

ø30 XN series Emergency Stop Switches

ø30 mm, 4-contact Emergency Stop Switch. Padlockable and flush bezel are available.

- Padlockable, flush bezel, ø60mm jumbo mushroom, illuminated, LED push-on are available.
- IDEC's original "Safe break action" and reverse energy structure ensure the highest level of safety.
- Safety lock mechanism (IEC 60947-5-5, 6.2)
- Direct opening action mechanism (IEC 60947-5-5, 5.2, IEC60947-5-1, Annex K)
- Short depth behind the panel – only 47.7 mm for 4-contact, illuminated (flush bezel: 60.4 mm, padlockable: 61.4 mm)
- Padlockable can be locked using padlocks when latched (main contact: OFF). The rugged aluminum diecast shroud allows for installing a maximum of 20 padlocks using a hasp (total weight: 1500g maximum).
- Gold-plated silver contacts.
- Red (Munsell 5R4/12) or bright red (Munsell 7.5R4.5/14) colors are available.



Standards

Applicable Standards	Mark	File No. or Organization
UL508 CSA C22.2 No. 14		UL/c-UL File No. E68961
IEC60947-5-5 UL991 NFPA79		UL Listing File No. E305148
EN60947-5-5		TÜV SÜD
		EU Low Voltage Directive
GB14048.5		CCC No. 2008010305290010

Contact Ratings

NC main contacts/NO monitor contacts

Rated Insulation Voltage (Ui)		250V				
Rated Thermal Current (Ith)		5A				
Rated Operating Voltage (Ue)		30V	125V	250V		
Rated Operating Current	Main Contacts	AC 50/60 Hz	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	AC 50/60 Hz	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	
Contact Material		Gold-plated Silver				

- Minimum applicable load: 5V AC/DC, 1 mA (reference value) (May vary depending on the operating conditions and load types.)
- The rated operating currents are measured at resistive/inductive load types specified in IEC 60947-5-1.

Illumination Ratings (LED)

Rated Voltage	Operating Voltage	Rated Current
24V AC/DC	24V AC/DC ±10%	15 mA





Specifications

Applicable Standards	IEC60947-5-1, EN60947-5-1 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)
Storage Temperature	–45 to +80°C
Operating Humidity	45 to 85% RH (no condensation)
Minimum Force Required for Direct Opening Action	80N
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 Damage limits: 1000 m/s ²
Vibration Resistance	Operating 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
Durability (at 900 operations/h, on-duration 40%)	Mechanical: 250,000 operations minimum Electrical: 100,000 operations minimum 250,000 operations minimum (24V AC/DC, 100 mA)
Degree of Protection	Operator: IP65 (IEC60529) Terminal: IP20 (when XW9Z-VL2MF is installed)
Short-circuit Protection	250V/10A fuse (Type aM, IEC60269-1/IEC60269-2)
Conditional Short-circuit Current	1000A
Terminal Style	M3 screw terminal
Recommended Tightening Torque for Terminal Screw	0.6 to 1.0 N·m
Recommended Tightening Torque for Locking Ring	2.5 N·m
Applicable Wire Size	0.75 to 1.25 mm ² (AWG18 to 16)
Total Weight of a Hasp and Padlocks	1500g maximum (padlockable)
Reinforced Insulation (IEC 60664-1)	Between live part and metal bezel (flush bezel, padlockable)
Weight	83g (XN1E-LV404Q4MR) 93g (XN1E-BV504MR) 89g (XN5E-LV404Q4MR) 120g (XN4E-LL404Q4MR)

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Plastic Bezel

Non-illuminated Pushlock Pull/Turn Reset (Solder Terminal)

Shape	NC Main Contact	NO Monitor Contact	Part No.		① Operator Color Code
			IP20 Fingersafe Terminal	w/Terminal Cover	
 	1NC	—	XN1E-BV401MF ①	XN1E-BV401M ①	R: Red RH: Bright red
	2NC	—	XN1E-BV402MF ①	XN1E-BV402M ①	
	3NC	—	XN1E-BV403MF ①	XN1E-BV403M ①	
	4NC	—	XN1E-BV404MF ①	XN1E-BV404M ①	
	1NC	1NO	XN1E-BV411MF ①	XN1E-BV411M ①	
	2NC	1NO	XN1E-BV412MF ①	XN1E-BV412M ①	
	3NC	1NO	XN1E-BV413MF ①	XN1E-BV413M ①	
	2NC	2NO	XN1E-BV422MF ①	XN1E-BV422M ①	
 	1NC	—	XN1E-BV501MF ①	XN1E-BV501M ①	
	2NC	—	XN1E-BV502MF ①	XN1E-BV502M ①	
	3NC	—	XN1E-BV503MF ①	XN1E-BV503M ①	
	4NC	—	XN1E-BV504MF ①	XN1E-BV504M ①	
	1NC	1NO	XN1E-BV511MF ①	XN1E-BV511M ①	
	2NC	1NO	XN1E-BV512MF ①	XN1E-BV512M ①	
	3NC	1NO	XN1E-BV513MF ①	XN1E-BV513M ①	
	2NC	2NO	XN1E-BV522MF ①	XN1E-BV522M ①	



- Specify a color code in place of ① in the Part No.
- Only solid wires can be used on the IP20 fingersafe terminal switches.

Illuminated Pushlock Pull/Turn Reset (Solder Terminal)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
 	LED	24V AC/DC	1NC	—	XN1E-LV401Q4MFR	XN1E-LV401Q4MR	Red only
			2NC	—	XN1E-LV402Q4MFR	XN1E-LV402Q4MR	
			3NC	—	XN1E-LV403Q4MFR	XN1E-LV403Q4MR	
			4NC	—	XN1E-LV404Q4MFR	XN1E-LV404Q4MR	
			1NC	1NO	XN1E-LV411Q4MFR	XN1E-LV411Q4MR	
			2NC	1NO	XN1E-LV412Q4MFR	XN1E-LV412Q4MR	
			3NC	1NO	XN1E-LV413Q4MFR	XN1E-LV413Q4MR	
			2NC	2NO	XN1E-LV422Q4MFR	XN1E-LV422Q4MR	

- Only solid wires can be used on the IP20 fingersafe terminal switches.

Illuminated Push-ON Pushlock Pull/Turn Reset (Solder Terminal)







Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
 	LED	24V AC/DC	2NC	—	XN1E-TV402Q4MFR	XN1E-TV402Q4MR	Red only
			3NC	—	XN1E-TV403Q4MFR	XN1E-TV403Q4MR	
			2NC	1NO	XN1E-TV412Q4MFR	XN1E-TV412Q4MR	

- Push-ON is illuminated when the operator is latched, and turns off when reset.
- Only solid wires can be used on the IP20 fingersafe terminal switches.

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Flush Bezel

Non-illuminated Pushlock Pull/Turn Reset (Solder Terminal)

Shape	NC Main Contact	NO Monitor Contact	Part No.		Operator Color Code
			IP20 Fingersafe Terminal	w/Terminal Cover	
     	1NC	—	XN5E-BV401MF ①	XN5E-BV401M ①	R: Red RH: Bright red
	2NC	—	XN5E-BV402MF ①	XN5E-BV402M ①	
	3NC	—	XN5E-BV403MF ①	XN5E-BV403M ①	
	4NC	—	XN5E-BV404MF ①	XN5E-BV404M ①	
	1NC	1NO	XN5E-BV411MF ①	XN5E-BV411M ①	
	2NC	1NO	XN5E-BV412MF ①	XN5E-BV412M ①	
	3NC	1NO	XN5E-BV413MF ①	XN5E-BV413M ①	
	2NC	2NO	XN5E-BV422MF ①	XN5E-BV422M ①	







- Specify a color code in place of ① in the Part No.
- Only solid wires can be used on the IP20 fingersafe terminal switches.

Illuminated Pushlock Pull/Turn Reset (Solder Terminal)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
     	LED	24V AC/DC	1NC	—	XN5E-LV401Q4MFR	XN5E-LV401Q4MR	Red only
			2NC	—	XN5E-LV402Q4MFR	XN5E-LV402Q4MR	
			3NC	—	XN5E-LV403Q4MFR	XN5E-LV403Q4MR	
			4NC	—	XN5E-LV404Q4MFR	XN5E-LV404Q4MR	
			1NC	1NO	XN5E-LV411Q4MFR	XN5E-LV411Q4MR	
			2NC	1NO	XN5E-LV412Q4MFR	XN5E-LV412Q4MR	
			3NC	1NO	XN5E-LV413Q4MFR	XN5E-LV413Q4MR	
			2NC	2NO	XN5E-LV422Q4MFR	XN5E-LV422Q4MR	

- Only solid wires can be used on the IP20 fingersafe terminal switches.

Illuminated Push-ON Pushlock Pull/Turn Reset (Solder Terminal)



Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
     	LED	24V AC/DC	2NC	—	XN5E-TV402Q4MFR	XN5E-TV402Q4MR	Red only
			3NC	—	XN5E-TV403Q4MFR	XN5E-TV403Q4MR	
			2NC	1NO	XN5E-TV412Q4MFR	XN5E-TV412Q4MR	

- Push-ON is illuminated when the operator is latched, and turns off when reset.
- Only solid wires can be used on the IP20 fingersafe terminal switches.

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Padlockable

Non-illuminated Pushlock Turn Reset (Padlockable)

Shape	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
			IP20 Fingersafe Terminal	w/Terminal Cover	
 	1NC	—	XN4E-BL401MFRH	XN4E-BL401MRH	Bright red only
	2NC	—	XN4E-BL402MFRH	XN4E-BL402MRH	
	3NC	—	XN4E-BL403MFRH	XN4E-BL403MRH	
	4NC	—	XN4E-BL404MFRH	XN4E-BL404MRH	
	1NC	1NO	XN4E-BL411MFRH	XN4E-BL411MRH	
	2NC	1NO	XN4E-BL412MFRH	XN4E-BL412MRH	
	3NC	1NO	XN4E-BL413MFRH	XN4E-BL413MRH	
	2NC	2NO	XN4E-BL422MFRH	XN4E-BL422MRH	



- Only solid wires can be used on the IP20 fingersafe terminal switches.
- Padlocks and hasps are not supplied with the emergency stop switches and must be ordered separately. See page 53.

Illuminated Pushlock Turn Reset (Padlockable)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
 	LED	24V AC/DC	1NC	—	XN4E-LL401Q4MFR	XN4E-LL401Q4MR	Red only
			2NC	—	XN4E-LL402Q4MFR	XN4E-LL402Q4MR	
			3NC	—	XN4E-LL403Q4MFR	XN4E-LL403Q4MR	
			4NC	—	XN4E-LL404Q4MFR	XN4E-LL404Q4MR	
			1NC	1NO	XN4E-LL411Q4MFR	XN4E-LL411Q4MR	
			2NC	1NO	XN4E-LL412Q4MFR	XN4E-LL412Q4MR	
			3NC	1NO	XN4E-LL413Q4MFR	XN4E-LL413Q4MR	
			2NC	2NO	XN4E-LL422Q4MFR	XN4E-LL422Q4MR	

- Only solid wires can be used on the IP20 fingersafe terminal switches.
- Padlocks and hasps are not supplied with the emergency stop switches and must be ordered separately. See page 53.

LED Push-ON Pushlock Turn Reset (Padlockable)

Shape	Illumination	Rated Voltage	NC Main Contact	NO Monitor Contact	Part No.		Operator Color
					IP20 Fingersafe Terminal	w/Terminal Cover	
 	LED	24V AC/DC	2NC	—	XN4E-TL402Q4MFR	XN4E-TL402Q4MR	Red only
			3NC	—	XN4E-TL403Q4MFR	XN4E-TL403Q4MR	
			2NC	1NO	XN4E-TL412Q4MFR	XN4E-TL412Q4MR	

- Push-ON is illuminated when the operator is latched, and turns off when reset.
- Only solid wires can be used on the IP20 fingersafe terminal switches.
- Padlocks and hasps are not supplied with the emergency stop switches and must be ordered separately. See page 53.

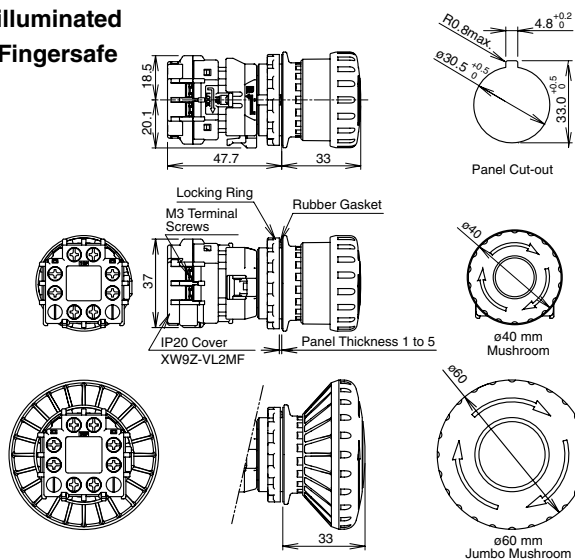
XN Series Emergency Stop Switches ø30

Dimensions

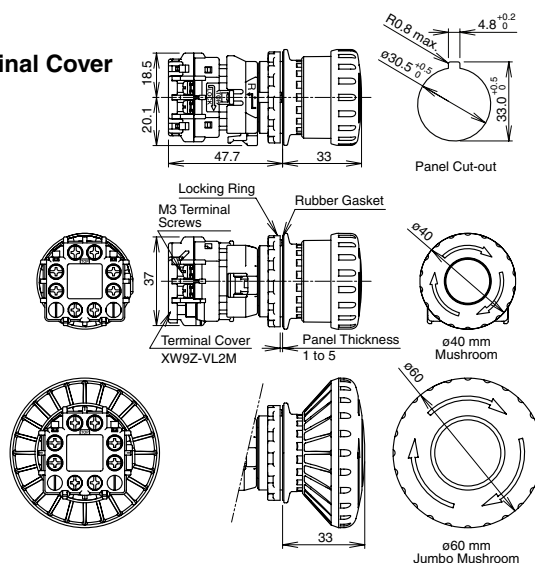
Plastic Bezel

Non-illuminated

IP20 Fingersafe

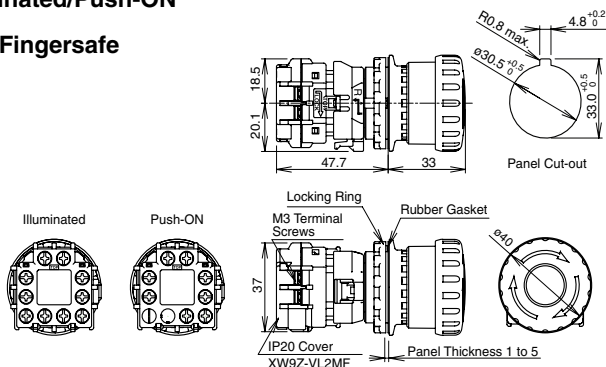


w/Terminal Cover

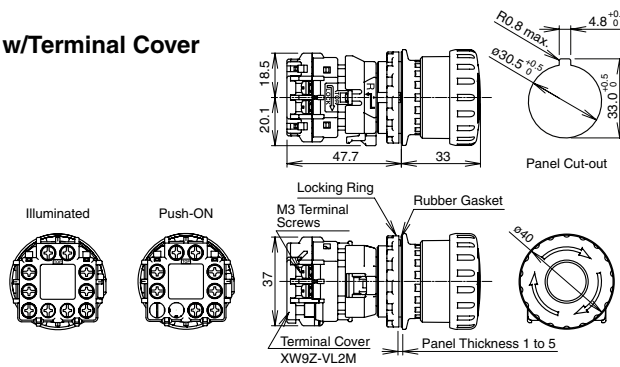


Illuminated/Push-ON

IP20 Fingersafe



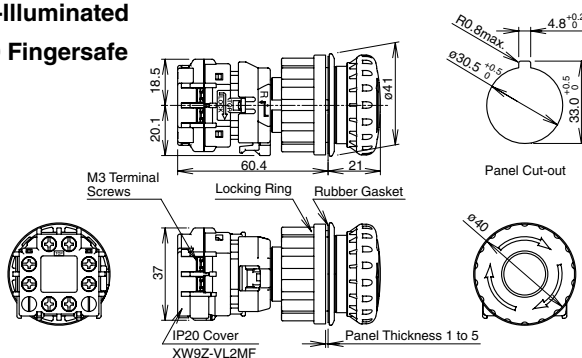
w/Terminal Cover



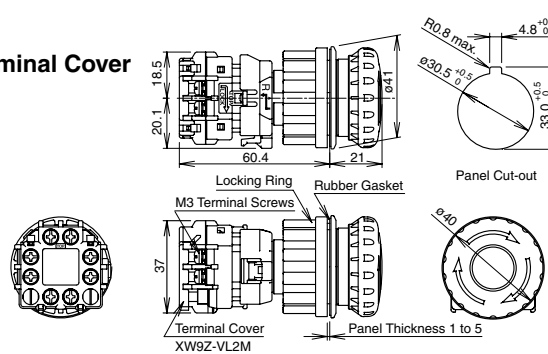
Flush Bezel

Non-Illuminated

IP20 Fingersafe

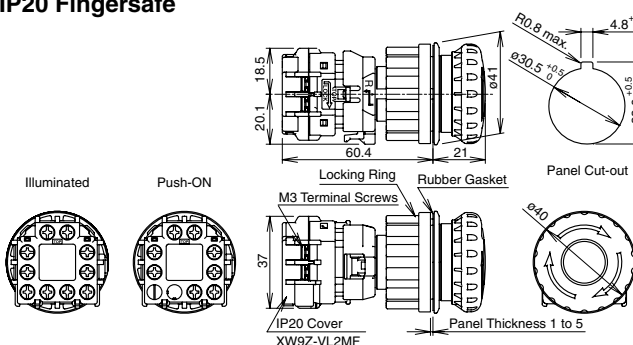


w/Terminal Cover

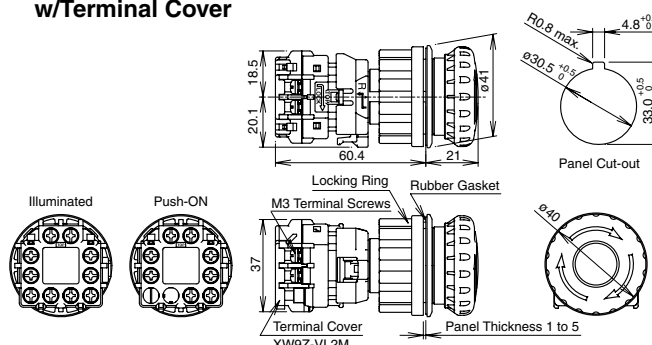


Illuminated/Push-ON

IP20 Fingersafe



w/Terminal Cover

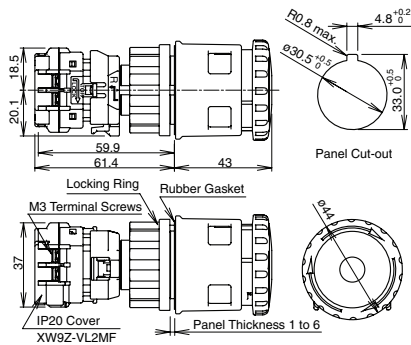


All dimensions in mm.

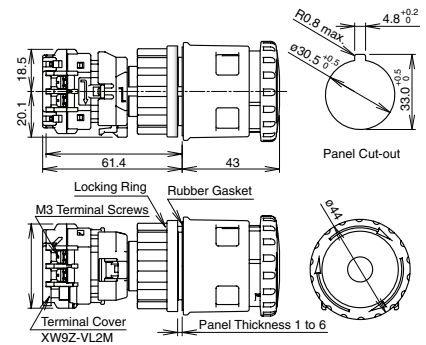
ø30 XN Series Emergency Stop Switches

Dimensions

Padlockable
Non-illuminated
IP20 Fingersafe

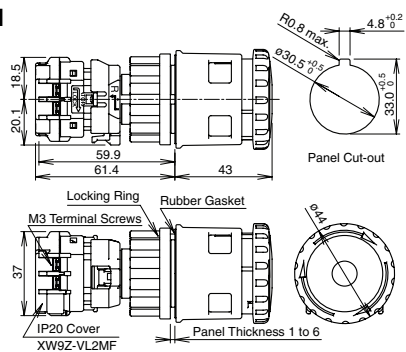


w/ Terminal Cover

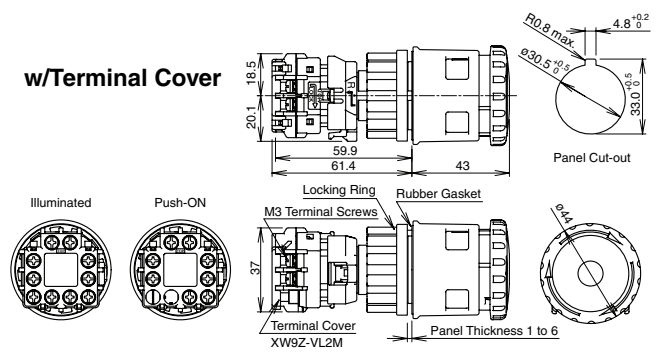


illuminated/push-on

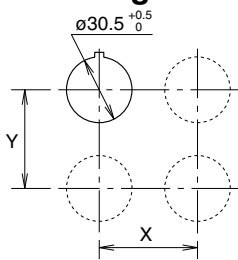
IP20 Fingersafe



w/ Terminal Cover



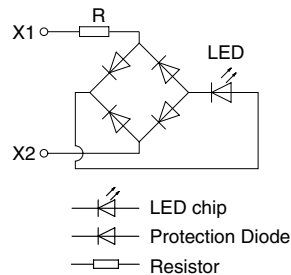
Mounting Hole Layout



	X	Y
Plastic Bezel	70 mm minimum	
Flush Bezel	70 mm minimum	

- The values shown above are the minimum dimensions for mounting with other ø30 mm pushbuttons. For other control units of different sizes and styles, determine the values according to the dimensions, operation, and wiring convenience.
- For padlockable, determine the values according to the size and number of padlocks and hasp.

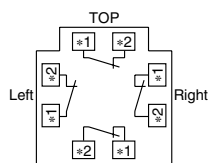
LED Unit Internal Circuit



Terminal Arrangement (Bottom View)

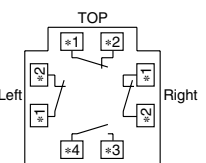
Non-illuminated

NC main contacts only



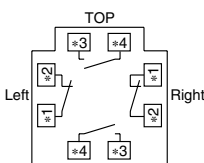
- 1NC: Terminals on right
- 2NC: Terminals on right and left
- 3NC: Terminals on right, left, and top

With 1NO monitor contact



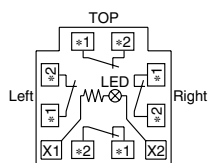
- 1NC: Terminals on top
- 2NC: Terminals on right and left

With 2NO monitor contacts



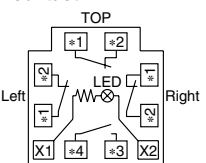
illuminated

NC main contacts only



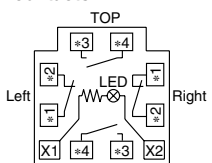
- 1NC: Terminals on right
- 2NC: Terminals on right and left
- 3NC: Terminals on right, left, and top

With 1NO monitor contact



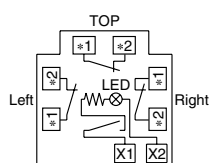
- 1NC: Terminals on top
- 2NC: Terminals on right and left

With 2NO monitor contacts



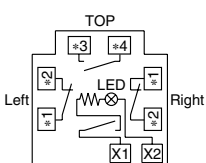
Push-ON

NC main contacts only

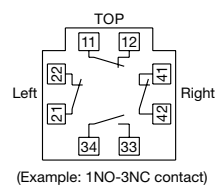


- 2NC: Terminals on right and left
- 3NC: Terminals on right, left, and top

With 1NO monitor contact



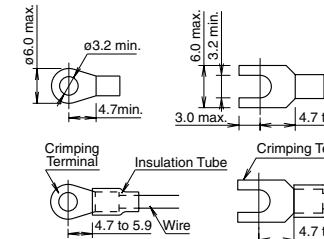
- Contact
- 1-2: NC main contact (black)
- 3-4: NO monitor contact (blue)
- Contact Number (1-4) Starting with the contact of TOP side, in a counter-clockwise direction.



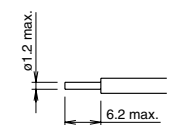
(Example: 1NO-3NC contact)

Applicable Crimping Terminal

Ring Terminal Spade Terminal



Solid Wire






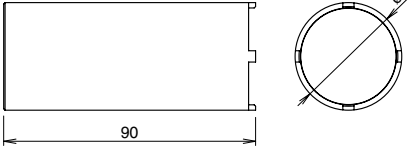

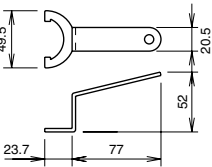
Only solid wire can be used for IP20.

- Be sure to install an insulating tube on the crimping terminal.

All dimensions in mm.

XN Series Emergency Stop Switches ø30

Accessories and Replacement Parts

Name & Shape	Material	Part No.	Ordering No.	Package Quantity	Remarks
	PPE	XW9Z-VL2M	XW9Z-VL2MPN02	2	<ul style="list-style-type: none"> Black Used for screw terminals. Attached to IP20 protection cover units.
	Polyamide	XW9Z-VL2MF	XW9Z-VL2MFPN02	2	<ul style="list-style-type: none"> Black Used to change terminal cover to IP20 fingersafe terminal. Only solid wires can be used. Once installed, IP20 terminal cover cannot be removed.
	Brass	XN9Z-T1	XN9Z-T1	1	<ul style="list-style-type: none"> Used to tighten the locking ring when installing the XN emergency stop switch onto a panel. 
	Steel Trivalent chromate plating	TWST-T1	TWST-T1	1	<ul style="list-style-type: none"> Used to tighten the locking ring when installing the XN emergency stop switch onto a panel. 

- The XN series emergency stop switches are supplied with either terminal cover or IP20 fingersafe terminal cover.
- Padlocks and hasps are not supplied and must be ordered separately.

Nameplates (for ø30 Emergency Stop Switches)


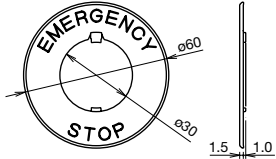
Description & Shape	Legend	Part No.	Package Quantity	Dimensions (mm)
	(blank)	HNAV-0	1	Polyamide Mounting panel thickness XN4E-□L4: 1.0 to 4.5 mm XN□E-□V4: 1.0 to 3.5 mm 
	EMERGENCY STOP	HNAV-27		

Plate color: Yellow (Munsell 2.5Y 8/10 or equivalent),
Legend: Black

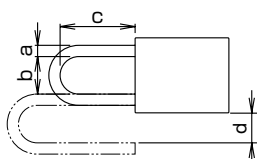
Padlock and Hasp

Padlocks and hasps of the following specifications can be used with padlockable emergency stop switches.

Padlock Size

a	b	c	d
7 mm maximum	19 mm minimum	39 mm minimum	15 mm minimum (Note)

Note: When the padlock is installed from the side of the bezel, dimension d requires a minimum of 6 mm. When the padlock is installed from the front of the button, dimension d requires a minimum of 15 mm.



Recommended Hasp

Maker	Part No.
PANDUIT CORP.	PSL-HD3 PSL-1A
Master Lock® Company LLC	420, 421

Use only padlocks or hasps that satisfy the specifications shown on the left. The maximum total weight for padlocks and hasps is 1500g.

Make sure that the total weight does not exceed 1500g, otherwise the XN emergency stop switch may be damaged. Make sure that locking and unlocking of the padlock and hasp do not interfere with other devices.

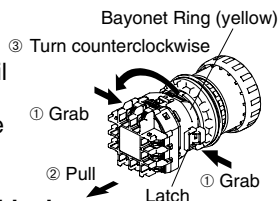
Padlocks and hasps are available from the following manufacturers.

Manufacturer	URL
PANDUIT CORP.	http://www.panduit.com/
Master Lock® Company LLC	http://www.masterlock.com/

Operating Instructions

Removing the Contact Block

First unlock the operator button. Grab the yellow 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.

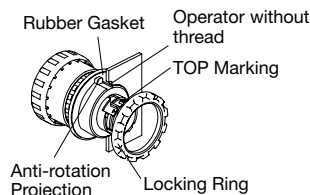


Notes for removing the contact block

1. Do not attempt to remove the contact block while the operator is latched, otherwise the switch may be damaged.
2. When the contact block is removed, the monitor contact (NO contact) is closed.
3. While removing the contact block, do not use excessive force, otherwise the switch may be damaged.
4. 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 used, 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 XN9Z-T1 or TWST-T1 to a torque of 2.5 N·m maximum.



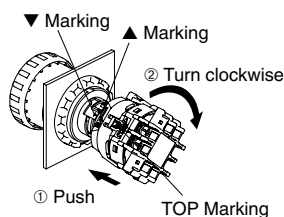
When using a nameplate

When using a nameplate HNAV-□, break the projection from the nameplate using pliers.



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.



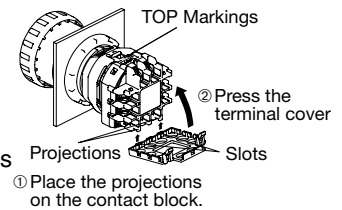
Notes for installing the contact block

1. Do not attempt to install the contact block when the operator is latched, otherwise the switch may be damaged.
2. Make sure that the bayonet ring is in the locked position.

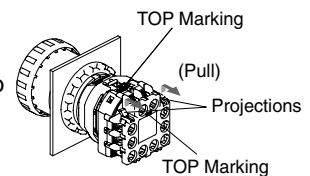
Installing & Removing Terminal Covers

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.

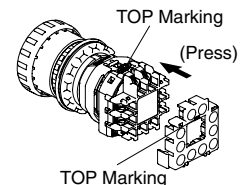


To remove the terminal cover, pull out the two latches on the top side of the terminal cover. Do not exert excessive force to the latches, otherwise the latches may break.



IP20 Fingersafe Terminal Cover XW9Z-VL2MF

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



Notes:

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

Notes for Operation

When using the XN emergency stop switches in safety-related part of a control system, observe safety standards and regulations of the relevant country or region. Also be sure to perform a risk assessment before operation.

Wiring

Tighten the M3 terminal screws to a torque of 0.6 to 1.0 N·m.

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

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

Handling

Do not expose the switch to excessive shocks and vibrations, for example by operating the switch with tools. Otherwise the switch may be deformed or damaged, causing malfunction or operation failure.