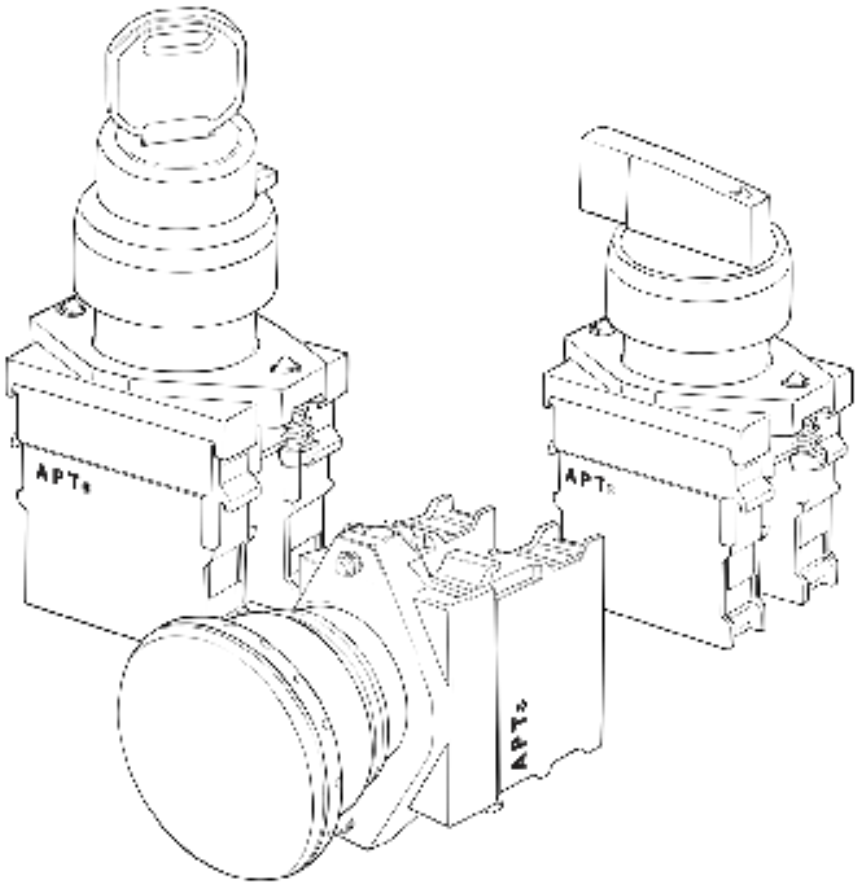
APT
A SIEMENS COMPANY



Φ22 Pushbutton Indicator

PB1S/PB1L/PB1J/PL1 Series

www.si-apt.com

Φ22 Pushbutton Indicator

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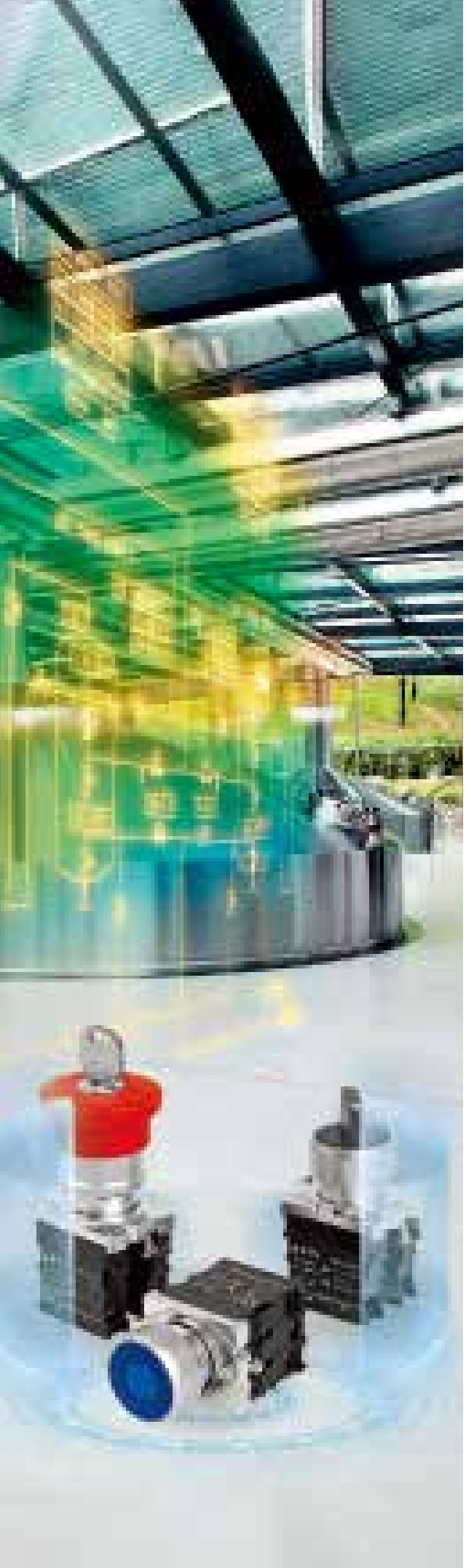

APT

Φ22 Pushbutton Indicator

PB1S/PB1L/PB1J/PL1 Series

CE RoHS

Company Profile

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

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

APT
A SIEMENS COMPANY

PB1 Series Pushbutton
Types S, L & J
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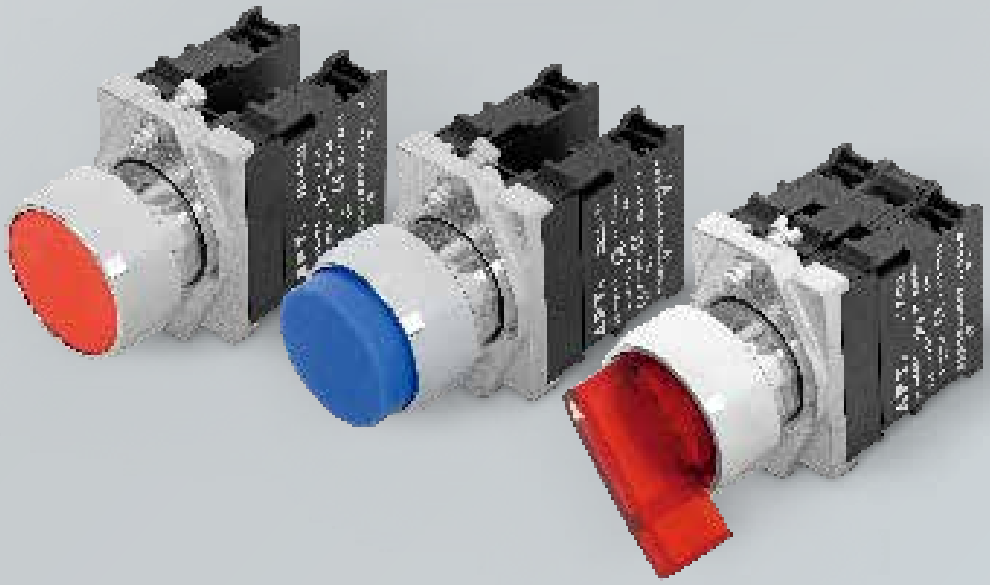
Lettering Symbols
Page 37

APT



PB1 Series S/L/J
Pushbutton

Product Features

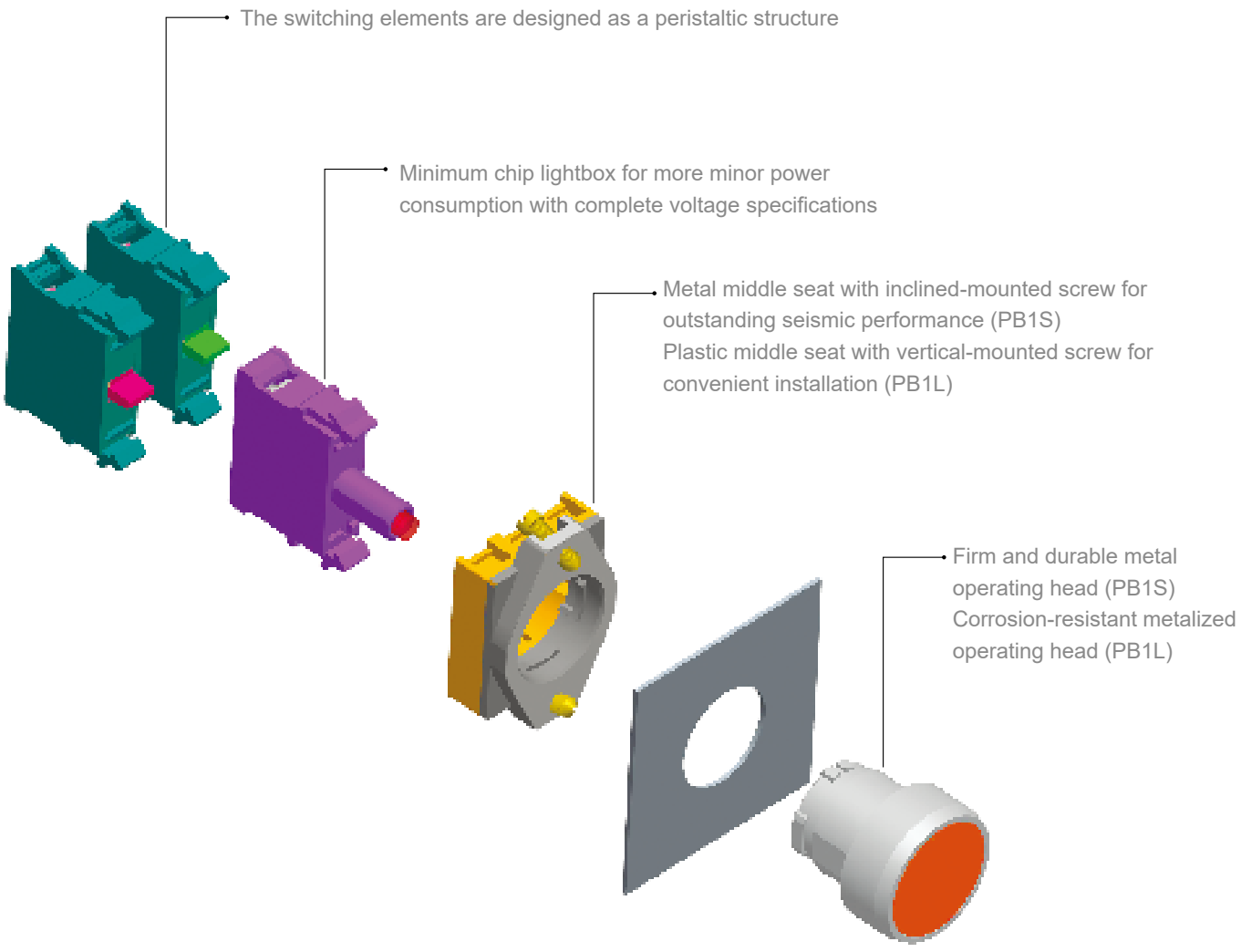
- The material complies with EU RoHS standard requirements.
- The product adopts a modular combination, for convenient installation and reliable structure.
- The head protection class is IP65.

CE RoHS

PB1S/L/J

◎ Product Features

- The material complies with EU RoHS standard requirements.
- The product adopts a modular combination, for convenient installation and reliable structure.
- The head protection class is IP65.



◎ Order code description

No.	PB1 □ — □□ □ □ □ □ / □ □ □ □ — □ □	
	1 2 3 4 5 6 7 8 9 10 11 12 13	
1	Main order code of pushbutton	Φ22mm
2	Product head material	S: metal L: metalized
3	Contact composition	10: 1NO 20: 2NO 30: 3NO 40: 4NO 50: 5NO 60: 6NO 01: 1NC 02: 2NC 03: 3NC 04: 4NC 05: 5NC 06: 6NC 11: 1NO 1NC 22: 2NO 2NC 33: 3NO 3NC
4	Operating mechanism	No marking: momentary button T: latching button M: mushroom button ML: pulling-releasing mushroom button ZL: pulling-releasing emergency stop button ZR: rotating-releasing emergency stop button ZY: key-releasing emergency stop button ZLA: pulling-releasing trigger emergency stop button ZRA: rotating-releasing trigger emergency stop button ZYA: key-releasing trigger emergency stop button Y: two-position key switch YS: three-position key switch X: short-handle two-position selector XS: short-handle three-position selector CX: long-handle two-position selector CXS: long-handle three-position selector R: on-off button (high-position type) RP: on-off button (flat head type)
5	Angle of positioning	Two-position selector and key switch angle value No marking: 90° V-shaped 9: 9-12 Clock Three-position selector and key switch angle value 6: 2×60° type
6	Illuminated button	No marking: no illumination D: illuminated
7	Button lettering	No marking: no lettering Sxy: select the symbol to be inserted from Pages 37 & 38 of the sample S99: special symbol to be customized (button lettering applies to all products that can be lettered)
8	Color	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k
9	Voltage code	No marking: no illumination 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: DC 220V 31: AC 220V 32: AC 380V
10	Key pulling-out position	No marking: no lock L: left pulling out C: center pulling out R: right pulling out E: pulling out at any position
11	Action function	No marking: positioning type of selector and key switch f: left spring return type of selector and key switch fu: right spring return type of selector and key switch ffu: left & right spring return type of selector and key switch
12	Head shape	No marking: flat head H: high-position
13	Mushroom head diameter	No marking: Φ40mm 30: Φ30mm 60: Φ60mm

◎ Component order code description

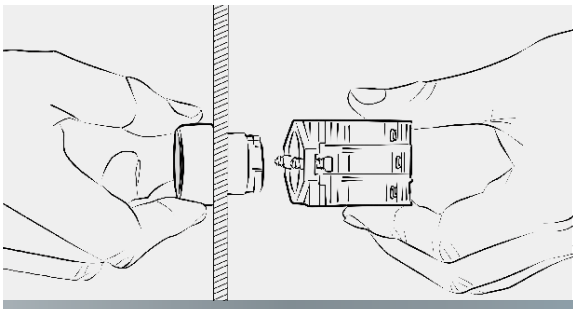
No.	Luminous element	Button head	Button middle seat
	PB1 — F — D □ □ 1 2 3 4 5	PB1 □ — AA □ / □ 1 2 3 4 5	PB1 — F — Z □ 1 2 3 4
1	Button order code	Button order code	Button order code
2	Button component	S: metal	L: metalized
3	Luminous element	Button head	Middle seat
4	Color	Operating mechanism	S: metal P: plastic
5	Voltage code	Color	

Remark: For specific order code of selector and key switch, refer to accessory description.

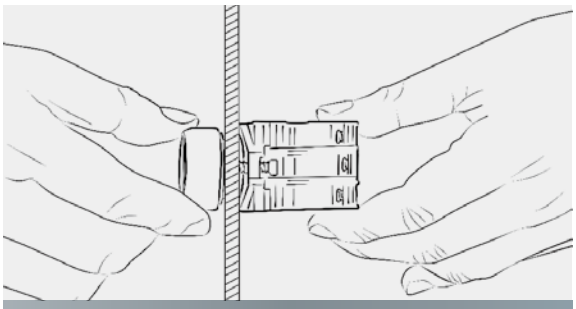
◎ Technical feature

Compliance	GB/T 14048.1 GB/T 14048.5 IEC60947-5-1								
Rated insulation voltage	600V, 50Hz Lighting module: 440V, 50Hz								
Power frequency withstand voltage	AC 1890V 50Hz · 1min								
Conventional thermal current	10A								
Rated contact capacity	Usage category	Rated working voltage Ue			24V	48V	110V	220V	380V	440V
	AC-12	Rated working current Ie			10A	-	10A	10A	10A	10A
	DC-12				10A	8A	3.5A	1A	-	-
	AC-15				6A	-	6A	6A	4A	4A
	DC-13				6A	4A	1.2A	0.4A	-	-
Rated value of the illuminated button	Voltage code	21	22	23	24	25	26	28	31	32
	Voltage (V)	AC/DC 6V	AC/DC 12V	AC/DC 24V	AC/DC 36V	AC/DC 48V	AC/DC 110V	DC 220V	AC 220V	AC 380V
	Current (mA)	≤30mA	≤30mA	≤20mA	≤20mA	≤20mA	≤20mA	≤20mA	≤20mA	≤15mA
Pollution grade	Grade 3									
Mechanical endurance	3 million times for normal button, mushroom button and illuminated button 50,000 times for key switch and emergency stop button 300,000 times for selector, compact button, on-off button and latching button 3 million times for switching element									
Action frequency	1,200 times/hour									
Electrical endurance	500,000 times Ie/AC-15 at 6A/220V/230V Minimum load: DC24V 5mA									
Ambient temperature	Working temperature -25° C~+70° C Storage & transport temperature -40° C~+80° C									
Protection class	IP65 IP20 for switching element and lighting element									
Anti-impact class	Duration 11ms Max. acceleration 15g Compliance with IEC60068 2-27									
Anti-vibration class	Max. acceleration 15g Frequency range 10~500Hz Compliance with IEC60068 2-6									
Contact material	Silver-nickel alloy									

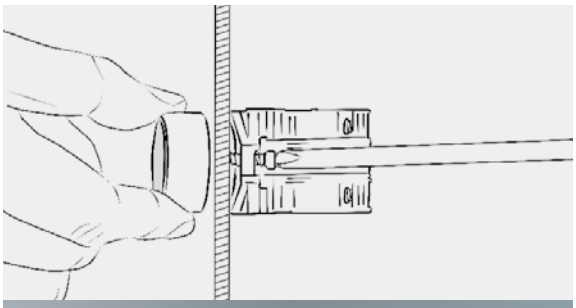
◎ Installation method



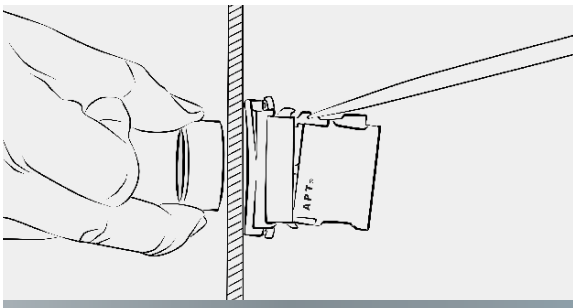
1. Insert the operating head into the installation hole from the front of the panel.



2. Screw it into the middle seat at the back of the panel.

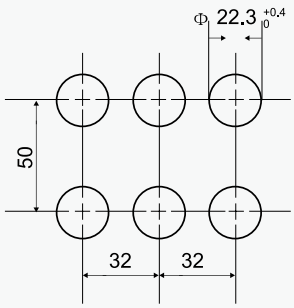
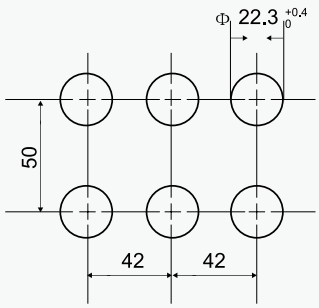


3. Then tighten the fastening screws on both sides evenly.



4. Removal of switching element or lighting element: Lift the hasp of the lock installation system with a straight screwdriver to disassemble the installed components at will.。

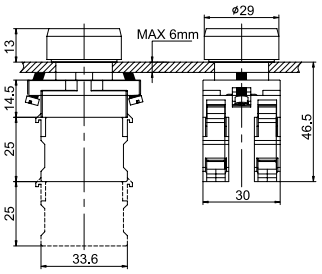
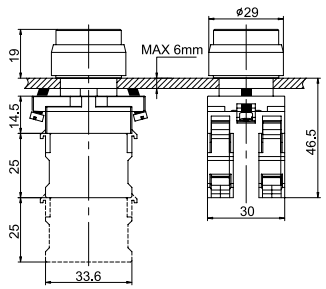
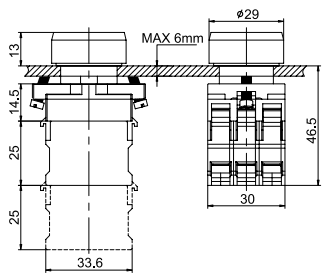
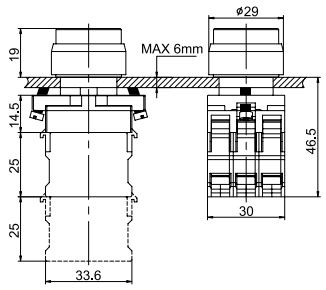
◎ Installation hole dimensions

Normal button	Emergency stop button, mushroom button and long-handle selector
	

Precautions

- The tightening torque of the wiring screw for switching element is 0.8~1.0Nm.
- The screw tightening torque for the metal installation middle seat shall not be over 1Nm, and that for the metalized installation middle seat shall not be over 0.8Nm.
- If the switching element or lighting element is installed by the user, after installation, the user shall check whether the hasp of the switching element or lighting element is fully engaged.

◎ PB1S series pushbutton

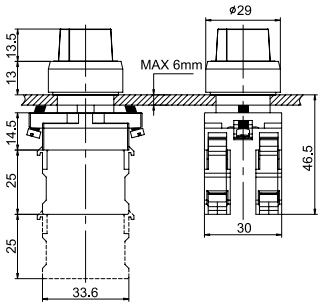
Name	Type	Working status	Order code	Color	Light voltage	Dimension
Normal button		Momentary	PB1S- ■ / ▲	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k		
		Latching	PB1S- ■ T/ ▲			
High-position button		Momentary	PB1S- ■ / ▲ -H			
		Latching	PB1S- ■ T/ ▲ -H			
Normal illuminated button		Momentary	PB1S- ■ D/ ▲★		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-DC 220V 31-AC 220V 32-AC 380V	
		Latching	PB1S- ■ TD/ ▲★			
High-position illuminated button		Momentary	PB1S- ■ D/ ▲★ -H			
		Latching	PB1S- ■ TD/ ▲★ -H			

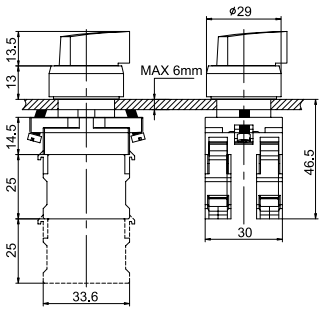
Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash and indicate the light voltage grade at ★ .

◎ PB1S series pushbutton

Name	Type	Working status	Order code		Color	Dimension
Short-handle selector		Two-position	Positioning L R 90°	PB1S- ■ X/ ▲	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k	
			Right spring return L R 90°	PB1S- ■ X/ ▲ fu		
		Three-position	Positioning L R 60° 60°	PB1S- ■ XS6/ ▲		
			Left spring return L R 60° 60°	PB1S- ■ XS6/ ▲ f		
			Right spring return L R 60° 60°	PB1S- ■ XS6/ ▲ fu		
			Left & right spring return L R 60° 60°	PB1S- ■ XS6/ ▲ ffu		
Long-handle selector		Two-position	Positioning L R 90°	PB1S- ■ CX/ ▲		
			Right spring return L R 90°	PB1S- ■ CX/ ▲ fu		
		Three-position	Positioning L R 60° 60°	PB1S- ■ CXS6/ ▲		
			Left spring return L R 60° 60°	PB1S- ■ CXS6/ ▲ f		
			Right spring return L R 60° 60°	PB1S- ■ CXS6/ ▲ fu		
			Left & right spring return L R 60° 60°	PB1S- ■ CXS6/ ▲ ffu		



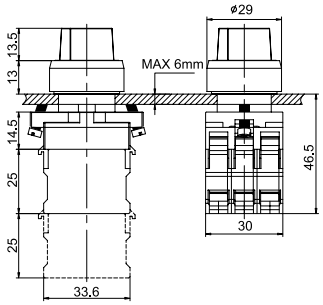
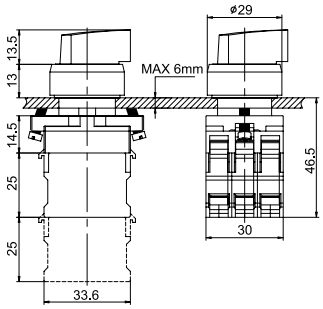


Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash.

PB1S

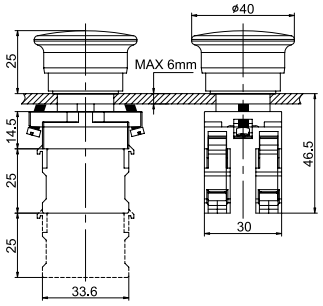
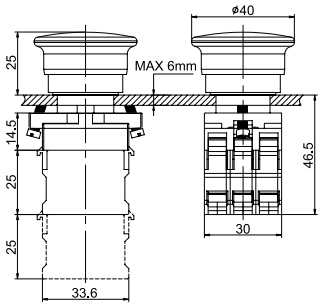
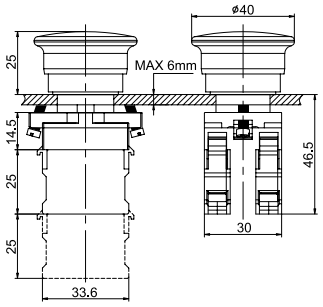
◎ PB1S series pushbutton

Name	Type	Working status	Order code		Color/light voltage	Dimension
Short-handle illuminated selector		Two-position	Positioning L R 90°	PB1S- ■ XD/ ▲★	● 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-DC 220V 31-AC 220V 32-AC 380V	
			Right spring return L R 90°	PB1S- ■ XD/ ▲★ fu		
		Three-position	Positioning L R 60° 60°	PB1S- ■ XS6D/ ▲★		
			Left spring return L R 60° 60°	PB1S- ■ XS6D/ ▲★ f		
			Right spring return L R 60° 60°	PB1S- ■ XS6D/ ▲★ fu		
			Left & right spring return L R 60° 60°	PB1S- ■ XS6D/ ▲★ ffu		
Long-handle illuminated selector		Two-position	Positioning L R 90°	PB1S- ■ CXD/ ▲★		
			Right spring return L R 90°	PB1S- ■ CXD/ ▲★ fu		
		Three-position	Positioning L R 60° 60°	PB1S- ■ CXS6D/ ▲★		
			Left spring return L R 60° 60°	PB1S- ■ CXS6D/ ▲★ f		
			Right spring return L R 60° 60°	PB1S- ■ CXS6D/ ▲★ fu		
			Left & right spring return L R 60° 60°	PB1S- ■ CXS6D/ ▲★ ffu		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash and indicate the light voltage grade at ★ .

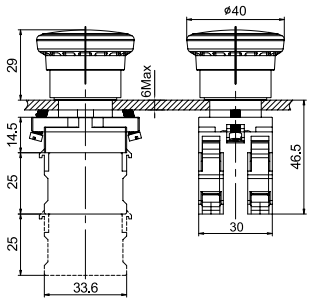
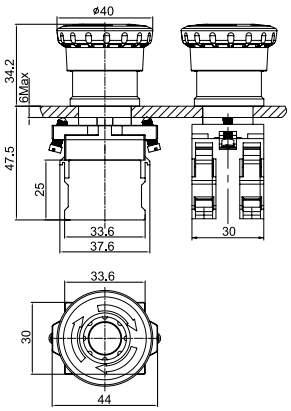
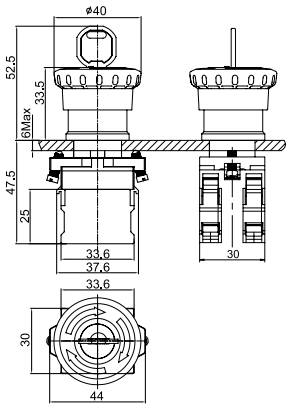
◎ PB1S series pushbutton

Name	Type	Working status	Order code	Color	Light voltage	Dimension
Mushroom button		Momentary	PB1S- ■ M/ ▲	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k		
Illuminated mushroom button			PB1S- ■ MD/ ▲★	● 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-DC 220V 31-AC 220V 32-AC 380V	
Pulling-releasing mushroom button Note: the head diameter is either Φ 40mm or Φ 60mm.		Latching	PB1S- ■ ML/ ▲	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash and indicate the light voltage grade at ★.
- Mushroom head diameter: no marking: Φ40mm、30: Φ30mm、60: Φ60mm。

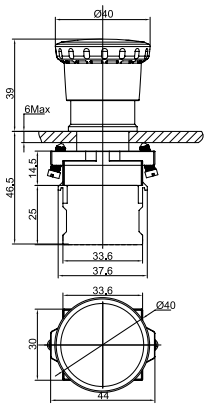
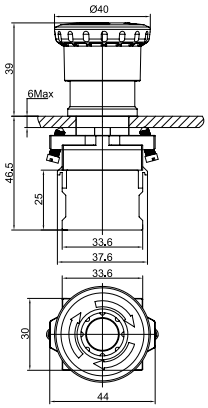
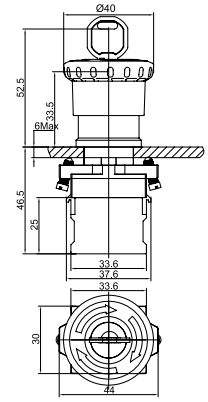
◎ PB1S series pushbutton

Name	Type	Working status	Order code	Color	Dimension
Pulling-releasing emergency stop button			PB1S- ■ ZL/ ▲		
Rotating-releasing emergency stop button		Latching	PB1S- ■ ZR/ ▲	● Red-r	
Key-releasing emergency stop button			PB1S- ■ ZY/ ▲		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash.
- The pulling-releasing series has the specification of Φ 40mm only, rotating-releasing series and key-releasing series have the specifications of Φ 30mm and Φ 40mm.

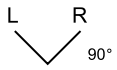
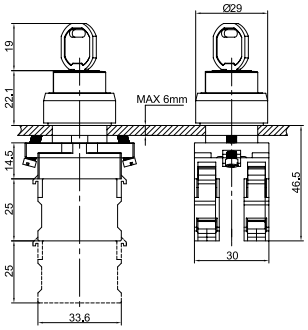
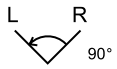
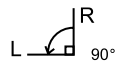
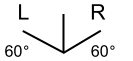
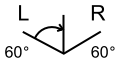
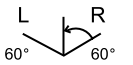
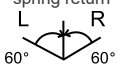
◎ PB1S series pushbutton

Name	Type	Working status	Order code	Color	Dimension
Pulling-releasing trigger emergency stop button			PB1S- ■ ZLA/ ▲		
Rotating-releasing trigger emergency stop button		Latching	PB1S- ■ ZRA/ ▲	● Red-r	
Key-releasing trigger emergency stop button			PB1S- ■ ZYA/ ▲		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash.
- The trigger type emergency stop button series has the specification of Ø40mm only.
- At most two switching elements can be installed on the trigger type emergency stop button series products due to structural limits.

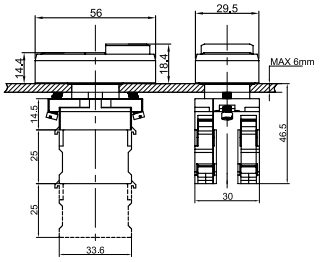
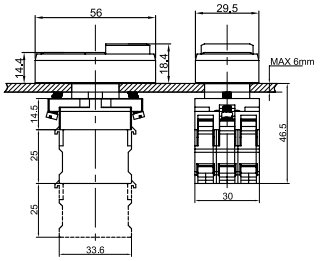
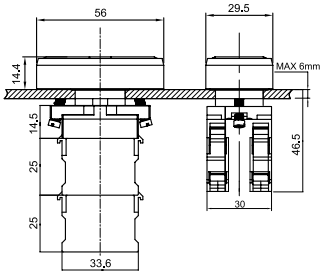
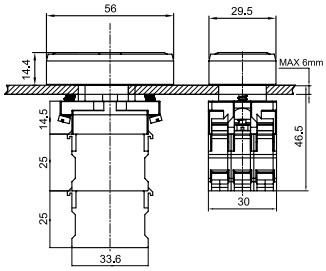
◎ PB1S series pushbutton

Name	Type	Working status	Order code		Key pulling-out position	Dimension
Key switch		Two-position	Positioning 	PB1S- ■ Y/ ▲	L: left pulling out C: center pulling out R: right pulling out E: pulling out at any position	
			Right spring return 	PB1S- ■ Y/ ▲ fu		
			Right spring return 	PB1S- ■ Y9/ ▲ fu		
		Three-position	Positioning 	PB1S- ■ YS6/ ▲		
			Left spring return 	PB1S- ■ YS6/ ▲ f		
			Right spring return 	PB1S- ■ YS6/ ▲ fu		
			Left & right spring return 	PB1S- ■ YS6/ ▲ ffu		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the key pulling-out position at ▲ behind the slash.
- The key pulling-out position cannot be the spring return action position for spring return key switch.

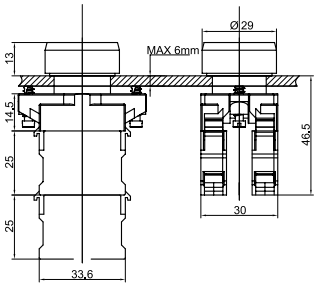
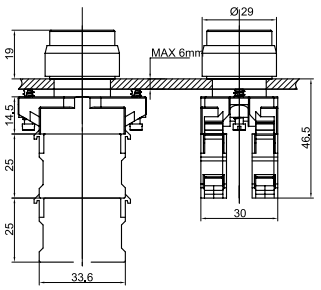
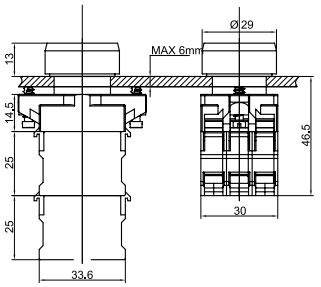
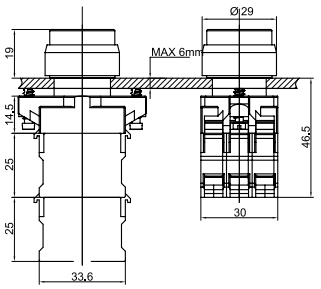
◎ PB1S series pushbutton

Name	Type	Order code	Button sheet color	Light voltage	Dimension
High-position on-off button		PB1S- ■ R/ ▲▲	● Red-r ● Green-g		
High-position illuminated on-off button		PB1S- ■ RD/ ▲▲□★		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-DC 220V 31-AC 220V 32-AC 380V	
Flat-head on-off button		PB1S- ■ RP/ ▲▲			
Flat-head illuminated on-off button		PB1S- ■ RPD/ ▲▲□★		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-DC 220V 31-AC 220V 32-AC 380V	

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the button sheet color at ▲ in the first and second digits behind the slash, indicate the light color at ■ in the third digit (● optional red-r, ● green-g. ● yellow-y, ○ white-w and ● blue-b, transparent lampshade by default), and indicate the light voltage grade at ★ in the fourth digit.

◎ PB1L series pushbutton

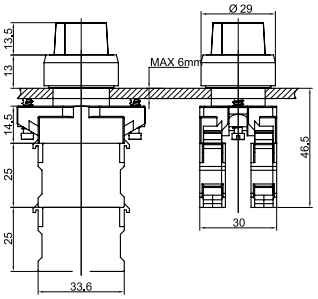
Name	Type	Working status	Order code	Color	Light voltage	Dimension
Normal button		Momentary	PB1L- ■ / ▲	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k		
		Latching	PB1L- ■ T/ ▲			
High-position button		Momentary	PB1L- ■ / ▲ -H			
		Latching	PB1L- ■ T/ ▲ -H			
Normal illuminated button		Momentary	PB1L- ■ D/ ▲★	● 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-DC 220V 31-AC 220V 32-AC 380V	
		Latching	PB1L- ■ TD/ ▲★			
High-position illuminated button		Momentary	PB1L- ■ D/ ▲★ -H			
		Latching	PB1L- ■ TD/ ▲★ -H			

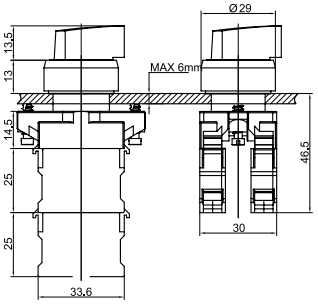
Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash and indicate the light voltage grade at ★ .

◎ PB1L series pushbutton

Name	Type	Working status	Order code		Color	Dimension
Short-handle selector		Two-position	Positioning L R 90°	PB1L- ■ X/ ▲	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k	
			Right spring return L R 90°	PB1L- ■ X/ ▲ fu		
		Three-position	Positioning L R 60° 60°	PB1L- ■ XS6/ ▲		
			Left spring return L R 60° 60°	PB1L- ■ XS6/ ▲ f		
			Right spring return L R 60° 60°	PB1L- ■ XS6/ ▲ fu		
			Left & right spring return L R 60° 60°	PB1L- ■ XS6/ ▲ ffu		
Long-handle selector		Two-position	Positioning L R 90°	PB1L- ■ CX/ ▲		
			Right spring return L R 90°	PB1L- ■ CX/ ▲ fu		
		Three-position	Positioning L R 60° 60°	PB1L- ■ CXS6/ ▲		
			Left spring return L R 60° 60°	PB1L- ■ CXS6/ ▲ f		
			Right spring return L R 60° 60°	PB1L- ■ CXS6/ ▲ fu		
			Left & right spring return L R 60° 60°	PB1L- ■ CXS6/ ▲ ffu		

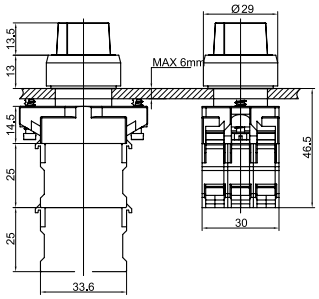
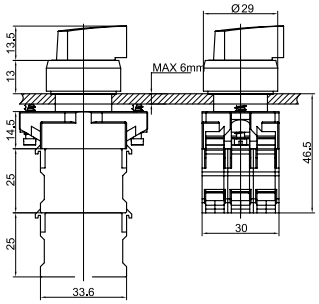




Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash.

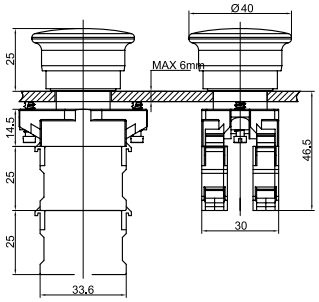
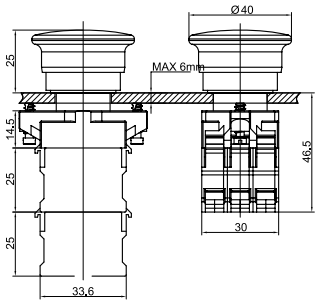
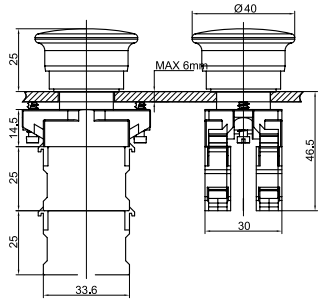
◎ PB1L series pushbutton

Name	Type	Working status	Order code		Color/light voltage	Dimension
Short-handle illuminated selector		Two-position	Positioning L R 90°	PB1L- ■ XD/ ▲★	● 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-DC 220V 31-AC 220V 32-AC 380V	
			Right spring return L R 90°	PB1L- ■ XD/ ▲★ fu		
		Three-position	Positioning L R 60° 60°	PB1L- ■ XS6D/ ▲★		
			Left spring return L R 60° 60°	PB1L- ■ XS6D/ ▲★ f		
			Right spring return L R 60° 60°	PB1L- ■ XS6D/ ▲★ fu		
			Left & right spring return L R 60° 60°	PB1L- ■ XS6D/ ▲★ ffu		
Long-handle illuminated selector		Two-position	Positioning L R 90°	PB1L- ■ CXD/ ▲★		
			Right spring return L R 90°	PB1L- ■ CXD/ ▲★ fu		
		Three-position	Positioning L R 60° 60°	PB1L- ■ CXS6D/ ▲★		
			Left spring return L R 60° 60°	PB1L- ■ CXS6D/ ▲★ f		
			Right spring return L R 60° 60°	PB1L- ■ CXS6D/ ▲★ fu		
			Left & right spring return L R 60° 60°	PB1L- ■ CXS6D/ ▲★ ffu		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash and indicate the light voltage grade at ★ .

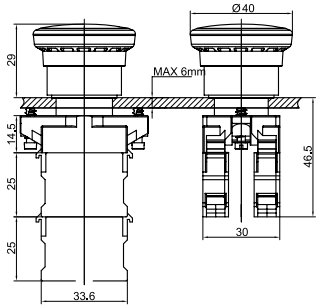
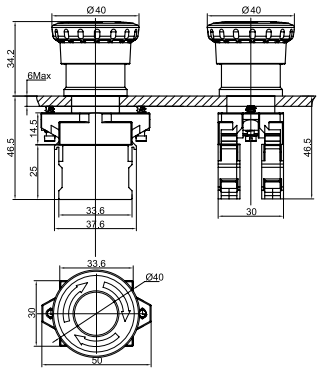
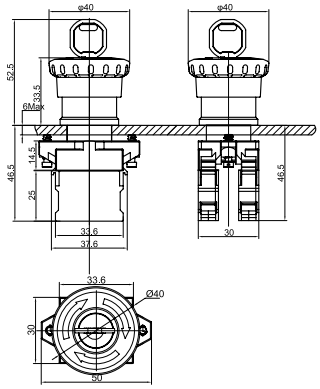
◎ PB1L series pushbutton

Name	Type	Working status	Order code	Color	Light voltage	Dimension
Mushroom button		Momentary	PB1L- ■ M/ ▲	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k		
Illuminated mushroom button			PB1L- ■ MD/ ▲★	● 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-DC 220V 31-AC 220V 32-AC 380V	
Pulling-releasing mushroom button Note: the head diameter is either Φ 40mm or Φ 60mm.		Latching	PB1L- ■ ML/ ▲	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash and indicate the light voltage grade at ★.
- Mushroom head diameter: no marking: Φ40mm、30: Φ30mm、60: Φ60mm。

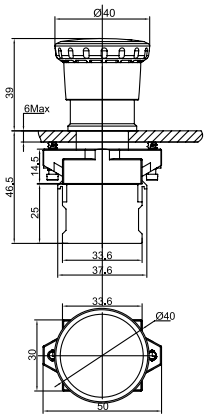
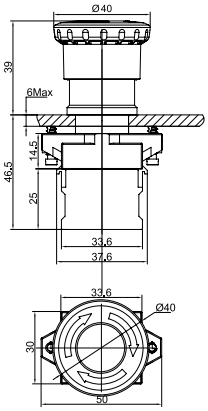
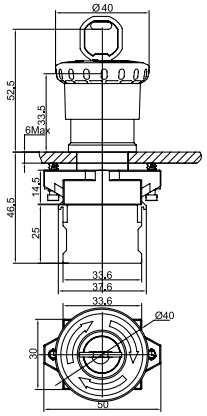
◎ PB1L series pushbutton

Name	Type	Working status	Order code	Color	Dimension
Pulling-releasing emergency stop button		Latching	PB1L- ■ ZL/ ▲	● Red-r	
Rotating-releasing emergency stop button			PB1L- ■ ZR/ ▲		
Key-releasing emergency stop button			PB1L- ■ ZY/ ▲		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash.
- The pulling-releasing series has the specification of Φ 40mm only, rotating-releasing series and key-releasing series have the specifications of Φ 30mm and Φ 40mm.

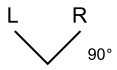
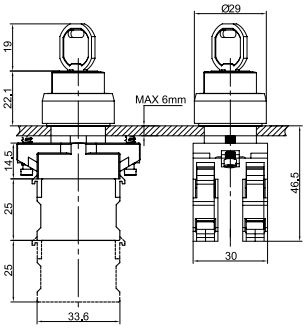
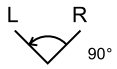
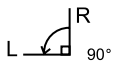
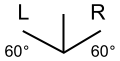
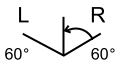
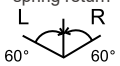
◎ PB1L series pushbutton

Name	Type	Locking Type	Order code	Color	Dimension
Pulling-releasing trigger emergency stop button			PB1L- ■ ZLA/ ▲		
Rotating-releasing trigger emergency stop button		Latching	PB1L- ■ ZRA/ ▲	● Red-r	
Key-releasing trigger emergency stop button			PB1L- ■ ZYA/ ▲		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash.
- The trigger type emergency stop button series has the specification of Ø40mm only.
- At most two switching elements can be installed on the trigger type emergency stop button series products due to structural limits.

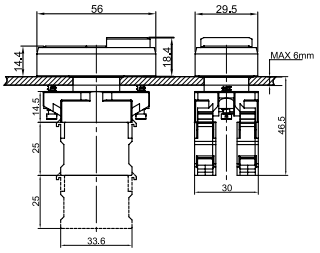
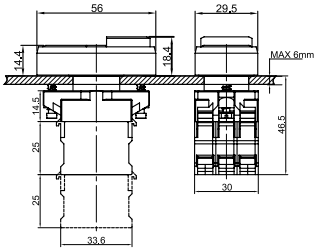
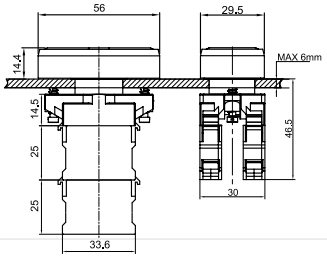
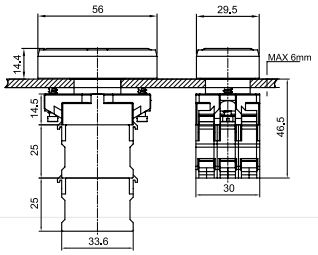
◎ PB1L series pushbutton

Name	Type	Working status	Order code		Key pulling-out position	Dimension
Key switch		Two-position	Positioning 	PB1L- ■ Y/ ▲	L: left pulling out C: center pulling out R: right pulling out E: pulling out at any position	
			Right spring return 	PB1L- ■ Y/ ▲ fu		
			Right spring return 	PB1L- ■ Y9/ ▲ fu		
		Three-position	Positioning 	PB1L- ■ YS6/ ▲		
			Left spring return	PB1L- ■ YS6/ ▲ f		
			Right spring return 	PB1L- ■ YS6/ ▲ fu		
			Left & right spring return 	PB1L- ■ YS6/ ▲ ffu		

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the key pulling-out position at ▲ behind the slash.
- The key pulling-out position cannot be the spring return action position for spring return key switch.

◎ PB1L series pushbutton

Name	Type	Order code	Button sheet color	Light voltage	Dimension
High-position on-off button		PB1L- ■ R/ ▲▲	● Red-r ● Green-g		
High-position illuminated on-off button		PB1L- ■ RD/ ▲▲□★		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-DC 220V 31-AC 220V 32-AC 380V	
Flat-head on-off button		PB1L- ■ RP/ ▲▲			
Flat-head illuminated on-off button		PB1L- ■ RPD/ ▲▲□★		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-DC 220V 31-AC 220V 32-AC 380V	

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the button sheet color at ▲ in the first and second digits behind the slash, indicate the light color at ■ in the third digit (● optional red-r, ● green-g. ● yellow-y, ○ white-w and ● blue-b, transparent lampshade by default), and indicate the light voltage grade at ★ in the fourth digit.

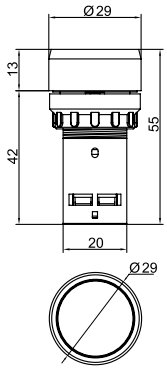
◎ PB1J pushbutton order code description

No.	PB1 J(1) — □(2) / □(3) □(4)	
1	S/N	J: compact type
2	Contact composition	10: 1NO 20: 2NO 01: 1NC 02: 2NC 11: 1NO 1NC
3	Color	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k
4	Button lettering	No marking: no lettering S99: special lettering contents (a figure needs to be attached)

◎ Technical feature

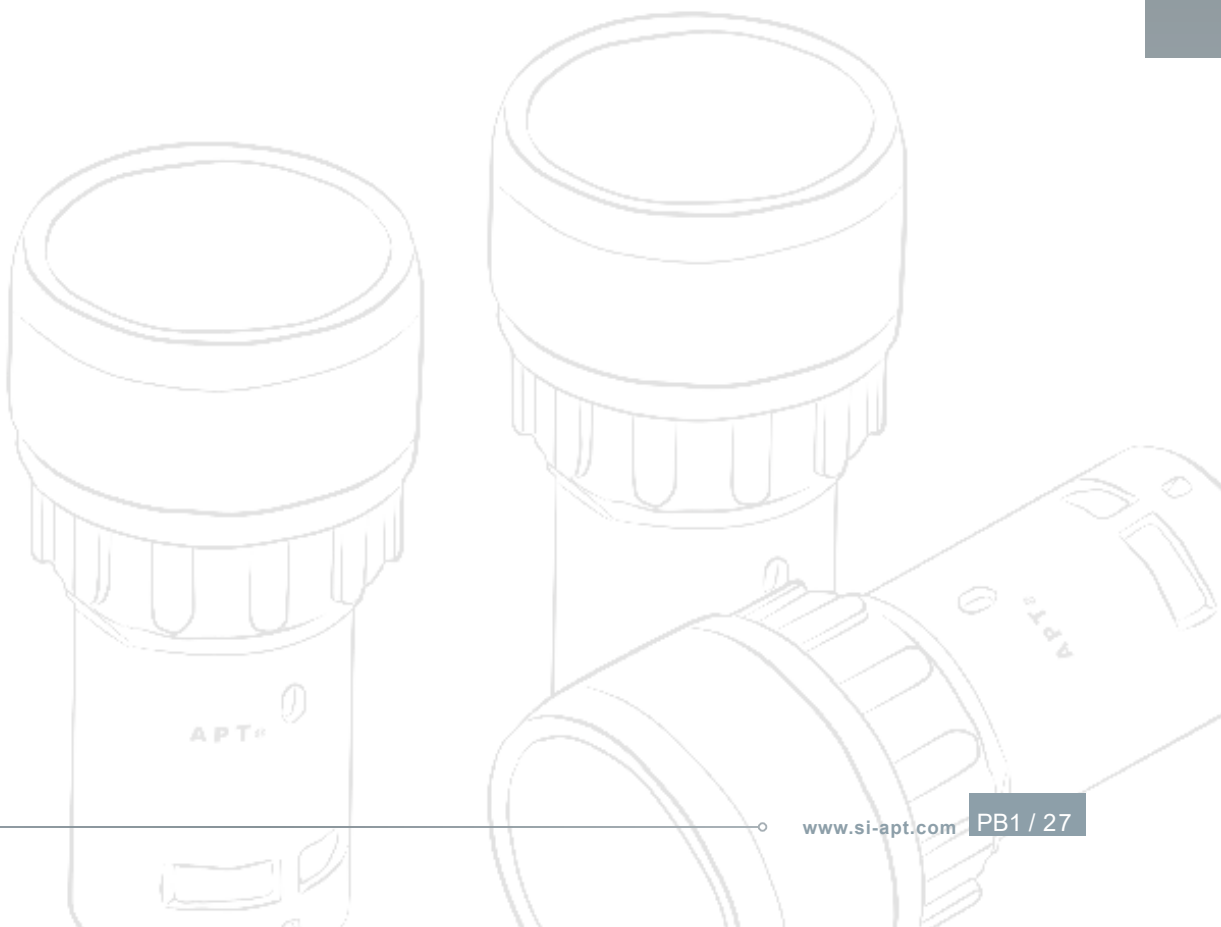
Compliance	GB/T 14048.1 GB/T 14048.5 IEC60947-5-1
Rated insulation voltage	300V, 50Hz
Power frequency withstand voltage	AC 1500V 50Hz · 1min
Conventional thermal current	5A
Rated load	AC-15 230V 2A DC-13 24V 1A
Pollution grade	Grade 3
Mechanical endurance	300,000 times
Electrical endurance	100,000 times AC-15/DC-13 230V/50VA 24V/6VA
Ambient temperature	Working temperature -25℃～ +70℃ Storage & transport temperature-40℃～ +80℃
Protection class	IP65
Anti-impact class	Duration 11ms Max. acceleration 15g Compliance with IEC60068 2-27
Anti-vibration class	Max. acceleration 15g Frequency range 10~500Hz Compliance with IEC60068 2-6
Contact material	Silver-nickel alloy

◎ PB1J pushbutton

Name	Type	Working status	Order code	Color	Dimension
Normal button		Momentary	PB1J- ■ / ▲	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k	

Note

- Indicate the number of NO/NC contacts at ■ before the slash.
- Indicate the color at ▲ behind the slash.
- The drawing shall be provided when placing an order for specially lettered pushbutton products.



APT

PL1 Series
Indicator

Product Features

- The material complies with EU RoHS standard requirements.
- The product can be installed conveniently with a reliable structure.
- The head protection class is IP65.

CE RoHS

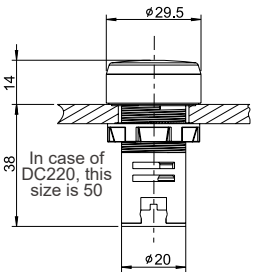
◎ PL1-D pushbutton order code description

No.	PL1-D □ / □ □ (1 / 2 3)	
1	Indicator lettering	No marking: no symbol mark Sxy: select the symbol to be inserted from Pages 37 & 38 of the sample S99: special symbol to be customized
2	Color	● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k
3	Voltage code	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-DC 220V 31-AC 220V 32-AC 380V

◎ Technical feature

Compliance	GB/T 14048.1 GB/T 14048.5 IEC60947-5-1									
Rated insulation voltage	AC440V DC250V									
Rated impulse withstand voltage	6kV									
Rated value of indicator	Voltage code	21	22	23	24	25	26	28	31	32
	Voltage (V)	AC/DC 6V	AC/DC 12V	AC/DC 24V	AC/DC 36V	AC/DC 48V	AC/DC 110V	DC 220V	AC 220V	AC 380V
	Current (mA)	≤45mA	≤45mA	≤20mA	≤20mA	≤20mA	≤15mA	≤15mA	≤20mA	≤20mA
Continuous working endurance	≥ 30,000 hours									
Insulation resistance	≥2MΩ									
Ambient temperature	Working temperature -25℃～ +70℃ Storage & transport temperature -40℃～ +80℃									
Allowable voltage fluctuation	+10% below 110V +20% above 110V									
Light brightness	≥100cd/m2									
Relative discharge tracking index	CTI≥175									
Use frequency	50~60Hz									
Protection class	IP65									
Vibration frequency	Work normally under the vibration frequency of 2-80Hz and acceleration of 0.7g									
Relative air humidity	≤98%									
Pollution grade	Grade 3									
Tightening torque of wiring screw	0.8~1.2Nm									
Specification of the connecting conductor	Max.1.5mm2，Min.1.0mm2，in the quantity of 2 at most									

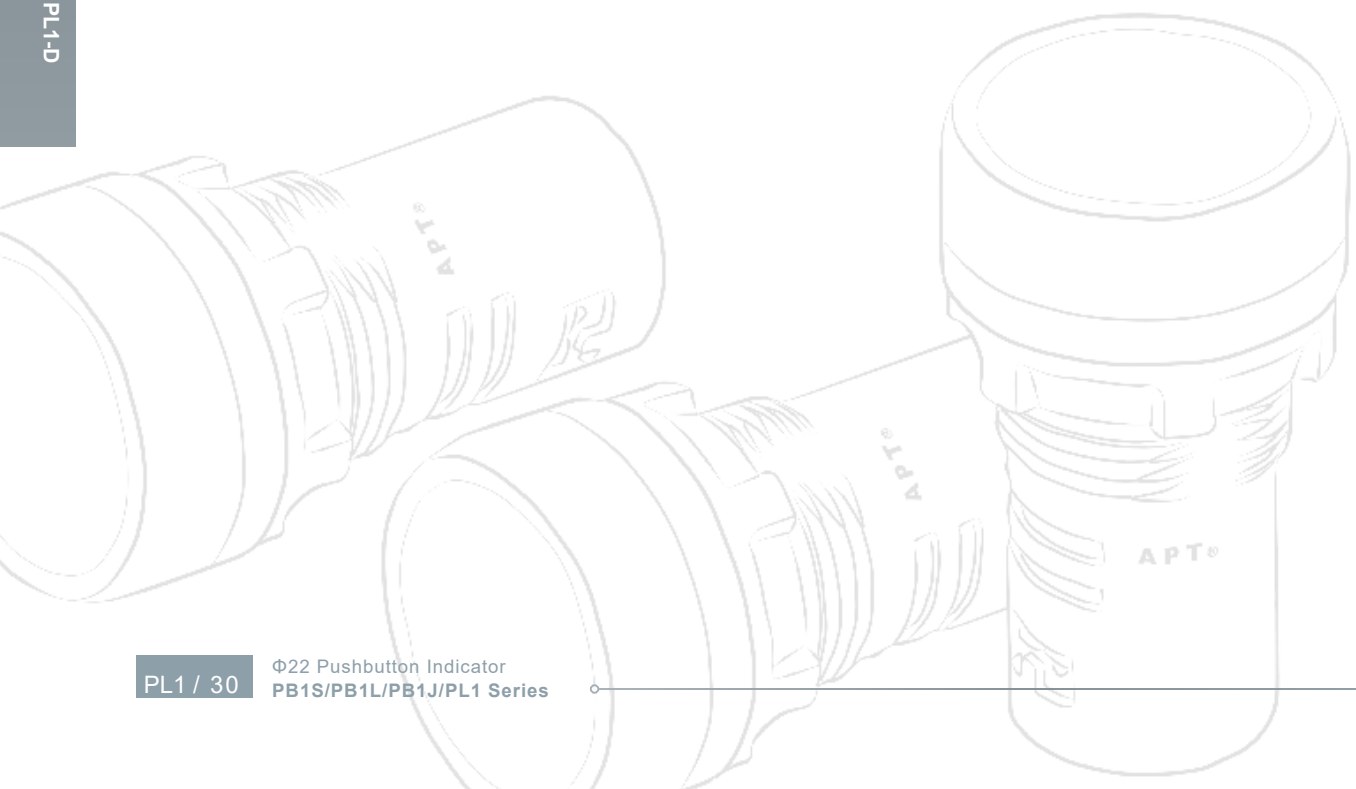
◎ PL1-D indicator

Name	Type	Order code	Color	Light voltage	Dimension
Indicator		PL1-D ■ / ▲★	● 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-DC 220V 31-AC 220V 32-AC 380V	

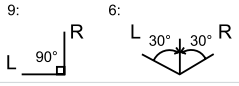
Note

- Indicate the marking code at ■ before the slash (no marking if no symbol mark).
- Indicate the color at ▲ behind the slash and indicate the voltage code at ★
- LED light can only be used with APT signaling unit.

PL1-D



Accessories

Name	Type	Order code		Note	Function
Normal button head		PB1S-AA/ ▲ PB1L-AA/ ▲		▲ indicates the color ● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k	Operating mechanism of pushbutton
Latching button head		PB1S-AAT/ ▲ PB1L-AAT/ ▲			
Illuminated button head		PB1S-AAD/ ▲ PB1L-AAD/ ▲		▲ indicates the color ● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b	
Illuminated latching button head		PB1S-AATD/ ▲ PB1L-AATD/ ▲			
High-position button head		PB1S-AA/ ▲ -H PB1L-AA/ ▲ -H		▲ indicates the color ● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k	
High-position latching button head		PB1S-AAT/ ▲ -H PB1L-AAT/ ▲ -H			
High-position illuminated button head		PB1S-AAD/ ▲ -H PB1L-AAD/ ▲ -H		▲ indicates the color ● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b	
High-position illuminated latching button head		PB1S-AATD/ ▲ -H PB1L-AATD/ ▲ -H			
Short-handle selector head		Two-position	PB1S-AAX/ ▲ PB1L-AAX/ ▲	▲ indicates the color ● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k The reset function code is filled in directly behind the color	
		Three-position	PB1S-AAXS6/ ▲ PB1L-AAXS6/ ▲		
Long-handle selector head		Two-position	PB1S-AACX/ ▲ PB1L-AACX/ ▲		
		Three-position	PB1S-AACXS6/ ▲ PB1L-AACXS6/ ▲		
Short-handle illuminated selector head		Two-position	PB1S-AAXD/ ▲ PB1L-AAXD/ ▲	▲ indicates the color ● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b The reset function code is filled in directly behind the color	
		Three-position	PB1S-AAXS6D/ ▲ PB1L-AAXS6D/ ▲		
Long-handle illuminated selector head		Two-position	PB1S-AACXD/ ▲ PB1L-AACXD/ ▲		
		Three-position	PB1S-AACXS6D/ ▲ PB1L-AACXS6D/ ▲		
Key switch head		Two-position	PB1S-AAY/ PB1L-AAY/ PB1S-AAY9/ PB1L-AAY9/	Fill in the key pulling-out position and reset function code directly behind "/" 	
		Three-position	PB1S-AAYS6/ PB1L-AAYS6/		

◎ Accessories

Name	Type	Order code			Note	Function
Mushroom button head		30mm	Momentary	PB1S-AAM/ ▲ -30 PB1L-AAM/ ▲ -30	▲ indicates the color ● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k	Operating mechanism of pushbutton
		40mm		PB1S-AAM/ ▲ PB1L-AAM/ ▲		
		60mm		PB1S-AAM/ ▲ -60 PB1L-AAM/ ▲ -60		
Illuminated mushroom button head		30mm	PB1S-AAMD/ ▲ -30 PB1L-AAMD/ ▲ -30		▲ indicates the color ● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b	
		40mm	PB1S-AAMD/ ▲ PB1L-AAMD/ ▲			
		60mm	PB1S-AAMD/ ▲ -60 PB1L-AAMD/ ▲ -60			
Pulling-type mushroom button head		40mm	PB1S-AAML/ ▲ PB1L-AAML/ ▲		▲ indicates the color ● Red-r ● Green-g ● Yellow-y ○ White-w ● Blue-b ● Black-k	
		60mm	PB1S-AAML/ ▲ -60 PB1L-AAML/ ▲ -60			
Pulling-releasing emergency stop button head		40mm	PB1S-AAZL/r PB1L-AAZL/r		● Red-r	
Trigger-type pulling-releasing emergency stop button head		40mm	PB1S-AAZLA/r PB1L-AAZLA/r			
Rotating-releasing emergency stop button head		30mm	PB1S-AAZR/r-30 PB1L-AAZR/r-30			
		40mm	PB1S-AAZR/r PB1L-AAZR/r			
Trigger-type rotating-releasing emergency stop button head		40mm	PB1S-AAZRA/r PB1L-AAZRA/r			
Key-releasing emergency stop button head		30mm	PB1S-AAZY/r-30 PB1L-AAZY/r-30			
		40mm	PB1S-AAZY/r PB1L-AAZY/r			
Trigger-type key-releasing emergency stop button head		40mm	PB1S-AAZYA/r PB1L-AAZYA/r			

Accessories

Name	Type	Order code	Note	Function
High-position on-off button head		PB1S-AAR/ ▲▲ PB1L-AAR/ ▲▲	▲ indicates the color ● Red-r ● Green-g	Operating mechanism of pushbutton
High-position illuminated on-off button head		PB1S-AARD/ ▲▲ PB1L-AARD/ ▲▲		
Flat-head on-off button head		PB1S-AARP/ ▲▲ PB1L-AARP/ ▲▲		
Flat-head illuminated on-off button head		PB1S-AARPD/ ▲▲ PB1L-AARPD/ ▲▲		

◎ Accessories

Name	Type	Order code	Note	Function
Switching element		PB1-F-C10	1NO contact	Installed at the tail of the button for increasing or reducing contacts.
		PB1-F-C01	1NC contact	
Lighting element		PB1-F-D ▲★	▲ indicates the color ★ indicates the voltage grade of lighting elements	Installed at the tail of the button, used for illuminated button.
Auxiliary element		PB1-F-C00	No contact (optional)	Installed in the middle of switching elements for limit.
Middle seat		PB1-F-ZS	S: metal	Used to fix the button head, switching element and lighting element. (two middle seats cannot be used commonly)
		PB1-F-ZP	P: plastic	
Mounting plate		PB1-F-M	Optional	Optional in case of thin panel or plastic panel.
Seal cover		F1		Installed at the head of button, waterproof and dustproof.
Protective cover		F2		Installed at the head of button, to prevent collision and misoperation.

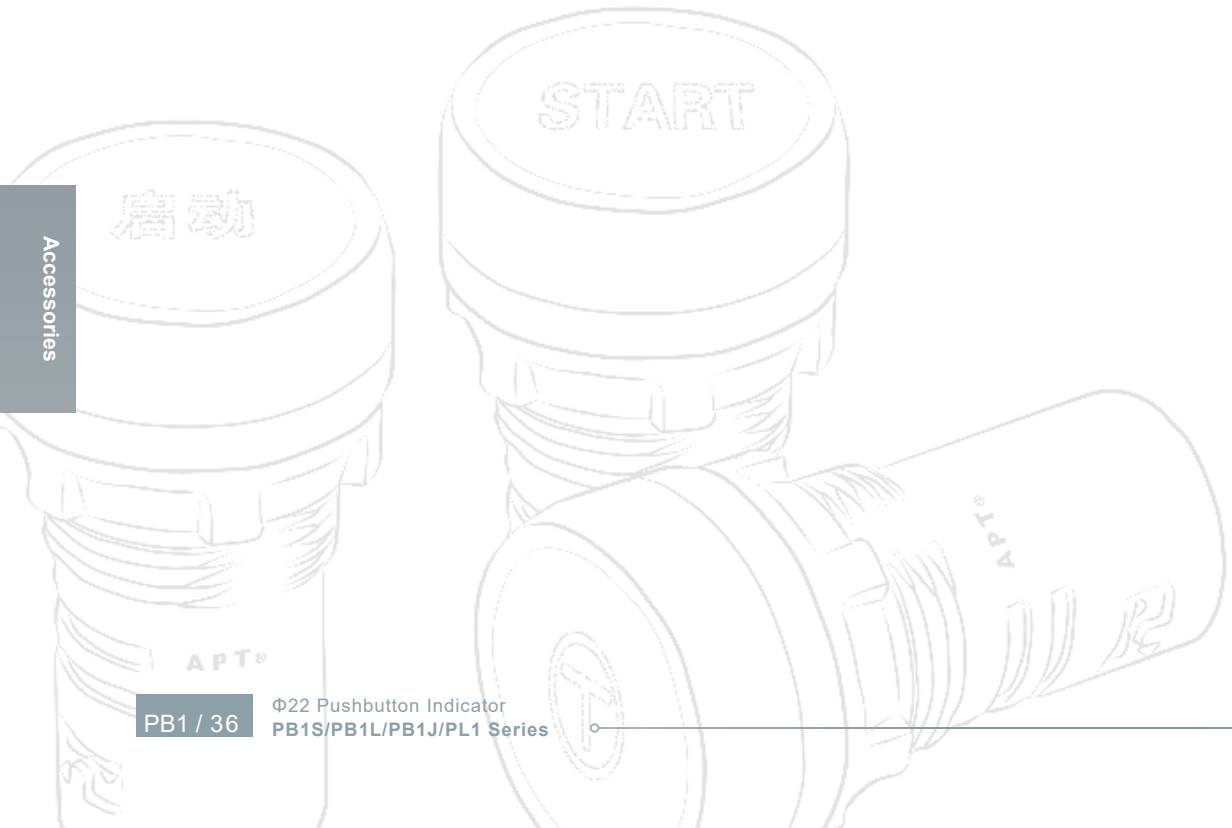
Note: LED light can only be used with APT signaling unit.

◎ Accessories

Name	Type	Order code		Note	Function
Protective cap		F3-1		Optional	Installed at the head of flat-head round button to prevent collision and misoperation. It can be blocked.
		F3-2			Installed at the head of short-handle selector, illuminated selector and key switch to prevent collision and misoperation. It can be blocked.
		F3-3			Installed at the head of Φ30 & Φ40 mushroom buttons to prevent collision and misoperation. It can be blocked.
Signage frame		PB1-F-B11-10 Written area 25×10mm PB1-F-B11-18 Written area 25×18mm			Hung on the pushbutton or indicator, for symbolic indication or text description. (Note: see the reference table on page 38 for detailed contents of the signage frame; in case of any special customization, please specify.)
Signage board		PB1-F-B12			Hung on the pushbutton or indicator, for symbolic indication or text description.
Warning ring		F13-60 F13-90	Φ 60 Φ 90		Used for emergency stop button.
Yellow guard ring (designated for mushroom button)		F14a-40 F14a-60	Φ 40 Φ 60		Used to enhance eye-catching tips and protect mushroom button from collision and misoperation.
		F14b-40 F14b-60	Φ 60 Φ 90		

◎ Accessories

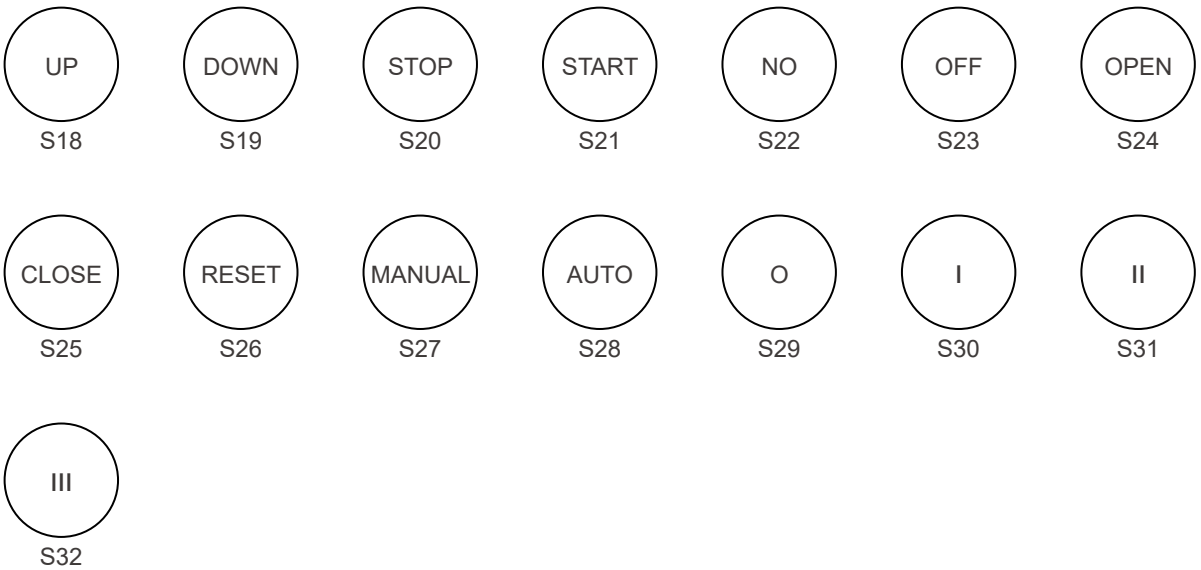
Name	Type	Order code		Note	Function
Emergency stop button guard ring		PB1-F-PC-a60		Optional	Used to enhance eye-catching tips and protect emergency stop button from collision and misoperation.
		PB1-F-PC-b60 PB1-F-PC-b90			
Reducing ring		PB1-F15-25 PB1-F15-30	Φ25 Φ30		The reducing ring can be used to install the Φ22mm button or indicator on the panel with a hole diameter of Φ25 or Φ30mm.
Indicator symbol mark		F18	POM		Used for symbolic lettering or text description.
Panel plug		F19	Φ22		Used for plugging reserved holes or redundant holes.



◎ Pushbutton and indicator lettering symbols

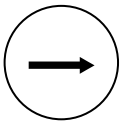
Chinese symbol

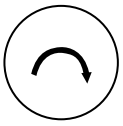
Standard symbol

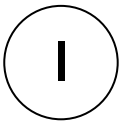


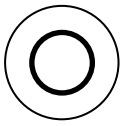
◎ Pushbutton and indicator lettering symbols

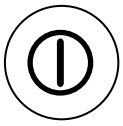
ISO symbol


S33 straight line

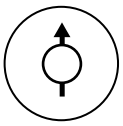

S34 rotate

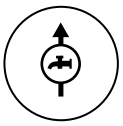

S35 start

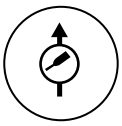

S36 stop

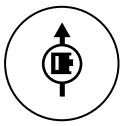

S37 start · stop

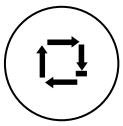
S38 inching

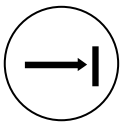

S39 pump


S40 cooling pump


S41 lubricant pump


S42 hydraulic pump


S43 Auto or auto circulation


S44 limited linear movement

◎ Knob signage or signage frame lettering

Stop	Start
停止	起动

SX1

Switch off	Switch on
分闸	合闸

SX2

Auto	Manual
自动	手动

SX3

Close	Open
关闭	打开

SX4

OFF	ON
关	开

SX5

Inspect	Reset
检验	复位

SX6

I	○

SX7

○	I

SX8

I	○	II

SX9

II	○	I

SX10

1	0	2

SX11

2	0	1

SX12

OFF-NO

SX13

STOP-START

SX14

HAND-AUTO

SX15

REV-FOR

SX16