

Plateau Head Pushbutton Switch A3U

Easy connector enables less assembly and less wiring

- 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.



NEW

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

(3) Color of Pushbutton and Light

Symbol	Color	Lighted (Cap type/Color)	Non-Lighted (Cap type/Color)
W	White	Transparent Cap/White	Non-Transparent Cap/White
S	White	-	Transparent Cap/White
R	Red	Transparent Cap/Red	Transparent Cap/Red
Y	Yellow	Transparent Cap/Yellow	Transparent Cap/Yellow
G	Green	Transparent Cap/Green	Transparent Cap/Green
U	Umber	Transparent Cap/White	-
A	Blue	Transparent Cap/Blue	Transparent Cap/Blue
B	Black	-	Non-Transparent Cap/Black
K	Black	-	Transparent Cap/Black

(4) Voltage Used (LED)

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 (Oil-proof type)

Ordering Information

Plateau Head Pushbutton Switches

Degree of Protection : IP40

Flange Color: Black

Lighting	Output	LED Voltage	Model	Pushbutton color symbol	
LED	SPDT	5 VDC	A3UL-TB□-1A1C-M	W, A	
		12 VDC	A3UL-TB□-2A1C-M		
		24 VDC	A3UL-TB□-3A1C-M		
	DPDT	5 VDC	A3UL-TB□-1A2C-M		G
		12 VDC	A3UL-TB□-2A2C-M		
		24 VDC	A3UL-TB□-3A2C-M		
	SPDT	5 VDC	A3UL-TBG-1A1C-M	G	
			A3UL-TBG-2A1C-M		
			A3UL-TBG-3A1C-M		
		12 VDC	A3UL-TBU-1A1C-M-S	U	
			A3UL-TBU-2A1C-M-S		
			A3UL-TBU-3A1C-M-S		
	DPDT	5 VDC	A3UL-TBG-1A2C-M	G	
			A3UL-TBG-2A2C-M		
			A3UL-TBG-3A2C-M		
		12 VDC	A3UL-TBU-1A2C-M-S	U	
			A3UL-TBU-2A2C-M-S		
			A3UL-TBU-3A2C-M-S		
	SPDT	5 VDC	A3UL-TB□-1A1C-M	R, Y	
			12 VDC		A3UL-TB□-2A1C-M
			24 VDC		A3UL-TB□-3A1C-M
		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, S, R, Y, G, A, B, K	
	DPDT	-	A3U-TB□-A2C-M		

Flange Color: Metallic

Lighting	Output	LED Voltage	Model	Pushbutton color symbol	
LED	SPDT	5 VDC	A3UL-TM□-1A1C-M	W, A	
		12 VDC	A3UL-TM□-2A1C-M		
		24 VDC	A3UL-TM□-3A1C-M		
	DPDT	5 VDC	A3UL-TM□-1A2C-M		G
		12 VDC	A3UL-TM□-2A2C-M		
		24 VDC	A3UL-TM□-3A2C-M		
	SPDT	5 VDC	A3UL-TMG-1A1C-M	G	
			A3UL-TMG-2A1C-M		
			A3UL-TMG-3A1C-M		
		12 VDC	A3UL-TMU-1A1C-M-S	U	
			A3UL-TMU-2A1C-M-S		
			A3UL-TMU-3A1C-M-S		
	DPDT	5 VDC	A3UL-TMG-1A2C-M	G	
			A3UL-TMG-2A2C-M		
			A3UL-TMG-3A2C-M		
		12 VDC	A3UL-TMU-1A2C-M-S	U	
			A3UL-TMU-2A2C-M-S		
			A3UL-TMU-3A2C-M-S		
	SPDT	5 VDC	A3UL-TM□-1A1C-M	R, Y	
			12 VDC		A3UL-TM□-2A1C-M
			24 VDC		A3UL-TM□-3A1C-M
		5 VDC	A3UL-TM□-1A2C-M		
			12 VDC		A3UL-TM□-2A2C-M
			24 VDC		A3UL-TM□-3A2C-M
Non-lighted	SPDT	-	A3U-TM□-A1C-M	W, S, R, Y, G, A, B, K	
	DPDT	-	A3U-TM□-A2C-M		

Degree of Protection : IP65 (Oil-proof Type)

Flange Color: Black



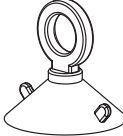
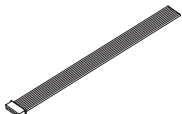
Lighting	Output	LED Voltage	Model	□ Pushbutton color symbol		
LED	SPDT	5 VDC	A3UL-TB□-1A1C-5M	W, A		
		12 VDC	A3UL-TB□-2A1C-5M			
		24 VDC	A3UL-TB□-3A1C-5M			
	DPDT	5 VDC	A3UL-TB□-1A2C-5M		G	
		12 VDC	A3UL-TB□-2A2C-5M			
		24 VDC	A3UL-TB□-3A2C-5M			
	SPDT	5 VDC	A3UL-TBG-1A1C-5M			U
		12 VDC	A3UL-TBG-2A1C-5M			
		24 VDC	A3UL-TBG-3A1C-5M			
		5 VDC	A3UL-TBU-1A1C-5M-S	G		
		12 VDC	A3UL-TBU-2A1C-5M-S			
		24 VDC	A3UL-TBU-3A1C-5M-S			
	DPDT	5 VDC	A3UL-TBG-1A2C-5M	U		
		12 VDC	A3UL-TBG-2A2C-5M			
		24 VDC	A3UL-TBG-3A2C-5M			
		5 VDC	A3UL-TBU-1A2C-5M-S	R, Y		
		12 VDC	A3UL-TBU-2A2C-5M-S			
		24 VDC	A3UL-TBU-3A2C-5M-S			
	Non-lighted	SPDT	-	A3U-TB□-A1C-5M	W, S, R, Y, G, A, B, K	
		DPDT	-	A3U-TB□-A2C-5M		

Flange Color: Metallic

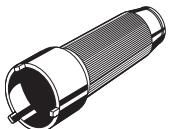
Lighting	Output	LED Voltage	Model	□ Pushbutton color symbol		
LED	SPDT	5 VDC	A3UL-TM□-1A1C-5M	W, A		
		12 VDC	A3UL-TM□-2A1C-5M			
		24 VDC	A3UL-TM□-3A1C-5M			
	DPDT	5 VDC	A3UL-TM□-1A2C-5M		G	
		12 VDC	A3UL-TM□-2A2C-5M			
		24 VDC	A3UL-TM□-3A2C-5M			
	SPDT	5 VDC	A3UL-TMG-1A1C-5M			U
		12 VDC	A3UL-TMG-2A1C-5M			
		24 VDC	A3UL-TMG-3A1C-5M			
		5 VDC	A3UL-TMU-1A1C-5M-S	G		
		12 VDC	A3UL-TMU-2A1C-5M-S			
		24 VDC	A3UL-TMU-3A1C-5M-S			
	DPDT	5 VDC	A3UL-TMG-1A2C-5M	U		
		12 VDC	A3UL-TMG-2A2C-5M			
		24 VDC	A3UL-TMG-3A2C-5M			
		5 VDC	A3UL-TMU-1A2C-5M-S	R, Y		
		12 VDC	A3UL-TMU-2A2C-5M-S			
		24 VDC	A3UL-TMU-3A2C-5M-S			
	Non-lighted	SPDT	-	A3U-TM□-A1C-5M	W, S, R, Y, G, A, B, K	
		DPDT	-	A3U-TM□-A2C-5M		

Accessories and Tools (Sold Separately)

Accessories

Accessory	Appearance	Type	Model number	Remarks
Panel Plug		Round	A22Z-3530	Used to plug a panel cutout hole for future expansion. Do not use it on a panel cutout hole that will be used to position a Switch and ensure that the Switch will not rotate. Use this Plug for a 25-dia. panel cutout hole. Refer to page 6 for information on panel cutout holes. The color is black.
25-dia. Ring			A22Z-R25	Used together with a Panel Plug.
Cap Removal Suction Cup			A3UZ-3010	Used to remove a cap.
Harness			A3UZ-5010-10	Used to connect to a connector. Lead length: 1 m

Tools

Tool	Appearance	Type	Model number	Remarks
Tightening Tool		-	A22Z-3905	Used to tighten nuts from the back of the panel and to replace caps on Lighted Emergency Stop Switches.

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 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)
 2. Please use the power supply specified in UL/CSA class 2.
 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

Super-bright LED

Rated voltage	Rated current	Operating voltage
5 VDC	15 mA	5 VDC ± 5 %
12 VDC		12 VDC ± 5 %
24 VDC		24 VDC ± 5 %

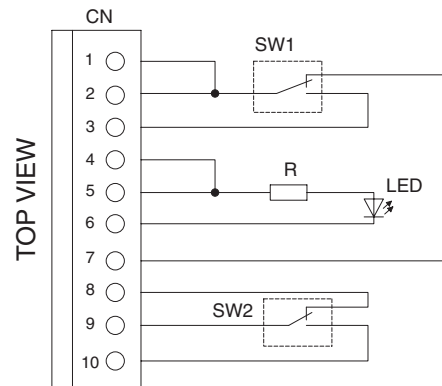
Characteristics

Item		Pushbutton Switch
Allowable operating frequency	Mechanical	60 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 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 (Oil-proof type)
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) max.	3.7 mm

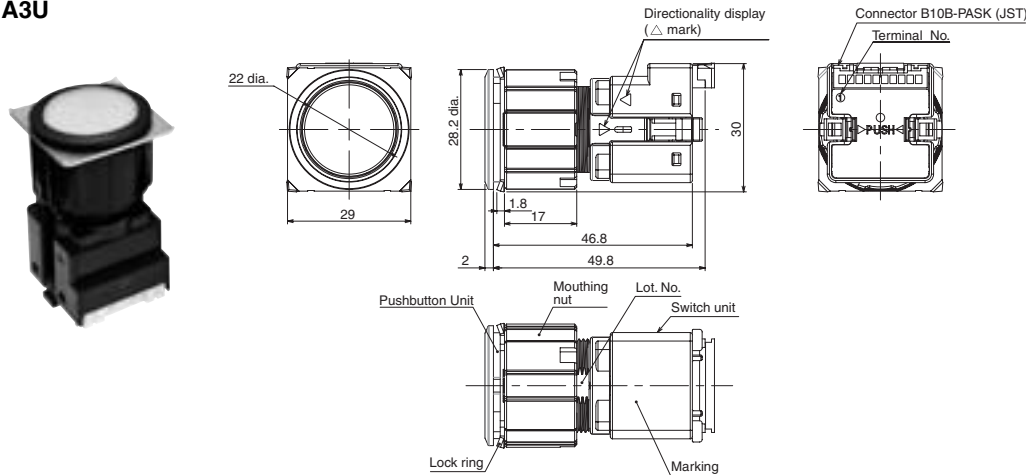
Circuit Diagram



Note3

1. This circuits 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.

A3U



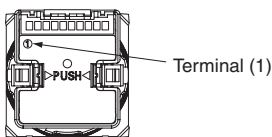
Safety Precautions

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).

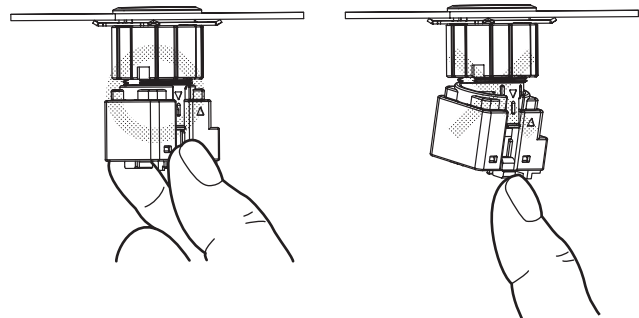
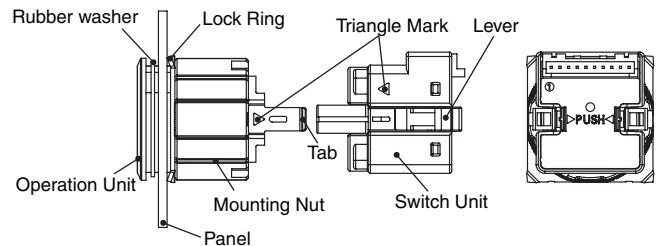
The switch back



- 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 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.

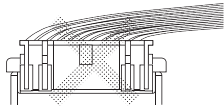
2. For a Switch with IP65 protection, make sure that the rubber washer is in place between the Operation Unit and the panel.
3. Align the Lock Ring with the slot on the case and insert it so that the edge is flush with the panel.
4. Tighten the Mounting Nut to between 0.98 and 1.96 N·m.
5. To mount the 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.
6. 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.
7. 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.
8. 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.



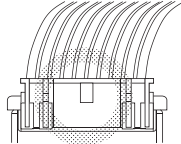
• Wiring

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;

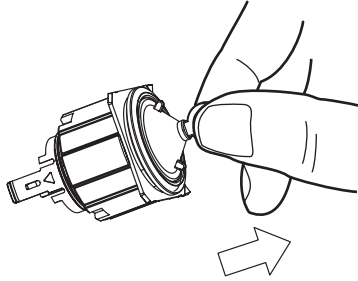
Manufacture	Name	Model	Applicable lead wire
J.S.T. Mfg Co.	Contact	SPHD-002T-P0.5	AWG#26 to 22
		SPHD-001T-P0.5	AWG#28 to 24
	Housing	PAP-10V-S	AWG#28 to 22

- Choose the applicable contact to the wire.

Precautions for Correct Use

• Attaching and Removing Caps and Legend Plungers Removal

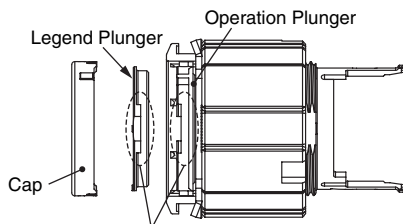
- 1) Use the A3UZ-3010 Cap Removal Suction Cup (sold separately) to remove the cap.



- 2) After you remove the cap, you can remove the legend plunger and engrave it. You cannot remove the legend plungers from Switches with IP65 protection.

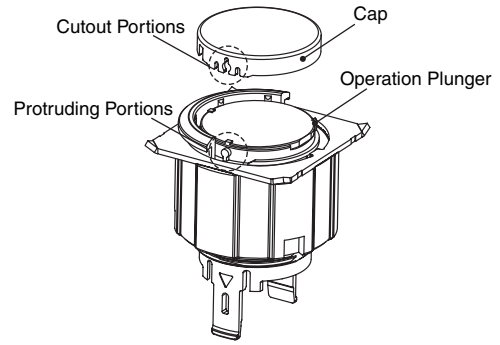
Attachment

- 1) The legend plunger fits in only one direction. Align the tabs on the legend plunger with the slots on the operation plunger and press the cap onto the operation plunger.



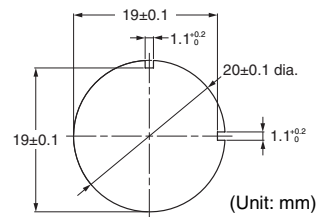
Insert the legend plunger so that the groove widths are lined up.

- 2) Attach the cap, aligning the slots on the slot on the cap with the tab on the operation plunger.



• Character Films

- 1) In addition to engraving characters on legend plungers, you can insert a character film to display characters. Applicable Character Film Size

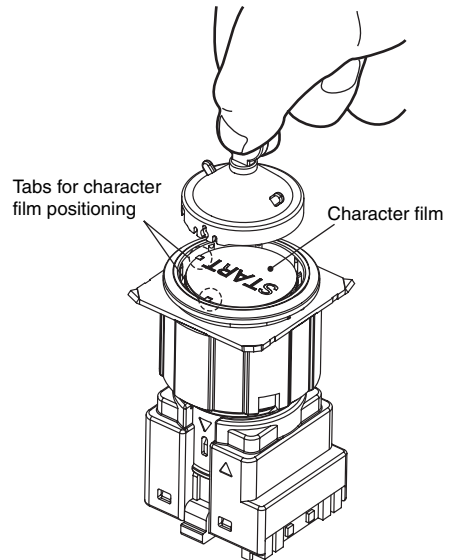


Thickness: 0.2 mm max.

Recommended material: Polyethylene

Note: A Character Film is not included with the product.

- 2) The following figure shows the tabs on the legend plunger that are used to position the character film.

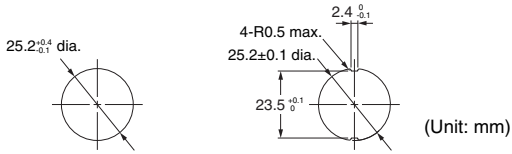


- Operating Environment

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.

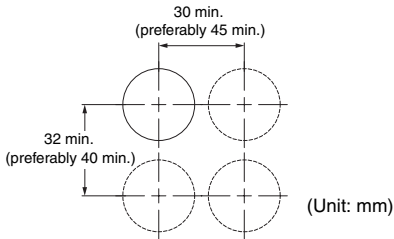
- Mounting panels

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



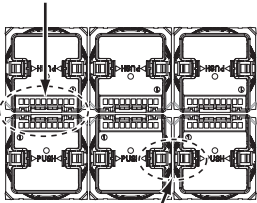
Cutout Hole for Positioning
and to Prevent Switch Rotation

- 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 :

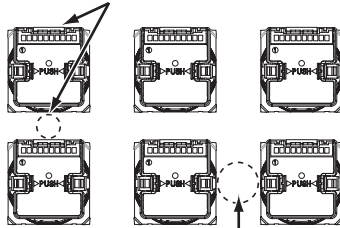
Connectors are too closely placed.



Levers are too close and cannot be pushed.

Right setup :

Same direction



Some rooms for fingers to push.

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