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User's Manual

GC310, GC350, GC500, GC500Plus and GC500Mains

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NOTE: Read this manual carefully before operating the device.

(EN)

1. General information

The purpose of this manual is to describe boards **GC310**, **GC350** and **GC500**.

Following through this document, generic boards will be designated with **GC3xx**, while the names **GC310**, **GC350** and **GC500** will individuate specific boards and **GC310/GC350** or **GC500/GC500Plus/GC500Mains** will define more kinds of boards.

2. Definitions

LOCKOUT - is used to indicate a fault that prevents the generator from operating and causes automatic and immediate engine emergency shutoff.

POWER-OFF - is used to indicate a fault that prevents the generator from operating and causes the standard automatic engine shutoff (including a cooling phase).

WARNING - is used to indicate a fault that requires the intervention of the operator without engine shutoff.

3. Front Panel

KEY GC310/GC350
1 - Buttons
2 - Indicators

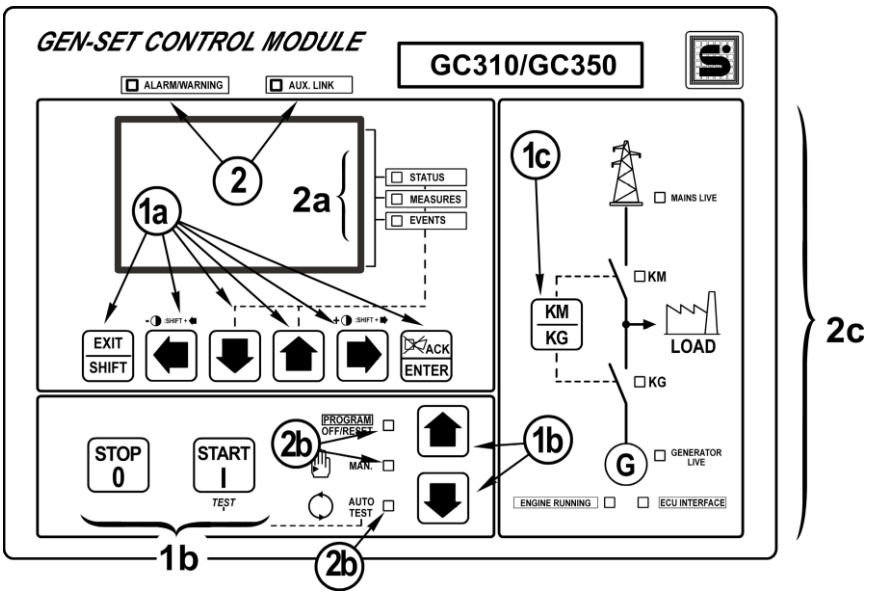


Fig. 1 – Front Panel GC310/GC350

KEY GC500
1 - Buttons
2 - Indicators

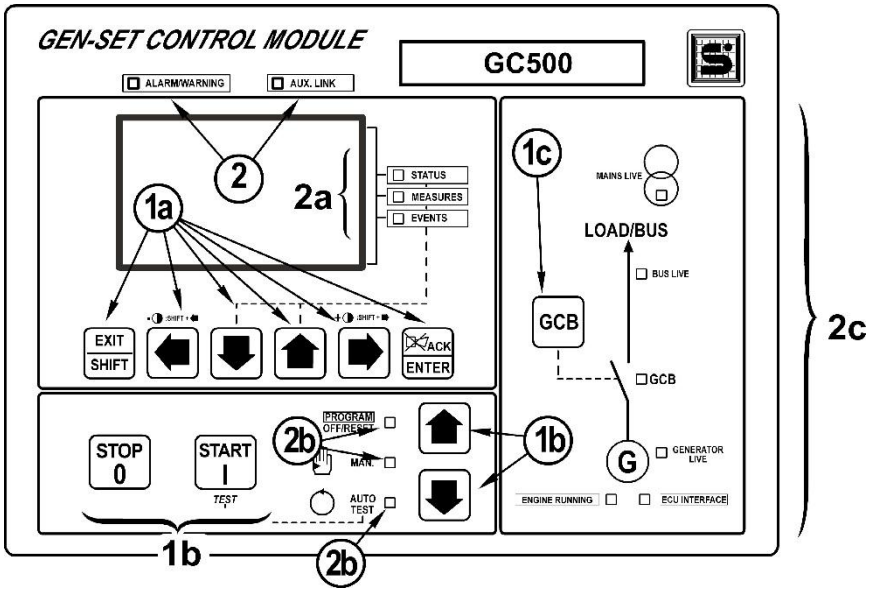


Fig. 1 – Front Panel GC500

KEY GC500Plus
1 - Buttons
2 - Indicators

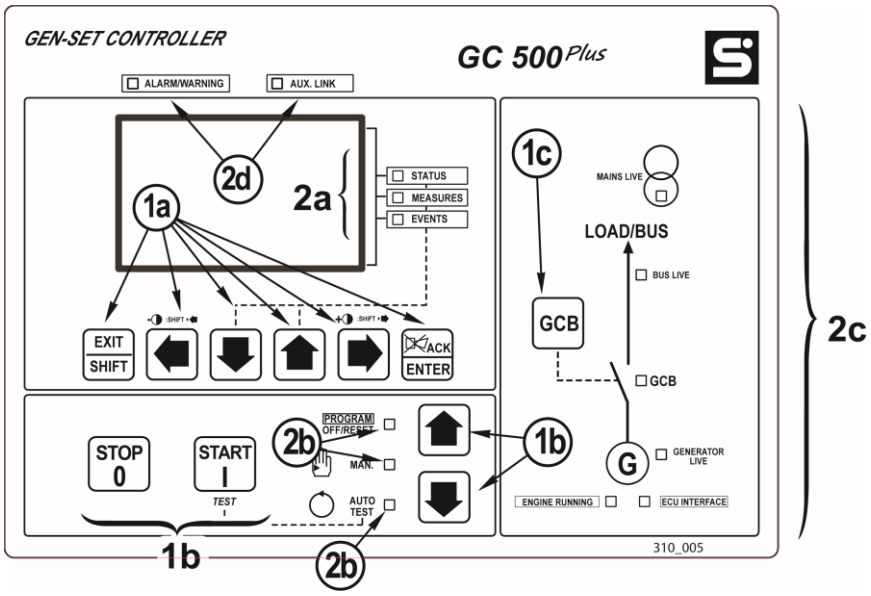


Fig. 3 – Front Panel GC500Plus

11 buttons (**1a, 1b, 1c**).
LED indicators (**2a, 2b, 2c**).

KEY GC500Mains
1 - Buttons
2 - Indicators

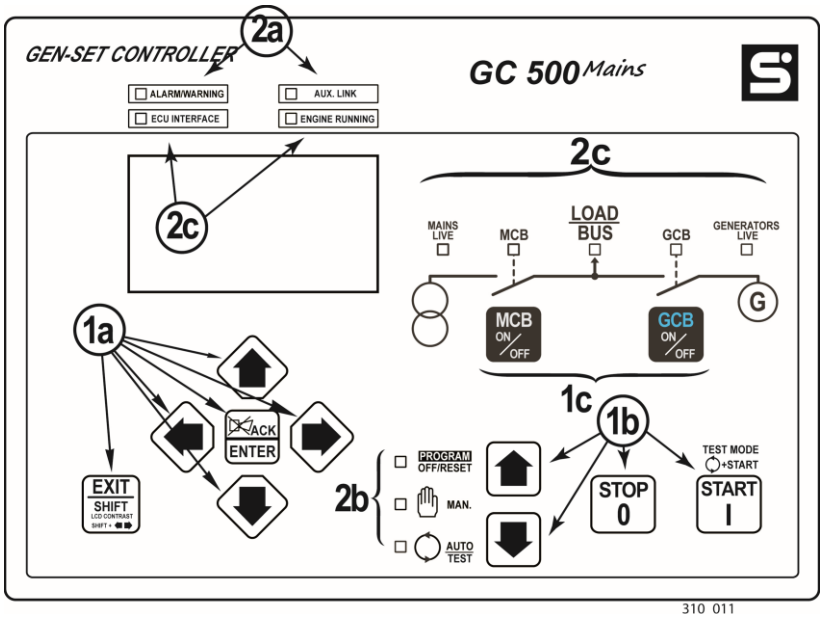
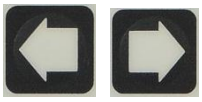


Fig. 4 – Front Panel GC500Mains

12 buttons (**1a, 1b, 1c**).
LED indicators (**2a, 2b, 2c**).

3.1 Buttons (ref. to fig. 1)

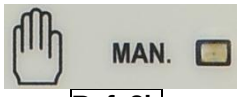
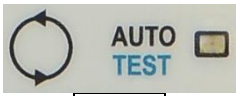
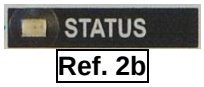
Button		Function
MODE UP  MODE DOWN Ref. 1b	**OFF/RESET** ***PROGRAM***	The generator is disabled; warnings and lockouts are cancelled. You can access to parameters programming.
	MAN	Gen-set is in manual mode. Press the **START** button to start the engine. Press the **STOP** button to stop the engine. **GC310/GC350** - The **KM/KG** button is used to manually switch from mains uses to group uses and vice-versa. **GC500/GC500Plus** - The **GCB** button is used to manually control the change/switches according to the plant's SW and HW configuration. Press to open/close the **GCB** button. Pressing it together with **SHIFT** it allows to di open/close the **MCB** button. **GC500Mains** - The **GCB** button for the manual command of the closing/opening of **GCB**. The **MCB** button for the manual command of the closing/opening of **MCB**. With the **BUS** under power-on condition, synchronization is required.
	AUTO ***TEST***	Gen-set is in auto mode: all functions are controlled automatically. Press the **START** button to enable/disable the **TEST** mode; pressing the **STOP** button allows complete power-off (while activating a lockout). **GC310/GC350** - The **KM/KG** button allows switching uses (only in **TEST** mode). **GC500/GC500Plus** - The **KM/KG** button allows switching uses (only in **TEST** mode and depending on the plant's type and configuration). **GC500Mains** - The **GCB** button for the manual command of the closing/opening of **GCB**. The **MCB** button for the manual command of the closing/opening of **MCB**. The activation of a suitably configured external input (or receiving a given command via SMS or from a serial port) can force the starting of the generator and the load outlet with the mains present or with the inhibition input on (**REMOTE START**).
EXIT/SHIFT Ref. 1a		In programming mode, it cancels the changes made to a variable value, brings up the previous menu level, or exits programming mode. If it is kept pressed for at least two seconds in any menu, allows you to exit the programming mode, while retaining the current menu position for further programming access.

Button	Function
	Depending on the selected page, if pressed together with the **ENTER**  button for at least 5 seconds while in **OFF/RESET** mode, it can reset counters to zero, reload default values of the programming parameters or cancel history logs (in addition, the **CANBUS** equipped model allows to force exit from **BUS OFF** mode). When used during keyboard input adjustment functions, it aborts the function. When **HELP** information is available in the display's pages, pressing and holding this button will allow to view the **HELP** message on the bottom status bar.
 **LEFT/RIGHT** **Ref. 1a**	Horizontal scroll buttons. These buttons allow to select the display's previous or next page in all modes except **PROGRAM** mode. When in **PROGRAM** mode they are used in order to move the cursor while entering the strings. Used together with the **EXIT/SHIFT**  button, they can be used to adjust the contrast. To decrease the contrast press at the same time the **EXIT/SHIFT**  + **LEFT**  buttons combination (1a). To increase the contrast press the combination of buttons **EXIT/SHIFT**  + **RIGHT**  (**1a**) .
  **UP/DOWN** **Ref. 1a**	Vertical scroll buttons. These buttons let you select the multifunctional display mode. In **PROGRAM** and **HISTORY LOGS** mode you can scroll through the menus and the variables / settings. You can increase/decrease the value of the variable to change the settings. Used in combination with the **SHIFT**  button allows you to scroll through the menus ten entries at a time or increase/decrease the variables ten units at a time.
 **ENTER/ACK** **Ref. 1a**	Allows you to enter programming mode and open submenus, change a variable, and confirm the operation. Allows you to enable the **HISTORY LOGS** function, to access a selected archive and "to accept" any fault warnings on the non-volatile memory at the start-up. Used to acknowledge any kind of alarm and to silence the siren.
 **KM/KG**  **GCB**  **GCB**	**GC310/GC350** - In manual (or "TEST") mode it is used to switchover the devices between the generator and the mains (switching over to the mains is always possible; switching over to the generator is possible only if the relevant electrical values are within tolerance). **GC500/GC500*Plus*** - Used to control the General Circuit Breaker (GCB) or the switchover. The actual function depends also on the plant configuration. In parallel operation mode with at least one other source powering the **BUS**, pressing the button activates the fast unload ramp before the circuit breaker opens. In case no ramp is needed, simply keep it pressed for a few seconds until the GCB is opened. **GC500*Mains*** - It commands the Genset breaker or the **GCB** switch, depending on the plant configuration. In case of parallel application and at least another source which supply the BUS, before the breaker opening the drain ramp is activated by pressing the button.

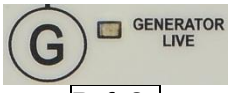
Button	Function
 **MCB** **Ref. 1c**	If you want to open it without waiting for the ramp, keep the button pressed for some seconds. GC500Mains - It commands the Mains breaker or the **MCB** switch, depending on the plant configuration. It can be used only in **MAN** and **TEST** mode, in order to open/close the **MCB** breaker.
 **START** **Ref. 1b**	In **MAN** mode it is used to start-up the generator. In **AUTO** mode it enables/disables the **TEST** status. Used together with the **STOP**  button at the start-up, it lets you access to Gen-set special functions.
 **STOP** **Ref. 1b**	Used to stop the engine. In **AUTO**, **TEST** or **REMOTE START** mode it also activates a lockout. Pressed with the board in **OFF/RESET** mode it runs the **LAMP TEST** on all the luminous indicators. Used together with the **START**  button at the start-up, it allows you to access to Gen-set special functions.

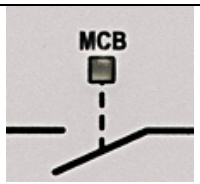
3.2 Indicators (ref. to fig. 1)

LED OFF	LED steady ON	LED flashing
☐	▣	⧈

	Signalling		Function
 **Ref. 2b**	**PROGRAM OFF/RESET**	▣	Operation mode set to OFF/RESET
		⧈	Operation mode set to PROGRAMMING
		☐	Different operation mode.
 **Ref. 2b**	**MANUAL**	▣	Operation mode set to MANUAL
		☐	Different operation mode.
 **Ref. 2b**	**AUTO TEST**	▣	Operation mode set to AUTO
		⧈	Flashing 50% - Operation mode set to TEST
			Flashing 90% ON - Operation mode set to REMOTE START-UP
		☐	Different operation mode.
 **Ref. 2b**	**STATUS**	▣	The display shows “STATUS” mode pages.
		☐	The display shows “PROGRAM” or other mode.

	Signalling		Function
 Ref. 2b	MEASURES	▣	The display shows "MEASURES" mode pages.
		◙	**GC310/GC350** - Flashing 50% - Engine measures window enabled.
			GC500/GC500Plus/GC500Mains - Flashing 25% ON - Parallel measures window enabled.
			GC500/GC500Plus/GC500Mains - Flashing 75% ON - Engine measures window enabled.
		□	The display shows “PROGRAM” or other mode.
 Ref. 2b	EVENTS	▣	The display shows "EVENTS" mode pages.
		□	The display shows “PROGRAM” or other mode.
 Ref. 2	ALARM WARNING	▣	Indicates at least one lockout or power-off condition.
		◙	Indicates at least one warning not yet acknowledged by pressing the “**ACK/ENTER**” button.
		□	No lockouts or warnings.
 Ref. 2	AUX. LINK	▣	**GC310** - Serial interface ON.
			GC350/GC500/GC500Plus/GC500Mains - At least one serial interface out of two is ON.
		◙	TEST mode enabled by serial port.
			Indicates that a serial port command is running (the second serial port is managed in signalling only if it is configured as a COM port and not as an **I/O** expansion).
		□	**GC310** - Serial interface OFF.
			GC350/GC500/GC500Plus/GC500Mains - At least one serial interface out of two is OFF.
 Ref. 2c	ECU INTERFACE	▣	Indicates that the **CAN-BUS** interface is ON and in **ERROR-ACTIVE** mode. (J1939 or MTU)
		◙	Flashing at 25% ON - J1939 or MTU COM error: port in **ERROR-PASSIVE** mode.
			Flashing at 75% ON - J1939 or MTU COM error: port in **BUS-OFF** mode.
		□	**CAN-BUS** disabled.
	MAINS LIVE	▣	Mains power steadily within the tolerance range **GC500/GC500Plus/GC500Mains** or **MAINS SIMULATION** digital input ON since configuration.

	Signalling		Function
 Ref. 2c		☐	No mains power. **GC500/GC500Plus/GC500Mains** or **MAINS SIMULATION** digital input OFF.
		⧈	Flashing at 50% during transition between the previous two status.
		⧈	Flashing at 25% ON - Mains power under tolerance values.
		⧈	Flashing at 75% ON - Mains power above tolerance values.
 Ref. 2c	**GENERATOR LIVE**	■	Generator voltage and frequency are present and steady within tolerance range.
		☐	Missing generator voltage and frequency.
		⧈	Flashing at 50% during transition between the previous two status.
		⧈	Flashing at 25% ON - Power and frequency under tolerance range.
		⧈	Flashing at 75% ON - Power and frequency above tolerance range.
 Ref. 2c	**ENGINE RUNNING**	☐	Engine OFF.
		■	Engine running
		⧈	Cooling phase
 Ref. 2c	**KM**	☐	**GC310/GC350** - KM open.
		■	**GC310/GC350** - KM closed.
		⧈	**GC310/GC350** - Flashing at 25% ON - Open after a Close command.
		⧈	**GC310/GC350** - Flashing at 75% ON - Closed after an Open command.
 Ref. 2c	**BUSLIVE**	■	Voltage on **BUS** line.
		☐	Lack of voltage on **BUS** line.
		⧈	Flashing at 50% - If **BUS** line voltage out of tolerance range.
		⧈	Flashing at 50% - During synchronization phase (opposite sequence to **GCB**).
  Ref. 2c	**KG** **GCB**	☐	**GC310/GC350** - KG open.
		☐	**GC500** - GCB open.
		■	**GC310/GC350** - KG closed.
		■	**GC500/GC500Plus/GC500Mains** - GCB closed.
		⧈	Flashing at 25% ON - If open after a Close command.
		⧈	Flashing at 75% ON - If closed after an Open command.
		⧈	**GC500/GC500Plus/GC500Mains** - Flashing at 50% - During synchronization phase, together with the **BUS LIVE** warning light.
	MCB	☐	**GC500Mains** – MCB open.
		■	**GC500Mains** – MCB closed.

	Signalling		Function
 Rif. 2c			**GC500**^{Mains} Flashing at 25% ON if open after a Close command.
			GC500^{Mains} Flashing at 75% ON if closed after a Close command.
			GC500^{Mains} Flashing at 50% during synchronization phase, together with the **BUS LIVE** warning light.

3.3 Multifunction display

The backlight lamp is managed by Gen-set, which switches it off after a programmable time (P.492) if no buttons are pressed in the meantime. Press any button to light it again. This function can be disabled by setting parameter P.492 to 0.

Contrast can be adjusted by pressing a combination of EXIT/SHIFT button + LEFT button **Ref. 1a** to decrease it or the EXIT/SHIFT button + the RIGHT button **Ref. 1a** to increase it.

3.3.1 Mode navigation (ref. to fig. 2)

The display has different display modes with various pages.

Mode	Page identifier
Programming	P.XX
Status information	S.XX
Electrical measurements	M.XX
Engine measurements	E.XX
Parallel measures **GC500/GC500**^{Plus}**/GC500**^{Mains}	B.XX **GC500/GC500**^{Plus}**/GC500**^{Mains}
History logs	H.XX

Generally, **UP**  **Ref. 1a** and **DOWN**  **Ref. 1a** buttons are used for mode navigation.

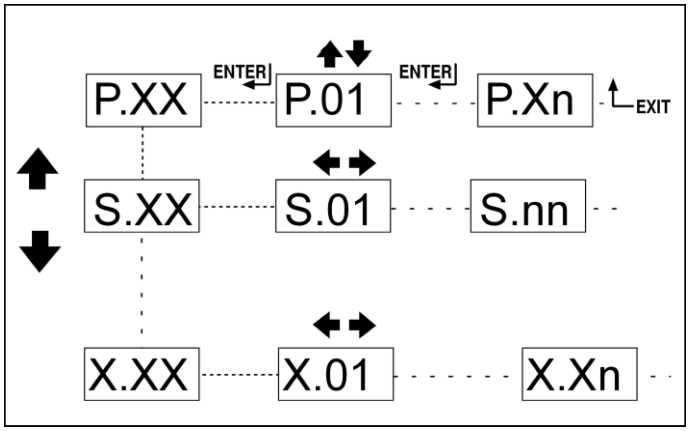


Fig. 2 - Mode navigation

Use the **LEFT**  **Ref. 1a** and **RIGHT**  **Ref. 1a** button to display pages within mode.

In some modes (ex.: mode P.xx and mode H.xx) to display the pages, press the **ENTER**  button and then the **UP**  **Ref. 1a** and **DOWN**  **Ref. 1a** buttons to navigate through pages.

*Note: If the **UP**  and **DOWN**  buttons need to be used to manage functions in that mode, the **ENTER**  button must be pressed to activate these functions, and the **EXIT**  button to deactivate.*

3.3.2 Display area layout (ref. to fig. 3)

KEY:
1 - Status bar
2 - Data Area

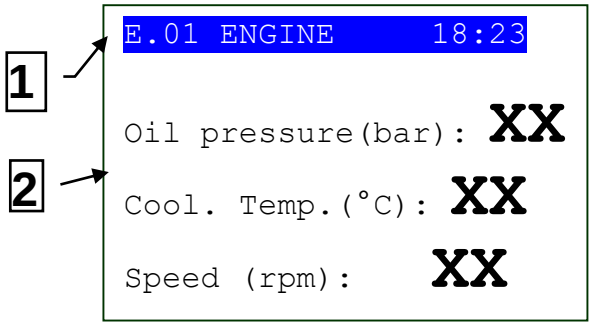


Fig. 3 - Display areas

3.3.3 Top status bar (ref. to fig. 4)

Top status bar shows navigation, time and/or some status information.

KEY:
1a – Mode identifier
1b – Page identifier
1c – Page title
1d – Time
2 – System status

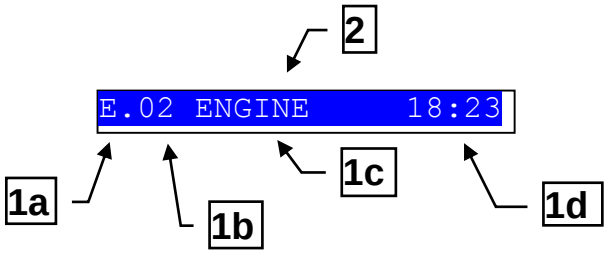


Fig. 4 - Top status bar

The current mode is shown in the relevant field of the top status bar (**1a**).

The mode identifier (**1a**), and the page identifier (**1b**) identify and refer to the page so there is no chance of error.

System status **(2)** shows part of page **S.01** information (status information), helpful for the operator as it can be viewed even when accessing other pages or display mode.

When in some pages, pressing the **EXIT/SHIFT** 

button replaces the top status bar - as long as the button is held - with a **System Status** message. If the message is unavailable, the bar is cleared and restored when the button is released.

3.4 Display mode

3.4.1 Programming (P.xx)

WARNING: assigning incorrect values to one or more parameters can cause malfunctions, damage to things and/or injury to people. The parameters must only be changed by qualified personnel. Parameters can be protected by password (see par. Access codes).

This mode lets you display and change the programming parameters.

Each programming parameter has a 3-digit numeric code (ex. P.101) to identify the variables regardless of the language used. The first line under the top status bar identifies the current menu with the menu number and the relevant text. A pair of numbers are displayed on the right in this line.

The first indicates which entry in the menu is selected or which page is displayed, the seconds indicates how many entries or pages can be displayed in the current menu/submenu.

3.4.1.1 Access codes

Access to the programming mode can be controlled by 4 different PASSWORD levels, which are listed in order of priority.

1. ***SICES password*** ***GC500/GC500Plus/GC500Mains***
2. ***Manufacturer password***
3. ***Installer password***
4. ***User password***

Warning: If the password is lost, you can reconfigure it using a higher level password. Contact our service centre if the "MANUFACTURER" password is lost.

In the first page (**000-Access Code**) of the **SYSTEM** menu, you will be prompted for an access code if one or more passwords have been assigned.

If a password is set to 0, it is not assigned and not required.

The **USER** can only display and change the User Password.

The **INSTALLER** can change the User Password and the Installer Password.

The **MANUFACTURER** can change all three passwords.

SICES can display and change some critical parameters for configuring the plant, for parallel function.

Warning: The critical parameters must not be changed by the user.

The Password setting pages are displayed in the **SYSTEM** menu, if the user is authorised to change the settings.

When in programming mode and entering the Password, in the event the 'change password' page in not displayed, press the **EXIT/SHIFT** EXIT SHIFT button to return to the previous menu and try to access the page again.

The set access code remains in the memory for about 10 minutes after programming has been completed. After that it must be entered again to access the programming mode.

3.4.1.2 Setting the parameters

Enable the mode with the **ACK/ENTER** ACK ENTER button.

Use the vertical scroll **UP**  **Ref. 1a** and **DOWN**  **Ref. 1a** buttons to select a menu and press **ACK/ENTER** ACK ENTER to access. Select the variable or submenu with the **UP**  **Ref. 1a** and **DOWN**  **Ref. 1a** buttons. Pressing **ACK/ENTER** ACK ENTER when there are no submenus, displays the page of variables for the menu entry.

The value of the variable is displayed in square brackets, for example: [400]

To change the variable, press **ACK/ENTER** ACK ENTER; the square brackets [ ] will blink. Use the vertical scroll **UP**  **Ref. 1a** and **DOWN**  **Ref. 1a** buttons to modify the value and press **ACK/ENTER** ACK ENTER to confirm or

EXIT/SHIFT  to cancel.

Operation mode needs to be set to "**OFF/RESET**" to modify the variables. Some variables can be modified also using different modes other than "**OFF/RESET**".

If you cannot change a variable in any condition, this is shown as follows: <400> showing that the parameter cannot be changed in this status.

To exit the programming menu, use the **EXIT/SHIFT**  button.

3.4.1.3 How to input string value

For some parameters you will have to set a value for the string data.

In this case, the square brackets [ ] opening and closing the variable will blink after pressing **ACK/ENTER** 

and a cursor will display under the first character of the string. Using the **LEFT**  and **RIGHT**  buttons,

you can select the character to be changed. Use the vertical **UP**  **Ref. 1a** and **DOWN**  **Ref. 1a** scroll buttons to modify the selected character. Repeat the procedure for each character that needs changing.

Press the **ACK/ENTER**  (confirm) button or the **EXIT**  (abort) button to end the procedure.

3.4.1.4 Direct access to the previous page

You can directly open the last programming page displayed . This is possible if, when exiting programming

mode, instead of going back though the menus until you exit programming, you hold down **EXIT/SHIFT**  per circa 2 secondi.

It is also possible to obtain the same result entering programming mode after Gen-set automatically exited programming. Gen-Set automatically exits programming mode either if no operation is performed in 60 seconds or the lockable selector is switched to **MAN** or **AUTO**.

3.4.1.5 Alarms and protection parameters

Protections and alarms can generally be configured using dedicated variables. Generally, the trip time can also be configured.

Setting the trip time to 0 disables the protection.

3.4.2 Status information (S.xx)

In this way, information on the system status is provided.

You can scroll through the various pages using the **LEFT**  and **RIGHT**  buttons.

Page **S.01** displays information on the system status. Part of this information is displayed in the bottom status bar.

The alarms page **(S.02)** is displayed automatically in case of malfunction. This page also contains the diagnostic information on motors with the **J1939** or **MTU** interface.

- Bus **communication status**. Three possible messages:
  - **ERROR-ACTIVE**: normal operation
  - **ERROR-PASSIVE**: communication is working despite faults (errors).
  - **BUS-OFF**: Gen-set interrupted the connection to the bus due to too many errors.

Communication error counters are displayed. If the condition causing the fault has been removed, by pressing and holding the**ACK/ENTER** 

+ **EXIT/SHIFT** 

buttons for 5 seconds, in this page, you can force exiting the BUS-OFF.

- **Engine diagnostic codes**, according to SAE J1939 or MTU specifications. In the case of the J1939 standard, when a signal is present the SPN and FMI fault's codes, the number of occurrences (OC), a specific diagnostic code of the family of engines (DTC), and an explanatory text are displayed. For MTU engines the SPN, FMI and OC are not shown, but the DTC code and an alphanumeric description are always displayed.

Engine diagnostic codes are stored (even if disabled by the engine) until the CanBus yellow/red light warning acknowledged by pressing the **ACK/ENTER** 

button.

Page **S.03** displays generic status acquired by the plant through the card digital inputs.

Page **S.04** displays serial communications status. In the case of operating errors, check the information in this page. When using a **GSM** modem the phone company and radio signal are also shown.

Page **S.05** (only available with CANBUS configuration enabled) displays CANBUS engine and PMCB communication.

Page **S.06** displays board's specific information: date and time, internal temperature, serial no. (ID code), internal code and firmware release.

Page **S.07** (only available if the fuel management pump output is configured) displays fuel pump related information and controls.

Page **S.08** displays status of card acquired digital inputs.

Page **S.09** displays status of card handled digital outputs.

Page **S.10** displays card analogue inputs acquired measurements.

3.4.3 Electrical measurements (M.xx)

You can scroll through the various pages using the **LEFT**  and **RIGHT**  buttons.

This lets you display the measurements taken by Gen-set on the electric lines.

Page **M.01** displays the **GC500/GC500*Plus*/GC500*Mains*** Mains / Bus bars main electrical measurements (voltage, frequency and rotational direction).

Page **M.02** displays the Generator main electrical measurements (voltage, frequency and rotational direction).

Page **M.03** displays the Generator/Use phase currents and auxiliary current.

Page **M.04** displays total power, power factor, powers and phase power factor.

Page **M.05** displays total reactive and apparent power, reactive and apparent phase powers.

Page **M.06** displays partial energy and total energy meters (active and reactive energy).

Page **M.07** (only available when the AT - amperometric transformer - configuration is set to Use) displays partial and total energy meters (active and reactive energy).

Page **M.08** **GC500/GC500*Plus*/GC500*Mains*** displays the single-line diagram of the plant. The elements displayed depend on the type of plant.

3.4.4 Engine measurements (E.xx)

This mode shows the measurements of the engine operation parameters.

Page **E.01** displays the main engine measurements (oil pressure - bar -, coolant temperature - °C - and r.p.m.).

Page **E.02** displays the start-up battery voltage (V) and the fuel level (%).

Page **E.03** displays the start-up and operating hours counter (partial and total operation hours, hours under load, Override hours, remaining hours to the next service).

Number of displayed pages can vary depending on the engine type (**J1939**, **MTU** o **without communication interface**).

Pages **E.04, E.05, E.06, E.06** (only available with CANBUS configuration enabled) display measures acquired through CANBUS.

Note: Depending on engine models some parameters may not be displayed.

Pages **E.10, E.11, E.12** (only available if configured) display measures acquired by the controller and configured as generic sensor.

3.4.5 PMCB (B.xx) GC500/GC500*Plus*/GC500*Mains*

Page **B.01** displays voltage and frequency measurements related to the generator and to the mains/bus.

Page **B.02** displays synchronization information. Using the displayed synchronoscope in **MAN** mode, allows you to perform manual synchronization (refer to par. 3.5.1).

Page **B.03** displays the parameters used to monitor parallel operation. This windows allows you to change the power supplied in the mains parallel applications in **BASE LOAD** and **IMPORT/EXPORT** operation.

Page **B.04** displays information about mains control cards (e.g. **MC100**).

Pages **B.05**, **B.06**, **B.07** display **PMC-Bus** line related information (active and reactive power, total active and reactive energy meters) and active and reactive power measurements for each individual generator.

Pages **B.08**, **B.09** display information about load function. These ones include the number of devices connected to the mains, the operating mode of the load function, the identifier of the pilot generator and the priority list.

For load function configuration refer to **EAAM0322XX (Parameters table).**

3.4.6 History logs (H.xx)

This mode allows you to access events and data log display.

A number and time and date stamp identifies each record.

The number shows in the top right line of the multifunctional display with the total number of records.

When the archive is full, a new record overwrites the old one so that the identification number may change in time.

Press the **ACK/ENTER** 

button to enable mode. A menu will guide you through the selection of the required function.

3.5 Manual controls GC500/GC500*Plus*/GC500*Mains*

3.5.1 Manual synchronization

WARNING: Before proceeding with manual synchronization, check the configuration is set so the circuit breaker cannot close in the case of a phase speed alignment error.

Selecting **MAN** mode by pressing the**UP**  **Ref. 1b** and **DOWN**  **Ref. 1b** buttons allows you to control closing of **GCB** via manually assisted syncronization (depending on plant's type).

In **MAN** mode, with engine ON, generator and mains/bus bar voltage active, (**BUS LIVE** light steady ON),

pressing the button related to the open **GCB** 

will enable the function.

When the button is pressed, the circuit breaker will not close, but the manual **SYNCHRO** function is activated and synchronization page **B.02** is automatically displayed.

Press the **ACK/ENTER** 

button to manually adjust engine speed and/or voltage and the **LEFT**  and **RIGHT**  buttons to select either speed or voltage adjustment; press the **UP** 

Ref. 1a and **DOWN**  **Ref. 1a** buttons to modify percentage value (%). When the synchronoscope

detects that the circuit breaker can be closed, press the **GCB** 

button again **and hold it down until the circuit breaker has closed.**

At any time, pressing **EXIT/SHIFT** 

disables the speed manual controls and allows page changing.

Changing the page aborts the manual synchronization procedure.

Note: The function described can only be used if the system hasn't been configured to use an external potentiometer to adjust the speed; in this case the speed can only be changed using the potentiometer.

Make sure that after the circuit breaker closes, the requested speed is set as close as possible to the nominal value so that Gen-set can properly adjust the power.

3.5.2 Manual power adjustment

Warning: As some slow power ramps may have been set, check the command against the "Power reference" value shown in the same page and not against the value of the power actually produced.

In mains parallel applications with **BASE LOAD** or **IMPORT/EXPORT** functions, you can adjust the power supplied manually without having to change the parameter that defines the regulated power directly.

Display screen **B.03** and press the **ACK/ENTER** button and the **LEFT** and **RIGHT** buttons to select either "requested power" and/or "required cosfi (power factor)"; press the **UP** **Ref. 1a** button to increase the value and the **DOWN** **Ref. 1a** button to decrease the set percentage value (%). The value to be changed is highlighted in reverse.

Press the **ACK/ENTER** button to exit the adjustment procedure.

Note: The described function is only available if no external potentiometer has been configured for power regulation.

4. Special settings

4.1 Selecting the language

Gen-set can display messages in various languages.

To select a different language use the **UP** **Ref. 1b** and **DOWN** **Ref. 1b** buttons to access the **OFF/RESET** mode and, while the card is powered, press contemporarily the **STOP** and **START** buttons until the display shows the following message:

```
Special Function
Function [LANGUAGE]
```

Press the **ACK/ENTER** button and press **ACK/ENTER** once more; you will be prompted to enter a password.

Press the **ACK/ENTER** button and use the **UP** **Ref. 1a** and **DOWN** **Ref. 1a** vertical scroll buttons to set a password value to **1**. Press again the **ACK/ENTER** button to confirm.

When a proper password is entered, the language selection page will be displayed.

Press the **ACK/ENTER** button and use the **UP** **Ref. 1a** and **DOWN** **Ref. 1a** vertical scroll buttons to set the desired language; press **ENTER** to confirm.

To exit the special mode, power down Gen-set, wait for a few seconds, then power it up again.

Note:in this phase do not press the **STOP** and **START** *buttons.*

5. Fuel pump (if installed)

Gen-set implements the full management of the fuel pump, to pump fuel from the storage tank to the tank on the generator. The pump can be automatically or manually managed using the controls on the front panel.

5.1 Select operation

Pressing the **UP**  **Ref. 1b** and **DOWN**  **Ref. 1b** buttons to select the **MAN, AUTO** or **TEST** mode; select "**STATUS INFORMATION S.xx**" mode pressing the **UP**  **Ref. 1a** and **DOWN**  **Ref. 1a** buttons.

Scroll through the pages using the **LEFT**  and **RIGHT**  buttons to page **S.07**. It is now possible to use the standard set-up procedure pressing the **ACK/ENTER**  button to start (square brackets blinking [xxxxxxx]), and the **UP**  **Ref. 1a** and **DOWN**  **Ref. 1a** buttons to modify the command mode:

- **2-AUTOMATIC** (the pump automatically starts when the low fuel level sensor sends a signal and stops pumping when the max fuel level is reached)
- **1-MANUAL-ON** (pump ON - the pump starts and will only stop when the max. fuel level is reached).
- **0-MANUAL-OFF** (pump OFF)

Press the **ACK/ENTER**  button to confirm the selection.

Note: The second option (**MANUAL-ON**) can be inhibited by Gen-set, in relation to the fuel level (the pump will not start when the tank is full).

Warning: With fuel pump alert ON, the control mode automatically sets to "0-MANUAL-OFF"

S.I.C.E.S. SRL
Società Italiana Costruzioni Elettriche Sumirago

Via Molinello 8B
21040 - Jerago con Orago (VA) ITALY

T +39 0331 212941
F +39 0331 216102

www.sices.eu
sales@sices.eu

SICES BRASIL LTDA

Avenida Juruá 105 – Barueri – Bloco 5
06455 – 010 São Paulo (BR)

CNPJ 17.774.501/0001-28

+55 (11) 4193 2008

www.sicesbrasil.com.br
contato@sicesbrasil.com.br