

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).
- Silver with gold contacts.
- Red (Munsell 5R4/12) or bright red (Munsell 7.5R4.5/14) colors are available.



Standards and Specifications

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

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

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)

APEM

Switches & Pilot Lights

Control Boxes

Emergency Stop Switches

Enabling Switches

Safety Products

Explosion Proof

Terminal Blocks

Relays & Sockets

Circuit Protectors

Power Supplies

LED Illumination

Controllers

Operator Interfaces

Sensors

AUTO-ID

X6

XA

XW


XN

SEMI

XN Series Emergency Stop Switches


Padlockable

Non-illuminated Pushlock Turn Reset (Padlockable) (Screw Terminal)

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 **D-050**.

Illuminated Pushlock Turn Reset (Padlockable) (Screw 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	—	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 **D-050**.

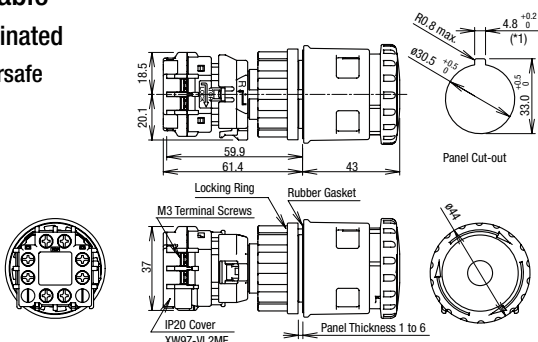
LED Push-ON Pushlock Turn Reset (Padlockable) (Screw Terminal)

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	—	XN4E-TL402Q4MFR	XN4E-TL402Q4MR	Red only
			3NC	—	XN4E-TL403Q4MFR	XN4E-TL403Q4MR	
			2NC	1NO	XN4E-TL412Q4MFR	XN4E-TL412Q4MR	

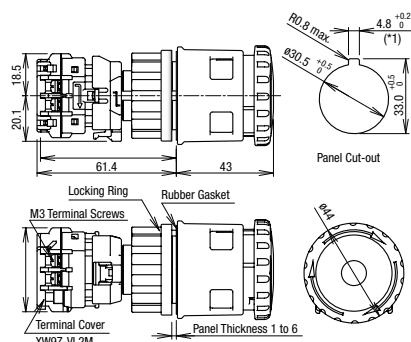
- Push-ON is illuminated when the operator is latched, and turns off when reset.
- Only solid wires can be used on the IP20 fingersafe terminal switches.
- Padlocks and hasps are not supplied with the emergency stop switches and must be ordered separately. See **D-050**.

Dimensions

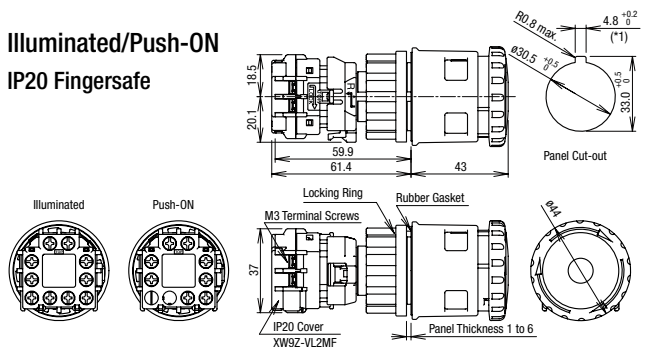
Padlockable
Non-Illuminated
IP20 Fingersafe



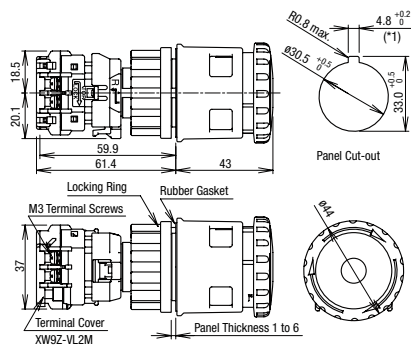
w/Terminal Cover



Illuminated/Push-ON
IP20 Fingersafe

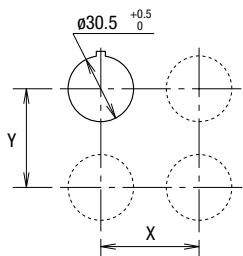


w/Terminal Cover



*1) Make sure that the panel cut-out is as shown in the drawing as the operator has a projection for anti-rotation.

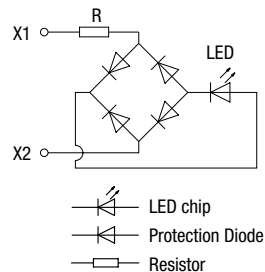
Mounting Hole Layout



	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



- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID

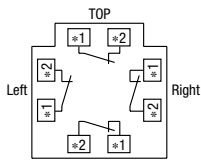
- X6
- XA
- XW
- XN
- SEMI

Terminal Arrangement

Terminal Arrangement (Bottom View)

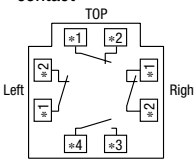
Non-illuminated

NC main contacts only



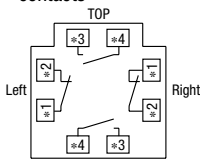
1NC: Terminals on right
2NC: Terminals on right and left
3NC: Terminals on right, left, and top

With 1NO monitor contact



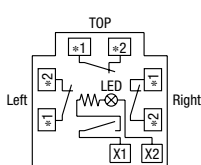
1NC: Terminals on top
2NC: Terminals on right and left

With 2NO monitor contacts



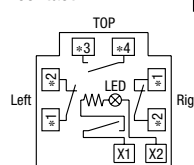
Push-ON

NC main contacts only

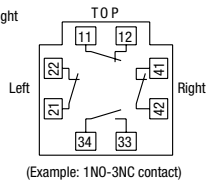


2NC: Terminals on right and left
3NC: Terminals on right, left, and top

With 1NO monitor contact



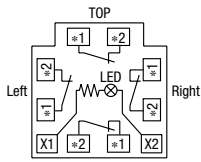
* Contact
1-2: NC main contact (black)
3-4: NO monitor contact (blue)
Starting with the contact of TOP side, in a counter-clockwise direction.



(Example: 1NO-3NC contact)

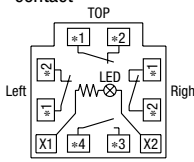
Illuminated

NC main contacts only



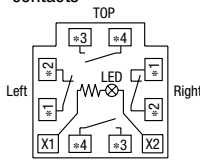
1NC: Terminals on right
2NC: Terminals on right and left
3NC: Terminals on right, left, and top

With 1NO monitor contact



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

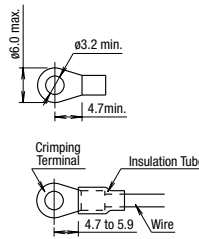
With 2NO monitor contacts



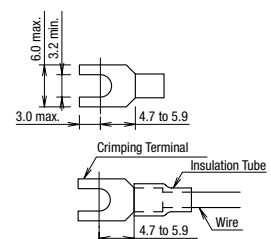
• See **D-050** for accessories and replacement parts.

Applicable Crimping Terminal

Ring Terminal

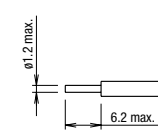


Spade Terminal



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

Solid Wire



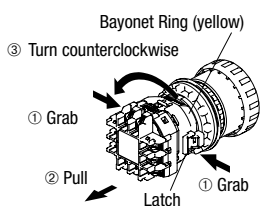
• Only solid wire can be used for IP20.

All dimensions in mm.

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.

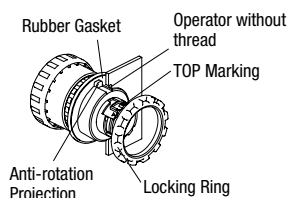


Notes for removing the contact block

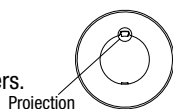
1. Do not attempt to remove the contact block while the operator is latched, otherwise the switch may be damaged.
2. When the contact block is removed, the monitor contact (NO contact) is closed.
3. While removing the contact block, do not use excessive force, otherwise the switch may be damaged.
4. An LED lamp is built into the contact block for illuminated push-buttons. 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.

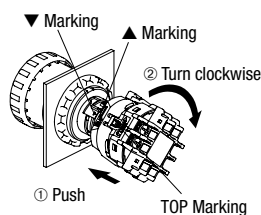


When using a nameplate
When using a nameplate HNAV-□, break the projection from the nameplate using pliers.



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.



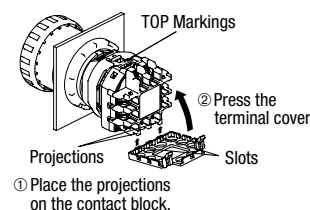
Notes for installing the contact block

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.

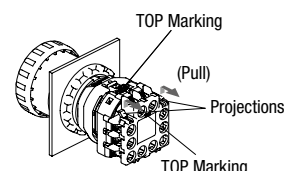
Installing & Removing Terminal Covers

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.

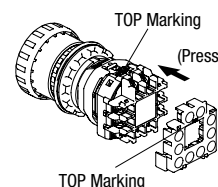


To remove the terminal cover, pull out the two latches on the top side of the terminal cover. Do not exert excessive force to the latches, otherwise the latches may break.



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.

APEM
Switches & Pilot Lights
Control Boxes
Emergency Stop Switches
Enabling Switches
Safety Products
Explosion Proof
Terminal Blocks
Relays & Sockets
Circuit Protectors
Power Supplies
LED Illumination
Controllers
Operator Interfaces
Sensors
AUTO-ID

X6

XA




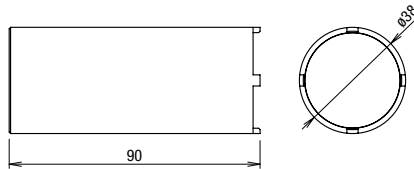

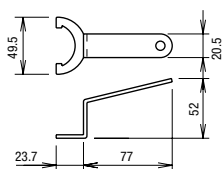
XW

XN

SEMI

- APEM
- Switches & Pilot Lights
- Control Boxes
- Emergency Stop Switches
- Enabling Switches
- Safety Products
- Explosion Proof
- Terminal Blocks
- Relays & Sockets
- Circuit Protectors
- Power Supplies
- LED Illumination
- Controllers
- Operator Interfaces
- Sensors
- AUTO-ID

Accessories and Replacement Parts (for ø30 XN Series Emergency Stop Switches)

Name & Shape	Material	Part No.	Package Quantity	Remarks
 <p>Terminal Cover</p>	PPE	XW9Z-VL2M	2	<ul style="list-style-type: none"> Black Used for screw terminals. Attached to IP20 protection cover units.
 <p>IP20 Fingersafe Terminal Cover</p>	Polyamide	XW9Z-VL2MF	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.
 <p>Ring Wrench</p>	Brass	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. 
 <p>Ring Wrench</p>	Steel Trivalent chromate plating	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)


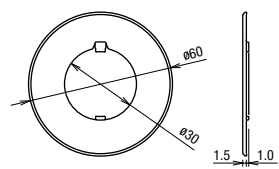
Description & Shape	Legend	Part No.	Package Quantity	Dimensions (mm)
	(blank)	HNAV-0	1	Polyamide Mounting panel thickness XN4E-□L4: 1.0 to 4.5 mm XN□E-□V4: 1.0 to 3.5 mm 
	EMERGENCY STOP	HNAV-27		

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

Padlock and Hasp

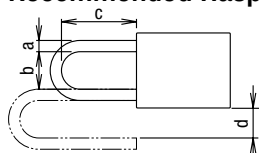
Padlocks and hasps of the following specifications can be used with padlockable emergency stop switches.

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/