Datasheet - AES 2555

Guard door monitors and Safety control modules for Emergency Stop applications / Micro Processor based safety controllers (Series AES) / AES 255x

SCHMERSAL

(Minor differences between the printed image and the original product may exist!)

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

Ordering details

Product type description	AES 2555
Article number	101181684
EAN Code	4030661323121
eCl@ss	27-37-19-01

Approval

Approval	BG	BG
	c(UL)us	USA/CAN
	EAC	EAC
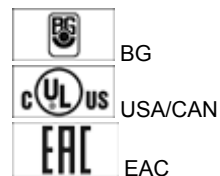
Classification

Standards	EN ISO 13849-1, IEC 61508
PL	up d
Control category	up 3
PFH value	1.0×10^{-7}/h
- notice	up to max. 50.000 switching cycles/year and at max. 80% contact load
SIL	up 2
Mission time	20 Years

Global Properties

Permanent light	AES 255x
Standards	IEC/EN 60204-1, EN 60947-5-1, IEC 60947-5-3, IEC 61508, BG-GS-ET-14, BG-GS-ET-20
Compliance with the Directives (Y/N) $C \, E$	Yes
Climatic stress	EN 60068-2-3, BG-GS-ET-14
Mounting	snaps onto standard DIN rail to EN 60715
Terminal designations	IEC/EN 60947-1
Materials	
- Material of the housings	Plastic, glass-fibre reinforced thermoplastic
- Material of the contacts	Ag-Ni, 0,2 µm gold flashed
Weight	300
Start input (Y/N)	No
Feedback circuit (Y/N)	Yes
Start-up test (Y/N)	No
Reset after disconnection of supply voltage (Y/N)	Yes
Automatic reset function (Y/N)	Yes
Reset with edge detection (Y/N)	No
Pull-in delay	
- ON delay with automatic start	adjustable 0,1 / 1.0 s
Drop-out delay	
- Drop-out delay in case of emergency stop	< 50

Mechanical data

Connection type	Screw connection
Cable section	
- Min. Cable section	0,2
- Max. Cable section	2.5
Pre-wired cable	rigid or flexible
Tightening torque for the terminals	0,6
Detachable terminals (Y/N)	No
Mechanical life	20.000.000 operations
Electrical lifetime	150.000 operations for 230 VAC, 5 A (cos φ = 1)
restistance to shock	30 g / 11 ms
Resistance to vibration To EN 60068-2-6	10…55 HZ, Amplitude 0,35 mm, ± 15 %

Ambient conditions

Ambient temperature	
- Min. environmental temperature	0
- Max. environmental temperature	+55
Storage and transport temperature	
- Min. Storage and transport temperature	−25
- Max. Storage and transport temperature	+70
Protection class	
- Protection class-Enclosure	IP40
- Protection class-Terminals	IP20
- Protection class-Clearance	IP54
Air clearances and creepage distances To IEC/EN 60664-1	
- Rated impulse withstand voltage U_{imp}	4.8 kV
- Overvoltage category	III To VDE 0110
- Degree of pollution	2 To VDE 0110

Electromagnetic compatibility (EMC)

EMC rating	10 V/m

Electrical data

Rated DC voltage for controls	
- Max. rated DC voltage for controls	20.4
- Max. rated DC voltage for controls	253 VDC
Rated AC voltage for controls, 50 Hz	
- Min. rated AC voltage for controls, 50 Hz	20.4 VAC
- Max. rated AC voltage for controls, 50 Hz	253 VAC
Rated AC voltage for controls, 60 Hz	
- Min. rated AC voltage for controls, 60 Hz	20.4 VAC
- Max. rated AC voltage for controls, 60 Hz	253 VAC
Contact resistance	max. 100 mΩ
Power consumption	5
Type of actuation	DC
Switch frequency	3
Rated insulation voltage U_i	250 V
Rated operating voltage U_e	24 … 230 VAC/DC
Thermal test current I_{the}	6 A
Operating current I_e	0,3 A
Electronic protection (Y/N)	No

Inputs

Monitored inputs

- Short-circuit recognition (Y/N)	Yes
- Wire breakage detection (Y/N)	Yes
- Earth connection detection (Y/N)	No
Number of shutters	2
Number of openers	2
Input resistance	approx. 4000 Ω at GND
Input signal "1"	10 … 30 VDC
Input signal "0"	0 … 2 VDC
Cable length	1000 m with 0,75 mm² (for Rated voltage)

Outputs

Stop category	0
Number of safety contacts	4
Number of auxiliary contacts	1
Number of signalling outputs	2
Switching capacity	
- Switching capacity of the safety contacts	min. 10 mA, max. 6 A
- Switching capacity of the signaling/diagnostic outputs	Y1, Y2 = 100 mA
Fuse rating	
- Protection of the safety contacts	6 A gG D-fuse
- Fuse rating for the signaling/diagnostic outputs	short-circuit proof
Signalling output	Y1: Authorized operation, safety contacts on ; 2 Y: Error, safety contacts off
Utilisation category To EN 60947-5-1	AC-15: 230 V / 3 A DC-13: 24 V / 2 A

Number of undelayed semi-conductor outputs with signaling function	2
Number of undelayed outputs with signaling function (with contact)	1
Number of delayed semi-conductor outputs with signaling function.	0
Number of delayed outputs with signalling function (with contact).	0
Number of secure undelayed semi-conductor outputs with signaling function	0
Number of secure, undelayed outputs with signaling function, with contact.	0
Number of secure, delayed semi-conductor outputs with signaling function	0
Number of secure, delayed outputs with signaling function (with contact).	0

LED switching conditions display

LED switching conditions display (Y/N)	Yes
Number of LED´s	1

Integral system diagnosis $missingShortName$

Integral system diagnosis ISD

  - The following faults are registered by the safety monitoring modules and indicated by ISD

  - Failure of door contacts to open or close

  - Cross-wire or short-circuit monitoring of the switch connections

  - Interruption of the switch connections

  - Failure of the safety relay to pull-in or drop-out

  - Fault on the input circuits or the relay control circuits of the safety monitoring module

Miscellaneous data

Applications

 Safety sensor

 Guard system

Dimensions

Dimensions	
- Width	45 mm
- Height	100 mm
- Depth	121 mm

notice

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

notice - Wiring example

To secure a guard door up to PL 3 and Category #03#

Monitoring 2 guard door(s), each with a magnetic safety sensor of the BNS range

If one or two external relays or contactors are used to switch the load, the system can then only be classified in Category 3 to EN ISO 13849-1, if exclusion of the fault "Failure of the external contactors" can be substantiated and is documented, e.g. by using reliable down-rated contactors. A second contactor leads to an increase in the level of security by redundant switching to switch the load off.

The wiring diagram is shown with guard doors closed and in de-energised condition.

The ISD tables (Intergral System Diagnostics) for analysis of the fault indications and their causes are shown in the appendix.

Documents

Operating instructions and Declaration of conformity (jp) 607 kB, 11.11.2011
Code: mrl_aes235x-255x-236x-256x_jp

Operating instructions and Declaration of conformity (fr) 280 kB, 03.01.2018
Code: mrl_aes235x-255x-236x-256x_fr

Operating instructions and Declaration of conformity (pl) 294 kB, 03.01.2018
Code: mrl_aes235x-255x-236x-256x_pl

Operating instructions and Declaration of conformity (en) 276 kB, 16.11.2017
Code: mrl_aes235x-255x-236x-256x_en

Operating instructions and Declaration of conformity (pt) 281 kB, 03.01.2018
Code: mrl_aes235x-255x-236x-256x_pt

Operating instructions and Declaration of conformity (es) 278 kB, 03.01.2018
Code: mrl_aes235x-255x-236x-256x_es

Operating instructions and Declaration of conformity (nl) 278 kB, 03.01.2018
Code: mrl_aes235x-255x-236x-256x_nl

Operating instructions and Declaration of conformity (it) 279 kB, 03.01.2018
Code: mrl_aes235x-255x-236x-256x_it

Operating instructions and Declaration of conformity (de) 237 kB, 16.11.2017
Code: mrl_aes235x-255x-236x-256x_de

Operating instructions and Declaration of conformity (da) 281 kB, 03.01.2018
Code: mrl_aes235x-255x-236x-256x_da

Wiring example (99) 25 kB, 20.08.2008
Code: kaes2l14

BG-test certificate (en) 1 MB, 25.07.2017
Code: z_a21p02

BG-test certificate (de) 1 MB, 25.07.2017
Code: z_a21p01

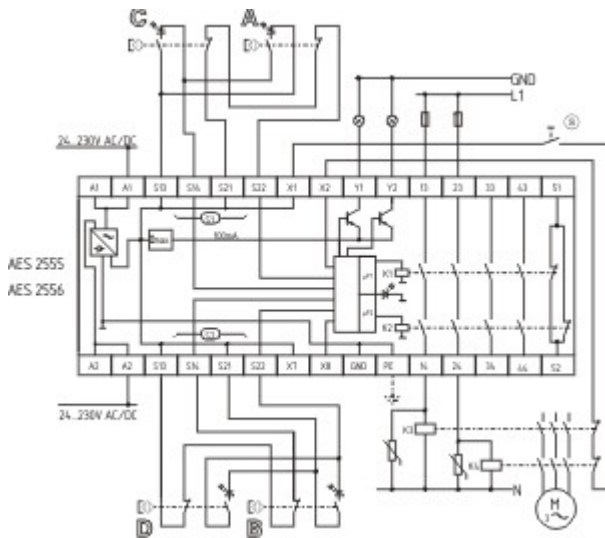**BG-test certificate** (de) 266 kB, 02.03.2016
Code: z_2aep01

BG-test certificate (en) 268 kB, 15.04.2016
Code: z_2aep02

EAC certification (ru) 1 MB, 15.03.2018
Code: q_aesp01

Images

Wiring example