

**10. Safety monitoring modules**  
**10.2 Guard door monitors**  
**10.2.16 AES 1185 range to monitor three guard doors**



**Features**

- Control Category 3 to EN 954-1
- 1 enabling path
- Enable delay time can be modified
- Monitoring mechanical position switches, safety switches, solenoid interlocks or magnetic safety sensors
- To monitor 3 guard doors for Control Category 3 to EN 954-1
- NO-NC contact combination can be connected
- Can be used as Emergency Stop relay for Stop Category 0 to EN 60204-1, see chapter 10.3
- Feedback circuit
- Cross-wire monitoring
- ISD Integral System Diagnostics
- Operating voltage 24 VAC or 24 VDC
- Additional contact by means of output expander, see chapter 10.7
- Connection of input expander possible, see chapter 10.6

**Dimensions** 22.5 x 75 x 110 mm

**ISD** **The following faults are recognised by the safety monitoring module and indicated by means of 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
- Faults on the input circuits or on the relay control of the guard door monitor

**Note**

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

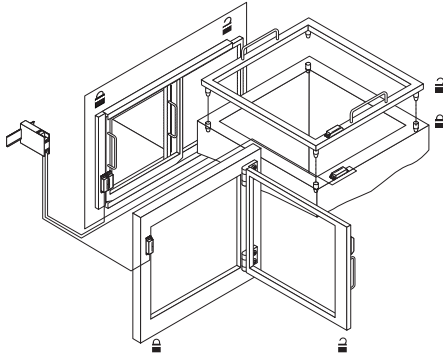
Part number	Operating voltage	24 VDC	24 VAC
	Without start-up test	<b>AES 1185</b>	<b>AES 1185.3</b>

**Approvals**

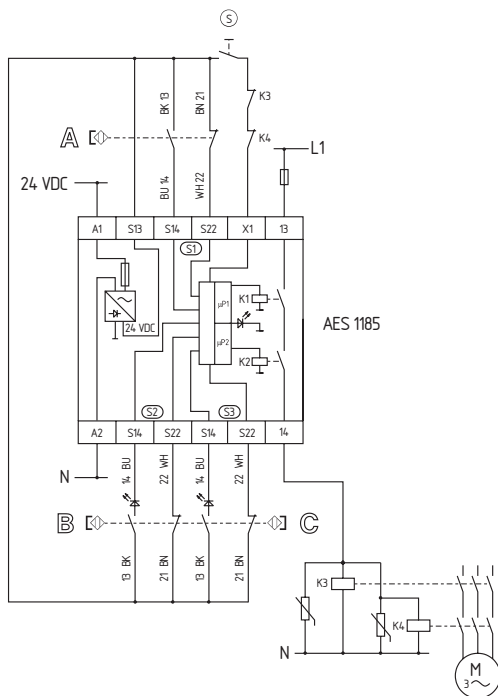


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**Applications**



**Wiring diagram**



**Notes**

- AES to secure three guard doors for Control Category 3.
- Monitoring one sliding, one hinged and one removable guard door, each with a magnetic safety sensor (A to C), see chapter 5.
- If only one external relay or contactor is used to switch the load, the system can be classified in Control Category 3

to EN 954-1 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.

- The feedback circuit monitors the positions of the contactors K3 and K4. If no feedback circuit is connected, a jumper connection must be mounted between X1 and S13.
- The wiring diagram is shown with guard door closed and in de-energised condition.

**Circuit option**

- Start push button  $\text{\textcircled{S}}$   
 A start push button (NO) can optionally be connected in the feedback circuit. With the guard door closed, the enabling paths are then not closed until the start push button has been operated. If neither start push button nor feedback circuit is used, a jumper connection must be mounted between X1 and S13.
- Expansion of the 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.

## 10. Safety monitoring modules

### 10.2 Guard door monitors

#### 10.2.22 Technical data

	AES 1185	AES 3075
Standards:	IEC/EN 60204-1; EN 1088; EN 954-1; DIN VDE 0660-209; DIN VDE 0801/-A1; BG-GS-ET-14; BG-GS-ET-20	
Control Category:	3	
Start-up test:	–	
Enclosure material:	Glass-fibre reinforced thermoplastic	
Mounting:	Snaps onto standard DIN rail to DIN EN 50022	
Screw terminals:	Max. 2.5 mm <sup>2</sup> (incl. conductor ferrules)	Max. 4 mm <sup>2</sup> (incl. conductor ferrules)
Protection class:	Terminals IP 20; Enclosure IP 40 to IEC/EN 60529	
Operating voltage U <sub>e</sub> :	AES 1185: 24 VDC ± 15 % AES 1185.3: 24 VAC	24 VDC ± 15 %
Operating current I <sub>e</sub> :	0.2 A	0.3 A without external contactors and additional outputs
Inputs:	S1-S3 (S14/S22) X1:	S1-S4 (S14/S22) X2, X4:
Input resistance:	Approx. 5 kΩ to ground	Approx. 2 kΩ to ground
Input signal "1":	12 ... 30 VDC	10 ... 30 VDC
Input signal "0":	0 ... 2 VDC	
Max. cable length:	1000 m of 0.75 mm <sup>2</sup> conductor	
Outputs:	1 enabling path	Transistor enabling outputs Y14, Y24: each 700 mA, short-circuit proof
Utilisation category:	AC-15; DC-13	
Rated operating current / voltage I <sub>e</sub> / U <sub>e</sub> :	2 A/250 VAC; 2 A/24 VDC	–
Switching voltage:	Max. 250 VAC	–
Load current:	Max. 4 A (cos φ = 1)	–
Switching capacity:	Max. 1000 VA	–
Max. fuse rating:	4 A (quick blow)	
Additional transistor outputs:	–	Y1-Y5: U <sub>e</sub> – 4 V; Y1-Y5 = Max. 250 mA
Indications:	ISD	
EMC rating:	Conforming to EMC Directive	
Max. switching frequency:	5 Hz	3 Hz
Overvoltage category:	II to DIN VDE 0110	
Degree of pollution:	3 to DIN VDE 0110	
Resistance to vibration:	10 ... 55 Hz / amplitude 0.35 mm ± 15 %	
Resistance to shock:	30 g / 11 ms	
Ambient temperature:	0 °C ... + 55 °C	
Storage and transport temp.:	– 25 °C ... + 70 °C	

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

