

# 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<sub>min</sub> adjusted as % of U<sub>max</sub>
  - ▶ Adjustable delay 0 - 10 sec
  - ▶ Adjustment of voltage levels and delay via 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 mounted
- ▶ Versorgung aus der Überwachungsspannung
  - ▶ 3-Standanzeige: LED (1x Normalstand und 2x Fehlerstand)
  - ▶ Unterspannungsbereich (U<sub>min</sub>) wird in % von Oberspannungsbereich (U<sub>max</sub>) eingestellt
  - ▶ Zeitverzögerung: 0 - 10 s
  - ▶ Spannungsniveau-, Zeitverzögerungseinstellung: durch Potentiometer
  - ▶ **HRN-33**
    - U<sub>max</sub> AC 160 - 276 V
    - U<sub>min</sub> 30-99 % von Obenniveau
    - U<sub>min</sub> und U<sub>max</sub> 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

#### Supply and measuring

Terminals:
Supply voltage:
Consumption:
Upper level (U <sub>max</sub> ):
Bottom level (U <sub>min</sub> ):
Time delay:
Accuracy
Setting accuracy (mechanical):
Repeat accuracy:
Dependance on temperature:
Tolerance of limit values:
Hysteresis (from fault to normal):

### Technische Daten

#### Versorgung und Messung

Versorgungs-, Meßklemmen:
Versorgungsspannung:
Leistungsaufnahme:
Obenbereich (U <sub>max</sub> ):
Untenbereich (U <sub>min</sub> ):
Zeitverzögerung:
Genauigkeit
Einstellungsgenauigkeit:
Wiederholgenauigkeit:
Abhängung von Temperatur:
Grenzwerttoleranz:
Hysteresis (aus Fehlerstand in OK.):

#### Output

Number of contacts:
Rated current:
Breaking capacity:
Inrush current:
Switching voltage:
Min. breaking capacity DC:
Output indication:
Mechanical life:
Electrical life:
Operating temperature:
Storage temperature:
Electrical strength:
Operating position:
Mounting:
Protection degree:
Overvoltage category:
Pollution degree:
Max. cable size:
Dimensions:
Weight:
Standards:

#### Ausgang

Anzahl der Wechsler:
Nennstrom:
Schaltleistung:
Höchststrom:
Schaltspannung:
Min. Schaltleistung DC:
Ausgangsanzeige:
Mechanische Lebensdauer:
Elektrische Lebensdauer:
Umgebungstemperatur:
Lagerstemperatur:
Elektrische Festigkeit:
Arbeitsstellung:
Befestigung/DIN-Schiene:
Schutzart:
Spannungsbegrenzungsklasse:
Verschmutzungsgrad:
Anschlußquerschnitt:
Abmessung:
Gewicht:
Normen:

	HRN-33	HRN-34	HRN-35
Terminals:	A1 - A2	A1 - A2	A1 - A2
Supply voltage:	in range of monitored voltage	in range of monitored voltage	in range of monitored voltage
Consumption:	AC/DC max. 1.2 VA	AC/DC max. 1.2 VA	AC/DC max. 1.2 VA
Upper level (U <sub>max</sub> ):	AC 160 - 276 V	DC 6 - 30 V	AC 160 - 276 V
Bottom level (U <sub>min</sub> ):	30 - 99 % U <sub>max</sub>	30 - 99 % U <sub>max</sub>	30 - 99 % U <sub>max</sub>
Time delay:	adjustable 0 - 10 s	adjustable 0 - 10 s	adjustable 0 - 10 s
Setting accuracy (mechanical):	5 %	5 %	5 %
Repeat accuracy:	<1 %	<1 %	<1 %
Dependance on temperature:	< 0.1 % / °C	< 0.1 % / °C	< 0.1 % / °C
Tolerance of limit values:	5 %	5 %	5 %
Hysteresis (from fault to normal):	2-6 % of adjusted value	2-6 % of adjusted value	2-6 % of adjusted value
Number of contacts:	1x changeover, AgNi	1x changeover, AgNi	1x chang. for each level of voltage, AgNi
Rated current:	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
Inrush current:	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
Min. breaking capacity DC:	500 mW	500 mW	500 mW
Output indication:	red / green LED	red / green LED	red / green LED
Mechanical life:	3x10 <sup>7</sup>	3x10 <sup>7</sup>	3x10 <sup>7</sup>
Electrical life:	0.7x10 <sup>5</sup>	0.7x10 <sup>5</sup>	0.7x10 <sup>5</sup>
Operating temperature:	-20 .. +55 °C	-20 .. +55 °C	-20 .. +55 °C
Storage temperature:	-30 .. +70 °C	-30 .. +70 °C	-30 .. +70 °C
Electrical strength:	2.5 kV (supply - output)	2.5 kV (supply - output)	2.5 kV (supply - output)
Operating position:	any/wahlfrei	any/wahlfrei	any/wahlfrei
Mounting:	DIN rail EN 60715	DIN rail EN 60715	DIN rail EN 60715
Protection degree:	IP 40	IP 40	IP 40
Overvoltage category:	III.	III.	III.
Pollution degree:	2	2	2
Max. cable size:	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
Dimensions:	90x17.6x64 mm, see page 76, 78	90x17.6x64 mm, see page 76, 78	90x17.6x64 mm, see page 76, 78
Weight:	60 g	60 g	85 g
Standards:	EN 60255-6, EN 61010-1	EN 60255-6, EN 61010-1	EN 60255-6, EN 61010-1

The HRN-33 is a single phase AC voltage sensing relay 160-276VAC and the HRN-34 a DC unit 6-30VDC. Both devices have independently adjustable upper and lower voltage threshold levels, but both levels trip a common SPCO relay output. On power up with the monitored supply within the set levels the output relay energises. On monitored supply deviation above or below the set levels, the SPCO output relay will after an adjustable 0-10secs, time to drop out. This adjustable time delay is useful should it be desired to avoid unnecessary tripping on momentary blips or rises in the monitored supply. Should during a timing out situation the monitored supply corrects itself the remaining set time is immediately cancelled. All terminal details and function information along with the CE mark is clearly marked on the sides of the housing.

The HRN-35 is a single phase AC voltage sensing relay 160-276VAC with 2 x SPCO relay outputs, one output is designated for high setpoint tripping and the other for low level tripping. In a healthy condition neither output relay is energised, an energisation of the relevant output relay only occurs on deviation outside the set levels and then only after the adjustable 0-10sec delay time.

## Functions / Funktionen

### Legend:

U<sub>max</sub> - upper adjustable level of voltage

U<sub>max</sub> - Einstell-Oberspannungsniveau

U<sub>n</sub> - measured voltage

U<sub>n</sub> - gemessene Spannung

U<sub>min</sub> - bottom adjustable level of voltage

U<sub>min</sub> - 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

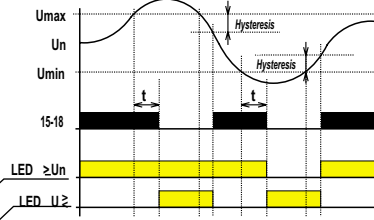
LED ≥ U<sub>n</sub> - indication green

- Anzeige grün

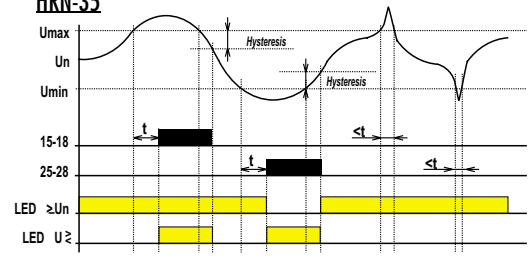
LED ≥ U - indication red

- Anzeige rot

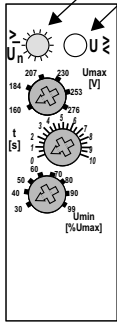
### HRN-33, HRN-34



### HRN-35



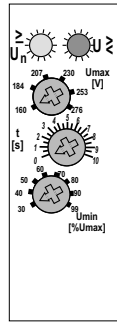
## LED indication / LED Anzeige



**Normal state**  
**Normalstand**

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

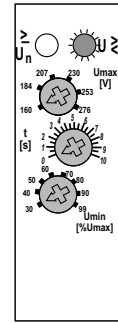
green/grün LED = ON  
red/rot LED = OFF



**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)**

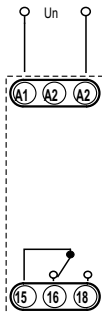
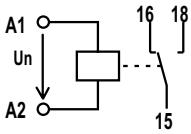
$U_n < U_{min}$

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

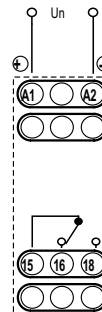
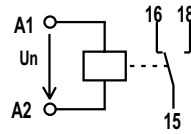
LED indication, all three units are equipped with a green and red LED, the LED's state of illumination at any one time indicates the status of the monitored supply as follows. A monitored voltage not reaching the minimum required voltage for the unit will not illuminate any LED.

## Connection / Schaltung

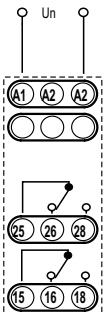
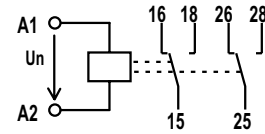
### HRN-33



### HRN-34



### HRN-35



## Description / Beschreibung

