

Monitoring Relays

3UG Monitoring Relays for Electrical and Additional Measurements

Voltage monitoring

Overview



The relays monitor single-phase AC voltages (rms value) and DC voltages against the set threshold value for overshoot and undershoot. The devices differ with regard to their power supply (internal or external).

Function

3UG46 33 monitoring relays

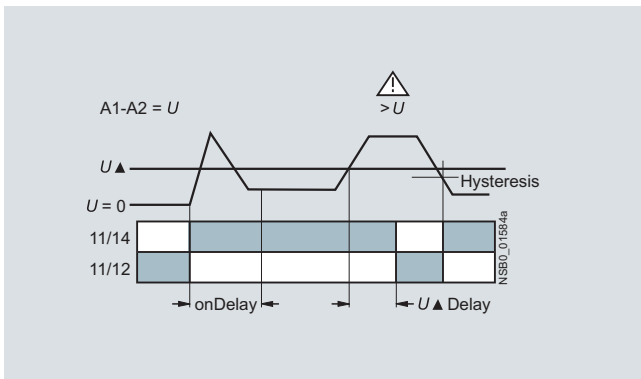
The 3UG46 33 voltage monitoring relay has an internal power supply and performs overshoot, undershoot or window monitoring of the voltage depending on how it is parameterized. The device is equipped with a display and is parameterized using three buttons.

The operating and measuring range extends from 17 ... 275 V AC/DC. The threshold values for overshoot or undershoot can be freely configured within this range. If one of these threshold values is reached, the output relay responds according to the set principle of operation as soon as the tripping delay time has elapsed. This delay time U_{Del} can be set from 0.1 ... 20 s like the ON-delay time on_{Del} .

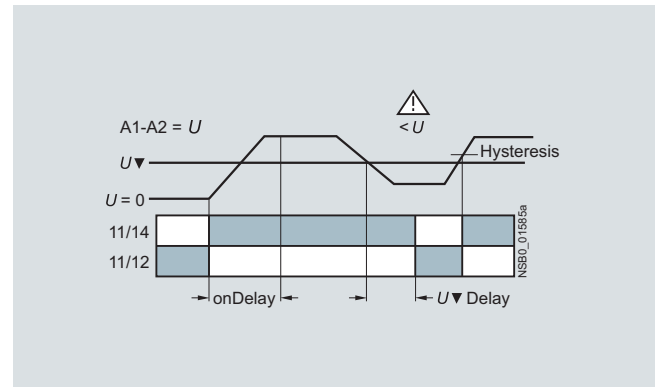
The hysteresis is adjustable from 0.1 ... 150 V. The device can be operated on the basis of either the open-circuit or closed-circuit principle and with manual or auto RESET. One output change-over contact is available as signaling contact.

With the closed-circuit principle selected

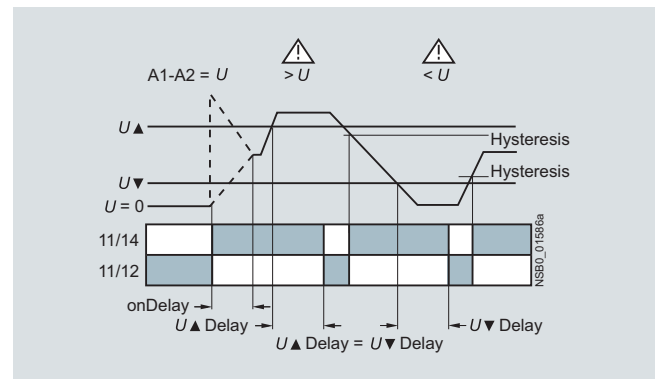
Overvoltage



Undervoltage



Window monitoring



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Voltage monitoring

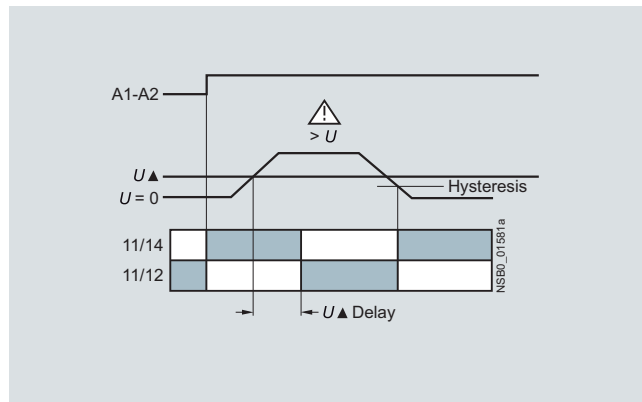
3UG46 31/3UG46 32 monitoring relays

The 3UG46 31/3UG46 32 voltage monitoring relay is supplied with an auxiliary voltage of 24 V AC/DC or 24 ... 240 V AC/DC and performs overshoot, undershoot or window monitoring of the voltage depending on how it is parameterized. The device is equipped with a display and is parameterized using three buttons.

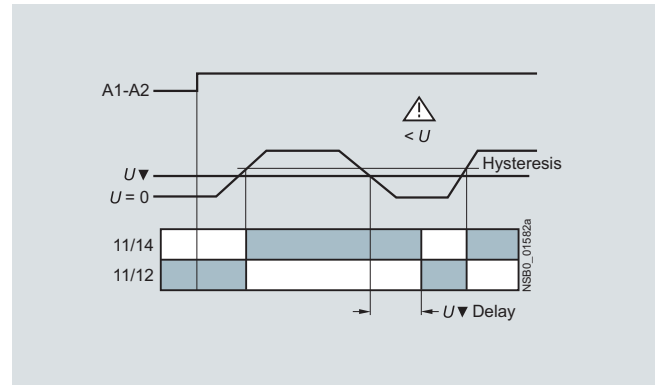
The measuring range extends from 0.1 V ... 60 V or 10 ... 600 V AC/DC. The threshold values for overshoot or undershoot can be freely configured within this range. If one of these threshold values is reached, the output relay responds according to the set principle of operation as soon as the delay time has elapsed. This delay time U_{Del} can be set from 0.1 ... 20 s. The hysteresis can be set from 0.1 ... 30 V or 0.1 ... 300 V. The device can be operated on the basis of either the open-circuit or closed-circuit principle and with manual or auto RESET. One output changeover contact is available as signaling contact.

With the closed-circuit principle selected

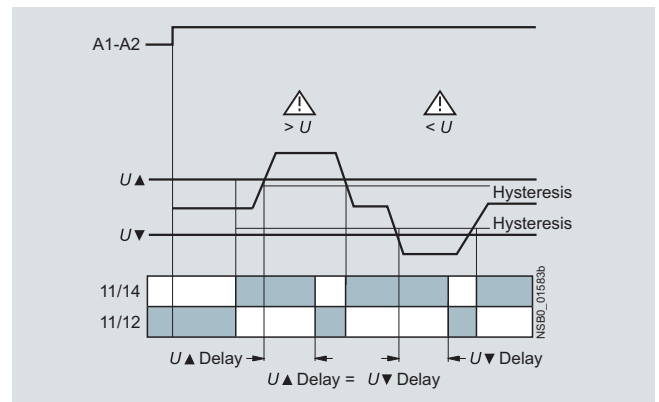
Overvoltage



Undervoltage



Window monitoring





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Technical specifications

		3UG46 31- .AA	3UG46 31- .AW	3UG46 32- .AA	3UG46 32- .AW	3UG46 33
General data						
Rated control supply voltage U_s	V	24 AC/DC	24...240 AC/DC	24 AC/DC	24...240 AC/DC	17 ... 275 ¹⁾ AC/DC
Rated frequency for AC	Hz	50/60				40 ... 500
Operating range	V	20.4 ... 27.6	20.4 ... 264	20.4 ... 27.6	20.4 ... 264	17...275
Rated power in W/VA	VA	2/4				
Width	mm	22.5				
RESET		Automatic/manual				
Availability time after application of U_s	ms	1000				
Response time once a switching threshold is reached	ms	Max. 450				
Adjustable tripping delay time	s	0.1 ... 20				
Adjustable ON-delay time	s	--				0.1 ... 20
Mains buffering time , minimum	ms	10				
Rated insulation voltage U_i Degree of pollution 3 Overvoltage category III acc. to IEC 60664	V	690				
Rated impulse withstand voltage U_{imp}	kV	6				
Protective separation acc. to IEC 60947-1, Annex N	V	300				
Permissible ambient temperature • During operation • During storage	°C °C	-25 ... +60 -40 ... +85				
EMC tests²⁾		IEC 60947-5-1/IEC 61000-6-2/IEC 61000-6-4				
Degree of protection acc. to IEC 60529		IP40 Enclosure IP20 Terminals				
Mounting position		Any				
Vibration resistance acc. to IEC 60068-2-6		1 ... 6 Hz: 15 mm; 6 ... 500 Hz: 2 g				
Shock resistance acc. to IEC 60068-2-27	g/ms	15/11				
Connection type		 Screw terminals				
<ul style="list-style-type: none"> Terminal screw Solid Finely stranded with end sleeve AWG cables, solid or stranded Tightening torque 	mm ² mm ² AWG Nm	M 3 (standard screwdriver, size 2 and Pozidriv 2) 1 x (0.5 ... 4)/2 x (0.5 ... 2.5) 1 x (0.5 ... 2.5)/2 x (0.5 ... 1.5) 2 x (20 ... 14) 0.8 ... 1.2				
Connection type		 Spring-type terminals				
<ul style="list-style-type: none"> Solid Finely stranded, with end sleeves Finely stranded AWG cables, solid or stranded 	mm ² mm ² mm ² AWG	2 x (0.25 ... 1.5) 2 x (0.25 ... 1.5) 2 x (0.25 ... 1.5) 2 x (24 ... 16)				
Measuring circuit						
Permissible measuring range single-phase AC/DC voltage	V	0.1 ... 68		10 ... 650		17 ... 275
Setting range single-phase voltage	V	0.1 ... 60		10 ... 600		17 ... 275
Measuring frequency AC/DC	Hz	40 ... 500				40 ... 500
Measuring accuracy	%	5				
Repeat accuracy at constant parameters	%	1				
Accuracy of digital display		±1 digit				
Deviations for temperature fluctuations	%/°C	±0.1				
Hysteresis for single-phase voltage	V	0.1 ... 30		0.1 ... 300		0.1 ... 150
Control circuit						
Load capacity of the output relay • Conventional thermal current I_{th}	A	5				
Rated operational current I_e • AC-15 at 24 ... 400 V • DC-13 at 24 V • DC-13 at 125 V • DC-13 at 250 V	A A A A	3 1 0.2 0.1				
Minimum contact load at 17 V DC	mA	5				
Output relay with DIAZED fuse gL/gG operational class	A	4				
Electrical endurance AC-15, 3 A, million operating cycles		0.1				
Mechanical endurance million operating cycles		10				

¹⁾ Absolute limit values.

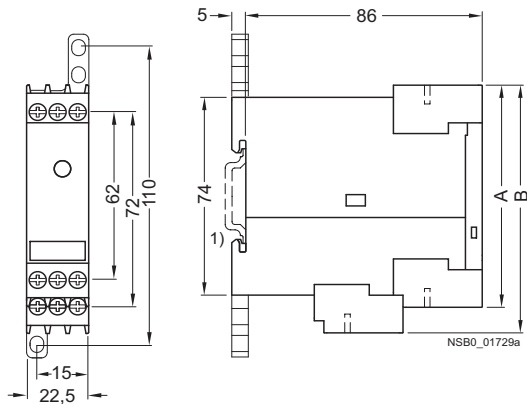
²⁾ Important: This is a Class A product. In the household environment this device may cause radio interference. In this case the user must introduce suitable measures.

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Dimensional drawings



Type	3UG46 31 3UG46 32 3UG46 33
A	B

Removable terminal

Screw-type terminal	83	92
Spring-loaded terminal	84	94

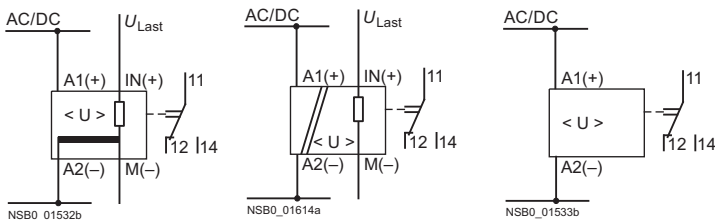
1) For standard mounting rail according to EN 60715.

Schematics

3UG46 31-AA30
3UG46 32-AA30

3UG46 31-AW30
3UG46 32-AW30

3UG46 33



Note: It is not necessary to protect the measuring circuit for device protection. The protective device for line protection depends on the cross-section used.

Position of the terminals

3UG46 31
3UG46 32

3UG46 33

