DATASHEET

AES 1235

- Monitoring of BNS range magnetic safety sensors
- 2 safety contacts, STOP 0
- 2 Signalling outputs

Data

Ordering data

Note (Delivery capacity)	Phased-out product
Product type description	AES 1235
Article number (order number)	101170049
EAN (European Article Number)	4030661297118
eCl@ss number, version 12.0	27-37-18-19
eCl@ss number, version 11.0	27-37-18-19
eCl@ss number, version 9.0	27-37-18-19
ETIM number, version 7.0	EC001449
ETIM number, version 6.0	EC001449
Available until	31.12.2023

Approvals - Standards

Certificates	BG cULus EAC

General data

Standards	BG-GS-ET-14 BG-GS-ET-20 EN IEC 62061 EN ISO 13849-1 EN IEC 60947-5-1 EN IEC 60947-5-3 EN IEC 60947-5-5 EN IEC 60204-1 EN IEC 60947-1
Climatic stress	EN 60068-2-3 BG-GS-ET-14
Enclosure material	Glass-fibre reinforced thermoplastic, ventilated
Material of the contacts, electrical	Ag-Ni 10 and 0.2 µm gold-plated
Gross weight	240 g

General data - Features

Stop-Category	0
Wire breakage detection	Yes
Cross-circuit detection	Yes
Feedback circuit	Yes
Automatic reset function	Yes
Reset after disconnection of supply voltage	Yes
Earth connection detection	Yes
Integral system diagnostics, status	Yes
Number of LEDs	1
Number of normally closed (NC)	2

Number of normally open (NO)	1
Number of undelayed semi-conductor outputs with signaling function	2
Number of safety contacts	2
Number of signalling outputs	2

Safety classification

Standards	EN ISO 13849-1 EN IEC 61508

Safety classification - Relay outputs

Performance Level, up to	d
Category	3
PFH value	1.00 x 10^{-7} /h
Notice	for max. 50,000 switching cycles/year and max. 80% contact load
Safety Integrity Level (SIL), suitable for applications in	2
Mission time	20 Year(s)

Mechanical data

Mechanical life, minimum	20,000,000 Operations
Mounting	Snaps onto standard DIN rail to EN 60715

Mechanical data - Connection technique

Termination	rigid or flexible Screw terminals M20 x 1.5

Terminal designations	IEC/EN 60947-1
Cable section, minimum	0.25 mm²
Cable section, maximum	2.5 mm²
Tightening torque of Clips	0.6 Nm

Mechanical data - Dimensions

Width	22.5 mm
Height	100 mm
Depth	121 mm

Ambient conditions

Degree of protection of the enclosure	IP40
Degree of protection of the mounting space	IP54
Degree of protection of clips or terminals	IP20
Ambient temperature, minimum	+0 °C
Ambient temperature, maximum	+55 °C
Storage and transport temperature, minimum	-25 °C
Storage and transport temperature, maximum	+70 °C
Resistance to vibrations	10...55 Hz, Amplitude 0.35 mm, ± 15 %
Restistance to shock	30 g / 11 ms

Ambient conditions - Insulation values

Rated impulse withstand voltage U_{imp}	4 kV
Overvoltage category	III

Degree of pollution	2

Electrical data

Frequency range	50 Hz 60 Hz
Thermal test current	6 A
Rated operating voltage	24 VAC -15% / +10% 24 VDC -10%/+20%, residual ripple max. 10%
Rated AC voltage for controls, 50 Hz, minimum	20.4 VAC
Rated control voltage at AC 50 Hz, maximum	26.4 VAC
Rated AC voltage for controls, 60 Hz, minimum	20.4 VAC
Rated control voltage at AC 60 Hz, maximum	26.4 VAC
Rated AC voltage for controls at DC minimum	20.4 VDC
Rated control voltage at DC, maximum	28.8 VDC
Electrical power consumption	5 W
Contact resistance, maximum	0.1 Ω
Note (Contact resistance)	in new state
Drop-out delay in case of power failure, typically	80 ms
Drop-out delay in case of emergency, typically	20 ms
Pull-in delay at automatic start, maximum, typically	100 ms
Pull-in delay at RESET, typically	20 ms

Electrical data - Safe relay outputs

Voltage, Utilisation category AC-15	230 VAC
Current, Utilisation category AC-15	6 A
Voltage, Utilisation category DC-13	24 VDC
Current, Utilisation category DC-13	6 A
Switching capacity, minimum	10 VDC
Switching capacity, minimum	10 mA
Switching capacity, maximum	250 VAC
Switching capacity, maximum	8 A

Electrical data - Digital inputs

Input signal, HIGH Signal "1"	10 … 30 VDC
Input signal, LOW Signal "0"	0 … 2 VDC
Conduction resistance, maximum	40 Ω

Electrical data - Digital Output

Voltage, Utilisation category DC-12	24 VDC
Current, Utilisation category DC-12	0.1 A

Electrical data - Relay outputs (auxiliary contacts)

Switching capacity, maximum	24 VDC

Switching capacity, maximum	2 A

Electrical data - Electromagnetic compatibility (EMC)

EMC rating	EMC-Directive

Integral system diagnosis (ISD)

Note (ISD -Faults)	The following faults are registered by the safety monitoring modules and indicated by ISD.
Faults	Failure of the safety relay to pull-in or drop-out Failure of door contacts to open or close Cross-wire or short-circuit monitoring of the switch connections Interruption of the switch connections Fault on the input circuits or the relay control circuits of the safety monitoring module

Other data

Note (applications)	Safety sensor Guard system

Note

Note (General)	Inductive loads (e.g. contactors, relays, etc.) are to be suppressed by means of a suitable circuit.

Wiring example

Note (Wiring diagram)	The wiring diagram is shown with guard doors closed and in de-energised condition. To secure a guard door up to PL d and Category 3 Monitoring 1 guard door(s), each with a magnetic safety sensor of the BNS range The ISD tables (Intergral System Diagnostics) for analysis of the fault indications and their causes are shown in the appendix. Expansion of enable delay time: The enable delay time can be increased from 0.1 s to 1 s by changing the position of a jumper link connection under the cover of the unit. The feedback circuit monitors the position of the contactors K3 and K4. Start push button: A start push button (NO) can optionally be connected into the feedback circuit. With the guard door closed, the enabling paths are then not closed until the start push button has been operated. If only one external relay or contactor is used to switch the load, the system can be classified in Control Category 3 to ISO 13849-1, if exclusion of the fault “Failure of the external contactor” can be substantiated and is documented, e.g. by using a reliable down-rated contactor. A second contactor leads to an increase in the level of security by redundant switching to switch the load off. If neither start button nor feedback circuit are connected, a jumper connection must be mounted between X1 and A1. Modification for 2 NC contacts: The safety monitoring module can be modified to monitor two NC contacts by bridging the terminals A1 and X2. In this configuration, the short-circuit detection becomes inoperative.

Ordering code

Product type description:
AES 123(1)

(1)

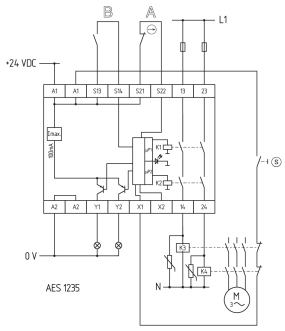
215	without start-up test
6	with start-up test

Pictures

Product picture (catalogue individual photo)

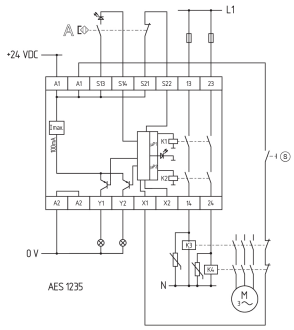
ID: kaes1f09
| 711.0 kB | .jpg | 265.642 x 529.167 mm - 753 x 1500 px - 72 dpi
| 84.7 kB | .png | 74.083 x 147.461 mm - 210 x 418 px - 72 dpi

Wiring example



ID: maes1l11
| 34.0 kB | .cdr |
| 143.8 kB | .jpg | 352.778 x 408.517 mm - 1000 x 1158 px - 72 dpi

Wiring example



ID: kaes1l41
| 34.1 kB | .cdr |
| 139.5 kB | .jpg | 352.425 x 396.875 mm - 999 x 1125 px - 72 dpi