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

1M

- 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 - pes see grach 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

MONITORING RELAYS

Technical parameters	HRN-33/ HRN-63	HRN-34/ HRN-64	HRN-35	HRN-37/ HRN-67
Supply and measuring				
Terminals:	A1 - A2	A1 - A2	A1 - A2	A1 - A2
Supply voltage:	AC 48 - 276 V	DC 6 - 30 V	AC 48 - 276 V	AC 24-150 V
Consumption:	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	adjustable 0 - 10 s	adjustable 0 - 10 s	adjustable 0 - 10 s
Accuracy				
Setting accuracy (mechanical):	5 %	5 %	5 %	5 %
Repeat accuracy:	<1 %	<1 %	<1 %	<1 %
Dependance on temperature:	< 0.1 % / °C	< 0.1 % / °C	< 0.1 % / °C	< 0.1 % / °C
Tolerance of limit values:	5 %	5 %	5 %	5 %
Hysteresis (from fault to normal):	2 - 6 % of adjusted value (only HRN-33)	2 - 6 % of adjusted value (only HRN-34)	2 - 6 % of adjusted value	2 - 6 % of adjusted value (only HRN-37)
Output - Number of contacts:	1x changeover (AgNi)	1x changeover (AgNi)	1x chang. for each level of voltage,(AgNi)	1x changeover (AgNi)
Rated current:	16 A / AC1	16 A / AC1	16 A / AC1	16 A / AC1
Breaking capacity:	4000 VA / AC1, 384 W / DC	4000 VA / AC1, 384 W / DC	4000 VA / AC1, 384 W / DC	4000 VA / AC1, 384 W / DC
Inrush current:	30 A / < 3 s	30 A / < 3 s	30 A / < 3 s	30 A / < 3 s
Switching voltage:	250 V AC1 / 24 V DC	250 V AC1 / 24 V DC	250 V AC1 / 24 V DC	250 V AC1 / 24 V DC
Min. breaking capacity DC:	500 mW	500 mW	500 mW	500 mW
Output indication:	red / green LED	red / green LED	red / green LED	red/ green LED
Mechanical life:	$3x10^7$	$3x10^7$	$3x10^7$	$3x10^7$
Electrical life (AC1):	$0.7x10^5$	$0.7x10^5$	$0.7x10^5$	$0.7x10^5$
Other information Operating temperature:	-20 .. +55 °C	-20 .. +55 °C	-20 .. +55 °C	-20 .. +55 °C
Storage temperature:	-30 .. +70 °C	-30 .. +70 °C	-30 .. +70 °C	-30 .. +70 °C
Electrical strength:	4 kV (supply - output)	4 kV (supply - output)	4 kV (supply - output)	4 kV (supply - output)
Operating position:	any	any	any	any
Mounting:	DIN rail EN 60715	DIN rail EN 60715	DIN rail EN 60715	DIN rail EN 60715
Protection degree:	IP 40 from front panel	IP 40 from front panel	IP 40 from front panel	IP 40 from front panel
Overvoltage cathegory:	III.	III.	III.	III.
Pollution degree:	2	2	2	2
Max. cable size (mm^2):	solid wire max.1x 2.5 or 2x1.5, with sleeve max. 1x2.5	solid wire max.1x 2.5 or 2x1.5, with sleeve max. 1x2.5	solid wire max.1x 2.5 or 2x1.5, with sleeve max. 1x2.5	solid wire max.1x 2.5 or 2x1.5, with sleeve max. 1x2.5
Dimensions:	90 x 17.6 x 64 mm, see page 157-159	90 x 17.6 x 64 mm, see page 157-159	90 x 17.6 x 64 mm, see page 157-159	90 x 17.6 x 64 mm, see page 157-159
Weight:	61 g	73 g	85 g	61g
Standards:	EN 60255-6, EN 61010-1	EN 60255-6, EN 61010-1	EN 60255-6, EN 61010-1	EN 60255-6, EN 61010-1

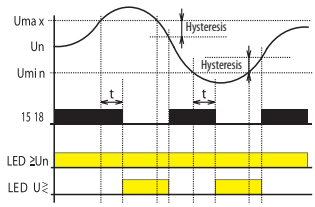
Function description HRN-3x

Monitoring relay series HRN-3 monitores level of voltage in single - phase circuits. Monitored voltage serves also as supply voltage. It is possible to set two independayt 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 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 independayt 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.

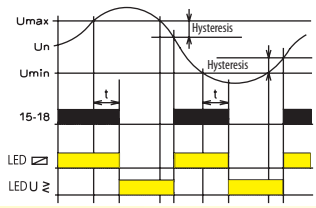
Function HRN-33, 34, 35, 37 (band voltage relay)

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

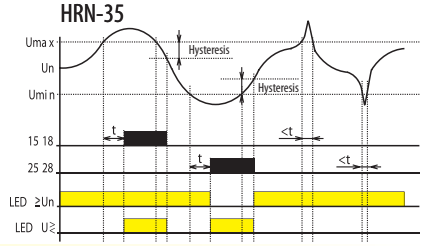
HRN-33,HRN-37



HRN-34

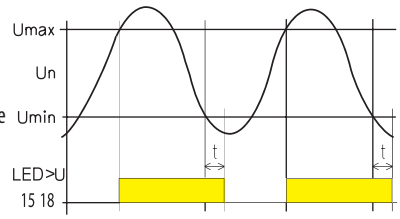


HRN-35



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

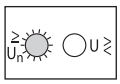
Legend:
Umax - upper adjustable level of voltage
Un - measured voltage
Umin - bottom adjustable level of voltage
15-18 - switching contact of output relay
LED U> - indication red



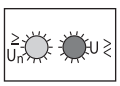
Monitoring relay line HRN-6x serves to monitor levels of voltage in single-phase or DC circuits. Monitored voltage is in the same time also supply voltage. It is possible to set two independayt levels of voltage. When Umax is exceeded, output is activated. In case voltage level falls below Umin, output 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.

Indication LED

HRN-33, HRN-37

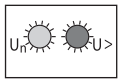


Normal state
Umin<Un<Umax
Green LED = ON
Red LED = OFF

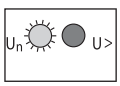


Exceeded Umax(overvoltage)
Drop below Umin(undervoltage)
Un>Umax or Un<Umax
Green LED = ON
Red LED = ON

HRN-63, HRN-67

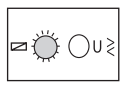


Exceeded Umax(overvoltage)
Un>Umax
Green LED = ON
Red LED = ON

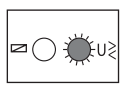


Drop below Umin(undervoltage)
Un<Umin
Green LED = ON
Red LED = OFF

HRN-34

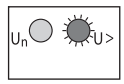


Normal state
Umin<Un<Umax
Green LED = ON
Red LED = OFF

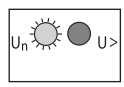


Exceeded Umax(overvoltage)
Drop below Umin(undervoltage)
Un>Umax or Un<Umax
Green LED = OFF
Red LED = ON

HRN-64

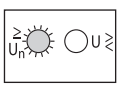


Exceeded Umax(overvoltage)
Un>Umax
Green LED = OFF
Red LED = ON

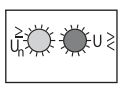


Drop below Umin(undervoltage)
Un<Umin
Green LED = ON
Red LED = OFF

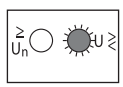
HRN-35



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



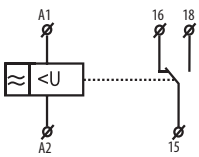
Exceeded Umax(overvoltage)
Un>Umax
Green LED = ON
Red LED = ON



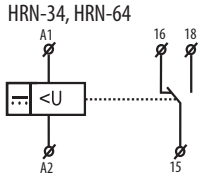
Drop below Umin(undervoltage)
Un<Umin
Green LED = OFF
Red LED = ON

Symbol

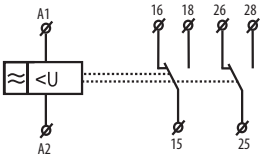
HRN-33, HRN-37, HRN-63, HRN-67



HRN-34, HRN-64



HRN-35

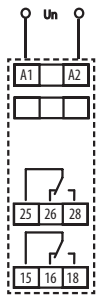


Connection

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

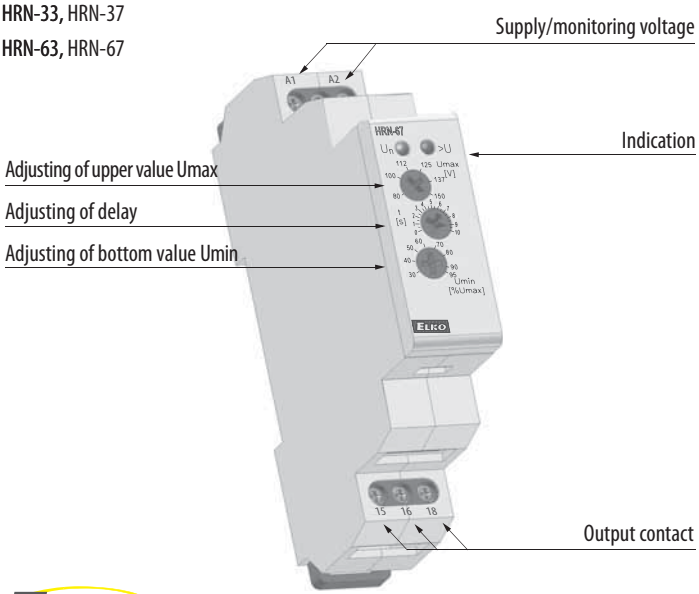
HRN-34,
HRN-64

HRN-35



Description

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



HRN-35