

INSTRUCTION SHEET (ORIGINAL)

φ 30 Emergency Stop Switch XN Series Padlock Emergency Stop Switch XN4E Series

Thank you for selecting IDEC product. Please confirm that the delivered product is what you have ordered.

SAFETY NOTE

- Read this instruction sheet and the catalog for the XN4E series emergency stop switches to make sure of correct operation before starting installation, wiring, operation, maintenance, and inspection. Make sure that the instruction sheet is kept by the end user.
- Turn off the power to the XN4E before starting installation, wiring, maintenance and inspection of the XN4E. Failure to turn power off may cause electric shock or fire hazard.
- Use wires of a proper size to meet voltage and current requirements. Tighten the M3 terminal screws to a tightening torque of 0.6 to 1.0 N·m. Improper wires and loose terminals during operation will cause overheating and fire hazard. Provide a proper protection against electric shocks.

1 Type No. Development

Bezel Shape
1: Round, Plastic Type
5: Round, Metal Type (Flush Bezel)

Function
B : Non-illuminated
L : Illuminated
T : Illuminated (Push ON)

Button Shape
4 : Mushroom (φ 40mm)
5 : Jumbo Mushroom (φ 60mm)

Contact Arrangement
Monitor Contact Main Contact
0 : Without 1 : 1NC
1 : 1NO 2 : 2NC
2 : 2NO 3 : 3NC
4 : 4NC

Button Color
R : Red
RH : Bright Red

Terminal Configuration
M : Screw Terminal
MF : Screw Terminal (IP20)

Lamp Type
Blank : Without Lamp
4 : LED 24V

Lamp Voltage
Blank : Non-illuminated
Q : Full Voltage

Function
B : Non-illuminated
L : Illuminated
T : Illuminated (Push ON)

Button Shape
4 : Mushroom (φ 44mm)

Terminal Configuration
M : Screw Terminal
MF : Screw Terminal (IP20)

Contact Arrangement
Monitor Contact Main Contact
0 : Without 1 : 1NC
1 : 1NO 2 : 2NC
2 : 2NO 3 : 3NC
4 : 4NC

Lamp Voltage
Blank : Non-illuminated
Q : Full Voltage

Lamp Type
Blank : Without Lamp
4 : LED 24V

2 Removing/Installing Contact Block and Panel Mounting

Removing
First unlock the operator button. Squeeze the latch lever on the yellow bayonet ring (1) and pull back the bayonet ring with force until the latch pin clicks (2), then turn the contact block counter-clockwise and pull out (3).

Notes for removing the contact block

- 1) With the button in the locked position, do not remove the contact block, 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 exert an 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 out the contact block straight to prevent damage to the LED lamp. If an 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. Align the anti-rotation projection on the bezel with the recess in the panel, insert the operator from panel front into the panel hole. and tighten the locking ring using ring wrench XN9Z-T1 or TWST-T1 to a torque of 2.5 N·m.

When using the emergency stop nameplate
Before installing the emergency stop nameplate (Type No.: HNAV-*), break the projection on the nameplate using pliers.

Installing

First unlock the operator button. Align the small ▼ marking on the edge of the operator sleeve 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) With the button in the locked position, do not install the contact block, otherwise the switch may be damaged.
- 2) Make sure that the bayonet ring is secured in the locked position.

3 Installing and Removing the Terminal Cover

Terminal Cover 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 an excessive force to the latches, otherwise the latches may break.

Finger-safe Terminal Cover XW9Z-VL2MF
To install the terminal cover, align the TOP marking on the terminal cover with the TOP marking on the contact block, and press the terminal cover toward the contact block.

Notes for using the XW9Z-VL2MF

- 1) Once installed, the XW9Z-VL2MF cannot be removed.
- 2) With the XW9Z-VL2MF installed, crimping terminals cannot be used. Use solid wires.
- 3) Install the XW9Z-VL2MF before wiring. It 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.

4 Notes for Operation

When using the emergency stop switch for safety-related equipment in a control system, refer to the safety standards and regulations in each country and region depending on the application purpose of the actual machines and installations to make sure of correct operation. Before using the emergency stop switch, perform risk assessment to make sure of safety.

Wiring

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

Contact Chatter/Bounce
When the button is reset by pulling or turning, the NC main contacts will chatter. When pressing the button, the NO monitor contacts will chatter. When designing a control circuit, take the contact chatter time into consideration (reference value: 20 ms). Do not expose the switch to external shocks, otherwise the contacts will bounce.

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

Handling

Do not operate the switch using a tool. Do not expose the switch to excessive shocks and vibrations, otherwise the switch may be deformed or damaged, causing malfunction or operation failure.

Padlock Emergency Stop

The padlockable emergency stop switches can be reset by turning only, and cannot be pulled to reset. Do not attempt to pull to reset, otherwise damage or malfunction may result.

5 Contact Ratings (Main Contact (NC:black) and Monitor Contact (NO:blue))

Rated Insulation Voltage(Ui)		250V				
Conventional Free Air Thermal Current (Ith)		5A				
Rated Operational Voltage (Ue)		30V	125V	250V		
Rated Operational Current	Main Contact	AC	Resistive Load (AC-12)	-	5A	3A
		50/60Hz	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 Contact	AC	Resistive Load (AC-12)	-	1.2A	0.6A
		50/60Hz	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		

6 Built-in LED Ratings

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

7 Specifications

Applicable Standard	IEC60947-5-1, EN60947-5-1, JIS C8201-5-1 IEC60947-5-5 ^{*)} , EN60947-5-5 ^{*)} , JIS C8201-5-5 ^{*)} UL508, UL991, NFPA79 CSA C22.2 No.14, GB14048.5
Standard Operating Conditions	Operating temperature Non illuminated : -25 to +60 °C (no freezing) LED illuminated : -25 to +55 °C (no freezing) Relative humidity : 45 to 85% RH (no condensation) Storage temperature : -45 to +80 °C (no freezing)
Minimum Direct Opening Force	80 N
Minimum Direct Opening Travel	4.0 mm
Maximum Travel	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
Mechanical Life	250,000 operations minimum
Electrical Life	100,000 operations minimum 250,000 operations minimum (24V AC/DC, 100mA)
Shock Resistance	Operating extremes : 150 m/s ² Damage limits : 1,000 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
Degree of Protection	IP65 (panel front: IEC 60529)
Terminal Protection	IP20 (Screw Terminal type when installing XW9Z-VL2MF)
Short-circuit Protective Device	250V/10A fuse (Type aM IEC60269-1/IEC60269-2)
Conditional Short-circuit Current	1,000 A
Recommended Tightening Torque	0.6 to 1.0 N·m (Screw Terminal type)
Recommended Tightening Torque of Locking Ring	2.5 N·m
Applicable Wire	0.75 to 1.25 mm ² (AWG18 to 16)
Total Weight of Padlock and Hasp (Padlock type only)	1500g maximum
Reinforced Insulation	Between live parts and Bezel

*1) only for using emergency stop switches (Button color: Red and bright red)

8 Terminal Arrangement (Bottom View)

Screw Terminal Type

XNCE-BV, XN4E-BL (Non-illuminated)

<NC main contacts only> <With 1NO monitor contact> <With 2NO monitor contacts>

1NC: Terminals on R
2NC: Terminals on R and L
3NC: Terminals on R, L, and TOP

1NC: Terminals on TOP
2NC: Terminals on R and L
3NC: Terminals on R and L, and TOP

XNCE-LV, XN4E-LL (Illuminated)

<NC main contacts only> <With 1NO monitor contact> <With 2NO monitor contacts>

1NC: Terminals on R
2NC: Terminals on R and L
3NC: Terminals on R, L, and TOP

1NC: Terminals on TOP
2NC: Terminals on R and L
3NC: Terminals on R, L, and TOP

2NC: Terminals on R and L
3NC: Terminals on R, L, and TOP

Terminal marking:
□: Contact type
1-2: NC contact
3-4: NO contact
*: Contact serial number (Starting with 1 counterclockwise from TOP)

(Ex. 1NO-3NC contacts)

9 Applicable Wire (Screw terminal type)

• Applicable crimping terminal
<Ring Terminal> <Spade Terminal> • Solid wire

Only solid wires can be used with IP20 terminal.

*Note: Be sure to install an insulating tube on the crimping terminal. Recommended tightening torque: 0.6 to 1.0 N·m

10 Mounting Hole Dimensions 11 LED unit internal circuit

Note: The operator part has an anti-rotation projection. Prepare the panel cut-out to the size shown in the figure.

12 Padlock and Hasp

Applicable padlock and hasp are shown below.

Padlock size

a	b	c	d
7 mm maximum	19 mm minimum	39 mm minimum	15 mm minimum ^{*)}

*2) Dimension d is 6 mm or more when attaching a padlock from the side of a switch.

Recommended Hasp

Manufacturer	Type
Shinwa	SHH002
PANDUIT	PSL-HD3 PSL-1A
Master Lock	420 421

Since various form and sizes are available, make sure of applicability using the actual padlock and hasp before use. The total weight of the padlock and hasp can be a maximum of 1500g. When the total weight exceeds this limit, the switch may malfunction or fail.

DECLARATION OF CONFORMITY
We, IDEC CORPORATION 7-31, Nishimiyahara, Yodogawa-ku, Osaka 532-8550, Japan declare under our sole responsibility that the product:
Description: Emergency stop switches
Model No. : XN Series
to which this declaration relates is in conformity with the EC Directive on the following standard(s) or other normative document(s). In case of alteration of the product, not agreed upon by us, this declaration will lose its validity.
Applicable EC Directive: Low Voltage Directive (2006/95/EC)
Machinery Directive (2006/42/EC)
Applicable Standard(s): EN 60947-5-5