

## 16, 22 & 30mm X Series E-Stop Switches

### Features

- Plastic bezel, metallic padlock and flush bezel available (XN series)
- Install up to 20 padlocks (XN4E)
- $\varnothing 29$ ,  $\varnothing 40$ ,  $\varnothing 44$  or  $\varnothing 60$ mm Mushroom heads available
- IDEC's original "safe break action" ensures that the contacts stay open when the contact block is detached from the operator.
- Safety-lock mechanism (IEC60947-5-5, 6.2)
- 2-in-1: Push-to-lock, Pull/Turn-to-Reset
- Push-ON LED model allows E-Stops to be illuminated only when latched
- Direct Opening Action mechanism (IEC60947-5-5, 5.2, IEC60947-5-1, Annex K)
- Very short panel depth (see chart on next page)
- Degree of protection IP65 (IEC60529)
- RoHS compliant (EU directive 2002/95/EC). Contains no lead, cadmium, mercury, hexavalent chromium, PBB or PBDE.
- XN4E series complies with OSHA and ISO 12100-2:2003 standards



### Specifications

|                                                        | ø16mm - XA                                                                                                                                                        | ø22mm - XW                                                                 | ø30mm - XN                                                                         |                                                                           |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Applicable Standards                                   | IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5                                                                                                              |                                                                            |                                                                                    |                                                                           |
|                                                        | UL508, CSA C22.2 No. 14                                                                                                                                           |                                                                            | UL508, UL991, CSA C22.2 No. 14                                                     |                                                                           |
| 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: 10.5N<br>Pull-to-reset: 10N<br>Turn-to-reset: 0.16N·m                                                                                               | Push-to-lock: 32N<br>Pull-to-reset: 21N<br>Turn-to-reset: 0.27 N·m         | XN1E, XN5E<br>Push-to-lock: 32N<br>Pull-to-reset: 21N<br>Turn-to-reset: 0.27 N·m   | XN4E<br>Push-to-lock: 32N<br>Pull-to-reset: N/A<br>Turn-to-reset: 0.4 N·m |
| Minimum Force Required for Direct Opening Action       | 60N                                                                                                                                                               | 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 (inside LED unit: 2)                                                                                                                                            | 3                                                                          |                                                                                    |                                                                           |
| Operation Frequency                                    | 900 operations/hour                                                                                                                                               |                                                                            |                                                                                    |                                                                           |
| Shock Resistance                                       | Operating extremes: 150m/s <sup>2</sup> (15G), Damage limits: 1000m/s <sup>2</sup> (100G)                                                                         |                                                                            |                                                                                    |                                                                           |
| Vibration Resistance                                   | Operating extremes: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s <sup>2</sup><br>Damage limits: 10 to 500Hz, amplitude 0.35mm acceleration 50m/s <sup>2</sup> |                                                                            |                                                                                    |                                                                           |
| Mechanical Life                                        | 250,000 operations minimum                                                                                                                                        |                                                                            |                                                                                    |                                                                           |
| Electrical Life                                        | 100,000 operations minimum, 250,000 operations minimum (24V AC/DC, 100mA)                                                                                         |                                                                            |                                                                                    |                                                                           |
| Degree of Protection                                   | IP65 (IEC60529)                                                                                                                                                   | Operator: IP65 (IEC60529)<br>Terminal: IP20 (when XW9Z-VL2MF is installed) |                                                                                    |                                                                           |
| Conditional Short-circuit Current                      | 1000A                                                                                                                                                             |                                                                            |                                                                                    |                                                                           |
| Terminal Style                                         | Solder terminal, PC board terminal                                                                                                                                | M3.0 screw terminal                                                        |                                                                                    |                                                                           |
| Recommended Tightening Torque for Locking Ring         | 0.88N·m                                                                                                                                                           | 2.0 N·m                                                                    | 2.5 N·m                                                                            |                                                                           |
| Connectable Wire                                       | 1.25mm <sup>2</sup> maximum (16 AWG max)                                                                                                                          | 0.75 to 1.25mm <sup>2</sup> (16 AWG max)                                   |                                                                                    |                                                                           |
| Soldering Conditions                                   | 310 to 350°C, 3 seconds maximum                                                                                                                                   |                                                                            | —                                                                                  |                                                                           |
| Weight                                                 | ø29mm: 23g<br>ø40mm: 28g                                                                                                                                          | ø40mm: 72g<br>ø60mm: 81g                                                   | Plastic bezel: 83g (ø40 mm), 93g (ø60 mm)<br>Flush bezel: 89g<br>Padlock type: 20g |                                                                           |



## Contact Ratings

|                               |                       |             |                        |            |                              |       |      |
|-------------------------------|-----------------------|-------------|------------------------|------------|------------------------------|-------|------|
| Rated Insulation Voltage (Ui) |                       |             |                        | XA         | 300V (illuminated part: 60V) |       |      |
|                               |                       |             |                        | XW, XN     | 250V                         |       |      |
| Rated Current (Ith)           |                       |             |                        | XA, XW, XN | 5A                           |       |      |
| Rated Operating Voltage (Ue)  |                       |             |                        |            | 30V                          | 125V  | 250V |
| Rated Operating Current       | Main Contacts (NC)    | AC 50/60 Hz | Resistive Load (AC-12) | XA         | —                            | 3A    | 3A   |
|                               |                       |             |                        | XW, XN     | —                            | 5A    | 3A   |
|                               |                       |             | Inductive Load (AC-15) | XA         | —                            | 1.5A  | 1.5A |
|                               |                       |             |                        | XW, XN     |                              | 3A    | 1.5A |
|                               | Monitor Contacts (NO) | DC          | Resistive Load (DC-12) | XA, XW, XN | 2A                           | 0.4A  | 0.2A |
|                               |                       |             | Inductive Load (DC-13) |            | 1A                           | 0.22A | 0.1A |
|                               |                       | 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 |

• 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.

## Part Numbers

### XA1E - L V 3 11 Q4 V- R

#### Illumination

B: Non-Illuminated  
L: Illuminated

#### Mushroom Size

3:  $\phi$ 29mm  
4:  $\phi$ 40mm

#### Contact Configuration\*

11: 1NO - 1NC  
02: 2NC  
13: 1NO - 3NC  
04: 4NC

#### Terminal

blank: solder tab  
V: PCB

#### Voltage Code

blank: Non-Illuminated  
Q4: Illuminated 24V AC/DC

### XW1E - L V 4 11 Q4M - R

#### Illumination

B: Non-Illuminated  
L: Illuminated LED  
T: Illuminated  
Push-ON LED

#### Mushroom Size

4:  $\phi$ 40mm  
5:  $\phi$ 60mm  
(non-illuminated only)

#### Contact Configuration\*

11: 1NO - 1NC  
02: 2NC  
13: 1NO - 3NC  
04: 4NC  
22: 2NO-2NC  
12: 1NO-2NC (Push-ON LED only)

#### Voltage Code

blank: Non-Illuminated  
Q4: Illuminated 24V AC/DC

### XN1E - L V 4 02 Q4 MR

#### Bezel

1: Plastic Bezel  
4: Padlock  
5: Flush Bezel

#### Illumination

XN1E, XN5E  
BV: Non-Illuminated  
LV: Illuminated LED  
TV: Illuminated  
Push-ON LED

#### XN4E

BL: Non-Illuminated  
LL: Illuminated LED  
TL: Illuminated  
Push-ON LED

#### Mushroom Size

4:  $\phi$ 40mm: XN1E, XN5E  
 $\phi$ 44mm: XN4E  
5:  $\phi$ 60mm  
(XN1E non-illuminated only)

#### Contact Configuration\*

11: 1NO - 1NC  
02: 2NC  
13: 1NO - 3NC  
22: 2NO - 2NC  
04: 4NC  
12: 1NO-2NC (Push-ON LED only)

#### Voltage Code

blank: Non-Illuminated  
Q4: 24V AC/DC (Illuminated & Push-ON LED type)

\*Contact IDEC for additional contact configurations.

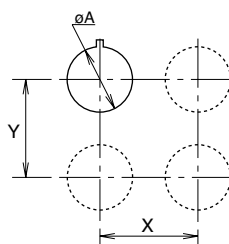
## Illuminated Unit LED Ratings

| Model   | Rated Voltage | Operating Voltage   | Rated Current |
|---------|---------------|---------------------|---------------|
| 16mm XA | 24V AC/DC     | 24V AC/DC $\pm$ 10% | 11mA          |
| 22mm XW |               |                     | 15mA          |
| 30mm XN |               |                     |               |

## Depth Behind the Panel

| Model   | Depth (mm) | Description                                        |
|---------|------------|----------------------------------------------------|
| 16mm XA | 27.9       | 1 - 4 contacts, both illuminated & non-illuminated |
| 22mm XW | 48.7       | 1 - 4 contacts, both illuminated & non-illuminated |
| 30mm XN | 47.7       | 1 - 4 contacts, plastic bezel                      |
|         | 60.4       | 1 - 4 contacts, flush bezel                        |
|         | 61.4       | 1 - 4 contacts, padlock                            |

## Mounting Hole Layout



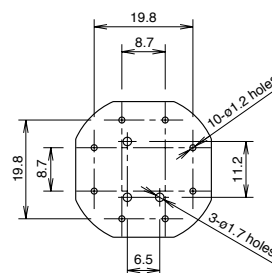
#### Measurements

| Size            | Model       | $\phi$ A       | X & Y    |
|-----------------|-------------|----------------|----------|
| 16mm XA         | $\phi$ 29mm | 16.2 $^{+0.2}$ | 40mm min |
|                 | $\phi$ 40mm |                | 50mm min |
| 22mm XW         |             | 22.3 $^{+0.4}$ | 70mm min |
| 30mm XN1E, XN5E |             | 30.5 $^{+0.5}$ | 70mm min |

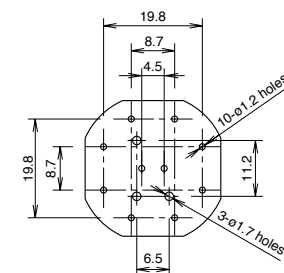
Note: For XN4E, determine the values according to the size and number of padlocks and hasp.

## PC Board Layout - Bottom View (for 16mm XA only)

### Non-Illuminated



### Illuminated



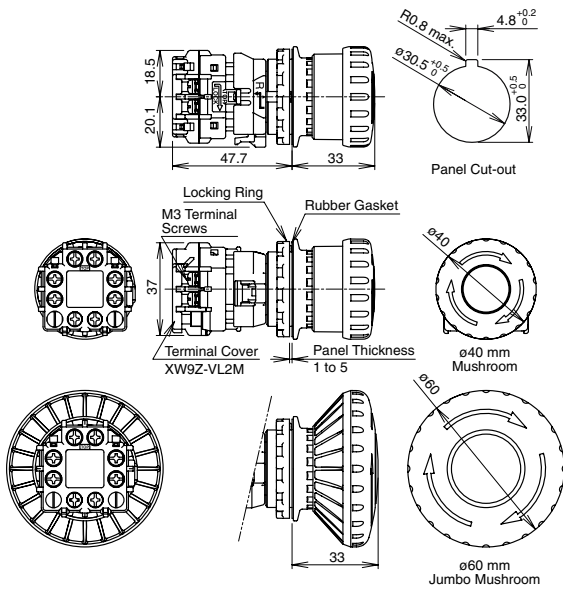
XN4E-LL411MR



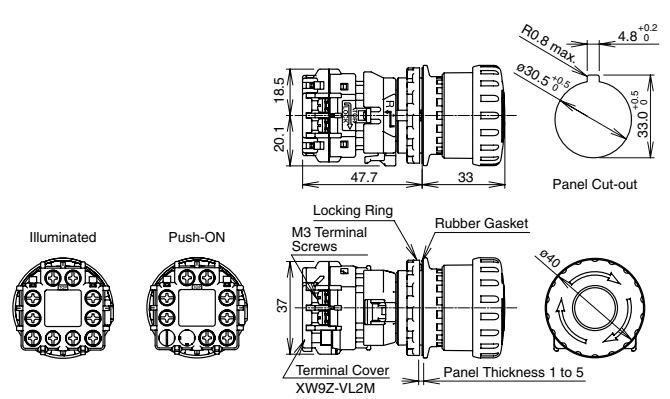
XN5E-BV411MR

ø40mm Operator

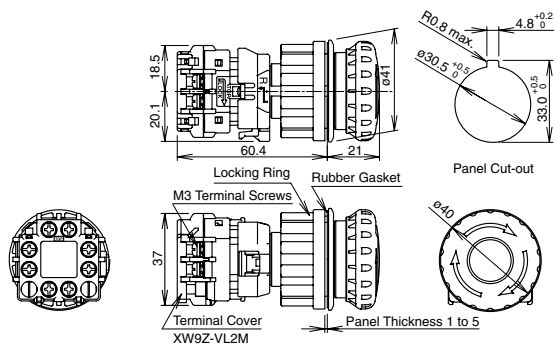
### 30mm XN1E Non-Illuminated (with terminal cover)



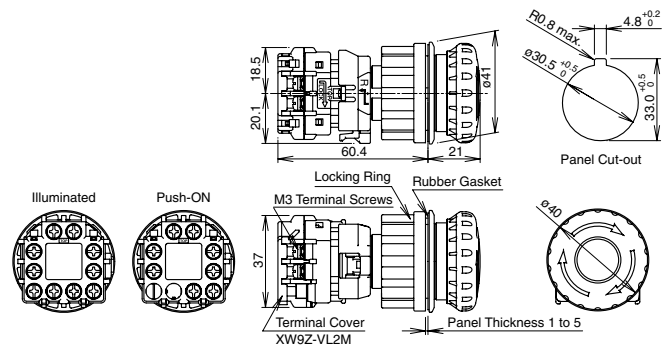
### 30mm XN1E Illuminated/Push-ON (with terminal cover)



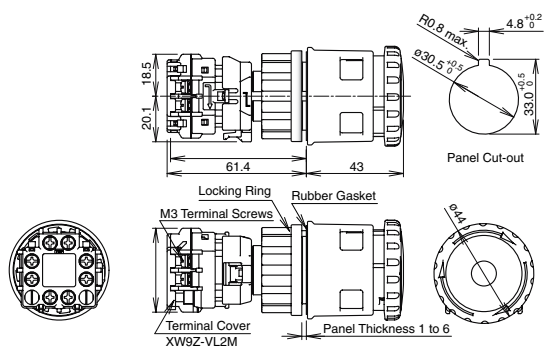
### 30mm XN5E Non-Illuminated (with terminal cover)



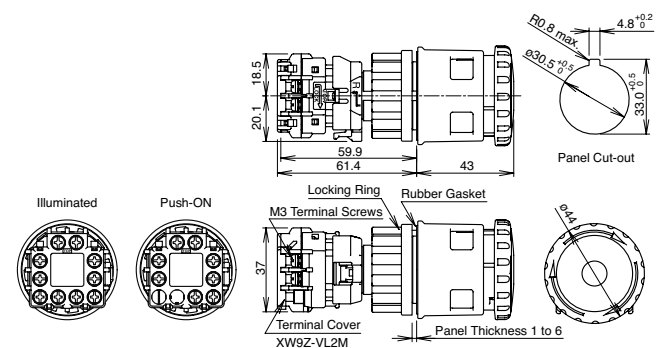
### 30mm XN5E Illuminated/Push-ON (with terminal cover)



### 30mm XN4E Non-Illuminated (with terminal cover)



### 30mm XN4E Illuminated/Push-ON (with terminal cover)



## Accessories

| Model     | Description                           | Part Number  |
|-----------|---------------------------------------|--------------|
| XA        | Replacement LED Unit: Solder Terminal | XA9Z-LED2R   |
|           | Replacement LED Unit: PCB Terminal    | XA9Z-LED2VR  |
|           | Terminal Cover for contact block      | XA9Z-VL2     |
| XW and XN | Terminal Cover for contact block      | XW9Z-VL2M    |
|           | IP20 Fingersafe Cover                 | XW9Z-VL2MF   |
|           | Locking Ring Wrench                   | XN9Z-T1      |
| XN        | Locking Ring Twist Wrench             | TWST-T1      |
|           | Lockout Hasp                          | XN9Z-HASP421 |

For more information on the these  
and other IDEC E-Stops, visit:

**[www.IDEC.com/usa/estop](http://www.IDEC.com/usa/estop)**

IDEC Corporation • 1175 Elko Drive  
Sunnyvale, CA 94089 • 800-262-IDEC (4332)  
Fax: 408-745-5258 • [www.IDEC.com/usa](http://www.IDEC.com/usa)

©2010 IDEC Corporation. All Rights Reserved.  
Catalog No. XS9Y-DS100-1 01/10 10K