

Standstill monitoring

AZR 31 S1



- Sensor-free detection of standstill by monitoring e.m.f.
- Direct connection to three-phase motors
- Suitable for connection to a frequency converter with the following interface data: rotary hysteresis 0 ... 1000 Hz; switching frequency of the end level up to 16 kHz; engine voltage range 0 ... 400 V
- 3 enabling paths, Stop 0
- 1 indication contact (NC)
- No reference value setting required
- Wire-breakage monitoring of measuring inputs
- Self-test with fault memory
- Cyclic self-testing
- 5 LEDs to show operating conditions
- Control Category 4 to EN 954-1
- Plug-in terminals

Technical data

Standards:	IEC/EN 60204-1, EN 954-1, BG-GS-ET-20
Control category:	4
Enclosure:	glass-fibre reinforced thermoplastic
Connection:	plug-in, screw terminals
Cable section:	max. 2.5 mm ² solid or multi-strand lead (incl. conductor ferrules)
U _e :	24 VDC – 15 % / + 20 % 24 VAC ± 10 % 110 VAC ± 10 % 230 VAC ± 10 %
Frequency range:	50/60 Hz (on AC operational voltage)
I _e :	0.13 A (DC version)
Protection class:	terminals IP 20 enclosure IP 40 to EN 60529
Power consumption:	max. 3 W
Max. fuse rating:	Glass fuse F1, tripping current 315 mA (U _e 24 VAC/DC) tripping current 80 mA (U _e 110 VAC) tripping current 40 mA (U _e 230 VAC)
Monitored inputs	3-phase motor L1, L2, L3: 400 VAC
Feedback circuit:	yes
Utilisation category:	AC-15, DC-13
Enabling contacts:	3 enabling paths
Switching capacity:	enabling paths: 6 A/230 VAC, 6 A/24 VDC
Signalling output:	1 NC contact
Switching capacity:	Indicating contact: 2 A/24 VDC
Test cycle time:	8 seconds (2 seconds optionally)
Switch-off time:	< 15 ms (< 130 ms on supply failure)
Overvoltage category:	III to DIN VDE 0110
Degree of pollution:	2 to DIN VDE 0110
Ambient temperature:	0 °C ... + 55 °C
Storage and transport temperature:	– 25 °C ... + 70 °C
Function display:	5 LEDs
Weight:	400 g
Dimensions:	45 x 73.2 x 121 mm

Approvals



Ordering details

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No.	Replace	Description
①	24VDC	24 VDC
	24VAC	24 VAC
	110VAC	110 VAC
	230VAC	230 VAC

Function table

Test cycle time: time between the standstill detection and enabling of the enabling paths

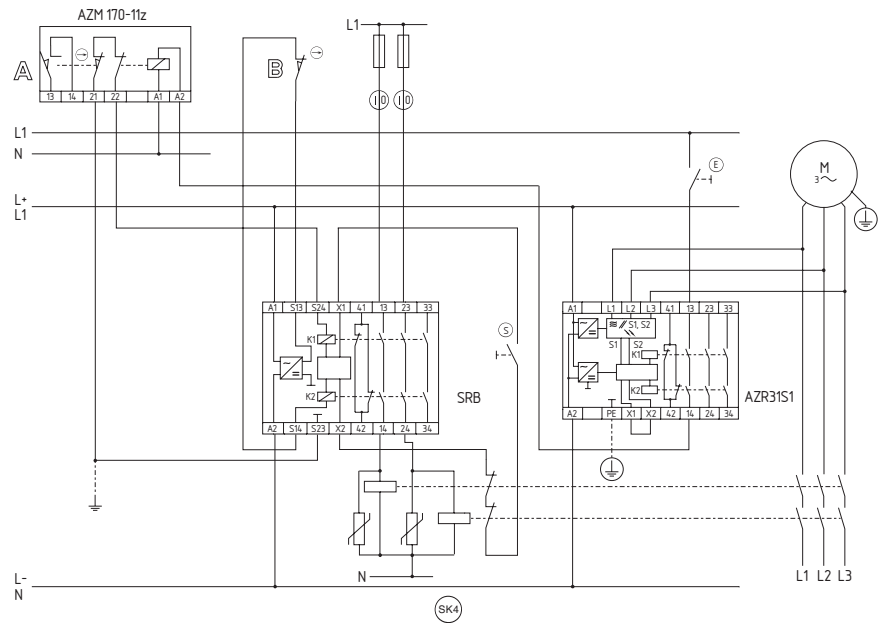
Pole pair/ Number of motors	Zero-axis crossing, per revolution	Standstill detection, device with 2 s test cycle time	Standstill detection, device with 8 s test cycle time
		[h/min]	[h/min]
1	2	15.00	3.75
2	4	7.50	1.88
4	8	3.75	0.94
6	12	2.50	0.63
8	16	1.88	0.47

Standstill monitoring

Note

- The sensor-free standstill monitor checks the e.m.f. of the three phase motor.
- Monitors a guard door to Control Category 4 to EN 954-1
- The SRB range guard door monitor checks the position of the guard door. The function of the guard door monitor is described in chapter 5.
- Monitoring the guard door using a solenoid interlock and a safety switch with separate actuator (A and B).
- Release takes place by means of the NO contact only when the run-down movement has been terminated (E).
- After release has taken place, the guard door must be opened.

Wiring diagram



LED

Function indication:

The integrated LEDs indicate the following operating states.

- Position relay K1/ K2, green (out)
- Input signal channel A, red (A)
- Input signal channel B, red (B)
- Error channel A and B, red (err)
- Supply voltage U_B , green (on)

Note

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

This fail-safe standstill monitor has the particular advantage that no adjustment for a required-value is needed during commissioning.