OMRON ELECTRONICS

See full Datasheet below...

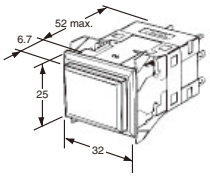
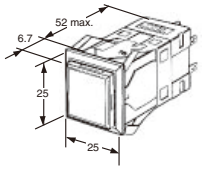
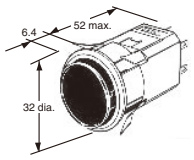
M2P

Large Rectangular-bodied Indicators

- Excellent illumination with even surface brightness.
- Three-color models (green, orange, red; chameleon lighting) included in lineup.

Be sure to read *Safety Precautions for All Pushbutton Switches* and *Safety Precautions* of A3P.

List of Models

Model	Appearance
M2PJ (Rectangular)	
M2PA (Square)	
M2PT (Round)	

■ Panel cutout dimensions: Refer to page 12.
■ Dimensions: Refer to page 11.
■ Accessories, replacements, and tools: Refer to the A3P.
■ Ratings and characteristics: Refer to the A3P.

Model Number Structure

Model Number Legend ..... The model numbers used to order sets of Units are illustrated below. One set comprises the Display, Lamp, and Socket.
For information on combinations, refer to *Ordering Information*.

(4) (5)
24E R .....Single screen

(1) (2) (3) Upper Lower
M2P J -90A 1 1 - 24E RW ..... Horizontal 2-split screen

R (Red)	Upper
W (White)	Lower

(1) Shape of Display

Symbol	Shape
J	Rectangular
A	Square
T	Round

(2) Screen Pattern

Illumination-only models

Symbol	Screen pattern
1	Single screen 
2	2-split screen 
G	Chameleon *1  Note: The chameleon screen pattern is not available with M2PT models. The chameleon screen pattern is only available with 12 or 24-VDC models.

*1. With chameleon models, the whole screen lights red, green, or orange. When not lit, the display is white.

- The available rectangular models are shown below. Select from among the individual products shown on page 7.

Vertical 2-split screen models 
4-split screen models 
Horizontal 3-split screen models 
Vertical 3-split screen models 

The above diagrams show the Sockets with the "OMRON" mark facing down.

▶ Colored-illumination models up to the 4-split screen models are available as individual Units. Refer to page 7.

▶ "Colored-illumination" models operate in the way shown below:

Unlit: White
Lit: Color
The built-in LED is colored.

(3) Case Color

Symbol	Color
1	Black
2	Light gray

Note: M2PT model is available in light gray only.

(4) Lighting Method LED-lighted Models (M2PJ and M2PA Only)

Symbol	Rated voltage
05E	5 VDC
12E	12 VDC
24E	24 VDC

LED Lamp-lighted Models (M2PT Only)

Symbol	Rated voltage
05C	5 VDC
12C	12 VDC
24C	24 VDC

Note: M2PJ and M2PA can also be ordered separately. Refer to page 7 for details.

Incandescent Lamp lighted Models

Symbol	Rated voltage
06	6 VAC/VDC
14	14 VAC/VDC
28	28 VAC/VDC

(5) Color of Display For LED

Symbol	Color
R	Red
O	Orange
G	Green
W	White
K	Chameleon

- The chameleon screen pattern is not available with M2PT models.
- The chameleon screen pattern is only available with 12 or 24-VDC models.

For Incandescent Lamp

Symbol	Color
No symbol	Red, Orange, White, Blue, Green

- Includes colored plate. Refer to page 8 for details.
- (Low-power incandescent lamp)

Number of Built-in LED Lamps

Screen pattern	A3PJ	A3PA	A3PT
Single screen	Built-in LED models		2
Horizontal 2-split screen			---
Vertical 2-split screen Horizontal 3-split screen Vertical 3-split screen 4-split screen	4 *2	---	---

Number of Built-in Incandescent Lamps

Screen pattern	A3PJ	A3PA	A3PT
Single screen	2	1	2
Horizontal 2-split screen	4 (Low-power incandescent lamp) *2	2	---
Vertical 2-split screen		---	---
3-split, E shape/ T shape		---	---
4-split screen		---	---

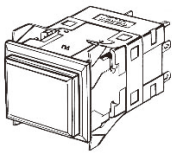
*2. These split screen models are available only as individual Units. They cannot be ordered as sets.

Ordering Information

Ordering as a Set ..... The model numbers used to order sets of Units are given in the following tables. One set comprises the Display, Lamp, and Socket.

M2PJ (Rectangular) Single Screen Models

Rectangular
(Single Screen)



Single screen

(1)

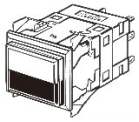
Lighting method / Case color		Black	Light gray	Display color symbol
LED	5 VDC	M2PJ-90A11-05E(1)	M2PJ-90A12-05E(1)	R O G W
	12 VDC	M2PJ-90A11-12E(1)	M2PJ-90A12-12E(1)	
	24 VDC	M2PJ-90A11-24E(1)	M2PJ-90A12-24E(1)	
Chameleon	12 VDC	M2PJ-90AG1-12EK	M2PJ-90AG2-12EK	*1
	24 VDC	M2PJ-90AG1-24EK	M2PJ-90AG2-24EK	
Incandescent lamp	6 VDC/VAC	M2PJ-90A11-06	M2PJ-90A12-06	*2
	14 VDC/VAC	M2PJ-90A11-14	M2PJ-90A12-14	
	28 VDC/VAC	M2PJ-90A11-28	M2PJ-90A12-28	

Note: Enter the desired color symbol for the Display in (1). (R) = Red, (O) = Orange, (G) = Green, (W) = White.

Example: Red MPJ-90A11-24E R

*1. You can change the screen colors of chameleon models between red, green, and orange by changing the terminal wiring. Refer to page 14 for details.
*2. Incandescent lamps are supplied with colored plates (white, red, green, blue, and orange) and legend plates (milk-white and transparent). Use the appropriate combination.

Rectangular
(Single Screen)



2-split screen

(1)
(2)

Lighting method / Case color		Black	Light gray	Display color symbol
LED	24 VDC	M2PJ-90A21-24E(1)(2)	M2PJ-90A22-24E(1)(2)	R O G W
Incandes-cent lamp	6 VDC/VAC	M2PJ-90A21-06	---	*
	14 VDC/VAC	M2PJ-90A21-14	M2PJ-90A22-14	
	28 VDC/VAC	M2PJ-90A21-28	M2PJ-90A22-28	

Note: Enter the desired color symbols for the Display in (1) and (2). (R) = Red, (O) = Orange, (G) = Green, (W) = White.

Example: Red (Upper) / White (Lower) M2PJ-90A21-24E R W (Red, White)

* Incandescent lamps are supplied with colored plates (white, red, green, blue, and orange) and legend plates (milk-white and transparent). Use the appropriate combination.

Individual models: Refer to pages 6 to 8.
(The Display, Lamp, and Socket can be ordered separately.)

■ Ratings and characteristics: Refer to the A3P.
■ Dimensions: Refer to page 11. Accessories: Refer to the A3P.

Ordering Information

Ordering as a Set ..... The model numbers used to order sets of Units are given in the following tables. One set comprises the Display, Lamp, and Socket.

M2PA (Square) Single Screen Models

Square
(Single Screen)

Single screen (1)

Lighting method	Case color	Black	Light gray	Display color symbol
LED	5 VDC	M2PA-90A11-05E(1)	M2PA-90A12-05E(1)	ROGW
	12 VDC	M2PA-90A11-12E(1)	M2PA-90A12-12E(1)	
	24 VDC	M2PA-90A11-24E(1)	M2PA-90A12-24E(1)	
Chameleon	12 VDC	M2PA-90AG1-12EK	M2PA-90AG2-12EK	*1
	24 VDC	M2PA-90AG1-24EK	M2PA-90AG2-24EK	
Incandescent lamp	6 VDC/VAC	M2PA-90A11-06	M2PA-90A12-06	*2
	14 VDC/VAC	M2PA-90A11-14	M2PA-90A12-14	
	28 VDC/VAC	M2PA-90A11-28	M2PA-90A12-28	

Note: Enter the desired color symbol for the Display in (1). (R) = Red, (O) = Orange, (G) = Green, (W) = White.

Example: Red M2PA-90A11-24E R

*1. You can change the screen colors of chameleon models between red, green, and orange, by changing the terminal wiring. Refer to page 14 for details.
*2. Incandescent lamps are supplied with colored plates (white, red, green, blue, and orange) and legend plates (milk-white and transparent). Use the appropriate combination.

Square
(Horizontal 2-split screen)

2-split screen (1) / (2)

Lighting method	Case color	Black	Light gray	Display color symbol
LED	24 VDC	M2PA-90A21-24E(1)(2)	M2PA-90A22-24E(1)(2)	R O G W
Incandescent lamp	6 VDC/VAC	M2PA-90A21-06	M2PA-90A22-06	*
	14 VDC/VAC	M2PA-90A21-14	M2PA-90A22-14	
	28 VDC/VAC	M2PA-90A21-28	M2PA-90A22-28	

Note: Enter the desired color symbols for the Display in (1) and (2). (R) = Red, (O) = Orange, (G) = Green, (W) = White.

Example: Red (Upper) / White (Lower) M2PA-90D21-24E R W
Red White

* Incandescent lamps are supplied with colored plates (white, red, green, blue, and orange) and legend plates (milk-white and transparent). Use the appropriate combination.

M2PT (Round) Single Screen Models

Round
(Single Screen)

Single screen (1)

Lighting method	Case color	Light gray	Display color symbol
LED	5 VDC	M2PT-90A12-05C(1)	ROGW
	12 VDC	M2PT-90A12-12C(1)	
	24 VDC	M2PT-90A12-24C(1)	
Incandescent lamp	28 VDC/VAC	M2PT-90A12-28	*

Note: Enter the desired color symbol for the Display in (1). (R) = Red, (O) = Orange, (G) = Green, (W) = White.

Example: Red M2PT-90A12-24C R

* Incandescent lamps are supplied with a colored plates (white, red, green, blue, and orange). Use the appropriate combination. Models A3PT and M2PT (round models), however, are not supplied with legend plates.

Individual models: Refer to pages 6 to 8.
(The Display, Lamp, and Socket can be ordered separately.)

■ Ratings and performance: Refer to the A3P.
■ Dimensions: Refer to page 11. Accessories: Refer to the A3P.

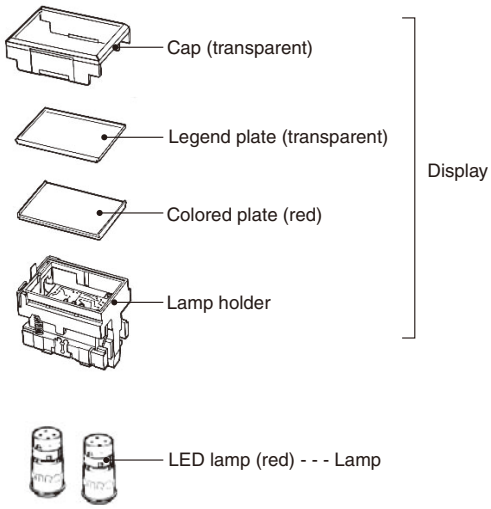
Ordering Information

Illumination-only and Colored-illumination LED Models

"Illumination only" describes LED models for which the screen color is the same whether the LED is lit or not. The screen simply becomes brighter when the LED lights.

Example: Red LED

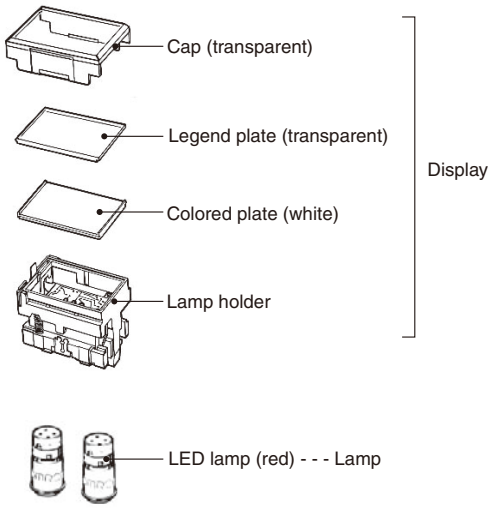
Not lit
Red
Lit
Red



"Colored illumination" describes LED models for which the screen color is white when the LED is not lit and changes to the color of the LED lamp when the LED is lit.

Example: Red LED

Not lit
White
Lit
Red



Ordering: For a colored-illumination Indicator, order the Display, Lamp, and Socket as shown in the following table.

Display	Lamp	Socket
• Select the LED lamp-lighted model required from the selection on page 7. Each assembly includes the number of white colored plates required to enable colored illumination for the corresponding screen-split configuration. For example, 4-split screen models includes 4 white colored plates.	• Select the LED lamps to suit your desired coloration from the selection on page 8. • Number of necessary LED lamps (standard): M2PJ (rectangular): 4 M2PA (square): 2 M2PT (round): 2	• Select from the Sockets on page 8.

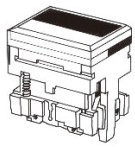
Ordering Information

Ordering Individually ..... Displays, Lamps, and Sockets can be ordered separately. Combinations that are not available as sets can be created using individual Units. Also, store the parts as spares for maintenance and repairs.

LED-lighted/Chameleon Models
(LED is built into the Display.)

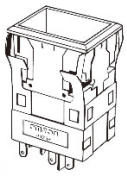
Display

Round (M2PT) models not available.



• M2P□-5□□□-□□E
(for Indicator)

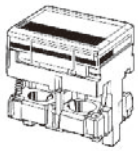
Socket *



• M2P□-7□□□-□
(for Indicator)

LED Lamp-lighted Models
(LED lamp and Display are separate.)

Display

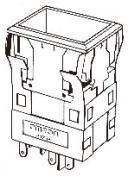


• M2P□-502□
(for Indicator)

Lamp (LED Lamp) *1

SLL-□□E□

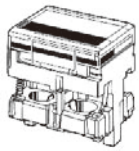
Socket *



• M2P□-7□□□-□
(for Indicator)

Incandescent Lamp-lighted Models
(Incandescent lamp and Display are separate.)

Display

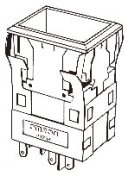


• M2P□-501□
(for Indicator)

Lamp (Incandescent Lamp) *2

• Standard lamp: SLL-□□
• Low-power lamp: SLL-□□H

Socket *



• M2P□-7□□□-□
(for Indicator)

* The Socket is compatible with LED-lighted, LED lamp-lighted, and incandescent lamp-lighted models.

*1. Number of necessary LED lamps.

Screen pattern	M2PJ	M2PA	M2PT
Single screen	4	2	2
Horizontal 2-split screen		2	---
Vertical 2-split screen		---	---
Vertical 3-split screen Horizontal 3-split screen		---	---
4-split screen		---	---

*2. Number of necessary incandescent lamps.

Screen pattern	M2PJ	M2PA	M2PT
Single screen	2	1	2
Horizontal 2-split screen	4 (low-power incandescent lamp)	2	---
Vertical 2-split screen		---	---
Vertical 3-split screen Horizontal 3-split screen		---	---
4-split screen		---	---

Ordering set combinations: Refer to pages 3 to 4.

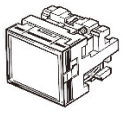
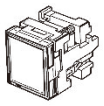
■ Ratings and characteristics: Refer to the A3P.
■ Dimensions: Refer to page 11. Accessories: Refer to the A3P.

Ordering Information

Ordering Individually ..... Displays, Lamps, and Sockets can be ordered separately. Combinations that are not available as sets can be created using individual Units. Also, store the parts as spares for maintenance and repairs.

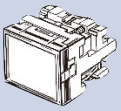
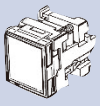
Display

LED-lighted Models (LED is built-in.)

Appearance	Split-screen color (color symbol)		White (W)	Red (R)	Green (G)	Orange (O)	Selection precautions
Rectangular models 	Single screen		M2PJ-5701-□□E	M2PJ-5702-□□E	M2PJ-5703-□□E	M2PJ-5706-□□E	• Enter the voltage to be used in the □□ at the end of the model number. Examples of voltage used: 5 V=05E, 12 V=12E, 24 V=24E. Horizontal 2-split screen models support only 24V. • For the color of the shaded part, select the model according to the colors given at the top of the table.
	Horizontal 2- 2 split screen	White	M2PJ-5711-□□E	M2PJ-5712-□□E	M2PJ-5713-□□E	M2PJ-5716-□□E	
		Red	M2PJ-5721-□□E	M2PJ-5722-□□E	M2PJ-5723-□□E	M2PJ-5726-□□E	
		Green	M2PJ-5731-□□E	M2PJ-5732-□□E	M2PJ-5733-□□E	M2PJ-5736-□□E	
		Orange	M2PJ-5741-□□E	M2PJ-5742-□□E	M2PJ-5743-□□E	M2PJ-5746-□□E	
Square models 	Single screen		M2PA-5701-□□E	M2PA-5702-□□E	M2PA-5703-□□E	M2PA-5706-□□E	
	Horizontal 2-split screen	White	M2PA-5711-□□E	M2PA-5712-□□E	M2PA-5713-□□E	M2PA-5716-□□E	
		Red	M2PA-5721-□□E	M2PA-5722-□□E	M2PA-5723-□□E	M2PA-5726-□□E	
		Green	M2PA-5731-□□E	M2PA-5732-□□E	M2PA-5733-□□E	M2PA-5736-□□E	
		Orange	M2PA-5741-□□E	M2PA-5742-□□E	M2PA-5743-□□E	M2PA-5746-□□E	

Note: 1. A cap, legend plate (transparent), colored plate, white plunger case, and LED (with a current-limiting resistor) are built into the standard lighting unit.
2. Split-screen coloring configurations are given with the "OMRON" mark on the Sockets facing down.

LED Lamp-lighted Models (LED is not built-in.)

Model	Rectangular models 		Square models 		Round models 		Selection precautions
Screen pattern	Screen	Model	Screen	Model	Screen	Model	
Single screen		M2PJ-5021		M2PA-5021		M2PT-5021	• Colored plates (white, red, green, and orange), a legend plate (transparent), and a light baffle (split-screen models only) are included. Use the appropriate combination for the LED coloring required. • The number of white colored plates required to enable colored illumination for the corresponding screen-split configuration is included. (For example, 4-split screen models include 4 white colored plates). • The number of colored plates included for each model are shown in the following table.
Horizontal 2-split screen		M2PJ-5022		M2PA-5022		---	
Vertical 2-split screen		M2PJ-5023	---			---	
Horizontal 3-split screen		M2PJ-5024	---			---	
Vertical 3-split screen		M2PJ-5025	---			---	
4-split screen		M2PJ-5026	---			---	

Screen pattern	White	Red	Green	Orange
Single screen	1	1	1	1
Horizontal 2-split screen Vertical 2-split screen	2	1	1	1
Horizontal 3-split screen Vertical 3-split screen	3	2	2	2
4-split screen	4	1	1	1

Ordering set combinations: Refer to pages 3 to 4.

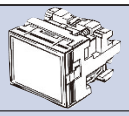
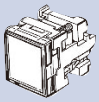
■ Ratings and characteristics: Refer to the A3P.
■ Dimensions: Refer to page 11. Accessories: Refer to the A3P.

Ordering Information

Ordering Individually ..... Displays, Lamps, and Sockets can be ordered separately. Combinations that are not available as sets can be created using individual Units. Also, store the parts as spares for maintenance and repairs.

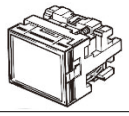
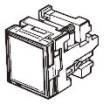
Display

Incandescent Lamp-lighted Models (Incandescent lamp is not built-in.)

Model	Rectangular models 		Square models 		Round models 		Selection precautions
Screen pattern	Screen	Model	Model	Model	Model	Model	
Single screen		M2PJ-5011		M2PA-5011		M2PT-5011 *	• Colored plates (white, red, green, orange, and blue), a legend plate (transparent), and a light baffle (split-screen models only) are supplied. * M2PT (round) models do not contain a legend plate. • The number of colored plates supplied is shown in the following table.
Horizontal 2-split screen		M2PJ-5012		M2PA-5012	---		
Vertical 2-split screen		M2PJ-5013	---		---		
Horizontal 3-split screen		M2PJ-5014	---		---		
Vertical 3-split screen		M2PJ-5015	---		---		
4-split screen		M2PJ-5016	---		---		

Screen pattern	White	Red	Green	Orange	Blue
Single screen	1	1	1	1	1
Horizontal 2-split screen Vertical 2-split screen	1	1	1	1	1
Horizontal 3-split screen Vertical 3-split screen	2	2	2	2	2
4-split screen	2	2	2	2	2

Chameleon Models (with Built-in LED)

Shape		Rated voltage	Chameleon indicator
Rectangular		12 VDC	M2PJ-5800-12E
		24 VDC	M2PJ-5800-24E
Square		12 VDC	M2PA-5800-12E
		24 VDC	M2PA-5800-24E

Note: 1. With the chameleon models, the whole screen lights red, green, or orange (i.e., red and green simultaneously).
2. A cap, legend plate (transparent), white colored plate, and LED (with a current-limiting resistor) are built into the Display.

Lamp (For mounting, refer to the A3P.)

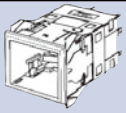
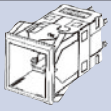
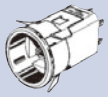
LED Lamp

Voltage / Color	5 VDC Model (DC only)	12 VDC Model (DC only)	24 VDC Model (DC only)	Applicable cap (color) (colored plate)	Selection precautions
Red	SLL-05ER	SLL-12ER	SLL-24ER	Red	In the standard setup, 4 LED lamps are used with M2PJ models and 2 LED lamps are used with M2PA and M2PT models.
Yellow	SLL-05EY	SLL-12EY	SLL-24EY	Orange	
Green	SLL-05EG	SLL-12EG	SLL-24EG	Green	
White	SLL-05EW	SLL-12EW	SLL-24EW	White	

Incandescent Lamp

Voltage / Lamp type	Standard lamp	Low-voltage lamp	Selection precautions
5 VAC/VDC	SLL-06	SLL-06H	• In the standard setup for M2PJ models, 2 lamps are used with single screen models, and 4 lamps are used with split-screen models. If 3 or 4 lamps are lit continuously, use low-power lamps. • In the standard setup for M2PA models, 1 lamp is used with single screen models, and 2 lamps are used with split-screen models. • In the standard setup for M2PT models, 2 lamps are used.
12 VAC/VDC	SLL-14	SLL-14H	
24 VAC/VDC	SLL-28	SLL-28H	

Socket (common to both incandescent lamp-lighted and LED-lighted models)

Rectangular 	Square 	Round 	Selection precautions
Model	Model	Model	
M2PJ-7010-1	M2PA-7010-1	M2PT-7010-2	• The end digit denotes the color of the flange: -1 denotes a black flange, and -2 denotes a light gray flange. Round switches are available only in light gray, and not in black.

Ordering set combinations: Refer to pages 3 to 4.

■ Ratings and characteristics: Refer to the A3P.
■ Dimensions: Refer to page 11. Accessories: Refer to the A3P.

Ordering Information

Accessories

Accessories are the same as those for the A3P Lighted Pushbutton Switches. Refer to the A3P.

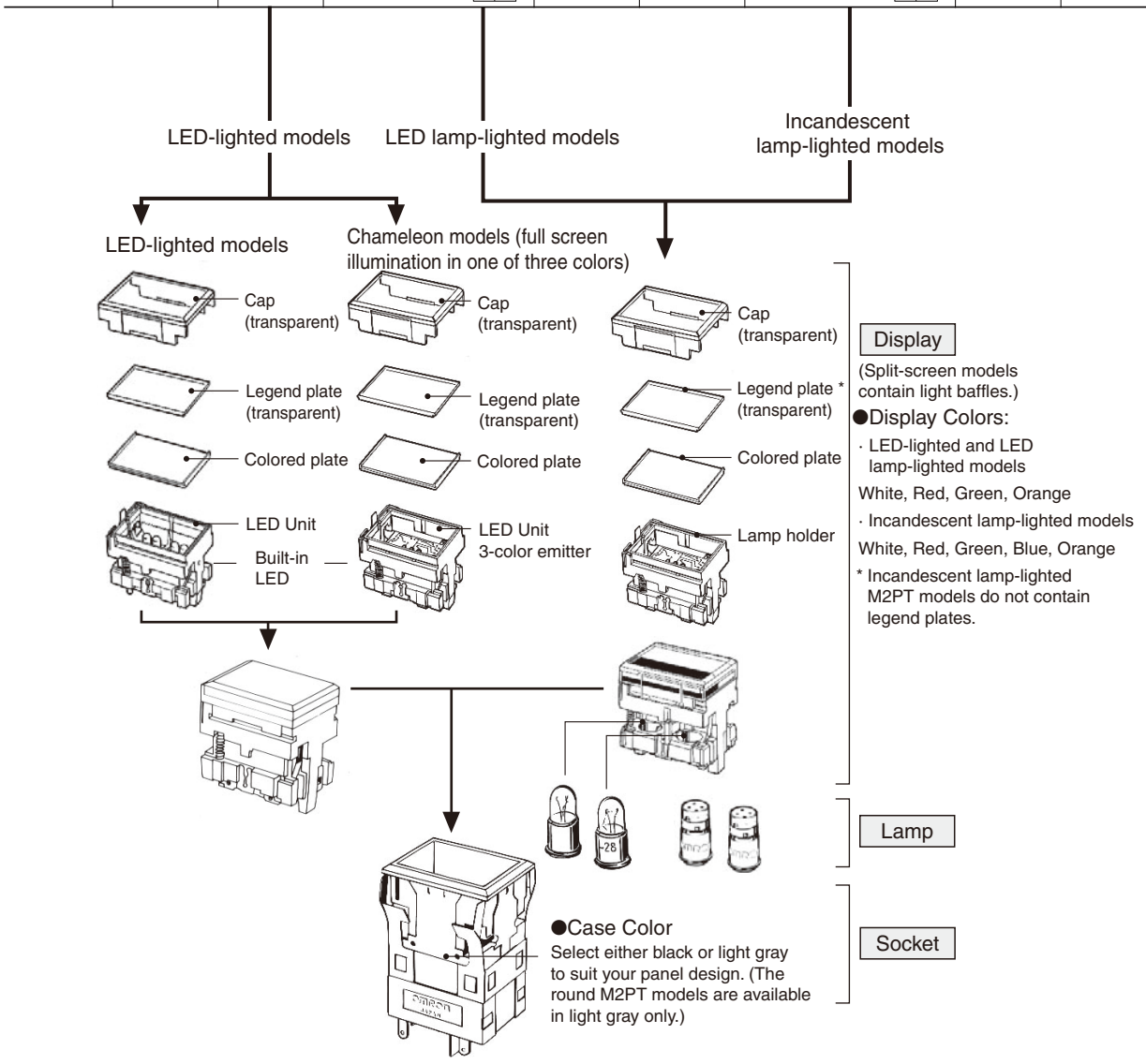
LED and Incandescent Lamp Ratings and Characteristics

Ratings and characteristics the same as those for the A3P Lighted Pushbutton Switches. Refer to the A3P.

Nomenclature

Construction

Lighting method	LED-lighted models (LED is built-in.)		LED lamp-lighted models (LED is not built-in.)			Incandescent lamp-lighted models (Incandescent lamp is not built-in.)			
Models	M2PJ	M2PA	M2PJ		M2PA	M2PT	M2PJ		M2PA	M2PT
Screen pattern	Single screen Horizontal 2-split screen Chameleon (3-color)	Single screen Horizontal 2-split screen Chameleon (3-color)	Single screen Horizontal 2-split screen Vertical 2-split screen	Vertical 3-split screen Horizontal 3-split screen 4-split screen	Single screen Horizontal 2-split screen	Single screen	Single screen Horizontal 2-split screen Vertical 2-split screen	Vertical 3-split screen Horizontal 3-split screen 4-split screen	Single screen Horizontal 2-split screen	Single screen

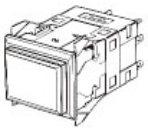


Note: The above diagram for LED lamp-lighted and incandescent lamp-lighted models shows the M2PJ model.

Nomenclature

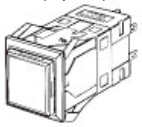
M2P Lighting Method Diagram

M2PJ (rectangular)



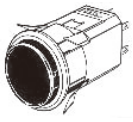
- LED models
  - LED-lighted models
    - Single screen models
    - Horizontal 2-split screen models
    - → • As a set: See page 3. • Individually: See page 6.
  - LED lamp-lighted models
    - Single screen models
    - Horizontal 2-split screen models
    - Vertical 2-split screen models
    - Vertical 3-split screen models
    - Horizontal 3-split screen models
    - 4-split screen models
    - → • Individually: See page 6. (Not available as a set.)
  - Chameleon models
    - Single screen models (Full screen illumination in one of three colors)
    - → • As a set: See page 3. • Individually: See page 6.
- Incandescent lamplighted models
  - Single screen models
  - Horizontal 2-split screen models
  - Vertical 2-split screen models*
  - Vertical 3-split screen models*
  - Horizontal 3-split screen models*
  - 4-split screen models*
  - → As a set: See page 3. Individually: See page 6. *Models indicated with an asterisk are only available individually.

M2PA (square)



- LED models
  - LED-lighted models
    - Single screen models
    - Horizontal 2-split screen models
    - → • As a set: See page 3. • Individually: See page 6.
  - LED lamp-lighted models
    - Single screen models
    - Horizontal 2-split screen models
    - → • Individually: See page 6. (Not available as a set.)
  - Chameleon models
    - Single screen models
    - → • As a set: See page 3. • Individually: See page 6.
- Incandescent lamplighted models
  - Single screen models
  - Horizontal 2-split screen models
  - → • As a set: See page 3. • Individually: See page 6.

M2PT (round)

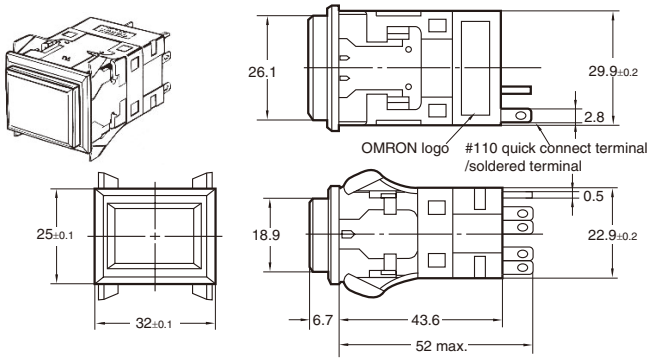


- LED models
  - LED lamp-lighted models
    - Single screen models
    - → • As a set: See page 3. • Individually: See page 6.
- Incandescent lamplighted models
  - Single screen models
  - → • As a set: See page 3. • Individually: See page 6.

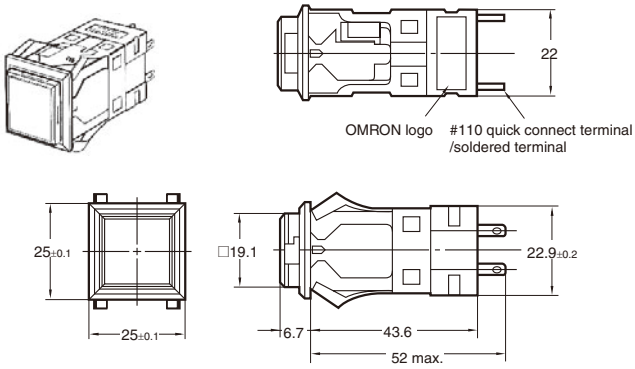
Dimensions

(Unit: mm)

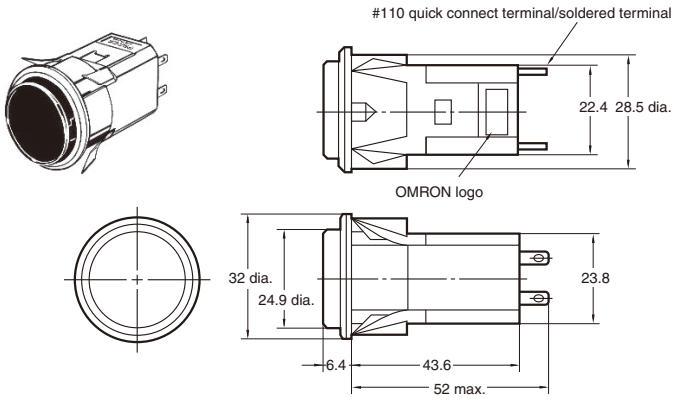
M2PJ (Rectangular) Models



M2PA (Square) Models



M2PT (Round) Models



Note: Use a panel thickness of 0.5 mm for tab terminals #110 and solder terminals.

Accessory Mounting Dimensions

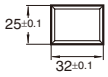
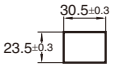
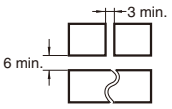
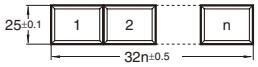
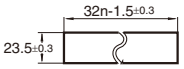
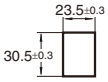
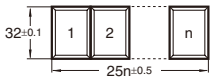
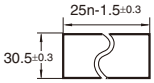
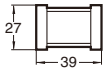
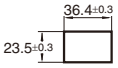
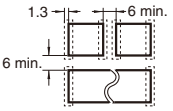
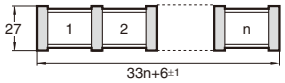
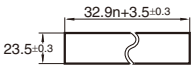
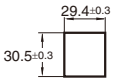
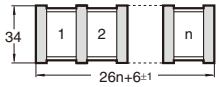
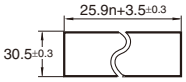
Dimensions for mounting accessories are the same as those for the A3P Lighted Pushbutton Switches. Refer to the A3P.

Dimensions

(Unit: mm)

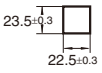
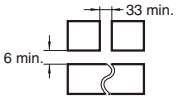
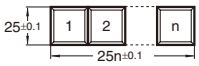
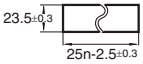
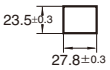
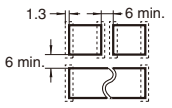
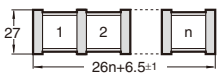
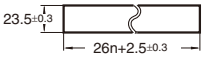
Panel Cutout

M2PJ (Rectangular) Models

Classification		Mounting design	Panel cutout	Remarks
Flange mount models	Individual mounting (Horizontal)			Panel cutout spacing between rows of Units: 
	Multiple mounting (Horizontal)			
	Individual mounting (Vertical)	 Mount to long mounting plate (A3PJ-3002) before use.		
	Multiple mounting (Vertical)	 Mount to long mounting plate (A3PJ-3002) before use.		
Barrier mount models	Individual mounting (Horizontal)			For barrier mount models, refer to Accessories on the A3P. Panel cutout spacing between rows of Units: Dotted line indicates the position of each mounting barrier. 
	Multiple mounting (Horizontal)			
	Individual mounting (Vertical)	 Mount to long mounting plate (A3PJ-3002) before use.		
	Multiple mounting (Vertical)	 Mount to long mounting plate (A3PJ-3002) before use.		

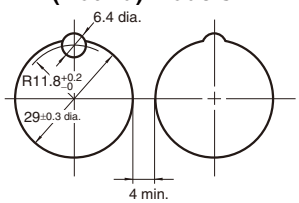
Note: 1. n: Number of Units
2. Recommended panel thickness: 1 to 5 mm
3. Mount the panel before mounting the Switch Guard.
4. If the panel is to be finished (e.g., coated), make sure that the panel meets the specified dimensions after the coating.

M2PA (Square) Models

Classification		Mounting design	Panel cutout	Remarks
Flange mount models	Individual mounting			Panel cutout spacing between rows of Units: 
	Multiple mounting			
Barrier mount models	Individual mounting			Panel cutout spacing between rows of Units: Dotted line indicates the position of each mounting barrier. 
	Multiple mounting			

Note: 1. n: Number of Units
2. Recommended panel thickness: 1 to 5 mm
3. If the panel is to be finished (e.g., coated), make sure that the panel meets the specified dimensions after the coating.

M2PT (Round) Models

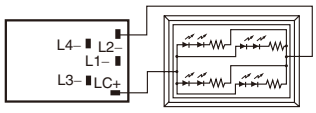
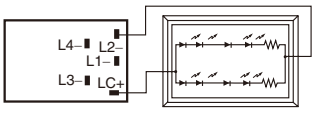
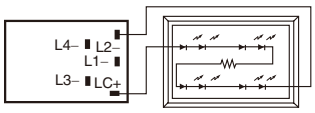
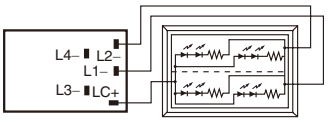
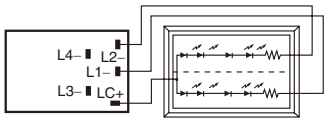
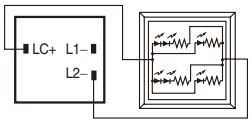
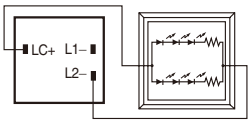
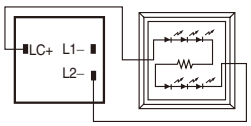
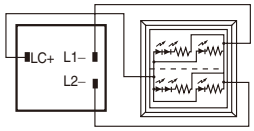
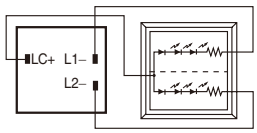


Dimensions

(Unit: mm)

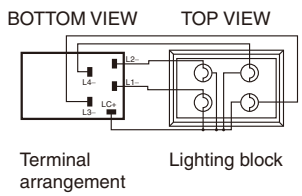
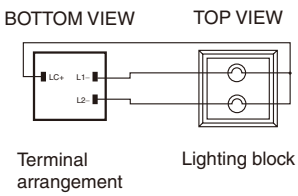
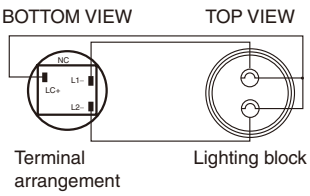
Terminal connections

LED-lighted Models

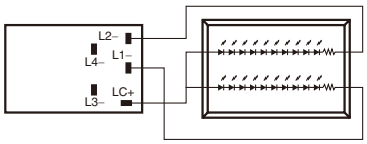
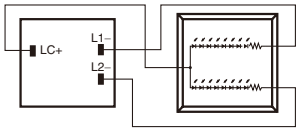
Model	Screen pattern	Rated voltage: 5 VDC	12 VDC	24 VDC
M2PJ	Single screen	BOTTOM VIEW TOP VIEW  Terminal arrangement Lighting block	BOTTOM VIEW TOP VIEW  Terminal arrangement Lighting block	BOTTOM VIEW TOP VIEW  Terminal arrangement Lighting block
	2-split screen	BOTTOM VIEW TOP VIEW  Terminal arrangement Lighting block	BOTTOM VIEW TOP VIEW  Terminal arrangement Lighting block	
M2PA	Single screen	BOTTOM VIEW TOP VIEW  Terminal arrangement	BOTTOM VIEW TOP VIEW  Terminal arrangement Lighting block	BOTTOM VIEW TOP VIEW  Terminal arrangement Lighting block
	2-split screen	BOTTOM VIEW TOP VIEW  Terminal arrangement Lighting block	BOTTOM VIEW TOP VIEW  Terminal arrangement Lighting block	

Incandescent Lamp-lighted/LED Lamp-lighted Models

(All are shown with the OMRON logo facing down. The terminal arrangements are the same as for the LED-lighted models.)

Model / Type	Rectangular M2PJ models	Square M2PA models	Round M2PT models
Indicator			

LED Chameleon Models

Rated voltage / Model	24 VDC
Rectangular M2PJ model	
Square M2PA model	

Terminal Arrangement and Coloring

Chameleon Models

Wiring	LC+	LC+	LC+
	L1-	L2-	L1- and L2- shorted
Coloring	Green	Red	Orange

Safety Precautions

Refer to *Safety Precautions for All Pushbutton Switches* and *Safety Precautions* for the A3P.

Safety Precautions for All Pushbutton Switches

For the individual precautions for a Switch, refer to the *Safety Precautions* in the section for that Switch.

⚠ WARNING

Do not perform wiring with power supplied to the Switch. Do not touch the terminals or other charged parts of the Switch while power is being supplied. Doing so may result in electric shock.

⚠ Caution

Do not apply a voltage between the incandescent lamp and the terminal that is greater than the rated voltage. Doing so may damage the lamp or LED and cause the Operation Unit to pop out.

Always turn OFF the power and wait for 10 minutes before replacing the incandescent lamp. If the lamp is replaced immediately after the power is turned OFF, the remaining heat may cause burns.

Precautions for Correct Use

For details, refer to the *Precautions for Correct Use* in the *Technical Guide for Pushbutton Switches*.

Precautions for Correct Use of Pushbutton Switches

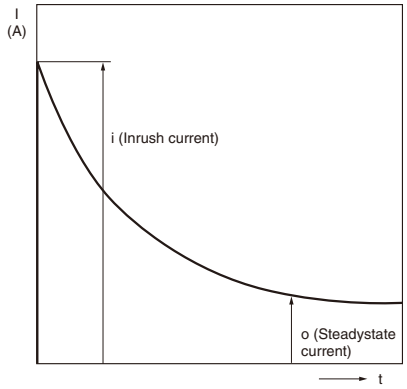
●For the individual precautions for a Switch, refer to the precautions in the section for that Switch.

Electrical Characteristics

1. Operating Load

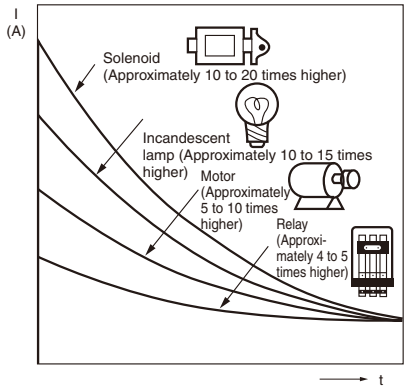
- The switching load capacity of the Switch greatly varies between AC and DC. Always be sure to apply the rated load. The control capacity will drastically drop if it is a DC load. This is because a DC load has no current zero-cross point, unlike an AC load. Therefore, if an arc is generated, it may continue for a comparatively long time. Furthermore, the current direction is always the same, which results in a contact relocation phenomena whereby the contacts easily stick to each other and do not separate when the surfaces of the contacts are uneven.
- Some types of load have a great difference between normal current and inrush current. Make sure that the inrush current is within the permissible value. The greater the inrush current in the closed circuit is, the greater the contact abrasion or shift will be. Consequently, contact weld, contact separation failures, or insulation failures may result. Furthermore, the Switch may be broken or damaged.
- If the load is inductive, counter-electromotive voltage will be generated. The higher the voltage is, the higher the generated energy will be, which will increase the abrasion of the contacts and contact relocation phenomena. Be sure to use the Switch within the rated conditions.

Inrush Current



- Approximate control capacities are given in ratings tables, but these alone are insufficient to guarantee correct operation. For special types of load, with unusual switching voltage or current waveforms, test whether correct operation is possible with the actual load before application.
- When switching for microloads (voltage or current), use a Switch with microload specifications. The reliability of silver-plated contacts, which are used in Switches for standard loads, will be insufficient for microloads.
- When switching microloads or very high loads that are beyond the switching capacity of the Switch, connect a relay suitable for the load.

Type of Load vs. Inrush Current



All the performance ratings given are for operation under the following conditions unless otherwise specified.

Inductive load: A minimum power factor of 0.4 (AC) and a maximum time constant of 7 ms (DC)

Lamp load: An inrush current 10 times higher than the steady-state current

Motor load: An inrush current 6 times higher than the steady-state current

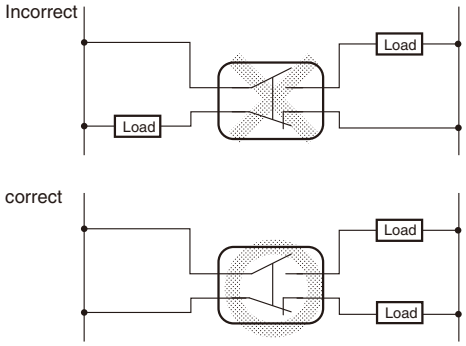
Note: Inductive loads can cause problems especially in DC circuitry. Therefore, it is essential to know the time constants (L/R) of the load.

2. Load Connections

Do not contact a single Switch to two power supplies that are different in polarity or type.

Connection of Different Polarities

The power supply may short-circuit if the loads are connected in the way shown in the "incorrect" example below.

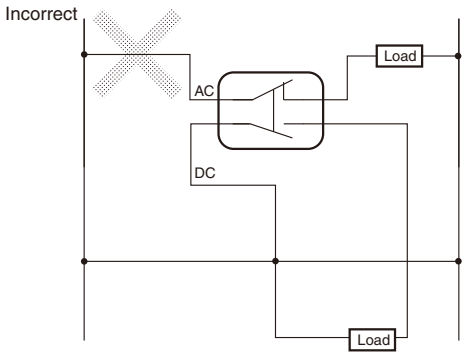


Connect the load to the same polarity.

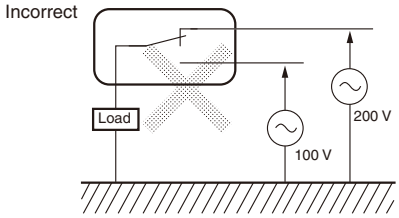
Even in the "correct" example, note that the insulation performance of the switch may deteriorate and the switch life may be shortened because loads are connected to both contacts.

Connection of Different Power Supplies

The DC and AC power may be mixed for the circuit shown below.



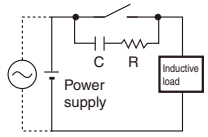
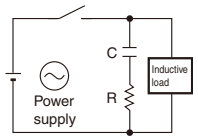
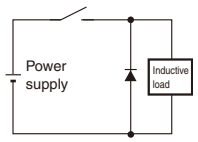
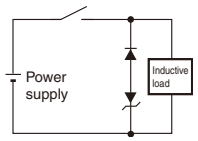
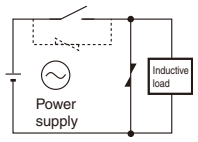
Do not design a circuit where voltage is imposed between contacts, otherwise contact weld may result.



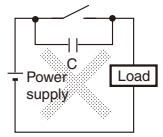
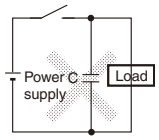
3. Contact Protective Circuit

Apply a contact protective circuit to extend the contact life, prevent noise, and suppress the generation of carbide or nitric acid. Be sure to apply the contact protective circuit correctly, otherwise an adverse effect may occur. The following provides typical examples of contact protective circuits. If the Limit Switch is used in an excessively humid location for switching a load that easily generates arcs, such as an inductive load, the arcs may generate NOx, which will change into HNO_3 if it reacts with moisture. Consequently, the internal metal parts may corrode and the Limit Switch may fail. Be sure to select the ideal contact preventive circuit from the following.

Typical Examples of Contact Protective Circuits

Circuit example		Applicable current		Feature and details	Element selection
		AC	DC		
CR circuit		*	Yes	*When AC is switched, the load impedance must be lower than the CR impedance.	C: 1 to 0.5 μF × switching current (A) R: 0.5 to 1 Ω × switching voltage (V) The values may change according to the characteristics of the load. The capacitor suppresses the spark discharge of current when the contacts are open. The resistor limits the inrush current when the contacts are closed again. Consider the roles of the capacitor and resistor and determine ideal capacitance and resistance values through testing. Basically, use a capacitor with a dielectric strength between 200 and 300 V. When AC is switched, make sure that the capacitor has no polarity.
		Yes	Yes	The operating time will be greater if the load is a relay or solenoid. Connecting the CR circuit in parallel to the load is effective when the power supply voltage is 24 or 48 V and in parallel to the contacts when the power supply voltage is 100 to 200 V.	
Diode method		No	Yes	Energy stored in the coil is changed into current by the diode connected in parallel to the load. Then the current flowing to the coil is consumed and Joule heat is generated by the resistance of the inductive load. The reset time delay with this method is longer than that in the CR method.	The diode must withstand a peak inverse voltage 10 times higher than the circuit voltage and a forward current as high or higher than the load current.
Diode and Zener diode method		No	Yes	This method will be effective if the reset time delay caused by the diode method is too long.	Use a Zener diode with a Zener voltage that is approximately 1.2 × power supply voltage as, depending on the environment, the load may not operate.
Varistor method		Yes	Yes	This method makes use of constant-voltage characteristic of the varistor so that no high-voltage is imposed on the contacts. This method causes a reset time delay. Connecting a varistor in parallel to the load is effective when the supply voltage is 24 to 48 V and in parallel to the contacts when the supply voltage is 100 to 200 V.	---

Do not apply contact protective circuits as shown below.

	This circuit effectively suppresses arcs when the contacts are OFF. The capacitor will be charged, however, when the contacts are OFF. Consequently, when the contacts are ON again, short-circuited current from the capacitance may cause contact weld.		This circuit effectively suppresses arcs when the contacts are OFF. When the contacts are ON again, however, charge current will flow to the capacitor, which may result in contact weld.

Switching a DC inductive load is usually more difficult than switching a resistive load. By using an appropriate contact protective circuit, however, switching a DC inductive load will be as easy as switching a resistive load.

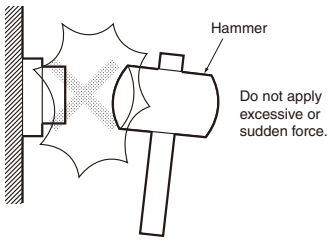
4. Switching

- Do not use the Switch for loads that exceed the rated switching capacity or other contact ratings. Doing so may result in contact weld, contact separation failures, or insulation failures. Furthermore, the Switch may be broken or damaged.
- Do not touch the charged switch terminals while power is supplied, otherwise an electric shock may be received.
- The life of the Switch varies greatly with switching conditions. Before using the Switch, be sure to test the Switch under actual conditions. Make sure that the number of switching operations is within the permissible range. If a deteriorated Switch is used continuously, insulation failures, contact weld, contact failures, switch damage, or switch burnout may result.
- Do not apply excessive or incorrect voltages to the Switch or incorrectly wire the terminals. Otherwise, the Switch may not function properly and have an adverse effect on external circuitry. Furthermore, the Switch itself may become damaged or burnt.
- Do not use the Switch in locations where flammable or explosive gases are present. Otherwise switching arcs or heat radiation may cause a fire or explosion.
- Do not drop or disassemble the Switch, otherwise it may not be capable of full performance. Furthermore, it may be broken or burnt.

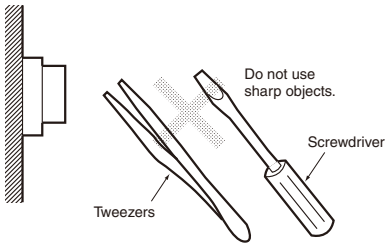
Mechanical Conditions

Operating Force and Operating Method

- Fingertip operation is an important feature of Pushbutton Switches. In terms of Switch operation, Pushbutton Switches differ greatly from detection switches such as Microswitches. Operating the Switch using a hard object (e.g., metal), or with a large or sudden force, may deform or damage the Switch, resulting in faulty or rough operation, or shortening of the Switch life. The strength varies with the size and construction of the Switch. Use the appropriate Switch for the application after confirming the operating method and operating force with this catalog.

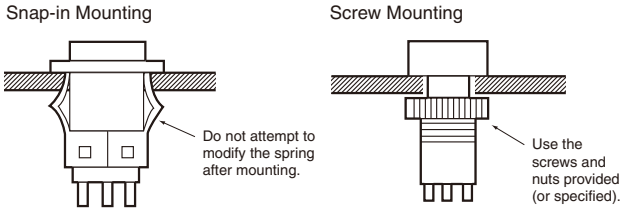


- The pushbutton surface is composed of resin. Therefore, do not attempt to operate the pushbutton using a sharp object, such as a screwdriver or a pair of tweezers. Doing so may damage or deform the pushbutton surface and result in faulty operation.

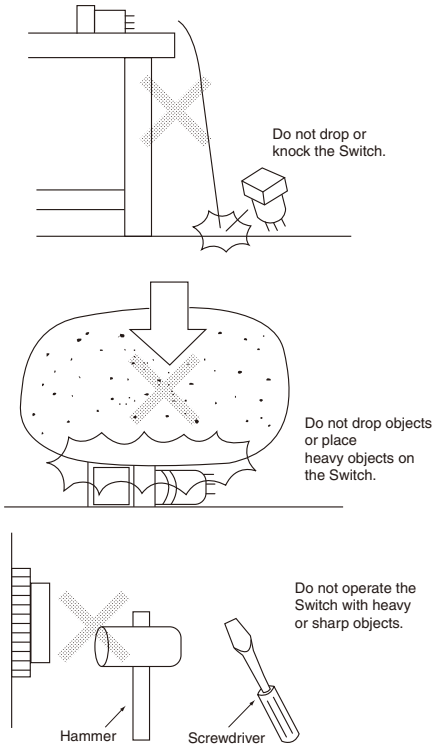


Mounting

- Switches can be broadly divided into two categories according to mounting method: panel-mounting models and PCB-mounting models. Use the appropriate model for the mounting method required. Basically, panel-mounting Switches can withstand a greater operating force than PCB-mounting Switches. If, however, the panel thickness or the panel-cutout dimensions are not suitable for the Switch, it may not be able to withstand the normal operating force. With continuous mounting in particular, select a panel of a thickness that is easily sufficient to withstand the total operating force.
- Panel-mounting Switches can be divided into two categories according to the mounting method: snap-in mounting models and screw-mounting models. Snap-in mounting Switches are held in place with the elasticity of resin or a metal leaf spring. Do not attempt to modify the spring after mounting. Doing so may result in faulty operation or damage the mounting structure. Mount screw-mounting models using the screws and nuts provided (or individually specified). Tighten the screws to the specified torque. Mounting with different screws or nuts, or tightening beyond the specified torque may result in distortion of the inside of the case or damage to the screw section.



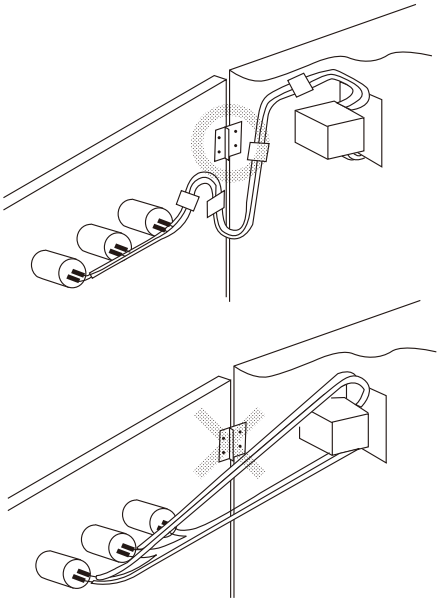
- Subjecting the Switch to severe vibrations or shock may result in faulty operation or damage. Also, many of the Switches are composed of resin so contact with sharp objects may result in damage to the surface. This kind of damage may spoil the appearance of the Switch or result in faulty operation. Do not throw or drop the Switch.



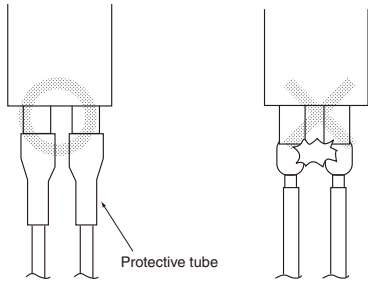
Mounting Precautions

Wiring

- Perform wiring so that the lead wires will not be caught on other objects as this will cause stress on the Switch terminals. Wire the Switch so that there is slack in the lead wires and fix lead wires at intermediate points. If the panel to which the Switch is mounted needs to be opened and closed for maintenance purposes, perform wiring so that the opening and closing of the panel will not interfere with the wiring.



- With miniature Switches, the gap between the terminals is very narrow. Use protective or heat-absorbing tubes to prevent burning of the wire sheath or shorting.



Soldering

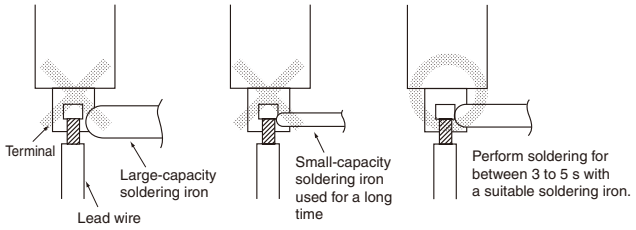
- There are two methods for soldering the Switch: hand soldering and automatic soldering. In addition, automatic soldering itself can be divided into two types : dip soldering and reflow soldering. Use the soldering method appropriate for the mounting method.

Typical Soldering Example

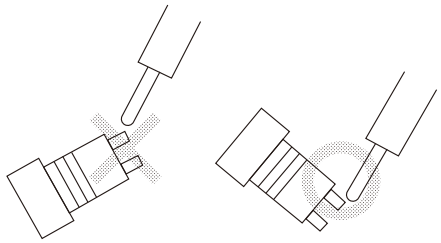
Method		Soldering device	Application
Hand soldering		Soldering iron	Small quantities Different materials Lead wire terminals
Automatic soldering	Dip soldering	Jet soldering bath Dip soldering bath	Large quantities of discrete terminals
	Reflow soldering	Infrared reflow (IR) soldering bath Vapor-phase (VPS) reflow soldering bath	Large quantities of miniature SMD terminals

- Do not use soldering flux that contains chlorine. Doing so may result in metal corrosion.

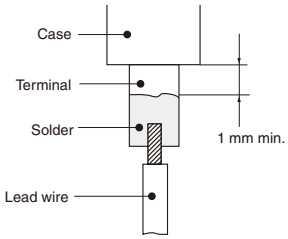
- Perform hand soldering using the appropriate soldering iron.



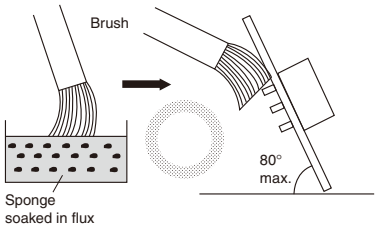
- With the exception of PCB-mounting Switches, when performing hand soldering, hold the Switch so that the terminals point downwards so that flux does not get inside the Switch.

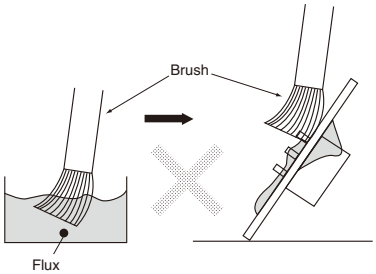


- Leave a gap of at least 1 mm between the soldered parts and the surface of the case so that flux does not get inside the Switch.

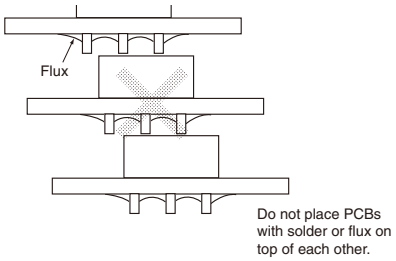


- When applying flux using a brush, use a sponge soaked in flux as shown below. Do not apply more than is necessary. Also, apply the flux with the PCB inclined at an angle of less than 80° so that flux does not flow onto the mounting surface of the Switch.

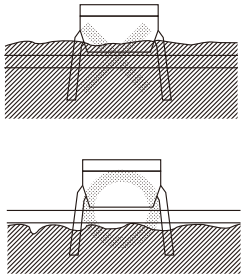




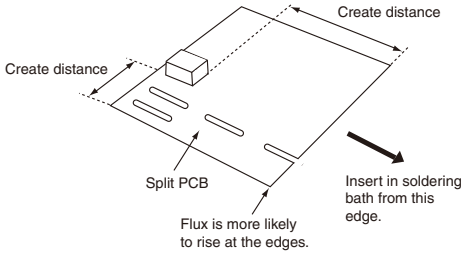
- Do not place PCBs that have had flux applied or have been soldered on top of each other. Otherwise, the flux on the PCBs solder surface may stain the upper part of the Switch or even permeate the inside of the Switch and cause contact failure. Be sure to insert a special PCB stocker.



- When performing soldering with a dip soldering bath, ensure that the flux does not reach a higher level than the PCB.

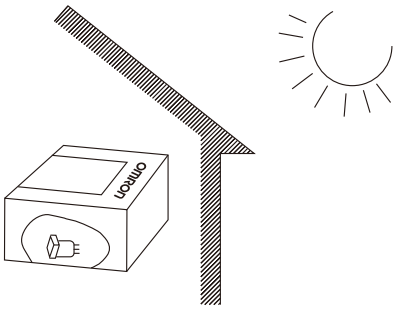


- Flux is especially likely to rise up at the edges of the PCB. If the Switch is mounted near the edge of the PCB, create a gap between the edge by using a split PCB, and insert the PCB in the soldering bath so that the edge that is farthest from the Switch enters the bath first.



Storage

- When the Switch is left unused or stored for long periods, the ambient conditions can have a great effect on the condition of the Switch. In certain environments, leaving the Switch exposed may result in deterioration (i.e., oxidation, or the creation of an oxide film) of the contacts and terminals, causing the contact resistance to increase, and making it difficult to solder the lead wires. Therefore, store in a well-ventilated room, inside, for example, a non-hygroscopic case, in a location where no corrosive gases are present.



- If the Switch is stored in a location where it will be exposed to direct light, colored resin in the colored plate may fade. Therefore, do not store the Switch in locations where it will be exposed to direct light.

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