➜ Multi-function current control relay - 35 mm

- Control of AC and DC currents
- Automatic recognition of AC/DC
- Measurement ranges from 2 mA to 10 A
- Choice between over and undercurrent
- True RMS measurement
- Selectable latching (memory) function

HIL

HIH

Part numbers

	HIL	HIH
Functions	Over or undercurrent	Over or undercurrent
Measurement range	2 mA → 500 mA	0.1 A → 10 A
Nominal voltage (V)	24 → 240 V ~	24 → 240 V ~
Part numbers	**84871120**	**84871130**

Product adaptations

custom'able

- 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

	HIL	HIH
Inputs and measuring cicuit		
Measurement range	2 → 500 mA E1 - M: 2 → 20 mA E2 - M: 10 → 100 mA E3 - M: 50 → 500 mA	0.1 → 10 A E1 - M: 0.1 → 1 A E2 - M: 0.5 → 5 A E3 - M: 1 → 10 A
Input resistance	E1 - M: 5 Ω E2 - M: 1 Ω E3 - M: 0.2 Ω	E1 - M: 0.1 Ω E2 - M: 0.02 Ω E3 - M: 0.01 Ω
Permanent overload at 25°C	E1 - M: 0.4 A E2 - M: 1 A E3 - M: 2 A	E1 - M: 2 A E2 - M: 11 A E3 - M: 11 A
Pulse overload < 1 sec at 25°C	E1 - M: 1 A E2 - M: 5 A E3 - M: 8 A	E1 - M: 17 A E2 - M: 20 A E3 - M: 50 A

General characteristics

Supply	
Supply voltage Un	24 V ⎓ 240 V ~
Voltage supply tolerance	-15% / +10%
Operating range	20.4 V ⎓ 264 V ~
Polarity with DC voltage	No
~ supply voltage frequency	50 / 60 Hz ± 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	50 ms
Inputs and measuring cicuit	
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
Maximum 3-phase voltage	277 / 480 V (3-phase mains with earth)
Adjustable hysteresis	5 ⎓ 50% of displayed threshold
Display precision	±10% of full scale
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	
Delays on power up	1 ⎓ 20 s 0, +10%
Delay on threshold crossing	0.1 ⎓ 3 s 0, +10%
Repetition accuracy with constant parameters	± 2%
Reset time	1500 ms
Delay on pick-up	< 300 ms
Output	
Type of output	1 double changeover relay
Type of contacts	No cadmium
Maximum breaking voltage	250 V ~
Max. breaking current	5 A ~
Min. breaking current	10 mA / 5 V ⎓
Electrical life (number of operations)	1 x 10^5
Breaking capacity (resistive)	1250 VA ~
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 µs)
Dielectric strength IEC 60664-1/60255-5	2 KV ~ 50 Hz 1 min.
Insulation resistance IEC 60664-1 / 60255-5	> 500 MΩ / 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

Principles

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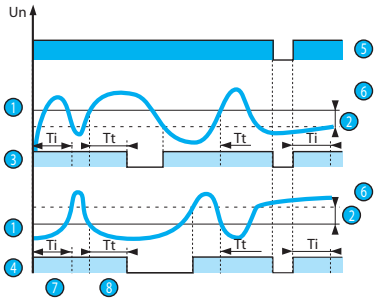
Overview
HIL and HIH control relays are designed to control AC or DC currents.
They automatically recognise the shape of the DC or AC signal (50 or 60 Hz) and can control up to 10 A in DC. Above this level, a current transformer can be connected.

General principle:
The operating mode is set by the user.
A switch is used to select over or undercurrent 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 over or undercurrent threshold value is set by a graduated potentiometer as a percentage of the I 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.

An adjustable time delay from 1 to 20 s on energisation is used to prevent current peaks or troughs on starting.

HIL-HIH - Under/overcurrent - without latching

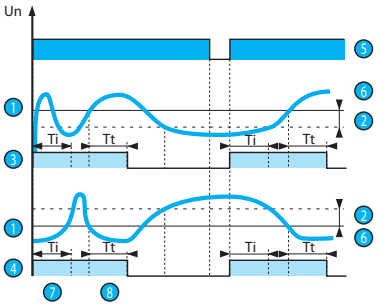


In overcurrent mode, if the controlled current exceeds the preset threshold for longer than the time set on the front face (0.1 to 3 s), the output relay opens and LED R is extinguished. During the time delay, this LED flashes.
Once the current falls below the threshold value minus the hysteresis, the relay closes instantaneously.

In undercurrent mode, if the controlled current 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 current rises above the threshold value plus the hysteresis, the relay closes instantaneously.

1. Threshold
2. Hysteresis
3. Overcurrent function relay
4. Undercurrent function relay
5. Unit power-up
6. Controlled current
7. Inhibit delay on starting (Ti)
8. Delay on upward threshold crossing (Tt)

HIL-HIH - Under/overcurrent - with latching



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.

1. Threshold
2. Hysteresis
3. Overcurrent function relay
4. Undercurrent function relay
5. Unit power-up
6. Controlled current
7. Inhibit delay on starting (Ti)
8. Delay on upward threshold crossing (Tt)

Dimensions (mm)

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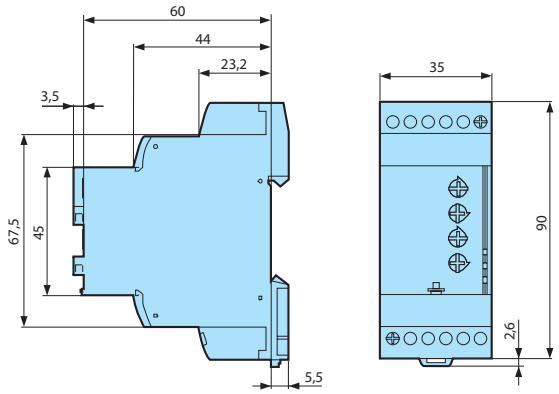

Connections

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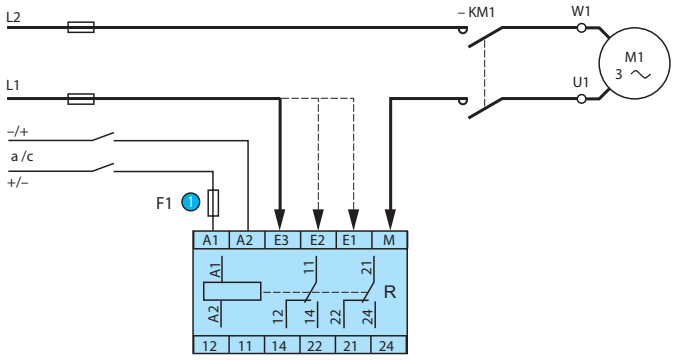

1 1 A fast-blow fuse or cut-out

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