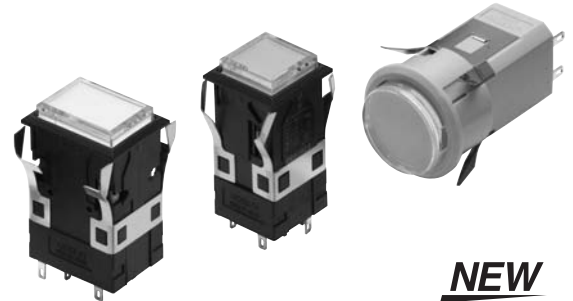



Lighted Pushbutton Switch (Square) Ultra Bright LED Type A3P

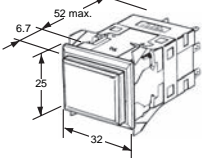
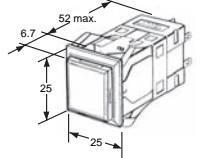
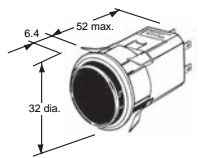
Large Square-bodied Lighted Pushbutton Switches New models added with Ultra LEDs.

- New models with ultra bright LEDs added to single-screen models.
- Previous models not changed.
Line up of models in seven colors (the previous red, orange, green, and white models, and the new yellow, blue, and pure white models).
- Popular maintenance lock added.

**NEW**

 Refer to *Safety Precautions for All Pushbutton Switches/Indicators* and *Safety Precautions* in the A3P datasheet.

List of Models

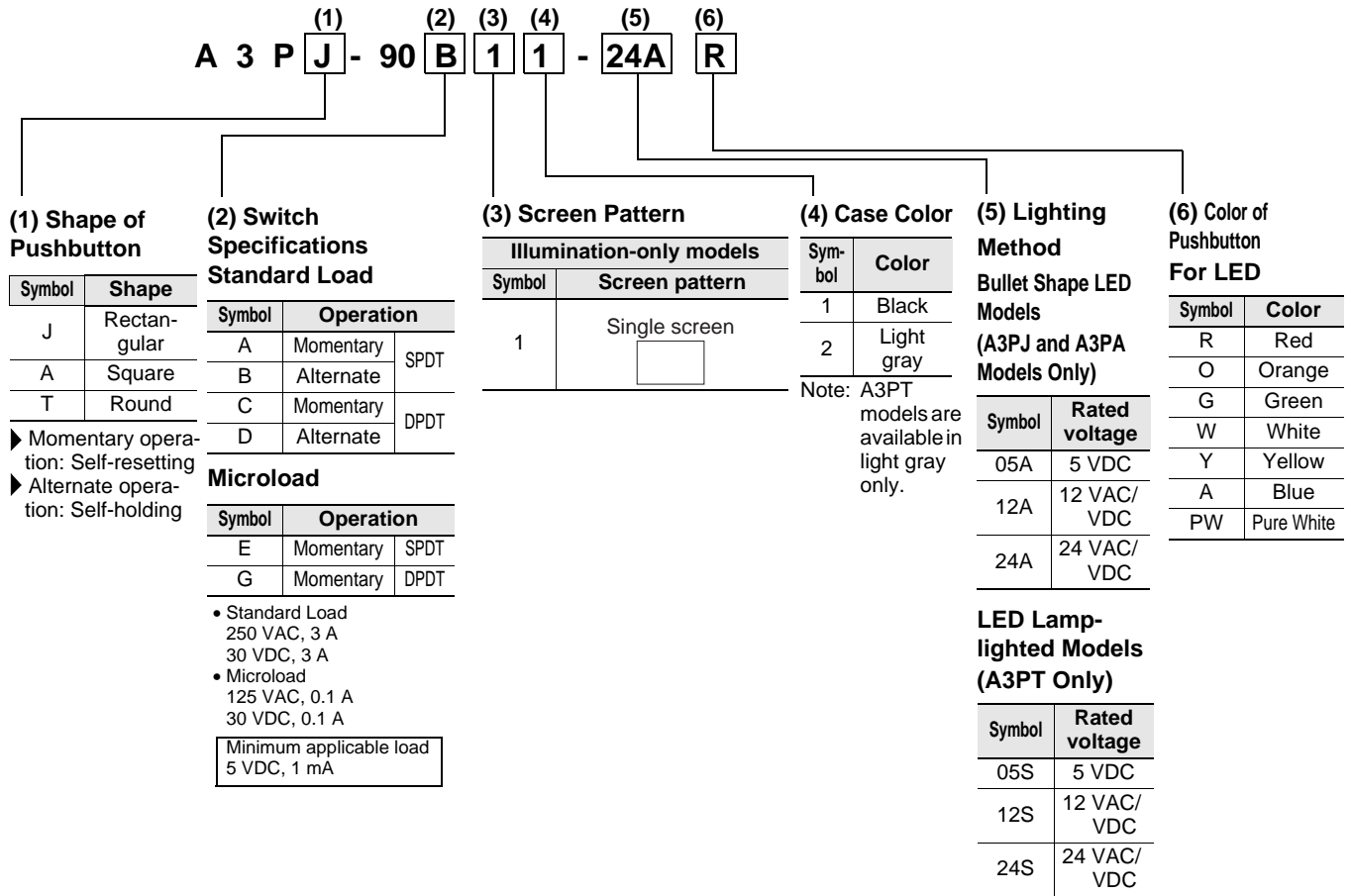
Model	Appearance
A3PJ (Rectangular)	
A3PA (Square)	
A3PT (Round)	

A3P

Model Number Structure

Model Number Legend The model numbers used to order sets of Units are illustrated below. One set comprises the Pushbutton, Lamp, and Switch.

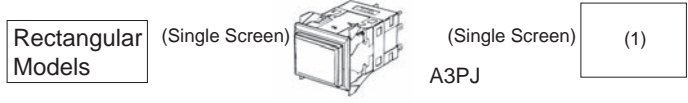
For information on combinations, refer to *Ordering Information* on pages page 3 and 4.



Color of screen	Symbol	R	Y	G	W	O	A	PW
	Color	Red	Yellow	Green	White	Orange	Blue	Pure White
Color of Plate		Red	Yellow	Green	White	Orange	Blue	White
LED		Red	Pure Yellow	Green	Amber	Orange	Blue	Pure White

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 Pushbutton, Lamp, and Switch.
 (Not all combinations are possible. Ask your OMRON representative for details.)



Contact type	No. of outputs	Lighting method Pushbutton color symbol	Operation Case color	Momentary operation (Self-resetting)		Alternate operation (Self-holding)	
				Black	Light gray	Black	Light gray
Standard Loads	SPDT	Bullet Shape LEDs R, O, G, W, Y, A or PW	5 VDC	A3PJ-90A11-05A(1)	A3PJ-90A12-05A(1)	A3PJ-90B11-05A(1)	A3PJ-90B12-05A(1)
			12 VAC/DC	A3PJ-90A11-12A(1)	A3PJ-90A12-12A(1)	A3PJ-90B11-12A(1)	A3PJ-90B12-12A(1)
			24 VAC/DC	A3PJ-90A11-24A(1)	A3PJ-90A12-24A(1)	A3PJ-90B11-24A(1)	A3PJ-90B12-24A(1)
	DPDT	Bullet Shape LEDs R, O, G, W, Y, A or PW	5 VDC	A3PJ-90C11-05A(1)	A3PJ-90C12-05A(1)	A3PJ-90D11-05A(1)	A3PJ-90D12-05A(1)
			12 VAC/DC	A3PJ-90C11-12A(1)	A3PJ-90C12-12A(1)	A3PJ-90D11-12A(1)	A3PJ-90D12-12A(1)
			24 VAC/DC	A3PJ-90C11-24A(1)	A3PJ-90C12-24A(1)	A3PJ-90D11-24A(1)	A3PJ-90D12-24A(1)
Microloads	SPDT	Bullet Shape LEDs R, O, G, W, Y, A or PW	5 VDC	A3PJ-90E11-05A(1)	A3PJ-90E12-05A(1)	-	-
			12 VAC/DC	A3PJ-90E11-12A(1)	A3PJ-90E12-12A(1)	-	-
			24 VAC/DC	A3PJ-90E11-24A(1)	A3PJ-90E12-24A(1)	-	-
	DPDT	Bullet Shape LEDs R, O, G, W, Y, A or PW	5 VDC	A3PJ-90G11-05A(1)	A3PJ-90G12-05A(1)	-	-
			12 VAC/DC	A3PJ-90G11-12A(1)	A3PJ-90G12-12A(1)	-	-
			24 VAC/DC	A3PJ-90G11-24A(1)	A3PJ-90G12-24A(1)	-	-

Note: Enter the desired color symbol for the Pushbutton in (1). (R) = Red, (O) = Orange, (G) = Green, (W) = White, (Y) = Yellow, (A) = Blue, (PW) = Pure White.

Example: Red A3PJ-90A11-24AR

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 Pushbutton, Lamp, and Switch.



Contact type	No. of outputs	Lighting method Pushbutton color symbol	Operation Case color	Momentary operation (Self-resetting)		Alternate operation (Self-holding)	
				Black	Light gray	Black	Light gray
Standard Loads	SPDT	Bullet Shape LEDs R, O, G, W, Y, A or PW	5 VDC	A3PA-90A11-05A(1)	A3PA-90A12-05A(1)	A3PA-90B11-05A(1)	A3PA-90B12-05A(1)
			12 VAC/DC	A3PA-90A11-12A(1)	A3PA-90A12-12A(1)	A3PA-90B11-12A(1)	A3PA-90B12-12A(1)
			24 VAC/DC	A3PA-90A11-24A(1)	A3PA-90A12-24A(1)	A3PA-90B11-24A(1)	A3PA-90B12-24A(1)
	DPDT	Bullet Shape LEDs R, O, G, W, Y, A or PW	5 VDC	A3PA-90C11-05A(1)	A3PA-90A12-05A(1)	A3PA-90D11-05A(1)	A3PA-90D12-05A(1)
			12 VAC/DC	A3PA-90C11-12A(1)	A3PA-90C12-12A(1)	A3PA-90D11-12A(1)	A3PA-90D12-12A(1)
			24 VAC/DC	A3PA-90C11-24A(1)	A3PA-90C12-24A(1)	A3PA-90D11-24A(1)	A3PA-90D12-24A(1)
Microloads	SPDT	Bullet Shape LEDs R, O, G, W, Y, A or PW	5 VDC	A3PA-90E11-05A(1)	A3PA-90E12-05A(1)	-	-
			12 VAC/DC	A3PA-90E11-12A(1)	A3PA-90E12-12A(1)	-	-
			24 VAC/DC	A3PA-90E11-24A(1)	A3PA-90E12-24A(1)	-	-
	DPDT	Bullet Shape LEDs R, O, G, W, Y, A or PW	5 VDC	A3PA-90G11-05A(1)	A3PA-90G12-05A(1)	-	-
			12 VAC/DC	A3PA-90G11-12A(1)	A3PA-90G12-12A(1)	-	-
			24 VAC/DC	A3PA-90G11-24A(1)	A3PA-90G12-24A(1)	-	-

Note: Enter the desired color symbol for the Pushbutton in (1). (R) = Red, (O) = Orange, (G) = Green, (W) = White, (Y) = Yellow, (A) = Blue, (PW) = Pure White.

Example: Red A3PA-90A11-24AR



Contact type	No. of outputs	Lighting method	Operation Case color	Momentary operation (Self-resetting)	Alternate operation (Self-holding)	Pushbutton color symbol
				Light gray	Light gray	
Standard Loads	SPDT	LED lamp	5 VDC	A3PT-90A12-05S(1)	A3PT-90B12-05S(1)	R O G W Y A PW
			12 VAC/DC	A3PT-90A12-12S(1)	A3PT-90B12-12S(1)	
			24 VAC/DC	A3PT-90A12-24S(1)	A3PT-90B12-24S(1)	
	DPDT		5 VDC	A3PT-90C12-05S(1)	A3PT-90D12-05S(1)	
			12 VAC/DC	A3PT-90C12-12S(1)	A3PT-90D12-12S(1)	
			24 VAC/DC	A3PT-90C12-24S(1)	A3PT-90D12-24S(1)	
Microloads	SPDT	5 VDC	A3PT-90E12-05S(1)	-		
		12 VAC/DC	A3PT-90E12-12S(1)	-		
		24 VAC/DC	A3PT-90E12-24S(1)	-		
	DPDT	5 VDC	A3PT-90G12-05S(1)	-		
		12 VAC/DC	A3PT-90G12-12S(1)	-		
		24 VAC/DC	A3PT-90G12-24S(1)	-		

Note: Enter the desired color symbols for the Pushbutton in (1). (R) = Red, (O) = Orange, (G) = Green, (W) = White, (Y) = Yellow, (A) = Blue, (PW) = Pure White.

Example: Red A3PT-90A12-24SR

Accessories and Tools

The accessories and tools are the same as those for the A3P. Refer to the A3P datasheet.

Specifications

Approved Standard Ratings

UL (File No. E41515), CSA (File No. LR45258)

Standard Load: 5 A at 125 VAC
 3 A at 250 VAC
 Microload: 0.1 A at 125 VAC
 0.1 A at 30 VDC

Note: Certification has been obtained for the Switch Unit.
 For detailed information on individual products that have received certification, consult your supplier.

CCC (GB14048.5)

Standard Load: 3 A at 250 VAC
 4 A at 30 VDC
 Microload: 0.1 A at 125 VAC
 0.1 A at 30 VDC

Ratings

Contact Ratings

Silver Alloy Contacts (for Standard Loads)

Rated voltage (V)	Non-inductive load (A)				Inductive load (A)			
	Resistive load		Lamp load		Inductive load		Motor load	
	NC	NO	NC	NO	NC	NO	NC	NO
125 VAC	5		0.7		3		1.3	
250 VAC	3		0.5		2		0.8	
8 VDC	5		2		4		3	
14 VDC	5		2		4		3	
30 VDC	4		2		3		3	
125 VDC	0.4		0.05		0.4		0.05	
250 VDC	0.2		0.03		0.2		0.03	

Note: 1. The above values are for steady-state currents.
 2. Inductive load: Power factor = 0.4; time constant = 7 ms.
 3. The lamp load has an inrush current of 10 times the steady-state current.
 4. The motor load has an inrush current of 6 times the steady-state current.

Standard testing condition
 (1) Ambient temperature: 20 ± 2°C
 (2) Ambient humidity: 65 ± 5%RH
 (3) Operating frequency: 20 times/min.

Gold Alloy Contacts (for Microloads)

Rated voltage (V)	0.1 A at 30 VDC (resistive load); 0.1 A at 125 VAC (resistive load)
Minimum applicable load	1 mA at 5 VDC

Bullet Shape LED and LED Lamp Ratings

Bullet Shape LEDs

Model		A3PJ/M2PJ	A3PA/M2PA
Applied voltage	Rated voltage	Rated current	Rated current
		Single screen	Single screen
5 VDC±5%	5 VDC	40 mA	20 mA
12 VDC±5%	12 VDC	20 mA	10 mA
24 VDC±5%	24 VDC	10 mA	

LED Lamps

Applied voltage	Rated voltage	Rated current
5 VDC±5%	5 VDC	8 mA
12 VAC/VDC±5%	12 VDC	
24 VAC/VDC±5%	24 VDC	

Characteristics

Operating frequency	Mechanical	120 operations/minute max. *1
	Electrical	30 operations/minute max.
Insulation resistance		100 MΩ min. (at 500 VDC)
Contact resistance	Standard load	40 mΩ max. (initial value)
	Microload	100 mΩ max. (initial value)
Dielectric strength	Between terminals of same polarity	1,000 VAC, 50/60 Hz for 1 minute *2
	Between terminals of different polarity	2,000 VAC, 50/60 Hz for 1 minute
	Between current-carrying metal part and ground	2,000 VAC, 50/60 Hz for 1 minute
	Between each terminal and non-current-carrying metal part	2,000 VAC, 50/60 Hz for 1 minute
Between lamp terminals		1,000 VAC, 50/60 Hz for 1 minute *3
Vibration resistance	Malfunction	10 to 55 Hz, 1.5 mm double amplitude (1 ms max.)
Shock resistance	Destruction	500 m/s² max.
	Malfunction	200 m/s² max. (1 ms max.)
Life expectancy	Mechanical	Momentary operation models: 1,000,000 operations min. Alternate operation models: 200,000 operations min. (One operation consists of set and reset operations.)
	Electrical	100,000 operations min.
Weight		Approx. 30 g
Inrush current	NC	Silver contact: 10 A max.
	NO	Silver contact: 10 A max.
Ambient operating temperature		Bullet Shape LEDs: -10°C to 40°C (with no icing or condensation) LED Lamps: -10°C to 50°C (with no icing or condensation)
Ambient operating humidity		35% to 85%RH
Ambient storage temperature		-25°C to 65°C
Degree of protection		IP40
Electric shock protection class		Class II
PTI (proof tracking index)		175
Pollution degree		3 (IEC947-5-1)

*1. With alternate operation models, 60 operations/minute max. One operation cycle consists of set and reset operations.

*2. 600 VAC for microloads.

*3. With no incandescent lamp or LED lamp mounted.

A3P




Specifications

Operating Characteristics

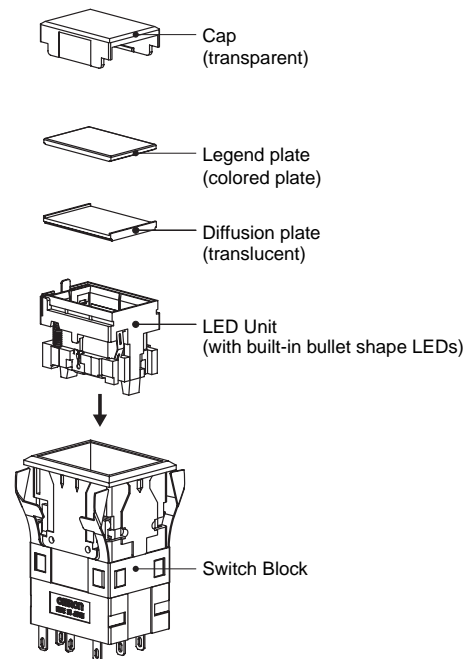
Operating Characteristics	Model	A3PJ series		A3PA series		A3PT series	
		Momentary operation models	Alternate operation models	Momentary operation models	Alternate operation models	Momentary operation models	Alternate operation models
Operating force	OF max.	5.88 N	6.86 N	5.88 N	6.86 N	3.92 N	4.90 N
Releasing force	RF min.	0.39 N	0.29 N	0.39 N	0.29 N	0.39 N	0.29 N
Total travel	TT	Approx. 3.5 mm	Approx. 3.5 mm	Approx. 3.5 mm	Approx. 3.5 mm	Approx. 3.5 mm	Approx. 3.5 mm
Pretravel	PT max.	3 mm	3 mm	3 mm	3 mm	3 mm	3 mm
Lock travel alternate	LTA min.	---	0.5 mm	---	0.5 mm	---	0.5 mm

Nomenclature

Model Structure

Lighting method	Bullet Shape LED Models (LED is built-in.)		LED Lamp-lighted Models (LED lamp is not built-in.)
	A3PJ	A3PA	A3PT
Models			
Screen patterns	Single screen 	Single screen 	Single screen 

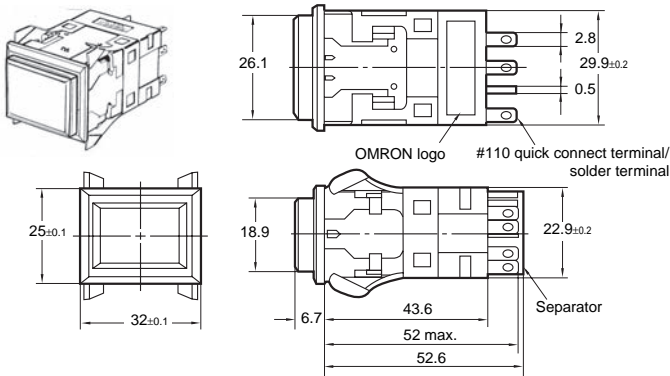
Example: A3PJ with Bullet Shape LED Lighting



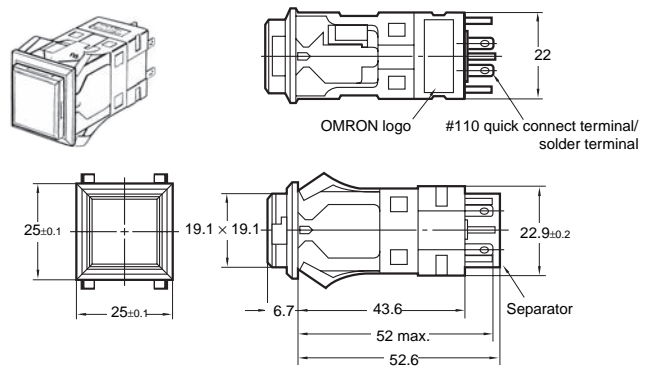
Dimensions The Dimension shows 2-switch outputs.

(Unit: mm)

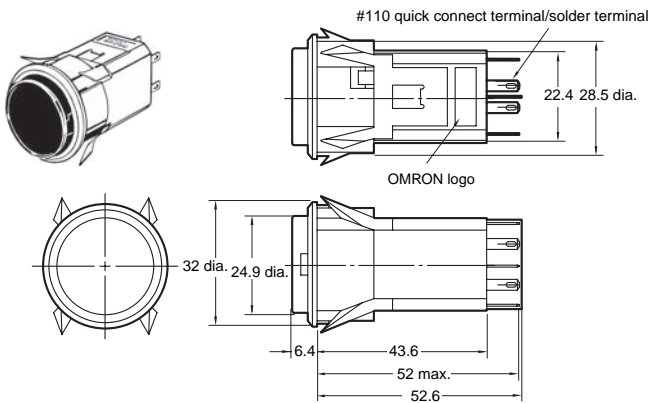
A3PJ (Rectangular) Models



A3PA (Square) Models



A3PT (Round) Models



Note: The thickness of tab terminals #110 and solder terminals is 0.5 mm.

Terminal Connections

Bullet Shape LED Models

(The terminal arrangement diagram shows a 1-switch output. Connections to terminals from the lighting block are the same for 2 outputs.)

Model	Rated voltage Screen pattern	5 VDC		12 VDC		24 VDC	
		Bottom view	Top view	Bottom view	Top view	Bottom view	Top view
A3PJ	Single screen						
		Terminal arrangement	Lighting block	Terminal arrangement	Lighting block	Terminal arrangement	Lighting block
A3PA	Single screen						
		Terminal arrangement	Lighting block	Terminal arrangement	Lighting block	Terminal arrangement	Lighting block

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.)

Output	Model	Round A3PT models
SPDT	Bottom view	
	Top view	

Panel Cutout (If you use a Switch Guard or Seal Cover, refer to *Switch and Guard Mounting Dimensions* or *Seal Cover Mounting Dimensions* in the A3P datasheet.)

A3PJ (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)			
	Multiple mounting (Vertical)			
Barrier mount models	Individual mounting (Horizontal)			For barrier mount models, refer to <i>Accessories</i> in the A3P datasheet. Panel cutout spacing between rows of Units: (Dotted line indicates the position of each mounting barrier.)
	Multiple mounting (Horizontal)			
	Individual mounting (Horizontal)			
	Multiple mounting (Vertical)			

Note: 1. n: Number of Units

2. Recommended panel thickness: 1 to 5 mm


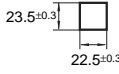
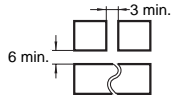
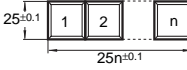
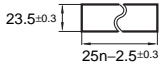


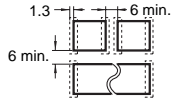
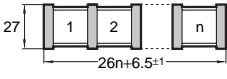
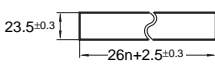
3. Mount the panel before mounting the Switch Guard.

4. If the panel is to be finished (e.g., coated), make sure that the panel meets the specified dimensions after the coating.

Dimensions

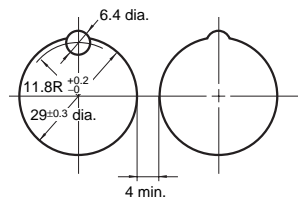
(Unit: mm)

A3PA (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. 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.

A3PT (Round) Models



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

Safety Precautions

Refer to *Safety Precautions for all Pushbutton Switches/Indicators*.

Caution

Do not apply a voltage higher than the maximum rated operating voltage between the lamp terminals, as there is a risk that the incandescent lamp or LED will be damaged, and the Pushbutton will be ejected.



When replacing the incandescent lamp, first turn OFF the power supply, and then wait 10 minutes before performing replacement, as the lamp is still hot immediately after the power is turned OFF, so there is a risk of burns.



Precautions for Correct Use

1. Always make sure that the power is turned OFF before mounting, removing, or wiring the Switch, or performing maintenance. Electric shock or fire may occur.
2. After wiring the Switch, make sure that there is a suitable isolation distance.

Wiring

- Solder quickly and correctly at 350°C max and for 3 s or less. Wait for one minute after soldering before exerting any external force on the solder.

Operating Environment

- Do not use in locations that are subject to dust, oil, or metal filings as these may penetrate the interior of the Switch and cause malfunction.

LED (for VDC)

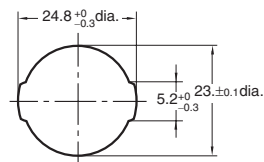
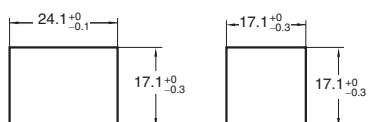
- Check the terminal polarity when wiring.
- The rated voltage is shown on the plate on the back of the lighting unit, so be sure to use within the voltage shown.
- An LED current-limiting resistor is built in, so there is no need to mount an external resistor.

Incandescent Lamp

- Apply 80% of the rated voltage (operating voltage) to the incandescent lamp to improve life expectancy and incandescence.

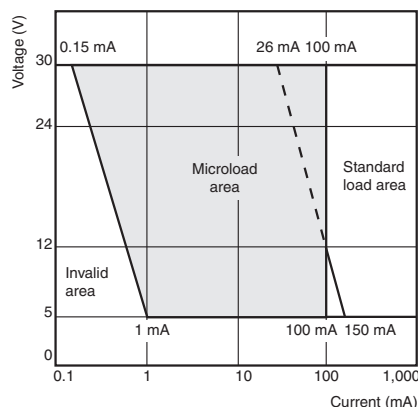
Character Plate (Character Film)

- If preparing the character plate separately, use a heat-resistant film with a thickness of 0.1 to 0.3 mm.



Using Microloads

- Using a standard load switch when a microload circuit is opened or closed may cause contact failure on the contacts. Use the switch within the operating range. (Refer to the diagram below.) Even when using microload models within the operating range shown below, if inrush current occurs when the contact is opened or closed, it may cause the contact surface to become rough, and so decrease life expectancy. Therefore, insert a contact protection circuit where necessary. The minimum applicable load is the N-level reference value. This value indicates the malfunction reference level for the reliability level of 60% ($\lambda 60$) (conforming to JIS C5003). The equation, $\lambda 60 = 0.5 \times 10^{-6}/\text{time}$ indicates that the estimated malfunction rate is less than 1/2,000,000 with a reliability level of 60%.



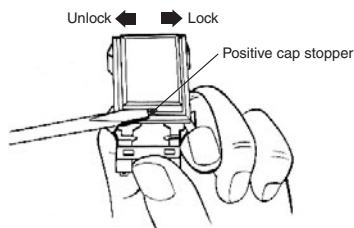
Others

- If the panel is to be finished (e.g., coated), make sure that the panel meets the specified dimensions after the coating.

Assembly/Disassembly

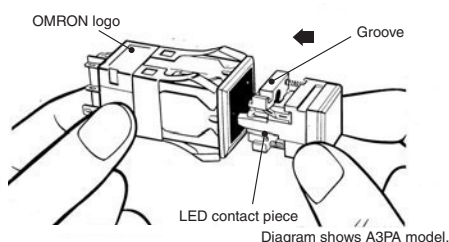
A3PJ/M2PJ (Rectangular Models), A3PA/M2PA (Square Models)

Locking/Unlocking Positive Cap Lock Mechanism



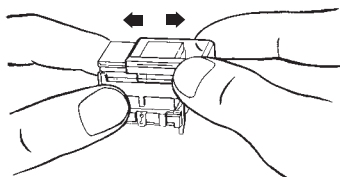
Mounting Pushbutton

- Be sure to mount the Pushbutton with the correct orientation. Align the groove on the Pushbutton, the projections in the Switch, and the LED contact piece before pushing the Pushbutton into the Switch.
- When dismantling the Pushbutton, use the Extractor (A3PJ-5080) for easy dismantling.



Removing/Mounting Cap

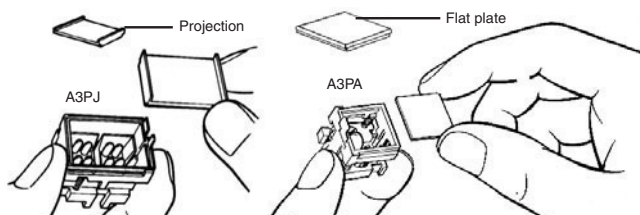
Insert the A3PA from the open side into the theft-prevention stopper.



Mounting Colored Plate

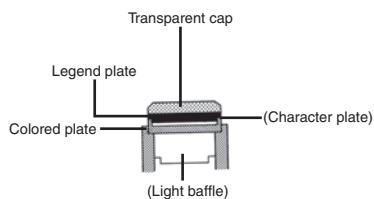
Place the colored plate on the plunger case with the dull side of the colored plate facing downward.

With A3PJ split-screen models, be sure that the projections on the upper surface of the colored plate face outward. For the A3PA, make sure that the flat plate is facing upwards.



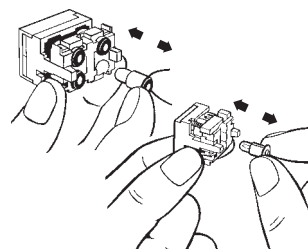
Mounting Character Plate (Character Frame) and Legend Plate

Mount the legend plate for the A3PJ under the layered surfaces and mount the cap, as shown below.



Mounting and Replacing LED and Incandescent Lamps

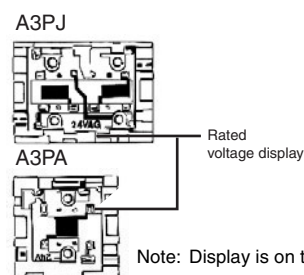
If using an A3PA (square) model with one incandescent lamp, insert the lamp in the center hole.



Note: Built-in LEDs cannot be replaced.

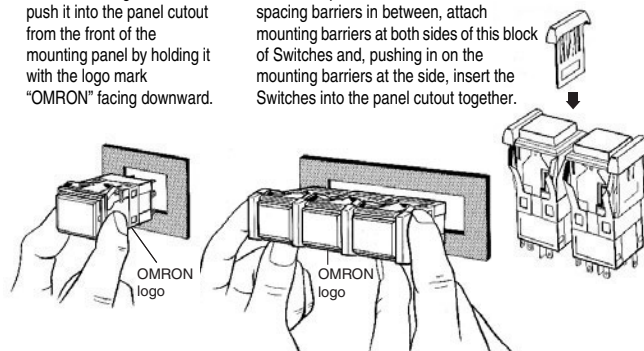
LED Rated Voltage Display (LED Models Only)

The LED rated voltage is shown between the built-in resistors on the back of the lighting unit. Use within a range of $\pm 5\%$.



Mounting Switch onto Panel

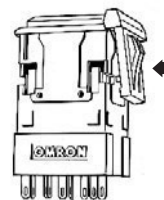
- **Individual Mounting and Barrier Mounting**
When mounting the Switch, push it into the panel cutout from the front of the mounting panel by holding it with the logo mark "OMRON" facing downward.
- **Multiple Barrier Mounting (A3PJ)**
When mounting a number of Switches in line on the panel, link the Switches with spacing barriers in between, attach mounting barriers at both sides of this block of Switches and, pushing in on the mounting barriers at the side, insert the Switches into the panel cutout together.



Mounting Barriers

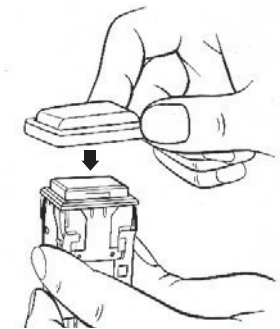
Mount each part by pushing it in the direction of the arrow shown in the corresponding illustration below.

Barrier mounting



Mounting Seal Cover

After mounting the seal cover onto the flange of the Switch, push the Switch into the panel cutout.

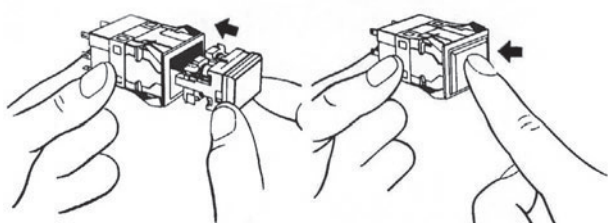


Inscribing the Legend Plate

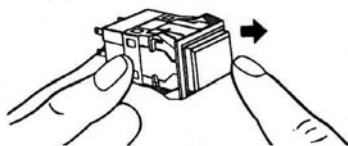
- Inscribe the legend plate to a depth of 0.5 mm max.
- The legend plate is made from polycarbonate resin. To coat the legend plate, use an alcohol-based coating such as melamine, phthalic acid, or acrylic.

Maintenance Lock

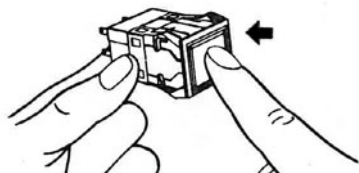
1. First, when you insert the transparent lens while pressing the center, the maintenance lock mechanism will be activated, and the Switch will not operate. Lamp replacement and other maintenance can be performed without turning OFF the power supply to devices and equipment. Use an insertion force of 4 kg.



2. Next, when you remove your finger from the Switch, the lock will be released.



3. The Switch will start to operate when the lighting unit is pressed the second time.



A3P

Safety Precautions

Refer to *Safety Precautions for all Pushbutton Switches/Indicators* for common precautions.

Read the *Safety Precautions* in the A3P datasheet.

For technical information and FAQs, refer to Technical Support on the OMRON Industrial Automation website (<http://www.ia.omron.com>).

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