



Three-phase voltage monitoring S3UM



The S3UM voltage monitoring relay is used to monitor overvoltage and undervoltage as well as the phase sequence in 3-phase supplies.

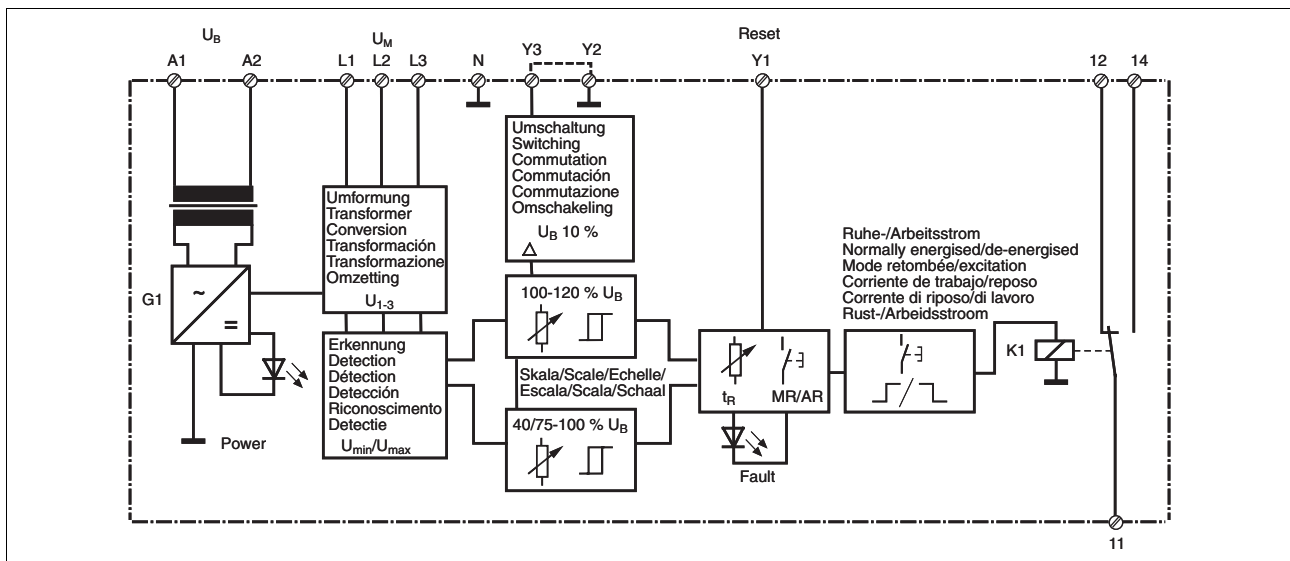
Approvals

S3UM	
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Approvals for versions up to 240 V AC

Internal wiring diagram

MR: Manual reset, AR: Automatic reset



Unit features

- ▶ Monitors supplies with and without neutral conductors
- ▶ Trip device for undervoltage and overvoltage
- ▶ Evaluates phase sequence
- ▶ Detects asymmetry
- ▶ Detects phase failure
- ▶ Reaction time can be set to up to 10 s
- ▶ Operates to normally energised or normally de-energised mode
- ▶ Overvoltage value can be set from 100 % to 120 % of the rated mains voltage
- ▶ Fault status can be latching or non-latching
- ▶ LED as supply voltage indicator
- ▶ LED for all faults: phase sequence error, under/overvoltage
- ▶ Phase failure is detected even when there is voltage feedback from connected loads
- ▶ Range switching 10 % for L1-L3
- ▶ Separate supply voltage A1-A2

Description

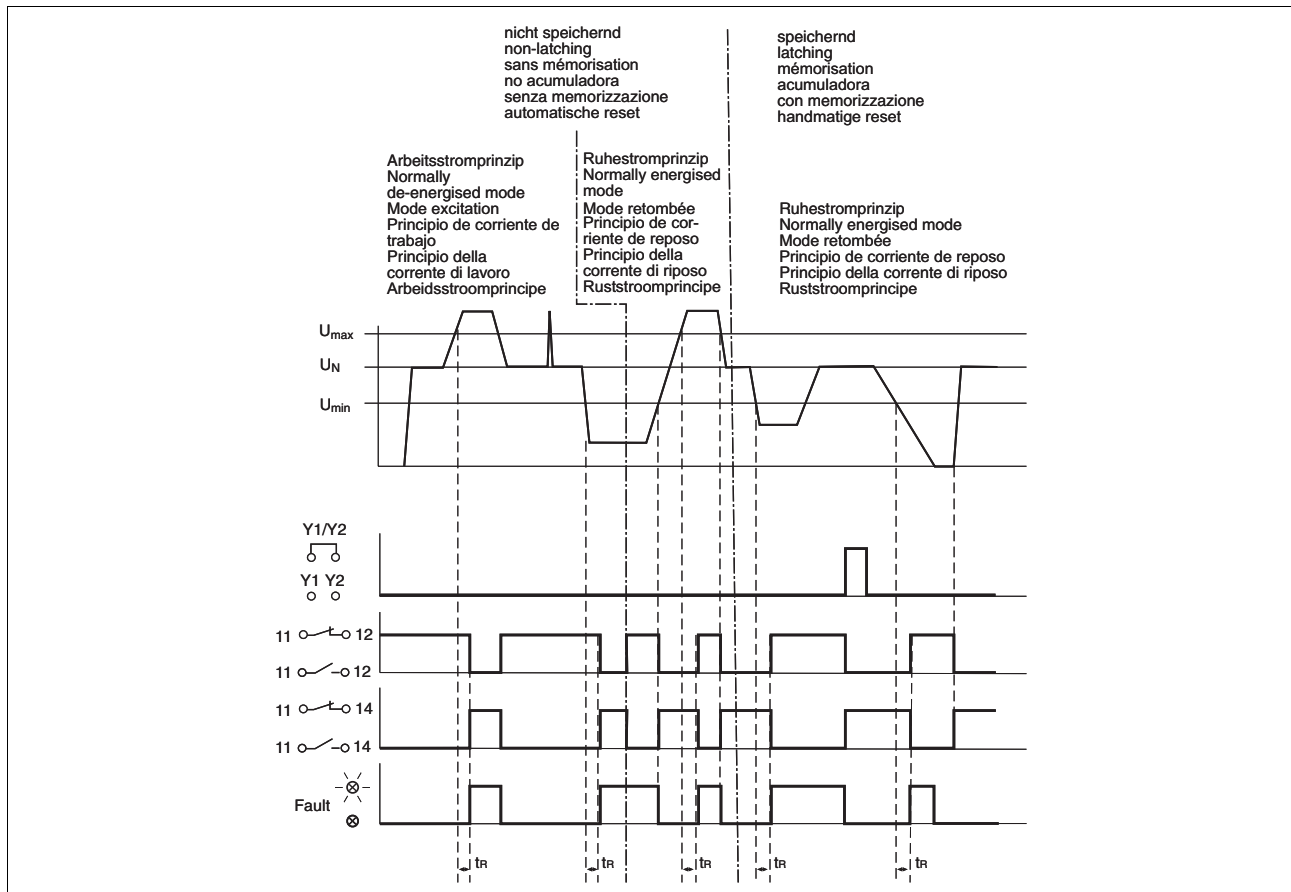
The voltage monitoring relay is enclosed in an S-95, slimline housing. Various versions are available for AC and DC operation.

Features

- ▶ Relay outputs: 1 auxiliary contact (C/O)
- ▶ 2 measuring circuits
- ▶ Adjustable under voltage value from 75 % - 100 % of nominal supply voltage or from 40 %-100 % (unit type)

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Timing diagram



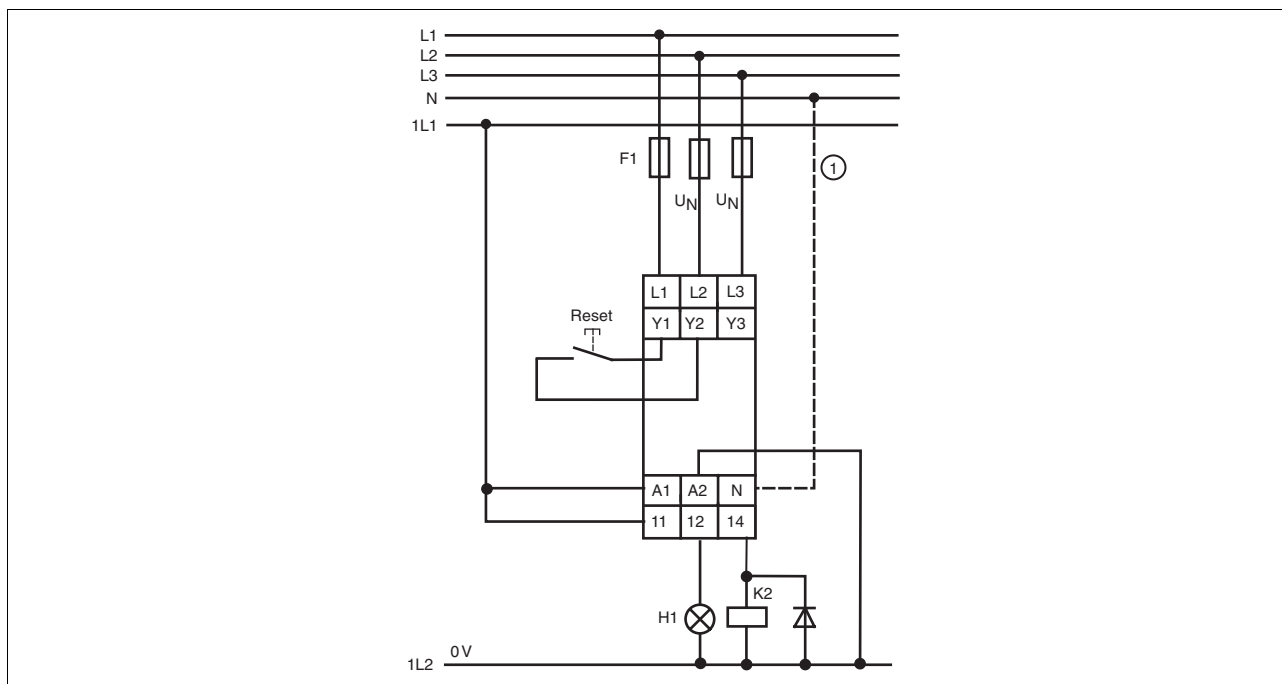
Key

- ▶ U_{max} Overvoltage response value
- ▶ U_{min} Undervoltage response value
- ▶ U_N Rated mains voltage
- ▶ t_R Reaction time
- ▶ Y1/Y2 linked: Automatic reset

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Application example

Safety device protects against over-voltage and undervoltage, operating in normally energised mode



- 1: Not required on three phase supplies

Technical details	S3UM
Electrical data	
Supply voltage U_B	AC: 120, 230 V DC: 24 V
Voltage tolerance U_B	85 ... 110 %
Frequency range U_B	50 ... 60 Hz
Residual ripple DC	160 %
Power consumption U_B	AC: 2 VA DC: 1.5 W
Continuous duty	100 %
Switching capability to EN 60947-4-1, 10/91	AC1: 240 V/0.1 ... 5 A/1200 VA DC1: 24 V/0.1 ... 5 A/120 W
EN 60947-5-1, 10/91	AC15: 230 V/2 A; DC13: 24 V/1.5 A
Output contacts	1 auxiliary contact (C/O)
Contact material	AgCdO, 3 μ m gold plating for low load range 1-50 V/1-100 mA
Contact fuse protection in accordance with EN 60947-5-1, 10/91	Max. 6 A quick or max. 4 A slow
Measuring circuit	
Measuring voltage U_M (3AC)	42, 100/110, 230, 400/440, 415/460 , 440/480, 500/550 V, selectable
Voltage tolerance U_M	0 ... 125 %

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Measuring circuit	
Measuring range switching (10 %) via terminals Y2, Y3	Open: High value Closed: Low value (ex-works setting)
Frequency range	40 ... 400 Hz
Setting range U_{\min}/U_{\max}	U_{\min} : 75 – 100 %; U_{\max} : 100 – 120 % Order no. 837251, 837271: U_{\min} : 40 – 100 %, U_{\max} : 100 – 120 %
Phase sequence evaluation	75 – 120 % U_M
Hysteresis	ca. 2 %
Delay-on energisation	0,5 ... 10 s adjustable
Environmental data	
EMC	EN 50081-1, 01/92; EN 50082-2, 03/95
Vibration to IEC 68-2-6	Frequency : 10 ... 57 Hz Amplitude : 0,075 mm
Climate Suitability	IEC 68-2-3
Airgap Creepage	DIN VDE 0110-1 (4/97), 4 kV/3
Ambient temperature	-15 ... +55 °C
Storage temperature	-40 ... +85 °C
Mechanical data	
Max. external conductor cross-section	1 x 4 mm ² or 2 x 1.5 mm ² Single-core or multi-core with crimp connector
Torque setting for connection terminals	0,6 Nm (screws)
Protection	Mounting: IP54 Housing: IP40 Terminals: IP20
Mounting position	Any
Housing material	Thermoplastic Noryl SE 100
Dimensions (H x W x D)	87 x 22.5 x 122 mm
Weight	175 g

Order reference			
Type	U_B	U_M	Order no.
S3UM	24 V DC	42 V AC	837 240
S3UM	24 V DC	100/110 V AC	837 250
S3UM	24 V DC	100/110 V AC	837 251
S3UM	24 V DC	230 V AC	837 260
S3UM	24 V DC	400/440 V AC	837 270
S3UM	24 V DC	400/440 V AC	837 271
S3UM	24 V DC	415/460 V AC	837 280
S3UM	24 V DC	440/480 V AC	837 285
S3UM	24 V DC	500/550 V AC	837 290
S3UM	120 V AC	440/480 V AC	837 395
S3UM	230 V AC	42 V AC	837 340
S3UM	230 V AC	100/110 V AC	837 350
S3UM	230 V AC	230 V AC	837 360
S3UM	230 V AC	400/440 V AC	837 370
S3UM	230 V AC	415/460 V AC	837 380
S3UM	230 V AC	500/550 V AC	837 390

U_B : Supply voltage

U_M : Measuring voltage

Additional versions on request