

## Railway Specific Products

PUSHBUTTON / INDICATOR / BUZZER / CAM SWITCH series

<http://www.si-apt.com>

# Railway Specific Products

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# APT

## Railway Specific Products

PUSHBUTTON /  
INDICATOR / BUZZER /  
CAM SWITCH series

CCC CE RoHS

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## Company Profile

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

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



## PUSHBUTTON Series

TK Series Pushbutton      Key Switch  
 RW Series Master Controller Specific Pushbutton      Lead Seal Knob  
 Railway Specific Triangle/Quadrangle/Inner Quadrangle/Inner Hexagon Key Switch

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## INDICATOR / BUZZER series

33B Series Train Door Indicator     $\phi$ 35 Series Train Door Indicator     $\phi$ 60 Series Train Door Indicator  
 72A ATO Mode Indicator      75P Locomotive Operation Indicator       $\phi$ 25 Locomotive Specific Indicator  
 $\phi$ 22 UHB Outdoor Indicator       $\phi$ 22 Tricolor Indicator       $\phi$ 22 Ultrathin Indicator  
 $\phi$ 22 Flashing Buzzer       $\phi$ 30 Flat Head Two-color Indicator      Combined Indicator

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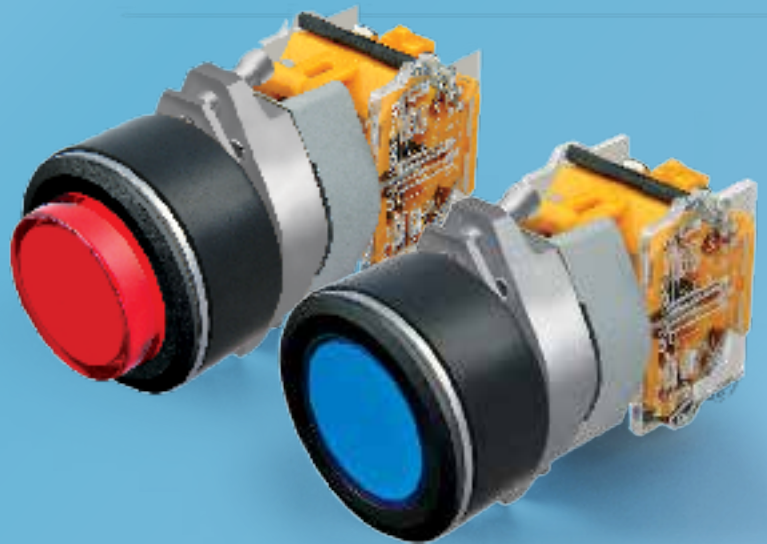
## CAM SWITCH Series

LW39-16A Series      LW39-16B Series  
 LW39-16C Series      LW39-16CU QF Lead Seal Series  
 LW39-25 Series

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## Typical application fields

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# PUSHBUTTON

## series Railway Specific Products

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Product order code selection

TK Series Pushbutton

Key Switch

RW Series Master Controller Specific Pushbutton

Lead Seal Knob

Railway Specific Triangle/Quadrangle/Inner Quadrangle/Inner Hexagon Key Switch

# PUSHBUTTON





# PUSHBUTTON TK Series Pushbutton

## Product feature

- Distinctive outline, beautiful lines. Inclined screw installation, in line with the strict, solid and reliable design concept of Europe and America.
- $\phi 30.5$ mm opening.
- Head with ultrathin design to effectively prevent misoperation.
- The entire series is widely applied in the field of interior installation and master controller of locomotives.

## Technical feature

Product specification	TK Series Pushbutton				
Standard	GB/T 14048.5	IEC 60947-5-1	IEC 61373	DIN 5510.2	EN 45545
Rated insulation voltage	660V				
Power frequency withstand voltage	AC 1890V	50Hz · 1min			
Conventional thermal current	10A				
Mechanical endurance	Normal button $\geq 3$ million times		Knob $\geq 300,000$ times	Key switch $\geq 50,000$ times	
Electrical endurance	$\geq 600,000$ times				
Ambient temperature	-25°C ~ +55°C (mean temperature within 24h $\leq +35^\circ\text{C}$ )				
Protection class	IP54	Switch component IP20 (F4 connector cover required)		Emergency stop key switch IP40	
Anti-impact class	Duration 11ms	Maximum acceleration 15g	Compliant with IEC 60068 2-27		
Anti-vibration class	Maximum acceleration 5g	Frequency range 10~500Hz	Compliant with IEC 60068 2-6		
Contacting resistance	TK: $\leq 50\text{m}\Omega$	RW: $\leq 30\text{m}\Omega$			
Altitude	$\leq 2,000\text{m}$				
Working humidity	$\leq 90\%$ RH, relative humidity $\leq 50\%$ at the temperature over 40° C				
Installation category	III				
Pollution grade	Grade 3				

## Rated contact capacity

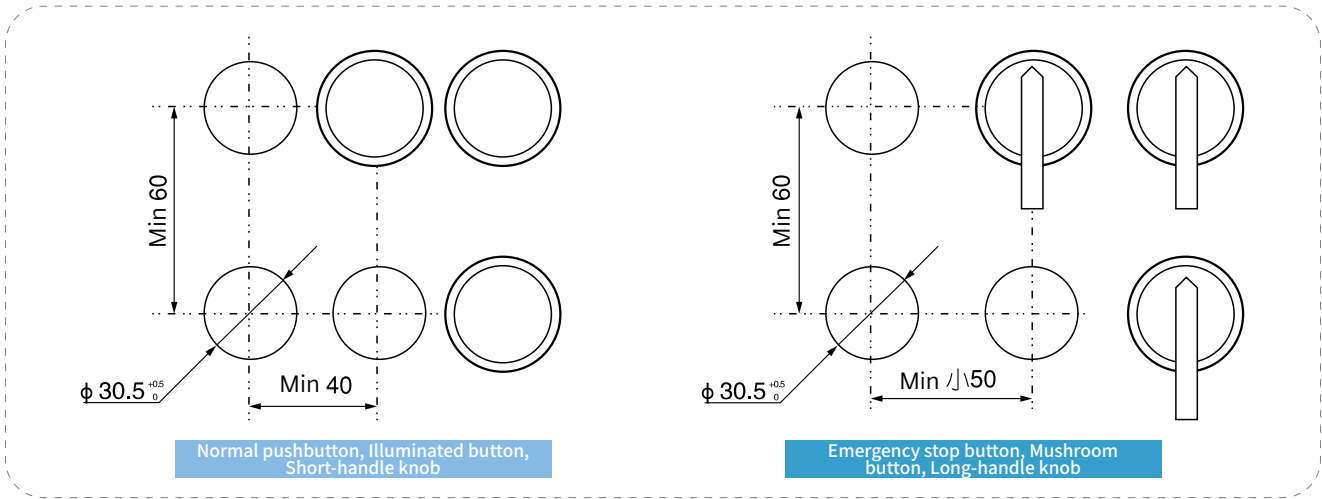
Momentary-action type	AC-15	24V/10A	48V/10A	110V/5A	220V/2.5A	380V/1.5A	660V/0.8A
	DC-13	24V/3.6A	48V/1.8A	110V/0.8A	220V/0.4A	440V/0.2A	
Slow-action type	AC-15	24V/10A	48V/10A	110V/10A	220V/6A	380V/4A	660V/2A
	DC-13	24V/6A	48V/3A	110V/1A	220V/0.5A	440V/0.25A	

## Component materials

Head outer ring	Mounting middle seat	Head	Contact	Switch housing	Contact strip
AL(Black or Silver)	Zn & PBT	PC	AgNi	PC	Cu
AL(Black or Silver)	Zn & PBT	PC	AgNi + Gold	PC	Cu



## Installation hole dimensions

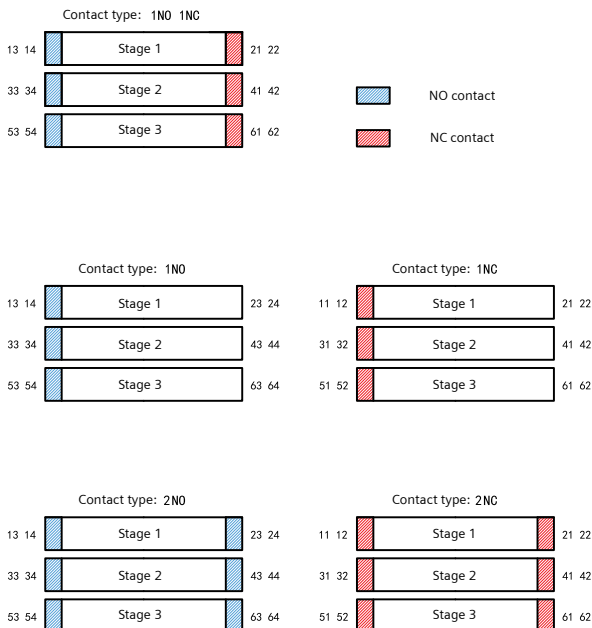


**Precautions** To install a switch component or lighting component by yourself, check that the buckle of the switch component or lighting component is completely snapped in after installation.

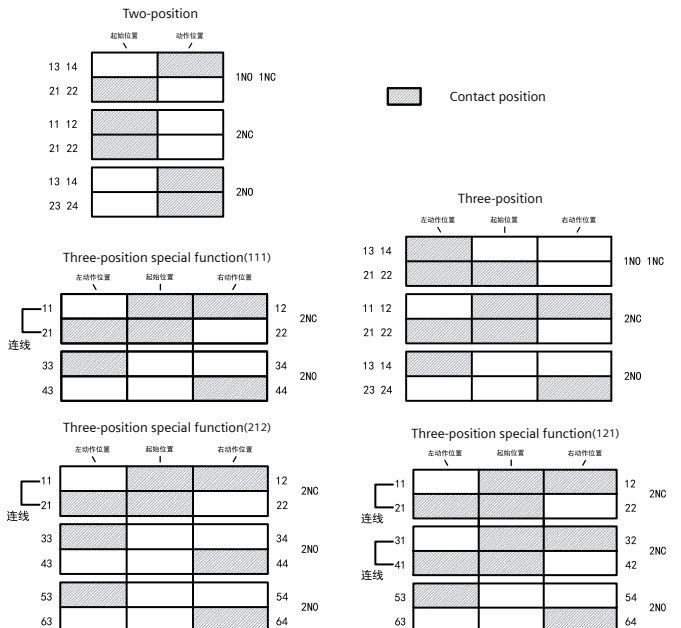
## Description for printed label

There is a two-digit label on the contact terminal, of which the "1" in the tens digit represents the first pair of contacts on the first switching component and the "2" in the tens digit represents the second pair of contacts on the first switching component. The "1, 2" in the units digit represent the two terminals of the NC contact, and the "3, 4" in the units digit represent the two terminals of the NO contact.


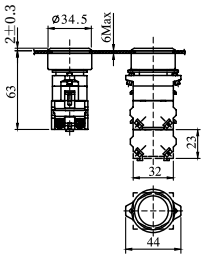

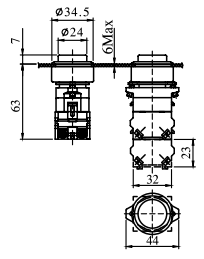

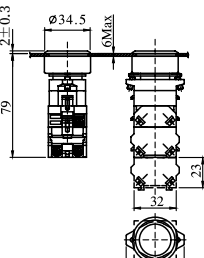

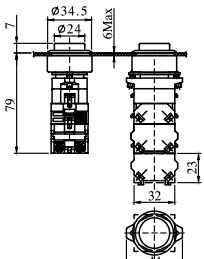
## RW contact coding illustration



## Switch component function of knob and key switch



© Description for order code selection of general pushbutton and high-position pushbutton



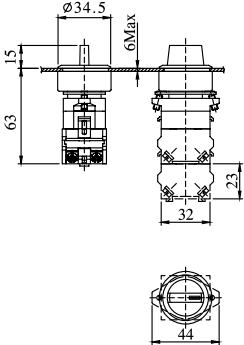








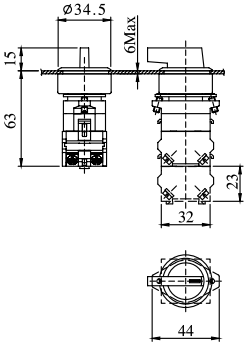






Name	Type	Working status	Order code	Color	Light voltage	Dimension				
Normal button		Momentary	LA39-C1 - ■ / ▲ - TK	<ul style="list-style-type: none"> <li>● red - r</li> <li>● green - g</li> <li>● blue - b</li> <li>● yellow - y</li> <li>○ white - w</li> <li>● black - k</li> </ul>						
		Latching	LA39-C1 - ■ T / ▲ - TK							
High-position button		Momentary	LA39-C1 - ■ / ▲ H - TK							
		Latching	LA39-C1 - ■ T / ▲ H - TK							
Normal illuminated button		Momentary	LA39-C1 - ■ D / ▲★ - TK					<ul style="list-style-type: none"> <li>● red - r</li> <li>● green - g</li> <li>● blue - b</li> <li>● yellow - y</li> <li>○ white - w</li> </ul>	21-AC/DC6V 22-AC/DC12V 23-AC/DC24V 25-AC/DC48V 26-AC/DC110V 28-AC/DC220V 31-AC220V 32-AC380V	
		Latching	LA39-C1 - ■ TD / ▲★ - TK							
Illuminated high-position button		Momentary	LA39-C1 - ■ D / ▲★ H - TK							
		Latching	LA39-C1 - ■ TD / ▲★ H - TK							

PUSHBUTTON

Description

- Fill in the ■ before the slash with the number of NO/NC contacts.
  - Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage class of the lighting component.
- Note: If the tolerance is not noted, the GB/T 1804-C level shall apply.



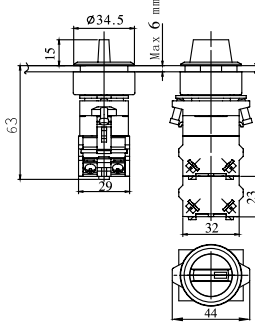






## ◎ Description for order code selection of knob

Name	Type	Handle position and order code	Color	Dimension
Short-handle knob		Positioning  LA39-C1 - ■ X / ▲ - TK	Non-tr ● red - r ● green - g ● yellow - y ● black - k	
		Two-position Left reset  LA39-C1 - ■ X / ▲ f - TK		
		Right reset  LA39-C1 - ■ X / ▲ fu - TK		
		Three-position Positioning  LA39-C1 - ■ XS / ▲ - TK		
		Left reset  LA39-C1 - ■ XS / ▲ f - TK		
		Right reset  LA39-C1 - ■ XS / ▲ fu - TK		
		Left-right reset  LA39-C1 - ■ XS / ▲ ffu - TK		
Long-handle knob		Positioning  LA39-C1 - ■ CX / ▲ - TK	Non-tr ● red - r ● green - g ● yellow - y ● black - k	
		Two-position Left reset  LA39-C1 - ■ CX / ▲ f - TK		
		Right reset  LA39-C1 - ■ CX / ▲ fu - TK		
		Three-position Positioning  LA39-C1 - ■ CXS / ▲ - TK		
		Left reset  LA39-C1 - ■ CXS / ▲ f - TK		
		Right reset  LA39-C1 - ■ CXS / ▲ fu - TK		
		Left-right reset  LA39-C1 - ■ CXS / ▲ ffu - TK		



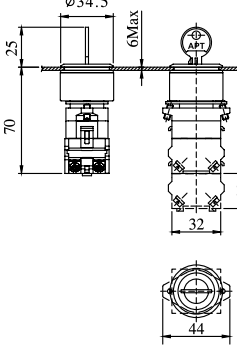






Description

- Fill in the ■ before the slash with the number of NO/NC contacts.
  - Fill in the ▲ after the slash with the color.
- Note: If the tolerance is not noted, the GB/T 1804-C level shall apply.

◎ Description for order code selection of knob with light

Name	Type	Handle position and order code		Color/light voltage	Dimension		
Short handle knob with light		Two-position	Positioning 	LA39-C1 - ■ XD / ▲★ - TK	Non-tr ● red - r ● green - g ● yellow - y		
			Left reset 	LA39-C1 - ■ XD / ▲★ f - TK			
			Right reset 	LA39-C1 - ■ XD / ▲★ fu - TK			
		Three-position	Positioning 	LA39-C1 - ■ XSD / ▲★ - TK			21-AC/DC6V
			Left reset 	LA39-C1 - ■ XSD / ▲★ f - TK			22-AC/DC12V
			Right reset 	LA39-C1 - ■ XSD / ▲★ fu - TK			23-AC/DC24V
			Left-right reset 	LA39-C1 - ■ XSD / ▲★ ffu - TK			25-AC/DC48V
							26-AC/DC110V
							28-AC/DC220V
							31-AC220V
			32-AC380V				

◎ Description for order code selection of key button


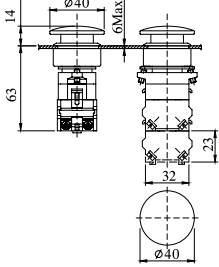

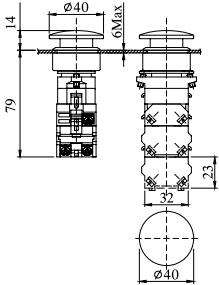
Name	Type	Handle position and order code		Key pull-out position	Dimension		
Key switch		Two-position	Positioning 	LA39-C1 - ■ Y / ▲ - TK	a: left pulling out ao: center pulling out au: right pulling out a ao au: pull out from any of the three positions		
			Left reset 	LA39-C1 - ■ Y / ▲ f - TK			
			Right reset 	LA39-C1 - ■ Y / ▲ fu - TK			
		Three-position	Positioning 	LA39-C1 - ■ YS / ▲ - TK			
			Left reset 	LA39-C1 - ■ YS / ▲ f - TK			
			Right reset 	LA39-C1 - ■ YS / ▲ fu - TK			
			Left-right reset 	LA39-C1 - ■ YS / ▲ ffu - TK			

PUSHBUTTON


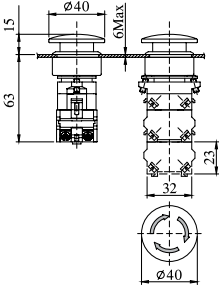

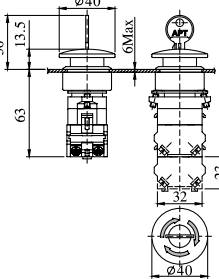
Description

- Knob with light**
- Fill in the ■ before the slash with the number of NO/NC contacts.
  - Fill in the ▲ after the slash with the color.
  - Fill in the ★ after the slash with the voltage code.
- Key switch** (Note: If the tolerance is not noted, the GB/T 1804-C level shall apply.)
- Fill in the ■ before the slash with the number of NO/NC contacts.
  - Fill in the ▲ after the slash with the key pull-out position.
  - For momentary key switch, the key pull-out position cannot be the self-reset action position.

## ◎ Description for order code selection of mushroom button

Name	Type	Working status	Order code	Color	Light voltage	Dimension
Mushroom button	 Note:φ40φ60	Momentary	LA39-C1 - ■ M / ▲ - TK	Non-tr ● red - r ● green - g ● blue - b ● yellow - y ● black - k		
		Latching	Mushroom button			
Mushroom button with light	 Note:φ40φ60	Momentary	LA39-C1 - ■ MD / ▲ - TK	Non-tr ● red - r ● green - g ● blue - b ● yellow - y ○ white - w	21-AC/DC6V 22-AC/DC12V 23-AC/DC24V 25-AC/DC48V 26-AC/DC110V 28-AC/DC220V 31-AC220V	
		Latching	Mushroom button with light			

## ◎ Description for order code selection of emergency stop button

Name	Type	Working status	Order code	Color	Dimension
Emergency stop button	 Note:φ40φ60	Lock	LA39-C1 - R ■ Z / ▲ - TK	● red - r	
Key reset emergency stop button	 Note:φ40	Lock	LA39-C1 - R ■ ZY / ▲ - TK	● red - r	

Description

### Mushroom button

- Fill in the ■ before the slash with the number of NO/NC contacts.
- Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage class of the lighting component.
- Mushroom diameter: no mark: 40mm; 60: 60mm.

### Emergency stop button (Note: If the tolerance is not noted, the GB/T 1804-C level shall apply.)

- Fill in the ■ before the slash with the number of NO/NC contacts.
- Fill in the ▲ after the slash with the color.
- Head diameter: no mark: 40mm; 60: 60mm.

◎ Product comparison



Conventional pushbutton  
(Black head Al ring)



JW pushbutton  
(Silvery white head Al ring)

Description



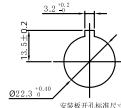
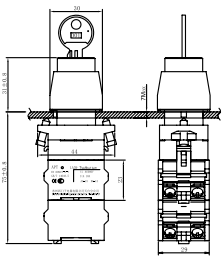
The head Al ring for conventional products is black (see the left figure for details). If silvery white head Al ring (see the right figure for details) is required, please add "-JW" to the product order code.

# PUSHBUTTON Key Switch

Product feature

- The LA39-A-TCY Series Key Switch is developed specifically for the rail transit industry, mainly for the master controller key of "Fuxing" Electric Multiple Unit.

◎ Order code selection description

Name	Type	Operating position of key switch	Order code	Installation hole dimensions	Dimension
Key switch			LA39-A - ■ TCY /a		

Description

- Fill in the ■ before the slash with the number of NO/NC contacts.  
Note: If the tolerance is not noted, the GB/T 1804-C level shall apply.

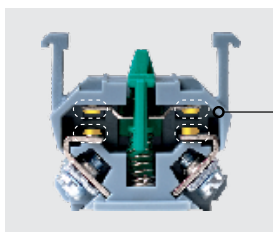


# PUSHBUTTON

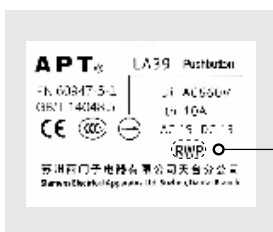
## RW Series Master Controller Specific Pushbutton

### Product feature

- The entire series uses gold-plated contacts, improving the micro breaking capacity of the pushbutton (DC24V30mA).
- Developed for the master controller of locomotives, offering high contact reliability.
- With the vibration resistance in compliance with IEC 61373 to withstand sine vibration from 1 to 50 Hz in longitudinal, horizontal and vertical directions.  
Intensity: 1~10Hz 25m/s<sup>2</sup> 10~50Hz 250m/s<sup>2</sup>.
- With the impact resistance in compliance with IEC 61373 to withstand longitudinal 3g, horizontal 1g and vertical 3g impact.
- With the flame retardancy in compliance with DIN 5510 and EN 45545.



Gold plating of contact



"RW"+ customer code, for easy traceability

PUSHBUTTON

### Description

- The RW series is specific for the master controller of locomotives.
- Standard order code + endnote RW = Master Controller Specific RW Pushbutton.
- The switch component is equipped with F4a protective cover as standard before the finished RW product is shipped.


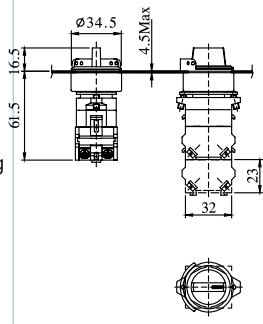








# PUSHBUTTON Lead Seal Knob

## Product feature

- Only for short handle knob series.
- The knob handle is lead sealed to increase the safety of the knob, and is used for operation memory and special operation authority setting.
- The finished product is equipped with F4a protective cover as standard.

## Order code selection description

Name	Type	Handle position and order code	Color	Dimension	
Lead Seal Knob	Two-position	Positioning  LA39-C1 - ■ X / ▲ - QF - TK	<ul style="list-style-type: none"> <li>● red - r</li> <li>● green - g</li> <li>● black - k</li> </ul>		
		Left reset  LA39-C1 - ■ X / ▲ f - QF - TK			
		Right reset  LA39-C1 - ■ X / ▲ fu - QF - TK			
		Three-position			Positioning  LA39-C1 - ■ XS / ▲ - QF - TK
					Left reset  LA39-C1 - ■ XS / ▲ f - QF - TK
					Right reset  LA39-C1 - ■ XS / ▲ fu - QF - TK
	Left-right reset  LA39-C1 - ■ XS / ▲ ffu - QF - TK				

## Description

- Fill in the ■ before the slash with the number of NO/NC contacts.
- Fill in the ▲ after the slash with the color.
- QF: plastic lead seal pendant, lead seal hole on the other side of the white marking of the handle;  
QF1: metallic lead seal pendant, lead seal hole on the other side of the white marking of the handle;  
QFS: plastic lead seal pendant, lead seal hole on the same side of the white marking of the handle;  
QF1S: metallic lead seal pendant, lead seal hole on the same side of the white marking of the handle.

# PUSHBUTTON Railway Specific Triangle/Quadrangle/ Inner Quadrangle/Inner Hexagon Key Switch

© Order code description

No.		LA39	□	□□	□	/	□	—	□	□	□	□	□	□	□	□	□	□
		1	2	3	4	5	6	7	8	9	10	11	12	13	14			
1	Main order code of APT pushbutton	LA39																
2	Type of contact module	No mark: contact module with quick action mechanism R: contact module with creep mechanism (with forcible breaking function)																
3	Number of contacts	When 1 switch element is installed		10: 1 NO			01: 1 NC			20: 2 NO			02: 2 NC			11: 1 NO, 1 NC		
		When 2 switch elements are installed		30: 3 NO			03: 3 NC			40: 4 NO			04: 4 NC			21: 2 NO, 1 NC		
		When 3 switch elements are installed		12: 1 NO, 1 NC			31: 3 NO, 1 NC			13: 1 NO, 3 NC			22: 2 NO, 2 NC					
		60: 6 NO			06: 6 NC			50: 5 NO			05: 5 NC			51: 5 NO, 1 NC				
		15: 1 NO, 5 NC			41: 4 NO, 1 NC			14: 1 NO, 4 NC			32: 3 NO, 2 NC							
		23: 2 NO, 3 NC			42: 4 NO, 2 NC			24: 2 NO, 4 NC			33: 3 NO, 3 NC							
4	Function code	JY: two-position triangle			JYS: three-position triangle			KY: two-position quadrangle										
		MY: two-position pentagon			KYS: three-position quadrangle			NY: two position inner quadrangle										
		LY: two-position inner hexagon			LYS: three-position inner hexagon													
		NYS: three-position inner quadrangle																
5	Lock head action function	No mark: positioning f: left reset fu: right reset ffu: left-right reset																
6	Mounting head chamfering	No mark: head chamfered angle 27° R: head chamfered angle Round angle																
7	Lock head sinking depth and panel thickness Remark: not including mounting plate F5	2S: lock head depth 2.3mm, suitable for panel thickness 1~3mm																
		2Q: lock head depth 2.3mm, suitable for panel thickness 3~6mm																
		5S: inner hexagon depth 5mm, suitable for panel thickness 1~3mm(suitable for inner quadrangle, inner hexagon)																
		5Q: inner hexagon depth 5mm, suitable for panel thickness 3~6mm(suitable for inner quadrangle, inner hexagon)																
		6S: lock head depth 6mm, suitable for panel thickness 1- 3mm																
		6Q: lock head depth 6mm, suitable for panel thickness 3~6mm																
8	Lock head shape	A: triangle lock head, conical			B: triangle lock head, cylindrical			C: quadrangle lock head, cylindrical										
		D: inner hexagon			E: quadrangle lock head, conical			F: inner quadrangle										
		G: pentagon lock head, cylindrical																
9	Lock head surface processing shape and color	1: no processing or painting						2: surface grooving without painting										
		3: surface rounding without painting						4: surface grooving with red painting										
		5: surface grooving with green painting						6: surface rounding with red painting										
		7: surface rounding with green painting						8: surface half-grooving with red painting										
		9: surface rounding with black painting																
10	Mounting head surface processing requirements	No mark: mounting head surface does not need processing D: engrave dots on surface J: engrave arrow on surface P: engrave words (symbols) on surface																
11	Color of dot engraving	r: red g: green (Three-position , from left to right by default)																
12	Special action angle of lock head	No mark: 10'30"~13'30" T: 9'~12' X: 12'~15'																
13	Industrial code	TK: locomotive specific RW: master controller specific (gold plated contact)																
14	Customer code	To be filled out upon need																

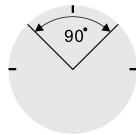
PUSHBUTTON

## Product feature

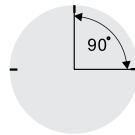
- LA39-J(K), (N) and (L)Y/ series triangle / quadrangle key switches are high-quality key switches developed specifically for rail transit. The head and key turning part of the switch are made of stainless steel. They have aesthetic appearance and high durability. The middle seat is fastened with inclined screw specific for TK Series, offering very high vibration resistance. This Series of products have been applied in many lines.
- Head protection class: IP54

Description

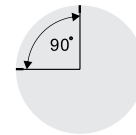
Note: • Positioning angle of two-position key switch:



The starting position of two-position triangle key switch is 10:30~13:30 by default  
It is unnecessary to note in the order



X:12'~15'



T:9'~12'

- For special head shape or function, you can call (021-56553757) for consultation or send us the processing drawing.
  - The mounting head diameter of this series of key switch is  $\phi 40$ mm by default. Please call (021-56553757) us for special dimensions.
- If the tolerance is not noted, the GB/T 1804-C level shall apply.

## Explanation of picture

No.	Type	Dimension Installation hole dimensions
1	Two types of mounting head Chamfer and fillet	
2	Two types of lock head depth 2.3mm and 6mm	
3	Suitable panel thickness of nut 1~3mm / 3~6mm	
4	Two types of triangle lock head Triangle conical, triangle cylindrical 1. Triangular cylindrical: The top and bottom of the triangle lock cylinder are in the same size 2. Triangular conical: The top of the triangle lock cylinder is small and the bottom is large	

PUSHBUTTON

No.	LA39 — R 20 JYS / f — R 2S B 5 D rgr										
	1	2	3	4	5	6	7	8	9	10	11
1	Pushbutton code	5	Left reset		9	Surface grooving with green painting		10	Dot engraving on mounting head surface		
2	Creep base	6	Rounded head		11	Red, green, red (clockwise)					
3	Two NO contacts	7	Lock head depth 2.3mm, suitable panel thickness 1~3mm								
4	Three-position triangle pushbutton	8	Cylindrical lock head								

# APT



## INDICATOR / BUZZER AD16 series Railway Specific Products

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33B Series Train Door Indicator  
72A ATO Mode Indicator  
φ22 UHB Outdoor Indicator  
φ22 Flashing Buzzer

φ35 Series Train Door Indicator  
75P Locomotive Operation Indicator  
φ22 Tricolor Indicator  
φ30 Flat Head Two-color Indicator

φ60 Series Train Door Indicator  
φ25 Locomotive Specific Indicator  
φ22 Ultrathin Indicator  
Combined Indicator

# INDICATOR / BUZZER




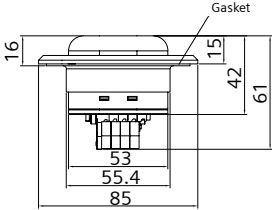
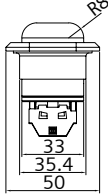
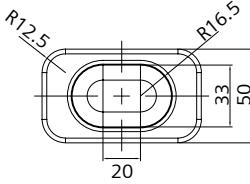
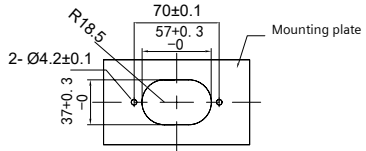
### Technical feature

Product specification	Indicator / Buzzer				
Standard	GB/T 14048.5	IEC 60947-5-1	IEC 61373-2010	DIN 5510.2	EN 45545
Rated insulation voltage	440V				
Power frequency withstand voltage	AC 1890V 50Hz · 1min				
Continuous working life	≥50,000 hours				
Insulation resistance	≥100MΩ				
Ambient temperature	-25°C ~ +55°C (mean temperature within 24h ≤ +35°C)				
Allowable voltage fluctuation	±10% @ lower than 110V		±20% @ higher than 110V		
Brightness	Two-color indicator ≥100cd/m <sup>2</sup>		Train door indicator ≥300cd/m <sup>2</sup>		
Comparative tracking index	CTI≥175				
Use frequency	AC50 ~ 60Hz				
Vibration frequency	Normal working at 2-80Hz vibration frequency, 0.7g acceleration				
Relative humidity of air	≤90% RH, relative humidity ≤ 50% at the temperature over 40° C				
Pollution grade of air	Grade 3				

## Order code selection description

### 33B Series Train Door Indicator

Name	Type	Order code	Color	Light voltage
33B Series Train Door		AD16-33B/▲★	●●● red green yellow - rgy	26-DC110V

Indicator	Technical drawings			
				


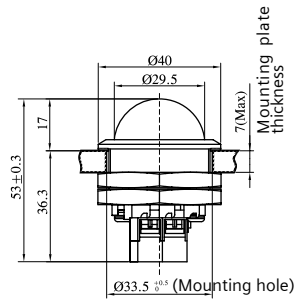

### Product feature

- AD16-33B 33B Series Train Door Indicator is specifically developed for standard metro trains of China, and is used for indicating door opening and closing.
- Using high-brightness LED as the light source, the product is characterized by high luminance and long service life.
- Luminance ≥ 300cd/ m<sup>2</sup>
- LED life ≥ 50,000 hours
- Head protection class: IP67

### Note:

- Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage code.
- The external lead is 0.75m<sup>2</sup> ~1.55m<sup>2</sup> rigid wire, which can be plugged in.
- Voltage code 26, nominal voltage DC110V, within wide operating voltage range, normal working between DC 70V and 140V

◎  $\phi$ 35 Series Train Door Indicator

Name	Type	Order code	Color	Light voltage	Dimension
$\phi$ 35 Single Color Train Door Indicator		AD16-35KTKA / ▲★ - TK	<ul style="list-style-type: none"> <li>● red - r</li> <li>● green - g</li> <li>● blue - b</li> <li>● yellow - y</li> <li>○ white - w</li> </ul>	23-AC/DC24V 24-AC/DC36V 25-AC/DC48V 26-AC/DC110V 31-AC220V	
$\phi$ 35 Dual Color Train Door Indicator		AD16-35KTKA / ▲▲★ - TK	<ul style="list-style-type: none"> <li>● red green - rg</li> <li>● red yellow - ry</li> </ul>	23-AC/DC24V 24-AC/DC36V 25-AC/DC48V 26-AC/DC110V	

Product feature


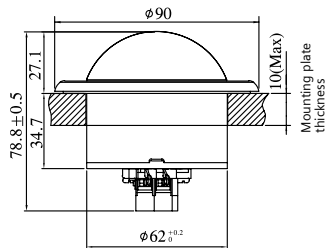
Description

- AD16-35KTKA Series Train Door Indicator is specifically developed for train door control system of rail transit, and is used for indicating door opening and closing. Using high-brightness LED as the light source, the product is characterized by high luminance and long service life.
- Luminance  $\geq 300\text{cd/m}^2$
- Protection class: IP67

Note:

1. Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage code.
  2. The external lead is 0.75mm<sup>2</sup>~1.55mm<sup>2</sup> rigid wire, which can be plugged in.
  3. Voltage code 26, nominal voltage AC/DC110V, wide working voltage range for single color indicator, normal working between AC/DC48 and 140V.
- If the tolerance is not noted, the GB/T 1804-C level shall apply.

◎  $\phi$ 60 Series Train Door Indicator

Name	Type	Order code	Color	Light voltage	Dimension
$\phi$ 60 Series Train Door Indicator		AD16-60KTKA / ▲★ - TK	<ul style="list-style-type: none"> <li>● red - r</li> <li>● green - g</li> <li>● blue - b</li> <li>● yellow - y</li> <li>○ white - w</li> </ul>	23-AC/DC24V 26-AC/DC48~220V	

Product feature

Description

- AD16-60KTKA Series Train Door Indicator is specifically developed for rail transit, and is used for indicating door opening and closing. Using high-brightness LED as the light source, the product is characterized by high luminance and long service life.
- Luminance  $\geq 300\text{cdm}^2$
- Protection class: IP67


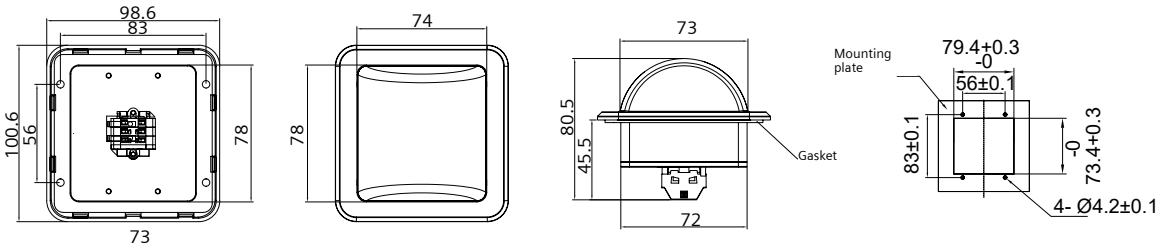
Note:

1. Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage code.
2. The external lead is 0.75mm<sup>2</sup>~1.5mm<sup>2</sup> rigid wire, which can be plugged in.
3. Voltage code 26, wide voltage working range, suitable for AC/DC48~220V.

INDICATOR / BUZZER



## ◎ 72A ATO Mode Indicator

Name	Type	Order code	Color	Light voltage
72A ATO Mode Indicator		AD16-72A/▲★	● green - g	26-DC110V
Dimension				

### Product feature


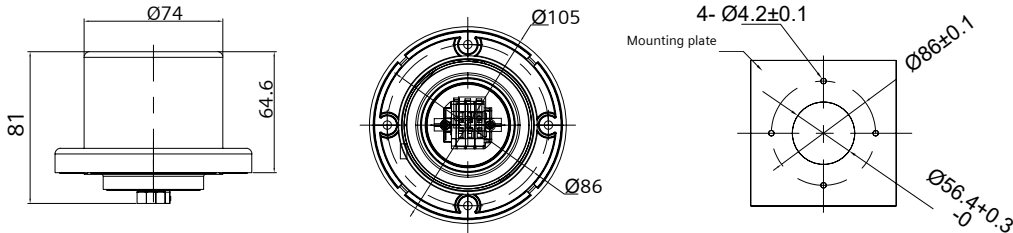
Description

- AD16-72A ATO Mode Indicator is specifically developed for standard metro trains of China.
- Using high-brightness LED as the light source, the product is characterized by high luminance and long service life.
- Luminance  $\geq 300\text{cd}/\text{m}^2$
- LED life  $\geq 50,000$  hours

Note:

- 1.Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage code.
- 2.The external lead is  $0.75\text{m}^2 \sim 1.55\text{m}^2$  rigid wire, which can be plugged in.
- 3.Voltage code 26, nominal voltage DC110V, within wide operating voltage range, normal working between DC 70V and 140V.

## ◎ 75P Series Locomotive Operation Indicator

Name	Type	Order code	Color	Light voltage
75P Series Locomotive Operation Indicator		AD16-75P/▲★	●○ red white- rw	26-DC110V
Dimension				

Description


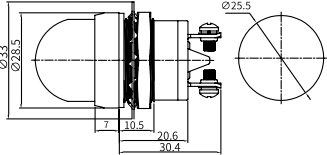

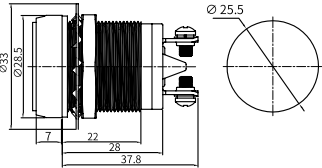
### Product feature

- AD16-75P Series Locomotive Operation Indicator is specifically developed for standard metro trains of China.
- Using high-brightness LED as the light source, the product is characterized by high luminance and long service life.
- Luminance  $\geq 300\text{cd/m}^2$
- LED life  $\geq 50,000$  hours
- Head protection class: IP67

Note:

- 1.Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage code.
- 2.The external lead is  $0.75\text{mm}^2 \sim 1.55\text{mm}^2$  rigid wire, which can be plugged in.
- 3.Voltage code 26, nominal voltage DC110V, within wide operating voltage range, normal working between DC 70V and 140V.

### ◎ $\phi 25$ Locomotive Specific Indicator

Name	Type	Order code	Color	Light voltage	Dimension
$\phi 25$ Locomotive Specific Indicator		AD16-25A1/▲★ - TK	<ul style="list-style-type: none"> <li>● red - r</li> <li>● green - g</li> <li>● blue - b</li> <li>● yellow - y</li> <li>○ white - w</li> </ul>	24-AC/DC20V~48V 27-AC/DC77~137.5V	
		AD16-25B1/▲★ - TK AD16-25B2/▲★ - TK			

Description

### Product feature


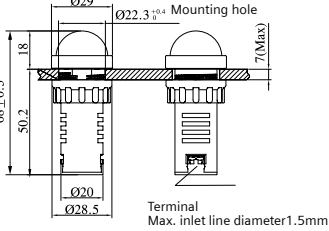

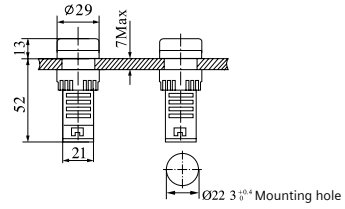
- AD16-25 Series Indicator is specifically developed for rail transit industry, and is mainly train door indicator and master controller indicator.
- Luminance  $\geq 100\text{cd/m}^2$
- Fire retardant class V0 (UL94)
- The product is UL certified.
- Protection class: IP66

Note:

- 1.Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage code.
  - 2.Head type code: A round head B flat head
  - 3.Lighting type code: 1 Always on 2 Flashing.
- If the tolerance is not noted, the GB/T 1804-C level shall apply.

INDICATOR / BUZZER

## ⊙ $\phi$ 22 UHB Outdoor Indicator / $\phi$ 22 Tricolor Indicator

Name	Type	Order code	Color	Light voltage	Dimension
$\phi$ 22 UHB Outdoor Indicator		AD16-22I / ▲★ - TK	<ul style="list-style-type: none"> <li>● red - r</li> <li>● green - g</li> <li>● blue - b</li> <li>● yellow - y</li> <li>○ white - w</li> </ul>	22-AC/DC12V 23-AC/DC24V 25-AC/DC48V 26-AC/DC110V 28-AC/DC220V 31-AC220V	 <p>Terminal Max. inlet line diameter 1.5mm</p>
$\phi$ 22 Tricolor Indicator		AD16-22D / rg ★ - TK	<ul style="list-style-type: none"> <li>● ● 红 绿 - rg</li> <li>红绿同时发光为 橙色 ●</li> </ul>	22-AC/DC12V 23-AC/DC24V 25-AC/DC48V 26-AC/DC110V 28-AC/DC220V 31-AC220V 32-AC380V	 <p>Terminal Max. inlet line diameter 1.5mm</p>

### Product feature

Description

- AD16-22I Series Outdoor Indicator uses high-brightness LED as the light source, realizing highly identifiable working status in outdoor use. • Luminance  $\geq 200\text{cd/ m}^2$
- AD16-22D Series Tricolor Indicator is specifically developed for rail transit, and emits red, green and orange light.
- Luminance  $\geq 100\text{cdm}^2$

Note:


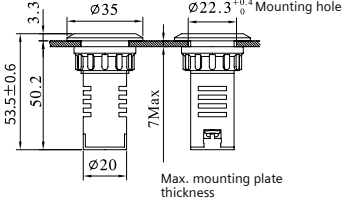
Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage code.

Note 1:

Fill in the ★ after the slash with the voltage code. 2. Orange when red and green light at the same time.

If the tolerance is not noted, the GB/T 1804-C level shall apply.

## ⊙ $\phi$ 22 Ultrathin Indicator

Name	Type	Order code	Color	Light voltage	Dimension
$\phi$ 22 Ultrathin Indicator		AD16-22P / ▲★ - TK	<ul style="list-style-type: none"> <li>● red - r</li> <li>● green - g</li> <li>● blue - b</li> <li>● yellow - y</li> <li>○ white - w</li> </ul>	22-AC/DC12V 23-AC/DC24V 25-AC/DC48V 26-AC/DC110V 28-AC/DC220V	 <p>Max. mounting plate thickness</p>

### Product feature


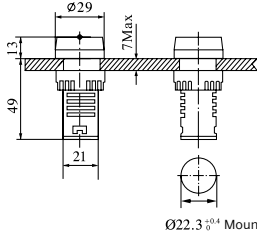
Description

- AD16-22P Series Ultrathin Indicator uses imported high-brightness LED as the light source, offering high luminance and long service life.
- Luminance  $\geq 100\text{cdm}^2$

Note:

Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage code.

◎  $\Phi$ 22 Flashing Buzzer

Name	Type	Order code	Color	Light voltage	Dimension
$\Phi$ 22 Flashing Buzzer		AD16-22SM/r ★ - TK (Intermittent sounding)	● red - r	22-AC/DC12V	 <p>7Max 49 21 29 1.3 Ø22.3<sup>±0.14</sup> Mounting hole</p>
		AD16-22SM/r ★ B - TK (Prolonged sounding)		23-AC/DC24V	
25-AC/DC48V					
26-AC/DC110V					
28-AC/DC220V					
31-AC220V 32-AC380V					


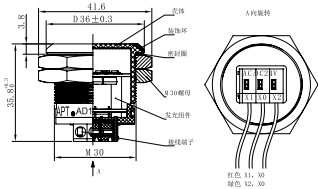
Description

Product feature

- AD16-22SM Series Flashing Buzzer is applied in rail transit alarm. It sounds intermittently or for a long time, with flashing indication at the same time, at 10cm/85 dB, 15~20mA.
- Sound and light are in separate circuits for easy control.
- Lighting and sounding frequency: 65 times / min  $\pm$  10%

Note:  
Fill in the ★ after the slash with the voltage code.

◎  $\Phi$ 30 Flat Head Two-color Indicator

Name	Type	Order code	Color	Light voltage	Dimension
$\Phi$ 30 Flat Head Two-color Indicator		AD16-30P / ▲▲★ - TK	● ● red green - rg	23-AC/DC24V	 <p>41.6 D 36<math>\pm</math>0.3 35.6<math>\pm</math>0.1 11.6 M 3.0 A 11 10 12 11 12 10 绿色 11、12 黑色 10</p>
				26-AC/DC110V	

Description

Product feature

- AD16-30P Series Flat Head Two-color Indicator uses imported high-brightness LED as the light source, offering high luminance and long service light.
- Luminance  $\geq$  100cdm<sup>2</sup>
- Fire retardant class V0 (UL94)

Note:  
Fill in the ▲ after the slash with the color, and the ★ after the slash with the voltage code.  
If the tolerance is not noted, the GB/T 1804-C level shall apply.

◎ Combined Indicator



Product feature

- AD16-30JC Series Combined Indicator is applicable for rail transit as various light indication signal and light execution signal and centralized indication.
- Luminance  $\geq$  120cdm<sup>2</sup>
- Removable lamp cover and lamp beads, for easy use and maintenance.
- The lighting unit is in a separate control circuit, for easy combination of Always ON, flashing and various voltage specifications.
- Tailor-making according to the customer's drawing is available. For specific order code selection, see the AD16-30JC Combined Indicator brochure.

INDICATOR / BUZZER

# APT



## **CAM SWITCH** LW39 **series Railway Specific Products**

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Product order code selection

LW39-16A Series

LW39-16B Series

LW39-16C Series

LW39-16CU QF Lead Seal Series

LW39-25 Gold Plated Contact Series



© Technical data

Electric data		Order code	LW39-16A(B、C)	LW39-25	
Working conditions		Relative humidity of air ≤ 90% Installation category: III Pollution class 3 GB/T 14048.5 EN 60947-5-1 DIN 5510-2 EN 45545 IEC 61373-2010			
Compliance		GB/T 14048.5 EN 60947-5-1 DIN 5510-2 EN 45545 IEC 61373-2010			
Rated insulation voltage Ui		690V			
Conventional thermal current Ith		16A	25A		
Power frequency withstand voltage (1 minute)		1890V			
AC working current Ie	AC-21 OFF/ON resistive load		16A	25A	
	AC-15 Control electromagnetic load COSφ=0.4	24V	16A	25A	
		48V	8A	22A	
		110V	5A	18A	
		220V	3A	12A	
	380V	1.8A	8A		
DC working current Ie	DC-21 OFF/ON resistive load	Number of contacts in series	1 2 3 4		
			24 48 70 95	16A	25A
		Voltage	48 60 95 110	12A	22A
			110V 220V 300V	1A	5A
			220V 440V	0.4A	2.5A
		440V	0.27A	1.25A	
	DC-13 Control electromagnetic load T=300ms	Number of contacts in series	1 2 3 4		
			24 48 70 95	12A	20A
		Voltage	48 60 95 110	2A	8A
			110V 220V 300V	0.4A	2.5A
220V 440V			0.2A	1.25A	
	440V	0.1A	0.5A		
AC-3 Squirrel-cage asynchronous motor Startup, OFF during operation 3-phase 3-pole		380V	3kW	5.5kW	
AC-4 Squirrel-cage asynchronous motor Startup, braking, reverse, inching 3-phase 3-pole			1.2kW	4kW	
AC endurance		200,000 times			
DC endurance		100,000 times			
Mechanical endurance (positioning type)		300,000 times			

© Order code description

No.		LW39 — □ □ — □ □ / □ □ □ □ — □ — □ 1 2 3 4 5 6 7 8 9 10 11
1	Cam switch code	LW39
2	Series number	16A: Thermal current 16A Type A      16B: Thermal current 16A Type B 16CU: Thermal current 16A Type CU      25A: Thermal current 25A 16CU-QF: Thermal current 16A Type CU self-lock with lead seal
3	Functional order code	To be selected according to the picture
4	Code of positioning feature	Refer to Page 26
5	Junction code	
6	Number of stages	
7	Voltage code	23:AC/DC24      26:AC/DC110V      28:ACDC220V      31:AC220V
8	Handle type code	
9	Panel lettering code	Refer to Page 36
10		QF: lead seal product (only for 16CU Series)
11		TK: locomotive specific product      RW: master controller specific product

Description

When ordering the LW39 Series, please provide the specific order code. There are three ways to determine the specific order code:

- Select from the order codes of the common cam switches (please refer to P42~47). Please specify upon ordering if there is any further requirement.
- Please fill the specific order code according to the description of order code.
- Fill the blank junction schedule (P49) and we will help you confirm the order code.





## Code of positioning feature

The code of positioning feature indicates the gear feature of the cam switches, including two categories: positioning type and momentary type.

Description

### Product feature

- The positioning type does not have momentary function. LW39 Series Cam Switch can provide a variety of positioning angles such as 30°, 45°, 60° and 90°.
- Please pay attention to the applicable order codes of various positioning angles and fill in the codes of positioning features of the cam switches ordered according to the positioning ring graphs and code examples.

Note:

For 360° operation without limit, the ending gear is the same letter as the starting gear, e.g. "3JJ", which means 30° positioning, -90° starting, 12 gears, without limit.

Positioning angle	Applicable order code	Positioning ring graph	Code example
30°	LW39-16 LW39-25 LW39-63		"3KC" indicates 30° positioned, starting from position K and ending at position C clockwise. It has 5 positions - K, O, A, B and C.
45°	LW39-16 LW39-25 LW39-63		"4OB" indicates 45° positioned, starting from position O and ending at position B. It has 3 positions - O, A and B.
60°	LW39-16B LW39-16C LW39-63		"6KE" indicates 60° positioned, starting from position K and ending at position E. It has 4 positions - K, A, C and E.
90°	LW39-16 LW39-25 LW39-63		"9GC" indicates 90° positioned, starting from position G and ending at position C. It has 3 positions - G, A and C.

## Code description

No.		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		1	2	3	
1	<b>Positioning angle</b>	"3" means 30°	"4" means 45°	"6" means 60°	"9" means 90°
2	<b>Starting gear</b>				
3	<b>Ending gear</b>				

## Product feature

- One or more gears of the momentary type have momentary function. LW39 Series Cam Switch provides users with dozens of momentary options to meet the specific needs of users.
- Here are the commonly used momentary functions and their positioning feature codes. Please pay attention to the order codes suitable for them.

Precautions: For each item with \*, the number of stages of the cam switch used should not exceed 3; for further requirements, please consult the technical support department.

Code of positioning feature	Handle operating position (angle)	LW39-16A	LW39-16B(C)	LW39-25
A1	0° ← 30°			
A2	0° ← 45°	Y	Y	Y
B1	-30° → 0° ← 30°			
B2	-45° → 0° ← 45°	Y	Y	Y
B3	-60° → -30° → 0° ← 30° ← 60°		Y*	
B4	-90° -45° 0° 45° ← 90°	Y	Y	Y
B5	-90° -45° 0° ← 45°	Y	Y	Y
BA	-90° → -45° → 0° ← 45° ← 90°	Y	Y	Y
BC	-45° → 0° 0° ← 45°	Y		Y
BD	-30° → 0° 0° ← 30°		Y*	
Z1	-135° → -90° 0° ← 45°	Y	Y	Y
ZA	-90° → -45° 0° 45° ← 90°	Y	Y	Y
ZB	-90° → -45° 0° 45°	Y	Y	Y
ZC	-45° 0° 45° ← 90°	Y	Y	Y
ZD	-90° 0° ← 45°	Y	Y	Y
ZE	0° 45° ← 90°	Y	Y	Y
ZF	-45° 0° ← 45°	Y	Y	Y
ZG	-45° → 0° 45°	Y	Y	Y
ZK	-45° → 0° 45° 90°	Y	Y	Y
W	-120° → -90° 0° ← 30°		Y*	
WA	-90° 0° ← 30°			
WB	-30° → 0° 90°			
WR	-120° → -90° 0° 90° ← 120°		Y*	
WS	-90° 0° 90° ← 120°		Y*	
WT	-120° → -90° 0° 90°		Y*	
WU	-90° -30° → 0° ← 30°		Y*	
WV	-90° 0° ← 30° 90°		Y*	
WW	-90° -30° → 0° ← 30° 90°		Y*	

## ◎ LW39-16A Series

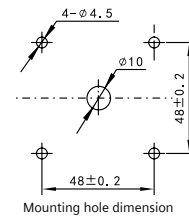
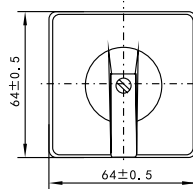
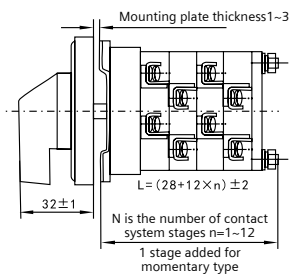
Description

### Product feature

- Aesthetic appearance, easy use, safety and reliability. External wiring method, easy to use.
- Conventional thermal current 16A.
- Operating angle 30°, 45° and 90°.
- Max. number of contact system stages: 12.
- General customizable protection class: IP65.

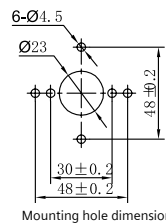
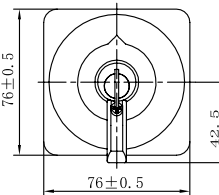
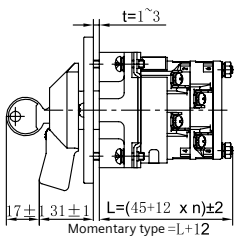
Note:

If the operating voltage is 24V or below and current is 100mA or below, please specify in the order, and we will add gold plating process for contact. If the tolerance is not noted, the GB/T 1804-C level shall apply.



Normal type LW39-16A- □ - □ / □□□

Positioning angle: 30° 45° 90° Max. number of stages 12 Suitable handle: All



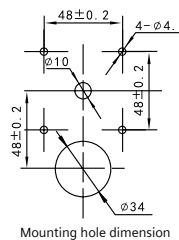
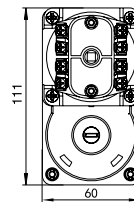
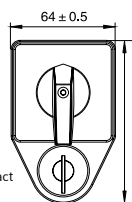
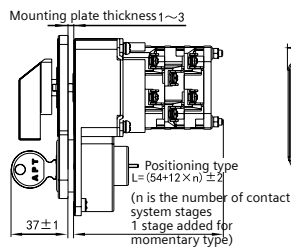
① Key operating manner: It can be pulled out in each position. The handle is locked after pulling out the key.

If you have any other use requirements, please specify them.

② There are 54 non-common keys.

Handle with key type LW39-16A YS - □ - □ / □□

Positioning angle: 45° 90° Max. number of stages 12 Handle not optional




Key operation manner: It can be pulled out in each position. The handle is locked after pulling out the key. If you have any other use requirements, please specify them.

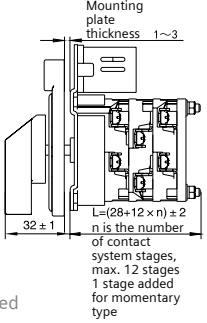
Panel with key type LW39-16A YM - □ - □ / □□□

Positioning angle: 45° 90° Max. number of stages 12 Suitable handle: A, B, C, D

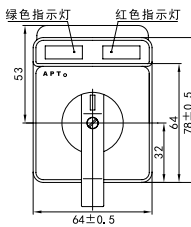
CAM SWITCH



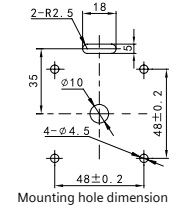
Left green right red



Mounting plate thickness 1~3  
L=(28+12×n)±2  
n is the number of contact system stages, max. 12 stages  
1 stage added for momentary type



绿色指示灯 红色指示灯  
5.3  
64±0.5  
78±0.5  
3.2  
6.4




2-R2.5 18  
35  
φ10  
4-φ4.5  
48±0.2  
48±0.2  
Mounting hole dimension

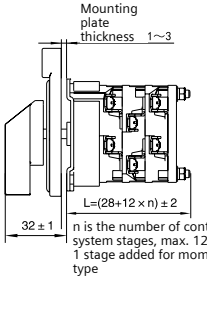
Note: the standard light box has 3 common negative-pole wiring terminals: X1 (+), X0 (-), X2 (+). Please specify when placing the order if any special wiring method is required

**Panel with light type LW39-16A DM - □ - □ / □□□□**

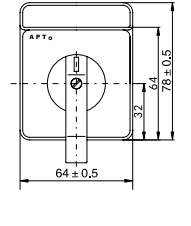
Positioning angle: 30° 45° 90° Max. number of stages 12 Suitable handle: All



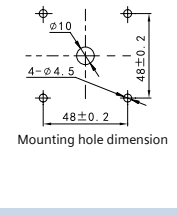
电压转换开关  
APT BC  
CA



Mounting plate thickness 1~3  
L=(28+12×n)±2  
n is the number of contact system stages, max. 12 stages  
1 stage added for momentary type



64±0.5  
78±0.5  
3.2  
6.4



φ10  
4-φ4.5  
48±0.2  
48±0.2  
Mounting hole dimension

**Signage type LW39-16A P - □ - □ / □□□□**

Positioning angle: 30° 45° 90° Max. number of stages 12 Suitable handle: All

◎ LW39-16A Suitable Handle (Ak handle by default if not specified)

Code	Ak	Ar	Bk	Br	Ck	Cr	Dk	Dr
Handle								
Dimension								

Code	Ek	Er	Fk	Fr	Gk	Gr
Handle						
Dimension						

CAM SWITCH

◎ LW39-16B Series

## Product feature

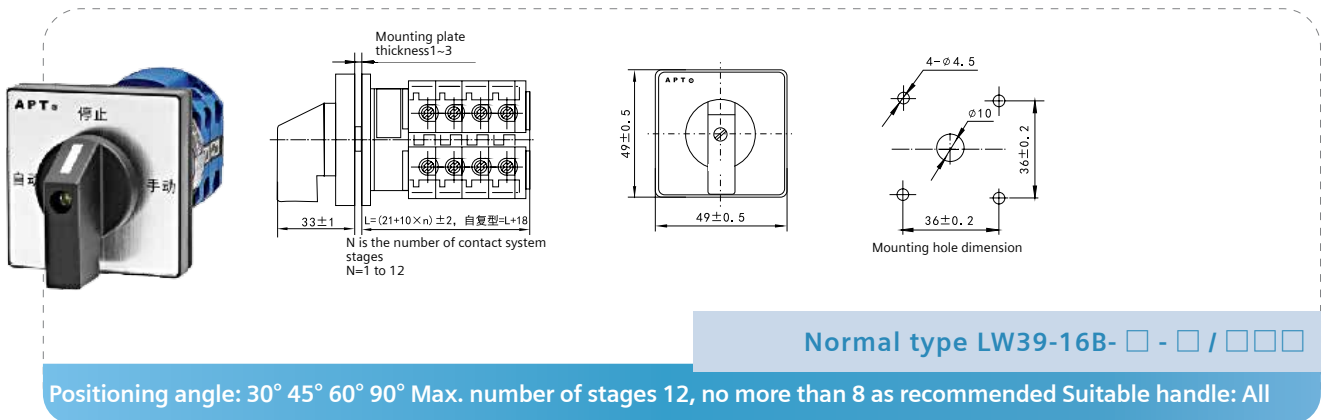
Description

- Compact size, aesthetic and novel appearance, reliable structure, internal wiring system, high safety and reliability.
- Conventional thermal current 16A, internal wiring, high safety and reliability.
- Operating angle 30°, 45°, 60° and 90°.
- Max. number of contact system stages: 12. It is recommended to use no more than 8 stages (30° positioning angle, max. 8 stages).
- Customizable protection class for normal type and signage type: IP65.

Note:

If the operating voltage is 24V or below and current is 100mA or below, please specify in the order, and we will add gold plating process for contact.

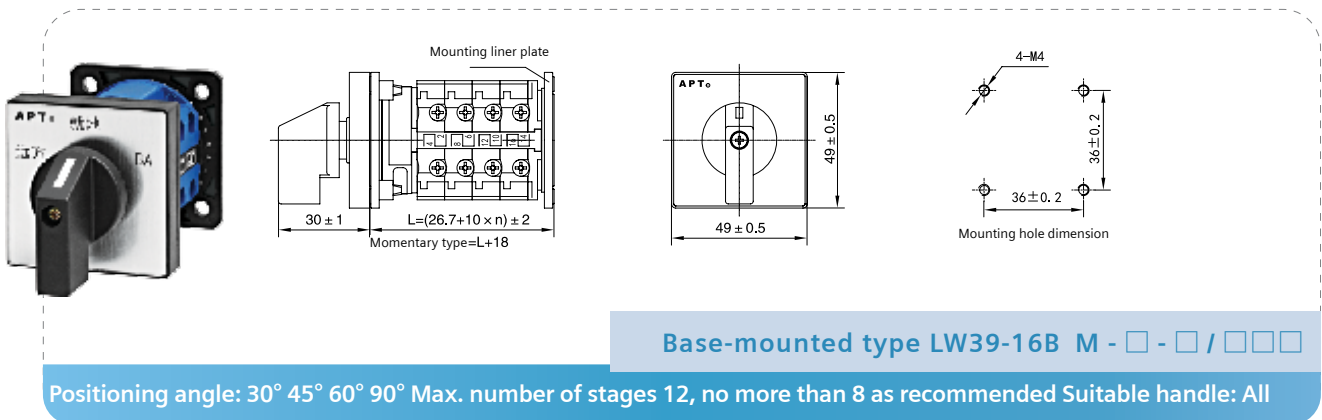
If the tolerance is not noted, the GB/T 1804-C level shall apply.



Technical drawings for the Normal type LW39-16B include a perspective view, a cross-section showing the mounting plate thickness (1-3) and a length dimension of  $33 \pm 1$ . The length is defined by the formula  $L = (21 + 10 \times n) \pm 2$ , where  $n$  is the number of contact system stages (N=1 to 12). The front view shows a square face with a width of  $49 \pm 0.5$  and a height of  $49 \pm 0.5$ . The mounting hole dimension shows four holes with a diameter of  $4 - \phi 4.5$  and a center-to-center distance of  $36 \pm 0.2$ .

**Normal type LW39-16B- □ - □ / □ □ □ □**


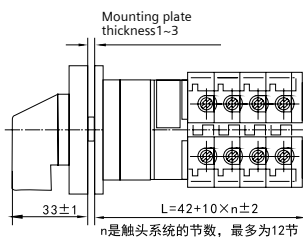
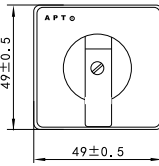
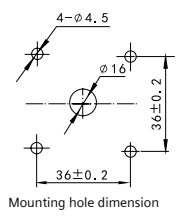
**Positioning angle: 30° 45° 60° 90° Max. number of stages 12, no more than 8 as recommended Suitable handle: All**



Technical drawings for the Base-mounted type LW39-16B M include a perspective view, a cross-section showing the mounting liner plate and a length dimension of  $30 \pm 1$ . The length is defined by the formula  $L = (26.7 + 10 \times n) \pm 2$ , where  $n$  is the number of contact system stages (Momentary type=L+18). The front view shows a square face with a width of  $49 \pm 0.5$  and a height of  $49 \pm 0.5$ . The mounting hole dimension shows four holes with a diameter of  $4 - M4$  and a center-to-center distance of  $36 \pm 0.2$ .

**Base-mounted type LW39-16B M - □ - □ / □ □ □ □**


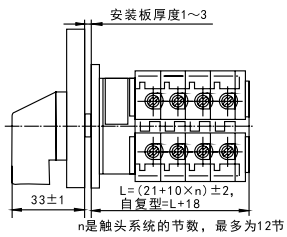
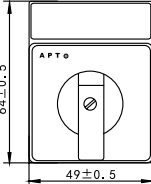
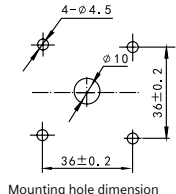
**Positioning angle: 30° 45° 60° 90° Max. number of stages 12, no more than 8 as recommended Suitable handle: All**

Note: Suitable positioning feature:  
-90°, 0°, 90° (code 9GC);  
Self-reset feature:  
-30° → 0° ← 30° (code B1)

**Pull-out self-reset type LW39-16B ZL - □ - □ / □□□□**







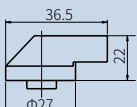
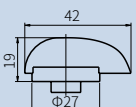
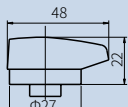
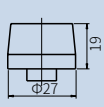
Positioning feature: 9GC or B1 Max. number of stages 12, no more than 8 as recommended Suitable handle: All







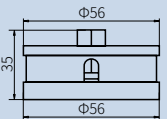
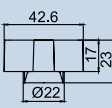
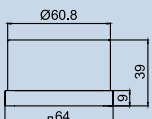
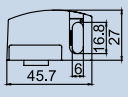





**Signage type LW39-16B P - □ - □ / □□□□**

Positioning angle: 30° 45° 60° 90° Max. number of stages 12, no more than 8 as recommended Suitable handle: All

◎ LW39-16B Suitable Handle (Ak handle by default if not specified)

Code	Ak	Ar	Ak1	Bk	Ck	Dk
Handle						
Dimension						

Code	Gk	Gr	Hk	Lr	Nk	Nh
Handle						
Dimension						

CAM SWITCH

## ◎ LW39-16C Series

### Product feature

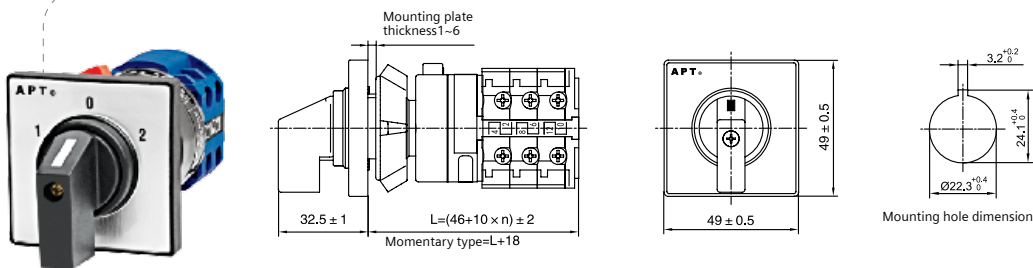
Description

- Single hole mounting, with the same contact system as B Series, internal wiring system, high safety and reliability.
- Conventional thermal current 16A.
- Operating angle 30°, 45°, 60° and 90°.
- Max. number of contact system stages: 12. It is recommended to use no more than 8 stages (30° positioning angle, max. 8 stages).
- Customizable protection class for normal type, handle with key type, the type with key without panel and signage key type: IP65.

Note:

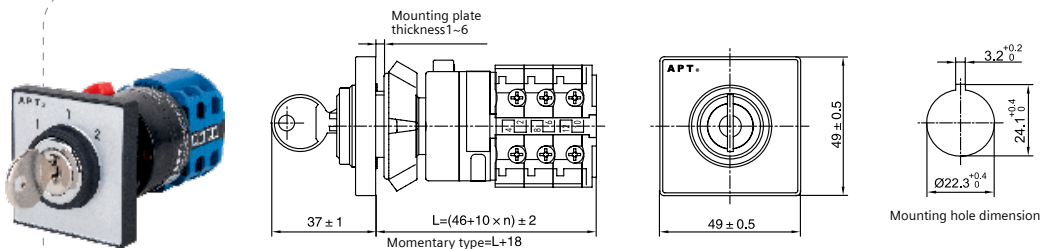
If the operating voltage is 24V or below and current is 100mA or below, please specify in the order, and we will add gold plating process for contact.

If the tolerance is not noted, the GB/T 1804-C level shall apply.



#### General type LW39-16C- □ - □ / □ □

Positioning angle: 30° 45° 60° 90° Max. number of stages 12, no more than 8 as recommended Handle not optional

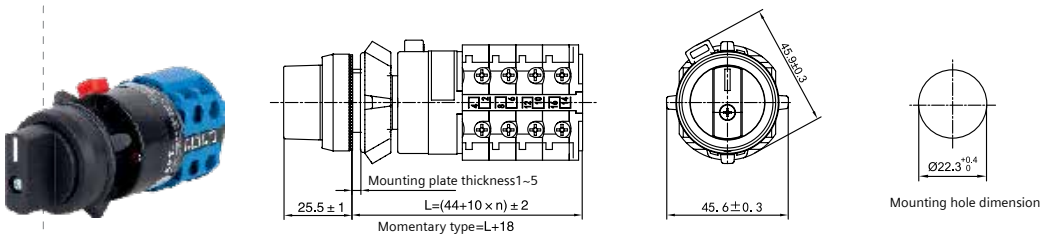


① 钥匙操作方式: 每个位置均可拔出, 拔出后 Handle 被锁定。如有其它使用要求请说明。

② 钥匙不通配为 100 把。

#### Handle with key LW39-16C YS - □ - □ / □ □

Positioning angle: 30° 60° 90° Max. number of stages 12, no more than 8 as recommended No handle



#### Single mounting without panel LW39-16CU - □ - □ / □ □

Positioning angle: 30° 60° 90° Max. number of stages 12, no more than 8 as recommended Handle not optional

◎ LW39-16CU QF Lead Seal Series

Product feature

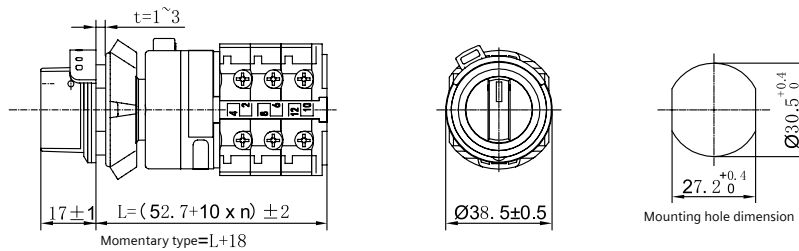
Description

- Single hole mounted, with the same contact system as B Series, internal wiring system, high safety and reliability.
- Conventional thermal current 16A.
- Operating angle 30°, 45°, 60° and 90° .
- Max. number of contact system stages: 12. It is recommended to use no more than 8 stages (30° positioning angle, max. 8 stages).
- The operating handle is lead sealed, and is used for operation memory and special operation authority setting to increase the safety of the product.

Note:

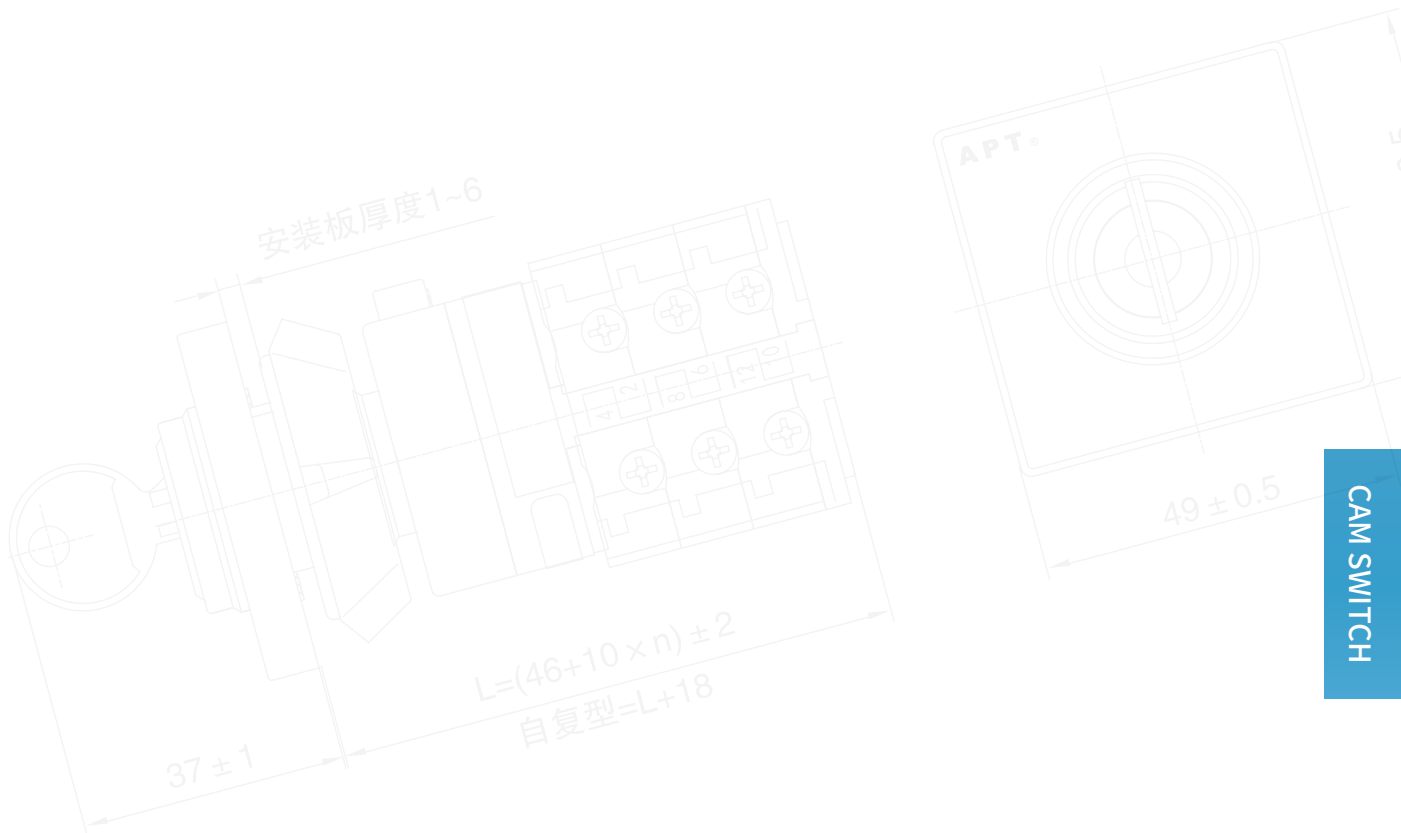
If the operating voltage is 24V or below and current is 100mA or below, please specify in the order, and we will add gold plating process for contact.

If the tolerance is not noted, the GB/T 1804-C level shall apply.



Single mounting without panel LW39-16CU- □ - □ / □ -QF- □

Positioning angle: 30° 60° 90° Max. number of stages 12, no more than 8 as recommended Handle not optional



CAM SWITCH



## ◎ LW39-25 Series

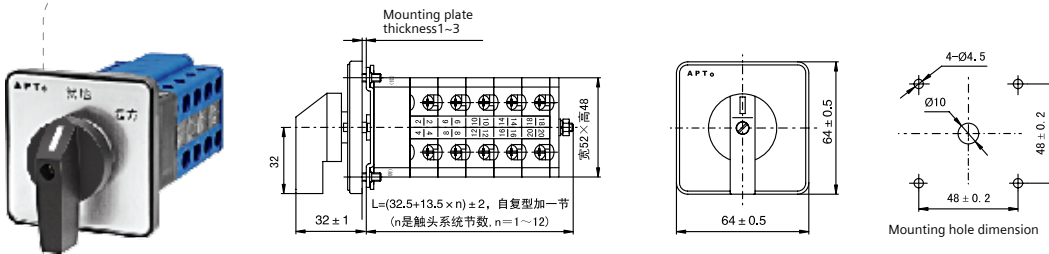
Description

### Product feature

The latest product developed independently, provided with multiple design patents. LW39-25 is suitable for larger capacity application, especially for DC application environment. It uses the international popular built-in wiring method for high safety and reliability. Rolling bearing is used inside for soft and gentle touch and long mechanical endurance.

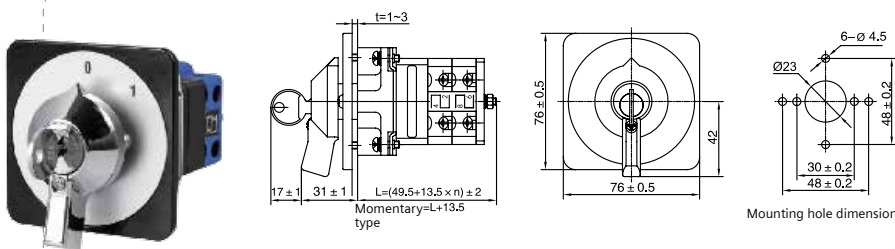
- Conventional thermal current 25A, DC breaking capacity up to 5A/110V (DC-21).
- Operating angle 30°, 45° and 90°.

Note:  
If the tolerance is not noted, the GB/T 1804-C level shall apply.



General type LW39-25- □ - □ / □ □ □

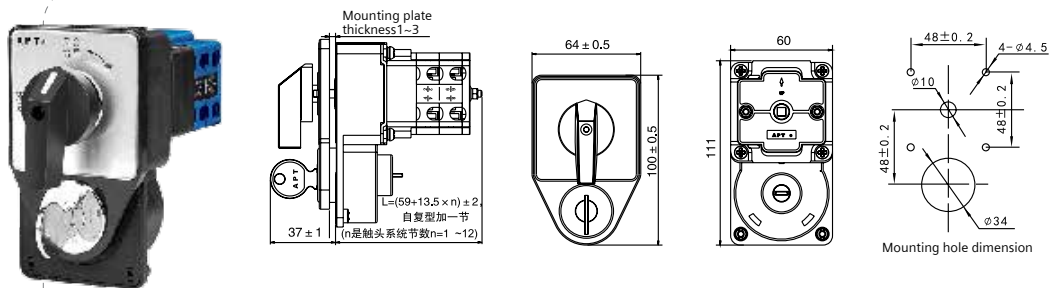
Positioning angle: 30° 45° 90° Max. number of stages 12 Suitable handle: All



- ① Key operation manner: It can be pulled out in each position. The handle is locked after pulling out the key. If you have any other use requirements, please specify them.
- ② There are 54 non-common keys.

Handle with key LW39-25 YS - □ - □ / □ □ □


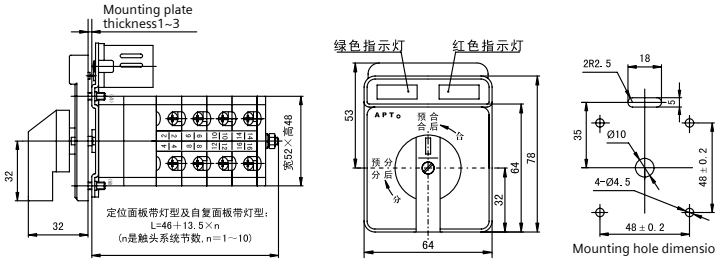
Positioning angle: 45° 90° Max. number of stages 12 Handle not optional



- ① Key operation manner: The handle is locked after pulling out the key.
- ② There are 100 non-common keys.

Panel with key LW39-25 YM - □ - □ / □ □ □

Positioning angle: 45° 90° Max. number of stages 12 Suitable handle: A, B, C, D

Mounting plate thickness 1-3


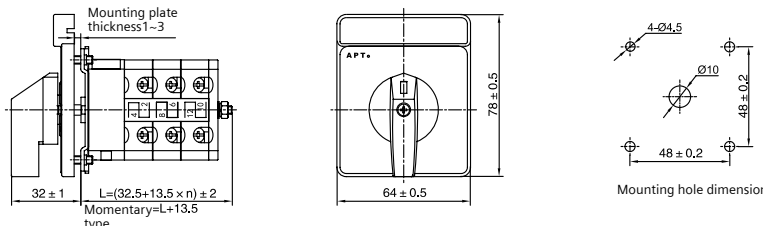
绿色指示灯 红色指示灯

定位面板带灯型及自复面板带灯型:  
L=46+13.5×n  
(n是触头系统节数, n=1~10)

Note: the standard light box has 3 common negative-pole wiring terminals:  
x1 (+), X0 (-), X2 (+).  
Please specify when placing the order if any special wiring method is required.

Panel with light LW39-25 DM - □ - □ / □□□□

Positioning angle: 30° 45° 90° Max. number of stages 11 Suitable handle: All

Mounting plate thickness 1-3

电止联锁开


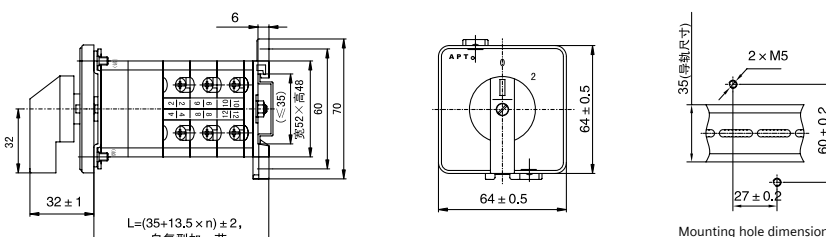
BC CA

L=(32.5+13.5×n)±2  
Momentary=L+13.5 type

Mounting hole dimension

Labeled LW39-25 P - □ - □ / □□□□

Positioning angle: 30° 45° 90° Max. number of stages 12 Suitable handle: All

Mounting plate thickness 1-3

APT 联锁 远方

L=(35+13.5×n)±2,  
自复型加一节

Mounting hole dimension

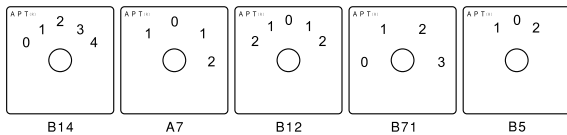
Labeled LW39-25 M - □ - □ / □□□□

Positioning angle: 30° 45° 90° Max. number of stages 8 Suitable handle: All

## Panel lettering code

### Product feature

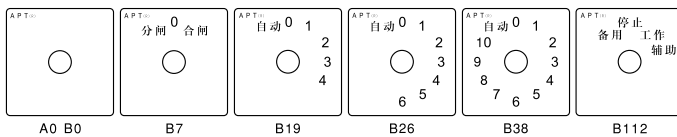
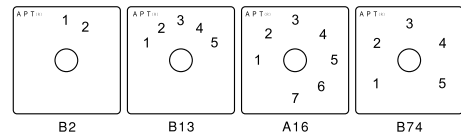
- The lettering codes of panel indicate the specific requirements for lettering on the panels of the cam switches. The user can select according to "Common Lettering Codes of Panel", or provide the requirements for customization. If there are no lettering codes of the panel in the ordered models, the factory will provide the panels according to the defaulted lettering rules.
- Default lettering rules:
  - If the junctions at a gear are completely disconnected, the lettering of this gear shall be "0" and then the gears on both sides shall be lettered in sequence of Arabic figure as "1", "2", "3" ... For 3-gear cam switches, there is no lettering mode of 1-0-1. Instead, the lettering mode of 1-0-2 will be applied.



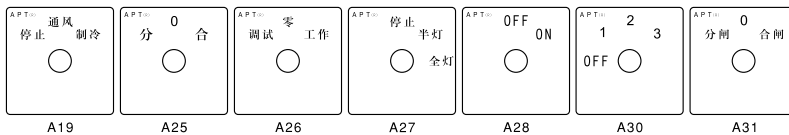
- Common lettering codes of panel: Notes  
The codes starting with A are applicable to LW39-10, LW39-16A, LW39-25, LW39-63  
The codes starting with B are applicable to LW39-16B, LW39-16C

- For example:
- If there is no "0" gear, each gear will be lettered in sequence of Arabic figure as "1", "2", "3" ... (clockwise).

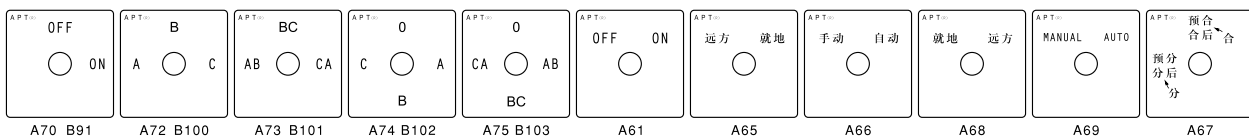
For example:



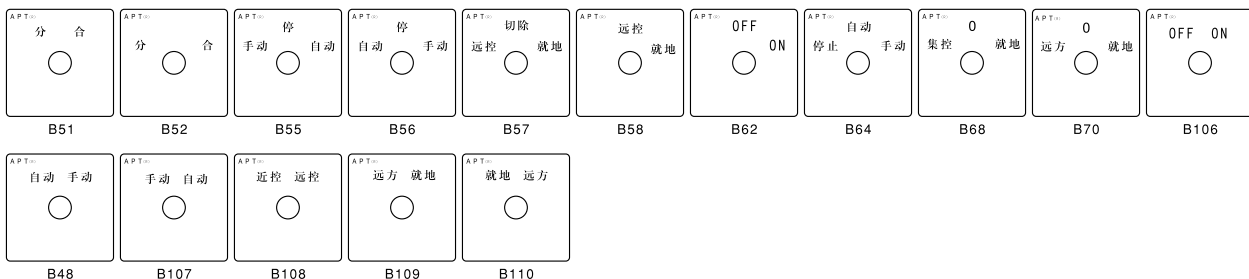
Positioning angle 30°



Positioning angle 45°

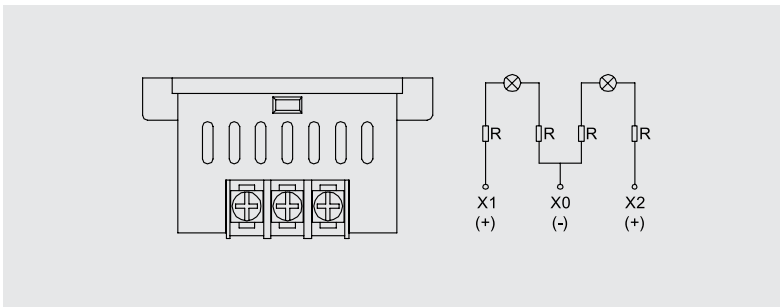


Positioning Angle - 90° and combined angle

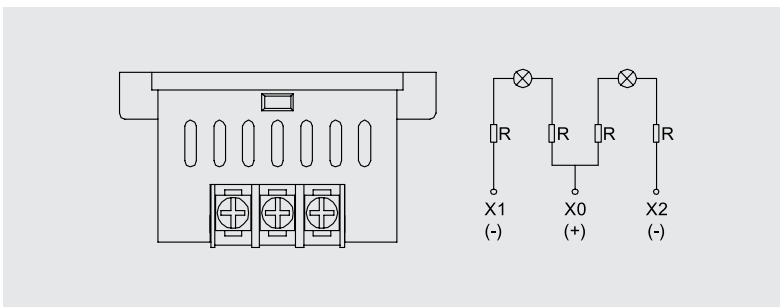


Positioning angle 60°

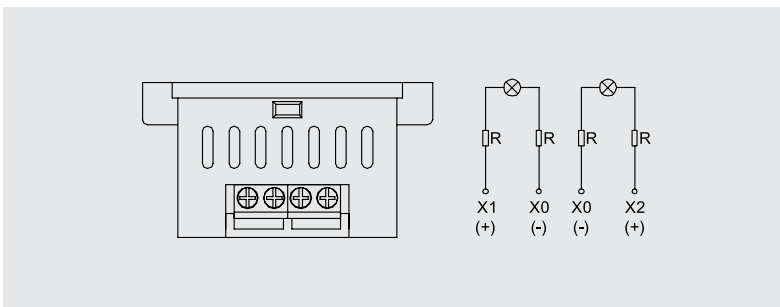
⊙ Schematic diagram of light box wiring for illuminated cam switch



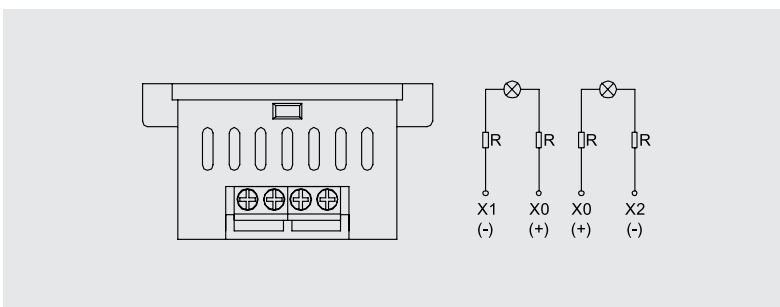
1. 3 wiring terminals (the common terminal is the negative pole)



2. 3 wiring terminals (the common terminal is the positive pole)



3. 4 wiring terminals (no common terminal, two wiring terminals in the middle are the negative poles)



4. 4 wiring terminals (no common terminal, two wiring terminals in the middle are the positive poles)

**Note** .....

- X0 is defaulted as the negative pole for standard product.
- Please specify in the purchase order if positive pole is required.
- When dismantling and installing the illuminated mounting plate, it shall be pulled and inserted gently to avoid damage to the illuminated mounting plate and socket.

## ◎ Typical application fields

Category	Item	Application	Complete
Large railway	Various types of rail collection unit tamping machines, cleaning machines, ballast reprofiling machines, material transport cars, track state confirmation cars, etc.	Built-in equipment, carbody, master controller, etc.	Whole APT series products
	Power distribution panels for service cars, emergency power boxes for air-conditioned trains, train control boxes	Control cabinet for 25T, 25K series large railway coaches	Whole APT series products
	SS9 locomotives, SS8 locomotives, SS7C locomotives, SS7D locomotives, 25G, 25K, 25T (locomotives)	机车 DC600V 供电系统柜	1. Cam switch 2. Two-color indicator 3. Key switch 4. Latching button 5. Normal button 6. Sound-light buzzer 7. Triangle key switch (usually for 25 locomotive)
	Qinghai-Tibet Railway		1. Cam switch 2. Two-color indicator
Intercity train set	For 200km train set	Master controller and car control cabinet	1. Cam switch 2. Two-color indicator 3. Quadrangle key switch
	For 250km train set	Master controller and car control cabinet	1. Combined Indicator 2. Two-color indicator 3. Quadrangle key switch
	For 300km train set	Master controller and car control cabinet	1. Combined Indicator 2. Illuminated button
	For 350km train set	Master controller and car control cabinet	1. Combined Indicator 2. Illuminated button
Mass transit metro	Suzhou Line 1 and Line 2	Master controller, built-in equipment, carbody	Whole APT series products
	Changzhou Line 1	Master controller, built-in equipment, carbody	Whole APT series products
	Hangzhou Line 3	Master controller, built-in equipment, carbody	Whole APT series products
	Guiyang Line 1	Master controller, built-in equipment	Whole APT series products
	Hefei Line 1	Master controller, built-in equipment, carbody	Whole APT series products
	Shanghai Line 8 Extension	Master controller, built-in equipment	Whole APT series products
	Shanghai Line 7 and Line 12	Master controller, built-in equipment, carbody	Whole APT series products
	Qingdao Line 2, Line 3, Line 11 and Line 13	Master controller, built-in equipment, carbody	Whole APT series products
	Xiamen Line 1	Master controller, built-in equipment, carbody	Whole APT series products
	Chongqing Line 5 and Line 10	Master controller, built-in equipment, carbody	Whole APT series products
	Hong Kong MTR Shatin to Central Link	Master controller, built-in equipment	Whole APT series products
	Wuhan Line 7 and Line 8	Master controller, built-in equipment, carbody	Whole APT series products
	Chengdu Line 7 and Line 10	Master controller, built-in equipment, carbody	Whole APT series products
	Ningbo Line 1	Master controller, built-in equipment	Whole APT series products
Fuzhou Line 1	Master controller, built-in equipment	Whole APT series products	
Metro base station	Shanghai Line 2, Line 6, Line 7, Line 8, Line 9, Line 10, Line 11, Line 13 Shenzhen Line 2 Shanghai Hongqiao Integrated Transport Hub, etc.	Various communication, control and power distribution systems, etc.	Whole APT series products