

Plateau Head Pushbutton Switch

A3U

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.
- 22 dia of the push button head size is suitable for operation.



Model Number Structure

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

A3U (1) -T (2) (3) - (4) A (5) C- (6) M

(1) Lighted/Non-lighted

| Symbol | Type |
|-----------|-------------|
| No symbol | Non-lighted |
| L | Lighted |

(2) Flange Color

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

* Available soon.

(3) Color of Pushbutton and light

| Symbol | Pushbutton | Lighted | Non-lighted |
|--------|------------|---------|-------------|
| W | White*1 | ○ | ○ |
| R | Red | ○ | ○ |
| Y | Yellow | ○ | ○ |
| G | Green | ○ | ○ |
| U | Umber*2 | ○ | — |
| A | Blue | ○ | ○ |
| B | Black | — | ○ |

*1. For the lighted-type, the cap color is transparent and the LED is white.

*2. For the lighted-type, the cap color is transparent and the LED is umber.

(4) Light Source

| Symbol | Operating Voltage |
|-----------|-------------------|
| No symbol | Non-lighted |
| 1 | 5 VDC |
| 2 | 12 VDC |
| 3 | 24 VDC |

(5) Contact Configuration

| Symbol | Type |
|--------|------|
| 1 | SPDT |
| 2 | DPDT |

(6) Degree of Protection

| Symbol | Protection |
|--------|------------|
| None | IP40 |
| 5 | IP65* |

* Available soon.

Ordering Information

| Type | Lighting | Output | LED Voltage | Model | □ Pushbutton color symbol |
|--------------------------------|----------|--------|-----------------|-----------------|--|
| Plateau Head Pushbutton Switch | LED | SPDT | 5 VDC | A3UL-TB□-1A1C-M | W : Transparent R : Red Y : Yellow G : Green U : Umber A : Blue |
| | | | 12 VDC | A3UL-TB□-2A1C-M | |
| | | | 24 VDC | A3UL-TB□-3A1C-M | |
| | | DPDT | 5 VDC | A3UL-TB□-1A2C-M | |
| | 12 VDC | | A3UL-TB□-2A2C-M | | |
| | 24 VDC | | A3UL-TB□-3A2C-M | | |
| Non-lighted | | SPDT | — | A3U-TB□-A1C-M | W : White R : Red Y : Yellow G : Green B : Black A : Blue |
| | | DPDT | — | A3U-TB□-A2C-M | |

Specifications

Approved Standard Ratings

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

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

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

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

A3U

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: $20 \pm 2 \text{ }^\circ\text{C}$
4. Operating frequency: 20 operations/min

Super-bright LED

| Rated voltage | Rated current | Operating voltage |
|---------------|---------------|-------------------|
| 5 VDC | 15 mA | 5 VDC $\pm 5 \%$ |
| 12 VDC | | 12 VDC $\pm 5 \%$ |
| 24 VDC | | 24 VDC $\pm 5 \%$ |

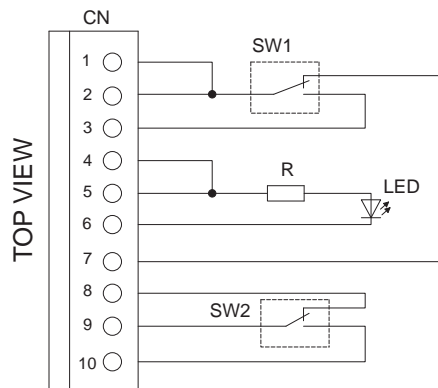
Characteristics

| Item | | Pushbutton Switch |
|--|---|---|
| Allowable operating frequency | Mechanical | 60 operations/minute max. |
| | Electrical | 30 operations/minute max. |
| Insulation resistance | | 100 M Ω min. (at 500 VDC) |
| Contact resistance | | 250 m Ω max. (initial value) |
| Dielectric strength | Between terminals of same polarity | 500 VAC, 50/60 Hz for 1 minute |
| | Between terminals of different polarity | 500 VAC, 50/60 Hz for 1 minute |
| | Between each terminal and ground | 1,500 VAC, 50/60 Hz for 1 minute |
| | Between all LED terminals and all the other terminals | 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 ² max. (malfunction within 1 ms) |
| Durability | Mechanical | 1,000,000 operations min. |
| | Electrical | 200,000 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 | | 100A (EN60947-5-1) |
| Conventional enclosed thermal current (Ithe) | | 0.1A (EN60947-5-1) |
| Weight | | Approx. 30 g |
| Degree of protection | | IP40, IP65 |
| Ambient operating temperature | | -20 $^\circ\text{C}$ to 70 $^\circ\text{C}$ (Non-lighted type) -20 $^\circ\text{C}$ to 70 $^\circ\text{C}$ (lighted type) (with no icing or condensation) |
| Ambient operating humidity | | 35 % to 85 % RH |
| Ambient storage temperature | | -40 $^\circ\text{C}$ to 70 $^\circ\text{C}$ (with no icing or condensation) |
| Ambient storage humidity | | 35 % to 85 % RH |

Operating Characteristics

| Features | A3U |
|---------------------------|----------------|
| Operating force (OF) max. | 4.5 N |
| Pretravel (PT) max. | 3.3 mm |
| Total travel (TT) | Approx. 3.7 mm |

Circuit Diagram



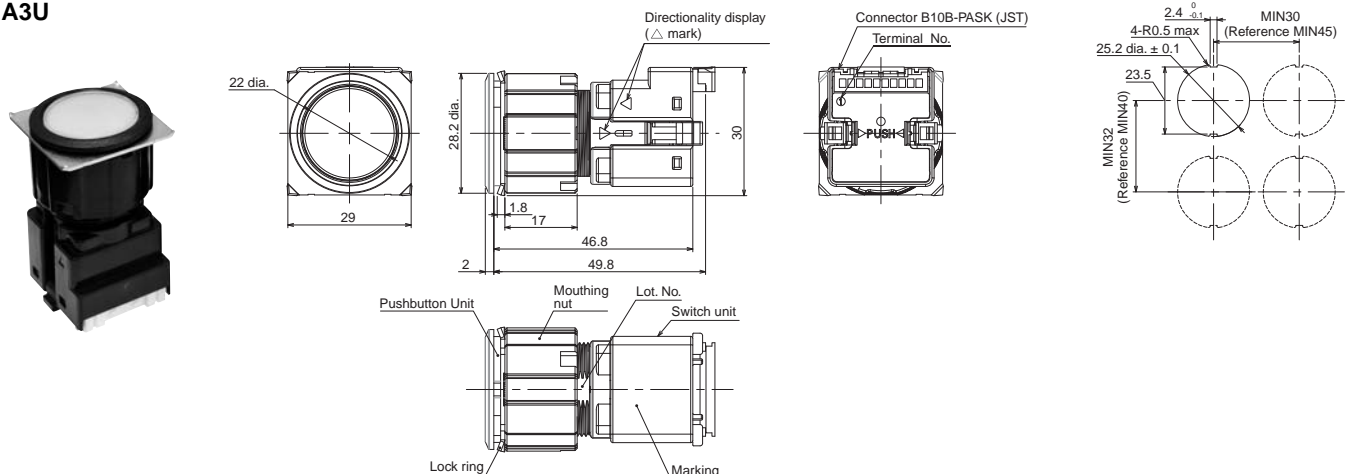
Note 3

1. This circuit shows the lighted/bipolar type.
2. SW2 isn't mounted on 1 pole type.
3. An LED and R aren't mounted on the non-lighted type.

Dimensions

(unit: mm)

A3U

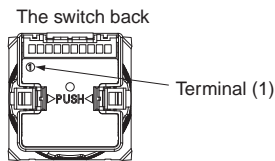


Safety Precautions

Refer to Safety Precautions for All Pushbutton Switches/Indicators.

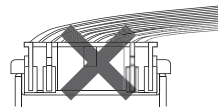
Precautions for Safe Use

- 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).

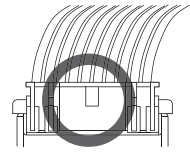


- Do not use the Switch in locations where explosive or flammable gases or liquid may be present or scattered. The electric arc or the heat caused by switching contacts may trigger off a fire or explosion.
- Do not use the Switch in locations where toxic gases, such as H₂S, SO₂, NH₃, HNO₃, and Cl₂, may 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
 1. Insert the Operation Unit to the panel from the front. Install the lock ring and mounting nut from the terminal side and tighten the nut. Attach the Switch to the Operation Unit.
 2. Align the lock ring with the groove in the casing, and insert it so that its edge is drawn to the panel side.
 3. Tighten the nut to the torque of 0.98 to 1.96 N·m.
 4. Snap on the Switch to the Operation Unit, aligning the arrow marks inscribed on both the Operation Unit and the Switch. Push the Switch into the Operation Unit until it clicks into place.
 5. The push marks on both sides are only for detaching. Do not push them when you insert the Switch Unit to the Operation Unit. Otherwise, the Operation Unit is hooked wrongly.
 6. To remove the Switch, push to move the levers on both sides in the direction indicated by PUSH mark. Applying too much holding force may damage the Switch.
- Wiring
 1. Do not wire the Switch while power is being supplied. Doing so may result in electric shock.
 2. Make sure to insert the connector to the end. This may prevent the Switch from functioning to its full capability.
 3. 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.



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

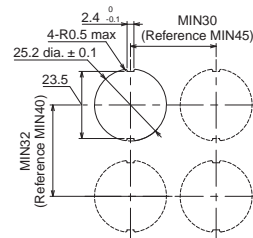
Recommended connector;

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

- Choose the applicable contact to the wire.

Precautions for Correct Use

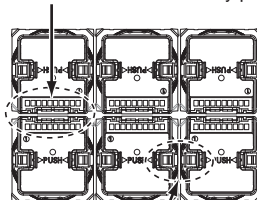
- Operating Environment
 1. This Switch is intended for indoor use only. Do not use the Switch outdoors.
 2. Do not set the Switch in locations where powders, mud, or any other substances may be piled, or subject to any splashes of oil or water. Always test the switch under actual working conditions before application.
- Mounting panels
 1. Set mounting panel thickness to be 0.8 to 3.2 mm.
 2. The panel dimension is set as below;
 - 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 :

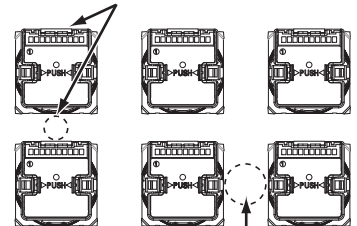
Connectors are too closely placed.



Levers are too close and cannot be pushed.

Right setup :

Same direction



Some rooms for fingers to push.

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(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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