

Monitoring voltage relay range HRN-3x and HRN-6x



EAN code

HRN-33: 8595188115636
 HRN-34: 8595188115643
 HRN-35: 8595188115650
 HRN-37: 8595188130615
 HRN-63: 8595188130622
 HRN-64: 8595188130639
 HRN-67: 8595188130646

- It serves to control supply voltage for appliances sensitive to supply tolerance, protection of the device against under/over voltage
- HRN-3x is band voltage relay, HRN-6x is over/under voltage relay. For difference - see graph of function
- HRN-33, HRN-63** - monitors voltage in range AC 48 - 276 V
 - U max and U min can be monitored independently
- HRN-34, HRN-64** - 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
- HRN-37, HRN-67** - like HRN-33, monitors voltage in range AC 24 - 150 V
 - it is possible to monitor level of overvoltage and undervoltage independently
- Adjustable time delay for all types is 0 - 10 s (to eliminate short voltage drops or peaks)
- Voltage Umin adjusted as % of Umax
- 3-state indication - LEDs indicating normal state and 2 fault states
- Supply from monitored voltage (monitors level of its own supply)
- 1-MODULE, DIN rail mounting

Technical parameters	HRN-33 / HRN-63	HRN-34 / HRN-64	HRN-35	HRN-37 / HRN-67
<u>Supply and measuring</u>				
Terminals:	A1 - A2	A1 - A2	A1 - A2	A1 - A2
Voltage range:	AC 48 - 276 V / 50-60Hz	DC 6 - 30 V	AC 48 - 276 V / 50-60Hz	AC 24-150 V / 50-60Hz
Burden:	AC max. 1.2 VA	DC max. 1.2 VA	AC max. 1.2 VA	AC max. 1.2 VA
Upper level (Umax):	AC 160 - 276 V	DC 18 - 30 V	AC 160 - 276 V	AC 80-150 V
Bottom level (Umin):	30 - 95 % Umax	35 - 95 % Umax	30 - 95 % Umax	30 - 95 % Umax
Max. permanent:	AC 276 V	DC 36 V	AC 276 V	AC 276 V
Peak overload <1ms:	AC 290 V	DC 50 V	AC 290 V	AC 290 V
Time delay:	adjustable 0 - 10 s			
<u>Accuracy</u>				
Setting accuracy (mechanical):	5 %			
Repeat accuracy:	<1 %			
Dependance on temperature:	< 0.1 % / °C			
Tolerance of limit values:	5 %			
Hysteresis (from fault to normal):	2 - 6 % of adjusted value (only HRN-33, HRN-34, HRN-35, HRN-37)			
<u>Output</u> - Number of contacts:	1x changeover/ SPDT (AgNi / Silver Alloy)	1x changeover/ SPDT (AgNi / Silver Alloy)	1x chang. for each level of voltage,(AgNi)	1x changeover/ SPDT (AgNi / Silver Alloy)
Current rating:	16 A / AC1			
Breaking capacity:	4000 VA / AC1, 384 W / DC			
Inrush current:	30 A / < 3 s			
Switching voltage:	250 V AC1 / 24 V DC			
Min. breaking capacity DC:	500 mW			
Output indication:	red/ green LED			
Mechanical life:	3x10 ⁷			
Electrical life (AC1):	0.7x10 ⁵			
<u>Other information</u>				
Operating temperature:	-20 °C to +55 °C (-4 °F to 131 °F)			
Storage temperature:	-30 °C to +70 °C (-22 °F to 158 °F)			
Electrical strength:	4 kV (supply - output)			
Operating position:	any			
Mounting:	DIN rail EN 60715			
Protection degree:	IP 40 from front panel			
Overvoltage cathegory:	III.			
Pollution degree:	2			
Max. cable size (mm²):	solid wire max.1x 2.5 or 2x1.5, with sleeve max. 1x2.5 (AWG 12)			
Dimensions:	90 x 17.6 x 64 mm (3.5" x 0.7" x 2.5")			
Weight:	61 g (2.2 oz.)	73 g (2.6 oz.)	85 g (3 oz.)	61 g (2.2 oz.)
Standards:	EN 60255-6, EN 61010-1			

Symbol

Connection

HRN-33, HRN-37
 HRN-63, HRN-67

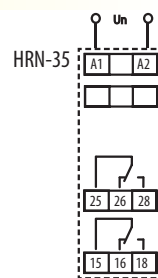
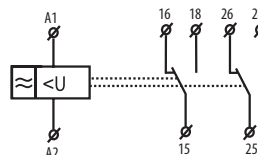
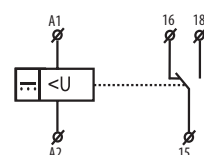
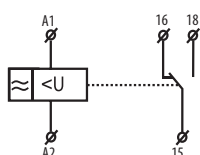
HRN-34, HRN-64

HRN-35

HRN-33, HRN-37
 HRN-63, HRN-67

HRN-34,
 HRN-64

HRN-35



Indication LED

HRN-33, HRN-37

Normal state
 $U_{min} < U_n < U_{max}$
 Green LED = ON
 Red LED = OFF

Exceeded U_{max} (overvoltage)
Drop below U_{min} (undervoltage)
 $U_n > U_{max}$ or $U_n < U_{min}$
 Green LED = ON
 Red LED = ON

HRN-35

Normal state
 $U_{min} < U_n < U_{max}$
 Green LED = ON
 Red LED = OFF

HRN-34

Normal state
 $U_{min} < U_n < U_{max}$
 Green LED = ON
 Red LED = OFF

Exceeded U_{max} (overvoltage)
Drop below U_{min} (undervoltage)
 $U_n > U_{max}$ or $U_n < U_{min}$
 Green LED = OFF
 Red LED = ON

HRN-63, HRN-67

Exceeded U_{max} (overvoltage)
 $U_n > U_{max}$
 Green LED = ON
 Red LED = ON

Drop below U_{min} (undervoltage)
 $U_n < U_{min}$
 Green LED = ON
 Red LED = OFF

HRN-64

Exceeded U_{max} (overvoltage)
 $U_n > U_{max}$
 Green LED = OFF
 Red LED = ON

Drop below U_{min} (undervoltage)
 $U_n < U_{min}$
 Green LED = ON
 Red LED = OFF

Drop below U_{min} (undervoltage)
 $U_n < U_{min}$
 Green LED = OFF
 Red LED = ON

Description

HRN-33, HRN-37

HRN-63, HRN-67

Supply/monitoring voltage

Adjusting of upper value U_{max}

Adjusting of delay

Adjusting of bottom value U_{min}

Indication

Output contact

HRN-35

Supply/monitoring voltage

Adjusting of upper value U_{max}

Adjusting of delay

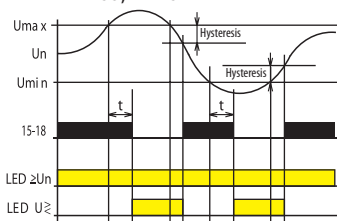
Adjusting of bottom value U_{min}

Indication

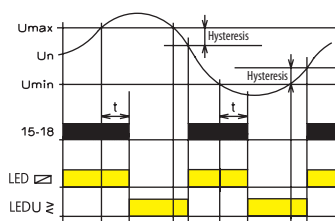
Output contact for U_{min} Output contact for U_{max}

Function HRN-33, 34, 35, 37 (band voltage relay)

HRN-33, HRN-37



HRN-34



Legend:

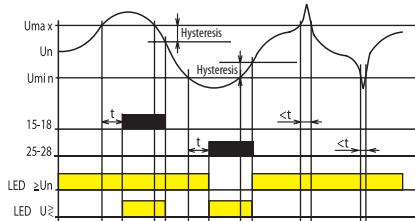
 U_{max} - upper adjustable level of voltage U_n - measured voltage U_{min} - bottom adjustable level of voltage

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

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

LED $\geq U_n$ - green indicator lightLED $U \geq$ - red indicator light

HRN-35

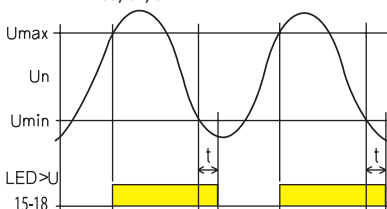


Monitoring relay series HRN-3x monitors level of voltage in single - phase circuits. Monitored voltage serves also as supply voltage. It is possible to set two independent (all occurrences) levels of voltage, when exceeded the output is activated. HRN-33 and HRN-34 - in normal state the output relay is permanently switched. It switches off when there is a limit settings. 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) 1 relay switches on, when the bottom level (e.g. undervoltage) is exceeded 2 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.

Function HRN-63, 64, 67 (over/under voltage relay)

HRN-63, 64, 67



Legend:

 U_{max} - upper adjustable level of voltage U_n - measured voltage U_{min} - bottom adjustable level of voltage

15-18 - switching contact of output relay

LED $U >$ - red indicator light

Monitoring relay line HRN-6x serves to monitor levels of voltage in single-phase or DC circuits. Monitored voltage is in the same time also supply voltage. It is possible to set two independent levels of voltage. When U_{max} is exceeded, output is activated. In case voltage level falls below U_{min} , output is deactivated. This combination is advantageous when full absence of supply voltage is understood as faulty state, as well as voltage drop within the set level. To eliminate short voltage peaks in the main there is time delay which can be set in a range of 0-10 sec. Such delay applies in case of going from overvoltage to undervoltage. In case of returning from undervoltage to overvoltage this delay doesn't apply. Thanks to changeover output contacts it is possible to reach various configurations and functions according to requirements or an application.