



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 Munsell N. 15 (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 ² , Durability: 500m/s ²	
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 (3&2b 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)
24V	10	6
48V	10	2
110V	6	0.7
220V	4	0.3
440V	1.5	-

*2 Rated operating voltage of illuminating part

Code	Primary voltage	Secondary voltage
024	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

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	
④	Contact arrangement	O	Orange	
		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	N1.5	—

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

HSA - C R B 11 T110 C

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	
		T110	100 / 110V AC	
		T220	200 / 220V AC	
⑦	Surface ring	C	Chromium	
		B	N1.5	—
		G	Punched guard	

■ Selector switch Non-illuminated type

HSA - H B 11 C A

No.	Item	Code	Detail	Note
①	Basic type	HSA		—
②	Knob shape	H	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	B	Black	
		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	
⑤	Surface ring	44	4a4b	
		C	Chromium	—
⑥	Key removal position (For key-operated switch)	B	N1.5	
		A	A position	* Not applicable to KTS type (center-removal). 2 notches (KH)
		B	B position	
		T	T position	3 notches (KT)
		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

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	
		Primary voltage Secondary voltage		
⑦	Voltage	024	Full-voltage	* Not applicable to KTS type (center-removal).
		T110	100 / 110V AC	
		T220	200 / 220V AC	
		F110	100 / 110V AC-DC	
		F220	200 / 220V AC-DC	
⑧	Surface ring	C	Chromium	
		B	N1.5	—
		G	Punched guard	



PUSHBUTTON SWITCH / SELECTOR SWITCH / ILLUMINATED PUSHBUTTON SWITCH

HSA TYPE, LHSA TYPE

STANDARD PRODUCTS

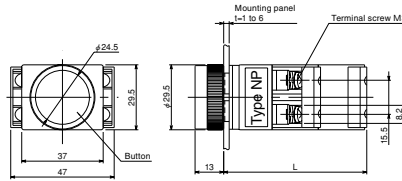
Pushbutton switch **Non-illuminated, momentary operation type**

P to F, Z

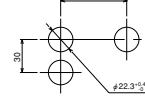
NO contact (a-contact): Black
NC contact (b-contact): Red

Flat pushbutton

HSA-P



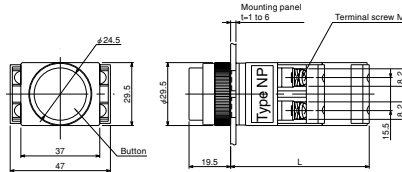
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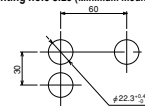
No. of units	1	2	3	4
L(mm)	44	65	86	107

Convex pushbutton

HSA-C



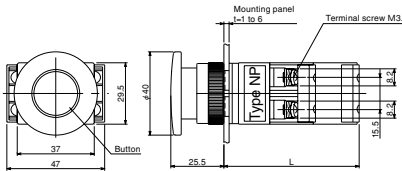
● Mounting hole size (Minimum mounting pitch)



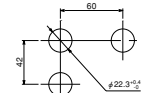
No. of units	1	2	3	4
L(mm)	44	65	86	107

Mushroom pushbutton

HSA-M



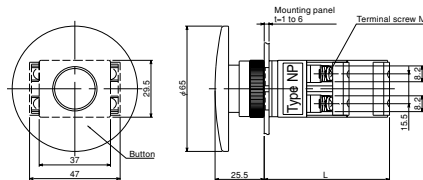
● Mounting hole size (Minimum mounting pitch)



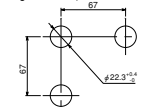
No. of units	1	2	3	4
L(mm)	44	65	86	107

Large mushroom pushbutton

HSA-E



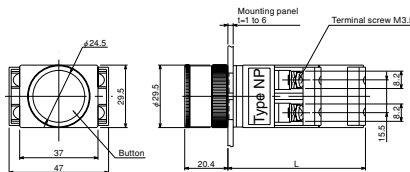
● Mounting hole size (Minimum mounting pitch)



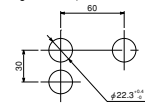
No. of units	1	2	3	4
L(mm)	44	65	86	107

Button with guard ring

HSA-J



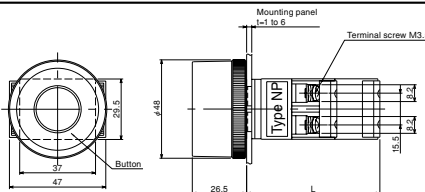
● Mounting hole size (Minimum mounting pitch)



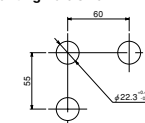
No. of units	1	2	3	4
L(mm)	44	65	86	107

Mushroom pushbutton with guard ring

HSA-N



● Mounting hole size

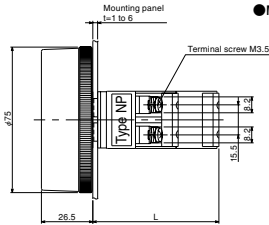
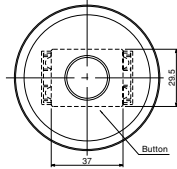


No. of units	1	2	3	4
L(mm)	44	65	86	107

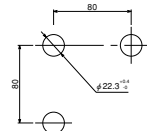
U H, HL, TS / KH, KT, KTS
 NC contact (b-contact): Black Please see page A128 for selector switch contact arrangement diagram.
 NO contact (a-contact): Red

Large mushroom pushbutton with guard ring

HSA-F



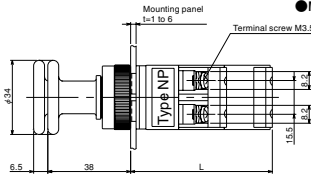
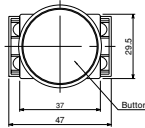
● Mounting hole size (Minimum mounting pitch)



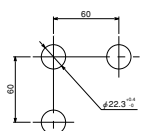
No. of units	1	2	3	4
L(mm)	44	65	86	107

Pull button

HSA-U



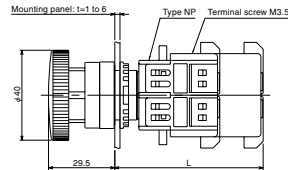
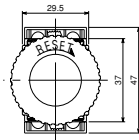
● Mounting hole size (Minimum mounting pitch)



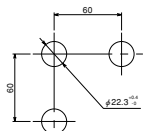
No. of units	1	2	3	4
L(mm)	44	65	86	107

Push-lock turn-reset type

HSA-Z



● Mounting hole size (Minimum mounting pitch)

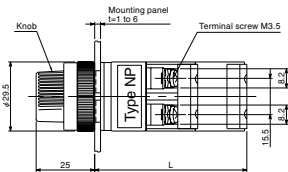
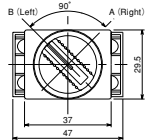


No. of units	1	2	3	4
L(mm)	47	68	89	110

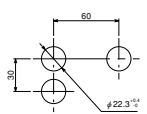
• Terminal wiring: Upper and lower terminals only

Selector switch

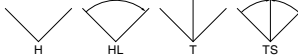
HSA-H,HL,T,TS



● Mounting hole size (Minimum mounting pitch)

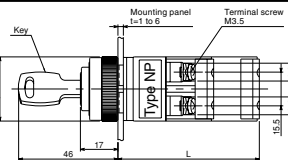
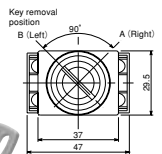
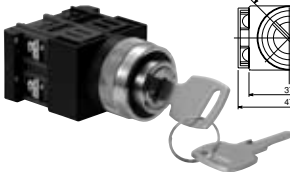


No. of units	1	2	3	4
L(mm)	44	65	86	107

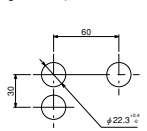


Key-operated selector switch

HSA-KH,KT,KTS



● Mounting hole size (Minimum mounting pitch)



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



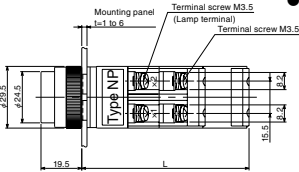
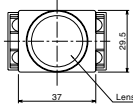
PUSHBUTTON SWITCH / SELECTOR SWITCH / ILLUMINATED PUSHBUTTON SWITCH

HSA TYPE, LHSA TYPE

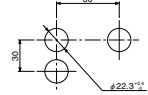
STANDARD PRODUCTS Illuminated pushbutton switch (Full-voltage, Transformer and Resistor types) LED, momentary operation type

Full-voltage type (Candescant lamp)

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



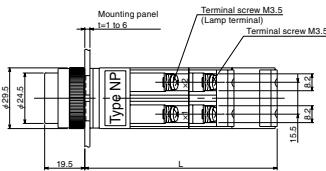
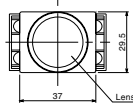
● Mounting hole size (Minimum mounting pitch)



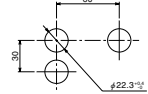
No. of units	1	2	3	4
L(mm)	59	80	101	122

Transformer type (Candescant lamp)

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



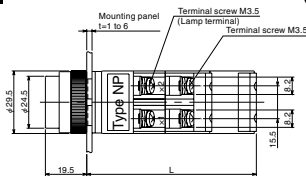
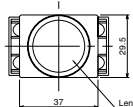
● Mounting hole size (Minimum mounting pitch)



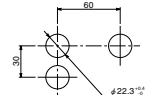
No. of units	1	2	3	4
L(mm)	72.5	93.5	114.5	135.5

Full-voltage type (LED)

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



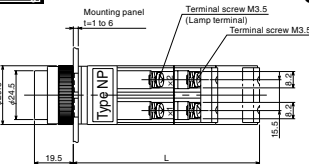
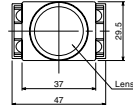
● Mounting hole size (Minimum mounting pitch)



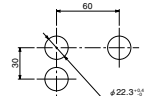
No. of units	1	2	3	4
L(mm)	59	80	101	122

Transformer type (LED)

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



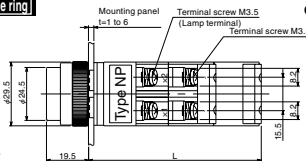
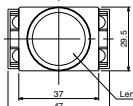
● Mounting hole size (Minimum mounting pitch)



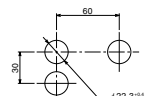
No. of units	1	2	3	4
L(mm)	72.5	93.5	114.5	135.5

Resistor type (LED)

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



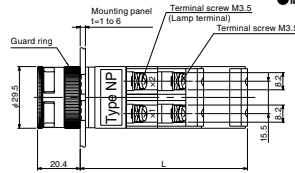
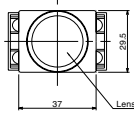
● Mounting hole size (Minimum mounting pitch)



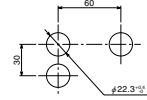
No. of units	Type	Power supply voltage	1	2	3	4
L(mm)	F110	100 / 110V	59	80	101	122
	F220	200 / 220V	72.5	93.5	114.5	135.5

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

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



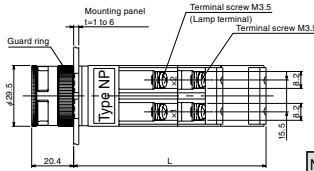
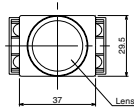
● Mounting hole size (Minimum mounting pitch)



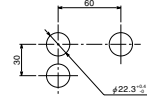
No. of units	1	2	3	4
L(mm)	59	80	101	122

Transformer type with punched guard ring (Candescant lamp)

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



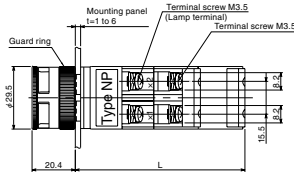
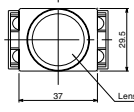
● Mounting hole size (Minimum mounting pitch)



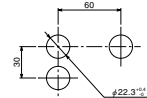
No. of units	1	2	3	4
L(mm)	59	80	101	122

Full-voltage type with punched guard ring (LED)

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



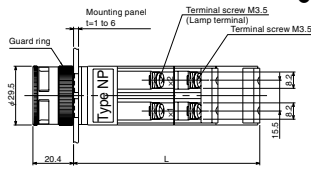
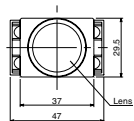
● Mounting hole size (Minimum mounting pitch)



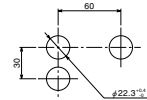
No. of units	1	2	3	4
L(mm)	59	80	101	122

Transformer type with punched guard ring (LED)

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



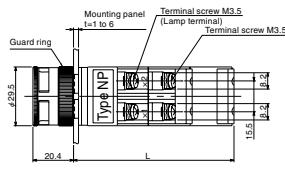
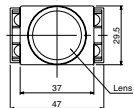
● Mounting hole size (Minimum mounting pitch)



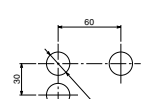
No. of units	1	2	3	4
L(mm)	59	80	101	122

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)



Code	Color
B	Black
R	Red
G	Green
O	Orange
Y	Yellow
W	White

●PSA-C-BT-□ (Convex pushbutton)



Code	Color
B	Black
R	Red
G	Green
O	Orange
Y	Yellow
W	White

●PSA-M-BT-□ (Mushroom pushbutton)



Code	Color
B	Black
R	Red
G	Green
O	Orange
Y	Yellow
W	White

●PSA-E-BT-□ (Large mushroom pushbutton)



Code	Color
B	Black
R	Red
G	Green
O	Orange
Y	Yellow
W	White

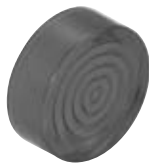
●PSA-U-BT-□ (Pull button)



Code	Color
B	Black
BG	Blue-green
R	Red

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

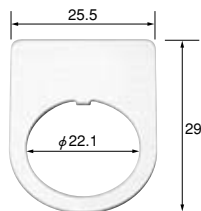
●PSA-LENS-□



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

Compatible type: HSA-C

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
	Yellow
Y	Milky white
	Clear

* The socket is BA9S.

Candescent 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



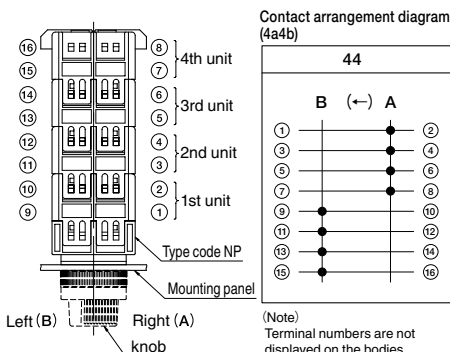
Lamp replacement tool (selling separately)

●PSA-LN

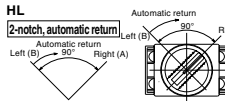
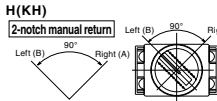


HOW TO SEE CONTACT ARRANGEMENT DIAGRAM

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



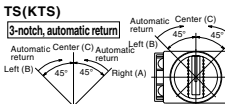
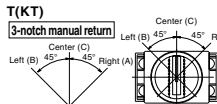
Selector switch contact arrangement diagram



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
Contact arrangement (←) 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
Contact arrangement (→) (←) 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

Code	0011	0022	0033	0044	1111	1122	1133
Contact arrangement (→) (←) 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