

Load guard for 3-phase motors

Power factor metering ($\cos \varphi$)

Adjustable time delay 0-20 sek. at motor start

Selectable release of relay at max. or min. load

1-pole relay output 8A / 250 VAC

Produced in accordance with **CE** and EMC regulations



C-mac[®] module type RP81 is used for load monitoring of 3-phase motors, as the phase angle ($\cos \varphi$) between motor current and -voltage changes in proportion to the mechanical load of the motor.

You will see the biggest change in phase angle, if the motor is loaded between 0 and 60% of nominal load, which makes the RP81 suitable for monitoring of V-belts, pumps running dry, etc. (see page 6-6).

RP81 can be connected directly to motors with nominal current up to 6 A. If the current is bigger, you use a standard current transformer.

The unit is supplied with an adjustable start-up delay, which keeps the output relay activated independent of the power consumption, when the motor is starting.

By connection of pins 7 and 2 you can select if the relay releases at over- or underload.

Start-up:

When the supply voltage is connected, the output relay activates, and the start-delay will start, independent of the selected relay function.

Relay function:

pins 2-7.

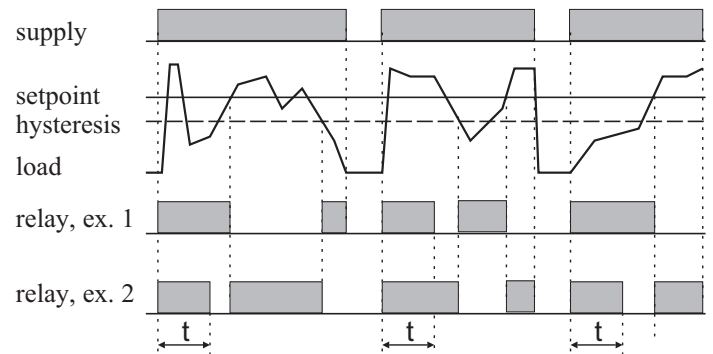
If pin 2 is not connected, the output relay releases immediately, if the power factor exceeds the set level, provided that the set start-delay has run out.

If pin 2 is connected to pin 7, the relay releases, if the power factor is lower than the set level, and the timer has run out.

Technical data:

Supply voltage:	3 x 230 V +/- 10% 3 x 400 V +/- 10% 3 x 415 V +/- 10%
Supply frequency:	40-70 Hz
Power consumption:	2,5 VA
Operation temp.:	-20°C to +60°C
Humidity:	0 - 90% RH, non-condensing
Monitoring current:	min. 0,5 A, max. 6 A At bigger currents use a standard current transformer..
Internal shunt:	33 mΩ. At max. current 6 A the voltage across the shunt is 0,2 V
Hysteresis:	5% of adjusted level.
Adjustments:	
Start delay:	Potentiometer, 0-20 sec.
Level:	Potentiometer, $\cos \varphi$ 0-0,9
Accuracy, scale:	
Start delay:	20%
Level:	5%
Indications:	
Green LED:	Supply voltage connected
Red LED:	Relay activated

Functional diagram:

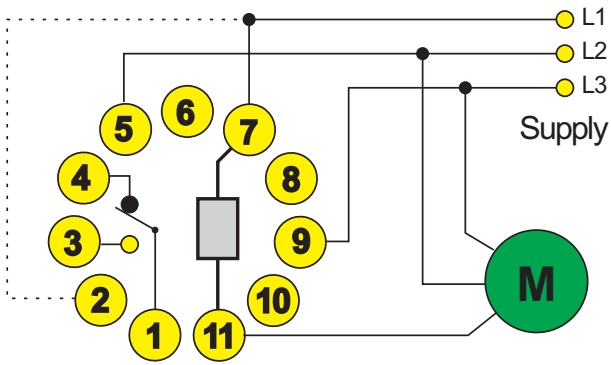


t = selected start-up delay

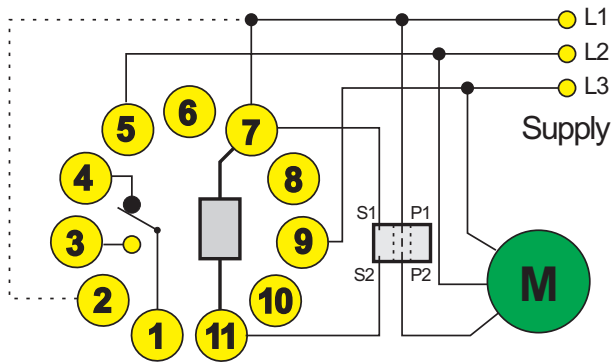
ex. 1: overload, pins 2-7 open

ex. 2: underload, pins 2-7 connected

Connections:



Example 1: without current transformer.
(motor current smaller than 6 A)



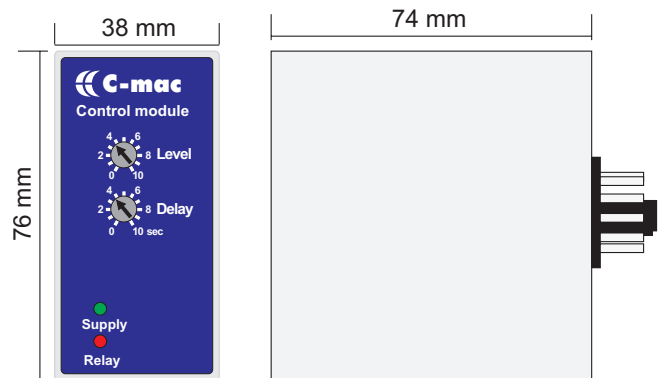
Example 2: With current transformer.
(motor current bigger than 6 A)

Note: the current transformer must be connected as shown (P1 / P2 and S1 / S2)

Ordering guide:

Supply	Type nr.
3 x 220 V	RP81-1-3-230
3 x 380 V	RP81-1-3-400
3 x 415 V	RP81-1-3-415

Mechanical dimensions:



Materials and weight:

Housing:	NORYL-SE-1, grey, self-extinguishing
Housing bottom:	NORYL SE-1, GFN-2, black, self-extinguishing
Terminals:	Nickel-plated brass
Weight:	110 g