Power Supplies

SCS2EN24.25/50

Tower Version

Input 230 Vac
Output 24 Vdc
25 - 50 A

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USER MANUAL

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1.0 WARNINGS AND SAFETY REGULATIONS

Installation , maintenance, and adjustment to irregularities and failures must be carried out exclusively by a qualified technician.
The device described in this manual is an electronic system produced in such a way to guarantee a safe functioning provided that it is installed and utilized in conformity to the general safety regulations and the instructions provided by the manufacturer are followed.
Any utilization other than that indicated by the manufacturer is prohibited.
READ THIS MANUAL CAREFULLY BEFORE USING THE ENERGY STATION.

1.1 DECLARATION OF COMFORMITY

This device has been produced in such a way as to guarantee a safe functioning provided that it is utilised for the purposes it was made for and that the regulations, instructions for use and installation provided by the manufacturer are followed. The device has a **CE** stamp and it has been produced on the basis of what is defined:

- EU Directives **73/23/EEC** Council Directive on equipment designed for use within certain voltage limits.
- **93/68/EEC**, Amending Directive 73/23/EEC.
- **89/336/EEC** Council Directive relating to electromagnetic compatibility.
- **92/31/EEC,** Amending directive 89/336/EEC relating to EMC
- **EN 60950**
- Harmonic Standards : **EN 50091-1-1 and EN 50092-2**

With reference to the constituent products, **no harm exists for health or environment during all the steps of normal movements, storage, handling and utilization.**

1.2 IMPORTANT SAFETY INSTRUCTIONS

- **WARNING (keep away from the parts inside the device):** Electrical shock risk: Never open the enclosures of the device. No parts are supposed o be handled except by the authorized technical personnel. In case of internal fault call on the technical service.
- **WARNING:** Only the authorized and professional technical personnel are allowed to deal, maintain or repair the parts of the device as it may have potential life risk for the novices.
- **WARNING:** It might be inconvenient for pacemaker and/or similar electronics equipment users to get closer to the device.
- **WARNING (Fuses) :** In order to reduce the burn-out risk, while replacing the fuses take extreme care to replace with fuses of same type and model.
- **CAUTION (Environment) :** Provide suitable ambient conditions properly before installation
- **CAUTION:** Nothing should enter or close the air inlets and outlets. You can clean inlets and outlets during the periodical maintenance.
- **CAUTION:** Do not use the device in sites that contain flammable and explosive materials.
- **CAUTION :** Keep the batteries away from fire. They may explode.
- **CAUTION :** Do not mutilate the batteries. Otherwise released electrolyte may cause harm to the skin and eyes. It might be toxic.
- **CAUTION :** Touching the battery poles with bare hands may cause dangerous electrical shock or high short circuit current. The following precaution must be observed while working on batteries:
  - Remove watches, rings or other metal objects
  - Use tools with insulated handles
  - Wear rubber gloves and boots
  - Do not lay tools or metal parts on top of batteries
  - Disconnect charging source prior to connecting or disconnecting battery terminals.
- **CAUTION:** Electrical shock risk – Even after disconnecting the source from the device, the inside components contain electrical shock risk.
- **CAUTION:** Since the device must only be dealt with qualified personals, the manufacturer will not take any responsibility in case any fault, damage or life risk is caused due to wrong handling of the device.

1.3 IDENTIFICATION OF DANGERS AND MEASURES FOR PREVENTION

1.3.1 ELECTRICITY RISKS (electrical risk)

This device is produced according to the 73/23/EEC directive and is conform to the EN 60950 rule which regulates the safety of electrical and electronic products.
In the case of circuit parts which are subject to dangerous tensions, they are identified by specific labels, as indicated in the EN 60950 normative.
Any intervention on these circuits carried out by non-expert technicians is dangerous.

1.3.2 FIRE RISKS

The parts which make up the device do not have a specific point of applicable or definite flammability. The basic products used for their construction are usually classified UL 94 V-O. During the normal conditions of movement, storage, handling and utilization there is no danger of self-combustion. However, in case of a fire , good ventilation must be guaranteed along with the use of oxygen masks.
Do not use water to put out the fire.

1.3.3 MECHANICAL RISKS

The assembly and operation of this device must be carried out according to the instructions presented in this manual.

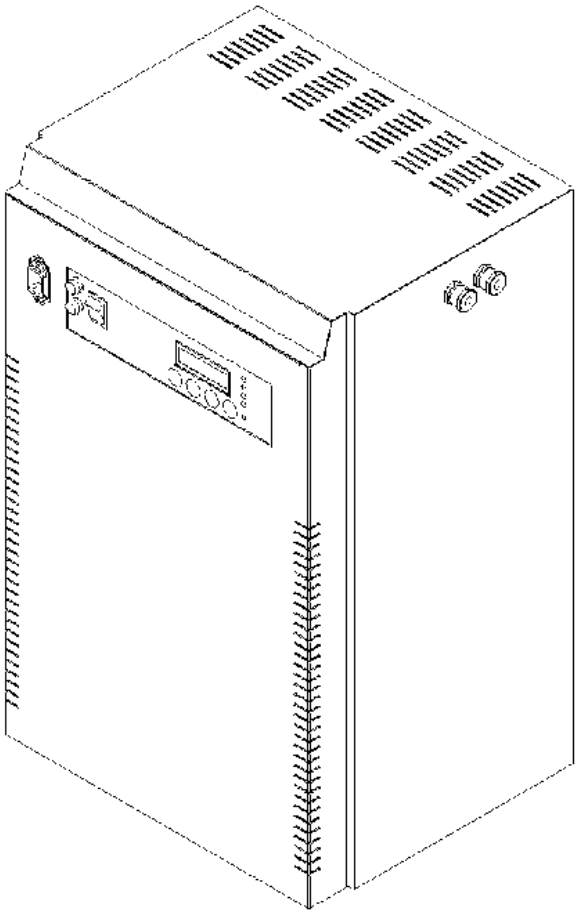
THE MANUFACTURER DECLINES ALL RESPONSIBILTY IF ANY OF THE REGULATIONS AND SAFETY MEASURES ARE NOT OBSERVED AND IF THE DEVICE IS NOT PROPERLY USED.

2.0 INTRODUCTION

SCS2EN24.25/50 stations is an electronic device which provides feeding to 24 Vdc systems, typically used in the field of telecommunication (e.g. telephone communication station).
The energy station guarantees supply continuity even in the case of an electrical black out, thanks to the batteries connected to the system.
SCS2EN24.25/50 stations uses microelectronic technology which facilitates its operation and maintenance and makes its service highly reliable and safe.
Its highly developed performance. advanced architectural design, and the innovative utilization of a microprocessor are some of the features which make it an advanced energy station.
The main technical features are sinusoidal absorption with a power of over 99%, high efficiency and low psophometric noise.

2.1 OVERALL VIEW

Figure F1



3.0 STRUCTURE

The energy station SCS2EN24.25/50 includes an input Power Factor Conversion and a DC/DC high frequency converter which is able to produce clean energy reducing the output psophometric noise to a minimum level and drastically reducing the harmonic line distortion and the power factor which is practically equal to 1. The high efficiency obtained and the resulting low dissipation also allow for great energetic saving.

The innovative microprocessor digital structure allows for the control of all the functions of the energy station which, through a crystal liquid display and a maintenance console, visualizes the fundamental parameters of operation and points out any state of alarm which may arise. These indications are signaled in real time and are recorded within a "historical" menu. Thanks to the information provided, the user is able to completely control the system, preventing any critical situations and correcting any eventual malfunctioning of the system.

Besides this, SCS2EN24.25/50 station, through serial connection (RS232 or RS485) and a local personal computer or through a external modem connection and a remote personal computer, using an optional software kit, can control many other functional parameters (not provided in the standard package) and can carry out the remote diagnosis service.

3.1 MECHANICAL STRUCTURE

SCS2EN24.25/50's mechanical structure is designed for a great simplicity of use and maintenance, in the best conditions of accident prevention safety.
The upper panel opens up to the user outputs and interface while the electronic part of the energy station is totally contained in an easily extractible box. Maintenance operations, therefore, are facilitated since interventions can be made directly on the electronic drawer itself.
The front panel opens up to the space where the batteries are located. They are blocked in place by screws and are easily removable. Thanks to this functional structure, the technician is able to substitute the batteries in the presence of an electric line and with the energy station turned on (by simply excluding the battery fuse).
SCS2EN24.25/50's control keys and the synoptic panel are located on the front panel.
The device use natural ventilation to dissipate the heat produced by the electronic power components.

3.2 FRONT PANEL

Located on the front panel is:

- Main power input;
- main fuses;
- main switch;
- synoptic panel;

3.3 INTERNAL CONNECTIONS

The interior contains:

- Load supply connector;
- RS232 serial interface connector ;
- RS485 serial interface connector;
- CAN-BUS serial Interface connector;
- Dip switch (RS232/RS485) interface selector.
- Dip switch shunt insertion selector for the RS485 and CAN-BUS port.
- Alarm connectors

4.0 TECHNICAL FEATURES

4.1 TECHNICAL INFORMATION

SCS2EN24.25/50's technical information is described in charts T1, T2, T3.

Chart T1

MODEL	**SCS2EN24.25**	**SCS2EN24.50**
Main voltage /Main frequency	230Vac (-20 % +15%) / 50Hz	
Nominal input current	4A	7,6A
Max input current	4,8A max	9A max
Power factor	>0.98 %	
Output voltage	24Vcc	
Output current	25A ± 3%	50A ± 3%
Charge voltage set	27Vcc ±1%	
Load shut down for low battery	21,5Vcc ±2%	
Static voltage stability	±1% (line variation–10% +15% charge 10% a 100%)	
Psophometric noise with connected battery	<2mV (-51.7dBm)	
Voltage ripple with connected battery	<50mVeff.	
Full charge efficiency	>92%	
Working temperature	0 ÷ 45°C	
Storage temperature	-25 ÷ +45°C	
Relative humidity at 35°C	<80%	
Electric isolation input-output	2.000Vca 1minute	
Electric isolation input-ground	2.000Vca 1minute	
Electric isolation output-ground	500Vcc 1minute	
Ground isolation resistance	> 50 MOHM	
Line protection	CEI 103/1-11	
Dimensions (LxPxH) in mm	410x350x710	
Weight/ without batteries	30 Kg	38 Kg

4.2 FUSES

Chart T2

MODELS		**SCS2EN24.25**	**SCS2EN24.50**
Main input protection	Exterior, on front panel	2 x 5A RIT	2 x 8A RIT
Output battery protection	F3 – On interior shelf	2 x 32A RIT	2 x 32A RIT
Output protection	F1 – On interior shelf	2 x 32A RIT	2 x32A RIT

4.3 RECOMMENDED BATTERIES

Chart T3

	TYPE	**QUANTITY**
Sealed lead batteries without maintenance	12V / 38-100Ah max	4

4.4 PROTECTION ELEMENTS

The energy station, SCS2EN24.25/50, is provided with the following protection:

- Output fuses, on the feeder of the conversion circuit, towards the batteries and towards the charge. While the input fuses are positioned on the front panel and are accessible from the exterior by unscrewing a cap, the output fuses and the battery are mounted on the interior shelf and therefore, are accessible only by opening the upper cover;
- Output short-circuit protection;
- Breakaway charge at minimum battery voltage (21,5V ±2%);
- Output current limitation.
- Output over voltage protection (Vout > 18,5V dc);
- Overheating protection;
- Main input line filters.

Thanks to the presence of this protections, it is not necessary to install other types of line protection on the telecommunication plants which are supplied by the energy station SCS2EN24.25/50.

5.0 INSTALLATION

5.1 PACKING CASE

SCS2EN24.25/50'S packing case contains:

- the energy station;
- the line feeding cable with an IEC plug;
- battery and load fuses;
- this instruction manual.

⇒ ATTENTION: *The energy stations are very fragile electronic devices. Be very careful when unpacking and transporting.*

5.2 PRELIMINARY CONTROLS

Before proceeding with the installation of SCS2EN24.25/50, check if the device has been damaged during delivery. The energy station should be placed in a well ventilated room, far from any sources of heat and the parts which require ventilation should not be obstructed.

5.3 INSTALLATION

The following installation procedures must be carried out when the energy station is switched on for the first time and every time the battery fuse is not inserted.

For a correct installation proceed with the following operations:

1) Connect the powering user cable to the corresponding terminals "J3-J6";
2) Connect the required alarms to the "CN1", "CN2" terminals and/or "CN3" and /or "CN4" (if needed);
3) Insert the provided system cable to the line;

4) Turn the line switch to position “I” (power on);
At this point the energy station should switch on. The “MAIN SUPPLY” green led and the “PLANT FEED” green led will light up on the synoptic panel and the display will read:

STARTER
||||||| ----------

5) At the end of the ignition the display

FUNCTIONING
Vout = 54.00

6) The display will indicate:

For F1

FUSE C BREAKAGE

For F2

FUSE B BREAKAGE

In this case replace the fuse.

7) To test the efficiency of the energy station, simulate a black-out by disconnecting the main power;
The “BATTERY MODE” red led will light up on the synoptic panel and the following will appear on the display:

BATTERY MODE

This state of operation is accompanied by an intermittent acoustic signal (10 sec.);

8) Re-insert the supply. The energy station is now in a normal functioning state and the display will indicate:

FUNCTIONING

9) Turn the line switch to position “O” station not line supplied;
The system is now in the “BATTERY MODE” state (point number 7);

10) Disconnect the batteries by pressing down on the “BATTERY EXCLUDE” button until the energy station is completely switched off; During this phase, the display will read:

CONS.TOTALLY OFF

11) Switch on SCS2EN24.25/50 by turning the line switch to the “I” position;
The energy station is now operative.

✓ NOTE: In order to totally switch off SCS2EN24.25/50 it is necessary to utilize the “ON/OFF” line switch and the “BATTERY EXCLUDE” sequence, therefore, if it is necessary to switch off the energy station (for storage, movement or maintenance) the operations described in point number 9) and 10) must be carried out.

12) Press the **+** button four times to visualize the “Ibat” battery current.
✓ NOTE: This reading depends on the level of the battery charge which must be positive. The best level is “Ibat=0.0A”. If the level is positive leave SCS2EN24.25/50 on (the display will indicate “*FUNCTIONING*”) and without any charge applied to it until the “Ibat” is reduced to less than 2A. This is the level in which the batteries are considered to be fully charged.
✓ NOTE: If something unexpected should occur while SCS2EN24.25/50 is being switched on, all the operations should be repeated from the beginning. If the problem continues, contact the Technical Assistance Service.

5.4 SWITCHING ON

To switch the station on after the first ignition (with the battery fuse already inserted) the line switch must simply be turned to the "I" position.
The "MAIN SUPPLY" green led and the "PLANT FEED" green led will light up on the synoptic panel and the display will read:

STARTER ||||||| ----------

At the end of the ignition test, the following will appear:

OPERATING: xxxxx

⇒ ATTENTION: *The ignition phase will take a few seconds.*

5.5 SWITCHING OFF

- Turn the line switch to the "O" position;

The "BATTERY MODE" red led will light up on the synoptic panel and the display will read:

BATTERY MODE

and the acoustic signal will activate;
Disconnect the batteries by holding down the "BATTERY EXCLUDE" button until the energy station is completely switched off. During this phase the display will read:

BATTERY MODE CONS.TOTALLY OFF

The energy station is now off.

6.0 FUNCTIONING

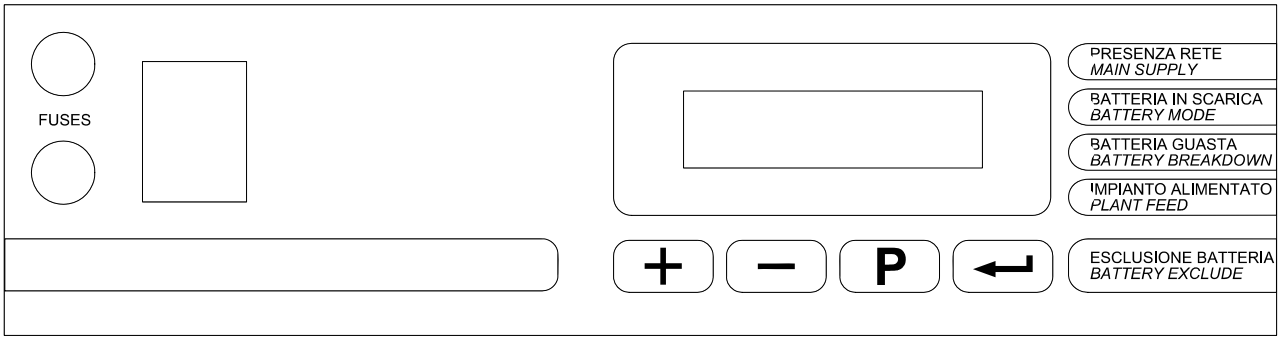
The functioning of the energy station is based on an electronic converter which transforms the line voltage into a isolated stabilised voltage while all the total running of SCS2EN24.25/50 is carried out by an electronic circuit which shows, through a display and control buttons, the functioning state of the system in real time.
The converter is composed by two sections the first called 'power factor' corrector and the second 'dc/dc converter'.
The PFC unit is used to limit the harmonic current equipment is allowed to draw from the main supply. This regulation is based on the reccomedation of the european normative EN60555-2 . The PFC is composed by a main input voltage rectifier, an inductor, a power switch (IGBT) and a diode. By controlling the mark space ratio of the switch it is possible to make the current drawn from the supply closely approximate to a sine wave.When the switch is on the input current is stored into the inductor. At this point the inductor voltage is reversed to the output capacitor when the power switch is off. The output voltage of this section, about 400 Vdc, is the feeder of the second section of the energy station.
The dc/dc section, bridge push-pull converter, is composed by a power switches (IGBT), an high power transformer and an output rectifier. An integrated circuit, compare the output voltage with an internal precision voltage reference, producing a step wave voltage with a variabile duty cycle. The power switches, used as bridge converter, produce a simmetrical square wave voltage utilized to drive an high power transformer.The high frequency transformer guarantees the input and output isolation, and using a different primary to secondary turns ratio, it convert the high input voltage present in the primary side in a low output voltage in the secondary side. The output voltage, square wave, is then rectified and filtered by an inductor and a capacitor to produce a smooth d.c. voltage.
Whether the line is present or not, an separated fly-back feeder circuit provides the voltage supply for the logic and the microprocessor. When the energy station is operating on batteries, a relay will switch off the charge if the battery voltage should fall below the 18,5 Vdc level due to excessive discharge.

The build in microprocessor, together with analog and digital sensors, control all the electric parameters as voltages, currents, fuses and working temperature and visualized on the main lcd display. When the microcessor, testing the values acquired, detect a failure send the error message to the main display, store the information in the historical register and set on or off the corresponding alarm relay.
The free contacts of these relays are useful for telecommunication users, moreover the system parameters and alarm message are presents through the build in serials interface RS485 and Rs232 . An optional program and a personal computer are necessary to display this information.

6.1 OPERATIVE ELEMENTS

A synoptic panel is located on the front of the energy station. This is used to visualize the various alarms, the state of functioning and the measurements. It provides immediate signals, either illuminated or acoustic, which illustrate the general condition of the machine and more detailed information, including various measurements, which the operator can consult by using a keyboard and the lcd display.
The panel is structured as the one illustrated in figure F2.

Figure F2



SCS2EN24.25/50's operative elements seen in figure F2 are:

- Line switch;
- Line fuses
- Display signaling the functioning state of the energy station;
- Control keyboard;
- "MAIN SUPPLY" Led;
- "BATTERY MODE" Led;
- "BATTERY BREAKDOWN" Led;
- "PLANT FEED" Led;
- Battery exclude button;

6.2 ACOUSTIC SIGNALS

The acoustic alarm activates in case there is an electricity shortage and/or any other operation irregularity should occur. Any key pressed silent the buzzer.

6.3 LED INDICATORS

The energy station indicates its state of functioning through various illuminated signals. In reference to figure F2, the signals illuminated by led diodes are indicated in Chart T4.

Chart T4

LED	MESSAGE	MEANING
GREEN LED	"MAIN SUPPLY"	On with line present. Off with line shortage.
RED LED	"BATTERY MODE"	On with line present. Off with line shortage.
RED LED	"BATTERY BREAKDOWN"	Usually off.
GREEN LED	"PLANT FEED"	Usually on.

The illuminated "BATTERY MODE" red led indicates that the batteries are discharging. Check if:

- there is a shortage of the line voltage;
- the feeder is broken;
- the line switch on the machine is open;
- a fuse on the front panel of the energy station is broken.

The "BATTERY BREAKDOWN" Led lights up if the result of the BATTERY TEST is negative and indicates an irregularity with the batteries. This led lights up to indicates also the overheating, a broken charge fuse (F2), broken battery fuse (F1), broken feeder, overloading or wrong output continuous voltage.

6.4 ALARM SIGNALS

The functioning alarm signals are isolated through relay free contacts available with the indications shown on chart T5.

Chart T5

RELAY FREE CONTACTS		OPEN	CLOSE
"CN1"	Irregularity Signal (See display or Historical)	1-3	1-2
"CN2"	Failed Battery Test	4-6	4-5
"CN3"	Line on /line off	7-9	9-8
"CN4"	Functioning energy station	10-12	12-11

When running and in normal functioning condition, contacts "CN1" – "CN3" – "CN4" are **OPEN**

6.5 SERIAL COMMUNICATIONS AND SETUP

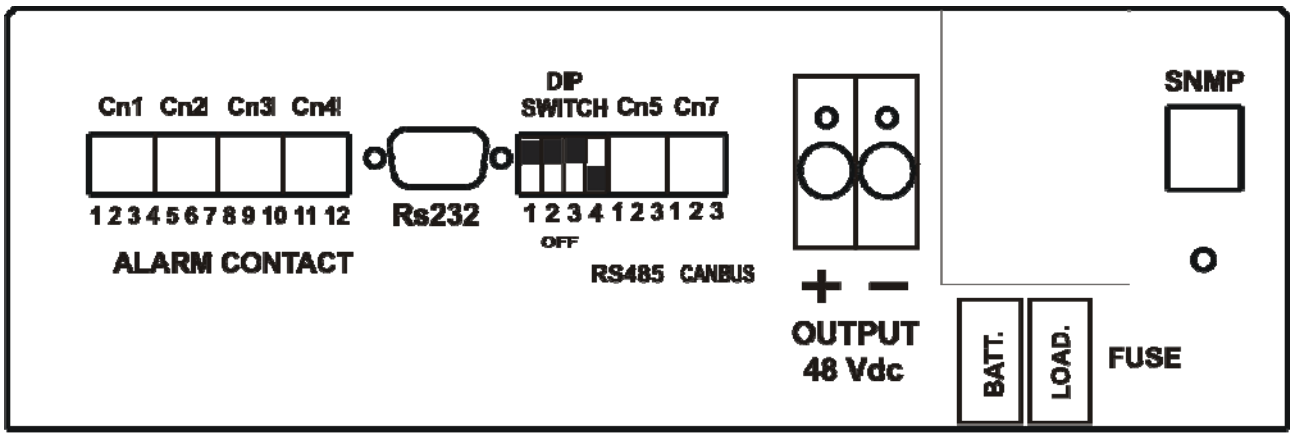
The energy station communicate with a personal computer through the RS232 serial interface or RS485 interface. The two interfaces cannot be both utilized and therefore the type of communication must be chosen through the contacts of the DIP-SWITCH S1 as described in FIG.3. The communication utilizes a ASCI protocol of 9600 baud, 8 bit, 1 stop bit and No-Parity and besides this, the echo of the characters (NO-ECHO) must not be qualified for a correct functioning. For the RS232 interface connection a standard cable with a pin to pin connection must be used, while for the RS485 connection an proper cable must be used.
Important: to select RS485 serial interface insert "ON" in the ASSISTANCE menu (Chart T7).

The energy station is also provided with a CAN-BUS interface utilized for the connection between multiple feeders in order to equally distribute the electric current supplied at charge. Once the Master feeder (ID=1) is selected, each change in the parameters of the output voltage and of the master current are transmitted through this interface to the slave feeder (ID=n+1) which will then automatically utilize these new parameters. At the end this interface will be utilized in the future for the running a synoptic panel in order to visualize the parameters of the station.

Chart T6

DIP SWITCH S1		
SHUNT RS485 RESISTANCE INSERTION	1 - ON	INSERTED
RS232 QUALIFICATION COMMUNICATION	3 OFF – 4 ON	QUALIFIED
RS485 QUALIFICATION COMMUNICATION	3 ON – 4 OFF	QUALIFIED
SHUNT CAN-BUS RESISTANCE INSERTION	4 - ON	INSERTED
INTERFACE CONNECTIONS		
RS485 CN5		
	1	GND
	2	+
	3	-
CAN-BUS CN7		
	1	GND
	2	L
	3	H

Figure F3



CONNECTION PANEL

6.6 DISPLAY UNIT FOR LOCAL DIAGNOSTICS

The display unit for local diagnostics is composed of an alphanumeric display of 16 characters on two lines and of 4 buttons identified by the symbols**+**, **-**, **P**, ↵ (see chart T6). The first line shows a diagnostic message about the functioning, while the second line indicates various functions (see chart T7).

Chart T6

SYMBOL		USE
+	:	Move forward.
-	:	Move back.
P	:	Program
↵	:	Confirm.

Chart T7

MESSAGE			MEANING
1)	Vout = xx.xV	:	Output voltage (=voltage which feeds the charge).
2)	Vrete = xxxV	:	Main input voltage.
3)	Iout = xA	:	Total current supplied by the switching feeder(Iout = Iload + Ibat).
4)	Iload = xA	:	Current absorbed by charge.
5)	Ibat = xA	:	Current absorbed by batteries.
6)	BATTERY TESTS	:	Check the condition of the batteries. (see par. 6.6.1).
		6.1) Vbatt = xxV	: Voltage of the batteries
7)	DATE : xx/xx/xx	:	Date (day/month/year)
8)	TIME : xx:xx:xx	:	Current time (hour : minutes : seconds)
9)	HISTORICAL MESSAGES	:	A list of the last 8 events in order of time (see par. 6.6.1).
		9.1)	NR. ALARM – TIME – DATE / ALARM MESSAGE
		…	…
		9.9)	NR. ALARM – TIME – DATE / ALARM MESSAGE
10)	TIME AND DATE SETTING	:	Date and time setting (see par. 6.7.2).
		10.1) Day	: xx
		10.2) Month	: xx
		10.3) Year	: xx
		10.4) Hour	: xx
		10.5) Minutes	: xx
		10.6) Seconds	: Xx
11)	TEMP. INV: = 30C	:	Indicates the work temperature of the power modules
12)	TEMP. BAT: = 00C	:	If a temperature sensor (optional) is applied to the battery, it indicates the temperature of the battery and automatically corrects the output voltage.
13)	ASSISTANCE	:	Operation menu of some of SCS2EN24.25/50's parameters (see par. 6.6.3).
		13.1) Info	: MATR: xxxxxxxxxxx Product serial number : VER. FW : xx.xx Vers. of the software utilized.
		13.2) Historical resetting	: Reset the historical messages
		13.3) Language = ITA	: ITA/EN Select the language to be visualized on the Display.
		13.4) Id number = xx	: Machine ID Number utilized by the RS485 serial register to identify the machine.
		13.5) Mode RS485 = OFF	: Disable or activate the system communication of the serial interface in RS485 mode.

6.6.1 BATTERY TEST

To start the Battery Test proceed as described in point (6) in Chart T7. SCS2EN24.25/50 carries out a discharge test and a recharge test on the batteries. If the battery efficiency is up to standard the display indicates:

FUNCTIONING: VBATT = xx.x V

If, instead, the result of both tests is negative, the display will read:

BATTERY FAILURE VBATT = xx.x V

As a consequence, the display will go back , the "BATTERY FAILURE" red led will light up and the acoustic signal will go on with intermittent sounds (this can be turned off by pressing any button).

6.6.2 ALARM MESSAGES

The display unit, besides signaling the functioning condition of SCS2EN24.25/50, communicates any alarm conditions, recording the messages listed on chart T8.

Chart T8

MESSAGE	MEANING
1) FUNCTIONING	: SCS2EN24.25/50 is functioning correctly.
2) BATTERY MODE	: The battery is discharging. Check the battery voltage on the message menu.
2.1) BATT. MODE 0	: Saved on the historical menu. The battery voltage has fallen below 47 Vdc.
2.2) BATT. MODE 1	: Saved on the historical menu. The battery voltage has fallen below 43 Vdc. The device continue to work but the load is detached.
2.3) BATT. MODE 2	: Saved on the historical menu. The battery voltage has fallen to 40Vdc. The battery voltage is very low. If there is a line shortage SCS2EN24.25/50 will switch off.
3) LINE SHORTAGE	: Shortage of line supply.
4) OVERHEATING	: The internal energy station temperature is raised to high.
5) OVERVOLTAGE	: SCS2EN24.25/50's output voltage is out of the maximum variation intervals.
6) R FUSE BREAKAGE	: Power fuse broken (fuse used to protect the power electronic circuit).
7) B FUSE BREAKAGE	: Battery fuse broken.
8) C FUSE BREAKAGE	: Charge fuse broken.
9) RICH. STARTER	: This command restart the energy station after a failure.
10) OVERLOAD	: SCS2EN24.25/50's output current is over than the max permissible current, besides the output level voltage decrease as consequence.

6.7 PROGRAMMING OF THE FUNCTIONAL PARAMETERS

6.7.1 HISTORICAL MESSAGES

The function "HISTORICAL MESSAGES" allows for the visualization of saved messages in the memory. It consists in a list of events recorded in order of time: the first event on the list is the most recent message. It is possible to go through the memorized messages by pressing the **+** and **–** buttons. To exit the historical function press ↵ .
The display reads:

n > hr/min day:mo:yr
ALARM MESSAGE

N indicates the number of messages (from 1 to 8) and
hr/min day:mo:yr indicate the time and the date of the event.

⇒ ATTENTION: The energy station is provided with a non volatile memory, therefore, even if switched off, it preserves the layout of the programming levels and the error messages in the memory.

6.7.2 DATE AND TIME SETTING

The “TIME AND DATE PROG” function allows for the setting of the date and time. It is possible to run through the memorized parameters with the **+** e **–** buttons. To exit the historic function press ↵ . The display reads:

DAY = gg

To modify the parameters press the **P** button. The level is visualized as:

DAY >01<

To increase the level of the parameters use the **+** button, to decrease it use the **–** button. To confirm the set level press the ↵button. To exit the modification phase press **P** , instead, to confirm press ↵and proceed with the setting of MONTH, YEAR, HOUR, MINUTES and SECONDS.

6.7.3 ASSISTANCE

With the ↵ button it is possible to enter the “ASSISTANCE” menu which visualizes the messages described in chart T9.

Chart T9

MESSAGE		MEANING
1)	INFO	: Visualize the product serial number and the software release. To display this information move up and down with the **+** and **–** buttons.
2)	HISTORICAL RESET	: Reset the historical message. To confirm this press the **P** button. The display will read: HISTORICAL RESET
3)	LANGUAGE= ITALIAN	: ITA / EN Italian / English. This allows for the language to be visualized on the display to be chosen.
4)	ID NUMBER = x	: The manufacturer presets an ID number = 1. this number identifies the master energy station as a system with more than one units. This ID number is utilized also by the RS485 interface to identify the machine which must be dealt with.
5)	MODE RS485 = OFF	: Turn on and off the hardware and software controls by using the RS485 interface register.