

INSTRUCTION SHEET (ORIGINAL)

φ30 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 (φ40mm)
5 : Jumbo Mushroom (φ60mm)

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 (φ44mm)

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

- With the button in the locked position, do not remove the contact block, otherwise the switch may be damaged.
- When the contact block is removed, the monitor contact (NO contact) is closed.
- While removing the contact block, do not exert an 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 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.

使用说明书

φ30紧急停止开关

XN系列

挂锁加锁式紧急停止开关

XN4E系列

承蒙购买 IDEC 产品, 谨此衷心致谢!
请确认本产品是否为您所订购的产品后, 按照下列项目要求正确使用。

安全注意事项

- 在安装、接线作业、运转以及维修保养本产品之前, 请仔细阅读本使用说明书以及本公司的产品样本后正确使用。
- 另外, 请提醒最终用户妥善保存使用说明书。
- 在安装、接线作业、运转以及维修保养本产品之前, 请务必先切断电源, 以免引起触电或发生火灾的危险。
- 接线时, 请使用符合施加电压、通电电流的电线。
- 请按照推荐拧紧扭矩(0.6~1.0N·m)拧紧接线螺丝(M3)。切勿使用不符合要求的电线或在螺丝松动的状态下使用, 以免因异常发热而导致火灾发生的危险。
- 另外, 请采取适当的触电预防措施, 以免引起触电或发生火灾的危险。

1 型号说明

使用说明书 B-949(7)

功能

B : 非照明
L : 照明
T : 联动照明

操作按钮形状

4 : φ40 大蘑菇头形
5 : φ60 特大蘑菇头形

端子形状

M : 接线螺丝
MF : 接线螺丝 (IP20)

照明单元

无 : 无灯泡
4 : 24V LED

电压规格

无 : 非照明
Q : 全电压

触点构成

主触点

0: 无 1: 1NC
1: 1NO 2: 2NC
1: 2NO 3: 3NC
4: 4NC

操作按钮颜色

R : 红色
RH : 鲜红色

端子形状

M : 接线螺丝
MF : 接线螺丝 (IP20)

照明单元

无 : 无灯泡
4 : 24V LED

电压规格

无 : 非照明
Q : 全电压

2 触点单元的安装及拆卸与面板安装方法

触点单元的安装方法

请确认操作部的按钮呈未被按下的情况下, 将触点单元的锁扣部件(黄色)的A部, 在向箭头方向扣拉的同时往端子方向拉锁扣部件, 逆时针转动触点单元45度即可拆卸。

拆卸触点单元时的注意事项

- 在操作部的按钮呈被按下的状态时, 请勿强行拆卸触点单元, 以免造成开关损坏。
- 请注意, 从操作部上拆卸触点单元时, 辅助触点(NO触点)呈导通状态。
- 请勿强行拆卸触点单元以免导致开关损坏。
- 请注意, 照明型开关的触点单元内置LED, 拆卸时, 请勿使LED碰到操作部或者对其施加过大的外力以免引起点灯不良或损坏。

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

- With the button in the locked position, do not install the contact block, otherwise the switch may be damaged.
- 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

- Once installed, the XW9Z-VL2MF cannot be removed.
- With the XW9Z-VL2MF installed, crimping terminals cannot be used. Use solid wires.
- Install the XW9Z-VL2MF before wiring. It cannot be installed after wiring.
- 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 cause bouncing. When pressing the button, the NO monitor contacts cause bouncing. When designing a control circuit, take the contact cause bouncing time into consideration (reference value: 20 ms). Do not expose the switch to external shocks, otherwise the contacts will chatter.

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.

安装至面板的方法

从操作部上卸下锁紧环后, 请确认橡胶垫圈是否安装正确, 然后将操作部从面板前部插入安装孔内。请将操作单元的防转突起与面板安装孔的凹槽对准, 用专用的锁紧扳手(XN9Z-T1或TWST-T1)拧紧锁紧环, 推荐扭矩为2.5N·m。

使用紧急停止标记板时

使用紧急停止用标记板(HNAV-□)时, 请用扁嘴钳折断标记板的突起B后再使用。

触点单元的安装方法

请确认, 在操作部的按钮未被按下的情况下, 握住触点单元的主体(黑色), 将操作部的▼标记与触点单元的锁扣部件的▲标记(TOP侧)对齐, 将触点单元在向操作部推压的同时顺时针方向转动触点单元45度后即可。

触点单元安装时的注意事项

- 在操作单元的按钮被按下的状态下, 请勿强行安装触点单元, 以免造成开关损坏。
- 请确认, 触点单元的锁扣部件是否确实卡在操作部上。

3 端子套的安装及拆卸

XW9Z-VL2M (接线螺丝型用防触电端子罩)

将触点单元的TOP标记和XW9Z-VL2M的TOP标记对齐后, 将XW9Z-VL2M咬合部的D(2处)与触点单元的突起部C(2处)在咬合的状态下, 翻转XW9Z-VL2M即可。

拆卸XW9Z-VL2M时, 将W9Z-VL2M的突起部E(2处)拉起即可。

请注意, 切勿对突起部E过度用力, 以免导致端子罩破裂。

XW9Z-VL2MF (接线螺丝型IP20用保护罩)

将触点单元的TOP标记与XW9Z-VL2MF的TOP标记对齐后压入即可。

XW9Z-VL2MF使用时的注意事项

- XW9Z-VL2M一旦安装后则不能再拆卸。
- 安装XW9Z-VL2MF时, 不能使用压接端子。请使用单线。
- XW9Z-VL2MF型端子罩请务必在接线前安装, 接线后则不能再安装。
- 请务必按照操作步骤将咬合安装牢固。若咬合安装不牢固, 则不能满足IP20的规格要求, 从而引起触电危险。

4 使用注意事项

在本产品用于控制系统的安全设备时, 请根据机械设备实际使用的各国或地区的相对应的安全标准或规定正确使用。且, 在使用前请实施危险性评估确认。

接线注意事项

请使用0.6~1.0N·m的推荐扭矩拧紧接线螺丝(M3)。

触点反锁

在主触点(NC触点)实施复位(拉出/旋转复位)操作时, 辅助触点(NO触点)在操作按钮时发生触点反锁, 请考虑防止措施。(参考值: 20ms)

另, 开关遭受外界冲击时也会发生触点反锁, 请注意切勿对其施加外界冲击。

使用LED照明型时的注意事项

LED与触点单元为一体结构, 不能拆卸及更换。

其他注意事项

请勿使用工具操作开关, 或向开关施加过度的冲击, 以及施加振动, 以免引起开关变形或损坏而导致动作运转不良或性能低下。

挂锁加锁型注意事项

挂锁加锁型的复位操作与其他机种不同, 仅可通过旋转复位, 不能进行拉出复位。开关通过拉出按钮进行复位操作。若强制拉出按钮进行操作可能引起开关被锁或动作故障, 请勿实施。

5 触点容量 [主触点(NC触点)/辅助触点(NO触点)]

额定绝缘电压(Ui)	250V			
额定通用电流(Ith)	5A			
额定使用电压(Ue)	30V	125V	250V	
主触点	AC 50/60Hz	电阻性负载(AC-12)	-	5A 3A
		感性负载(AC-15)	-	3A 1.5A
	DC	电阻性负载(DC-12)	2A	0.4A 0.2A
		感性负载(DC-13)	1A	0.22A 0.1A
辅助触点	AC 50/60Hz	电阻性负载(AC-12)	-	1.2A 0.6A
		感性负载(AC-14)	-	0.6A 0.3A
	DC	电阻性负载(DC-12)	2A	0.4A 0.2A
		感性负载(DC-13)	1A	0.22A 0.1A

5 Contact Ratings [Main Contact (NC) and Monitor Contact (NO)]

Rated Insulation Voltage(Ui)	250V			
Conventional Free Air Thermal Current (Ith)	5A			
Rated Operational Voltage (Ue) (Use)	30V	125V	250V	
Main Contact	AC 50/60Hz	电阻性负载(AC-12)	-	5A 3A
		感性负载(AC-15)	-	3A 1.5A
Monitor Contact	AC 50/60Hz	电阻性负载(DC-12)	2A	0.4A 0.2A
		感性负载(DC-13)	1A	0.22A 0.1A
DC	AC 50/60Hz	电阻性负载(AC-12)	-	1.2A 0.6A
		感性负载(AC-14)	-	0.6A 0.3A
	DC	电阻性负载(DC-12)	2A	0.4A 0.2A
		感性负载(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%	5 mA

7 Specifications

Applicable Standard	IEC 60947-5-1, EN 60947-5-1, JIS C8201-5-1, IEC 60947-5-5 ⁽¹⁾ , EN 60947-5-5 ⁽¹⁾ , JIS C8201-5-5 ⁽¹⁾ , UL508, UL991, NFPA79, CSA C22.2 No.14, GB/T14048.5
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: 150m/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 , 10 to 500 Hz, amplitude 0.35 mm, acceleration 50 m/s ²
Degree of Protection	Panel front: IP65 (IEC 60529), Type1,4X,12,13 ⁽²⁾
Terminal Protection	IP20 (Screw Terminal type when installing XW9Z-VL2MF)
Short-circuit Protective Device	250V/10A fuse (Type aM IEC 60269-1 / IEC 60269-2)
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 (IEC 60664-1)	Between live parts and Bezel

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

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

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

φ30.5^{+0.5} / 0.8^{+0.2} / 4.8^{+0.2} / 33.0^{+0.5} / 6.2^{+0.2}

11 LED unit internal circuit

X1 X2 LED

6 内置LED容量

额定电压	使用电压	额定电流
24V AC/DC	24V AC/DC±10%	5mA

7 性能・规格

对应标准	IEC 60947-5-1, EN 60947-5-1, JIS C8201-5-1, IEC 60947-5-5 ⁽¹⁾ , EN 60947-5-5 ⁽¹⁾ , JIS C8201-5-5 ⁽¹⁾ , UL508, UL991, NFPA79, CSA C22.2 No.14, GB/T14048.5
标准使用状态	环境温度: 非照明: -25 ~ +60°C (无结冰), LED照明: -25 ~ +55°C (无结冰), 相对湿度: 45 ~ 85%RH (无结露), 保存环境温度: -45 ~ +80°C (无结冰)
最小直接开路动作力	80N
至直接开路动作功能的最小动作距离	4.0mm
最大动作距离	4.5mm
接触电阻	50mΩ以下(初始值)
绝缘电阻	100MΩ以上(500V DC兆欧表)
过电压类型	II
脉冲耐受电压	2.5kV
污染等级	3
切换频率	900次/小时
机械性使用寿命	25万次以上
电气性使用寿命	10万次以上(24V AC/DC 100mA), 25万次以上(24V AC/DC 100mA)
抗冲击性	误动作: 150m/s ² , 耐久性: 1000m/s ²
耐振动	误动作: 10 ~ 500 Hz, 单振幅0.35 mm, 加速度50 m/s ² , 耐久性: 10 ~ 500 Hz, 单振幅0.35 mm, 加速度50 m/s ²
操作部保护等级	面板前面: IP65 (IEC 60529), 请按安装孔加工图所示进行加工。
端子部保护等级	IP20 (安装XW9Z-VL2MF时)
短路保护装置	250V/10A保险丝 (Type aM IEC 60269-1 / IEC 60269-2)
条件性短路电流	1000A
接线螺丝推荐拧紧扭矩	0.6 ~ 1.0N·m (螺丝端子型)
锁紧环推荐拧紧扭矩	2.5 N·m
对应电线	0.75 ~ 1.25mm ² (AWG18 ~ 16)
挂锁与HASP的总重量 (仅限挂锁)	1500g以内
强化绝缘 (IEC 60664-1)	带电部与金属框间

9 接线螺丝型对应压接端子

(圆形压接端子) (叉形压接端子) 单线

φ3.2以上 / 6.0以上 / 3.2以上 / 4.7以上 / 3.0以下 / 4.7~5.9 / φ1.2以下 / 6.2以下

※注意: 压接端子必须安装绝缘管。推荐拧紧扭矩: 0.6~1.0N·m

10 安装孔加工图

φ30.5^{+0.5} / 0.8^{+0.2} / 4.8^{+0.2} / 33.0^{+0.5} / 6.2^{+0.2}

11 LED内部电路图

X1 X2 LED

12 对应挂锁、搭扣(HASP)(仅限挂锁加锁型紧急停止开关)

对应挂锁和搭扣(HASP)如下图所示。

挂锁尺寸

a尺寸	b尺寸	c尺寸	d尺寸
7mm以下	19mm以上	39mm以上	15mm以上 ⁽²⁾

注2) 挂锁直接在开关侧面进行锁定时d尺寸为6mm以上。

推荐搭扣	厂商	型号
	进和	SHH002
	Panduit	PSL-HD3 PSL-1A
	Master Lock	420 421

市面销售的挂锁和搭扣(HASP)有各种形状、尺寸, 使用前请务必确认实物。使用的挂锁和搭扣(HASP)的总重量为1500g以下, 使用时请勿超过此规定重量, 以免引起开关的误动作或损坏。

13 报废处理时的注意

本产品的报废处理, 须作为工业废品处理。

合格证
本产品经验合格
紧急停止开关 对应标准: GB/T14048.5

XNCE-TV, XN4E-TL (Illuminated Push ON)

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

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

※端子说明
□: 触点类型编号 (1-2: NC触点, 3-4: NO触点)
* : 连续编号 (区别触点编号以TOP为基准按逆时针方向, 从1开始编号)

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

φ30.5^{+0.5} / 0.8^{+0.2} / 4.8^{+0.2} / 33.0^{+0.5} / 6.2^{+0.2}

11 LED unit internal circuit

X1 X2 LED

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⁾

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

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

13 Precaution for Disposal

Dispose of the XN or XN4E Emergency Stop Switch as an industrial waste.

IDECCORPORATION <http://www.idec.com>

Manufacturer: IDECCORP.
2-6-4 Nishiyahara Yodogawa-ku, Osaka 532-0004, Japan
EU Authorized Representative: APEM SAS
55, Avenue Edouard Herriot BP1, 52003 Craonne Cedex, France
EU DECLARATION OF CONFORMITY
We, IDECCORPORATION 2-6-4, Nishiyahara Yodogawa-ku, Osaka 532-0004, Japan declare under our sole responsibility that the product:
Model No. XN or XN4E Series
Description: Emergency Stop Switches
Applied Union harmonized legislation and references to the relevant harmonization standards used or references to the other technical specifications in relation to which conformity is declared.
Applicable EU Directive: Low Voltage Directive (2014/35/EU), Machinery Directive (2006/42/EC), RoHS Directive (2011/65/EU), EN IEC 63000, EN 60947-5-5
UK Authorized Representative: APEM COMPONENTS LIMITED
Drakes Dale, Long Crendon, Buckinghamshire, HP18 9BA, UK
Applicable UK Directive: Electrical Equipment (Safety) Regulations 2016, Supply of Machinery (Safety) Regulations 2008, The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
Applicable Standards: EN 60947-5-1, EN IEC 63000