

Monitoring voltage relay HRN-33, HRN-34, HRN-35

Spannungsüberwachungsrelais HRN-33, HRN-34, HRN-35



- ▶ Supply from monitored voltage (monitored level of its own supply)
 - ▶ 3-state indication - LEDs indicating normal state and 2 fault states
 - ▶ Voltage U_{min} adjusted as % of U_{max}
 - ▶ Adjustable delay 0 - 10 sec
 - ▶ Adjustment of voltage levels and delay by potentiometers
 - ▶ **HRN-33**
 - U max AC 160 - 276 V
 - U min 30-99 % of U max.
 - 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
 - ▶ 1-phase, 1-MODULE, DIN rail mounting
- ▶ Versorgung aus der Überwachungsspannung
 - ▶ 3-Standanzeige: LED (1x Normalstand und 2x Fehlerstand)
 - ▶ Unterspannungsbereich (U_{min}) wird in % von Oberspannungsbereich (U_{max}) eingestellt
 - ▶ Zeitverzögerung: 0 - 10 s
 - ▶ Spannungsniveau-, Zeitverzögerungseinstellung: durch Potentiometer
 - ▶ **HRN-33**
 - U_{max} AC 160 - 276 V
 - U_{min} 30-99 % von Obenniveau
 - U_{min} und U_{max} können selbständig überwacht werden
 - ▶ **HRN-34** - wie HRN-33, aber mit Bereich DC 6 - 30 V
 - bestimmt für Überwachung von Batterienkreise (12, 24 V)
 - ▶ **HRN-35** - wie HRN-33, hat jedoch selbständiges Ausgangsrelais für jedes Spannungsniveau
 - mögliche Schaltung von anderen Lasten
 - ▶ 1-Phase, 1-MODUL, Befestigung auf DIN-Schiene

Technical parameters

Technische Daten

		HRN-33	HRN-34	HRN-35
Supply and measuring	Versorgung und Messung			
Terminals:	Versorgungs-, Meßklemmen:	A1 - A2	A1 - A2	A1 - A2
Supply voltage:	Versorgungsspannung:	in range of monitored voltage	in range of monitored voltage	in range of monitored voltage
Consumption:	Leistungsaufnahme:	AC/DC max. 1.2 VA	AC/DC max. 1.2 VA	AC/DC max. 1.2 VA
Upper level (U _{max}):	Obenbereich (U _{max}):	AC 160 - 276 V	DC 6 - 30 V	AC 160 - 276 V
Bottom level (U _{min}):	Untenbereich (U _{min}):	30 - 99 % U _{max}	30 - 99 % U _{max}	30 - 99 % U _{max}
Time delay:	Zeitverzögerung:	adjustable 0 - 10 s	adjustable 0 - 10 s	adjustable 0 - 10 s
Accuracy	Genauigkeit			
Setting accuracy (mechanical):	Einstellungsgenauigkeit:	5 %	5 %	5 %
Repeat accuracy:	Wiederholgenauigkeit:	<1 %	<1 %	<1 %
Dependance on temperature:	Abhängung von Temperatur:	< 0.1 % / °C	< 0.1 % / °C	< 0.1 % / °C
Tolerance of limit values:	Grenzwerttoleranz:	5 %	5 %	5 %
Hysteresis (from fault to normal):	Hysteresis (aus Fehlerstand in OK.):	2-6 % of adjusted value	2-6 % of adjusted value	2-6 % of adjusted value
Output	Ausgang			
Number of contacts:	Anzahl der Wechsler:	1x changeover, (AgNi)	1x changeover, (AgNi)	1x chang. for each level of voltage, (AgNi)
Rated current:	Nennstrom:	16 A / AC1	16 A / AC1	16 A / AC1
Breaking capacity:	Schaltleistung:	4000 VA / AC1, 384 W / DC	4000 VA / AC1, 384 W / DC	4000 VA / AC1, 384 W / DC
Inrush current:	Höchststrom:	30 A / < 3 s	30 A / < 3 s	30 A / < 3 s
Switching voltage:	Schaltspannung:	250 V AC1 / 24 V DC	250 V AC1 / 24 V DC	250 V AC1 / 24 V DC
Min. breaking capacity DC:	Min. Schaltleistung DC:	500 mW	500 mW	500 mW
Output indication:	Ausgangsanzeige:	red / green LED	red / green LED	red / green LED
Mechanical life:	Mechanische Lebensdauer:	3x10 ⁷	3x10 ⁷	3x10 ⁷
Electrical life (AC1):	Elektrische Lebensdauer (AC1):	0.7x10 ⁵	0.7x10 ⁵	0.7x10 ⁵
Other information	Andere Informationen			
Operating temperature:	Umgebungstemperatur:	-20 .. +55 °C	-20 .. +55 °C	-20 .. +55 °C
Storage temperature:	Lagerstemperatur:	-30 .. +70 °C	-30 .. +70 °C	-30 .. +70 °C
Electrical strength:	Elektrische Festigkeit:	2.5 kV (supply - output)	2.5 kV (supply - output)	2.5 kV (supply - output)
Operating position:	Arbeitsstellung:	any/wahlfrei	any/wahlfrei	any/wahlfrei
Mounting:	Befestigung/DIN-Schiene:	DIN rail EN 60715	DIN rail EN 60715	DIN rail EN 60715
Protection degree:	Schutzart:	IP 40	IP 40	IP 40
Overvoltage category:	Spannungsbegrenzungsklasse:	III.	III.	III.
Pollution degree:	Verschmutzungsgrad:	2	2	2
Max. cable size:	Anschlußquerschnitt:	max. 2.5 mm ² / with cavern 1.5 mm ²	max. 2.5 mm ² / with cavern 1.5 mm ²	max. 2.5 mm ² / with cavern 1.5 mm ²
Dimensions:	Abmessung:	90x17.6x64 mm, see page 82-84	90x17.6x64 mm, see page 82-84	90x17.6x64 mm
Weight:	Gewicht:	73 g	73 g	85 g
Standards:	Normen:	EN 60255-6, EN 61010-1	EN 60255-6, EN 61010-1	EN 60255-6, EN 61010-1

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 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 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 time delay, which is possible to be set in range 0 - 10 s, is used. If 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.

Functions / Funktionen

Legend:

U_{max} - upper adjustable level of voltage

U_{max} - Einstell-Oberspannungsniveau

U_n - measured voltage

U_n - gemessene Spannung

U_{min} - bottom adjustable level of voltage

U_{min} - Einstell-Unterspannungsniveau

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

15-18 - Schaltkontakt des Ausgangsrelais Nr.1

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

25-28 - Schaltkontakt des Ausgangsrelais Nr.2

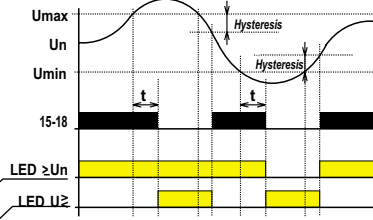
LED $\geq U_n$ - indication green

- Anzeige grün

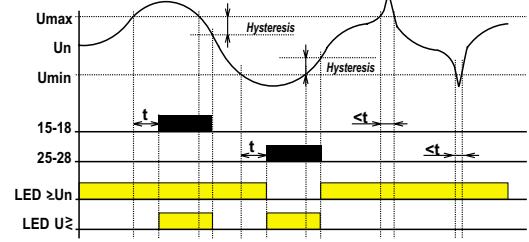
LED $\geq U$ - indication red

- Anzeige rot

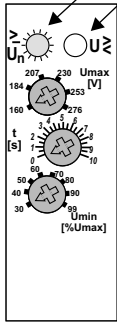
HRN-33, HRN-34



HRN-35



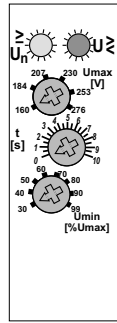
LED indication / LED Anzeige



Normal state
Normalstand

$U_{min} < U_n < U_{max}$

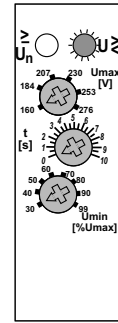
green/grün LED = ON
red/rot LED = OFF



Upper level exceeded (overvoltage)
Obenniveau überschritten (Überspannung)

$U_n > U_{max}$

green/grün LED = ON
red/rot LED = ON



Bottom level exceeded (undervoltage)
Unterniveau überschritten (Unterspannung)

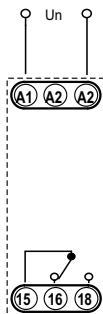
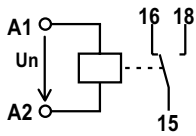
$U_n < U_{min}$

green/grün LED = OFF
red/rot LED = ON

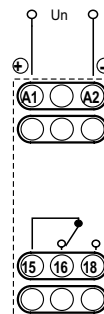
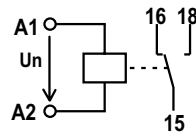
LED indication, all three units are equipped with a green and red LED, the LED's state of illumination at any one time indicates the status of the monitored supply as follows. A monitored voltage not reaching the minimum required voltage for the unit will not illuminate any LED.

Connection / Schaltung

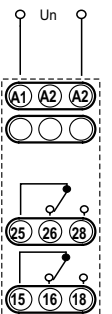
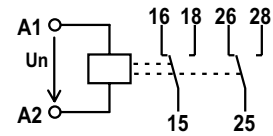
HRN-33



HRN-34



HRN-35



Description / Beschreibung

