



## EAN code

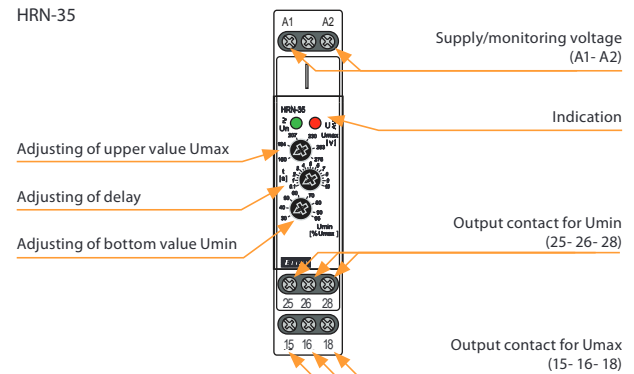
HRN-33: 8595188115636  
 HRN-34: 8595188115643  
 HRN-35: 8595188115650  
 HRN-37: 8595188130615  
 HRN-63: 8595188130622  
 HRN-64: 8595188130639  
 HRN-67: 8595188130646

Technical parameters	HRN-33/ HRN-63	HRN-34/ HRN-64	HRN-35	HRN-37/ HRN-67
<b>Supply and measuring</b>				
Terminals:	A1 - A2	A1 - A2	A1 - A2	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)
Burden:	HRN-33 max. 26 VA	-	max. 45 VA	HRN-37 max. 8 VA
	HRN-63 max. 45 VA	-		HRN-67 max. 30 VA
	max. 2 W	max. 0.5 W	max. 2 W	max. 2 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 overload:	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			
<b>Accuracy</b>				
Setting accuracy (mechanical):	5 %			
Repeat accuracy:	<1 %			
Dependence 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)			
<b>Output</b>				
1x changeover				
Number of contacts:	SPDT (AgNi/ Silver Alloy)	SPDT (AgNi/ Silver Alloy)	for each level of voltage, (AgNi)	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:	10.000.000 ops.			
Electrical life (AC1):	60.000 ops.			
<b>Other information</b>				
Operating temperature:	-20 °C to 55 °C (-4 °F to 131 °F)			
Storage temperature:	-30 °C to 70 °C (-22 °F to 158 °F)			
Dielectrical 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 60255-1, EN 60255-26, EN 60255-27			

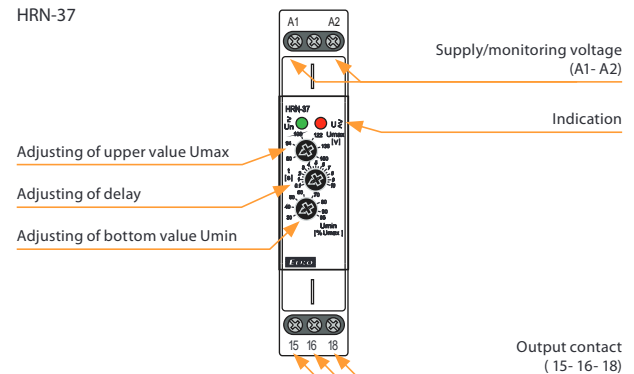
- It serves to control supply voltage for appliances sensitive to supply tolerance, protection of the device against under/over voltage.
- HRN-3x is band voltage relay, HRN-6x is over/under voltage relay. For difference - see graph of function.
- **HRN-33, HRN-63**
  - monitors voltage in range AC 48 - 276 V
  - Umax and Umin 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.
- Voltage Umin adjusted as % of Umax.
- 3-state indication - LEDs indicating normal state and 2 fault states.

## Description

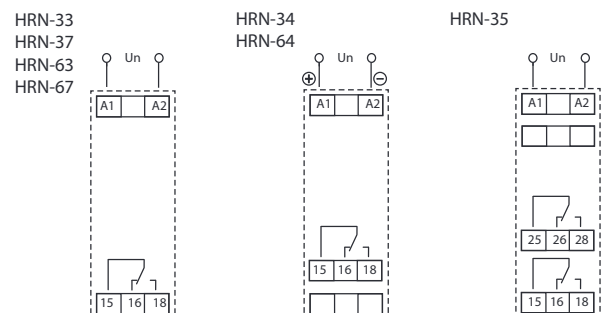
## HRN-35



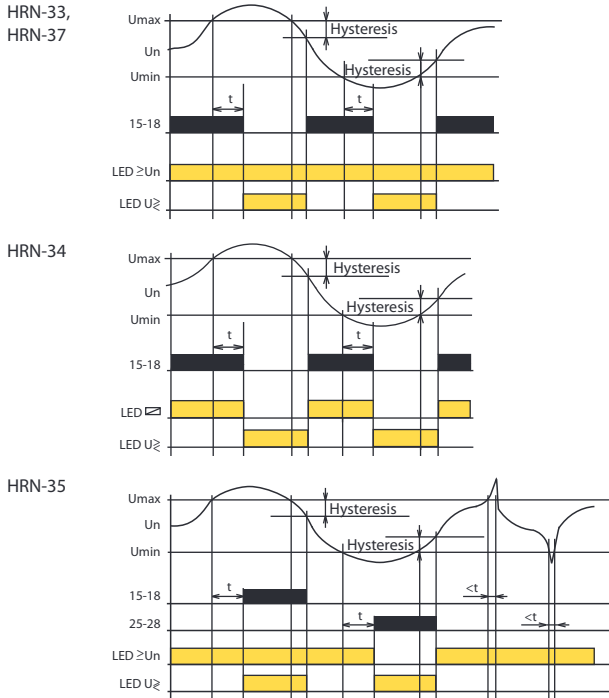
## HRN-37



## Connection



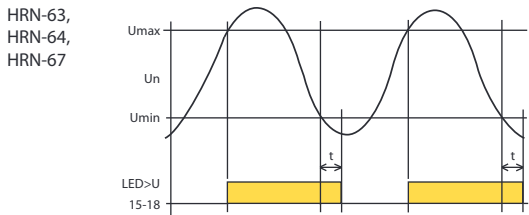
Function HRN-33, 34, 35, 37 (band voltage relay)



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 parasitic peaks. Time delay doesn't apply when changing from voltage 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)

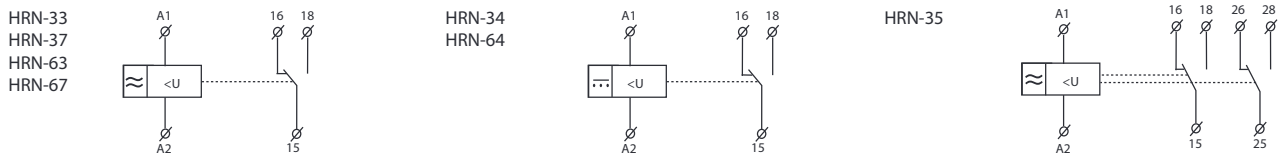


**Legend:**  
 $U_{max}$  - upper adjustable level of voltage  
 $U_n$  - measured voltage  
 $U_{min}$  - bottom adjustable level of voltage  
 15-18 - switching contact of output relay No.1  
 25-28 - switching contact of output relay No.2  
 $LED \geq U_n$  - green indicator light  
 $LED U \geq$  - red indicator light  
 $LED U >$  - 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.

Symbol



Indication LED

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