V3IS00197-031

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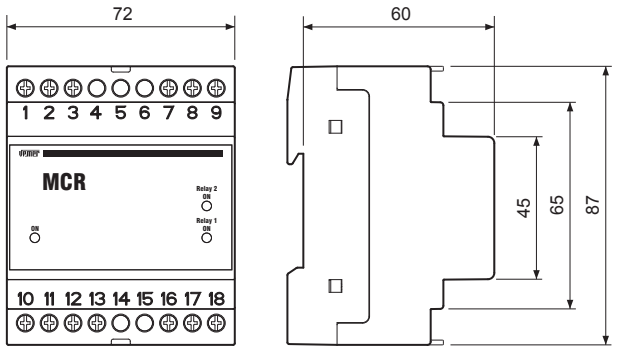
Mod. **MCR**

User Manual

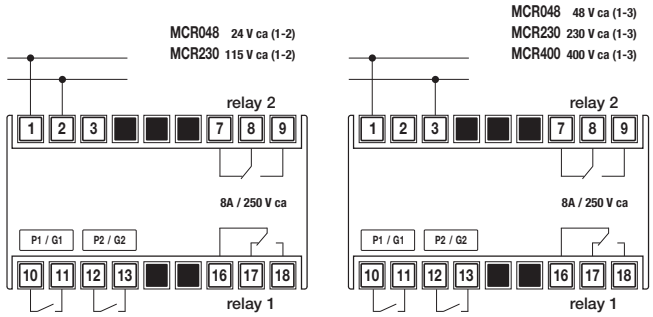
MOTOR ALTERNATION CONTROL RELAY

Read all the instructions carefully

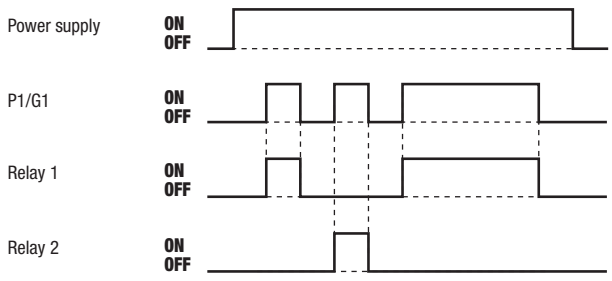
Dimensions



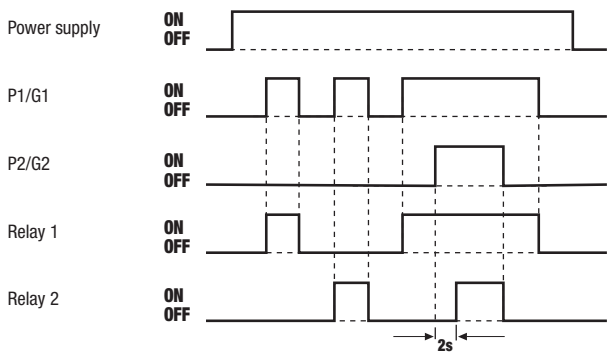
Connection diagram



Operating diagram 1



Operating diagram 2



■ The motor control relay **MCR** is an electronic command device in a standardised **4-module DIN** container, to control the motor alternation.

SAFETY WARNINGS

During the installation and operation of the instrument, proceed in accordance with the instructions below:

1) ***The instrument should be installed by a competent operator following the installation diagrams carefully***
2) ***The instrument should be installed in a panel from which no access can be gained to the terminals after installation***
3) ***Do not power or connect the instrument if any part of it is damaged***
4) ***The electrical system of the building in which the instrument is to be installed should have a switch and a protective device against over-currents***
5) ***The instrument is designed for installations with over-voltage category III and pollution level 2, in accordance with the EN 61010-1 standard.***

Code	Model	Description
VP813000	MCR048	Motor alternation relay 24/48 V
VP812200	MCR230	Motor alternation relay 115/230 V
VP811400	MCR400	Motor alternation relay 400 V

TECHNICAL SPECIFICATIONS

- Power supply: 24/48/115/230/400 V~ (-15% ÷ +10%), 50/60 Hz
- Absorption: 3,5 VA (2,5 W)
- Terminal: 6 mm² block
- **Relay 1 output**: – relay with exchange contact 8 A / 250 V ~
  – maximum switchable power 2000 VA cos φ =1
- **Relay 2 output**: – relay with exchange contact 8 A / 250 V ~
  – maximum switchable power 2000 VA cos φ =1
- • Signalling: – Green LED: power on
  – Red LED: relay 1 intervention
  – Red LED: relay 2 intervention
- Operating temperature: –5°C ÷ +50°C
- Storage temperature: –10°C ÷ +70 °C
- Humidity: 20% ÷ 90%, non-condensing
- Insulation: power supply and load circuits, galvanically insulated at reinforced insulation level in accordance with the EN 61010-1 standard
- Container: 4-module DIN, colour RAL-7035 grey
- Casing material: self-extinguishing in class V0, in accordance with the UL-94 standard
- Degree of protection: IP20/IP51 when correctly installed in an electrical panel

USE

- This device is designed to give the balanced wear and tear of pumps, compressors, generators, etc., when two units, one in operation and one back-up, are installed.
- The operating principle is based on the alternation of the motor start-up commands each time the input contact piloted by an outside automatic device (such as a pressure switch) is closed.
- As well as this type of alternation, this type of relay can also be used for the alternate/ simultaneous command of two motors, and for the cascade command of two motors.

OPERATING

■ **ALTERNATING COMMAND OF TWO MOTORS**

- In this case, only the main **P1/G1** contact is used, piloted by an outside automatic device (such as a pressure switch/float).
- Each intervention of the **P1/G1** contact causes the alternating start-up of one of the two motors, exchanging the operating function (see the **"Operating Diagram 1"**).

■ **ALTERNATING/SIMULTANEOUS COMMAND OF TWO MOTORS**

- In this case the main **P1/G1** contact and the secondary **P2/G2** contacts are used, piloted by two outside automatic devices (such as two pressure switches) adjusted to two different intervention thresholds.
- Each intervention of the **P1/G1** contact causes the alternating tart-up of one of the two motors, exchanging the operating function.
- The intervention of the **P2/G2** contact causes the start-up of the second motor, thus setting up the **emergency help** function (when, for example, a single pump is unable to satisfy the pumping requirements.
  See the **"Operating Diagram 2"**.
- When the power supply line is inserted when both the **P1/G1** and **P2/G2** contacts are closed, the start-up of the second motor is delayed by 2 seconds, thus halving the thrust current and the consequent oscillation of the coil supply voltage.
- The secondary **P2/G2** contact also guarantees the emergency help function in the event of failure of the main **P1/G1** contact.
- This therefore makes it possible to start-up one of the motors instantaneously, and the back-up motor after a delay of 2 seconds.

■ **CASCADE COMMAND**

- When 2 or more relays are used, the cascade operation of 3 or more motors is possible, with the exchange of the **operating** and **emergency help** functions of the various motors as required..

REFERENCE STANDARDS

Conformity to the EU directives:
2006/95/EC (Low Voltage)
89/336/EEC modified by 92/31/EEC and 93/68/EEC (EMC)
is declared with reference to the following harmonised standards:
Safety: EN 61010-1
Electromagnetic compatibility: EN 61000-6-2, EN 61000-6-4