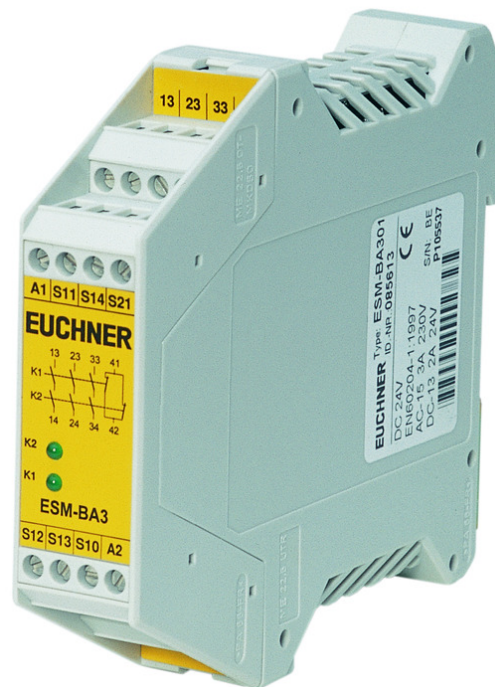


## ITEM 085613 ESM-BA301

Description	Technical data	Accessories	Downloads
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### Features

- › ESM-BA.. Usage up to category 4 according to EN ISO 13849-1
- › LED status indicators
- › 1-channel or 2-channel control
- › 3 redundant safety contacts
- › 1 auxiliary contact (monitoring contact)
- › Short circuit and earth fault/ground fault monitoring

### Relay outputs

The outputs are electrically decoupled and of redundant design.

### Connection options

By using suitable wiring the following functions can be selected:

- › Relay start with automatic start or a start button.
- › Monitoring of downstream relays or contactors
- › Simultaneity monitoring to monitor safety components over time.
- › Relay start using a monitored start button.
- › Short circuit monitoring to detect short circuits between the connection cables and to shut down the outputs or prevent relay starting if necessary.

- › Earth fault/ground fault monitoring to detect short circuits between the connection cables and earth or ground and to shut down the outputs or prevent relay starting if necessary.

## Auxiliary contacts

The relays in the series ESM-BA3.. are available with electrically separate normally closed contacts and auxiliary contacts.

## Connection terminals

Optionally, the ESM-BA... devices are also available as version with plug-in connection terminals.

## Approvals



## Mechanical values and environment

Housing material	Polyamide PA6.6
Weight	Net 0,23 kg
Ambient temperature	-15 ... 40 °C [1]
Degree of protection	IP20
Mechanical life	operating cycles 10 x 10 <sup>6</sup>
Contact material	AgSnO <sub>2</sub>
Mounting method	Mounting rail 35mm according to DIN EN 60715 TH35
Connection	Connection terminals
Length of control cable	
With conductor cross-section 0.75mm <sup>2</sup>	1000 m
	<b>Safety contacts 13/14, 23/24, 33/34</b>
Number of safety contacts	3
	<b>Auxiliary contacts 41/42</b>
Number of auxiliary contacts	1

## Electrical connection ratings

Operating voltage	AC/DC 24 V -10% ... +10% [2]
Rated insulation voltage U <sub>i</sub>	AC 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	
Rated supply frequency	50 ... 60 Hz
Power consumption at 24 V DC	2,3 W
Degree of contamination (external, according to EN 60947-1)	2
Connection cross-section	0,14 ... 2,5 mm <sup>2</sup>
Test voltage Control system/contacts	2,5 kV
Control voltage On S11	18,6 ... 24 V 26 V Start button
Control current S11...S14	60 mA
LED indicator	2 status displays (green) for relays K1 and K2 <b>Safety contacts 13/14, 23/24, 33/34</b>
Type of output NO	Relay contacts, floating and positively driven (redundant) <b>[3]</b>
Switching voltage AC DC	max.250 V max.24 V
Switching current at 24V	min.5 mA
Cumulative current	For all contacts max.15 A <b>[4]</b>
Fusing External contact fuses (safety circuit) according to IEC 60269-1	10A gG (T6A / F8A)
Utilization category according to EN 60947-5-1 AC-15 DC-13 AC-12 DC-12	3A , 250V 3A , 24V 8A ohmic load, 250V 8A ohmic load, 50V
Breaking capacity according to UL	8A 250V AC / 3A 24V DC per contact <b>Auxiliary contacts 41/42</b>
Type of output NC	Relay contacts, floating
Utilization category according to EN 60947-5-1 AC-12 DC-12	2A , 250V 2A, 50V
Breaking capacity according to UL	2A, 250V AC / 2A, 24V DC per contact

## Miscellaneous

in compliance with	EN 60439-1: 1999 + A1: 2004; EN 60947-1: 2007; EN 60947-5-1: 2004; EN 60947-7-1: 2002; EN 61000-6-2: 2005; EN 61000-6-3: 2007; EN ISO 13849-1: 2015; EN 62061: 2005 + AC: 2010 + A1: 2013 + A2: 2015; EN 60204-1: 2007
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## Reliability values acc. to EN ISO 13849-1

Performance Level	PL e [5]
Category	4 [6]
PFH <sub>D</sub>	1.2 x 10 <sup>-8</sup> [7]
Number of switching cycles	
≤ 0.1 A at 24 V DC	max.500000 1/Jahr
≤ 1 A at 24 V DC	max.350000 1/Jahr
≤ 2 A at 24 V DC	max.100000 1/Jahr
Mission time	20 y [8]

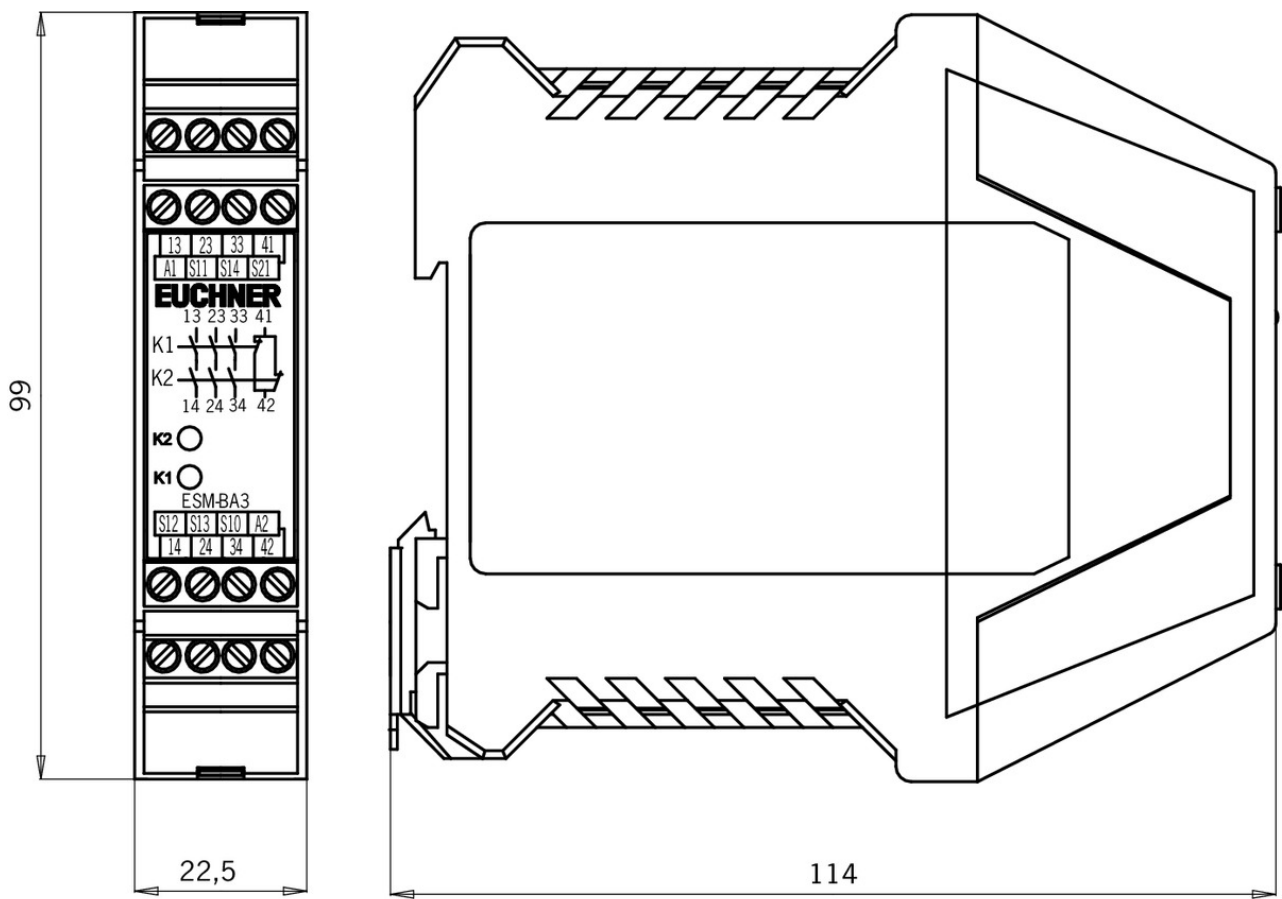
[1, 4] If several ESM-BA3.. devices are closely spaced under load, the max. cumulative current at the ambient temperature of T=20°C is 9A; at T=30°C is 3A; at T=40°C is 1A. If these currents are exceeded, a spacing of 5mm between the devices must be observed.

[2] 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.

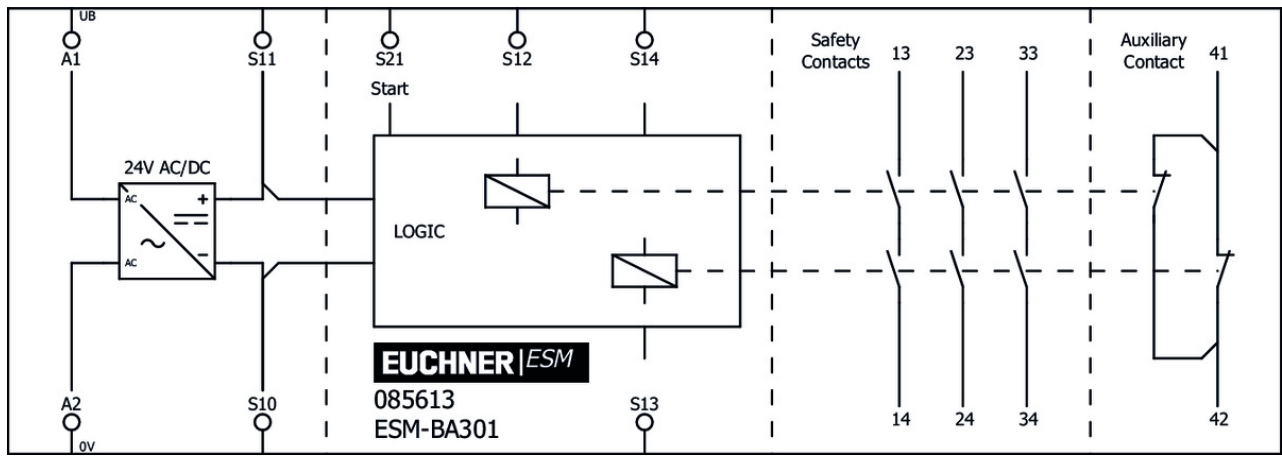
[3] Positively driven relay according to EN 50205

[5, 6, 7, 8] This value is dependent on the number of switching cycles and the switching current.

### Dimension drawing



### Block diagram











### Instructions

✓ Basisgerät Baureihe ESM-BA3..







	Doc. no.	Version	Language	Download
Basisgerät Baureihe ESM-BA3..	090073	07-04/15		1.3 MB
Emergency Stop Safety Relay ESM-BA3..	090073	07-04/15		1.3 MB

## Catalogs

### ☑ Sicherheitsrelais ESM Safety Relays ESM Relais de sécurité ESM 安全继电器 ESM






	Doc. no.	Version	Language	Download
Sicherheitsrelais ESM	110650	05-02/13		 6.7 MB
Relais de sécurité ESM	110652	05-02/13		 6.8 MB
Safety Relays ESM	110651	05-02/13		 6.7 MB
安全继电器 ESM	155884	05-02/13		 4.6 MB

### ☑ Magnetisch codierte Sicherheitsschalter CMS Système de sécurité sans contact CMS Magnetically Coded Safety Switches CMS

	Doc. no.	Version	Language	Download
Magnetisch codierte Sicherheitsschalter CMS	086823	09-02/18		 2.3 MB
Système de sécurité sans contact CMS	090606	09-02/18		 2.3 MB
Magnetically Coded Safety Switches CMS	086824	09-02/18		 2.3 MB

## Declaration of conformity

### ☑ EU-Konformitätserklärung

	Doc. no.	Version	Language	Download
EU-Konformitätserklärung	2090791	15-04/17		 0.3 MB
Declaración UE de conformidad				
Déclaration UE de conformité				
Dichiarazione di conformità				
EU declaration of conformity			