

Voltage control

→ Multi-function voltage control relay - 35 mm



- Control of AC and DC voltages
- Automatic recognition of AC/DC
- Measurement ranges from 0.2 V to 600 V
- Choice between under and overvoltage
- True RMS measurement
- Selectable latching (memory) function



HUL



HUH

Part numbers

| | HUL | HUH |
|---------------------|------------------------------|------------------------------|
| Functions | Under/Overvoltage | Under/Overvoltage |
| Measurement range | 0.2 V → 60 V | 15 V → 600 V |
| Nominal voltage (V) | 24 → 240 V \sphericalangle | 24 → 240 V \sphericalangle |
| Part numbers | 84872120 | 84872130 |

Product adaptations



- Customisable colours and labels
- Measuring ranges within the generic limits
- Fixed threshold in the generic measurement range
- Fixed or adjustable time delay
- Adjustable hysteresis

Accessories

| Description | Code |
|---|-----------------|
| Removable sealable cover for 35 mm casing | 84800001 |

General characteristics

| | HUL | HUH |
|-------------------------------------|---|--|
| Inputs and measuring circuit | | |
| Measurement range | 0.2 V → 60 V E1 - M: 0.2 → 2 V E2 - M: 1 → 10 V E3 - M: 6 → 60 V | 15 V → 600 V E1 - M: 15 → 150 V E2 - M: 30 → 300 V E3 - M: 60 → 600 V |
| Input resistance | E1 - M: 6 Ω E2 - M: 30 Ω E3 - M: 180 Ω | E1 - M: 150 Ω E2 - M: 300 Ω E3 - M: 600 Ω |
| Permanent overload at 25°C | E1 - M: 10 V E2 - M: 30 V E3 - M: 150 V | E1 - M: 250 V E2 - M: 500 V E3 - M: 700 V |

General characteristics

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Supply

| | |
|--|--------------------------|
| Supply voltage Un | 24 V → 240 V \sim |
| Voltage supply tolerance | -15% / +10% |
| Operating range | 20.4 V → 264 V \sim |
| Polarity with DC voltage | No |
| \sim supply voltage frequency | 50 / 60 Hz \pm 10% |
| Galvanic isolation of power supply/measurement | ✓ |
| Power consumption at Un | 3.5 VA in AC/0.6 W in DC |
| Immunity from micro power cuts | 10 ms |

Inputs and measuring circuit

| | |
|--|--------------------------------|
| Frequency of measured signal | 0 Hz, 40 → 70 Hz |
| Max. measuring cycle time | 30 ms/True RMS measurement |
| Threshold adjustment | 10 → 100% of the range |
| Adjustable hysteresis | 5 → 50% of displayed threshold |
| Display precision | \pm 10% of full scale |
| Repetition accuracy with constant parameters | \pm 0.5% |
| Measuring error with voltage drift | < 1% across the whole range |
| Measuring error with temperature drift | \pm 0.05% / °C |

Timing

| | |
|--|----------------------|
| Delay on threshold crossing | 0.1 → 3 s (0, + 10%) |
| Repetition accuracy with constant parameters | \pm 2% |
| Reset time | 1500 ms |
| Delay on pick-up | < 600 ms |

Output

| | |
|--|--|
| Type of output | 1 double changeover relay |
| Type of contacts | No cadmium |
| Maximum breaking voltage | 250 V \sim / --- |
| Max. breaking current | 5 A \sim |
| Min. breaking current | 10 mA / 5 V--- |
| Electrical life (number of operations) | 1 x 10 ⁵ |
| Breaking capacity (resistive) | 1250 VA \sim |
| Maximum rate | 360 operations/hour at full load |
| Operating categories acc. to IEC 60947-5-1 | AC12, AC13, AC14, AC15, DC12, DC13, DC14 |
| Mechanical life (operations) | 30 x 10 ⁶ |

Insulation

| | |
|---|---|
| Nominal insulation voltage IEC 60664-1 | 250 V |
| Insulation coordination (IEC 60664-1 / 60255-5) | Overvoltage category III: degree of pollution 3 |
| Rated impulse withstand voltage IEC 60664-1/60255-5 | 4 KV (1.2 / 50 μ s) |
| Dielectric strength IEC 60664-1/60255-5 | 2 KV AC 50 Hz 1 min. |
| Insulation resistance IEC 60664-1 / 60255-5 | > 500 M Ω / 500 V --- |

General characteristics

| | |
|--|---|
| Display power supply | Green LED |
| Display relay | Yellow LED |
| Casing | 35 mm |
| 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 60695-2-11 & NF EN 60695-2-11 |
| Protection (IEC 60529) | Terminal block: IP 20 Casing: IP 30 |
| Weight | 130 g |
| Connecting capacity IEC 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 60947-1 | 0.6 → 1 Nm / 5.3 → 8.8 Lbf.In |
| Operating temperature IEC 60068-2 | -20 → +50°C |
| Storage temperature IEC 60068-2 | -40 → +70°C |
| Humidity IEC 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 60068-2-6 | 5 g |

Standards

| | |
|--|---|
| Marking | CE (LVD) 73/23/EEC - EMC 89/336/EEC |
| Product standard | NF EN 60255-6 / IEC 60255-6 / UL 508 / CSA C22.2 N°14 |
| Electromagnetic compatibility | Immunity EN 61000-6-2/IEC 61000-6-2 Emission EN 61000-6-4/EN 61000-6-3 IEC 61000-6-4/IEC 61000-6-3 Emission EN 55022 class B |
| Certifications | UL, CSA, GL pending |
| Conformity with environmental directives | RoHS, WEEE |

Voltage control

Principles

HUL-HUH

Overview

HUL and HUH control relays are designed to control AC or DC voltages. They automatically recognise the shape of the DC or AC signal (50 or 60 Hz).

General principle:

The operating mode is set by the user.

A switch is used to select under or overvoltage modes, with or without latching.

The switch position, and hence the operating mode, is read by the product on energisation.

If the switch is set to a non-conforming position, the product goes into fault mode, the output relay stays open, and the LEDs flash to signal the position error.

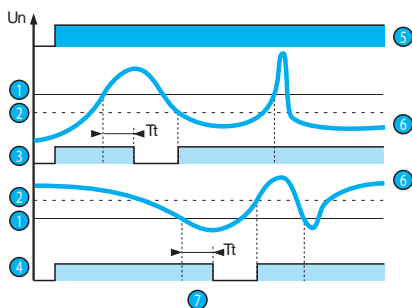
If the switch position changes while the unit is operating, all the LEDs flash but the product continues to work normally with the function selected on energisation prior to the change of position.

The LEDs return to their normal state if the switch is reset to its initial position defined before the last energisation.

The under or overvoltage threshold value is set by a graduated potentiometer as a percentage of the U scale to be monitored.

The hysteresis is set by a graduated potentiometer from 5 to 50% of the preset threshold. The hysteresis value cannot be higher than the extremes of the measurement range.

HUL-HUH - Under/overvoltage - without latching



- 1 Threshold
- 2 Hysteresis
- 3 Overvoltage function relay
- 4 Undervoltage function relay
- 5 Unit power-up
- 6 Controlled voltage
- 7 Delay on threshold crossing (T_t)

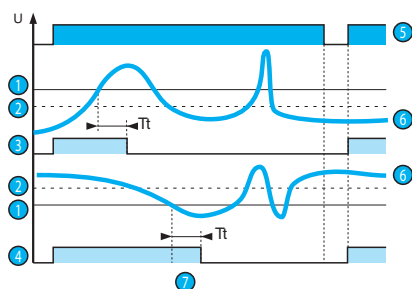
In overvoltage mode, if the controlled voltage exceeds the preset threshold for longer than the time set on the front face (0.1 to 3 s), the output relay opens and LED R is extinguished. During the time delay, this LED flashes.

Once the voltage falls below the threshold value minus the hysteresis, the relay closes instantaneously.

In undervoltage mode, if the controlled voltage falls below the preset threshold for longer than the time set on the front face (0.1 to 3 s), the output relay opens and LED R is extinguished. During the time delay, this LED flashes.

Once the voltage rises above the threshold value plus the hysteresis, the relay closes instantaneously.

HUL-HUH - Under/overvoltage - with latching



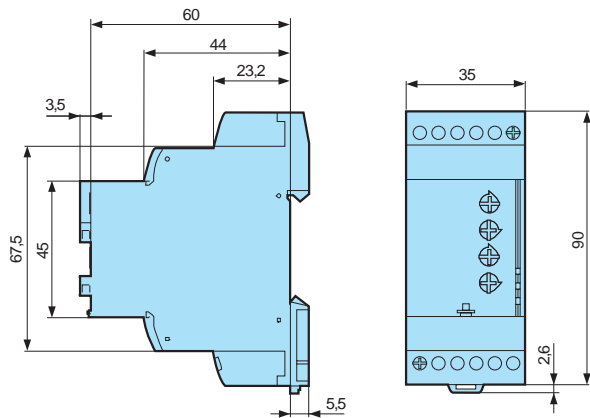
- 1 Threshold
- 2 Hysteresis
- 3 Overvoltage function relay
- 4 Undervoltage function relay
- 5 Unit power-up
- 6 Controlled voltage
- 7 Delay on threshold crossing (T_t)

If "with memory" mode has been selected, the relay opens and stays in this position when threshold crossing is detected.

The power supply must be disconnected to reset the product.

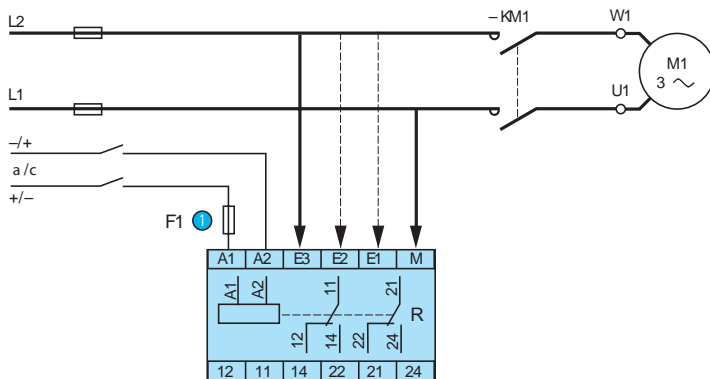
Dimensions (mm)

HUL-HUH



Connections

HUL-HUH



- 1 1 A fast-blow fuse or cut-out

NB:

When controlling DC voltage from the same source supplying terminals A1 and A2, terminal M must be connected directly to the "minus" pole of this power supply.