

# 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:  $20 \pm 2$  °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 $\pm 5$ %

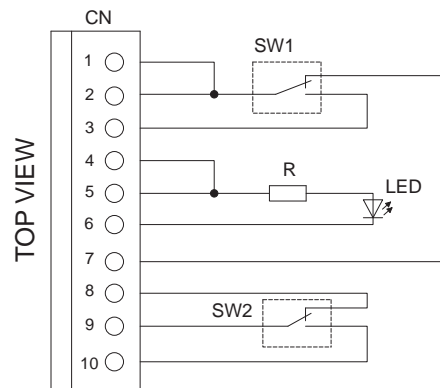
## Characteristics

Item		Pushbutton Switch
Allowable operating frequency	Mechanical	60 operations/minute max.
	Electrical	30 operations/minute max.
Insulation resistance		100 M $\Omega$ min. (at 500 VDC)
Contact resistance		250 m $\Omega$ 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 <sup>2</sup> 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 °C to 70 °C (Non-lighted type) -20 °C to 70 °C (lighted type) (with no icing or condensation)
Ambient operating humidity		35 % to 85 % RH
Ambient storage temperature		-40 °C to 70 °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



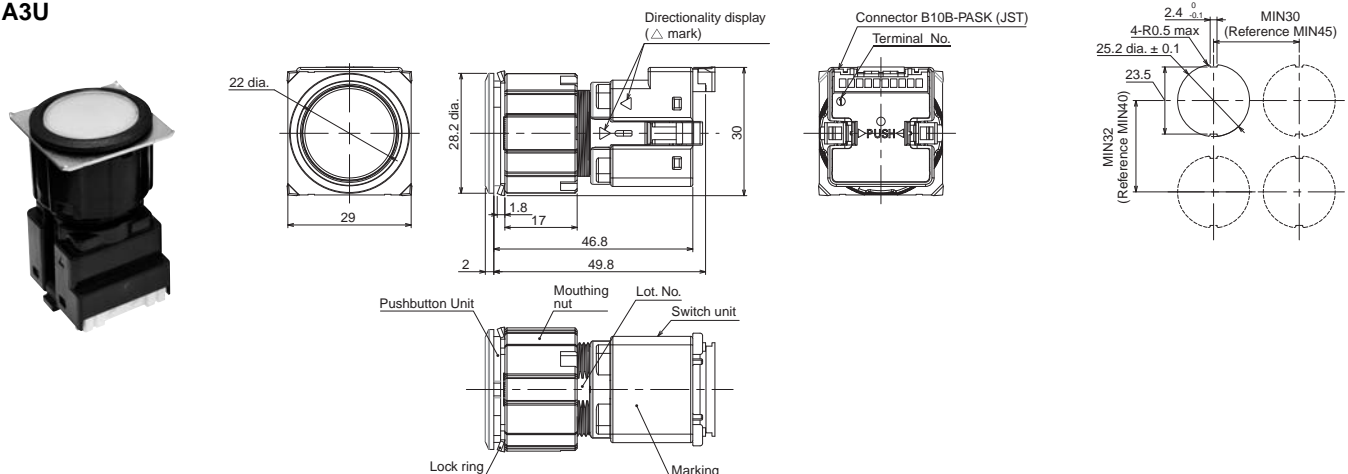
### Note 3

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

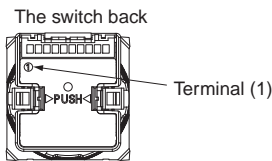


## Safety Precautions

### Refer to Safety Precautions for All Pushbutton Switches/Indicators.

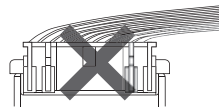
#### Precautions for Safe Use

- 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).

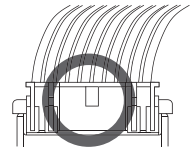


- Do not use the Switch in locations where explosive or flammable gases or liquid may be present or scattered. The electric arc or the heat caused by switching contacts may trigger off a fire or explosion.
- Do not use the Switch in locations where toxic gases, such as H<sub>2</sub>S, SO<sub>2</sub>, 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
  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.

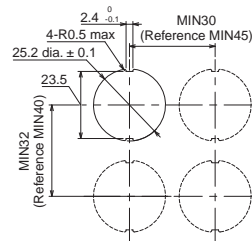
Recommended connector;

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

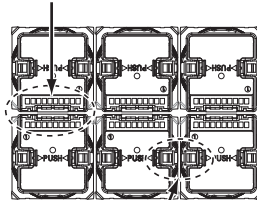
- Operating Environment
  1. This Switch is intended for indoor use only. Do not use the Switch outdoors.
  2. Do not set the Switch in locations where powders, mud, or any other substances may be piled, or subject to any splashes of oil or water. Always test the switch under actual working conditions 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 :

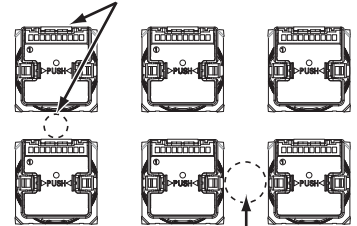
Connectors are too closely placed.



Levers are too close and cannot be pushed.

Right setup :

Same direction



Some rooms for fingers to push.

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