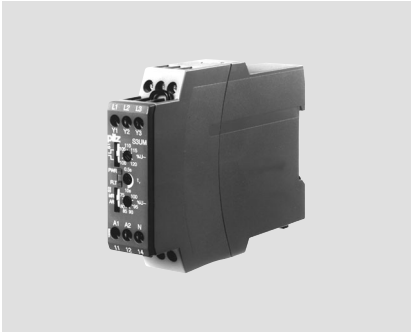
Three-phase voltage monitoring
S3UM



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

Approvals

	S3UM
c UL us LISTED	◆
CCC	◆

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

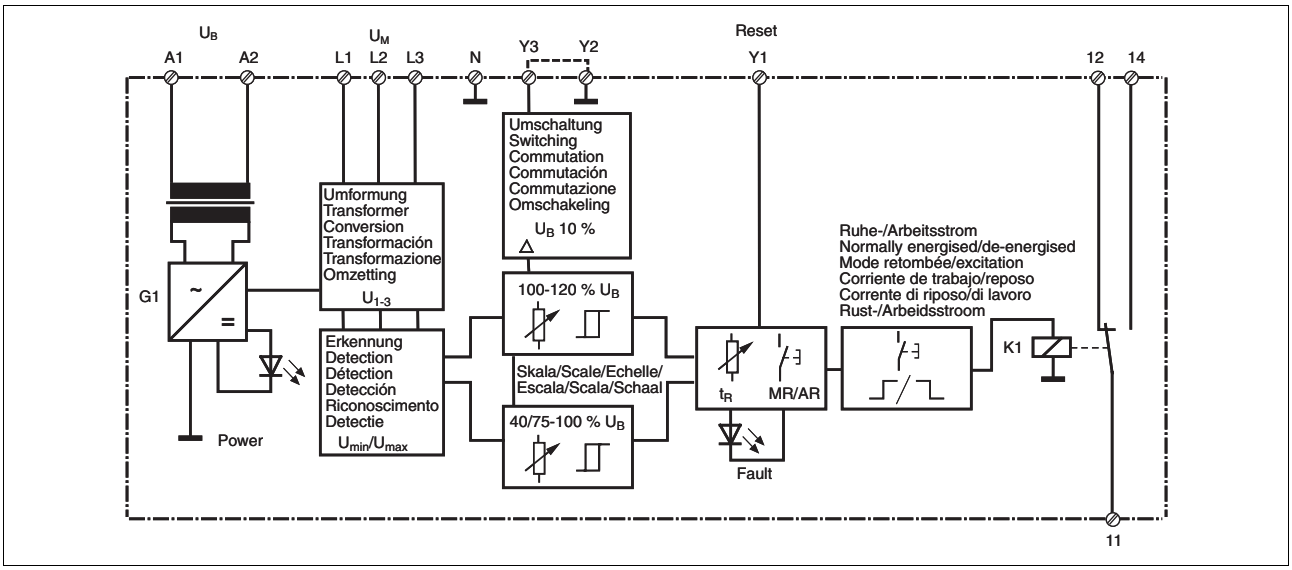
Description

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
- Undervoltage value can be set from 75 % to 100 % of the rated mains voltage or from 40 % to 100 % (unit type)

Approvals for unit types up to 240 VAC

Internal wiring diagram

MR: Manual reset, AR: Automatic reset



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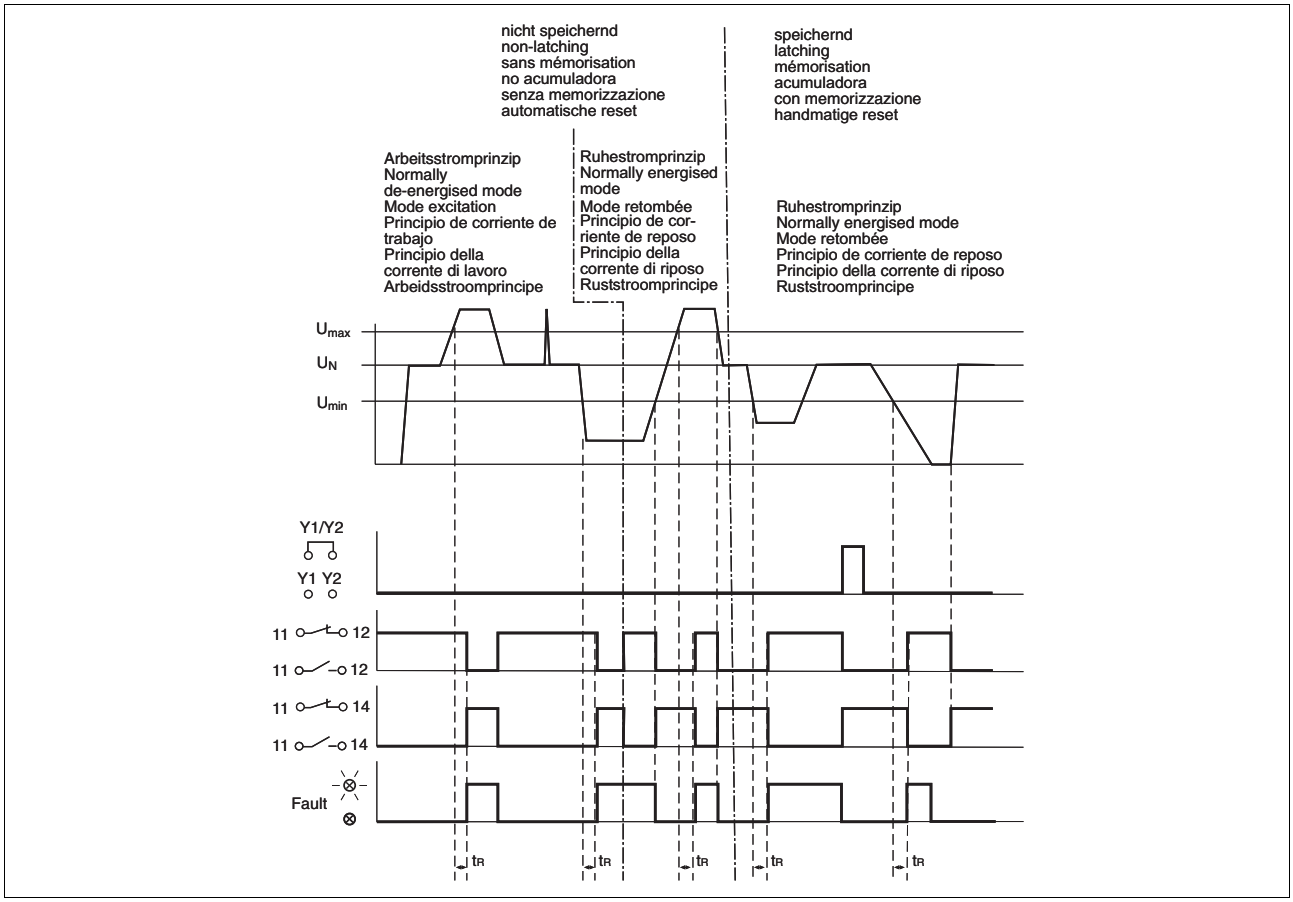
Timing diagram



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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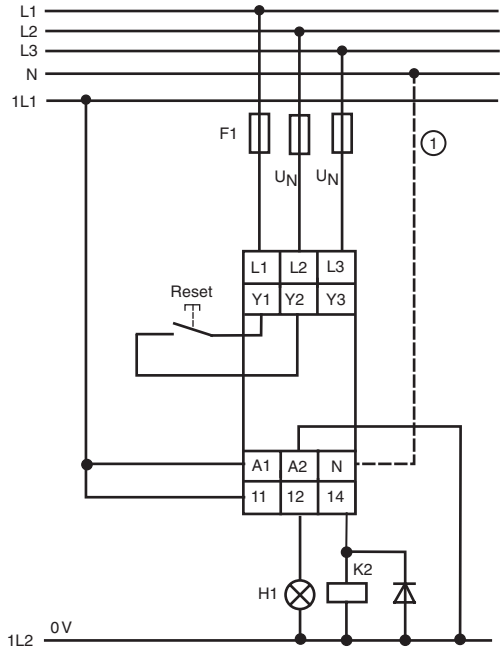
Application example

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
Duty cycle	100 %
Utilisation category in accordance with EN 60947-4-1 EN 60947-5-1	 AC1: 240 V/0.1 ... 5 A/1200 VA DC1: 24 V/0.1 ... 5 A/120 W AC15: 230 V/2 A; DC13: 24 V/1.5 A
Output contacts	1 auxiliary contact (C/O)
Contact material	AgCdO, 3 µm gold plating for low load range 1-50 V/1-100 mA
Contact fuse protection to EN 60947-5-1	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 %
Evaluates phase sequence	75 – 120 % U_M
Hysteresis	ca. 2 %
Delay-on energisation	0,5 ... 10 s selectable
Environmental data	
EMC	EN 50081-1; EN 50082-2
Vibration in accordance with EN 60068-2-6	Frequency: 10 ... 55 Hz Amplitude: 0.35 mm
Climatic suitability	EN 600068-2-78
Airgap creepage	EN 60947-1
Ambient temperature	-15 ... +55 °C
Storage temperature	-40 ... +85 °C
Mechanical data	
Cross section of external conductors 1 core flexible 2 core with the same cross section, flexible with crimp connectors, no plastic sleeve without crimp connectors or with TWIN crimp connectors	 0.20 – 4.00 mm², 24 – 10 AWG 0.20 – 2.50 mm², 24 – 14 AWG 0.20 – 2.50 mm², 24 - 14 AWG
Torque setting for connection terminals	0.8 Nm (screws)
Mounting position	Any
Housing material Housing Front	 PPO UL 94 V0 ABS UL 94 V0
Protection types	Mounting: IP54 Housing: IP40 Terminals: IP20
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 VDC	42 VAC	837 240
S3UM	24 VDC	100/110 VAC	837 250
S3UM	24 VDC	100/110 VAC	837 251
S3UM	24 VDC	230 VAC	837 260
S3UM	24 VDC	400/440 VAC	837 270
S3UM	24 VDC	400/440 VAC	837 271
S3UM	24 VDC	415/460 VAC	837 280
S3UM	24 VDC	440/480 VAC	837 285
S3UM	24 VDC	500/550 VAC	837 290
S3UM	120 VAC	440/480 VAC	837 395
S3UM	230 VAC	42 VAC	837 340
S3UM	230 VAC	100/110 VAC	837 350
S3UM	230 VAC	230 VAC	837 360
S3UM	230 VAC	400/440 VAC	837 370
S3UM	230 VAC	415/460 VAC	837 380
S3UM	230 VAC	500/550 VAC	837 390

U_B: Supply voltage
U_M: Measuring voltage
Additional versions on request

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