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Made in Czech Republic

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## HRF-10

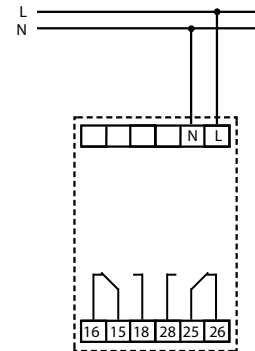
### Frequency monitoring relay



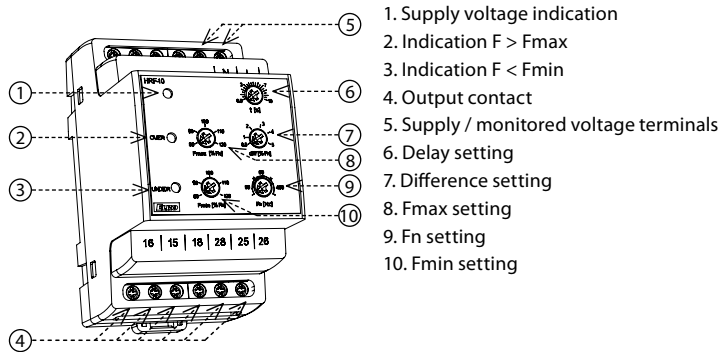
#### Characteristics

- The relay serves to monitor frequency of AC voltage, e.g. in photovoltaic power stations, generators.
- The monitored frequency 50 / 60 / 400 Hz is selected by a switch
- Two adjustable levels of frequency (Fmin, Fmax) in the range of 80 - 120 % Fn
- Adjustable difference level.
- Adjustable delay level.

#### Connection

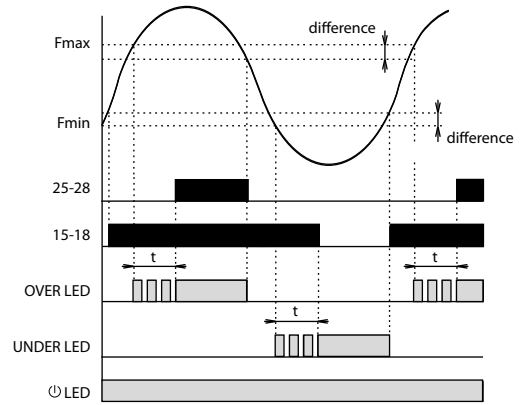


#### Description



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

HRF-10	
Supply and monitoring terminals:	L, N
Supply voltage:	AC 161 - 500 V
Rated frequency Fn:	50 / 60 / 400 Hz
Burden (max):	1.7 VA / 1.1 W
Max. dissipated power (Un + terminals):	2 W
Overload capacity	
- continuous:	500 V
- max. 10 s:	550 V
Frequency Fmax:	adjustable 80 - 120 % Fn
Frequency Fmin:	adjustable 80 - 120 % Fn
Difference:	adjustable 0.5 - 5 % Fn
Delay (until failure):	adjustable 0.5 - 10 s
Opening level (Uopen):	161 V
Output relay - contact:	2x changeover / SPDT (AgNi) gilded
AC contact capacity:	250 V / 8 A, max. 2000 VA
DC contact capacity:	30 V / 8 A
Mechanical life:	30 000 000
<b>Other information</b>	
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 strenght (supply - relay contact):	4 kV / 1 min.
Overvoltage category:	III.
Pollution degree:	2
Protection degree:	IP40 front panel / IP20 terminals
Max. cable size (mm <sup>2</sup> ):	max. 2x 1.5 / 1x 2.5 (AWG 12)
Dimensions:	90 x 52 x 64 mm (3.5 x 2 x 2.6")
Weight:	127 g (4.5 oz.)
Standards:	EN 61000-6-2, EN 61000-6-4, EN 60255-1, EN 60255-26, EN 60255-27



After the supply (monitored) voltage is connected, the green LED is on.

If the value of the monitored frequency falls within the range between the two set levels Fmin - Fmax no red LED is on. The relay UNDER is triggered (contacts 15-16-18) and the relay OVER is disconnected (contacts 25-26-28).

If the monitored frequency exceeds the set level Fmax, the relay OVER is triggered after the set delay timing elapses and the red LED OVER goes on. The red LED flashes during the timing.

If the monitored frequency drops below Fmax - difference, the relay is activated without delay and the red LED OVER goes off.

If the monitored frequency drops below the set level Fmin, the relay UNDER is disconnected after the set delay timing elapses and the red LED UNDER goes on. The red LED flashes during the timing. If the monitored frequency exceeds the level Fmin + the difference, the relay is triggered without delay and the red LED UNDER goes off.

If the monitored voltage is lower than the opening level Uopen both the relays are disconnected and both the red LED (UNDER and OVER) start flashing slowly - indicating insufficient supply voltage.

**Warning**

Device is constructed for connection in 1-phase main alternating current voltage and must be installed according to norms valid in the state of application. Connection according to the details in this direction. Installation, connection, setting and servicing should be installed by qualified electrician staff only, who has learnt these instruction and functions of the device. This device contains protection against overvoltage peaks and disturbances in supply. For correct function of the protection of this device there must be suitable protections of higher degree (A, B, C) installed in front of them. According to standards elimination of disturbances must be ensured. Before installation the main switch must be in position "OFF" and the device should be de-energized. Don't install the device to sources of excessive electro-magnetic interference. By correct installation ensure ideal air circulation so in case of permanent operation and higher ambient temperature the maximal operating temperature of the device is not exceeded. For installation and setting use screw-driver cca 2 mm. The device is fully-electronic - installation should be carried out according to this fact. Non-problematic function depends also on the way of transportation, storing and handling. In case of any signs of destruction, deformation, nonfunction or missing part, don't install and claim at your seller.