

10. Safety monitoring modules
10.6. Input expander
10.6.1 AES-E 3035 range to monitor four guard devices



Features

- Control Category 3 to EN 954-1
- Type of contact on inputs can be freely selected for each guard device: 2 NC or 1 NO + 1 NC contact
- Cross-wire monitoring
- Available for various operating voltages
- Microprocessor control
- Start function
- 5 short-circuit proof additional transistor outputs for visual display of guard door positions
- Integral System Diagnostics (ISD)
- Enable delay time can be modified

Dimensions 99.7 x 75 x 110mm

ISD

The following faults are recognised by the safety monitoring module and indicated by the ISD

- Failure of the door contacts open or close
- Cross-wire or short-circuit monitoring of the connections
- Interruption of the switch connections
- Failure of safety outputs to switch over
- Faults on input circuits of the safety monitoring module
- Short-circuit on or overloading of the additional transistor outputs

Note

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

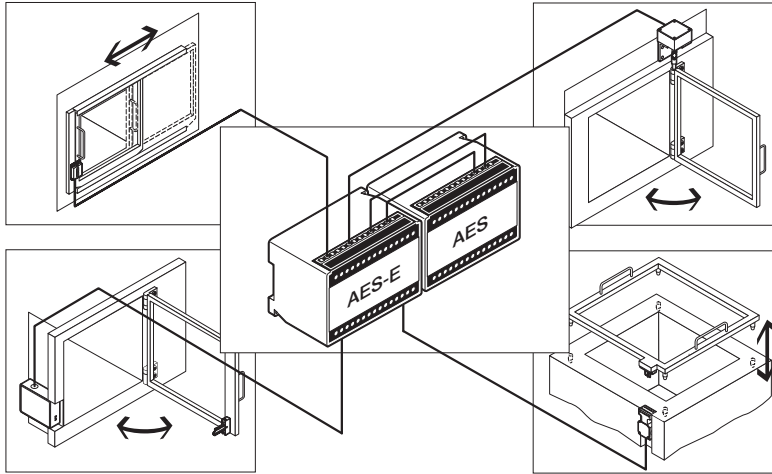
Part number	Operating voltage	24 VDC	110 VAC	230 VAC
	Without start-up test	AES-E 3035	AES-E 3035.1	AES-E 3035.2

Function table	Additional transistor output Y	Function of output Y
	Y1	Guard device 1 open
	Y2	Guard device 2 open
	Y3	Guard device 3 open
	Y4	Guard device 4 open
	Y5	System O.K.

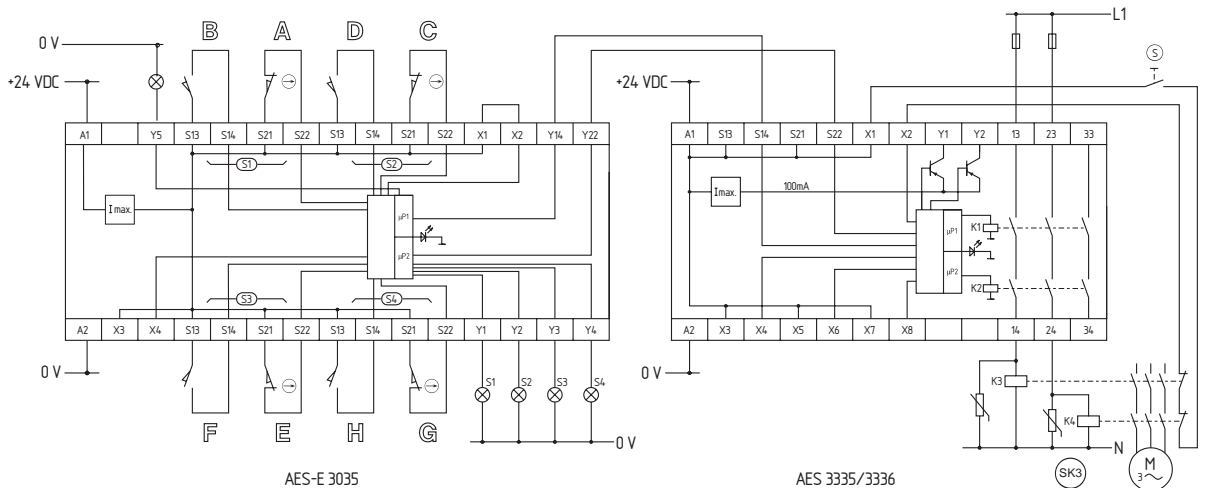
Approvals 
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Applications



Wiring diagram



Notes

- AES-E 3035 to secure four independently operating guard devices for Control Category 3 to EN 954-1
- Monitoring four guard devices with various safety switches (A to H) in combination with an AES range guard door monitor, see chapter 10.2.
- The NC contacts of A, C, E and G must have positive break when the guard device is opened. ⊖
- Control Category 3 to EN 954-1 can also be achieved with only one safety switch per guard device (A, C, E and G). Exclusion of faults due to "Breakage or release of the actuating element or actuator as well as release, dismantling or sliding of the position switch" is to be substantiated and documented.
- Any guard door monitor of Control Category 3 to EN 954-1 can be used for evaluation of the AES-E 3035.
- The feedback circuit of the AES range guard door monitor connected checks the positions of the positive-guided NC contacts on the contactors K3 and K4.
- The wiring diagram shows the de-energised condition.

Circuit option

- Start push button A start push button can be connected to the terminals X1 and X2 on the AES-E 3035. If no push button is connected, a jumper connection must be mounted between these terminals.
- Extension 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.

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10.6.2 Technical data

AES-E 3035

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 plastic
Mounting:	Snaps onto standard DIN rail to EN 50022
Screw terminals:	Max. 4 mm ² (incl. conductor ferrules)
Protection class:	Terminals IP 20; Enclosure IP 40 to IEC/EN 60529
Operating voltage U _e :	24 VDC ± 15 %; 115 VAC, 230 VAC
Operating current I _e :	300 mA without additional outputs
Inputs:	X1, X2: S1-S4 (S14/S22):
Input resistance:	Approx. 2 kΩ to ground
Input signal "1":	10 ... 30 VDC
Input signal "0":	0 ... 2 VDC
Max. cable length:	1,000 m of 0.75 mm ² conductor
Transistor enabling outputs:	Y14, Y22: 700 mA (DC) each, short-circuit proof 100 mA (AC) each, short-circuit proof
Additional transistor outputs:	Y1 to Y5: Min. U _e - 4 V/Max. 50 mA, short-circuit proof; The maximum output current of 250 mA is divided between the 5 outputs (Y1 to Y5).
Indications:	ISD
EMC rating:	Conforming to EMC Directive
Max. switching frequency:	5 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 % at the regulation point
Resistance to shock:	30 g/11 ms
Ambient temperature:	0 °C ... + 55 °C
Storage and transport temperature:	– 25 °C ... + 70 °C

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

