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Made in Czech Republic

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EN

HRN-54
HRN-54N

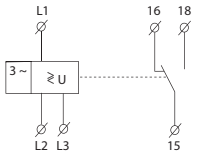
Voltage monitoring relays in 3P with adjustable levels

Characteristics

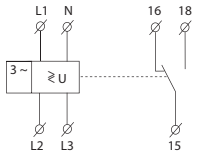
- Functionality: Designed to monitor overvoltage, undervoltage, phase sequence/ failure in a 3-phase network, ensuring equipment protection.
- Power supply: The relay is powered by the monitored voltage.
- Adjustable levels: Both the upper (Umax) and lower (Umin) voltage levels can be customized.
- Response delay: Adjustable response delay to eliminate the effects of short-term voltage drops and spikes.
- Fault state indication: Indicated by an illuminated red LED and by the opening of output contact.
- Phase failure protection: If any monitored phase drops below 60 %Un (UOFF bottom level), the output contact opens immediately without delay.
- **HRN-54:** Supply from L1-L2-L3, ensuring the relay remains operational even if one phase fails.
- **HRN-54N:** Supply from L1-L2-L3-N, allows the relay to monitor for neutral wire interruption.

Symbol

HRN-54

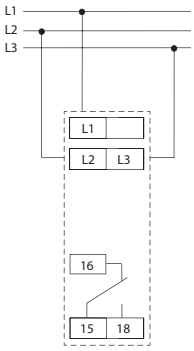


HRN-54N

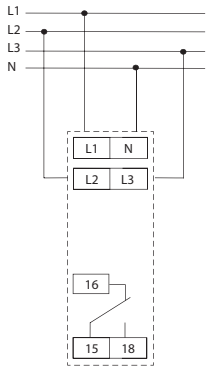


Connection

HRN-54

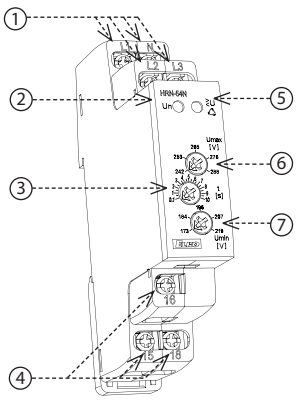


HRN-54N



Description

HRN-54N



1. Supply/monitored voltage terminals (L1-L2-L3-N)
2. Supply/monitored voltage indication
3. Response delay settings (t2)
4. Output contact (15-16-18)
5. Indication of operating states
6. Upper level settings (Umax)
7. Lower level settings (Umin)

Type of load	cos φ ≥ 0.95 AC1	AC2	AC3	AC5a uncompensated	AC5a compensated	HAL.230V AC5b	AC6a	AC7b	AC12
Contact material AgNi, 16A	250V / 8A	250V / 3A	250V / 2A	230V / 1.5A (345VA)	x	300W	x	250V / 1A	250V / 1A
Type of load	AC13	AC14	AC15	DC1	DC3	DC5	DC12	DC13	DC14
Contact material AgNi, 16A	x	250V / 3A	250V / 3A	24V / 8A	24V / 3A	24V / 2A	24V / 8A	24V / 2A	x

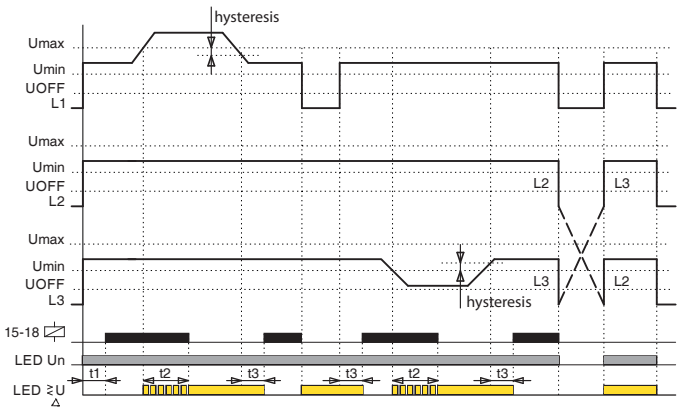
Technical parameters

	HRN-54	HRN-54N
Supply/monitored terminals:	L1-L2-L3	L1-L2-L3-N
Supply/monitored voltage:	3× 400 V (50-60 Hz)	3× 400 V/230 V (50-60 Hz)
Consumption (max.):	2 VA/1 W	
Upper level (Umax):	105 - 125 %Un	
Lower level (Umin):	75 - 95 %Un	
Max. permanent voltage:	AC 3× 460 V	AC 3× 265 V
Peak overload (<1ms):	AC 3× 500 V	AC 3× 288 V
Start delay (t1):	max. 500 ms	
Response delay (t2):	adjustable, 0.1 - 10 s	
Restart delay (t3):	max. 1 s	
Accuracy		
Hysteresis:	2 %	
Output		
Contact type:	1× changeover/SPDT (AgNi)	
Current rating:	8 A/AC1; PD. B300	
Breaking capacity:	2000 VA/AC1, 240 W/DC1	
Inrush current:	10 A	
Switching voltage:	AC 250 V/DC 24 V	
Power dissipation (max.):	0.6 W	
Mechanical life:	60.000.000 ops.	
Electrical life (AC1):	150.000 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/IP10 terminals	
Overvoltage category:	III.	
Pollution degree:	2	
Cross-wire section – solid/ stranded with ferrule (max.):	1× 4; 2× 2.5 mm² (1× 12; 2× 14 AWG)/ 1× 2.5; 2× 1.5 mm² (1× 14; 2× 16 AWG)	
Dimensions:	90 × 17.6 × 64 mm (3.5˝ × 0.7˝ × 2.5˝)	
Weight:	62 g (2.19 oz)	63 g (2.22 oz)
Standards:	EN 60255-1, EN 60255-26, EN 60255-27	

Warning

This device is constructed for connection in 3-phase network AC 3× 400 V or AC 3× 400/230 V (according to the type) and must be installed according to norms valid in the state of an application. Installation, connection, setting and servicing must be carried out by qualified electrician staff only, which have perfectly understood the instructions and functions of the device. This device contains protection against overvoltage peaks and disturbing impulses in the power supply network. For the correct function of the protection of this device, there must be suitable protections of higher degrees (A,B,C) installed in front of them and according to the standards, interference of switching devices must be securely eliminated (contactors, motors, inductive loads, etc.). Before installation, make sure that the device is de-energized and the main switch is in the "OFF" position. Don't install the device to sources of excessive electromagnetic interference. Ensure correct installation by perfect air circulation so that during continuous operation and a higher ambient temperature, the device does not exceed the maximum allowed operating temperature. For installation and setting use a screwdriver with a width of approx 2 mm. Keep in mind that this is a fully electronic device and approach accordingly with the installation. Non-problematic function of the device is also dependent on the previous method of transportation, storage, and handling. In case of any signs of damage, deformation, malfunction, or missing parts, don't install this device and claim it at the dealer. The product must be treated as electronic waste at the end of its life.

Function



The relay in a 3-phase network monitors the phase voltages magnitude. Two independent voltage levels can be set to monitor undervoltage and overvoltage separately.

Under normal conditions, the output contact remains closed when the voltage stays within the set levels, the red LED stays off . If the voltage exceeds or drops below the set levels, the output contact opens, and the red LED turns on to indicate a fault state (flashing during delay).

If the monitored voltage falls below 60 %Un (UOFF bottom level, phase failure), the output contact opens immediately without response delay (t2), and the red LED signals a fault state as in the previous case. If a phase failure occurs during an ongoing response delay the output contact opens immediately.