

ESB2x series, E-Stop button acc. to EN ISO 13850 and EN 60947-5-5

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1 Safety and use

This document is to be observed for the installation, commissioning/ use and testing of the ESB2x. It must be made available to the affected personnel. Furthermore, the applicable national and international standards and regulations are to be observed, including

- Machinery directive 2006/42/EU
- Low voltage directive 2014/35/EU
- Electromagnetic Compatibility Directive 2014/30/EU
- RoHS standard 2011/65/EU
- Safety regulations
- Accident-prevention regulations and safety rules
- Ordinance on Industrial Safety and Health and employment protection act
- Device Safety Act

Manufacturer and operator of the machine are responsible for the intended use, monitoring and testing of the ESB2x E-Stop buttons as well as compliance with all applicable safety regulations, including:

- EN ISO 13850
- EN 60947-5-1
- EN 60947-5-5

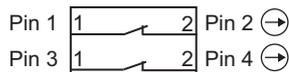
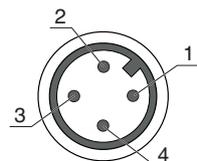
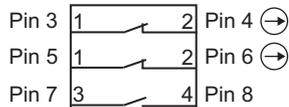
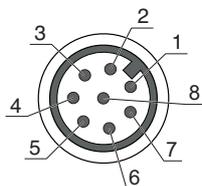
2 Device description and function

The ESB2x E-Stop buttons enable the electrical E-Stop command output up to and including safety category 4 and PL e. With respect to color and shape as well as the used symbols, they are designed in accordance with EN ISO 13850. ESB2x are available with rotary or key release. The connection can be made either by means of cable or with M12 connector.

3 Mounting and connection

	WARNING
<p>Before mounting and connecting, the system is to be safely shut down and secured against being switched on again.</p>	

- ☞ Screw the housing base to the force-fit surface.
- ☞ Break the intended cable bushing free.
- ☞ Guide through the screwed cable gland with appropriate sealing class and screw down tightly.
- ☞ Guide in the cable and screw down tightly with the fixing nut.



- ☞ Mount the top part of the housing and screw down tightly.
- ☞ Attach the caps.
- ☞ Observe the technical data.

4 Tests

	WARNING
<p>Severe accidents may result if tests are not performed properly</p>	
<p>☞ Make certain that there are no people in the danger zone.</p>	

Tests, initial

The ESB2x is secured according to specifications in a force-fitting manner. This prevents turning.

- ☞ Switch on the machine.
- ☞ Press the button.
- ☞ Check the stopping of the machine.

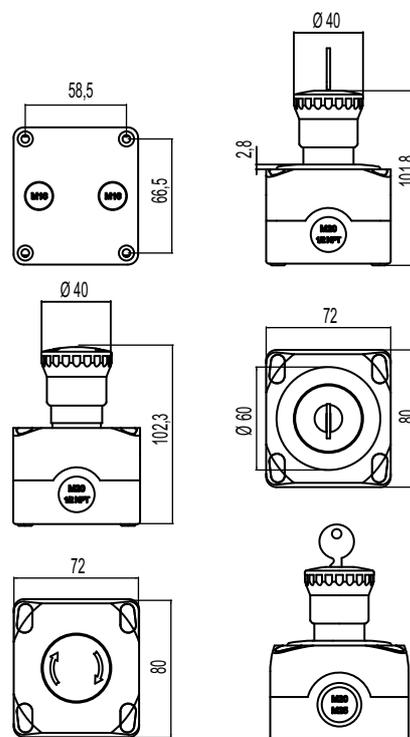
Tests, recurring

- ☞ Check to ensure that the fastening of the ESB2x and cable is free of play and free of tampering.
- ☞ Check the ESB2x for proper function.

5 EC Declaration of Conformity

You can find the EC Declaration of Conformity with the applied standards at <http://www.leuze.com>.

6 Dimensioned drawings



7 Technical data

Integration in accordance with EN 62061, IEC 61508	Up to SIL 3
Integration in accordance with EN ISO 13849-1	Up to PL e, up to cat. 4
Number of switching cycles before a dangerous failure (B10d)	600,000
Mission time (T _M)	20 years
Ambient temperature, operation	-25°C up to +80°C
Degree of contamination in accordance with EN 60947-1	3
Protection class	II
Certifications	cULus
Mechanical life time in accordance with EN ISO 13849-1	300,000
Mechanical life time, contact (without load)	20,000,000
Actuation frequency in accordance with IEC 60947-5-1	Max. 3600 per hour
Switching principle	Slow-action contact
Contact opening	Force-fit, forced NC
Contact material	Silver alloy
Labeling "Stop"	60 mm disc
Actuation force, red button	25 N
Mounting	Structure
Head/housing color	Red/yellow-black
Button/housing material	PA/PC
Type of fastening	Through-hole mounting
Degree of protection	IP67, IP69K

Article	ESB200-4TR-C	ESB200-4KR-C	ESB200-4TR-M12p	ESB200-4KR-M12p	ESB200-8TR-M12p
Tightening torque of screw terminals	0.6 - 0.8 Nm	0.6 - 0.8 Nm	N/A	N/A	N/A
Type of unlocking, rotate	Button	Key	Button	Key	Button
Cable entries	3 x M20, 2 x M16	3 x M20, 2 x M16	1x	1x	1x
Connection technology	Screw terminals	Screw terminals	M12 plug, 8-pin	M12 plug, 8-pin	M12 plug, 4-pin
Contact allocation	2NC ⊖/1NO	2NC ⊖/1NO	2NC ⊖/1NO	2NC ⊖/1NO	2NC ⊖
Permissible conductor cross section	0.5 mm ² to 2 x 2.5 mm ²	0.5 mm ² to 2 x 2.5 mm ²	N/A	N/A	N/A
Conventional thermal current	10 A	10 A	2 A	2 A	2 A
Rated insulation voltage Ui	600 V AC/DC	600 V AC/DC	30 V AC, 36 V DC	30 V AC, 36 V DC	30 V AC, 36 V DC
Usage category in accordance with EN 60947-5-1, AC15, U _e (V) / I _e (A)	24/6, 48/6, 120/6, 250/6, 400/3	24/6, 48/6, 120/6, 250/6, 400/3	I 24/2	I 24/2	I 24/2
Usage category in accordance with EN 60947-5-1, DC13, U _e (V) / I _e (A)	24/2.5, 48/1.3, 125/0.6, 250/0.3	24/2.5, 48/1.3, 125/0.6, 250/0.3	I 24/2	I 24/2	I 24/2
Short-circuit protection in accordance with IEC 60269-1	500 V, 10 A, type gG	500 V, 10 A, type gG	500 V, 2 A, type gG	500 V, 2 A, type gG	500 V, 2 A, type gG
Weight	240 g	240 g	248 g	248 g	248 g
Order no.	63000000	63000002	63000004	63000006	63000008