

DRENA 2 - User Manual

ELECTRICAL PANEL FOR 2 MOTORS

- WASTE WATER -





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1. SYMBOLS AND WARNINGS

This operation and maintenance manual uses the symbols outlined below to indicate risks that may arise in the event of failure to observe the instructions supplied.



This symbol corresponds to an immediate risk of death or serious physical injury or material damage. When present, take great care to observe warnings and instructions.



This symbol corresponds to a possible risk of death or serious physical injury or material damage. Take care.



Failure to observe the instructions in the presence of this symbol may lead to malfunctions and damage to equipment, with possible consequent injuries to the operator.



Before performing any work on the electrical panel or system, shut off the electrical power supply.



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



Before any other operation, 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.

2. GENERAL INFORMATION

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 herein.

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 centre 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 centre is available for any requirement or clarification.

The electrical equipment supplied must be installed indoors in a well-ventilated environment, within a temperature range of -5° to +40°C.



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.

3. WARNINGS

On receipt of the goods, perform an inspection immediately to ensure that the equipment has not been damaged during transport.

If defects or missing material are found, the client should promptly notify, and in any event within 5 days of receiving the goods, our retailer, or in the event of direct purchases, the Elentek service centre.

The DRENA 2 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.



All DRENA 2 panel installation and maintenance operations must be performed by a specialised technician who is fully aware of the relevant current safety standards.

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

Always disconnect the unit from the power supply before maintenance or cleaning.

If DRENA 2 is not used for prolonged periods, store the product in a clean and safe location protected against atmospheric agents and the potential risk of dropping/falling.



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.

Elentek 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;
- Unauthorised modifications or interventions;
- Partial or total failure to observe instructions;

4. GENERAL DESCRIPTION

- Power supply 1 ~ 50/60Hz 230V±10% (DRENA 2-Single);
- Power supply 3 ~ 50/60Hz 400V±10% (DRENA 2-Three);
- Low voltage control circuits and inputs;
- G.MIN Normally open input for minimum level/pressure command;
- G/P1 and G/P2 normally open inputs for start-up command;
- T1 and T2 input for motor clicson;
- G/P ALARM normally open input for alarm activation 12Vdc 200mA;
- AUTOMATIC-0-MANUAL buttons (spring return);
- Motor switching module with 5-second delay;
- Internal selector for switching module shut-off;
- Internal selector for start-stop function on switching module;
- Green led: Power mains ON;
- 2 green leds: motors active;
- 2 green leds: automatic mode enabled;
- Red led: level alarm;
- 2 red leds: motor overload alarm;
- 2 red leds: motor clicson activation alarm;
- Settable electronic motor overload control;
- 5-second overcurrent protection trip;
- Protection of aux. circuits and utilities with fuses;
- Alarm output (COM-NO-NC resistive load - 5A / 250V);
- Door lock general disconnect switch;
- Provision for start-up capacitor (not included);
- Box in ABS, IP55;
- Ambient temperature: -5/+40 °C;
- Relative humidity 50% at 40 °C (condensate free).

5. 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.

DRENA 2 Single	▶	1~230V ± 10% 50/60Hz
DRENA 2 Three	▶	3~400V ± 10% 50/60Hz

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

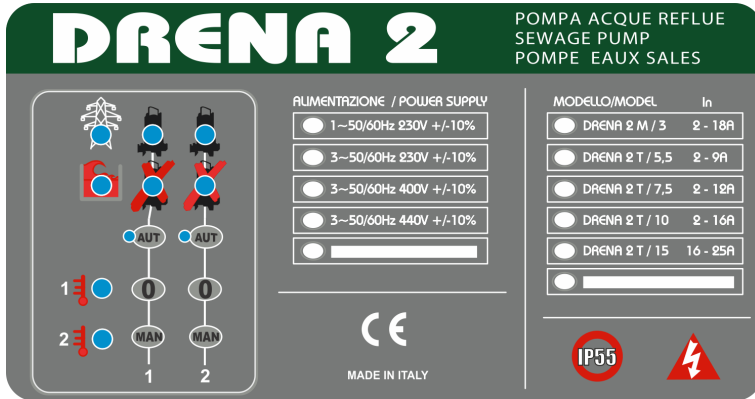
Tighten the electrical cables on the relative terminals using a suitable tool correctly sized to avoid the risk of damage to the fixing screws. Take care if using an electric screwdriver.

The DRENA 2 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.

6. CONTROL PANEL

6.1 Luminous indicators and control commands

The DRENA 2 electrical panel has been designed for adjustable protection of 2 motors, commanded by external contacts (such as floats or pressure switches) and integrated function for automatic switching and disable option.



KEY TO LUMINOUS INDICATORS AND COMMANDS



Green led: mains power ON



Green led: electric pump operating



Red leds: motor thermal cut-out trip



Red led: level alarm



Red led: motor temperature overload alarm (optional)



Green led and button: automatic mode



Motor stop or alarm reset button



Manual mode button

6.2 General operation notes

After connecting the panel to the electrical mains and with the door lock switch set to ON, the green led illuminates to indicate power on the panel.

On initial activation, the panel starts up in Automatic mode (indicated by the green led on the "AUT" button). If the motor is enabled, this is indicated by the green led signalling the electric pump in operation.

The buttons    enable the following settings:



: start-up of the motor in Automatic mode, activated via floats or pressure switches;



: manual shutdown of motor and reset in event of motor thermal cut-out trip.



: start-up of motor is manual mode by operator pressing and holding the button;



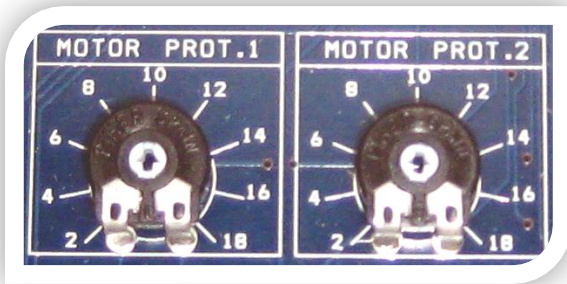
N.B. Motor operation in automatic mode is commanded on closure of the G.MIN contact, designed to protect against dry running, to which a pressure switch or min. level float can be connected.
If G.MIN is not used, a jumper should be wired in on the contact.

7. SETTINGS AND ADJUSTMENTS

7.1 Current control protection

On the basis of the output of the motors to be controlled, and therefore the output of the electrical panel, the electronic board is fitted with one of the following types of controller: from 2A to 18A and 16A to 35A.

On initial activation of the panel, the overload protection (or thermal cut-out) must be set according to the absorption of the electrical motors connected to the panel, using the trimmer "MOTOR PROT 1" and "MOTOR PROT 2".



During this operation, the protection trip delay (of approx. 8 seconds) must be inhibited, by wiring in the jumper "RIT.PROT.MOTOR1" and "RIT.PROT. MOTOR2".

After the motors have started, set the protection trimmer to the maximum setting (rotate clockwise) and, as described above, wire in the jumper "RIT.PROT. MOTOR1" and

"RIT. PROT. MOTOR2". Slowly turn the trimmers "MOTOR PROT 1" and "MOTOR PROT 2" towards the minimum setting (rotate counter-clockwise) until the thermal cut-out trips and the motors are shut down.

At this point, the value at which the motors stop must be increased by approx. 15% to obtain the setting value for the trimmer "MOTOR PROT 1" and "MOTOR PROT 2".

After completing this setting, remove the jumper "RIT.PROT. MOTOR1" and "RIT.PROT. MOTOR2".

N.B. The thermal cut-out time, and therefore the motor shutdown time is approx. 8 seconds, but this can also be inhibited by wiring in the jumper on "RIT.PROT. MOTOR1" and "RIT.PROT. MOTOR2".



7.2 Alternating operation mode

The DRENA 2 panel can be used with an automatic switching module to change between motors on each activation, or with a direct on/off command.



This operating mode is set by wiring in the jumper "ALTERNATION".

To activate automatic switching of the pumps set both "ALTERNATION" jumpers to ON.

In this way on each call sent by the command G/P1 (float or pressure switch) motors 1 and 2 are alternated.

In the event of a simultaneous call from the command connected on G/P2 both motors are activated.

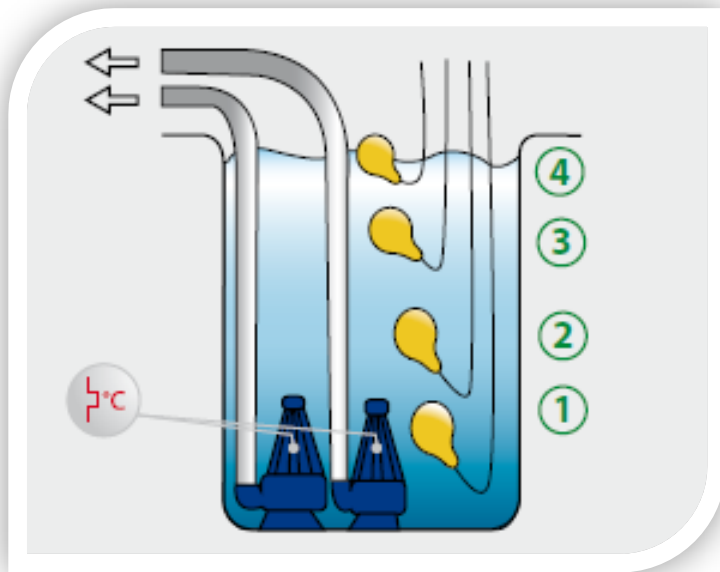


If direct control of the motors is required, set the "ALTERNATION" jumpers to OFF.

This means that G/P1 directly and independently controls motor 1 and G/P2 directly and independently controls motor 2.



Practical example:



- ① Stop float.
- ② Alternation float.
- ③ Emergency float.
- ④ Alarm float.

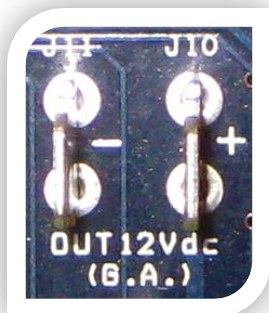
7.3 Other functions

The DRENA 2 panel also offers the option of an alarm signal in the event of low level/pressure.



By wiring in the jumper “EXC. ALARM”, on opening of the input contact G.MIN, a luminous signal lights up on the front of the panel to indicate a level alarm, and the cumulative alarm relay is switched.

Otherwise, when the jumper is removed, on opening of the contact G.MIN, the motors stops without any additional alarm signals.



On closure of the input G/P ALARM the following occurs:

- activation of the luminous signal on the front of the panel to indicate a level alarm;
- switching of the cumulative alarm relay;
- activation of the alarm output “OUT 12Vdc (G.A.)”



As the DRENA 2 panel is designed for electric pumps in waste water applications, it can also be used with the alternation function with start-stop function on multi-contact pear-shaped float switches.

This setting is obtained by wiring in the jumper “FUNCTION START/STOP” on the left side of the control terminal board.

If the jumper is removed, the start-stop function on the pump control float switches is no longer active.

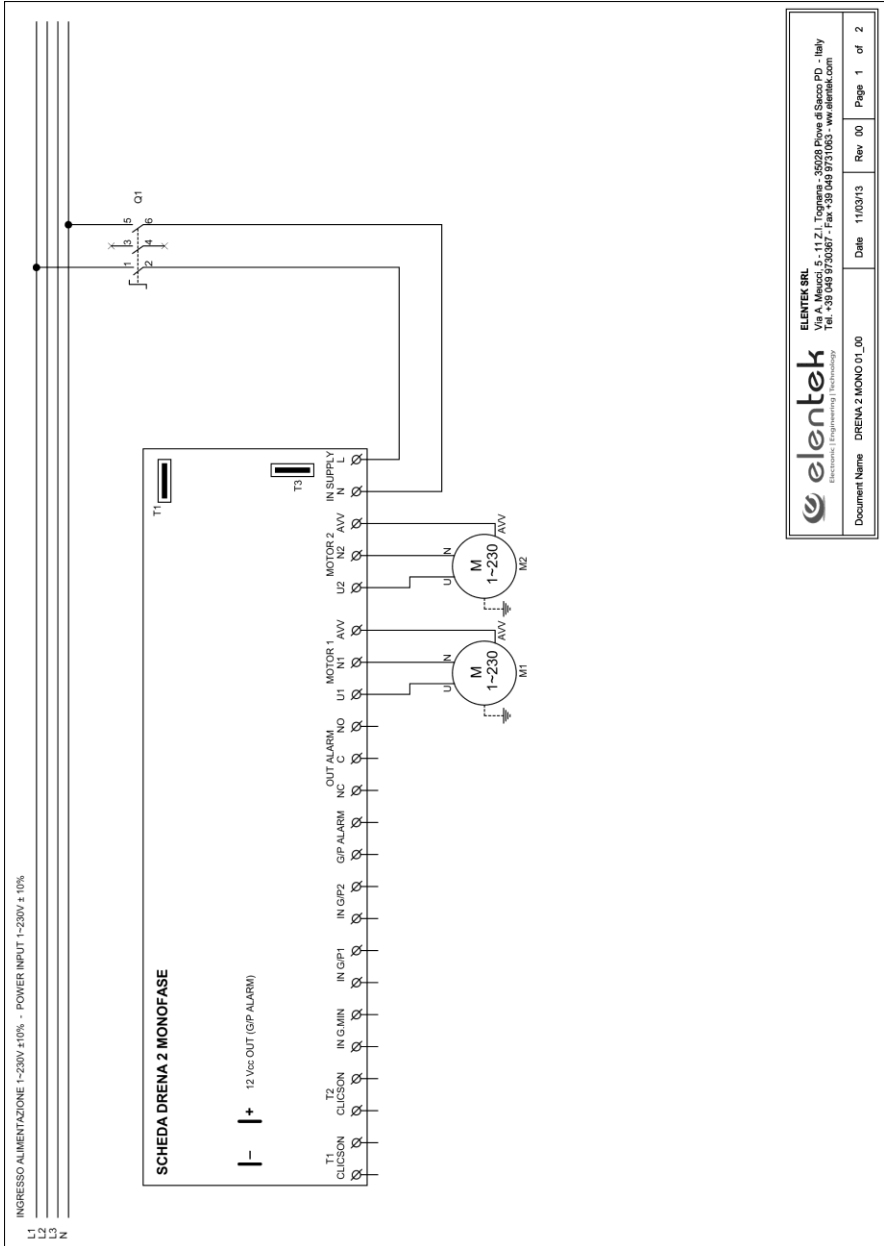


N.B. In the event of malfunctions of one of the two motors, the defective model can be excluded from automatic mode by wiring in the respective jumper at the rear of the synoptic panel, located inside the box cover.

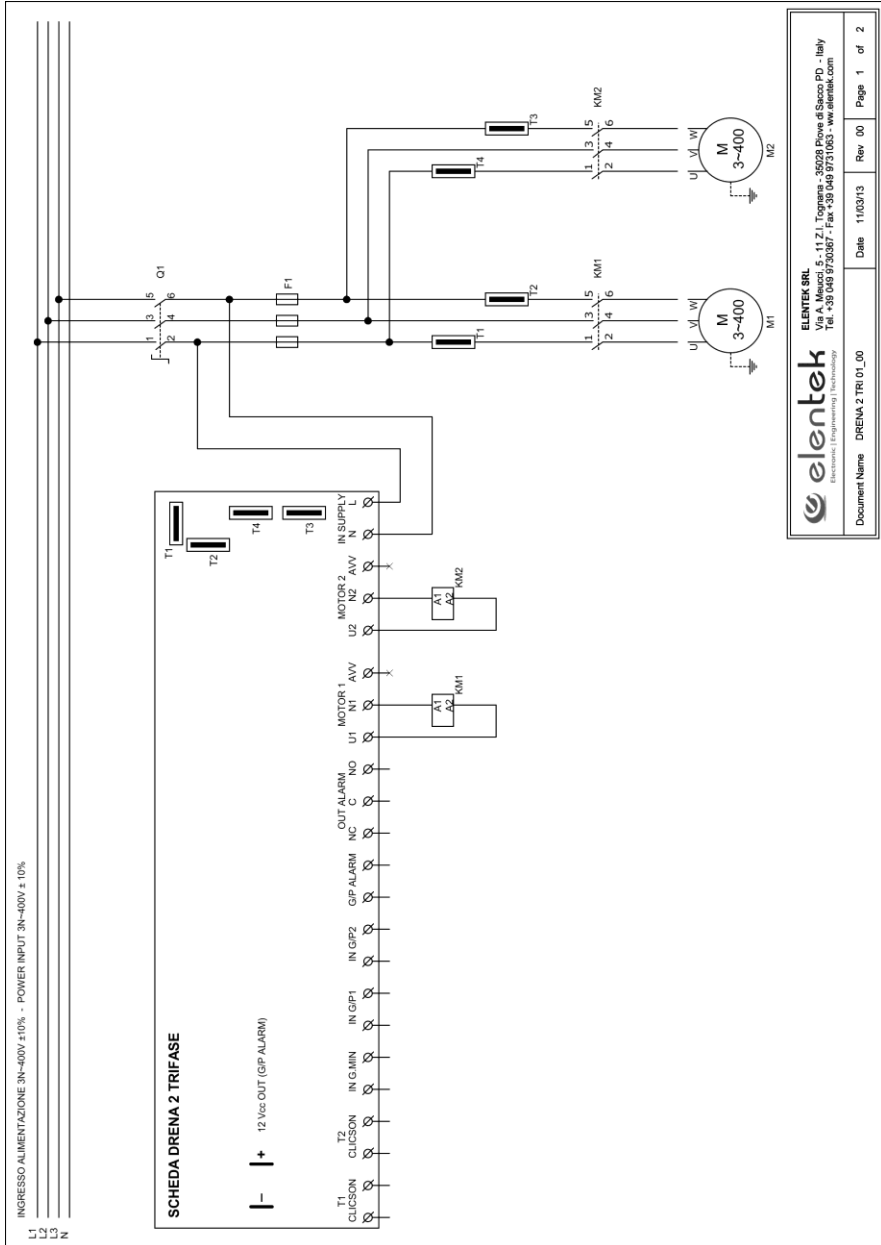
When viewing the rear of the synoptic panel, the left-hand jumper controls operation of the 2nd motor, while the right-hand jumper controls operation of the 1st motor.

8. STANDARD CIRCUIT DIAGRAMS

8.1 DRENA 2 Single phase circuit diagram

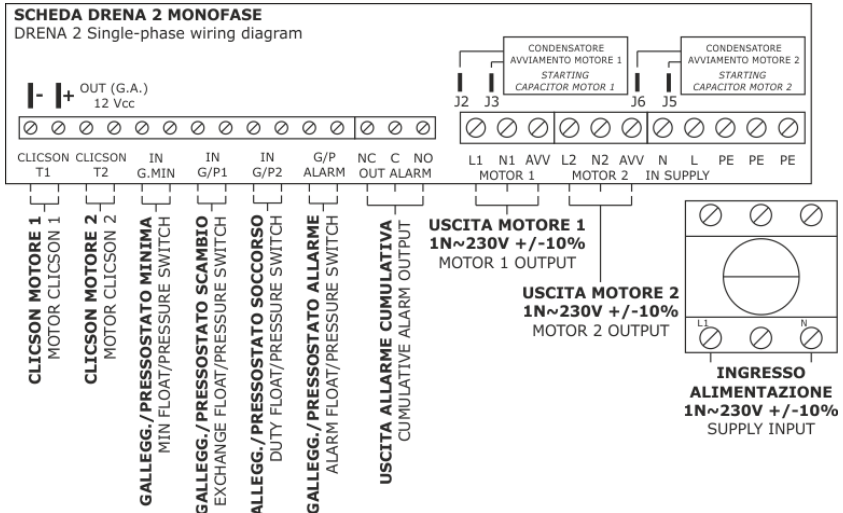


8.2 DRENA 2 Three phase circuit diagram

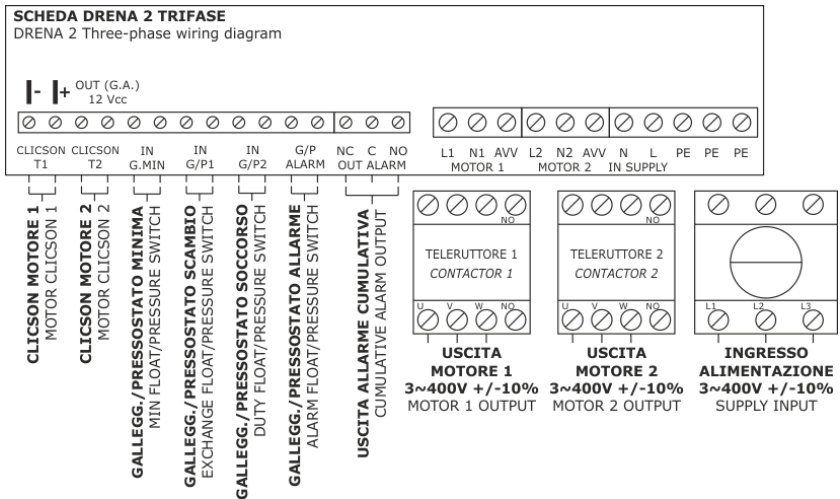


9. STANDARD WIRING DIAGRAMS

9.1 DRENA 2 Single phase wiring diagram



9.2 DRENA 2 Three phase wiring diagram



10. TROUBLESHOOTING

	<u>PROBLEM</u>	<u>CHECKS / SOLUTIONS</u>
1.	The panel is powered up but does not start up in automatic mode	<ul style="list-style-type: none"> ▪ Check that the green leds on the automatic mode buttons are lit; otherwise press the buttons.
2.	The panel is set to automatic mode but the pumps do not start.	<ul style="list-style-type: none"> ▪ Check that the float input "G.MIN" is jumpered if no minimum level float is used. ▪ Ensure correct operation of the start and stop floats. ▪ Check that the normally open inputs are closed. ▪ On the single phase model, check that the 230V~ voltage is present on the motor 1 output terminals "U1" and "N1" and on the motor 2 output terminals "U2" and "N2"; on the three-phase model check that the 400V~ voltage is present and that the contactor windings are powered on the motor 1 output terminals "U1" and "N1" and on the motor 2 output terminals "U2" and "N2". ▪ Ensure correct insertion of the alternation jumpers (see page 13).
3.	On pump start-up, the panel thermal cut-out trips	<ul style="list-style-type: none"> ▪ Check the nominal current of the pumps and set the trimmers (or potentiometers) indicated on the board by "MOTOR PROT 1" and "MOTOR PROT 2" with a current higher by approx. 15% . ▪ Check that the jumpers indicated on the board by "PROT. DELAY MOTOR1" and "PROT.DELAY MOTOR2" are not jumpered thereby delaying the thermal cut-out trip by approx. 8 seconds in the case of excessively high pump start-up currents.
4.	The 12 Vdc voltage is not detected on the alarm output faston connectors	<ul style="list-style-type: none"> ▪ Ensure that the normally open contact float closes in the event of a level alarm. ▪ Ensure correct operation of the alarm float.
5.	The panel is always set to level alarm status.	<ul style="list-style-type: none"> ▪ Ensure that the minimum level float wiring is correct (terminals "in G.MIN").
6.	The panel is in motor temperature overload alarm status	<ul style="list-style-type: none"> ▪ Check that jumpers are wired in on the motor clicson inputs "T1" and "T2" if the pumps are not fitted with a thermal cut-out.

7.	No led lights up on the control panel.	<ul style="list-style-type: none">▪ Ensure that the FLAT connection with the board inside the panel is inserted correctly.▪ Ensure that the door lock is set to ON.▪ On the panel input, check that the voltages 230V~ or 400V~ are present between the mains input terminals “L” and “N”.
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11. GENERAL CONDITIONS

11.1 Warranty

The product warranty is subject to the general terms of sale of the company Elentek S.r.l.

Acknowledgement of the warranty depends on the strict and proven observance of the operating instructions in this booklet and application of the correct mechanical, hydraulic and electro-technical practices.

All products are covered by a warranty valid for 12 months, which covers all construction defects of our products and includes the replacement/repairs of defective parts.

The warranty will not be deemed valid in the event of:

- tampering with the panel (modifications without prior authorisation);
- faults due to lack of or inadequate protection and/or connection errors;
- faults caused by exceeding data plate specifications;
- normal wear and tear;
- failure by installation personnel to observe the specified operating procedures;
- accidental causes, natural disasters of any kind, such as fires, flooding, water or lightning;

The defective material must be delivered carriage paid to Elentek S.r.l., who reserves the right to final judgement of the cause of the said defects.

The Warranty applies exclusively to restoring the original product characteristics and does not cover material damage or physical injury.

11.2 Maintenance

DRENA 2 does not require routine maintenance provided that it is used within the operating limits and in observance of the instructions in this manual.

Special maintenance or repairs must be performed exclusively by authorised service centres.

In the event of repairs, only original spare parts must be used.

The manufacturer declines all liability for material damage or injury to persons or animals caused by maintenance interventions performed by unauthorised personnel or using non-original materials.

11.3 Disposal

In the event of disassembly and scrapping, strictly observe local legislation regarding pollution.

Waste disposal according to material categories is recommended.

13. DECLARATION OF CONFORMITY

ELENTEK Srl Unipersonale

Via A. Meucci, 5/11

35028 Piove di Sacco (PD) ITALIA

hereby declares, under its sole responsibility, that the machine:

- ❖ Trademark ELENTEK
- ❖ DRENA series

complies with the provisions of the following EU directives and subsequent amendments:

- ❖ Machinery 2006/42/EC
- ❖ European Directive 2006/95/EC
- ❖ Electromagnetic Compatibility 2004/108/EC and subsequent amendments, in compliance with the following technical standards:
 - EN 61439
 - EN 55014-1
 - EN 61000-3-2
 - EN 61000-3-3

Piove di Sacco, 01.04.2014

LEGAL REPRESENTATIVE



Michele Borgato

NOTE





ELENTEK SRL SOCIETÀ UNIPERSONALE

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Cod. MQ 0002 UK

Rev. 00

Em. 04.2014