EVE - ETIREL

Over/undervoltage monitoring relay HRN-54, HRN-54N

Advantages

- Serves to monitor voltage, phase failure and sequence in switchboards, protection of devices in 3-phase mains
- 1-module, DIN rail mounting
- It is possible to set upper and lower level of monitoring voltage
- Adjustable time delay eliminates short voltage peaks and failures in the mains
- Faulty state is indicated by red LED and by breaking output relay contact
- Output contact: 1x changeover 8 A /250 V AC1
- $\blacksquare \quad \text{If the supply voltage falls below 60 \% U}_{n} \, (\text{U}_{\text{off}} \, | \text{lower level}) \, \text{the relay immediately breaks with no delay}$
- HRN-54 supply from all phases which means that the relay is functional also in case when one phase is faulty
- HRN-54N supply L1-N, means that relay monitors also failure of neutral wire



Over/undervoltage monitoring relay HRN-54, HRN-54N					
Туре	I _n	Code No.	Weight	Packaging	
	[A]		[g]	[pcs]	
HRN-54	8	002471416	69	1/10	
HRN-54N	8	002471412	67	1/10	

Level switch HRH-5

Advantages:

- Relay is designated for monitoring levels in wells, reservoirs, pools, tanks....
- In one device you can choose the following configurations:
 - one-level switch of conductive liquids (by connecting H and D)
 - two-level switch of conductive liquids
- One-state device monitors one level, twostate device monitors two levels (switches on one level and switches of on another level).
- Choice of function PUMP UP, PUMP DOWN

- Adjustable time delay on the output (0.5 -10s)
- Sensitivity adjustable by a potentio-meter (5-100kΩ
- Measuring frequency 10Hz prevents polarization of liquid and raising oxidation of measuring probes
- Galvanically separated supply voltage UNI 24.. 240 VAC/DC
- Output contact 1xchangeover 8A/250V AC1
- 1-module type, mounting onto a DIN rail

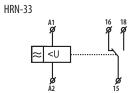


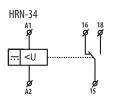
	Level switch HRH-5				
	Туре	Code No.	Weight [g]	Packaging [pcs]	
ı	HRH-5	002471715	72	1/8	

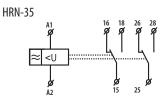
Voltage monitoring relay HRN-33, HRN-34, HRN-35

	HRN-33, HRN-34, HRN-35			
Туре	HRN-33	HRN-34	HRN-35	
Supply	A1-A2	A1-A2	A1-A2	
Universal supply	monitoring voltage range	monitoring voltage range	monitoring voltage range	
Consumption	max. 1,2 VA AC / DC	max. 1,2 VA AC / DC	max. 1,2 VA AC / DC	
Upper level Umax	160-276 V AC	18-30 V DC	160-276 V AC	
Bottom level Umin	30-99% Umax	30-99% Umax	30-99% Umax	
Time delay	0 -10 s.	0 -10 s.	0 -10 s.	
Setting accuracy (mechanical)	5 %	5 %	5 %	
Repeat accuracy	< 1 %	< 1 %	< 1 %	
Temperature coefficient	< 0,1% / °C	< 0,1% / °C	< 0,1% / °C	
Hysteresis	2-6 % of adjusted value	2-6 % of adjusted value	2-6 % of adjusted value	
Output				
Number of contacts	1 x changeover (AgNi)	1 x changeover (AgNi)	1 x changeover (AgNi) for each voltage level	
Rated current	16 A / AC1	16 A / AC1	16 A / AC1	
Breaking capacity	4000VA / AC1, 384W / DC	4000VA / AC1, 384W / DC	4000VA / AC1, 384W / DC	
Inrush current	30 / < 3s.	30 / < 3s.	30 / < 3s.	
Switching voltage	max. 250 V AC1 / 24V DC	max. 250 V AC1 / 24V DC	max. 250 V AC1 / 24V DC	
Min. breaking capacity DC	500mW	500mW	500mW	
Output indication	green / red LED	green / red LED	green / red LED	
Mechanical life	3x10 ⁷	3x10 ⁷	3x10 ⁷	
Electrical life	0.7x10 ⁵	0.7x10 ⁵	0.7x10 ⁵	
Controlling				
Operating temperature		-20+55 ℃		
Storage temperature	-30+70 °C			
Electrical strength	4 kV			
Operating position	any			
Mounting	DIN rail EN 60715			
Protection degree	IP 40 from front panel			
Overvoltage category	III.			
Pollution degree	2			
Max. cable size	2.5 mm ²			
Dimensions	90 x 17,6 x 64 mm			
Standards	EN 60255-6, EN 61010-1			









Functions

Legend:

Umax - upper adjustable level of voltage

Un - measured voltage

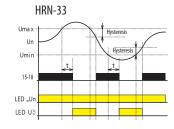
Umin - bottom adjustable level of voltage

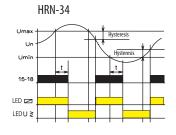
15-18 - switching contact of output relay No.1

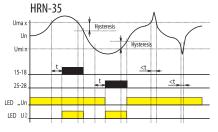
25-28 - switching contact of output relay No. 2

 $\mathsf{LED} \geq \mathsf{Un} \text{ - indication green}$

LED U≶- indication red







Connection

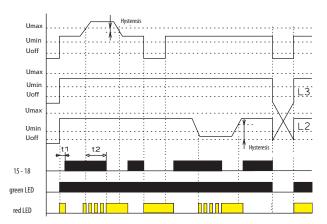
Over/undervoltage monitoring relay HRN-54, HRN-54N

Supply L1,L2,L3 L1,N Supply/measured voltage 3 x 400 V 3 x 400 V/230¹ Level U min 105 - 125% Un Level U max 105 - 125% Un Level U max 2 VA Hysteresis 5% Max. permanent overload 3 x 460V AC 3 x 265V AC Peak overvoltage <1ms. 3 x 500V AC 3 x 288V AC Time delayT1 max. 500 ms. Time delayT2 0.1 - 10 s. Output Number of contacts 1 x changeover (AgNi) Rated current 8 A / AC1 Breaking capacity 2500 VA / AC1, 240W / DC Inrush current 10 A Switching voltage max. 250V AC1 / 24V DC Min. breaking capacity DC 500mW Output indication red LED Mechanical life 1x10² Electrical life nax. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4 kV Operating position any Mounting DIN rail EN 60715 Protection degree 1P 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² Pimensions 90 x 17,6 x 64 mm	Technical data				
Supply L1,L2,L3 L1,N Supply/measured voltage 3 x 400 V 3 x 400 V/230¹ Level Umin 105 - 125% Un Consumption max. 2 VA Hysteresis 5 % Max. permanent overload 3 x 460V AC 3 x 265V AC Peak overvoltage <1ms. 3 x 500V AC 3 x 288V AC Time delayT1 max. 500 ms. Time delayT2 0.1 - 10 s. Output Number of contacts 1 x changeover (AgNi) Rated current 8 A / AC1 Breaking capacity 2500 VA / AC1, 240W / DC Inrush current 10 A Switching voltage max. 250V AC1 / 24V DC Min. breaking capacity DC Output indication red LED Mechanical life 1x10² Electrical life 1x10² Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -20+70 °C Electrical strength 4kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree Max. cable size 2.5 mm² Power of the death of the control of		HRN-54	HRN-54N		
Supply/measured voltage Level U min Level U min Level U min Level U min To5 - 95% Un 105 - 125% Un Consumption Max. 2 VA Hysteresis 5 % Max. permanent overload 3 x 460V AC 3 x 265V AC Peak overvoltage <1ms. 3 x 500V AC 3 x 288V AC Time delayT1 max. 500 ms. Time delayT2 0.1 - 10 s. Output Number of contacts 1 x changeover (AgNi) Rated current 8 A / AC1 Breaking capacity 10 A Switching voltage Min. breaking capacity DC Output indication Mechanical life 1 x 10 ⁷ Electrical life 1 x 10 ⁷ Electrical life 7 x 10 ⁵ Reset time Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength A kV Operating position Mounting DIN rail EN 60715 Protection degree 1 V 40 from front panel Overvoltage category Ill. Pollution degree 2 Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Supply and measuring	L1,L2,L3	L1,L2,L3,N		
Level U min 105 - 125% Un 105	Supply	L1,L2,L3	L1,N		
Level U _{max} Consumption max. 2 VA Hysteresis 5 % Max. permanent overload 3 x 460V AC 3 x 265V AC Peak overvoltage <1ms. 3 x 500V AC 3 x 288V AC Time delayT1 max. 500 ms. Time delayT2 Output Number of contacts 1 x changeover (AgNi) Rated current 8 A / AC1 Breaking capacity 10 A Switching voltage max. 250 V AC1 / 24 V DC Min. breaking capacity DC Output indication Mechanical life 1x10 ⁷ Electrical life 1x10 ⁵ Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength AkV Operating position Mounting DIN rail EN 60715 Protection degree 1	Supply/measured voltage	3 x 400 V	3 x 400 V/ 230 V		
Consumption max. 2 VA Hysteresis 5 % Max. permanent overload 3 x 460V AC 3 x 265V AC Peak overvoltage <1ms. 3 x 500V AC 3 x 288V AC Time delayT1 max. 500 ms. Time delayT2 0.1 - 10 s. Output Number of contacts 1 x changeover (AgNi) Rated current 8 A / AC1 Breaking capacity 2500 VA / AC1, 240W / DC Inrush current 10 A Switching voltage max. 250V AC1 / 24V DC Min. breaking capacity DC Output indication red LED Mechanical life 1x10 ⁷ Electrical life 1x10 ⁵ Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree Max. cable size 2.5 mm² 90 x 17,6 x 64 mm		75 - 9	75 - 95% Un		
Hysteresis 5 % Max. permanent overload 3 x 460V AC 3 x 265V AC Peak overvoltage <1ms. 3 x 500V AC 3 x 288V AC Time delayT1 max. 500 ms. Time delayT2 0.1 - 10 s. Output Number of contacts 1 x changeover (AgNi) Rated current 8 A / AC1 Breaking capacity 2500 VA / AC1, 240W / DC Inrush current 10 A Switching voltage max. 250 V AC1 / 24 V DC Min. breaking capacity DC 500mW Output indication red LED Mechanical life 1x107 Electrical life 1x105 Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category Pollution degree Aax. cable size 2.5 mm² 90 x 17,6 x 64 mm	Level U _{max}	105 - 1	105 - 125% Un		
Max. permanent overload A x 460V AC A x 265V AC Peak overvoltage <1ms. Time delayT1 Number of contacts Rated current Breaking capacity Inrush current Switching voltage Min. breaking capacity DC Output indication Mechanical life Ix 10 ⁷ Electrical life Ax 150 ms. Controlling Operating temperature Controlling Operating temperature Pollation degree Vervoltage category Min. proversions Protection degree Max. cable size Dimensions A x 460V AC 3 x 288V AC 3 x 288V AC A x 288V AC B x 288V AC A x 288V AC A x 288V AC A x 288V AC B x 288V AC A x 288V AC A x 288V AC B x 288V AC A x 288V AC A x 288V AC B x 288V AC B x 288V AC A x 288V AC B x 28V x 28 B x 265V x 28 B x 28V x 28 B x 265V AC B x 28V x 28 B x 265V x 28 B x 28V x 28 B x 265V x 28 B x 28V x 28 B x 265V x 28 B x 28V x 28 B x 265V x 28 B x 28V x 28 B x	Consumption	max	max. 2 VA		
Peak overvoltage <1ms. Time delayT1 Time delayT2 Output Number of contacts Rated current Breaking capacity Inrush current Switching voltage Min. breaking capacity DC Output indication Mechanical life Ix10 ⁷ Electrical life Reset time Tax. 150 ms. Controlling Operating temperature Storage temperature Electrical strength Operating position Mounting Protection degree Max. cable size Dimensions 3 x 500V AC 3 x 288V AC 6 A E A C Bax. 240 B C A C A C A C A C A C A C A C A C A C	Hysteresis	5	5 %		
Time delayT1 max. 500 ms. Time delayT2 0.1 - 10 s. Output Number of contacts 1 x changeover (AgNi) Rated current 8 A / AC1 Breaking capacity 2500 VA / AC1, 240 W / DC Inrush current 10 A Switching voltage max. 250 V AC1 / 24 V DC Min. breaking capacity DC 500mW Output indication red LED Mechanical life 1x10² Electrical life 1x10⁵ Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Max. permanent overload	3 x 460V AC	3 x 265V AC		
Time delayT2 Output Number of contacts Rated current Breaking capacity Inrush current Switching voltage Min. breaking capacity DC Output indication Mechanical life Ix10 ⁷ Electrical life Tx10 ⁵ Reset time Max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength A kV Operating position Mounting DIN rail EN 60715 Protection degree Overvoltage category Max. cable size Dimensions 1 x changeover (AgNi) A A / AC1 B A /	Peak overvoltage <1ms.	3 x 500V AC	3 x 288V AC		
Output Number of contacts 1 x changeover (AgNi) Rated current 8 A / AC1 Breaking capacity 2500 VA / AC1, 240W / DC Inrush current 10 A Switching voltage max. 250 V AC1 / 24V DC Min. breaking capacity DC 500mW Output indication red LED Mechanical life 1x10² Electrical life 1x10⁵ Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4 kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Time delayT1	max.	max. 500 ms.		
Number of contacts Rated current Rated current Rated current Rated current Reaking capacity 10 A Switching voltage Min. breaking capacity DC Output indication Mechanical life 1x10 ⁷ Electrical life 1x10 ⁵ Reset time Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength AkV Operating position Mounting DIN rail EN 60715 Protection degree Overvoltage category Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Time delayT2	0.1	- 10 s.		
Rated current Breaking capacity 2500 VA / AC1, 240W / DC Inrush current 10 A Switching voltage Min. breaking capacity DC Output indication Mechanical life 1x10 ⁷ Electrical life 1x10 ⁵ Reset time Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength AkV Operating position Mounting DIN rail EN 60715 Protection degree Overvoltage category Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Output				
Breaking capacity Breaking capacity 10 A Switching voltage Min. breaking capacity DC Output indication Mechanical life 1x10 ⁷ Electrical life 1x10 ⁵ Reset time Max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength AkV Operating position Mounting DIN rail EN 60715 Protection degree Overvoltage category Pollution degree Max. cable size 2500 VA / AC1, 240 W / DC max. 250 V AC1 / 24 V DC 500mW max. 250 V AC1 / 24 V DC 500mW max. 250 V AC1 / 24 V DC 500mW Table 1x10 ⁷ Electrical life 1x10 ⁵ Reset time -20+55 °C Storage temperature -30+70 °C Electrical strength 4 kV Operating position any Mounting DIN rail EN 60715 IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Number of contacts	1 x changeover (AgNi)			
Inrush current Switching voltage Min. breaking capacity DC Output indication Mechanical life Electrical life Ix10° Reset time Max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength AkV Operating position Mounting DIN rail EN 60715 Protection degree Overvoltage category Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Rated current	8 A	8 A / AC1		
Switching voltage max. 250 V AC1 / 24 V DC Min. breaking capacity DC S00mW Output indication red LED Mechanical life 1x10 ⁷ Electrical life 1xx10 ⁵ Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Breaking capacity	2500 VA / A	2500 VA / AC1, 240W / DC		
Min. breaking capacity DC Output indication Mechanical life 1x10 ⁷ Electrical life 1x10 ⁵ Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4 kV Operating position Mounting DIN rail EN 60715 Protection degree Overvoltage category Pollution degree 2 Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Inrush current	1	10 A		
Output indication red LED Mechanical life 1x10 ⁷ Electrical life 1x10 ⁵ Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Switching voltage	max. 250 V	max. 250 V AC1 / 24 V DC		
Mechanical life 1x10 ⁷ Electrical life 1x10 ⁵ Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Min. breaking capacity DC	500	500mW		
Electrical life 1x10 ⁵ Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Output indication	rec	red LED		
Reset time max. 150 ms. Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4 kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Mechanical life	1)	1x10 ⁷		
Controlling Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4 kV Operating position Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category Pollution degree 2 Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Electrical life	1)	1x10 ⁵		
Operating temperature -20+55 °C Storage temperature -30+70 °C Electrical strength 4 kV Operating position Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Reset time	max.	max. 150 ms.		
Storage temperature -30+70 °C Electrical strength 4 kV Operating position Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category Bill. Pollution degree 2 Max. cable size 2.5 mm² 90 x 17,6 x 64 mm	Controlling				
Electrical strength 4 kV Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Operating temperature	-20	+55 ℃		
Operating position any Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Storage temperature	-30	-30+70 °C		
Mounting DIN rail EN 60715 Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Electrical strength	4	4 kV		
Protection degree IP 40 from front panel Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Operating position	a	any		
Overvoltage category III. Pollution degree 2 Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Mounting	DIN rail	DIN rail EN 60715		
Pollution degree 2 Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Protection degree	IP 40 from	IP 40 from front panel		
Max. cable size 2.5 mm² Dimensions 90 x 17,6 x 64 mm	Overvoltage category		III.		
Dimensions 90 x 17,6 x 64 mm	Pollution degree		2		
	Max. cable size	2.5	2.5 mm ²		
Standards EN 60255-6, EN 61010-1	Dimensions	90 x 17,0	90 x 17,6 x 64 mm		
	Standards	EN 60255-6	EN 60255-6, EN 61010-1		

HRN-54 HRN-54N HRN-54N

Functions

Connection



Function description

Relay in 3-phase main monitors size of phase voltage. It is possible to set two independent voltage levels and thus it is possible to set two independent voltage levels and monitor e.g. undervoltage and overvoltage independent. In normal state when voltage is within set levels, output relay is closed and red LED shines. In case voltage exceeds or falls below the set levels, output relay breaks and red LED shines (LED indicates faulty state — flashes when timing). In case of In case supply voltage falls below 60 % Un (U $_{\rm Off}$ lower level) relay immediately breaks without delay and faulty state is indicated by red LED. In case timing is in progress and faulty state is indicated, timing is immediately stopped.

Description

