



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

- 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

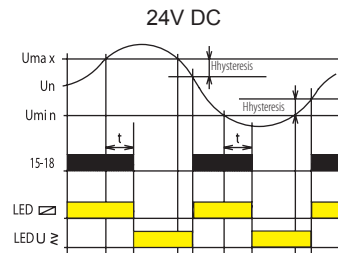
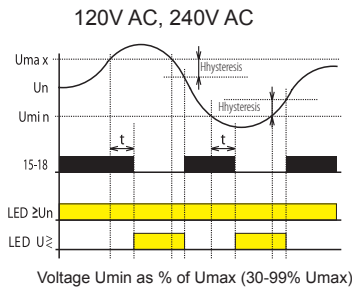


This device is designed to be used in single phase applications. Connections to this device must be made according to the details in this instruction sheet. Installation, wiring, setting and servicing should be performed by qualified electrician staff who understand this instruction sheet and functions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

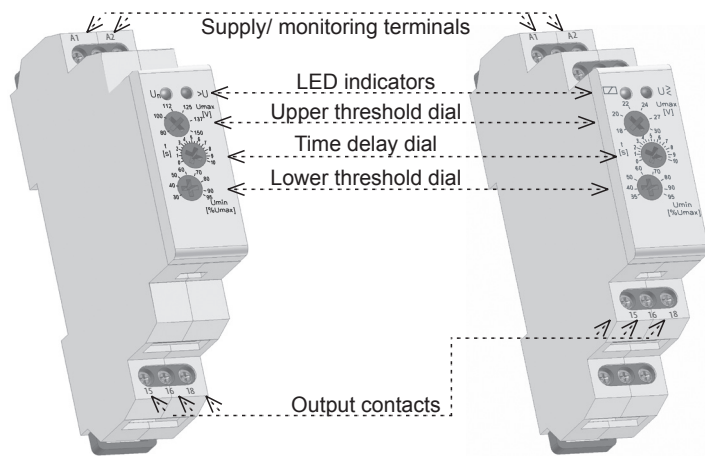
- Legend:
- U<sub>max</sub> - upper voltage threshold
  - U<sub>n</sub> - measured voltage
  - U<sub>min</sub> - lower voltage threshold
  - 15-18 - output contact state
  - LED  $\geq U_n$  - green LED state
  - LED  $U \geq$  - red LED state



Voltage U<sub>min</sub> as % of U<sub>max</sub> (30-99% U<sub>max</sub>)

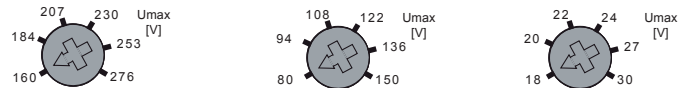
Voltage monitoring relays serve to monitor level of voltage in single-phase circuits. Monitored voltage is also the supply voltage for the device. In normal state the output relay is permanently energized and when there is a deviation above or under the adjusted level, the relay de-energizes after preset 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 fluctuations around threshold voltages.

Description

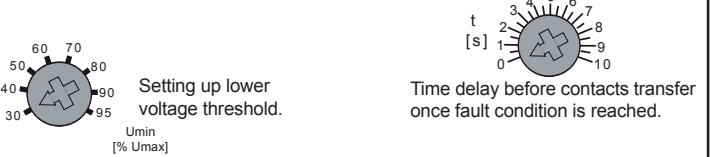


Description of control components

Setting of upper voltage threshold.



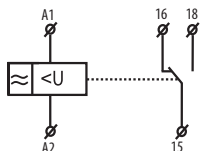
Once monitored voltage reaches the U<sub>max</sub>, the time delay is initiated. After time delay is complete, the contacts 15-18 open and both green and red LED are ON.



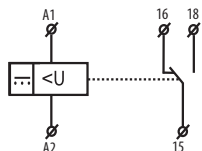
Once monitored voltage reaches the U<sub>min</sub>, the time delay is initiated. After time delay is complete, the contacts 15-18 open and only red LED is ON.

Connection diagram

120V AC, 240V AC



24V DC



120V AC, 240V AC



24V DC

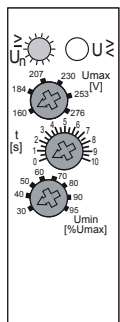


RELAY CONTACT 15 A	LOAD								
						AC1A	C3	AC15	DC1 (24/110/220V )
AgNi	1000W					4000V A	0.9k W	750V A	15 A / 0.5 A / 0.35A

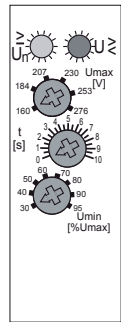
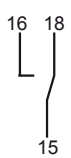
Technical parameters

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 range of monitored voltage	in range of monitored 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
<b>Accuracy</b>			
Setting accuracy (mechanical):	5%	5%	5%
Repeat accuracy:	<1 %	<1 %	<1 %
Temperature drift:	< 0.1 %/ °C	< 0.1 %/ °C	< 0.1 %/ °C
Tolerance of limit values:	5%	5%	5%
Hysteresis (from fault to normal):	2-6% of adjusted value	2-6% of adjusted value	2-6% of adjusted value
<b>Output</b>			
Number of contacts:	1x SPDT, AgNi	1x SPDT, AgNi	1x SPDT, AgNi
Rated current:	15 A/ AC1	15 A/ AC1	15 A/ AC1
Breaking capacity:	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 V AC1 /24V DC	250V AC1/ 24 VDC
Min. breaking capacity DC:	500 mW	500 mW	500mW
Output indication:	red / green LED	red / green LED	red/ green LED
Mechanical life:	3x10 <sup>7</sup>	3x10 <sup>7</sup>	3x10 <sup>7</sup>
Electrical life (AC1):	0.7x10 <sup>5</sup>	0.7x10 <sup>5</sup>	0.7x10 <sup>5</sup>
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
Overvoltage category:	III.	III.	III.
Pollution degree:	2	2	2
Max. wire size:	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
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

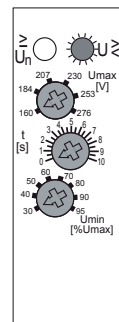
Examples of usage



**Normal condition**  
(no fault)  
 $U_{min} < U_n < U_{max}$   
Green LED = ON  
Red LED = OFF



**Upper limit exceeded**  
(overvoltage)  
 $U_n > U_{max}$   
Green LED = ON  
Red LED = ON



**Lower limit exceeded**  
(under voltage)  
 $U_n < U_{min}$   
Green LED = OFF  
Red LED = ON

