

## Scope

These operating instructions are valid for all emergency stop pushbuttons ES-XW/XN. These operating instructions, the document *Safety information* and any available data sheet form the complete user information for your device.

## Supplementary documents

The overall documentation for this device consists of the following documents:

| Document title<br>(document number)         | Contents   |  |
|---|--|--|
| Safety information (2525460)                | Basic safety information   |  |
| Operating instructions (2105026)            | (this document)  |  |
| Declaration of conformity                   | Declaration of conformity  |  |
| Any additions to the operating instructions | Take any associated additions to the operating instructions or data sheets into account. |  |

## Important!

Always read all documents to gain a complete overview of safe installation, setup and use of the device. The documents can be downloaded from [www.euchner.com](http://www.euchner.com). For this purpose, enter the doc. no. or the order number for the device in the search box.

## Safety precautions

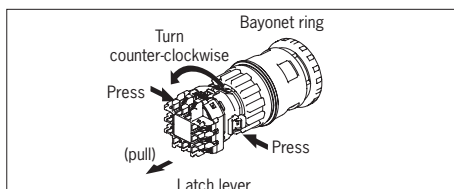
### WARNING

- ▶ Please read this instruction sheet and the catalog for emergency stop pushbuttons of series ES-XW/XN carefully before installing, wiring, setting up, maintaining or inspecting the emergency stop pushbutton. Make sure that the end user keeps the instruction sheet.
- ▶ Switch off the power supply for the ES-XW/XN before installing, wiring, maintaining or inspecting the ES-XW/XN. There is a danger of electric shock or a fire hazard if the power supply is not switched off.
- ▶ Use wires of the correct size in accordance with the voltage and current requirements. Tighten the M3 connecting terminal screws with max. 0.6 to 0.8 Nm. Unsuitable wires and loose connections can result in overheating and a fire hazard during operation. Ensure proper protection against electric shock.

## Removing/installing the contact block and installing in the plate

### Removing

First, unlock the operator button. Press the yellow bayonet ring on the latch lever and pull the bayonet ring back until the latch pin clicks. Turn the contact block counter-clockwise and pull it out.



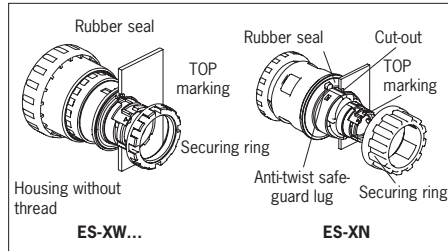
### Information on removing the contact block

- ▶ Never remove the contact block when the switch is in the locked position. This could damage the switch.
- ▶ After the contact block is removed, the monitoring contact (normally open contact (NO)) is closed.
- ▶ Do not exert excessive force when removing the contact block, as this could damage the switch.

- ▶ An LED lamp for illuminated pushbuttons is installed in the contact block. To avoid damaging the LED lamp, pull the contact block out straight when removing it. Exerting excessive force can damage the LED lamp and cause it to fail.

### Installing in the plate

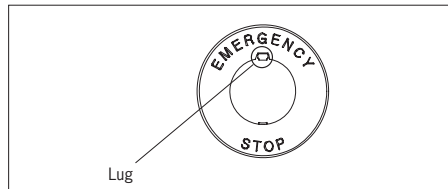
Remove the securing ring on the operator button and ensure that the rubber seal is properly in place. Align the anti-twist safeguard lug on the housing with the cut-out in the plate, insert the operator button into the hole in the plate from the front and tighten the securing ring using ring wrench ES-XN9Z-T1 to a maximum torque of 2.5 Nm. Position the thread-less side of the operator button so that the TOP marking points up and tighten the securing ring using ring wrench ES-MW9Z-T1 with a maximum torque of 2.0 Nm.



### Notes about anti-twist safeguard

It is recommended to use a type label (ES-HWAV-27) to prevent emergency stop pushbutton (ES-XW) from twisting when the switch is reset from the latched position with excessive force. Align the thread-less side of the operator button with the upward-pointing "TOP" marking, the small marking on the type label's lug and the cut-out in the mounting plate.

### When using the ES-XN type label (ES-HNAV-27)



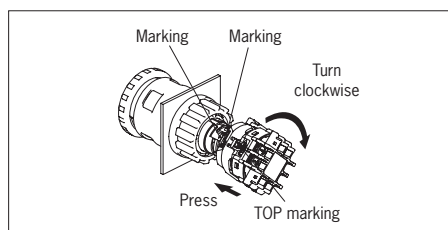
Break off the lug on the type label using pliers before installing the type label.

### Mounting

First, unlock the operator button. Align the small marking on the edge of the operator button housing with the small marking on the yellow bayonet ring. Hold the contact block, not the bayonet ring, when doing this. Push the contact block onto the operator button and turn it clockwise until the bayonet ring clicks.

### Information on installing the contact block

- ▶ Never remove the contact block when the switch is in the locked position. This could damage the switch.
- ▶ Make sure that the bayonet ring is in the locked position.



## Notes on operation

To ensure proper operation when using the emergency stop pushbutton for safety-related devices within a control system, observe the relevant safety standards and regulations in the respective country or region in accordance with the purpose of the machines and installations. A risk assessment should be performed for safety reasons before using the emergency stop pushbutton.

### Wiring

Tighten the connecting terminal screws with max. 0.6 to 0.8 Nm.

### Contact bouncing

The main normally closed contacts cause bouncing when the pushbutton is reset by pulling or turning. Pressing the pushbutton causes the normally open monitoring contacts to bounce. This contact bouncing should be taken into account when planning a control circuit (reference value: 20 ms).

### LED-illuminated switch

The LED lamp is installed in the contact block and cannot be replaced.

### Handling

Never subject switches to excessive impacts or vibrations, because this can deform or damage the switch and therefore lead to malfunctions or to an operating failure.

### Lockable emergency stop pushbutton (ES-XN)

Lockable emergency stop pushbuttons can be reset only by turning, not by pulling. Never reset the switch by pulling, as this could deform or damage the switch.

### Rated data of the contacts [main contact (NC contact) and monitoring contact (NO contact)]

| Rated insulation voltage (U <sub>i</sub> )      |                    | 250 V       |                            |                        |        |       |
|---|--------------------|-------------|----------------------------|------------------------|--------|-------|
| Conventional thermal current (I <sub>th</sub> ) |                    | 5 A         |                            |                        |        |       |
| Rated operating voltage (U <sub>e</sub> )       |                    | 30 V        | 125 V                      | 250 V                  |        |       |
| Rated operating current                         | Main contact       | AC 50/60 Hz | Ohm resistive load (AC-12) | -                      | 5 A    | 3 A   |
|   |                    |             | Inductive load (AC-15)     | -                      | 3 A    | 1.5 A |
|   | Monitoring contact | DC          | Ohm resistive load (DC-12) | 2 A                    | 0.4 A  | 0.2 A |
|   |                    |             | Inductive load (DC-13)     | 1 A                    | 0.22 A | 0.1 A |
| Rated operating current                         | Main contact       | AC 50/60 Hz | Ohm resistive load (AC-12) | -                      | 1.2 A  | 0.6 A |
|   |                    |             |                            | Inductive load (AC-14) | -      | 0.6 A |
|   | Monitoring contact | DC          | Ohm resistive load (DC-12) | 2 A                    | 0.4 A  | 0.2 A |
|   |                    |             | Inductive load (DC-13)     | 1 A                    | 0.22 A | 0.1 A |

### Rated data of the built-in LED lamp

| Rated voltage | Operating voltage | operating current |
|---------------|-------------------|-------------------|
| 24 V AC/DC    | 24 V AC/DC ± 10%  | 5 mA              |

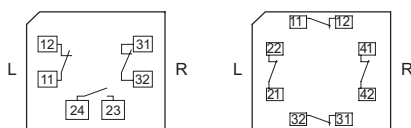
## Technical data

|   |   |
|---|---|
| Applicable standards                            | IEC 60947-5-1, EN 60947-5-1<br>IEC 60947-5-5, EN 60947-5-5<br>JIS C8201-5-1, JIS C8201-5-5, UL508, NFPA79, CSA C22.2 No.14  |
| Standard operating conditions                   | Operating temperature<br>Not illuminated: -25 to +60 °C (no frost)<br>LED illuminated: -25 to +55 °C (no frost)<br>Relative humidity: 45 to 85 % rel. h (no dew formation)<br>Storage temperature: -45 to +80 °C (no frost) |
| Minimum direct opening force                    | 80 N  |
| Minimum direct opening                          | 4.0 mm  |
| Maximum travel                                  | 4.5 mm  |
| Contact resistance                              | Max. 50 mΩ (initial value)  |
| Insulation resistance                           | Min. 100 MΩ (500 V DC Megger)   |
| Overvoltage category                            | II  |
| Impulse withstand voltage                       | 2.5 kV  |
| Degree of contamination                         | 3   |
| Operating frequency                             | 900 switching operations/hour   |
| Mechanical life                                 | Min. 250,000 switching operations   |
| Electrical life                                 | Min. 100,000 switching operations<br>Min. 250,000 switching operations (24 V AC/DC, 100 mA)   |
| Shock resistance                                | Extreme operating conditions: 150 m/s <sup>2</sup><br>Damage limits: 1,000 m/s <sup>2</sup>   |
| Vibration resistance                            | Extreme operating conditions: 10 to 500 Hz;<br>amplitude 0.35 mm, acceleration 50 m/s <sup>2</sup><br>Damage limits: 10 to 500 Hz, amplitude 0.35 mm, acceleration 50 m/s <sup>2</sup>                                      |
| Degree of protection                            | IP65 (front)  |
| Terminal protection                             | IP20  |
| Short-circuit protective device                 | Fuse 250 V/10 A (type aM IEC60269-1/IEC60269-2)   |
| Conditional short-circuit current               | 1,000 A   |
| Applicable tightening torque                    | 0.6 to 0.8 Nm   |
| Conductor cross-section to be used              | 0.75 to 1.25 mm <sup>2</sup> (AWG18 to 16)  |
| <b>ES-XW</b>                                    |   |
| Recommended tightening torque for securing ring | 2.0 Nm  |
| <b>ES-XN</b>                                    |   |
| Recommended tightening torque for securing ring | 2.5 Nm  |
| Total weight of padlock and hasp                | Max. 1,500 g  |
| Reinforced insulation (IEC 60664-1)             | Between live parts and housing  |
| <b>Characteristics acc. to EN ISO 13849-1</b>   |   |
| B <sub>10D</sub> at DC-13 100 mA/24 V           | 0.1 x 10 <sup>6</sup>   |

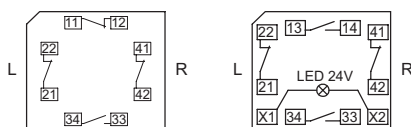
## Contact configurations (bottom view)

### Non-illuminated

ES-XW1E-BV412MFR/ ES-XW1E-BV404MFR  
ES-XN4E-BL412MFRH

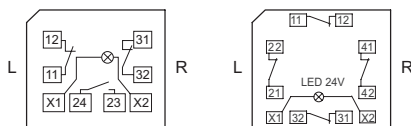


ES-XN4E-BL413MFRH ES-XN4E-BL422MFRH

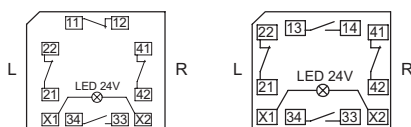


### Illuminated

ES-XW1E-LV412Q4MFR/ ES-XW1E-LV404Q4MFR  
ES-XN4E-LL412Q4MFR

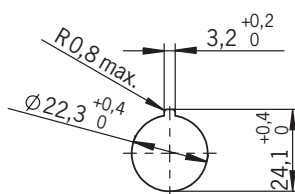


ES-XN4E-LL413Q4MFR ES-XN4E-LL422Q4MFR

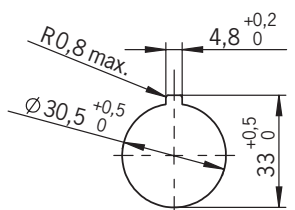


## Dimensions of the mounting holes

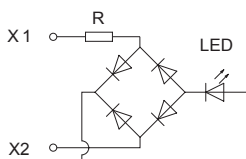
ES-XW



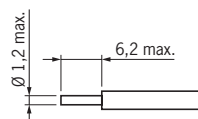
ES-XN



## Internal circuit of the LED unit



## Conductor cross-section to be used



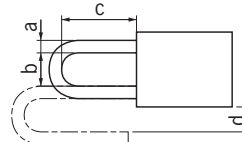
## Padlock with hasp

Information about the applicable padlock with hasp, see below.

### Size of the padlock

| a         | b          | c          | d            |
|-----------|------------|------------|--------------|
| Max. 7 mm | min. 19 mm | min. 39 mm | min. 15 mm*) |

\*) Dimension d is at least 6 mm when a padlock is affixed on the side of the switch.



As padlocks with hasp are available in different shapes and sizes, their suitability must be checked before use.

The total weight of the padlock and hasp must not exceed 1,500 g. Exceeding this limit can lead to a malfunction or an operating failure.

## Declaration of conformity

The EU declaration of conformity can be found at [www.euchner.com](http://www.euchner.com). Enter the order number of your device in the search box. The document is available under **Downloads**.

## Service

If servicing is required, please contact:

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