

16mm X6 E-Stops

Key features:

- Two button sizes—ø30mm and ø40mm
- Two button colors—red for emergency stop and yellow for stop switch
- Two ways of resetting —pulling and turning
- Solder/tab terminal #110 makes for easy connections
- UL, c-UL recognized, EN compliant
- Safety lock mechanism (IEC 60947-5-5; 6.2)
- Direct opening action (IEC 60947-5-5; 5.2, IEC 60947-5-1, Annex K)



UL File No. E68961



CCC No. 2010010305411586

Specifications

Applicable Standards	IEC 60947-5-1, EN 60947-5-1 IEC 60947-5-5 (Note), EN 60947-5-5 (Note) JIS C8201-5-1, JIS C8201-5-5, UL508 CSA C22.2 No.14, GB14048.5
Operating Temperature	-25 to +60°C (no freezing)
Operating Humidity	45 to 85% RH (no condensation)
Storage Temperature	-45 to +80°C (no freezing)
Operating Force	Push to lock: 10.5N, Pull to reset: 8.8N, Turn to reset: 0.17 N·m
Minimum Force Required for Direct Opening Action	40N
Minimum Operator Stroke Required for Direct Opening Action	4.5mm
Maximum Operator Stroke	4.5mm
Contact Resistance	50mΩ maximum (initial value)
Insulation Resistance	100MΩ minimum (500V DC megger)
Overvoltage Category	II
Impulse Withstand Voltage	2.5kV
Pollution Degree	3
Operation Frequency	900 operations/hour
Shock Resistance	Operation extremes: 150 m/s ² , Damage limits: 1000 m/s ²
Vibration Resistance	Operation extremes: 10 to 500 Hz amplitude 0.35 mm, acceleration 50 m/s ² Damage limits: 10 to 500 Hz, amplitude 0.35 mm, acceleration 50 m/s ²
Mechanical Life	100,000 operations minimum
Electrical Life	100,000 operations minimum
Degree of Protection	IP65 (IEC 60529)
Short-circuit Protection	250V/10A fuse (Type aM IEC 60269-1/IEC 60269-2)
Conditional Short-circuit Current	1000A
Terminal Style	Solder/tab terminal #110
Recommended Tightening Torque for Locking Ring	0.88N·m
Applicable Wire Size	1.25mm ² maximum (AWG16 maximum)
Terminal Soldering Condition	310 to 350°C, within 3 seconds
Weight (approx.)	ø30mm button: 13g, ø40mm button: 16g

Contact Ratings

Rated Insulation Voltage (Ui)		250V				
Rated Thermal Current (Ith)		5A				
Rated Operating Voltage (Ue)		30V	125V	250V		
Rated Operating Current (Note)	Main Contacts	AC 50/60 Hz	Resistive Load (AC-12)	—	5A	3A
			Inductive Load (AC-15)	—	1.5A	0.75A
	DC	Resistive Load (DC-12)	2A	0.4A	0.2A	
		Inductive Load (DC-13)	1A	0.22A	0.1A	





- Minimum applicable load: 5V AC/DC, 1mA (reference value) (May vary depending on the operating conditions and load)
- Operational current represents the classification by making and breaking currents (IEC 60947-5-1)
- TÜV rating: AC-15 0.75A/250V, DC-13 1A/30V
UL rating: Standard Duty AC 0.75A/250V
Standard Duty DC 1A/30V





Except for stop switch (yellow button)

Part Numbers


Pushlock Pull/Turn Reset Switch (Unmarked)

Shape	Main Contact (NC)	Part Number
		Solder/tab Terminal #110
 ø30mm Mushroom	1NC	AB6E-3BV01PTRH
	2NC	AB6E-3BV02PTRH
 ø40mm Mushroom	1NC	AB6E-4BV01PTRH
	2NC	AB6E-4BV02PTRH

Pushlock Pull/Turn Reset Switch (Marked with Arrow)




Shape	Main Contact (NC)	Part Number
		Solder/tab Terminal #110
 ø30mm Mushroom	1NC	AB6E-3BV01PTRM
	2NC	AB6E-3BV02PTRM
 ø40mm Mushroom	1NC	AB6E-4BV01PTRM
	2NC	AB6E-4BV02PTRM

Yellow Button, Pushlock Pull/Turn Reset Switch (Unmarked)

Shape	Operator	Main Contact (NC)	Part Number
			Solder/tab Terminal #110
 ø30mm Mushroom	ø30mm button	1NC	AB6E-3BV01PTY
		2NC	AB6E-3BV02PTY
	ø40mm button	1NC	AB6E-4BV01PTY
		2NC	AB6E-4BV02PTY

- 1. Pushlock pull/turn reset switches are locked when pressed, and reset when pulled or turned clockwise.
- 2. Do not use the stop switch as an emergency stop switch.

Accessories

Shape	Material	Part Number	Remarks
 Locking Ring Wrench	Metal (nickel-plated brass)	MT-001	Used to tighten the locking ring when installing the X6 switch onto a panel. Recommended tightening torque: 0.88 N·m maximum
 Locking Ring	Plastic	XA9Z-LNPN10	Black
 SEMI S2 Compliant Switch Guard	Polyamide (PA6)	XA9Z-KG1	IP65 degree of protection Color: yellow (Munsell 2.5Y8/10 or equivalent) Cannot be used with nameplate.

Part Number Key

AB6E - 3 BV 01 PT RH

Mushroom Size
 3: ø29mm
 4: ø40mm

Contact Configuration
 01: 1NC
 02: 2NC

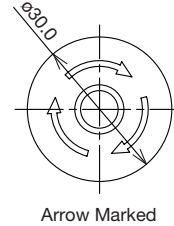
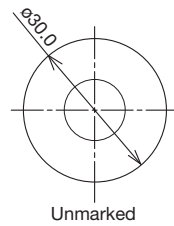
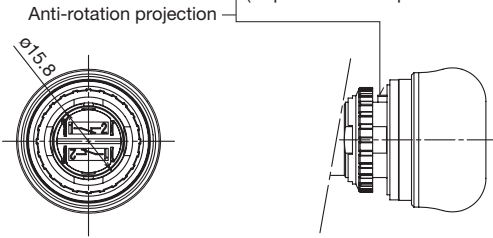
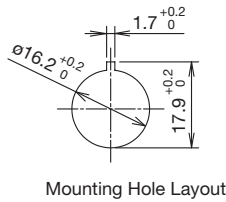
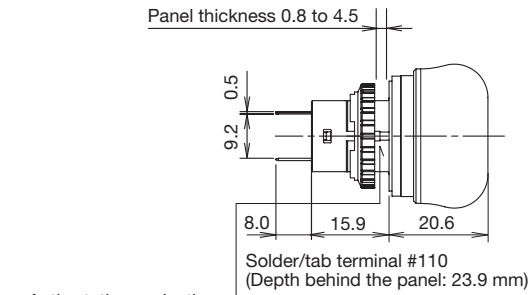
Color/Marking
 RH: Red (unmarked)
 RM: Red (marked with arrow)
 Y: Yellow (unmarked)

Nameplates

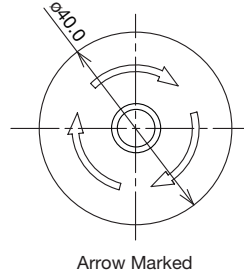
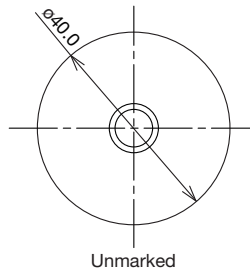
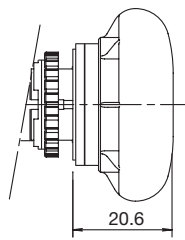
Use With	Description	Legend	Part Number	Material	Background Color	Legend Color
E-Stops	For ø30mm Button	Blank	HAAV-0	Polyamide	Yellow	Black
		EMERGENCY STOP	HAAV-27			
	For ø40mm Button	Blank	HAAV4-0			
		EMERGENCY STOP	HAAV4-27			
Stop Switch	For ø30mm Button	Blank	HAAV-0-W	White (Munsell N9.5)		
	For ø40mm Button		HAAV4-0-W			

- Cannot be used with switch guard.

Dimensions (mm)

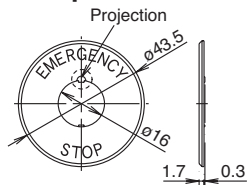


ø30mm Button

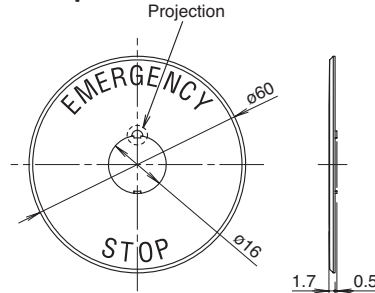


ø40mm Button

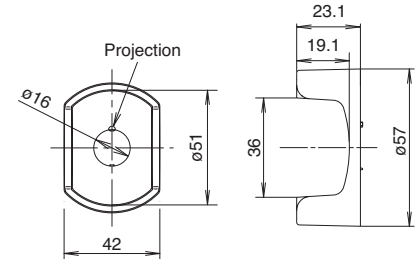
Nameplate for ø30mm Button HAAV-*



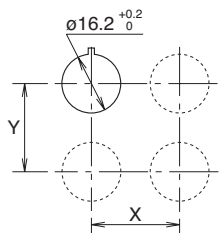
Nameplate for ø40mm Button HAAV4-*



Switch Guard XA9Z-KG1



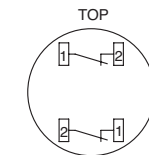
Mounting Hole Layout



The values shown on the left are the minimum dimensions for mounting with other ø16 mm pushbuttons. For other control units of different sizes and styles, determine the values according to dimensions, operation, and wiring.

	X	Y
ø30 mm Button	40 mm min.	40mm min.
ø40 mm Button	50 mm min.	50mm min.

Terminal Arrangement (Bottom View)



1NC type: Terminals located near the TOP marking

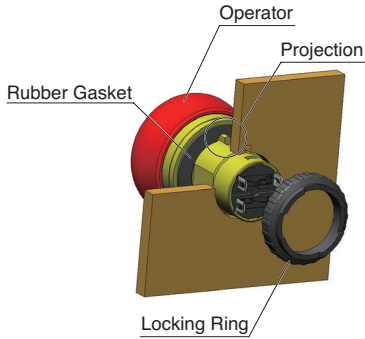
Safety Precautions

- Turn off power to the X6 series units before installation, removal, wiring, maintenance, and inspection. Failure to turn power off may cause electrical shocks or fire hazard.
- For wiring, use wires of proper size to meet the voltage and current requirements and solder properly. Improper soldering may cause overheating and create fire hazards.

Instructions

Panel Mounting

Remove the locking ring from the operator and check that the rubber gasket is in place. Insert the operator from panel front into the panel hole. Face the side with the projection upward, and tighten the locking ring using the locking ring wrench MT-001.



Notes for Panel Mounting

Using the locking ring wrench MT-001, tighten the locking ring to a torque of 0.88 N·m. Do not use pliers. Do not apply excessive force, otherwise the locking ring will become damaged.

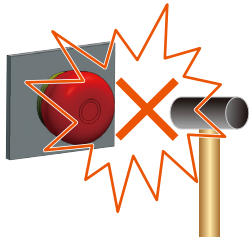
Contact Bounce

When the button is reset by pulling or turning, the NC contacts will bounce. When designing a control circuit, take the contact bounce time into consideration (reference value: 20ms).

Do not apply any external shock to the emergency stop switches, otherwise the contact will bounce.

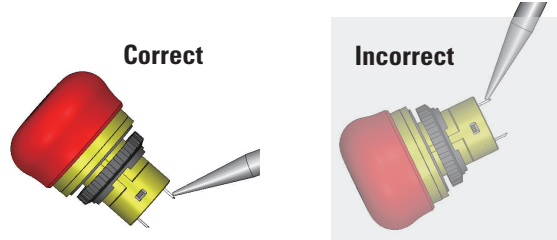
Handling

Do not expose the switch to excessive shock and vibrations, otherwise the switch may be deformed or damaged, causing malfunction or operation failure.



Wiring

1. Applicable wire size is 1.25mm² (16 AWG) maximum.
2. Solder the terminals using a soldering iron at 310 to 350°C for 3 seconds maximum. Do not use flow or dip soldering. SnAgCu type lead-free solder is recommended. Make sure that the soldering iron touches the terminals only, not any plastic parts. Do not apply external force (bending the terminals or applying tensile force on the wires).
3. Use a non-corrosive rosin flux. To prevent the flux from entering the switch while soldering, angle the terminals downward.



4. Because the terminal spacing is narrow, use protective tubes or heat shrinkable tubes to avoid burning the wire sheath or causing a short circuit.
5. Apply force on the terminals in the vertical direction to the panel only, otherwise the terminals will be damaged.
6. When using tab connectors, specify quick connect #110 and 0.5mm tab thickness.