

## Correct use

The EUCHNER enabling switch is a manually operated command switch, which allows work to be carried out in the danger area of automated production systems in **manual operating** mode. This mode must be secured with a lockable selector switch according to EN 60204, part 1.

The enabling switch must be logically gated with the machine control system in a manner that ensures compliance with the requirements applicable to safety circuits according to VDI 2854 and/or EN ISO 10218-1. Under the conditions specified therein, the enabling signal may cancel the protective action of moving safety guards. Authorized operating personnel may then enter the danger area:

- ▶ for setting up
- ▶ for observing work sequences
- ▶ for maintenance.

## Important:

- ▶ The user is responsible for the integration of the device in a safe overall system. For this purpose the overall system must be validated, e.g. in accordance with EN ISO 13849-2.
- ▶ If the simplified method according to section 6.3 EN ISO 13849-1:2008 is used for validation, the Performance Level (PL) may be reduced if several devices are connected one after the other.
- ▶ The enabling switch user must assess and document remaining risks.
- ▶ If a product data sheet is included with the product, the information on the data sheet applies in case of discrepancies with the operating instructions.

## Incorrect use

The enabling signal must not be simulated by fixing the switching contact in stage 2.

## Function

Stage 1: Off function, pushbutton not pressed

Stage 2: Enabling function, pushbutton pressed to center position (actuating point)

Stage 3: Positively driven Off function, pushbutton pushed to end stop

The enabling function is cancelled by releasing the pushbutton or pressing it beyond the actuating point. The enabling function does not reactivate when returning from stage 3 to stage 1. For information on the functions of the various versions, see Figure 1.

⚠ **Safety precautions** ⚠

Enabling switches fulfill a personal protection function. Incorrect use or tampering can lead to severe injuries to personnel.

- ⚠ All the safety and accident prevention regulations for the specific application, e.g. guidelines of the employers liability insurance associations, safety requirements of the VDI (EN ISO 10218-1, VDI 2854), EN 60204, EN 12100, EN ISO 13849, EN 61062, DIN VDE 0106 part 100, etc., must be observed.
- ⚠ Electromechanical enabling switches/devices are to be logically gated with the control system in a manner that ensures compliance with the requirements applicable to safety circuits according to EN ISO 10218-1, DIN EN 60204-1, EN ISO 13849-1, DIN EN ISO 11161 and VDI 2854.
- ⚠ No commands for potentially hazardous conditions are allowed to be initiated with enabling switches alone.

- ⚠ The safety function of enabling switches must **not** be bypassed (bridging of contacts), manipulated or otherwise rendered ineffective. The enabling switch must be protected against attempts by the operator to bypass its function.
- ⚠ Enabling switches may be used only by authorized persons who can recognize hazards in time and who are able to take appropriate action immediately.
- ⚠ Every person present in the danger area must carry his/her own enabling switch on his/her person.
- ⚠ Mounting, electrical connection and setup only by authorized personnel.

## Mounting

The enabling switch must be fitted in a suitable housing.

- ▶ Slide enabling switch without protective cap through the front panel cut-out from the rear.
- ▶ Screw protective cap onto the front of the enabling switch to the stop.
- ▶ During installation it must be ensured that all three switch positions can be reached unhindered.
- ▶ The switch must be securely fastened, but must not be placed under stress by the fastening.
- ▶ The device must be installed so that tampering is not possible by simple mechanical measures (clamping, adhesive tape, etc.).

## Electrical connection

- ⚠ In the installation of a system, the cables and wires used (except earth conductors) that can be touched without opening or removing a cover, or are laid on conductive parts external to the device, must be either double insulated or have reinforced insulation between core and surface, or be surrounded by a metal sheath of adequate current-carrying capacity in case of a short between core and sheath.
- ⚠ At voltages > AC 50 V / > DC 120 V fit insulating sleeves to the spare tab connectors.

Hazards due to crushing or cutting of the connection cable must be prevented by suitable measures:

- ▶ Protecting the cable by laying it appropriately, e.g. in a protective sleeve.
- ▶ Monitoring short circuits using an evaluation unit.
- ▶ Using cable with individually screened cores. These screens are to be connected to the machine or plant earthing system. In this way cable short circuits can be detected and the control system shut down immediately by the triggering of the short circuit protection.

## Setup

Check the enabling switch (enabling function at stage 2, and positively driven at stage 3) by performing a functional check.

## Service and inspection

No servicing is required, but to ensure trouble-free long-term operation, regular inspection of the electrical and mechanical function is required.

- ⚠ In the event of functional faults or damage, the enabling switch must be replaced. Repairs are only to be made by the manufacturer!

**Note:** The year of manufacture can be seen in the bottom, right corner of the rating plate.

## Exclusion of liability under the following circumstances

- ▶ incorrect use
- ▶ non-compliance with safety regulations
- ▶ electrical connection not performed by authorized personnel
- ▶ function tests not performed

## EC declaration of conformity

The manufacturer named below herewith declares that the product fulfills the provisions of the directive(s) listed below and that the related standards have been applied.

EUCHNER GmbH + Co. KG  
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Directives and standards applied:

- Machinery directive 2006/42/EC
- EMC directive 2004/108/EC
- EN 60947-5-8:2006
- EN 61000-4-3:2006 + A1:2008 + A2:2010
- EN 61000-4-6:2009

Leinfelden, March 2013

Dipl.-Ing. Stefan Euchner

Director

Duc Binh Nguyen

Authorized representative empowered to draw up documentation

The signed EC declaration of conformity is included with the product.

## Technical data

Parameters	Value
Housing material	Plastic, color black
Protective cap material	CR, color black
Weight	Approx. 100 g
Degree of protection according to IEC 60529	front IP65 connections IP00
Mechanical life min.	
Position 1-2-1	1x10 <sup>5</sup> cycles
Position 1-2-3-1	1x10 <sup>6</sup> cycles
Ambient temperature	-5 ... +60 °C
Degree of contamination (external, acc. to EN 60947-1)	3 (industrial)
Installation position	Any
Impact strength	> 100 N
Switching elements	See Figure 1
Switching principle	Slow-action contact element
Connection	Tab connector 2.8 x 0.8 according to IEC 760
ZSE2-3 and ZSE2-4	Switching element E3 soldered connection
Rated impulse withstand voltage	U <sub>imp</sub> = 2.5 kV
Rated insulation voltage	U <sub>i</sub> = 250 V
Rated short-circuit current	100 A
Utilization category	AC-15 4 A 230 V
According to EN 60947-5-1	DC-13 3 A 24 V
Switching current, min. , at 24 V	1 mA
Switching voltage, min. at 10 mA	12 V
Short-circuit protection	4 A gG
<b>Reliability figures acc. to EN ISO 13849-1</b>	
B <sub>od</sub>	5 x 10 <sup>6</sup>

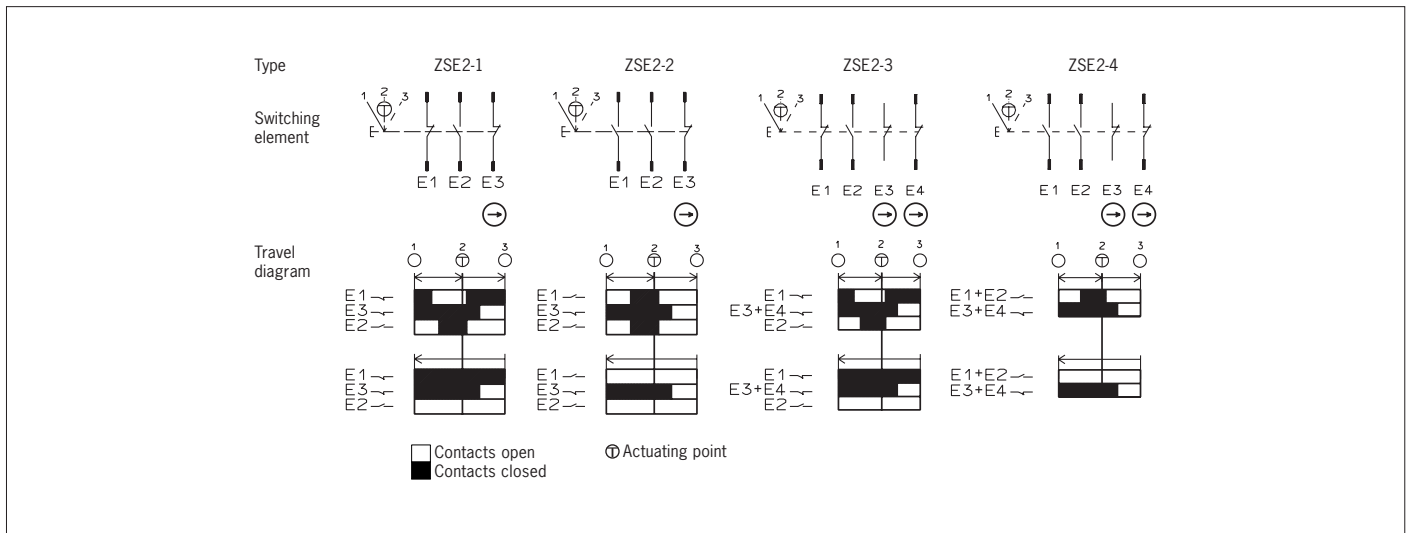


Fig. 1: Function of the switching elements

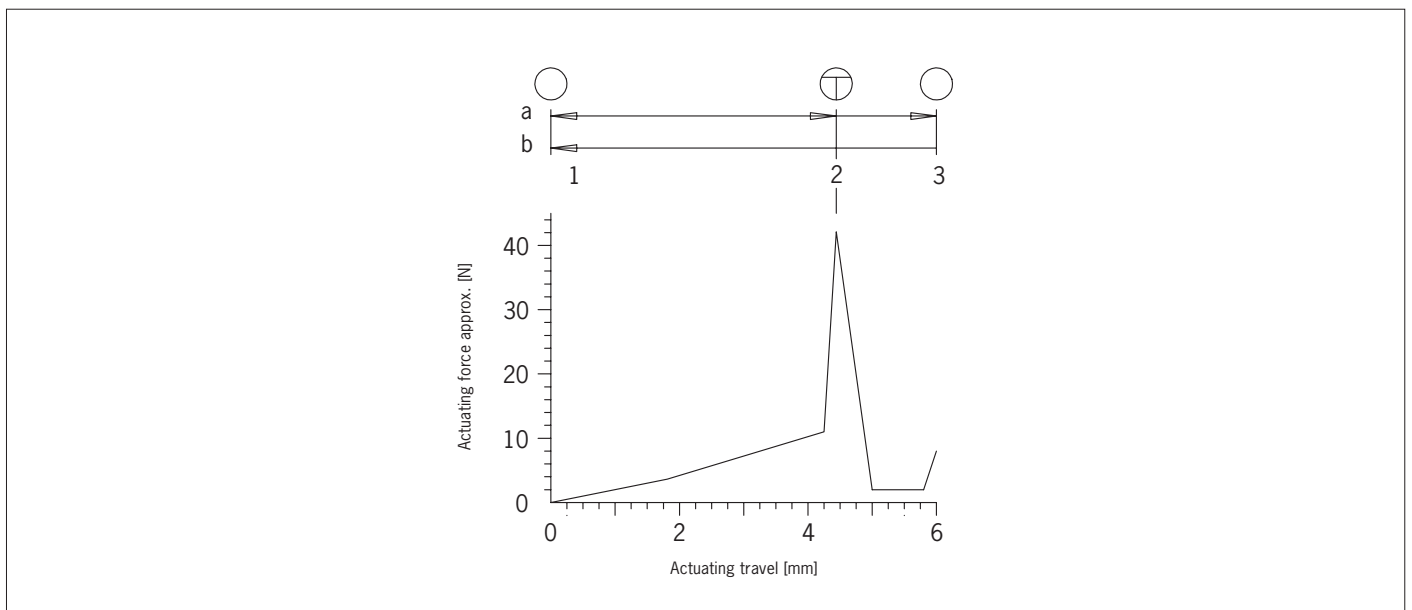


Fig. 2: Diagram of actuating force as a function of actuating travel

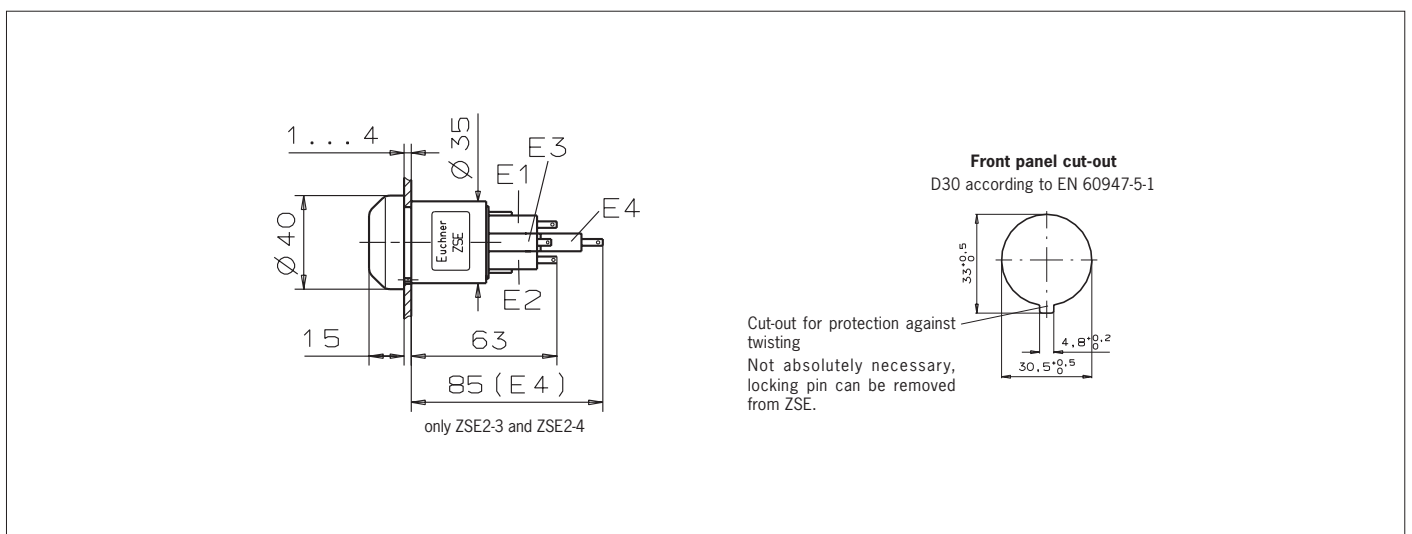


Fig. 3: Dimension drawing, enabling switch ZSE