



RHB

19AA2801021\$B

Frequency relay with two thresholds and instantaneous outputs

General characteristics

The electronic relays of the RHB series have been designed and realized with characteristics and components which render them suitable to severe duty and to sophisticated application. They feature a high degree of reliability and accuracy with very precise and constant settings.

Three basic versions are available:

- RHB Function: 81> and 81< definite time,
- RHB/20 Function: 2 x 81> definite time,
- RHB/2U Function: 2 x 81< definite time.

All versions can be fitted with start-time element associated to both the functions.

The execution of the unit is modular on standard European size withdrawable P.C. board with 51 mm. Wide front versions « E » for flush mounting, « E/I » for protruding mounting and « E/R » for 19"3U rack mounting are available.

Settings

Settings are made on front face by means of four 4-pole DIP SWITCHES that allow to obtain a wide and accurate setting range for the following regulations:

- Trip threshold of the first level
- First level trip time delay
- Trip threshold of the second level
- Second level trip time delay

Signalizations

- One green LED for signalization of auxiliary supply presence and relay regular operation.
- One red LED for first level trip signalization.
- One yellow LED for second level trip signalization.

Commands

Test spring lever switch: when pressed it simulates a trip frequency and allows the complete functional check of the relay and of the trip time delays.

In one position test function operates the first element and in the other operates the second element.

On request, the test function can either operate or not output relays.

Output relays reset, after trip, can be:

- Manual by reset push button on front face.
- Manual by remote push button connected to the relevant terminals provided on relay terminal board.
- Automatic with differential 10% ΔF, by connecting a bridge on remote reset terminals.

The trip signal LEDs can be reset only by the front face reset push button.

Output relays

One relay for the first level and one for the second are provided.

Each of them can have one of the following contact arrangement:

1 N/O + 1 N/C or 2 N/O or 2 N/C

Moreover, the start time output can be fitted with two open collector transistors or with two relays with 1 N/O contact rating 1A.

The output relays are normally deenergized (energized on trip); on request they can be normally energized (deenergized on trip).

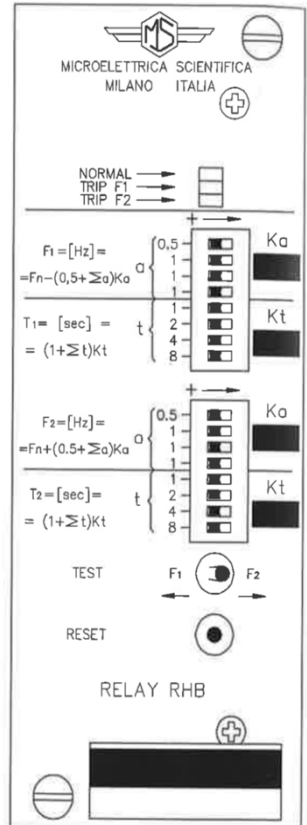
Start time output

On request the relay is fitted with a relay output associated to the time start of each element.

This output is activated as soon as the frequency goes beyond the set threshold and remains switched-on until the frequency come back to the reset value.

Open collector:

Lmax = 0,5A – Vmax = 40V – Pmax = 0,3W with 100 Ω series resistors.





Settings of trip level and trip time delay

Setting is made either for the trip frequency and the concerning trip time delay by means of 4-pole DIP SWITCHES. The actual trip level set point is given in Hz and a be modified by switching-on one or more of the four poles of the DIP SWITCH each one having its definite weigh "a". The trip level is then the sum of a constant base plus the addition of all the terms "a" corresponding to the poles switched-on, all multiplied by their scale coefficient "Ka". The setting of the trip time delay is made in the same way as that of the frequency: the actual set time delay in seconds is given by the sum of a constant base plus the addition of all the terms « t » corresponding to the poles switches-on, all multiplied by their scale coefficient « kt ».

Standard setting ranges

Underfrequency trip levels: F<=Fn - (0,5 ÷ 4) x Ka
- Ka = 0,5: F< = Fn - (0,25 ÷ 2) Hz resolution 0,25 Hz
- Ka = 1: F< = Fn - (0,5 ÷ 4) Hz resolution 0,5 Hz
- Ka = 2: F< = Fn - (1 ÷ 8) Hz resolution 1 Hz

Overfrequency trip levels: F>=Fn + (0,5 ÷ 4) x Ka
- Ka = 0,5: F> = Fn + (0,25 ÷ 2) Hz resolution 0,25 Hz
- Ka = 1: F> = Fn + (0,5 ÷ 4) Hz resolution 0,5 Hz
- Ka = 2: F> = Fn + (1 ÷ 8) Hz resolution 1 Hz

Trip time delays: T= (1 ÷ 16) Kt sec
- Kt = 0,1: T = (0,1 ÷ 1,6) s resolution 0,1 sec
- Kt = 0,5: T = (0,5 ÷ 8) s resolution 0,5 sec
- Kt = 1: T = (1 ÷ 16) s resolution 1 sec

In case of automatic reset, the reset differential is equal to 10% of the set frequency difference: (F - Fn) x 10%

Special operation for RHB/2o-45

The measurement chain of the RHB relay is equipped with a "filter" allowing it to ensure the zero crossing of the input signal despite the possible distortion by harmonics of this reference signal. This filtering, which guarantees the correct operation of the measurement chain, gives the RHB relay a response time of 80ms (@50hz), i.e. 4 periods.) This filtering time is added to the operating delay of the relay.

Wiring diagram

