



**THE DATASHEET OF  
HRN3-80**



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



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 3x 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 3x 550 V	
Peak overload (1 s):	AC 3x 600 V	
Time delay (t1):	2 s	
Time delay (t2):	adjustable, 0.3 – 30 s	

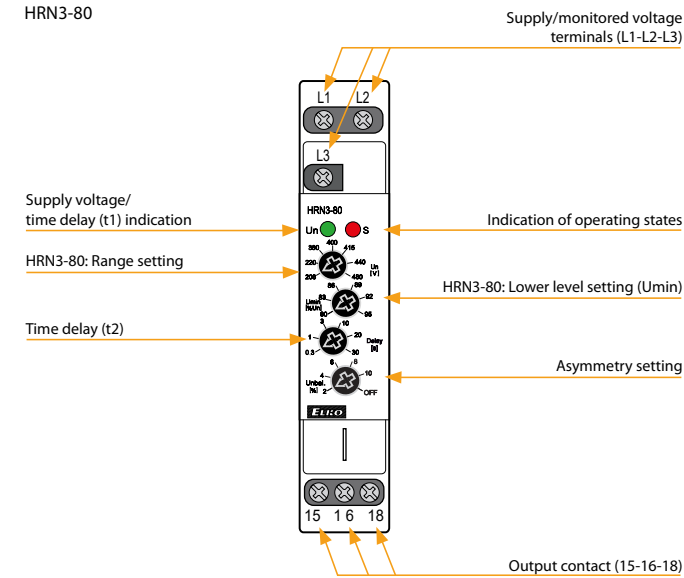
Accuracy	
Setting accuracy (mech.):	5 %
Repeat accuracy:	< 1 %
Temperature dependency:	< 0.1 %/°C (°F)
Hysteresis (fault to OK):	5 %

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.

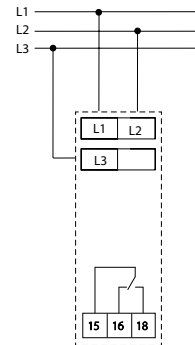
Other information	
Operating temperature:	-20 .. 55 °C (-4 .. 131 °F)
Storage temperature:	-30 .. 70 °C (-22 .. 158 °F)
Dielectric strength:	AC 4 kV (supply – output)
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP40 front panel / IP20 terminals
Overvoltage category:	III.
Pollution degree:	2
Cross-wire section – solid/stranded with ferrule (mm²):	max. 1x 2.5, 2x 1.5/ max. 1x 2.5 (AWG 14)
Dimensions:	90 x 52 x 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.

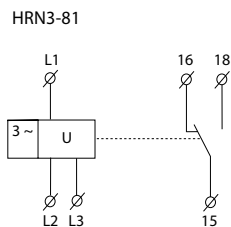
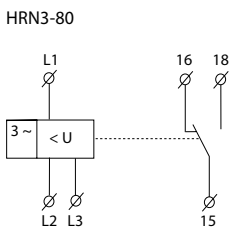
## Description



## Connection



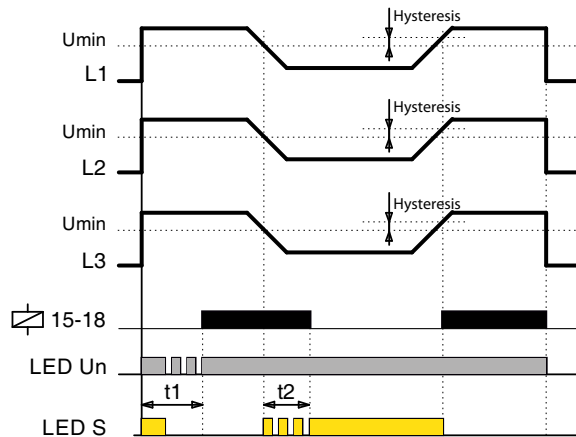
## Symbol



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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  $t_1$  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  $t_2$  has elapsed the green and red LEDs are lit. The output contact is open (fault state).

During the time delay  $t_2$ , the red „LED S“ flashes quickly.

If the phase sequence is incorrect when the power supply is connected, after the time delay  $t_1$  has elapsed the green and red LED flashes quickly. The output contact is open (fault state).

During the time delay  $t_1$ , the green „LED Un“ flashes.

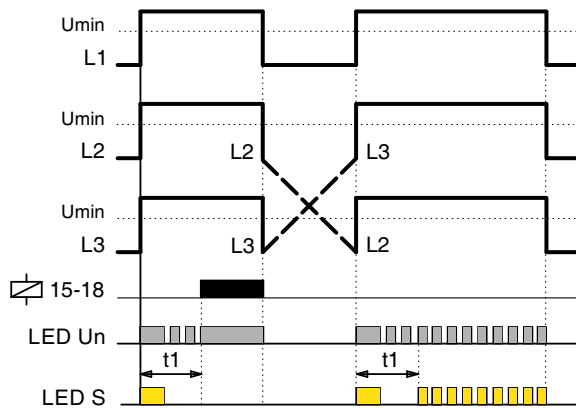
When the set phase asymmetry is exceeded, after the time delay  $t_2$  has elapsed the green LED is lit and the red LED flashes briefly. The output contact is open (fault state).

During the time delay  $t_2$ , the red „LED S“ flashes quickly.

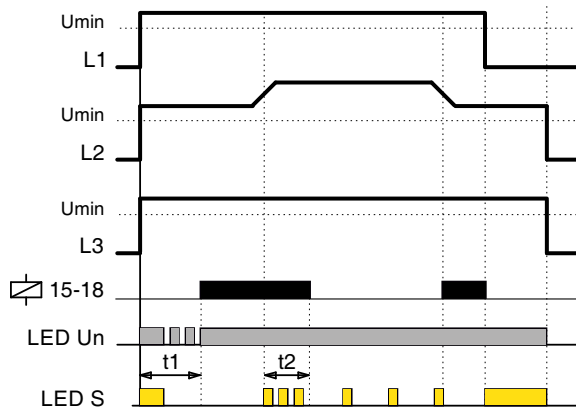
In the event of phase failure, the output contact opens without a time delay  $t_2$  (fault state), the green and red LEDs are lit.

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

### Phase sequence:





### Phase asymmetry, failure:



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