

## ESM-2H201 (Order no. 085620)

### Safety relay ESM-2H.. , type IIIC evaluation unit for two-hand control

- ▶ Use up to category 4 according to EN ISO 13849-1
- ▶ Requirement level IIIC according to EN ISO 13851
- ▶ LED status indicators
- ▶ Operation by 2-hand control
- ▶ 2 redundant safety contacts
- ▶ Short-circuit and earth fault/ground fault monitoring can be selected



### Relay outputs

The outputs are electrically decoupled and of redundant design.

### Connection

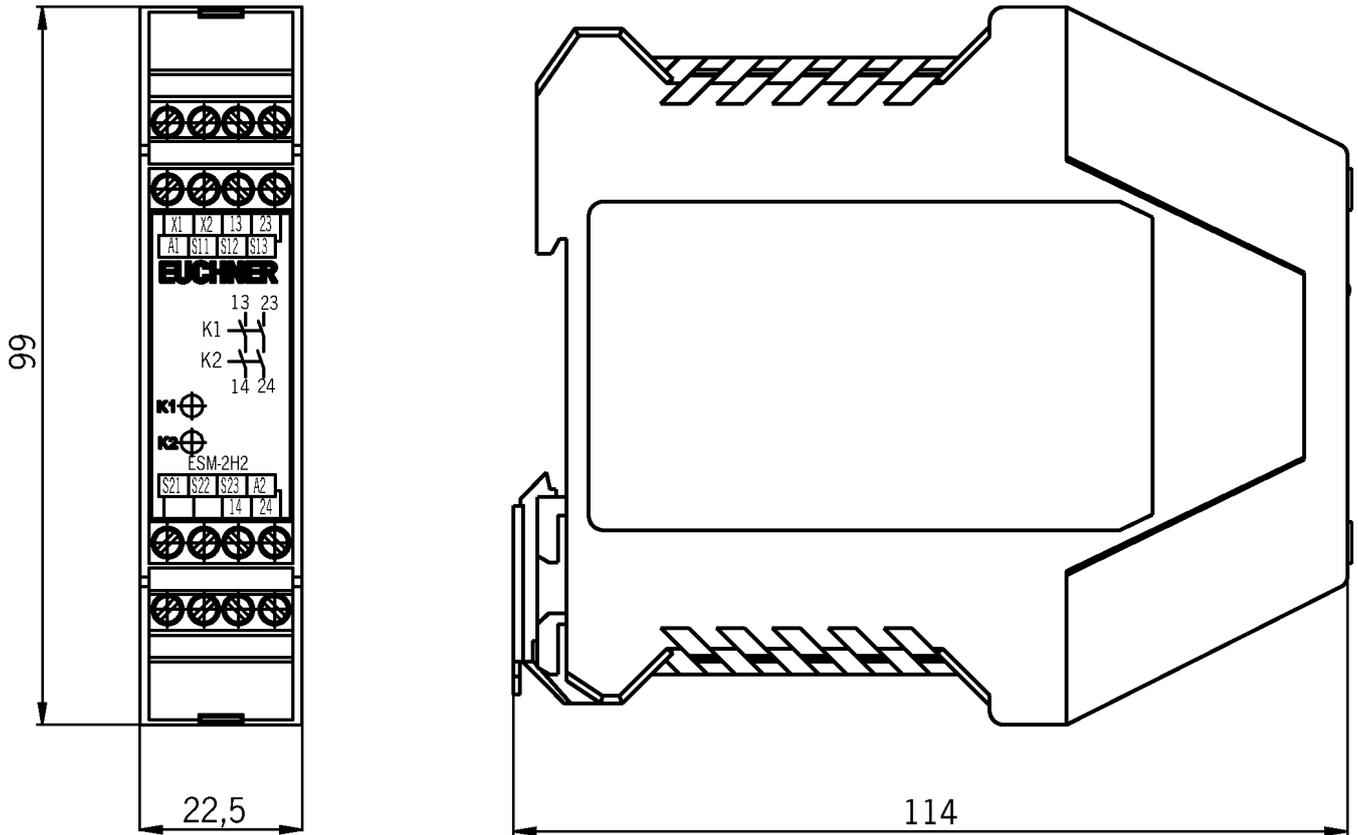
- ▶ Two buttons, each with one normally closed contact and one normally open contact, that are monitored for simultaneity according to EN ISO 13851. In this way a high level of protection against tampering is provided.
- ▶ Short circuit monitoring to detect short circuits between the connecting cables and to shut down the outputs or prevent relay starting if necessary
- ▶ Earth fault/ground fault monitoring to detect short circuits between the connecting cables and earth or ground and to shut down the outputs or prevent relay starting if necessary.

### Connection options

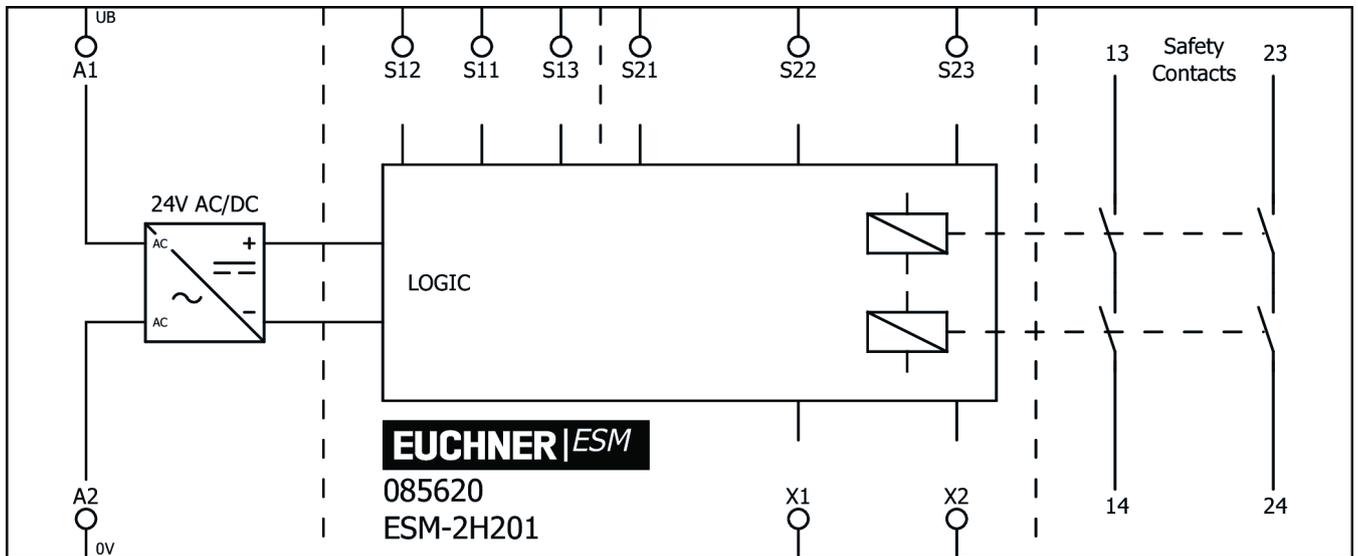
By using suitable wiring the following function can be selected:

- ▶ Monitoring of downstream relays or contactors.

## Dimensional drawings



## Connection examples



## Technical data

### Approvals

Zulassung EAC    Zulassung TÜV Rheinland, BMPB mit ZG: Product Safety, Functional Safety    Zulassung c\_UL\_us LISTED

### Mechanical values and environment

Housing material

Housing    Polyamide PA6.6

Weight

Net    0,23 kg

Ambient temperature

At  $U_B = 24V$  AC     $-15 \dots 40 \text{ } ^\circ\text{C}$

At  $U_B = 24V$  DC     $-15 \dots 60 \text{ } ^\circ\text{C}$

Degree of protection

IP20

Mechanical life

operating cycles     $10 \times 10^6$

Contact material

$\text{AgSnO}_2$

Mounting method

Mounting rail 35mm according to DIN EN 60715 TH35

Connection

Connection terminals

Length of control cable

With conductor cross-section  $0.75\text{mm}^2$     1000 m

### Safety contacts 13/14, 23/24

Number of safety contacts

2

### Electrical connection ratings

Operating voltage

AC/DC     $24 \text{ V } -10\% \dots +10\%$

(All the electrical connections must either be isolated from the mains supply by a safety transformer according to EN 61558-2-6 with limited output voltage in the event of a fault, or by other equivalent isolation measures.)

Rated insulation voltage  $U_i$

250 V

Rated impulse withstand voltage  $U_{imp}$

Leakage path/air gaps    4 kV

Overvoltage category according to IEC EN 60664-1	3
Reverse polarity protection	
On version $U_B = 24V$ DC	
Connection rating	
at 24V DC	1,5 W
Degree of contamination (external, according to EN 60947-1)	2
Connection cross-section	0,14 ... 2,5 mm <sup>2</sup> (Connection terminal (size))
Test voltage	
Control system/contacts	2,5 kV
Control voltage	
On S12-S13 and on S22 and S23	24 V
Control current	
Both push buttons	40 mA 2x
LED indicator	2 status displays (green) for relays K1 and K2
<b>Safety contacts 13/14, 23/24</b>	
Type of output	
NO	Relay contacts, floating and positively driven (redundant) (Positively driven relay according to EN 50205)
Switching voltage	
AC	max.250 V
DC	max.24 V
Switching current	min.20 mA at 24V
Fusing	
External contact fuses (safety circuit) according to IEC 60269-1	10A gG

Utilization category acc. to EN 60947-5-1	
AC-15	3A, 250V
DC-13	3A, 24V
AC-12	6A ohmic load, 250V (6 operating cycles/min.)
DC-12	6A ohmic load, 24V (6 operating cycles/min.)
Breaking capacity according to UL	6A 250V AC / 2A 24V DC
Delay time	
After operation of the push buttons	max.0,02 s Response delay time
Release time	max.0,02 s
Synchronization time	max.0,5 s

## Other

In compliance with EN 60947-5-1: 2004+A1: 2009; EN ISO 13849-1: 2015; EN 62061: 2005 + AC: 2010 + A1: 2013 + A2: 2015; EN 50581: 2012 (RoHS)

## Reliability values according to EN ISO 13849-1

Performance Level PL e  
(This value is dependent on the number of switching cycles and the switching current.)

Category 4  
(This value is dependent on the number of switching cycles and the switching current.)

PFH<sub>D</sub>  $1.2 \times 10^{-8}$   
(This value is dependent on the number of switching cycles and the switching current.)

Number of switching cycles

≤ 3 A at 24 V DC	max.22500 1/Jahr
≤ 1 A at 24 V DC	max.100000 1/Jahr
≤ 0.1 A at 24 V DC	max.400000 1/Jahr

Mission time 20 y  
(This value is dependent on the number of switching cycles and the switching current.)

## Downloads

All documentation for this material can be found on our website:

<https://www.euchner.de/en-us/a/085620/?#downloads-tab>

**Ordering data**

Ordernumber	085620
Item designation	ESM-2H201
Gross weight	0,213kg
European Article Number (EAN)	4047048006539
Customs tariff number	85364110
ECLASS	27-37-18-19 Device for monitoring of safety-related circuits