C-mac® Programmable 3-phase relay PPR10

Monitoring of all static 3-phase parameters:
Over / Undervoltage, Sequence, Asymmetry, Frequency.

Monitoring of dynamic parameters:
df/dt (ROCOF) and Phase angle fault.

Programmable functions, ranges and reaction delays.

2 independent relay output 8 A / 250 V AC

AC supply voltages up to 3 x 415 VAC

Made in accordance with the CE and EMC regulations

The C-mac® module type PPR10 is a universal 3-phase monitoring relay, particularly suitable for monitoring and protection of the mains supply and connected equipment in connection with generators and portable equipment.

The unit is made in accordance with the new European requirements for connection of micro-generators to the mains supply.

All parameters are programmable, and in order to ensure that unauthorized persons are not able to change the settings, there are no potentiometers on the unit.
The parameters are selected on a PC, and transferred to a small battery operated programming unit, which is then used to program each unit on site.

The unit is supplied with two relay outputs, and you can program which of the parameters are active on each relay.
The relays are activated at normal conditions, and releases if one or more of the selected parameters are exceeded.

Reaction delays for each relay are individually selectable, except for the dynamic parameters, where the reaction delay for release is fixed at 100 msec.

Each output relay have a corresponding control input, where you can select between 5 different functions.

Programmable parameters:

Over voltage:	OFF, 3, 4, 5, 7, 10, 15 %
Under voltage:	OFF, 3, 4, 5, 7, 10, 15 %
Asymmetry:	OFF, 3, 4, 5, 7, 10 %
Neutral detect:	OFF, ON
Frequency:	nominal 50, 60, 50...60 Hz
Frequency limits:	OFF, 0,2, 0,3, 0,5, 1, 2, 3, 5 Hz
df/dt (ROCOF):	OFF, 0,5, 1, 1,5, 2, 3 Hz/s
Phase shift:	OFF, 5, 10, 15, 20, 30 deg.
Phase sequence:	OFF, ON, Inverted
Delay, release:	0,1, 0,2, 0,3, 0,5, 0,7, 1, 2, 3, 5, 7, 10 sec.
Delay, activate:	1, 2, 3, 5, 7, 10, 20, 30, 45 sec, 1, 2, 3, 5, 7, 10 min.
Delay, start-up:	1, 2, 3, 5, 7, 10 sec.

During start-up delay, the relay remains activated, also if one of the selected parameters detects a fault. This is to ensure, that the units does not release f.inst. when the generator is connected to the mains.

Functions, control input:

None: Control input not used, relay indicate parameter conditions.

Enable: Relay only active, if input is activated and parameter conditions are OK.

Auto: Relay activates, if the parameter conditions are OK. When the input is activated, the start-up delay starts, and after this delay, the unit operates as in the function "Enable". A new start-up delay is activated, if the control input releases and activates again.

Latch: Relay activates, when the input activates and parameter conditions are OK. During operation, the input must remain activated. If the relay has released after a fault detection, the input must be released and activated again, before the relay can activate.

Reset: Relay activates, when the input activates and parameter conditions are OK. After this, the input can be released. If the relay has released after a fault detection, the input must be activated again, before the relay can activate.

Programming:

In order to program the unit, you must have a programming unit, INTF3.
Together with the programming unit, you get a corresponding software, which you must install on a PC.
You can also download the software from our website: www.comadan.com.

When the program is activated you select all the parameters, which is then transferred to INTF3 via a cable connected to one of the COM-ports.
After this, you disconnect INFT3 from the PC, and you can now transfer the program to the PPR10 via the infrared transmitter in front of INTF3, if the PPR10 is connected to the mains supply.
If the transmission is completed in the correct way, the top LED "control 1" and after this the LED "supply" will flash once.
If the transmission is not OK, the LED's will flash several times.

Technical data:

Supply voltage:	3x220-3x240 VAC +/- 15% 3x380-3x415 VAC +/- 15%
Supply frequency:	45-65 Hz
Power consumption:	3 VA
Operation temp.:	-20°C to +60°C
Humidity:	0 - 90% RH, non-condensing
Adjustments:	No adjustments
Indications:	
Green LED:	Supply voltage connected
Yellow LED's:	Control 1 and Control 2
Red LED's:	Relay 1 and Relay 2
Max. load, relays:	1-pole: 8 A - 250 VAC, ohmic load

EMC and safety regulations.

Emmision:	EN 50 081 - 1
Immunity:	EN 50 082 - 2
Safety:	EN 60 730

Approvals: The units are produced in accordance with the CE og low voltage regulations, as well as the preliminary standard for connection of micro generators to the public low voltage network.

LED functions:

Green Supply LED:
Steady light when the supply is connected and the unit is in normal operation.
Flashing after parameter programming.

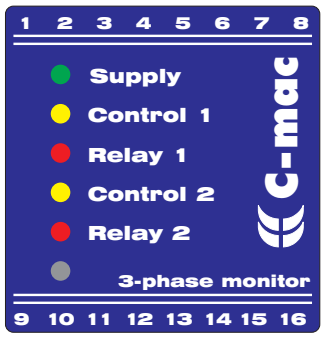
Yellow Control LED's:
OFF when the control input is not activated.
Flashing after activation of Control input during Relay activation delay and Start-up delay.
Control 1 LED also flashing after parameter programming.
Steady light after expiration of delays, if the Control input is still activated.

Red Relay LED's:
OFF when the relay is off.
Steady light when the relay is activated.
Flashing during release delay when the relay is still activated.

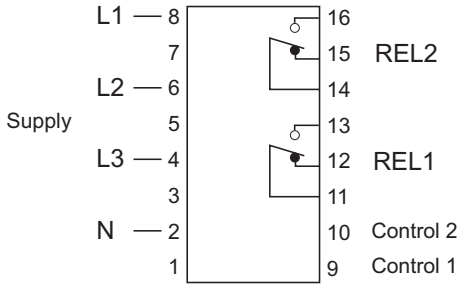
Activation of Control inputs:
The control input is activated when it is connected to L1 or L2 (pin 6 or 8).

Wrong connections:
The connections are totally fail-safe. No matter how the power and control input connections are made, it will not destroy the unit, but of course the functions are only correct, if the connections are made in the correct way.

PPR10 front.



Connections:



Ordering guide:

Supply	Type no.
3x220, 3x230 and 3x340	PPR10-230
3x380, 3x400 and 3x415	PPR10-400

The above type numbers indicates a complete unit with all functions.
The unit is also available in a reduced version without df/dt and phase shift functions.
In this case you add an "A" to the type number, e.g. PPR10A-400

Materials and weight:

Housing base:	CYCOLOY C2100, grey
Frontplate:	CYCOLOY C2100, black
Terminal cover:	CYCOLOY C2100, black
Terminals:	Zinc-plated brass
Screws:	Zinc-plated iron
Weight:	350 g