

PRE-130-10

Made for remote starting or stopping of a generator set with display of the instruments and faults managed by the CAM-130-10 control unit.

INSTRUCTION AND USE MANUAL

Functions:



Comprehensive of backlit display to show:

- Three generator voltmeters.
- Three generator ammeters.
- Generator frequency meter.
- Generator tachometer.
- Generator kW (active), kVAR (reactive) and kVA (apparent) powers.
- Battery voltmeter.
- Fuel level gauge.
- Engine temperature.
- Oil pressure gauge.
- Total hour-meter.
- Partial hour-meter.
- Starting counter.

- Starting and stopping the genset set using buttons.
- Texts in 7 languages: Italian, English, French, German, Spanish, Portuguese and one programmable language.
- RS485 serial port used to communicate with CAM-120-10 control unit.
- USB serial port.
- Dimensions (LxHxW) 157x109x74mm.



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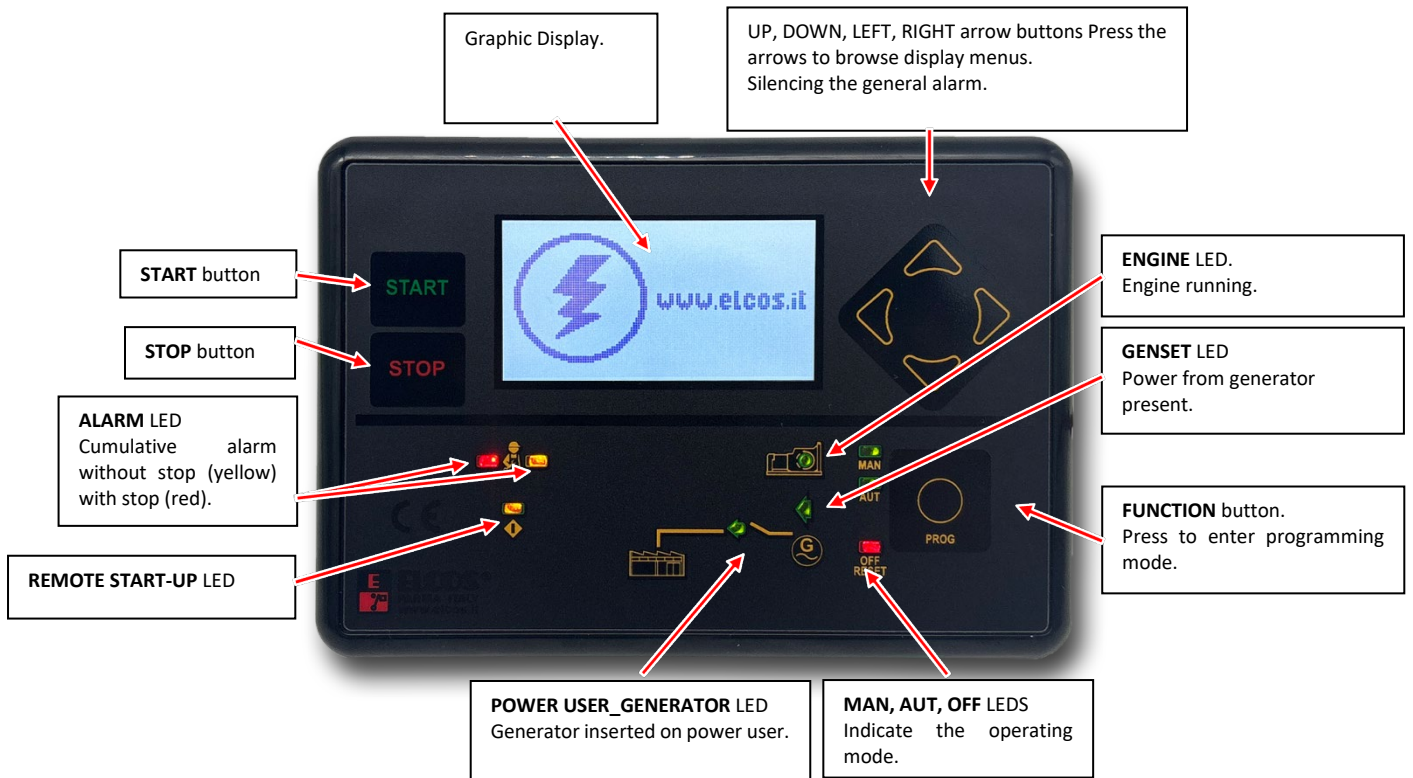
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CHRONOLOGY OF MANUAL REVISIONS

<i>Date</i>	<i>Revision</i>	<i>Description</i>	<i>Page</i>
07/08/2024	1.00	First release	
07/05/2025	1.01	Various corrections	
04/11/2025	1.02	Firmware 1.0.2	

INSTRUCTIONS IN BRIEF



INSTRUMENTS

The control unit has a backlit 128 x 64 dot graphic display. It is used to view the following instruments:

- Three line-to-line generator voltages.
- Three star generator voltages.
- Three generator ammeters.
- Generator frequency meter.
- Active (kW), reactive (kVAR) and apparent (kVA) power. The powers are displayed for each phase and as a sum of the phases.
- Generator power factor indicator displayed for each phase.
- Generator energy counter (kWh).
- Battery voltage.
- D+ voltage (pre-excitation alternator).
- Fuel tank level indicator.
- Engine temperature expressed in °C or °F.
- Oil pressure expressed in BAR or kPa.
- Engine revolutions (RPM).
- Total hour-meter.
- Partial hour-meter.
- Start-ups counter.
- Starting failure counter.
- Maintenance expirations.
- Rental hours expirations.
- Calendar clock.
- Automatic test.

All the electrical instruments (V, A, Hz and kW) are also displayed simultaneously. Simply pressing the arrows displays all the instruments for the engine. In the event of a fault, the display presents the message indicating the fault that has occurred.

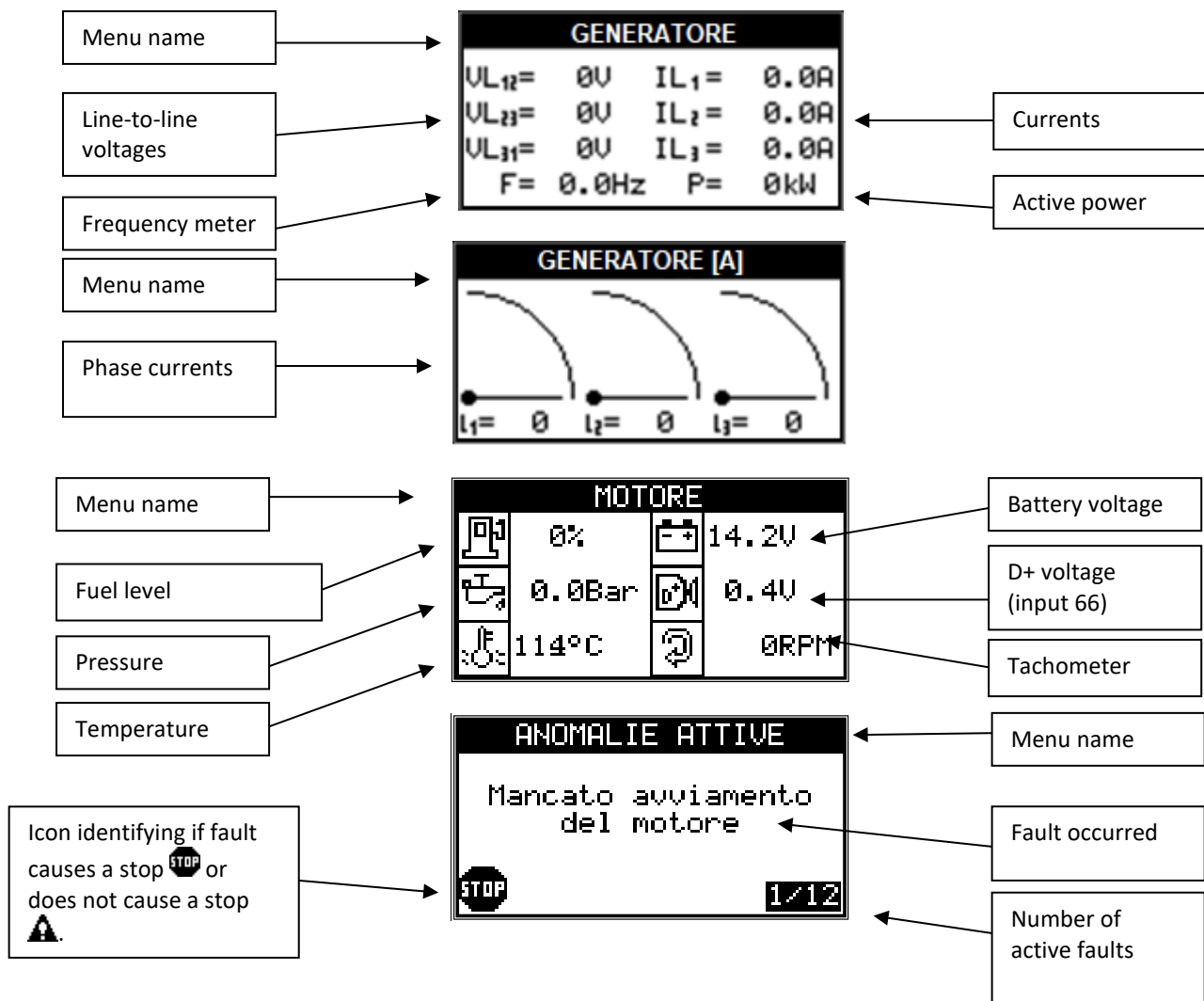
DISPLAY

The instruments displayed on the control unit are divided into groups. The groups are:

- Generator
- Engine instruments
- CAN Bus instruments (if CAN Bus connection is enabled)
- Counters
- Maintenance (if maintenance hours have been set)
- Rental (if rental hours have been set)
- Fuel top-up management (if function is enabled)
- Faults
- Clock
- Information about the control unit.

The two **UP** and **DOWN** arrows are used to scroll through the instrument groups on the display or to select the sub-menus under the settings.

The following are a few examples of instrument display menus.



OPERATION

STARTING AND STOPPING

The control unit CAM-130-10 must be in automatic mode, When button START is pressed, the start-up procedure of the generating set gets started. The CAM control unit shows the message "START-UP CONTROLLED BY REMOTE PANEL" on the display. The general alarm goes on and off (if this function is enabled), after which the start-up cycle begins, and the machine operates as if no power was received from the network. When the button STOP is pressed, the genset stops.

FAULTS "REMOTE PANEL DOES NOT COMMUNICATE"

Faults «REMOTE PANEL DOES NOT COMMUNICATE» appears when:

*) The connection with control unit CAM-130-10 is not correct. Check that terminals [84], [85] and [86] are connected to the respective terminals of the CAM-130-10. See connection diagram.

*) The address of the PRE-130-10 card is not the same as the address programmed in the menu "RS485 SERIAL PORT" against the heading "CARD ADDRESS".

*) The CAM-130-10 control unit is not powered.

GENERAL ALARM

The general alarm can be obtained by installing a signaller at the appropriate alarm terminal [70]. It can be programmed so that it is always on or remains on for a specific amount of time. It trips whenever the control unit detects a fault. Pressing one of the arrows silences the alarm.

ALLARMI CUMULATIVI

Red LED, STEADY LIGHT: fault handled by the engine injection control unit ECU for electronic engines that will cause the engine to stop.

Red LED, INTERMITTENT LIGHT: fault handled by CAM-130-10 control unit that will cause the engine to stop.

Yellow LED, STEADY LIGHT: fault handled by the engine injection control unit ECU for electronic engines that will NOT cause the engine to stop.

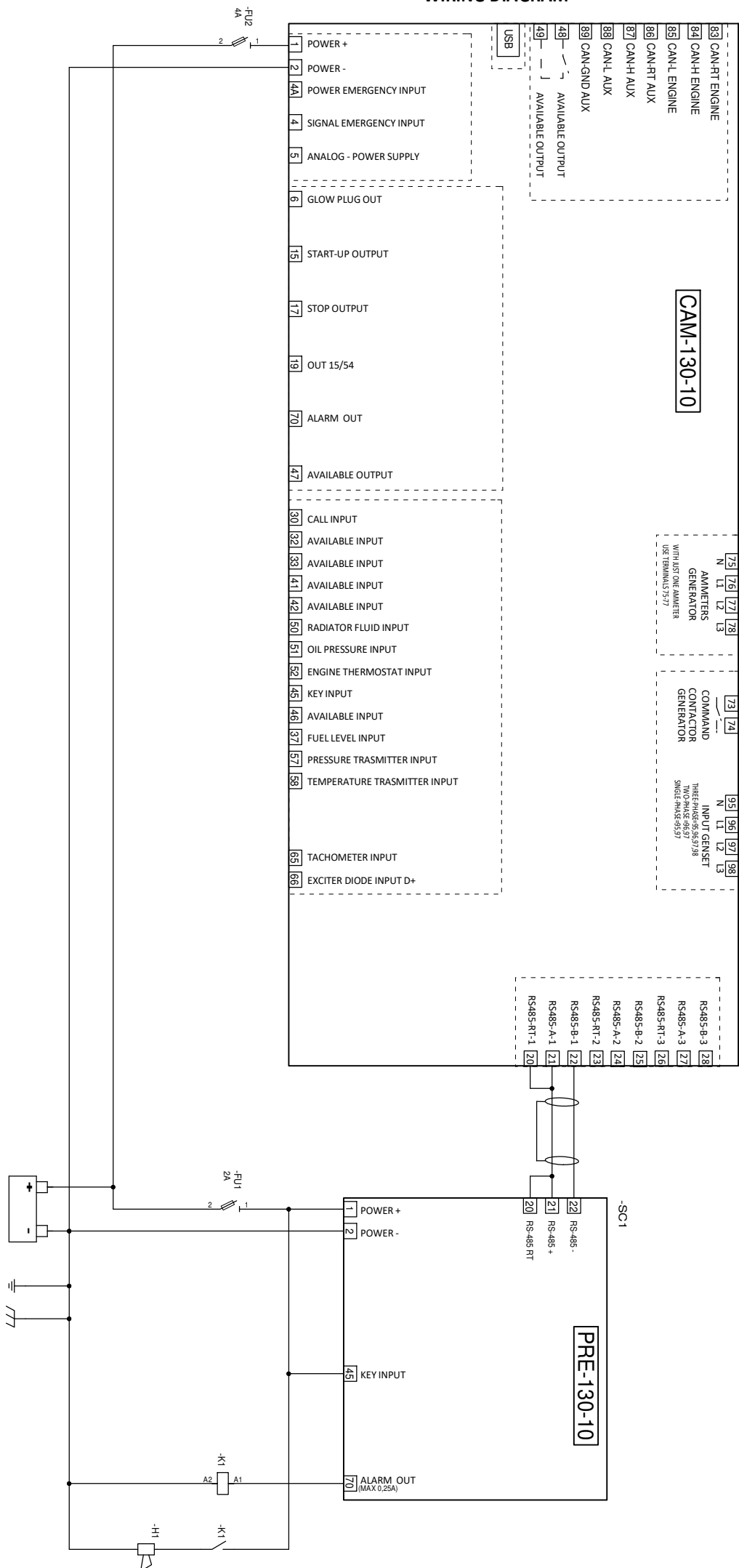
Yellow LED, INTERMITTENT LIGHT: fault handled by CAM-130-10 control unit that will NOT cause the engine to stop.

PORTE SERIALI

The control unit has 2 serial ports: RS485 and USB 2.0.

- RS485: used to communicate with CAM-130-10 control unit.

WIRING DIAGRAM



USER PROGRAMMING

To access user programming, press the **FUNCTION** button and keep it pressed until "PROG" appears on the display



Release the button. After a few seconds:

Press the **UP** and **DOWN** arrows to scroll through the programming menus. Press **RIGHT** to enter the desired sub-menu. For example:



Press **UP** and **DOWN** to scroll through the programming items. For example:



Press **START** to confirm the selection. The following appears:



Wait for a few seconds:

The chosen parameter is now programmed in the control unit. The settings are stored in a non-volatile memory, and are therefore maintained even if the power is switched off. The value can be modified at any time by repeating the procedure as described above.

Press **STOP** to return to the previous menu and then proceed to set the other parameters.

User-programmable parameters are:

Parameter	Range	Factory settings	Notes
LANGUAGE CHOICE	ITALIAN	ITALIAN	A CUSTOM language cannot be selected unless the messages have been programmed with the ZW-SMART software.
	ENGLISH		
	FRENCH		
	GERMAN		
	SPANISH		
	PORTUGUESE		
	CUSTOM		

ACCESSING TECHNICAL PROGRAMMING

All programming must be done with the engine switched off. **The programming procedure is the same for all parameters.** As an example, the language programming is explained below, but the same procedure is used for all other programming.

To access the technical programming, press and hold down the **FUNCTION** button for 3 seconds until the "USER PROGRAM" menu appears on the display.



Press and hold **START** and **STOP** simultaneously for 5 seconds until the "PASSWORD" message appears on the display."



The control unit requires a password. The factory password 7 (DEVICE) is "2015" and all the others are "0000"; these can be changed by the user. Use the **ARROW** buttons to enter the code. Then press **START** to confirm the password and access the technical programming menus:



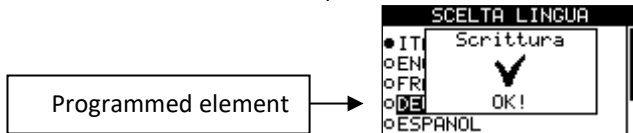
Press the two **UP** and **DOWN** buttons to scroll through the programming sub-menus. Press **RIGHT** to enter a sub-menu. For example:



Press the two **UP** and **DOWN** buttons to scroll through the programming sub-menus. For example:



Press **START** to confirm the selection. For example:



The chosen parameter is now programmed in the control unit. The settings are stored in a non-volatile memory, and are therefore maintained even if the power is switched off. The value can be modified at any time by repeating the procedure as described above.

Press **STOP** to return to the previous menu and then proceed to set the other parameters.

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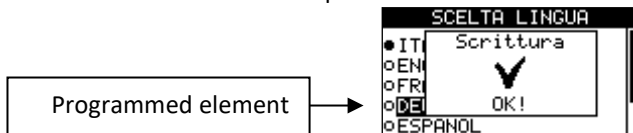
Press the two **UP** and **DOWN** buttons to scroll through the programming sub-menus. Press **RIGHT** to enter a sub-menu. For example:



Press the two **UP** and **DOWN** buttons to scroll through the programming sub-menus. For example:



Press **START** to confirm the selection. For example:



The chosen parameter is now programmed in the control unit. The settings are stored in a non-volatile memory, and are therefore maintained even if the power is switched off. The value can be modified at any time by repeating the procedure as described above.

Press **STOP** or **LEFT** to return to the previous menu and then proceed to set the other parameters. To completely exit the programming procedure, press the **FUNCTION** button.

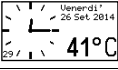

TECHNICAL PROGRAMMING

LANGUAGE CHOICE

Range	Factory settings
ITALIAN	ITALIAN
ENGLISH	
FRENCH	
GERMAN	
SPANISH	
PORTUGUESE	
CUSTOM	

All the messages displayed in the control unit can be programmed in any one of the resident languages using the ZW-SMART programming software. These messages will be activated by choosing the CUSTOM language.

CLOCK/CALENDAR

Parameter	Factory settings	Range	Notes
TYPE	ANALOGUE	ANALOGUE	Display type 
		DIGITAL	Display type 
THERMOMETER	DISABLED	ENABLED	Displays the temperature inside the control unit.
		DISABLED	Does not display the control unit temperature.

GENERAL FUNCTIONS

This menu includes all the general settings of the control unit, including some parameters shared between the generator and the engine.


Parameter	Sub-parameter	Factory settings	Range	Notes
GENERAL ALARM	DURATION	350 sec	(10 ÷ 350) sec	The value 350 indicates continuous operation with no time limit.

COMMUNICATION PORTS

Menu used to access the serial port parameters.

Parameter	Sub-parameter	Factory settings	Range	Notes	
RS485 A	ADDRESS	1	1 ÷ 32	Address of the control unit with MOD Bus RTU Slave protocol.	
	BAUD RATE	115200	1200 ÷ 115200	Communication speed.	
	PARAMETERS	N,8,1		E,8,1	Communication parameters.
				N,8,1	
				O,8,1	
O,8,1					
USB	VCP ADDRESS	1	1 ÷ 32	Address of the virtual com used by the USB.	

DEVICE

<i>Parameter</i>	<i>Factory settings</i>	<i>Range</i>	<i>Notes</i>
LOGO	ENABLED	ENABLED	It is possible to exclude the display of the logo appearing when the control unit is switched on.
		DISABLED	
LCD CONTRAST	50%	(0 ÷ 100) %	It is possible to modify the LCD display contrast. 
CLIENT LOGOS-LANGUAGE			Reserved for Elcos technicians. Accessing this function, you can check that the client memory area storing the programmable language and logos is correct.

PASSWORD

Access to technical settings is password activated. There are 3 password levels, each level gives access to different settings. The factory password 3 (DEVICE) is "2015" and all the others are "0000". The list of the 3 levels is given below:

1. The operator can read all the settings but cannot edit them.
2. The operator can read and edit all settings.
3. Access to the device menu.

For example: if we wish to prevent the operator from modifying the total operating hours serial parameters RS485, we must set a different password to "0000" in level 2, for example "1234". Doing this, we can enter the technical settings using the default password ("0000"), but will not have access to the serial parameters. To access the operating hours menu we must enter the password "1234".

<i>Parameter</i>	<i>Factory settings</i>	<i>Range</i>	<i>Notes</i>
PASSWORD 1	"0000"	"0000" ÷ "9999"	The operator can read all the settings but cannot edit them.
PASSWORD 2	"0000"	"0000" ÷ "9999"	Access in reading and editing mode to maintenance and rental hours and the log.
PASSWORD 3	"2015"	"0000" ÷ "9999"	Access to the "DEVICE" menu.

FAULT LIST

Below is the complete list of faults managed by the control unit.

Fault code	Description	Occurs when:
800	CONTROL UNIT COM. ERROR	Communication error with remote control unit..
801	CONTROL UNIT INCOMP.	Remote control unit model not supported by the panel.
802	UNALIGNED FW	The FW versions of the panel and remote control unit do not match.
803	UNALIGNED DATA	The FW versions of the panel and remote control unit are not compatible.
-	EEPROM ERROR	Failed access to the static memory.

```
CAM-130-10
FWa:1.02  Tab:00002
FWb:2.06
HW :????
id :000000000
Sn :-1
```

```
PRE-130-10
FWa:1.02  Tab:00002
FWb:2.06
id :000000000
```

FW version of the panel and the remote control unit are compatible if the value of the Tab item in the 'Data' coincides.

TECHNICAL SPECIFICATIONS

Power supply		
Suitable for batteries	12 Vdc	24 Vdc
Operating range	(8 ÷ 48) Vdc	
Absorption with engine not running	130 mA @ 12 Vdc	90 mA @ 24 Vdc
Voltage dip on battery power supply	From 10 Vdc to 0 Vdc for 20 ms	
Digital outputs		
Type of output	Positive (battery voltage)	
Maximum load	Terminal 70	0,25 A
Lines of communication		
RS485 (No optoisolator)	Baud-rate	(1200 ÷ 115200) bps
	Parity	None / even
USB 2.0 (Micro USB-B)	Interface	Not isolated. Maximum cable length 3 m.
Environmental conditions		
Operating temperature	(-20 ÷ 60) °C	
Storage temperature	(-20 ÷ 60) °C	
Relative humidity	≤ 80 %	
Protection class		
Back	IP 20	
Front	IP 54	
Container		
Weight	540 g	
Dimensions (LxHxW)	(157x109x74) mm	
Perforations	(137x88) mm	
Material	PC/ABS V0	
Terminals		
Screw	M3	
Nominal wire size	2,5 mm ²	
Installation		
Built-in		
4 nuts	M4	
Nut tightening torque	(1,0 ÷ 1,5) Nm	

WARNING

Performs only remote control of the CAM-130-10 control unit connected to a genset. It is designed solely to be built into an electrical panel and connected to the other components (fuses) the installer has arranged to complete the system.

Warning: Parts powered with dangerous voltages



The control unit can only be accessed by specifically assigned, duly trained personnel. Maintenance operations cannot be performed unless the system is disconnected from the generator and the battery. As an additional protection measure, we recommend grounding the system phases. Notwithstanding the above, only specifically assigned, duly trained personnel can perform the following operations with the system powered:

- visual inspection of control unit connections and markings;
- taking voltage and/or current measurements.

These jobs must always be performed using equipment that ensures appropriate electrical protection.

Warning: Compliance with the following recommendations is obligatory



- Always make connections following the wiring diagram provided in the manual.
- Any work performed on the unit must be carried out with the engine off and with starter motor terminal 50 disconnected.
- Check the consumption of the connected devices is in line with the described technical specifications.
- The installation must always guarantee adequate dissipation of heat.
- Always install the device at a lower position than any other devices that produce or dissipate heat.
- Handle and connect without exposing the electronic circuit board to mechanical strain.
- Do not let cuttings of copper conductors or other metal residues drop onto the control unit.
- Never disconnect the battery terminals while the engine is running.
- Strictly avoid using a battery charger for emergency start-up; this could damage the control unit.
- To safeguard persons and equipment, always disconnect the electrical system terminals from the battery poles before connecting an external battery charger.

Device sensitive to electrostatic discharge



Do not open the rear cover unless precautions to avoid electrostatic discharges have been taken.

This control unit is not suitable for operation under the following conditions:



- Where the room temperatures exceeds the limits specified in the technical data sheet.
- Where abrupt shifts in temperature and air pressure produce exceptional condensation.
- Where there is high pollution caused by dust, fumes, vapour, salts and corrosive or radioactive particles.
- There is high radiation of heat due to direct sunlight, ovens or the like.
- You suspect the presence of mould or pests.
- There is a danger of fire or explosion.
- Strong shocks or vibrations can be transmitted to the control unit.
- The control unit is protected by barriers or casings with a protection rating below IP40.

Electromagnetic Compatibility

This control unit works correctly only if it is installed in systems that comply with regulations governing CE or UKCA marking; in fact, it complies with the immunity requirements given in EN61326-1, but this does not rule out the possibility that malfunctions could occur in extreme cases that may arise in particular situations.

The installer is responsible for checking that the disturbance level does not exceed the level specified by regulations.

Operation and maintenance



We recommend the following maintenance on a weekly basis:

- checking the signals;
- checking the battery status;
- checking the wires are connected firmly and the condition of the terminals.

INFORMATION FOR ORDERING

Type	Item Code
PRE-130-10	00242345

STANDARD ACCESSORIES

Type	Item Code
KIT MU PRE-130-10	40804439

ACCESSORIES AVAILABLE ON REQUEST

Type	Item Code
ZW-SMART programming software	00070212

CONFORMITY

