Voltage monitoring relay HRN-33, HRN-34, HRN-35

Advantages

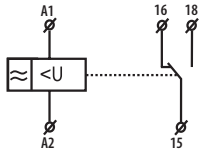
- Serves to control/monitor supply voltage for appliances sensitive to supply tolerance, protects devices against under/over voltage
- 1-module, DIN rail mounting, 1-phase monitoring
- Supply from monitored voltage (monitors level of its own supply)
- 3-state indication - LEDs indicating normal state and 2 fault states
- Adjustable time delay for all types is 0 - 10 s (to eliminate short voltage drops or peaks) voltage U_{min} adjusted as % of U_{max}
- Time delay and voltage adjusted via potentiometer
- HRN-33
  - monitors voltage in range AC 48 - 276 V
  - U_{max} and U_{min} can be monitored independently
- HRN-34
  - like HRN-33, but voltage range is DC 6 - 30 V
  - monitoring of battery circuits (12, 24 V)
- HRN-35
  - like HRN-33, but independent output relays for each voltage level
  - switching of other loads possible

Technical data

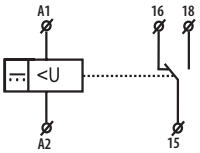
	HRN-33, HRN-34, HRN-35		
Type	HRN-33	HRN-34	HRN-35
Supply	A1-A2	A1-A2	A1-A2
Universal supply	monitoring voltage range	monitoring voltage range	monitoring voltage range
Consumption	AC / DC max. 1,2 VA	AC / DC max. 1,2 VA	AC / DC max. 1,2 VA
Upper level Umax	160-276 V AC	18-30 V DC	160-276 V AC
Bottom level Umin	30-99% Umax	30-99% Umax	30-99% Umax
Time delay	0 -10 s.	0 -10 s.	0 -10 s.
Setting accuracy (mechanical)	5 %	5 %	5 %
Repeat accuracy	< 1 %	< 1 %	< 1 %
Temperature coefficient	< 0,1% / °C	< 0,1% / °C	< 0,1% / °C
Hysteresis	2-6 % of adjusted value	2-6 % of adjusted value	2-6 % of adjusted value
Output			
Number of contacts	1 x changeover (AgNi)	1 x changeover (AgNi)	1 x changeover (AgNi) for each voltage level
Rated current	16 A / AC1	16 A / AC1	16 A / AC1
Breaking capacity	4000VA / AC1, 384W / DC	4000VA / AC1, 384W / DC	4000VA / AC1, 384W / DC
Inrush current	30 / < 3s.	30 / < 3s.	30 / < 3s.
Switching voltage	max. 250 V AC1 / 24V DC	max. 250 V AC1 / 24V DC	max. 250 V AC1 / 24V DC
Min. breaking capacity DC	500mW	500mW	500mW
Output indication	green / red LED	green / red LED	green / red LED
Mechanical life	$3x10^7$	$3x10^7$	$3x10^7$
Electrical life	$0.7x10^5$	$0.7x10^5$	$0.7x10^5$
Controlling			
Operating temperature	-20...+55 °C		
Storage temperature	-30...+70 °C		
Electrical strength	4 kV		
Operating position	any		
Mounting	DIN rail EN 60715		
Protection degree	IP 40 from front panel		
Overvoltage category	III.		
Pollution degree	2		
Max. cable size	2.5 mm^2		
Dimensions	90 x 17,6 x 64 mm		
Standards	EN 60255-6, EN 61010-1		

Symbols

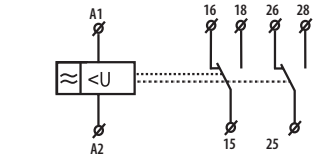
HRN-33



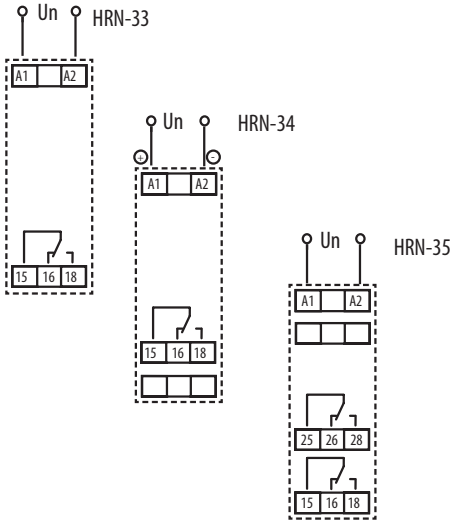
HRN-34



HRN-35



Connection



Functions

Legend:

Umax - upper adjustable level of voltage

Un - measured voltage

Umin - bottom adjustable level of voltage

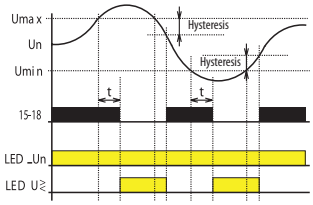
15-18 - switching contact of output relay No.1

25-28 - switching contact of output relay No. 2

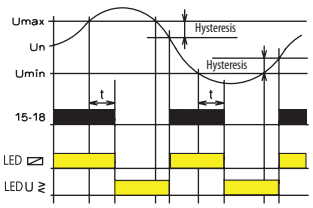
LED ≥ Un - indication green

LED U≤ - indication red

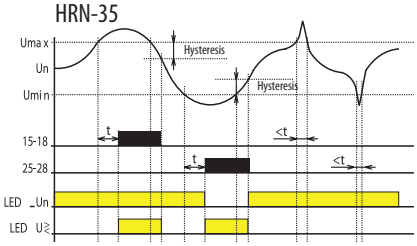
HRN-33



HRN-34



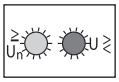
HRN-35



Indication LED

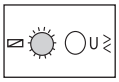
HRN-33

Normal state
Umin<Un<Umax
Green LED = ON
Red LED = OFF

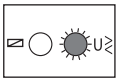


Exceeded Umax (overvoltage)
Drop below Umin (undervoltage)
Un>Umax ali Un<Umin.
Green LED = ON
Red LED = ON

HRN-34



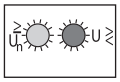
Normal state
Umin<Un<Umax
Green LED = ON
Red LED = OFF



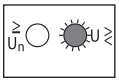
Exceeded Umax (overvoltage)
Drop below Umin (undervoltage)
Un>Umax ali Un<Umin.
Green LED = OFF
Red LED = ON

HRN-35

Normal state
Umin<Un<Umax
Green LED = ON
Red LED = OFF



Exceeded Umax (overvoltage)
Un>Umax
Green LED = ON
Red LED = ON



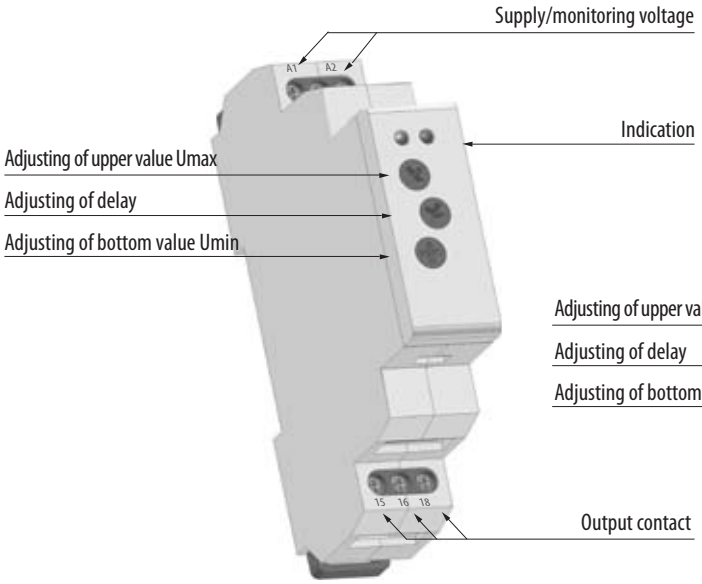
Drop below Umin (undervoltage)
Un<Umin
Green LED = OFF
Red LED = ON

Function description

Monitoring relay series HRN-3 monitors level of voltage in single-phase circuits. Monitored voltage serves also as supply voltage. It is possible to set two independent levels of voltage, when exceeded output is activated. HRN-33 and HRN-34 - in normal state the output relay is permanently switched on. It switches off when voltage is below or above deflection. This combination of linkage of the output relay is advantageous when the full failure of supply (monitored) voltage is considered to be a faulty state in the same way as a decrease of voltage within the set level. Output relay is in both situations always switched off. Differently HRN-35 version uses independent relay for each level, in normal state it is switched off . If the upper level is exceeded (for example overvoltage) 1st relay switches on, when the bottom level (e.g. undervoltage) is exceeded 2nd relay switches. It is thus possible to see the particular faulty state. To eliminate short peaks in the main, the time delay, which is possible to be set in range 0 - 10 s, is used. It functions when changing from normal to faulty state and prevents unavailing pulsation of the output relay caused by parasitive peaks. Time delay doesn´t apply when changing from faulty to normal state, but hysteresis (1-6% depends on the voltage setting) apply. Thanks to changeover contacts it is possible to get other configurations and functions according to actual requirements of the application.

Description

HRN-33, HRN-34



HRN-35