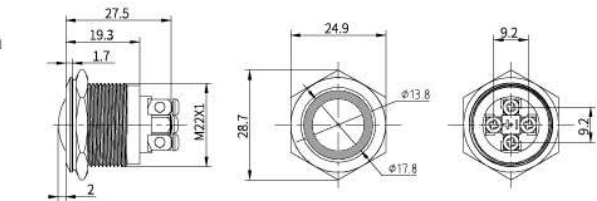


L Series Indicator



FM22E-SDS-10D1/ ▲ ■

**Installation hole diameter :** Φ22mm  
**Head shape :** arc-shaped  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



Installation Instructions and  
Accessories

Protection Class Instructions

Note: Indicate the voltage code at ■ , refer to P29 for details

**Φ22 product pushbuttons**

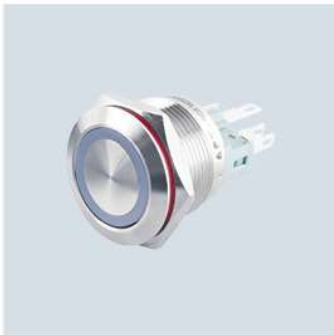
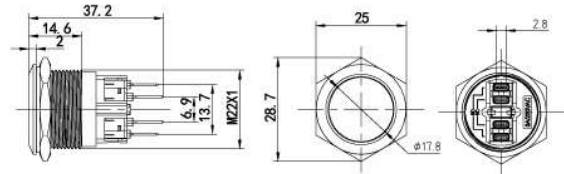
**Specification**

**Dimension**



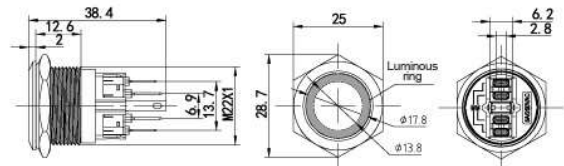
FM22E-SFP-11  
FM22E-SFP-11T

**Installation hole diameter :** Φ22mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in



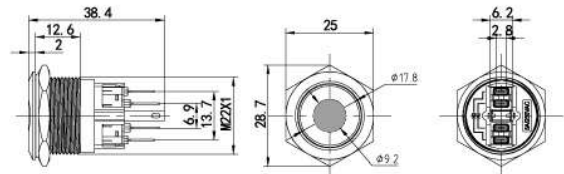
FM22E-SFP-11D1/ ▲■  
FM22E-SFP-11TD1/ ▲■

**Installation hole diameter :** Φ22mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



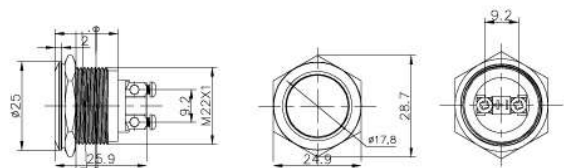
FM22E-SFP-11D2/ ▲■  
FM22E-SFP-11TD2/ ▲■

**Installation hole diameter :** Φ22mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



FM22E-SFS-10

**Installation hole diameter :** Φ22mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw



Note: Indicate the voltage code at ■ , refer to P29 for details

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and  
Accessories

Protection Class Instructions

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

## Φ22 product pushbuttons

## Specification

## Dimension

N Series Pushbutton



**FM22E-SFS-10D1/ ▲■**

**Installation hole diameter :** Φ22mm

**Head shape :** flat round

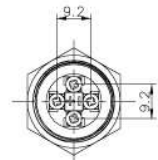
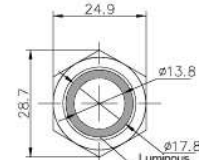
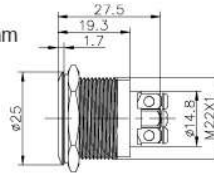
**Operating type :** momentary

**Contact type :** 1NO

**Wiring method :** screw

**Light color ▲ :** ● ● ● ● ●

**Working voltage ■ :** 6/12/24/36/48/110/220



E Series Pushbutton



**FM22E-SFS-10D2/ ▲■**

**Installation hole diameter :** Φ22mm

**Head shape :** flat round

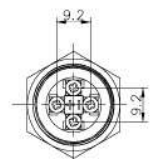
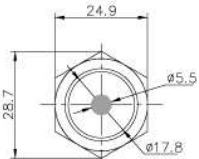
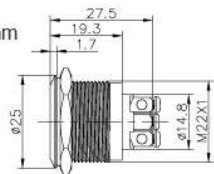
**Operating type :** momentary

**Contact type :** 1NO

**Wiring method :** screw

**Light color ▲ :** ● ● ● ● ●

**Working voltage ■ :** 6/12/24/36/48/110/220



S Series Pushbutton



**FM22E-SHP-11  
FM22E-SHP-11T**

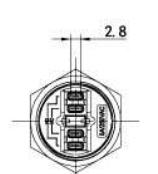
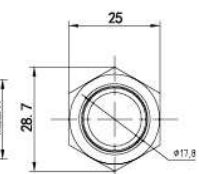
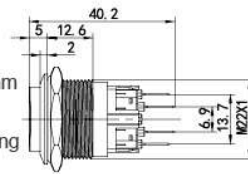
**Installation hole diameter :** Φ22mm

**Head shape :** high round

**Operating type :** momentary/latching

**Contact type :** 1NO1NC

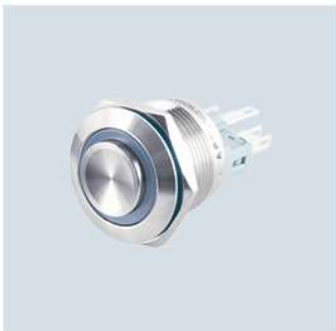
**Wiring method :** plug-in



L Series Indicator

Installation Instructions and  
Accessories

Protection Class Instructions



**FM22E-SHP-11D1/ ▲■  
FM22E-SHP-11TD1/ ▲■**

**Installation hole diameter :** Φ22mm

**Head shape :** high round

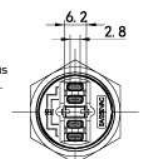
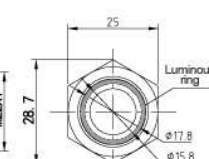
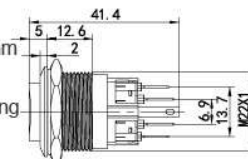
**Operating type :** momentary/latching

**Contact type :** 1NO1NC

**Wiring method :** plug-in

**Light color ▲ :** ● ● ● ● ●

**Working voltage ■ :** 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■, refer to P29 for details

**Φ22 product pushbuttons**

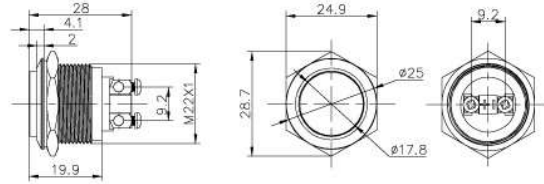
**Specification**

**Dimension**



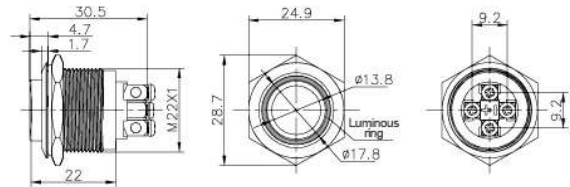
**FM22E-SHS-10**

**Installation hole diameter :** Φ22mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw



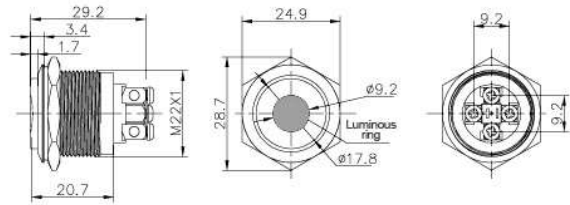
**FM22E-SHS-10D1/ ▲■**

**Installation hole diameter :** Φ22mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



**FM22E-SHS-10D2/ ▲■**

**Installation hole diameter :** Φ22mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■ , refer to P29 for details



# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

## Φ25 product pushbuttons

## Specification

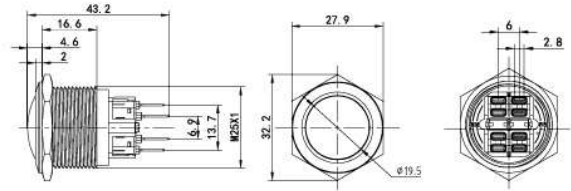
## Dimension

N Series Pushbutton

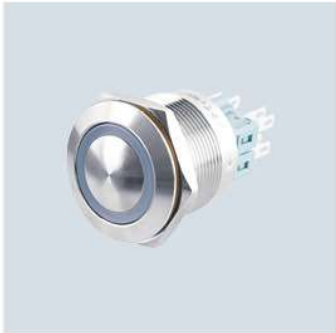


FM25E-SDP-★  
FM25E-SDP-★ T

**Installation hole diameter :** Φ25mm  
**Head shape :** arc-shaped  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in

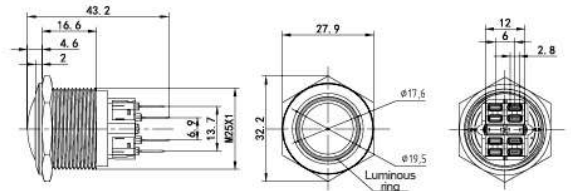


E Series Pushbutton



FM25E-SDP-★ D1/▲■  
FM25E-SDP-★ TD1/▲■

**Installation hole diameter :** Φ25mm  
**Head shape :** arc-shaped  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220

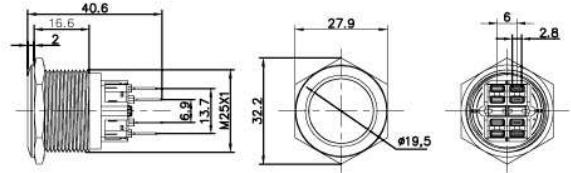


S Series Pushbutton

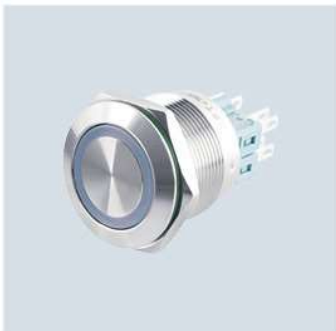


FM25E-SFP-★  
FM25E-SFP-★ T

**Installation hole diameter :** Φ25mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in

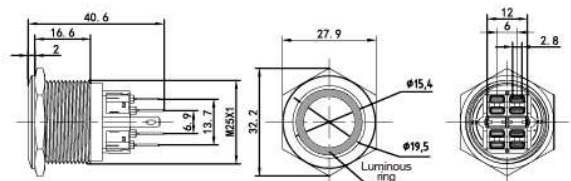


L Series Indicator



FM25E-SFP-★ D1/▲■  
FM25E-SFP-★ TD1/▲■

**Installation hole diameter :** Φ25mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



Installation Instructions and  
Accessories

Protection Class Instructions

Note: Indicate the voltage code at ■ , refer to P29 for details

**Φ25 product pushbuttons**

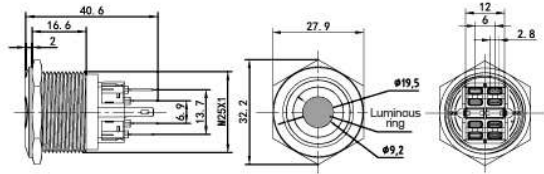
**Specification**

**Dimension**



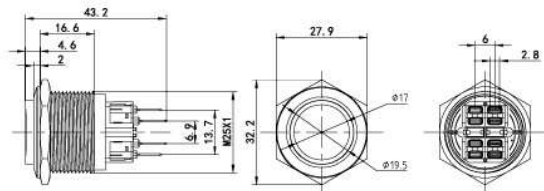
FM25E-SFP-★ D2/▲■  
FM25E-SFP-★ TD2/▲■

**Installation hole diameter :** Φ25mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :** (red) (green) (yellow) (blue) (white)  
**Working voltage ■ :** 6/12/24/36/48/110/220



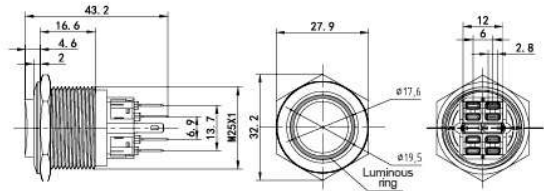
FM25E-SHP-★  
FM25E-SHP-★ T

**Installation hole diameter :** Φ25mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



FM25E-SHP-★ D1/▲■  
FM25E-SHP-★ TD1/▲■

**Installation hole diameter :** Φ25mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :** (red) (green) (yellow) (blue) (white)  
**Working voltage ■ :** 6/12/24/36/48/110/220



N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

Note: Indicate the voltage code at ■ , refer to P29 for details

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

## Φ30 product pushbuttons

## Specification

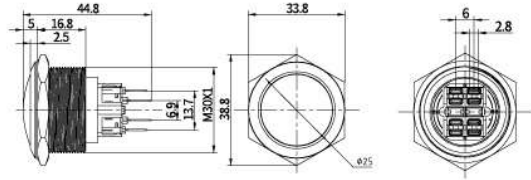
## Dimension

N Series Pushbutton



FM30E-SDP-★  
FM30E-SDP-★ T

**Installation hole diameter :** Φ30mm  
**Head shape :** arc-shaped  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in

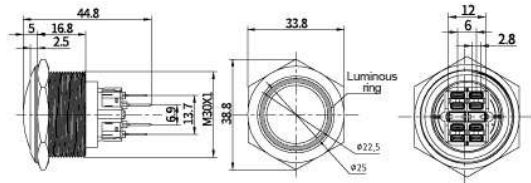


E Series Pushbutton



FM30E-SDP-★ D1  
FM30E-SDP-★ TD1

**Installation hole diameter :** Φ30mm  
**Head shape :** arc-shaped  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220

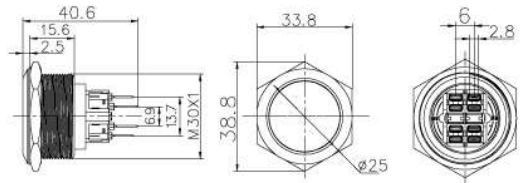


S Series Pushbutton

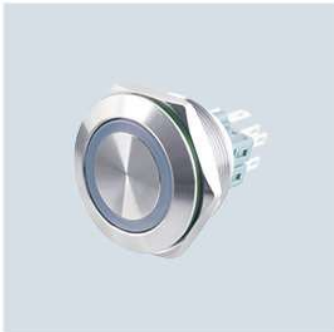


FM30E-SFP-★  
FM30E-SFP-★ T

**Installation hole diameter :** Φ30mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in

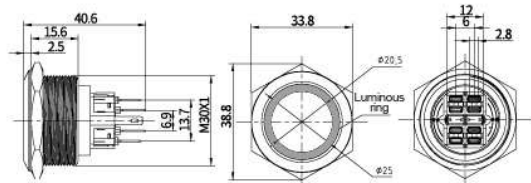


Installation Instructions and  
Accessories



FM30E-SFP-★ D1/▲■  
FM30E-SFP-★ TD1/▲■

**Installation hole diameter :** Φ30mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



Protection Class Instructions

Note: Indicate the voltage code at ■ , refer to P29 for details

**Φ30 product pushbuttons**

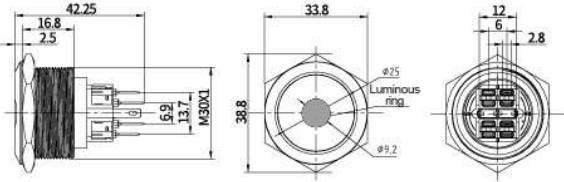
**Specification**

**Dimension**



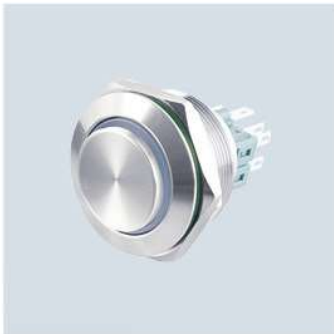
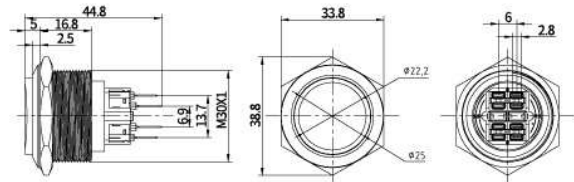
FM30E-SFP-★ D2/▲■  
FM30E-SFP-★ TD2/▲■

**Installation hole diameter :** Φ30mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



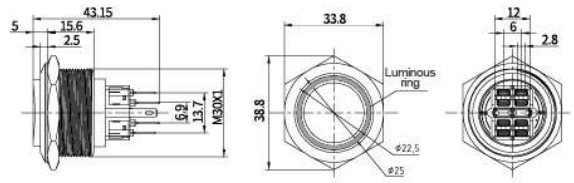
FM30E-SHP-★  
FM30E-SHP-★ T

**Installation hole diameter :** Φ30mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in



FM30E-SHP-★ D1  
FM30E-SHP-★ TD1

**Installation hole diameter :** Φ30mm  
**Head shape :** high round  
**Operating type :** momentary/latching  
**Contact type ★ :** 1NO1NC/2NO2NC  
**Wiring method :** plug-in  
**Light color ▲ :**   
**Working voltage ■ :** 6/12/24/36/48/110/220



N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

Note: Indicate the voltage code at ■ , refer to P29 for details

# FM\*S Series

Ultrathin Pushbutton

## Metal Pushbutton

Φ12 / Φ16 / Φ19 / Φ22 / Φ25



CCC CE RoHS

## Ultrathin Pushbutton

- ⦿ Ultrathin structure design, with total thickness less than 15mm
- ⦿ Diverse installation hole diameters ( $\Phi 12/\Phi 16/\Phi 19/\Phi 22/\Phi 25$ )
- ⦿ Protection class of IP65
- ⦿ Ultra-short operating travel and ultra-light weight pressing power for excellent inching operation experience
- ⦿ The minimum load is 3V 1mA for design of low-voltage micro-current application



### Details



Ultra-short operating travel and ultra-light weight pressing power for excellent inching operation experience



Ultrathin structure design, with total thickness less than 15mm



The minimum load is 3V 1mA for design of low-voltage micro-current application

# FM\*S Ultrathin Pushbutton

FM\*S Series Metal Pushbutton

## Technical Feature







| Product order code  | FM-12S  | FM-16S   | FM-19S | FM-22S | FM-25S |
|---|---|----------|--------|--------|--------|
| Total length  | Max 15mm  |          |        |        |        |
| Panel front thickness                                       | About 2mm   |          |        |        |        |
| Panel thickness   | 1-3mm   |          |        |        |        |
| Conventional thermal current                                | 2A  |          |        |        |        |
| Rated insulation voltage                                    | 25V   |          |        |        |        |
| Rated impulse withstand voltage                             | 500V  |          |        |        |        |
| Insulation resistance                                       | 100MΩ   |          |        |        |        |
| Contact resistance of contact (initial value)               | ≤50mΩ   |          |        |        |        |
| Rated voltage/<br>current under various<br>usage categories | DC-12   | 24V/0.3A |        |        |        |
| Contact material  | Silver alloy  |          |        |        |        |
| Operating travel  | 0.5mm   |          |        |        |        |
| Operating pressure  | ≤5N   |          |        |        |        |
| Minimum applicable load of contact ★                        | 3V AC/DC 1mA  |          |        |        |        |
| Power frequency withstand voltage                           | 1000V AC, 50Hz, 1min                                    |          |        |        |        |
| Vibration resistance  | 50Hz, amplitude of 1.5mm                                |          |        |        |        |
| Impact resistance   | 10g   |          |        |        |        |
| Electrical endurance  | 200,000 times   |          |        |        |        |
| Mechanical endurance  | 1,000,000 times   |          |        |        |        |
| Action frequency  | 1,200 times/hour  |          |        |        |        |
| Working temperature   | -25° C~+55° C   |          |        |        |        |
| Working humidity  | 45~90%RH  |          |        |        |        |
| Storage temperature   | -40° C~+70° C   |          |        |        |        |
| Storage humidity  | 45~90%RH  |          |        |        |        |
| Protection class  | IP65  |          |        |        |        |
| Anti-collision class  | IK10  |          |        |        |        |
| Enclosure material  | Stainless steel, aluminum anodic oxidation (customized) |          |        |        |        |
| Compliance  | GB14048.5 IEC60947-5                                    |          |        |        |        |

## Parameters of illuminated pushbutton

|                          |  |     |     |
|--------------------------|--|-----|-----|
| Voltage code             | 21   | 22  | 23  |
| Voltage AC/DC (V)        | 6V   | 12V | 24V |
| LED current (A)          | ≤20mA  |     |     |
| LED endurance            | More than 50,000 hours   |     |     |
| LED type                 | Unidirectional LED, with distinction between positive and negative poles |     |     |
| Voltage reduction method | Built-in resistance  |     |     |

★ indicates the approximate benchmark value of switchable limit in small load level such as electronic circuit, rather than the guaranteed value. Such value may vary with switching frequency, environment and expected reliability benchmark, please confirm the actual equipment under actual conditions of use.

## Order code description

| Corresponding number | FM<br>1                    | □<br>2 | S<br>3 | — □ □ □<br>4 5 6 | — □ □ □ □<br>7 8 9 10 | / □ □ □<br>11 12 13 |   |          |
|----------------------|----------------------------|--------|--------|------------------|-----------------------|---------------------|---|----------|
| 1                    | FM                         |        |        |                  |                       |                     | Flat-mounted metal pushbutton   |          |
| 2                    | Installation hole diameter |        |        | 12 : Φ12         | 16 : Φ16              | 19 : Φ19            | 22 : Φ22  | 25 : Φ25 |
| 3                    | Product series             |        |        |                  |                       |                     | S: ultrathin  |          |
| 4                    | Enclosure material         |        |        |                  |                       |                     | S: stainless steel<br>A: aluminum anodic oxidation (customized)   |          |
| 5                    | Head shape                 |        |        |                  |                       |                     | F : flat round  |          |
| 6                    | Tail wiring                |        |        |                  |                       |                     | P : plug-in   |          |
| 7                    | Contact type               |        |        |                  |                       |                     | 10 : 1NO  |          |
| 8                    | Function code              |        |        |                  |                       |                     | None: momentary normal button   |          |
| 9                    | Illumination method        |        |        |                  |                       |                     | D1 :  annular illumination   |          |
| 10                   | Marking code               |        |        |                  |                       |                     | No marking: no symbol mark<br>S99: lettering as required by the customer  |          |
| 11                   | LED color                  |        |        |                  |                       |                     |  red  green  yellow  blue  white |          |
| 12                   | Voltage code               |        |        |                  |                       |                     | 21 : AC/DC 6V   22 : AC/DC12V   23 : AC/DC 24V  |          |
| 13                   | Auxiliary code             |        |        |                  |                       |                     | No indication: standard type<br>2~10-digit character: special character   |          |

## Order code example

### FM25S-SFP-10D1/g23

Order code explanation:

Installation hole diameter of Φ25, S type, stainless steel flat round, plug-in wiring, 1NO contact, green annular light, supply voltage of AC/DC24V

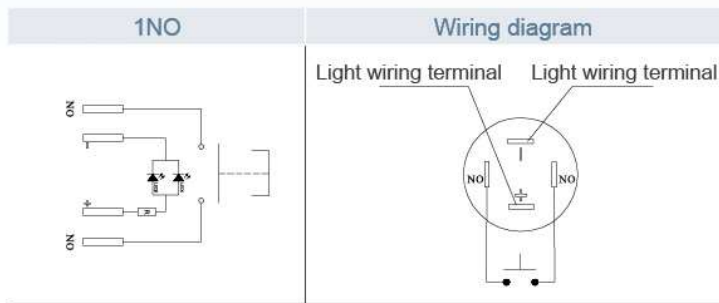


# FM\*S Ultrathin Pushbutton

FM\*S Series Metal Pushbutton



## Contact type and wiring diagram



Note:  
Refer to P61 for diagram of installation/hole dimensions

## Φ12 product pushbuttons

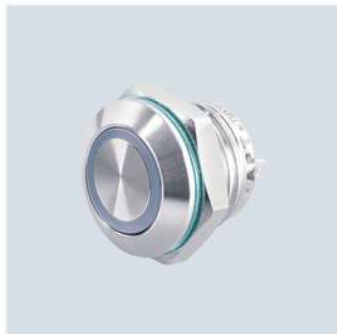
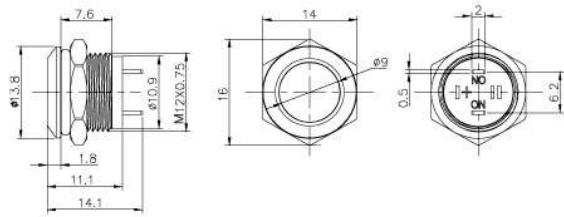
## Specification

## Dimension



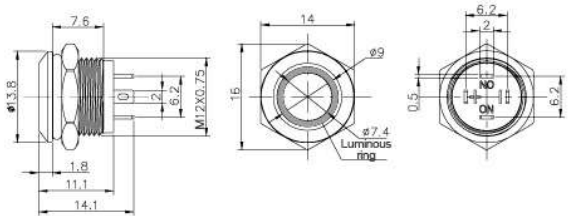
### FM12S-SFP-10

Installation hole diameter : Φ12mm  
 Head shape : flat round  
 Operating type : momentary  
 Contact type : 1NO  
 Wiring method : plug-in



### FM12S-SFP-10D1/ ▲ ■

Installation hole diameter : Φ12mm  
 Head shape : flat round  
 Operating type : momentary  
 Contact type : 1NO  
 Wiring method : plug-in  
 Light color ▲ :   
 Working voltage ■ : 6/12/24



Note: Indicate the voltage code at ■ , refer to P49 for details

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

Protection Class Instructions

**Φ16 product pushbuttons**

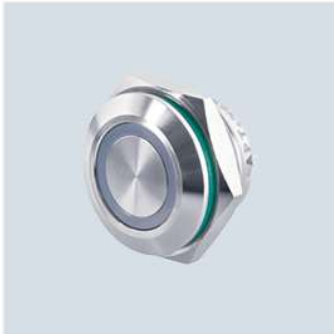
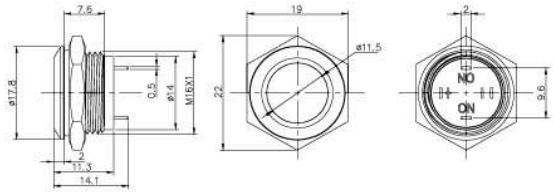
**Specification**

**Dimension**






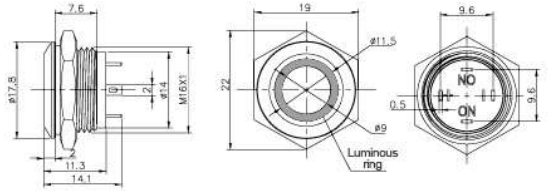
**FM16S-SFP-10**

**Installation hole diameter :** Φ16mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in



**FM16S-SFP-10D1/ ▲■**

**Installation hole diameter :** Φ16mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**       
**Working voltage ■ :** 6/12/24



**Φ19 product pushbuttons**

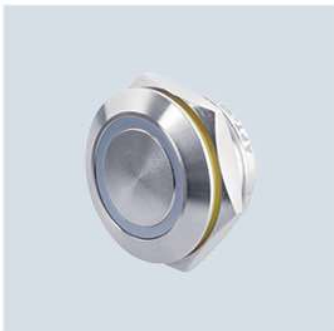
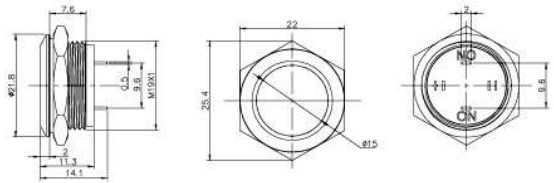
**Specification**

**Dimension**








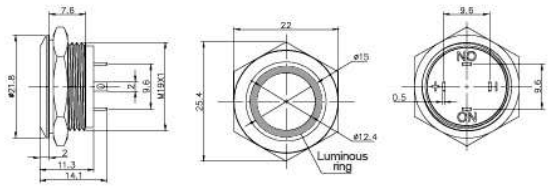
**FM19S-SFP-10**

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in



**FM19S-SFP-10D1/ ▲■**

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**       
**Working voltage ■ :** 6/12/24



Note: Indicate the voltage code at ■, refer to P49 for details

# FM\*S Ultrathin Pushbutton

FM\*S Series Metal Pushbutton

## Φ22 product pushbuttons

## Specification

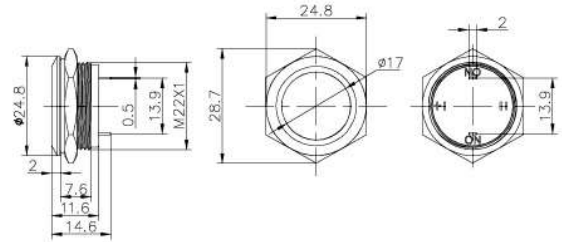
## Dimension

N Series Pushbutton



**FM22S-SFP-10**






**Installation hole diameter :** Φ22mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in

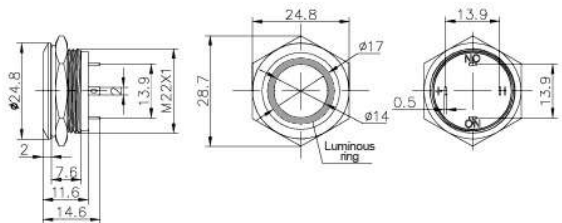


E Series Pushbutton



**FM22S-SFP-10D1/ ▲■**

**Installation hole diameter :** Φ22mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**       
**Working voltage ■ :** 6/12/24



S Series Pushbutton

## Φ25 product pushbuttons

## Specification

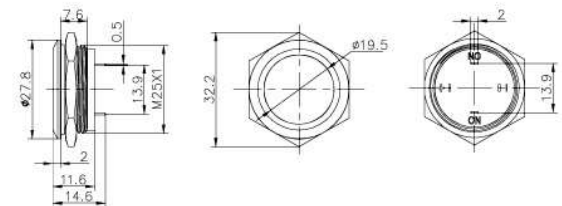
## Dimension

L Series Indicator



**FM25S-SFP-10**






**Installation hole diameter :** Φ25mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in

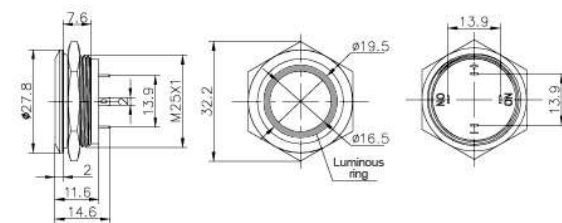


Installation Instructions and Accessories



**FM25S-SFP-10D1/ ▲■**

**Installation hole diameter :** Φ25mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :**       
**Working voltage ■ :** 6/12/24

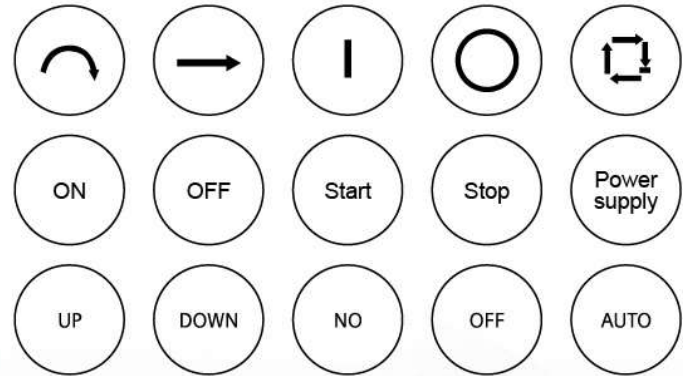


Protection Class Instructions

Note: Indicate the voltage code at ■, refer to P49 for details

## Symbol customization

The key surface of metal pushbutton can be customized for laser inscription with pattern or text according to the customer's requirements, which is permanent and aesthetic, and can take the role of signage.  
Example of symbol customization:



**Note:** Please consult the APT sales personnel or distributor if customization is required.  
The power supply identification cannot be customized due to the product structure.



# FM\*L Series

Flush Metal Indicator

## Metal Indicator

Φ12 / Φ16 / Φ19 / Φ22 / Φ25



CCC CQC CE RoHS



## Metal Indicator

- ◎ Diverse installation hole diameters (Φ12/Φ16/Φ19/Φ22/Φ25)
- ◎ High protection class of IP67
- ◎ Bidirectional conduction structure LED, no need to distinguish the positive and negative polarities during use
- ◎ High-quality high-brightness LED with endurance at least 50,000 hours
- ◎ Screw wiring or plug-in wiring method is optional
- ◎ Aluminum alloy anodic oxidation coloring products can be customized for all series products

### Details



High protection class of IP67



Screw wiring or plug-in wiring method is optional



High-quality high-brightness LED with endurance at least 50,000 hours

# FM\*L Metal Indicator

FM\*L Series Metal Indicator

## Technical Feature

| Product order code  | FM12L   | FM16L    | FM19L    | FM22L | FM25L |
|---|---|----------|----------|-------|-------|
| Total length  | Max 25mm  | Max 26mm | Max 30mm |       |       |
| Panel front thickness   | About 2mm   |          |          |       |       |
| Panel thickness   | 1-6mm   |          |          |       |       |
| Rated insulation voltage  | 250V  |          |          |       |       |
| Rated impulse withstand voltage                                   | 2500V   |          |          |       |       |
| Insulation resistance   | 100MΩ   |          |          |       |       |
| Light brightness  | > 100cd/m <sup>2</sup>                                  |          |          |       |       |
| Power frequency withstand voltage (illuminated part to enclosure) | 1500V AC, 50Hz, 1min                                    |          |          |       |       |
| Vibration resistance  | 10-50Hz, amplitude of 1.2mm                             |          |          |       |       |
| Impact resistance   | 15g   |          |          |       |       |
| Working temperature   | -25° C~+55° C   |          |          |       |       |
| Working humidity  | 45~90%RH  |          |          |       |       |
| Storage temperature   | -40° C~+70° C   |          |          |       |       |
| Storage humidity  | 45~90%RH  |          |          |       |       |
| Protection class  | IP67  |          |          |       |       |
| Anti-collision class  | IK10  |          |          |       |       |
| Enclosure material  | Stainless steel, aluminum anodic oxidation (customized) |          |          |       |       |
| Compliance  | GB14048.5 IEC60947-5                                    |          |          |       |       |

## Rated values of indicator

| Voltage code             | 21  | 22  | 23  | 24  | 25  | 26   | 28   |
|--------------------------|---|-----|-----|-----|-----|------|------|
| Voltage AC/DC (V)        | 6V  | 12V | 24V | 36V | 48V | 110V | 220V |
| Current (A)              | ≤20mA   |     |     |     |     |      |      |
| LED endurance            | More than 50,000 hours  |     |     |     |     |      |      |
| LED type                 | Bidirectional LED, no distinction between positive and negative poles |     |     |     |     |      |      |
| Voltage reduction method | Built-in resistance   |     |     |     |     |      |      |



## Order code description

| Corresponding number |                            | FM   | □ | L | — | □ | □ | □ | □ | / | □  | □ | — | □ |
|----------------------|----------------------------|--|---|---|---|---|---|---|---|---|----|---|---|---|
|                      |                            | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |   |   |   |
| 1                    | FM                         | Flat-mounted metal indicator   |   |   |   |   |   |   |   |   |    |   |   |   |
| 2                    | Installation hole diameter | 12 : Φ12    16 : Φ16    19 : Φ19    22 : Φ22    25 : Φ25   |   |   |   |   |   |   |   |   |    |   |   |   |
| 3                    | Product series             | L series   |   |   |   |   |   |   |   |   |    |   |   |   |
| 4                    | Enclosure material         | S: stainless steel<br>A: aluminum anodic oxidation (customized)  |   |   |   |   |   |   |   |   |    |   |   |   |
| 5                    | Head shape                 | F : flat round   |   |   |   |   |   |   |   |   |    |   |   |   |
| 6                    | Tail wiring                | P: plug-in type<br>S: screw wiring   |   |   |   |   |   |   |   |   |    |   |   |   |
| 7                    | Marking code               | No marking: no symbol mark<br>S99: lettering as required by the customer   |   |   |   |   |   |   |   |   |    |   |   |   |
| 8                    | LED color                  | <span style="color:red">●</span> red <span style="color:green">●</span> green <span style="color:yellow">●</span> yellow <span style="color:blue">●</span> blue <span style="color:white">●</span> white |   |   |   |   |   |   |   |   |    |   |   |   |
| 9                    | Voltage code               | 21 : AC/DC 6V    22 : AC/DC12V    23 : AC/DC 24V<br>24 : AC/DC36V    25 : AC/DC48V    26 : AC/DC110V    28 : AC/DC220V   |   |   |   |   |   |   |   |   |    |   |   |   |
| 10                   | Auxiliary code             | No indication: standard type<br>2~10-digit character: special character  |   |   |   |   |   |   |   |   |    |   |   |   |

## Order code example

### FM16L-SFP/r23

Order code explanation:

Indicator with installation hole diameter of Φ16, stainless steel enclosure, flat round, plug-in type, without lettering, red LED, supply voltage of AC/DC24V





# FM\*L Metal Indicator

FM\*L Series Metal Indicator






## Φ12 product pushbuttons

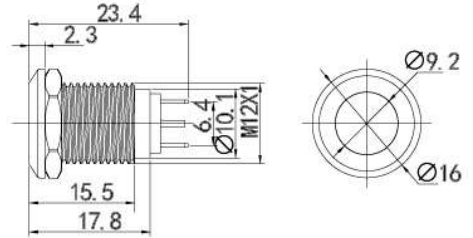
## Specification

## Dimension



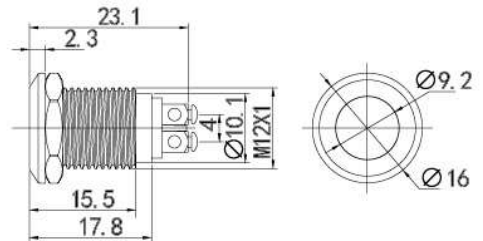
FM12L-SFP / ▲■

Installation hole diameter : Φ12mm  
 Head shape : flat round  
 Wiring method : plug-in  
 Light color ▲ :       
 Working voltage ■ : 6/12/24/36/48/110/220



FM12L-SFS / ▲■

Installation hole diameter : Φ12mm  
 Head shape : flat round  
 Wiring method : screw  
 Light color ▲ :       
 Working voltage ■ : 6/12/24/36/48/110/220



## Φ16 product pushbuttons

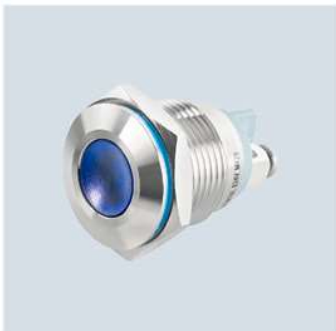
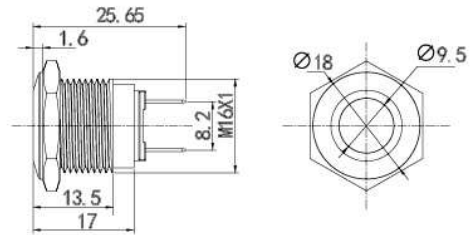
## Specification

## Dimension



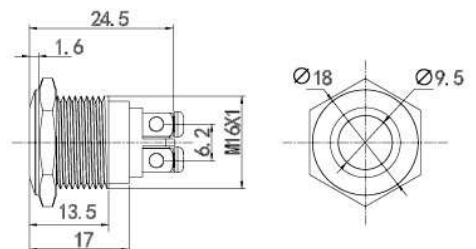
FM16L-SFP / ▲■

Installation hole diameter : Φ16mm  
 Head shape : flat round  
 Wiring method : plug-in  
 Light color ▲ :       
 Working voltage ■ : 6/12/24/36/48/110/220



FM16L-SFS / ▲■

Installation hole diameter : Φ16mm  
 Head shape : flat round  
 Wiring method : screw  
 Light color ▲ :       
 Working voltage ■ : 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■ , refer to P57 for details

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

Installation Instructions and  
Accessories

Protection Class Instructions

**Φ19 product pushbuttons**

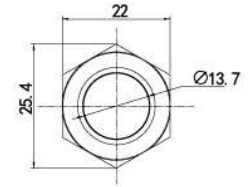
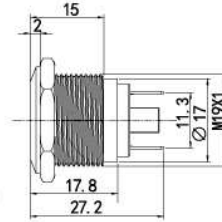
**Specification**

**Dimension**



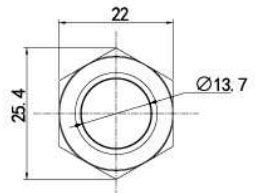
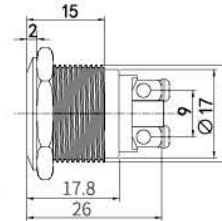
FM19L-SFP / ▲■

- Installation hole diameter : Φ19mm
- Head shape : flat round
- Wiring method : plug-in
- Light color ▲ :
- Working voltage ■ : 6/12/24/36/48/110/220



FM19L-SFS / ▲■

- Installation hole diameter : Φ19mm
- Head shape : flat round
- Wiring method : screw
- Light color ▲ :
- Working voltage ■ : 6/12/24/36/48/110/220



**Φ22 product pushbuttons**

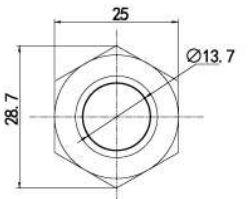
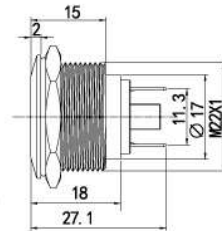
**Specification**

**Dimension**



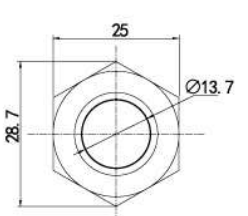
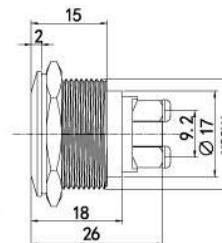
FM22L-SFP / ▲■

- Installation hole diameter : Φ22mm
- Head shape : flat round
- Wiring method : plug-in
- Light color ▲ :
- Working voltage ■ : 6/12/24/36/48/110/220



FM22L-SFS / ▲■

- Installation hole diameter : Φ22mm
- Head shape : flat round
- Wiring method : screw
- Light color ▲ :
- Working voltage ■ : 6/12/24/36/48/110/220



Note: Indicate the voltage code at ■ , refer to P57 for details

# FM\*L Metal Indicator

FM\*L Series Metal Indicator

Φ25 product pushbuttons

Specification

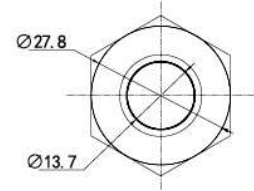
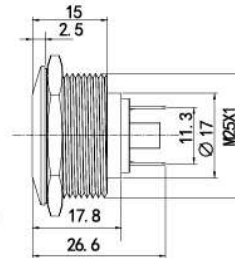
Dimension

N Series Pushbutton



FM25L-SFP / ▲■

- Installation hole diameter : Φ25mm
- Head shape : flat round
- Wiring method : plug-in
- Light color ▲ : ● ● ● ● ●
- Working voltage ■ : 6/12/24/36/48/110/220

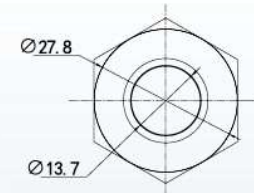
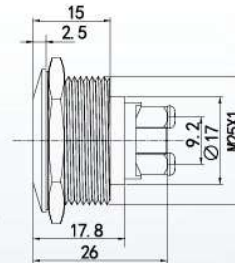


E Series Pushbutton



M25L-SFS / ▲■

- Installation hole diameter : Φ25mm
- Head shape : flat round
- Wiring method : screw
- Light color ▲ : ● ● ● ● ●
- Working voltage ■ : 6/12/24/36/48/110/220



S Series Pushbutton

L Series Indicator

Installation Instructions and Accessories

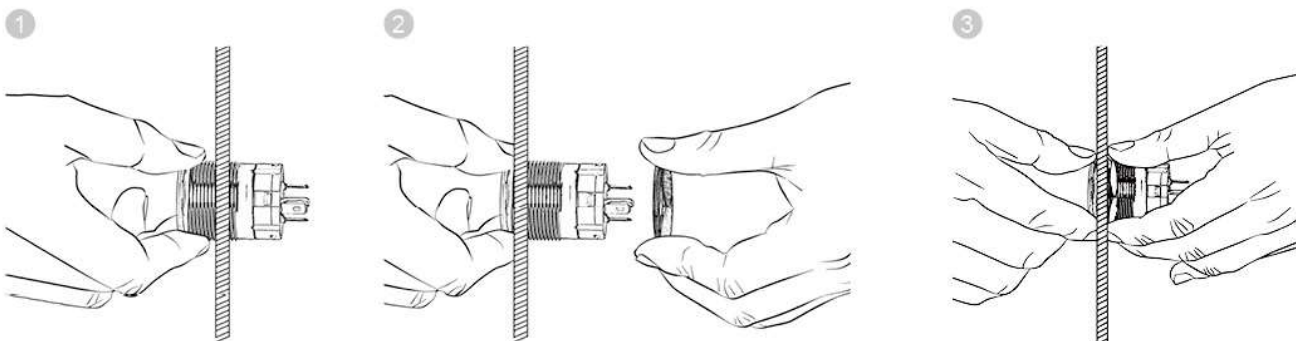
Protection Class Instructions

Note: Indicate the voltage code at ■ , refer to P57 for details

## Installation hole dimensions of pushbutton indicators

| $\Phi 12$ | $\Phi 16$ | $\Phi 19$ |
|-----------|-----------|-----------|
|           |           |           |
| $\Phi 22$ | $\Phi 25$ | $\Phi 30$ |
|           |           |           |

## Installation method



1. Insert the pushbutton or indicator into the installation hole from the front of panel.
2. Set the nut into the thread hole from the enclosure thread at the back of panel.
3. And then tighten the nut.

# Installation Instructions and Accessories

## Usage precautions for FM series pushbutton indicators

### Safety precautions

- ※ Please first cut off the power supply during installation, disassembly, wiring, maintenance and inspection of pushbuttons or indicators.
- ※ Please select the corresponding product specifications according to actual working voltage and use the product at rated voltage and current.
- ※ Please use the conductors in compliance with the voltage and current requirements.
- ※ Please be noted that the copper wire shall not contact the metal enclosure of pushbutton or indicator when wiring.
- ⚡ Please strictly observe the above requirements to avoid electric shock or fire.

### Usage precautions

- ※ When the pushbutton or indicator adopts plug-in wiring, please try to avoid direct welding, our matching accessory, terminal block, or common international socket can be used for wiring.
- ※ If welding is necessary for wiring, please obey the following requirements:
  - a. within 3 seconds for manual welding, 25W, electric soldering iron;
  - b. within 3 seconds for automatic welding, 240° C.
 No external force shall be imposed within one minute after welding, and then cover the protective sleeve. Please do not use solvent as flux to prevent the flux from penetrating into the product which will damage the product.
- ※ When the screw is used for wiring, the tightening torque of screw shall not be too big; the tightening torque of Φ12 pushbutton shall not be more than 0.2N.m, and that of Φ16 or more pushbutton shall not be more than 0.4N.m.
- ※ The indicator products shall not be directly connected to the inductive loads such as contactor and relay in parallel.
- ※ In order to ensure reliable contact, please use the accessory, terminal block, provided by our company.
- ※ The load with large difference in simultaneous ON/OFF among different groups of contacts for the pushbutton is not recommended.
- ※ Please avoid using the product in an environment with corrosive gas or liquid, and prevent the chemical solvent from contacting this product.
- ※ The original fastening may fail when the product is in a vibration environment for a long time, please try to avoid such situation or carry our periodic inspection.

## Order code description of accessory: terminal block (with conductor)

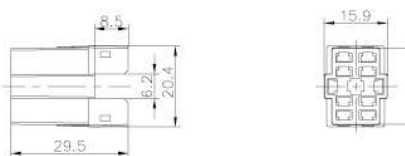
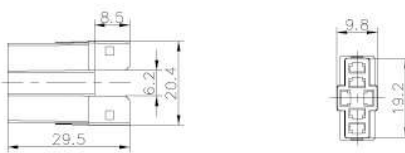
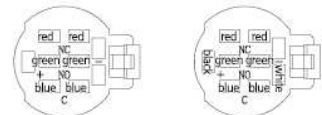
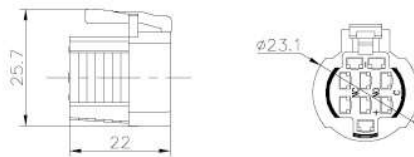
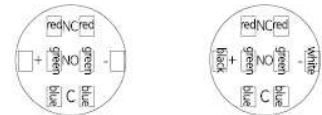
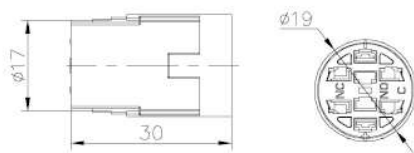
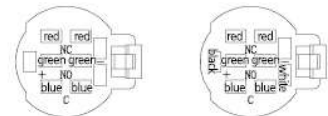
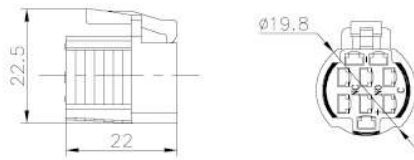
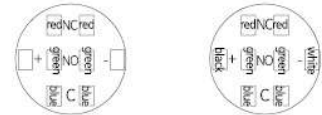
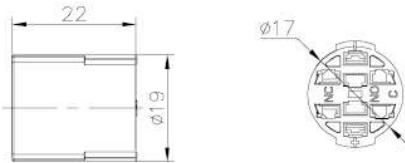
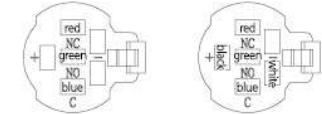
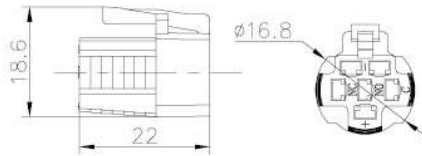
| Corresponding number |   | <input type="checkbox"/> 1                | <input type="checkbox"/> 2 | A <input type="checkbox"/> 3 | <input type="checkbox"/> 4 | — <input type="checkbox"/> 5 | / <input type="checkbox"/> 6 | <input type="checkbox"/> 7 |
|----------------------|---|---|----------------------------|------------------------------|----------------------------|------------------------------|------------------------------|----------------------------|
| 1                    | Matching hole diameter                      | 16 : Φ16                                  | 19 : Φ19                   |                              |                            | 22 : Φ22                     |                              | 25 : Φ25                   |
| 2                    | Matching series                             | N: N series                               |                            | E: E series                  |                            |                              |                              |                            |
| 3                    | Product specification                       | A: refers to accessory                    |                            |                              |                            |                              |                              |                            |
| 4                    | Accessory serial number                     | Used to distinguish different accessories |                            |                              |                            |                              |                              |                            |
| 5                    | Quantity of conductor                       | Expressed by number, e.g.:                |                            | 5: 5 pieces                  |                            | 8: 8 pieces                  |                              |                            |
| 6                    | Contact type                                | 11:1NO1NC                                 |                            | 22: 2NO2NC                   |                            |                              |                              |                            |
| 7                    | Whether the matching product is illuminated | None: not illuminated                     |                            | D: illuminated               |                            |                              |                              |                            |

### Order code example 22EA1-6/11D

Order code explanation: matching terminal block for FM22E, with 6 wires (provided with 22E11 illuminated product)

Note: The length of standard conductor is 150mm

**Product type      Dimension      Wiring diagram of terminal block**



N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

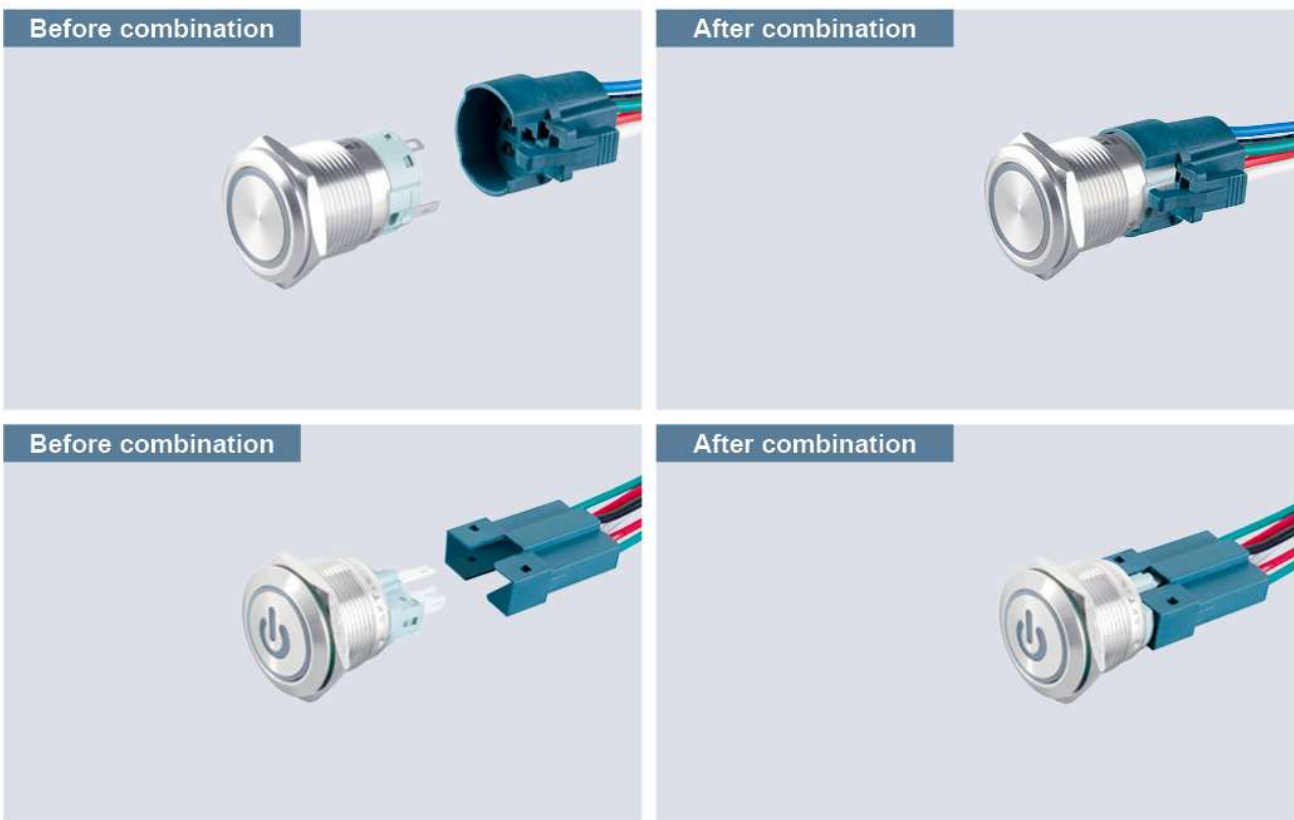
Installation Instructions and Accessories

Protection Class Instructions

# Installation Instructions and Accessories

## Comparison table of FM pushbutton accessories

| Pushbutton<br>Order code | FM*N               |                                       |                    |                                       |                    |                                       |                    |                                       | FM*E               |                    |                    |
|--------------------------|--------------------|---------------------------------------|--------------------|---------------------------------------|--------------------|---------------------------------------|--------------------|---------------------------------------|--------------------|--------------------|--------------------|
|                          | Φ16                |                                       | Φ19                |                                       | Φ22                |                                       | Φ25                |                                       | Φ22                | Φ25                | Φ30                |
|                          | Momentary Latching | Knob Key switch Emergency stop button | Momentary Latching | Knob Key switch Emergency stop button | Momentary Latching | Knob Key switch Emergency stop button | Momentary Latching | Knob Key switch Emergency stop button | Momentary Latching | Momentary Latching | Momentary Latching |
| 16NA1                    | •                  |                                       |                    |                                       |                    |                                       |                    |                                       |                    |                    |                    |
| 16NA2                    |                    | •                                     |                    |                                       |                    |                                       |                    |                                       |                    |                    |                    |
| 19NA1                    |                    |                                       | •                  |                                       |                    |                                       |                    |                                       |                    |                    |                    |
| 19NA2                    |                    |                                       |                    | •                                     |                    | •                                     |                    | •                                     |                    |                    |                    |
| 22NA1                    |                    |                                       |                    |                                       | •                  |                                       | •                  |                                       |                    |                    |                    |
| 22EA1                    |                    |                                       |                    |                                       |                    |                                       |                    |                                       | •                  |                    |                    |
| 25EA1                    |                    |                                       |                    |                                       |                    |                                       |                    |                                       |                    | •                  | •                  |



N Series Pushbutton

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