

INSTALLATION AND OPERATION INSTRUCTIONS

Vigilec Doble Mono V2MP / V2MT

Single-phase pumps control and protection multifunction box

(V2MP: control by pressure switches/ V2MT: control by pressure transducer)



Description

- Control and protection unit made for two pump with automatic alternation, through two pressure switches (V2MP), or through incorporated pressure transducer (V2MT).
- Single-phase. Voltage: 230 Vac.
- Automatic pumps commutation in case of failure or deactivation of one of them.
- Electronic overload protection relays, adjustable from 0 to 18 A.
- Detection of air-lack in pressure tanks.
- In-charge cut general switch.
- Main switch with calibrated fuses.
- Power relays.
- HAND-OFF-AUTO selection by push button (for each pump).
- Pilot lights for VOLTAGE, ON/OFF, LOW LEVEL WATER, MOTOR

ALARM and AUTOMATIC MODE.

- Alarm reset button.
- Dry running protection by HIDRONIVEL or float switch.
- Remote control by contact or voltage from 6 to 400 Vac/Vdc.
- Pump and air-lack alarm contacts output.
- All controls in low voltage (12 V) for greater safety.
- High protection cable gland.

Option: Magnetic circuit breaker (MCB).

Installation and Connection

We recommend to connect individual connecting tag wires to the terminal block.

- I** Slide open the front cover taking out the screws of the left and loosening those of the right lightly. MAIN SWITCH should be on "0" / "OFF" position.
- II** Connect MAINS SUPPLY directly to MAIN SWITCH.
- III** Connect the MOTORS to the respective terminal blocks.
- IV** Connect the pressure switches to the respective terminals: "P1": High pressure; "P2": Low pressure.

Mod. V2MP

- IV** Install the adaptor in the pressure tank, as high as possible, in the air chamber. Connect the flexible pipe between the adaptor and the unit.

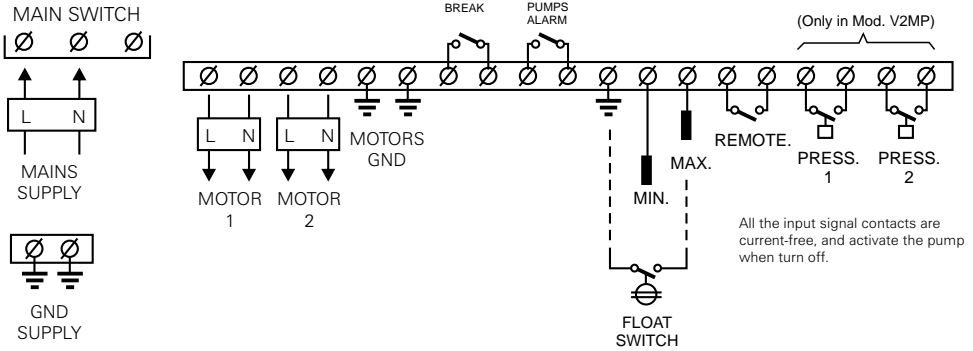
Mod. V2MT

- V** Connect the PROBES (if it is necessary) to the respective TERMINALS (1: minimum, 2: maximum). Lower probe (yellow) will be install some centimetres higher than the pump intake. Upper probe (red) will be install according to level and volume well, at suitable height for a greatest advantage of caudal well.
The cables of probes will be sufficiently isolated, since a reinforcement contact or derivation to earth could cause a bad operation of the equipment. The maximum longitude recommended for the cables of probes is of 300 mts. and the minimum section, 0,5 mm².
A correct ground connection it is necessary for the good operation of the level control. It is recommended to connect to any point of the pipe or the pump (screw, flange, valve), to a pick, or by means of a third probe submerged in the bottom of the recipient, in case this was insulating (glass fiber and plastics in general).
Protected against wrong connections.

- VI** REMOTE terminals can be connected to a remote control device (See Starting).
Protected against wrong connections.
If this input is not used, it must also be linked.

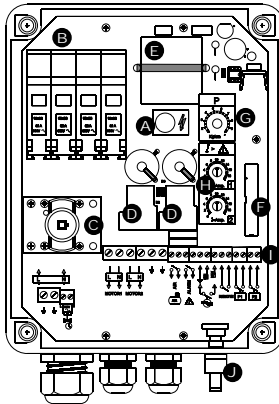
VII The box offers two current-free contacts for alarm signalling or working (thermal gap / air level and loss)

Wiring Diagram



Inside Configuration

Check that all the connections are correct.



- A.- Control and selection voltage (0,1A).
- B.- Motor protection fuses.
- C.- Main switch.
- D.- Power relays.
- E.- Transformer.
- F.- Connector.
- G.- Set-point pressure adjust (mod. V2MT).
- H.- Maximum current adjust.
- I.- Terminal blocks.
- J.- Pressure sensor (mod. V2MT).

Front configuration

1 	Start button AUTOMATIC Mode: Press button and the unit will work automatically established with control and protections (external circle lights on). HAND Mode: Pump running in forced mode when pressed over 4 seconds (OL/UL motor protection enable). Releases to AUTOMATIC mode when liberated, to avoid unattended operations.
2 	STOP button. Stops the motor and no starting possible in any circumstance. If voltage failure occurred, the established operation mode (stop or auto) remains memorized, to continue in the same mode when voltage will be reestablished.
3 	Red lamp: MOTOR ALARM .
4 	Green lamp: MOTOR RUNNING .
5 	Amber lamp: LOW LEVEL . Turn off when reestablishing level.
6 	RESET BUTTON . Restart the unit when OVERLOAD.
7 	Green lamp: VOLTAGE . Light ON when AC supply presence.

The diagram shows the front panel layout with numbered callouts 1 through 7 corresponding to the legend. 1 is the AUT button, 2 is the STOP button, 3 is the Motor Alarm lamp, 4 is the ON lamp, 5 is the Low Level lamp, 6 is the RESET button, and 7 is the Voltage lamp. There are also two indicator lamps (ON/OFF) for the AUT and STOP functions.

Starting

Starting and stopping through pressure switches. (Mod. V2MP).

P1: High level pressure switch. When closed, starts only one pump.

P2: Low level pressure switch. When closed, starts a second pump. In case of failure of P1 pressure switch, it starts anyway both pumps, with a delay between them.

Starting and stopping through pressure level. (Mod. V2MT)

STARTING: When pressure drops a 10% from set-point pressure, it starts the maintenance pump with one second delay. If pressure maintains on this 10% under set-point pressure it starts the support pump in five seconds.

STOPPING: When pressure exceeds a 10% over set-point pressure, the support pump stops with one second delay. If pressure maintains on this 10% over set-point pressure, the maintenance pump stops in seven seconds.

Starting and stopping through assistant inputs.

LEVEL: In case of level loss both pumps stop immediately. When level is recovered, first pump starts with one second delay and the other 5 seconds later.

REMOTE: If the remote circuit opens, both pumps stop, followed by their spaced starting out when the circuit closes again, as done in level cuts.

SUPPLY: When supply is connected there is a spaced starting out of both pumps, if pressure requests.

Putting level probes into operation

The lower probe will be installed some centimetres over the pump intake.

The higher probe will be placed, depending on the level and volume of the well, in a suitable height for an optimum exploitation of the well flow.

It is necessary for the correct operation of level control, that ground connection should be fine. For that not to be possible, a third probe should be installed into the ground control terminal block, and lodged at the bottom of the well.

Pump (1 or 2) starts when the maximum level is reached and stops with minimum, if pressure requests.

Important: If level probes are not to be used, "max" and ground control terminal blocks should be bridge circuit-switched.

Pumps thermal protection

In case of overload in any of the pumps, then a thermal gap will occur seven seconds after the anomaly detection. During that seven seconds the alarm pilot lamp flickers intermittently.

Reset button

Situated on the back side of the cover. It has two positions:

A position (reset activated): In case of gap by a thermal failure, and always during the first minute of pump running, the pump reaches an alarm reset state. The alarm pilot lamp stays turned on, turning off during half a second every four seconds. After 15 minutes, the pump will be automatically reset.

B position (reset deactivated): In case of thermal failure, the pump can only be reset manually, by pressing the reset button.

Alarm pump alternator

If there is a thermal failure in the maintenance pump, the other pump will substitute it. Once substitution is done, pumps states won't be interchanged if Reset button is pressed.

Alarm output (ALARM)

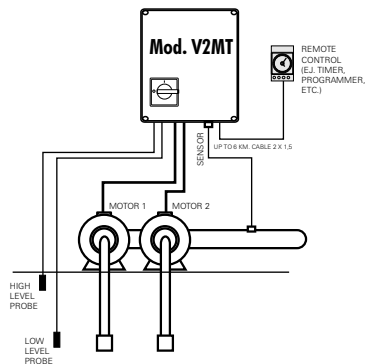
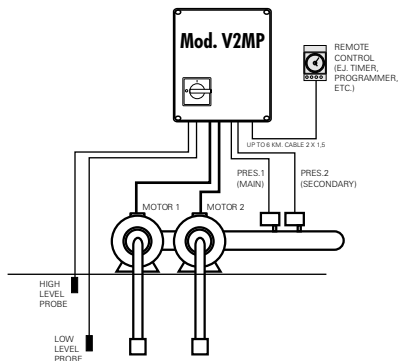
Alarm closes six seconds after a level loss failure or a thermal failure in any of the pumps. When level is restored or alarm reset, this output is disconnected after two second delay.

Air break alarm (AIR)

This alarm is activated when the maintenance pump starts twice in a two minutes interval. Output is only activated while maintenance pump is running. If this interval is longer than three minutes, alarm is disconnected automatically. Air break alarm is deactivated too if Reset button is pressed.

Pump anti-block system

If pump is in a automatic state, unit applies one second running every 24 hours inactivity, for avoiding block and deterioration during long rest periods.



Current adjust

"0" position should be maintained during pump adjustment, since otherwise the second pump starts because of the overload of the first one.

Overload adjust (maximum current)

Lamp ON

Lamp FLASHING

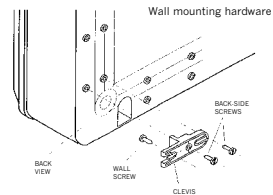
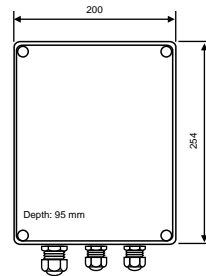
Lamp OFF

<p>Turn right to the limit 1</p>	<p> Wait 1 minute.</p>	<p>Turn slowly to the left until ... 2</p>	<p>Then, turn slightly to the right until ... 3</p>	<p>if...</p> <p>... pump stop and overload alarm trip (red lamp ON)...</p> <p> ON </p> <p>...then press RESET and turn a little more to the right.</p>
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Warning: If you adjust the cursor on the most high value (I. max.: 18 Amp.), overload protection is cancelled.

Featuring

<p>CE</p>	<p>Voltage 230 Vac - 50/60 Hz</p> <p>Permissible voltage fluctuations +10% - 15%</p> <p>Maximum current 18 Amp (for each pump) AC3</p> <p>Overload adjustment 0-18 A (adjustable)</p> <p>Underload trigger <0,5 A</p> <p>Probe voltage/sensitivity 24 Vac / 9 Kohm</p> <p>Remote connection Contact or voltage 6 to 400 Vac/Vdc</p> <p>Pressure switch connection (Mod. V2MP) 12 Vdc - 10 mA</p> <p>Set-point pressure adjustment (Mod. V2MT) 2 - 9 Kg / cm²</p> <p>Differential (Mod. V2MT) ±10 %</p> <p>Maximum pressure permissible (Mod. V2MT) 40 Kg / cm²</p> <p>Accuracy (Mod. V2MT) ±0,1 Kg / cm²</p> <p>Pressure tank connection (Mod. V2MT) Flexible (ø4 mm) tube with racor</p> <p>Input connection (power supply) Direct to main switch</p> <p>Output connection (motor pump) Direct to terminal blocks</p> <p>Mounting Clevis wall mounting</p> <p>Weight 1,9 Kg</p> <p>Protection IP56</p> <p>Operating temperature range -10 +55 °C</p>
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Troubleshooting

Problem	Cause	Actuation
The equipment does not work and the voltage light is off even when the system is connected to a power source.	<ul style="list-style-type: none"> - Selection voltage fuse is fused (fuse 0,1 A). - Incorrect input connection (single-phase installation). 	<ul style="list-style-type: none"> - Check and replace selection voltage fuse (5x20 / 0,1A). - Connect correctly.
The motor alarm lights on (Light indicator "3").	<ul style="list-style-type: none"> - Inside overcurrent adjustment very low or critical. - Motor overload. 	<ul style="list-style-type: none"> - Check the overcurrent adjustment. - Check the pump (jammed impeller, over/under voltage conditions, overcharge, etc.).
Level control do not running correctly	<ul style="list-style-type: none"> - High and low level probes, inverted. - Ground connection incorrect. - Probes or Remote wire cut. 	<ul style="list-style-type: none"> - Place the probes in correct position. - Check the ground connection. - Check the ground connection.

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