

› Monitoring Relays

Current Control Relays

Current (under and over) Detection with built-in current transformer

- › Built-in current transformer
- › Measurement ranges from 2 → 20 A
- › 10 A changeover relay
- › True RMS measurement
- › LED status indication



MIC

Selection guide					
Type	Function	Measuring range	Output	Power Supply	Part-Numbers
MIC	Over and Undercurrent	2 → 20 A	1 x 10 A (changeover)	24 → 240 V $\overline{\sim}$	84871122

MIC

Timing

Delay on threshold crossing (Tt)	0.1 → 10 s (0, +10 %)
Repetition accuracy with constant parameters (according to IEC/EN 60255-1)	± 3 %
Power ON delay	≤ 650 ms
Reset time max	1500 ms
Delays on power up (Ti)	200 ms

Supply

Voltage type for actuating	AC/DC
Rated control supply voltage Un at AC	24 → 240 V
AC supply voltage frequency 50/60HZ	± 10 %
Voltage supply tolerance	-15 % / +10 %
Operating range	20.4 → 264 V $\overline{\sim}$
Polarity with DC voltage	Yes
Galvanic isolation of power supply/Input circuit	Yes
Galvanic isolation of power supply/Output circuit	Yes
Galvanic isolation of Input circuit/Output circuit	Yes
Immunity from micro power cuts: typical	10 ms
Maximum Power consumption at Un	AC: 3.5 VA DC: 1 W

Insulation

Rated Insulation voltage (according to IEC/EN 60664-1)	400 V
Insulation coordination (according to IEC/EN 60664-1)	Overvoltage category III; pollution degree 3
Insulation resistance supply and Output circuit (according to IEC/EN 60664-1 and IEC/EN 60255-27)	> 500 MΩ (500 V $\overline{\sim}$)

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Description:

Crouzet's Monitoring Relays are essential for enhancing the safety and efficiency of electrical systems by providing continuous and precise monitoring. These relays help in detecting and alerting users to abnormalities such as overvoltage, undervoltage, phase failure, and phase sequence errors. The relays are designed to be compact and easy to use, making them suitable for an easy integration into various electrical panels without taking up excessive space.

For more information about **Monitoring Relays** please visit www.crouzet.com

MIC	
Dielectric strength (according to IEC/EN 60664-1 and IEC/EN 60255-27)	2 kV / 1min / 1mA / 50Hz
Impulse voltage (according to IEC/EN 60664-1 and IEC/EN 60255-27)	4 kV wave 1.2 / 50 µs
Input and measuring specifications	
Measurement range	2 → 20 A
Level range	1
Display accuracy (according to IEC/EN 60255-1)	± 10 % of full scale
Measuring error with drift temperature	0.05 %/°C
Measuring error with drift voltage	± 1 % across the whole range
Measurement method or type	Built-in current transformer
Repetition accuracy with constant parameters (according to IEC/EN 60255-1)	± 0.5 %
Permanent overload at 25 °C	100 A
Peak overload < 3s at 25 °C	300 A
Current threshold adjustment	10 → 100 % of the range
Frequency of measured signal	40 → 70 Hz
Max. measuring cycle time	30 ms / True RMS measurement
Voltage threshold hysteresis	15 % fixed of threshold
Output specifications	
Maximum switching power (resistive)	2500 VA / 300 W
Maximum rate (at max switching power)	360 operations/hour at full load
Maximum breaking current	10 AAC 250 V~ resistive 10 ADC 30 V--- resistive
Minimum breaking current	10 mA / 5 V---
Operating categories (according to IEC/EN 60947-5-1 and IEC/EN 60947-5-2)	AC 12, AC 13, AC 14, AC 15, DC 12, DC 13, DC 14
Nominal rating	10 A
Voltage breaking capacity (according to IEC/EN 60255-1)	250 V~ / 8 AAC resistive 125 V--- / 0.3 A resistive
Electrical life (operations)	1 x 10 ⁵
Mechanical life (operations)	1 x 10 ⁷
1 or 2 changeover relays, AgNi (cadmium-free)	1 C/O
Functions	
Automatic recognition of AC/DC	False
Overcurrent or undercurrent control	False
Selectable latching (memory) function	
Control of AC and DC currents	False
Overcurrent or undercurrent control	True
General characteristics	
Temperature limits use (°C) (according to IEC/EN 60068-2)	-20 → +50
Temperature limits stored (°C) (according to IEC/EN 60068-2)	-40 → +70
MTBF in hours (according to IEC/TR 62380)	1001750.79
MTTF (according to IEC/TR 62380)	110 years
Led status indicator	<ul style="list-style-type: none"> ▪ Un: Green LED (power on) ▪ R: Yellow LED (relay status ON) ▪ ON LED (under/overcurrent) ▪ Un, R: Flashing LED (Position error)
Creepage distance and clearance (according to IEC/EN 60664-1)	<ul style="list-style-type: none"> ▪ 4 kV / 9.4 mm ▪ Pollution degree 3
IP degree of protection Terminal block (according to IEC/EN 60529)	IP20

	MIC
IP degree of protection Housing (according to IEC/EN 60529)	IP30
IP degree of protection Front face (according to IEC/EN 60529)	IP50
Vibration resistance (according to IEC/EN 60255-21-1)	<ul style="list-style-type: none"> ▪ 20 m/s² ▪ 10 Hz → 150 Hz
Relative humidity no condensation (according to IEC/EN 60068-2-30)	2 x 24 hr cycle 95 % RH max. without condensation 55 °C
Electromagnetic compatibility - Immunity to electrostatic discharges (according to IEC/EN 61000-4-2)	Level III (Air 8 kV / Contact 6 kV)
Immunity to radiated, radio-frequency, electromagnetic field (according to IEC/EN 61000-4-3)	<ul style="list-style-type: none"> ▪ Level I (1 V/m: 2.0 GHz → 2.7 GHz) ▪ Level II (3 V/m: 1.4 GHz → 2.0 GHz) ▪ Level III (10 V/m: 80 MHz → 1 GHz)
Immunity to rapid transient bursts (according to IEC/EN 61000-4-4)	Level III (direct 2 kV / Capacitive coupling clamp 1 kV)
Immunity to shock waves on power supply (according to IEC/EN 61000-4-5)	Level III (2 kV / common mode 2 kV / residual current mode 1 kV)
Immunity to radio frequency in common mode (according to IEC/EN 61000-4-6)	Level III (10V rms: 0.15 MHz → 80 MHz)
Immunity to voltage dips and breaks (according to IEC/EN 61000-4-11)	<ul style="list-style-type: none"> ▪ 0 % residual voltage, 1 cycle ▪ 70 % residual voltage, 25/30 cycles
Mains-borne and radiated emissions (according to EN55032 (CISPR22), EN55011 (CISPR11))	Class B
Fixing: Symmetrical DIN rail (according to IEC/EN 60715)	35 mm
Mounting position	All positions
Drop to concrete floor (according to IEC/EN IEC 60068-2-31)	High: 1m
Rigid connecting capacity without ferrule	<ul style="list-style-type: none"> ▪ 1 x 4² - 2 x 2.5² mm² ▪ 1 x AWG11 - 2 x AWG14
Flexible connecting capacity with ferrule	<ul style="list-style-type: none"> ▪ 1 x 2.5² - 2 x 1.5² mm² ▪ 1 x AWG14 - 2 x AWG16
Tightening torque (according to IEC 60947-1)	0.5...0.6N.m
Housing material (according to IEC/EN 60695-2-11)	<ul style="list-style-type: none"> ▪ Self-extinguishing ▪ Incandescent wire test
Shock and bump tests (according to IEC/EN 60255-21-2)	15 g - 11 ms
Short interruption on power line (according to IEC/EN 61000-4-11)	0% residual voltage, 250/300 cycles
Delivery: open terminals	True
Type of electric connection	Screw connection

Outline Dimensions

Depth (mm)	97
Height (mm)	90
Weight (g)	75
Width (mm) according to DIN 43880	17.5

International Directives & Conformity Certification

RoHS 2015/863/UE	Yes
REACH regulation N°1907/2006/CE	Yes
UK REACH regulation 2023 N°722	Yes
LVD 2014/35/UE	Yes
Directive 2012/19/EU	Yes
European Directive 2005/20/CE	Yes
ISO 14001: 2015	Yes
Certification CE	Yes
Certification UL	Yes
Certification UKCA	Yes
Certification CCC	Yes

Principles

The MIC control relay is designed to control overcurrents (or undercurrents). It has a built-in current transformer.

Operating principles

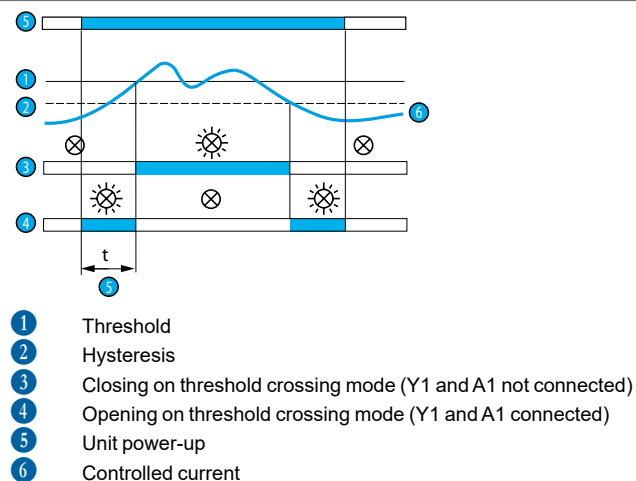
MIC: the relay controls the overcurrent

The relay closes when the current exceeds the threshold displayed on the front face and opens when it falls below the threshold minus the hysteresis.

When terminal Y1 is connected to A1 (+), the output is inverted.

The relay opens when the current exceeds the threshold displayed on the front face and closes again when it falls back below the hysteresis (undercurrent).

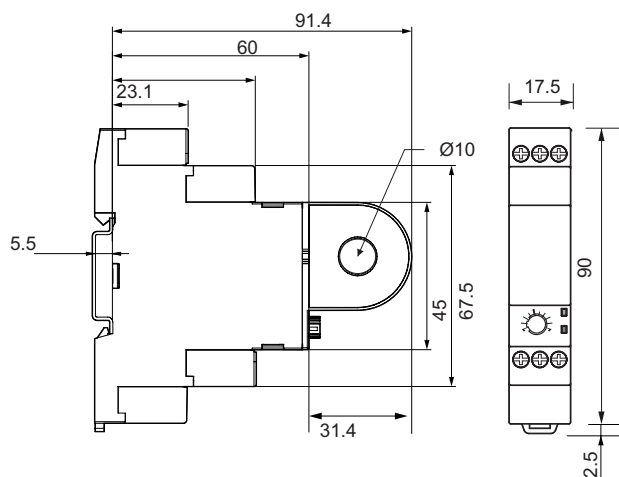
Can be used for undercurrent control: ask your sales adviser.

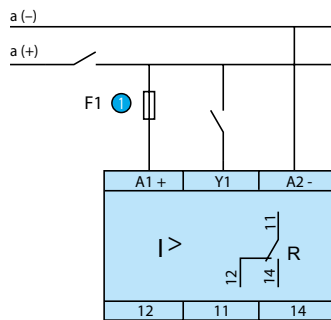


Product Dimensions

Front and Side

MIC



Electronic & Wiring Diagrams**Connections****MIC**

1A fast-blow fuse or cut-out

Warning:

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