

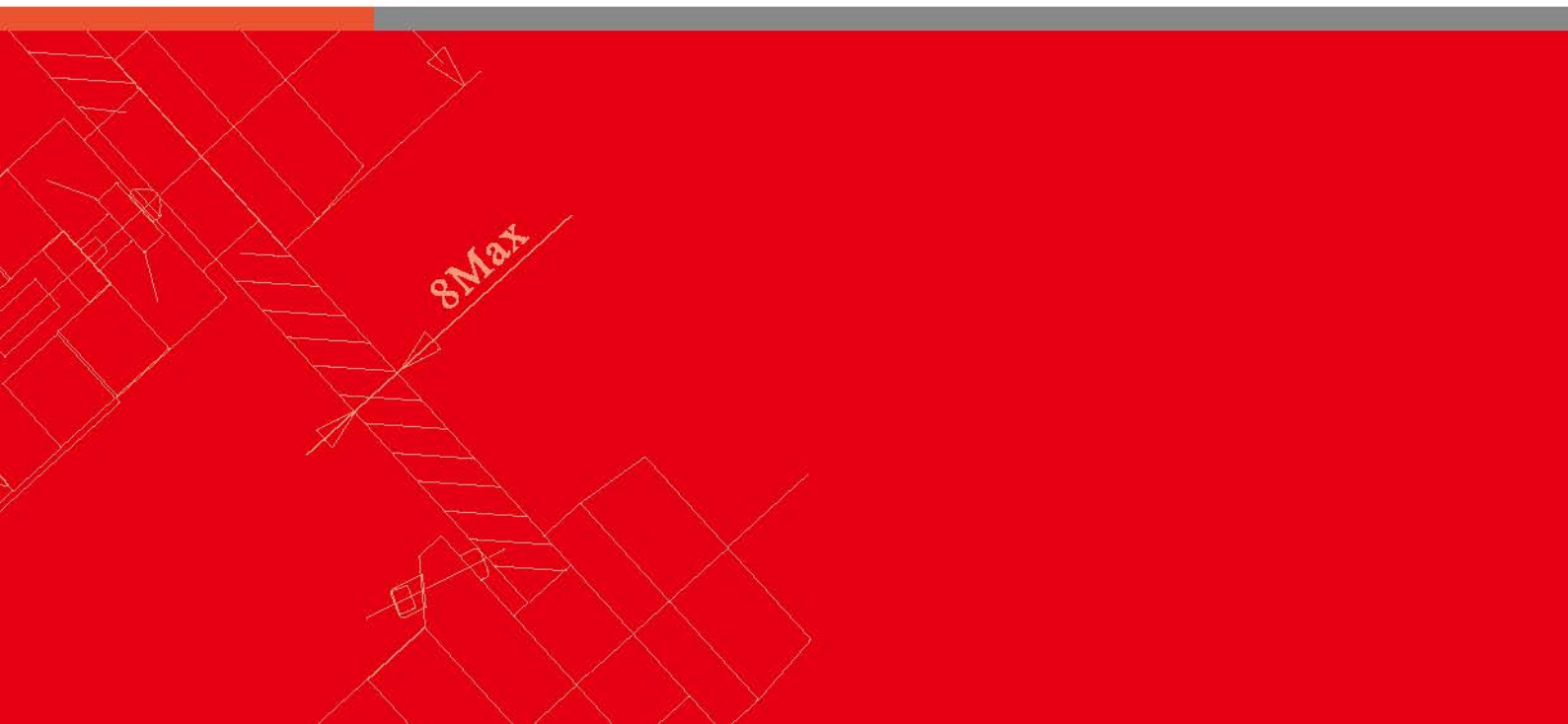
# Pushbutton/Indicator

LA39 Series Pushbutton ( $\Phi 30$ ,  $\Phi 22$ ,  $\Phi 16$ ,  $\Phi 12$ )

LA39 Series Multi-position (with enclosure) Pushbutton

AD16 Series Indicator ( $\Phi 22$ ,  $\Phi 16$ ,  $\Phi 12$ )

AD16 Series Indicator for special situation





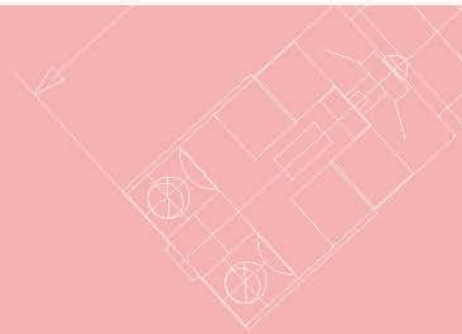
## LA39/AD16 Series Pushbutton and Indicator Introduction

APT, established in 1993, has been specialized in the manufacturing of low voltage products such as pushbuttons and indicator and is one of the leading low voltage control device manufacturers in China. Through years of promotion and application, APT Series products have been widely serving dozens of industrial fields in China, including power, machinery, steel, metallurgy, petrochemical, transportation, water treatment, food, packaging, textile, harbor and construction etc. They have been successively chosen and used by the national key projects such as Qinshan Nuclear Power Plant, the Three Gorges Project, the Qinghai-Tibet Railway locomotives, Shenzhou V Spacecraft, Shanghai Pudong International Airport, National Stadium ("Bird's Nest") .....

In August, 2008, according to the asset purchase agreement between Shanghai APT Co., Ltd. (hereinafter referred to as "APT") and Siemens Electrical Apparatus Ltd. Suzhou (hereinafter referred to as "Siemens"), both parties have completed the business transaction. APT brand and related products will be under the operation of "Siemens" Group. As a new member of Siemens Group, APT will succeed and promote the business operation philosophy of the former "APT", i.e. customer orientation. With the quality management and R&D resources of Siemens, APT will focus on the manufacture of pushbuttons, indicator components and other important low voltage products such as the signal lighting, cam switch, relay, current transformer and limit switch etc. Furthermore, Siemens will develop its international business operation experience to strengthen the management and business development of APT and better serve Chinese and global market demands through its advanced technology.

**We will do better!**

Indicator  
Pushbutton LA39/AD16 Series



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## Description of LA39-(A, B, C) Series Pushbutton

### Model

La39 -   1 2 3 / 4 5 6

Separated into A<sub>1</sub>A<sub>2</sub>A<sub>3</sub> B<sub>1</sub>B<sub>2</sub>B<sub>3</sub> C<sub>1</sub>C<sub>2</sub>C<sub>3</sub> according to the different actuators and holders

The code and serial number of the pushpushbutton code are issued by Shanghai Electrical Apparatus Research Institute.

**1** Num of NO;   **2** Num of NC;   **3** Auxiliary model

Letter	Meaning	Letter	Meaning	Letter	Meaning
	Normal Pushbutton	Z	Emergency stop Pushbutton	XS	Short-handle three-position selector switch
D	Illuminated Pushbutton	ZY	Key-reset emergency stop pushbutton	CX	Long-handle two-position selector switch
T	Maintained Pushbutton	Y	Two-position key switch	CXS	Long-handle three-position selector switch
M	Mushroom Pushbutton	YS	Three-position key switch		
MT	Maintained mushroom Pushbutton	X	Short-handle two-position selector switch		

**4** Color code of the Pushbutton, action function and pull-out position of the selector switch and key switch

Red	Green	Yellow	Blue	White	Black
r	g	y	b	w	k
Action function			Key pull-out position		
f	fu	ffu	a	ao	au
Left reset	Right reset	Left Right reset	Pull out from the left	Pull out from the middle	Pull out from the right

**5** Voltage code of the indicator

Code	21	22	23	24	25	26	27	28	31	32
Power Supply	AC · DC							DC	50-60Hz AC	
Voltage	6V	12V	24V	36V	48V	110V	127V	220V	220V	380V

**6** Humid thermal type is added with "TH"

### Technical Data

Rated Capacity	Snap-action type AC-15 220V/2.5A 380V/1.5A 660V/0.8A	DC-13 24V/3.6A 48V/3A 110V/1A 220V/0.4A 440V/0.25A
	Slow-action type AC-15 220V/6A 380V/4A 660V/2A	DC-13 24V/6A 48V/3A 110V/1A 220V/0.5A 440V/0.25A
Contact resistance	silver alloy contact ≤ 50mΩ	
Rated impulse withstand voltage Uimp	AC 2500V 50Hz·1min	
Mechanical endurance	Momentary Pushbutton ≥ 3 × 10 <sup>6</sup> times, selector switch ≥ 30 × 10 <sup>4</sup> times, key switch ≥ 5 × 10 <sup>4</sup> times, emergency stop Pushbutton ≥ 5 × 10 <sup>4</sup> times	
Electric life	≥ 60 × 10 <sup>4</sup> times	
Conventional thermal current	I <sub>th</sub> 10A	
Rated insulation voltage	U <sub>i</sub> AC660V	
Ambient temperature	-25℃ ~ +55℃	
Protection class of the front part	Defaulted as IP54. Please mark "-IP65" after the model when ordering the products if IP65 is required; the key button is IP40. The flat head circular button of LA39-A /B type can be equipped with F1 to become IP67	



## Description of LA39-(A, B, C) Series Pushbutton

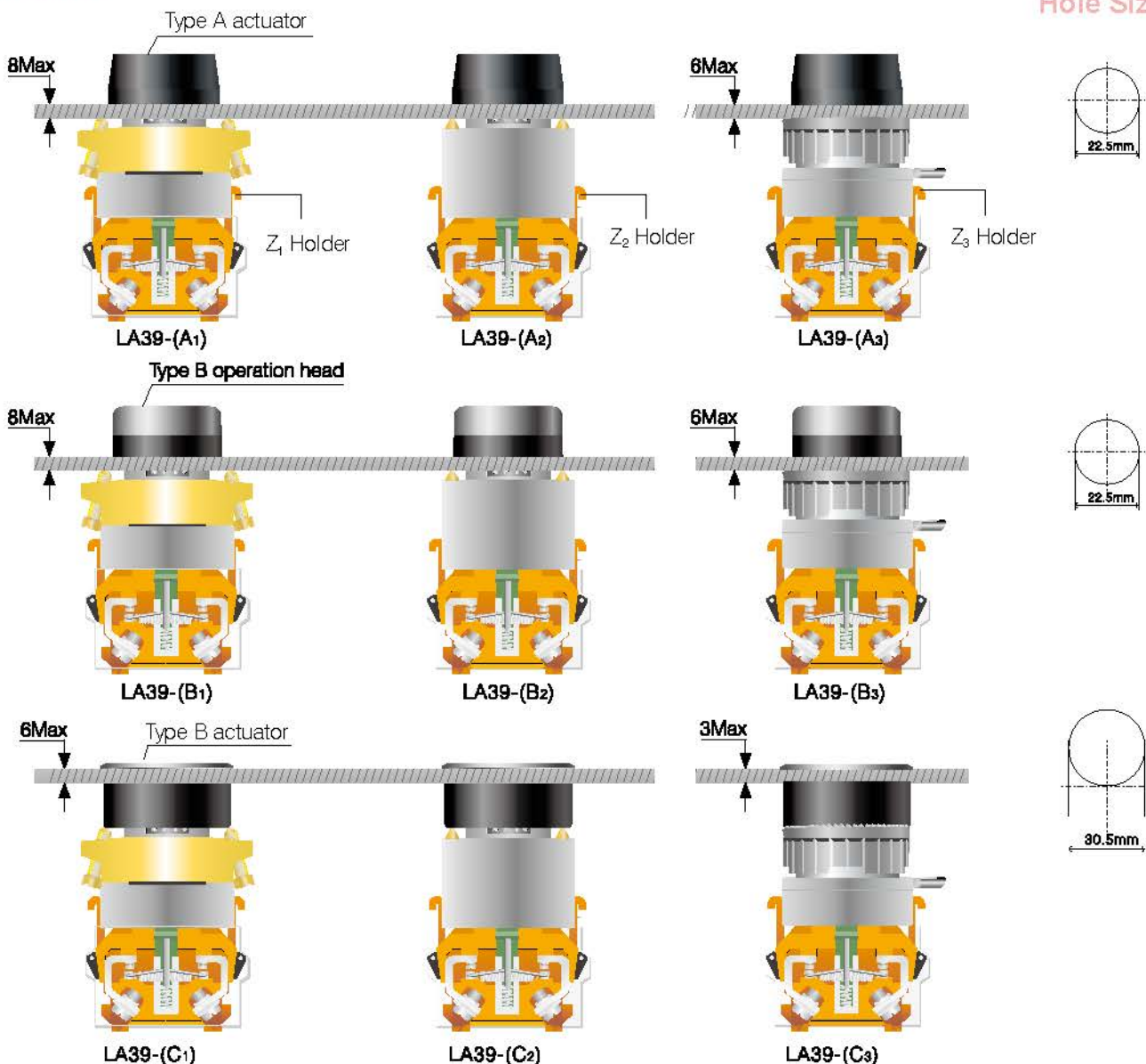
### Component Materials

Outer Ring of Actuator	Holder	Actuator	Contact	Switch Shell	Contact Chip
AL Black	Zn or PBT.PA	PC	AgNi	PC	Cu

### Standards

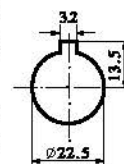
IEC 60947/GB 14048.5

### Hole Size



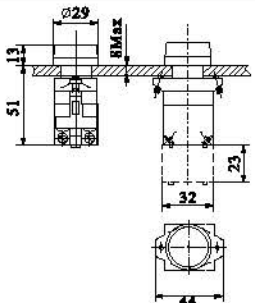



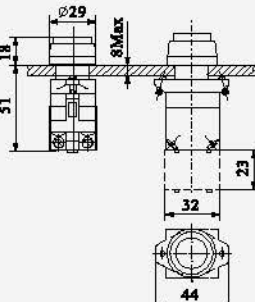



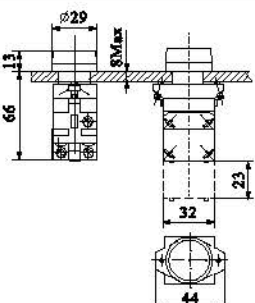



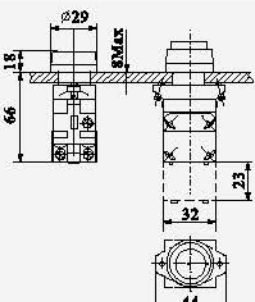



### Features:




- LA39-(A<sub>1</sub>B<sub>1</sub>C<sub>1</sub>): have distinctive visual profile with elegant lines. The inclined screws are used for installation and fixation, which meets European and American strict, solid and reliable project design philosophy.
- LA39-(A<sub>2</sub>B<sub>2</sub>C<sub>2</sub>): have clear visual arrangement. The high-strength PBT plastic parts are combined with the straight screws for fixation, which not only continues the stable and solid feature of A<sub>1</sub>B<sub>1</sub>C<sub>1</sub>, but also considers the manufacturing cost. It is the simplified type of A<sub>1</sub>B<sub>1</sub>C<sub>1</sub> to provide the multiple economic options to the users.
- LA39-(A<sub>3</sub>B<sub>3</sub>C<sub>3</sub>): The nuts are used for fixation, simple and easy, which can reduce the installation difficulty and the work load of the users. The installation reliability may be reduced due to the influence of ambient temperature. It is suggested that such installation mode shall not be used when the selector switches and key switches which have switching work status are used. The selector switches cannot be used when C<sub>3</sub> is selected. The retainer ring shall be installed when A<sub>3</sub> and B<sub>3</sub> choose the selector switches. The hole opening size is shown on the right figure.






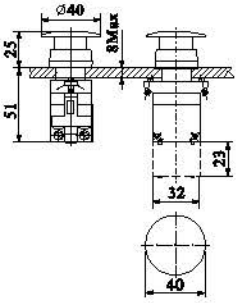





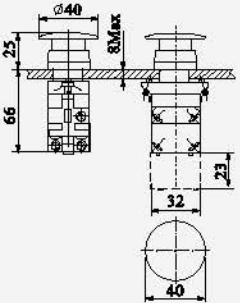





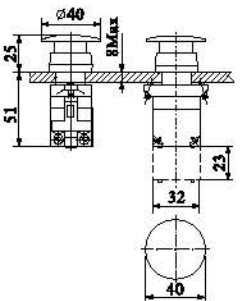
## Φ22 LA39-(A) Series Pushbutton Model Selection

Name	Type	Work Status	Model	Color	Lamp Voltage	Appearance dimension
Round pushbutton		Momentary	<b>LA39-A1-/</b>	red-r green-g yellow-y white-w		
		Maintained	<b>LA39-A1-/T/</b>	blue-b black-k		
Round Raised Pushbutton		Momentary	<b>LA39-A1-/</b> -H	red-r green-g yellow-y white-w		
		Maintained	<b>LA39-A1-/T/</b> -H	blue-b black-k		
Round Illuminated Pushbutton		Momentary	<b>LA39-A1-/D/</b>	red-r green-g yellow-y white-w	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-DC 220V 31-AC 220V 32-AC 380V	
		Maintained	<b>LA39-A1-/TD/</b>	blue-b		
Round Raised Illuminated Pushbutton		Momentary	<b>LA39-A1-/D/</b>	red-r green-g yellow-y white-w	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-DC 220V 31-AC 220V 32-AC 380V	
		Maintained	<b>LA39-A1-/TD/</b>	blue-b		




### Description:

-  before the oblique line shall be filled with the nun of NO and NC contacts.
-  after the oblique line shall be filled with the color code,  shall be filled with the voltage class of the lamp.
- The light source of the illuminated pushbutton are all high-bright pure LED.
- If Z<sub>2</sub> and Z<sub>3</sub> holders are required during ordering, A<sub>1</sub> in the model is changed to A<sub>2</sub> or A<sub>3</sub>. Please note that there is a big change for the requirement of the thickness of the mounting plate when Z<sub>3</sub> holder is selected.

## Φ22 LA39-(A) Series Pushbutton Model Selection



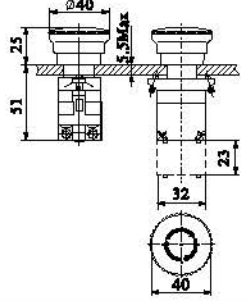

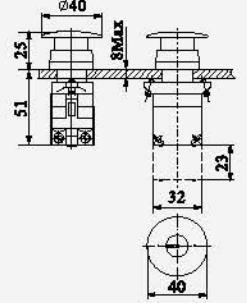

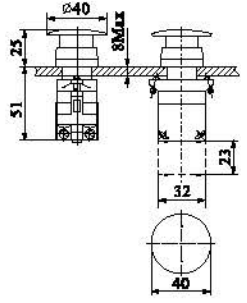

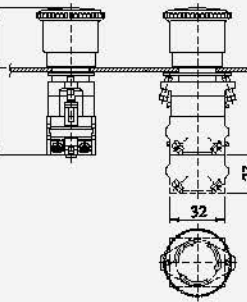
Name	Type	Work Status	Model	Color	Lamp Voltage	Appearance dimension
Mushroom Pushbutton	 Note: $\varnothing 40\varnothing 60$	Momentary	LA39-A1-  M 	opaque red-r green-g yellow-y		
		Maintained	LA39-A1-  MT 	black-k		
Mushroom Button with Light	 Note: $\varnothing 40\varnothing 60$	Momentary	LA39-A1-  MD 	transparent red-r green-g yellow-y	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V	
		Maintained	LA39-A1-  MTD 	black-k	28-DC 220V 31-AC 220V 32-AC 380V	
Twist to lock, Momentary, Mushroom Pushbutton		Press to Momentary Twist to Maintained	LA39-A1-  MR 	opaque red-r green-g yellow-y black-k		

### Description:

-  before the oblique line shall be filled with the number of NO and NC contacts.
-  after the oblique line shall be filled with the color,  shall be filled with the voltage class of the light.
- The light source of the illuminated pushbutton shall all be high-bright pure LED.
- If Z<sub>2</sub> and Z<sub>3</sub> holders are required during ordering, A1 in the model can be changed to A<sub>2</sub> or A<sub>3</sub>.  
Note: please add "-60" after the model if  $\varnothing 60$  mushroom actuator is required. No mark is required when it is  $\varnothing 40$ .




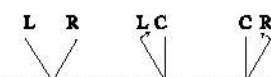
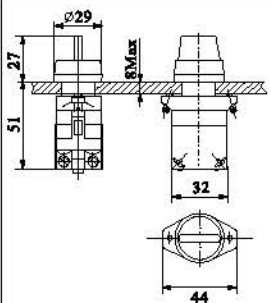
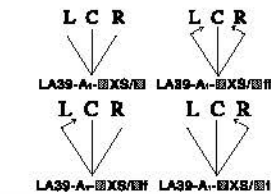


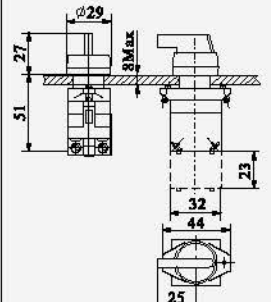
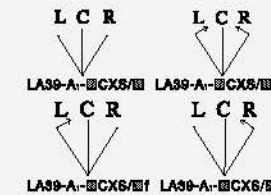


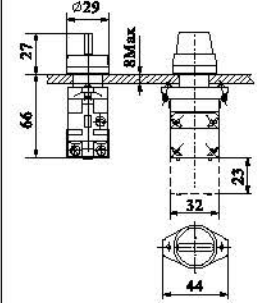
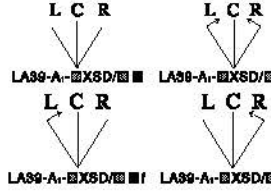

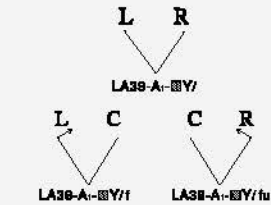
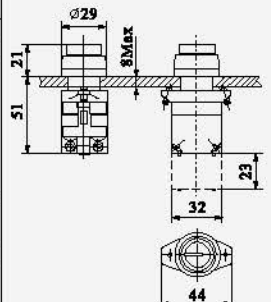
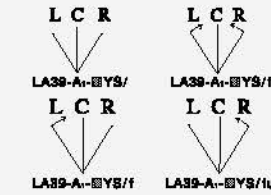
## Φ22 LA39-(A) Series Pushbutton Model Selection

Name	Type	Work Status	Model	Color	Lamp Voltage	Appearance dimension
 Emergency Stop Pushbutton	 <b>Note: Ø40Ø60</b>	Press to lock, Twist clockwise to reset	<b>LA39-A1-R</b> ▨▨Z/▨	Opaque Red-r		
Key Reset Emergency Stop Pushbutton	 <b>Note: Ø40</b>	Press to lock, Twist the key clockwise to reset	<b>LA39-A1-R</b> ▨▨ZY/▨	Opaque Red-r		
Pull type Emergency Stop Pushbutton		Press to lock, Pull to reset	<b>LA39-A1-R</b> ▨▨ZL/▨	Opaque Red-r		
Trigger action Emergency Stop Pushbutton		Press to lock, Twist clockwise to reset	<b>LA39-A1-R</b> ▨▨ZC/▨	Opaque Red-r		

### Description:

- ▨ before the oblique line shall be filled with the number of NO and NC contacts.
  - ▨ after the oblique line shall be filled with the color, ▨ shall be filled with the voltage class of the light.
  - The light source of the illuminated pushbutton shall all be high-bright pure LED.
  - If Z<sub>2</sub> and Z<sub>3</sub> holders are required during ordering, A<sub>1</sub> in the model can be changed to A<sub>2</sub> or A<sub>3</sub>.  
 Note: please add "-60" after the model if Ø60 mushroom actuator is required. No mark is required when it is Ø40.
- The emergency stop pushbutton shall be used with slow-action type base.




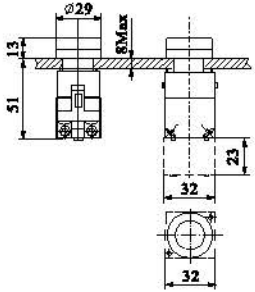











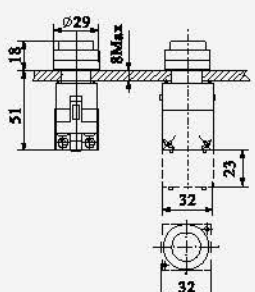













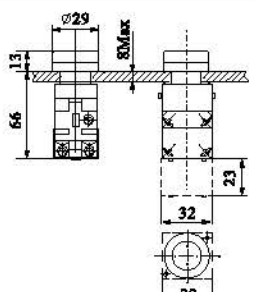













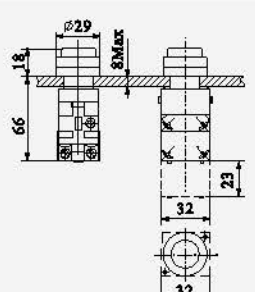






## Φ22 LA39-(A) Series Pushbutton Model Selection

Name	Type	Handle Position & Model	Color	Lamp Voltage	Appearance dimension
Short-handle selector switch		Two-position <div style="text-align: center;">  <p>L R      L C      C R</p> <p>LA39-A-□X/□    LA39-A-□X/□f    LA39-A-□X/□fu</p> </div>	red-r green-g yellow-y black-k		
		Three-position <div style="text-align: center;">  <p>L C R      L C R</p> <p>LA39-A-□XS/□    LA39-A-□XS/□fu</p> <p>L C R      L C R</p> <p>LA39-A-□XS/□f    LA39-A-□XS/□fu</p> </div>			
Long-selector switch		Two-position <div style="text-align: center;">  <p>L R      L C      C R</p> <p>LA39-A-□CX/□    LA39-A-□CX/□f    LA39-A-□CX/□fu</p> </div>	red-r green-g yellow-y black-k		
		Three-position <div style="text-align: center;">  <p>L C R      L C R</p> <p>LA39-A-□CX6/□    LA39-A-□CX6/□fu</p> <p>L C R      L C R</p> <p>LA39-A-□CX6/□f    LA39-A-□CX6/□fu</p> </div>			
Illuminated selector switch		Two-position <div style="text-align: center;">  <p>L R      L R</p> <p>LA39-A-□XD/□    LA39-A-□XD/□fu</p> </div>	red-r green-g yellow-y white-w blue-b	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-DC 220V 31-AC 220V 32-AC 380V	
		Three-position <div style="text-align: center;">  <p>L C R      L C R</p> <p>LA39-A-□XSD/□    LA39-A-□XSD/□fu</p> <p>L C R      L C R</p> <p>LA39-A-□XSD/□f    LA39-A-□XSD/□fu</p> </div>			
Key switch		Two-position <div style="text-align: center;">  <p>L R</p> <p>LA39-A-□Y/</p> <p>L C      C R</p> <p>LA39-A-□Y/f    LA39-A-□Y/fu</p> </div>	Key pull-out position right middle left	a ao au Every pull-out position can be custom-made for any special requirement. Note: for reset key switches, the key pull-out position shall not be reset action positio	
		Three-position <div style="text-align: center;">  <p>L C R      L C R</p> <p>LA39-A-□YS/    LA39-A-□YS/fu</p> <p>L C R      L C R</p> <p>LA39-A-□YS/f    LA39-A-□YS/fu</p> </div>			




### Description:

1. before the oblique line shall be filled with the number of NO and NC contacts.
2. after the oblique line shall be filled with the color, shall be filled with the voltage class of the light.
3. The light source of the illuminated pushbutton shall all be high bright pure LED.
4. If Z<sub>2</sub> and Z<sub>3</sub> holders are required during ordering, A<sub>1</sub> in the model can be changed to A<sub>2</sub> or A<sub>3</sub>.

## Φ22 LA39-(B) Series Pushbutton Model Selection




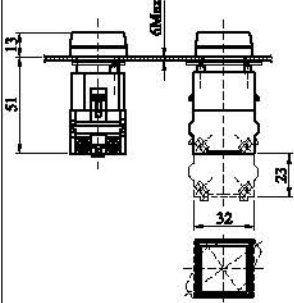



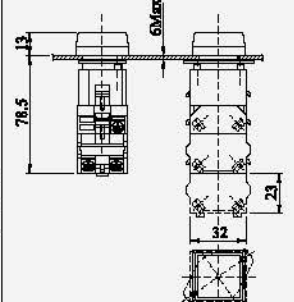
Name	Type	Work Status	Model	Color	Lamp Voltage	Appearance dimension
Round pushbutton		Momentary	LA39-B2-  	red-r green-g yellow-y white-w		
		Maintained	LA39-B2-    	blue-b black-k		
Round Raised Pushbutton		Momentary	LA39-B2-      	red-r green-g yellow-y white-w blue-b		
		Maintained	LA39-B2-      	black-k		
Round Illuminated Pushbutton		Momentary	LA39-B2-      	red-r green-g yellow-y white-w	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V	
		Maintained	LA39-B2-      	blue-b		
Round Raised Illuminated Pushbutton		Momentary	LA39-B2-      	red-r green-g yellow-y white-w	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V	
		Maintained	LA39-B2-      	blue-b		

### Description:




-  before the oblique line shall be filled with the number of NO and NC contacts.
-  after the oblique line shall be filled with the color,  shall be filled with the voltage class of the light.
- The light source of the illuminated pushbutton shall all be high-bright pure LED.
- If Z<sub>1</sub> and Z<sub>3</sub> holders are required during ordering, B<sub>2</sub> in the model can be changed to B<sub>1</sub> or B<sub>3</sub>.




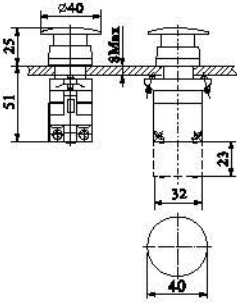

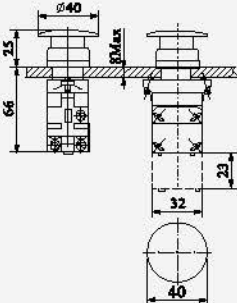

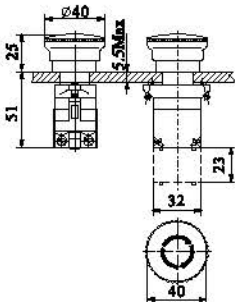

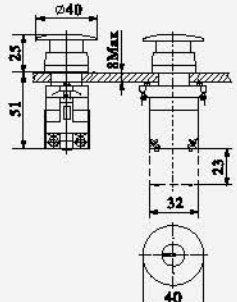
## Φ22 LA39-(B) Series Pushbutton Model Selection

Name	Type	Work Status	Model	Color	Lamp Voltage	Appearance dimension
Square Pushbutton		Momentary	LA39-B <sub>2</sub> -  F/ 	red-r green-g yellow-y white-w blue-b black-k		
Square Illuminated Pushbutton		Maintained	LA39-B <sub>2</sub> -  DF/ 	red-r green-g yellow-y white-w blue-b black-k	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V	

### Description:

1.  before the oblique line shall be filled with the number of NO and NC contacts.
2.  after the oblique line shall be filled with the color,  shall be filled with the voltage class of the light.
3. The light source of the illuminated pushbutton shall all be high-bright pure LED.
4. If Z<sub>1</sub> and Z<sub>3</sub> holders are required during ordering, B<sub>2</sub> in the model can be changed to B<sub>1</sub> or B<sub>3</sub>.

## Φ22 LA39-(B) Series Pushbutton Model Selection

Name	Type	Work Status	Model	Color	Lamp Voltage	Appearance dimension
Mushroom Pushbutton		Momentary	LA39-B <sub>2</sub> - $\square$ M/ $\square$	opaque red-r green-g yellow-y		
		Maintained	LA39-B <sub>2</sub> - $\square$ MT/ $\square$	black-k		
Illuminated Mushroom Pushbutton		Momentary	LA39-B <sub>2</sub> - $\square$ MD/ $\square$ $\square$	transparent red-r green-g yellow-y	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-DC 220V 31-AC 220V 32-AC 380V	
		Maintained	LA39-B <sub>2</sub> - $\square$ MTD/ $\square$ $\square$	black-k		
Emergency Stop Pushbutton		Press to lock, Twist clockwise to reset	LA39-B <sub>2</sub> -R $\square$ Z/ $\square$	opaque red-r		
Key to Reset Emergency Stop Pushbutton		Press to lock, Twist the key clockwise to reset	LA39-B <sub>2</sub> -R $\square$ ZY/ $\square$	opaque red-r		


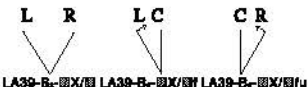
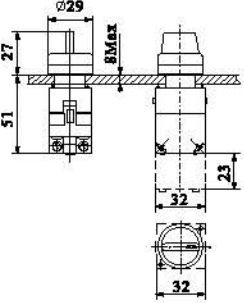

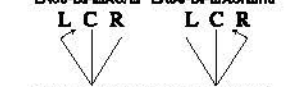
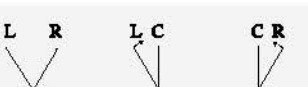
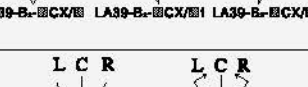


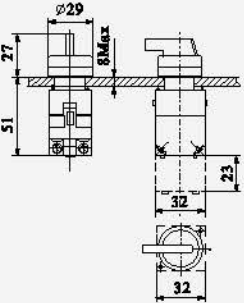

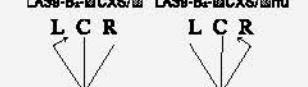
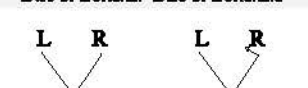
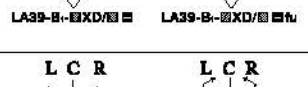


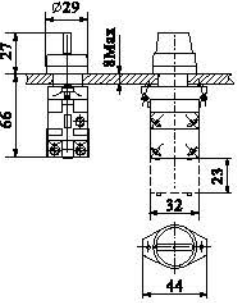

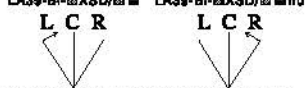
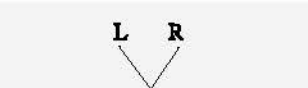
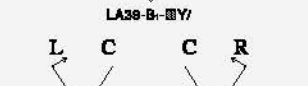


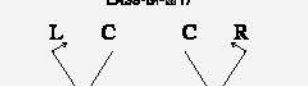
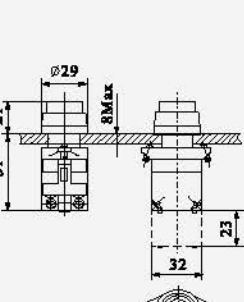
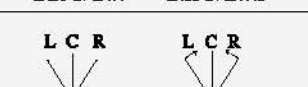
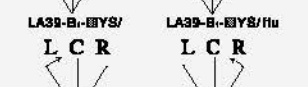


### Description:

- $\square$  before the oblique line shall be filled with the number of NO and NC contacts.
- $\square$  after the oblique line shall be filled with the color,  $\square$  shall be filled with the voltage class of the light.
- The light source of the illuminated pushbutton shall all be high-bright pure LED.
- If Z<sub>1</sub> and Z<sub>3</sub> holders are required during ordering, B<sub>2</sub> in the model can be changed to B<sub>1</sub> or B<sub>3</sub>.

Note: please add "-60" after the model if Ø60 mushroom actuator is required. No mark is required when it is Ø40.

- The emergency stop pushbutton shall be used with slow-action type base.

## Φ22 LA39-(B) Series Pushbutton Model Selection




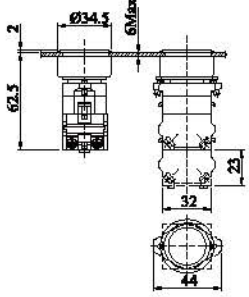








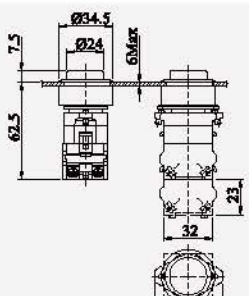











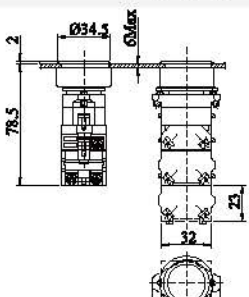











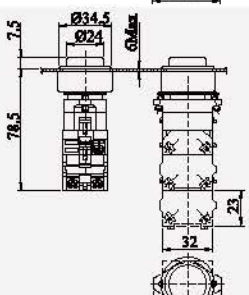





Name	Type	Handle Position & Model	Color	Lamp Voltage	Appearance dimension
Short-handle selector switch		Two-position <div style="text-align: center;"> <p>L R      L C      C R</p>  <p>LA39-B-□□X/□    LA39-B-□□X/□    LA39-B-□□X/□/□</p> </div>	red-r green-g yellow-y black-k		
		Three-position <div style="text-align: center;"> <p>L C R      L C R</p>  <p>LA39-B-□□XS/□    LA39-B-□□XS/□/□</p> <p>L C R      L C R</p>  <p>LA39-B-□□XS/□    LA39-B-□□XS/□/□</p> </div>			
		Three-position <div style="text-align: center;"> <p>L C R      L C R</p>  <p>LA39-B-□□XS/□    LA39-B-□□XS/□/□</p> <p>L C R      L C R</p>  <p>LA39-B-□□XS/□    LA39-B-□□XS/□/□</p> </div>			
Long-handle selector switch		Two-position <div style="text-align: center;"> <p>L R      L C      C R</p>  <p>LA39-B-□□CX/□    LA39-B-□□CX/□/□    LA39-B-□□CX/□/□</p> </div>	red-r green-g yellow-y black-k		
		Three-position <div style="text-align: center;"> <p>L C R      L C R</p>  <p>LA39-B-□□CX/□    LA39-B-□□CX/□/□</p> <p>L C R      L C R</p>  <p>LA39-B-□□CX/□    LA39-B-□□CX/□/□</p> </div>			
		Three-position <div style="text-align: center;"> <p>L C R      L C R</p>  <p>LA39-B-□□CX/□    LA39-B-□□CX/□/□</p> <p>L C R      L C R</p>  <p>LA39-B-□□CX/□    LA39-B-□□CX/□/□</p> </div>			
Illuminated selector switch		Two-position <div style="text-align: center;"> <p>L R      L R</p>  <p>LA39-B-□□XD/□    LA39-B-□□XD/□/□</p> </div>	red-r green-g yellow-y white-w blue-b	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-DC 220V 31-AC 220V 32-AC 380V	
		Three-position <div style="text-align: center;"> <p>L C R      L C R</p>  <p>LA39-B-□□XSD/□    LA39-B-□□XSD/□/□</p> <p>L C R      L C R</p>  <p>LA39-B-□□XSD/□    LA39-B-□□XSD/□/□</p> </div>			
		Three-position <div style="text-align: center;"> <p>L C R      L C R</p>  <p>LA39-B-□□XSD/□    LA39-B-□□XSD/□/□</p> <p>L C R      L C R</p>  <p>LA39-B-□□XSD/□    LA39-B-□□XSD/□/□</p> </div>			
Key Switch		Two-position <div style="text-align: center;"> <p>L R</p>  <p>LA39-B-□□Y/</p> <p>L C      C R</p>  <p>LA39-B-□□Y/    LA39-B-□□Y/□</p> </div>	Key pull-out position right middle left	a ao au	
		Three-position <div style="text-align: center;"> <p>L C R      L C R</p>  <p>LA39-B-□□YS/    LA39-B-□□YS/□</p> <p>L C R      L C R</p>  <p>LA39-B-□□YS/    LA39-B-□□YS/□</p> </div>			
		Three-position <div style="text-align: center;"> <p>L C R      L C R</p>  <p>LA39-B-□□YS/    LA39-B-□□YS/□</p> <p>L C R      L C R</p>  <p>LA39-B-□□YS/    LA39-B-□□YS/□</p> </div>			

### Description:




1. before the oblique line shall be filled with the number of NO and NC contacts.
2. after the oblique line shall be filled with the color.
3. If Z<sub>1</sub> and Z<sub>3</sub> holders are required during ordering, B<sub>2</sub> in the model can be changed to B<sub>1</sub> or B<sub>3</sub>.






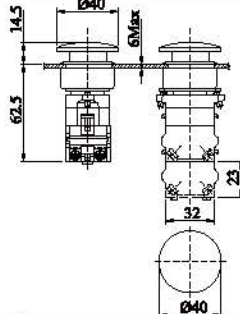





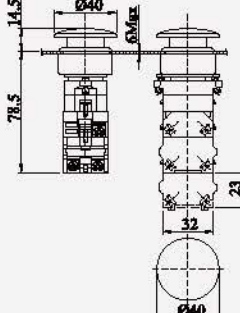





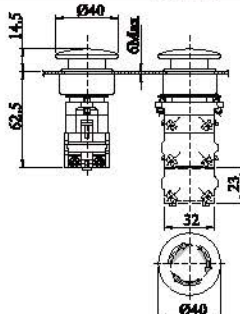



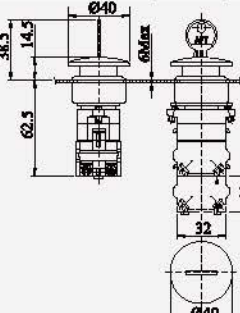
## Φ22 LA39-(C) Series Pushbutton Model Selection

Name	Type	Work Status	Model	Color	Lamp Voltage	Appearance dimension
Round pushbutton		Momentary	LA39-C1-  	red-r green-g yellow-y white-w		
		Maintained	LA39-C1-   	blue-b black-k		
Round Raised Pushbutton		Momentary	LA39-C1-    	red-r green-g yellow-y white-w		
		Maintained	LA39-C1-     	blue-b black-k		
Round Illuminated Pushbutton		Momentary	LA39-C1-     	red-r green-g yellow-y white-w	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-DC 220V 31-AC 220V 32-AC 380V	
		Maintained	LA39-C1-     	blue-b		
Round Raised Illuminated Pushbutton		Momentary	LA39-C1-     	red-r green-g yellow-y white-w	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-DC 220V 31-AC 220V 32-AC 380V	
		Maintained	LA39-C1-     	blue-b		



### Description:

-  before the oblique line shall be filled with the number of NO and NC contacts.
-  after the oblique line shall be filled with the color,  shall be filled with the voltage class of the light.
- The light source of the illuminated pushbutton shall all be high-bright pure LED.
- If Z<sub>2</sub> and Z<sub>3</sub> holders are required during ordering, C<sub>1</sub> in the model can be changed to C<sub>2</sub> or C<sub>3</sub>.



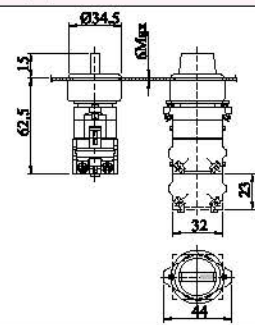
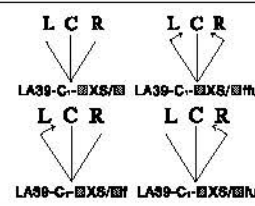


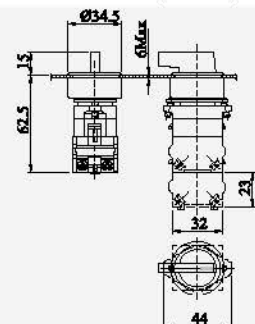
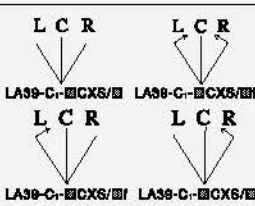

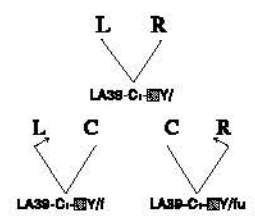
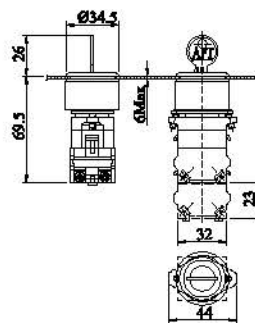
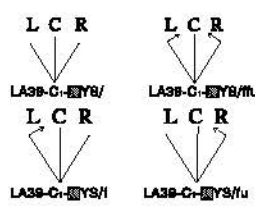
## Φ30 LA39-(C) Series Pushbutton Model Selection

Name	Type	Work Status	Model	Color	Lamp Voltage	Appearance dimension
Mushroom Pushbutton	 Note: $\varnothing 40\varnothing 60$	Momentary	LA39-C1-  M/ 	opaque red-r green-g yellow-y		
		Maintained	LA39-C1-  MT/ 	black-k		
Illuminated Mushroom Pushbutton	 Note: $\varnothing 40\varnothing 60$	Momentary	LA39-C1-  MD/  /■	transparent red-r green-g yellow-y	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V	
		Maintained	LA39-C1-  MTD/  /■	black-k	28-DC 220V 31-AC 220V 32-AC 380V	
Emergency stop Pushbutton	 Note: $\varnothing 40\varnothing 60$	Press to lock, Twist clockwise to reset	LA39-C1-R  Z/ 	opaque red-r		
Key to Reset Emergency Stop Pushbutton	 Note: $\varnothing 40$	Press to lock, Twist the key clockwise to reset	LA39-C1-R  ZY/ 	opaque red-r		

### Description:

-  before the oblique line shall be filled with the number of NO and NC contacts.
  -  after the oblique line shall be filled with the color, ■ shall be filled with the voltage class of the light.
  - The light source of the illuminated pushbutton shall all be high-bright pure LED.
  - If Z<sub>1</sub> and Z<sub>3</sub> holders are required during ordering, C<sub>1</sub> in the model can be changed to C<sub>2</sub> or C<sub>3</sub>.  
Note: please add "-60" after the model if  $\varnothing 60$  mushroom actuator is required. No mark is required when it is  $\varnothing 40$ .
- The emergency stop pushbutton shall be used with slow-action type base.

## Φ30 LA39-(C) Series Pushbutton Model Selection


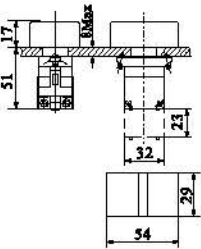

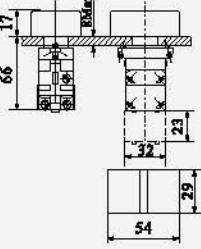

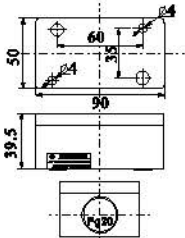

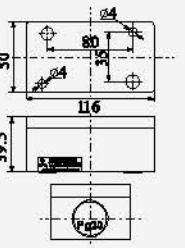
Name	Type	Handle Position & Model	Color	Description	Appearance dimension
Short-handle selector switch		Two-position  LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /X/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /X/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /X/□/u	red-r green-g yellow-y black-k		
		Three-position  LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /X/S/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /X/S/□/u LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /X/S/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /X/S/□/u			
Long-handle selector switch		Two-position  LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /CX/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /CX/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /CX/□/u	red-r green-g yellow-y black-k		
		Three-position  LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /CX/S/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /CX/S/□/u LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /CX/S/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /CX/S/□/u			
Key Switch		Two-position  LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /Y/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /Y/□/u	Key pull-out position right middle left	a	
		Three-position  LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /Y/S/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /Y/S/□/u LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /Y/S/□ LA39-C- <span style="border: 1px solid black; padding: 0 2px;"> </span> /Y/S/□/u		Every pull-out position can be custom-made for any special requirement. Note: for reset key switches, the key pull-out position shall not be reset action position.	

### Description:

1.   before the oblique line shall be filled with the number of NO and NC contacts.
2.   after the oblique line shall be filled with the color.
3. If Z<sub>2</sub> and Z<sub>3</sub> holders are required during ordering, C<sub>1</sub> in the model can be changed to C<sub>2</sub> or C<sub>3</sub>.



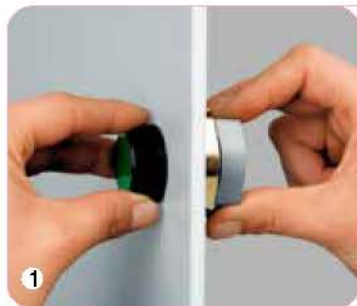
## LA39 Series Multi-position Pushbutton Model Selection

Name	Type	Model	Color	Lamp Voltage	Appearance dimension	Description
Twin pushbuttons		LA39-B2-▨R/rg	The Pushbuttons are red-green			<ol style="list-style-type: none"> <li>The contact action shall be Momentary type.</li> <li>The contact can be added or changed if necessary. The lighting is located in the middle of the twin pushbuttons.</li> <li>It is used for the startup and stop control of the motor or load.</li> </ol>
Illuminated Twin pushbuttons		LA39-B2-▨RD/rg▨	The Pushbuttons are red-green and the light is yellow	LED LS 21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-DC 220V 31-AC 220V 32-AC 380V		<ol style="list-style-type: none"> <li>The contact action shall be Momentary type.</li> <li>The contact can be added or changed if necessary. The lighting is located in the middle of the twin pushbuttons.</li> <li>It is used for the startup and stop control of the motor or load.</li> </ol>
Twin pushbuttons with enclosure		LA39-A-11RH/r.g	The Pushbuttons are red-green			<p>It is used for the startup and stop control of the motor</p> <ol style="list-style-type: none"> <li>Each-position Pushbutton is with one independent open and closed contact.</li> <li>The action of all contacts is peristaltic.</li> </ol>
Three-position Pushbutton with enclosure		LA39-A-11SH/r.g.w	The Pushbuttons are red-green-white			<p>It is used for the backward and forward rotation as well as the stop control of the motor</p> <ol style="list-style-type: none"> <li>Each-position Pushbutton is with one independent open and closed contact.</li> <li>The action of all contacts is peristaltic.</li> </ol>

### Description:

- ▨ before the oblique line shall be filled with the number of NO and NC contacts.
- ▨ after the oblique line is filled with the voltage class of the light.

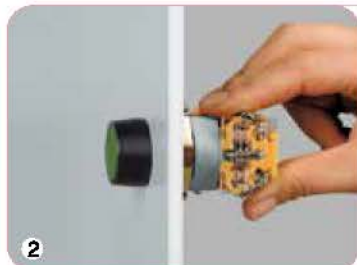
# Installation & Operation Instructions of LA39 Series Pushbuttons



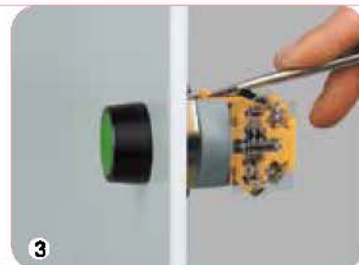
Insert the actuator into the installation hole in the front of the panel and rotate it into the holder. Then tighten the fixing screws on both ends evenly (no excessive force is allowed. The maximum torque is 25N-cm). If the panel is made of other non-metal materials such as plastic, a mounting plate can be backed on the panel (refer to accessory F5) before installation. When the diameter of the installation hole is 25mm, a piece of Ø25 mounting plate can be backed on the panel (refer to accessory F6) before installation.

For the Pushbutton with Z<sub>2</sub> holder, disassemble the switching elements with the holder together. For the Pushbutton with Z<sub>2</sub> holder, disassemble the switching elements before installing the holder. For the Pushbutton with Z<sub>3</sub> holder, disassemble the switching elements first. Insert the holder into the actuator and then fasten the nuts on the holder after turning the holder clockwise.

Note: if the Pushbutton is blocked after installation, adjust the two fixing screws on the holder to keep the same tightness.



Buckle the switching elements directly. The actuator symbol can be installed directly in the front (normally, it has been installed before out of the factory). When the illuminated pushbutton is installed, buckle the lampholder first and switching elements successively. Note: after installation, check if the buckle of the switching elements is completely locked.



Remove the switching elements or lampholder: remove the locked assemblies freely and easily by lifting the buckle of the locking system with a screwdriver.

**Hint:** the white point of the short handle and the tip of the long handle shall be upward during the selector switch installation.

## Hole Size

Type AB Normal Pushbuttons, Illuminated Pushbuttons, Key switches and selector switches	Type A.B Mushroom Pushbuttons and Long-handle selector switches	Type C, Normal Pushbuttons, Illuminated Pushbuttons, Key Pushbuttons and selector switches	Type C Mushroom Pushbuttons and Long-handle selector switches
<p>Note: the minimum size shall be 35×50 when Z<sub>3</sub> holder is selected for installation.</p>			



## Printing Label of Contact

The figures of the contact wiring terminal are expressed by two digits, "1" at tens indicates the 1<sup>st</sup> pair of contacts on the first pitch of switching element, and "2" at tens indicates the 2<sup>nd</sup> pair of contacts on the first pitch of switching element. "1 and 2" at units indicates the two wiring terminals of the NCcontact, and "3 and 4" at units indicates the two wiring terminals of NOcontact.

## Functional Diagram for Switching Elements of selector switches and Key switches

2-position			3-position			3-position		
Printing label of contact	(Zero position)	Contact code	Printing label of contact	(Zero position)	Contact code	Printing label of contact	(Zero position)	Contact code
11-12		11	11-12		11	13-14		20
23-24		02	23-24		02	23-24		20
11-12		02	11-12		02	31		11
21-22		20	21-22		20	41		11
13-14		20	13-14		20	Wiring 02		
23-24		11	23-24		11	Description		
13-14		11	13-14		11	<div style="display: flex; align-items: center;"> <div style="width: 15px; height: 10px; background-color: #ccc; border: 1px solid #000; margin-right: 5px;"></div> <span>indicates the closed status of the contact</span> </div> <div style="display: flex; align-items: center;"> <div style="width: 15px; height: 10px; background-color: #fff; border: 1px solid #000; margin-right: 5px;"></div> <span>indicates the open status of the contact</span> </div>		

(Zero position): indicates the position of th

Name	Type	Model	Material	Applications
Protective cap		<b>F1</b>	Silicone	It is installed on the Pushbutton actuator to resist the water and dust. The protection class reaches IP67.
Guard Cover		<b>F2</b>	Stainless steel	It is installed on the Pushbutton actuator to prevent bumping and misoperation.
Protective Cover		<b>F3-1</b>	Plastic	It is installed on the actuator of the flat round pushbutton to prevent bumping and misoperation. It can be sealed off.
		<b>F3-2</b>	Plastic	Plastic It is installed on the actuator of the short-handle selector switch, illuminated selector switch and key switch to prevent bumping and misoperation. It can be sealed off.
		<b>F3-3</b>	Plastic	It is installed on the actuator of Ø40 mushroom pushbutton, Ø40 emergency stop pushbutton, and key-reset emergency stop pushbutton to prevent bumping and misoperation. It can be sealed off.
Joint Guard Cover		<b>F4</b>	Plastic	It is installed behind the wiring screws of the switching element to prevent electric shock.
Ø 22 Mounting Plate		<b>F5</b>	Iron	The mounting plate shall be provided to improve the strength when the box panel is made of plastic.
Ø 25 Mounting Plate		<b>F6</b>	Iron	This mounting plate shall be provided when the hole size on the panel is Ø25.



## LA39 Series Pushbutton Accessories

Name	Type	Model	Material	Applications
Ø30 Diameter –altering Ring		<b>F7</b>	Plastic	This Diameter –altering Ring shall be provided when the hole size on the panel is Ø30.
Ø30 Diameter –altering Nu		<b>F8</b>	Aluminum alloy	It is used for the panel with hole size of Ø30 and also can achieve the effect of an ultrathin pushbutton.
Round inscription label		<b>F9</b>	Plastic	It is installed in the transparent pushbutton chip of the round Pushbutton as the symbol indication.
Square inscription label		<b>F10</b>	Plastic	It is installed in the transparent pushbutton chip of the square Pushbutton as the symbol indication.
Label holder		F11-10 Written Area: 25×10mm F11-18 Written Area: 25×18mm	Plastic	It is hung on the Pushbutton or indicator as the symbol indication or literal description.
Label Plate		F12 (Round) F12a (Square)	Plastic	It is hung on the Pushbutton or indicator as the symbol indication or literal description.

Name	Type	Model	Material	Applications	
Warning Ring		F13-60	Ø60	ABS	It is used for emergency stop pushbuttons
		F13-90	Ø90		
Yellow Guard Ring		F14a-40	Ø40	ABS	It is used to highlight the visible caution and protect the mushroom pushbutton to prevent bumping and misoperation. (Note: F14a-40 cannot be used for those emergency stop pushbutton models which require resetting by rotating)
		F14a-60	Ø60		
		F14b-60	Ø60		
		F14b-90	Ø90		
Diameter –altering Nut of Indicator		F15-25	Ø25	ABS	Ø22mm indicator can be installed on the panel with the hole size of Ø25 or Ø30mm when it is used.
		F15-30	Ø30		
Tightening Wrench of Indicator		F16	Ø22	PC	It can improve the installation quality and reduce the work load of the labors.
Symbol Cap of Indicator		F18		POM	It is used for the symbol printing or literal description of the indicator.






## LA39 Series Pushbutton Accessories

Name	Type	Model	Material	Applications
Blanking plug		F19 Ø22	ABS	It is used to block the reserved holes or redundant holes.
Switch Seat	 (quick-action type)	C01 C20 C10 C11 C02	PC	It is installed on the end of the button to increase or reduce the contacts. The two digits in the model indicate the number of the normally open and normally closed contacts.
	 (slow-action type)	S01 S20 S10 S11 S02	PC	It is installed on the end of the button to increase or reduce the contacts. The two digits in the model indicate the number of the normally open and normally closed contacts.
Lamp holder		D/■□	PA	It is installed between the middle seat and base and used for the buttons with light. Model ■ indicates the color and □ indicates the voltage level code.
Holder		Z <sub>1</sub>	Zn+PBT	It is used to fix the button.
Holder		Z <sub>2</sub>	PBT	It is used to fix the button.
Holder		Z <sub>3</sub>	PA	It is used to fix the button.



Name	Type	Model	Description
Pushbutton Actuator	 <p>(A)                      (B)                      (C)</p>	Normal pushbuttons <b>LA39-A-/█</b> <b>LA39-B-/█</b> <b>LA39-C-/█</b>	The color is filled in the █ after the oblique line.
		Maintained pushbuttons <b>LA39-A-T/█</b> <b>LA39-B-T/█</b> <b>LA39-C-T/█</b>	
Pushbutton Actuator	 <p>(A)                      (B)                      (C)</p>	High-position pushbuttons <b>LA39-A-/█-H</b> <b>LA39-B-/█-H</b> <b>LA39-C-/█-H</b>	The color is filled in the █ after the oblique line.
		High-position Maintained pushbuttons <b>LA39-A-T/█-H</b> <b>LA39-B-T/█-H</b> <b>LA39-C-T/█-H</b>	
Short-handle selector switch	 <p>(A)                      (B)                      (C)</p>	Two-position <b>LA39-A-X/█□</b> <b>LA39-B-X/█□</b> <b>LA39-C-X/█□</b>	The color is filled in the oblique line █, □ is filled with reset form.
		Three-position <b>LA39-A-XS/█□</b> <b>LA39-B-XS/█□</b> <b>LA39-C-XS/█□</b>	
Long-handle selector switch	 <p>(A)                      (B)                      (C)</p>	Two-position <b>LA39-A-CX/█□</b> <b>LA39-B-CX/█□</b> <b>LA39-C-CX/█□</b>	The color is filled in the oblique line █, □ is filled with reset form.
		Three-position <b>LA39-A-CXS/█□</b> <b>LA39-B-CXS/█□</b> <b>LA39-C-CXS/█□</b>	
Illuminated selector switch	 <p>(A)</p>	Two-position <b>LA39-A-XD/█□</b> <b>LA39-B-XD/█□</b> <b>LA39-C-XD/█□</b>	The color is filled in the oblique line █, □ is filled with reset form.
		Three-position <b>LA39-A-XSD/█□</b> <b>LA39-B-XSD/█□</b> <b>LA39-C-XSD/█□</b>	
Twin Pushbutton		Normal pushbuttons <b>LA39-B-R/r.g</b>	<ol style="list-style-type: none"> <li>1. The action of all contacts is Momentary.</li> <li>2. The contact shall be increased or changed if necessary and the lighting is located in the middle of the two Pushbuttons.</li> <li>3. It is used for the startup and stop control of the motor or load.</li> </ol>
		Illuminated pushbuttons <b>LA39-B-RD/r.g</b>	

## LA39 Series Pushbutton Accessories

Name	Type	Model	Description
Key Pushbuttons	 (A)	Two-position <b>LA39-A-Y</b> <b>LA39-C-Y</b>	Type (C) key pushbuttons are special for the trains.
	 (C)	Three-position <b>LA39-A-YS</b> <b>LA39-C-YS</b>	
Mushroom Pushbuttons	 (A)	Normal pushbuttons <b>LA39-A-M/□</b> <b>LA39-B-M/□</b> <b>LA39-C-M/□</b>	The color is filled in the  after the oblique line.
	 (B)		
Illuminated Mushroom Pushbuttons	 (A)	Normal pushbuttons <b>LA39-A-MD/▨</b> <b>LA39-B-MD/▨</b> <b>LA39-C-MD/▨</b>	The color is filled in the  after the oblique line.
	 (B)		
Emergency Stop Pushbuttons	 (A)	Maintained pushbuttons <b>LA39-A-MT/▨</b> <b>LA39-B-MT/▨</b> <b>LA39-C-MT/▨</b>	The color is filled in the  after the oblique line.
	 (B)		
Key Emergency Stop Pushbuttons	 (A)	Normal pushbuttons <b>LA39-A-MD/▨</b> <b>LA39-B-MD/▨</b> <b>LA39-C-MD/▨</b>	The color is filled in the  after the oblique line.
	 (B)		
	 (C)	<b>LA39-A-Z/▨</b> <b>LA39-B-Z/▨</b> <b>LA39-C-Z/▨</b>	
	 (A)	<b>LA39-A-ZY/R</b> <b>LA39-B-ZY/R</b> <b>LA39-C-ZY/R</b>	
	 (B)		
	 (C)		

### LA39-E Pushbutton

LA39-E series  $\Phi 16$  Pushbutton are featured as clever design, good visual appearance, and exquisite body, simple and easy installation as well as reliable contact. They are the best choice for the users requiring miniaturized and intensive control of the panel.

### Visual Appearance

The actuators of the indicators and illuminated pushbuttons have bright color with soft and distinguished light, including a variety of colors such as red, green, yellow, blue and white for option. This series of Pushbuttons have the complete forms and types. Their actuator shapes include round, square and rectangular types, which can greatly satisfy the demands of the users.

### Structural Features

This series of Pushbuttons consist of two systems – the threaded sleeve part that constitutes the actuator operation mechanism and the base part that constitutes the contact actuation mechanism. The connection of all structures is the internationally advanced no-fastener and buckle Maintained connection structural form with convenient installation and dismantling, safe and reliable. The anti-rotation structure is used to ensure correct pushbutton installation positioning and prevent looseness.

### Contacts

The base part has one NO and one NC or two NO and two NC contacts. It is designed with contact self-cleaning mechanism and is a single-break Momentary switch. The contacts together with the contact chip are completely gold plated, which is a practical guarantee for the reliable contact and stable electric performance.

### Types and Specifications

LA39-E series Pushbuttons have the complete types and specifications, normally including the normal pushbuttons, illuminated pushbuttons, pushbuttons with function symbol, two-position and three-position knobs (selection knobs), two-position and three-position key pushbuttons, mushroom pushbuttons, emergency stop pushbuttons, Maintained pushbuttons, buzzers, and indicators etc. Moreover, the normal pushbuttons, illuminated pushbuttons and pushbuttons with function symbol equipped with the accessory F-I or F-II can prevent the misoperation of the pushbuttons.

### Symbols

The various types of marks or signs (symbols, letters and characters etc.) can be provided according to the requirements of the users' operation instructions.

### Standards

IEC 60947 /GB 14048.5





## Description of $\Phi 16$ LA39-E Series Pushbutton

### Application

LA39-E series Pushbuttons have complete functions and can fully meet the control requirements of the domestic and foreign digital and program controlled devices as well as electronic and electric apparatus. They are widely used as auxiliary parts of control circuits, signal and interlock etc. in the various fields such as AC50Hz (60Hz) Voltage AC/DC 220V machine tools, textile, marine, aviation, automobile, tobacco, power, telecommunications and medical devices etc.

### Model and Meanings

LA39-E □□□ / □□		LED						
Voltage Class	Code	Voltage	AC/DC 6V	AC/DC 12V	AC/DC 24V	AC/DC 110V	DC 220V	AC 220V
		Code	21	22	23	26	28	31
Color Code		red	green	yellow	blue	white	black	
		r	g	y	b	w	k	
Actuator Shape		Round if no symbol		square		rectangular		
				F		J		
Actuator Shape		Normal pushbuttons if no symbol	Illuminated pushbuttons	Mushroom pushbuttons	Two-position knobs	Three-position knobs		
			D	M	X	XS		
Number of Contacts		Two-position key pushbuttons	Three-position key pushbuttons	Self-locking pushbuttons	Emergency stop pushbuttons	Pushbuttons with symbol		
		Y	YS	T	Z	S		
Contacts		One normally open and one normally closed			Two normally open and two normally closed			
		11			22			
		Installation outer diameter of the pushbutton is $\Phi 16\text{mm}$						
		The design serial number is issued by Shanghai Electrical Apparatus Research Institute						
		The pushbutton code is issued by Shanghai Electrical Apparatus Research Institute						

### Technical Parameters

Work Temperature	-25℃~+55℃
Work Humidity	45~85%RH
Contact Resistance	$\leq 50\text{m}\Omega$
Insulation Resistance	$\geq 100\text{M}\Omega$
Rated Impulse Withstand Voltage (Uimp)	2000V AC
Mechanical endurance	10×10 <sup>5</sup> times for normal pushbuttons 10×10 <sup>4</sup> times for selector switches 5×10 <sup>4</sup> times for emergency stop pushbuttons
Electrical endurance	AC-15 100,000 times (1,200 times/hour)
	DC-13 50,000 times (1,200 times/hour)
Protection Class of Actuator	IP40 Those with "TH" mark can work normally under the humid tropic environment.
Action Travel	1.5~2.0mm

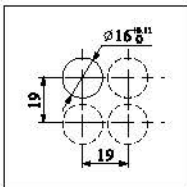
# Description of $\Phi 16$ LA39-E Series Pushbutton

## Rated Work condition

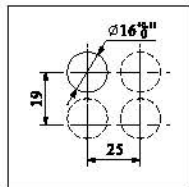
Rated Insulation Voltage $U_i$		250V		
Conventional Thermal Current $I_{th}$		5A		
Application Category	Rated Work Voltage $U_e$	24V	110V	220V
AC-15	Rated Work Current $I_e$	2A	1A	0.5A
DC-13		0.7A	0.2A	0.1A

## Installation Hole Sizes

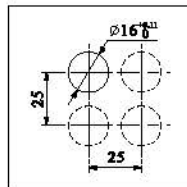
Round/Square Actuator Hole



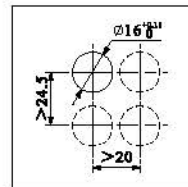
Rectangular Actuator Hole



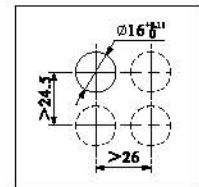
Mushroom Actuator Hole



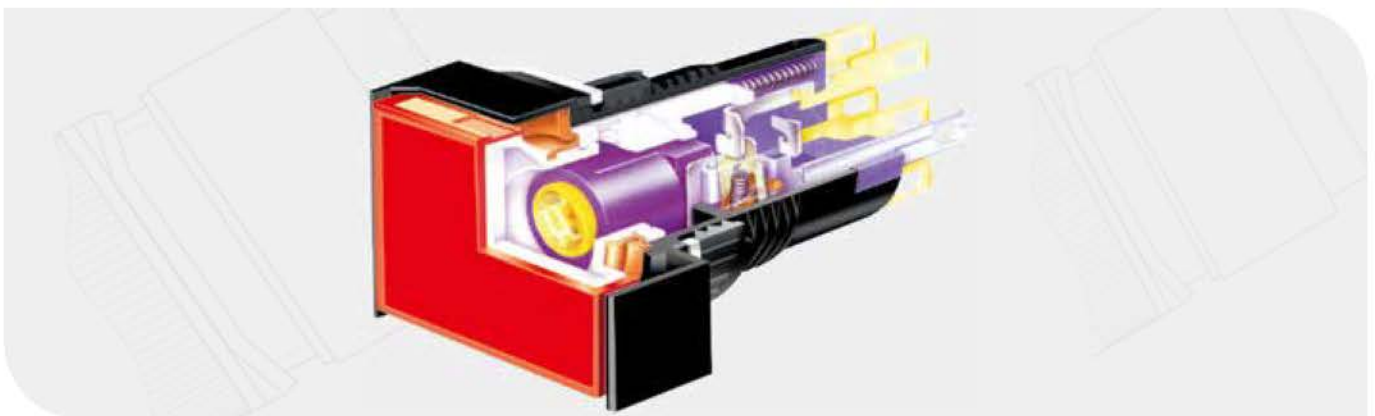
Hole for Actuator with Installation Guard Cover F-I



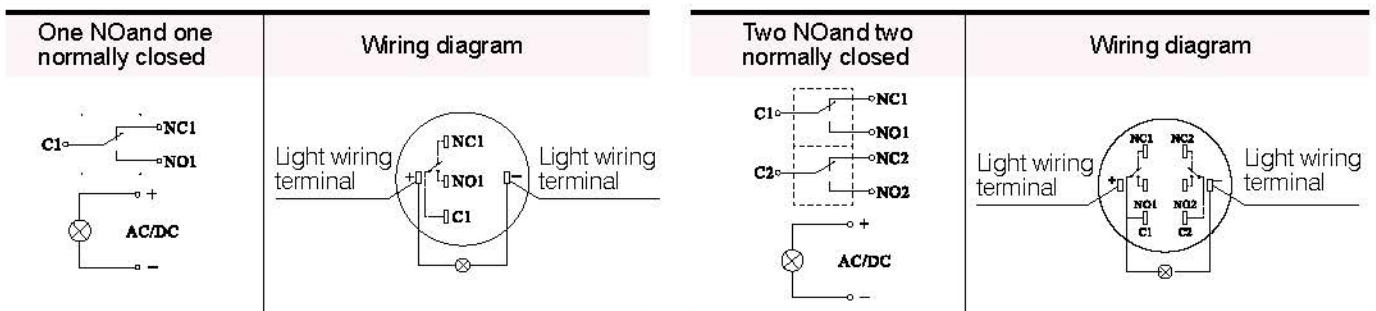
Hole for Actuator with Installation Guard Cover F-II




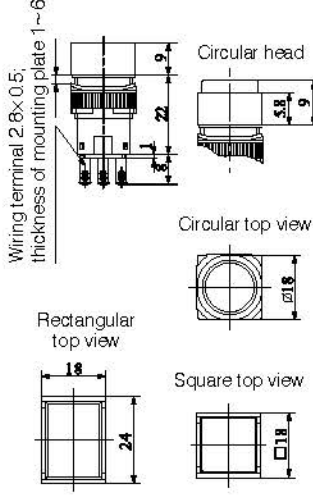



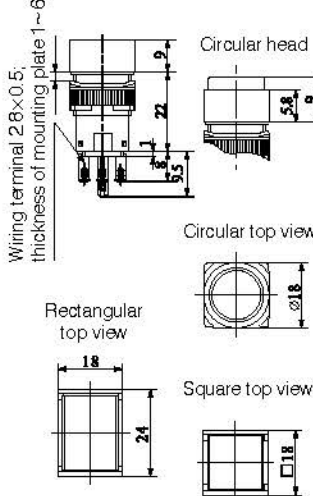


## Sectional View of Control Components



## Sectional View of Control Components



## Φ16 LA39-E Series Pushbutton Model Selection



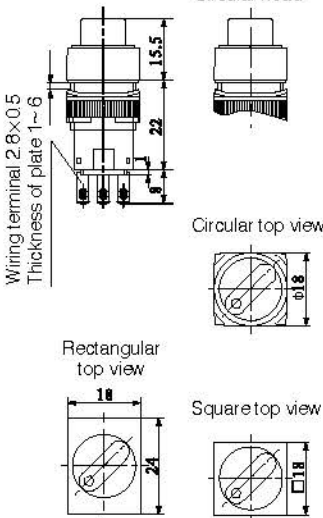
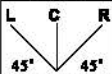


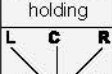

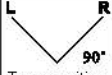
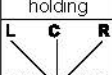


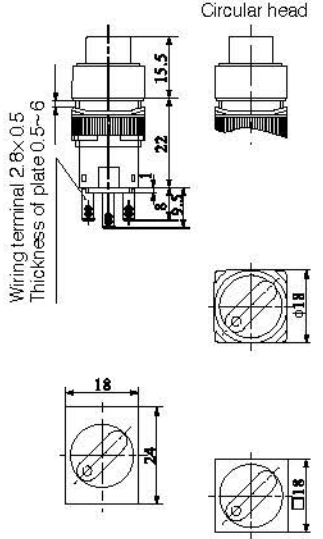
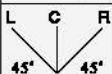


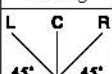


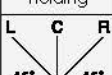
Name	Type	Work Status	contacts	Model	Color	Lamp Voltage	Appearance dimension
Pushbutton (Round)		Momentary	11	LA39-E11/□	red-r green-g yellow-y blue-b white-w black-k		 <p>Wiring terminal 2.8x0.5; thickness of mounting plate 1~6</p>
			22	LA39-E22/□			
		Maintained	11	LA39-E11T/□			
			22	LA39-E22T/□			
Pushbutton (Square)		Momentary	11	LA39-E11F/□			
			22	LA39-E22F/□			
		Maintained	11	LA39-E11TF/□			
			22	LA39-E22TF/□			
Pushbutton (Rectangular)		Momentary	11	LA39-E11J/□			
			22	LA39-E22J/□			
		Maintained	11	LA39-E11TJ/□			
			22	LA39-E22TJ/□			
Illuminated Pushbutton (Round)		Momentary	11	LA39-E11D/□■	red-r green-g yellow-y blue-b white-w	<b>21-AC.DC 6V</b> <b>22-AC.DC 12V</b> <b>23-AC.DC 24V</b> <b>26-AC.DC 110V</b> <b>28-AC.DC 220V</b> <b>31-AC 220V</b>	 <p>Wiring terminal 2.8x0.5; thickness of mounting plate 1~6</p>
			22	LA39-E22D/□■			
		Maintained	11	LA39-E11TD/□■			
			22	LA39-E22TD/□■			
Illuminated Pushbutton (Square)		Momentary	11	LA39-E11DF/□■			
			22	LA39-E22DF/□■			
		Maintained	11	LA39-E11TDF/□■			
			22	LA39-E22TDF/□■			
Illuminated Pushbutton (Rectangular)		Momentary	11	LA39-E11DJ/□■			
			22	LA39-E22DJ/□■			
		Maintained	11	LA39-E11TDJ/□■			
			22	LA39-E22TDJ/□■			

### Description:

"□" in the column is indicated with color, and "■" is indicated with the voltage class code.



## Φ16 LA39-E Series Pushbutton Model Selection

Name	Type	Work Status	Contacts	Model	Color	Lamp Voltage	Appearance dimension			
Selector switch (Round)		 Two-position holding	11	LA39-E11X/□	red-r green-g yellow-y blue-b white-w black-k					
		 Three-position holding	22	LA39-E22X/□						
Selector switch (Square)		 Two-position holding	11	LA39-E11XF/□						
		 Three-position holding	22	LA39-E22XF/□						
Selector switch (Rectangular)		 Two-position holding	11	LA39-E11XJ/□						
		 Three-position holding	22	LA39-E22XSJ/□						
Illuminated selector switch (Square)		 Two-position holding	11	LA39-E11XD/□ ■				red-r green-g yellow-y blue-b white-w	<b>21-AC.DC 6V</b> <b>22-AC.DC 12V</b> <b>23-AC.DC 24V</b> <b>26-AC.DC 110V</b> <b>28-AC.DC 220V</b> <b>31-AC 220V</b>	
		 Three-position holding	22	LA39-E22XSD/□ ■						
Illuminated selector switch (Square)		 Two-position holding	11	LA39-E11XDF/□ ■						
		 Three-position holding	22	LA39-E22XDF/□ ■						
Illuminated selector switch (Rectangular)		 Two-position holding	11	LA39-E11XDJ/□ ■						
		 Three-position holding	22	LA39-E22XDJ/□ ■						

### Description:

"□" in the column is indicated with color, and "■" is indicates with the voltage class code.

## Φ16 LA39-E Series Pushbutton Model Selection

Name	Type	Work Status	contacts	Model	Color	Lamp Voltage	Remarks	Appearance dimension
Key switch (Round)		<p>L R 90° Two-position maintained</p>	11	LA39-E11Y/■	red-r green-g yellow-y blue-b white-w black-k		For two-position key buttons, the two positions that the key is located are called: left (L) and right (R)	<p>28 18</p>
			22	LA39-E22Y/■				
Key switch (Square)		<p>L C R 45° 45° Three-position holding</p>	22	LA39-E22YS/■				
			11	LA39-E11YF/■				
Key switch (Square)		<p>L R 90° Two-position maintained</p>	22	LA39-E22YF/■				
			22	LA39-E22YSF/■				
Key Pushbutton (Rectangular)		<p>L C R 45° 45° Three-position holding</p>	11	LA39-E11YJ/■			For three-position key buttons, the three positions that the key is located are called: left (L), center (C) and right (R)	<p>18 24</p>
			22	LA39-E22YJ/■				
			22	LA39-E22YSJ/■				
Emergency Pushbutton		Press to lock Rotate right to reset	11	LA39-E11Z/□				
			22	LA39-E22Z/□				
Mushroom Pushbutton		Momentary	11	LA39-E11M/□	red-r green-g yellow-y blue-b white-w black-k			<p>23.5 15.5</p>
			22	LA39-E22M/□				
Mushroom Pushbutton		Maintained	11	LA39-E11MT/□	red-r green-g yellow-y blue-b white-w black-k			<p>23.5 15.5</p>
			22	LA39-E22MT/□				
Illuminated Mushroom Pushbutton		Momentary	11	LA39-E11MD/□ ■	red-r green-g yellow-y blue-b white-w	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 26-AC.DC 110V 28-AC.DC 220V 31-AC 220V		<p>23.5 15.5</p>
			22	LA39-E22MD/□ ■				
		Maintained	11	LA39-E11MTD/□ ■				
			22	LA39-E22MTD/□ ■				

### Description:

"■" is indicated with the position that the key can be pulled out: left (L), center (C), right (R)


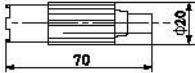

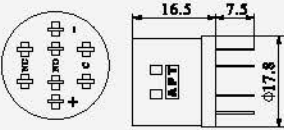

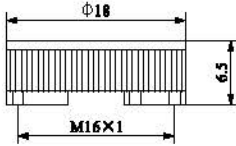

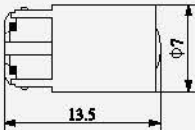
"□" in the column of model is indicated with color, and "■" is indicated with the voltage class code.

## LA39-E Series Pushbutton Accessories

Name	Type	Model	Description	Function	Size
Guard Cover		F-I	It is used for round and square actuators	Prevent misoperation	
Guard Cover		F-II	It is used for rectangular actuators	Prevent misoperation	
Blanking plug		F-III	Plug the blank holes on the panel (round actuators)	For decoration	
Blanking plug		F-IV	Plug the blank holes on the panel (square actuators)	For decoration	
Blanking plug		F-V	Plug the blank holes on the panel (rectangular actuators)	For decoration	



## LA39-E Series Pushbutton Accessories

Name	Type	Model	Description	Function	size
Fastening Wrench		F-VI	Assembling and disassembling tool	Assemble and disassemble the pushbuttons and light beads	
Wiring socket		F-VII	It is closely plugged in the rear of LA39-E016 series products	Avoid being directly welded to the wiring terminal of the pushbutton	
Fastening Nut		F-VIII F-IX	Plastic material metal material	For fastening Ø16 pushbuttons and indicators	
LED Light Bead		F-D2/□■	□ is indicated with color, ■ is indicated with voltage code	The light source in the illuminated pushbuttons	

### Description:

- The switch wiring shall avoid being welded as much as possible. It is suggested that the internationally common used plug bush (2.8×0.5mm) shall be used and the jacket shall be installed.
- If the welding is required for the wiring:
  - Hand welding 25W, within 3 seconds.
  - Auto welding 240°C , within 3 seconds.

No external force shall be applied within 1 minute after being welded and then the jacket shall be installed. Do not use any solvent for welding in order to prevent it from entering the inside of the switch and damaging the products.
- The Pushbuttons shall be hand operated. It is prohibited to use any other tool for operation!

## Description of $\Phi 16$ LA39-G Series Pushbutton

### Performance Features

LA39-G series Pushbuttons are the latest products independently developed by us and have independent intellectual properties. This series of products have integrated the advantages of the like products and also made up the disadvantages of other products. Its delicate design, complete specifications, convenient installation, good visual appearance and reliable operation are the biggest advantages of this series of products.



### Structural Features

LA39-G series Pushbuttons have applied the internationally popular modularized combination structure and mainly consist of two parts – operation actuators and contact modules. The actuator is designed with the smooth lines, ultrathin sizes, and various visual types. The protection class of IP 65 also has greatly enhanced the delicacy of the control panel.



### Contact Performance

With our unique technical expertise, the contact module of LA39G series Pushbuttons has been designed into two-breakpoint quick-action structure, which has greatly improved the contact reliability and electrical breaking capacity. The contact is gold plated so that it can work reliably under the low-voltage and micro-current conditions. One module can provide a pair of independent NO and NC contacts. One Pushbutton can be installed with a maximum of three contact modules (3 pairs of NOcontacts + 3 pairs of NCcontacts).



# Description of $\Phi 16$ LA39-G Series Pushbutton

## Model Description

### Pushbuttons

LA39-G □ □ □ / □ □ □

- Voltage class Code: 21: AC/DC 6V  
22: AC /DC 12V  
23: AC/DC 24V
- Action Function: f: left reset                      fu: right reset  
ffu: left and right reset                      L: key left pull-out  
C: key center pull-out                      R: key right pull-out
- Color : r: red                      g: green  
          y: yellow                      b: blue  
          w: white                      k: black
- Actuator Shape: no mark: circular  
  F: square  
  J: rectangular
- Operation Type: no mark: normal pushbutton                      D: illuminated pushbutton  
  X: two-position selector switch                      XS: three-position selector switch  
  T: self-lock pushbutton                      Q: piano actuator pushbutton  
  M: mushroom pushbutton                      Y: two-position key switch  
  YS: three-position key switch                      Z: emergency stop pushbutton  
  S: pushbutton with symbol (refer to page 15 for detailed symbol types)
- Number of Contacts: 11: 1 normally open and 1 normally closed  
  22: 2 normally open and 2 normally closed  
  33: 3 normally open and 3 normally closed

### Indicator

AD16-16 □ □ □ / □ □ □

- Voltage class Code
- Color
- Actuator Shape
- Auxiliary Code

### Buzzer

AD16-16 M □ / □ □

- Voltage class Code
- Sound Type
- Actuator Shape



# Description of $\Phi 16$ LA39-G Series Pushbutton

## Basic Technical Parameters

Work Temperature	-25°C ~ +55°C		
Work Humidity	45~85%RH		
Contact Resistance	$\leq 100m\Omega$		
Rated impulse Withstand Voltage Uimp	2000V AC		
Mechanical endurance	For normal pushbuttons $10 \times 10^5$ times For selector switch $10 \times 10^4$ times For emergency pushbutton $5 \times 10^4$ times		
Electrical endurance	AC-15	100,000 times (1,200 times/hour)	
	DC-13	50,000 times (1,200 times/hour)	
Protection Class	IP65	Those with "TH" mark can work normally under the humid tropic environment.	
Action Travel	1.5~2.5mm		

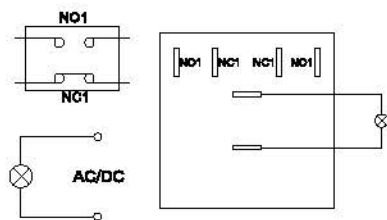
## Maximum Contact Capacity

Rated Insulation Voltage $U_i$		250V		
Conventional Thermal Current $I_{th}$		5A		
Application Category	Rated Work Voltage $U_e$	24V	110V	220V
AC-15	Rated Work Current $I_e$	2A	1A	0.5A
DC-13		0.7A	0.2A	0.1A

## Contact Types and Wiring Diagrams

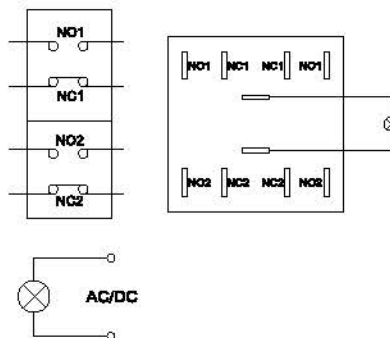
1 NO and 1 normally closed

Wiring diagram



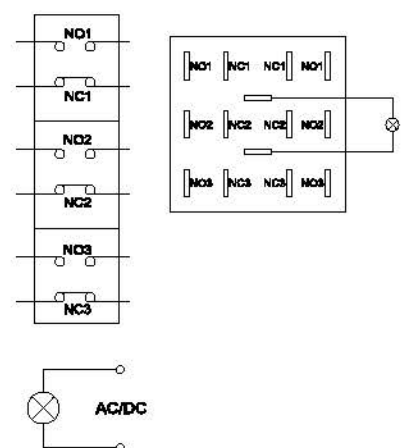
2 NO and 2 normally closed

Wiring diagram



3 NO and 3 normally closed

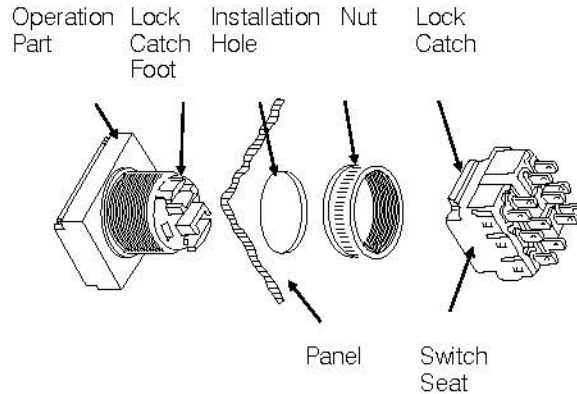
Wiring diagram



# Description of $\Phi 16$ LA39-G Series Pushbutton

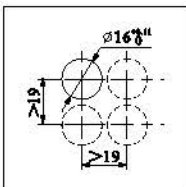
## Installation Method

The installation sequence is as follows: first pass the operation part through the panel hole and fix it after fastening the nuts. Then press the lock catch of the switch seat with the lock catch foot of the operation part together. Disassemble the switch seat only by pressing the lock catch of the switch seat towards the inner side.

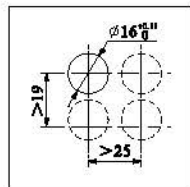


## Installation Hole Size

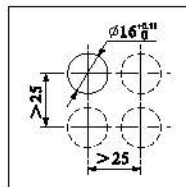
Round/Square Actuator Hole



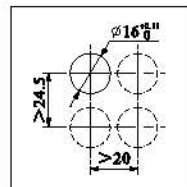
Rectangular Actuator Hole



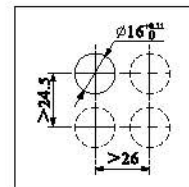
Mushroom Pushbutton and Emergency Stop Pushbutton Actuator Hole



Hole for Actuator with Installation Guard Cover F-I



Hole for Actuator with Installation Guard Cover F-II



## Precautions

- There are two wiring methods, i.e. welding and plug-pull type. If plug-pull type wiring is adopted, it is suggested that the internationally common used plug bush ( $2.8 \times 0.5\text{mm}$ ) shall be used and the jacket shall be installed.
- If the welding is required for the wiring:
  - Hand welding 25W, within 3 seconds.
  - Auto welding  $240^\circ\text{C}$ , within 3 seconds.

No external force shall be applied within 1 minute after being welded and then the jacket shall be installed. Do not use any solvent for welding in order to prevent it from entering the inside of the switch and damaging the products.

- The Pushbuttons shall be hand operated. It is prohibited to use any other tool for operation!

## Φ16 LA39-G Series Pushbutton Model Selection

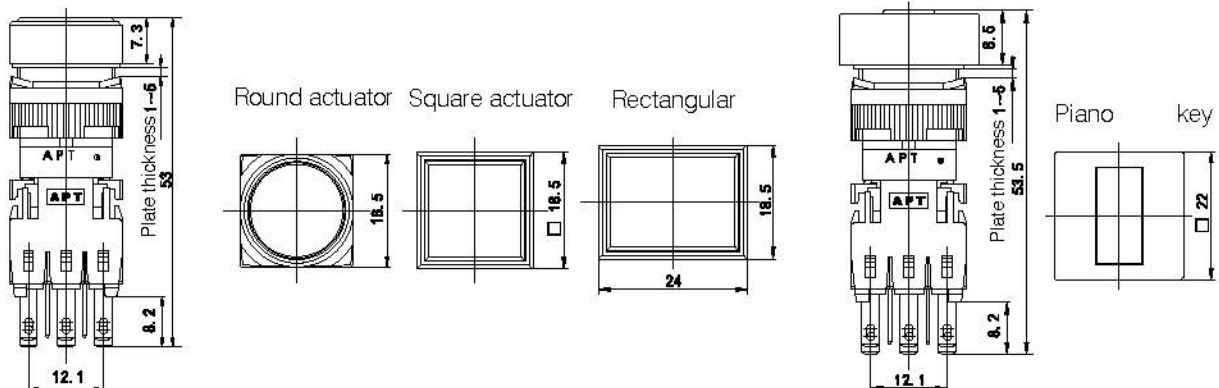
### Pushbuttons

Name	Actuator Shape	Work Status	Contact	Model	Color
Pushbutton (Round)		Momentary	11	LA39-G11/□	red-r green-g yellow-y blue-b white-w
			22	LA39-G22/□	
			33	LA39-G33/□	
		Maintained	11	LA39-G11T/□	
			22	LA39-G22T/□	
			33	LA39-G33T/□	
Pushbutton (Square)		Momentary	11	LA39-G11F/□	
			22	LA39-G22F/□	
			33	LA39-G33F/□	
		Maintained	11	LA39-G11TF/□	
			22	LA39-G22TF/□	
			33	LA39-G33TF/□	
Pushbutton (Rectangular)		Momentary	11	LA39-G11J/□	
			22	LA39-G22J/□	
			33	LA39-G33J/□	
		Maintained	11	LA39-G11TJ/□	
			22	LA39-G22TJ/□	
			33	LA39-G33TJ/□	
Pushbutton (Piano Key)		Momentary	11	LA39-G11Q/□	
			22	LA39-G22Q/□	
			33	LA39-G33Q/□	
		Maintained	11	LA39-G11TQ/□	
			22	LA39-G22TQ/□	
			33	LA39-G33TQ/□	

Φ16 LA39-G Series Pushbutton Model Selection

**Description:** "□" in the column of model is indicated with color

#### Appearance dimension





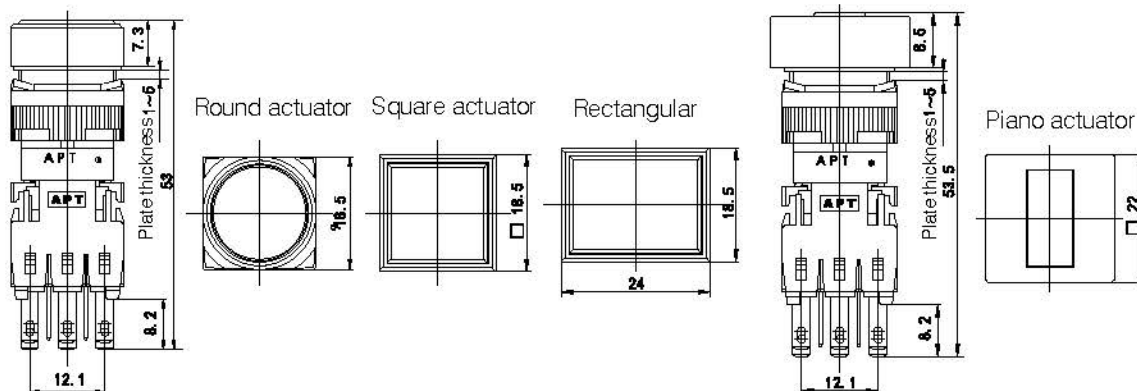
# Φ16 LA39-G Series Pushbutton Model Selection

## Illuminated Pushbuttons

Name	Actuator Shape	Work Status	Contact	Model	Lamp Voltage	Color
Illuminated Pushbutton (Round)		Momentary	11	LA39-G11D/□■	LED 21-AC/DC 6V 22-AC/DC 12V 23-AC/DC 24V	red-r green-g yellow-y blue-b white-w
			22	LA39-G22D/□■		
			33	LA39-G33D/□■		
		Maintained	11	LA39-G11TD/□■		
			22	LA39-G22TD/□■		
			33	LA39-G33TD/□■		
Illuminated Pushbutton (Square)		Momentary	11	LA39-G11DF/□■		
			22	LA39-G22DF/□■		
			33	LA39-G33DF/□■		
		Maintained	11	LA39-G11TDF/□■		
			22	LA39-G22TDF/□■		
			33	LA39-G33TDF/□■		
Illuminated Pushbutton (Rectangular)		Momentary	11	LA39-G11DJ/□■		
			22	LA39-G22DJ/□■		
			33	LA39-G33DJ/□■		
		Maintained	11	LA39-G11TDJ/□■		
			22	LA39-G22TDJ/□■		
			33	LA39-G33TDJ/□■		
Illuminated Pushbutton (Piano Actuator)		Momentary	11	LA39-G11DQ/□■		
			22	LA39-G22DQ/□■		
			33	LA39-G33DQ/□■		
		Maintained	11	LA39-G11TDQ/□■		
			22	LA39-G22TDQ/□■		
			33	LA39-G33TDQ/□■		

**Description:** "□" in the column of model is indicated with color, "■" is indicated with the voltage class code.

### Appearance dimension



## Φ16 LA39-G Series Pushbutton Model Selection

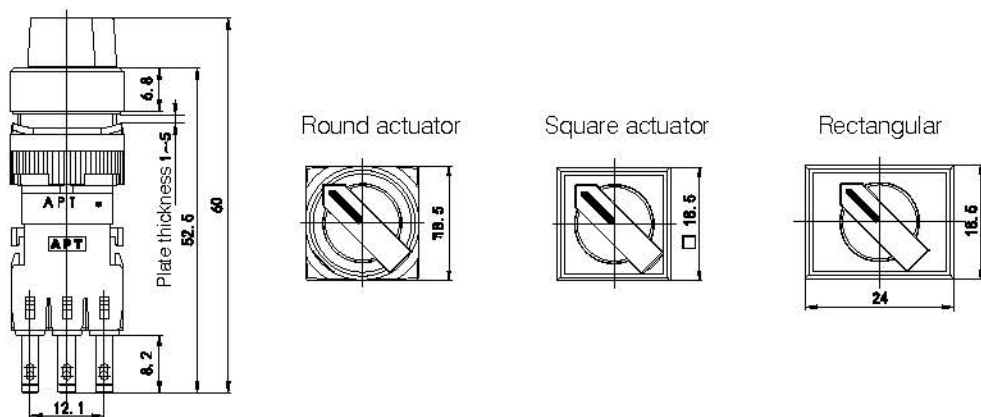
### Two-position Knobs

Name	Operation Actuator	Contact	Model		Color
			Two-position positioning 	Two-position right resetting 	
Two-position Selector Switch (Round)		11	LA39-G11X/□	LA39-G11X/□fu	red-r green-g yellow-y blue-b white-w
		22	LA39-G22X/□	LA39-G22X/□fu	
		33	LA39-G33X/□	LA39-G33X/□fu	
Two-position Selector Switch (Square)		11	LA39-G11XF/□	LA39-G11XF/□fu	
		22	LA39-G22XF/□	LA39-G22XF/□fu	
		33	LA39-G33XF/□	LA39-G33XF/□fu	
Two-position Selector Switch (Rectangular)		11	LA39-G11XJ/□	LA39-G11XJ/□fu	
		22	LA39-G22XJ/□	LA39-G22XJ/□fu	
		33	LA39-G33XJ/□	LA39-G33XJ/□fu	

LA39-G Series Small Pushbutton Model Selection

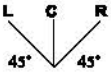
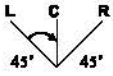
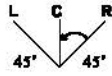
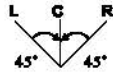



**Description:** " □ " in the column of model is indicated with color.

#### Appearance dimension



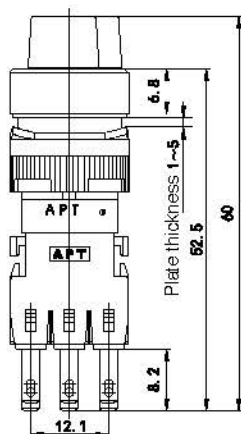
# Φ16 LA39-G Series Pushbutton Model Selection

## Three-position Selector switch

Name	Operation Actuator	Contact	Model				Color
			Three-position positioning 	Three-position left resetting 	Three-position right resetting 	Three-position left and right resetting 	
Three-position Selector Switch (Round)		22	LA39-G22XS/□	LA39-G22XS/□f	LA39-G22XS/□fu	LA39-G22XS/□ffu	red-r green-g yellow-y blue-b white-w
		33	LA39-G33XS/□	LA39-G33XS/□f	LA39-G33XS/□fu	LA39-G33XS/□ffu	
Three-position Selector Switch (Round)		22	LA39-G22XSf/□	LA39-G22XSf/□f	LA39-G22XSf/□fu	LA39-G22XSf/□ffu	
		33	LA39-G33XSf/□	LA39-G33XSf/□f	LA39-G33XSf/□fu	LA39-G33XSf/□ffu	
Three-position Selector Switch (Rectangular)		22	LA39-G22XSJ/□	LA39-G22XSJ/□f	LA39-G22XSJ/□fu	LA39-G22XSJ/□ffu	
		33	LA39-G33XSJ/□	LA39-G33XSJ/□f	LA39-G33XSJ/□fu	LA39-G33XSJ/□ffu	

**Description:** " □ " in the column of model is indicated with color.

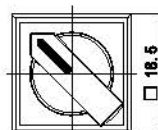
### Appearance dimension



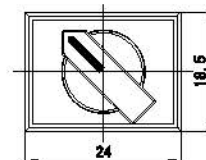
Round actuator



Square actuator



Rectangular





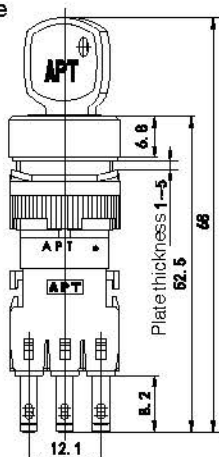
## Φ16 LA39-G Series Pushbutton Model Selection

### Key Pushbutton

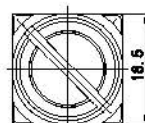
Name	Operation Actuator	Contact	Model			
			Positioning	Left resetting	Right resetting	Left and right resetting
			<p>Two-position Three-position</p>	<p>Three-position</p>	<p>Two-position Three-position</p>	<p>Three-position</p>
Two-position Key Switch		11	LA39-G11Y/□		LA39-G11Y/□fu	
		22	LA39-G22Y/□		LA39-G22Y/□fu	
		33	LA39-G33Y/□		LA39-G33Y/□fu	
Three-position Key Switch (Round)		22	LA39-G22YS/□	LA39-G22YS/□f	LA39-G22YS/□fu	LA39-G22YS/□ffu
		33	LA39-G33YS/□	LA39-G33YS/□f	LA39-G33YS/□fu	LA39-G33YS/□ffu
Two-position Key Switch (Square)		11	LA39-G11YF/□		LA39-G11YF/□fu	
		22	LA39-G22YF/□		LA39-G22YF/□fu	
		33	LA39-G33YF/□		LA39-G33YF/□fu	
Three-position Key Switch (Square)		22	LA39-G22YSF/□	LA39-G22YSF/□f	LA39-G22YSF/□fu	LA39-G22YSF/□ffu
		33	LA39-G33YSF/□	LA39-G33YSF/□f	LA39-G33YSF/□fu	LA39-G33YSF/□ffu
Two-position Key Switch (Rectangular)		11	LA39-G11YJ/□		LA39-G11YJ/□fu	
		22	LA39-G22YJ/□		LA39-G22YJ/□fu	
		33	LA39-G33YJ/□		LA39-G33YJ/□fu	
Three-position Key Switch (Rectangular)		22	LA39-G22YSJ/□	LA39-G22YSJ/□f	LA39-G22YSJ/□fu	LA39-G22YSJ/□ffu
		33	LA39-G33YSJ/□	LA39-G33YSJ/□f	LA39-G33YSJ/□fu	LA39-G33YSJ/□ffu

**Description:** " □ " in the column of model is marked with the position that the key can be pulled out: left (L), center (C), right (R).

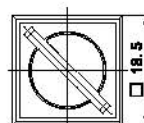
#### Appearance dime



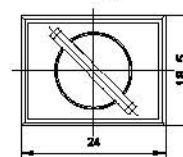
Round actuator



Square actuator



Rectangular



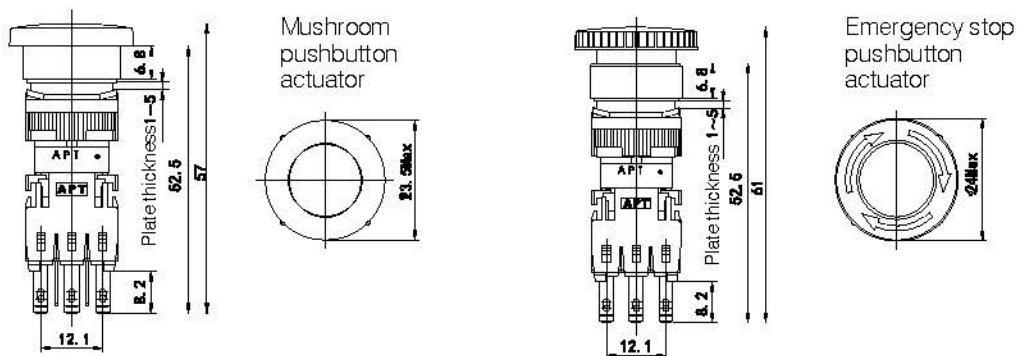
## Φ16 LA39-G Series Pushbutton Model Selection

### Emergency Stop Pushbuttons, Mushroom Pushbuttons, and Illuminated Mushroom Pushbuttons

Name	Actuator Shape	Work Status	Contact	Model	Voltage Class	Color
Emergency Stop Pushbutton		Locking by pressing down and resetting by turning 45°right	11	LA39-G11Z/□		red-r
			22	LA39-G22Z/□		
			33	LA39-G33Z/□		
Mushroom Pushbutton		Momentary	11	LA39-G11M/□		red-r
			22	LA39-G22M/□		green-g
			33	LA39-G33M/□		yellow-y
		Maintained	11	LA39-G11MT/□		blue-b
			22	LA39-G22MT/□		white-w
			33	LA39-G33MT/□		
Illuminated Mushroom Pushbutton		Momentary	11	LA39-G11MD/□■	LED 21-AC/DC 6V 22-AC/DC 12V 23-AC/DC 24V	red-r
			22	LA39-G22MD/□■		green-g
			33	LA39-G33MD/□■		yellow-y
		Maintained	11	LA39-G11MTD/□■		blue-b
			22	LA39-G22MTD/□■		white-w
			33	LA39-G33MTD/□■		

**Description:** " □ " in the column of model is indicated with color and " ■ " is indicated with voltage class code.

#### Appearance dimension



## Φ16 LA39-G Series Pushbutton Accessories


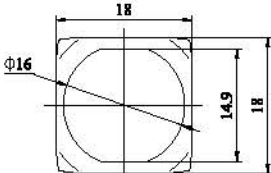

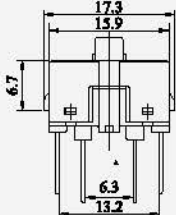

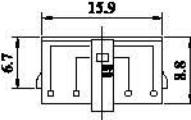
### Accessories

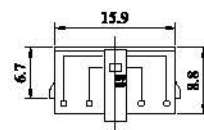
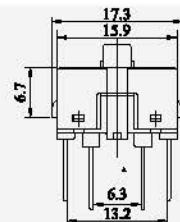
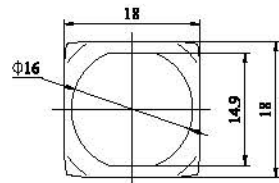
Name	Type	Model	Description	Function	Size
Guard Cover		F-I	It is used for round and square actuators	Prevent misoperation	
Guard Cover		F-II	It is used for rectangular actuators	Prevent misoperation	
Blanking plug		F-III	Plug the blank holes on the panel (round actuators)	For decoration	
Blanking plug		F-IV	Plug the blank holes on the panel (square actuators)	For decoration	
Blanking plug		F-V	Plug the blank holes on the panel (rectangular actuators)	For decoration	
LED Light Bead		F-D3/□■	"□" is indicated with color, "■" is indicated with voltage code	The light source in the illuminated pushbuttons	
Fastening Nut		F-VI	It is made of plastic	For fastening Ø16 pushbuttons and indicators	
		F-IX	It is made of metal		



## Φ16 LA39-G Series Pushbutton Accessories

### Accessories

Name	Type	Model	Description	Function	Size
Clamping Ring		<b>F-X</b>		Prevent the pushbutton rotation	
Contact Module		<b>F-XI</b>		For free combination of the contacts	
Simulation Device		<b>F-XII</b>		It is used to fill the positions where the contact modules are not installed	



# Description of $\Phi 12$ LA39-F Series Pushbutton

## Product Introduction

LA39-F series Pushbutton have the complete specifications and types. They have the round, square and rectangular actuator shapes if categorized according to the actuator shape, and have the normal pushbuttons and illuminated pushbuttons etc. if categorized according to the type.

LA39-F series Pushbuttons have good visual appearance, clear and transparent LED light beams as well as unique and reliable internal structure, which can better satisfy the users' requirements for miniaturized and intensive control of the panel.

The products comply with IEC 60947-5-1 and GB Code 14048.5.

## Applicable Range

LA39-F series Pushbuttons are applicable to auxiliary applications for control signal and interlock etc. in various fields such as AC50Hz (60Hz) Voltage AC/DC 220V program controlled devices, electronic and electric appliance control circuits, machinery, telecommunications, medical devices and instruments etc.



## Technical Parameters

Work Temperature	<b>-25℃ ~ +55℃</b>	
Work Humidity	<b>45~85%RH</b>	
Contact Resistance	<b>&lt; 50mΩ</b>	
Insulation Resistance	<b>&gt; 100MΩ</b>	
Rated Impulse Withstand Voltage Uimp	<b>2000V AC</b>	
Mechanical Endurance	Normal pushbutton, illuminated pushbutton	200,000 times (1,200 times/hour)
	Maintained pushbuttons	100,000 times (1,200 times/hour)
Electrical Life	AC-15	100,000 times (300 times/hour)
	DC-13	50,000 times (300 times/hour)
Head Protection Class	<b>IP40</b>	
Action Travel	<b>1.4~2.4mm</b>	

## Description of $\Phi 12$ LA39-F Series Pushbutton

### Contact Capacity

Rated Insulation Voltage $U_i$		<b>250V</b>		
Conventional Thermal Current $I_{th}$		<b>5A</b>		
Application Category	Rated Work Voltage $U_e$	<b>24V</b>	<b>110V</b>	<b>220V</b>
AC-15	Rated Work Current $I_e$	<b>2A</b>	<b>1A</b>	<b>0.5A</b>
DC-13		<b>0.7A</b>	<b>0.2A</b>	<b>0.1A</b>

### Model and Meanings

LA39-F □□□ / □□

	LED Light Bead							
Voltage Code	Voltage	<b>DC 6V</b>		<b>DC 12V</b>		<b>DC 24V</b>		
	Code	<b>21</b>		<b>22</b>		<b>23</b>		
Color Code	External resistance	<b>240<math>\Omega</math></b>	<b>1/2W</b>	<b>560<math>\Omega</math></b>	<b>1W</b>	<b>1.3K<math>\Omega</math></b>	<b>1W</b>	
		red	green	yellow	blue	white	black	
Actuator Shape		<b>r</b>	<b>g</b>	<b>y</b>	<b>b</b>	<b>w</b>	<b>k</b>	
		Round if no symbol		square	rectangular			
Operation Shape				<b>F</b>	<b>J</b>			
		Normal pushbuttons if no symbol		illuminated pushbuttons	Self-locking buttons			
Number of Contacts				<b>D</b>	<b>T</b>			
		One normally open and one normally closed			Two normally open and two normally closed			
		<b>11</b>			<b>22</b>			
	Installation outer diameter of the pushbutton is $\Phi 12\text{mm}$							
	The pushbutton serial number is issued by Shanghai Electrical Apparatus Research Institute							
	The pushbutton code is issued by Shanghai Electrical Apparatus Research Institute							

**Description:** LA39-F series Pushbuttons are quite small. To ensure the light brightness and service life of this series of illuminated pushbuttons, the user shall connect in series choke resistance externally to the product (provided by us). Refer to the voltage class code table in the model and its meanings of this page for the parameters of choke resistance.



# Description of $\Phi 12$ LA39-F Series Pushbutton

## Structural Features

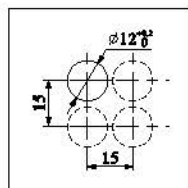
1. The structural parts are connected by the advanced maintained form, safe, reliable and easy for assembling and disassembling.
2. The contact has applied the changeover form of Momentary mechanism, easy for operation and quick with reliable contact.
3. They are made of the globally quality metal and plastic with the advanced precision manufacturing and fabricating processes to ensure that the product precision and quality reach the design requirements.
4. The contact is made of quality silver alloy with reliable connection and break and quite long service life.
5. The actuators of the indicators and illuminated pushbuttons are colorful with gentle and bright light beams. There are a variety of colors such as red, green, yellow, blue and white for users' options.
6. The various types of marks or signs (symbols, letters and characters etc.) can be provided according to the requirements of the users' operation instructions.

## Contact Forms

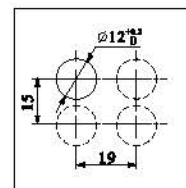
<b>1 NO and 1NC</b>  	<b>Arrangement of Wiring Terminals</b>  
<b>2 NO and 2NC</b>  	<b>Arrangement of Wiring Terminals</b>  

## Installation Hole Sizes

Round and Square Actuator Hole




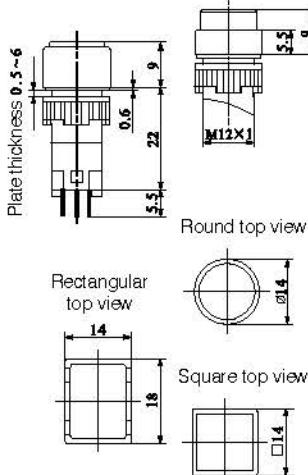





Rectangular Actuator Hole



## Precautions:

1. Wiring: the terminals are welded within 20W/5 seconds or 260°C /3 seconds without external force on the terminals. During the welding, the soldering iron shall not contact the enclosure. During the wiring, the stress shall not be applied on the terminals, neither bending or lifting the terminals, nor applying external force on the terminals.
2. For the Maintained pushbuttons, ensure that the pushbutton is in the release position before the replacement of the components. The internal mechanism may be damaged when the pushbutton that is in the lock position is replaced!
3. The Pushbuttons must be hand operated. It is prohibited to use any other tool for operation!

## Φ12 LA39-F Series Pushbutton Model Selection

Name	Type	Work Status	Contacts	Model	Color	Lamp Voltage	Appearance dimension
Pushbutton (Round)		Momentary	11	LA39-F11/□	red-r green-g yellow-y blue-b white-w	21-DC 6V 22-DC 12V 23-DC 24V	
			22	LA39-F22/□			
		Maintained	11	LA39-F11T/□			
			22	LA39-F22T/□			
Pushbutton (Square)		Momentary	11	LA39-F11F/□			
			22	LA39-F22F/□			
		Maintained	11	LA39-F11TF/□			
			22	LA39-F22TF/□			
Illuminated pushbutton (Round)		Momentary	11	LA39-F11J/□			
			22	LA39-F22J/□			
		Maintained	11	LA39-F11TJ/□			
			22	LA39-F22TJ/□			
Illuminated Pushbutton (Square)		Momentary	11	LA39-F11D/□■			
			22	LA39-F22D/□■			
		Maintained	11	LA39-F11TD/□■			
			22	LA39-F22TD/□■			
Buttons with light (Square)		Momentary	11	LA39-F11DF/□■			
			22	LA39-F22DF/□■			
		Maintained	11	LA39-F11TDF/□■			
			22	LA39-F22TDF/□■			
Illuminated Pushbutton (Rectangular)		Momentary	11	LA39-F11DJ/□■			
			22	LA39-F22DJ/□■			
		Maintained	11	LA39-F11TDJ/□■			
			22	LA39-F22TDJ/□■			

### Description:

"□" in the column of model is indicated with color, "■" is indicated with the voltage class code.

LA39-F series Pushbuttons are quite small. To ensure the light brightness and service life of this series of illuminated pushbuttons, the user shall connect in series the choke resistance externally to the products (provided by us).

## Introduction

AD16 series indicators have all applied the high-bright pure LED lighting chips as the light source with long service life, low energy consumption, small volume and light weight. They are the upgraded products of various XD type incandescent lights and neon light indicator. We have successively launched AD16-22 type, AD16-16A&B type, AD16-12A type, AD16-35 type indicators, which have been well accepted by the users for their features such as high brightness, excellent reliability, good visual appearance and delicate manufacturing. To satisfy the continuously increasing requirements of the users for the quality and beauty, we also have developed 22 series products such as AD16-22B, C, D, E, H, P (plane type), and I (outdoor type) type double-color lights, position indicators, flash buzzers and ultra-short indicators etc. as well as 16 series products such as AD16-16C, CF, CJ, G (outdoor type) type indicators lights as well as AD-16M, MF and MU type buzzers. Moreover, the visual design with the style same as that of LA39 series Pushbutton is applied. The various international standard symbols or custom-made symbols can be printed in the lampshades. The lampshades are made of high-strength polycarbonate with good impact resistance performance. The built-in screw type wiring is safer and more convenient. All improvements enable your option more convenient and design more complete.

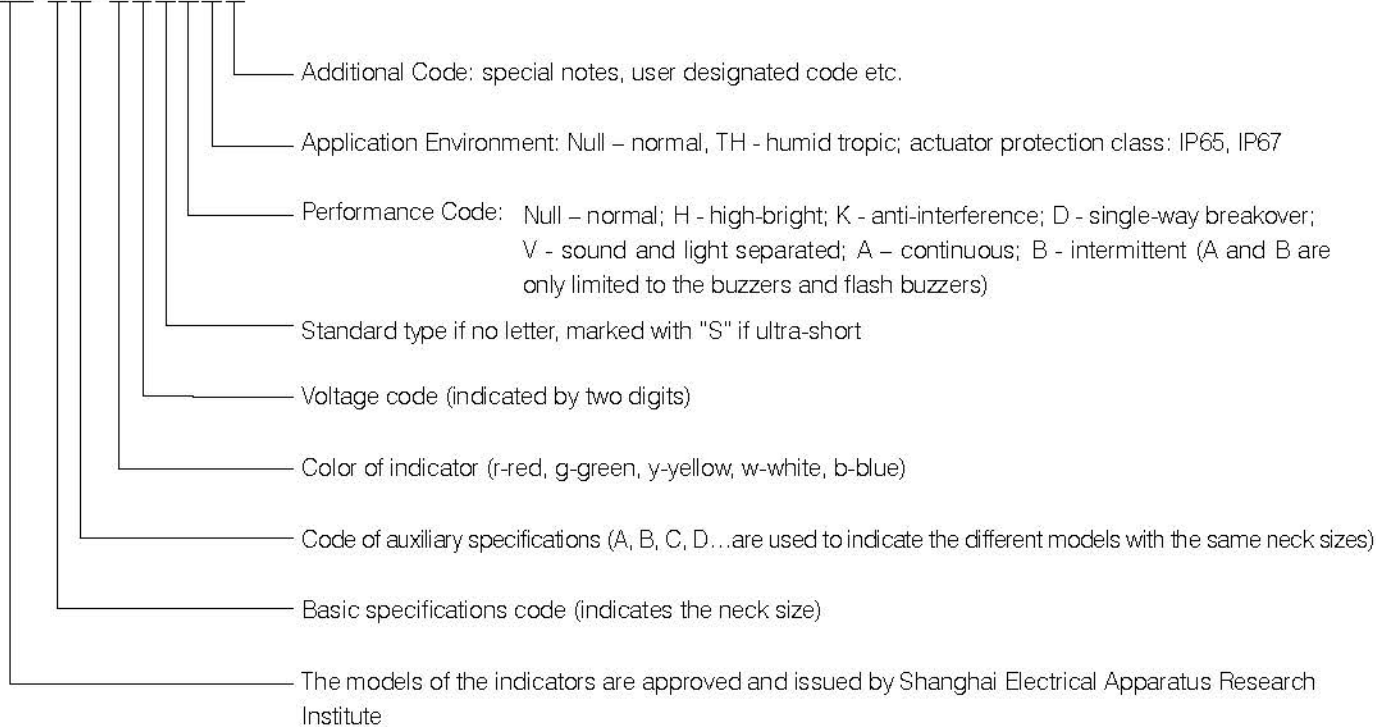


## Application

AD16 series indicators are applicable to the circuits of the equipment for the power, telecommunications, machine tools, marine, textile, printing and mining machinery as the instruction, warning, and accident signals as well as other indication signals.

## Model and Meaning

AD16-□□/□□□□□□





# Description of Φ22 AD16-22 Series Indicator

## Applicable Environment

1. Ambient temperature: -25°C ~ +55°C
2. Relative air humidity: ≤98%
3. Work normally at the vibration frequency of 2-80Hz and accelerated speed of 0.7g;
4. The pollution class is III and installation category is III;
5. Those with "TH" sign can work under the humid tropic environment.

## Main Technical Indexes

1. Rated impulse withstand voltage Uimp: 2.5KV (AC valid value), 1min.
2. Insulation resistance ≥ 100MΩ.
3. The allowable voltage fluctuation of AC indicator is ± 20%
4. Continuous work life ≥ 30,000H
5. Brightness ≥ 100cd/m<sup>2</sup>
6. Comparative tracking index (CTI) ≥ 175
7. Actuator protection class: IP54 for indicators. IP65 and IP67 can be customized; IP31 for buzzers
8. Application frequency AC50~60Hz

## Voltages, Currents and Codes




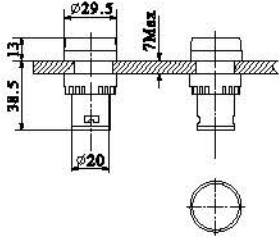



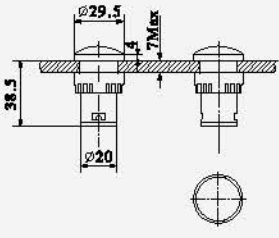



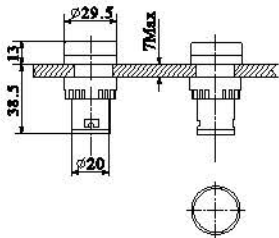



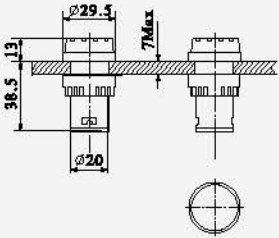
Unit: mA

Voltage Code	Power Supply	Voltage	Current
21	AC.DC	6V	15 (g、w) 25 (b) 35 (r、y)
22		12V	15 (g、w) 25 (b) 35 (r、y)
23		24V	15
24		36V	15
25		48V	15
26		110V	15
27		127V	15
28	AC.DC	220V	10
29	FD	380V	10
30		500V	8
31	AC	220V	15
32		380V	18



### Description:

"FD" in the column of power supply indicates the discharge lights that can be installed in the capacitor cabinet.



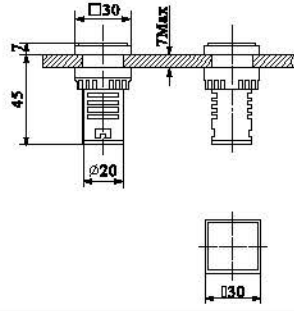


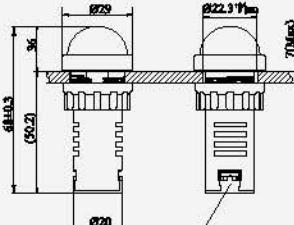


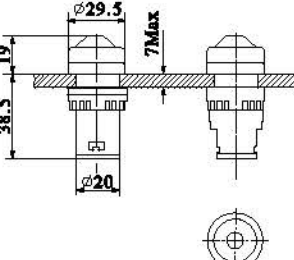


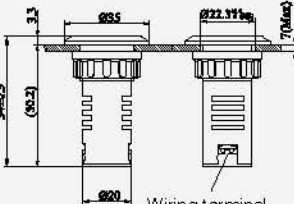
## Φ22 AD16-22 Series Indicator Model Selection

Name	Type	Model	Color	Lamp Voltage	Appearance dimension
Ø 22B		AD16-22B/   S			
Ø 22C		AD16-22C/   S	red-r green-g	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V	
Ø 22D		AD16-22D/   S	yellow-y blue-b white-w	31-AC 220V 32-AC 380V 29-FD 380V 30-FD 500V	
Ø 22E		AD16-22E/   S			



### Description:

1. The ultra-short indicators are applicable to the places with narrow and small installation spaces;
2. All ultra-short indicators are applicable to Ø22 and Ø25 holes, without additional accessories;
3. The indicators of DC power supply can be applicable to AC power supply;
4. The ultra-short indicators have no DC220V voltage class due to the heat radiation conditions; (if DC220V and discharge lights are required, we will provide the slightly longer lamp enclosures. S in the model will be removed);
5.  in the column of model will be filled with color,  will be filled with voltage class code.

# Description of $\Phi 22$ AD16-22 Series Indicator


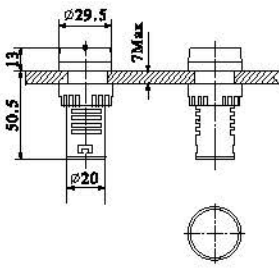

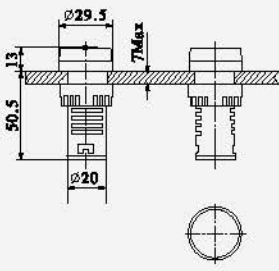

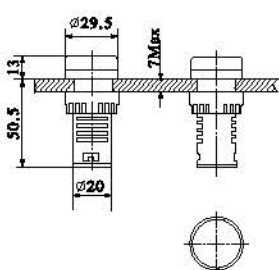

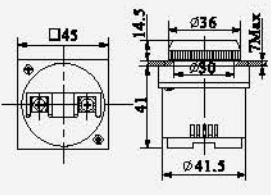
Name	Type	Model	Color	Lamp Voltage	Appearance dimension
$\Phi 22F$		AD16-22F/ 	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V 29-FD 380V 30-FD 500V	
$\Phi 22I$	 For the outdoor type indicators, their brightness is 3 times of that of the normal indicators; the actuator protection class is defaulted as IP65	AD16-22I/ 	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V	 Wiring terminal Maximum connected wire diameter 1.5mm
$\Phi 22H$		AD16-22H/  S	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V 29-FD 380V 30-FD 500V	
$\Phi 22P$		AD16-22P/ 	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V 29-FD 380V 30-FD 500V	 Wiring terminal Maximum connected wire diameter 1.5mm

## Description:

1. The ultra-short indicators are applicable to the places with narrow and small installation spaces;
2. All ultra-short indicators are applicable to  $\Phi 22$  and  $\Phi 25$  holes, without additional accessories;
3. The indicators of DC power supply can be applicable to AC power supply;
4. The ultra-short indicators have no DC220V voltage class due to the heat radiation conditions; (if DC220V and discharge lights are required, we will provide the slightly longer lamp enclosures. S in the model will be removed);
5.  in the column of model will be filled with color,  will be filled with voltage class code.




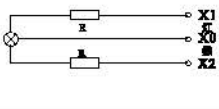
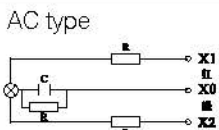
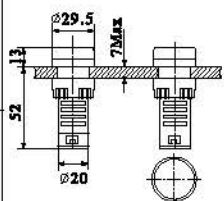

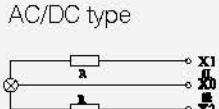
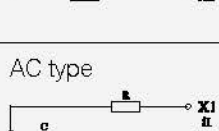
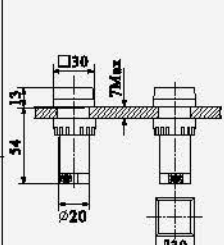

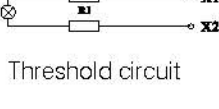
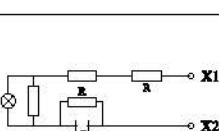
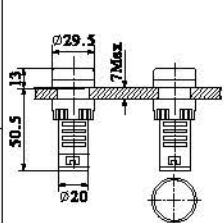

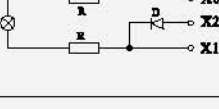
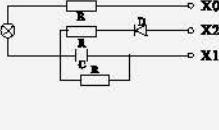
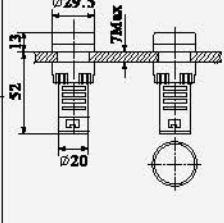
## Φ22 Φ30 AD16 Series Buzzer/Flash Light Model Selection

Name	Type	Model	Color	Lamp Voltage	Appearance dimension	Remarks
Buzzer		AD16-22M/k■	black-k			The buzzers intermittently ring or flash with the sound volume of 10cm/80dB and current of 15-20mA.
Flash Buzzer		AD16-22SM/r■	red-r	22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V		The buzzers intermittently ring or flash with the sound volume of 10cm/80dB and current of 15-20mA.
Flash Indicator		AD16-22S/r■	red-r green-g yellow-y white-w blue-b			
Φ30 Buzzer		AD16-30M/w■	white-w			The sound volume is 10cm/100dB and the current is 15~20mA. It rings intermittently.

### Description:

■ in the column of model will be filled with color, ■ will be filled with voltage class code.




## Φ22 AD16-22 Series Special-purpose Indicator Model Selection

Name	Type	Model	Color	Lamp Voltage	Internal Wiring Diagram	Appearance dimension	Remarks
Round Double-color Indicator		AD16-22D/▨▨	red-r green-g	22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V	AC/DC type  AC type 		Warning 1. When AC type indicators are used, do not connect the wires wrongly. Otherwise, the indicators will be damaged. 2. This light is with red-green double colors. Please otherwise specify if any other color is required.
Square Double-color Indicator		AD16-22BF/▨▨	red-r green-g	22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V	AC/DC type  AC type 		1. The normal threshold value is below 40V. Please otherwise specify if a higher threshold value is required. 2. It is suggested that the threshold value shall not be too high. Please check the wiring if the interference voltage is too high.
Anti-interference Indicator		AD16-22▨▨▨-K	red-r green-g yellow-y white-w blue-b	23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V	Threshold circuit  Threshold circuit 		They shall not be under the testing status for a long time.
Test Type Indicator		AD16-22DY/▨▨	red-r green-g yellow-y white-w blue-b	23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V	 		

### Description:

▨ before the oblique line of the model is filled with A, B, C, D etc. ▨ after the oblique line is filled with color and ▨ is filled with voltage class code. AC double-color lights must not be wired wrong (e.g. X1 and X2 are connected)


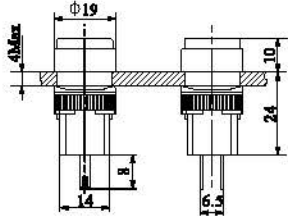

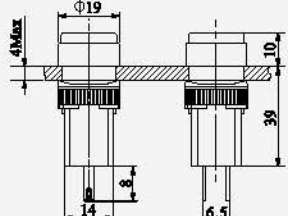

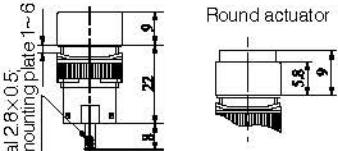

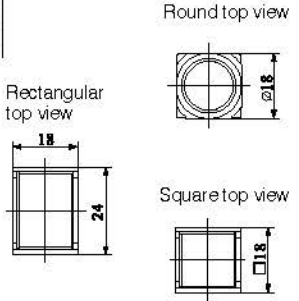

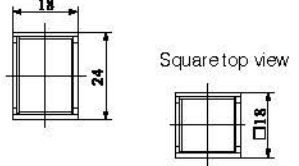
## Φ22 AD16-22 Series Position Indicator Model Selection

Name	Type	Model	Color	Lamp Voltage	Appearance dimension	Remarks
Position Indicator of Isolation Switch		AD16-22W/G (round) AD16-22WF/G (square)	□ is green when X0X1 are power on, □ is red when X0X2 are power on			
Position Indicators of Circuit Breaker		AD16-22W/D (round) AD16-22WF/D (square)	□ is red when X0X1 are power on, C is red when X0X2 are power on	<b>23-AC.DC 24V</b> <b>24-AC.DC 36V</b> <b>25-AC.DC 48V</b> <b>26-AC.DC 110V</b> <b>27-AC.DC 127V</b> <b>28-AC.DC 220V</b> <b>31-AC 220V</b> <b>32-AC 380V</b>		If it is used as handcart type position indicators, when X0X1 are power on, C is red. When X0X2 are power on, C is red. Please add C after the model "D". That is: AD16-22W/DC, AD16-22WF/DC
Earthing Position Indicators		AD16-22W/N (round) AD16-22WF/N (square)	⏚ is red when X1X2 are power on			

### Description:


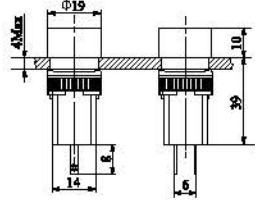

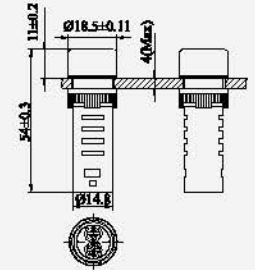
The position indicators of isolation switches/circuit breakers must not be wired wrongly (e.g.: X1 and X2 are connected)

## Φ16 AD16-16 Series Indicator/Buzzer Model Selection

Name	Type	Model	Color	Lamp Voltage	Appearance dimension
Indicators (plug-in type wiring)		AD16-16A/□ ■	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V	
Indicators (plug-in type wiring)		AD16-16B/□ ■	red-r green-g yellow-y white-w blue-b	26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V	
Indicators (Round)		AD16-16C/□ ■	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 28-AC.DC 220V	
Indicators (Square)		AD16-16CF/□ ■	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 28-AC.DC 220V	
Indicators (Rectangular)		AD16-16CJ/□ ■	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 28-AC.DC 220V	



## Φ16 AD16-16 Series Indicator/Buzzer Model Selection

Name	Type	Model	Color	Lamp Voltage	Appearance dimension
Indicators (plug-in type wiring)		AD16-16D/□■	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V 26-AC.DC 110V 27-AC.DC 127V 28-AC.DC 220V 31-AC 220V 32-AC 380V	
Indicators (screw type wiring)		AD16-16DL/□■			

### Description:


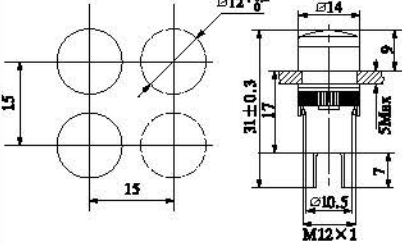
□ in the column of model is indicated with color, ■ is indicated with voltage class code.

Name	Type	Model	Lamp Voltage	Calling Method	Rated Sound Pressure and Frequency	Appearance dimension
Buzzers (Round)		AD16-16M/□■				
Buzzers (Square)		AD16-16MF/□■	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V	A (intermittent)  B (whistling)	75dB (10cm) (under rated voltage)  2300Hz±400Hz	Wiring terminal 2.6x0.5 Thickness of mounting plate 1-6  Square top view    Round top view 
Buzzers (Rectangular)		AD16-16MJ/□■				Rectangular top view 

### Description:

"□" in the column of model is indicated with the letter of calling method, "■" is indicated with voltage class code.

## Φ12 AD16-12 Series Indicator Model Selection

Name	Type	Model	Color	Lamp Voltage	Appearance dimension
Indicators (Round)		AD16-12A/□■	red-r green-g yellow-y white-w blue-b	21-AC.DC 6V 22-AC.DC 12V 23-AC.DC 24V 24-AC.DC 36V 25-AC.DC 48V	

### Description:

- "□" in the column of model is indicated with color, "■" is indicated with voltage class code.
- Provide the indicators with two types of voltages according to the customer's requirements.

### Wiring Method: welded and plug-in type

- The wiring shall avoid being welded. The internationally common used plug bush (2.8x0.5mm) shall be used for connection and the jacket shall be installed.
- The terminals are welded within 20W/5 seconds or 260°C /3 seconds when welding is applied. No force is applied to the terminals and the soldering iron shall not contact the enclosure. The stress shall not be applied on the terminals, neither lifting or bending the terminals, nor applying external force on the terminals.

# Printing Symbols on Pushbutton/Indicator

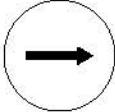
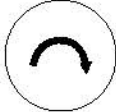
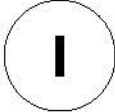
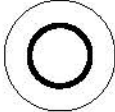
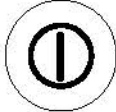

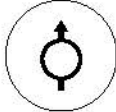
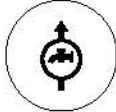


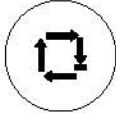
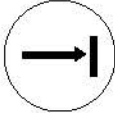
## Chinese Symbols

Switch off S1	Switch on S2	Start S3	Stop S4	Open S5	Close S6	Up S7	Down S8	Input S9
Cutoff S10	Accident S11	Fault S12	Experiment S13	Power supply S14	ON S15	OFF S16	Standby S17	

## Standard Symbols

UP S18	DOWN S19	STOP S20	START S21	ON S22	OFF S23	OPEN S24	CLOSE S25	RESET S26
MANUAL S27	AUTO S28	O S29	I S30	II S31	III S32			

## ISO Symbols

 S33 straight line movement	 S34 rotary	 S35 start	 S36 stop	 S37 start/stop	 S38 inching	 S39 pump	 S40 cooling pump	 S41 lubricant pump
 S42 Hydraulic pump	 S43 Automatic or automatic cycle	 S44 Limit linear movement						

## Selector switch Label or Inscription on Label Frame

Stop Start SX1	Switch off Switch on SX2	Manual Automatic SX3	Close Open SX4	Close Open SX5	Inspection Reset SX6
I O SX7	O I SX8	I O II SX9	II O I SX10	1 0 2 SX11	2 0 1 SX12
OFF-ON SX13	STOP-START SX14	HAND-AUTO SX15	REV-FOR SX16		



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