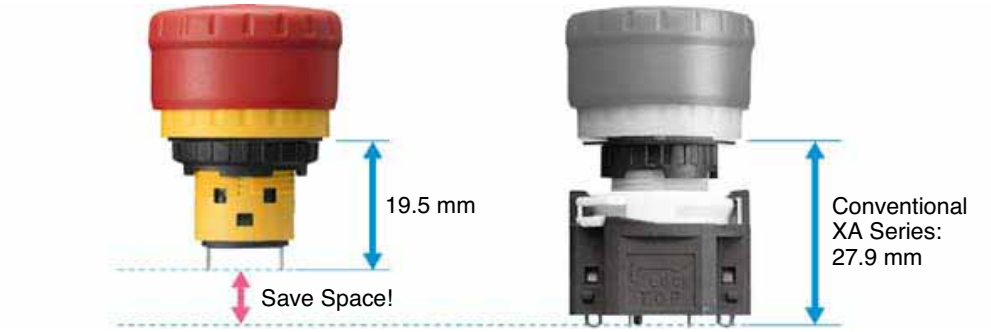
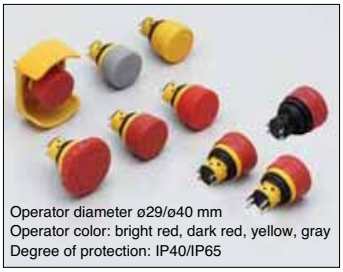
*Think Automation and beyond...*

# ø16mm XA Series
## Emergency Stop Switches (Unibody Type)

**Only 19.5mm behind the panel, compact ø16mm emergency stop switches.**




### Ideal for installing in equipment which has mounting limitations

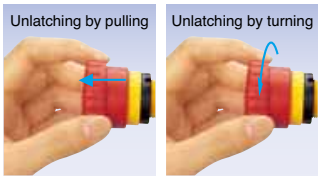


Operator diameter ø29/ø40 mm
Operator color: bright red, dark red, yellow, gray
Degree of protection: IP40/IP65


### Easy to Reset

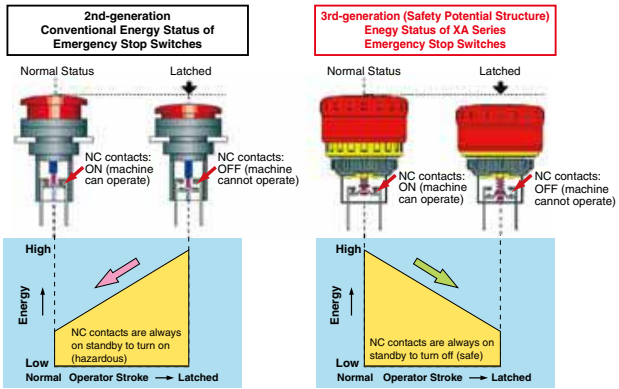
Push-to-lock, Pull/turn-to-reset

Resetting is possible by either pulling or turning the button, allowing for easy operation.




## IDEC's emergency stop switches value safety.

### Safety Potential Structure




With XA emergency stop switches, the potential energy level of the latched status is lower than that of normal status. In the event the switch is damaged due to excessive shocks, the NC contacts will turn off, thus stopping the machine (patented).

### Direct Opening Action

Achievement of contact separation (of a contact element) of the switch actuator through a direct mechanical link (for example not dependent upon springs) (IEC 60947-5-5; 5.2, IEC 60947-5-1; Annex K)

### Safe Lock Mechanism

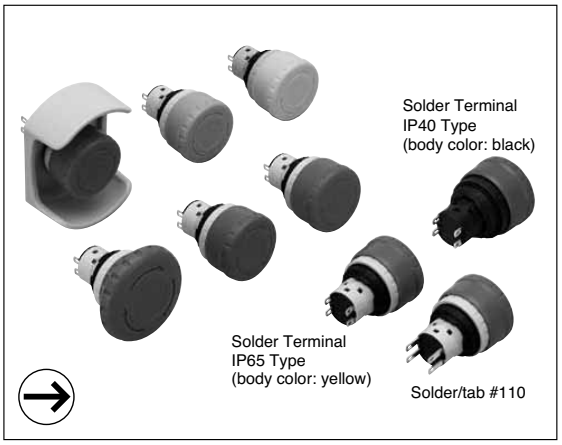
The emergency stop signal shall be maintained until the emergency stop device is reset (disengaged). (IEC 60947-5-5; 6.2)

### International Safety Standards

# ø16 XA Series Emergency Stop Switches (Unibody Type)

**Small, unibody emergency stop switches suitable for equipment with small mounting space. Requires only ø16mm × 19.5mm for installation.**

- ø29mm and ø40mm mushroom operators
- Degree of protection IP65 and IP40 (IEC 60529)
- Emergency stop switch operators are available in red (Munsell 5R4/12)
- Stop switch operators come in yellow or gray
- Gold-plated crossbar contacts
- Push-to-lock, pull or turn-to-reset operator
- UL, c-UL recognized. EN compliant.
- Safety lock mechanism (IEC 60947-5-5, 6.2)
- Direct opening action mechanism (IEC 60947-5-5, 5.2, IEC60947-5-1, Annex K)




## Standards

| Standards | Mark | Organization/File No. |
|---|---|---|
| UL508<br>CSA C22.2 No.14 | c UL us | UL/c-UL File No. E68961 |
| EN60947-5-5 (Note) | TÜV | TÜV SÜD |
| | CE | European Commission's Low Voltage Directive |

Note: Except for stop switches (operator color: yellow and gray)

## Contact Ratings

| Rated Insulation Voltage (Ui) | | | 250V | | |
|---|---|---|---|---|---|
| Thermal Current (Ith) | | | 5A | | |
| Rated Operating Voltage (Ue) | | | 30V | 125V | 250V |
| Rated Operating Current | AC 50/60Hz | Resistive Load (AC-12) | — | 5A | 3A |
| | | Inductive Load (AC-15) | — | 3A | 1.5A |
| | 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, 1 mA (reference value) (May vary depending on the operating conditions and load.)
- The rated operating currents are measured at resistive/inductive loads as specified in IEC 60947-5-1.

## Specifications

| | |
|---|---|
| Applicable Standards | UL508, CSA C22.2 No.14<br>IEC 60947-5-1, EN 60947-5-1<br>IEC 60947-5-5 (Note), EN 60947-5-5 (Note)<br>JIS C8201-5-1 |
| 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<br>Pull to reset: 10N<br>Turn to reset: 0.16 N·m |
| Minimum Force Required for Direct Opening Action | 40N |
| Minimum Operator Stroke Required for Direct Opening Action | 4.0 mm |
| Maximum Operator Stroke | 4.5 mm |
| Contact Resistance | 50 mΩ maximum (initial value) |
| Insulation Resistance | 100 MΩ minimum (500V DC megger) |
| Overvoltage Category | II |
| Impulse Withstand Voltage | 2.5 kV |
| Pollution Degree | 3 |
| Operating Frequency | 900 operations/hour |
| Shock Resistance | Operating extremes: 150 m/s$^2$<br>Damage limits: 1000 m/s$^2$ |
| Vibration Resistance | Operating extremes: 10 to 500 Hz, amplitude 0.35mm, acceleration 50 m/s$^2$<br>Damage limits: 10 to 500 Hz, amplitude 0.35 mm, acceleration 50 m/s$^2$ |
| Durability | Mechanical: 250,000<br>Electrical: 100,000<br>250,000 (24V AC/DC, 100mA) |
| Degree of Protection | IP65, IP40 (IEC 60529) |
| Short-circuit Protection | 250V/10A fuse<br>(Type aM IEC 60269-1/IEC 60269-2) |
| Conditional Short-circuit Current | 1000A |
| Terminal Style | Solder terminal, Solder/tab #110 terminal |
| Recommended Tightening Torque for Locking Ring | 0.88 N·m |
| Applicable Wire Size | 1.25 mm$^2$ maximum (AWG16 maximum) |
| Terminal Soldering Condition | 310 to 350°C, within 3 seconds |
| Weight (approx.) | ø29mm mushroom: 14g<br>ø40mm mushroom: 17g |

Note: Except for stop switches (operator color: yellow and gray)

## Part Numbers

### • Solder Terminal Type Emergency Stop Switches

| Shape | Contact | Part No. | |
|---|---|---|---|
| | | IP40 (contact part: black) | IP65 (contact part: yellow) |
| ø29mm Mushroom  | 1NC | XA1E-BV3U01K-R | XA1E-BV3U01-R |
| | 2NC | XA1E-BV3U02K-R | XA1E-BV3U02-R |
| ø40mm Mushroom  | 1NC | XA1E-BV4U01K-R | XA1E-BV4U01-R |
| | 2NC | XA1E-BV4U02K-R | XA1E-BV4U02-R |

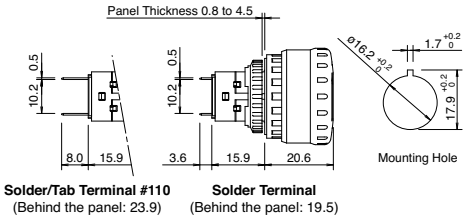
• Solder/tab #110 terminal is also available. Specify "T" before "-R" in the Part Number.
For example, XA1E-BV3U02K-R becomes XA1E-BV3U02KT-R.

### • Solder Terminal Type Stop Switches

| Shape | Operator Type | Contact | Part No. | | ①Operator Color Code |
|---|---|---|---|---|---|
| | | | IP40 (contact part: black) | IP65 (contact part: yellow) | |
|  | ø29mm Mushroom | 1NC | XA1E-BV3U01K-① | XA1E-BV3U01-① | Y: yellow N: gray |
| | | 2NC | XA1E-BV3U02K-① | XA1E-BV3U02-① | |
| | ø40mm Mushroom | 1NC | XA1E-BV4U01K-① | XA1E-BV4U01-① | |
| | | 2NC | XA1E-BV4U02K-① | XA1E-BV4U02-① | |

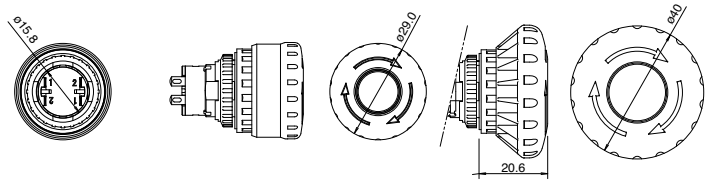
• Solder/tab #110 terminal is also available. Specify "T" before "-①" in the Part Number.
For example, XA1E-BV3U02K-Y becomes XA1E-BV3U02KT-Y.

## Dimensions




**Solder/Tab Terminal #110** (Behind the panel: 23.9)

**Solder Terminal** (Behind the panel: 19.5)




**ø29 mm Mushroom**

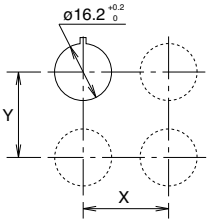
**ø40 mm Mushroom**

All dimensions in mm.

## Terminal Arrangement (Bottom View)


1NC: Termimals on top

## Mounting Hole Layout

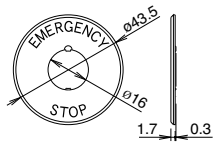
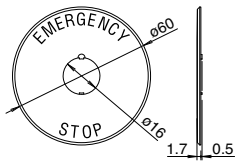



• The values shown on the left are the minimum dimensions for mounting with other ø16 mm pushbuttons. For other control units of different sizes and styles, determine the values according to the dimensions, operation, and wiring.

| | X | Y |
|---|---|---|
| ø29mm Mushroom | 40 mm minimum | |
| ø40mm Mushroom | 50 mm minimum | |

# XA Series Emergency Stop Switches (Unibody Type)

## Nameplate

| Description | Legend | Part No. | Dimensions | Remarks |
|---|---|---|---|---|
| For ø29mm Mushroom | Blank | HAAV-0 | For ø29mm Mushroom   | Mounting panel thickness: 0.5 to 3 mm<br>Material: Polyamide<br>Nameplate color: yellow<br>Legend color: black |
| | EMERGENCY STOP | HAAV-27 | | |
| For ø40mm Mushroom | Blank | HAAV4-0 | For ø40mm Mushroom   | |
| | EMERGENCY STOP | HAAV4-27 | | |

• See "When using a nameplate" in Instructions below.

## Accessories

| Shape | Material | Part No. | Package Quantity | Remarks |
|---|---|---|---|---|
| Ring Wrench  | Metal (nickel-plated brass) | MT-001 | 1 | Used to ltighten the locking ring when installing the XA switch onto a panel.<br>TIghtening torque: 0.88 N·m maximum |

• SEMI S2-compliant switch guard (XA9Z-KG1) and EMO label (HW9Z-EMO-NPP) are also available.

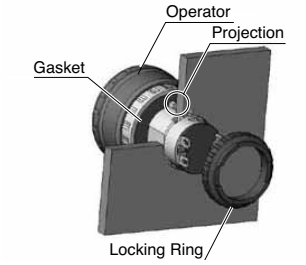
## ⚠ Safety Precautions

- Turn off power to the XA series emergency stop switch before installation, removal, wiring, maintenance, and inspection of the switches. Failure to turn power off may cause electrical shocks or fire hazard.
- For wiring, use wires of a proper size to meet voltage and current requirements and solder correctly. Failure to solder correctly may cause overheating and fire.

## Instructions

### Panel Mounting

Remove the locking ring from the operator and check that the gasket is in place. Insert the operator from panel front into the panel hole. Face the side with a projection upward, and tighten the locking ring.




**• Notes for Panel Mounting**

Using 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 be damaged.

### Wiring

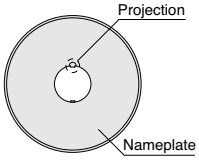
1. The applicable wire size is 1.25 $mm^2$ maximum.
2. Solder the terminals using a soldering iron at 310 to 350°C for 3 seconds. Make sure that the soldering iron touches the terminals only, not plastic parts. When wiring, do not apply external force such as bending the terminals or applying tensile force on the wires.
3. Use a non-corrosive rosin flux.
4. Because the terminal spacing is narrow, use protective tubes or heat shrinkable tubes to avoid burning wire insulation or short circuit.
5. Solder/Tab Terminal #110
   - Use #110 receptacles for 0.5mm-thick tabs.
   - Because the terminal spacing is narrow, use protective tubes or heat shrinkable tubes of 0.5mm minimum in thickness.
6. Do not apply force on the terminals in the direction other than vertical to the mounting panel, otherwise the terminals will be 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: 20 ms).

### Nameplate

Remove the projection from the nameplate using pliers, otherwise the switch cannot be installed.




### Handling

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