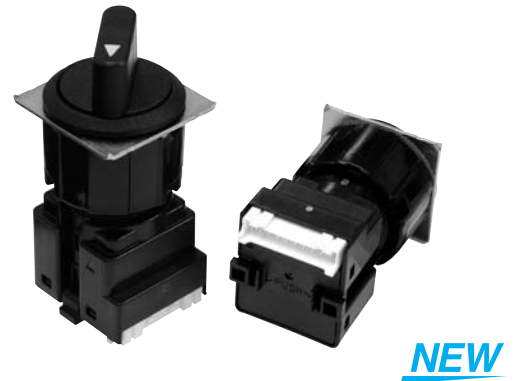


# Plateau Head Knob-type Selector Switch A3US

## Easy connector enables less assembly and less wiring

- 50 mm body length.
- Highly reliable Major Omron basic switch, SS model built in.
- Possible cross over wiring on circuit construction.
- Easy one push to connect the Operation and Switch Units.



## Model Number Structure

Model Number Legend....For information on combinations, refer to Ordering Information.

**A3US-S<sup>(1)</sup>-<sup>(2)</sup>M-AC<sup>(3)</sup>**

### (1) Flange Color

| Symbol | Color    |
|--------|----------|
| B      | Black    |
| M      | Metallic |

### (2) Number of Notches and Reset Method

| Symbol | Number of notches | Reset method |
|--------|-------------------|--------------|
| 2M     | 2                 | Manual       |
| 3M     | 3                 |              |

### (3) Degree of Protection

| Symbol | Protection            |
|--------|-----------------------|
| Blank  | IP40                  |
| 5      | IP67 (Oil-proof type) |

## Ordering Information

### Switches

Degree of Protection: IP40

Flange Color: Black

| Type                                   | No. of notches | Reset method | Output | Model                | Selector color |
|----------------------------------------|----------------|--------------|--------|----------------------|----------------|
| Plateau Head Knob-type Selector Switch | 2              | Manual       | SPDT   | <b>A3US-SB-2M-AC</b> | Black          |
|                                        | 3              |              | DPDT   | <b>A3US-SB-3M-AC</b> |                |

Flange Color: Metallic

| Type                                   | No. of notches | Reset method | Output | Model                | Selector color |
|----------------------------------------|----------------|--------------|--------|----------------------|----------------|
| Plateau Head Knob-type Selector Switch | 2              | Manual       | SPDT   | <b>A3US-SM-2M-AC</b> | Black          |
|                                        | 3              |              | DPDT   | <b>A3US-SM-3M-AC</b> |                |

Degree of Protection: IP65 (Oil-proof Type)

Flange Color: Black

| Type                                   | No. of notches | Reset method | Output | Model                 | Selector color |
|----------------------------------------|----------------|--------------|--------|-----------------------|----------------|
| Plateau Head Knob-type Selector Switch | 2              | Manual       | SPDT   | <b>A3US-SB-2M-AC5</b> | Black          |
|                                        | 3              |              | DPDT   | <b>A3US-SB-3M-AC5</b> |                |

Flange Color: Metallic

| Type                                   | No. of notches | Reset method | Output | Model                 | Selector color |
|----------------------------------------|----------------|--------------|--------|-----------------------|----------------|
| Plateau Head Knob-type Selector Switch | 2              | Manual       | SPDT   | <b>A3US-SM-2M-AC5</b> | Black          |
|                                        | 3              |              | DPDT   | <b>A3US-SM-3M-AC5</b> |                |

## Accessories and Tools (Sold Separately)

The accessories and tools are the same as those for the A3U. Refer to the A3U datasheet.

## Specifications

### Approved Standard Ratings

| Certification Authority | UL (See Note: 1 and Note: 2) | CSA (See Note: 1 and Note: 2) | TÜV (See Note: 3) |
|-------------------------|------------------------------|-------------------------------|-------------------|
| Certification no.       | UL508<br>CSA C22.2 No.14     | CSA C22.2 No. 14              | EN60947-5-1       |
| Rating                  | 30 VDC 0.1 A                 | 30 VDC 0.1 A                  | 12 30 VDC 0.1 A   |
| File no.                | E41515                       | 2650068                       | J50236157         |

**Note: 1.** Only Switch Blocks are recognized by UL/CSA. (Surrounding air Temperature: 55 °C)

**Note: 2.** Please use the power supply specified in UL/CSA class 2.

**Note: 3.** Use 4A 250V as short-circuit protective device when using under EN-compliant rating standard (IEC60127-2 SS1).

### Ratings

Contacts

30 VDC, 0.1 A (Resistive load)

Minimum applicable load: 1 mA at 5 VDC

Rated values are obtained from tests conducted under the following conditions.

1. Load: Resistive load

2. Mounting conditions: No vibration and no shock

3. Temperature: 20 ± 2 °C

4. Operating frequency: 20 operations/min

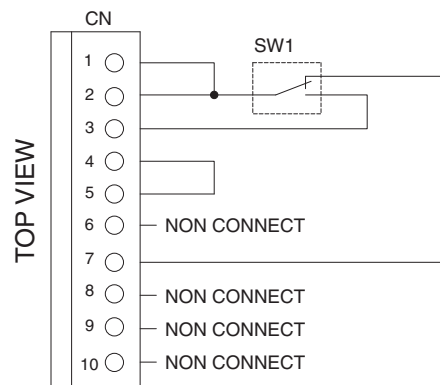
### Characteristics

| Item                                         |                                         | Knob-type Selector Switch                                      |
|----------------------------------------------|-----------------------------------------|----------------------------------------------------------------|
| Allowable operating frequency                | Mechanical                              | 30 operations/minute max.                                      |
|                                              | Electrical                              | 30 operations/minute max.                                      |
| Insulation resistance                        |                                         | 100 MΩ min. (at 500 VDC)                                       |
| Contact resistance                           |                                         | 250 mΩ max. (initial value)                                    |
| Dielectric strength                          | Between terminals of same polarity      | 500 VAC, 50/60 Hz for 1 minute                                 |
|                                              | Between each terminal and ground        | 1,500 VAC, 50/60 Hz for 1 minute                               |
| Vibration resistance                         | Malfunction                             | 10 to 55 Hz, 1.5-mm double amplitude (malfunction within 1 ms) |
| Shock resistance                             | Malfunction                             | 300 m/s <sup>2</sup> max. (malfunction within 1 ms)            |
| Durability                                   | Mechanical                              | 250,000 operations min.                                        |
|                                              | Electrical                              | 100,000 operations min.                                        |
| Connector holding force                      |                                         | 40 N max.                                                      |
| Rated insulation voltage (Ui)                |                                         | 30 V (EN60947-5-1)                                             |
| Electric shock protection class              |                                         | Class II                                                       |
| Degree of contamination                      |                                         | 3 (EN60947-5-1)                                                |
| Impulse withstand voltage                    | Between terminals of same polarity      | 800 V (EN60947-5-1)                                            |
|                                              | Between terminals of different polarity |                                                                |
|                                              | Between each terminal and ground        |                                                                |
| Conditional short-circuit current            |                                         | 100 A (EN60947-5-1)                                            |
| Conventional enclosed thermal current (Ithe) |                                         | 0.1 A (EN60947-5-1)                                            |
| Weight                                       |                                         | Approx. 30 g                                                   |
| Degree of protection                         |                                         | IP40, IP65 (Oil-proof type)                                    |
| Ambient operating temperature                |                                         | -20 °C to 70 °C<br>(with no icing or condensation)             |
| Ambient operating humidity                   |                                         | 35 % to 85 % RH                                                |
| Ambient storage temperature                  |                                         | -40 °C to 70 °C<br>(with no icing or condensation)             |
| Ambient storage humidity                     |                                         | 35 % to 85 % RH                                                |

### Operating Characteristics

| Features                      | A3US                                               |
|-------------------------------|----------------------------------------------------|
| Total travel force (TTF) max. | 0.34 N·m                                           |
| Resetting force (RF) max.     | 0.34 N·m                                           |
| Total travel (TT)             | 2 notches: Approx. 90 °<br>3 notches: Approx. 45 ° |

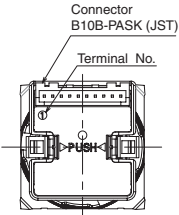
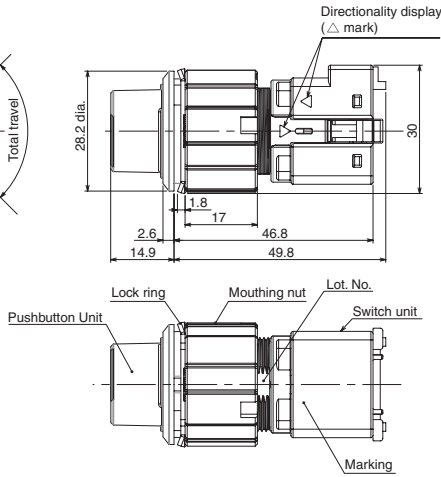
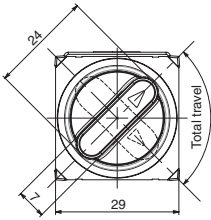
### Circuit Diagram



**Note: 1.** This circuit is for a Two-notch Switch.  
**2.** Mount SW2 for a Three-notch Switch.

Dimensions

A3US

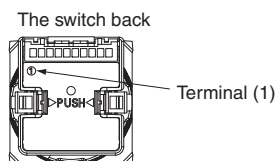


## Safety Precautions

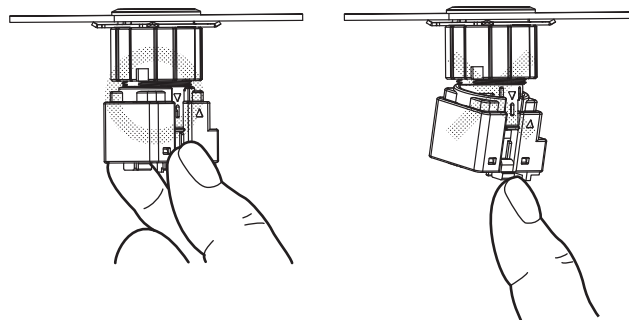
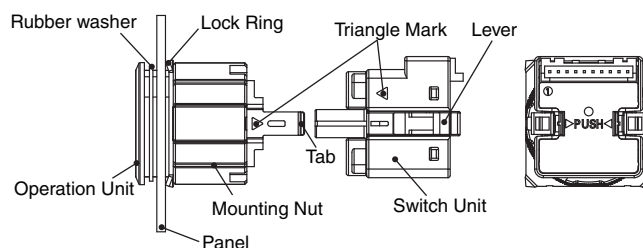
Refer to Safety Precautions for All Pushbutton Switches/Indicators.

### Precautions for Safe Use

- Do not disassemble or modify the Switch under any circumstances. Doing so may cause malfunction.
- Do not drop or subject the Switch to extreme shock or force. This may prevent the Switch from functioning to its full capability.
- The durability of the Switch varies considerably depending on the switching conditions. Always test the switch under actual working conditions before application and use the Switch only for the number of switching operations allowed.
- Do not allow the load current to exceed the rated value. This may damage or burn out the Switch.
- Refer to the Circuit Diagram and make sure to wire correctly. Only the terminal (1) is printed and the right end of the terminal is read as (10).



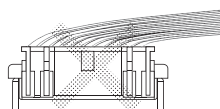
- Do not use the Switch in locations where explosive or flammable gases or liquid may be present or scattered. The electric arc or the heat caused by switching contacts may trigger off a fire or explosion.
- Do not use the Switch in locations where toxic gases, such as H<sub>2</sub>S, SO<sub>2</sub>, NH<sub>3</sub>, HNO<sub>3</sub>, and Cl<sub>2</sub>, may be present, or in locations subject to high temperature or humidity. Doing so may damage the Switch due to contact failure or corrosion.
- Do not let the Switch submerged in oil or water, or use in locations continuously subject to splashes of oil/water. Doing so may result in oil or water entering the Switch.
- Do not use the Switch in the following locations;
  - subject to severe temperature changes.
  - subject to high humidity or condensation.
  - subject to severe vibration or shock.
  - where direct rays of the sun strike.
  - where sea breeze may be present.
- When the Switch is exposed to the environment that are not required, or stored in locations where condensation presents, or damaged by fall out, or stored for more than an year, please test it under the usage conditions before application.
- Mounting and Removing the Switch
  - Insert the Operation Unit from the front of the panel, insert the Lock Ring and Mounting Nut from the back of the panel, and tighten the Mounting Nut. Then, attach the Switch Unit to the Operation Unit.
  - For a Switch with IP65 protection, make sure that the rubber washer is in place between the Operation Unit and the panel.
  - Align the Lock Ring with the slot on the case and insert it so that the edge is flush with the panel.
  - Tighten the Mounting Nut to between 0.98 and 1.96 N·m.
  - To mount the Switch Unit to the Operation Unit, align the the triangle marks on the Operation Unit and Switch Unit and insert the Switch Unit until it locks securely in place.
  - The push marks on both sides are only for removal. Do not push them when you insert the Switch Unit into the Pushbutton Unit. Otherwise, the Pushbutton Unit will be hooked incorrectly.
  - To remove the Switch, press the levers on both sides in the direction indicated by PUSH marks. Applying too much force may damage the Switch.
  - Remove the Switch Unit before you remove the Pushbutton Unit. If you loosen the mounting nut while the Switch Unit is still attached, you will damage the Pushbutton Unit.



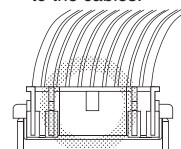
#### Wiring

- Do not wire the Switch while power is being supplied. Doing so may result in electric shock.
- Make sure to insert the connector to the end. This may prevent the Switch from functioning to its full capability.
- Do not subject the Switch to an excessive force when wiring. Fix the cables first to avoid the connector and cables from being pulled with. Otherwise, the connector may be disassembled or damaged, resulting in the contact damages.

Too much tension to the cables.



Appropriate force to the cables.



- Refer to specification of each connector or catalogue for details of installing or wiring the terminal side of the connector.

Recommended connector;

| Manufacture    | Name    | Model          | Applicable lead wire |
|----------------|---------|----------------|----------------------|
| J.S.T. Mfg Co. | Contact | SPHD-002T-P0.5 | AWG#28 to 24         |
|                |         | SPHD-001T-P0.5 | AWG#26 to 22         |
|                | Housing | PAP-10V-S      | AWG#28 to 22         |

- Choose the applicable contact to the wire.

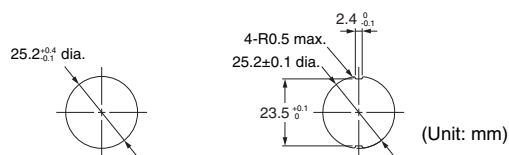
## Precautions for Correct Use

### • Operating Environment

1. This Switch is intended for indoor use only. Do not use the Switch outdoors.
2. Do not set the Switch in locations where powders, mud, or any other substances may be piled, or subject to any splashes of oil or water. Always test the switch under actual working conditions before application.
3. The Switches with oil-resistant IP65 protection use NBR rubber and are resistant to general cutting oils and cooling oils. Some special oils, however, cannot be used with these Switches. Contact your OMRON representative for details.

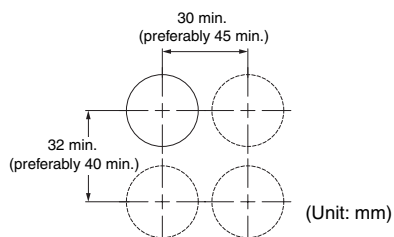
### • Mounting panels

1. Set mounting panel thickness to be 0.8 to 3.2 mm.
2. The panel dimension is set as below;



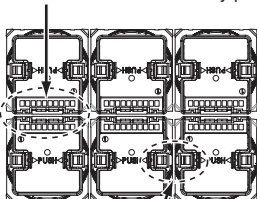
Cutout Hole for Positioning  
and to Prevent Switch Rotation

- The value in ( ) indicated below is the minimum value suggested for easy detaching of the Switch.
- Minimum panel pitch is 30/32 mm. Consider the flexibility and allowance of detaching and wiring, set the pitch to the appropriate value.
- Leave some spaces for a finger between panels, so as to pinch the levers.
- Place the panels in the same direction. Do not set the connectors face to face for easy removal.



### Wrong setup :

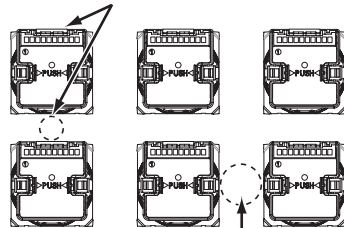
Connectors are too closely placed.



Levers are too close and cannot be pushed.

### Right setup :

Same direction



Some rooms for fingers to push.

[illegible]

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**OMRON Corporation      Industrial Automation Company**  
Tokyo, JAPAN

**Contact: [www.ia.omron.com](http://www.ia.omron.com)**

***Regional Headquarters***

**OMRON EUROPE B.V.**

Wegalaan 67-69, 2132 JD Hoofddorp  
The Netherlands  
Tel: (31)2356-81-300/Fax: (31)2356-81-388

**OMRON ELECTRONICS LLC**

2895 Greenspoint Parkway, Suite 200  
Hoffman Estates, IL 60169 U.S.A  
Tel: (1) 847-843-7900/Fax: (1) 847-843-7787

**OMRON ASIA PACIFIC PTE. LTD.**

No. 438A Alexandra Road # 05-05/08 (Lobby 2),  
Alexandra Technopark,  
Singapore 119967  
Tel: (65) 6835-3011/Fax: (65) 6835-2711

**OMRON (CHINA) CO., LTD.**

Room 2211, Bank of China Tower,  
200 Yin Cheng Zhong Road,  
PuDong New Area, Shanghai, 200120, China  
Tel: (86) 21-5037-2222/Fax: (86) 21-5037-2200

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