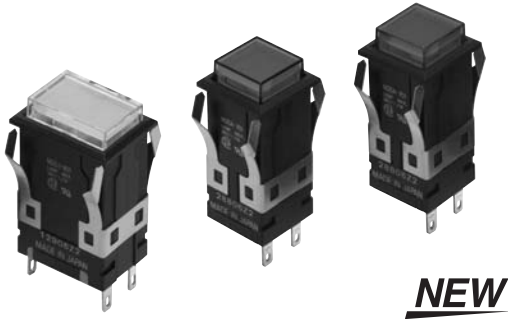



# Indicator (Square) Ultra Bright LED Type M2S

## Indicator Series with Square 40-mm Body.

### New models added with Ultra LEDs.

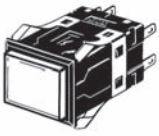
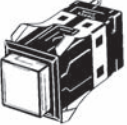
- New models with ultra bright LEDs added to singlescreen models.
- Previous models not changed.  
Line up of models in seven colors (the previous red, orange, green, and white models, and the new yellow, blue, and pure white models).



 Refer to *Safety Precautions for All Pushbutton Switches/Indicators* and *Safety Precautions* in the A3S datasheet.

## List of Models

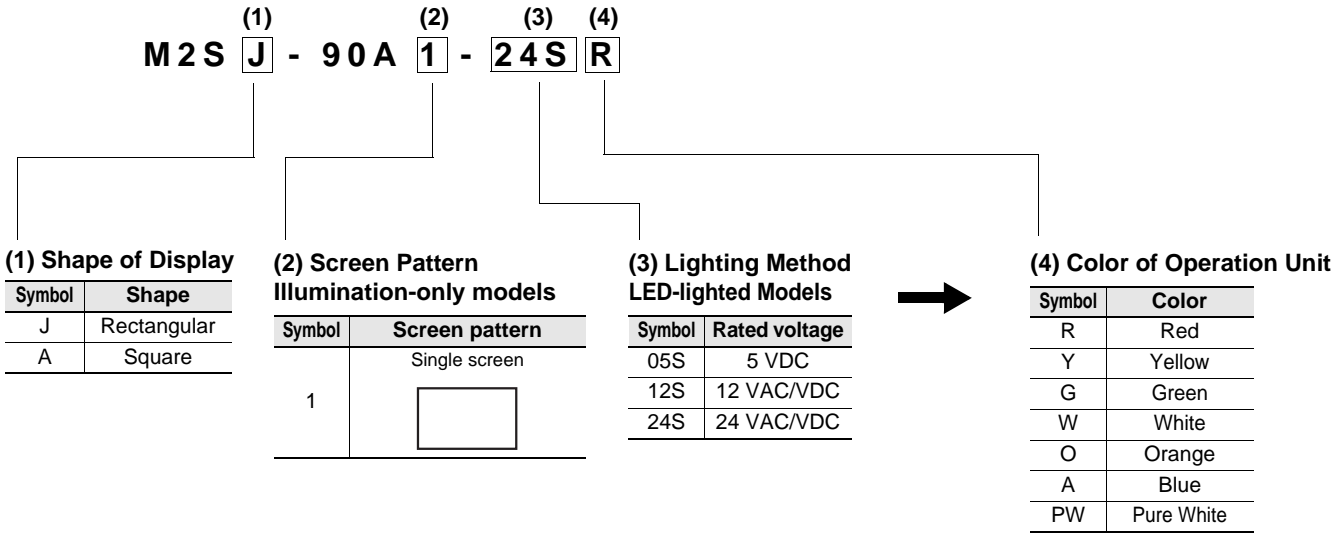
### Indicators

Appearance	Model
Rectangular 	M2SJ
Square 	M2SA

# M2S

## 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 Unit.  
For information on combinations, refer to *Ordering Information* on page 3.

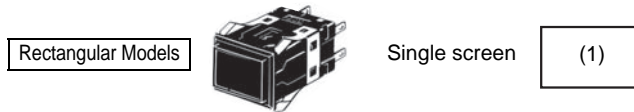


Color of screen	Symbol	R	Y	G	W	O	A	PW
	<b>Color</b>	<b>Red</b>	<b>Yellow</b>	<b>Green</b>	<b>White</b>	<b>Orange</b>	<b>Blue</b>	<b>Pure White</b>
<b>Color of plate</b>		Red	Yellow	Green	White	Orange	Blue	White
<b>LED</b>		Red	Pure White	Green	Amber	Orange	Blue	Pure White

## 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 Operation Unit, Lamp, and Socket Unit.

### Rectangular M2SJ



Lighting method	Case color	Black	Lamp holder color symbol (color)
	LED lamp	5 VDC	
	12 VAC/DC	<b>M2SJ-90A1-12S(1)</b>	R, O, G, W, Y, A, or PW
	24 VAC/DC	<b>M2SJ-90A1-24S(1)</b>	

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 M2SJ-90A1-24SR

### Square M2SA



Lighting method	Case color	Black	Lamp holder color symbol (color)
	LED lamp	5 VDC	
	12 VAC/DC	<b>M2SA-90A1-12S(1)</b>	R, O, G, W, Y, A, or PW
	24 VAC/DC	<b>M2SA-90A1-24S(1)</b>	

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 M2SA-90A1-24SR

## Accessories, Replacements, and Tools

The accessories, replacements, and tools are the same as those for the A3S. Refer to the A3S datasheet.

## Specifications

### Approved Standard Ratings

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

LED: 24 VDC max.

**Note:** Certification has been obtained for the Indicator.

For detailed information on individual products that have received certification, consult your supplier.

### Ratings

<b>Ambient operating temperature</b>	-10 to 50°C (with no icing or condensation)
<b>Ambient operating humidity</b>	35% to 85%RH
<b>Ambient storage temperature</b>	-25 to 65°C (with no icing or condensation)

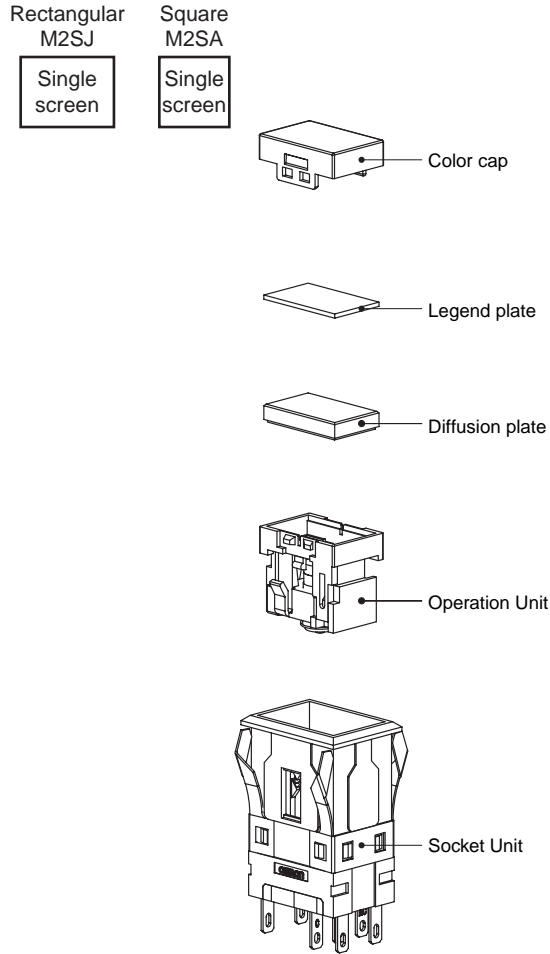
### LED Lamp Ratings

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

# M2S

## Nomenclature

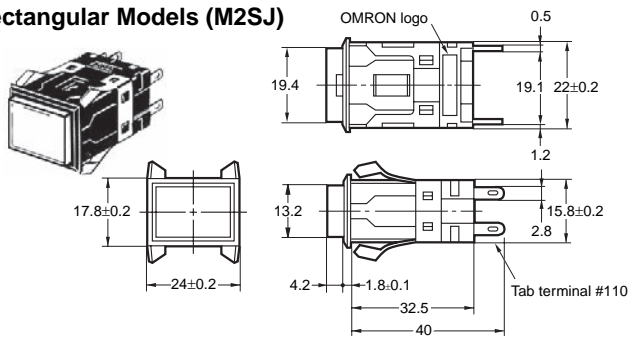
### Model Structure



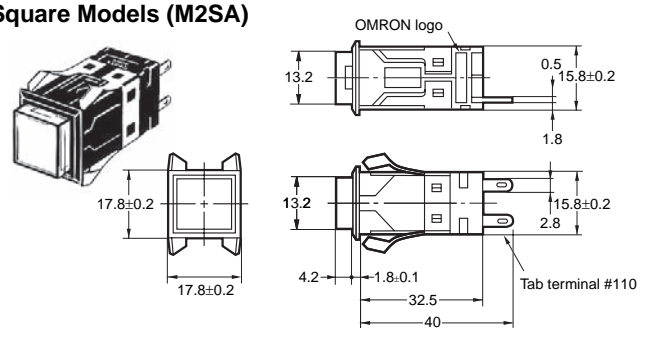
## Dimensions

(Unit: mm)

### Rectangular Models (M2SJ)



### Square Models (M2SA)



**Note:** Unless otherwise specified, a tolerance of  $\pm 0.4$  mm applies to all dimensions. Recommended panel thickness: 1 to 4 mm

### Terminal Connections (All are shown with the OMRON logo facing down.)

#### LED-lighted Models

Type	Model	Rectangular Models (M2SJ)	Square Models (M2SA)
Indicator	Bottom View	<p>Terminal arrangement</p>	<p>Terminal arrangement</p>
	Top View	<p>Lighting block</p>	<p>Lighting block</p>

Dimensions

**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 A3S datasheet.)

M2SJ

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 		Panel cutout spacing between rows of Units: 
	Multiple mounting, horizontal 		
	Individual mounting, vertical 		
	Multiple mounting, vertical 		

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

M2SA

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: 
	Multiple mounting 		

**Note:** 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*.

### Precautions for Correct Use

#### Mounting

- 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.

#### Wiring

- For wiring, use a wire size that is appropriate for the applied voltage and the supplied current. Be sure to perform soldering according to the following conditions. Using the Switch with incomplete soldering may result in errors and heat, which may cause fire.

(1) Manual soldering: Use a soldering iron with a tip temperature of 350°C maximum and complete soldering within 3 seconds.

(2) Dip soldering: Solder at 350°C for 3 s or less.

Wait for one minute after soldering before exerting any external force on the solder.

- Use non-corrosive liquid rosin as the flux.
- If screw-tightened terminals are used, hold the Socket Unit Set or Socket Unit and install the lead wiring applying a torque of less than 0.98 N·m to the Socket Unit. Applying a torque of more than 0.98 N·m may result in damage. The tightening torque is 0.59 to 0.78 N·m.
- Make sure that the insulating sheath of the wires does not come in contact with the Unit. If wiring is performed with the insulating sheath of the wires coming in contact with the Unit, use wire with a minimum heat resistance of 100°C.
- After wiring the Switch, make sure that there is a suitable isolation distance.

#### Operating Environment

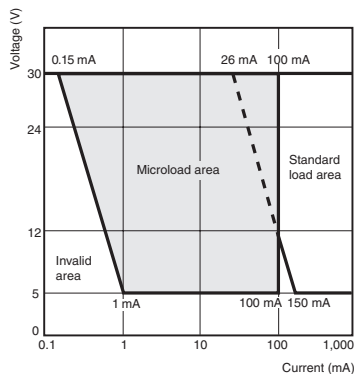
- Do not use in locations that are subject to dust, oil, or metal fillings, because these may penetrate the interior the Switch and cause malfunction.

#### Using Microloads

- Using a standard load switch when a microload circuit is opened or closed may cause wear 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 contacts are 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%.



#### LED Lamp

- A current-limiting resistor for the LED lamp is built in, so no external resistor is required.

Rated voltage	Built-in limiting resistance
5 VDC	39 Ω
12 VDC	270 Ω
24 VDC	1300 Ω

#### Incandescent Lamp

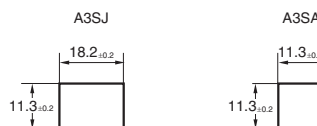
- It is advantageous in terms of service life and heat generation to apply 80% of the rated voltage (operating voltage) to the incandescent lamp.

#### Operation

- Always mount the Operation Unit before operating the Switch. (Using your fingers or tweezers to operate moving parts of the Switch may deform internal parts and cause malfunctions.)

#### Character Film

- If the character film is to be specially prepared, use heat-resistant film with a maximum thickness of 0.2 mm.



#### Others

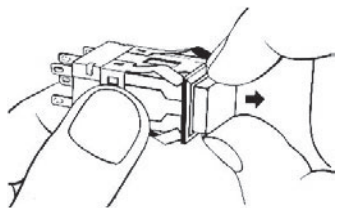
- If the panel is to be finished (e.g., coated), make sure that the panel meets the specified dimensions after the coating.

## Application

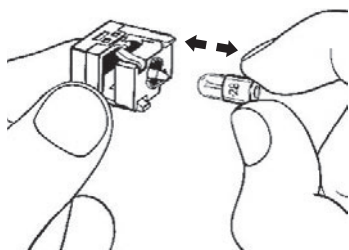
### Replacing Incandescent and LED Lamps and Panel Mounting

#### Removing the Display

- Grasp the groove on the color cap surface, and pull it firmly toward you to remove the Display.
- An Extractor (A3PJ-5080) is available to conveniently remove the Display.

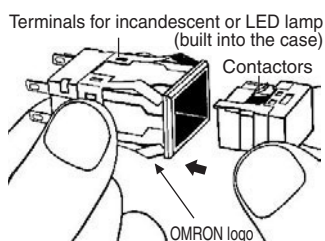


#### Mounting and Replacing Incandescent and LED Lamps



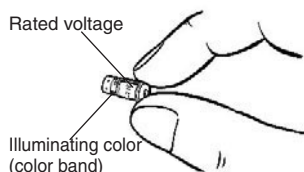
#### Inserting the Display into the Socket Unit

Insert the Operation Unit in the proper direction. With the OMRON logo downward, insert the Operation Unit so that the lamp/LED terminals on the inside surface of the Unit case and the contactors of the Display.



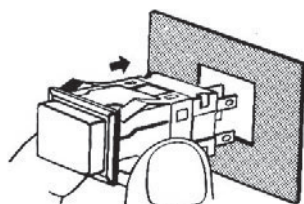
#### Rated Voltage and Color of LED

The LED voltage rating is indicated on the base. Use the LED within  $\pm 5\%$  of voltage range.



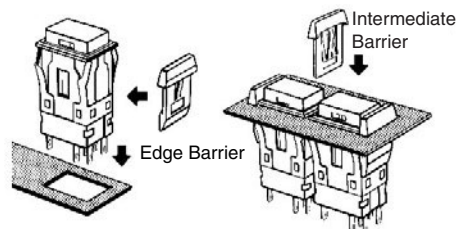
#### Mounting to the Switch Panel

Mount the Socket Unit to the panel by inserting it from the front of the panel.  
Mount the Socket Unit so that the OMRON logo is downward.



#### Barrier Mounting

- Place the Edge Barrier on the side of the Socket Unit, and then insert it into the panel.
- Insert the Intermediate Barrier between the Switches after inserting the Socket Units into the panel.



#### Inscribing Legend Plate Characters

##### Inscribing

A3SJ (M2SJ)

- Inscription depth: 0.5 mm max.
- The legend plate is made of polycarbonate, so apply an alcohol-based paint coating, such as melamine, phthalate, or acrylic resin paint when marking the legend.



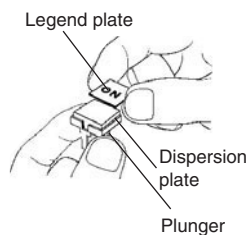
Legend plate

- When replacing the legend plate, be careful that the coil spring in the Display does not become removed.

**Assembling the Legend Plate (Plunger)  
A3SA (M2SA)**

(LED Lamp)

(1) Assemble the color plate to the plunger, and then assemble the legend plate on top.

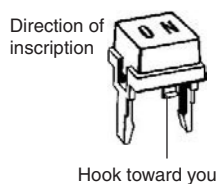


(Incandescent Lamp)

(2) Inscribe the surface of the plunger, and then coat the surface.

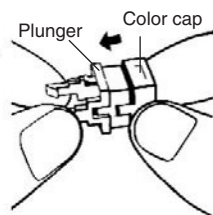
**Lighted Square Pushbutton Switches**

Assemble models A3SA-5301 to A3SA-5305 so that the hook is toward you.



Note: Legend plates cannot be used with A3SA Displays for incandescent lamps.

(3) Assemble the color cap to the inscribed plunger.

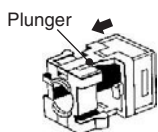


(4) Push in the color in the direction of the arrow to assemble the plunger and the lamp holder.

**Lighted Square Pushbutton Switches**

A3SA

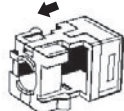
Perform the assembly so that the wide groove and the hook on the plunger are in the same direction.



**Indicator**

M2SA

Perform the assembly so that the wide groove and the hook on the plunger are in the same direction.





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