CONTROL PANEL WITH LCD DISPLAY, FOR ELECTRONIC STABILISER RE3 series

USER'S MANUAL

General index

1. Introduction.

1.1. Acknowledgement letter.

1.2. Using this manual.

1.2.1. Conventions and used symbols.

1.2.2. For more information and/or help.

2. Control panel with LCD display.

2.1. Definition of the keys, led indicators and their functionality.

2.1.1. Led optical indicators.

2.2. Basic functions of the keys.

2.3. Description of the screens.

2.3.1. Main screen «Start».

2.3.2. «Measurements» menu (Screen 1.1).

2.3.3. «Alarms» menu (screen 2.1).

2.3.4. «Data logger» menu (Screen 3.1).

2.3.5. «General parameters» menu (Screen 4.1).

2.3.6. «Output adjust» menu (Screen A4.1).

2.3.7. «Relay setting» menu (Screen 8.1).

2.3.8. «Serial number and Password» menu (Screen 13.1).

1. Introduction.

1.1. Acknowledgement letter.

We would like to thank you in advance for the trust you have placed in us by purchasing this product. Read this instruction manual carefully before starting up the equipment and keep it for any possible future consult that can arise.

We remain at you entire disposal for any further information or any query you should wish to make.

Yours sincerely.

SALICRU

- ❒ According to our policy of constant evolution, **we reserve the right to modify the specifications in part or in whole without forewarning**.
- ❒ All **reproduction or third party concession of this manual is prohibited** without **the previous written authorization** of our firm.

1.2. Using this manual.

The instructions of this document are only referred to the own operation of the control panel with LCD.

This manual has to be read carefully before doing any operation over the equipment or the own control panel.

Keep this document for future consults.

1.2.1. Conventions and used symbols.

Some or all the symbols of this section can be used and shown in the equipment and/or in the description of this document. It is advisable to be familiar with them and understand their meaning.

- «**Danger of electrical discharge**» symbol. Pay special attention to it, both in the indication on the equipment and in the paragraph referred to this user's manual, because it contents features and basic informations for person safety. To not respect these indications can result in serious incidents or even the death due to electrical discharges
- «**Warning**» symbol. Carefully read the indicated paragraph and take the stated prevention measures, so it contents basic safety instructions for persons. To not respect such instructions can cause serious incidents. Those indications with "CAUTION " symbol content features and basic instructions for safety of the things. To not respect such instructions can damage the goods.
- «**Precaution**» symbol. Read the paragraph text and take the stated preventive mediums, it contents the basic instructions and features for the equipment safety. To not respect these indications can create material damages on the own equipment, installation or loads.
- «**Notes of information**» symbol. Additional topics that complement the basic procedures. These instructions are important for the equipment use and its optimum efficiency.
- «**Main protective earthing terminal**» symbol. Connect the earth cable coming from the installation to this terminal.
- «**Earth bonding terminal**». Connect the earth cable coming from the load and the external battery cabinet to this terminal.
- **Preservation of the environment**: The presence of this symbol in the product or in their associated documentation states that, when its useful life is expired, it will not be disposed together with the domestic residuals. In order to avoid possible damages to the environment, separate this product from other residuals and recycle it suitably. The users can contact with their provider or with the pertinent local authorities to be informed on how and where they can take the product to be recycled and/or disposed correctly.

1.2.2. For more information and/or help.

For more information and/or help of your specific unit, contact with our Service and Technical Support (**S.T.S.**).

2. Control panel with LCD display.

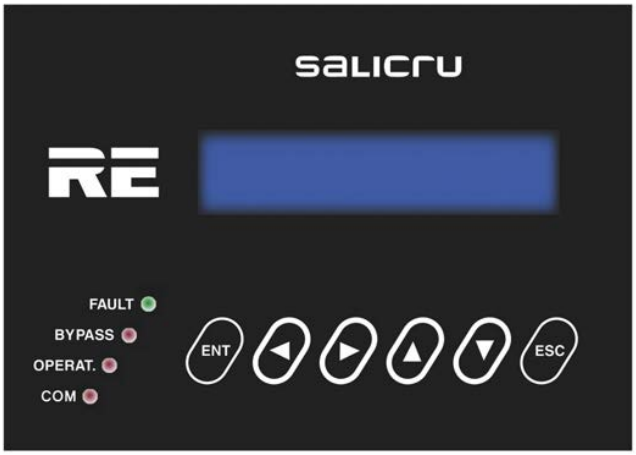

Fig. 1. *Control panel with LCD.*

2.1. Definition of the keys, led indicators and their functionality.

(PC) Control panel with LCD (see figure 1).

(ENT) Key «ENTER».

(ESC) Key «ESC».

(➚) Key to move up (backward).

(➘) Key to move down (forward).

(➔) Key to move to right.

(➔) Key to move to left.

Led optical indicators (see figure 1).

(a) Red Led "**FAULT**".

(b) Yellow Led "**BYPASS**".

(c) Green Led "**OPERAT.**".

(d) Yellow Led "**COM.**".

2.1.1. Led optical indicators.

Figure 1 shows the layout of the led optical indicators included in the control panel with LCD, and they are turned on when their function are activated.

(a) Red led indicator "**FAULT**". It is turned on when Bypass of one or more phases is activated, due to: fault, overload, static bypass forced manual or by software.

Also it is triggered by overtemperature and high or low input/output voltages.

(b) Yellow led indicator "**BYPASS**". It is turned on when any of the phases of the equipment is on Bypass.

(c) Green led indicator "**OPERAT.**". It is turned on when the equipment is calibrated and in normal operating mode.

(d) Yellow led indicator "**COM.**". Meanwhile the communications with the control card of each phase are established, it blinks.

2.2. Basic functions of the keys.

- Through keys upward **(➘)** and backward **(➚)**, there is access to all the menus of the LCD panel, being able to move from one to another with themselves.
- Through keys right **(➔)** or left **(➔)**, there is access to the screens of all the submenus of the LCD panel, being able to move from one to another with themselves.
- Key **(ENT)**, has different purposes depending on the menu we are:
  - ❒ Submenu entry. Press key **(ENT)** to activate the function setting, the figures in the screen blink. With keys **(➔) - (➔)** the character to set is selected and with keys **(➘) - (➚)** the value is selected or with keys **(➔) - (➔)** the different options are selected. To confirm press **(ENT)**. Next field will blink, to continue doing settings, proceed in the same way or press **(ESC)** to escape.
  - ❒ Validation of measurements or parameters.
- When pressing key **(ESC)** from any screen of any submenu, it is gone back to main screen (Screen 0.1), unless we are inside of any screen from «Parameters» menu, changing any of them. Then the first pulsation of key **(ESC)** will stop the blinking of the value and the second one will go back to main screen.
- Notes related to the screens of figure 3 and represented to figure 2, as an example:
  - ❒ Some screens has a determined quantity of «–» characters. Each one of it, means one character so the maximum length of the field will be determined by the quantity of them.
  - ❒ Each screen is labelled with a number located in its right bottom corner. It is only included as a mere reference for its next description and explanation.
  - ❒ Other note **(*1)**, means the hidden programming screens through the password (0500) in «**screen 13.1**». This safety level avoids that non-authorised staff can alter or modify any setting.

Fig. 2. *Reference notes of the screens.*

2.3. Description of the screens.

2.3.1. Main screen «Start».

Screen 0.1

Basic screen, which is displayed when the equipment is started up. It shows the time, date and equipment status

It is also the displayed screen when pressing (ESC) to escape from any menu or submenu of LCD panel.

Screen 0.2

Static bypass forced manual:

ON - enabled.

OFF - disabled.

Screen 0.3

It displays the status of the communications for each control and phase :

- 0 = It doesn't communicate.
- 1 = It communicates.
- and the number of the phase that it is communicating is displayed in the right bottom corner (1 phase R, 2 phase S and 3 phase T).

2.3.2. «Measurements» menu (Screen 1.1).

To go from main screen press once the upward key (🡅). By means of key (➔) there is access to all the screens of submenus, being able to move from one to another with the keys (➔) or (🡄).

The figure on top right corner of each submenu means the number of the phase that they belong to. Each one corresponds to a determined phase: 1 phase R, 2 phase S and 3 phase T.

To display the measurements of one phase, press (ENT), select the number of phase (1-2-3 for R-S-T) with keys (🡅) or (🡇) and confirm with (ENT). Next press (ESC) to escape and press (🡅) to go back to menu «Measurements».

Screen 1.2

Submenu for input voltage and frequency.

Screen 1.3

Submenu for output voltage and current supplied to the load.

Screen 1.4

Submenu for apparent power (kVA) and active (kW) supplied to the load, as well as its type (Resistive, L = Inductive, C = Capacitive) with its power factor.

Screen 1.5

Submenu for percentage of load and saving, which is done depending on the input and output voltages.

Screen 1.6

Submenu for temperatures of heatsink (DIS), tap autotransformer (T) and booster transformer (B).

Screen 1.8

Submenu for firmware version of control of each phase.

Screen 1.9

Submenu internal temperature of the equipment in ºC.

2.3.3. «Alarms» menu (screen 2.1).

To go from main screen press twice the forward key (🡅). By means of key (➔) the most recent active alarm is displayed, being able to move from one to another inside of the alarm list with the keys (➔) or (🡄).

If there is not any alarm, it will not possible to go forward with key (➔).

Figure 2 is showing just only one alarm as an example, but there could be some of them, the active ones and ordered by appearance order. In table 1, there are all the possible alarms displayed in the LCD panel.

Screen 2.2

Example: Active alarm and quantity of modules that they have it.

Representation in LCD panel	Description
OVERLOAD	Output overload alarm
BYPASS	Bypass alarm
LOW INPUT V.	Low input voltage alarm
HIGH INPUT V.	High input voltage alarm
LOW OUTPUT V.	Low output voltage alarm
HIGH OUTPUT V.	High output voltage alarm
HIGH TEMP. 1	High temperature 1 alarm (heatsink)
HIGH TEMP. 2	High temperature 1 alarm (inductor)
P. DEVICE ERR. 1	Semiconductor 1 fault
P. DEVICE ERR. 2	Semiconductor 1 fault
BYPASS FAULT	Bypass fault alarm
BLOCKING ALARM	Equipment blocked alarm
MANUAL BYPASS	Manual bypass alarm
GENERAL ALARM	General alarm
EARTH LEAKAGE CURRENT HIGH	Earth leakage current > than programmed one
DIGITAL ALARM 1 ACTIVATED	Tripping alarm for output switch 1
DIGITAL ALARM 2 ACTIVATED	Tripping alarm for output switch 2
DIGITAL ALARM 3 ACTIVATED	Tripping alarm for output switch 3
DIGITAL ALARM 4 ACTIVATED	Tripping alarm for output switch 4
DIGITAL ALARM 5 ACTIVATED	Tripping alarm for output switch 5

Table 1. *Alarm list displayed in the LCD panel.*

2.3.4. «Data logger» menu (Screen 3.1).

To go from main screen press three times the forward key (🡼). By means of key (➔) there is access to the first log screen starting from the most recent one (maximum 200 logs) and being able to move from one to another with the keys (🡽) or (🡼).

In case of no logs, it will not be possible to move forward with key (🡼).

Screen 3.2

It allows to clear the event data logger.

Screen 3.3

Example of an event log of the equipment: day (dd/mm), if the alarm has been activated or deactivated (ACT/DES), number of the affected phase (M:), time of the alarm (hh:mm) and alarm code - reference.

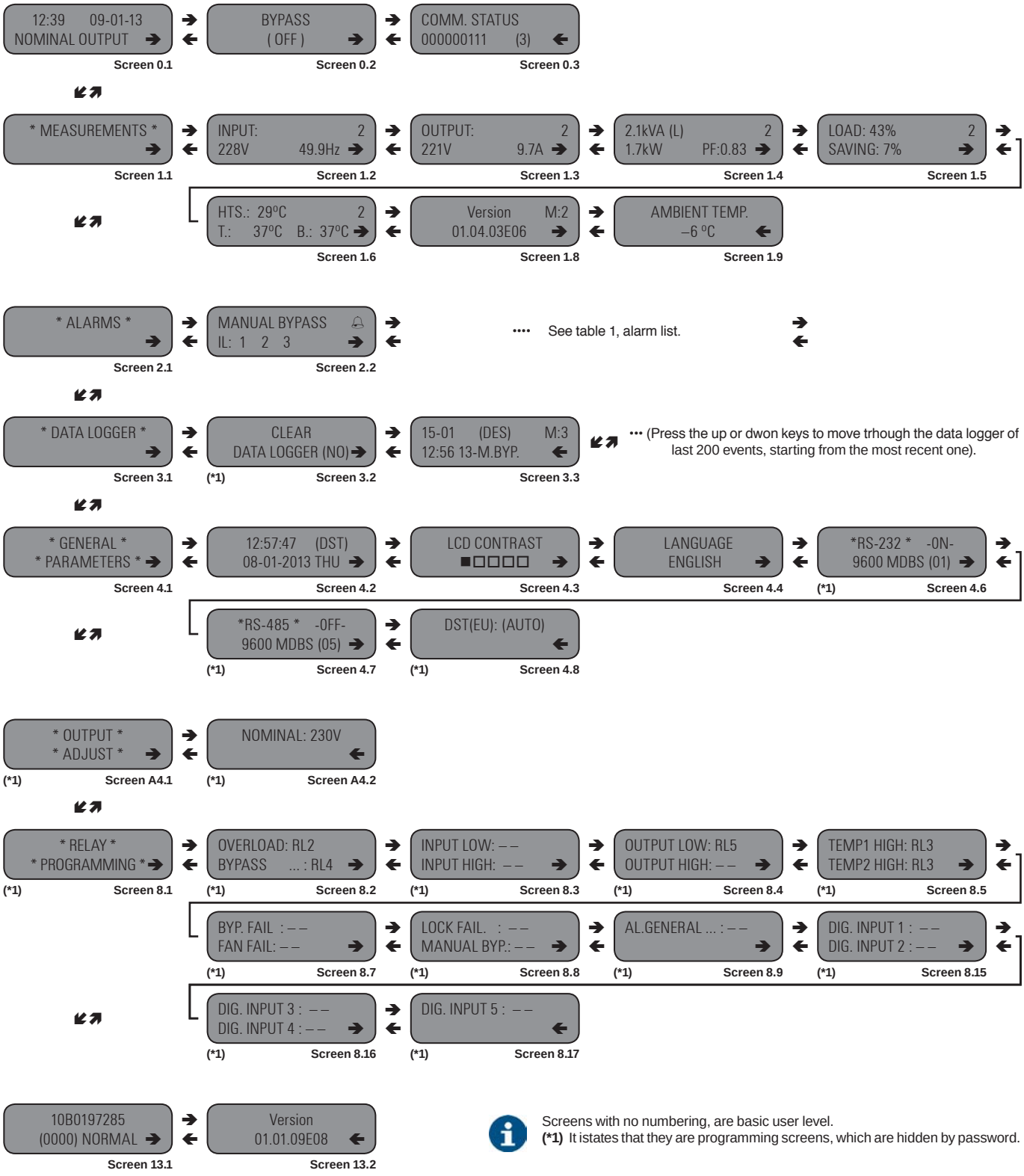

Fig. 3. *Screen map of LCD panel synoptic.*

2.3.5. «General parameters» menu (Screen 4.1).

Some the screens of this menu are hidden by default and a password has to be entered (0500) in «**screen 13.1**» to change any setting. This access control restricts non-authorised staff modifying settings.

To go from main screen press four times the forward key **(↵)**. By means of key **(➔)** there is access to all the screens of general parameters, being able to move from one to another with the keys **(➔)** or **(←)**.

Screen 4.2

Regarding to the clock of the equipment. It can be set, considering its structure (hh:mm:ss), set the daylight saving time (DST) or out from daylight saving time (--), set the day (dd:mm:yy) and weekday, during the installation procedure or later on with the technical service intervention, depending on the case.

The system will work in stand alone when having the reference data, but the daylight saving times will not be changed automatically and vice versa.

Screen 4.3

The contrast of the LCD panel can be set for an optimal visualisation.

Screen 4.4

Language setting: Spanish, English, French and Hungarian.

Screen 4.6

Regarding to external communication parameters through RS-232.

Screen 4.7

Regarding to external communication parameters through RS-485

Screen 4.8

DST (Daylight Saving Time) for Europe, AUTOMATIC/MANUAL and shown in the screen as AUTO/MAN..

This selection allows activating or not, the daylight saving time in an Automatic way for the Europe zone, by adding the DST in summer and cancelling it in winter.

2.3.6. «Output adjust» menu (Screen A4.1).

All the screens of this menu are hidden by default and a password has to be entered (0500) in «**screen 13.1**» to make any setting. This safety level allows that non-authorised staff makes any setting or modify any preset values.

To go from main screen press five times the upward key **(↵)**. By means of the key **(➔)** brings you to the setting screen.

Screen A4.2

In this screen, it is entered the reference output nominal voltage of the equipment, but it doesn't change the own values supplied at the output power.

2.3.7. «Relay setting» menu (Screen 8.1).

All the screens of this menu are hidden by default and a password has to be entered (0500) in «**screen 13.1**» to make any setting. This safety level allows that non-authorised staff makes any setting or modify any preset values.

To go from main screen press the forward key **(↵)**. as many times as it were needed to access to screen 8.1. By means of key **(➔)** there is access to all the screens of relay setting of control card BM491*, being able to move from one to another with the keys **(➔)** or **(←)**.

This menu and their screens are not useful for the end-user if the equipment includes the control card BM491* option, so the related descriptions will not be taken into account.

Screens 8.2 to 8.17

A relay from card BM491* can be associated to any alarm or status, so when the alarm or status is active the associated relay is activated too.

2.3.8. «Serial number and Password» menu (Screen 13.1).

To go from main screen press the upwards key **(↵)** as many times as it were needed to access to screen 13.1, where it is stated the serial number of the equipment and it is entered the safety «Password». By means of key **(➔)** there is access to the next screen of this menu, being able to move from one to another with the keys **(➔)** or **(←)**.

To access for restricted settings or data changing (screens with reference **(*1)** stated below of themselves in figure 3), enter the access «Password» (0500).

Screen 13.2

Firmware version of LCD panel.

Avda. de la Serra, 100
08460 Palautordera
BARCELONA
Tel. +34 93 848 24 00
902 48 24 00 (Only Spain)
Fax. +34 94 848 11 51
salicru@salicru.com
Tel. (S.T.S.) +34 93 848 24 00
902 48 24 01 (Only Spain)
Fax. (S.T.S.) +34 93 848 22 05
sst@salicru.com
SALICRU.COM

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