

# Flush Metal Pushbutton & Indicator

FM\*N/E/S/L Series

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# Flush Metal Pushbutton & Indicator

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# APT

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**Flush Metal Pushbutton & Indicator**  
FM\*N/E/S/L Series

  CE RoHS





## Company Profile

APT has been established in 1993. Today it is now a Chinese leading manufacturer of low-voltage components and has been specialized in the manufacturing of low voltage products such as pushbuttons, indicators, cam switches and general-purpose relays. In August 2008, Siemens Electrical Apparatus Ltd. Suzhou (hereinafter referred to as “Siemens”) made the wholly-owned acquisition of APT, putting the APT brand and related products under the operation of Siemens. With unified quality control and R&D resources of Siemens, APT focuses on manufacturing pushbuttons, indicators and other important low-voltage products such as tower lights, control cabinets, combined lights, current transformers and limit switches etc.

Through over 20 years of promotion and application, the APT products have been widely serving dozens of industrial fields in China including power, energy, rail transit, elevator, logistics, machine tool, etc. They have been successively selected and applied in Qinshan Nuclear Power Plant, the Three Gorges Project, Shenzhou V Spacecraft, Qinghai-Tibet Railway locomotives, “Harmony” Electric Multiple Unit, “Fuxing” Electric Multiple Unit, international airports and urban metros and have become the preferred brand for national key projects. At the same time, Siemens gives full play to its international operation experience to continuously enhance the management and business development of APT and better serve the Chinese market through advanced technology and improved product line.



### **FM\*N Series Pushbutton**

Φ12 / Φ16 / Φ19 / Φ22 / Φ25

◦ Page 08

### **FM\*E Series Pushbutton**

Φ12 / Φ16 / Φ19 / Φ22 / Φ25 / Φ30

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### **FM\*S Series Pushbutton**

Φ12 / Φ16 / Φ19 / Φ22 / Φ25

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### **FM\*L Series Indicator**

Φ12 / Φ16 / Φ19 / Φ22 / Φ25

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### **Installation Instructions and Accessories**

Installation Instructions, comparison table of pushbutton accessories

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### **Protection Class Instructions**

IP, IK protection class standards

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### **Product Index via Hole Diameter**

Φ12 / Φ16 / Φ19 / Φ22 / Φ25 / Φ30

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# 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





11

12

13



Bin Picking

Start

Stop

Reset

Emergency Stop

# 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





The image shows three high-brightness LEDs arranged horizontally. The leftmost LED is blue, the middle one is yellow, and the rightmost one is red. Each LED is mounted on a dark, textured substrate. The LEDs are illuminated, casting a glow on the surface below them. The background is black.

**High-brightness LED**



# FM\*N Series

Functional Pushbutton

## Metal Pushbutton

Φ12 / Φ16 / Φ19 / Φ22 / Φ25

   RoHS



## 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 About 3.0mm for high head	About 1.5mm for flat head About 3.5mm for high head	About 1.5mm for flat head About 4.0mm for high head	About 2.0mm for flat head About 5.0mm for high head	About 2.5mm for flat head 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 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 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 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															
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 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 T: latching button                      X: two-position knob XS: three-position knob                Z: emergency stop button Y: two-position key switch              YS: three-position key switch													
9	Illumination method		D1 :  annular illumination													
10	Marking code		No marking: no symbol mark S1: power supply identification        S99: lettering as required by the customer													
11	LED color		 red  green  yellow  blue  white   red & green   red & blue   green & blue													
12	Voltage code		21 : AC/DC 6V    22 : AC/DC12V    23 : AC/DC 24V 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 2~10-digit character: special character													

## Order code example

### FM19N-SFP-22XSD1/y22

Order code explanation:

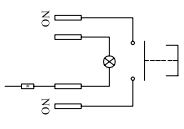
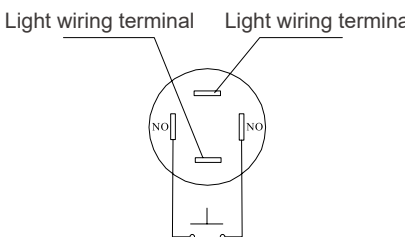
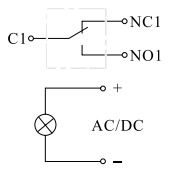
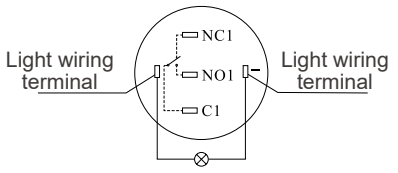
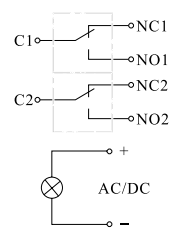
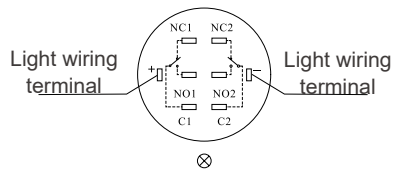
Installation hole diameter of Φ19mm, N type, stainless steel, flat round, plug-in type

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

# FM\*N Functional Pushbutton

FM\*N Series Metal Pushbutton

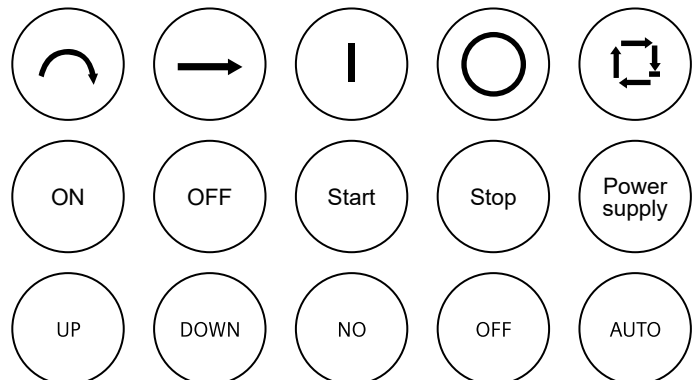
## Contact type and wiring diagram

<p>1NO</p> 	<p>Wiring diagram</p> 	<p>1NO 1NC</p> 	<p>Wiring diagram</p> 
<p>2NO 2NC</p> 	<p>Wiring diagram</p> 	<p>Note: Refer to P61 for diagram of installation/hole dimensions</p>	

## 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**

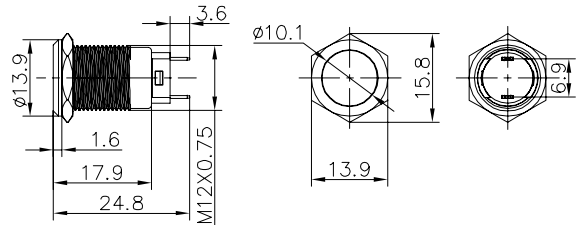
**Specification**

**Dimension**



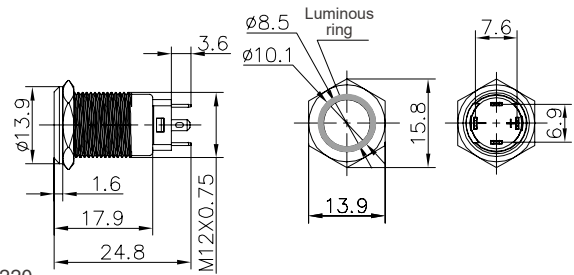
**FM12N-SFP-10**  
**FM12N-SFP-10T**

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



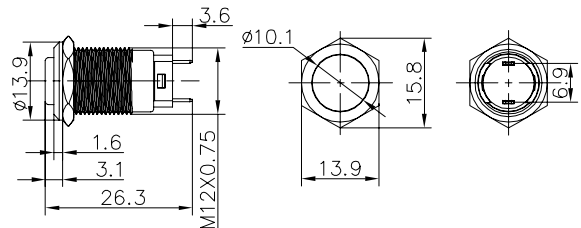
**FM12N-SFP-10D1/ ▲■**  
**FM12N-SFP-10TD1/ ▲■**

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



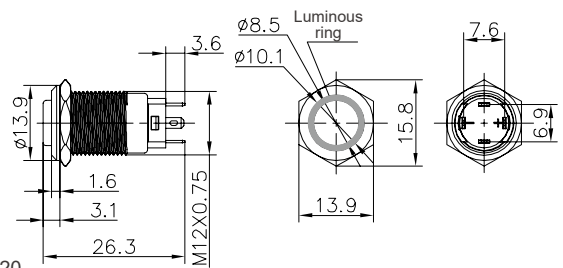
**FM12N-SHP-10**  
**FM12N-SHP-10T**

**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** ▲ : (R) (G) (Y) (B) (W)  
**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

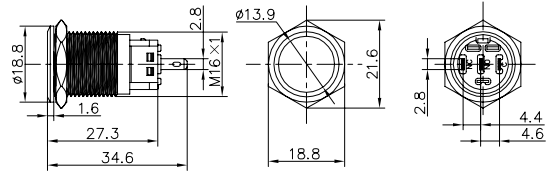
## Φ16 product pushbuttons Specification Dimension

N Series Pushbutton



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

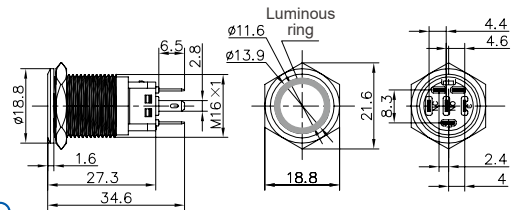


E Series Pushbutton



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 ▲ :** (r) (g) (y) (b) (w) (r) (g) (r) (b) (g) (b)  
**Working voltage ■ :** 6/12/24/36/48/110/220

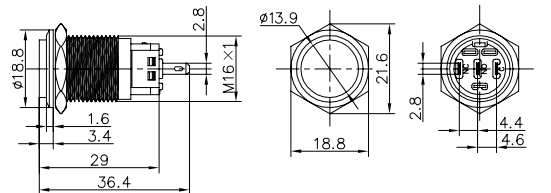


S Series Pushbutton



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

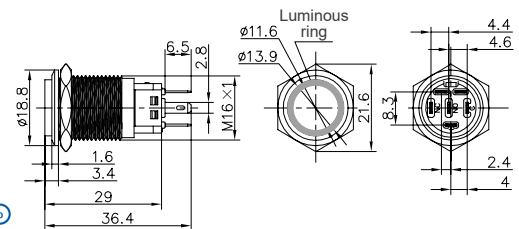


L Series Indicator



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 ▲ :** (r) (g) (y) (b) (w) (r) (g) (r) (b) (g) (b)  
**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



**Φ16 product pushbuttons**

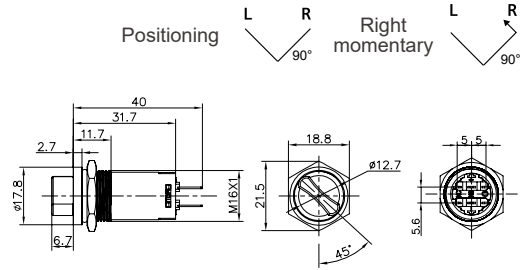
**Specification**

**Dimension**








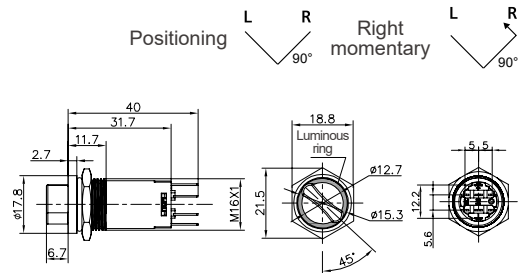
**FM16N-SFP-★ X**  
**FM16N-SFP-★ X/fu**

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



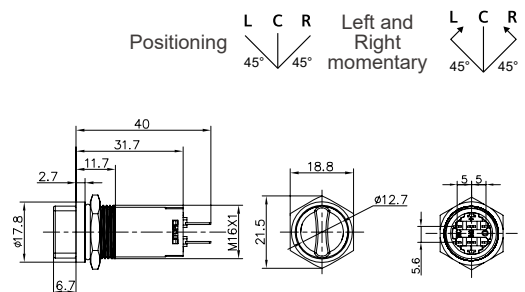
**FM16N-SFP-★ XD1/▲**  
**FM16N-SFP-★ XD1/▲ /fu**

**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








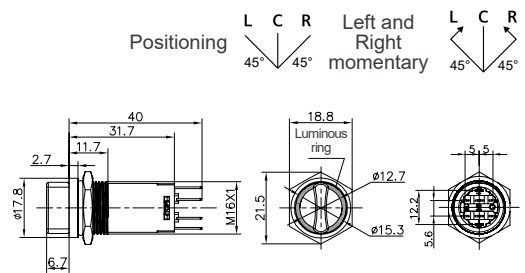
**FM16N-SFP-22XS/**  
**FM16N-SFP-22XS/fu**

**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/▲ /fu**

**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

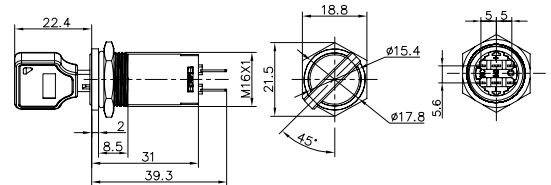
N Series Pushbutton



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 L R Right momentary L R 90° 90°



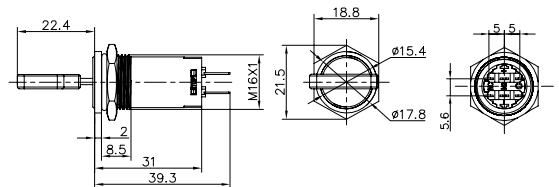
E Series Pushbutton



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 L C R Left and Right momentary L C R 45° 45° 45° 45°

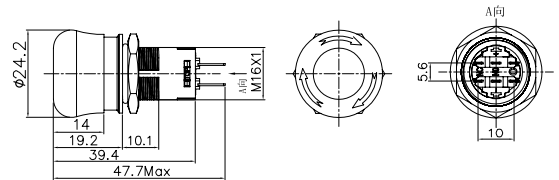


S Series Pushbutton



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**

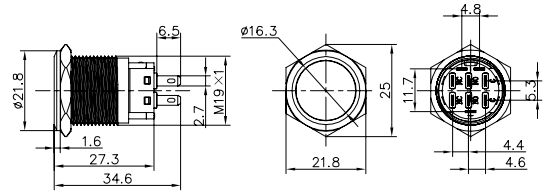
**Specification**

**Dimension**



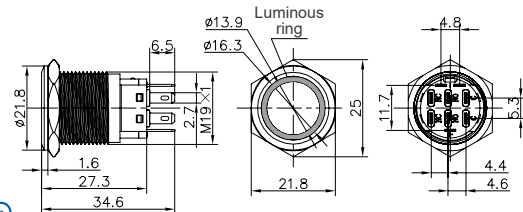
FM19N-SFP-★  
FM19N-SFP-★ T

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



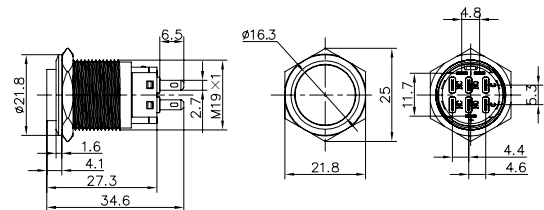
FM19N-SFP-★ D1/▲■  
FM19N-SFP-★ TD1/▲■

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



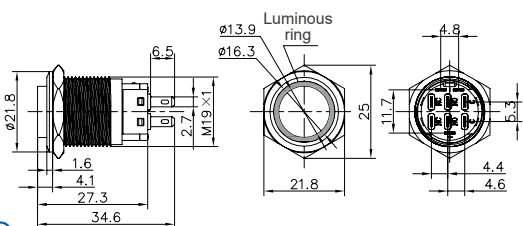
FM19N-SHP-★  
FM19N-SHP-★ T

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 ▲ : r g y b w r g r b b  
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

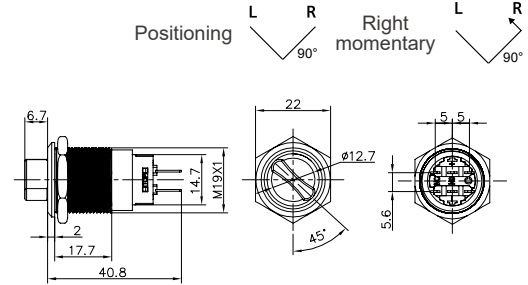
## Φ19 product pushbuttons Specification Dimension

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

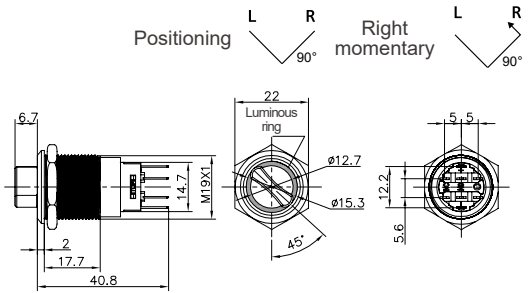


E Series Pushbutton



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 ▲:** (R) (G) (Y) (B) (W)  
**Working voltage ■:** 6/12/24/36/48/110/220

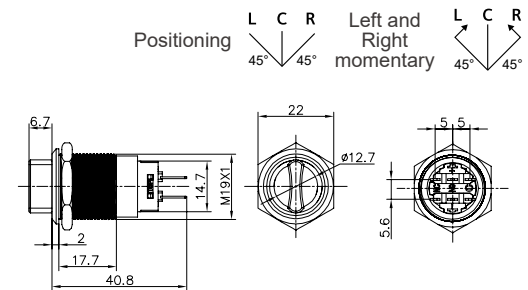


S Series Pushbutton



FM19N-SFP-22XS  
FM19N-SFP-22XS/ffu

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

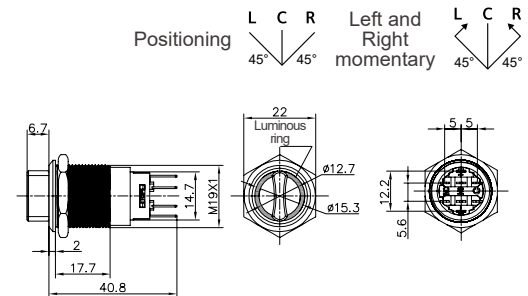


L Series Indicator



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 ▲:** (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

**Φ19 product pushbuttons**

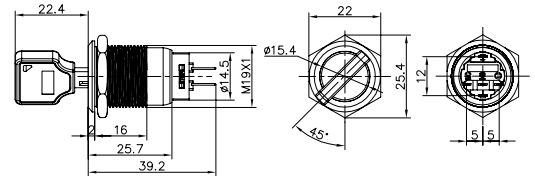
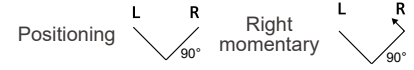
**Specification**

**Dimension**



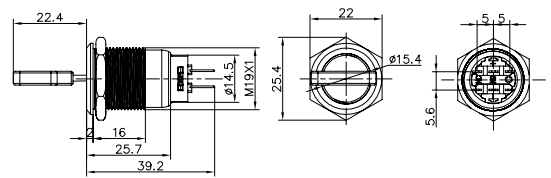
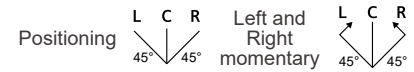
**FM19N-SFP-★ Y**  
**FM19N-SFP-★ Y/fu**

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



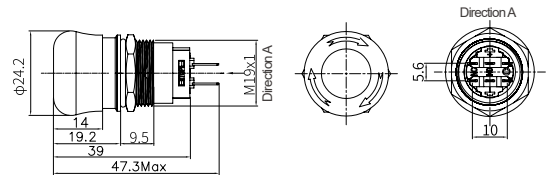
**FM19N-SFP-22YS**  
**FM19N-SFP-22YS/ffu**

**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

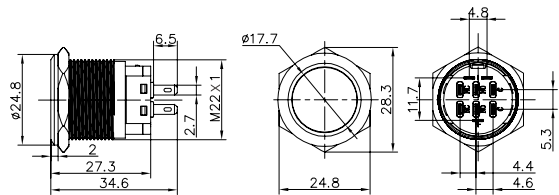
## Φ22 product pushbuttons Specification Dimension

N Series Pushbutton



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

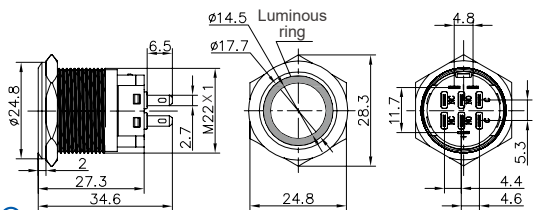


E Series Pushbutton



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

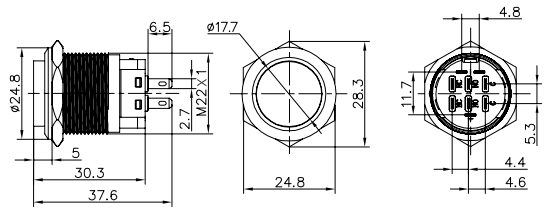


S Series Pushbutton



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

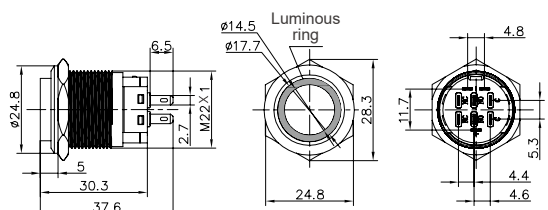


L Series Indicator



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



Installation Instructions and Accessories

Protection Class Instructions

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

**Φ22 product pushbuttons**

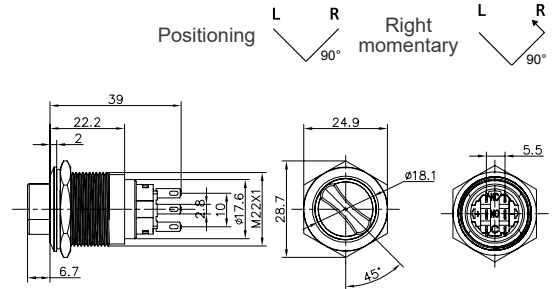
**Specification**

**Dimension**



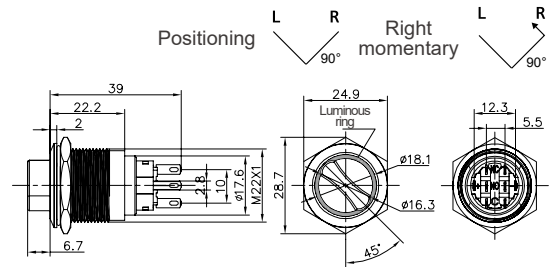
FM22N-SFP-★ X  
FM22N-SFP-★ X/fu

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



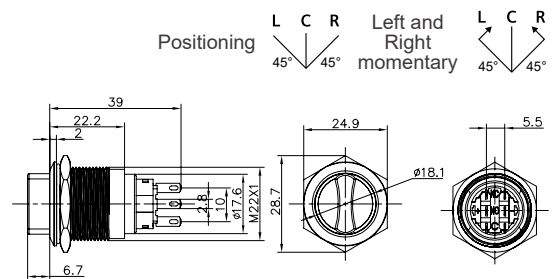
FM22N-SFP-★ XD1/▲  
FM22N-SFP-★ XD1/▲/fu

**Installation hole diameter** : Φ22mm  
**Head shape** : two-position knob  
**Operating type** : positioning/right resetting  
**Contact type** ★ : 1NO1NC/2NO2NC  
**Wiring method** : plug-in  
**Light color** ▲ :  $\begin{matrix} r & g & y & b & w \end{matrix}$   
**Working voltage** ■ : 6/12/24/36/48/110/220



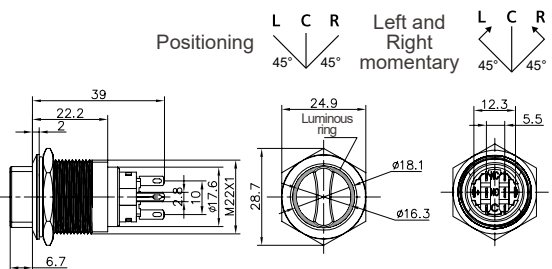
FM22N-SFP-22XS  
FM22N-SFP-22XS/ffu

**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** ▲ :  $\begin{matrix} r & g & y & b & w \end{matrix}$   
**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

## Φ22 product pushbuttons Specification Dimension

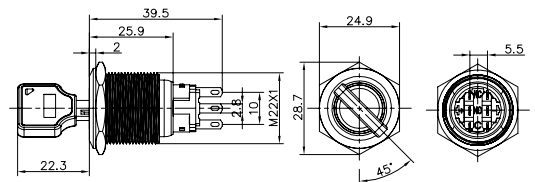
N Series Pushbutton



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  $\begin{matrix} L & R \\ & \searrow \swarrow \\ & 90^\circ \end{matrix}$  Right momentary  $\begin{matrix} L & R \\ & \searrow \swarrow \\ & 90^\circ \end{matrix}$



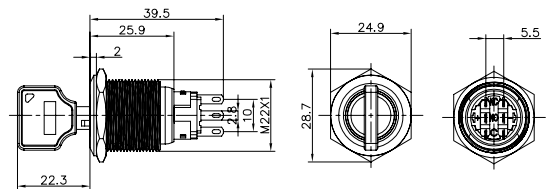
E Series Pushbutton



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  $\begin{matrix} L & C & R \\ & \searrow & \swarrow \\ & 45^\circ & 45^\circ \end{matrix}$  Left and Right momentary  $\begin{matrix} L & C & R \\ & \searrow & \swarrow \\ & 45^\circ & 45^\circ \end{matrix}$

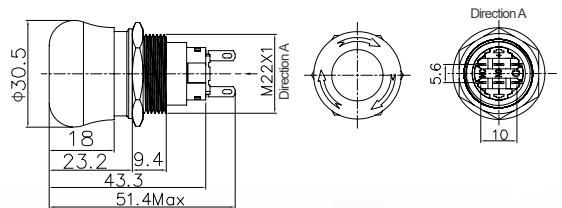


S Series Pushbutton



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**

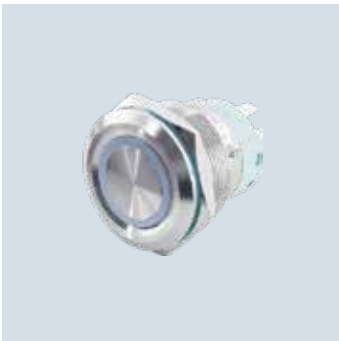
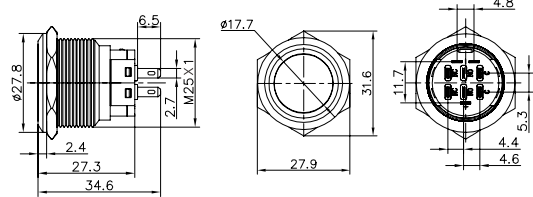
**Specification**

**Dimension**



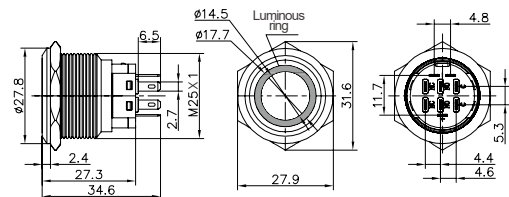
**FM25N-SFP-★**  
**FM25N-SFP-★ T**

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



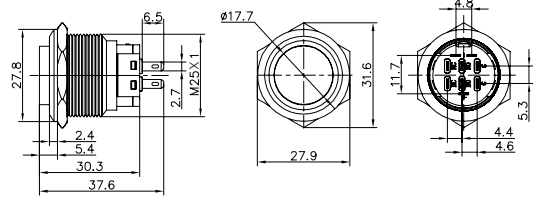
**FM25N-SFP-★ D1/▲■**  
**FM25N-SFP-★ TD1/▲■**

**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



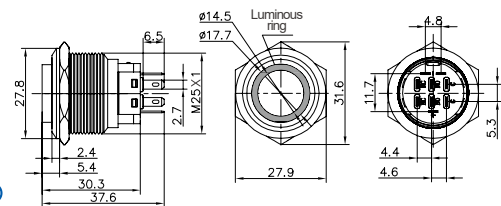
**FM25N-SHP-★**  
**FM25N-SHP-★ T**

**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

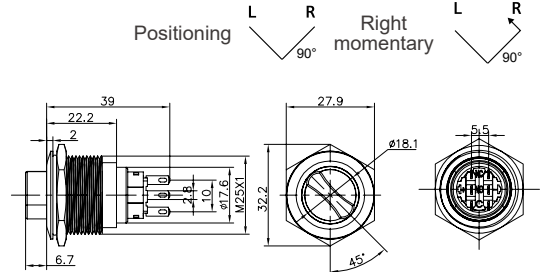
## Φ25 product pushbuttons Specification Dimension

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

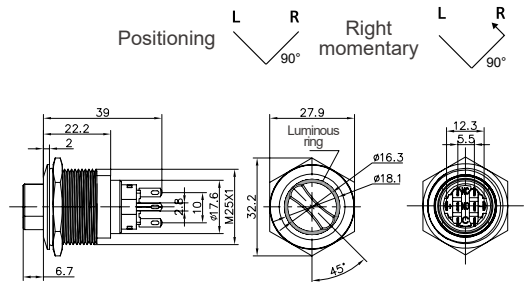


E Series Pushbutton



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

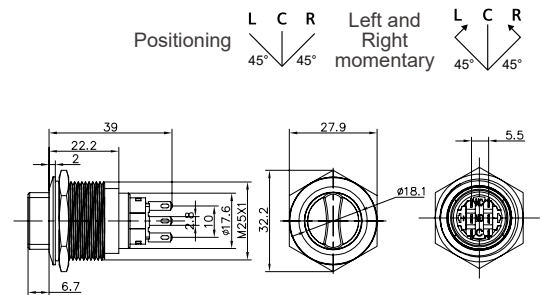


S Series Pushbutton



FM25N-SFP-22XS  
FM25N-SFP-22XS/ffu

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

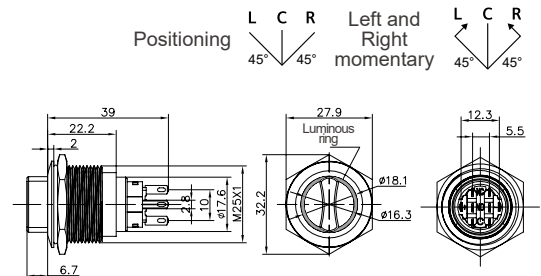


L Series Indicator



FM25N-SFP-22XSD1/▲  
FM25N-SFP-22XSD1/▲/ffu

**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



# FM\*E Series

Standard Pushbutton

## Metal Pushbutton

Φ12 / Φ16 / Φ19 / Φ22 / Φ25 / Φ30



CCC CQC CE RoHS

## 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 About 3.5mm for high head About 2.5mm for arc-shaped head	About 2.0mm for flat head About 3.5mm for high head	About 2.0mm for flat head 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 110V/1A 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 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 1	□ 2	E 3	— 4	□ 5	□ 6	— 7	□ 8	□ 9	□ 10	/ 11	□ 12	— 13
1	FM	Flat-mounted metal pushbutton											
2	Installation hole diameter	12 : Φ12    16 : Φ16    19 : Φ19    22 : Φ22    25 : Φ25    30 : Φ30											
3	Product series	E: standard type											
4	Enclosure material	S: stainless steel 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 T: latching button											
9	Illumination method	D1 :  annular illumination    D2 : dotted illumination											
10	Marking code	No marking: no symbol mark 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 24 : AC/DC36V    25 : AC/DC48V    26 : AC/DC110V    28 : AC/DC220V											
13	Auxiliary code	No indication: standard type 2~10-digit character: special character											

## Order code example

### FM30E-SDP-22TD1/w28

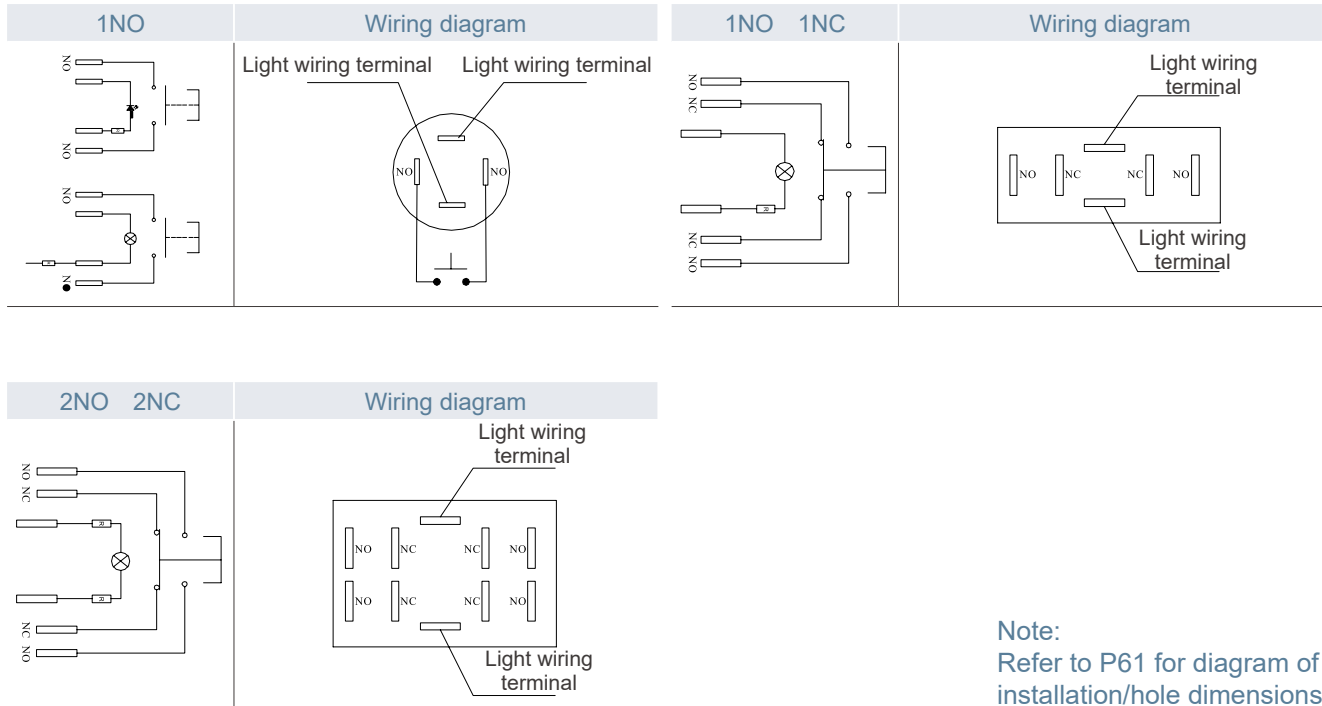
Order code explanation:

Installation hole diameter of Φ30, 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

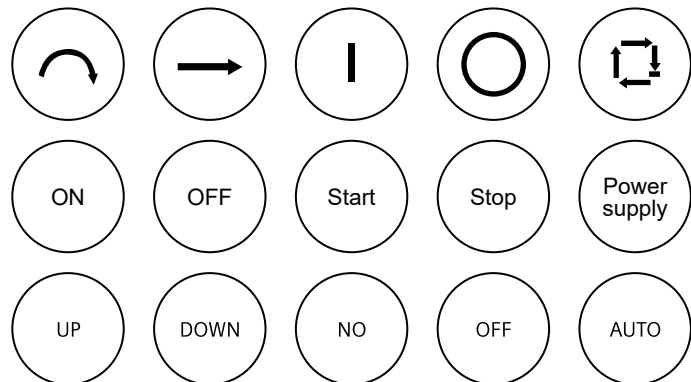
## Contact type and wiring diagram



## 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.

**Φ12 product pushbuttons**

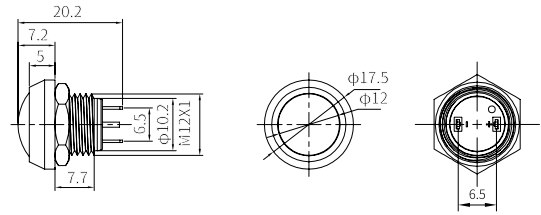
**Specification**

**Dimension**



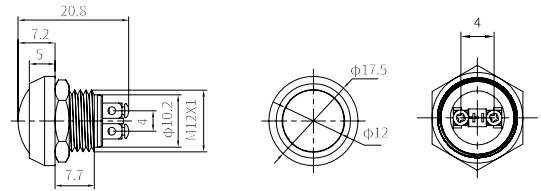
**FM12E-SDP-10**

**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**

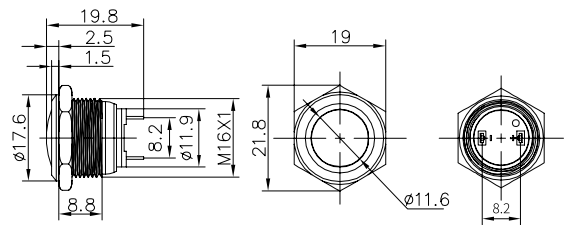
**Specification**

**Dimension**



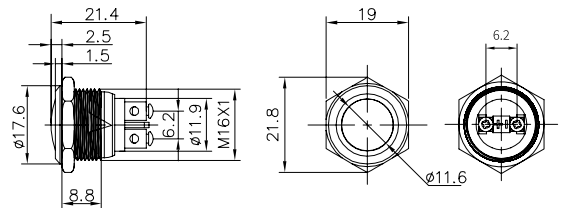
**FM16E-SDP-10**

**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

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

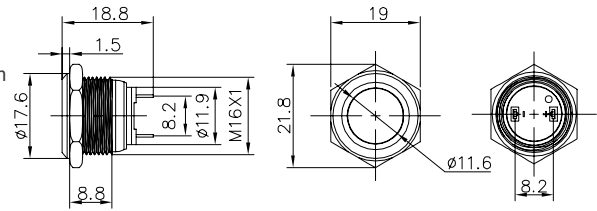
## Φ16 product pushbuttons Specification Dimension

N Series Pushbutton



### FM16E-SFP-10

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

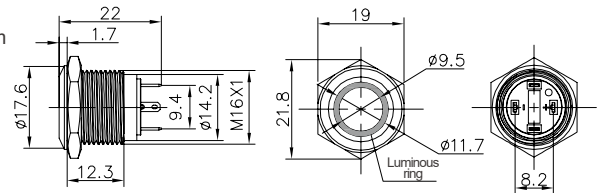


E Series Pushbutton



### FM16E-SFP-10D1/ ▲■

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

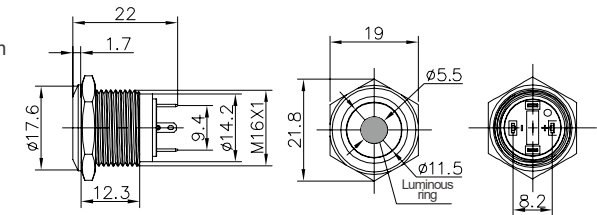


S Series Pushbutton



### FM16E-SFP-10D2/ ▲■

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

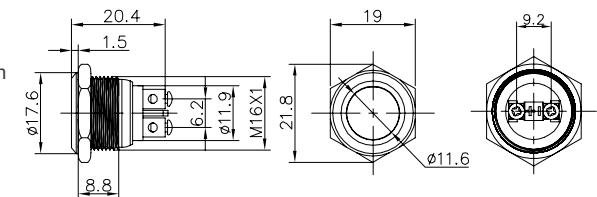


L Series Indicator



### 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**

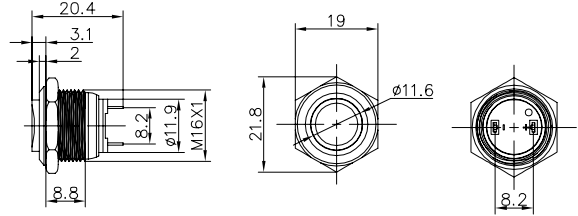
**Specification**

**Dimension**



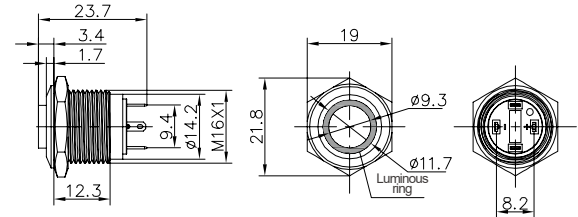
**FM16E-SHP-10**

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



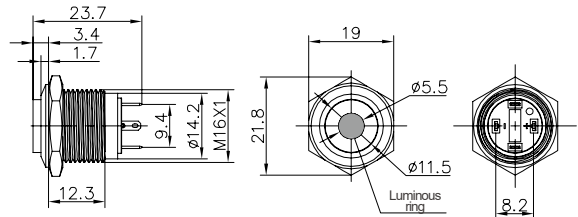
**FM16E-SHP-10D1/ ▲■**

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



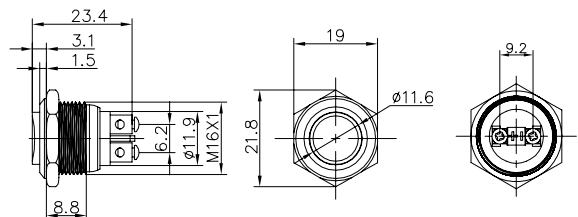
**FM16E-SHP-10D2/ ▲■**

**Installation hole diameter :** Φ16mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :** (R) (G) (Y) (B) (W)  
**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

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

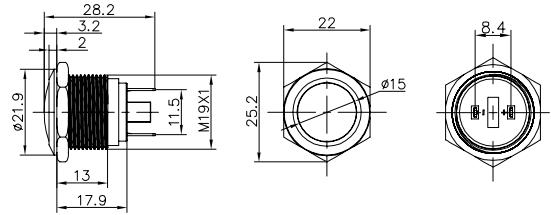
## Φ19 product pushbuttons Specification Dimension

N Series Pushbutton



### FM19E-SDP-10

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

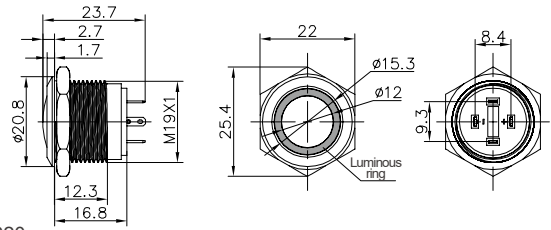


E Series Pushbutton



### FM19E-SDP-10D1/ ▲■

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

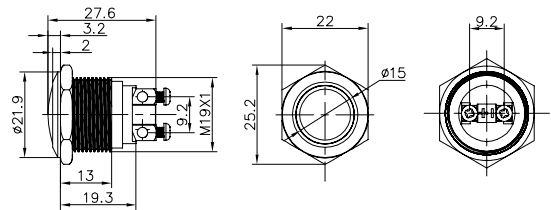


S Series Pushbutton



### FM19E-SDS-10

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

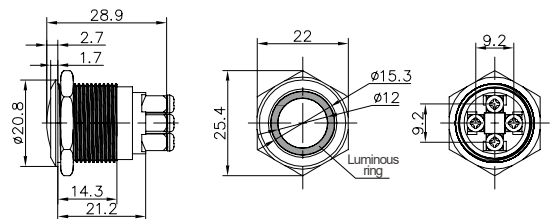


L Series Indicator



### FM19E-SDS-10D1/ ▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** arc-shaped  
**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



Installation Instructions and Accessories

Protection Class Instructions

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

**Φ19 product pushbuttons**

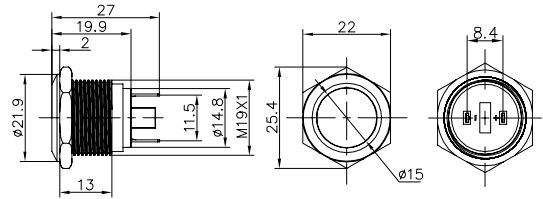
**Specification**

**Dimension**



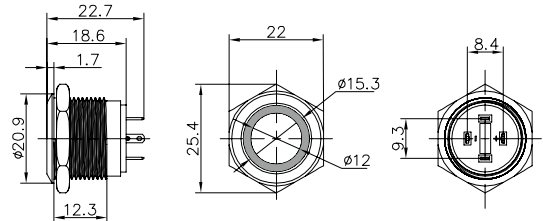
**FM19E-SFP-10**

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



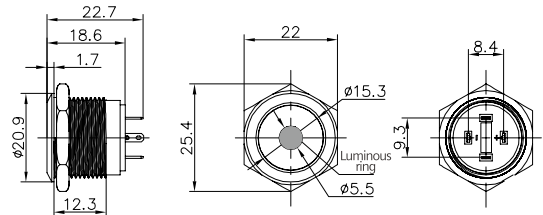
**FM19E-SFP-10D1/ ▲■**

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



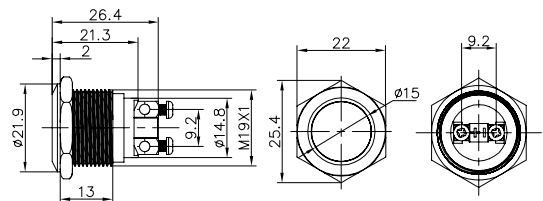
**FM19E-SFP-10D2/ ▲■**

**Installation hole diameter :** Φ19mm  
**Head shape :** flat round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** plug-in  
**Light color ▲ :** (R) (G) (Y) (B) (W)  
**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

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

## Φ19 product pushbuttons Specification Dimension

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

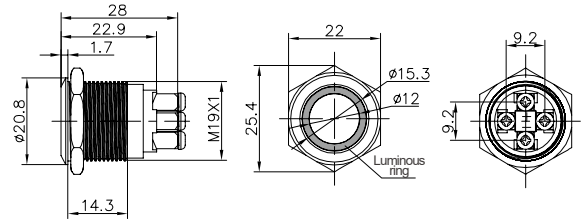
Installation Instructions and Accessories

Protection Class Instructions



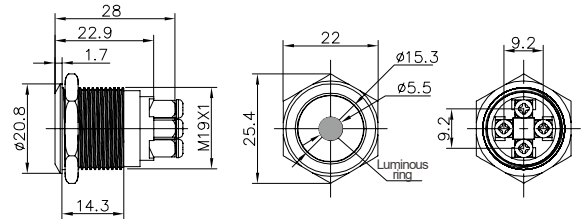
### FM19E-SFS-10D1/ ▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** flat 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



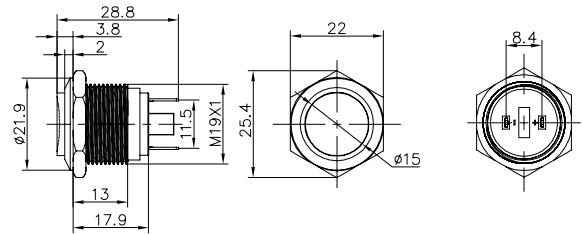
### FM19E-SFS-10D2/ ▲■

**Installation hole diameter :** Φ19mm  
**Head shape :** flat 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



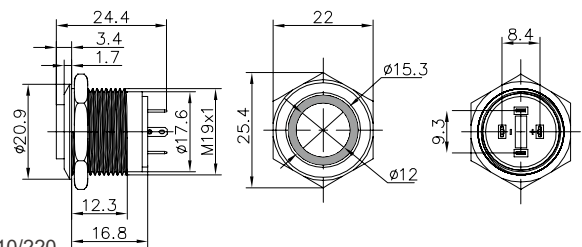
### FM19E-SHP-10

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



### FM19E-SHP-10D1/ ▲■

**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



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

**Φ19 product pushbuttons**

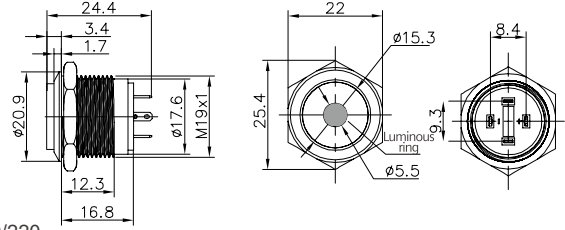
**Specification**

**Dimension**



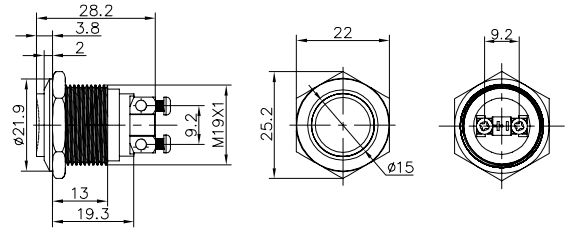
**FM19E-SHP-10D2/ ▲■**

**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



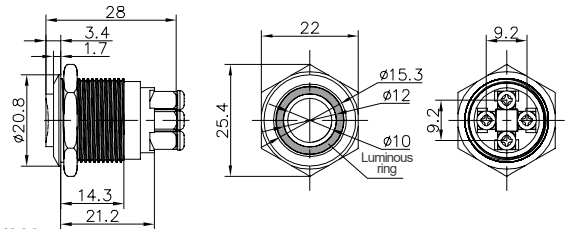
**FM19E-SHS-10**

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



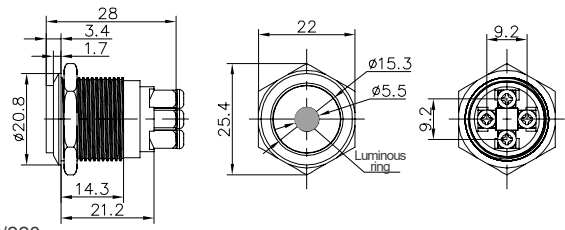
**FM19E-SHS-10D1/ ▲■**

**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



# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

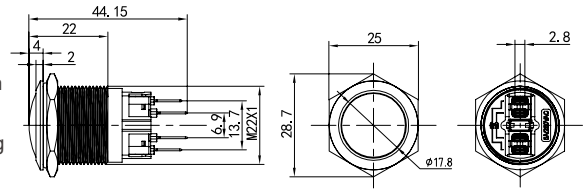
## Φ22 product pushbuttons Specification Dimension

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

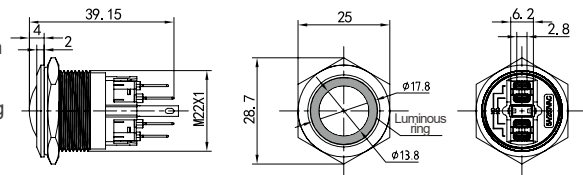


E Series Pushbutton



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 ▲ : (R) (G) (Y) (B) (W)  
Working voltage ■ : 6/12/24/36/48/110/220

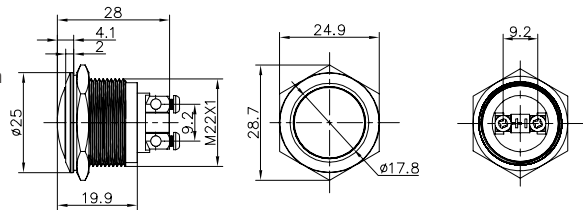


S Series Pushbutton



FM22E-SDS-10

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

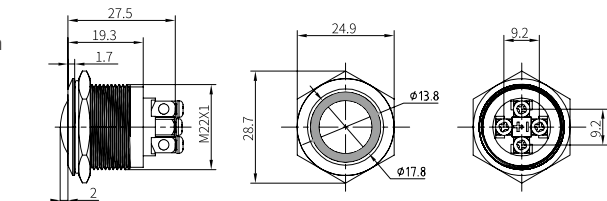


L Series Indicator



FM22E-SDS-10D1/ ▲■

Installation hole diameter : Φ22mm  
Head shape : arc-shaped  
Operating type : momentary  
Contact type : 1NO  
Wiring method : screw  
Light color ▲ : (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 P29 for details



**Φ22 product pushbuttons**

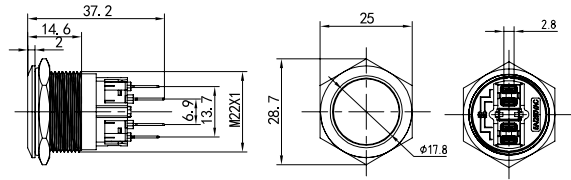
**Specification**

**Dimension**



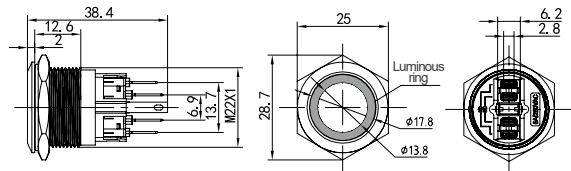
**FM22E-SFP-11**  
**FM22E-SFP-11T**

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



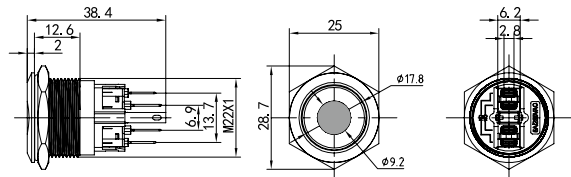
**FM22E-SFP-11D1/ ▲■**  
**FM22E-SFP-11TD1/ ▲■**

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



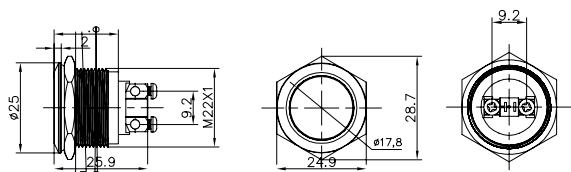
**FM22E-SFP-11D2/ ▲■**  
**FM22E-SFP-11TD2/ ▲■**

**Installation hole diameter :** Φ22mm  
**Head shape :** flat round  
**Operating type :** momentary/latching  
**Contact type :** 1NO1NC  
**Wiring method :** plug-in  
**Light color ▲ :** (R) (G) (Y) (B) (W)  
**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

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

## Φ22 product pushbuttons Specification Dimension

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

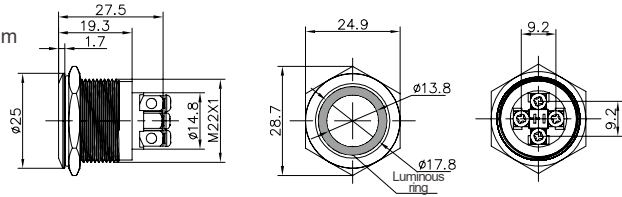
Installation Instructions and Accessories

Protection Class Instructions



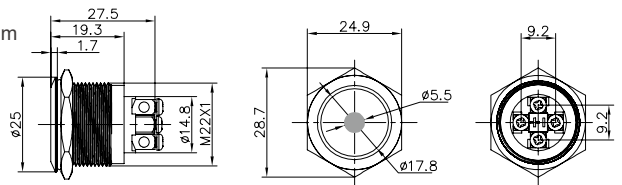
### FM22E-SFS-10D1/ ▲■

**Installation hole diameter:** Φ22mm  
**Head shape:** flat 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



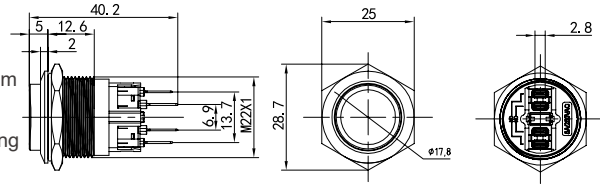
### FM22E-SFS-10D2/ ▲■

**Installation hole diameter:** Φ22mm  
**Head shape:** flat 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



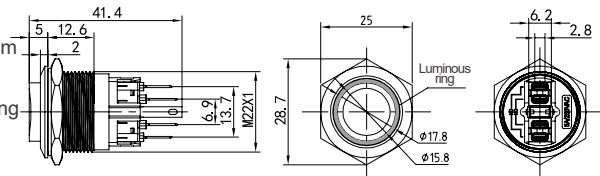
### FM22E-SHP-11 FM22E-SHP-11T

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



### 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 ▲:** (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

**Φ22 product pushbuttons**

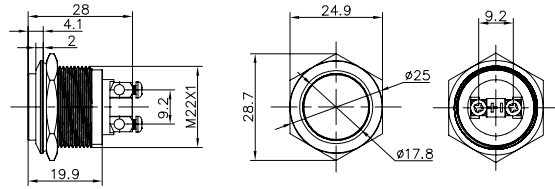
**Specification**

**Dimension**



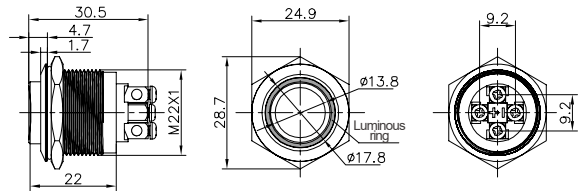
**FM22E-SHS-10**

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



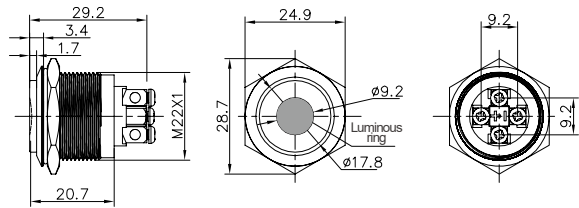
**FM22E-SHS-10D1/ ▲■**

**Installation hole diameter :** Φ22mm  
**Head shape :** high round  
**Operating type :** momentary  
**Contact type :** 1NO  
**Wiring method :** screw  
**Light color ▲ :** (R) (G) (Y) (B) (W)  
**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 ▲ :** (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

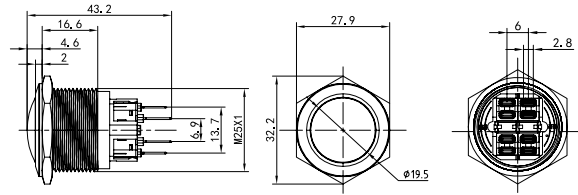
## Φ25 product pushbuttons Specification Dimension

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

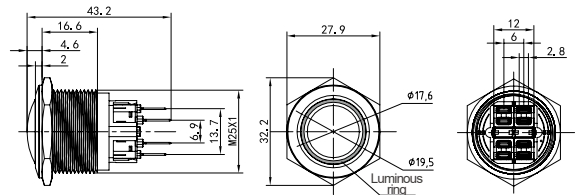


E Series Pushbutton



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 ▲ : (R) (G) (Y) (B) (W)  
Working voltage ■ : 6/12/24/36/48/110/220

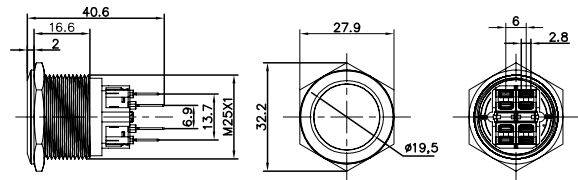


S Series Pushbutton



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

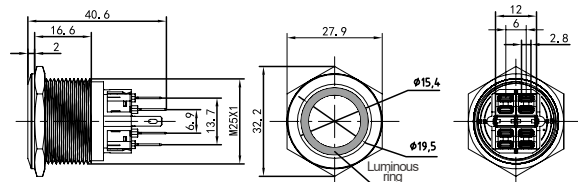


L Series Indicator



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 ▲ : (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 P29 for details

**Φ25 product pushbuttons**

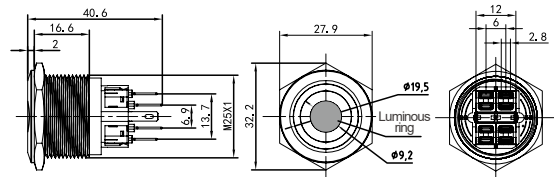
**Specification**

**Dimension**



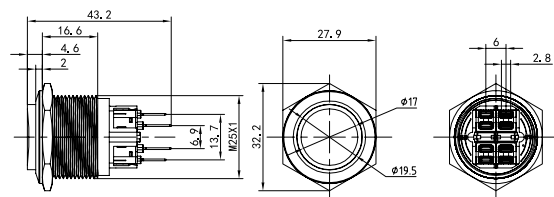
FM25E-SFP- ★ D2/ ▲■  
FM25E-SFP- ★ TD2/ ▲■

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



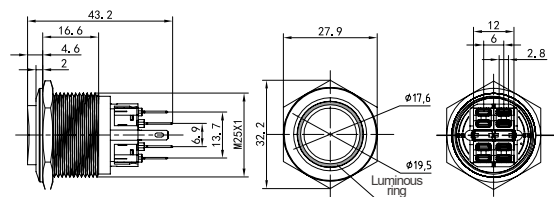
FM25E-SHP- ★  
FM25E-SHP- ★ T

**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** ▲ : 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

# FM\*E Standard Pushbutton

FM\*E Series Metal Pushbutton

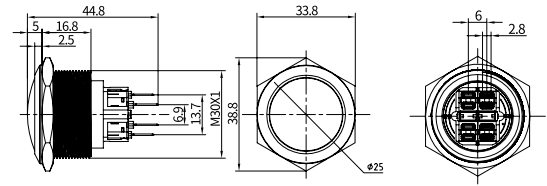
## Φ30 product pushbuttons Specification Dimension

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

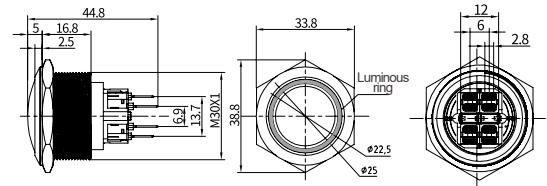


E Series Pushbutton



**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

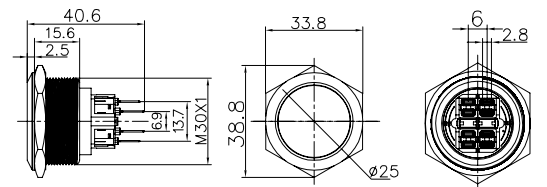


S Series Pushbutton



**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

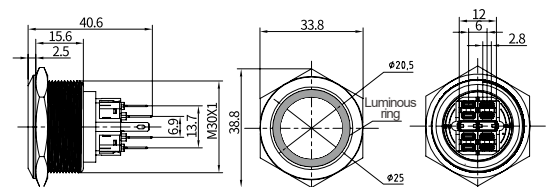


L Series Indicator



**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



Installation Instructions and Accessories

Protection Class Instructions

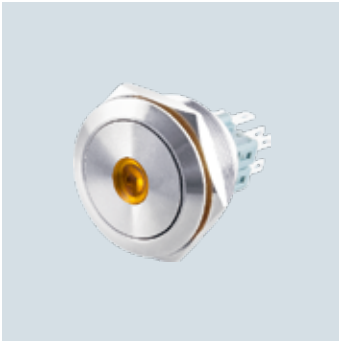
Note: Indicate the voltage code at ■ , refer to P29 for details



**Φ30 product pushbuttons**

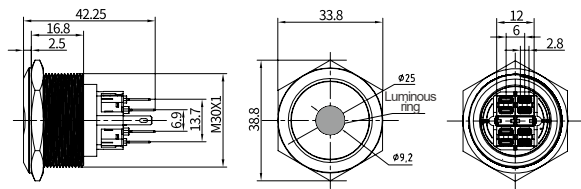
**Specification**

**Dimension**



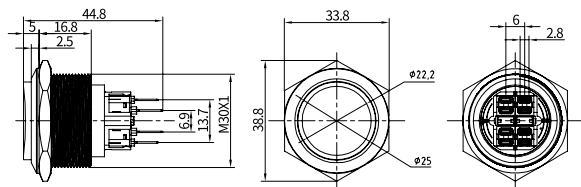
FM30E-SFP- ★ D2/ ▲■  
FM30E-SFP- ★ TD2/ ▲■

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



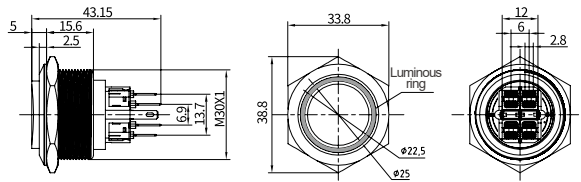
FM30E-SHP- ★  
FM30E-SHP- ★ T

**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 ▲ :** (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



# FM\*S Series

Ultrathin Pushbutton

## Metal Pushbutton

Φ12 / Φ16 / Φ19 / Φ22 / Φ25



## 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/ current under various 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 1	□ 2	S 3	— □ □ □ 4 5 6	— □ □ □ □ 7 8 9 10	/ □ □ □ 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 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 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 2~10-digit character: special character									

## Order code example

### FM25S-SFP-10D1/g23

Order code explanation:

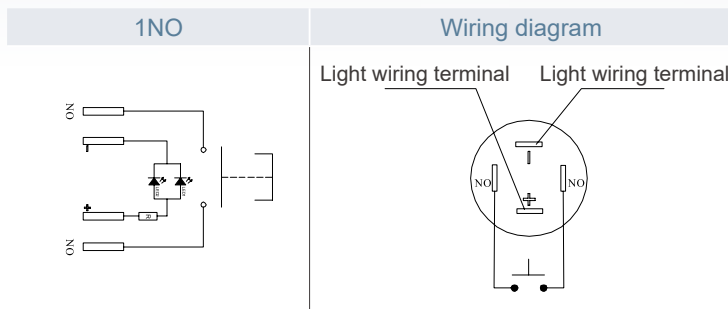
Installation hole diameter of Φ25, S type, stainless steel flat round, plug-in wiring, 1NO contact, green annular light, supply voltage of AC/DC24V

# 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

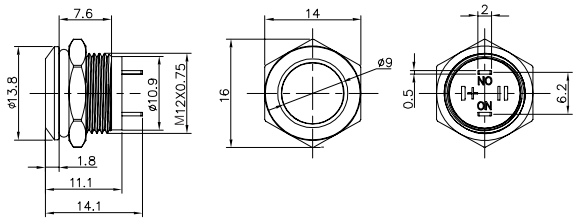
## Specification

## Dimension



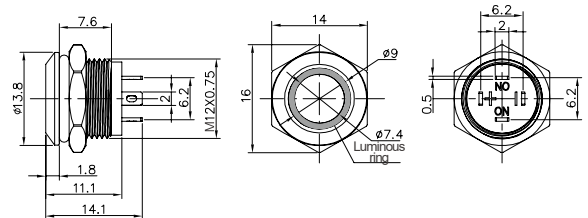
### FM12S-SFP-10

**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** ▲: (Red, Green, Yellow, Blue, White)  
**Working voltage** ■: 6/12/24



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

**Φ16 product pushbuttons**

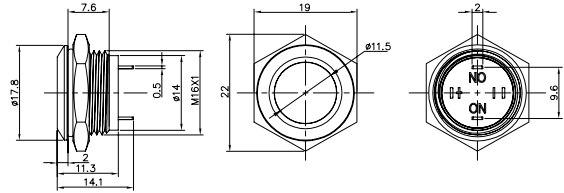
**Specification**

**Dimension**



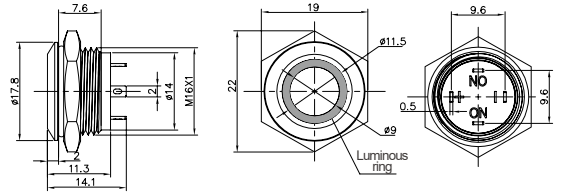
**FM16S-SFP-10**

**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 ▲ :** (R) (G) (Y) (B) (W)  
**Working voltage ■ :** 6/12/24



**Φ19 product pushbuttons**

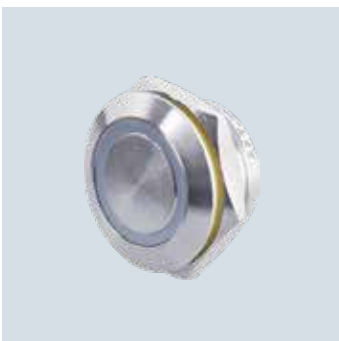
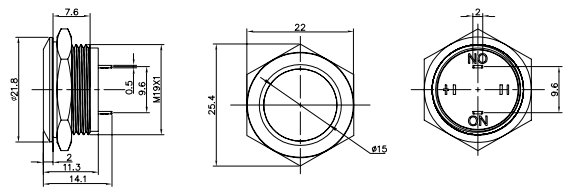
**Specification**

**Dimension**



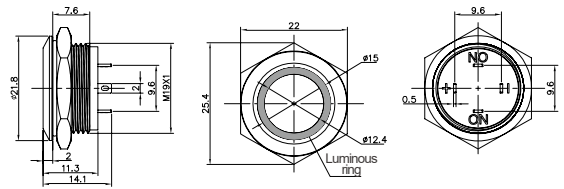
**FM19S-SFP-10**

**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 ▲ :** (R) (G) (Y) (B) (W)  
**Working voltage ■ :** 6/12/24



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

# FM\*S Ultrathin Pushbutton

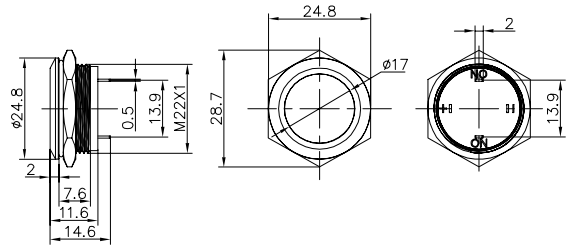
FM\*S Series Metal Pushbutton

## Φ22 product pushbuttons Specification Dimension



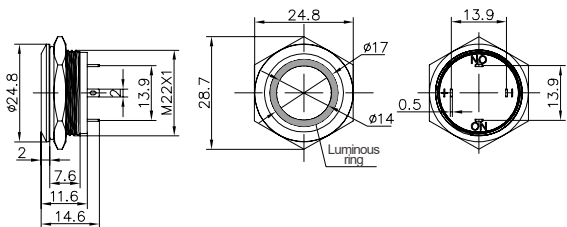
### FM22S-SFP-10

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



### FM22S-SFP-10D1/ ▲■

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

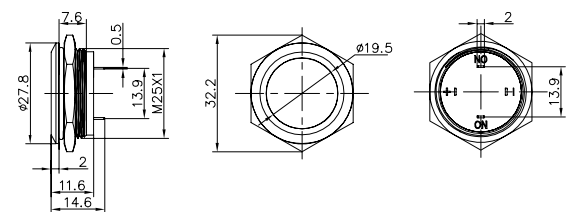


## Φ25 product pushbuttons Specification Dimension



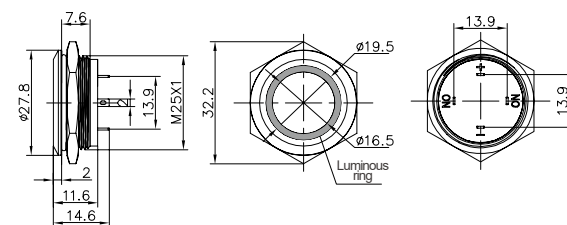
### FM25S-SFP-10

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



### FM25S-SFP-10D1/ ▲■

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



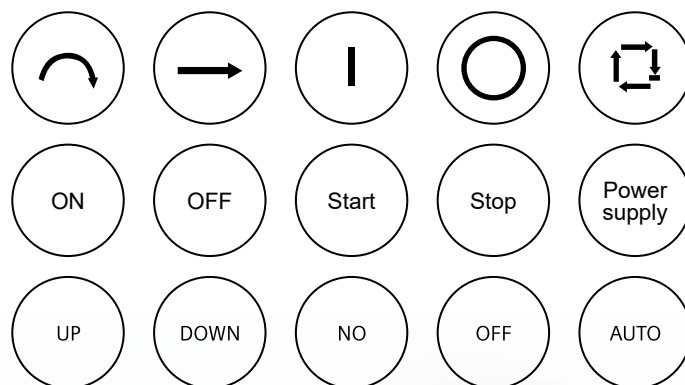
Note: Indicate the voltage code at ■ , refer to P49 for details



## 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 1	□ 2	L 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 A: aluminum anodic oxidation (customized)													
5	Head shape	F : flat round													
6	Tail wiring	P: plug-in type S: screw wiring													
7	Marking code	No marking: no symbol mark S99: lettering as required by the customer													
8	LED color	Ⓡ red		Ⓢ green		Ⓣ yellow		Ⓡ blue		Ⓢ white					
9	Voltage code	21 : AC/DC 6V		22 : AC/DC12V		23 : AC/DC 24V		24 : AC/DC36V		25 : AC/DC48V		26 : AC/DC110V		28 : AC/DC220V	
10	Auxiliary code	No indication: standard type 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

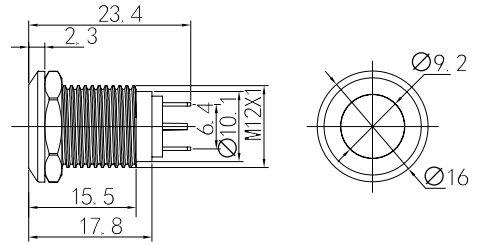
FM\*L Series Metal Indicator

## Φ12 product pushbuttons Specification Dimension



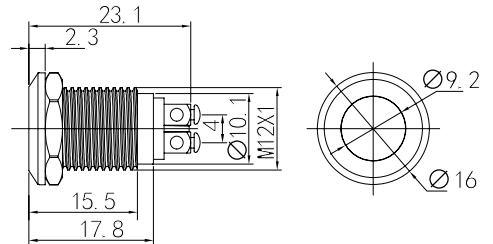
**FM12L-SFP / ▲■**

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



**FM12L-SFS / ▲■**

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

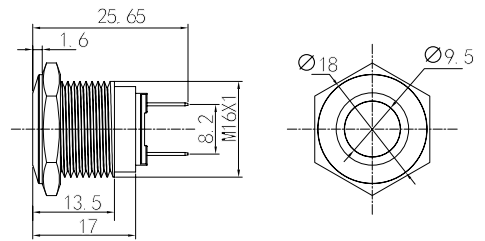


## Φ16 product pushbuttons Specification Dimension



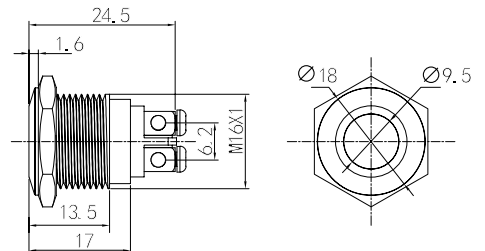
**FM16L-SFP / ▲■**

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



**FM16L-SFS / ▲■**

**Installation hole diameter :** Φ16mm  
**Head shape :** flat round  
**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 P57 for details

**Φ19 product pushbuttons**

**Specification**

**Dimension**



FM19L-SFP / ▲■

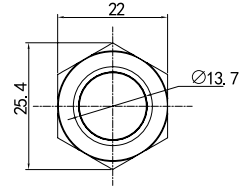
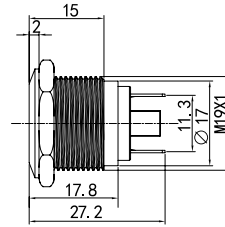
Installation hole diameter : Φ19mm

Head shape : flat round

Wiring method : plug-in

Light color ▲ : (R) (G) (Y) (B) (W)

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



FM19L-SFS / ▲■

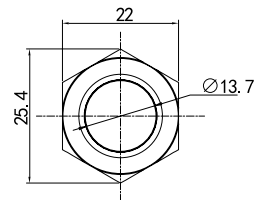
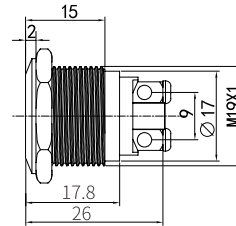
Installation hole diameter : Φ19mm

Head shape : flat round

Wiring method : screw

Light color ▲ : (R) (G) (Y) (B) (W)

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



**Φ22 product pushbuttons**

**Specification**

**Dimension**



FM22L-SFP / ▲■

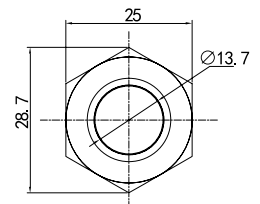
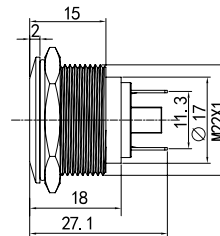
Installation hole diameter : Φ22mm

Head shape : flat round

Wiring method : plug-in

Light color ▲ : (R) (G) (Y) (B) (W)

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



FM22L-SFS / ▲■

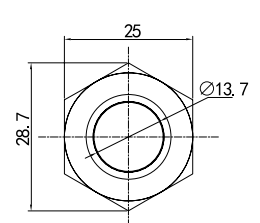
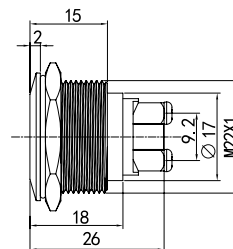
Installation hole diameter : Φ22mm

Head shape : flat round

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 P57 for details



# FM\*L Metal Indicator

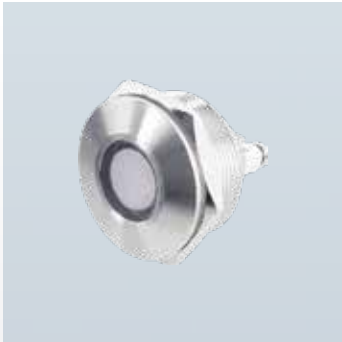
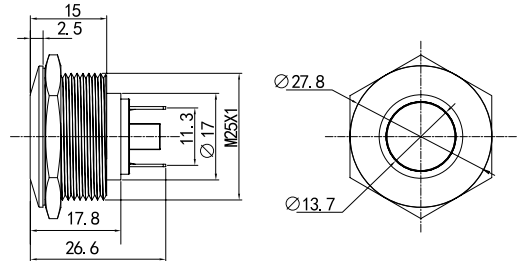
FM\*L Series Metal Indicator

Φ25 product pushbuttons	Specification	Dimension
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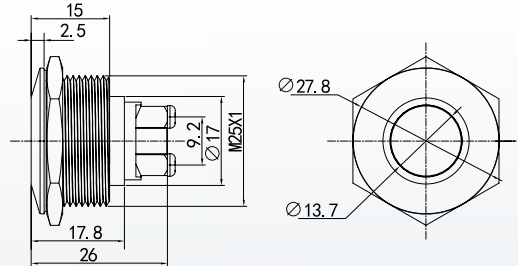
**FM25L-SFP / ▲■**

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



**M25L-SFS / ▲■**

**Installation hole diameter :** Φ25mm  
**Head shape :** flat round  
**Wiring method :** screw  
**Light color ▲ :** R G Y B W  
**Working voltage ■ :** 6/12/24/36/48/110/220



N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

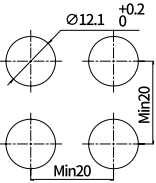
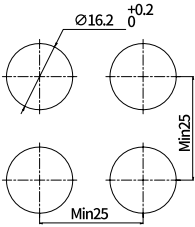
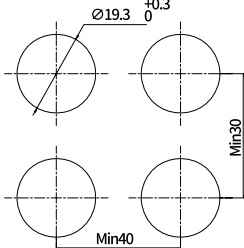
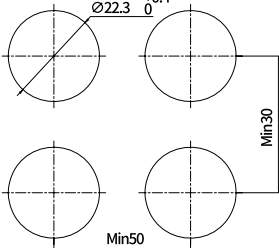
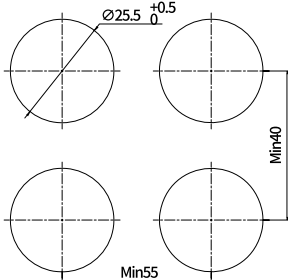
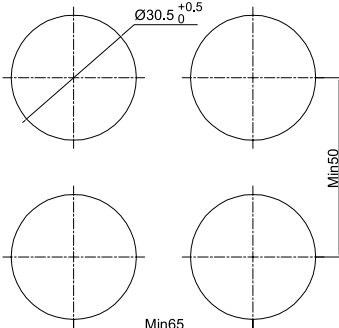
L Series Indicator

Installation Instructions and Accessories

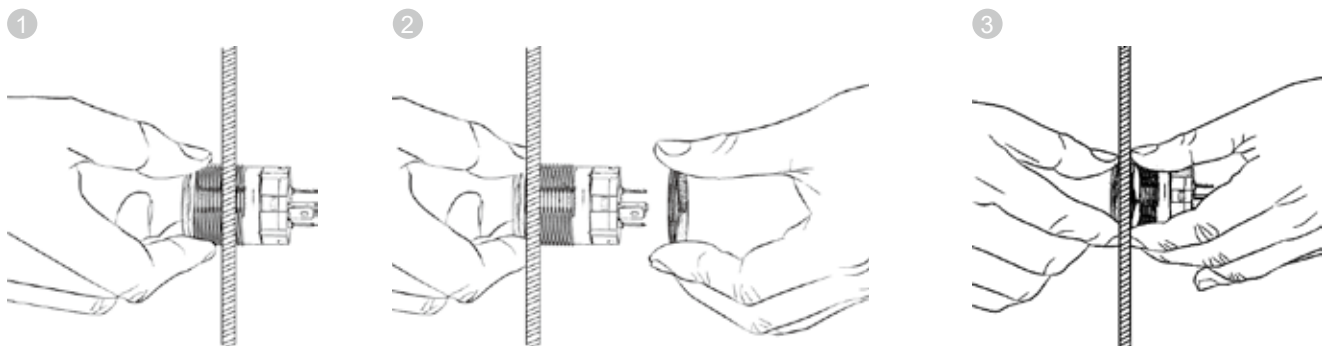
Protection Class Instructions

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

## Installation hole dimensions of pushbutton indicators

Φ12	Φ16	Φ19
		
Φ22	Φ25	Φ30
		

## 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  $\Phi 12$  pushbutton shall not be more than 0.2N.m, and that of  $\Phi 16$  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)


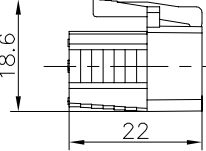
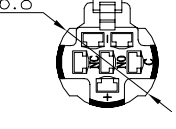
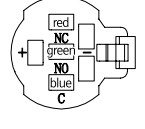
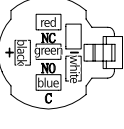

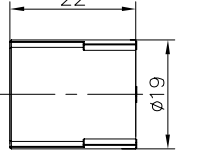
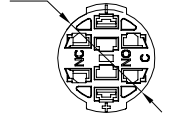
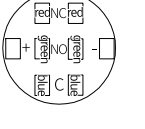
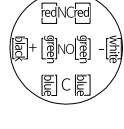

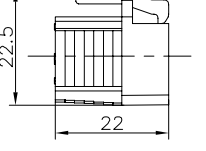
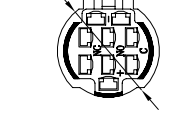
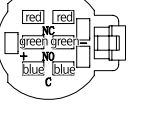
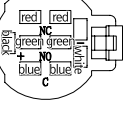

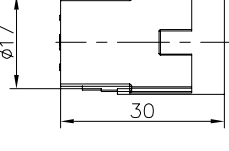
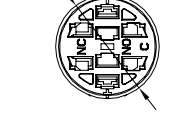
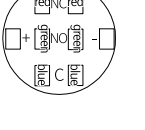
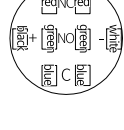

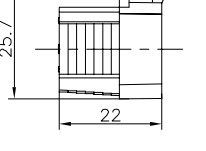
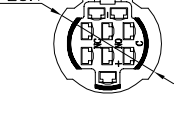
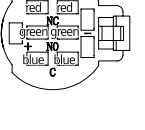
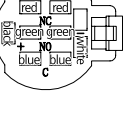

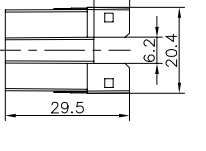
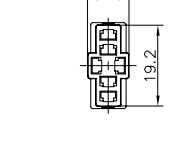
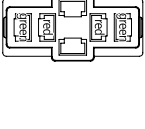
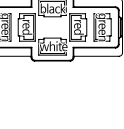

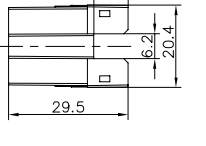
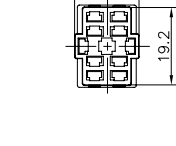
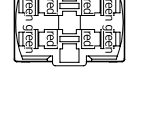

Corresponding number		$\square$ 1	$\square$ 2	A 3	$\square$ 4	—	$\square$ 5	/	$\square$ 6	$\square$ 7	
1	Matching hole diameter	16 : $\Phi 16$	19 : $\Phi 19$				22 : $\Phi 22$		25 : $\Phi 25$		
2	Matching series	N: N series		E: E series							
3	Product specification	A: refers to accessory									
4	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**

<p><b>16NA1</b></p> 				
<p><b>16NA2</b></p> 				
<p><b>19NA1</b></p> 				
<p><b>19NA2</b></p> 				
<p><b>22NA1</b></p> 				
<p><b>22EA1</b></p> 				
<p><b>25EA1</b></p> 				

N Series Pushbutton

E Series Pushbutton

S Series Pushbutton

L Series Indicator

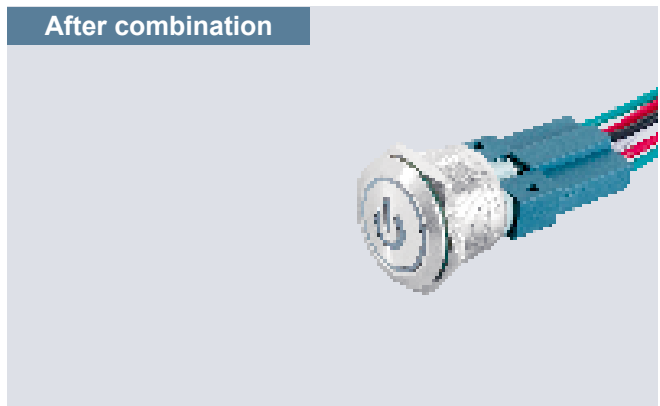
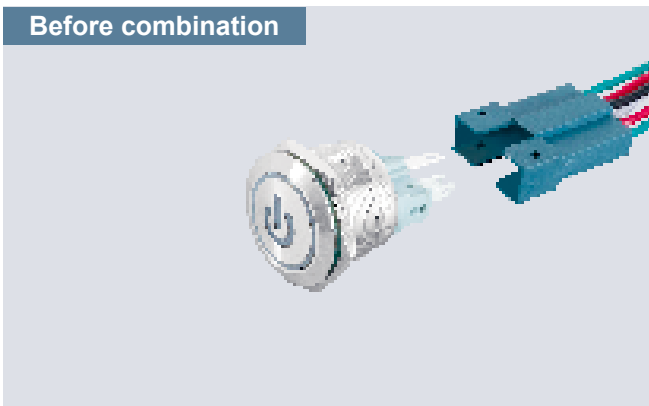
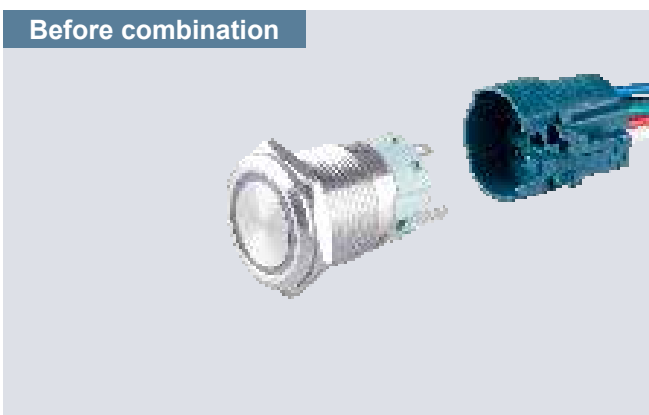
Installation Instructions and Accessories

Protection Class Instructions

# Installation Instructions and Accessories

## Comparison table of FM pushbutton accessories

Pushbutton 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										•	•



## Aluminum anodic oxidation coloring products

### Customization instructions

- ⦿ N, E and L series products can be customized
- ⦿ The default color is black, as shown in the figure:
- ⦿ Please consult the APT sales personnel or distributor if customization is required



## Products with power supply identification (except S series)

### Ordering code description

- ⦿ The products with power supply identification are of flat round annular illuminated structure
- ⦿ The light color and voltage are same as those of annular illuminated button
- ⦿ Momentary and latching are available
- ⦿  $\Phi 12$ ,  $\Phi 16$ ,  $\Phi 19$ ,  $\Phi 22$ ,  $\Phi 25$  and  $\Phi 30$  are available

$\Phi 12$ 、 $\Phi 16$ 、 $\Phi 19$ 、 $\Phi 22$ 、 $\Phi 25$ 、 $\Phi 30$

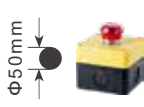

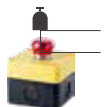
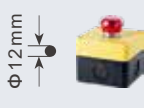


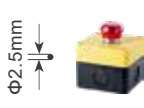

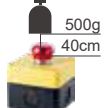


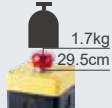






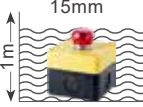



# Protection Class Instructions

## IP, IK protection class standard

IP class in two numbers is to indicate the capacity of the enclosure to resist solid matters and liquid, which is applicable to all products. The protection class cannot be equivalent to corrosion-proof grade. The protection class is divided as follows in accordance with GB4208:

IK refers to the anti-impact protection class of the enclosure, which usually appears together with IP protection requirement. For outdoor electronic equipment, regardless of being overhead, embedded or commonly placed outdoors, corresponding IP and IK requirements are required. The IK class is determined through impact by freely falling pendulum in Joule. For detailed contents, please refer to the national standard: GBT20138 Degree of Protection Provided by Enclosures for Electrical Equipment against External Mechanical Impacts (IK Code).









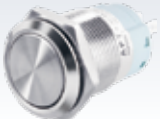






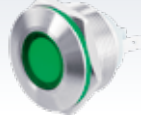





First number	Class to prevent the entry of solid foreign matter	Second number	Class to prevent the entry of water	IK	Impact resistance
IP	Protection	IP	Protection	IK	Test
0	No protection	0	No protection	0	No protection
1	 Protection against the entry of spherical matter with diameter of more than 50mm	1	 Prevent vertically falling water-drop, allow the entry of a small amount of water	01-05	 Impact < 1 joule
2	 Protection against the entry of spherical matter with diameter of more than 12mm	2	 Prevent water-drop at an angle less than $15^\circ$ , allow the entry of a small amount of water	06	 1 joule impact
3	 Protection against the entry of matter with diameter of more than 2.5mm	3	 Prevent water drenching at an angle less than $60^\circ$ , allow the entry of a small amount of water	07	 2 joules impact
4	 Protection against the entry of matter with diameter of more than 1.2mm	4	 Prevent water splashing from any direction, allow the entry of a small amount of water	08	 5 joules impact
5	 Allow the entry of limited dust (no harmful deposition)	5	 Prevent water spraying, allow the entry of a small amount of water	09	 10 joules impact
6	 Completely prevent the entry of dust	6	 Prevent strong water spraying, allow the entry of a small amount of water	10	 20 joules impact
		7	 Prevent water immersion influence at a depth of 15mm-1m		
		8	 Prevent long-term water immersion under pressure		



# FM Series Product Index via Hole Diameter

## Flush Metal Pushbutton & Indicator

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