

# Basic Range

## BA1- Voltage balance relay

### Application

Supervision of voltage unbalance in three-phase systems, phase failure, phase sequence and undervoltage.

### Function

The relay **BA1** measures amplitude and angle of three phase voltages. The angle of the phasors determine the phase sequence. Unbalance and phase loss are detected by the measurement of amplitude and angle. The undervoltage trip setting is 70% of  $U_n$  fixed.

$\Delta U$  characterizes the difference of the lowest to the highest phase-to-phase voltage related to nominal voltage. The underfrequency element trips if the frequency falls below 43.5 Hz.

### Technical data

Rated voltage $U_n$	: 110 V, 230 V, 400 V AC
Frequency range	: 43-66 Hz
Hysteresis	: 2% $U_n$
Tolerance	: $\pm 5\%$ of set value.
Power consumption	: 3 VA (4 VA BA1-400)
Thermal load carrying capacity	: continuously $1.3 \times U_n$
Returning time	: 600 ms
Minimum operating time	: 650 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 (16ms)	: 20 A

### System data

Regulations	: VDE 0435 Part 303
Temperature range at storage and operation	: $-25^\circ\text{C}$ to $+70^\circ\text{C}$

### 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	: IP 40 at closed front cover
Weight	: approx. 0.5 kg
Mounting position	: any

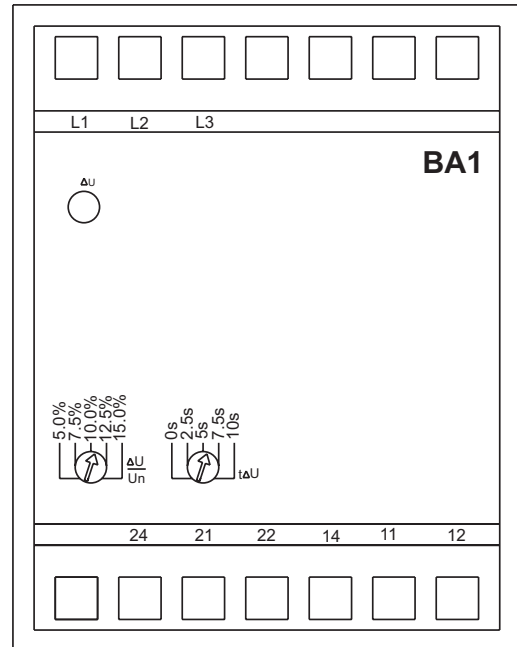


Fig. 1 : Front plate

The unit **BA1** is designed to be fastened onto a DIN rail acc. to DIN EN 50022 same as all units of the **BASIC RANGE**. The front panel of the unit is protected with a sealable transparent cover (IP40).

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

### LED

LED  $\Delta U$  is used to indicate operation without fault with steady light. The LED indicates pickup of the relay by flashing. At tripping or underfrequency the LED  $\Delta U$  extinguishes.

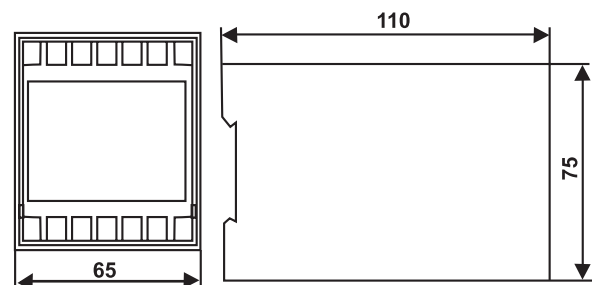


Fig. 2 : Dimensional drawing BA1

## Auxiliary voltage supply

The unit **BA1** needs no separate auxiliary voltage supply. The supply voltage can be formed directly from the measuring quantity.

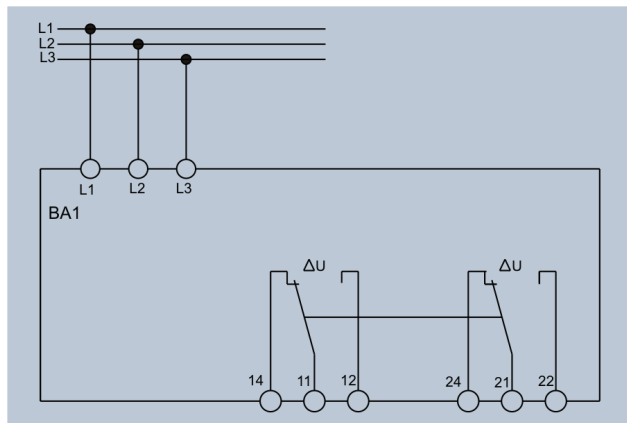


Fig. 3. Connection diagram

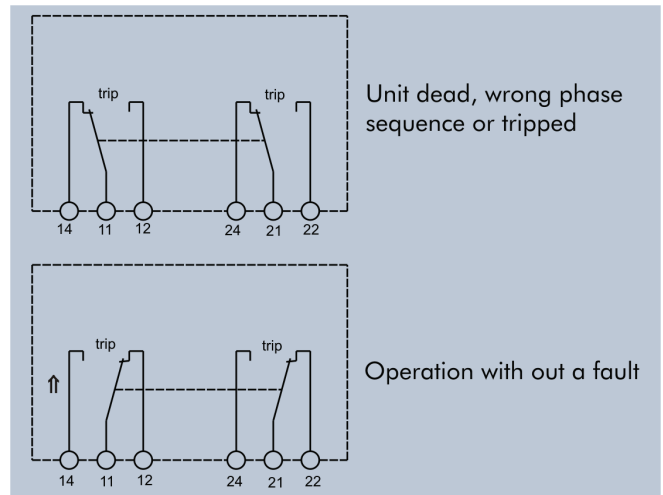


Fig. 4: Contact positions

## Connecting terminals

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

## Setting ranges

$\Delta U$  : 5 - 15 %  $U_n$   
 $t\Delta U$  : 0 - 10 s

## Order key

BA1	-	
Rated voltage 110 V AC		110
Rated voltage 230 V AC		230
Rated voltage 400 V AC		400



## C&S Electric Limited

(Protection & Control Division)

44, Okhla Industrial Estate, New Delhi -110 020 (INDIA)

Phone : +91 11- 66602414, 30883745/54/64 Fax: +91 11- 66602413

E-mail: cspc@cselectric.co.in Web : www.cselectric.co.in

### Marketing Offices :

**AHMEDABAD** : +91 79 30074534/35/36 FAX : +91 79 30074519 **BANGALORE** : +91 80 25586147, 25594939 FAX : +91 25584839  
**BHUBANESWAR** : +91 674 2507265 FAX : +91 674 2507265 **CHANDIGARH** : +91 172 272613, 3062624 FAX : +91 172 2726153  
**CHENNAI** : +91 44 39180531/32/33/34 FAX : +91 44 39180514 **DELHI** : +91 11 30838822-25 Fax : +91 11 30838826 **HYDERABAD** : +91 40 27813003  
**KOLKATA** : +91 33 22275850/51 FAX : +91 33 22275849 **MUMBAI** : +91 22 24114727/28 FAX : +91 22 24126631  
**NAGPUR** : +91 712 5616651 FAX : +91 712 5616651 **PUNE** : +91 20 30283244/45 FAX : +91 20 30283245 **RAIPUR** : +91 771 320852433/34