



PUSHBUTTON SWITCH / SELECTOR SWITCH / ILLUMINATED PUSHBUTTON SWITCH

# HSA TYPE, LHSA TYPE



## FEATURES

- 1** Protective construction of the HSA type is IP65 and the oil-proof, which applies to wide variety of applications.
- 2** For the lamps, candescent lamps and LED lamps are standardized.
- 3** Terminal covers (covers for live parts) are provided as standard accessory.
- 4** The button is sturdy and provides a color chip that maintains beautiful color.
- 5** Two types of mounting rings (chromium-plating type and black type) are standardized.

## SPECIFICATIONS (RATINGS, PERFORMANCE)

Type	HSA	LHSA
Rated insulation voltage (Ui)	600V	600V (Illumination part 250V)
Rated operating voltage	See #1	See #1 and #2
Rated current-carrying capacity (Ith)	10A (Contact)	
Withstand voltage	2,200V AC / 1 min.	Contact: 2,200V AC / 1 min. Illuminating part: 2,500V AC (Full-voltage type: 2,000V AC) / 1 min.
Operating temperature	-20°C to 55°C	
Storing temperature	-25°C to 55°C (70° C within 24 hours)	
Panel thickness	1 to 6mm	
Shock resistance	Malfunction: 100m/s <sup>2</sup> , Durability: 500m/s <sup>2</sup>	
Terminal connection	Terminal screw M3.5	
Electrical life	1,000,000 operations	
Mechanical life	Pushbutton switch: 5,000,000 operations	5,000,000 operations
	Selector switch: 1,000,000 operations (3a3b or more contacts: 250,000 operations)	—
Temperature rise	40K max.	
Switching frequency	1,800 operations / hour	
Heat resistance	70°C±2°C for 16 hours	

\*1 Rated operating voltage and Rated operating current of contacts.

Voltage	AC		DC	
	AC-15 class (Inductive load)	DC-13 class (Inductive load)	DC-12 class (Inductive load)	
24V	10	6	6	
48V	10	2	3	
110V	6	0.7	2	
220V	4	0.3	1	
440V	1.5	-	-	

\*2 Rated operating voltage of illuminating part

Code	Primary voltage	Secondary voltage
O24	24V AC-DC	24V AC / DC
T110	100 / 110V AC	24V AC
T220	200 / 220V AC	24V AC
F110	100 / 110V AC-DC	24V AC / DC
F220	200 / 220V AC-DC	24V AC / DC

## HOW TO ORDER

■ Pushbutton switch **Non-illuminated, momentary operation type**

### HSA - P B 11 C

① ② ③ ④ ⑤

No.	Item	Code	Detail	Note
①	Basic type	HSA		—
②	Button shape	P	Flat pushbutton	
		C	Convex pushbutton	
		M	Mushroom pushbutton	
		E	Large mushroom pushbutton	
		J	Button with guard ring	—
		N	Mushroom pushbutton with guard ring	
		F	Large mushroom pushbutton with guard ring	
		U	Pull button	
③	Button color	Z	Push-lock turn-reset type	
		B	Black	* For "P", B, R, G button colors are supplied as a set. For "Z", only R and Y button colors are supplied.
		R	Red	
		G	Green	
		Y	Yellow	
		W	Milky white	
O	Orange			
④	Contact arrangement	10	1a	* 10 to 02 are available for "P" only. * a = NO contact, b = NC contact
		01	1b	
		20	2a	
		02	2b	
		11	1a1b	
		22	2a2b	
		33	3a3b	
		44	4a4b	
⑤	Surface ring color	C	Chromium	—
		B	Black	

■ Illuminated pushbutton switch (Full-voltage type, Transformer type) **Candescant lamp, momentary operation type**

### HSA - C R B 11 T110 C

① ② ③ ④ ⑤ ⑥ ⑦

No.	Item	Code	Detail	Note	
①	Basic type	HSA		—	
②	Colored transparent convex button (lens)	C		—	
③	Button color	R	Red	—	
		G	Green		
		O	Orange		
		W	Milky white		
		Y	Yellow		
		C	Clear		
④	BA9S lamp	B		—	
⑤	Contact arrangement	11	1a1b	—	
		22	2a2b	—	
		33	3a3b	—	
		44	4a4b	—	
⑥	Transformer	Primary voltage Secondary voltage		* Fill-voltage type has no transformer.	
		024	Full-voltage		24V
		T110	100 / 110V AC		
		T220	200 / 220V AC		
⑦	Surface ring	C	Chromium	—	
		B	Black		
		G	Punched guard		

■ Selector switch **Non-illuminated type**

### HSA - H B 11 C A

① ② ③ ④ ⑤ ⑥

No.	Item	Code	Detail	Note
①	Basic type	HSA		—
②	Knob shape	HA	2-notch manual return	—
		HL	2-notch automatic return The knob automatically returns from left to right.	
		T	3-notch manual return	—
		TS	3-notch automatic return The knob automatically returns from the right or left to the center position.	
		KH	Key-operated, 2-notch Manual return	
		KT	Key-operated, 3-notch Manual return	
		KTS	Key-operated, 3-notch The knob automatically returns from the right or left to the center position. (Center removal)	
		③	Knob color	
R	Red			
G	Green			
④	Contact configuration	11	1a1b	* For details (overlapping contact, etc.), see the contact configuration diagram (on A128).
		22	2a2b	
		33	3a3b	
		44	4a4b	
⑤	Surface ring	C	Chromium	—
⑥	Key removal position (For key-operated switch)	A	A position	* Not applicable to KTS type (center-removal). 2 notches (KH) 3 notches (KT)
		B	B position	
		T	T position	
		BA	BA position	
		BT	BT position	
		AT	AT position	
		BAT	BAT position	

■ Illuminated pushbutton switch (Full-voltage type, Transformer type, Resistor type) **LED lamp, momentary operation type**

### LHSA - C R B 11 110 C

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

No.	Item	Code	Detail	Note	
①	Basic type	LHSA		—	
②	Colored transparent convex button (lens)	C		—	
③	Button color	R	Red	—	
		G	Green		
		O	Orange		
		W	Milky white		
		Y	Yellow		
		C	Clear		
④	BA9S lamp	B		—	
⑤	Contact arrangement	11	1a1b	—	
		22	2a2b		
		33	3a3b		
		44	4a4b		
⑥	Form	No code	Full-voltage	—	
		T	Transformer type		
		F	Resistor type		
⑦	Voltage	Primary voltage Secondary voltage		* Not applicable to KTS type (center-removal).	
		024	Full-voltage		24V
		T110	100 / 110V AC		
		T220	200 / 220V AC		
		F110	100 / 110V AC-DC		
		F220	200 / 220V AC-DC		
⑧	Surface ring	C	Chromium	—	
		B	Black		
		G	Punched guard		



PUSHBUTTON SWITCH / SELECTOR SWITCH / ILLUMINATED PUSHBUTTON SWITCH

# HSA TYPE, LHSA TYPE

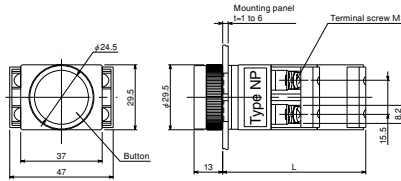
## STANDARD PRODUCTS Pushbutton switch Non-illuminated, momentary operation type

P to F, Z

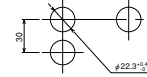
NO contact (a-contact): Black  
NC contact (b-contact): Red

Flat pushbutton

### HSA-P



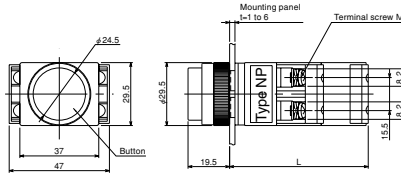
● Mounting hole size (Minimum mounting pitch)



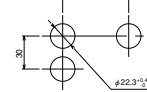
No. of units	1	2	3	4
L(mm)	44	65	86	107

Convex pushbutton

### HSA-C



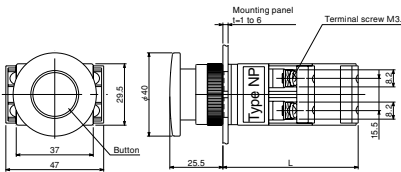
● Mounting hole size (Minimum mounting pitch)



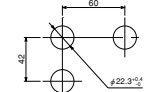
No. of units	1	2	3	4
L(mm)	44	65	86	107

Mushroom pushbutton

### HSA-M



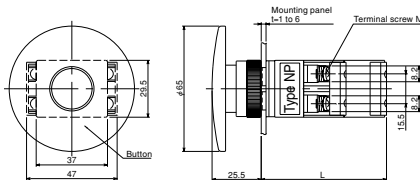
● Mounting hole size (Minimum mounting pitch)



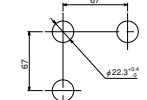
No. of units	1	2	3	4
L(mm)	44	65	86	107

Large mushroom pushbutton

### HSA-E



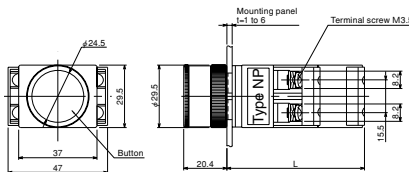
● Mounting hole size (Minimum mounting pitch)



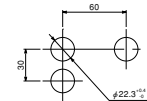
No. of units	1	2	3	4
L(mm)	44	65	86	107

Button with guard ring

### HSA-J



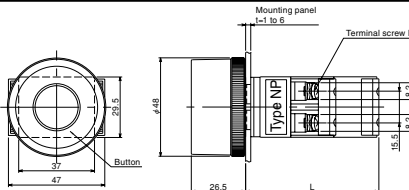
● Mounting hole size (Minimum mounting pitch)



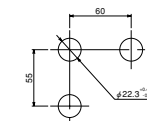
No. of units	1	2	3	4
L(mm)	44	65	86	107

Mushroom pushbutton with guard ring

### HSA-N



● Mounting hole size

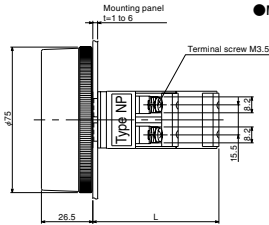
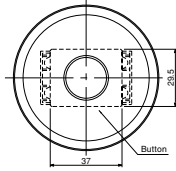


No. of units	1	2	3	4
L(mm)	44	65	86	107

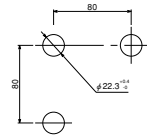
U H, HL, TS / KH, KT, KTS  
 NC contact (b-contact): Black Please see page A128 for selector switch contact arrangement diagram.  
 NO contact (a-contact): Red

## Large mushroom pushbutton with guard ring

### HSA-F



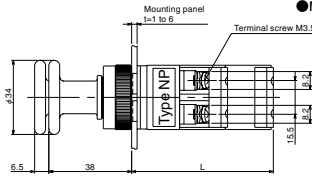
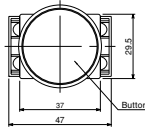
● Mounting hole size (Minimum mounting pitch)



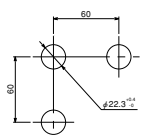
No. of units	1	2	3	4
L(mm)	44	65	86	107

## Pull button

### HSA-U



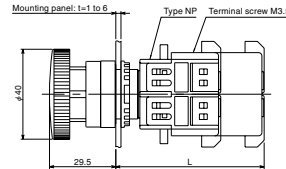
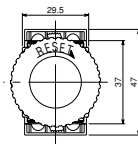
● Mounting hole size (Minimum mounting pitch)



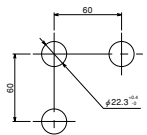
No. of units	1	2	3	4
L(mm)	44	65	86	107

## Push-lock turn-reset type

### HSA-Z



● Mounting hole size (Minimum mounting pitch)

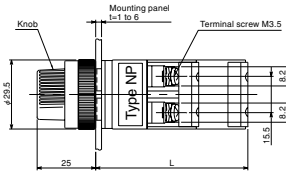
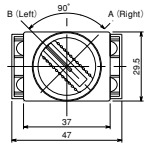


No. of units	1	2	3	4
L(mm)	47	68	89	110

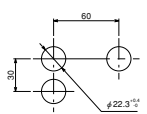
\* Terminal wiring: Upper and lower terminals only

## Selector switch

### HSA-H,HL,T,TS



● Mounting hole size (Minimum mounting pitch)

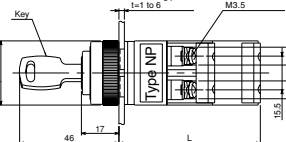
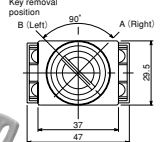
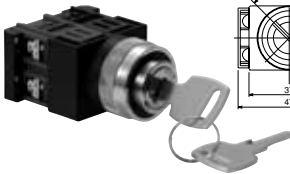


No. of units	1	2	3	4
L(mm)	44	65	86	107

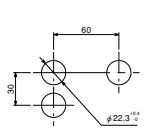


## Key-operated selector switch

### HSA-KH,KT,KTS



● Mounting hole size (Minimum mounting pitch)



No. of units	1	2	3	4
L(mm)	44	65	86	107



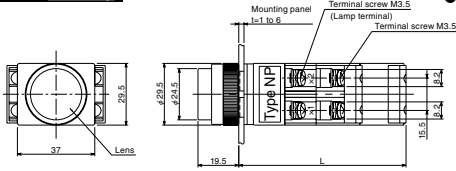
PUSHBUTTON SWITCH / SELECTOR SWITCH / ILLUMINATED PUSHBUTTON SWITCH

# HSA TYPE, LHSA TYPE

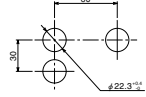
**STANDARD PRODUCTS** Illuminated pushbutton switch (Full-voltage, Transformer and Resistor types) **LED, momentary operation type**

Full-voltage type (Candescant lamp)

**HSA-C** Color **B** Contact **-024-** Surface ring



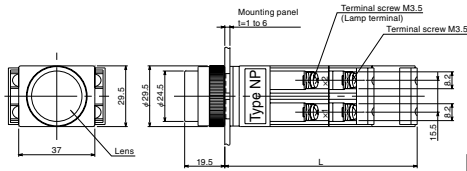
● Mounting hole size (Minimum mounting pitch)



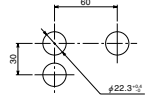
No. of units	1	2	3	4
L(mm)	59	80	101	122

Transformer type (Candescant lamp)

**HSA-C** Color **B** Contact **-** Transformer Voltage Surface ring



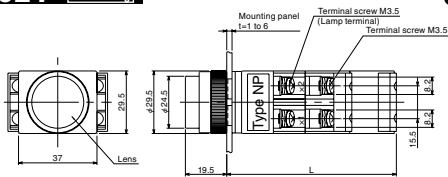
● Mounting hole size (Minimum mounting pitch)



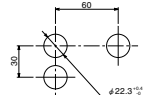
No. of units	1	2	3	4
L(mm)	72.5	93.5	114.5	135.5

Full-voltage type (LED)

**LHSA-C** Color **B** Contact **-024-** Surface ring



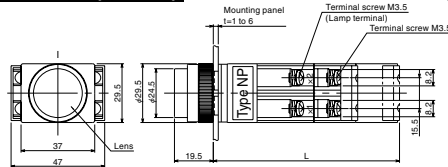
● Mounting hole size (Minimum mounting pitch)



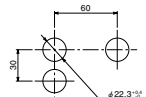
No. of units	1	2	3	4
L(mm)	59	80	101	122

Transformer type (LED)

**LHSA-C** Color **B** Contact **-** Transformer Voltage Surface ring



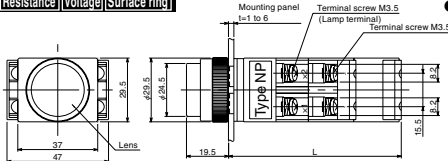
● Mounting hole size (Minimum mounting pitch)



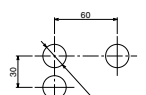
No. of units	1	2	3	4
L(mm)	72.5	93.5	114.5	135.5

Resistor type (LED)

**LHSA-C** Color **B** Contact **-** Resistance Voltage Surface ring



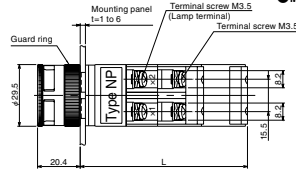
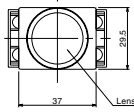
● Mounting hole size (Minimum mounting pitch)



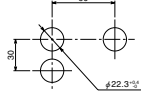
No. of units	Type	Power supply voltage	1	2	3	4
L(mm)	F110	100 / 110V	59	80	101	122
	F220	200 / 220V	72.5	93.5	114.5	135.5

## Full-voltage type with punched guard ring (Candescant lamp)

**HSA-C** Color **B** Contact - **024-G**



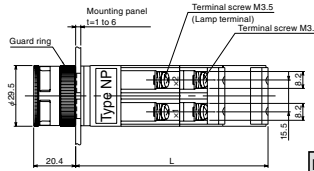
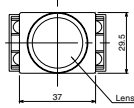
● Mounting hole size (Minimum mounting pitch)



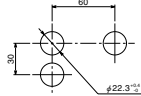
No. of units	1	2	3	4
L(mm)	59	80	101	122

## Transformer type with punched guard ring (Candescant lamp)

**HSA-C** Color **B** Contact - Transformer Voltage - **G**



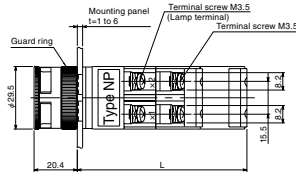
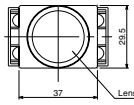
● Mounting hole size (Minimum mounting pitch)



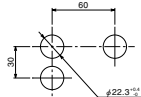
No. of units	1	2	3	4
L(mm)	72.5	93.5	114.5	135.5

## Full-voltage type with punched guard ring (LED)

**LHSA-C** Color **B** Contact - **024-G**



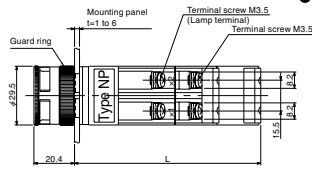
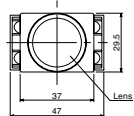
● Mounting hole size (Minimum mounting pitch)



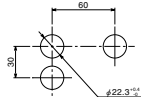
No. of units	1	2	3	4
L(mm)	59	80	101	122

## Transformer type with punched guard ring (LED)

**LHSA-C** Color **B** Contact - Transformer Voltage - **G**



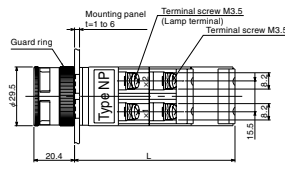
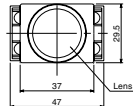
● Mounting hole size (Minimum mounting pitch)



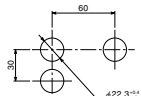
No. of units	1	2	3	4
L(mm)	72.5	93.5	114.5	135.5

## Resistor type with punched guard ring (LED)

**LHSA-C** Color **B** Contact - Resistance Voltage - **G**



● Mounting hole size (Minimum mounting pitch)



No. of units	Type	Power supply voltage	1	2	3	4
L(mm)	F110	100 / 110V	59	80	101	122
	F220	200 / 220V	72.5	93.5	114.5	135.5








PUSHBUTTON SWITCH / SELECTOR SWITCH / ILLUMINATED PUSHBUTTON SWITCH

# HSA TYPE, LHSA TYPE

## ACCESSORIES

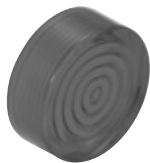
### Button

(Order unit: 5)

●PSA-P-BT-□ (Flat pushbutton)		●PSA-C-BT-□ (Convex pushbutton)		●PSA-M-BT-□ (Mushroom pushbutton)																																											
	<table border="1"> <thead> <tr><th>Code</th><th>Color</th></tr> </thead> <tbody> <tr><td>B</td><td>Black</td></tr> <tr><td>R</td><td>Red</td></tr> <tr><td>G</td><td>Green</td></tr> <tr><td>O</td><td>Orange</td></tr> <tr><td>Y</td><td>Yellow</td></tr> <tr><td>W</td><td>White</td></tr> </tbody> </table>	Code	Color	B	Black	R	Red	G	Green	O	Orange	Y	Yellow	W	White		<table border="1"> <thead> <tr><th>Code</th><th>Color</th></tr> </thead> <tbody> <tr><td>B</td><td>Black</td></tr> <tr><td>R</td><td>Red</td></tr> <tr><td>G</td><td>Green</td></tr> <tr><td>O</td><td>Orange</td></tr> <tr><td>Y</td><td>Yellow</td></tr> <tr><td>W</td><td>White</td></tr> </tbody> </table>	Code	Color	B	Black	R	Red	G	Green	O	Orange	Y	Yellow	W	White		<table border="1"> <thead> <tr><th>Code</th><th>Color</th></tr> </thead> <tbody> <tr><td>B</td><td>Black</td></tr> <tr><td>R</td><td>Red</td></tr> <tr><td>G</td><td>Green</td></tr> <tr><td>O</td><td>Orange</td></tr> <tr><td>Y</td><td>Yellow</td></tr> <tr><td>W</td><td>White</td></tr> </tbody> </table>	Code	Color	B	Black	R	Red	G	Green	O	Orange	Y	Yellow	W	White
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●PSA-E-BT-□ (Large mushroom pushbutton)		●PSA-U-BT-□ (Pull button)																																													
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R	Red																																														

### Lens (Button) for illuminated type (Order unit: 5)

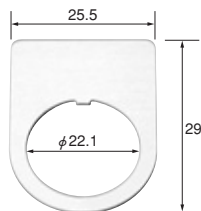
#### ●PSA-LENS-□



Code	Color
R	Red
G	Green
O	Orange
Y	Yellow
W	Milky white
C	Clear

### Plain nameplate (selling separately) (Order unit: 10)

#### ●HSA-NP



### Waterproof cap (selling separately) (Order unit: 5)

#### ●HSA-WCV-□



Code	Color
B	Black
R	Red
G	Green

### Panel plug (selling separately) (Order unit: 5)

#### ●HSA-CP-□



Code	Color
B	Black
N6.5	Gray

## Protective guard (selling separately)

(Order unit: 5)

●HSA-OP-2



## Guard ring

(Order unit: 5)

●HSA-RG-J-C

●HSA-RG-F-C (For large mushroom pushbutton)

●HSA-RG-N-C (For mushroom pushbutton)



## Ring

(Order unit: 5)

●HSA-RG-P-C

●HSA-RG-P-B

●HSA-RG-P-G







PUSHBUTTON SWITCH / SELECTOR SWITCH / ILLUMINATED PUSHBUTTON SWITCH

# HSA TYPE, LHSA TYPE

## ACCESSORIES

**LED lamp (Rating: 24V)** (Order unit: 10)

●LPSA-LED024-



Code	Lens (button) color
R	Red
G	Green
O	Orange
Y	Yellow
	Milky white
	Clear

\* The socket is BA9S.

**Candescant lamp (Rating: 30V)** (Order unit: 10)

●PSA-LUMP030



\* The socket is BA9S.

**Terminal cover** (Order unit: 10)

●PSA-CV



\* The terminal cover is provided as a standard accessory.

**Ring fastening tool (selling separately)**

●PSA-JQ



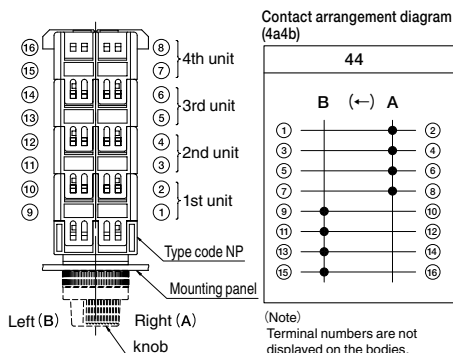
**Lamp replacement tool (selling separately)**

●PSA-LN

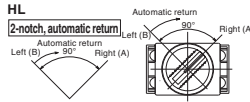
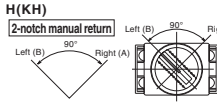


## HOW TO SEE CONTACT ARRANGEMENT DIAGRAM

Relation for contact arrangement (page A128) and terminal arrangement is shown as the following diagram.



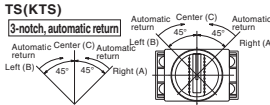
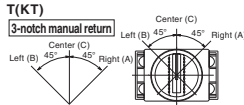
## Selector switch contact arrangement diagram



**H(KH)**  
The contact that makes at B position is a contact: red  
The contact that makes at A position is a contact: black  
**HL**  
The contact that makes at B position is a contact: black  
The contact that makes at A position is a contact: red

### 2-notch

Code	11	22	33	44	0011	0022	0033	0044
<b>Contact arrangement</b> (→) means direction of automatic return.	B (→) A	B (→) A	B (→) A	B (→) A	B (→) A	B (→) A	B (→) A	B (→) A



**T(KT)**  
The contact that makes at B position is a contact: ①  
The contact that makes at A position is a contact: ②  
**TS(KTS)**  
The contact that makes at B position is a contact: ①  
The contact that makes at A position is a contact: ②

### 3-notch

Code	11	22	33	44	2211	2222	3311
<b>Contact arrangement</b> (→) (←) means direction of automatic return.	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A
<b>Contact arrangement</b> (→) (←) means direction of automatic return.	0011	0022	0033	0044	1111	1122	1133
<b>Contact arrangement</b> (→) (←) means direction of automatic return.	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A	B (→) C (←) A

## LHSA type circuit diagram (LED)

Full-voltage type		Resistor type (100 / 110V)	
(Illumination color) R-O-Y-W-C	(Illumination color) G	(Illumination color) R-O-Y-W-C	(Illumination color) G
Resistor type (200 / 220V)		Transformer type	
(Illumination color) R-O-Y-W-C	(Illumination color) G	(Illumination color) R-O-Y-W-C	(Illumination color) G