

ITEM 097224 ESM-BA701

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
- › 7 redundant safety contacts
- › 4 auxiliary contacts
- › 2 monitoring contacts
- › Short circuit and earth fault/ground fault monitoring optional

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-BA7 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 0,35 kg
Ambient temperature	-15 ... 40 °C
Degree of protection	IP20
Mechanical life	
	operating cycles 10×10^6
Contact material	AgSnO ₂
Mounting method	Mounting rail 35mm according to DIN EN 60715 TH35
Number of monitoring outputs	2 semiconductor outputs
Connection	Connection terminals
Length of control cable	
With conductor cross-section 0.75mm ²	1000 m
	Monitoring outputs 01 / 02
Number of monitoring contacts	2
	Auxiliary contacts 43/44, 53/54, 63/64, 73/74, 101/102, 101/112
Number of auxiliary contacts	4
	Safety contacts 13/14, 23/24, 33/34, 81/82, 91/92
Number of safety contacts	7

Electrical connection ratings

Operating voltage	AC/DC	24 V -10% ... +10% [1]
Power consumption (apparent power)	At 24V AC	8,5 VA
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 UB=24V DC	
Degree of contamination (external, according to EN 60947-1)		2
Connecting cable	at 24V DC	4,5
Connection cross-section		0,14 ... 2,5 mm ²
Test voltage	Control system/contacts	2,5 kV
Control voltage	On S11	18,6 ... 24 V 26 V Start button
Control current	S11...S14	250 mA
LED indicator		1 status displays operating voltage (Pwr), 2 status displays (green) for relays K1 and K2
		Monitoring outputs 01 / 02
Type of output	Semiconductor output PNP	Short circuit-proof [2]
Output voltage		24 V DC
Output current		max.30 mA
		Auxiliary contacts 43/44, 53/54, 63/64, 73/74, 101/102, 101/112
Type of output	NO contact / NC contact	Relay contacts, floating
Utilization category according to EN 60947-5-1	AC-15	3A, 250V
	DC-13	3A, 24V
	AC-12	8A, 250V
	DC-12	8A ohmic load, 50V
Breaking capacity according to UL	Auxiliary contact	2A 250V AC / 1.5A 24V DC
		Safety contacts 13/14, 23/24, 33/34, 81/82, 91/92
Type of output	NO contact / NC contact	Relay contacts, floating and positively driven (redundant) [3]
Switching voltage	AC	max.250 V

	DC	max.50 V
Switching current		at 24Vmin.5 mA
Cumulative current		For all contactsmax.35 A [4]
Fusing		
External contact fuses (safety circuit) according to IEC 60269-1		10AgG (T6A / F8A)
Utilization category according to EN 60947-5-1		
	AC-15	3A, 250V
	DC-13	3A, 24V
	AC-12	8A ohmic load, 250V
	DC-12	8A ohmic load, 50V
Breaking capacity according to UL		
Safety contacts		8A 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 13849-1:2008 ; EN 62061:2005 ; 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 _D	2.47 x 10 ⁻⁸ [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] 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.

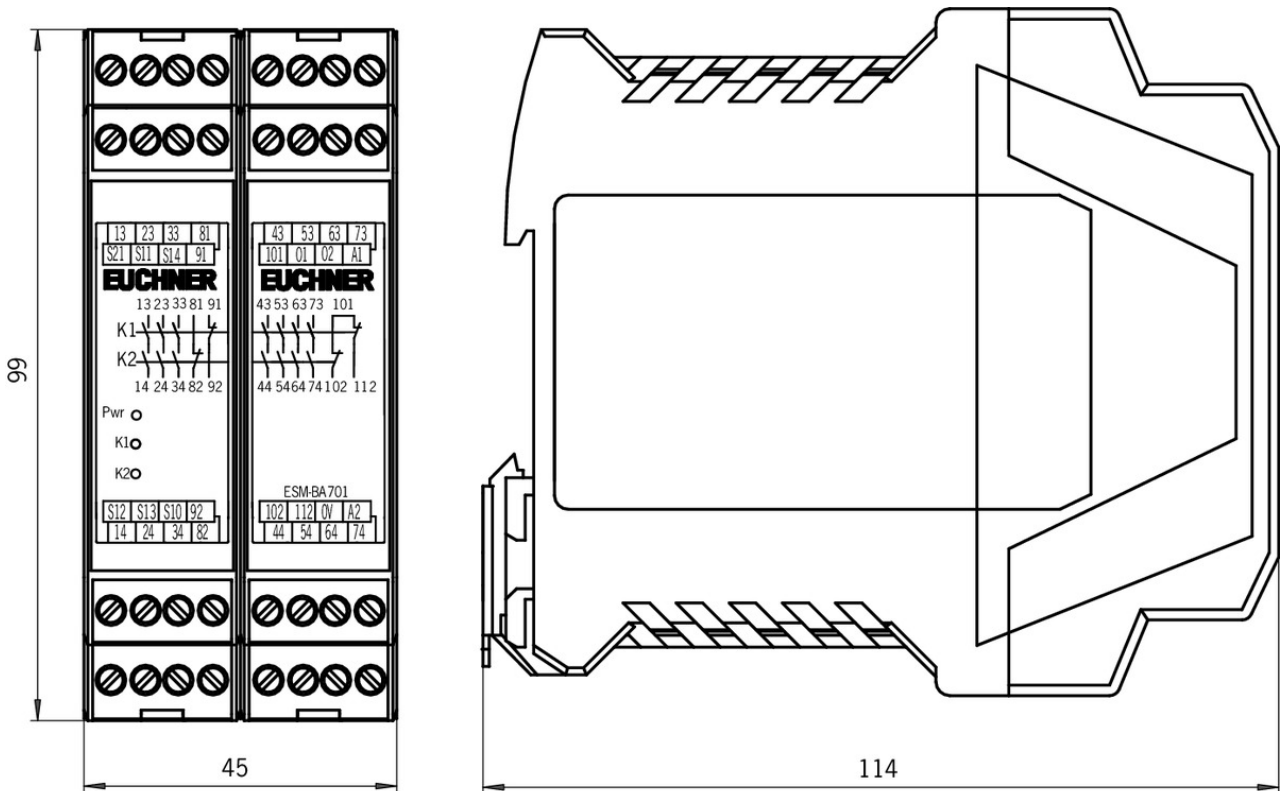
[2] On +24V DC (internal)

[3] Positively driven relay according to EN 50205

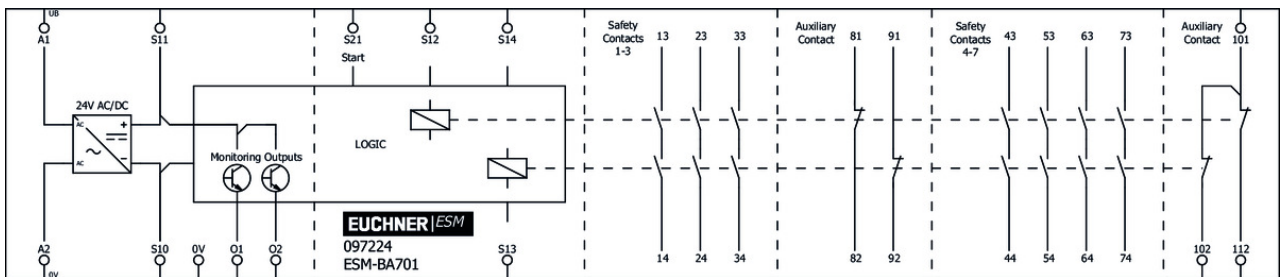
[4] With a housing distance of 10mm. 20A closely spaced at 40°C

[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-BA7..

	Doc. no.	Version	Language	Download
Basisgerät Baureihe ESM-BA7..	090093	04-04/15		1.0 MB
Emergency Stop Safety Relay ESM-BA7..	090093	04-04/15		1.0 MB

Declaration of conformity

▼ EU-Konformitätserklärung

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