

**ELKO EP, s.r.o.**  
 Palackého 493  
 769 01 Holešov, Všetuly  
 Czech Republic  
 Tel.: +420 573 514 211  
 e-mail: elko@elkoep.com  
 www.elkoep.com

Made in Czech Republic

02-84/2016 Rev.: 1



## HRN-56

Relay for monitoring phase sequence and failure



### Characteristics

- relay monitors phase sequence and failure (e.g. control of correct motor winding etc.)
- relay is designated for monitoring of 3-phase networks
- supply from all phases which means that relay is functional also in case of one phase failure
- supply and monitored supply  $U_n$ :

1 MODULE:

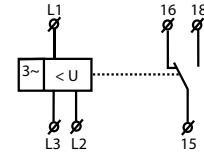
HRN-56/120 - 3 x 120 V  
 HRN-56/208 - 3 x 208 V  
 HRN-56/240 - 3 x 240 V  
 HRN-56/400 - 3 x 400 V

3 MODULE:

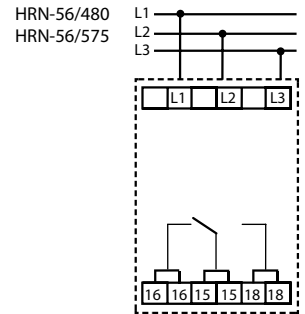
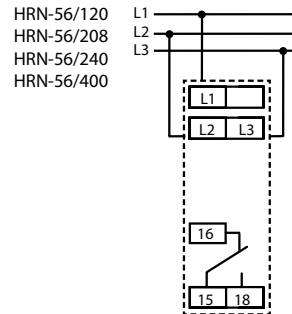
HRN-56/480 - 3 x 480 V  
 HRN-56/575 - 3 x 575 V

- fixed time delay T1 (500 ms) and adjustable time delay T2 (0 -10 s)
- faulty state is indicated by LED and by opening of output relay contact
- output contact 1x changeover / SPDT 8 A / 250V AC1
- 1-MODULE / 3- MODULE, DIN rail mounting

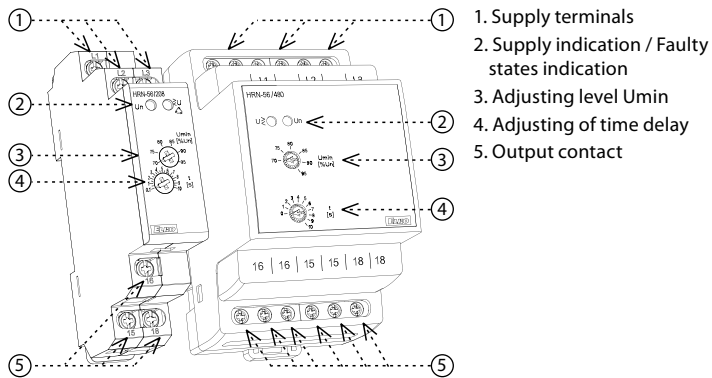
### Symbol



### Connection



### Description



Type of load	$\cos \varphi \geq 0.95$	AC2	AC3	AC5a uncompensated	AC5a compensated	AC5b	AC6a	AC7b	AC12
Mat. contacts AgNi, contact 8A	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
Mat. contacts AgNi, contact 8A	x	250V / 3A	250V / 3A	24V / 8A	24V / 3A	24V / 2A	24V / 8A	24V / 2A	x

## Technical parameters

120 208 240 400 480 575

Supply and measuring:	L1, L2, L3					
Supply terminals:	L1, L2, L3					
Supply / measured voltage:	3 x 120V / 50-60 Hz	3 x 208V / 50-60 Hz	3 x 240V / 50-60 Hz	3 x 400V / 50-60 Hz	3 x 480V / 50-60 Hz	3 x 575V / 50-60 Hz
Consumption:	max. 2 VA / 1 W					
Max. dissipated power (Un + terminals):	2 W					
Level Umin:	adjustable 70 - 95 % Un					
Level Uoff:	60% Un					
Hysteresis:	2%					
Max. permanent voltage:	AC 3x 160V	AC 3x 276 V	AC 3x 460 V	AC 3x 550 V	AC 3x 660 V	AC 3x 700 V
Peak overload < 1s:	AC 3x 180V	AC 3x 300 V	AC 3x 500 V	AC 3x 600 V	AC 3x 700 V	AC 3x 700 V
Time delay t1:	max. 500 ms					
Time delay t2:	adjustable 0 - 10 s					

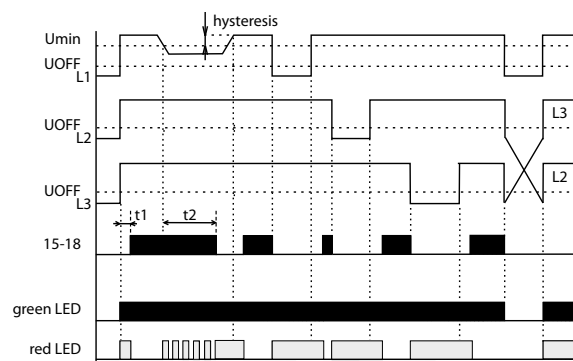
### Output

Number of contacts:	1x changeover / SPDT (AgNi / Silver Alloy)					
Rated current:	8 A/ AC1					
Switching capacity:	2000 VA/ AC1, 240 W/ DC					
Inrush current:	10 A					
Switching voltage:	250 V AC / 24 V DC					
Indication of output:	red LED					
Mechanical life:	1x10 <sup>7</sup>			3x10 <sup>7</sup>		
Electrical life (AC1):	1x10 <sup>5</sup>					

### 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 IP10 terminals			IP40 from front panel IP20 terminals		
Overvoltage category:	III.					
Pollution degree:	2					
Max. cable size (mm <sup>2</sup> ):	solid wire max. 2x 2.5, max. 1x 4 / with sleeve 1x 2.5, max. 2x 1.5 (AWG 12)			max. 1x 2.5, max. 2x 1.5 / with sl. max. 1x 1.5 (AWG12)		
Dimensions:	90 x 17.6 x 64 mm (3.5" x 0.7" x 2.5")			90x52x65 mm (3.5x2x2.6")		
Weight:	65 g (2.3 oz)	65 g (2.3 oz)	65 g (2.3 oz)	66 g (2.3 oz)	110 g (3.9 oz)	110 g (3.9 oz)
Standards:	EN 60255-6, EN 61010-1					

## Function



Relay in 3-phase main monitors correct phase sequence and phase failure. Green LED illuminates permanently and indicates energization. In case of phase failure red LED flashes and relay turns off. When changing to faulty state, time delay applies - delay setting is done by potentiometer on the front panel of the device. In case of incorrect phase sequence, red LED shines permanently and relay is open. In case supply voltage falls below 60% Un (U<sub>OFF</sub> lower level) relay immediately opens with no delay and faulty state is indicate by red LED.

**HRN-56:** Thanks to supply from all phases, relay is functional also in case of one phase failure.

### Warning

The device is constructed to be connected into 3-phase main and must be installed in accordance with regulations and norms applicable in a particular country. 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. To 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.