

## Datasheet - AES 2536



Guard door monitors and Safety control modules for Emergency Stop applications / Micro Processor based safety controllers (Series AES) / AES 253x



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

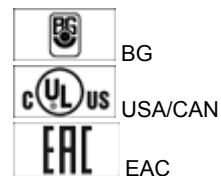
(Minor differences between the printed image and the original product may exist!)

### Ordering details

Product type description	AES 2536
Article number	101181681
EAN Code	4030661323107
eCl@ss	27-37-19-01

### Approval


Approval



### Classification

Standards	EN ISO 13849-1, IEC 61508
PL	up d
Control category	up 3
PFH value	1.0 x 10 <sup>-7</sup> /h
SIL	up 2
Mission time	20 Years

### Global Properties

Permanent light	AES 253x
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) 	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, 0,2 µm gold flashed
Weight	300
Start input (Y/N)	No
Feedback circuit (Y/N)	Yes
Start-up test (Y/N)	Yes
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	≤ 30

## 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)
resistance 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 <sub>imp</sub>	4.8 kV
- Overvoltage category	III To VDE 0110
- Degree of pollution	2 To VDE 0110

Electromagnetic compatibility (EMC)

EMC rating	10 V/m
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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 <sub>i</sub>	250 V
Rated operating voltage U <sub>e</sub>	24 ... 230 VAC/DC
Thermal test current I <sub>the</sub>	6 A
Operating current I <sub>e</sub>	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	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 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	min. U <sub>e</sub> -4V / Y1, Y2: max. 100 mA
Fuse rating	
- Protection of the safety contacts	6 A gG D-fuse
- Fuse rating for the signaling/diagnostic outputs	short-circuit proof, p-type
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)	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

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

## Integral system diagnosis \$missingShortName\$

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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
- Failure of or functional fault on the safety relay

## Miscellaneous data

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Applications



Safety sensor



Guard system

## Dimensions

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Dimensions

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

## notice

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

## notice - Wiring example

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

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

Monitoring a guard door using zwei position switches with safety function.

The NC contact A must have positive break when the guard door is opened.

Category 3 to EN 954-1 can also be achieved using only one safety switch with one NO and one NC contact. Exclusion of faults due to breakage or loosening of the actuating element or the actuating head as well as releasing, dismantling.

A Start-Reset-Taster (S) can optionally be connected to the feedback circuit.

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.

The feedback circuit monitors the positions of the positive-guided NC contacts on the connectors K3 and K4.

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

## Documents

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**Operating instructions and Declaration of conformity** (pl) 270 kB, 04.01.2018

Code: mrl\_aes\_2335\_2336\_pl

**Operating instructions and Declaration of conformity** (es) 253 kB, 21.12.2017

Code: mrl\_aes\_2335\_2336\_es

**Operating instructions and Declaration of conformity** (fr) 259 kB, 04.01.2018

Code: mrl\_aes\_2335\_2336\_fr

**Operating instructions and Declaration of conformity** (en) 253 kB, 16.11.2017

Code: mrl\_aes\_2335\_2336\_en

**Operating instructions and Declaration of conformity** (de) 217 kB, 16.11.2017

Code: mrl\_aes\_2335\_2336\_de

**Operating instructions and Declaration of conformity** (jp) 344 kB, 28.02.2012

Code: mrl\_aes\_2335\_2336\_jp

**Operating instructions and Declaration of conformity** (nl) 254 kB, 04.01.2018

Code: mrl\_aes\_2335\_2336\_nl

**Operating instructions and Declaration of conformity** (da) 256 kB, 04.01.2018

Code: mrl\_aes\_2335\_2336\_da

**Operating instructions and Declaration of conformity** (it) 255 kB, 04.01.2018

Code: mrl\_aes\_2335\_2336\_it

**Operating instructions and Declaration of conformity** (pt) 258 kB, 04.01.2018

Code: mrl\_aes\_2335\_2336\_pt

**Wiring example** (99) 22 kB, 22.08.2008

Code: kaes2l13

**ISD tables (Integral System Diagnostics)** (en) 35 kB, 29.07.2008

Code: i\_ae3p02

**ISD tables (Integral 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

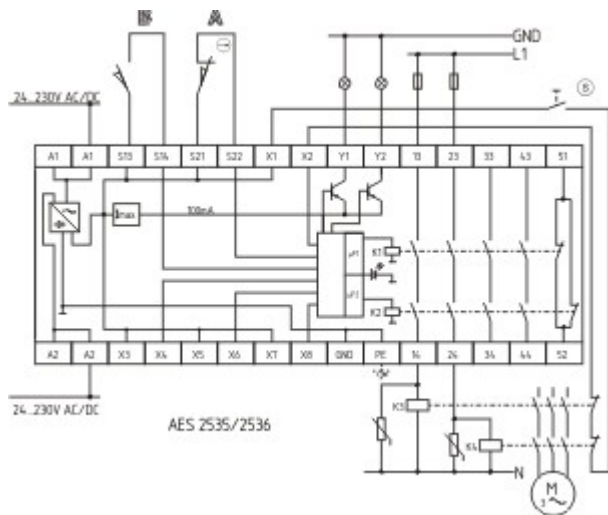
**BG-test certificate** (de) 266 kB, 02.03.2016

Code: z\_2aep01

Code: z\_2aep02

Code: q\_aes01

## Images



## Wiring example

K.A. Schmersal GmbH & Co. KG, Möddinghofe 30, D-42279 Wuppertal  
The data and values have been checked thoroughly. Technical modifications and errors excepted.  
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