



**HRN-33      HRN-63**  
**HRN-34      HRN-64**  
**HRN-35      HRN-67**  
**HRN-37**

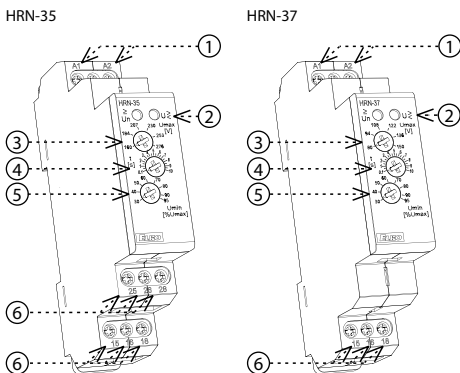
## Monitoring voltage relay



### Characteristics

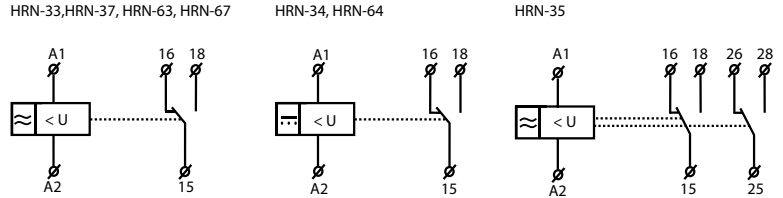
- it serves to control supply voltage for appliances sensitive to supply tolerance, protection of the device against under / over voltage
- HRN-3x is band voltage relay, HRN-6x is over / under voltage relay. For difference - see graph of function.
- HRN-33, HRN-63
  - monitors voltage in range AC 48 - 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 (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

### Description

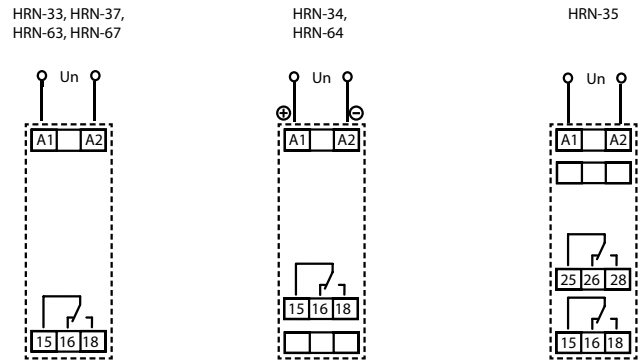


1. Supply / monitoring terminals
2. LED indication for relay status
3. Adjusting of upper value Umax
4. Adjusting of time delay
5. Adjusting of bottom value Umin
6. Output contactcs

### Symbol



### Connection



### Indication LED

<p>HRN-33, HRN-37</p> <p><b>Normal state</b>  <math>U_{min} &lt; U &lt; U_{max}</math>                      green LED = ON,                      red LED = OFF</p> <p><b>Exceeded Umax (overvoltage)</b>                      Drop below Umin (undervoltage)  <math>U &gt; U_{max}</math> or <math>U &lt; U_{min}</math>                      green LED = ON,                      red LED = ON</p>	<p>HRN-34</p> <p><b>Normal state</b>  <math>U_{min} &lt; U &lt; U_{max}</math>                      green LED = ON,                      red LED = OFF</p> <p><b>Exceeded Umax (overvoltage)</b>                      Drop below Umin (undervoltage)  <math>U &gt; U_{max}</math> or <math>U &lt; U_{min}</math>                      green LED = OFF,                      red LED = ON</p>
<p>HRN-63, HRN-67</p> <p><b>Exceeded Umax (overvoltage)</b>  <math>U &gt; U_{max}</math>                      green LED = ON,                      red LED = ON</p> <p><b>Drop below Umin (undervoltage)</b>  <math>U &lt; U_{min}</math>                      green LED = ON,                      red LED = OFF</p>	<p>HRN-64</p> <p><b>Exceeded Umax (overvoltage)</b>  <math>U &gt; U_{max}</math>                      green LED = OFF,                      red LED = ON</p> <p><b>Drop below Umin (undervoltage)</b>  <math>U &lt; U_{min}</math>                      green LED = ON,                      red LED = OFF</p>
<p>HRN-35</p> <p><b>Normal state</b>  <math>U_{min} &lt; U &lt; U_{max}</math>                      green LED = ON,                      red LED = OFF</p> <p><b>Exceeded Umax (overvoltage)</b>  <math>U &gt; U_{max}</math>                      green LED = ON,                      red LED = ON</p> <p><b>Drop below Umin (undervoltage)</b>  <math>U &lt; U_{min}</math>                      green LED = OFF,                      red LED = ON</p>	

## Technical parameters

	HRN-33 / HRN-63	HRN-34 / HRN-64	HRN-35	HRN-37 / HRN-67
<b>Supply and measuring</b>				
Terminals:	A1 - A2			
Voltage range:	AC 48 - 276 V / 50 - 60 Hz	DC 6 - 30 V	AC 48 - 276 V / 50 - 60 Hz	AC 24 - 150 V / 50 - 60 Hz
Power input:	AC max. 1.2 VA / 0.5 W	DC max. 1.2 VA / 0.5 W	AC max. 1.2 VA / 0.5 W	AC max. 1.2 VA / 0.5 W
Max. dissipated power (Un + terminals):	4 W	4 W	6 W	4 W
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 < 1 ms:	AC 290 V	DC 50 V	AC 290 V	AC 290 V
Time delay:	adjustable, 0 - 10 s			

### Accuracy

Setting accuracy (mech.):	5 %
Repeat accuracy:	< 1 %
Dependance on temperature:	< 0.1 % / °C (°F)
Tolerance of limit values:	5 %
Hysteresis (from fault to normal):	2 - 6 % of adjusted value (only HRN-33, HRN-34, HRN-35, HRN-37)

### Output

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 AC / 24 V DC			
Output indication:	red / green LED			
Mechanical life:	3x10 <sup>7</sup>			
Electrical life (AC1):	0.7x10 <sup>5</sup>			

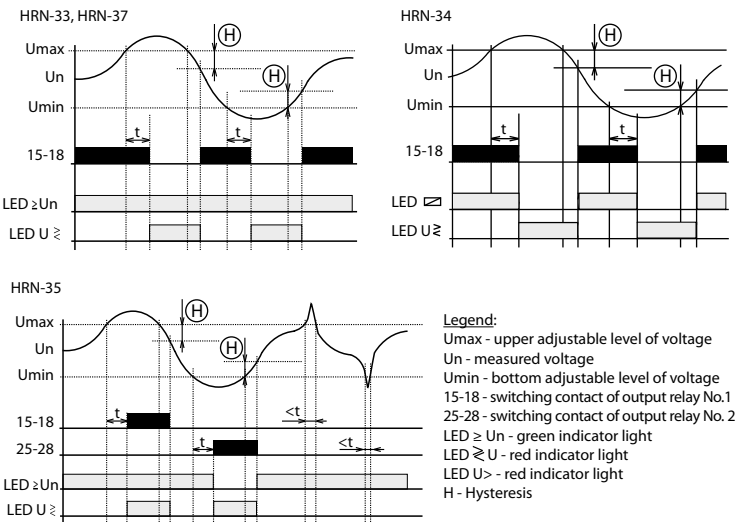
### Other information

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:	IP40 from front panel, IP20 terminals			
Overvoltage category:	III.			
Pollution degree:	2			
Max. cable size (mm <sup>2</sup> ):	solid wire max. 1x 2.5 or 2x 1.5, with sleeve max. 1x 2.5 (AWG 12)			
Dimensions:	90 x 17.6 x 64 mm (3.5" x 0.7" x 2.5")			
Weight:	62 g (2.2 oz.)	75 g (2.6 oz.)	86 g (3 oz.)	61 g (2.2 oz.)
Standards:	EN 60255-6, EN 61010-1			

## Warning

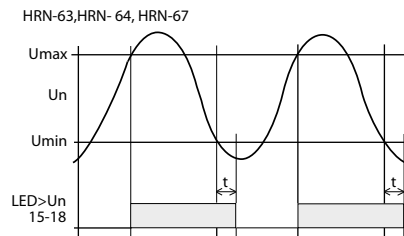
Devices line HRN-3x and HRN-6x are constructed to be connected into 1-phase main or DC circuits (according to types, it is necessary to observe voltage ranges) and must be installed in accordance with regulations and standards applicable in a country of use. Installation, connection, setting and servicing can be done only by a person with an adequate qualification who has read and perfectly understood this manual and function of the device. The device contains protections against over-voltage peaks and disturbances in the supply main. To assure correct function of these protections, there must be front-ended suitable protections of higher degree (A, B, C) and according to a standard switched devices (contactors, motors, inductive loads etc.) must be screened. before installing it is necessary to make sure that the device is not energized and main switch is in position OFF. Do not install device to sources of excessive electromagnetic disturbances. By correct installation of the device, ensure perfect air circulation so the maximal operational temperature of the device is not exceeded when operated 24 hours a day with higher ambient temperature. Use screwdriver width approx. 2 mm to install and set the device. Please keep in mind that it is a fully electronics device while mounting it. Correct function of the device is also depended on the type of transport, storing and handling. In case you notice any damage, deformation, malfunction or missing piece, do not install the device and claim it at the seller. The device can be dismantled, recycled or stored at protected dumping-place after its lifetime.

## Function



### Function HRN-33, 34, 35, 37:

Monitoring relay series HRN-3x monitors level of voltage in single - phase and DC circuits. Monitored voltage serves also as supply voltage. It is possible to set two independant levels of voltage, when exceeded the output is activated. HRN-33, HRN-34 and HRN-37 - in normal state the output relay is permanently switched. It switches off when there is a below or above deflection. This combination of connection 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 independant 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:

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 independant levels of voltage. When Umax is exceeded, output is activated. In case voltage level falls below Umin, output is deactivated. This combination is advantageous when full absence of supply voltage is understood as faulty state. as well as voltage drop in the frames of 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.