Instruction Manual

Voltage Monitoring Relay
120V AC, 240V AC, 24VDC

Features

901-0000-282

- LEDs indicating normal and fault conditions
- Adjustment of voltage levels and delay via potentiometers
- Adjustable time delay 0-10sec.
- Voltage sensing capability for over and under voltage in ranges:

240 AC
- U max AC 48 - 276 Vrms

120 AC
- U max AC 25 - 150 Vrms

24 VDC
- U max DC 6 - 30 V

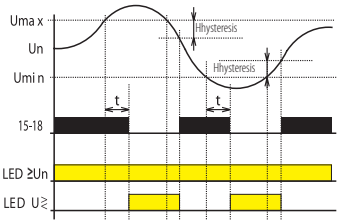
This device is designed to be used in single phase applications. Connections to this device must be made according to the details in this instruction sheet. Installation, wiring, setting and servicing should be performed by qualified electrician staff who understand this instruction sheet and functions of the device.

Ensure that all power has been removed from the device prior to beginning the installation. Qualified installer must also ensure the device is being installed into a temperature controlled environment which will guarantee the specified operating temperature range. For installation and setting use a screw driver with 2 mm tip.

Principle of operation

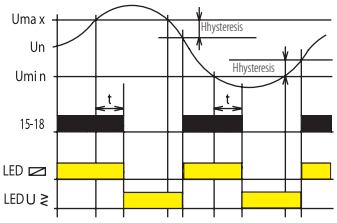
Legend:
Umax - upper voltage threshold
Un - measured voltage
Umin - lower voltage threshold
15-18 - output contact state
LED ≥ Un - green LED state
LED U ≷ - red LED state

120V AC, 240V AC



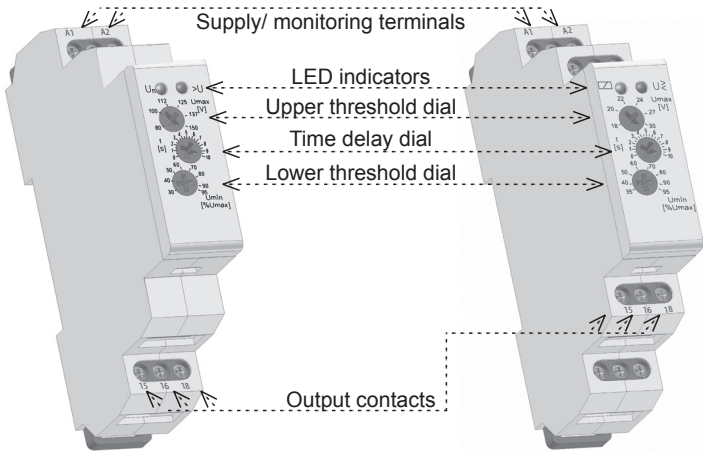
Voltage Umin as % of Umax (30-99% Umax)

24V DC



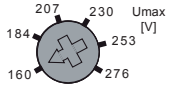
Voltage monitoring relays serve to monitor level of voltage in single-phase circuits. Monitored voltage is also the supply voltage for the device.
In normal state the output relay is pernamently energized and when there is a deviation above or under the adjusted level, the relay de-energizes after preset time delay.
The time delay allows to eliminate false sensing of short over- and under-voltage spikes. The device also introduces the return to normal state hysteresis (up to 6% of adjustment voltage) to suppress erroneous sensing of short uctuations around threshold voltages.

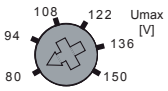
Description

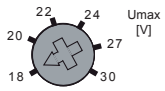


Description of control components

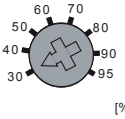
Setting of upper voltage threshold.



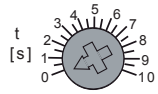




Once monitored voltage reaches the Umax, the time delay is initiated. After time delay is complete, the contacts 15-18 open and both green and red LED are ON.



Setting up lower voltage threshold.

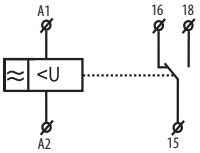


Time delay before contacts transfer once fault condition is reached.

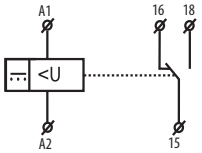
Once monitored voltage reaches the Umin, the time delay is initiated. After time delay is complete, the contacts 15-18 open and only red LED is ON.

Connection diagram

120V AC, 240V AC

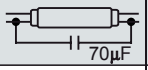


24V DC



120V AC, 240V AC

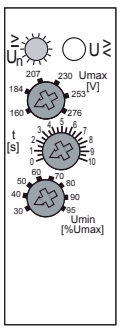
24V DC

RELAY CONTACT 15 A	LOAD								
						AC1A	C3	AC15	DC1 (24/110/220V)
AgNi	1000W					4000V A	0.9k W	750V A	15 A / 0.5 A / 0.35A

Technical parameters

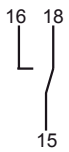
Supply and measuring	240 VAC	120 VAC	24 VDC
Terminals:	A1 -A 2	A1 -A 2	A1 -A 2
Supply voltage:	in range of monitored voltage	in rangeo fm onitored voltage	in rangeo fm onitored voltage
Consumption:	AC max. 1.2 VA	AC max. 1.2 VA	DC max. 1.2 W
Upper threshold (Umax):	AC 48 - 276 V	AC 25 - 150 V	DC 18- 30 V
Lower threshold (Umin):	30 -95% Umax	30 -95% Umax	35 -95% Umax
Time delay:	adjustable,0-10s	adjustable,0-10s	adjustable,0-10s
Accuracy			
Settinga ccuracy (mechanical):	5%	5%	5%
Repeat accuracy:	<1 %	<1 %	<1 %
Temperature drift:	< 0.1 %/ °C	< 0.1 %/ °C	< 0.1 %/ °C
Toleranceo f limit values:	5%	5%	5%
Hysteresis (from faultt o normal):	2-6% of adjusted value	2-6% of adjusted value	2-6% of adjusted value
Output			
Numbero fc ontacts:	1x SPDT, AgNi	1x SPDT, AgNi	1x SPDT, AgNi
Rated current:	15 A/ AC1	15 A/ AC1	15 A/ AC1
Breakingc apacity:	4000V A/ AC1, 384 W/ DC	4000V A/ AC1, 384 W/ DC	4000V A/ AC1, 384 W/ DC
Inrush current:	30 A/<3s	30 A/<3s	30 A/<3s
Switching voltage:	250 V AC1 /24V DC	250 VA C1 /24V DC	250V AC1/ 24 VDC
Min. breakingc apacity DC:	500 mW	500 mW	500mW
Output indication:	red / green LED	red / green LED	red/ green LED
Mechanical life:	$3x10^7$	$3x10^7$	$3x10^7$
Electrical life (AC1):	$0.7x10^5$	$0.7x10^5$	$0.7x10^5$
Operating temperature:	-20 .. +55 °C	-20 .. +55 °C	-20 .. +55 °C
Storage temperature:	-30 ..+70 °C	-30 ..+70 °C	-30 .. +70 °C
Electrical strength:	4k V (supply- output)	4 kV (supply- output)	4 kV (supply- output)
Operating position:	any	any	any
Mounting:	DIN rail EN 60715	DIN rail EN 60715	DIN rail EN 60715
Protection degree:	IP 40	IP 40	IP 40
Overvoltagec athegory:	III.	III.	III.
Pollution degree:	2	2	2
Max. wire size:	$2.5\ mm^2$	$2.5\ mm^2$	$2.5\ mm^2$
Dimensions:	90 x 17.6x 64 mm	90 x 17.6x 64 mm	90 x 17.6x 64 mm
Weight:	71 g	71 g	85 g
Standards:	UL, CE, ROHS	UL, CE, ROHS	UL, CE, ROHS

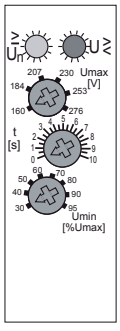
Examples of usage



Normal condition
(no fault)
Umin<Un<Umax

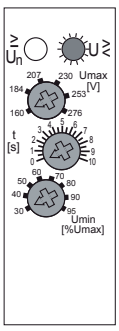
Green LED = ON
Red LED = OFF





Upper limit exceeded
(overvoltage)
Un>Umax

Green LED = ON
Red LED = ON



Lower limit exceeded
(under voltage)
Un<Umin

Green LED = OFF
Red LED = ON