

## Modular Carril DIN 35 mm HIL Part number 84871120



- 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

### Part numbers

	Type	Functions	Measurement range	Nominal voltage (V)
84871120	HIL	Over or undercurrent	2 mA →500 mA	24 →240 V AC/DC

### Specifications

#### Supply

Supply voltage Un	24 V →240 V AC/DC
Voltage supply tolerance	-15 % / +10 %
Operating range	20,4 V →264 V AC/DC
Polarity with DC voltage	No
AC supply voltage frequency	50 / 60 Hz ± 10 %
Galvanic isolation of power supply/measurement	No
Power consumption at Un	3.5 VA in AC/0.6 W in DC
Immunity from micro power cuts	50 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
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 (Ti)	1 →20 s (0, +10 %)
Delay on threshold crossing Tt	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 AC/DC
Max. breaking current	5 A AC/DC
Min. breaking current	10 mA / 5 V DC
Electrical life (number of operations)	1 x 10 <sup>5</sup>
Breaking capacity (resistive)	1250 VA AC
Maximum rate	360 operations/hour at full load
Operating categories acc. to IEC/EN 60947-5-1	AC12, AC13, AC14, AC15, DC12, DC13, DC14
Mechanical life (operations)	30 x 10 <sup>6</sup>

#### Insulation

Nominal insulation voltage IEC/EN 60664-1	250 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 V DC

#### 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 CEI/EN 60695-2-11
Protection (IEC/EN 60529)	Terminal block : IP 20 Casing : IP 30
Weight	130 g
Connecting capacity IEC/EN 60947-1	Rigid : 1 x 4 <sup>2</sup> - 2 x 2,5 <sup>2</sup> mm <sup>2</sup> 1 x 11 AWG - 2 x 14 AWG Flexible with ferrules : 1 x 2,5 <sup>2</sup> - 2 x 1,5 <sup>2</sup> mm <sup>2</sup> 1 x 14 AWG - 2 x 16 AWG
Max. tightening torques IEC/EN 60947-1	0,6 →1 Nm / 5,3 →8,8 Lbf.In
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

Product standard	CEI/EN 50178
Electromagnetic compatibility (EMC)	IEC/EN 61000-6-1, IEC/EN 61000-6-1, IEC/EN 61000-6-3, IEC/EN 61000-6-4
Certifications	UL, CSA
Marking	CE (DBT) 2006/95/EC - EMC 2004/108/EC
Conformity with environmental directives	RoHS

### Inputs and measuring circuit

Type	Shunt
Measurement range	2 →500 mA E1 - M : 2 →20 mA E2 - M : 10 →100 mA E3 - M : 50 →500 mA
Input resistance	E1 - M : 5 Ω E2 - M : 1 Ω E3 - M : 0,2 Ω
Permanent overload at 25 °C	E1 - M : 0,4 A E2 - M : 1 A E3 - M : 2 A
Pulse overload < 1 sec at 25 °C	E1 - M : 1 A E2 - M : 2 A E3 - M : 4 A

### Accessories

Description	Code
Removable sealable cover for 35 mm casing	84800001

### Principles



#### 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.

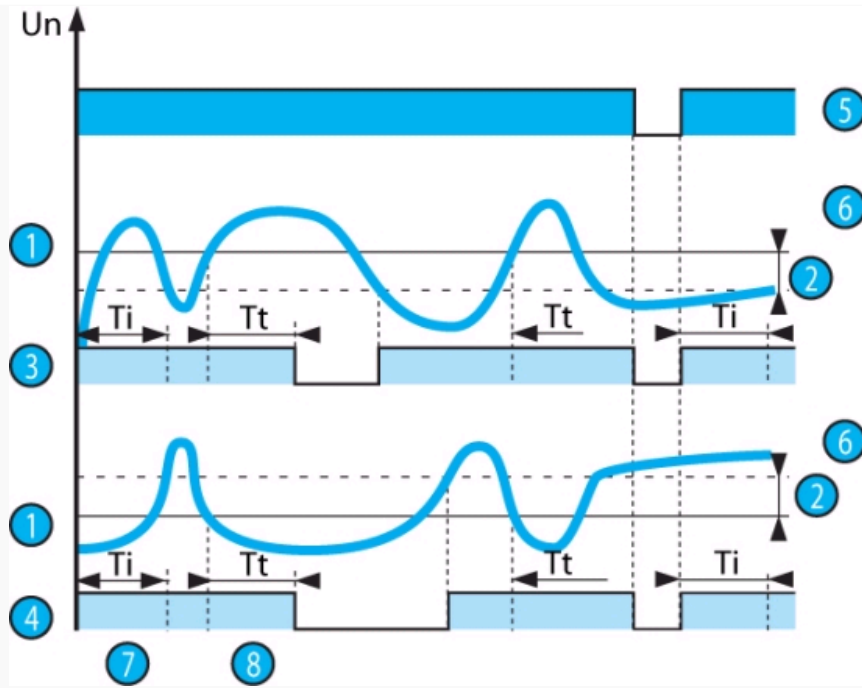
The LEDs return to their normal state if the switch is reset to its initial position defined before the last energisation.

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.

### Principles



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.

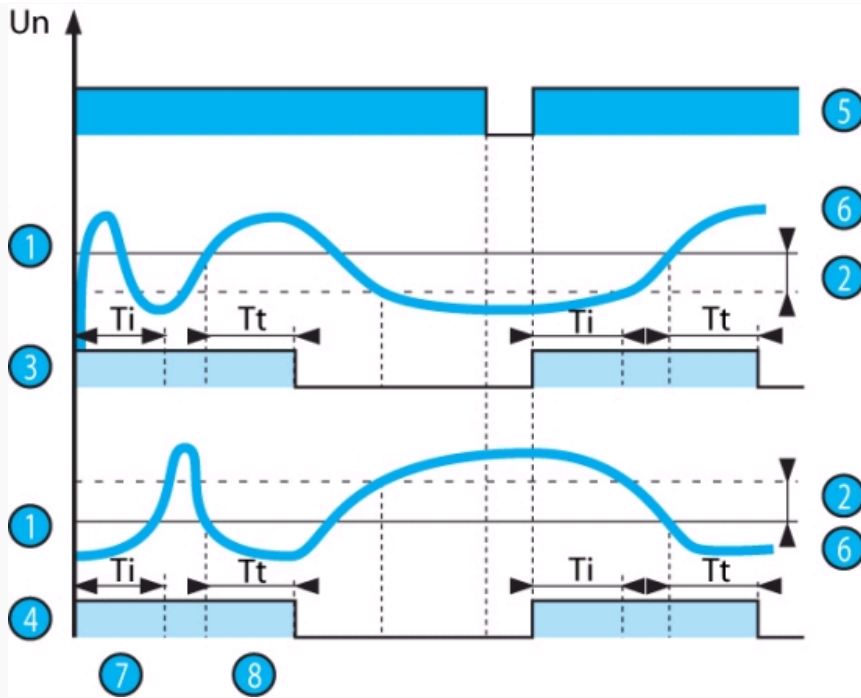
Once the current falls below the threshold value minus the hysteresis, the relay closes instantaneously.

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.

N°	Legend
①	Threshold
②	Hysteresis
③	Overcurrent function relay
④	Undercurrent function relay
⑤	Unit power-up
⑥	Controlled current
⑦	Inhibit delay on starting ( $T_i$ )
⑧	Delay on upward threshold crossing ( $T_t$ )

## Principles

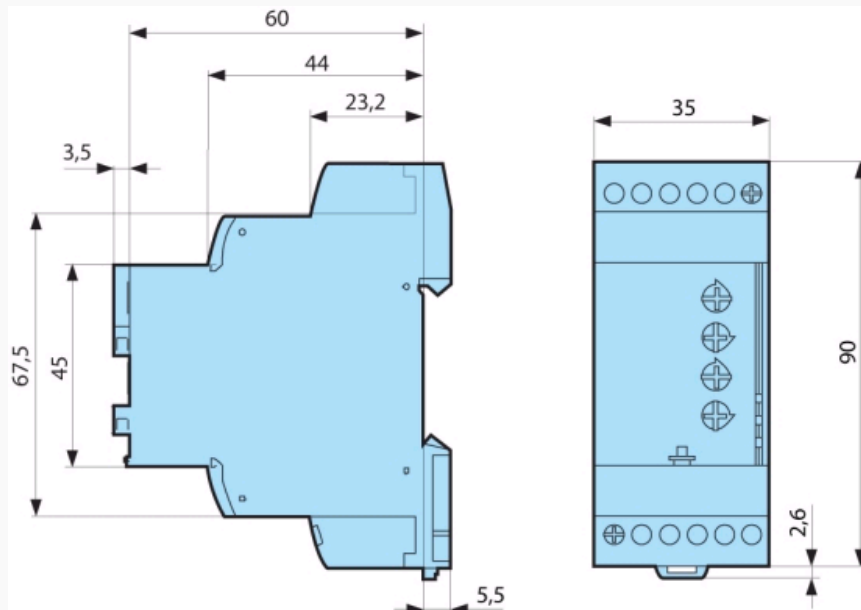


If "with memory" mode has been selected, the relay opens and stays in this position when threshold crossing is detected. The power supply must be disconnected to reset the product.

N°	Legend
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)

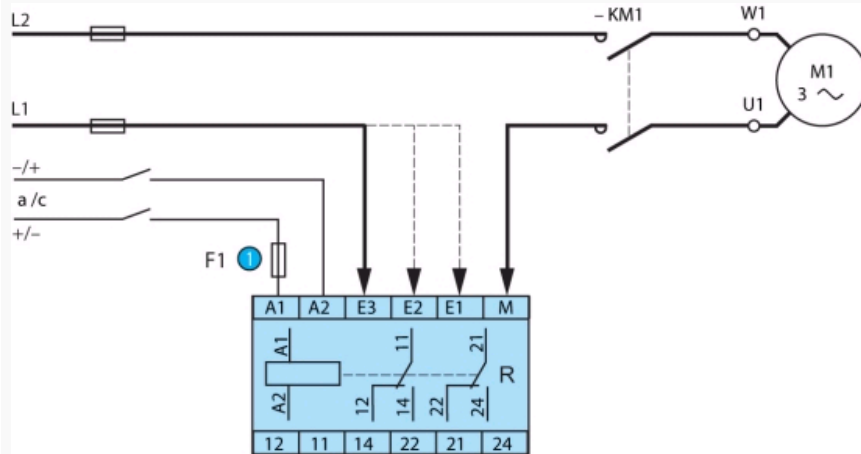
HIL-HIH



mm

### Connections

#### HIL-HIH



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.

N°	Legend
①	Fusible ultra rapide 1 A ou coupe circuit

### Connections

#### CA 84871120

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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.

### 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