MADE IN ITALY

ENGLISH



EPIC 2D

RANGE 0,37÷15 kW
0,50÷20 Hp

Installation ad use manual

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EPIC 2D

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1.1 PRESENTATION

This manual provides the essential information for the proper installation, use and maintenance of the EPIC 2D electrical control panel.
It is important that the user reads this manual before installing the device. Improper use may cause machine failure and lead to the forfeiture of the warranty coverage.
Always specify the exact model identification code and construction number if technical information or spare parts have to be requested from the sales department.

The instructions and warnings given below refer to the standard execution; for instructions, situations and events not covered by this manual or by the sales documentation, please contact the customer service.

EPIC 2D control panel must be installed in sheltered, well-ventilated, non-hazardous environments and used with maximum of +40°C and minimum temperatures of -5°C (relative humidity 50% at 40°C non-condensing).

1.2 DESCRIPTION

EPIC 2D is an electronic control panel for direct start-up of 2 single or three phase pumps with protection against voltage surges, under and over current, dry running, phase failure control and possibility of receiving alarms via GSM. In case of any main pump failure the stand-by pump starts automatically.

Atlantic Power Control S.r.l. shall not be liable for damage caused or suffered by the panel, resulting from its improper use.

TECHNICAL FEATURES

Self learning of the motors data; min-max amperage protection (A); dry running protection made by cosφ and min amperage; min and max voltage protection (V); phase failure protection; start delay; stop delay; network restore delay; protection delay; frequency 50-60Hz.

OUTPUT ALARMS AND PROTECTIONS

Acoustic alarm mode; light alarm mode; alarm output 12Vdc; alarm output 230V - 400V; alarm delay; min-max water level; min-max voltage; phase failure; frequency failure; min-max motors current; min motors cosφ; klixon motors intervention; water in oil chamber.

1.3 HANDLING

The control panel must be handled with care, falls and shocks can damage it internally, even without any visible external signs.

PRELIMINARY INSPECTION

After removing the external packaging, visually inspect that the control panel has not been damaged during shipping.
If the control panel is damaged, inform dealer as soon as possible, but no later than 5 days after delivery.

STORED

In the event that the control panel arrives at its destination, but for any reason is not installed and starter immediately, provide for its storage. Therefore, keep the outer packaging and that of the various loose accessories intact, and protect it from the weather and from any knocks or falls.

2.1 SAFETY INFORMATION



RISK OF ELECTRIC SHOCK
Failure to follow the instructions in this manual, carries a risk of electric shock.



RISK FOR PEOPLE AND PROPERTY
Failure to follow the prescriptions in this manual, carries a risk of damage to persons and/or property.



WARNING
Failure to observe the prescriptions in this manual, cause damage to the pump, the unit or the system.

2.2 CAUTION



ATTENTION: PUMPS
- Make sure the pumps are fully primed before you start it.
- Make sure the pumps are running with the correct rotation.
- The electric pumps or the motors can start up automatically.



ATTENTION: ELECTRICAL CONNECTION
- The control panel must be connected by a qualified electrician in compliance with the electrical regulations in force.
- The electric pumps or the motors and the panel must be connected to an efficient grounding system in compliance with the electrical regulations locally in force.
- Ground the unit before carrying out any other operation.



ATTENTION: SERVICE
As a general rule, always disconnect the power supply before proceeding to carry out any operation on the electrical or mechanical components of the unit or system.

LINE OF SUPPLY CURRENT

Connect the unit at ground before carrying out any other operation.
The voltage input corresponds to the data written on the panel and on the pump:
- (400V ± 10% 50/60Hz for EPIC 2D -400/...)
- (230V ± 10% 50/60Hz for EPIC 2D -230)

Make sure that the power-supply-cable can bear the nominal current and connect it to the terminals of the general switch of the control panel. If the cables are exposed, they must be appropriately protected. The line must be protected with an Earth leackage and magnetic switch measured in accordance with the regulations locally in force.

LINE OF MOTOR POWER SUPPLY

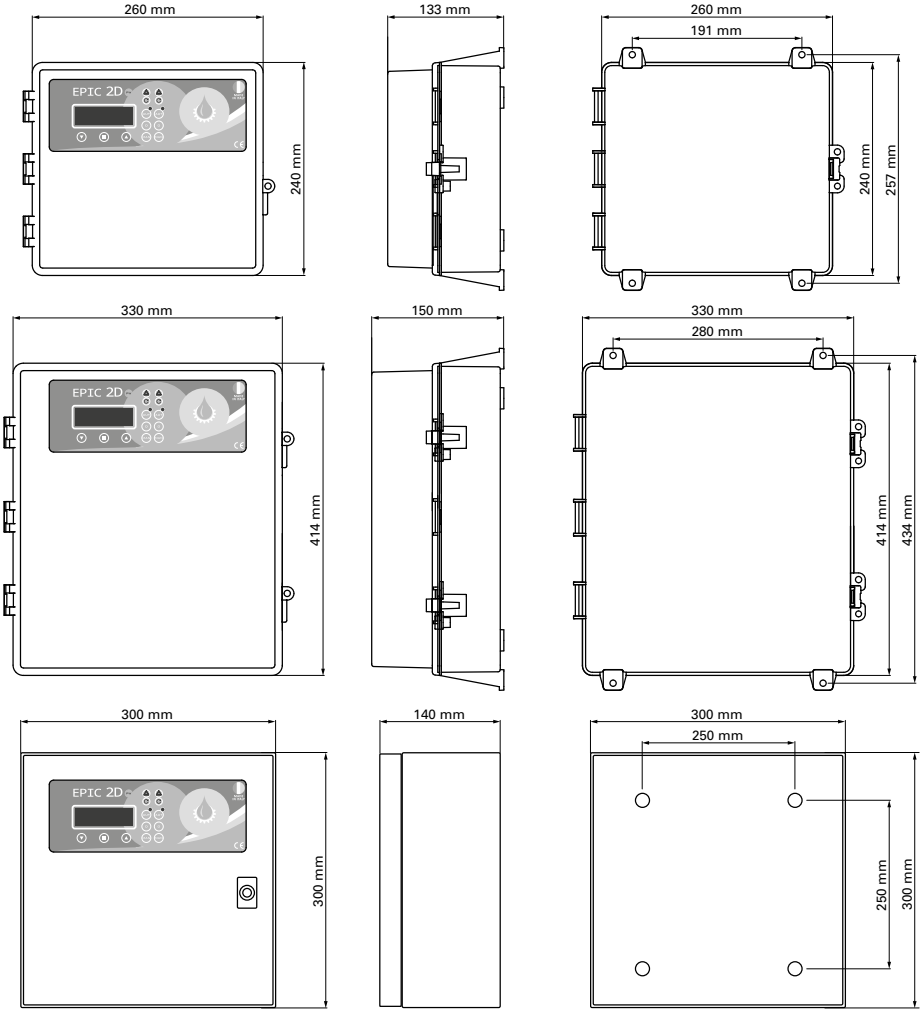
The voltage input corresponds to the data written on the motor:
- (400V±10% 50/60Hz three-phase)
- (230V±10% 50/60Hz single-phase)

Doing some starting make sure that the motor respects the right direction of rotation usually indicated by an arrow printed on the motor.

3.1 ASSEMBLING

Fix the control panel to a stable support with suitable screws or screw anchors using the holes in the four corners of the box.
When tightening the cables in the relevant terminals, use the right size tool to avoid damaging the clamping screws or their seats; if using an electric screwdriver, dose the tightening friction appropriately to avoid damaging the threads or screws.

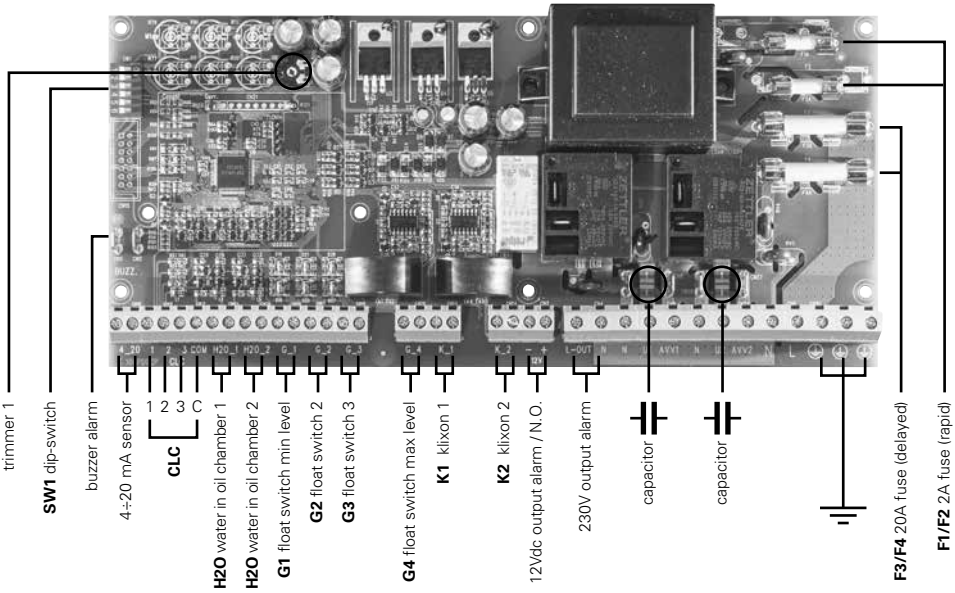
After fixing, remove every plastic or metallic impurities (ex. pieces of copper or plastic shavings) inside the box before suppling power.



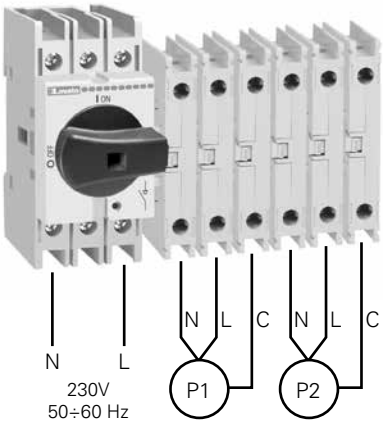
3.2 ELECTRICAL CONNECTIONS

EPIC 2D 230

ELECTRONIC BOARD

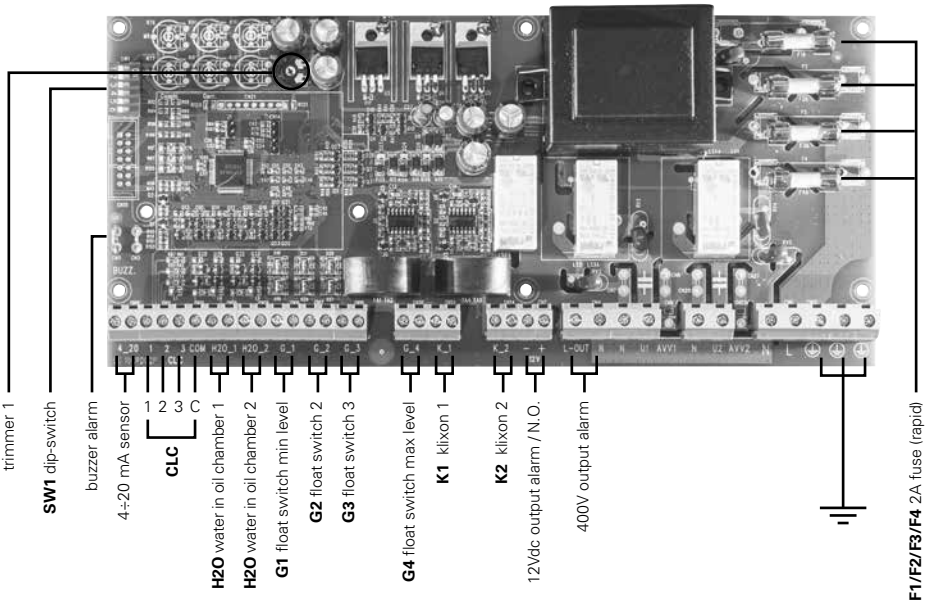


POWER SUPPLY

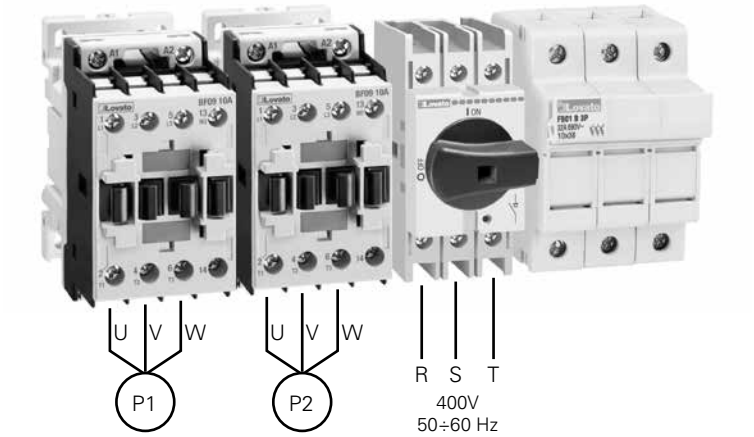


EPIC 2D 400

ELECTRONIC BOARD

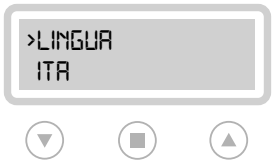


POWER SUPPLY



3.3 ADJUSTMENTS AND SETTINGS (INITIALIZATION)

CONTROL PANEL TURN ON



After making all the electrical connections, switch on the control panel and wait for the initial message to appear on the display.

LANGUAGE SETTING (OBLIGATORY)



Select the display language by scrolling the menu with the appropriate arrows (step 1 and 2).

When completed, press the confirm button (step 3) to continue.

PUMPS TRIGGER



To proceed with self-learning procedure, the pumps must first be triggered.

Do not press confirm, but start the pumps, keeping the "MAN" button pressed (for 3 sec.) for P1 and P2.

AUTOTUNING (OBLIGATORY)



To start the self-learning of the pump 1 data, type reply (step 5).

For the final confirmation of the data (step 7) type "YES" to go to pump 2, or enter "NO" to go back (to step 5).

Before starting the self-learning procedure, it is necessary to check with a tester that the mains voltage corresponds to the nominal one or at least to the mains voltage.

IMPORTANT!
For each pump, after pressing the final confirmation button, self-learning is no longer possible. To perform the self-learning again it is necessary to access the advanced menu (3.4).

CONTROL PANEL OPERATIVITY



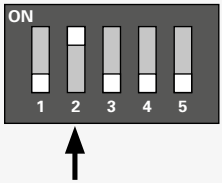
Once the self-learning phase is completed, the display of the panel displays the data learned.

By pressing the "AUT" button P1 / P2 the panel becomes operational.

PRESET PARAMETERS	
LANGUAGE: selected	**ALTERNATION P1/P2:** on
TURN ON DELAY: 2 sec.	**OPERATION:** emptying
MANUAL KEY: unstable	**TYPE:** potable
START DELAY: 4 sec.	**SELF HOLDING:** on
STOP DELAY: 1 sec.	

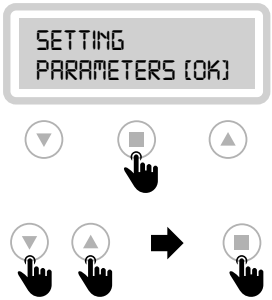
3.4 ADJUSTMENTS AND SETTINGS (ADVANCED MENU)

ACCESS TO ADVANCED MENU



DIP-SWITCH 2

The control panel is set as standard with the dip-switch 2 in the "OFF" position. To access the "ADVANCED MENU" and modify the various parameters, **switch off the control panel and set dip-switch 2 to "ON"**. Then turn the control panel back on to display the message on the "ADVANCED MENU" on the display.

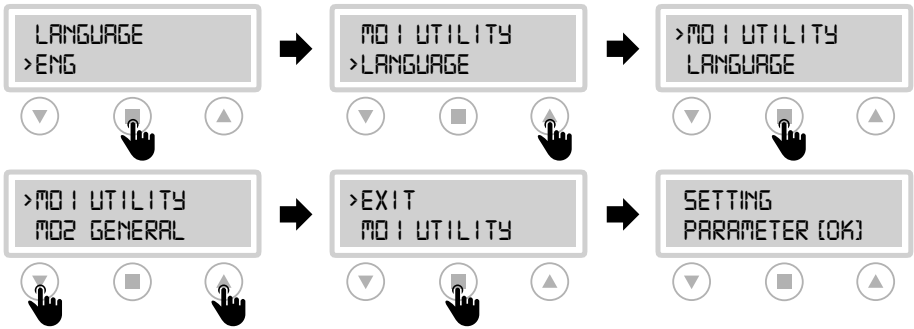


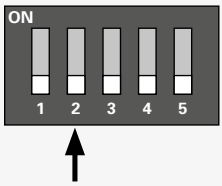
SETTING PARAMETERS

To access the advanced menu and set the various parameters, enter confirmation. On the display will appear in cascade all the fuctions. To enter each individual function, select it with the arrows and enter the confirmation button.

EXIT
M01 UTILITY
M02 GENERAL
M03 NET CONTROL
M04 PUMP 1
M05 PUMP 2
M06 PROGRAM
M07 SENSOR
M08 TIMER
EXIT

CONFIRM MODIFICATIONS AND EXIT FROM ADVANCED MENU (EXAMPLE)





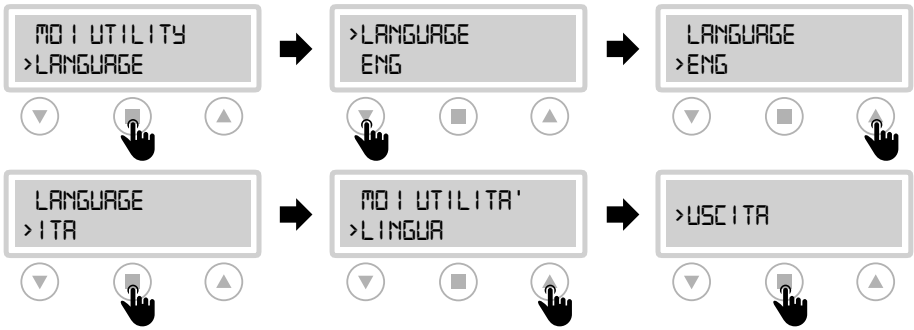
DIP-SWITCH 2

Once the setting of the various parameters has been confirmed (for example the LANGUAGE parameter), to exit the "ADVANCED MENU" **bring the dip-switch 2 back to the "OFF" position**.

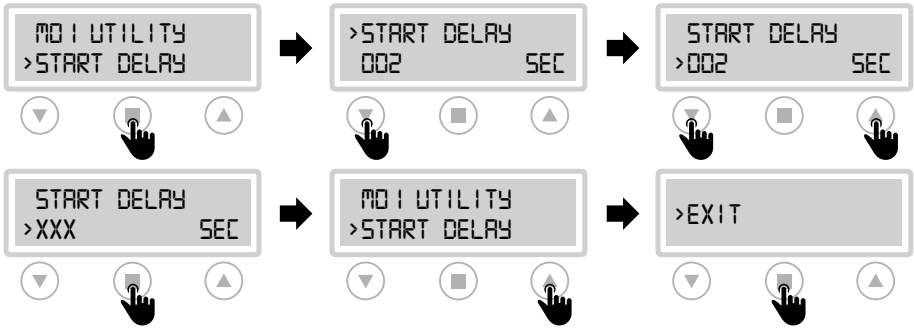
M01 UTILITY

ACCESS TO FUNCTION	MODIFIED PARAMETERS
	**LANGUAGE** (default: as selected) Language selection **START DELAY** (default: 2 sec.) Control panel switch-on delay after restart (in sec.) **MANUAL KEYPAD** (default: OFF) Possibility of operating the "MAN" button in stable or unstable mode (ON: stable / OFF: unstable) **MAX LEVEL ALARM DELAY** (default: OFF) Possibility to delay 15 minutes. (not modifiable) the maximum level alarm. The display will show the alarm and the pump will start (if available), only the alarm relay and the buzzer will be delayed.

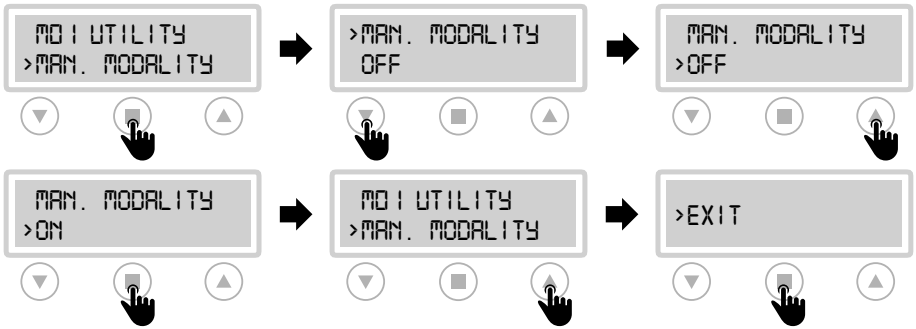
CHANGE LANGUAGE



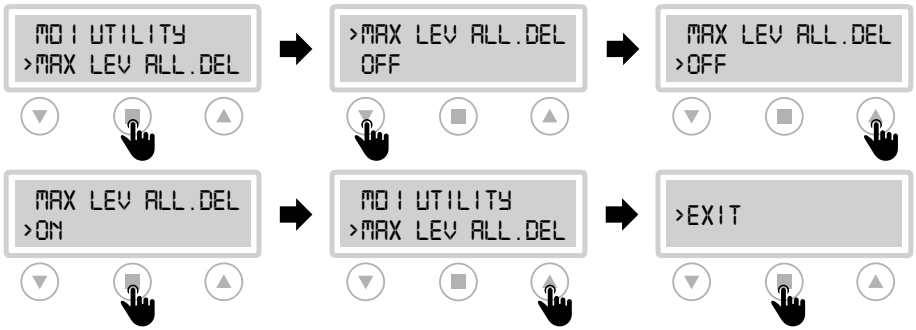
CHANGE START DELAY



CHANGE “MAN” BUTTON (STABLE/UNSTABILE)



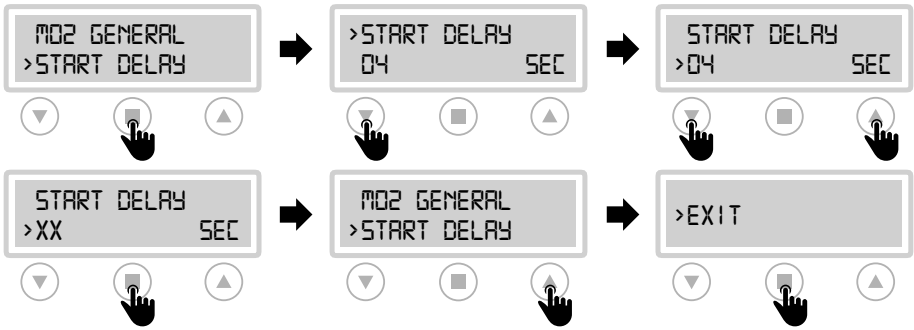
CHANGE MAX LEVEL ALARM DELAY



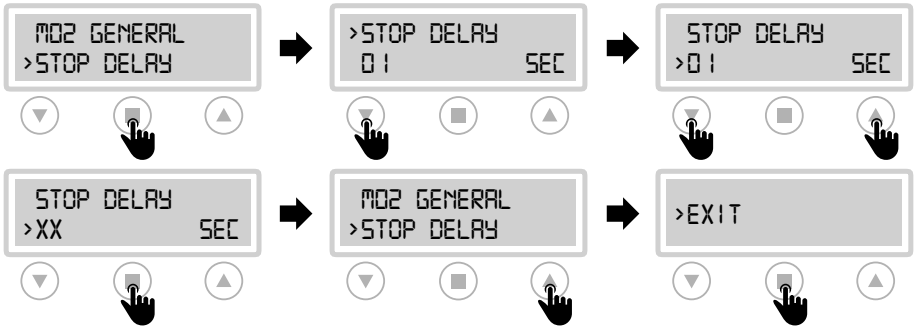
M02 GENERAL

ACCESS TO FUNCTION	MODIFIED PARAMETERS
	**PUMP START DELAY** (default: 4 sec.) Set the pump start delay **PUMP STOP DELAY** (default: 1 sec.) Set the pump stop delay **PUMPS ALTERNATION** (default: ON) Set the pumps alternation **TIME ON MAX** (default: 0 min.) Max continuous operation of the pump. Received consent from the level control, the pump switches on and operates for a maximum duration set by the user (in min.) The parameter is not active if the value is 0 min.

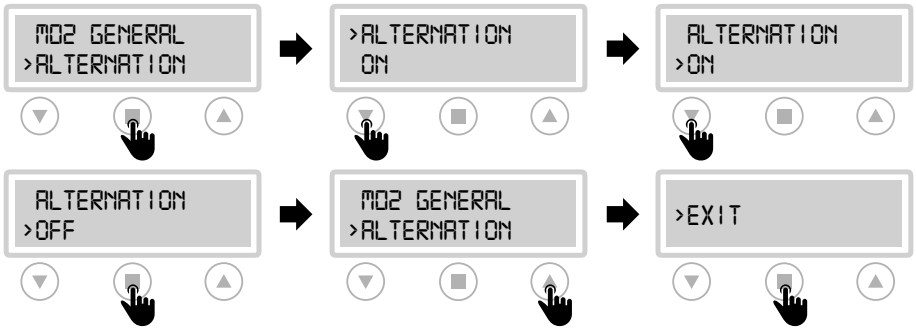
CHANGE START DELAY



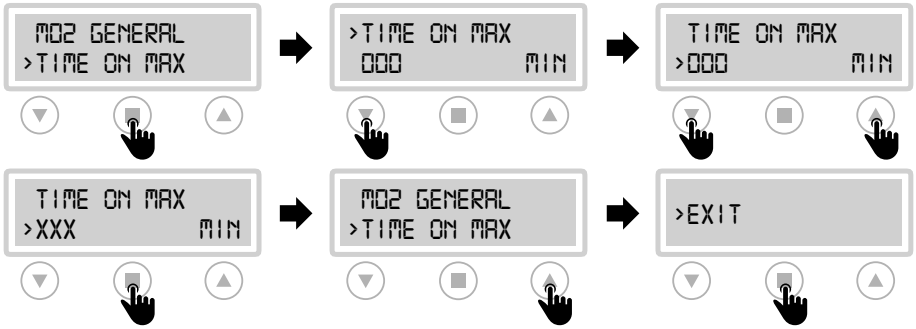
CHANGE STOP DELAY



CHANGE PUMPS ALTERNATION



CHANGE TIME ON MAX



"TIME ON MAX" PROCEDURE

For a correct functioning of this parameter, perform the following procedure:

- set the pump alternation in "ON"
- set the "STARTING FOR HOURS" parameter from the M04 PUMP 1 menu and then M05 PUMP 2 (see page 18), by entering the maximum number of starts allowed for each pump.

ATTENTION!

Refer to chapter 4.2 ALARMS for displaying and managing alarms and reset for this parameter.

EXAMPLE OF OPERATION

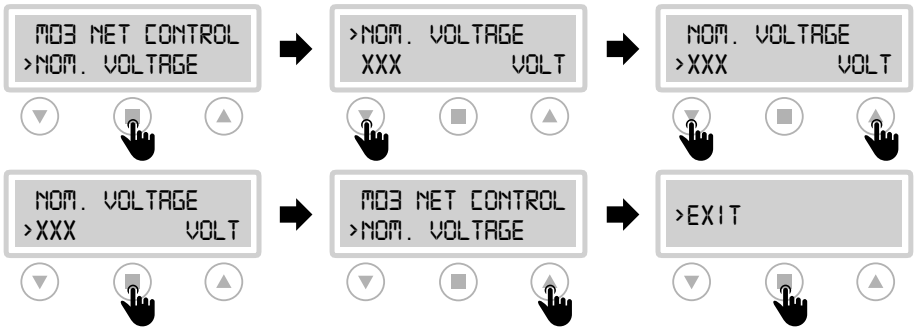
Operation of the control panel with "TIME ON MAX" active:

- the pump 1 activates after the buoyant consent, operates continuously and exceeds the max limit of min. set by the user.
- the control panel stops the pump 1 and starts the pump 2 automatically.
- when the same condition occurs again, the control panel stops the pump 2 and restarts the pump 1
- after a certain number of restarts, the control panel blocks both pumps

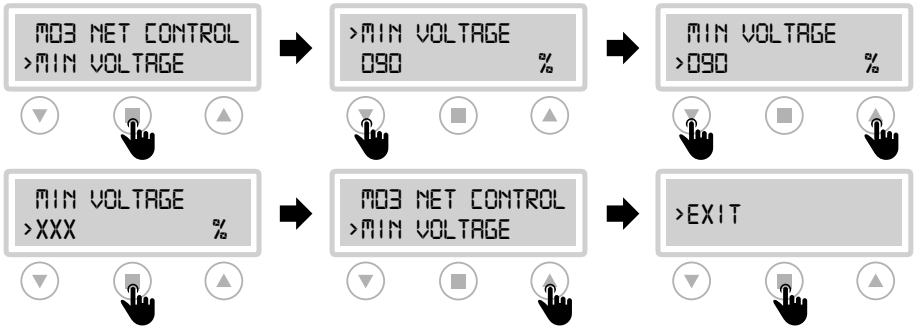
M03 NET CONTROL

ACCESS TO FUNCTION	MODIFIED PARAMETERS
	**NOMINAL VOLTAGE** (default: autotuning read) Set the nominal voltage **MINIMUM VOLTAGE** (default: 90%) Set the minimum voltage **MAXIMUM VOLTAGE** (default: 110%) Set the maximum voltage **NOMINAL FREQUENCY** (default: autotuning read) Set the nominal frequency **FREQUENCY RANGE** (default: 10%) Set the frequency range

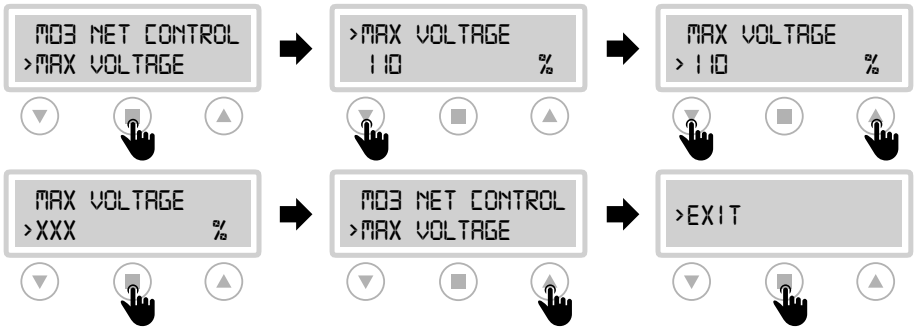
CHANGE NOMINAL VOLTAGE



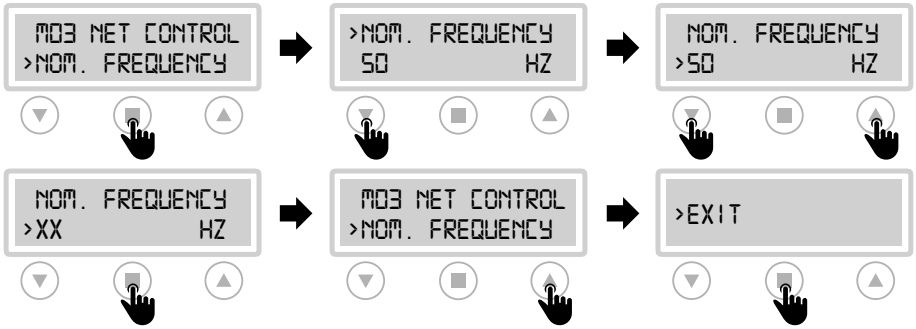
CHANGE MINIMUM VOLTAGE



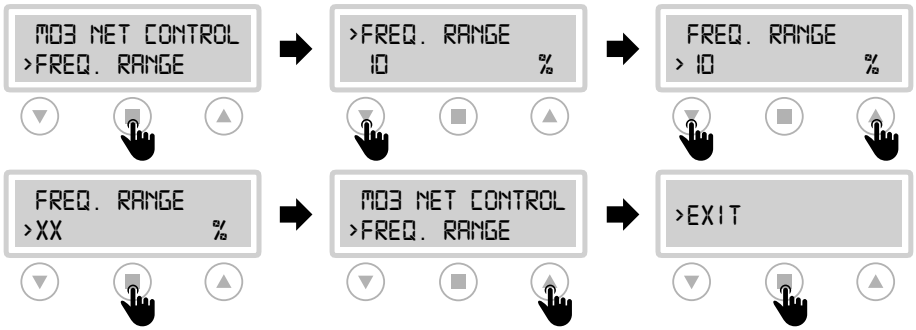
CHANGE MAXIMUM VOLTAGE



CHANGE NOMINAL FREQUENCY



CHANGE FREQUENCY RANGE

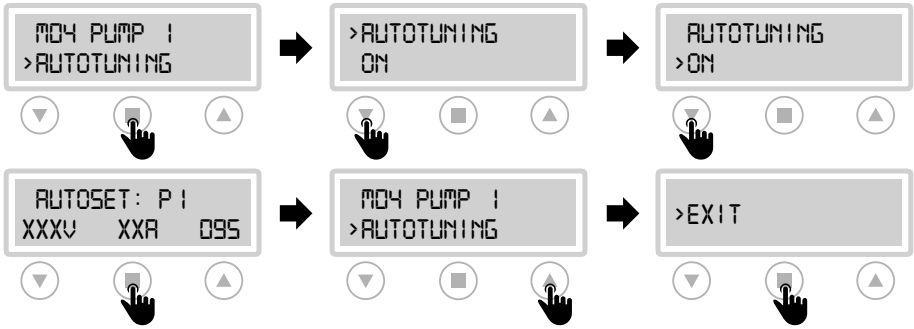


M04 PUMP 1 / M05 PUMP 2

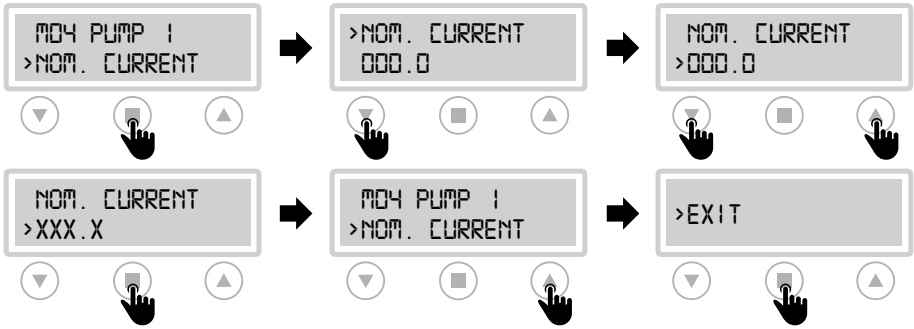
ACCESS TO FUNCTION	MODIFIED PARAMETERS
	**AUTOTUNING** It allows the self-learning of the data to be carried out again **NOMINAL CURRENT** (default: autotuning read) Set nominal/operating current of the pump **MINIMUM AMPERAGE** (default: 65%) Current setting min. for dry running protection **MAXIMUM AMPERAGE** (default: 130%) Max current setting for overcurrent protection **START PER HOUR** (default: 30) Set max number of pump starts per hour **MIN COSφ** (default: 75% of value read in autotuning) Set min. cosφ for dry running protection

The amperage value and cosφ shown on the display may differ ±5% from the nominal value of the pump (nameplate data) since the control panel is not a measuring instrument. The same value may differ depending on the operating conditions of the installation.

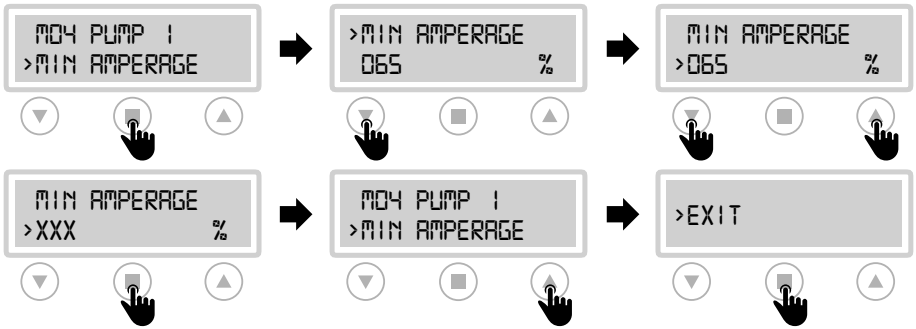
AUTOTUNING



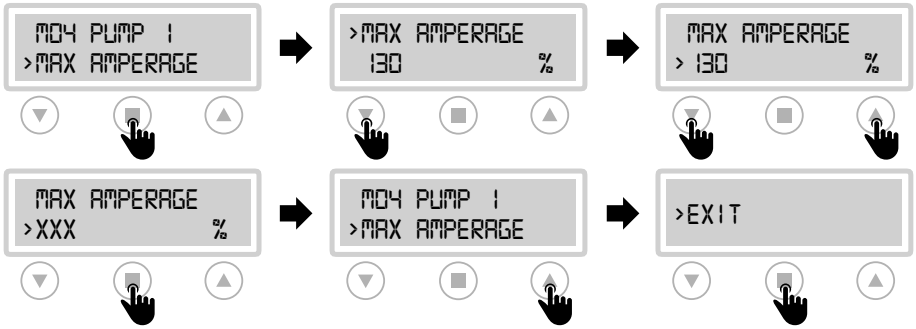
CHANGE NOMINAL CURRENT



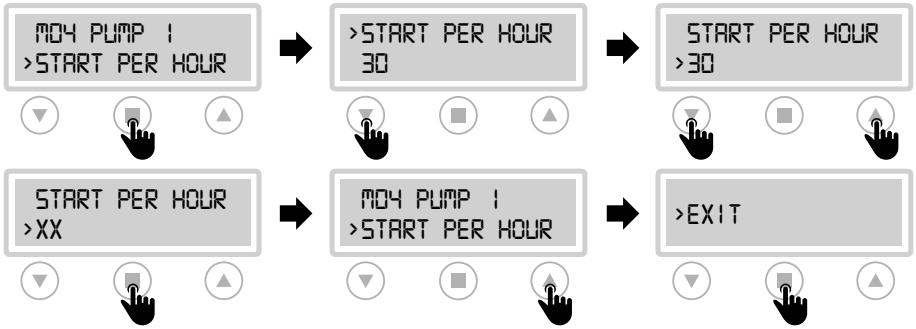
CHANGE MINIMUM AMPERAGE



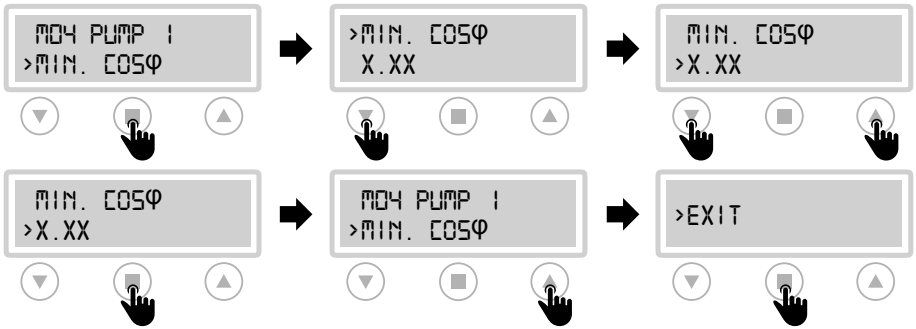
CHANGE MAXIMUM AMPERAGE



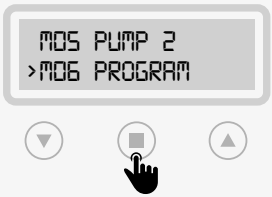
CHANGE START PER HOUR



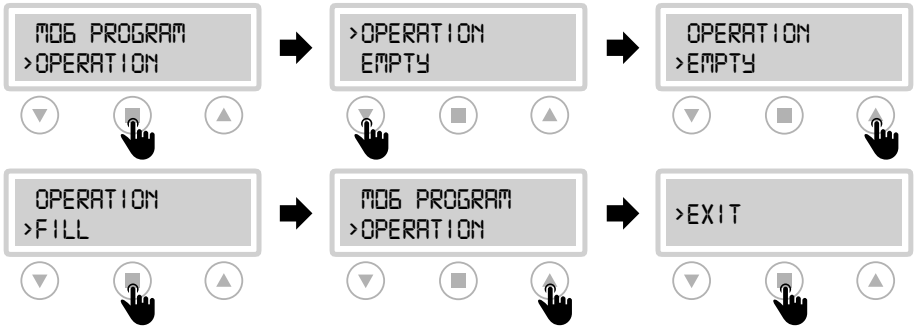
CHANGE MIN COSφ



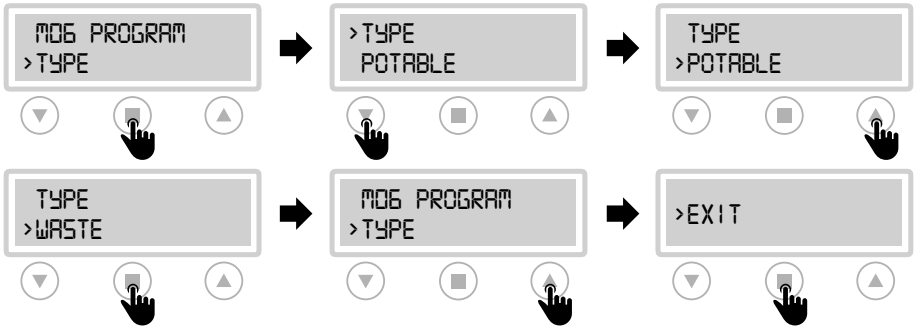
M06 PROGRAM

ACCESS TO FUNCTION	MODIFIED PARAMETERS
	**OPERATION** (default: EMPTY) Emptying selection "EMPTY" or filling "FILL" **TYPE** (default: POTABLE) Selection between clear (potable) and waste water **SELF HOLDING** (default: ON) Possibility to carry out a rapid emptying of the tank, mostly used for waste water applications **BMS (remote emergency start/stop)** (default: OFF) Possibility to start/stop the panel by remote button. The use of "BMS" function works thanks to G4 input (closed contact: pumps enabled / contact open: pumps disabled) **MULTI TANK** (default: OFF) Possibility of use with 2 pumps in separate tanks
For "waste water" type, only "EMPTY" function is available. **SELF HOLDING OPERATION (WASTE WATER)** When "self holding" is on and "waste water" selected, the float G1 is the STOP for both pumps (P1-P2). Conseguently G2 and G3 floats in only starts.	

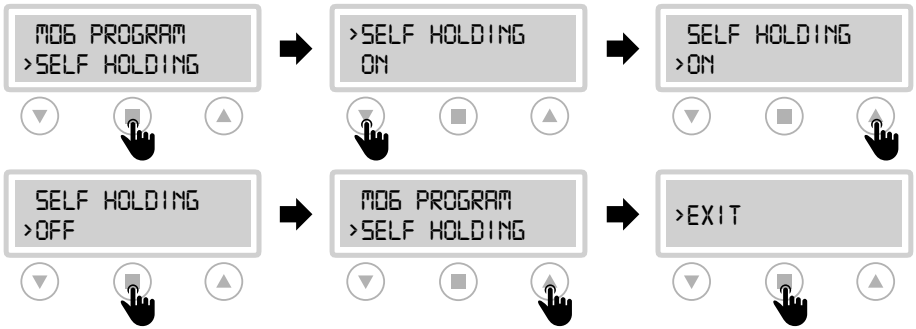
OPERATION (EMPTY/FILL)



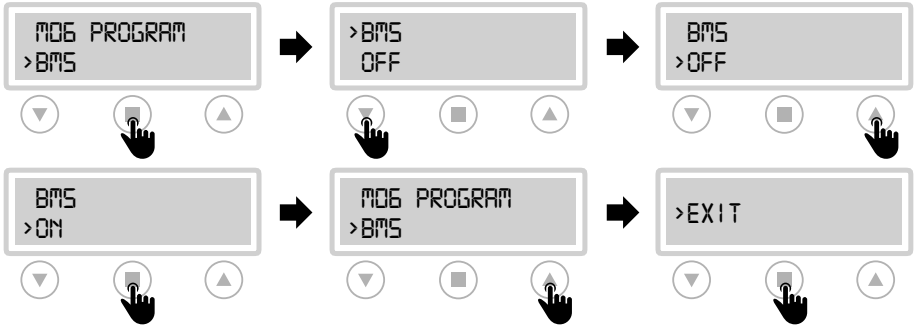
TYPE (POTABLE/WASTE WATER)



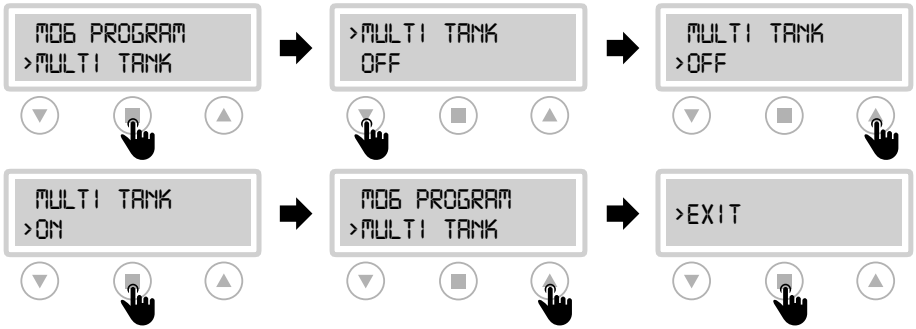
SELF HOLDING



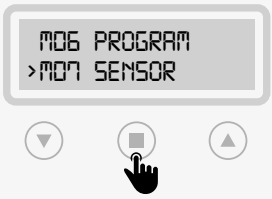
BMS SETTING



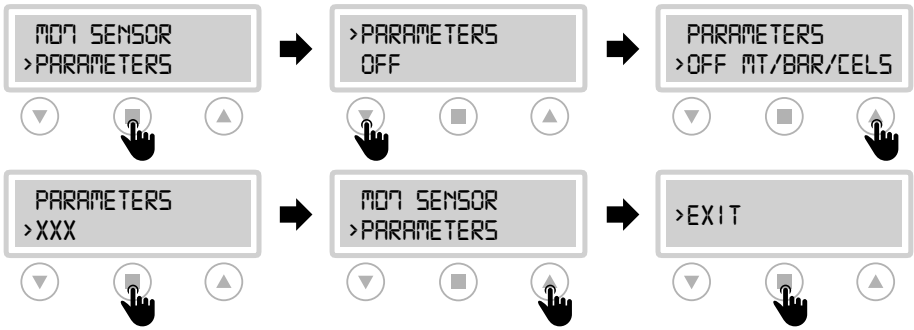
MULTI TANK SETTING



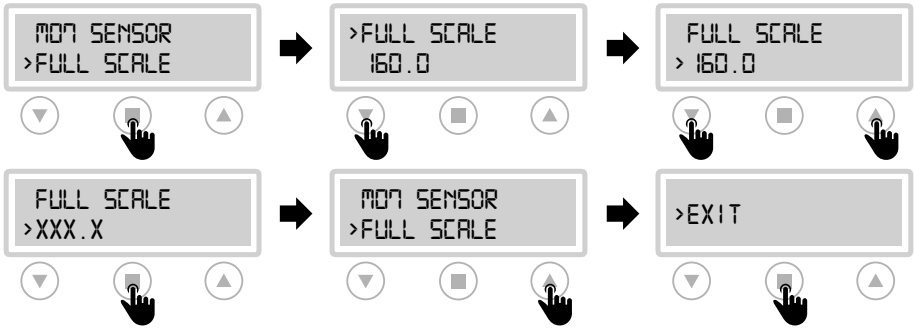
M07 SENSOR (sensor/trasducer 4÷20 mA)

ACCESS TO FUNCTION	MODIFIED PARAMETERS
	**PARAMETERS** (default: OFF) Setting unit of measure (mt/bar/celsius/cm) **FULL SCALE** (default: 160.0) Set the full scale value specified by the manufacturer of the sensor used (serial value 160.0) **MINIMUM LEVEL** (default: 5.0) Parameter active only with unit of measure in mt/cm **MAXIMUM LEVEL** (default: 100.0) Parameter active only with unit of measure in mt/cm **START P1 and STOP P1** (default: 10.0÷20.0) **PIEZO OFFSET** Parameter active only with unit of measure in mt/cm
The "SENSOR" function allows to use the control panel with piezoresistive, piezocapacitive level sensors or pressure transducers (logic 4÷20 mA). **ATTENTION: Switch off the control panel before connecting the sensor.**	

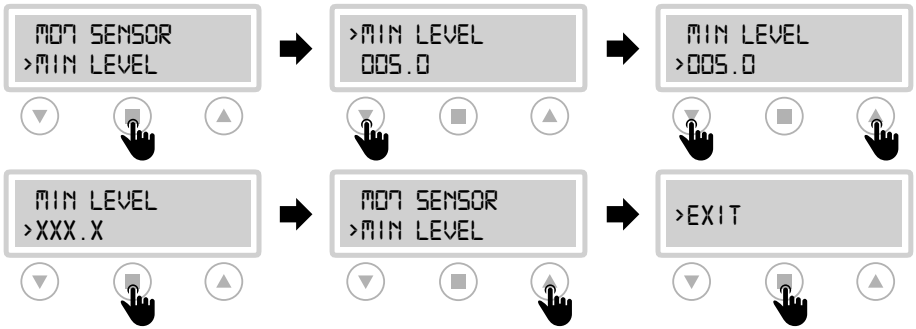
SET PARAMETERS



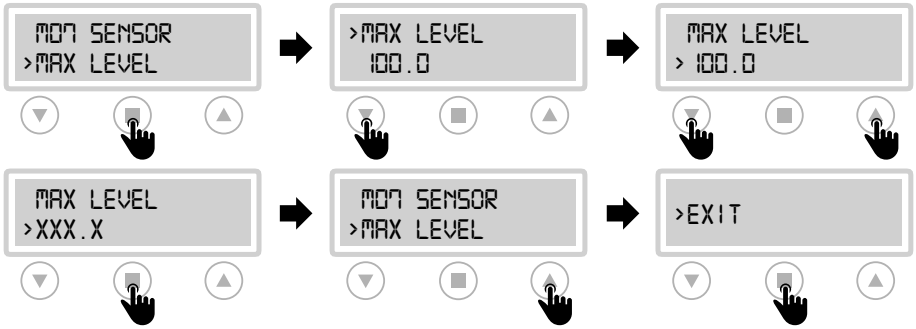
SET FULL SCALE



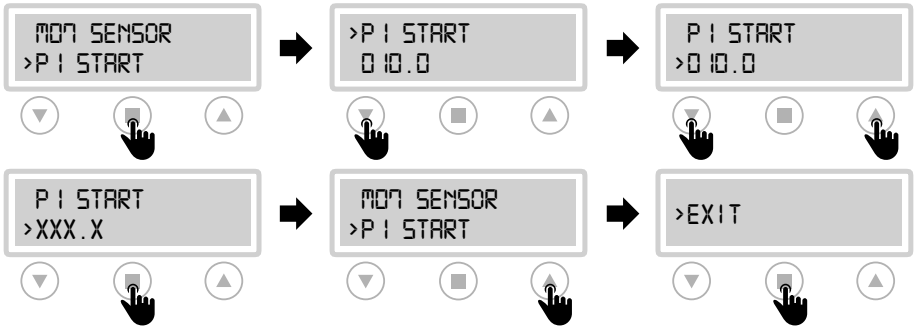
SET MINIMUM LEVEL



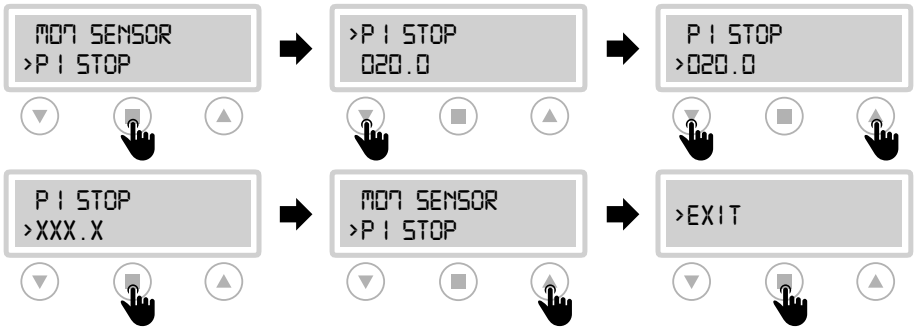
SET MAXIMUM LEVEL



PUMP 1 START



PUMP 1 STOP



IMPORTANT!
For the "PARAMETERS" set to mt/celsius/cm, the "FILL" and "EMPTY" programs can be selected on M06 PROGRAM > OPERATION menu (see page 20)

- FILL: START value < STOP value
- EMPTY: START value > STOP value

For the "PARAMETERS" set to bar, only the "EMPTY" program can be selected

- EMPTY: START value < STOP value

For each type of sensor the "TYPE" parameter must be set to "POTABLE" on the M06 PROGRAM menu (see page 20)

PUMP 2 START/STOP SETTING
It is necessary to carry out the same procedure to set the values of the "START PUMP 2" and "STOP PUMP 2" parameters.

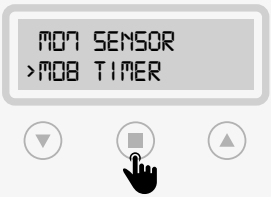
PIEZO OFFSET



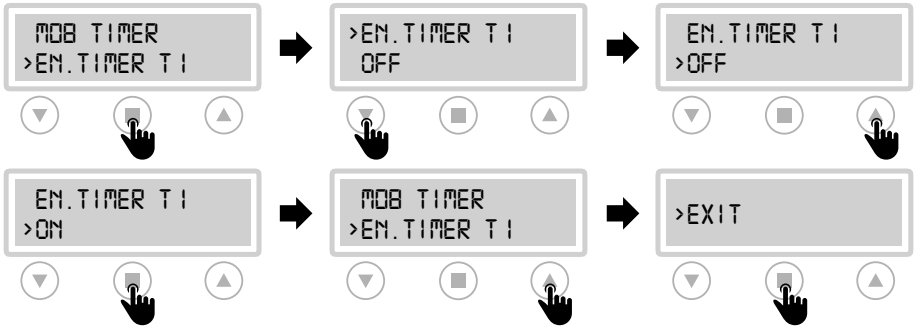
IMPORTANT!
Active only for level sensor with "PARAMETERS" set to mt/cm

- it is necessary to connect the sensor and set the offset for level "0"
- once the procedure has been completed, the "0" level is set to level detected by the sensor (to obtain a real "0" level, carry out the procedure with the sensor out of the water)

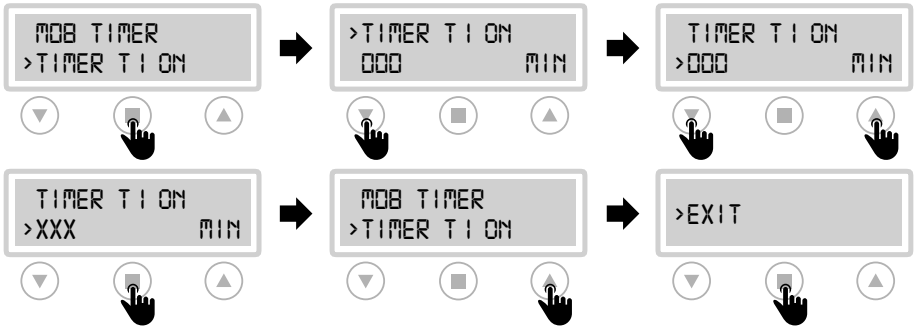
M08 TIMER

ACCESS TO FUNCTION	MODIFIED PARAMETERS
 The duty/stand-by times are not linked to inputs status. Pump startup is always dependent on inputs consent. To obtain a duty/stand-by by timer, the G2/G3 inputs must be closed.	**ENGAGE TIMER T1** (default: OFF) **TIMER T1 ON** (default: 0 min.) Setting the working minutes of the pump 1 **TIMER T1 OFF** (default: 0 min.) Setting the pause minutes of the pump 1 **ENGAGE TIMER T2** (default: OFF) **TIMER T2 ON** (default: 0 min.) Setting the working minutes of the pump 2 **TIMER T2 OFF** (default: 0 min.) Setting the pause minutes of the pump 2

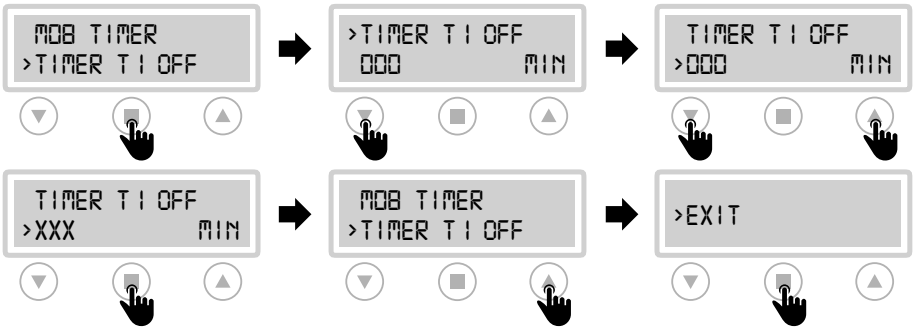
SET DUTY/STAND-BY



TIMER T1 ON



TIMER T1 OFF

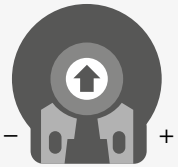


TIMER T2 ON/OFF SETTING
The same procedure must be followed to set the values of the "TIMER T2 ON" and "TIMER T2 OFF" parameters.

3.5 TRIMMER SETTINGS

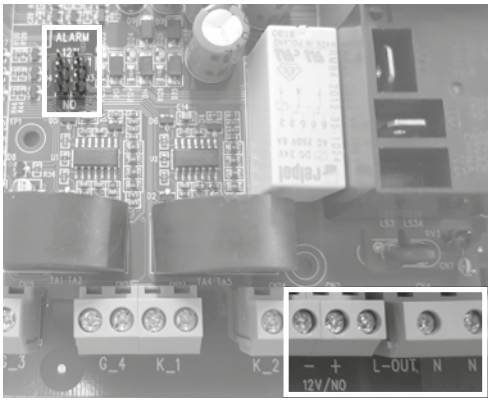
To change manually CLC sensitivity and water in the oil chamber, **interrupt the power supply to the control panel** and work on the trimmers, please following the below instructions:

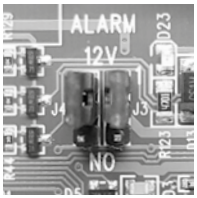
PROTECTION DELAY
The pump protection switching delay has been set at **5 sec**.

TRIMMER SETTING	
	**TRIMMER 1: PROBE SENSITIVITY CHANGE** Probe sensivity (CLC) and water in oil chamber sensor trimmer regulation. It is possible to change the sensitivity of the CLC probes and the water sensor in the oil chamber, **interrupting the power supply to the control panel** and acting on trimmer 1 (clockwise to increase and counterclockwise to decrease sensitivity).

3.6 ALARM CONTACT OUTPUTS

SINGLE PHASE VERSION	TREE PHASE VERSION
Alarm outputs: • L-OUT / N = 230Vac • + -12 / NO = 12Vdc or N.O. contact	Alarm outputs: • L-OUT / N = 400Vac • + -12 / NO = 12Vdc or N.O. contact



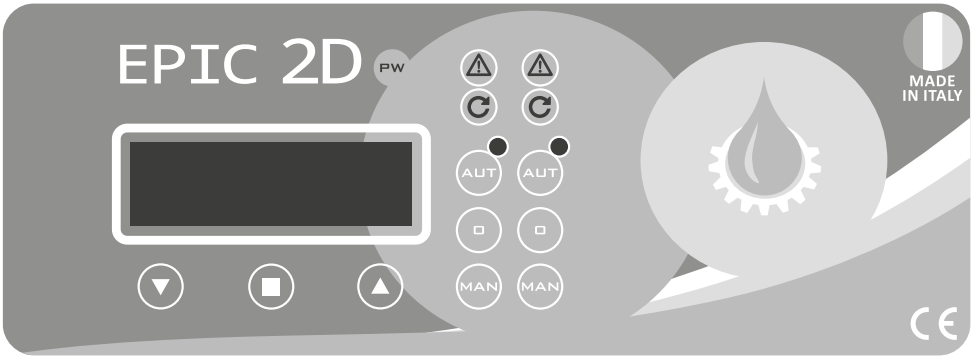


12Vdc output



N.O. free contact

4.1 KEYPAD AND LIGHTS INDICATIONS



CONTROL PANEL	
PW	**PW** blue light indicating power network presence and powered panel.
⚠	**ALARM** red light to indicate a general alarm and pump stop. (min and max Amp, min and max V, min and max level, motor klixon, water in oil chamber, phase failure, max starts par hour).
↻	**START** green light to indicate pump start; fixed on to indicate pump running, flashing to indicate auto-setting mode.
AUT	**AUT** the button activates the auto-setting mode and automatic pump (if the green light is on, the automatic mode is active).
□	**0** pump stop button and reset alarms, sound alarm turn-off.
MAN	**MAN** activation of manual pump; holding it down, the engine is operated in by-pass mode, bypassing all the protections.

4.2 ALARMS

The control panel signals a series of alarms that may occur during operation. Some of these stop the pumps, while others are only displayed.

All alarms are displayed on the panel (red led flashing), while the display shows the code/alarms occurred until the cancellation by the operator.

ALARM CODE	ALARM DESCRIPTION	PUMP STOP	RELAY ON	LED SIGNAL
AL 1	MIN VOLTAGE	**YES**	**YES**	
AL 2	MAX VOLTAGE	**YES**	**YES**	
AL 3	LOW FREQUENCY	**NO**	**YES**	
AL 4	HIGH FREQUENCY	**NO**	**YES**	
AL 5	DRY RUNNING P1/P2	**YES**	**YES**	
AL 6	MAX AMPERAGE P1/P2	**YES**	**YES**	
AL 7	MAX STAR PER HOUR	**NO**	**YES**	
AL 7	TIME ON MAX + MAX START PER HOUR	**YES**	**YES**	
AL 8	WATER IN OIL CHAMBER P1/P2	**NO**	**YES**	
AL 9	KLIXON P1/P2	**YES**	**YES**	
AL 10	MIN LEVEL	**YES**	**YES**	
AL 11	MAX LEVEL	**NO**	**YES**	

The alarm "AL 11" starts all the available pumps.

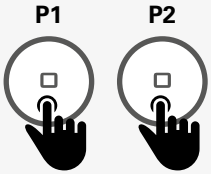
ALARM WITH STOP PUMP

Following the detection of an electrical alarm and the consequent blocking of the pump, the control panel does the following operations:

- After 30 minutes try to restart the pump
- In case of a negative feedback, it makes further attempts every 30 minutes

N.B.: Restart attempts will be made only if the panel receives the start consent from the connected inputs.

DELETE ALARM



To delete an alarm (for example dry run), press the pump (P1 or P2) button "0" as follows:

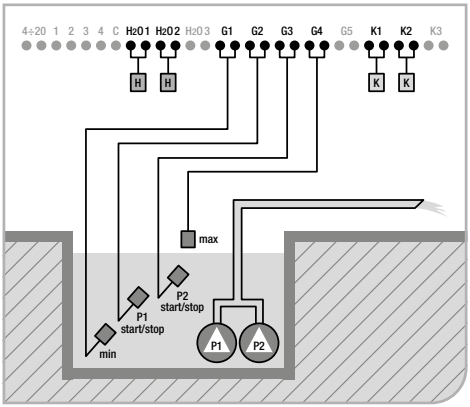
- the first press of the "0" button removes only the voltage from the buzzer terminals ("mute" function)
- the second press of the "0" button reset the alarm.

If the alarm is not reset (by pressing the "0" key twice), at the next alarm signal, the panel will remain in "mute" mode.

IMPORTANT!
If after having canceled the alarm, the same occurs again, an intervention on the cause is necessary.

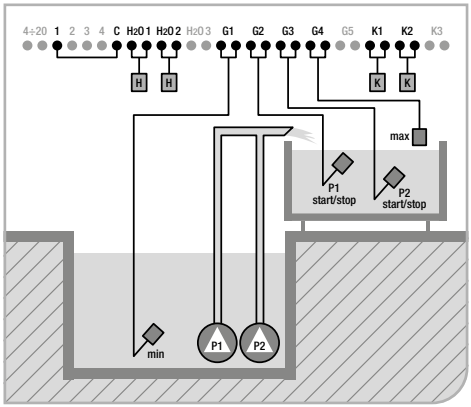
4.3 TYPICAL INSTALLATIONS

Picture 1



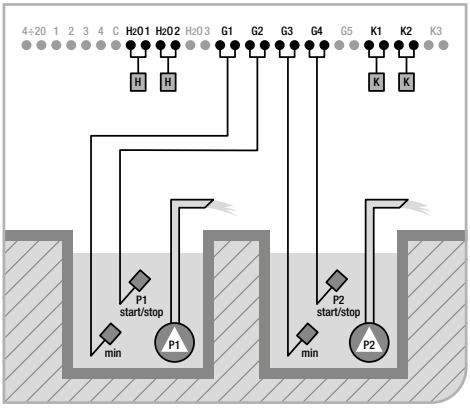
potable water - empty

Picture 2



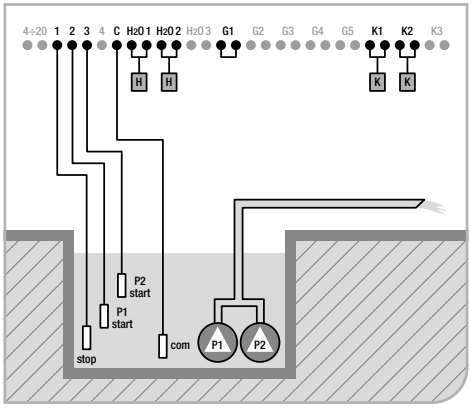
potable water - fill

Picture 3



potable water - empty (multi tank)

Picture 4



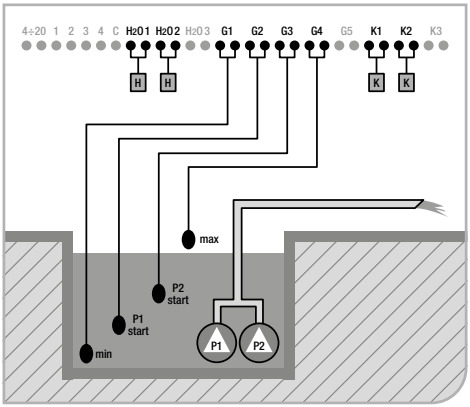
potable water - empty

4÷20	input for 4÷20 mA sensor or pressure transducer		
1/2/3/C	input for level probes		
H	input for water in oil chamber sensor/water leakage		
K	input for motor klixon		
Pr	pressure switch	**P**	pump

T	pressure transducer
	float switch for clear water
	float switch for waste water
	level probes
	4÷20 mA piezoresistive sensor

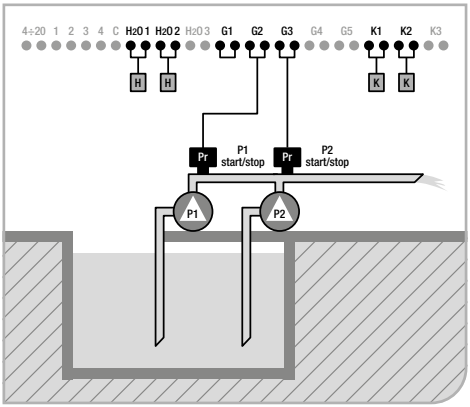
General use

Picture 5



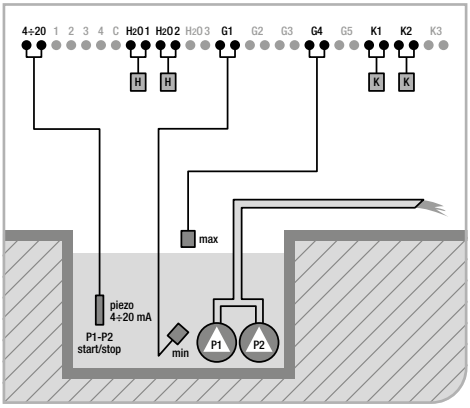
waste water - empty

Picture 6



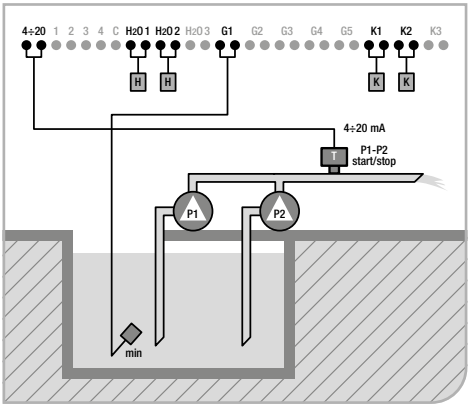
potable water - empty

Picture 7



potable water - empty/fill (sensor: mt/cm)

Picture 8



potable water - empty (sensor: bar)

4÷20	input for 4÷20 mA sensor or pressure transducer		
1/2/3/C	input for level probes		
H	input for water in oil chamber sensor/water leakage		
K	input for motor klixon		
Pr	pressure switch	**P**	pump

T	pressure transducer
	float switch for clear water
	float switch for waste water
	level probes
	4÷20 mA piezoresistive sensor

5.1 PUMPS STOP

MODE	BUTTON	STOP
MANUAL		The motor stops when the "MANUAL" button is released or once you digit the 0 button.
AUTOMATIC		When the input commands are disable/non active once you digit the 0 button.
OFF		Turning the main switch interlocking door in "OFF" position.

5.2 SERVICE

The control panel does not require any routine maintenance if their working limits are observed. Any maintenance operations must be performed by qualified and experienced personnel, in compliance with the safety regulations in force.



DANGER!
Make sure the control panel is disconnected from the power supply before any maintenance work.

5.3 SPARE PARTS

Always specify the exact model identification code and construction number if technical information or spare parts have to be requested from the sales and customer service.

Use only original spare parts to replace any defective components.The use of unsuitable spare parts can lead to malfunctions and danger to persons and property.

5.4 WASTE DISPOSAL

After the control panel has been installed and started, the customer must provide for the appropriate elimination/disposal of the waste materials according to the legislation locally in force. If the control panel or parts of it must betaken out of service and dismantled, follow local regulations regarding sorted waste disposal. Refer to the appropriate recycling centres.



CAUTION!
Contamination of the environment with hazardous substances such as battery acid, fuel, oil, plastic, copper, etc., may cause serious damage to the environment and endanger people's health.

6.1 CERTIFICATE OF CONFORMITY

The Manufacturer:

Atlantic Power Control S.r.l.s

Via E. Fermi, 10 - 35020 Polverara (PD) - ITALY

DECLARES UNDER IS OWN RESPONSIBILITY THAT THE FOLLOWINGS CONTROL PANELS:

EPIC 2D -230 e EPIC 2D -400

ARE IN CONFORMITY WITH COMMUNITY DIRECTIVES REGARDING:

- European directive 2014/35/UE
- Electromagnetic compatibility directive 2014/30/UE

AND AS APPLICABLE TO HARMONIZED STANDARDS:

- EN 61439-1
- EN 61439-2
- EN 60204-1
- EN 55014-1
- EN 55014-2
- EN 61000-3-2
- EN 61000-3-3

- BS EN 61439-1
- BS EN 61439-2
- BS EN 60204-1
- BS EN 55014-1
- BS EN 55014-2
- BS EN 61000-3-2
- BS EN 61000-3-3

CERTIFICATIONS

ISO **9001**

Moreover Mr. Giuseppe Franchin, as the legal representative of the company, is the person authorized to compile the technical documentation file.

Polverara - Italy, 10/01/2018

Technical Manager
(Giuseppe Franchin)

EN 07/25



CERTIFIED
9001:2015