MISTRAL2
VENTILATION CONTROL

Operation
and
Installation Manual

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MISTRAL2 SPECIFICATIONS AND CHARACTERISTICS

Load

- 1,5 kW (2 HP) AC induction motor, minimum power factor 0,75
- 3 phase, 230 VAC delta connection (3x230 VAC)

Load driving characteristics

- 3 phase, 40 - 230 VAC, 9 - 50 Hz
- Cable length <15 m
- Minimum cable cross-section: 1,5 mm^2

Supply characteristics

- Single phase, 230 VAC, 50-60 Hz
- Minimum cable cross-section: 1,5 mm^2

Protection circuits

- Supply overvoltage
- Supply undervoltage
- Load overcurrent
- Supply filter
- Internal 1 A fuse
- Internal overheating

Cooling

- Passive air convection
- Vertical wall mounted position
- Minimum clearance from top side: 30 cm

Environment

- Interior area of yearly average temperature 25 °C
- Operation temperature range: 0 - 40 °C
- Protection class: IP 54

Applicable standards

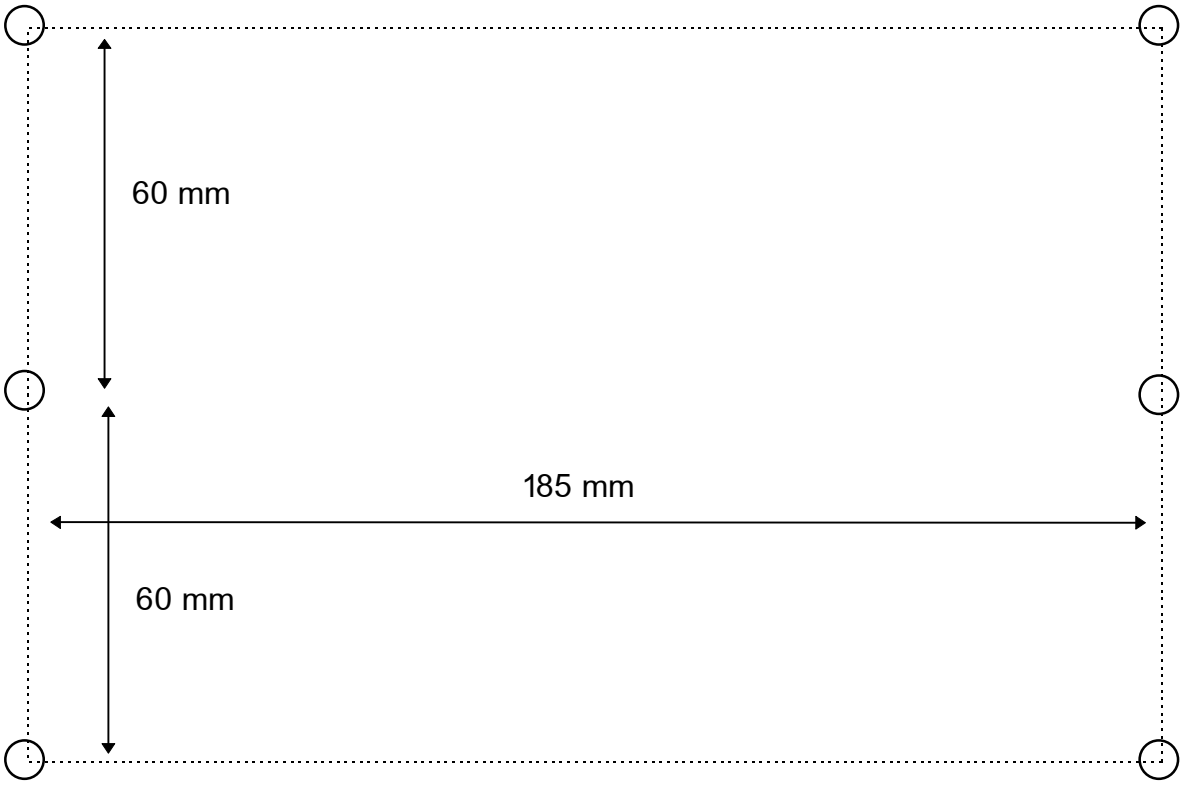
- IEC 60146-2

INSTALLATION PREPARATION

The Mistral2 unit is mounted on a vertical surface in such a way that air convection currents can rise unimpeded.

The unit must be free by at least 30 cm from above and 10 cm from below for proper cooling air flow.

The unit can be fixed by 6 screws of 4 mm diameter at the dimensions shown below:



MISTRAL2 CONNECTION

1. Safety first

Installation involves dangerous voltage levels and should be performed by qualified and competent personnel.

2. Lower cover removal

The lower cover holds the two cable glands (supply and load respectively) and can be removed by unscrewing the lower 6 side screws (3 on each side).

3. Supply connection

The line supply is connected at the 3 position terminal block marked as follows:

- Live is connected to the “L” terminal
- Neutral is connected to the “N” terminal
- Protective earth is connected to the “E” terminal

4. Load connection

The load is connected at the 4 position terminal block with a four conductor, flexible, multi-strand, 1,5 mm^2 cable as follows:

- The three phase connections are made at the “R”, “S” and “T” terminals.
- The motor earth connection is made at the “E” terminal. (Connecting the load earth to this point only ensures that no leakage currents can flow via other nearby equipment).

In case a three-conductor shielded cable is used, the cable braid is used as the protective earth conductor.

Cable length should be minimized as leakage through each line-earth conductor capacitance may cause false overcurrent trippings. Preferably an inverter grade cable should be used as its low leakage characteristics ensure trouble free operation. For cable runs longer than 15 m, an output filter may be necessary.

5. Phase/direction reversal

After the Mistral2 connections have been made, the motor can be checked for correct movement direction:

- Extra care should be taken that nobody comes in contact with the exposed internal part of the unit.
- Turn the power supply on and confirm that the lower (bottom) LED is constantly on. (See the problems page if the LED is off or flashing).
- Press the “Faster” tactile switch once to start the fan at the lowest speed and observe the direction of movement.
- Turn the power supply off.

To reverse the fan direction, the jumper strap at the “PHASE REVERSAL STRAP” position must be reconnected (if open) or disconnected (if closed) **after the supply has been off for at least 15 minutes**.

6. Lower cover replacement

Replace the lower cover as follows:

- The supply and load cables must not be mechanically forced or stretched.
- The lower cover is placed and fixed in position, and
- The cable glands are tightened.

7. Operation test

The installed unit is tested for a minimum 15 minutes.

MISTRAL2 OPERATION

The Mistral2 is operated from the front panel as follows:

- The indicative LED line, at the right, shows the fan speed level.
- Pressing the “Faster” tactile switch increses the fan speed.
- Pressing the ”Slower” tactile switch reduces the fan speed.
- Pressing both switches together clears any fault indication and resets the unit to zero fan speed.

In the event of a detected fault, the unit:

- Reduces the fan speed until the cause of the fault is removed.
- Flashes the indicating LEDs.

SAFETY WARNINGS

- All operations in the unit interior should be done after the power has been off for 15 minutes.
- Front panel membrane damage in the tactile switch area may expose the operator to shock hazard.

PROBLEM TROUBLESHOOTING GUIDE

1. **Check the motor connection**: Check that the motor power is 2 HP or 1,5 kW and that the windings are connected for 3x230 VAC operation (delta for 230 VAC windings). Check that the connections have been made correctly. Ensure that the motor earth is connected to the load terminal blocks and nowhere else.

2. **Check the motor windings and connecting cable**: The high frequency voltage and current waveforms driving the load require good cable and winding insulation for proper operation. Also, leakage from the phase to the earth conductor via the cable interconductor and winding-to-motor-body capacitance may trip the overcurrent fault with long cable runs or high winding (explosion-proof) type motors. Testing with a shorter or other type cable run will show if this mechanism is at play.

3. **Check that the installation has been done neatly**.

4. **Check the supply line voltage**: It must be between 220 and 240 VAC.

5. **Check the motor for mechanical problems.** Check that the fan is mechanically sound (no stuck motor, worn bearings, vibrations etc). Testing in reverse direction may be useful with centrifugal fans as the motor is unloaded in such a case.