CROUZET CONTROL

DIN Rail Mount - 17.5 mm / 35 mm 3-phase voltage control H3US Part number 84873220

- H3US and M3US relays control, on 3-phase networks :
- overvoltage between phases,
- undervoltage between phases
- The H3USN relay controls, on 3-phase networks :
- overvoltage between phases and neutral,
- undervoltage between phases and neutral,
- loss of neutral
- Multi-voltage Products
- Controls its own supply voltage
- True RMS measurement
- LED status indication

Part numbers

	Type	Function	Nominal voltage (V)	Output
84873220	H3US	Under/overvoltage between phases	3 x 220 →3 x 480 V AC	2 single changeover relays / one per threshold

Specifications

Supply

AC supply voltage frequency	50 / 60 Hz ±10 %
Galvanic isolation of power supply/measurement	No

Inputs and measuring circuit

Frequency of measured signal	50 →60 Hz ± 10 %
Max. measuring cycle time	150 ms/True RMS measurement
Voltage threshold adjustment	Undervoltage -2 to -20 % of selected Un for M3US : (-2 to -12 % across the 3 x 208 V range) (-2 to -17 % across the 3 x 220 V range) for H3US : (-2 to -12 % across the 3 x 220 V range) Overvoltage 2→20 % of selected Un For M3US and H3US : (+2 →+10 % across the 3 x 480 V AC range)
Fixed hysteresis	2 % of Un (M3US, H3US)
Display precision	± 3 % of the displayed value
Repetition accuracy with constant parameters	± 0,5 %
Measuring error with voltage drift	< 1 % across the whole range
Measuring error with temperature drift	0,05 % / °C

Timing

Delay on thresold crossing Tt	0,3 →30 s (0, +10 %)
Repetition accuracy with constant parameters	± 3 %
Reset time	1500 ms
Alarm on delay time max.	200 ms

Output

Type of contacts	No cadmium
Maximum breaking voltage	250 V AC/DC
Max. breaking current	5 A AC/DC
Min. breaking current	10 mA / 5 V DC
Breaking capacity (resistive)	1250 VA AC
Maximum rate	360 operations/hour at full load
Operating categories acc. to IEC/EN 60947-5-1	AC 12, AC 13, AC 14, AC 15, DC 12, DC 13, DC 14
Mechanical life (operations)	30 x 10^6

Insulation

Nominal insulation voltage IEC/EN 60664-1	400 V
Insulation coordination (IEC/EN 60664-1)	Overvoltage category III : degree of pollution 3
Rated impulse withstand voltage (IEC/EN 60664-1)	4 KV (1,2 / 50 µs)
Dielectric strength (IEC/EN 60664-1)	2 kV AC 50 Hz 1 min
Insulation resistance (IEC/EN 60664-1)	> 500 MΩ / 500 VDC

General characteristics

Display power supply	Green LED
Display relay	Yellow LED (1 for M3US, 2 for H3US and H3USN)
Mounting	On 35 mm symmetrical DIN rail, IEC/EN 60715
Mounting position	All positions
Material : enclosure plastic type VO to UL94 standard	Incandescent wire test according to IEC/EN 60695-2-11
Protection (IEC/EN 60529)	Terminal block : IP 20 Casing : IP30

Unless otherwise specified, the characteristics given are applicable to all or part of the product range selected

Connecting capacity IEC/EN 60947-1	Rigid : 1 x 4^2 - 2 x 2.5^2 mm^2 1 x 11 AWG - 2 x 14 AWG Flexible with ferrules : 1 x 2.5^2 - 2 x 1.5^2 mm^2 1 x 14 AWG - 2 x 16 AWG
Max. tightening torques IEC/EN 60947-1	0,6 →1 Nm / 5,3 →8,8 Lbf.Ft
Operating temperature IEC/EN 60068-2	-20 →+50 °C
Storage temperature IEC/EN 60068-2	-40 →+70 °C
Humidity IEC/EN 60068-2-30	2 x 24 hr cycle 95 % RH max. without condensation 55 °C
Vibrations according to IEC/EN60068-2-6	10 →150 Hz, A = 0.035 mm
Shocks IEC/EN 60068-2-6	5 g

Standards

Standards	IEC/EN 50178, IEC/EN 61000-6-2, IEC/EN 61000-6-3
Certifications	CE, UL, CSA, GL
Conformity with environmental directives	RoHS, WEEE

Supply

Supply voltage Un	3 x 220 →3 x 480 V AC *
Voltage supply tolerance	-12 % / +10 %
Operating range	194 →528 V AC
Power consumption at Un	22 VA in 400 VAC, 50 Hz

Inputs and measuring circuit

Selection of phase-phase nominal voltage Un	220-380-400-415-440-480 V AC
Selection of phase-neutral voltage	-

Timing

Delay on pick-up	≤ 650 ms

Output

Electrical life (number of operations)	1 x 10^4

General characteristics

Casing	35 mm
Weight	130 g

Comments

Accessories

Description	Code
Removable sealable cover for 35 mm casing	84800001

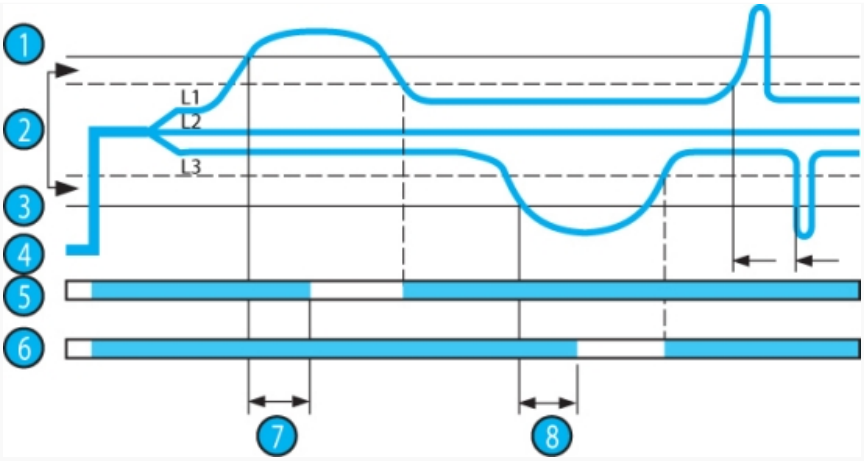
Principles

Overview
3-phase voltage controllers which monitor :
- Undervoltage, adjustable from -20 to -2 % of Un
- Overvoltage, adjustable from 2 to 20 % of Un
- Presence of the neutral (H3USN only)

Measurements are taken between Phases for the H3US - M3US and between Phases and Neutral for the H3USN
Faults are signalled via LEDs, distinguishing the origin of the fault (one LED for the upper threshold, one LED for the lower threshold).

Voltage selector switch : Set the selector switch to the 3-phase network voltage Un.
The position of this selector switch is only taken into account when the unit is powered up.
If the switch position changes while the unit is operating, all the LEDs flash but the product continues to work normally with the voltage selected on energisation prior to the change of position.
The LEDs return to their normal state if the switch is reset to its initial position defined before the last energisation.

Principles



Operating principle

H3US

The relay monitors its own supply voltage.
It controls :
- Undervoltage, adjustable from - 2 to - 20 % of Un (-2 to -12 % over the 3 x 220 V AC range due to the minimum voltage 194 V AC)
- Overvoltage, adjustable from + 2 to +20 % (+2 to +10 % over the 3 x 480 V AC range due to the maximum voltage 528 V AC).

Each threshold has its own time delay with independent setting between 0.3 and 30 s.
In the event of a voltage fault, the corresponding relay (one undervoltage output/one overvoltage output) opens at the end of the time delay set by the user.
In the event of phase failure, both relays open instantaneously, without waiting for the end of the time delay. The two relay LEDs go out.

H3USN

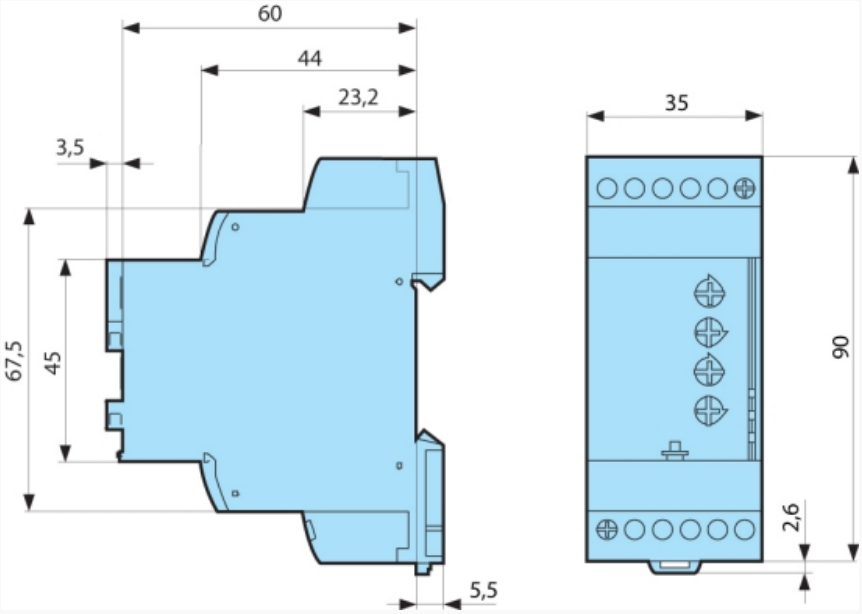
The relay monitors its own supply voltage.
It controls :
- Presence of the neutral,
- Undervoltage, adjustable from -2 to -20 % of Un,
- Overvoltage, adjustable from +2 to +20 %.

Each threshold has its own time delay with independent setting between 0.3 and 30 s.
In the event of a voltage fault, the corresponding relay (one undervoltage output/one overvoltage output) opens at the end of the time delay set by the user.
If neutral is lost, both relays open instantaneously and the corresponding LED is extinguished, without waiting for the end of the time delay. The two relay LEDs are extinguished.

N°	Legend
1	Overvoltage
2	Hysteresis
3	Undervoltage
4	Phases L1, L2, L3
5	Relay R1
6	Relay R2
7	Overvoltage threshold delay
8	Undervoltage threshold delay

Dimensions (mm)

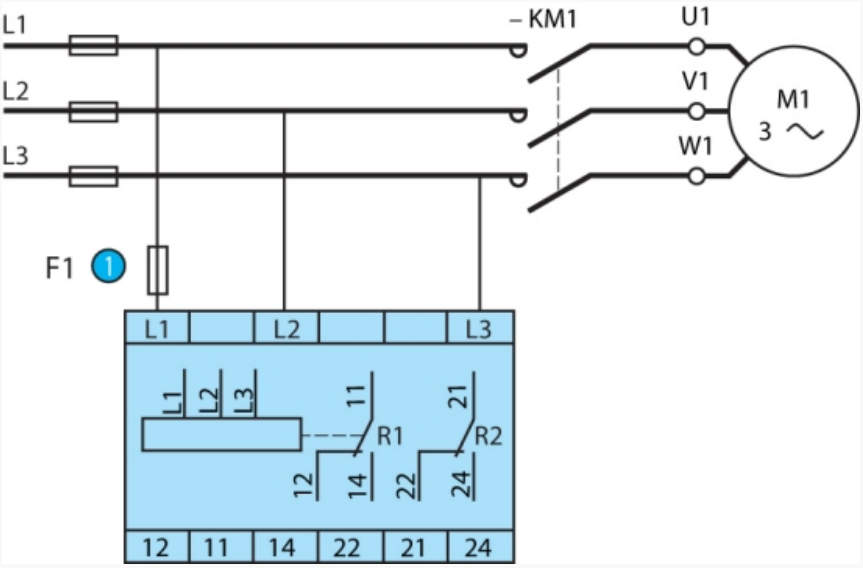
H3US - H3USN



mm

Connections

H3US



N°	Legend
1	100 mA fast-blow fuse or cut-out

Product adaptations

- Customisable colours and labels
- Single voltage in the generic range
- Fixed or adjustable time delay
- Adjustable fixed hysteresis

Adaptations dedicated to M3US :

- Fixed threshold in the generic range

Adaptations dedicated to H3US :

- Fixed threshold in the generic range

Adaptations dedicated to H3USN :

- Fixed overvoltage threshold in the generic range
- Fixed undervoltage threshold in the generic range