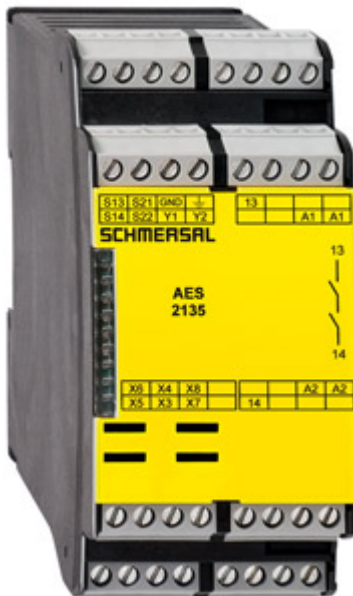# Datasheet - AES 2135

Guard door monitors and Safety control modules for Emergency Stop applications / Micro Processor based safety controllers (Series AES) / AES 213x

☒ Preferred typ

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

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

Ordering details

Product type description	AES 2135
Article number	101180842
EAN Code	4030661314914
eCl@ss	27-37-19-01

Approval

Approval	BG
	USA/CAN
	EAC
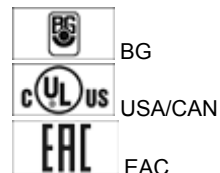
Classification

Standards	EN ISO 13849-1, IEC 61508
PL	up d
Control category	up 3
PFH value	1.0×10^{-7}/h
SIL	up 2
Mission time	20 Years
PFH_d	

Switching frequency c	
MTTF$_d$	
Classification	PDF-M

Global Properties

Permanent light	AES 213x
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	IEC 60947-5-3, 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, Au
Weight	280
Start input (Y/N)	No
Feedback circuit (Y/N)	No
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	50.000.000 operations
Electrical lifetime	100.000 operations for 230 VAC, 6 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} 4 A
Operating current I_e 0,2 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 adjustable 1 - >0
Number of openers adjustable 1 - >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 1.5 mm² (for Rated voltage)

Outputs

Stop category 0
Number of safety contacts 1
Number of auxiliary contacts 0
Number of signalling outputs 2
Switching capacity
- Switching capacity of the safety contacts min. 10 mA, max. 4 A
- Switching capacity of the signaling/diagnostic outputs Y1, Y2: max. 100 mA
Fuse rating
- Protection of the safety contacts 4 A gG D-fuse

- Fuse rating for the signaling/diagnostic outputs	short-circuit proof
Signalling output	Y1: (X5 / X6 without bridge) Authorized operation (X5 / X6 with bridge) guard open Y2: (X5 / X6 without bridge) None Authorized operation (X5 / X6 with bridge) Error
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)	0
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 1 guard door(s), each with a magnetic safety sensor of the BNS range

Modification for 2 NC contacts:
The safety monitoring module can be modified to monitor two NC contacts by bridging the terminals X3 and X4. The short-circuit recognition between connections then becomes inoperative.

Inversion of the output function:
By establishing a bridge between X5 and X6, the output function of the additional outputs can be altered. This control can also be realised when e.g. a PLC is running (24 VDC at terminal X6).

Expansion of the enable delay time
The enable delay time can be increased from 0,1 s to 1 s by mounting a jumper connection between the terminals X7 and X8.

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 (pl) 254 kB, 03.01.2018
Code: mrl_aes2135_2136_pl

Operating instructions and Declaration of conformity (es) 237 kB, 21.12.2017
Code: mrl_aes2135_2136_es

Operating instructions and Declaration of conformity (da) 242 kB, 03.01.2018
Code: mrl_aes2135_2136_da

Operating instructions and Declaration of conformity (jp) 785 kB, 07.06.2011
Code: mrl_aes2135_2136_jp

Operating instructions and Declaration of conformity (nl) 238 kB, 03.01.2018
Code: mrl_aes2135_2136_nl

Operating instructions and Declaration of conformity (de) 203 kB, 16.11.2017
Code: mrl_aes2135_2136_de

Operating instructions and Declaration of conformity (pt) 243 kB, 03.01.2018
Code: mrl_aes2135_2136_pt

Operating instructions and Declaration of conformity (it) 239 kB, 03.01.2018
Code: mrl_aes2135_2136_it

Operating instructions and Declaration of conformity (fr) 242 kB, 03.01.2018
Code: mrl_aes2135_2136_fr

Operating instructions and Declaration of conformity (en) 236 kB, 16.11.2017
Code: mrl_aes2135_2136_en

Wiring example (99) 17 kB, 20.08.2008
Code: kaes2l02

Wiring example (99) 18 kB, 20.08.2008
Code: kaes2l16

ISD tables (Intergral System Diagnostics) (en) 35 kB, 29.07.2008
Code: i_ae3p02

ISD tables (Intergral System Diagnostics) (de) 53 kB, 29.07.2008
Code: i_ae3p01

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

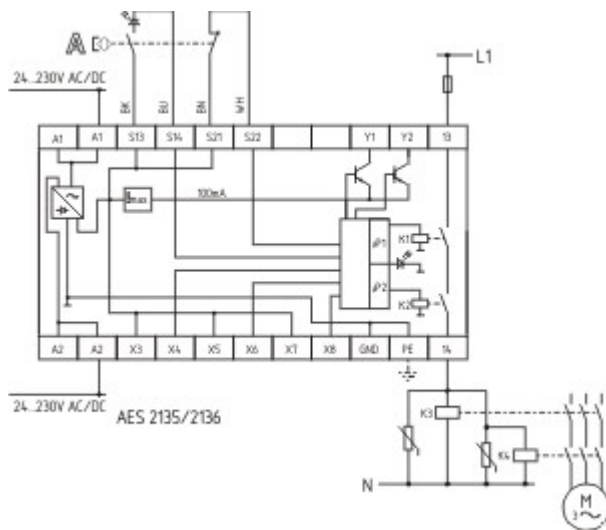Code: z_2aep01

BG-test certificate (en) 268 kB, 15.04.2016

Code: z_2aep02

EAC certification (ru) 1 MB, 15.03.2018

Code: q_aesp01
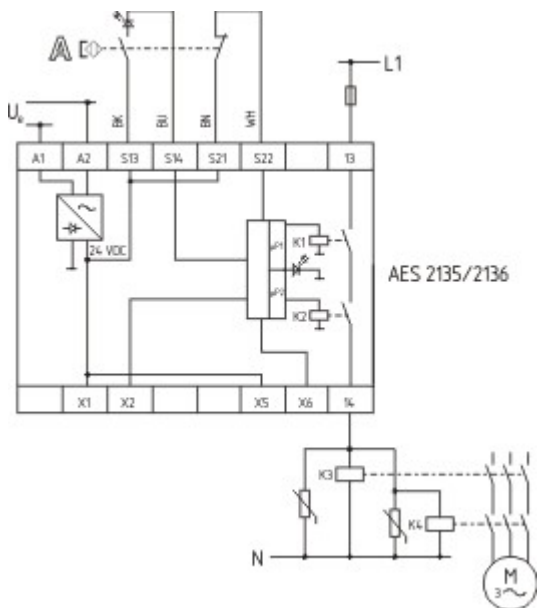

Images

Wiring example

Wiring example