

Basic Range

BF1-U- Underfrequency Relay

Application

Underfrequency supervision of 1 or 3 phase systems.

Function

The unit BF1-U is equipped with an underfrequency supervision ($f<$) with adjustable pick-up values and trip delays. The measured frequency is continuously compared with the set reference values.

For frequency supervision the cycle duration is evaluated and so measuring is virtually independent on harmonics. To avoid tripping, during normal operation due to interference voltages, a fixed measuring repetition is used.

Technical data

Rated voltage U_n	: 110 V, 230 V, 400 V AC
frequency range at	
50 Hz rated frequency	: 46 - 50 Hz
60 Hz rated frequency	: 55.2 - 60 Hz
Tolerance	: $\pm 1\%$ of of rated frequency
Hysteresis	: 0.5 % of of rated frequency
power consumption	: 3.7 VA
Thermal load carrying capacity	: continuously 1.3 x U_n
Returning time	: 250 ms
Minimum operating time	: 250 ms

Output relay

Maximum breaking capacity ohmic	: 1250 VA AC/120 W DC
Inductive	: 500 VA AC/75 W DC
Rated current	: 5 A
Making current	: 20 A

System data

Regulations	: VDE 0435 part 303
Temperature range at storage and operation	: -25°C to +70°C

Mechanical stress

Shock	: Class 1 acc. to DIN IEC 255-21-2
Vibration	: Class 1 acc. to DIN IEC 255-21-1
Degree of protection unit front	: IP 40 at closed front cover
Weight	: approx. 0.5 kg
Mounting position	: any

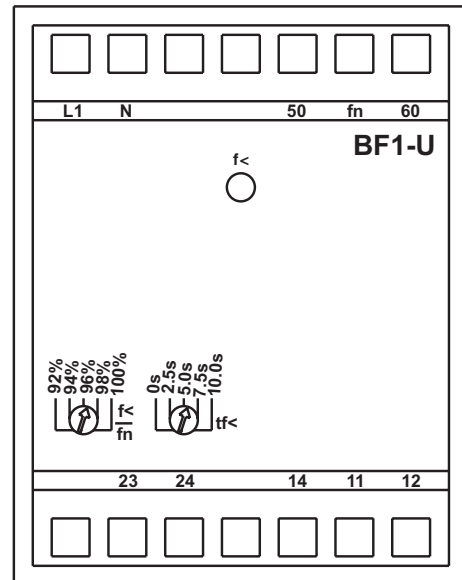


Fig. 1 : Front plate

The unit BF1-U is designed to be fastened onto a DIN rail acc. to DIN EN 50022 same as all units of the BASIC RANGE.

The front plate of the unit is protected with a sealable transparent cover (IP40).

Please remove the transparent cover with a screw driver to adjust the relay.

LEDs

LED $f<$ indicates pick-up of the relay by flashing.

LED $f<$ extinguishes at underfrequency.

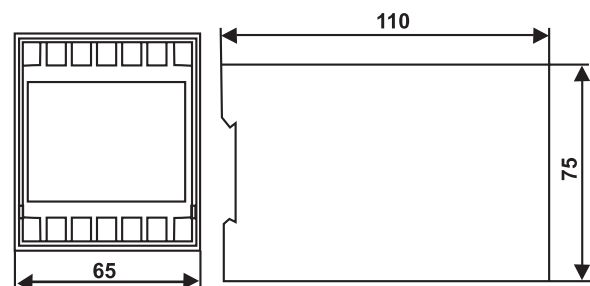


Fig. 2 : Dimensional drawing BF1-U

Auxiliary voltage supply

Unit **BF1-U** needs no separate auxiliary voltage supply. The supply voltage can be formed directly from the measuring quantity.

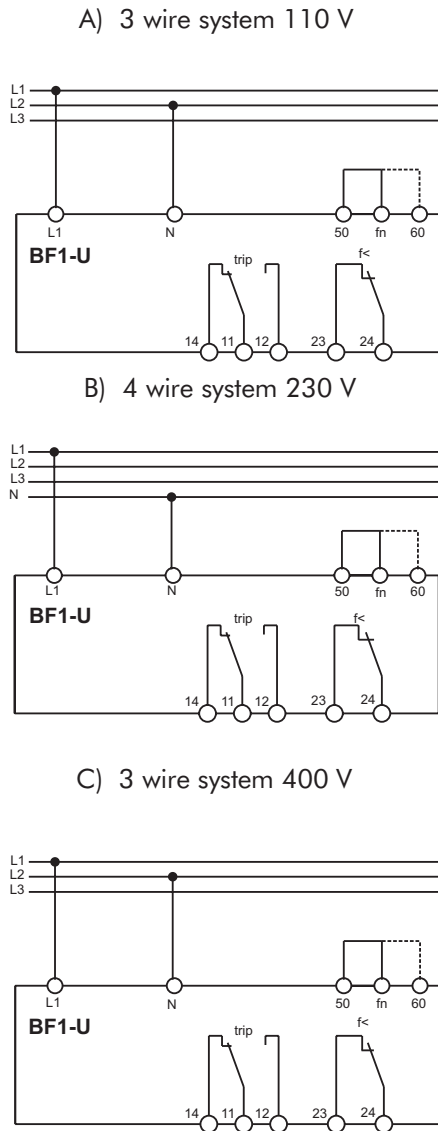
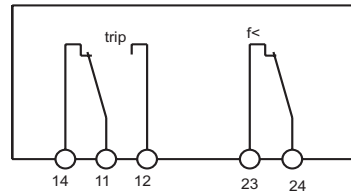
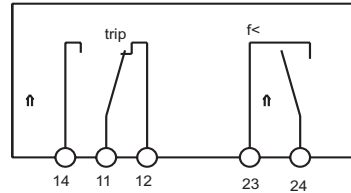


Fig. 3. Connection diagram

System	Relay type	Connection diagram
3 Phase 110 V	BF1-U-110	A
3 Phase 230 V with N	BF1-U-230	B
3 Phase 400 V	BF1-U-400	C



Unit dead or underfrequency



Operation without a fault

Fig. 4: Contact positions

Connecting terminals

The connection up to a maximum of $2 \times 2.5 \text{ mm}^2$ cross-section conductors is possible. For this procedure the transparent cover of the unit has to be removed.

Setting ranges

$f_{<}$: 92 - 100 % f_n
 $t_{f<}$: 0 - 10 s

Order key

BF1-U	
110 V AC	110
230 V AC	230
400 V AC	400

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