

MINIVAR, VARTEK & VARTEK PLUS - User Manual

ELECTRICAL PANEL FOR CONTROL OF MOTOR WITH FREQUENCY INVERTER



Exclusive Italian
Production

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1. INTRODUCTION

This manual must always accompany the relevant equipment and be conserved in an accessible location for consultation by qualified technicians assigned for operation and maintenance of the system.

The installer/user is strongly recommended to carefully read all instructions and information in this manual before using the product, in order to avoid damage or improper use of the unit, which would also render the warranty null and void.

Before operating the equipment, carefully read the manual and follow all instructions provided.

The information and instructions in this manual refer to the standard use of this product; in the event of special circumstances, functions or applications not described in this document, contact our service center for assistance.

If technical assistance or spare parts are required, when contacting the manufacturer always specify the identification code of the model and construction number as stated on the data plate.

Our service center is available for any requirement or clarification.

On receipt of the goods, inspect immediately to ensure that the equipment has not been damaged during transport. If defects are found, the client should promptly notify our retailer within 5 days of receiving the goods, or in the event of direct purchases, the producer service center.



N.B. the information provided in this manual is subject to modifications without notice. The manufacturer shall not be held liable for any damage caused in relation to the use of these instructions, as they are to be considered guideline only. Note that failure to observe the instructions provided in this manual may cause physical injury or damage to objects.

In any event all local and/or current legislation must be observed at all times.

2. WARNINGS



The electrical panel must be used exclusively for the purpose and function as specified in design. Any other application or use is to be considered improper and therefore hazardous.

In the event of a fire in the place of installation or the surrounding area, avoid the use of water jets and use the appropriate extinguishing equipment and means (powder, foam, carbon dioxide).

Install the equipment far from heat sources and in a dry and sheltered location in observance of the stated protection rating (IP).

The installation of a safety device is recommended to protect the panel power line in compliance with current electrical standards.

The electrical panel must be connected by a qualified electrician in observance of the relevant electrical standards.

No parts of the panel must be disassembled without the official authorization of the producer: any tampering with or modifications to the unit will render all terms of the warranty null and void.

All installation and/or maintenance operations must be performed by a specialized technician who is fully aware of the relevant current safety standards.

Ensure the installation is connected to an efficient earthing system.

After making the electrical connection, check that all electrical panel settings are correct to avoid automatic start-up of the electric pump.

The producer declines all liability in the event of the following:

- Incorrect installation;
- Use by personnel not adequately trained in the correct use of the panel;
- Serious failure to perform scheduled maintenance;
- Use of non-original spare parts or parts not specific to the model;
- Unauthorized modifications or interventions;
- Partial or total failure to observe instructions.

3. GENERAL DESCRIPTION

- Power supply 3 ~ 50/60Hz 400V±10% - output 3 ~ 400V (see model label);
- Power supply 3 ~ 50/60Hz 230V±10% - output 3 ~ 230V (see model label);
- Power supply 1 ~ 50/60Hz 230V±10% - output 3 ~ 230V (see model label);
- Low voltage control circuits and inputs;
- Normally open input for start-up command with selector in manual mode;
- Normally open input for minimum level/pressure command;
- Analogue input 4-20mA (0-10V on request);
- Automatic-0-Manual selector (manual stable):
 - Manual: operation at 50 Hz steady, with pressure switch control;
 - Automatic: modulation operation with analogue sensor;
- MINIVAR and VARTEK frequency inverter with:
 - Bright display with keyboard;
 - Internal ventilation;
 - "PID" adjustment;
 - RS232/485 communication;
 - Second environment EMC filter;
 - Max. motor distance: 50 m;
- VARTEK PLUS frequency inverter with:
 - Bright display with keyboard;
 - Internal ventilation;
 - "PID" adjustment;
 - RS232/485 communication;
 - First and second environment EMC filter;
 - Max. motor distance up to 5.5KW: 100 m;
 - Max. motor distance up to 37KW: 200 m;
 - Max. motor distance up to 220KW: 300 m;
- Protections of aux. circuits and motor with fuses;
- Forced ventilation kit (only VARTEK and VARTEK PLUS);
- Metal enclosure (IP54);
- Ambient temperature: -5/+40 °C;
- Relative humidity 50% at 40 °C (condensate free).

4. INSTALLATION

Ensure that the mains power supply specifications correspond to the voltage specified on the data plate of the electrical panel and motor connected, then make the earthing connection before all other connections.

1~230V \pm 10% 50/60Hz

3~230V \pm 10% 50/60Hz

3~400V \pm 10% 50/60Hz

The power line must be protected by a residual current circuit breaker.

Tighten the electrical cables on the relative terminals using a suitable tool correctly sized to avoid the risk of damage to the fixing screws. Take care if using an electric screwdriver.

The electrical panel is designed for wall-mounting using screws and plugs in the pre-drilled holes at the corners of the enclosure, or by means of brackets when present.

Install the equipment in areas compliant with the protection rating and ensure that the box is kept intact when drilling the holes for fitting the cable clamps.

Avoid the use of multicore cables where there are wires connected to inductive loads and power cables and signal cables such as sensors and digital inputs.

Keep connection cables as short as possible, preventing any twisting of cables which may be harmful due to inductive effects on the electronic equipment.

All wires used in the cabling must be suitably sized to withstand the load to be powered.



The use of a shielded symmetrical cable reduces the electromagnetic emissions of the whole drive, in addition to stresses on motor insulation, shaft currents and wear.

The frequency converter can be used with differential pressure switches type B, with 300mA sensitivity.

Note: The EMC filter of the frequency converter has some capacitors connected with the main circuit and frame. If particularly long motor cables are used, these capacitors increase the earth leakage current and can trigger fault-current circuit breakers.

The installation of an expansion vessel is recommended for precise reading of pre-charged pressure at a value of less than approx. 30% with respect to the system operating pressure, and installed in the immediate vicinity of the pressure sensor.

NOTES

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ELENTEK SRL SOCIETÀ UNIPERSONALE

Via A. Meucci 5/11 - 35028 Piove di Sacco (PD) - ITALIA

Tel. +39 049 9730367 - Fax +39 049 9731063

www.elentek.com - info@elentek.com

P.IVA 04534630282

Cod. MQ 0026 UK

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