

# HRN3-80, HRN3-81 | Voltage monitoring relays in 3P - selectable range/fixed range

NEW



5 YEAR WARRANTY



EAN code  
HRN3-80: 8595188188814  
HRN3-81: 8595188188821

## Technical parameters

|                             | HRN3-80                      | HRN3-81 |
|-----------------------------|------------------------------|---------|
| <b>Supply and measuring</b> |                              |         |
| Supply/monitored terminals: | L1-L2-L3                     |         |
| Supply/monitored voltage:   | AC 3× 208 – 480 V (50-60 Hz) |         |
| Consumption (max.):         | 2 VA/1 W                     |         |
| Range setting:              | adjustable                   | fixed   |
| Lower level setting (Umin): | 80 – 95 %Un                  | x       |
| Asymmetry setting:          | adjustable, 2 – 10 %Un + OFF |         |
| Max. permanent voltage:     | AC 3× 550 V                  |         |
| Peak overload (1 s):        | AC 3× 600 V                  |         |
| Time delay (t1):            | 2 s                          |         |
| Time delay (t2):            | adjustable, 0.3 – 30 s       |         |

## Accuracy

|                           |                 |
|---------------------------|-----------------|
| Setting accuracy (mech.): | 5 %             |
| Repeat accuracy:          | < 1 %           |
| Temperature dependency:   | < 0.1 %/°C (°F) |
| Hysteresis (fault to OK): | 5 %             |

## Output

|                           |                                                  |
|---------------------------|--------------------------------------------------|
| Contact type:             | 1x changeover/SPDT (AgNi)                        |
| Current rating:           | 16 A/AC1; 1 HP 240 Vac, 1/2 HP 120 Vac; PD. B300 |
| Breaking capacity:        | 4000 A/AC1, 384 W/DC1                            |
| Switching voltage:        | 250 V AC/24 V DC                                 |
| Power dissipation (max.): | 1.2 W                                            |
| Mechanical life:          | 10.000.000 ops.                                  |
| Electrical life (AC1):    | 100.000 ops.                                     |

## Other information

|                                                         |                                              |
|---------------------------------------------------------|----------------------------------------------|
| Operating temperature:                                  | –20 .. 55 °C (–4 .. 131 °F)                  |
| Storage temperature:                                    | –30 .. 70 °C (–22 .. 158 °F)                 |
| Dielectric strength:                                    | AC 4 kV (supply – output)                    |
| Operating position:                                     | any                                          |
| Mounting:                                               | DIN rail EN 60715                            |
| Protection degree:                                      | IP40 front panel / IP20 terminals            |
| Overvoltage category:                                   | III.                                         |
| Pollution degree:                                       | 2                                            |
| Cross-wire section – solid/stranded with ferrule (mm²): | max. 1× 2.5, 2× 1.5/<br>max. 1× 2.5 (AWG 14) |
| Dimensions:                                             | 90 × 52 × 66 mm                              |
| Weight:                                                 | 66 g (2.32 oz)   64 g (2.26 oz)              |
| Standards:                                              | EN 60255-1, EN 60255-26, EN 60255-27         |

- The relay is designed to monitor undervoltage (HRN3-80), phase loss, sequence and asymmetry in 3-phase network.
- Power supply from monitored circuit.
- **HRN3-80:** Monitors the drop below the lower voltage level (Umin).
- **HRN3-80:** The lower level of Umin is set in % of the selected range.
- Wide range of monitored voltage 208 – 480 V.
- Adjustable time delay (to eliminate short-term voltage drops).
- Measures true root mean square value of the voltage - TRUE RMS.
- Adjustable level of asymmetry with the option to turn it off.

## Description

HRN3-80

Supply/monitored voltage terminals (L1-L2-L3)

Supply voltage/  
time delay (t1) indication

HRN3-80: Range setting

Time delay (t2)

Indication of operating states

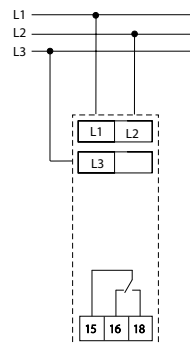
HRN3-80: Lower level setting (Umin)

Asymmetry setting

Output contact (15-16-18)

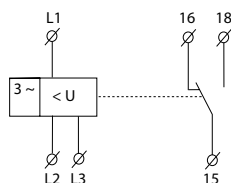


## Connection

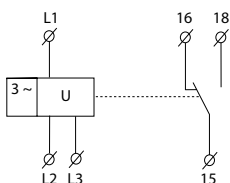


## Symbol

HRN3-80



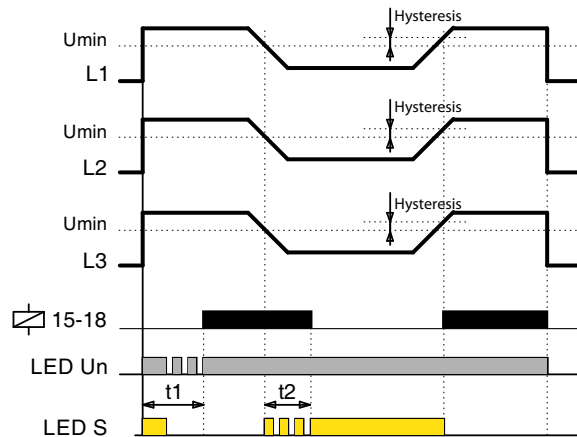
HRN3-81



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### Function

#### Undervoltage:



After connecting the device to the supply voltage, both LEDs on the panel will flash briefly.

If 3-phase voltage is connected to the monitoring relay and all conditions are met (correct voltage level, phase sequence and asymmetry), the output contact closes after the time delay t1 elapsed.

During the time delay, the green „LED Un“ flashes, at the end of the delay „LED Un“ lights up continuously (OK state).

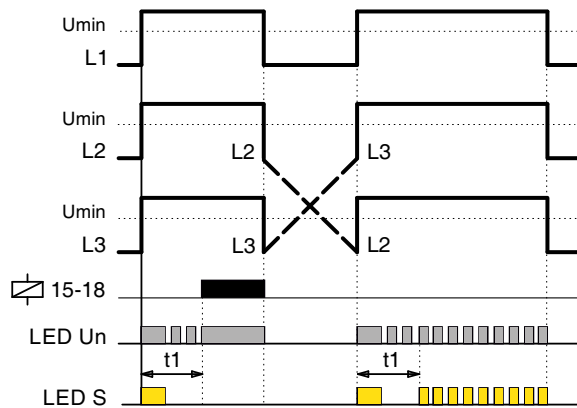
When the voltage drops below the lower level „Umin“ (HRN3-80 only), after the time delay t2 has elapsed the green and red LEDs are lit. The output contact is open (fault state).

During the time delay t2, the red „LED S“ flashes quickly.

If the phase sequence is incorrect when the power supply is connected, after the time delay t1 has elapsed the green and red LED flashes quickly. The output contact is open (fault state).

During the time delay t1, the green „LED Un“ flashes.

#### Phase sequence:



When the set phase asymmetry is exceeded, after the time delay t2 has elapsed the green LED is lit and the red LED flashes briefly. The output contact is open (fault state).

During the time delay t2, the red „LED S“ flashes quickly.

In the event of phase failure, the output contact opens without a time delay t2 (fault state), the green and red LEDs are lit.

The return from the fault state to the OK state occurs without a time delay.

#### Phase asymmetry, failure:

