

Current and Voltage Controls 3-Phase Over/Under Voltage Type EUB

CARLO GAVAZZI



- Monitoring relay and 3-phased measuring relay for over/under phase-phase voltage control (closed circuit)
- Measures if all 3 phase-phase voltages are within set limits
- Measures on own power supply
- Operates irrespective of phase sequence
- Upper and lower limits separately adjustable
- 2 separately adjustable time functions (0.1-10 s)
- Output: 2 x 5 A SPDT relays (one relay for each level)
- For mounting on DIN-rail in accordance with DIN/EN 50 022
- 45 mm Euronorm housing
- LED-indication for relay and power supply ON
- Two LED's indicating fault and/or status of the 2 relay outputs (flashing when timing)

Product Description

3-phase monitoring relay for separate over and under voltage control with built-in time function. Often used in appli-

cations where the generated electrical power is unstable in order to secure voltage sensitive equipment.

Ordering Key

EUB C 220

Housing _____
Function _____
Type _____
Output _____
Power supply _____

Type Selection

Mounting	Output	Supply: 220 VAC	Supply: 400 VAC	Supply: 480 VAC	Supply: 600 VAC
For DIN-rail	2 x SPDT	EUB C 220	EUB C 400	EUB C 480	EUB C 600

Input Specifications

Input U, V, W	L1 - L2 - L3 measures on own supply arbitrary phase sequence	
Measuring ranges	Upper level	Lower level
220	224-242 VAC	198-216 VAC
400 *	408-440 VAC	360-392 VAC
480	490-528 VAC	432-470 VAC
600	612-660 VAC	540-588 VAC
Range		
Upper level (sep. adjustable)	102 - 110%	
Lower level (sep. adjustable)	90 - 98%	
 * Only EUB C 400 selectable in (rotary switch)	 380 V, 400 V, 415 V	

Output Specifications

Output	2 x SPDT relay
Rated insulation voltage	250 VAC (contact/elect.)
Upper limit	Terminals 25/26/28
Lower limit	Terminals 15/16/18
Contact ratings (AgCdO)	μ (micro gap)
Resistive loads	AC 1 5 A, 250 VAC
	DC 1 5 A, 24 VDC
Small inductive loads	AC 15 2 A, 250 VAC
	DC 13 3 A, 24 VDC
Mechanical life	≥ 40 x 10 ⁶ operations
Electrical life	≥ 10 ⁵ operations (at max. load)
Operating frequency	≤ 7200 operations/h
Dielectric strength	
Dielectric voltage	2 kVAC (rms)
Rated impulse withstand volt.	4 kV (1.2/50 μs)

Supply Specifications

Power supply	Overvoltage cat. III (IEC 60664)
Rated operational voltage	(IEC 60038)
Through term. U, V, W	220 VAC, $\pm 10\%$
	50/60 Hz, -5/+5 Hz
400	400 VAC, $\pm 10\%$
	50/60 Hz, -5/+5 Hz
480	480 VAC, $\pm 10\%$
	50/60 Hz, -5/+5 Hz
600	600 VAC, $\pm 10\%$
	50/60 Hz, -5/+5 Hz
Voltage interruption	≤ 40 ms
Dielectric voltage	None
Rated impulse withstand voltage	4 kV (1.2/50 μ s)
up to 480 VAC	6 kV (1.2/50 μ s)
up to 600 VAC	
Rated operational power	3 VA
Supplied from	L1 & L3

General Specifications

Power ON delay	5 s
Reaction time	$\tau < 200$ ms worst case reaction time may be up to $5 \times \tau$
Accuracy	
Range	$\pm 2\%$
Delay (u/I level)	10 s, -2/+3 s on max. < 0.1 s on min.
Temperature drift	$\leq 0.1\%/^{\circ}\text{C}$ ($\leq 0.06\%/^{\circ}\text{F}$)
Hysteresis	$< 2\%$ rms value
Indication for	
Power supply ON	LED, green
Output ON	LED, yellow (flashing when timing)
Environment	
Degree of protection	IP 20
Pollution degree	3
Operating temperature	-20° to $+50^{\circ}\text{C}$ (-4° to $+122^{\circ}\text{F}$)
Storage temperature	-50° to $+85^{\circ}\text{C}$ (-58° to $+185^{\circ}\text{F}$)
Weight	280 g
Screw terminals	
Tightening torque	Max. 0.5 Nm acc. to IEC 60947
Approvals	UL, CSA

Mode of Operation

Connected to 3 phases, the EUB measures sinusoidal voltages. The phase sequence is arbitrary.

The EUB operates as long as all 3 phase-phase voltages are within the set upper and lower levels. This means that the two output relays are energized, which is indicated by the two built-in yellow LED's.

If one or more of the phase-phase voltages rises above the adjusted upper level then the centre yellow LED starts to flash, and the output relay (terminals 25/26/28) releases after the set time period.

If one or more of the phase-phase voltages drops below the adjusted lower level, then the left yellow LED starts to flash, and the output relay (ter-

minals 15/16/18) releases after the set time period. There will be no LED-indication after the time delay has expired.

Example 1

Mains monitoring

A mains quality monitoring relay measures if the phase voltage is within the set upper and lower levels. The levels are adjusted on the two built-in potentiometers.

Example 2

Load monitoring

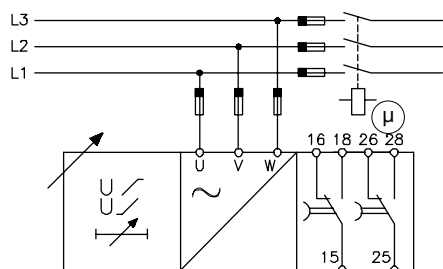
Ohmic loads such as heating elements etc. can be monitored by this module.

Note:

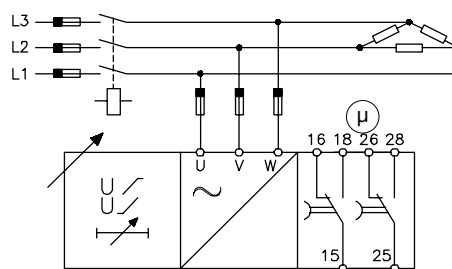
The relay cannot be used for load monitoring if the load is a motor, as the regenerated phase voltage at e.g. fuse breakdown is indefinable and dependent on the mechanical performance when the failure occurs.

Wiring Diagrams

Example 1



Example 2



Range/Level/Time Setting

Range setting

Upper right knob:

Selection of measuring range:
380 V, 400 V, 415 V.

Only available on EUB C 400.

Level setting

Upper left knob:

Setting of upper limit on relative scale (102% to 110%).

Lower left knob:

Setting of lower limit on relative scale (90% to 98%).

Time setting upper level

Centre right knob:

Setting of time delay on absolute scale (0.1-10 s).

Time setting lower level

Lower right knob:

Setting of time delay on absolute scale (0.1-10 s).

Operation Diagram

