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Made in Czech Republic

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EN

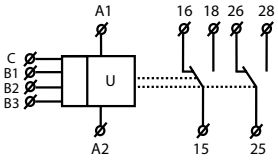
HRN-41
HRN-42

Monitoring voltage relay

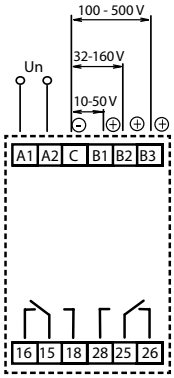
Characteristics

- relay designed for monitoring DC and AC voltage in three ranges
- the relay controls the size of the voltage in two independent levels (Umin, Umax)
- setting the monitored level Umax (in % of range)
- setting the monitored level Umin
  (in % of range - for HRN-42 -function WINDOW),
  (in % of the set upper limit - for HRN-41 - function HYSTERESIS)
- adjustable function "MEMORY"
- function of second relay (independently / in parallel)
- adjustable delay for eliminating short-term outages and surges for every level independently
- galvanically separated power supply from monitoring inputs
- output contact 2x switching 16 A / 250 V AC1 for each monitored voltage level
- in 3-MODULE design, fixing to DIN rail

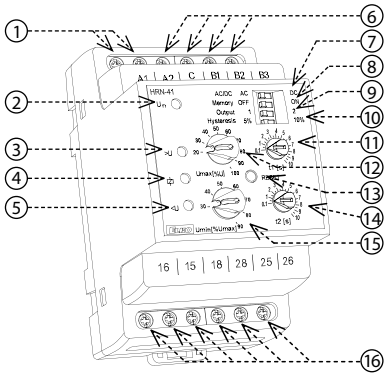
Symbol



Connection



Description



1. Supply voltage terminals
2. Supply indication
3. Indication Umax
4. Output indication
5. Indication Umin
6. Current voltage terminals
7. AC/DC
   - if alternating current voltage is connected when measuring DC or direct current voltage is connected when measuring AC, or if there is incorrect polarity of DC, a polarity error is reported - both red LEDs flash and relays are open
8. Memory
   - when the memory is switched on, the indication of an error status is maintained until the moment of reset by means of a button (if in between, the OK status occurs)
9. Output
   - position 1 - both relays work simultaneously (they open in error status)
   - position 2 - the relays work independently - relay 15-16-18 corresponds to the upper level (Umax), relay 25-26-28 corresponds to the lower level (Umin)
10. Hysteresis - setting the hysteresis upon returning from an error state
11. t1 - time delay for Umax
12. Adjusting upper level - Umax
13. Button RESET
14. t2 - time delay for Umin
15. Adjusting bottom level - Umin
16. Output contact

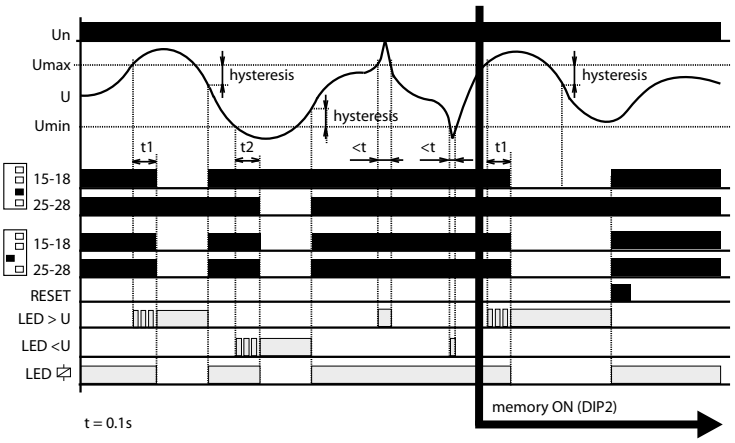
Type of load	cos φ ≥ 0.95 AC1	AC2	AC3	AC5a uncompensated	AC5a compensated	HAL.230V AC5b	AC6a	AC7b	AC12
Mat. contacts AgNi, contact 16A	250V / 16A	250V / 5A	250V / 3A	230V / 3A (690VA)	x	800W	x	250V / 3A	250V / 10A
Type of load	AC13	AC14	AC15	DC1	DC3	DC5	DC12	DC13	DC14
Mat. contacts AgNi, contact 16A	250V / 6A	250V / 6A	250V / 6A	24V / 16A	24V / 6A	24V / 4A	24V / 16A	24V / 2A	24V / 2A

Technical parameters

	HRN-41	HRN-42	
Supply			
Supply terminals:	A1 - A2		
Supply voltage:	AC 110 V, AC 230 V, AC 400 V or AC/DC 24 V (AC 50 - 60 Hz)		
Consumption max.:	2.5 W / 5 VA (AC 110 V, AC 230 V, AC 400 V), 1.4 W / 2 VA (AC/DC 24 V)		
Supply voltage tolerance:	-15 %; +10 %		
Measuring			
Ranges:*	AC/DC 10 - 50 V (AC 50 - 60 Hz)	AC/DC 32 - 160 V (AC 50 - 60 Hz)	AC/DC 100 - 500 V (AC 50 - 60 Hz)
Terminals:	B1 - C	B2 - C	B3 - C
Input resistance:	212 kΩ	676 kΩ	2.12 MΩ
Max. permanent current:	100 V	300 V	600 V
Inrush overload < 1ms:	250 V	700 V	1 kV
Time delay for Umax:	adjustable 0.1 - 10 s		
Time delay for Umin:	adjustable 0.1 - 10 s		
Accuracy			
Time deviation:	5%		
Repeat accuracy:	< 1%		
Dependance on temperatur.:	< 0.1 % / °C		
Tolerance of limit values:	5 %		
Hysteresis (from fault to o.k.):	selectable 5 % / 10 % from range		
Output			
Number of contacts:	2x changeover / SPDT (AgNi / Silver Alloy)		
Rated current:	16A / AC1		
Switching capacity:	4000 VA / AC1, 384 W / DC		
Inrush current:	30 A < 3 s		
Switching voltage:	250 V AC 1 / 24 V DC		
Output indication:	yellow LED		
Mechanical life:	3×10^7		
Electrical life (AC1):	0.7×10^5		
Other information			
Operating temperature:	-20 °C to +55 °C (-4 °F to 131 °F)		
Storage temperature:	-30 °C to +70 °C (-22 °F to 158 °F)		
Electrical strength:	4 kV (supply - output)		
Operating position:	any		
Mounting:	DIN rail EN 60715		
Protection degree:	IP40 from front panel / IP20 terminals		
Overvoltage cathegory:	III.		
Pollution degree:	2		
Max. cable size (mm^2):	solid wire max. 1x 2.5 or 2x 1.5 / with sleeve max. 1x 1.5 (AWG 12)		
Dimensions:	90 x 52 x 65 mm (3.5˝ x 2˝ x 2.6˝)		
Weight:	246 g (8.7 oz.) (110 V, 230 V, 400 V); 146 g (5.1 oz.) (24 V)		
Standards:	EN 60255-6, EN 61010-1		

* Only one of the inputs can be connected.

Function



- if the value of the monitored voltage is in the zone between the set upper and lower levels, the status OK occurs - both relays are closed and the yellow LED illuminates. If the value of the monitored voltage is outside the set limits (> Umax or < Umin), an error state occurs.
- when moving to an error state U > Umax, it times the delay t1 and a red LED > U simultaneously flashes. After the t1 time elapses, the red LED > U illuminates and the relevant relay opens.
- when moving to an error state U < Umin, it times the delay t2 and a red LED < U simultaneously flashes. After the time t2 elapses, the red LED < U illuminates and the relevant relay opens.
- when moving from the error status to the OK status, the relevant red LED immediately goes out, and the corresponding relay closes.

Warning

Device is constructed for connection for 1-phase main or DC circuits (according to types, it is necessary to observe voltage ranges) and must be installed in accordance with regulations and standards applicable in a country of use. Installation, connection and setting can be done only by a person with an adequate electro-technical qualification which has read and understood this instruction manual and product functions. The device contains protections against over-voltage peaks and disturbing elements in the supply main. Too ensure correct function of these protection elements it is necessary to front-end other protective elements of higher degree (A, B, C) and screening of disturbances of switched devices (contactors, motors, inductive load etc.) as it is stated in a standard. Before you start with installation, make sure that the device is not energized and that the main switch is OFF. Do not install the device to the sources of excessive electromagnetic disturbances. By correct installation, ensure good air circulation so the maximal allowed operational temperature is not exceeded in case of permanent operation and higher ambient temperature. While installing the device use screwdriver width approx. 2 mm. Keep in mind that this device is fully electronic while installing. Correct function of the device is also depended on transportation, storing and handling. In case you notice any signs of damage, deformation, malfunction or missing piece, do not install this device and claim it at the seller. After operational life treat the product as electronic waste.