

22mm XW E-Stops

Key features:

- The depth behind the panel can be as little as 46.4 mm for 1 to 4 contacts (with terminal cover) for illuminated and non-illuminated units.
- IDEC's original "Safe break action" ensures that the NC contacts open when the contact block is detached from the operator.
- 1 to 4NC main contacts and 1 or 2NO monitor contacts
- Push-to-lock, Pull or Turn-to-reset operator
- Models with mechanical indicator on the operator body show the normal/latched status (green: normal).
- Safety lock mechanism (IEC60947-5-5, 6.2)
- Degree of protection IP65 (IEC60529)
- Fingersafe (IP20) terminals
- Three button sizes: ø38, ø40 and ø60 mm
- Push-ON illumination type available (40mm mushroom head)
- Direct opening action mechanism (IEC60947-5-5, 5.2, IEC60947-5-1, Annex K)
- RoHS compliant (EU directive 2002/95/EC).
- UL c-UL listed. EN compliant
- UL NISD category emergency stop device (File# E305148)



UL File #E68961



CCC No. 2005010305150897






Specifications



| | |
|--|---|
| Applicable Standards | IEC60947-5-5, EN60947-5-5, JIS C8201-5-1, UL508, UL991, NFPA79, CSA C22.2 No. 14, GB14048.5 |
| Operating Temperature | Non-illuminated: -25 to +60°C (no freezing), Illuminated: -25 to +55°C (no freezing) |
| Operating Humidity | 45 to 85% RH (no condensation) |
| Storage Temperature | -45 to +80°C |
| Operating Force | Push-to-lock: 32N Pull-to-reset: 21N Turn-to-reset: 0.27N·m |
| Minimum Force Required for Direct Opening Action | 80N |
| Min Operator Stroke Required for Direct Opening Action | 4mm |
| Maximum Operator Stroke | 4.5mm |
| Contact Resistance | 50mΩ maximum (initial value) |
| Contact Material | Gold plated silver |
| Insulation Resistance | 100MΩ minimum (500V DC megger) |
| Impulse Withstand Voltage | 2.5kV |
| Pollution Degree | 3 |
| Operation Frequency | 900 operations/hour |
| Shock Resistance | Operating extremes: 150m/s ² (15G), Damage limits: 1000m/s ² (100G) |
| Vibration Resistance | Operating extremes: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ² Damage limits: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s ² |
| Mechanical Life | 250,000 operations minimum |
| Electrical Life | 100,000 operations minimum, (250,000 operations minimum @ 24V AC/DC, 100mA) |
| Degree of Protection | Operator: IP65 (IEC60529) Terminal: IP20 (when XW9Z-VL2MF is installed) |
| Terminal Style | M3.0 screw terminal |
| Recommended Tightening Torque for Locking Ring | 2.0N·m |
| Wire Size | 16 AWG max |
| Weight | ø40mm: 72g ø60mm: 81g |


Part Numbers


Standard Button Without Mechanical Indicator

| Style | Operator Type | Monitor Contact | Main Contact | Part Number |
|--|--|-----------------|--------------|-----------------|
| Non-Illuminated |  | 1NO | 1NC | XW1E-BV411M-R |
| | | — | 2NC | XW1E-BV402M-R |
| | | 2NO | 2NC | XW1E-BV422M-R |
| | | 1NO | 3NC | XW1E-BV413M-R |
| | | — | 4NC | XW1E-BV404M-R |
|  | 60mm Mushroom | 1NO | 1NC | XW1E-BV511M-R |
| | | — | 2NC | XW1E-BV502M-R |
| | | 2NO | 2NC | XW1E-BV522M-R |
| | | 1NO | 3NC | XW1E-BV513M-R |
| | | — | 4NC | XW1E-BV504M-R |
| Illuminated ¹ |  | 1NO | 1NC | XW1E-LV411Q4M-R |
| | | — | 2NC | XW1E-LV402Q4M-R |
| | | 2NO | 2NC | XW1E-LV422Q4M-R |
| | | 1NO | 3NC | XW1E-LV413Q4M-R |
| | 40mm Mushroom Push-ON LED ² | — | 4NC | XW1E-LV404Q4M-R |
| | | 1NO | 2NC | XW1E-TV412Q4M-R |
| | | — | — | — |

Smooth Button With Mechanical Indicator


| Style | Operator Type | Monitor Contact | Main Contact | Part Number |
|-----------------|---|-----------------|--------------|------------------|
| Non-Illuminated |  | — | 1NC | XW1E-BV4TG01MR |
| | | — | 2NC | XW1E-BV4TG02MR |
| | | — | 3NC | XW1E-BV4TG03MR |
| | | — | 4NC | XW1E-BV4TG04MR |
| | | 1NO | 1NC | XW1E-BV4TG11MR |
| Illuminated |  | 1NO | 2NC | XW1E-BV4TG12MR |
| | | 1NO | 3NC | XW1E-BV4TG13MR |
| | | 2NO | 4NC | XW1E-BV4TG22MR |
| | | — | 1NC | XW1E-LV4TG01Q4MR |
| | 38mm Mushroom with built-in 24V AC/DC LED ¹ | — | 2NC | XW1E-LV4TG02Q4MR |
| | | — | 3NC | XW1E-LV4TG03Q4MR |
| | | — | 4NC | XW1E-LV4TG04Q4MR |
| | | 1NO | 1NC | XW1E-LV4TG11Q4MR |
| | | 1NO | 2NC | XW1E-LV4TG12Q4MR |
| | | 1NO | 3NC | XW1E-LV4TG13Q4MR |
| | | 2NO | 2NC | XW1E-LV4TG22Q4MR |

-  1. The light is independent of the position of the switch, except for push-on LED type.
2. The light only operates when the switch is pressed as it is internally wired.

-  Note: Pushlock pull/turn reset switches are locked when pressed, and reset when pulled or turned clockwise.

1. LED lamp is not removable.

XW Series EMO Switches

| Style | NC Main Contact | NO Monitor Contact | Part Number |
|--|-----------------|--------------------|--------------------|
|  | 1NC | - | XW1E-BV401M-RH-EMO |
| | 2NC | - | XW1E-BV402M-RH-EMO |
| | 3NC | - | XW1E-BV403M-RH-EMO |
| | 4NC | - | XW1E-BV404M-RH-EMO |
| | 1NC | 1NO | XW1E-BV411M-RH-EMO |
| | 2NC | 1NO | XW1E-BV412M-RH-EMO |
| | 3NC | 1NO | XW1E-BV413M-RH-EMO |
| | 2NC | 2NO | XW1E-BV422M-RH-EMO |
| | — | — | — |
| | — | — | — |

FB Enclosures with XW E-Stops

| | | | | |
|---|--|-----|-----|-------------------|
|  | 40mm Push-lock Turn/Pull Reset Non-Illuminated | 2NC | — | FB1W-XW1E-BV402MR |
| | | 1NC | 1NO | FB1W-XW1E-BV411MR |
| | | 2NC | 2NO | FB1W-XW1E-BV422MR |
| | | 3NC | 1NO | FB1W-XW1E-BV413MR |
| | | 4NC | — | FB1W-XW1E-BV404MR |
|  | 40mm Push-lock Turn/Pull Reset Illuminated* | 2NC | — | FB1W-XW1E-LV402MR |
| | | 1NC | 1NO | FB1W-XW1E-LV411MR |
| | | 2NC | 2NO | FB1W-XW1E-LV422MR |
| | | 3NC | 1NO | FB1W-XW1E-LV413MR |
| | | 4NC | — | FB1W-XW1E-LV404MR |
|  | 60mm Push-lock Turn/Pull Reset Non-Illuminated | 2NC | — | FB1W-XW1E-BV502MR |
| | | 1NC | 1NO | FB1W-XW1E-BV511MR |
| | | 2NC | 2NO | FB1W-XW1E-BV522MR |
| | | 3NC | 1NO | FB1W-XW1E-BV513MR |
| | | 4NC | — | FB1W-XW1E-BV504MR |



For added safety, Switch Guards and Nameplates can be used with E-Stop Enclosures



*LED illumination voltage: 24V AC/DC

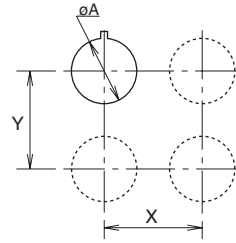
Contact Ratings

| | | | | | | |
|-------------------------------|-----------------------|------------|------------------------|------|-------|------|
| Rated Insulation Voltage (Ui) | | | | 250V | | |
| Rated Current (Ith) | | | | 5A | | |
| Rated Operating Voltage (Ue) | | | | 30V | 125V | 250V |
| Rated Operating Current | Main Contacts (NC) | 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 |
| | Monitor Contacts (NO) | AC 50/60Hz | Resistive Load (AC-12) | — | 1.2A | 0.6A |
| | | | Inductive Load (AC-14) | — | 0.6A | 0.3A |
| | | 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).
The rated operating currents are measured at resistive/inductive load types specified in IEC 60947-5-1.

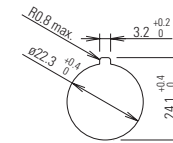
Mounting Hole Layout



Measurements

| Size | øA | X & Y |
|------|----------------------|----------|
| 40mm | 22.3 ^{+0.4} | 70mm min |

Panel Cutout



Depth Behind the Panel

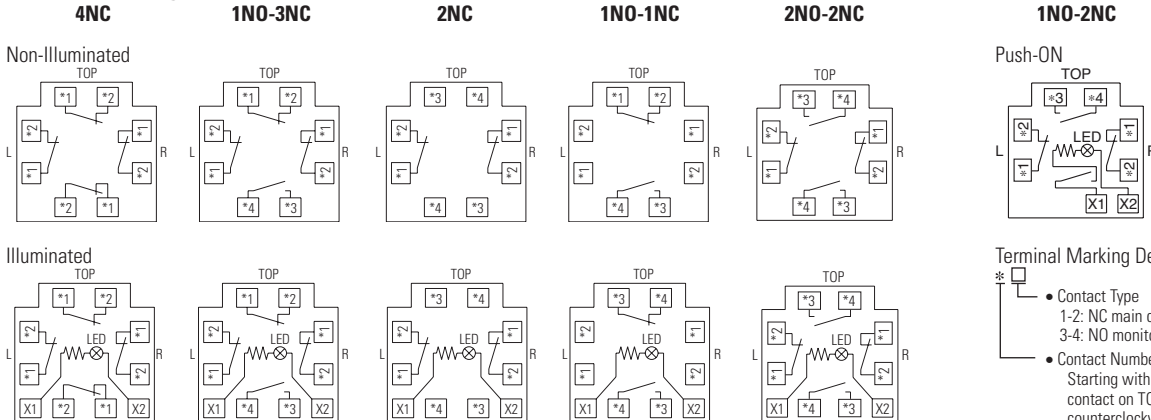
| Depth (mm) | Description |
|------------|--|
| 46.4 | with indicator, 1 - 4 contacts, both illuminated and non-illuminated |
| 48.7 | w/o indicator, 1 - 4 contacts, both illuminated and non-illuminated |

Part Number Key

XW1E - L V 4 TG 11 Q4MR

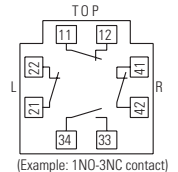
| | | | |
|---|--|---|---|
| Illumination B: Non-Illuminated L: Illuminated LED T: Illuminated Push-ON LED | Indicator TG: w/green mechanical indicator blank: w/o indicator | Contact Configuration 11: 1NO - 1NC 02: 2NC 13: 1NO - 3NC 04: 4NC 22: 2NO-2NC 12: 1NO-2NC (Push-ON LED only) 01: 1NC (EMO switch only) 03: 3NC (EMO switch only) | Color R: red with indicator -R: red w/o indicator -RH-EMO: red w/o indicator with EMO engraving |
| Mushroom Size 4: ø40mm 5: ø60mm (non-illuminated only) | | Voltage Code Blank: Non-illuminated Q4: Illuminated 24V AC/DC | |

Terminal Arrangements (Bottom View)

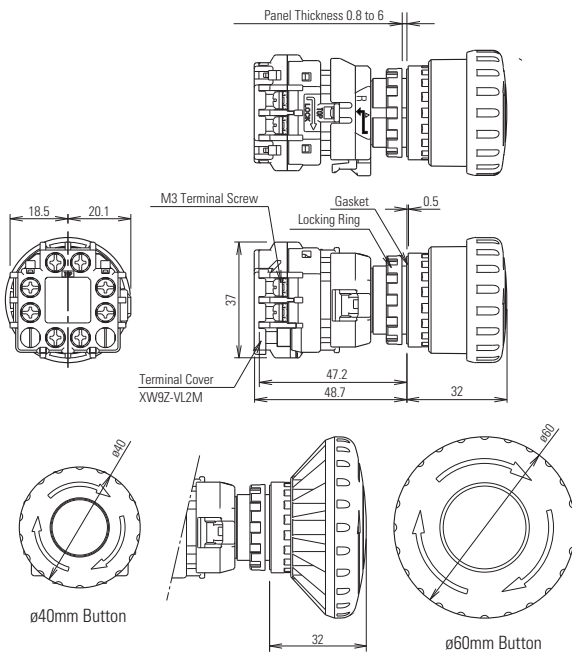
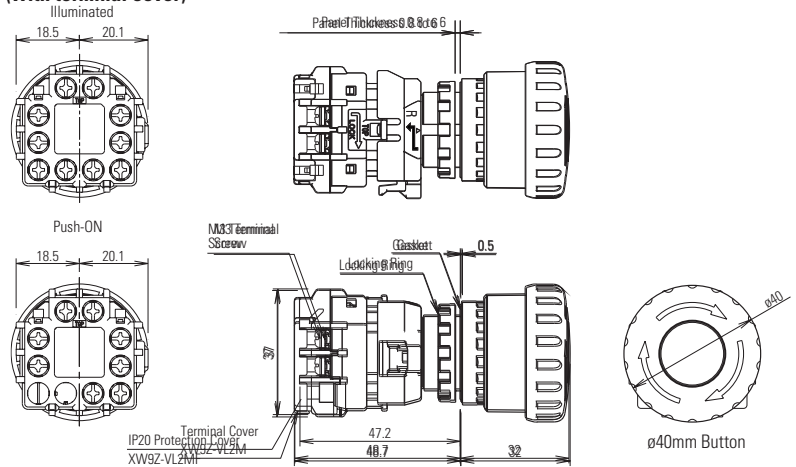
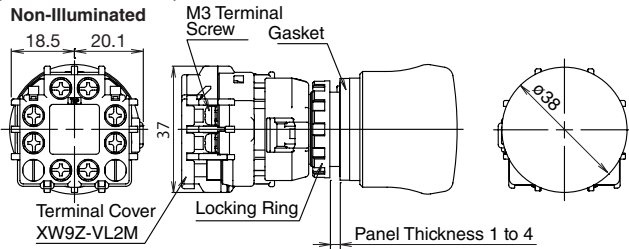
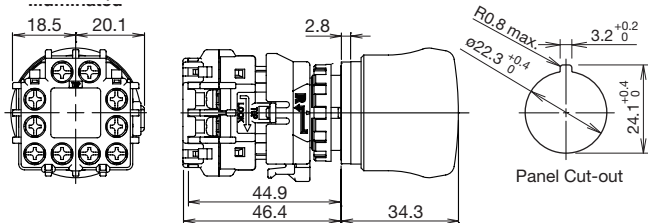
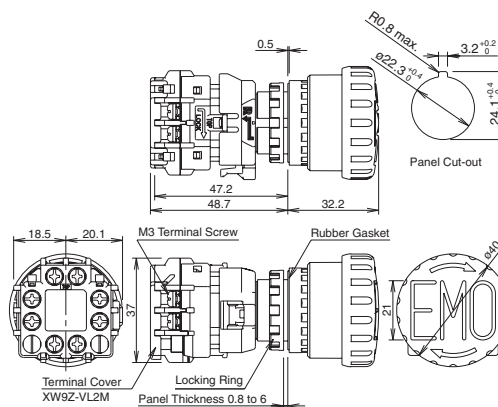
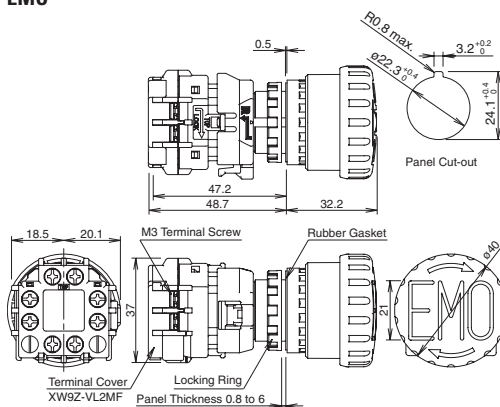


Terminal Marking Description

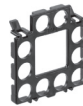

- Contact Type
1-2: NC main contact
3-4: NO monitor contact
- Contact Number (1-4)
Starting with the contact on TOP in a counterclockwise direction.
Note:
1: contact on the TOP
2: contact on the Left
3: contact on the Bottom
4: contact on the Right




Dimensions (mm)

**XW Standard Button Non-Illuminated Without Indicator
(with terminal cover)****XW Standard Button LED Illuminated/Push-ON Without Indicator
(with terminal cover)****XW Smooth Button Non-Illuminated With Indicator
(with terminal cover)****XW Smooth Button LED Illuminated/Push-ON With Indicator
(with terminal cover)****EMO**

Accessories: Terminal Covers

| Appearance | Description | Part Numbers |
|---|----------------------------------|--------------|
|  | Terminal Cover for contact block | XW9Z-VL2M |
|  | IP20 Fingersafe Cover | XW9Z-VL2MF |





Accessories: Nameplates

| Appearance | Legend | Part Number | Inner Ø | Outer Ø |
|---|------------------|-------------|---------|---------|
|  | (blank) | HWAV-0 | 22mm | 60mm |
| | "Emergency Stop" | HWAV-27 | 22mm | 60mm |
| | (blank) | HWAV5-0 | 22mm | 80mm |
| | "Emergency Stop" | HWAV5-27 | 22mm | 80mm |



Use 60mm nameplates for 38mm and 40mm mushroom buttons and 80mm nameplates for 60mm mushroom buttons.

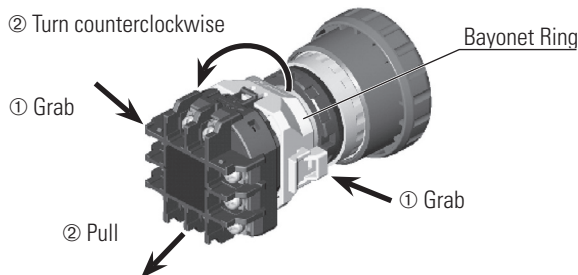
Accessories: Shrouds

| Appearance | Part Numbers | E-Stop Types | Applicable Standards |
|---|--------------|------------------------------------|--|
|  | HW9Z-KG1 | 38mm, 40mm Mushroom Head | SEMI S2-0703, 12.5.1 Compliant |
|  | HW9Z-KG2 | 38mm, 40mm, and 60mm Mushroom Head | SEMI S2-0703, 12.5.1 & SEMATECH Compliant |
|  | HW9Z-KG3 | 38mm, 40mm Mushroom Head | SEMI S2 Compliant (Approved by TUV) |
|  | HW9Z-KG4 | 38mm, 40mm Mushroom Head | SEMI S2 Compliant (Approved by TUV) & SEMATECH |

Operating Instructions

Removing the Contact Block

First unlock the operator button. Grab the bayonet ring ① and pull back the bayonet ring until the latch pin clicks ②, then turn the contact block counterclockwise and pull out ③.

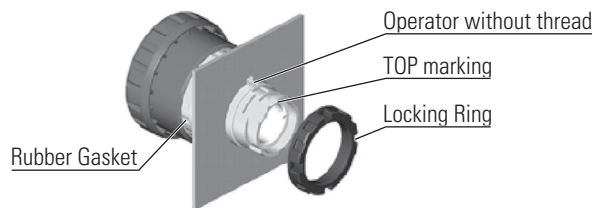


Notes for removing the contact block

- When the contact block is removed, the monitor contact (NO contact) is closed.
- While removing the contact block, do not exert excessive force, otherwise the switch may be damaged.
- An LED lamp is built into the contact block for illuminated pushbuttons. When removing the contact block, pull the contact block straight to prevent damage to the LED lamp. If excessive force is exerted, the LED lamp may be damaged and fail to light.

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 without thread on the operator with TOP marking upward, and tighten the locking ring using ring wrench MW9Z-T1 to a torque of 2.0 N·m maximum.

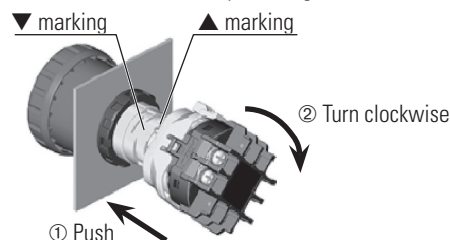


Notes for Panel Mounting

To prevent the XW emergency stop switch from rotating when resetting from the latched position, use of an anti-rotation ring (HW9Z-RL) or a nameplate is recommended.

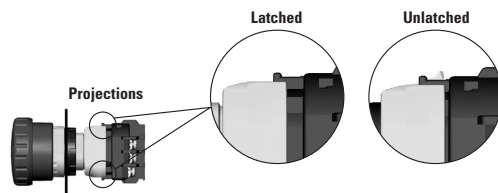
Installing the Contact Block

First unlock the operator button. Align the small ▲ marking on the edge of the operator with the small ▼ marking on the yellow bayonet ring. Hold the contact block, not the bayonet ring. Press the contact block onto the operator and turn the contact block clockwise until the bayonet ring clicks.



Notes for installing the contact block

Make sure that the bayonet ring is in the locked position. Check that the two projections on the bayonet ring are securely in place.

**Wiring**

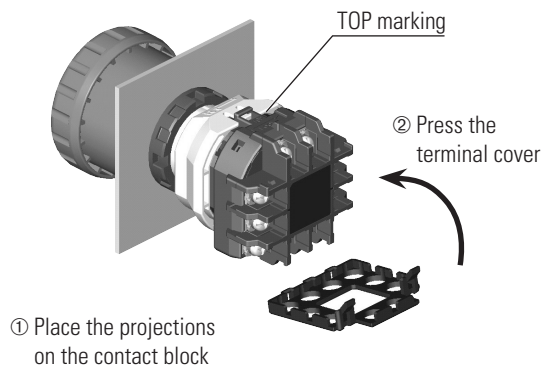
The applicable wire size is 16 AWG maximum.

Screw Terminal

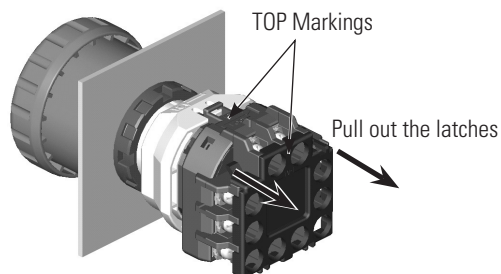
1. Wire thickness: AWG18 to 16
2. Tighten the M3 terminal screw to a tightening torque of 0.6 to 1.0 N·m.

Installing and Removing Terminal Covers**XW9Z-VL2M**

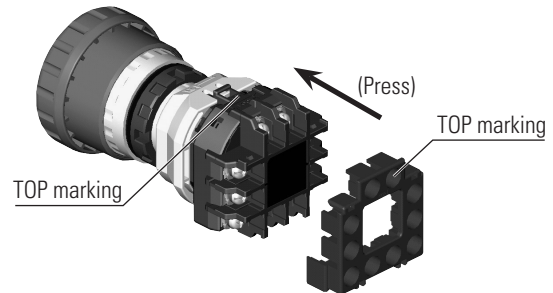
To install the terminal cover, align the TOP marking on the terminal cover with the TOP marking on the contact block. Place the two projections on the bottom side of the contact block into the slots in the terminal cover. Press the terminal cover toward the contact block.



To remove the terminal cover, pull out the two latches on the top side of the terminal cover. Do not exert excessive force to the latches, otherwise the latches may break.

**IP20 Protection Terminal Cover
XW9Z-VL2MF**

To install the IP20 protection cover, align the TOP marking on the cover with the TOP marking on the contact block, and press the cover toward the contact block.



1. Once installed, the XW9Z-VL2MF cannot be removed.
2. The XW9Z-VL2MF cannot be installed after wiring.
3. With the XW9Z-VL2MF installed, crimping terminals cannot be used.
4. Make sure that the XW9Z-VL2MF is securely installed. IP20 protection cannot be achieved when installed loosely, and electric shocks may occur.

Contact Bounce

When the button is reset by pulling or turning, the NC main contacts will bounce. When pressing the button, the NO monitor contacts will bounce.

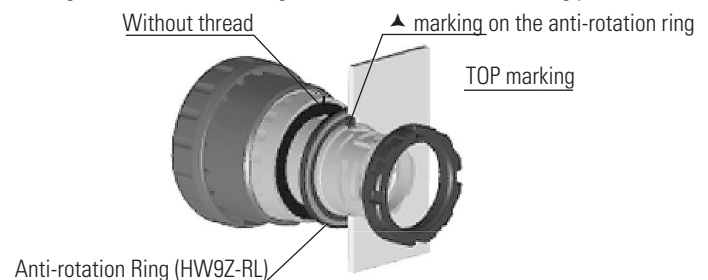
When designing a control circuit, take the contact bounce time into consideration (reference value: 20 ms).

LED Illuminated Switches

LED lamp is built into the contact block and cannot be replaced.

**Installing the Anti-rotation Ring
HW9Z-RL**

Align the side without thread on the operator with TOP marking, the small marking on the anti-rotation ring, and the recess on the mounting panel.



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