

Voltage control

→ F3US / F3USN 3-phase voltage control

- Controls over- and undervoltages on own power supply (window-type).
- F3US : phase-to-phase / F3USN : phase and neutral.
- Minimum and maximum thresholds can be adjusted separately
- Detects absence of neutral on F3USN.
- Delay on crossing upper or lower threshold adjustable between 0.1 and 10 sec. on front face.
- 2 yellow LEDs indicate over- and undervoltages.
- 1 green LED indicates presence of power supply.
- 2 output relays : high and low threshold.
- 2 separate time delays.



Specifications

Type	Supply voltage	Lower threshold	Upper threshold	Code
F3US	3 x 230 V AC	195 to 225	235 to 264	84 873 200
	3 x 400 V AC	340 to 392	408 to 460	84 873 201
F3USN	3 x 230 V AC	112 to 130	135 to 152	84 873 210
	3 x 400 V AC	195 to 225	235 to 264	84 873 211

General characteristics

Power supply characteristics

Supply voltage Un on terminals L1 - L2	230 and 400 V AC $\pm 20\%$ -50 / 60 Hz
Power (W)	4 VA maximum to Un 8 VA maximum to Un +20 %
Delay on pick-up	Approximately 3 s
Immunity from micro power cuts	10 ms
Insulation coordination	Installation category III, degree of pollution 2 conforming to IEC 664.1 / VDE 0110 : 4 KV/2

Control circuit characteristics

Adjustment of upper threshold	102 to 155 % of Un
Adjustment of lower threshold	85 to 98 % of Un
Fault delay	0.1 to 10 sec (0, +50 %)
Hysteresis	Approximately 3 %
Display accuracy	$\pm 10\%$
Repetition accuracy	upper threshold : 0.06 %, lower threshold : 0.09 %
Drift Temperature	$\pm 0.05\%$ / °C

Output characteristics

Output	2 AgCdO changeover
Breaking capacity	2000 VA - 80 W
Maximum breaking current	8 A AC DC
Max. breaking voltage	250 V AC DC
Minimum breaking current	100 mA AC DC
Mechanical life (operations)	30×10^5
Electrical life AC 12	2000 VA - 10^5 operations
Electrical life AC 15	$\cos\phi = 0.3$ - 6000 operations
Electrical life AC 13	L/R = 300 ms - 6000 operations

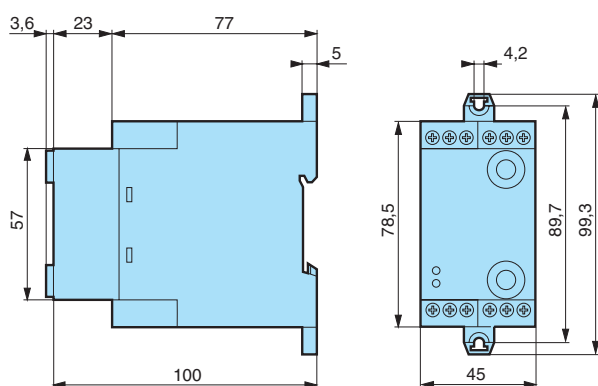
General characteristics

Delay on threshold crossing	0.1 to 10 s (0 $\pm 50\%$)
Display Powr supply	Green LED
Display overvoltage relay	Yellow LED
Display undervoltage relay	Yellow LED
Class of protection (529) - Term. block	IP 20
Class of protection (IEC 529) - Casing	IP 50
Material housing	Self-extinguishing
Mounting	Panel or DIN-rail mounted
Weight (g)	310
Tightening capacity of terminals	2 x 1.5 mm ² with ferrule 2 x 1.5 mm ² without ferrule
Tightening torque	0.6 Nm maximum (M3 screw / IEC 947-1)
Temperature limits Use (IEC 68.2.14) °C	-20 °C \rightarrow +60 °C
Temperature limits stored (IEC 68.2.1/2) °C	-30 °C \rightarrow +70 °C
Relative humidity (acc. to IEC 68.2.30)	93 % (+ 2 % ; - 3 %) no condensation
Vibration (IEC 68.2.6) Amplitude	0.35 mm
Vibration (IEC68.2.6) Frequence	10 to 55 Hz
Insulation resistance (IEC 255.5)	> 10 M Ω at 500 V DC
Breakdown voltage according to IEC 255-5	> 2.5 kV / 1 mn / 1 mA / 50 Hz
Impulse voltage (IEC 255.5 / 664.1)	5 kV / Wave 1.2 - 50 μ s

To order, see page 6

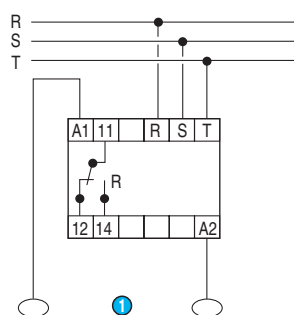
Dimensions

F3US / F3USN



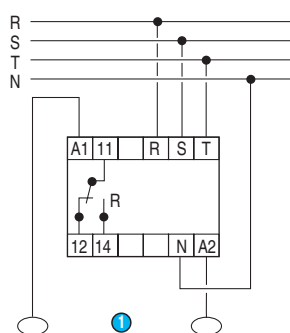
Connections

F3US



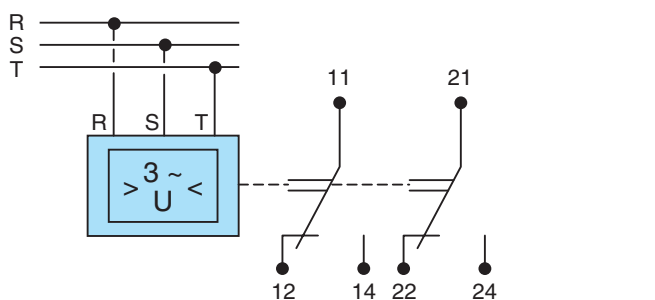
① Auxiliary power supply

F3USN



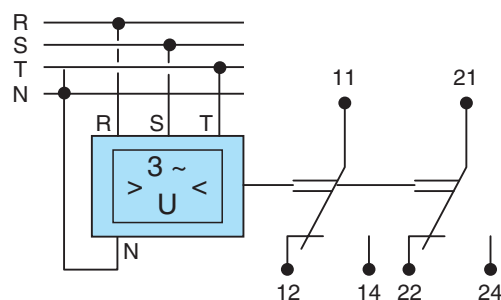
① Auxiliary power supply

F3US



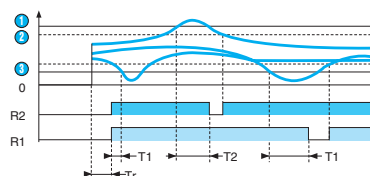
L1 - L2 - L3 : 3-phase network being monitored
11 - 12 - 14 : Output relay (R1) lower threshold
21 - 22 - 24 : Output relay (R2) upper threshold

F3USN



Principles

F3US / F3USN



① 3-phase network
② Upper threshold
③ Lower threshold

Operating principle

The two relays are energised when the measured voltages are between the minimum and maximum thresholds which can be separately adjusted via two potentiometers on the front face. If one or more voltages goes outside the window, the relay corresponding to the fault de-energises following a delay which can be adjusted on the front face. The relays each have individual delays (0.1 to 10 sec.).

A hysteresis fixed at 3 % ensures bounce-free relay switching when the voltage levels return to a value between the upper and lower thresholds.

The unit is not affected by the phase sequence nor by harmonic distortion.

A green LED indicates the presence of the power supply voltage. Two yellow LEDs indicate when the upper and lower thresholds have been exceeded.

The LEDs go out when the voltages are within the set window.