

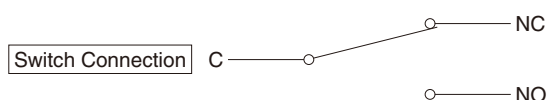
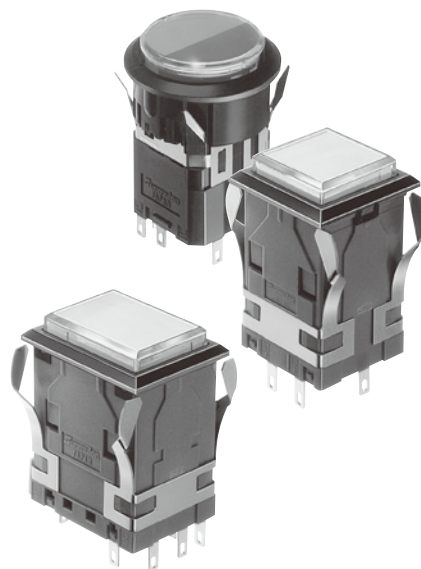
WH Lighted Pushbutton Switch

Only 35mm depth behind panel with built-in resistor

Reliable Push-Feeling and variable illumination
Full-Face, Split-Face(2, 3, 4).

■ FEATURES

- Depth behind panel : Only 35mm
- LED Full-Face, Split-Face(2, 3, 4) Illumination available.
- Built-in resistor for 5V, 12V, 24V use.
- Light Cartridge is removable from front panel.
- Button Size: 19mm square type, 19×26mm rectangular type, 25Φ round type available.
- Precision-snap action switch movement with coil spring assures long life and outstanding tactile feedback.
- Silver Contact(Gold-Plated) and W/E Alloy #1 Cross-bar Contact provided.
- Accessories: Barriers, Guard Cover, Dust-Proof Cover, etc.



SPECIFICATIONS

Contact	Silver Contact	W/E Alloy #1 Cross-bar Contact
Electrical Rating	AC125V, 250V 5A (Resistive)	AC125V 0.1A, DC30V 0.1A(Resistive)
Insulation Resistance	More than 100MΩ at 500V DC	
Dielectric Strength	1000V AC RMS between NC and NO terminal 2000V AC RMS between terminals and ground 50/60Hz for 60sec. At normal ambient temperature and humidity	600V AC RMS between NC and NO terminal 2000V AC RMS between terminals and ground 50/60Hz for 60sec. At normal ambient temperature and humidity
Contact Resistance	Less than 30mΩ (Initial) at DC6V 1A	Less than 50mΩ (Initial) at DC6V 1A
Mechanical Life	Momentary Action : more then 1,000,000 operations	Alternate Action : more than 200,000 operations
Electrical Life	More than 50,000 operations at max. rated load	More than 100,000 operations at max. rated load
Ambient Temperature	-15°C to +50°C	
Ambient Humidity	80% RH (max.)	

OPERATING CHARACTERISTICS

Operating Force (max.)	8.33N	Total Travel (max.)	3.2mm
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STRUCTURE

LIGHT CARTRIDGE

LED Illumination

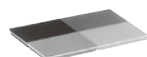


BUTTON (Clear)



LEGEND PLATE (Clear)

COLOR FILTER

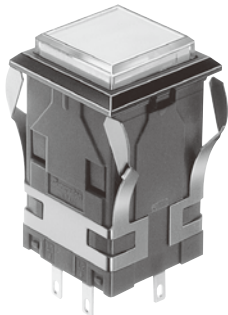
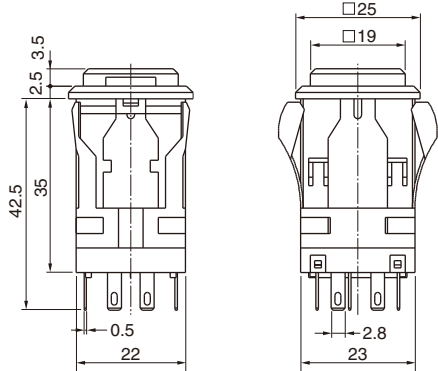
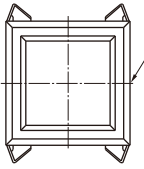
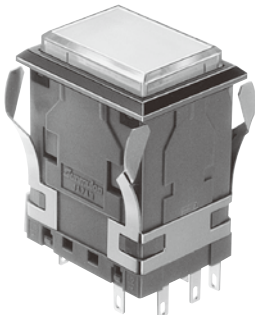
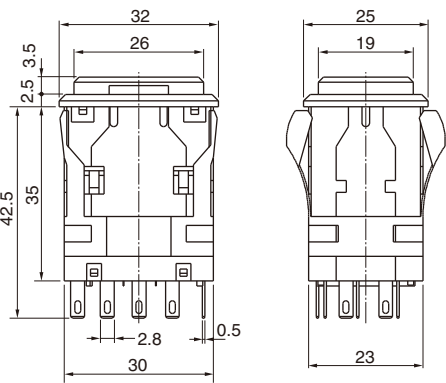
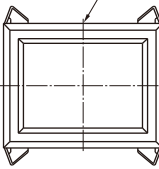


CARTRIDGE BASE (LED mounted)

HOUSING


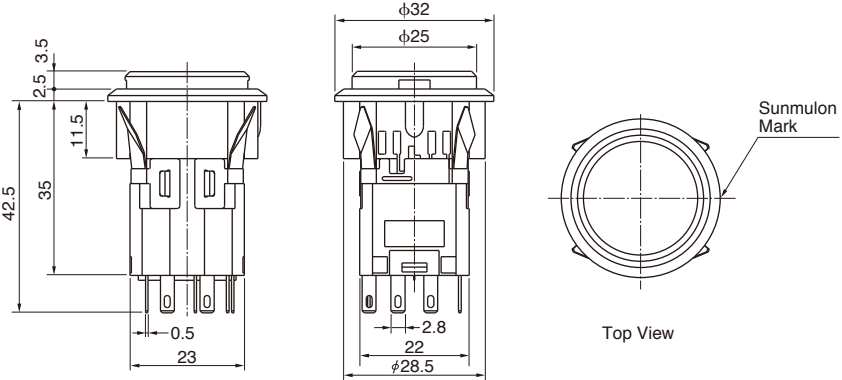


DIMENSIONS

19mm Square Button		  <p>Top View</p>
19×26mm Rectangular Button		  <p>Top View</p>

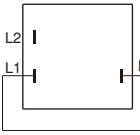
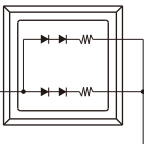
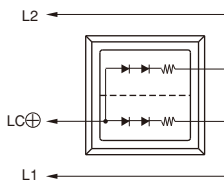
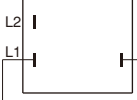
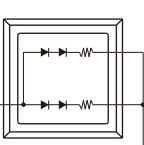
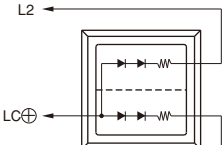
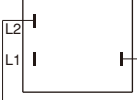
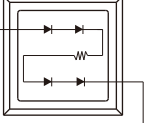
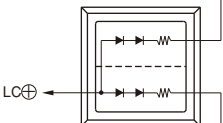
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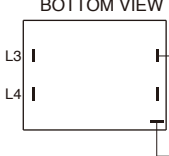
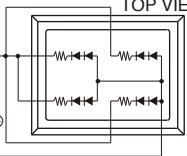
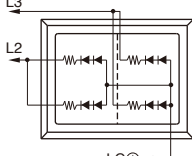
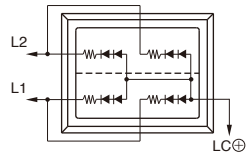
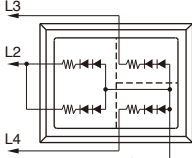
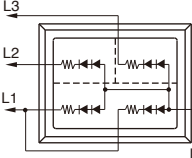
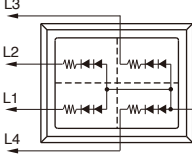
DIMENSIONS

<p>φ25mm Round Button</p> 	 <p>Top View</p>
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INTERNAL CONNECTION ARRANGEMENTS

● LED ILLUMINATION

		Full Face	Split Face
Square	5V	<p>BOTTOM VIEW</p>  <p>TOP VIEW</p> 	
	12V	 <p>TOP VIEW</p> 	
	24V	 <p>TOP VIEW</p> 	

		Full Face	2-Split, Vertical	2-Split, Horizontal
Rectangular	5V	<p>BOTTOM VIEW</p>  <p>TOP VIEW</p> 		
		<p>3-Split, Vertical</p> 	<p>3-Split, Horizontal</p> 	<p>4-Split</p> 

Tolerance : ±0.4mm

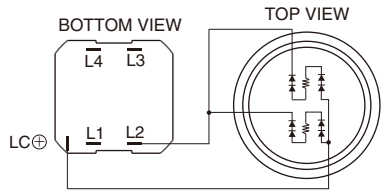
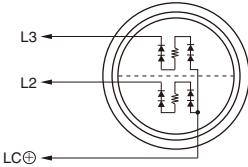
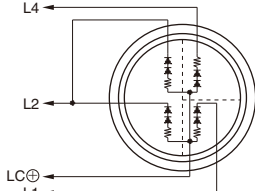
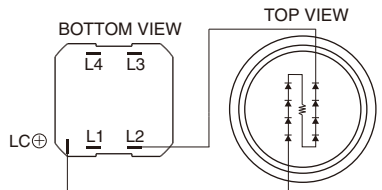
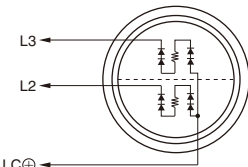
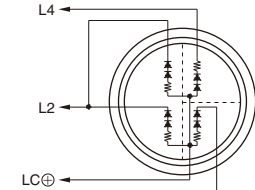
INTERNAL CONNECTION ARRANGEMENTS

● LED ILLUMINATION

		Full Face		2-Split, Vertical	2-Split, Horizontal
Rectangular	12V				
		3-Split, Vertical	3-Split, Horizontal	4-Split	
	24V				
		3-Split, Vertical	3-Split, Horizontal	4-Split	
Round	5V			2-Split, Horizontal	3-Split, Vertical
		3-Split, Horizontal	4-Split		

INTERNAL CONNECTION ARRANGEMENTS

LED ILLUMINATION

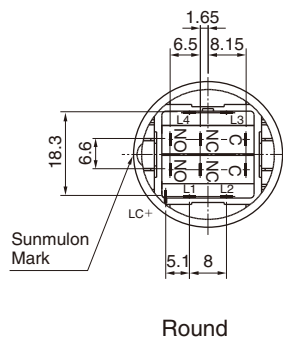
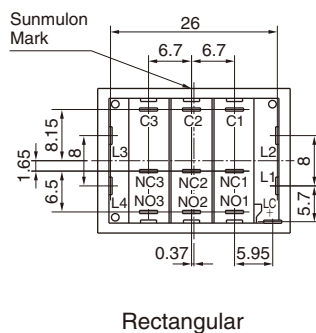
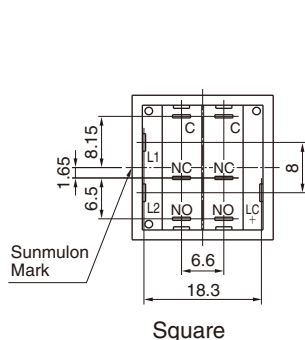
		Full Face		2-Split, Horizontal	3-Split, Vertical
Round	12V				
		3-Split, Horizontal	4-Split		
	24V				
		3-Split, Horizontal	4-Split		

TERMINALS

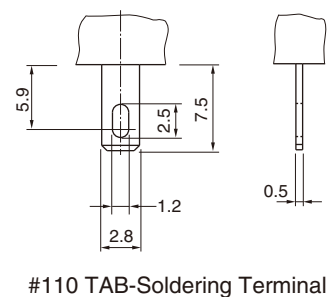
TERMINALS LAYOUT

	STDP	DTDP	TTDP	INDICATOR
Square				
Rectangular				
Round				

TERMINALS DIMENSIONS (BOTTOM VIEW)



TERMINAL SHAPE



LED DATA

LED RATINGS

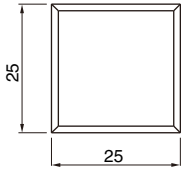
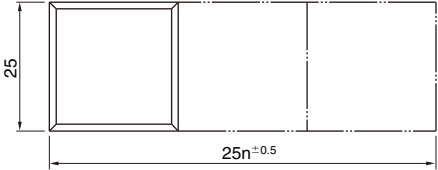
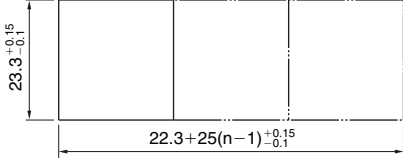
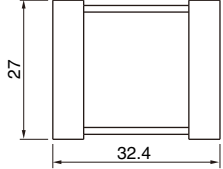
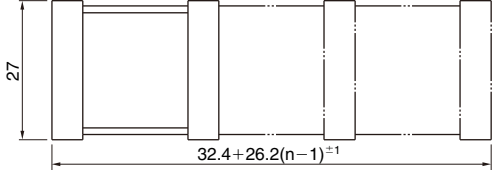
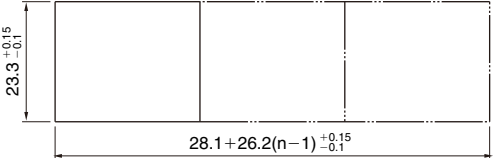
Current Rating (mA)																				
Type		Full Face			2-split Face						3-split Face						4-split Face			
		<div><div>1</div></div>	<div><div>1</div></div>	<div><div>1</div></div>	<div><div>1</div><div>2</div></div>		<div><div>1</div><div>2</div></div>	<div><div>1</div><div>2</div></div>	<div><div>1</div><div>2</div></div>	<div><div>1</div><div>2</div></div>	<div><div>1</div><div>2</div><div>3</div></div>	<div><div>1</div><div>2</div><div>3</div></div>	<div><div>1</div><div>2</div><div>3</div></div>	<div><div>1</div><div>2</div><div>3</div></div>	<div><div>1</div><div>2</div><div>3</div><div>4</div></div>	<div><div>1</div><div>2</div><div>3</div><div>4</div></div>	<div><div>1</div><div>2</div><div>3</div><div>4</div></div>	<div><div>1</div><div>2</div><div>3</div><div>4</div></div>	<div><div>1</div><div>2</div><div>3</div><div>4</div></div>	
voltage	Color	1	1	1	1	2	1	2	1	2	1	2	3	1	2	3	1	2	3	4
5V	Red	8	16	16	4	4	8	8	8	8	8	4	4	4	4	8	4	4	4	4
	Green	16	32	32	8	8	16	16	16	16	16	8	8	8	8	16	8	8	8	8
	Yellow	12	24	24	6	6	12	12	12	12	12	6	6	6	6	12	6	6	6	6
12V	Red	8	8	8	4	4	8	8	4	4	8	4	4	4	4	8	4	4	4	4
	Green	16	16	16	8	8	16	16	8	8	16	8	8	8	8	16	8	8	8	8
	Yellow	12	12	12	6	6	12	12	6	6	12	6	6	6	6	12	6	6	6	6
24V	Red	4	4	4	4	4	8	8	4	4	8	4	4	4	4	8	4	4	4	4
	Green	8	8	8	8	8	16	16	8	8	16	8	8	8	8	16	8	8	8	8
	Yellow	6	6	6	6	6	12	12	6	6	12	6	6	6	6	12	6	6	6	6

Tolerance : $\pm 0.4\text{mm}$

PANEL LAYOUT / PANEL CUT DIMENSIONS

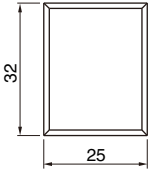
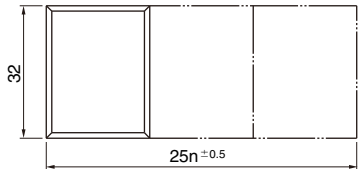
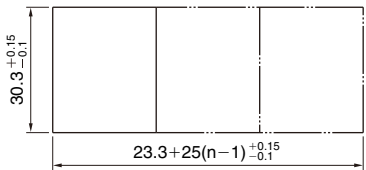
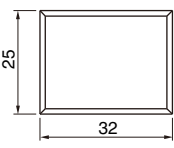
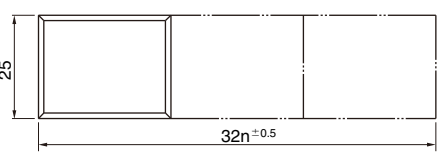
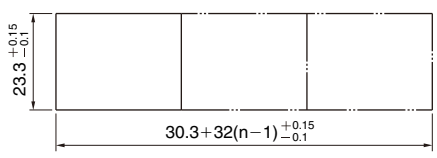
● 19mm Square Button Type

Panel Thickness 1mm~5mm

		Panel Layout	Panel Cut Dimensions
Without Barriers	Independent		
	Serial		
With Barriers	Independent		
	Serial		

※ Vertical Serial Mounting is impossible for 19mm Square Button type.

● 19×26mm Rectangular Button

		Panel Layout	Panel Cut Dimensions
Without Barriers	Independent (Vertical)		
	Serial (Vertical)		
	Independent (Horizontal)		
	Serial (Horizontal)		

n : number of switches
Tolerance : ±0.4mm

PANEL LAYOUT / PANEL CUT DIMENSIONS

● 19×26mm Rectangular Button Type

Panel Thickness 1mm~5mm

		Panel Layout	Panel Cut Dimensions
With Barriers	Independent (Vertical)		
	Serial (Vertical)		
	Independent (Horizontal)		
	Serial (Horizontal)		

※ In case of Vertical Serial Mounting, please add suffix no. 011 after the order code.

n : number of switches

● In case of block mounting, leave space between arrays as a figure.

Square	Square, with barriers	Rectangular	Rectangular, with barriers

● φ25mm Round Button Type

Panel Thickness 1mm~5mm

Panel Layout	Panel Cut Dimensions

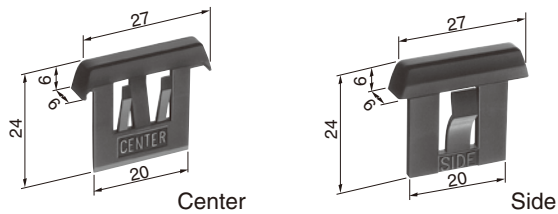
Tolerance : ±0.4mm

ACCESSORIES

BARRIERS (Square/Rect.)

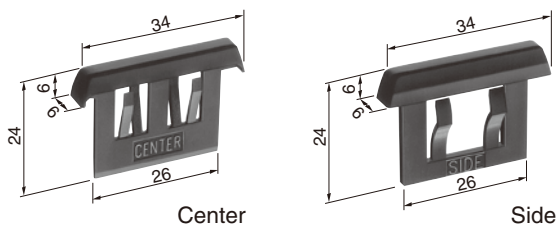
In case of mounting switches in series, Barriers can be used to prevent inadvertent pushing neighbor switch.

● Short Barrier



PART NO.		
Short Barrier		
	Center Barrier	Side Barrier
Black	WH-0738-K	WH-0739-K
Gray	WH-0738-G	WH-0739-G

● Long Barrier (For Rectangular long side)

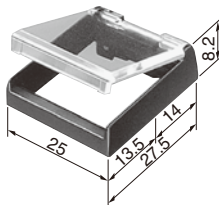


PART NO.		
Long Barrier		
	Center Barrier	Side Barrier
Black	WH-0741-K	WH-0740-K
Gray	WH-0741-G	WH-0740-G

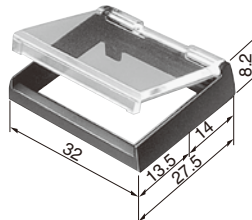
GUARD COVER (Square/Rect.)

Guard Cover prevents inadvertent and unintentional operations. It is impossible to use with Barriers.

● 19mm Square



● 19×26mm Rectangular

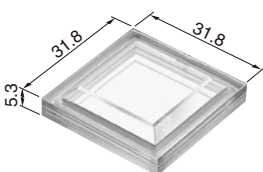


PART NO.		
	Square	Rectangular
Black	WH-0781-K	WH-0782-K
Gray	WH-0781-G	WH-0782-G

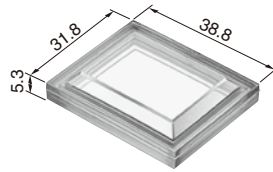
※ The cover opens 90° and returns by spring force.
In case of serial mounting (horizontal mounting only), panel cut dimension to be same as "without barriers".
※ In case of Guard Cover use, please select type of "without frange".

Dust-Proof Cover (Square/Rect.)

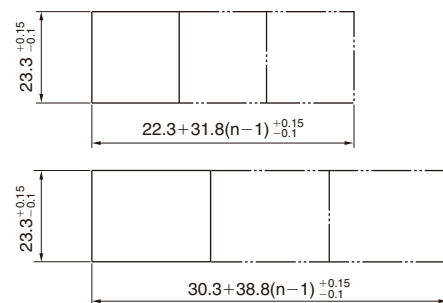
● 19mm Square



● 19×26mm Rectangular



● Panel Cut Dimensions



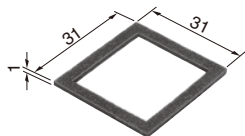
n : number of switches
Panel Thickness 1mm~4.5mm

※ In case of Oil&Water-Proof cover(IP63), please also use gum packing sheet.(please see next page)

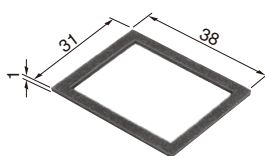
Tolerance : ±0.4mm

ACCESSORIES

● 19mm Square



● 19×26mm Rectangular



PART NO.		
	Square	Rectangular
Dust-Proof Cover	WH-0783	WH-0784
Rubber Packing	WH-0767	WH-0768

REPLACEMENT PARTS

● FILTER

19mm Square



Square Full Face



Split Face

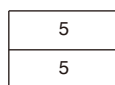
19×26mm Rectangular



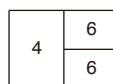
Rectangular Full Face



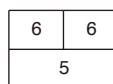
2-Split (V)



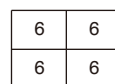
2-Split (H)



3-Split (V)



3-Split (H)



4-Split

φ25 Round Button Type



Round Full Face



2-Split (H)



3-Split (V)



3-Split (H)



4-Split

※ Please refer No. of figures and following chart.

No	1	2	3	4	5	6	7	8	9
Type	Square Full Face	Split Face	Rectangular Full Face	2-Split (V)	2-Split (H)	4-Split	Round Full Face	2-Split (H)	4-Split
Red	WH-0705-R	WH-0713-R	WH-0706-R	WH-0715-R	WH-0714-R	WH-0716-R	WH-2349-RR	WH-2350-RR	WH-2351-RR
Green	WH-0705-G	WH-0713-G	WH-0706-G	WH-0715-G	WH-0714-G	WH-0716-G	WH-2349-GG	WH-2350-GG	WH-2351-GG
Yellow	WH-0705-Y	WH-0713-Y	WH-0706-Y	WH-0715-Y	WH-0714-Y	WH-0716-Y	WH-2349-YY	WH-2350-YY	WH-2351-YY
Milky-White	WH-0705-M	WH-0713-M	WH-0706-M	WH-0715-M	WH-0714-M	WH-0716-M	WH-2349-MM	WH-2350-MM	WH-2351-MM

ORDERING CODE I

LED Illumination

WH — 1 2 3 4 C 1 2 3 4 P

● OPERATION

M	Momentary
A	Alternate
L	Indicator

● CONTACT

0	Indicator
1	SPDT Silver
2	DPDT Silver
5	SPDT W/E Alloy #1Crossbar
6	DPDT W/E Alloy #1Crossbar
7	TPDT Silver
9	TPDT W/E Alloy #1Crossbar

(Rectangular Only)

(Rectangular Only)

2,3 or 4 split-face:

Simultaneous lighting is possible except all green LED type with 12V or 24V.

● BUTTON SHAPE-ILLUMINATION TYPE

S0	Square Full Face
W0	Rect. Full Face
R0	Round Full Face
S2	Square 2-Split Face
W1	Rect. 2-Split Face (Vert.)
W2	Rect. 2-Split Face (Horiz.)
R2	Round 2-Split Face
W5	Rect. 3-Split Face (Vert.)
R5	Round 3-Split Face (Vert.)
W6	Rect. 3-Split Face (Horiz.)
R6	Round 3-Split Face (Horiz.)
W7	Rect. 4-Split Face
R7	Round 4-Split Face

● Supply Voltage to LED

1	5V Built-in Resistor
2	12V Built-in Resistor
3	24V Built-in Resistor

● FILTER COLOR

1	Red	Full Face : Put color no. into the frame 1
2	Green	2-Split Face : Put color no. into the frame 1, 2
※ 3	Yellow	3-Split Face : Put color no. into the frame 1, 2, 3
4	Milk-White	4-Split Face : Put color no. into the frame 1, 2, 3, 4
×		Without Filter

● Frange / Housing Color

K	Black
H	Gray
×	Without Frange

Note:

- Put frange color for Square/Rect. type and housing color for Round type.
- In case of Guard Cover use, please select type of "without frange"

● LED COLOR

70	Red	Full Face : Put color no. into the frame 1
80	Green	2-Split Face : Put color no. into the frame 1, 2
※ 90	Yellow	3-Split Face : Put color no. into the frame 1, 2, 3
		4-Split Face : Put color no. into the frame 1, 2, 3, 4

※ Please be noted that the color of "Yellow" for LED, Filter is actually "Orange Yellow" not Lemon Yellow.

◆ Note:

- In case of Split-Face, LED and Filter color location should be specified as follow:

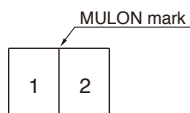
Square

Rectangular

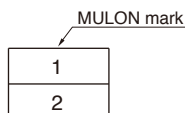
Square 2-Split Face



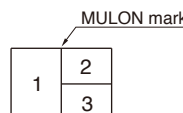
Rect. 2-Split Face (Vert.)



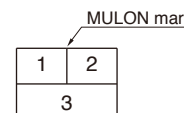
Rect. 2-Split Face (Horiz.)



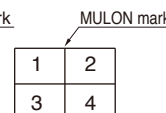
Rect. 3-Split Face (Vert.)



Rect. 3-Split Face (Horiz.)

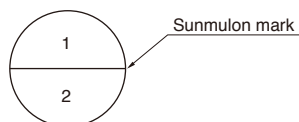


Rect. 4-Split Face

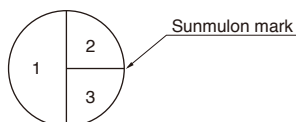


Round

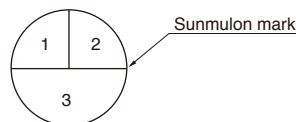
Round 2-Split Face



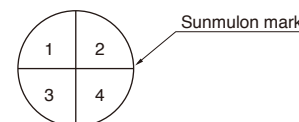
Round 3-Split Face (Vert.)



Round 3-Split Face (Horiz.)



Round 4-Split Face



ORDERING CODE II

LED Illumination

WH — —

● BUTTON SHAPE

R	25 Round
S	19 Square
W	19×26 Rect.

● ILLUMINATION TYPE

1	Full Face Mono color
2	Round, Square 2-Split Face
3	Rect. 2-Split Face (Vert.)
4	Rect. 2-Split Face (Horiz.)
5	Round, Rect. 3-Split Face (Vert.)
6	Round, Rect. 3-Split Face (Horiz.)
7	Round, Rect. 4-Split Face

● LED COLOR

70	Red
80	Green
90	Yellow

※ Full Face: Put color no. into the frame 1
2-Split Face: Put color no. into the frame 1, 2
3-Split Face: Put into color no. into the frame 1, 2, 3
4-Split Face: Put color no. into the frame 1, 2, 3, 4

● FILTER COLOR

R	Red
G	Green
Y	Yellow
M	Milk-White
X	Without Filter

※ Full Face: Put color no. into the frame 1
2-Split Face: Put color no. into the frame 1, 2
3-Split Face: Put into color no. into the frame 1, 2, 3
4-Split Face: Put into color no. into the frame 1, 2, 3, 4

※ Please be noted that the color of "Yellow" for LED, Filter is actually "Orange Yellow" not Lemon Yellow.

● Supply Voltage to LED

1	5V Built-in Resistor
2	12V Built-in Resistor
3	24V Built-in Resistor

2,3,4-Split Face : Simultaneous lighting is possible except all green LED type with 12V or 24V.

Note: In case of Indicator, please change top of ordering code WH to WL.
It is difference structure of illumination parts between WH (switch) and WL (Indicator).

Indicator type: **WL** — —

Note: In case of Split-Face, LED and Filter color location should be specified as follow:

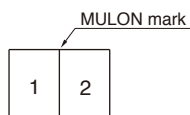
Square

Square 2-Split Face

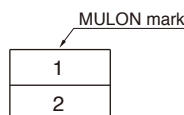


Rectangular

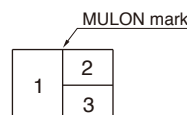
Rect. 2-Split Face (Vert.)



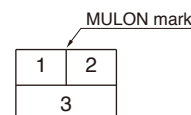
Rect. 2-Split Face (Horiz.)



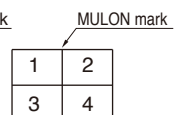
Rect. 3-Split Face (Vert.)



Rect. 3-Split Face (Horiz.)

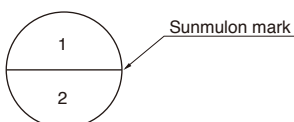


Rect. 4-Split Face

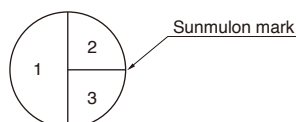


Round

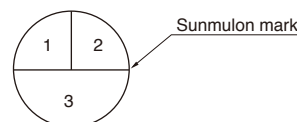
Round 2-Split Face



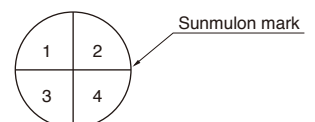
Round 3-Split Face (Vert.)



Round 3-Split Face (Horiz.)



Round 4-Split Face



ORDERING CODE II

Housing

WH — — S

● OPERATION

M	Momentary
A	Alternate
L	Indicator

● CONTACT

0	Indicator
1	SPDT Silver
2	DPDT Silver
5	SPDT W/E Alloy #1Crossbar
6	DPDT W/E Alloy #1Crossbar
7	TPDT Silver
9	TPDT W/E Alloy #1Crossbar

(Rectangular Only)

(Rectangular Only)

● Frange / Housing Color

K	Black
H	Gray
×	Without Frange

Note:

- 1.Put frange color for Square/Rect. type and housing color for Round type.
2. In case of Guard Cover use, please select type of "without frange"

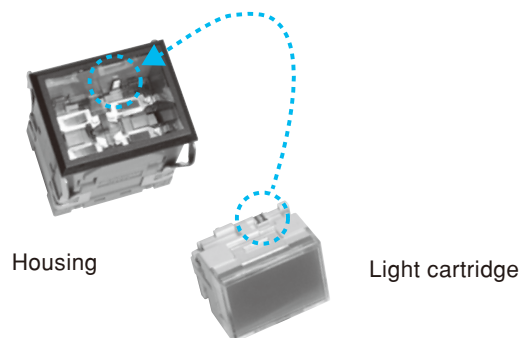
● Frange Shape

R	25 Round
S	19 Square
W	19×26Rect.

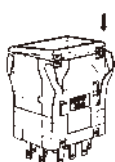
ASSEMBLY & DISASSEMBLY

1. Fitting Light cartridge

Insert Light cartridge into Housing with correct position of metal fittings as shown.

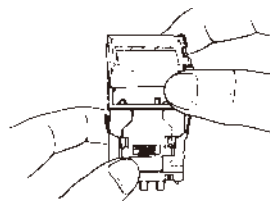


2. Installing Flange (Square / Rect.)



Attach the flange, aligning the groove on the flange with the protruding portions on the Housing. Fit the flange as shown until click.

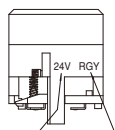
5. Installing Guard Cover(Square / Rect.)



Attach the Guard Cover, aligning the groove on the Guard Cover with the protruding portions on the Housing. Fit the Guard Cover as shown until click.

3. Indicating Supply voltage to LED and LED color

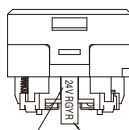
19 square
19×26 Rect.



Supply voltage to LED

LED Color

φ 25 round



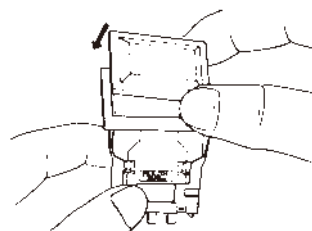
Supply voltage to LED

LED Color

DC voltage supply rating to LED is shown on the side of Light cartridge.

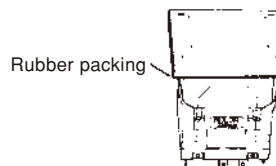
6. Installing Dust-Proof Cover(Square / Rect.)

(1) Dust-Proof Cover



Put the switch through the frame cover, and mount on panel. Afterwards install soft cover accordingly.

(2) Oli and Water-Proof Cover

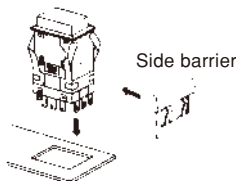


In case of Oil and Water-tight use, please apply rubber packing between panel and frame cover.

4. Installing Barriers(Square / Rect.)

① Switch(Independent mounting)

Set side barrier on the side of switch Housing, then insert it into the panel.



② Switches (Serial muonting)

Insert switches with side barrier into the panel, then install center barrier between switches.

