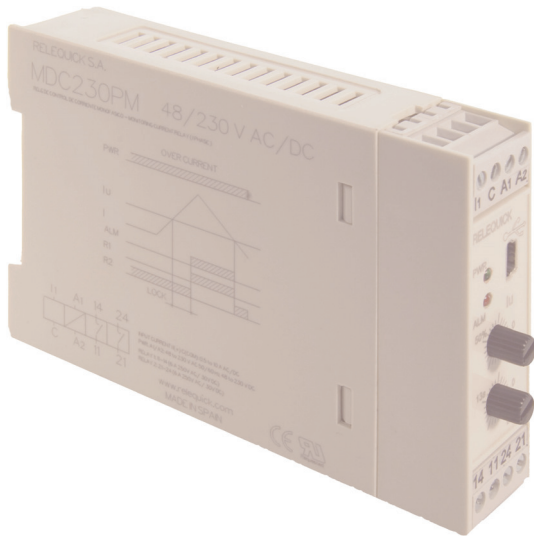




## Overview

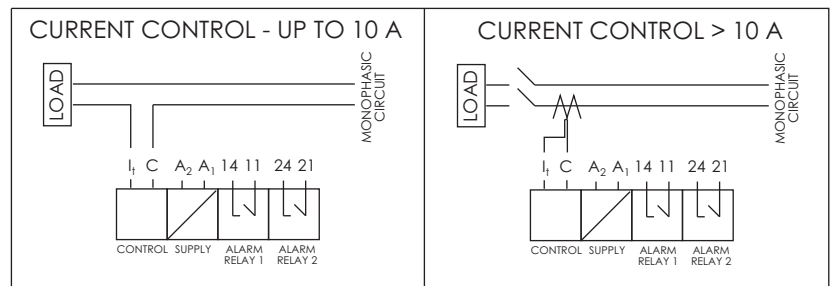
This electronic digital relay for current control has been specially designed to monitor the intensity on single-phase AC/DC circuits. It compares the set intensity value to the real intensity supported by the circuit, activating the alarms and outputs of the relevant relays in order to protect the system against over- and undercurrent of between 0.5 and 10 A (250 V). For currents greater than 10 A a transformer is used (view diagram).



## Nominal values

Supply voltage		12 - 24 VAC/VDC (2.5 W) (not isolated) 48 - 230 VAC/VDC (2 W) (isolated)
Operating range	Current	0.5 - 10 A (AC/DC; without transformer)
	Time	0.1 seconds to 999 hours
Switch-on delay	AC	0.02 seconds
	DC	0.2 seconds
Configuration precision	Time	± 1% of set time
	AC current	± 2% of full scale
	DC current	± 5% of full scale
Measuring circuit impedance		5 mΩ
Indicators	Supply	Green LED
	Alarm	Red LED
Output relays (SPST)		Two change-over relays (6 A, 250 VAC / 30 VDC, resistive load) or one change-over relay (12 A, 250 VAC / 30 VDC)

## Connection diagrams



## Features

The module can be used in two different ways:

**Manual mode:** for a simple regulation of intensity. The switching on may be delayed for a given interval, which can be customized thanks to the built-in trimmers placed on the front side. This will protect the system from overcurrents.

**Programming mode:** thanks to a built-in mini-USB port you will be able to connect the module to a PC. With our Easy Control Programmer software it is possible to program easily up to 7 different functions and load them onto the connected module.

Software security lock of the manual regulated range.

Over-, under- and window current monitor, with independent state signals.

Adjustable switch-on / -off delay.

Compact design, easy wiring and 22.5 mm wide casing.

LED signaling of voltage state and alarm output on front side.

Double output with two 1-CO-contact relays (switching capacity 6A, AC1 250V / DC1 30V) or single output with one relay (switching capacity 12A, AC1 250V / DC1 30V).

Measurement range from 0.5 A to 10 A, 250 V.

Connection diagrams, functions and installation information laser-marked on module casing.

Certifications: CE, UL (requested).

## Uses and applications

Current monitoring has a wide range of applications: in industrial processes, buildings, or wherever electric current needs to be monitored and controlled, either for a load supervision or to protect any kind of electrical systems and installations. With this easily programmable module you will be able to use and customize different functions depending on which one best suits your needs.

Some common applications are the following:

Breakdown protection and prevention due to overloads on low-voltage devices in any kind of system, including heating and cooling installations.

Protection of engines against over- and/or undercurrent.

Detection of resistor failures on heating systems.

Current consumption control.

Breakdown and failure protection on lighting systems.

Security applications for the industry, buildings, etc.

Detection of current leakage of higher values than the preset ones, or due to current decrease (lower values).

Alarm and backup supply activation when the main power supply fails.

## Specifications

<b>Room temperature</b>	Working temperature	-10 to 45 °C (24 V) -10 to 60 °C (230 V)
	Storage temperature	-20 to 70 °C
<b>Supply frequency (AC)</b>		50 / 60 Hz $\pm$ 3 Hz
<b>Overcurrent transient (burst) - 100 ms</b>		50 A
<b>Output relays</b>	Resistive load	6 A at 250 VAC ( $\cos \Phi = 1$ ) 6 A at 30 VDC (L / R = 0 ms)
		12 A at 250 VAC ( $\cos \Phi = 1$ ) 12 A at 30 VDC (L / R = 0 ms)
<b>Max. screw torque</b>	Mechanical life	$10^7$ cycles
	Electrical life	$3 \times 10^4$ cycles
<b>Mounting</b>		DIN-rail (35 mm)
<b>Dimensions</b>		22.5 x 76 x 105 mm (150 gr)

## Functions

<p><b>Function 0</b></p> <p>Factory default. After the "lock" time the overcurrent alarm is activated when the given threshold is exceeded. NO and NC contacts are admitted. The user can configure the working values with the built-in trimmers. Working range: 0.5 - 10A with fixed hysteresis set; "lock": 0 - 26 seconds.</p>	<p>FUNCTION 0</p>	<p><b>Function 4</b></p> <p>The undercurrent alarm is activated while the current falls under the preset minimum threshold.</p> <p>Working range: 0.5 to 10A.</p>	<p>FUNCTION 4</p>
<p><b>Function 1</b></p> <p>The overcurrent alarm is activated after a given "lock" time and during a preset interval when the given current threshold is exceeded. Working range: current from 0.5 to 10A; alarm interval from 0.1 seconds to 999 hours; "lock" time from 0 to 99.9 seconds.</p>	<p>FUNCTION 1</p>	<p><b>Function 5</b></p> <p>The alarm is activated when the current presents values outside a preset range, and it indicates if the deviation is due to an overcurrent or an undercurrent.</p> <p>Working range: 0.5 to 10A.</p>	<p>FUNCTION 5</p>
<p><b>Function 2</b></p> <p>The undercurrent alarm is activated after a given "lock" time and during a preset interval when the given current minimum threshold is not reached. Working range: current from 0.5 to 10A; alarm interval from 0.1 seconds to 999 hours; "lock" time from 0 to 99.9 seconds.</p>	<p>FUNCTION 2</p>	<p><b>Function 6</b></p> <p>The alarm is activated after a given "lock" time and during a preset time interval when the current presents values outside a preset range. It indicates if the deviation is due to an overcurrent or an undercurrent. Working range: current from 0.5 to 10A; alarm interval from 0.1 seconds to 999 hours; "lock" from 0 to 99.9 seconds.</p>	<p>FUNCTION 5</p>
<p><b>Function 3</b></p> <p>The overcurrent alarm is activated while the current exceeds the preset threshold.</p> <p>Working range: from 0.5 to 10 A.</p>	<p>FUNCTION 3</p>	<p>Functions 1 to 6 can be configured on a PC with our Easy Control Programmer software. The user can then load them onto the module with the cable provided by Relequick, S. A.</p>	



## References

MDC230PM2	For currents of up to 10 A. Supply voltage 48 / 230 V AC/DC. Two alarms with relay output, 6 A.
MDC024PM2	For currents of up to 10 A. Supply voltage 12 / 24 V AC/DC. Two alarms with relay output, 6 A.
MDC230PM1	For currents of up to 10 A. Supply voltage 48 / 230 V AC/DC. One alarm with relay output, 12 A.
MDC024PM1	For currents of up to 10 A. Supply voltage 12 / 24 V AC/DC. One alarm with relay output, 12 A.

## Precautions for a correct use

### GENERAL PRECAUTIONS

Do not use the product in places exposed to radiant heat, vibrations or shocks.

Make sure the module has been configured properly with regard to the controlled object. Otherwise unwanted or false alarms could arise.

When the product has reached the end of its mechanical or electrical lifetime take into account the applicable laws and policies regarding industrial waste when throwing it out.

### INSTALLATION PRECAUTIONS

Tighten the terminal screws firmly without exceeding the maximum screw torque. Recommended torque: 0.6 Nm. The working room temperature must be within the specified allowed range.

Double-check the polarity of the module connections for a correct installation.

Allow for the necessary heat dissipation. Do not block the built-in ventilation openings.

Do not apply any supply to the module during the wiring and installation process.

Do not install the module anywhere near sources of electromagnetic interference.

### CORRECT USE

Do not supply the module outside the specified allowed supply range.

Do not modify or manipulate the product without the supervision of a qualified person.

The use of this module on circuits with a high level of harmonics might result in unwanted operations. Take into account the precision of the current measuring when adjusting the release thresholds.