

SMART PRO X - User Manual

ELECTRICAL PANEL FOR MOTORS 1 AND 2 WITH DISPLAY

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1. INTRODUCTION

This manual must always accompany the relevant equipment and be kept at 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, please 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.

On receiving the goods, carry out an inspection immediately to ensure that the equipment has not been damaged during transport. If defects are found, the client should promptly notify, within 5 days of receiving the goods, our retailer or in the event of direct purchases, the manufacturer's service centre.



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 provided for guidance only. Note that failure to observe the instructions provided in this manual may cause physical injury or damage to property.

It is understood that compliance with local provisions and/or statutory regulations in force is compulsory.

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 using water jets and use appropriate extinguishing equipment and means (powder, foam, carbon dioxide).

Install the equipment far from heat sources and in a dry and sheltered location according to the specified protection rating (IP).

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

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

No parts of the panel should be removed without an official authorisation from the manufacturer: any tampering with or changes to the unit will render all terms of the warranty null and void.

All installation and/or maintenance operations must be performed by a specialised technician who is fully aware of the currently applicable safety standards.

Ensure that the installation is connected to an efficient earthing system.

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

The manufacturer 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 model-specific;
- Unauthorised modifications or interventions;
- Partial or total failure to observe instructions.

3. OVERVIEW

- Single-phase board power supply 100-240Vac 50/60Hz;
- Three-phase board power supply 310-450Vac 50/60Hz;
- Electronic board own consumption 3W;
- G/P1 and G/P2 normally open inputs for motor start-up;
- C-MIN-MAX inputs for single-pole level probes;
- T1 and T2 normally closed inputs for motor thermal switch (Klixon);
- G.A. normally open input for alarm activation;
- Digital outputs for motor overcurrent alarms, from G.A. input and probe input;
- Cumulative alarm output with voltage-free contacts (NC-C-NO resistive load - 5A / 250V);
- Cumulative alarm output, live (12Vcc / 100mA);
- DIP-SWITCH 1 - Level alarm signalling from probes input;
- DIP-SWITCH 2 - Ammeter activation delay of 5/10 seconds;
- DIP-SWITCH 3 - Alarm output setting;
- DIP-SWITCH 4 - Alarm reset enable from motor Klixon;
- DIP-SWITCH 5 - Filling/emptying or pressurization mode;
- DIP-SWITCH 6 - Self-holding enable (start/stop floats);
- DIP-SWITCH 7 - Delayed board activation enable, on mains power return;
- DIP-SWITCH 8 - Motor switching enable;
- DIP-SWITCH 1 display - NO/NC (G/P1 - G/P2 - G.A.) input reversal;
- DIP-SWITCH 2 display - Phase sequence control exclusion;
- DIP-SWITCH 3 display - Self test enable;
- DIP-SWITCH 4 display - Fixed/pulse manual;
- Display settable parameters;
- SWITCH key (change screen/settings);
- AUTOMATIC key (or UP arrow);
- 0 'standby' key (or DOWN arrow);
- MANUAL key;
- Display: Volts, amps, hours of operation, motor status and alarms;
- Missing or incorrect phase sequence check on power supply input;
- Protections of auxiliary circuits and motor with fuses;
- Door lock general disconnect switch (if any);
- Provision for start-up capacitors, single phase version (not included);
- Box in ABS, IP55;
- Ambient temperature: -5/+40 °C;

- Altitude a.s.l. 2000 m;
- Relative humidity 50% at 40 °C (condensate free).



CAUTION!

For further technical data, please refer to the nameplate on the control panel.

General characteristics may vary if accessories are added to the standard product. The addition of accessories may result in changes to the above description.

4. INSTALLATION

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

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

Tighten the electrical cables on the corresponding terminals using a suitable tool correctly sized to avoid the risk of damaging the fixing screws. Be extra careful 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 brackets where available.

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 probes 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 wiring must be suitably sized to withstand the power load.

5. LIGHT INDICATORS AND COMMANDS



Viewing and programming display unit.



Red LED: general alarm.



SETUP key (screen switch).

Pressing and holding it in the main screen for 3 seconds gives access to the settings menu.



Automatic key and UP arrow.



0 key and DOWN arrow.

Press for 5 seconds in the motor screen to reset the hour meter.



Manual key.



Pressing arrow and then MAN resets the current alarm after clearing the cause.

6. MAIN SCREEN PAGE

When the panel is switched on, the display unit shows the following sequence:



At the end of the boot up sequence, the main menu is displayed, as described below.



This screen page displays a general view of the motor and system status:

- 230 V Power supply voltage reading;
- 7.0 A Total absorbed current;
- M1 = 1 Motor 1 active;
- M1 = 0 Motor 1 deactivated;
- M2 = 1 Motor 1 active;
- M2 = 0 Motor 1 deactivated;

Only from this screen is it possible to access the settings menu by pressing and holding the **SETUP** key for 3 seconds.

7. MOTOR SCREEN PAGE

From the main screen, by pressing the **SETUP** key, access is obtained to the motor screen page where one can change the status of the selector (automatic - off - manual), view the absorption of each motor and view hours of operation.

Hours of operation can be reset upon motor replacement by pressing the **OFF** key for 5 seconds.



Press the **SETUP** key again to return to the main screen.

8. MAIN BOARD INPUTS AND OUTPUTS

T1	Normally open input for motor 1 Klixon (thermal switch). Jumper if not using this input.
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T2	Normally open input for motor 2 Klixon (thermal switch). Jumper if not using this input.
-----------	---

C - MIN - MAX	Inputs for single-pole level probes Input for minimum level float (connection between C and MAX). Input for general enabling (connection between C and MAX). Jumper C and MAX if not using this input.
----------------------	---

G/P1	Input for motor 1 activation. When rotation operation is active, the first alternating motor will start each time the input is opened and closed.
-------------	--

G/P2	Input for motor 2 activation. When rotation operation is active, each time the input is opened and closed it will start both motors regardless of the status of G/P1 input.
-------------	--

G.A.	Input for alarm trigger.
-------------	--------------------------

OUT ALARM (NC - C - NO)	Cumulative alarm output with voltage-free contacts (resistive load - 5A / 250V) for: <ul style="list-style-type: none">- Probe level alarm (DIP SWITCH 1 settable).- G.A. Input alarm.- Minimum motor current alarm.- Motor overcurrent alarm.- Motor temperature overload alarm.- Sequence or missing phase alarm.- Max level alarm.
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BUZZ +/-	Alarm output, live (12Vcc / 100mA);
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SINGLE PHASE:

- L/S - Motor phase
- N/R - Motor idle
- AVV - Start with on board capacitor

OUT MOTOR

THREE PHASE:

- T1 (contactor) - Motor phase U
 - T2 (contactor) - Motor phase V
 - T3 (contactor) - Motor phase W
-



Earthing.

9. EXPANSION INPUTS

9.1 PRO-XPS RS485 expansion

A(-) – B(+) Module for RS485 communication standard with MODBUS protocol

9.2 PRO-6DO Voltage-free contact expansion

O1 – O6 Module for 6 digital outputs 300mA 35V max for the signalling of:

- O1: Motor 1 run
- O2: Motor 2 run
- O3: Overcurrent protection for motor 1
- O4: Overcurrent protection for motor 2
- O5: GA active alarm
- O6: Probe/G.MIN active alarm

9.3 PRO-SL Probe input expansion for motor start

C – S1 ÷ S4 PRO-SL input module:

- C – MIN – MAX (on main board): motor 1 start
- C (expansion): common
- S1 – S2 (expansion): probe for motor 2 start control
- S3 – S4 (expansion): probe for max. level signalling

9.4 PRO-H2O Probe input expansion for water in oil chamber

C – S4 ÷ S5 RL-H2O input module:

- C: common (to be connected to earthing potential)
- S4 (expansion): probe for motor 1 control
- S5 (expansion): probe for motor 2 control

9.5 PRO-DBT Buffer battery device expansion

PRODBT module for connection of 6V 1,2Ah buffer battery for maintaining control of alarm float and for signalling mains power supply failure

9.6 PRO-WiFi Bluetooth-WIFI expansion

Allows the panel to be connected to any device via Wi-Fi or Bluetooth to use the Elentek APP

10. SETTINGS MENU

To access the settings menu press and hold the **SETUP** key for 3 seconds.

DESCRIPTION OF PARAMETER	VALUE
<p>LANGUAGE</p> <p>0=ITA / 1=ENG / 2=FRA / 3=ESP / 4=DEU</p>	0 – 4
<p>DISPLAY BRIGHTNESS ON STANDBY</p> <p>This parameter allows to enter the brightness setting applied when the display is set to standby (wait 9 seconds for a preview).</p>	0 - 9
<p>CURRENT SETTING OF MOTOR M1– M2</p> <p>This parameter allows the minimum and maximum current settings to be displayed via the relative trimmers, while simultaneously displaying the value of the current absorbed by the motor if it is running.</p>	0 -18
<p>MINIMUM VOLTAGE</p> <p>Set by default to -10%. <i>(Altering operating limits beyond default parameters will immediately render the warranty null and void).</i></p>	207 (230) 360 (400)
<p>MAXIMUM VOLTAGE</p> <p>Set by default to +10%. <i>(Altering operating limits beyond default parameters will immediately render the warranty null and void).</i></p>	253 (230) 440 (400)
<p>EXPANSION TYPE</p> <p>This parameter allows any added expansion to be removed.</p> <p>0 = no expansion applied</p> <p>1 = PRO6DO expansion (6 digital outputs)</p> <p>2 = PROSL expansion (lever probes for motor start)</p> <p>3 = PROSL expansion (water seepage probes into oil chamber)</p> <p>4 = PROSL expansion (water seepage probes into oil chamber and stop motor)</p>	0 – 4
<p>MODBUS ADDRESSES</p>	10

<p>MAXIMUM NUMBER OF IGNITIONS PER HOUR M1 – M2</p> <p>This parameter allows you to set the maximum number of engine starts in an hour beyond which the alarm is triggered.</p> <p><u>If set to 0, control is not active</u></p>	<p>0 – 30</p>
<p>NUMBER IGNITIONS PER HOUR M1 - M4</p> <p>Only display of number of starts.</p>	<p>-</p>

11. MAIN BOARD DIP-SWITCH SETTINGS

Set DIP-SWITCHES with the panel switched off.



11.1 DIP-SWITCH 1 - Level alarm signalling from probes input

OFF ↓	Level alarm signalling from probe input disabled
ON ↑	Level alarm signalling from probe input enabled

DIP-SWITCH 1 enables level alarm signalling from probe input or minimum level float (C-MIN-MAX input).

In the OFF position, an input status change does not cause any alarm signal.

In the ON position, an input state change - depending on the emptying or filling function - leads to the signalling of an alarm on the panel and the activation of the voltage-free alarm output and voltage alarm output.

11.2 DIP-SWITCH 2 - Ammeter trip delay

OFF ↓	Delay of motor ammeter activation by 5 seconds
ON ↑	Delay of motor ammeter activation by 10 seconds

DIP-SWITCH 2 is used to select the thermal switch activation delay time of 5 or 10 seconds.

The setting of this parameter prevents activation of the overload thermal switch during motor start-up, thereby avoiding a start-up current.

In the OFF position, the ammeter trip delay at motor start is 5 seconds.

In the ON position, the ammeter trip delay at motor start is 10 seconds.

11.3 DIP-SWITCH 3 - Klixon input deactivation

OFF ↓	Klixon motor overtemperature control enabled
ON ↑	Klixon motor overtemperature control disabled

DIP-SWITCH 3 enables the Klixon input for motor overtemperature control.

In the OFF position, Klixon inputs are enabled.

In the ON position, Klixon inputs are disabled.

If the inputs are deactivated and the motors do not have a thermal switch, there is no need to jumper them.

11.4 DIP-SWITCH 4 - Alarm reset enable from motor Klixon

OFF ↓	Motor overtemperature alarm with manual reset
ON ↑	Motor overtemperature alarm with automatic reset

DIP-SWITCH 4 enables selection of whether the motor overtemperature alarm activated by the T1 and T2 Klixon inputs must be reset manually, by keeping the AUT key pressed, or in automatic mode.

In the OFF position, reset is manual on motor overtemperature.

In the ON position, the motor thermal switch delay is 10 seconds.

11.5 DIP-SWITCH 5 - Filling/emptying mode probe input

OFF ↓	Level probe operation in filling mode only
ON ↑	Level probe operation in emptying or pressurization mode only

DIP-SWITCH 5 enables selection of whether to use the probe C-MIN-MAX in emptying or filling mode.

In the OFF position, the input is used to enable the system when water is not present. The **C-MIN-MAX** input must be open to enable the system. If a float-type on/off control is used, use **C-MAX** input.

In the ON position (emptying or pressurization), the input is used to enable the system when water is present. The **C-MIN-MAX** input must be closed to enable the system. If a float-type on/off control is used, use **C-MAX** input.

NB: If no minimum level control is used, jumper the C-MAX input.

11.6 DIP-SWITCH 6 - Self-holding enable (start/stop floats)

OFF ↓	Wastewater self-holding disabled (start/stop floats)
ON ↑	Wastewater self-holding enabled (start/stop floats)

DIP-SWITCH 6 is used to activate the self-holding function for start/stop floats for wastewater emptying.

For this setting, the stop float must be connected to the C-MAX input and the start float to G/P1 and G/P2.

In the OFF position, the operation with float self-holding is disabled.

In the ON position, the operation with float self-holding is enabled.

NB: Do not activate on pressurization plants. Activate on emptying mode only if C-MIN-MAX input is used with floats or level probes.

11.7 DIP-SWITCH 7 - Delayed board activation enable on mains power return

OFF ↓	Deactivation of board delay on power supply failure
ON ↑	Activation of board delay on power supply failure

DIP-SWITCH 7 is used for delayed board activation in the event of an electrical power supply failure.

In the OFF position, the board will be activated immediately on power return.

In the ON position, the board will be activated 30 seconds after power return.

N.B. after a power supply failure, the board is reactivated maintaining the previous AUT -0 MAN status.

11.8 DIP-SWITCH 8 - Motor switching enable

OFF ↓	Switching module deactivation
ON ↑	Switching module activation

DIP-SWITCH 8 enables automatic switching of the motors.

In OFF position, G/P1 input directly and independently controls motor output 1 and G/P2 directly and independently controls motor output 2.

In the ON position, this function means that on each call from G/P1 input, the motor outputs are activated alternately and, in the event of a simultaneous call from G/P2 input, both motors will be operated. When enabled, the switching module alternates the motor on each call from G/P1 input and also switches motors in the event of:

- **Current overload of a motor**
 - **Motor set to standby**
 - **Lack of water on subsequent automatic reset**
-

12. DIP-SWITCH SETTINGS DISPLAY

Set DIP-SWITCHES with the panel switched off.



12.1 DIP-SWITCH 1 - NO/NC (G/P1 - G/P2 - G.A.) input reversal

OFF ↓ Alarm normally open inputs.

ON ↑ Normally closed inputs.

DIP-SWITCH 1 allows to invert the enabling of digital inputs G/P1 - G/P2 - G.A.

In the OFF position, normally open inputs enable the system to close the contact.

In the ON position, normally closed inputs enable the system to open the contact.

12.2 DIP-SWITCH 2 - Phase sequence control exclusion

OFF ↓ Missing or incorrect phase sequence check enabled.

ON ↑ Missing or incorrect phase sequence check disabled.

DIP-SWITCH 2 disables the missing or incorrect phase sequence check at the switchboard input.

In the OFF position, missing or incorrect phase sequence check is enabled.

In the ON position, missing or incorrect phase sequence check is disabled.

NB: this check is only available in three-phase version.

12.3 DIP-SWITCH 3 - Self-test enable

OFF ↓ Motor self-test disabled.

ON ↑ Motor self-test enabled.

DIP-SWITCH 3 enables motor self-test.

In the OFF position, self-test is disabled.

In the ON position, self-test is enabled.

Self-test has a fixed, non-adjustable time and will enable the pump, or pumps depending on the panel model, for 2 seconds every 48 hours.

A pump self-test can only be activated if the Automatic function of the panel is enabled.

12.4 DIP-SWITCH 4 - Manual push or impulse key

OFF ↓	Manual push key.
ON ↑	Manual impulse key.

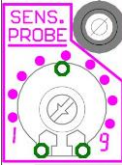
DIP-SWITCH 4 sets operation of the manual key.

In the OFF position, the manual key enables the motor by holding the key down; when it is released, the motor stops.

In the ON position, the manual key enables the motor at the first impulse and stops the motor at the next impulse.

13. TRIMMER SETTINGS

13.1 TRIMMER SENS. PROBE - Probe sensitivity



The trimmer "SENS. PROBE" can be used to adjust sensitivity of the probes to adapt them to liquid conductivity. This value should therefore be increased in the case of liquids with low conductivity.

13.2 TRIMMER MIN - Activation on minimum current



The "MIN" trimmer is used to adjust the minimum motor current for protection against the risk of dry run, for added protection or when minimum level floats or probes are not required.

13.2.1 Nominal motor current.

If the nominal motor current is known, set a value lower by approx. 15%, according to the board screen printing.

13.2.2 Assisted calibration

To access assisted calibration mode, press and hold the key "0" of motor 1 during power-up of the panel, and the green led on the "AUT" key will start to flash.

Start up the motor using the "MAN" key and rotate the trimmer clockwise (starting from 1A), until the green led indicating pump operation turns on.

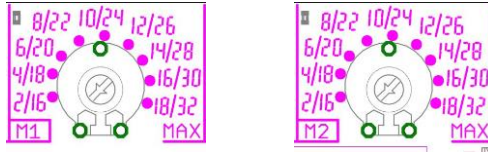
However, the control can be disabled by turning the trimmer to minimum, if the C-MIN-MAX input is used with level probes or floats.

On deactivation, the red led indicating motor thermal switch starts flashing quickly for 1 second.



N.B.: To calibrate the minimum current, the motor must be started up with water present.

13.3 MAX TRIMMER - Activation on current overload



The "MAX" trimmer enables adjustment of the maximum motor current, over which the system protection trips due to current overload.

The maximum current can be adjusted in two ways:

- Nominal motor current.
- Assisted calibration.

13.3.1 Nominal motor current.

If the nominal motor current is known, set a value higher by approx. 15%, according to the screen printing of the board.

13.3.2 Assisted calibration

Press and hold the key "0" of motor 1 during power-up of the panel, and the green led on the "AUT" key will start to flash.

Start up the motor using the "MAN" key and rotate the trimmer clockwise (starting from 2A), until the red thermal switch led turns on.

When lit, the red led indicates that the set current is 15% higher than the current absorbed by the motor.



N.B.: To calibrate the maximum current, the motor must be started up with water present.

The current scale is proportional to the power of the control panel:
1 to 18 Ampere or 15 to 32 Ampere.

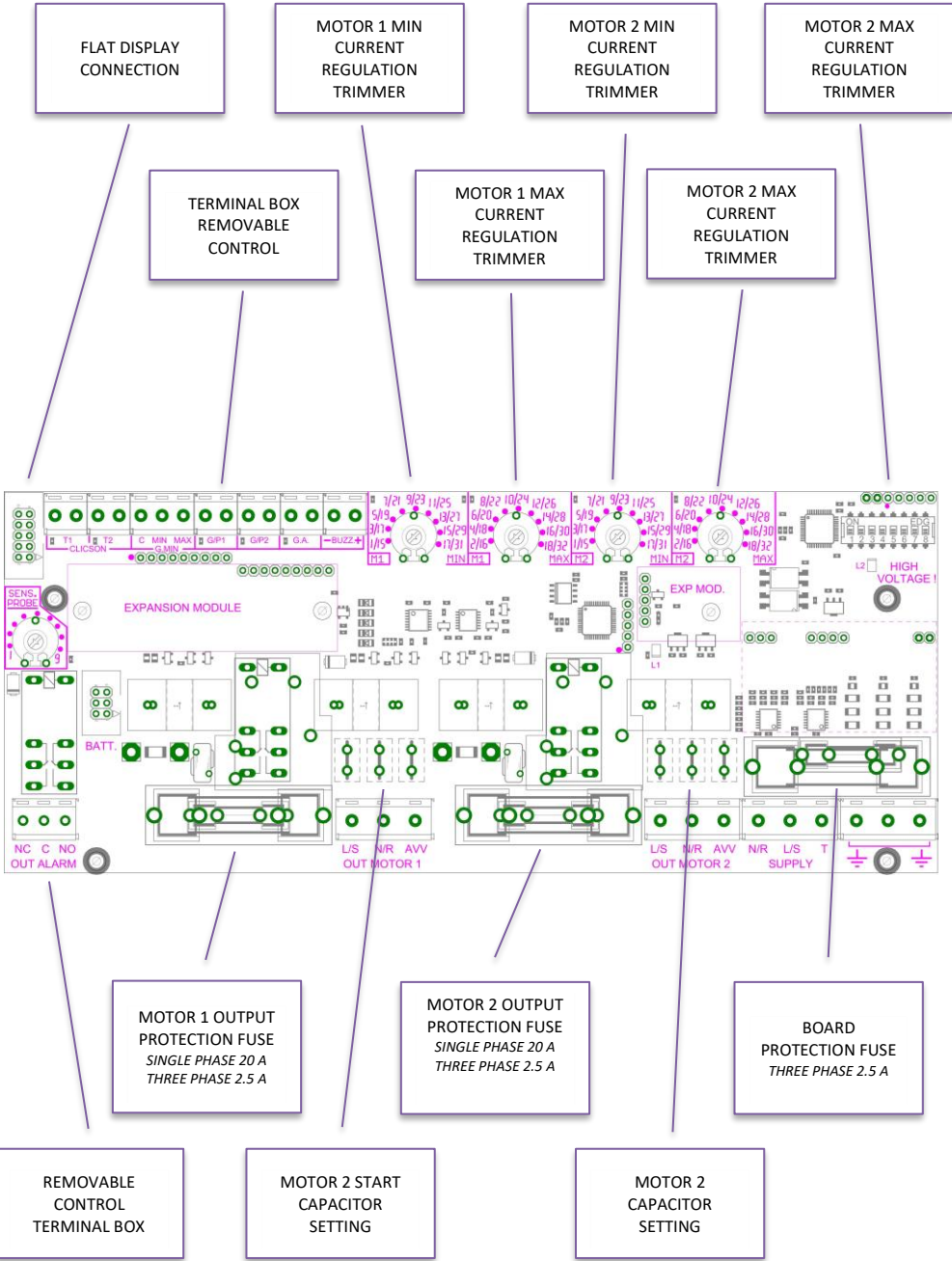


CAUTIONS!

Always calibrate the trimmer in observance of the maximum current specified on the electrical panel.

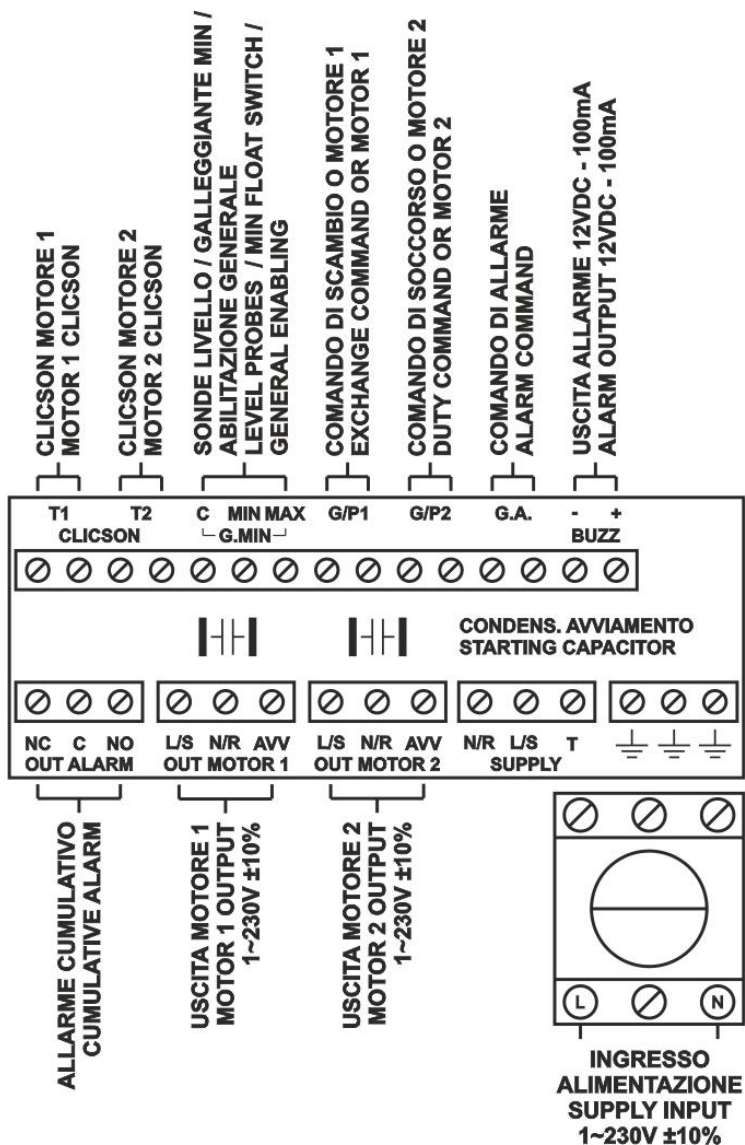
Exceeding the maximum specified threshold will automatically render the warranty null and void.

14. BOARD SPECIFICATIONS

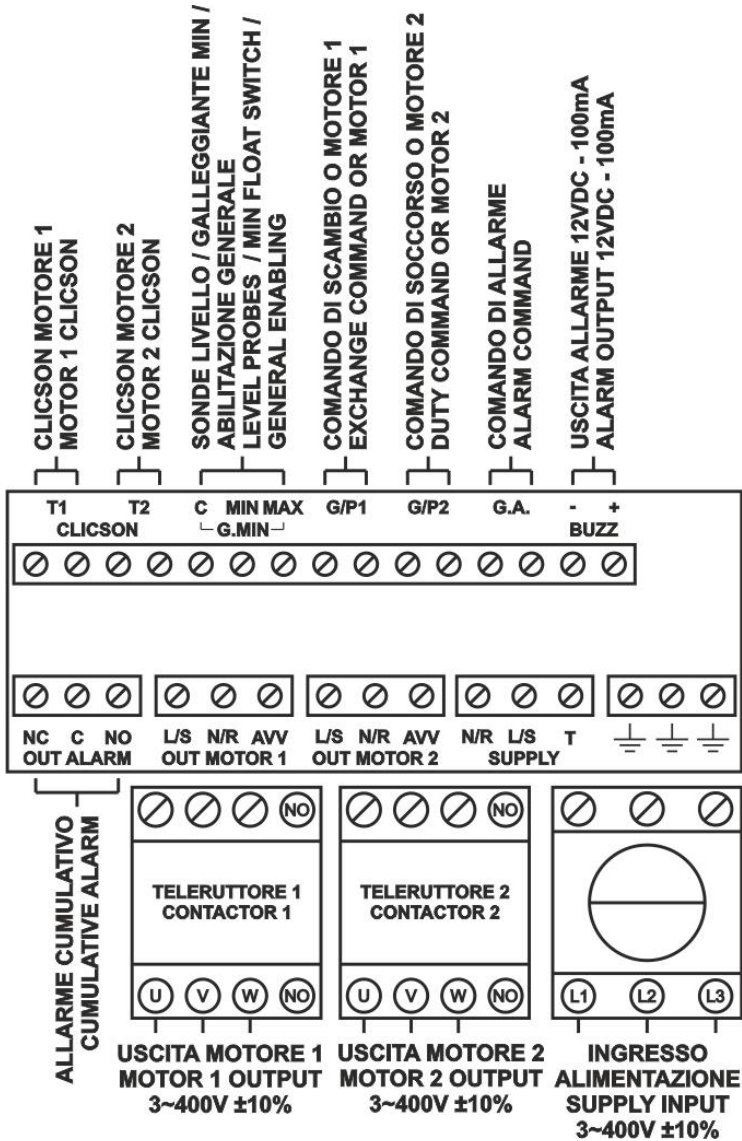


15. STANDARD WIRING DIAGRAMS

15.1 SMART PRO Single phase (230V) wiring diagram



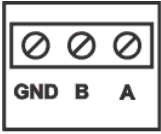
15.2 SMART PRO Three phase (400V) wiring diagram



N.B.: On the three phase 230V version, the power supply and motors must be 3~230V.

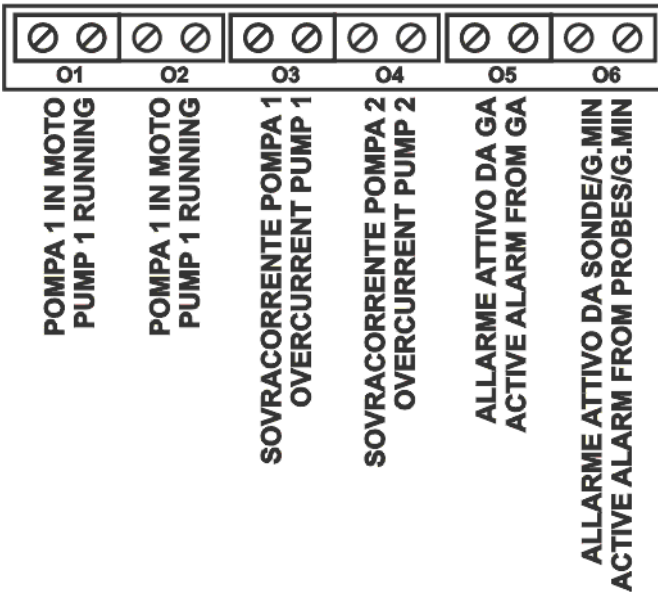
16. EXPANSION WIRING DIAGRAMS

16.1 RS485 expansion

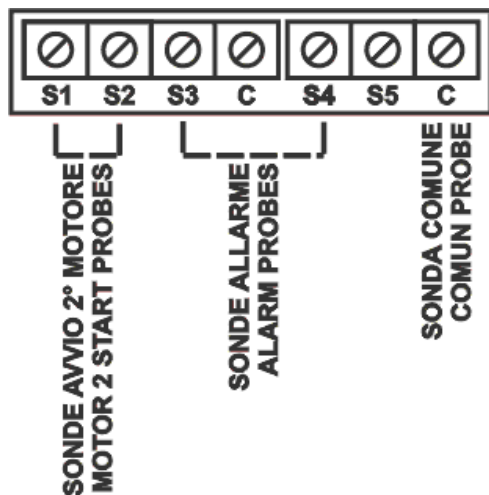


**CONNESSIONE RS485
RS485 CONNECTION**

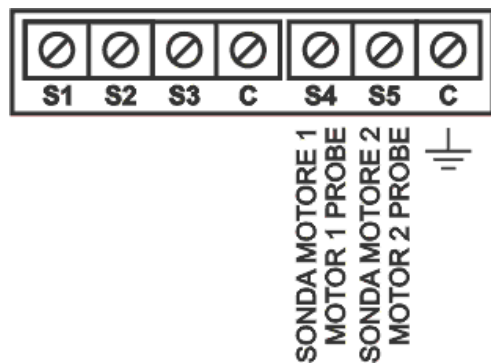
16.2 Voltage-free contact expansion



16.3 PRO-SL probe input expansion

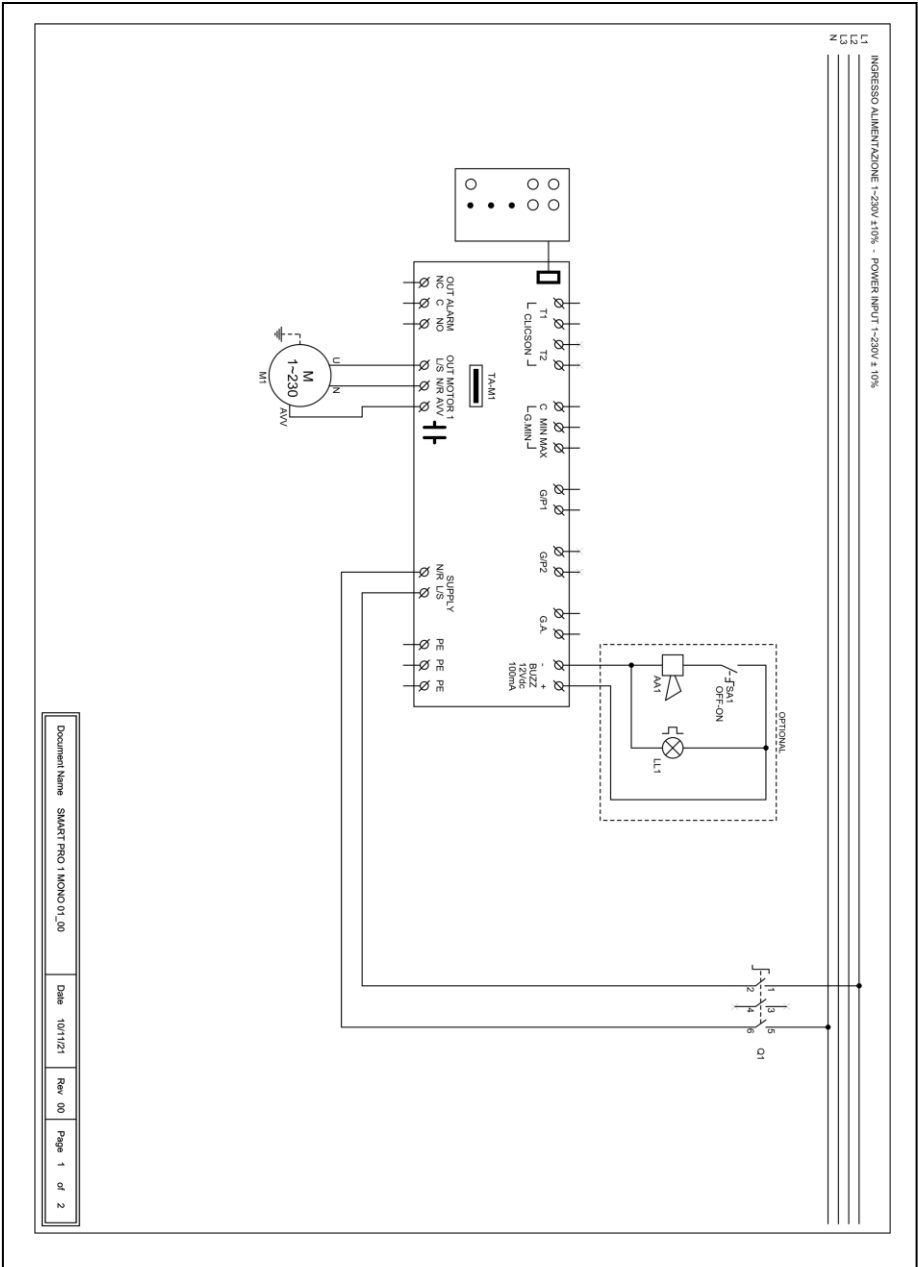


16.4 PRO-SL H2O probe input expansion

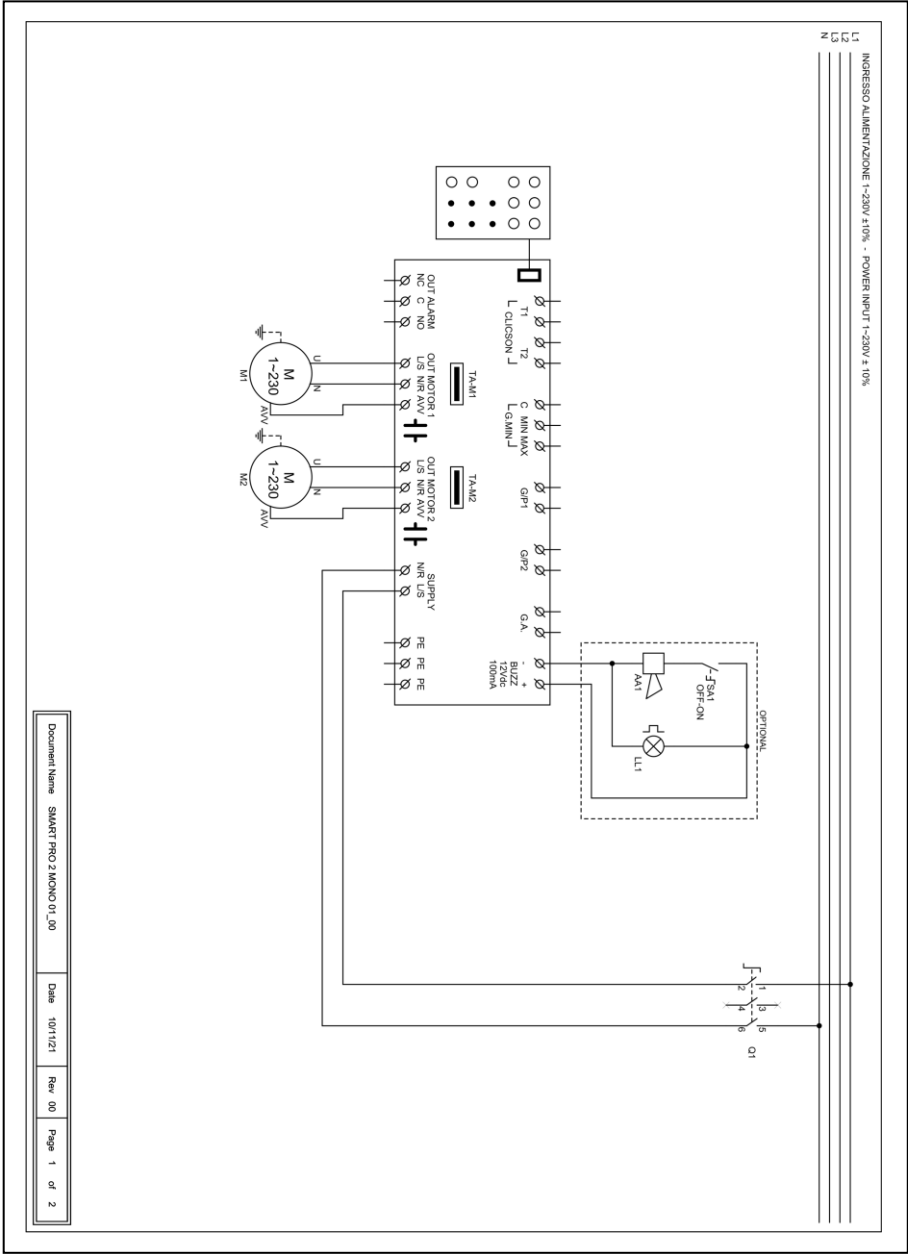


17. WIRING DIAGRAMS

17.1 SMART PRO LED 1 MONO



17.2 SMART PRO LED 2 MONO



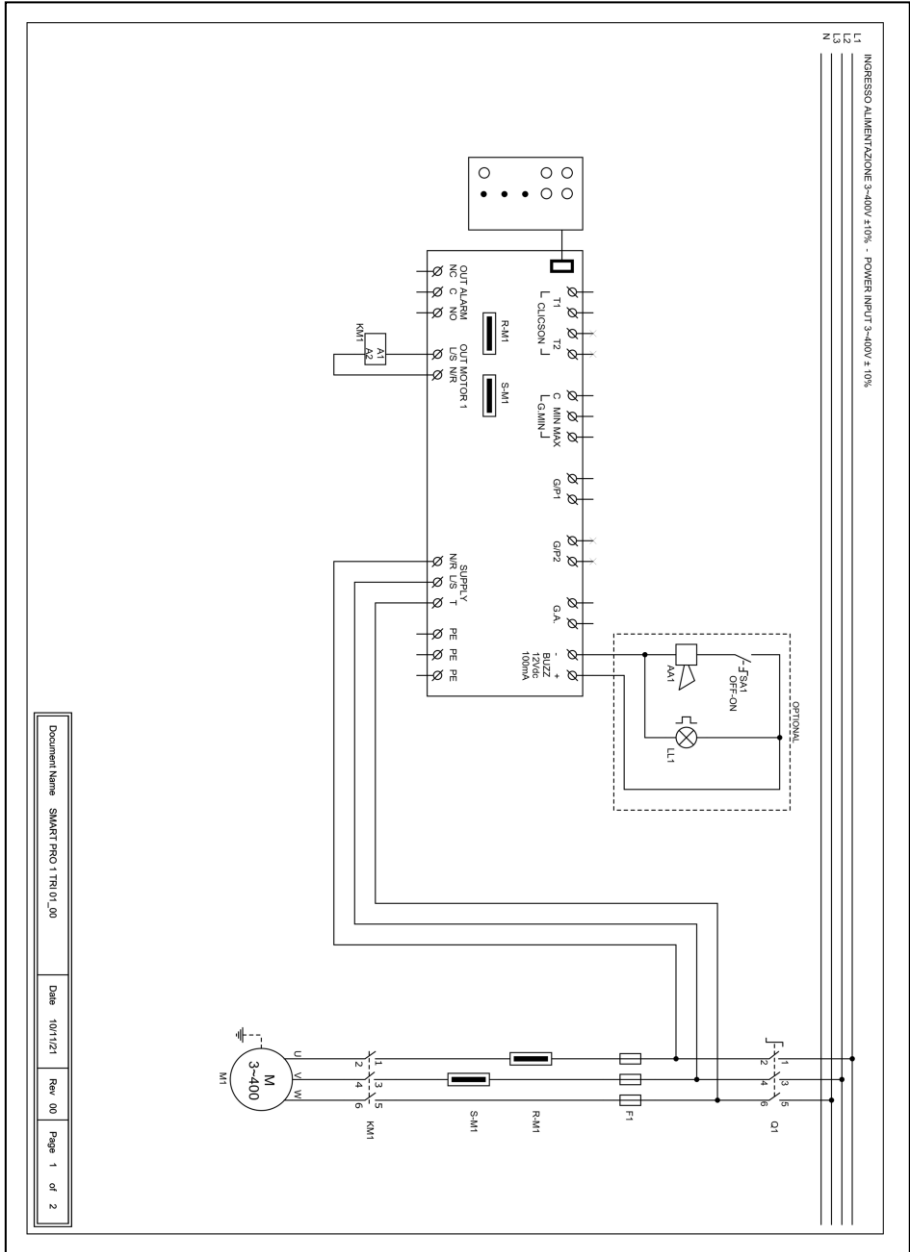
Document Name SMART PRO 2 MONO 01_00

Date 10/11/21

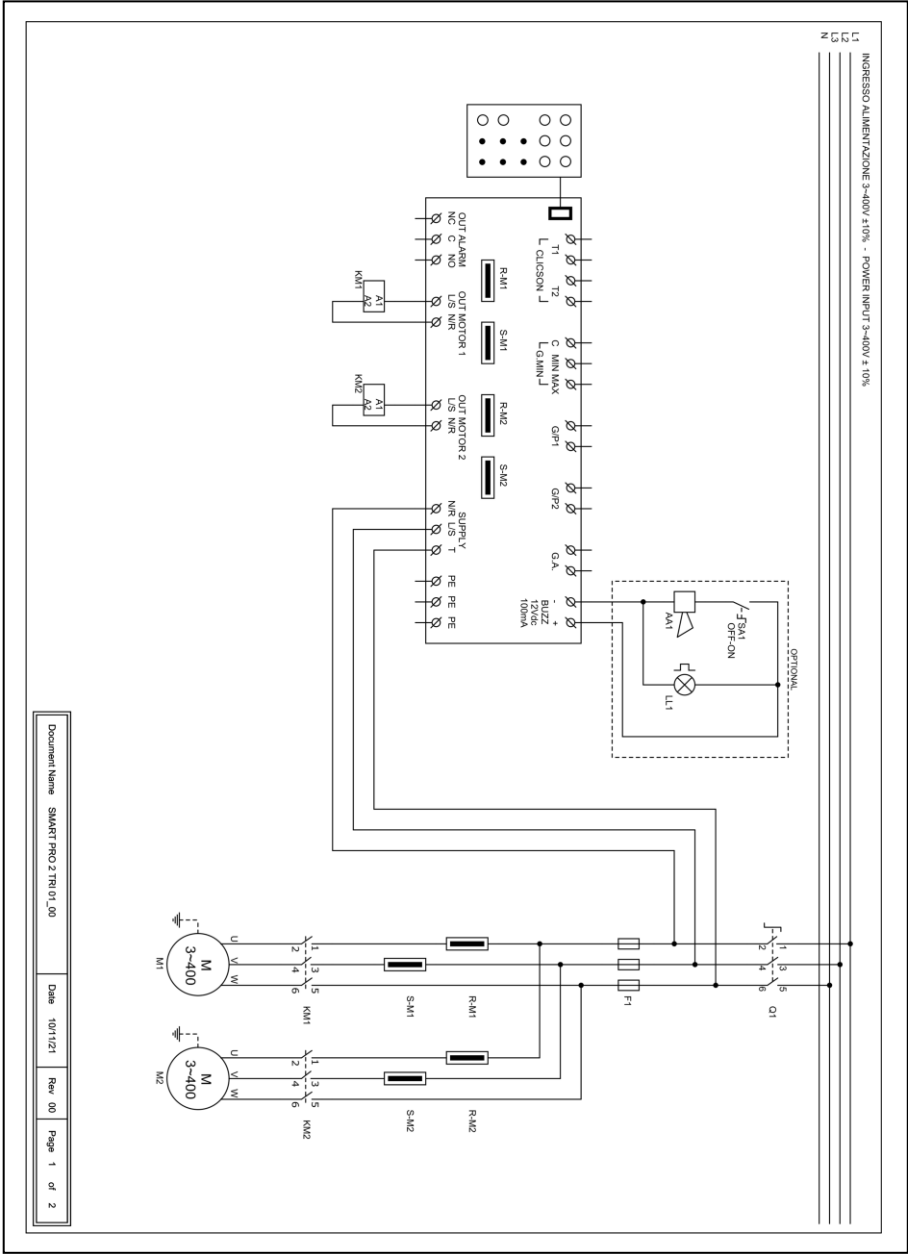
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17.3 SMART PRO LED 1 TRI



17.4 SMART PRO LED 2 TRI



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18. RS485 MODBUS ADDRESSES

MODBUS RTU RS485 9600 8N1

INDIRIZZO	REGISTER
0x100	Card serial number
0x101	Firmware version in tenths
0x102	Display type
0x103	Power type
0x104	Number of pumps
0x105	Board 1 voltage value in V
0x106	Board 2 voltage value in V
0x107	Current value in A/10 Pump 1
0x108	Current value in A/10 Pump 2
0x109	Current value in A/10 Pump 3
0x10A	Current value in A/10 Pump 4
0x10B	cosphi value in / 100 Pump 1
0x10C	cosphi value in / 100 Pump 2
0x10D	cosphi value in / 100 Pump 3
0x10E	cosphi value in / 100 Pump 4
0x10F	Dip-Switch status
0x110	Current value set Trimmer M1 MIN
0x111	Current value set Trimmer M2 MIN
0x112	Current value set Trimmer M3 MIN
0x113	Current value set Trimmer M4 MIN
0x114	Value set Trimmer SENS.
0x115	Analog signal value in tenths
0x116	MASTER board input status
0x117	SLAVE board input status
0x118	MASTER board expansion status
0x119	SLAVE board expansion status
0x11A	Output status
0x11B	Alarm status 2
0x11C	Alarm status 1
0x11D	Alarm history 1
0x11E	Alarm history 2
0x11F	Alarm history 3
0x120	Alarm history 4
0x121	Alarm history 5
0x122	Alarm history 6
0x123	Alarm history 7

0x124	Alarm history 8
0x125	Alarm history 9
0x126	Alarm history 10
0x127	Alarm history 11
0x128	Alarm history 12
0x129	Alarm history 13
0x12A	Alarm history 14
0x12B	Alarm history 15
0x12C	Alarm history 16
0x130	Alarm reset 2
0x131	Alarm reset 1
0x132	Alarm history reset
0x133	MANUAL command logic status
0x134	AUTOMATIC command logic status
0x135	Operating hours M1
0x136	Operating hours M2
0x137	Operating hours M3
0x138	Operating hours M4
0x139	Program to run
0x13A	CT type
0x13B	Language
0x13C	Standby display brightness
0x13D	Enabling ELENTEK name on panel
0x13E	Enabling panel name
0x13F	Self-reset klicson
0x140	Maximum current setting in A/10
0x141	Alarm inhibition time at start-up in s/10
0x142	Pump start delay time in s/10
0x143	Tempo ritardo spegnimento pompa in s/10
0x144	Pump shutdown delay time in s/10
0x145	Minimum current alarm delay time in s/10
0x146	Tempo ritardo allarme massima corrente in s/10
0x147	Maximum current alarm delay time in s/10
0x148	Pump current calibration 1
0x149	Pump current calibration 2
0x14A	Pump current calibration 3
0x14B	Pump current calibration 4
0x14C	Voltage board calibration 1
0x14D	Voltage board calibration 2
0x14E	Pump rotation enabling
0x14F	Alarm output enabling
0x150	Self-holding enabling

0x151	Probe sensitivity
0x153	Control box operation
0x154	Minimum level alarm enabling
0x155	Min voltage alarm threshold
0x156	Max voltage alarm threshold
0x157	Max alarm threshold current pump 1 in A/10
0x158	Max alarm threshold current pump 2 in A/10
0x159	Max alarm threshold current pump 3 in A/10
0x15A	Max alarm threshold current pump 4 in A/10
0x15B	Cosfi/current alarm selection
0x15C	Min alarm threshold cosfi pump 1 in /100
0x15D	Min alarm threshold cosfi pump 2 in /100
0x15E	Min alarm threshold cosfi pump 3 in /100
0x15F	Min alarm threshold cosfi pump 4 in /100
0x160	Min alarm threshold pump current 1 in A/10
0x161	Min alarm threshold pump current 2 in A/10
0x162	Min alarm threshold pump current 3 in A/10
0x163	Min Alarm threshold pump current 4 in A/10
0x164	Automatic reset for minimum current
0x165	Automatic reset time 1 in minutes
0x166	Automatic reset time 2 in minutes
0x167	Automatic reset time 3 in minutes
0x168	Automatic reset time 4 in minutes
0x169	Enable cyclic reset
0x16A	Enable analog signal
0x16B	Sensor Type Selection
0x16C	Selecting units of measurement
0x16D	Analogue signal operation
0x16E	Analogue sensor backscale in /10
0x16F	Set point in /10
0x170	Threshold 1 start/stop in /10
0x171	Threshold 2 start/stop in /10
0x172	Threshold 3 start/stop in /10
0x173	Threshold 4 start/stop in /10
0x174	Service mode
0x175	Scheduled maintenance due dates
0x176	Days since last maintenance
0x177	Scheduled maintenance alarm postponement days
0x178	Installed expansion type
0x17A	MODBUS address
0x17B	Multi-pump card enabling (EXPRESS only)
0x17C	Counter number of pump start-ups 1

0x17D	Counter number of pump start-ups 2
0x17E	Counter number of pump start-ups 3
0x17F	Counter number of pump start-ups 4
0x180	Maximum number of starts/h pump 1
0x181	Maximum number of starts/h pump 2
0x182	Maximum number of starts/h pump 3
0x183	Maximum number of starts/h pump 4
0x184	Enabling network return delay
0x185	Stop level
0x186	Alarm level
0x187	ATEX mode
0x188	WASTEK pressure sensor calibration in /10
0x189	Engine stop selection in case of max. acc/h alarm
0x100	Board data
0x101	Board serial number
0x102	Voltage of board 1 in V
0x103	Voltage of board 2 in V
0x104	Current of pump 1 in A/10
0x105	Current of pump 2 in A/10
0x106	Current of pump 3 in A/10
0x107	Current of pump 4 in A/10
0x108	Cos-fi of pump 1 in/100
0x109	Cos-fi of pump 2 in/100
0x10A	Cos-fi of pump 3 in/100
0x10B	Cos-fi of pump 4 in/100
0x10C	Dip-Switch status
0x10D	Input status
0x10E	Output status
0x10F	Alarm 2 status
0x110	Alarm 1 status
0x111	Free
0x112	Free
0x113	Free
0x114	Free
0x115	Free
0x116	Alarm 2 reset
0x117	Alarm 1 reset
0x118	MANUAL control logical status
0x119	AUTOMATIC control logical status
0x11A	P1 hours of operation
0x11B	P2 hours of operation
0x11C	P3 hours of operation

0x11D	P4 hours of operation
0x11E	Program to be followed
0x11F	Type of Alarm Timer
0x120	Language
0x121	Display brightness on standby
0x122	ELENTEK name displayed on panel
0x123	Panel name enable
0x124	Klixon self-reset
0x125	Max. settable current in A/10
0x126	Alarm inhibition time at start in s/10
0x127	Pump start delay time in s/10
0x128	Pump off delay time in s/10
0x129	Pump activation delay time in s/10
0x12A	Minimum current alarm delay time in s/10
0x12B	Maximum current alarm delay time in s/10
0x12C	High/low voltage alarm delay time in s/10
0x12D	Pump 1 current calibration
0x12E	Pump 2 current calibration
0x12F	Pump 3 current calibration
0x130	Pump 4 current calibration
0x131	Board 1 voltage
0x132	Board 2 voltage
0x133	Pump rotation enable
0x134	Alarm output enable
0x135	Self-holding enable
0x136	Board 1 probe sensitivity
0x137	Board 2 probe sensitivity
0x138	panel operation
0x139	Min level alarm enable
0x13A	Min voltage alarm threshold
0x13B	Max voltage alarm threshold
0x13C	Max current alarm threshold of pump 1 in A/10
0x13D	Max current alarm threshold of pump 2 in A/10
0x13E	Max current alarm threshold of pump 3 in A/10
0x13F	Max current alarm threshold of pump 4 in A/10
0x140	Cos-fi/current alarm selection
0x141	Min cos-fi alarm threshold of pump 1 in /100
0x142	Min cos-fi alarm threshold of pump 2 in /100
0x143	Min cos-fi alarm threshold of pump 3 in /100
0x144	Min cos-fi alarm threshold of pump 4 in /100
0x145	Min current alarm threshold of pump 1 in A/10
0x146	Min current alarm threshold of pump 2 in A/10

0x147	Min current alarm threshold of pump 3 in A/10
0x148	Min current alarm threshold of pump 4 in A/10
0x149	Min current automatic restart
0x14A	Automatic restart of time 1 in min
0x14B	Automatic restart of time 2 in min
0x14C	Automatic restart of time 3 in min
0x14D	Automatic restart of time 4 in min
0x14E	Cyclic restart enable
0x14F	Analog signal enable
0x150	Sensor type selection
0x151	Measurement unit selection
0x152	Analog signal operation
0x153	Analog sensor full scale in /10
0x154	Setpoint in /10
0x155	Start/stop threshold 1 in /10
0x156	Start/stop threshold 2 in /10
0x157	Start/stop threshold 3 in /10
0x158	Start/stop threshold 4 in /10
0x159	Service mode
0x15A	Scheduled maintenance due days
0x15B	Days since latest maintenance
0x15C	Scheduled maintenance alarm postponement days
0x15D	Installed expansion type
0x15E	MODBUS address
0x15F	Analogue sensor emergency system enable

19. ALARMS



The value of the minimum current detected is lower than the MIN TRIMMER value and the panel stops the relevant motor.

The display and the red LED flash, activating the cumulative alarm output and the "BUZZ" output.

The system resets automatically according to the times set during programming.

The alarm can still be reset manually by pressing the OFF key; the system can then be reset automatically.



The motor absorbed current is higher than the MAX TRIMMER current and the panel stops the relevant motor.

The display and the red LED flash, activating the cumulative alarm output and the "BUZZ" output.

To reset the alarm manually, press the OFF key; the system can then be reset automatically.



The thermal switch (Klixon) has tripped on overtemperature.

The display and the red LED flash, activating the cumulative alarm output and the "BUZZ" output.

If enabled, the system recovers automatically on closing the Klixon input.

If not used, close the motor Klixon input/s.



The measured mains voltage is too low (the motor stops).

The display and the red LED flash, activating the cumulative alarm output and the "BUZZ" output.

The system is reset automatically when voltage increases.



The measured mains voltage is too high (the motor stops).

The display and the red LED flash, activating the cumulative alarm output and the "BUZZ" output.

The system is reset automatically when voltage decreases.



The measured phase sequence is incorrect or one phase is missing (the motor stops).

The display and the red LED flash, activating the cumulative alarm output and the "BUZZ" output.

The system is reset automatically turning off and on the electrical panel after reconnecting the phase wires correctly.

The icon is a rectangular button with a green background and a black border. The text "MAX LEVEL ALARM" is centered in white, bold, uppercase letters.

The float in the G.A. input detects the alarm for maximum level reached (motor does not stop).

The display and the red LED flash, activating the cumulative alarm output and the "BUZZ" output.

The system automatically resets itself when the alarm float is opened.

The icon is a rectangular button with a green background and a black border. The text "MIN LEVEL ALARM" is centered in white, bold, uppercase letters.

The minimum level float, or the minimum level probes, detect the minimum level reached (the motor stops).

The display and the red LED flash, activating the cumulative alarm output and the "BUZZ" output.

The system automatically resets itself when the minimum level float or the minimum level probes are closed (this alarm can be disabled from the SERVICE menu).

The icon is a rectangular button with a green background and a black border. The text "INFILTRATION MOTOR ALARM" is centered in white, bold, uppercase letters.

Through PRO-SL expansion, the presence of water in the engine oil chamber is detected (the engine does not stop).

The display and the red LED flash, activating the cumulative alarm output and the "BUZZ" output.

The system automatically resets itself after the electric motor is serviced.

20. SIZE TABLE

CODE	MODEL	MEASURES	TYPE
11015XNB	SMART PRO X 1-Mono	195X245X120	PLASTIC
12015XNB	SMART PRO X 2-Mono		
11015X	SMART PRO X 1-Mono	310X240X185	PLASTIC
12015X	SMART PRO X 2-Mono		
11016X	SMART PRO X 1-Tri/7,5	310X240X185	PLASTIC
11017X	SMART PRO X 1-Tri/11		
11018X	SMART PRO X 1-Tri/15		
12016X	SMART PRO X 2-Tri/7,5	310X240X185	PLASTIC
12017X	SMART PRO X 2-Tri/11	390X310X230	PLASTIC
	SMART PRO X 2-Tri/15		

21. TROUBLESHOOTING

PROBLEM	CHECKS/SOLUTIONS
SEQUENCE OR MISSING PHASE ALARM	<ul style="list-style-type: none">• Check that all phases are available at the panel input.• Check and modify the phase sequence at the input of the door lock disconnect switch.
THE PANEL IS POWERED UP BUT THE MOTOR DOES NOT START	<ul style="list-style-type: none">• Check that automatic operation is enabled on the motor screen.• Check input status and settings.
ON PUMP START-UP, THE THERMAL SWITCH TRIPS.	<ul style="list-style-type: none">• Check the maximum current setting in the settings.• Check the motor current with a current clamp.• Check the motor status
THE THERMAL SWITCH DOES NOT TRIP.	<ul style="list-style-type: none">• Check the maximum current setting in the settings.
THE PANEL IS IN MOTOR OVERTEMPERATURE ALARM STATUS	<ul style="list-style-type: none">• Check that the over-temperature control is disabled if the motor/s is/are not fitted with a thermal switch.• Check the motor status
NO LED LIGHTS UP ON THE CONTROL PANEL.	<ul style="list-style-type: none">• Check that the FLAT connector 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 SUPPLY mains input terminals.• Check that the fuses are efficient.

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Rev. 01

Is. 10.2023