

## Datasheet - AZR31S1/230VAC

Fail-safe standstill monitors / AZR31S1



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

- Fail-safe standstill monitors
- 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
- This fail-safe standstill monitor has the particular advantage that no adjustment for a required-value is needed during commissioning.
- 3 safety contacts, STOP 0
- 1 Signalling output

### Ordering details

Product type description	AZR31S1/230VAC
Article number	101049665
EAN Code	4250116202539
eCl@ss	27-37-19-01

### Approval

Approval



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### Classification

Standards	EN ISO 13849-1, IEC 61508, EN 60947-5-1
PL	up e (STOP 0)
Control category	up 4 (STOP 0)
DC	99% (STOP 0)
CCF	> 65 points
PFH value	$\leq 2,0 \cdot 10^{-8}/h$
SIL	up 3 (STOP 0)
Mission time	20 Years
- notice	The PFH value is applicable for the combinations listed in the table for contact load (K) (current through enabling paths) and switching cycle number (n-op/y). In case of 365 operating days per year and a 24-hour operation, this


results in the specified switching cycle times (t-cycle) for the relay contacts.

Diverging applications on request.

K	n-ops	t-cycle
20 %	525.600	1,0 min
40 %	210.240	2,5 min
60 %	75.067	7,0 min
80 %	30.918	17,0 min
100 %	12.223	43,0 min

## Global Properties

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Permanent light	AZR31S1
Standards	IEC/EN 60204-1, EN 60947-5-1, EN ISO 13849-1, IEC 61508
Compliance with the Directives (Y/N) 	Yes
Climatic stress	EN 60068-2-78
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	AgSn0, self-cleaning, positive action
Weight	480
Start conditions	Automatic
Start input (Y/N)	No
Feedback circuit (Y/N)	Yes
Start-up test (Y/N)	No
Automatic reset function (Y/N)	Yes
Reset with edge detection (Y/N)	No
Pull-in delay	
- ON delay with automatic start	approx. 7 seconds after detection of the standstill
Drop-out delay	
- Drop-out delay in case of power failure	
- Drop-out delay in case of emergency stop	< 15

## Mechanical data

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Connection type	Screw connection
Cable section	
- Min. Cable section	0,25
- 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	10.000.000 operations
Electrical lifetime	Derating curve available on request
restistance to shock	30 g / 11 ms
Resistance to vibration To EN 60068-2-6	10...55 HZ, Amplitude 0,35 mm

## Ambient conditions

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Ambient temperature	
- Min. environmental temperature	-25
- Max. environmental temperature	+45
Storage and transport temperature	
- Min. Storage and transport temperature	-40
- Max. Storage and transport temperature	+85
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 kV
- Overvoltage category	
- Degree of pollution	2 To IEC/EN 60664-1

## Electromagnetic compatibility (EMC)

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EMC rating	conforming to EMC Directive
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## Electrical data

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Rated DC voltage for controls	
- Max. rated DC voltage for controls	-
- Max. rated DC voltage for controls	-
Rated AC voltage for controls, 50 Hz	
- Min. rated AC voltage for controls, 50 Hz	195.5
- Max. rated AC voltage for controls, 50 Hz	253
Rated AC voltage for controls, 60 Hz	
- Min. rated AC voltage for controls, 60 Hz	195.5
- Max. rated AC voltage for controls, 60 Hz	253
Contact resistance	max. 100 m $\Omega$
Power consumption	max. 4VA
Type of actuation	AC
Rated operating voltage $U_e$	230 VAC -15% / +10%
Electronic protection (Y/N)	No
Fuse rating for the operating voltage	0,032 A slow blow

## Inputs

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<b>Monitored inputs</b>	
- Short-circuit recognition (Y/N)	Yes
- Wire breakage detection (Y/N)	Yes
- Earth connection detection (Y/N)	Yes
Number of shutters	0
Number of openers	0
Cable length	< 10
Conduction resistance	max. 40 $\Omega$

## Outputs

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Stop category	0
Number of safety contacts	3 (13-14, 23-24, 33- 34)
Number of auxiliary contacts	1 (41-42)
Number of signalling outputs	
Switching capacity	
- Switching capacity of the safety contacts	max. 250 V, 6 A ohmic (inductive in case of appropriate protective wiring)
- Switching capacity of the auxiliary contacts	41-42: 24 VDC / 2 A
Fuse rating	
- Protection of the safety contacts	6.3 A slow blow
- Fuse rating for the auxiliary contacts	2 A slow blow
Utilisation category To EN 60947-5-1	AC-15: 230 V / 6 A

DC-13: 24 V / 6 A

Number of undelayed semi-conductor outputs with signaling function	0
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.	3
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	5
LED switching conditions display	
- The integrated LEDs indicate the following operating states.	
- OUT, green: Authorized operation	
- ON, green: Supply voltage $U_B$	
- B, red: Input signal channel B	
- A, red: Input signal channel A	
- ERR, red: Error channel A + B	

## Miscellaneous data

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Applications



safe standstill monitoring

## Dimensions

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Dimensions	
- Width	45 mm
- Height	73.2 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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The sensor-free standstill monitor checks the e.m.f. of the three phase motor.

To secure a guard door

The SRB range guard door monitor checks the position of the guard door.

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 (E) only when the run-down movement has been terminated.

After release has taken place, the guard door must be opened.

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

## Documents

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**Operating instructions and Declaration of conformity** (fr) 312 kB, 27.08.2018

Code: mrl\_azr31\_s1\_fr

**Operating instructions and Declaration of conformity** (cn) 450 kB, 23.11.2018

Code: mrl\_azr31\_s1\_cn

**Operating instructions and Declaration of conformity** (de) 274 kB, 18.07.2018

Code: mrl\_azr31\_s1\_de

**Operating instructions and Declaration of conformity** (es) 310 kB, 27.08.2018

Code: mrl\_azr31\_s1\_es

**Operating instructions and Declaration of conformity** (en) 291 kB, 18.07.2018

Code: mrl\_azr31\_s1\_en

**Operating instructions and Declaration of conformity** (it) 310 kB, 27.08.2018

Code: mrl\_azr31\_s1\_it

**Operating instructions and Declaration of conformity** (jp) 382 kB, 11.02.2014

Code: mrl\_azr31\_s1\_jp

**Operating instructions and Declaration of conformity** (nl) 307 kB, 27.08.2018

Code: mrl\_azr31\_s1\_nl

**Operating instructions and Declaration of conformity** (pt) 314 kB, 27.08.2018

Code: mrl\_azr31\_s1\_pt

**Operating instructions and Declaration of conformity** (pl) 324 kB, 27.08.2018

Code: mrl\_azr31\_s1\_pl

**Operating instructions and Declaration of conformity** (da) 311 kB, 27.08.2018

Code: mrl\_azr31\_s1\_da

**Wiring example** (99) 24 kB, 20.08.2008

Code: kazr3l09

**BG-test certificate** (de) 1 MB, 25.06.2018

Code: z\_31sp01

**BG-test certificate** (en) 1 MB, 09.07.2018

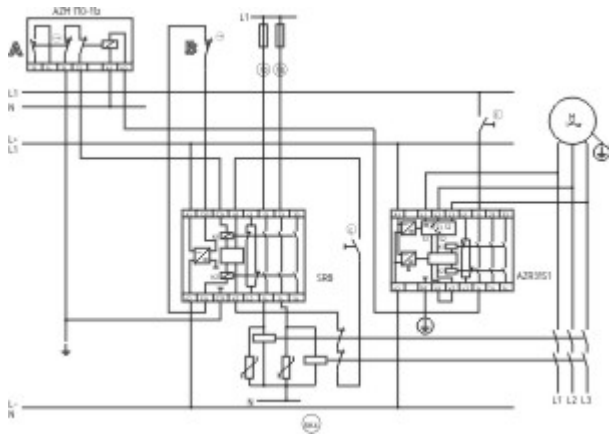
Code: z\_31sp02

**EAC certification** (ru) 1 MB, 15.03.2018

Code: q\_aesp01

## Images

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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.  
 Generiert am 13.02.2019 - 13:00:54h Kasbase 3.3.0.F.64I