threshold that can be exceeded for short periods (up to 1 minute each time).
If this condition occurs, it is enabled "PSU current derating" ("013" alarm and possibly "014") and ALC management algorithm to normal operating condition is replaced by another in which the VDS and Bias control is given by power setting and, with even higher priority, by the current supplied from power supply.
The condition of current derating is turned off when the power supplied back to the value set by the user and if the maximum current supplied from power supply is less than or equal to the maximum allowable value for continuous operation.

Thermal management on power supply (Lifextender ®)
The algorithm of power supply management, function of temperature, is the same as that in the RF group, and is connected logically "OR" to it.
The first level of Derating (which acts directly on the output power) is activated when the power supply temperature exceeds 75 ° C, while the second level is activated if, with the first ineffective, the temperature is not stable below this value. In this second case the output power is brought below the - 3 dB, with the same procedure already described in RF section. On the display the activation of this mechanism is manifested by the "010" alarm, and possibly "016".

Fault management on RF modules (Lifextender ®)
It makes the maximum output power management depending on the number of RF amplifier modules being properly operated.
If one or more MOSFETs are considered failed (this happens when the current consumption is less than 10% of the average), RF output power is reduced to the expected value in the presence of failure experienced. The failure case histories and maximum power achievable are described in a complex table obtained through experimentation, and are designed to stop MOSFETs failure, that are still operating, by avoiding that are overly stressed by the mechanism of ALC (which would call these to supply the power output missing).
To avoid an unnecessarily large number of alert SMS, during this stage are not sent: any alert SMS, if validated, will be sent only after the output power adaptation procedure, according to the parameters table, and only if -3dB condition is verified.
On the display the activation of this mechanism is manifested by the "008" and "009" alarm.

Cooling Management on fans group (Lifextender ®)
The fan speed is adjusted, depending on the actual cooling needs, from a minimum of 60% to a maximum of 120% (these values may differ by different models of fan used).
The cooling need is estimated on the basis of accurate temperature measurements that are made on RF MOSFETs and on power supply. The Cooling Management aims to extend the lifespan of the fans, to minimize the amount of dust that can be carried by the airflow, and to guarantee a safe operation of the apparatus, even under extreme conditions of temperature.
Without Lifextender the fans operate at 100%.

2.3.2 Hardware protections

The hardware protection system includes:

- fast electronic and fuse protection on power supplies;
- fast electronic protection on fans power supply ;
- fast protection against excessive reflected power (ROS/VSWR), caused by a strong mismatch of the load. This protection occurs when the value of reflected power exceeds 10% of the direct power.

2.4 Options

ETG models can be purchased with options :

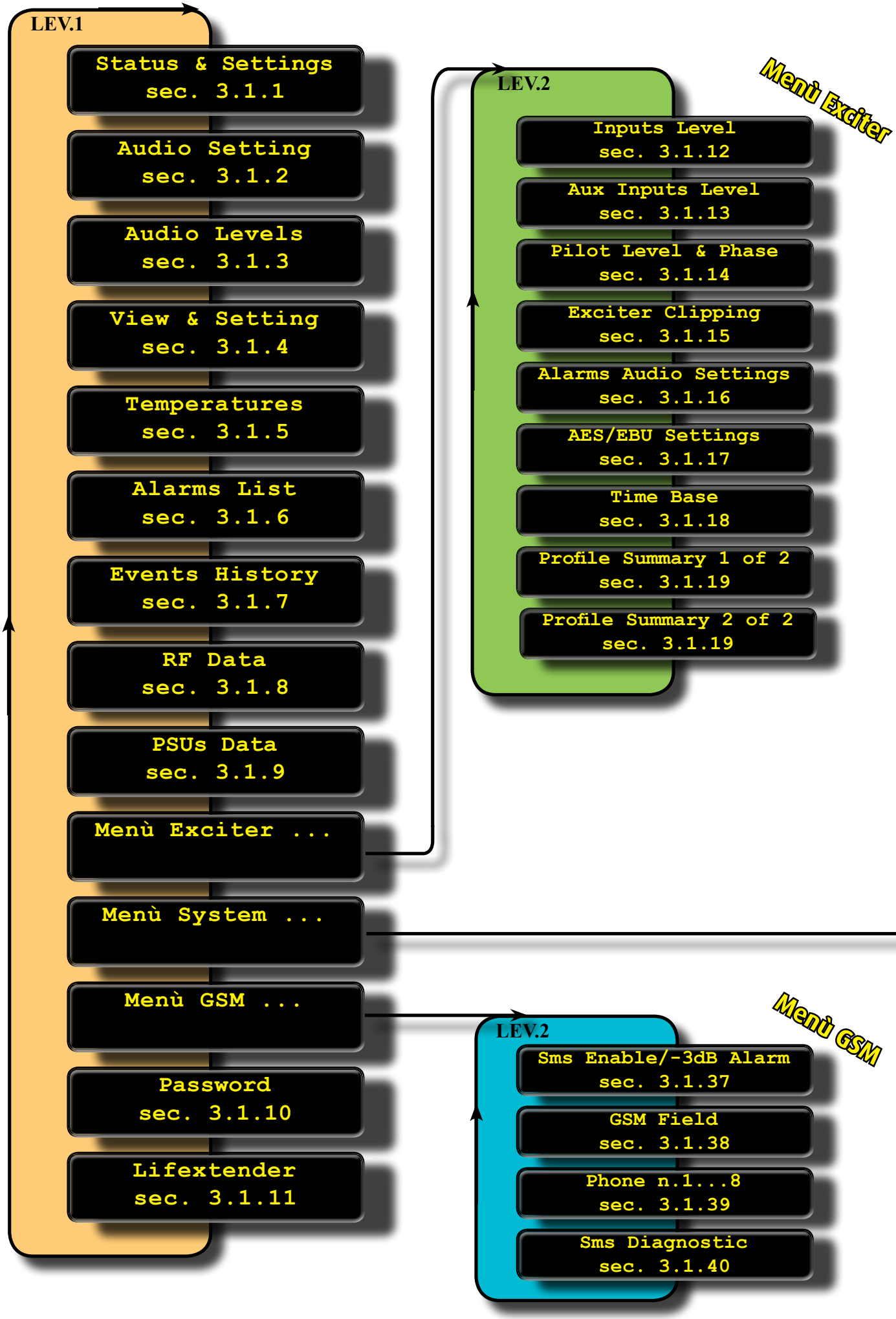
Input modulating signal version	Option	Purchase information model code
MPX Inputs: • MPX • Aux 1 Outputs: • MPX monitor	BASE	00E-XAX-10 (ETG 2000.20) 00E-WAX-10 (ETG 1500.15) 00E-TAX-10 (ETG 1000.10) 00E-KAX-10 (ETG 700.7) 00E-SAX-10 (ETG 500.5) 00E-UAX-10 (ETG 300.3) 00E-VAX-10 (ETG 150)
	TC/TS	00E-XAX-20 (ETG 2000.20) 00E-WAX-20 (ETG 1500.15) 00E-TAX-20 (ETG 1000.10) 00E-KAX-20 (ETG 700.7) 00E-SAX-20 (ETG 500.5) 00E-UAX-20 (ETG 300.3) 00E-VAX-20 (ETG 150)
	TC/TS+ETHERNET+PROFILES	00E-XAX-15 (ETG 2000.20) 00E-WAX-15 (ETG 1500.15) 00E-TAX-15 (ETG 1000.10) 00E-KAX-15 (ETG 700.7) 00E-SAX-15 (ETG 500.5) 00E-UAX-15 (ETG 300.3) 00E-VAX-15 (ETG 150)
STEREO Inputs: • Left channel • Right channel • MPX • Aux1 • Aux 2 Outputs: • MPX monitor/19 kHz	BASE	00E-XAA-10 (ETG 2000.20) 00E-WAA-10 (ETG 1500.15) 00E-TAA-10 (ETG 1000.10) 00E-KAA-10 (ETG 700.7) 00E-SAA-10 (ETG 500.5) 00E-UAA-10 (ETG 300.3) 00E-VAA-10 (ETG 150)
	TC/TS	00E-XAA-20 (ETG 2000.20) 00E-WAA-20 (ETG 1500.15) 00E-TAA-20 (ETG 1000.10) 00E-KAA-20 (ETG 700.7) 00E-SAA-20 (ETG 500.5) 00E-UAA-20 (ETG 300.3) 00E-VAA-20 (ETG 150)
	TC/TS+ETHERNET+PROFILES	00E-XAA-15 (ETG 2000.20) 00E-WAA-15 (ETG 1500.15) 00E-TAA-15 (ETG 1000.10) 00E-KAA-15 (ETG 700.7) 00E-SAA-15 (ETG 500.5) 00E-UAA-15 (ETG 300.3) 00E-VAA-15 (ETG 150)
AES/EBU Inputs: • Left channel • Right channel • MPX • Aux 1 • Aux 2 • AES-EBU Outputs: • MPX monitor/19 kHz	BASE	00E-XAD-10 (ETG 2000.20) 00E-WAD-10 (ETG 1500.15) 00E-TAD-10 (ETG 1000.10) 00E-KAD-10 (ETG 700.7) 00E-SAD-10 (ETG 500.5) 00E-UAD-10 (ETG 300.3) 00E-VAD-10 (ETG 150)
	TC/TS	00E-XAD-20 (ETG 2000.20) 00E-WAD-20 (ETG 1500.15) 00E-TAD-20 (ETG 1000.10) 00E-KAD-20 (ETG 700.7) 00E-SAD-20 (ETG 500.5) 00E-UAD-20 (ETG 300.3) 00E-VAD-20 (ETG 150)
	TC/TS+ETHERNET+PROFILES	00E-XAD-15 (ETG 2000.20) 00E-WAD-15 (ETG 1500.15) 00E-TAD-15 (ETG 1000.10) 00E-KAD-15 (ETG 700.7) 00E-SAD-15 (ETG 500.5) 00E-UAD-15 (ETG 300.3) 00E-VAD-15 (ETG 150)

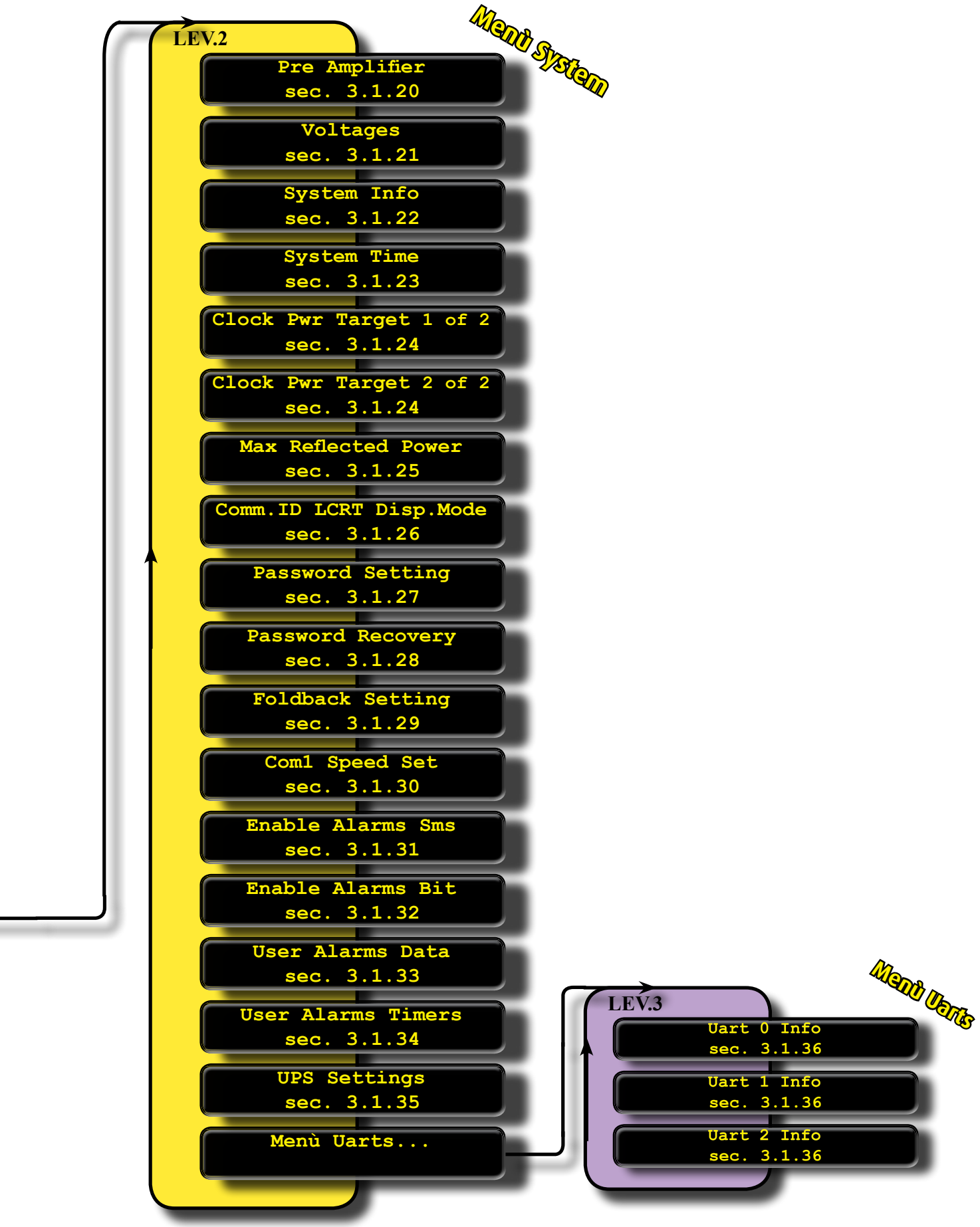
If you want the Lifextender functionality please specify it in order.

3 Use instructions

3.1 User interface

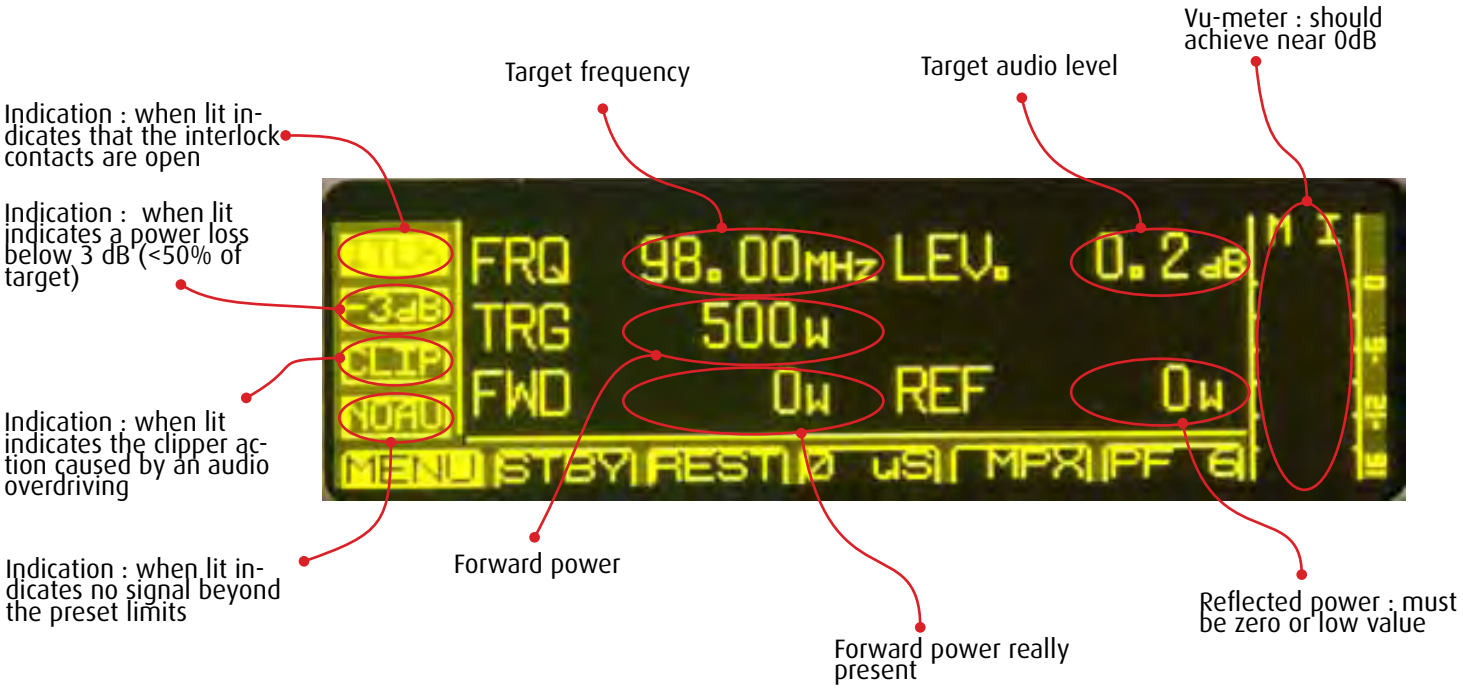
In this section there is the detail tree of menu, to view all the control interfaces and the machine setting.

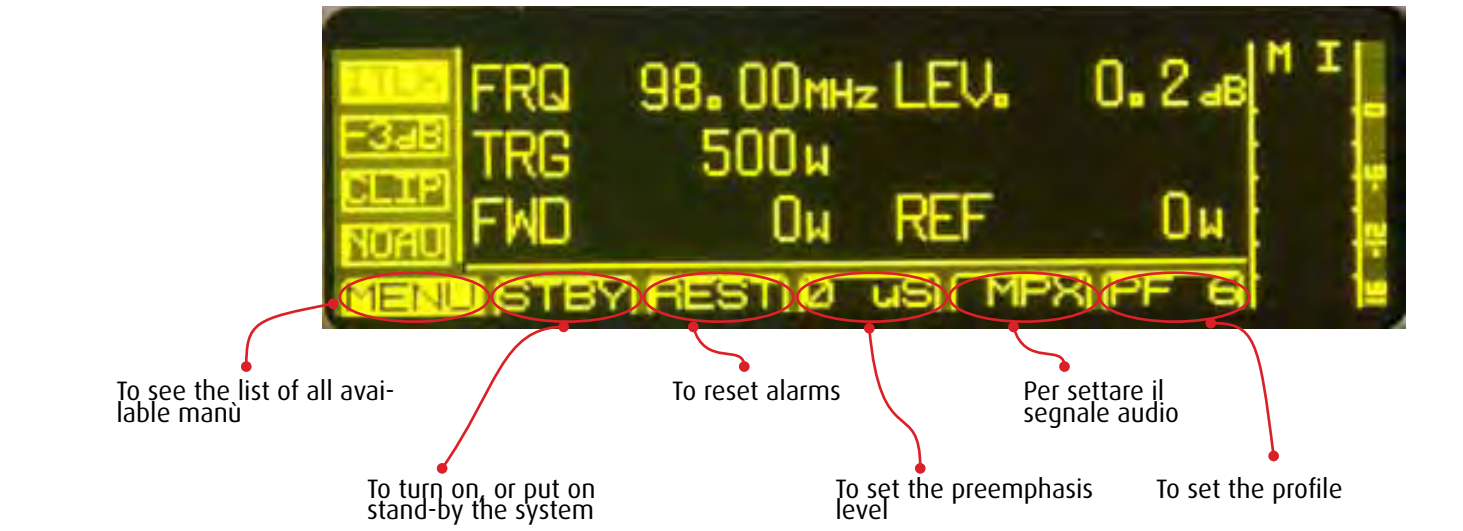

LEV.1
Status & Settings
sec. 3.1.1
Audio Setting
sec. 3.1.2
Audio Levels
sec. 3.1.3
View & Setting
sec. 3.1.4
Temperatures
sec. 3.1.5
Alarms List
sec. 3.1.6
Events History
sec. 3.1.7
RF Data
sec. 3.1.8
PSUs Data
sec. 3.1.9
Menù Exciter ...
Menù System ...
Menù GSM ...
Password
sec. 3.1.10
Lifextender
sec. 3.1.11
LEV.2
Menù Exciter
Inputs Level
sec. 3.1.12
Aux Inputs Level
sec. 3.1.13
Pilot Level & Phase
sec. 3.1.14
Exciter Clipping
sec. 3.1.15
Alarms Audio Settings
sec. 3.1.16
AES/EBU Settings
sec. 3.1.17
Time Base
sec. 3.1.18
Profile Summary 1 of 2
sec. 3.1.19
Profile Summary 2 of 2
sec. 3.1.19
LEV.2
Menù GSM
Sms Enable/-3dB Alarm
sec. 3.1.37
GSM Field
sec. 3.1.38
Phone n.1...8
sec. 3.1.39
Sms Diagnostic
sec. 3.1.40


Menù System
LEV.2
Pre Amplifier
sec. 3.1.20
Voltages
sec. 3.1.21
System Info
sec. 3.1.22
System Time
sec. 3.1.23
Clock Pwr Target 1 of 2
sec. 3.1.24
Clock Pwr Target 2 of 2
sec. 3.1.24
Max Reflected Power
sec. 3.1.25
Comm.ID LCRT Disp.Mode
sec. 3.1.26
Password Setting
sec. 3.1.27
Password Recovery
sec. 3.1.28
Foldback Setting
sec. 3.1.29
Com1 Speed Set
sec. 3.1.30
Enable Alarms Sms
sec. 3.1.31
Enable Alarms Bit
sec. 3.1.32
User Alarms Data
sec. 3.1.33
User Alarms Timers
sec. 3.1.34
UPS Settings
sec. 3.1.35
Menù Uarts...
Menù Uarts
LEV.3
Uart 0 Info
sec. 3.1.36
Uart 1 Info
sec. 3.1.36
Uart 2 Info
sec. 3.1.36

3.1.1 Status & Settings

Main screen that appears automatically on power in LOCAL.
Used to set and verify the main parameters.





3.1.2 Audio Setting

In this window you can set a range of audio parameters accessible from other menus, but that here are grouped together in order to speed up the setting.
They are: frequency, type of input ("Base band mode"), the internal/external reference of the PLL ("F.ref" must be set as "INTER"), type of audio signal, pilot tone level, pilot tone phase, audio signals level, auxiliary channels level, pre-emphasis value, clipper.

This window changes, depending on the mode of operation selected (MONO, STEREO, MPX or MUTE).

3.1.3 Audio Levels

The value of the deviations and the level of input signals are shown.
This window changes, depending on the mode of operation selected (MONO, STEREO, MPX or MUTE).

3.1.4 View & Setting

The following parameters are shown : frequency, target power, forward power, reflected power, efficiency, voltage, current, and temperature.
Frequency and target power can be set through this window.

3.1.5 Temperatures

The following parameters are shown: RF temperature (max value measured from probe on RF MOSFETs), PSU temperature (value measured from probe on power supply) and fan speed (expressed as a percentage of nominal value).
The unit of temperature can be set in this menu, choosing between Celsius and Fahrenheit.
Warning : in ETG 700.7, ETG 500.5, ETG 300.3 and ETG 150 the indication of temperature of the power supplies and of the fan speed is not available.

3.1.6 Alarms List

Alarm list.
Those marked with the letter "A" is still active
For more detail, please see "Alarms/events list"paragraph.

3.1.7 Events History

List events (including alarms) occurred.
These are represented by code, description, date and time.

3.1.8 RF Data

Temperatures and currents of each RF modules are displayed.

3.1.9 PSUs Data

The following parameters, related to power supply, are displayed : voltage, current, temperature. From here you can "force" the ON/OFF status through the ENABLE flag.
Warning : in ETG 700.7, ETG 500.5, ETG 300.3 e ETG 150 the indication of temperature and ON/OFF command is not available.

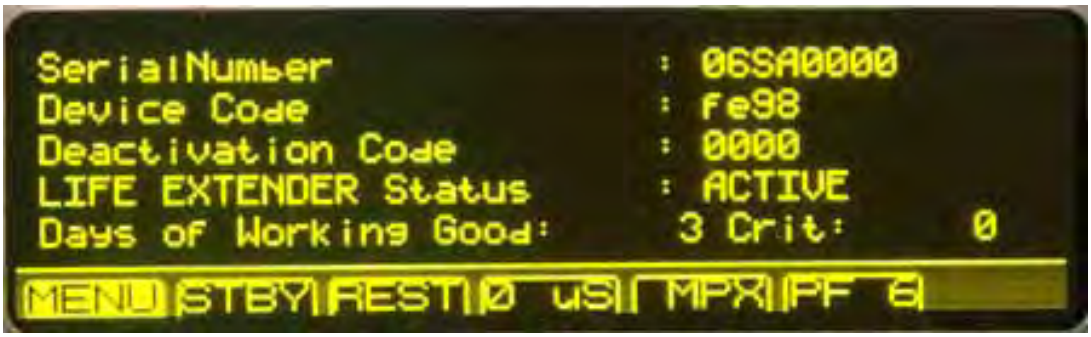
3.1.10 Password

The device leaves the factory with the default password "0000", which you then can customize (for more detail see the paragraph "Password Setting").
Use this screen to insert thepassword.

3.1.11 Lifextender

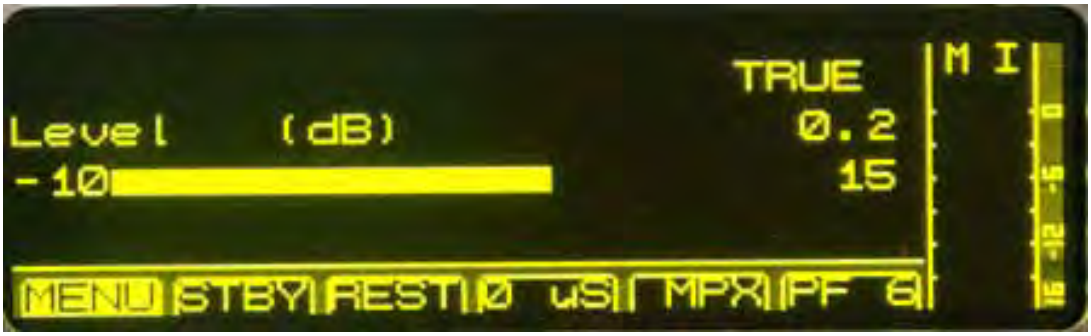
The parameters related to the Lifextender function are shown : serial number of the apparatus, the apparatus code (parameter to indicate if you want to request activation/ deactivation of the functionality at a later date), activation/deactivation code (parameter provided by Elenos to enter for the on/off function), status, day of work with function active, working days in critical condition.

Critical days are those days when the device works at RF temperature and PSU temperature, and at reflected power, above a certain threshold for a certain period of time.



3.1.12 Inputs Level

To set the audio levels.
This mask differs, depending on the selected mode (MONO, STEREO, MPX or MUTE).
In STEREO or MUTE mode, where both input channels are active, there is a flag that forces the two gains to be equal.



3.1.13 Aux Inputs Level

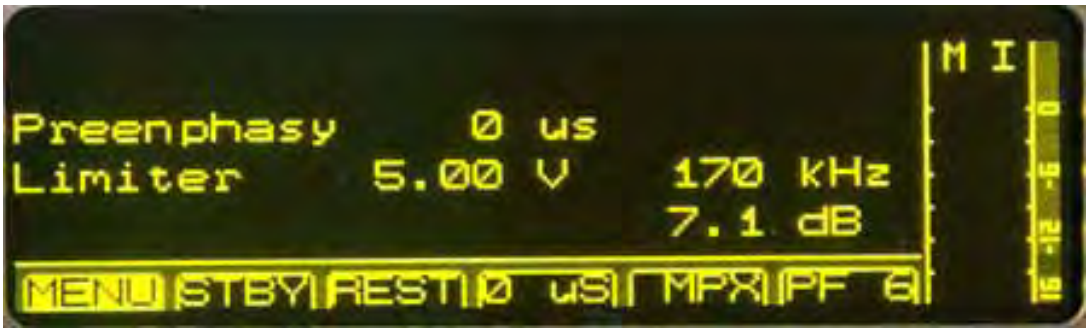
To set the levels of the auxiliary channels expressed in percentage.
100% is equal to the maximum amplitude for 75kHz deviation.

3.1.14 Pilot Level & Phase

To set the pilot tone level and phase.

3.1.15 Exciter Clipping

To set the maximum voltage value, in order to control the overmodulation.



3.1.16 Alarms Audio Settings

To set these audio alarms:

- alert in case of audio absence
- alert in case of overmodulation.

In the first case should be set to the threshold of sound the time for which it must verify the condition.

In the second case must be set to the level of overmodulation and the time for which it must verify the condition.

3.1.17 AES/EBU Settings

If you have AES/EBU connection you can still choose the ANALOG operating mode through this screen, setting “Audio input mode” properly as ANALOG or AUTO.
The “Current mode” value automatically adapts.

3.1.18 Time Base

To set the VCO synchronization, as internal (TCXO) or external.
The external reference frequency is 10,000 MHz.
The is firmware version.

3.1.19 Profile Summary

Profiles status : frequency, power, audio signal, input, pre-emphasis, audio level, clipping, voltage.

3.1.20 Pre Amplifier

Control menu related to the preamplifier.

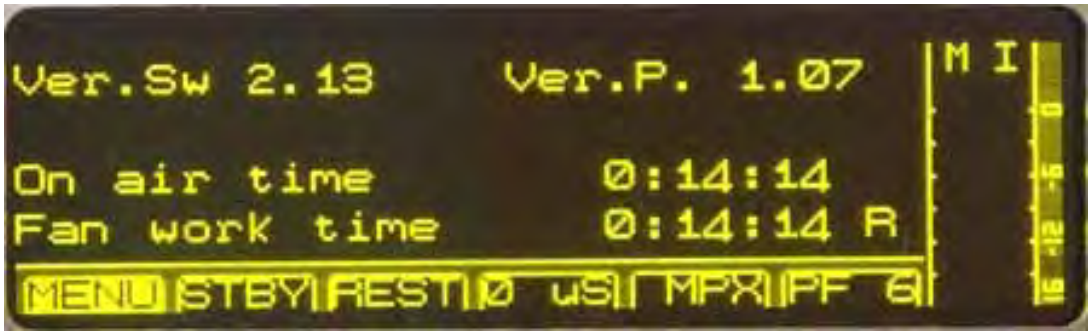
Warning : in ETG 700.7, ETG 500.5, ETG 300.3 e ETG 150 is not available.

3.1.21 Voltages

It displays the power supplies voltages, with a comparison between nominal and actual values.

3.1.22 System Info

It is given indication on the software version, protocol version, operating time of the equipment, operating time of the fans.
It is possible reset this value by clicking on “R”.



3.1.23 System Time

To set the day of the week, date and time.

3.1.24 Clock Pwr Target

In addition to the standard regulation of the power you can make the setting according to time slots, with the aim of save the energy.

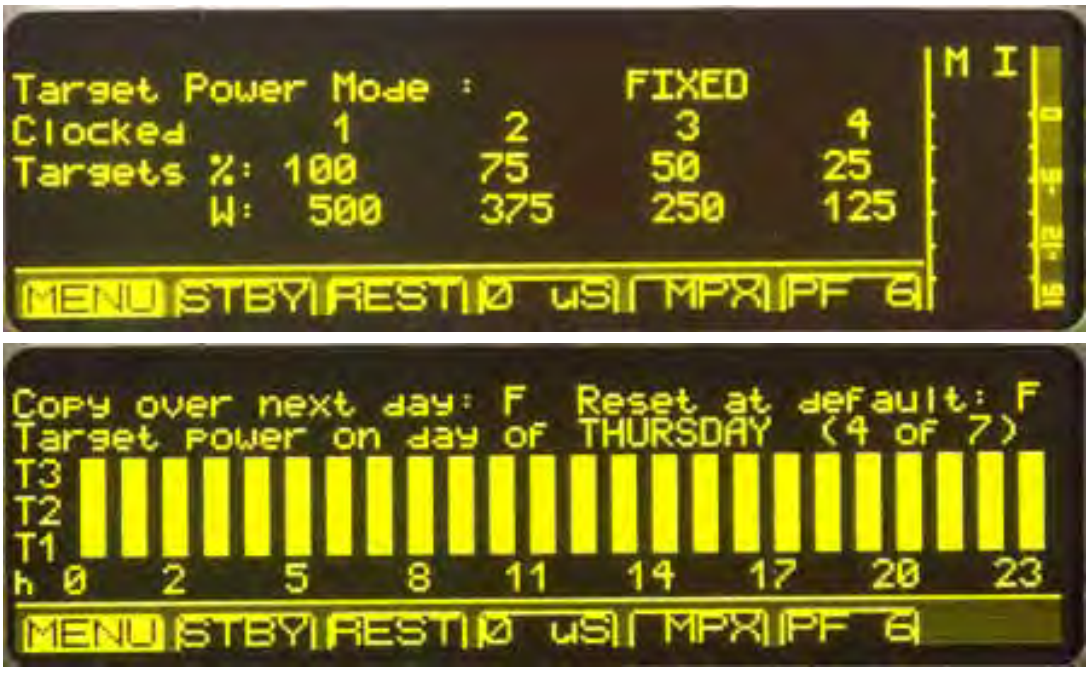
To set the output power as time slots the field "Target Power Mode" must be setted as "CLOCKED".

It's possible, then, attach four percent values of the power in the various times of the day (100%, 75%, 50% or 25% of the power setted).

Defined the day of the week for which you want to start setting ("Target Power on day of"), for each hour of the day, press the encoder to enter in the the setting bar, turn to define the percentage (no display corresponds to 25 %, T1 corresponds to 50%, T2 corresponds to 75% and T3 corresponds to 100%), press the encoder to confirm.

By placing the field "Copy over next day" in "T" you will copy the previous day to the next day.

By placing the field "Reset at default" in "T" you will reset the settings, switching to the default, which provides low power at night and full power during the day.



3.1.25 Max Reflected Power

The maximum reflected power allowable is 10% of rated output. From here you can set a lower value.

In this case is not guaranteed a correct operation of foldback.

3.1.26 Comm.ID LC/RT Disp.Mode

To set the device address (reference for the communication).

It's possible to activate the display (field "Show dip.on remote" as "T") to maintain visible certain menù in REMOTE mode.

3.1.27 Password Setting

There are two levels of privileges for the user: USER and SYSTEM, both initially protected by the default password "0000".

In this screen you can be set different passwords, custom.

If a user has "SYSTEM" privileges has visibility and/or edit access more than a user with "USER" privileges. The menù involved are Temperatures, PSUs Data, System Info, Clock Pwr Target, Pre Amplifier, Max Reflected Power, Password Setting, Foldback Setting, UPS Settings, Menù GSM, Menù Uarts.

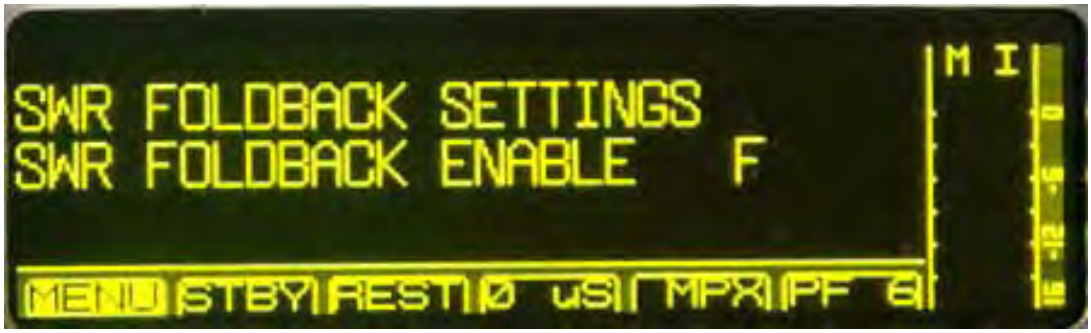
Even here you can set the addresses of the device (reference for the communication).

3.1.28 Password Recovery

If you forget your password you can contact Elenos.
You must provide to Elenos the “Unlock Code”, in this screen.
Elenos provides a password for a period of 24 hours to be included in this screen in the “Password Recovery”.
Then you must define a new password in “Password Setting”.

3.1.29 Foldback Setting

To enable the foldback.



3.1.30 Com1 Speed Set

To set the port speed (was recommend the value 9600.)

3.1.31 Enable Alarms SMS

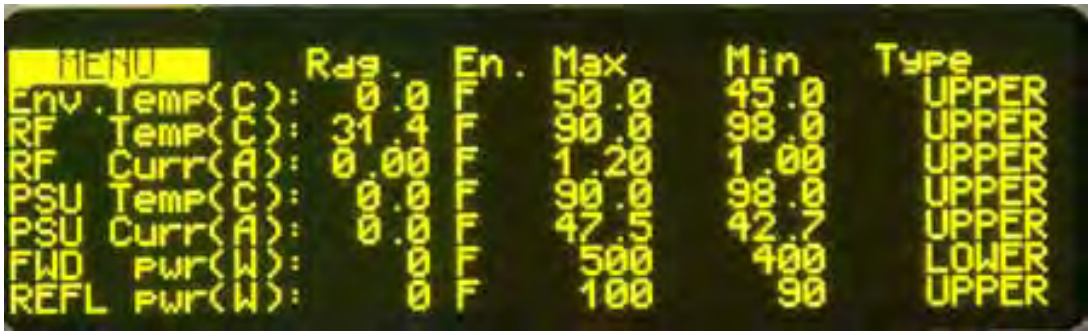
In addition to a “state” alarm management it can also be used an “event” management.
Alarms for which you enable this mode of management are put into a buffer.
If the corresponding alarm is assigned value “0” means it is off, while the value “1” means that is enabled to be handled in “event” mode.
This feature is only available via link on Omron Protocol.
For details on the list of possible alarms see the paragraph “Alarms/events list”.

3.1.32 Enable Alarms Bit

To see the events setted in the menu “Enable Alarms SMS” (field “Enable”) and those that are active (field “Status”).
If the “SMS/PSTN StatusReady” field is “TRUE” means that an event is active and has been sent an alarm or a phone call. To bring the field into “FALSE” you need to reset alarms.

3.1.33 User Alarms Data

For some alarms you can set specific conditions for activation.
In this screen is displayed the current value of the measured parameter of the condition of the alarm, if the alarm is enabled or not, it sets a minimum and maximum value for the parameter and choose the type of condition (upper, lower, inside, outside).



3.1.34 User Alarms Timers

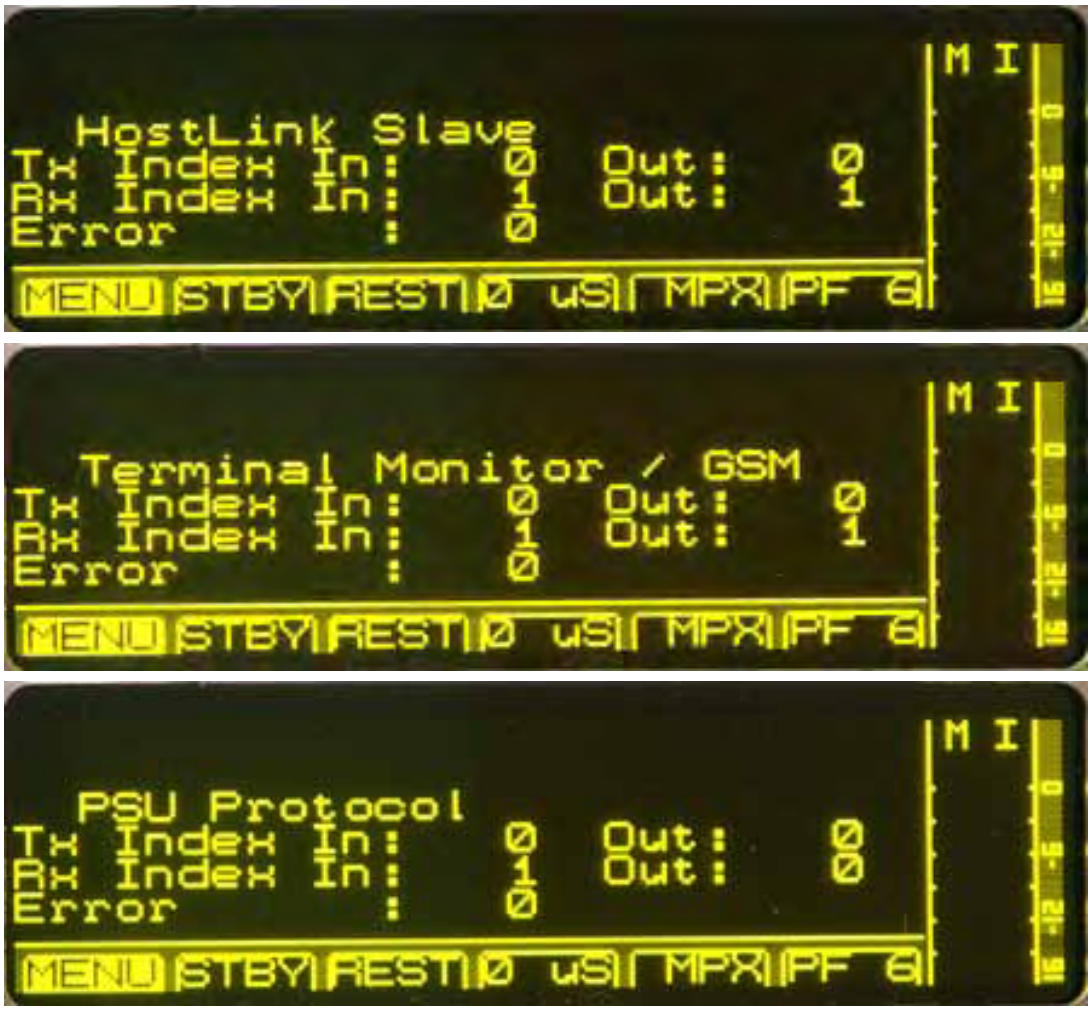
For the alarms mentioned above can also set a time for which the condition must occur to consider the alert real (“dlay).
From this screen you can also view the progress of the timer that keeps track of this time and the enable of an alarm via a status flags.

3.1.35 UPS Settings

To set the value of power to which the machine has to work under UPS.

3.1.36 Uart Info

Control menu for testing the serial ports.

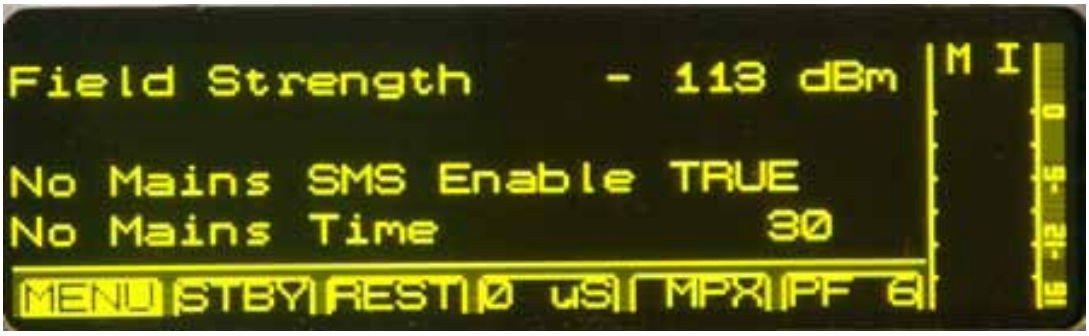


3.1.37 SMS Enable/-3dB Alarm

To enable the sending of -3dB alarm through SMS and/or PSTN.
Alarm that is no longer active to overcome the 2/3 of the power set.
Must be set here the various codes to message strings (String ID, Pager ID, Station ID).

3.1.38 GSM Field

To display the field strength of the GSM signal.
To set an alarm in the absence of electricity for a time period set.



3.1.39 Phone N°

With the transmitter can "talk" more SIM cards.
The number is defined with the customer.
In these masks are setted the phone numbers in international format and the permissions.
The number can be enabled globally for transmission and reception of SMS (en.), to send commands (cmd.), to request and receive status machine (sts.), to receive the echo of commands sent by any other numbers (glb.), to get SMS text or digital (PC.).

3.1.40 SMS Diagnostic

To see the number of SMS sent and received successfully.
For more detail see paragraph "SMS List".

3.2 Alarms/events list

There is an “Alarms Management” module.

To check the alarm conditions physical and logical digital inputs are used.
Each input status is sampled and then the condition is logically drawn by a combinatorial network, to define if the alarm or signal are active.

Response time is 100ms minimum.

This module is repeatedly performed with the same priority as the ALC management, in order to constantly monitor the occurrence of alarm causes, and thus to operate in good time.

In a register is stored the recent events sequence, with date and time of activation.

The possible alarms/events list is:

Alarm/event	Description
“000 CORRECT WORKING”	It indicates the correct functioning. In any case the “On air” event takes the precedence.
“001 SYSTEM RESET”	It indicates that the alarm reset is in progress. All the alarms stored and no longer active are removed from the list.
“002 EEPROM CHKSUM ERROR”	It indicates that the persistent data in memory are no longer reliable and the machine is reconfigured with the default parameters.
“003 BLOCKED”	It indicates that the machine is blocked after 6 attempts to restore every 5 minutes for 3 times, coming in an hour break and repeating the procedure within 24 hours. At the end of 24 hours is required a reset by the user to enable the apparatus restart.
“004 STOP”	It indicates that the device is in stand-by, ready to start without alarms.
“005 -3dB CARRIER”	It indicates that the device is providing at least 3dB less power than the set target, at least one minute in boot or five seconds steady.
“006 HIGH REF PWR”	It indicates the presence of a level of output reflected power too high, which means turning off the equipment in three block out.
“007 MIN 12V”	It indicates that the negative reference voltage is changed and prevents the proper functioning of protections. Stopping in three blocks out.
“008 RF AMP. FAULT”	It indicate a fault, on one or more RF modules.
“009 RF AMP. FAULT DERATING”	It indicate a fault, on one or more RF modules, which implies a reduction of total maximum power supplied.
“010 RF THERMAL DERATING”	It indicates a too hot temperature on the RF modules, which implies a reduction in maximum power output.
“011 RF OVER TEMPERATURE”	It indicates a maximum operating temperature overcoming, resulting in shutdown of the machine in three blocks out. This protection occurs in extreme cases where the mechanism Derating was not enough to return to normal temperature values.
“012 PSU FAULT”	It indicates a power supply malfunction.
“013 PSU CURRENT DERATING”	It indicates the power supply overhead, which determines the decrease in output power.

“014 PSU OVER CURRENT”	It indicates the machine turning off that happens if after 1 minute from derating the current does not decrease.
“015 PSU THERMAL DERATING”	It indicates power supply overheating, that determines the decrease in output power.
“016 PSU OVER TEMPERATURE”	It indicates power supply overheating, resulting in turning off the equipment.
“017 PSU SHUNT COMM TIMEOUT”	It indicates the IEEE485 internal bus communication malfunction, between the CPU, PSU and shunt.
“018 EXTERNAL INTERLOCK”	It indicates that interlock is active.
“019 ON AIR”	It indicates that the device is functioning properly and is being transmitted.
“020 POWER UP”	It indicates that is being inserted in the storage an alert regarding the restart of the device.
“ 021 POWER DOWN”	It indicates that is being inserted in the storage an alert regarding the shutdown of the equipment.
“022 PSU THERMAL FAULT”	It indicates a power supply overheating resulting turning off the machine. In the case of Elenos equipment with more than one power supply this protection is intended to allow reduced power operation if one power supply has been disconnected for hardware protection from excessive temperature.
“023 PSU LOW POWER”	In this case, with a single power supply, it works as alarm n°022.
“024 PSU RF OFF”	It indicates problems on 50V. In this case, with a single power supply, it works as alarm n°022.
“025 WORKING MODE COMBINED”	It indicates the machine operation in a combined system.
“026 SWR FOLDBACK”	It indicates that the machine is in power reduction because it found too much reflected power.
“027 UNLOCK”	It indicates that the PLL is not locked, so the machine is stopped.
“028 EXCITER COMM ERROR”	It indicates that the PLL and VCO are not programmable.
“029 NO AUDIO”	It indicates audio signal absence.
“030 OVER 2/3 CARRIER”	It indicates the exceeded of 2/3 of the power set.
“031 PREAMPLIFIER NOT CONNECTED”	It indicates that there is 100% reflected power.
“032 OVER MODULATION”	It indicates overmodulation presence.
“033 FAST INHIBIT”	It indicates that there are problems with the hardware lines that lead to RF inhibition.
“034 TEMPERATURE SENSOR ERROR”	If there are multiple RF temperature sensors, it indicates that one is damaged if it operates a measure significantly different.
“035 PWR FORWARD OSCILLATION”	It indicates fluctuations in output power.
“036 THREE BLOCK OUT”	It indicates that the machine is in one-hour break before making another attempt to restore.
“037 USER ENV TEMP OUT LIMIT”	It indicates a deviation from the conditions to set by user in relation to environment temperature measured from the apparatus.
“038 USER RF TEMP OUT LIMIT”	It indicates a deviation from the conditions to set by user in relation to RF modules temperature.
“039 USER PSU TEMP OUT LIMIT”	It indicates a deviation from the conditions to set by user in relation to power supply temperature.

“040 USER RF CURRENT OUT LIMIT”	It indicates a deviation from the conditions to set by user in relation to RF modules currents.
“041 USER PSU CURRENT OUT LIMIT”	It indicates a deviation from the conditions to set by user in relation to power supply currents.
“042 USER FRW PWR OUT LIMIT”	It indicates a deviation from the conditions to set by user in relation to forward power.
“043 USER RFL PWR OUT LIMIT”	It indicates a deviation from the conditions to set by user in relation to reflected power.
“044 OUT PWR NOT VERIFIED”	It indicates that there is a problem to detect the output power.
“045 UPS ACTIVE”	It indicates that the UPS is active, so the machine is using the output power to operate in this mode.
“046 SHUNT COMM TIMEOUT”	This indicates the communication timeout on the polarizer. It stops the operation of the apparatus.
“047 WARNING TEMPERATURE SENSOR”	This indicates a fault in the temperature probes.
“048 AUDIO OK”	This indicates that the No audio alarm is finished.

3.3 SMS list

3.3.1 SMS command (send)

You can send SMS with the text set here, to run these commands :

Command	SMS text
Power setting to xxxxx	PWR xxxxx
Stand-by setting	STBY
Stand-by setting	OFF
On Air setting	ON
Status demand	STS
Reset demand	RES
Parameters demand	STS1
Mute mode for xx minuts	MUTE xx (no in MPX)
Audio activation	AUDIO
Activation of power output in CLOCKED mode	CLKP
Activation of power output in FIXED mode	FIXP

3.3.2 SMS status/alarm (reception)

You can receive SMS with this text :

SMS text	Description
Exxxx ID xx	Device description with ID number
SMS String	10 bits customizable string
+39xxxxxxxxxx	Telephone number last command
STBY	The device is in Stand-By (Off)
-3dB Alarm	The device is under -3dB threshold
Status	Reply to status SMS
Command	Command confirmation
No mains xx m	The device was is Stand-by for the defined time (minuts)
xxx warning SMS	Stop cause or main signal

FWD yyyyy W	Direct power yyyyy (W)
REFL yyyyy W	Reflected power yyyyy (W)
FRQ yyyyy MHz	Frequence yyyyy (MHz)
VDS yyyyy V	Voltage yyyyy (V)
IDS yyyyy A	Current yyyyy (A)
TEMPMAX yyyyy F/C	Max temperature yyyyy (F or C)
TEMPENV yyyyy F/C	Environment temperature yyyyy (F or C)

3.4 Optional equipment can be connected

ETG may be connected externally to the following units :

- PC
- Telemetry
- Exchange unit and/or Audio matrix
- Amplifier
- E.BOX module

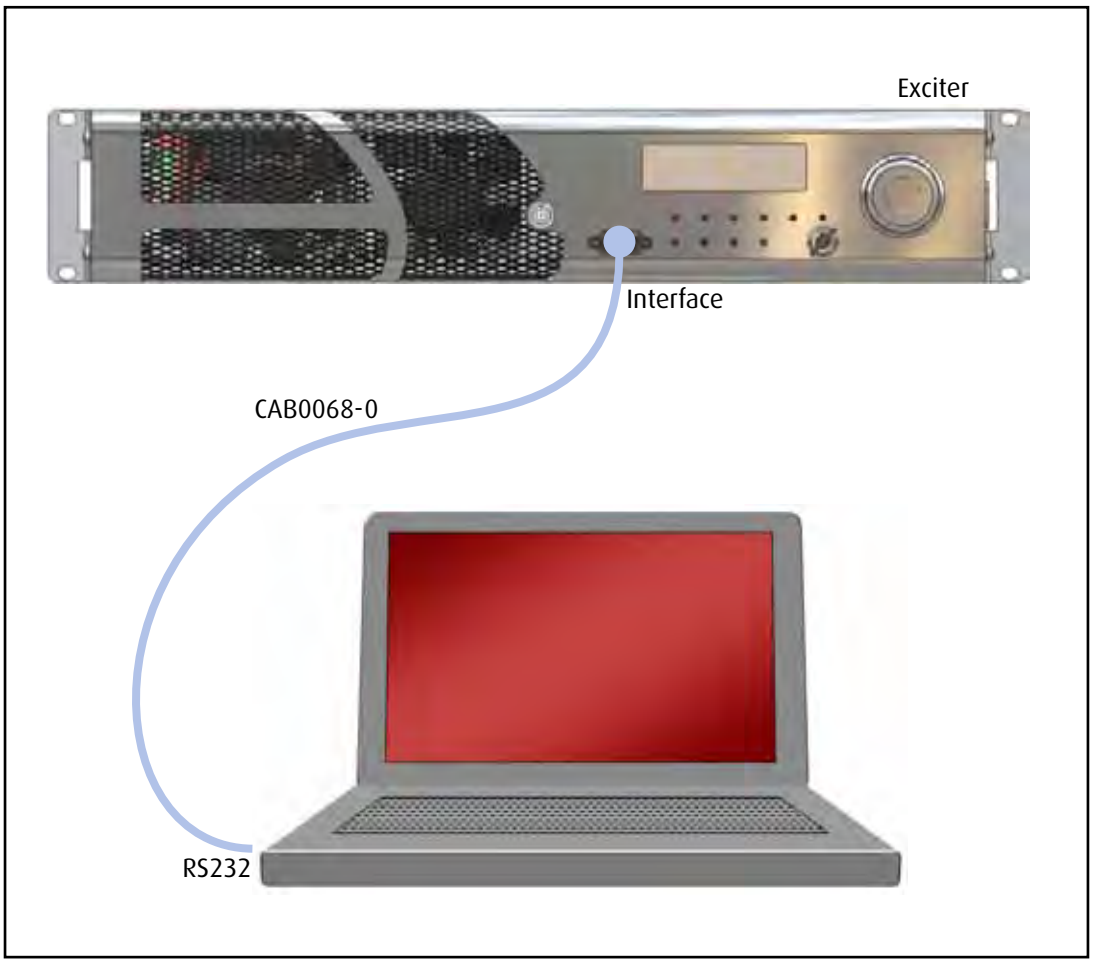
3.4.1 PC connection

This connection is useful to examine in detail the operating parameters, for example during the performance evaluation or repair activities.

To PC connection an interface cable must be inserted into the “Interface” connector, DB9, on the front panel of the machine.
This cable could be shipped with the product. (Elenos code CAB0068-0).

The connection may be did also during running machine.

It’s sufficient Windows HyperTerminal program, or other equivalent program available. To detailed procedure about the use of Hyperteminal please see Tecnhical Bulletin N° 127 (ask at the manufacturer).



3.4.1.1 Hyperterminal screen

Main Menu

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY  |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):    0.0   |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):   0.00   |
|-------------------------------------------------------------------------------|
| MAIN MENU (level 1) ====>                 08:52:00 Fr 08/07/2011              |
|-------------------------------------------------------------------------------|
| M = Main RF data                                                              |
| E = Exciter monitor                          +-----------------------------+  |
| W = All data                                 | E L E N O S  Srl            |  |
| O = Profiles                                 | Via G.Amendola, 9           |  |
| S = Status/Alarms                            | 44028 Poggio Renatico (FE)  |  |
| H = Events History                           | ITALY                       |  |
| K = Password...                              | Tel.+39 0532 829965         |  |
| Y = System...                                | Fax.+39 0532 829177         |  |
|                                              | www.elenos.com              |  |
|                                              +-----------------------------+  |
|                                             Ver. 2.14 /1.07 (c)2011 Elenos|  |
|                                                                               |
+-------------------------------------------------------------------------------+
```

Main Menù

Main RF Data (M)

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY  |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):    0.0   |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):   0.00   |
|-------------------------------------------------------------------------------|
| MAIN RF DATA ====>                                                            |
|-------------------------------------------------------------------------------|
| VDS         (V):          0.0                                                 |
| IDS         (A):         0.00                                                 |
| DC power    (W):            0                                                 |
| Efficiency  (%):          0.0                                                 |
| Temperatures(C):         30.5                                                 |
|-------------------------------------------------------------------------------|
| Working Time   :      0:19:52   >45C :      0:00:00   >50C :      0:00:00   |
| Fans Working T.:      0:19:52  Reset : F                                      |
|-------------------------------------------------------------------------------|
| Frequency (MHz):         98.00 [step 10kHz]                                   |
| Target PWR UPS (W) :      520                                                 |
| EEprom update N.:    49      5    115 On ram N.:     7   393      3   1618  |
|                     159    199    159             185    57    233    223  |
+-------------------------------------------------------------------------------+
```

Main Menù

Exciter Monitor (E)

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
|0(kHz)  15        30        45        60        75        90       105    115|
|Mpx---[-20.00][   7.3]-------+---------+---------+---------+---------+-------+
|>                                                                              |
|-20(dB)         -15       -12       -9        -6        -3         0        3|
|Right+[-40.83][   0.4]-----+---------+---------+---------+---------+---------+
|>                                                                              |
|Left +[-40.83][   0.4]-----+---------+---------+---------+---------+---------+
|>                                                                              |
| 0(kHz) 10.0      20.0      30.0      40.0      50.0      60.0      70.0      |
|Aux---[   0.0]------+---------+---------+---------+---------+---------+------+
|>                                                                              |
|-------------------------------------------------------------------------------|
| Tx Frequency(MHz): 98.00                                                      |
|-------------------------------------------------------------------------------|
| Gain level  (dB):         0.2  | Mode           : Stereo  | SW Ver:  0.367 |
|                                | Pilot level    :  10.00  |                |
| Level L = R:             TRUE  | Pilot phase    :    0.0  |                |
| Aux1(%):100.0   Aux2(%):100.0  | Preenphasys (uS):     0  | Pll   : LOCK   |
+-------------------------------------------------------------------------------+
```

```
+-------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q] |
|-------------------------------------------------------------------------|
| Status : 004 STOP                          08:52 08/07 | Reset alarms :F |
|-------------------------------------------------------------------------|
|  RF CURRENTS (A)                    Sum:   0.00                         |
|Mod n:            1                                                      |
|Id:             0.00                                                     |
|-------------------------------------------------------------------------|
| Psu  1   (A):   0.0  Vcc    (5V):  5.09 | STAND-BY      :          TRUE  |
|                      V+    (12V): 11.89 | FREQUENCY(MHz):         98.00  |
|                      V-    (12V): 11.17 | TARGET PWR (W):           500  |
| Ids      (A):   0.0  VBias   (V):-10.24 |-----------------------------------|
| Vds_PSU  (V):   0.0  Vds     (V):   0.0 |TEMPERATURES (C)   Rf 1 :     30.5 |
|                                         | Max RF :   30.5                   |
|-----------------------------------------|                                   |
| Fwd      (W):     0  PreA Fwd (W):  0.0 | Max PSU:    0.0                   |
| Ref      (W):     0                     | Psu 1  :    0.0                   |
| Eff      (%):   0.0                     |                                   |
|-----------------------------------------|                                   |
|                                         |                                   |
| WORKING TIME  :      0:19:52            |                                   |
| FAN WORKING T.:      0:19:52            | Fan s.%:      0                   |
+-------------------------------------------------------------------------+
```

Main Menù

All Data (W)

Highlighted parameters not present in ETG 150, ETG 300.3, ETG 500.5 and ETG 700.7

```
+-------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q] |
|-------------------------------------------------------------------------|
| Status : 004 STOP                          08:52 08/07 | Reset alarms :F |
|-------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):    0.0  |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):   0.00  |
|-------------------------------------------------------------------------|
|                                        L e v e l s         Clipping     |
| # Frequency Target  Mode    Input   Right Left  Aux1  Aux2  Pree  Enab. Lev.|
|      MHz      W                       dB    dB     %     %    uS          V  |
|Cur. 98.00     500   Stereo    AUTO   0.2   0.2  100.0 100.0   0   OFF  5.00 |
|                                                                         |
| 1  ------    ----  ------- -------  ----  ----  ----- -----  --   ---  ---- |
| 2   98.00     550  Ext.MPX    AUTO   6.0   6.0  100.0 100.0   0   OFF  5.00 |
| 3   98.00     550  Ext.MPX    AUTO   6.0   6.0  100.0 100.0   0   OFF  5.00 |
| 4   98.00     550  Ext.MPX    AUTO   6.0   6.0  100.0 100.0   0   OFF  5.00 |
| 5   98.00     550  Ext.MPX    AUTO   6.0   6.0  100.0 100.0   0   OFF  5.00 |
| 6   98.00     550  Ext.MPX    AUTO   6.0   6.0  100.0 100.0   0   OFF  5.00 |
|                                                                         |
| Current Profile #  :     1                                              |
|   Delta F (+/- KHz):   7.3                                              |
+-------------------------------------------------------------------------+
```

Main Menù

Profiles (0)

```
+-------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q] |
|-------------------------------------------------------------------------|
| Status : 004 STOP                          08:52 08/07 | Reset alarms :F |
|-------------------------------------------------------------------------|
| STATUS/ALARMS (1 - 17)  ==>                                             |
| ACTIVE 004 STOP                                                         |
|        044 OUT PWR NOT VERIFIED                                         |
|        045 UPS ACTIVE                                                   |
|        005 -3dB CARRIER                                                 |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
+-------------------------------------------------------------------------+
```

Main Menù

Status/Alarms(S)

Main Menù

Events History (H)

```
+-------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q] |
|-------------------------------------------------------------------------|
| ALARMS HISTORY ==>  ([-] prev.pag. [+] next pag. [arrow up/down] next/prev.)|
|  107) 020 POWER UP                                  08/07 08:52:00      |
|  106) 021 POWER DOWN                                08/07 08:52:00      |
|  105) 020 POWER UP                                  08/07 08:52:00      |
|  104) 021 POWER DOWN                                08/07 08:52:00      |
|  103) 020 POWER UP                                  08/07 08:52:00      |
|  102) 021 POWER DOWN                                08/07 08:52:00      |
|  101) 004 STOP                                      08/07 08:52:00      |
|  100) 030 OVER 2/3 CARRIER                          08/07 08:52:00      |
|   99) 019 ON AIR                                    08/07 08:52:00      |
|   98) 020 POWER UP                                  08/07 08:52:00      |
|   97) 021 POWER DOWN                                08/07 08:52:00      |
|   96) 004 STOP                                      08/07 08:52:00      |
|   95) 030 OVER 2/3 CARRIER                          08/07 08:52:00      |
|   94) 019 ON AIR                                    08/07 08:52:00      |
|   93) 020 POWER UP                                  08/07 08:52:00      |
|   92) 021 POWER DOWN                                08/07 08:52:00      |
|   91) 004 STOP                                      08/07 08:52:00      |
|   90) 019 ON AIR                                    08/07 08:52:00      |
|   89) 004 STOP                                      08/07 08:52:00  >>  |
+-------------------------------------------------------------------------+
```

Main Menù

Password (K)

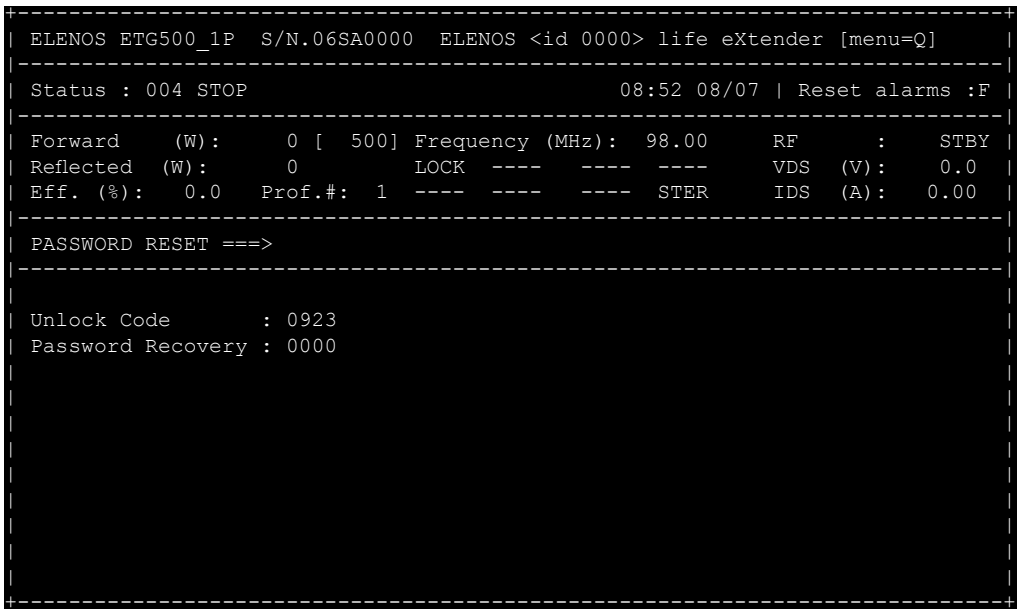
```
+-------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q] |
|-------------------------------------------------------------------------|
| Status : 004 STOP                          08:52 08/07 | Reset alarms :F |
|-------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):    0.0  |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):   0.00  |
|-------------------------------------------------------------------------|
| ACCESS MENU (level 1) ====>              08:52:00 Fr 08/07/2011         |
|-------------------------------------------------------------------------|
| K = Password                                                            |
| R = Password reset                          +----------------------------|
| P = Password settings                       | E L E N O S  Srl           |
| Q = Exit                                    | Via G.Amendola, 9          |
|                                             | 44028 Poggio Renatico (FE) |
|                                             | ITALY                      |
|                                             | Tel.+39 0532 829965        |
|                                             | Fax.+39 0532 829177        |
|                                             | www.elenos.com             |
|                                             +----------------------------|
|                                            Ver. 2.14 /1.07 (c)2011 Elenos|
|                                                                         |
+-------------------------------------------------------------------------+
```

Main Menù

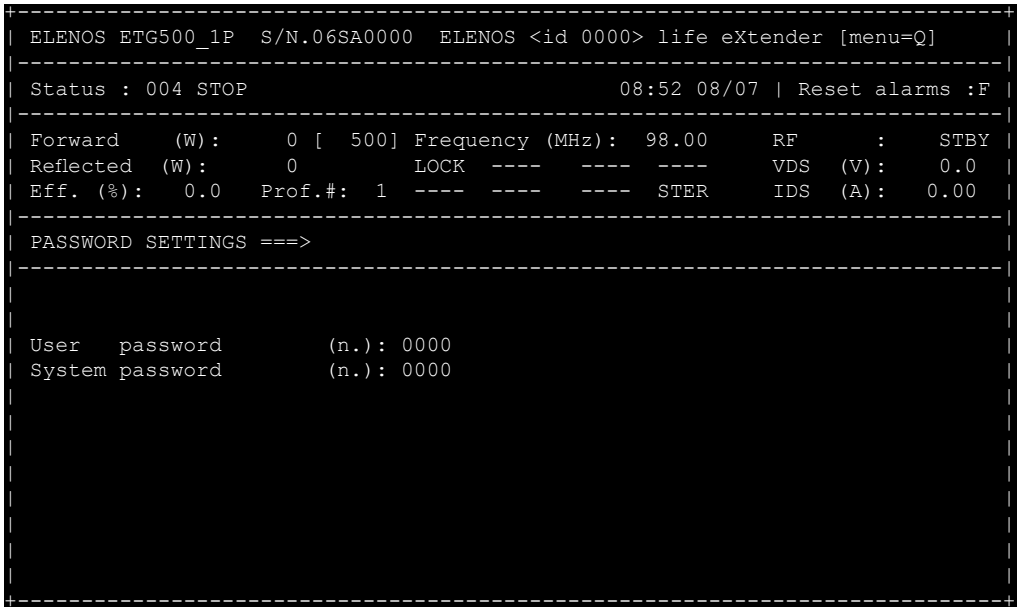
Password (K)

Password (K)

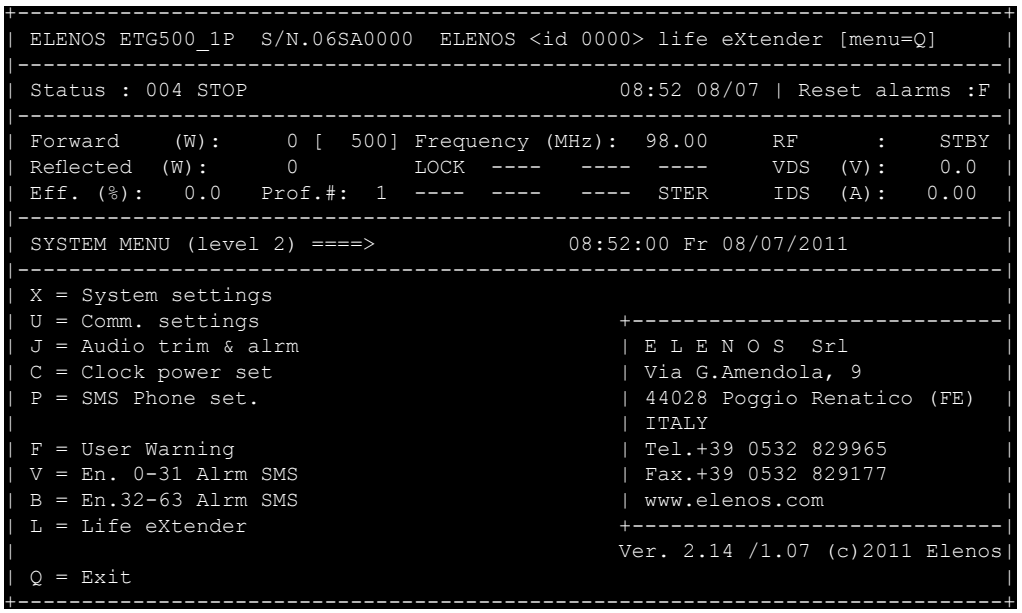
```
+-------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q] |
|-------------------------------------------------------------------------|
| Status : 004 STOP                          08:52 08/07 | Reset alarms :F |
|-------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):    0.0  |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):   0.00  |
|-------------------------------------------------------------------------|
|  PASSWORD ===>                                                          |
|-------------------------------------------------------------------------|
|                                                                         |
|  Password :                                                             |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
+-------------------------------------------------------------------------+
```



Main Menù
Password (K)
Password reset (R)



Main Menù
Password (K)
Password settings (P)



Main Menù
System (Y)

Main Menù
System (Y)
System settings (X)

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY  |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):    0.0   |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):   0.00   |
|-------------------------------------------------------------------------------|
| SYSTEM SETTINGS ===>                                                          |
|-------------------------------------------------------------------------------|
| Temperature Unit          : CELSIUS                                           |
| Show Display              : ALWAYS                                            |
|                                    PLL reference (10MHz)        : INT.        |
|                                    Fwd Pwr Cal.              (%): 100         |
|                                    SWR Foldback Enable          : FALSE      |
|                                    IPA Bias Treshold         (V): 4.48        |
|                                    Refl. Pwr Tresh. nom.    (10%): TRUE       |
|                                    Refl. Pwr Tresh. Level    (W): 55          |
|                                    PAbias                    (V): 5.45        |
|-------------------------------------------------------------------------------|
| Actual date         : 08/07/2011 05 08:52:00                                  |
| New date            : 08/07/2011 05 08:52:00 UPDATE                           |
+-------------------------------------------------------------------------------+
```

Main Menù
System (Y)
Comm. settings (U)

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY  |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):    0.0   |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):   0.00   |
|-------------------------------------------------------------------------------|
| COMM. SETTINGS ===>                                                           |
|-------------------------------------------------------------------------------|
| Front 485 Id          (n.):      0       Front 485 Speed          :   9600  |
| TcTs  485 Id          (n.):      0                                           |
|                                                                               |
| Station Id               :       0                                          |
| Pager Id                 :       0                                          |
|                                                                               |
|                                                                               |
|                                                                               |
|                                                                               |
|                                                                               |
|                                                                               |
+-------------------------------------------------------------------------------+
```

Main Menù
System (Y)
Audio trim & alrm (J)

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY  |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):    0.0   |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):   0.00   |
|-------------------------------------------------------------------------------|
|                                                                               |
|                                                                               |
|                                                                               |
| Pilot level     :      10.00                                                  |
| Pilot phase     :        0.0                                                  |
| Limiter(Clipper):       5.00 V                                                |
|-------------------------------------------------------------------------------|
|                                                                               |
|                                                                               |
|                                                                               |
|                                                                               |
|-------------------------------------------------------------------------------|
| No audio level  (dB):  -50.0    Time     (s):    600                         |
| Over mod. level (dB):    7.1    Time     (s):    600                         |
+-------------------------------------------------------------------------------+
```

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
|  CLOCK POWER SET ===>                                                         |
|-------------------------------------------------------------------------------|
|  Target power mode fixed for all the 24 hours:  TRUE                          |
|  Fixed target power                        (W):   500                         |
|-------------------------------------------------------------------------------|
|  copy over next day           : FALSE                                         |
|  reset all at factory default : FALSE                                         |
|                                                                               |
|  Target power on the 24 hours of Friday    (5 of 7)                           |
|T3   #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #   |
|T2   #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #   |
|T1   #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #  #   |
|T0  00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23    |
|                                  Hours                                        |
|  Target 3:   500  = 100% of fixed target power                                |
|  Target 2:   375  =  75% of fixed target power                                |
|  Target 1:   250  =  50% of fixed target power                                |
|  Target 0:   125  =  25% of fixed target power                                |
+-------------------------------------------------------------------------------+
```

Main Menù
System (Y)
Clock power set (C)

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
|  SMS PHONE SET ===>                                                           |
|-------------------------------------------------------------------------------|
|    Field Strength dBm: - 113        | this  |status |command|global | dig.  |
| >                                   |account|request|execute|echo rx| SMS   |
| Example  :     +393371234567890123  |-------+-------+-------+-------+-------|
| Phone N.1:                          | FALSE | FALSE | FALSE | FALSE | T_SMS |
| Phone N.2:                          | FALSE | FALSE | FALSE | FALSE | T_SMS |
| Phone N.3:                          | FALSE | FALSE | FALSE | FALSE | T_SMS |
| Phone N.4:                          | FALSE | FALSE | FALSE | FALSE | T_SMS |
| Phone N.5:                          | FALSE | FALSE | FALSE | FALSE | T_SMS |
| Phone N.6:                          | FALSE | FALSE | FALSE | FALSE | T_SMS |
| Phone N.7:                          | FALSE | FALSE | FALSE | FALSE | T_SMS |
| Phone N.8:                          | FALSE | FALSE | FALSE | FALSE | T_SMS |
|-------------------------------------+---------------------------------------|
| Id string:     ELENOS               | Enable SMS : FALSE      PSTN : FALSE  |
|                    Ok       Bad     | Mains alarm Enable           : FALSE  |
| Sms sended          0         0     | Mains alarm delay         (m):    30  |
| Sms received        0         0     | FWD over 2/3 TARGET (-1,76DB): FALSE  |
+-------------------------------------+---------------------------------------+
```

Main Menù
System (Y)
SMS phone set. (P)

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY  |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):     0.0  |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):    0.00  |
|-------------------------------------------------------------------------------|
|  USER LIMIT WARNING SETTING ====>                                             |
|-------------------------------------------------------------------------------|
|              Act.Value Enable   Max     Min    Type    Delay   Timer Alarm   |
|                                                                               |
|RF       Temp (C): 30.9   F     90.0    98.0    UPPER   120     1200    F     |
|PSU      Temp (C):  0.0   F     90.0    98.0    UPPER   120     1200    F     |
|PSU Current   (A):  0.0   F     50.0    45.0    UPPER   120     1200    F     |
|RF  Current   (A): 0.00   F     1.20    1.00    UPPER   120     1200    F     |
|Forward   PWR (%):    0   F      500     400    LOWER   120     1200    F     |
|Reflected PWR (W):    0   F      100      90    UPPER   120     1200    F     |
|-------------------------------------------------------------------------------|
|                                                                               |
|                                                                               |
|                                                                               |
+-------------------------------------------------------------------------------+
```

Main Menù
System (Y)
User Warning (F)

Main Menù
System (Y)
En. 0-31 Alrm SMS (V)

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
|Bit  Status                            Bit  Status                             |
| |  / Enable                            |  / Enable                             |
| 0  F F   000 CORRECT WORKING          16  F F   016 PSU OVER TEMPERATURE      |
| 1  F F   001 SYSTEM RESET             17  F F   017 PSU COMM TIMEOUT          |
| 2  F F   002 EEPROM CHKSUM ERROR      18  F F   018 EXTERNAL INTERLOCK        |
| 3  F F   003 BLOCKED                  19  F F   019 ON AIR                    |
| 4  T F   004 STOP                     20  F F   020 POWER UP                  |
| 5  F T   005 -3dB CARRIER             21  F F   021 POWER DOWN                |
| 6  F F   006 HIGH REF PWR             22  F F   022 PSU THERMAL FAULT         |
| 7  F F   007 MIN 12V                  23  F F   023 PSU LOW POWER             |
| 8  F F   008 RF AMP. FAULT            24  F F   024 PSU RF OFF                |
| 9  F F   009 RF AMP. FAULT DERATING   25  F F   025 WORKING MODE COMBINED     |
|10  F F   010 RF THERMAL DERATING      26  F F   026 SWR FOLDBACK              |
|11  F F   011 RF OVER TEMPERATURE      27  F F   027 UNLOCK                    |
|12  F F   012 PSU FAULT                28  F F   028 EXCITER COMM ERROR        |
|13  F F   013 PSU CURRENT DERATING     29  F T   029 NO AUDIO                  |
|14  F F   014 PSU OVER CURRENT         30  F F   030 OVER 2/3 CARRIER          |
|15  F F   015 PSU THERMAL DERATING     31  F F   031 PREAMPLIFIER NOT CONNEC   |
+-------------------------------------------------------------------------------+
```

Main Menù
System (Y)
En. 32-63 Alrm SMS (B)

```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
|Bit  Status                            Bit  Status                             |
| |  / Enable                            |  / Enable                             |
|32  F F   032 OVER MODULATION          48  F F                                 |
|33  F F   033 FAST INHIBIT             49  F F                                 |
|34  F F   034 TEMPERATURE SENSOR ERRO                                          |
|35  F F   035 PWR FORWARD OSCILATION                                           |
|36  F F   036 THREE BLOCK OUT                                                  |
|37  F F   037 USER ENV TEMP OUT LIMIT                                          |
|38  F F   038 USER RF TEMP OUT LIMIT                                           |
|39  F F   039 USER PSU TEMP OUT LIMIT                                          |
|40  F F   040 USER RF CURRENT OUT LIM                                          |
|41  F F   041 USER PSU CURRENT OUT LI                                          |
|42  F F   042 USER FRW PWR OUT LIMIT                                           |
|43  F F   043 USER RFL PWR OUT LIMIT                                           |
|44  F F   044 OUT PWR NOT VERIFIED                                             |
|45  F F   045 UPS ACTIVE                                                       |
|46  F F                                                                        |
|47  F F                                                                        |
+-------------------------------------------------------------------------------+
```

Main Menù
System (Y)
Life eXtender (L)

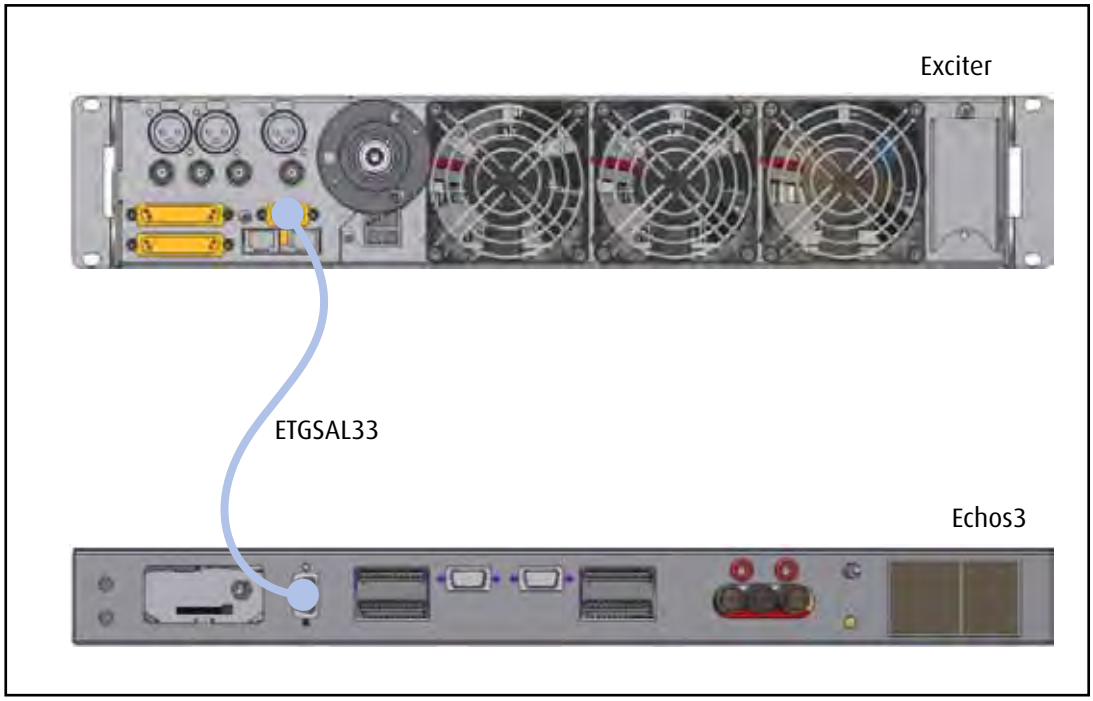
```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 08/07 | Reset alarms :F  |
|-------------------------------------------------------------------------------|
| Forward    (W):     0 [  500] Frequency (MHz):  98.00     RF      :    STBY  |
| Reflected  (W):     0         LOCK  ----  ----  ----     VDS  (V):    0.0   |
| Eff. (%):   0.0   Prof.#:  1  ----  ----  ----  STER     IDS  (A):   0.00   |
|-------------------------------------------------------------------------------|
| LIFE EXTENDER ACTIVATION / DEACTIVATION ===>                                  |
|-------------------------------------------------------------------------------|
| SerialNumber               : 06SA0000                                         |
| Unlock Code                : fe98                                             |
| Deactivation Code          :                                                  |
|                                                                               |
| LIFE EXTENDER Status       : ACTIVE                                           |
| Working Days Good Condition :      3                                          |
| Working Days Critical Cond. :      0                                          |
| Working Time               :      0                                          |
|                                                                               |
|                                                                               |
|                                                                               |
|                                                                               |
+-------------------------------------------------------------------------------+
```

3.4.2 Telemetry connection

This connection allows remote control through the equipment specifically designed for that purpose. The telemetry unit provides backup energy for the continuous operation of the modem, and is equipped with all utilities for equipments and station paramenters supervision.

To telemetry connection a cable must be inserted into “EIA485” connector, DB9, on the rear panel of the machine.
This cable is shipped with telemetry unit (Elenos code ETGSAL33).

The connection may be did also during running machine.
For more information, please see “Telemetry” manual.



3.4.3 Exchange unit and/or audio matrix connection

This connection allows to use the transmitter in a system that exchanges a fault transmitter failed with a reserve.

To exchange unit connection, if the equipment is not a reserve, a shielded cable must be inserted into “TC/TS”, DB25, on the rear panel of the machine.

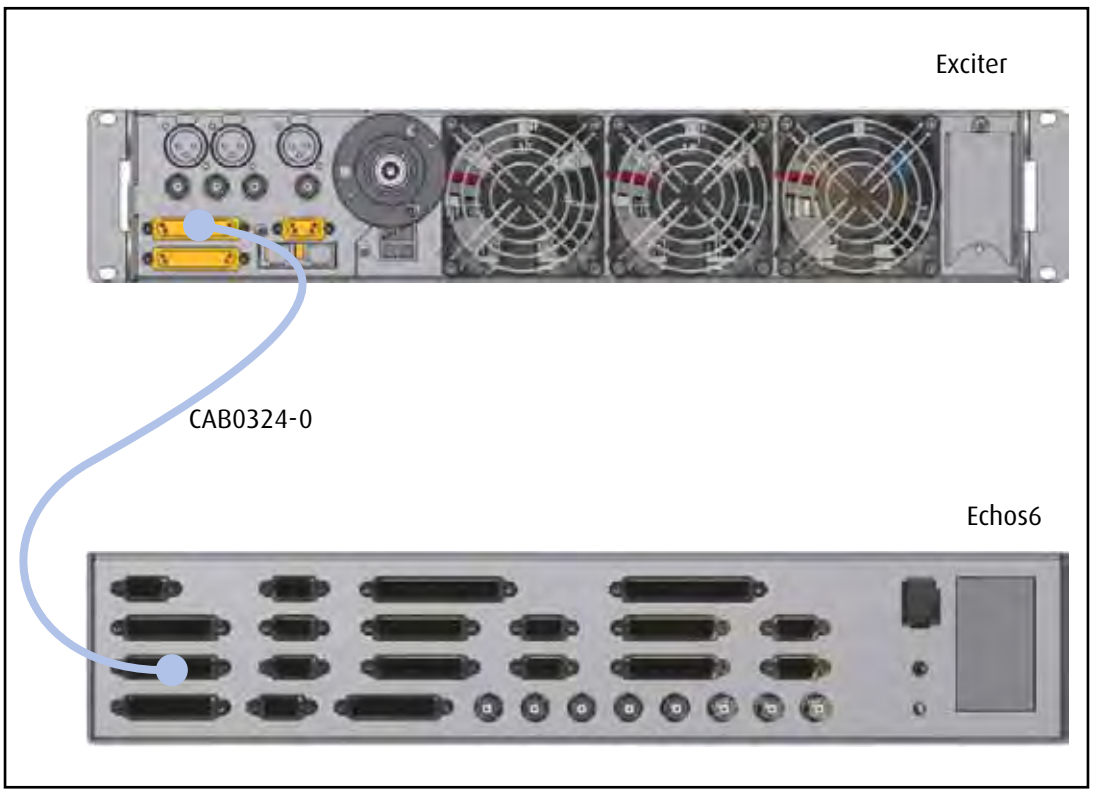
If the device is a reserve to use an additional shielded cable to insert in “PROFILES” connector, DB25, in the rear panel of the machine.

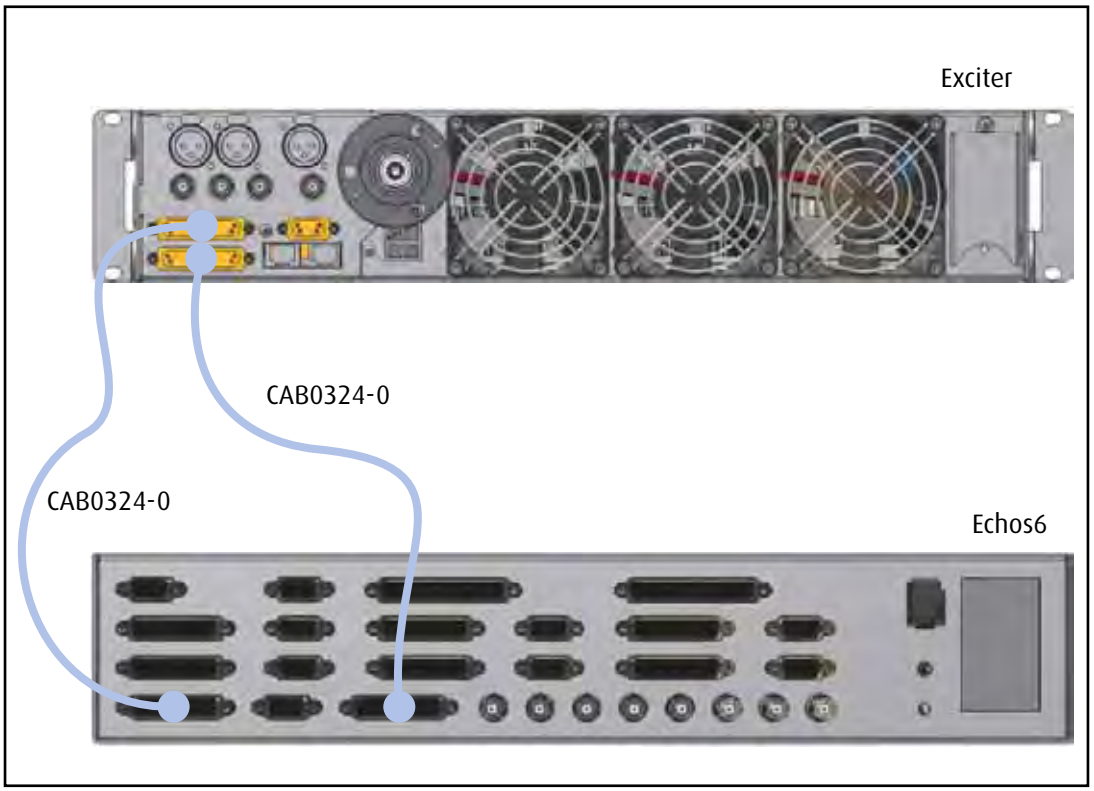
This last cable will connect to the audio matrix, if there is an audio matrix.

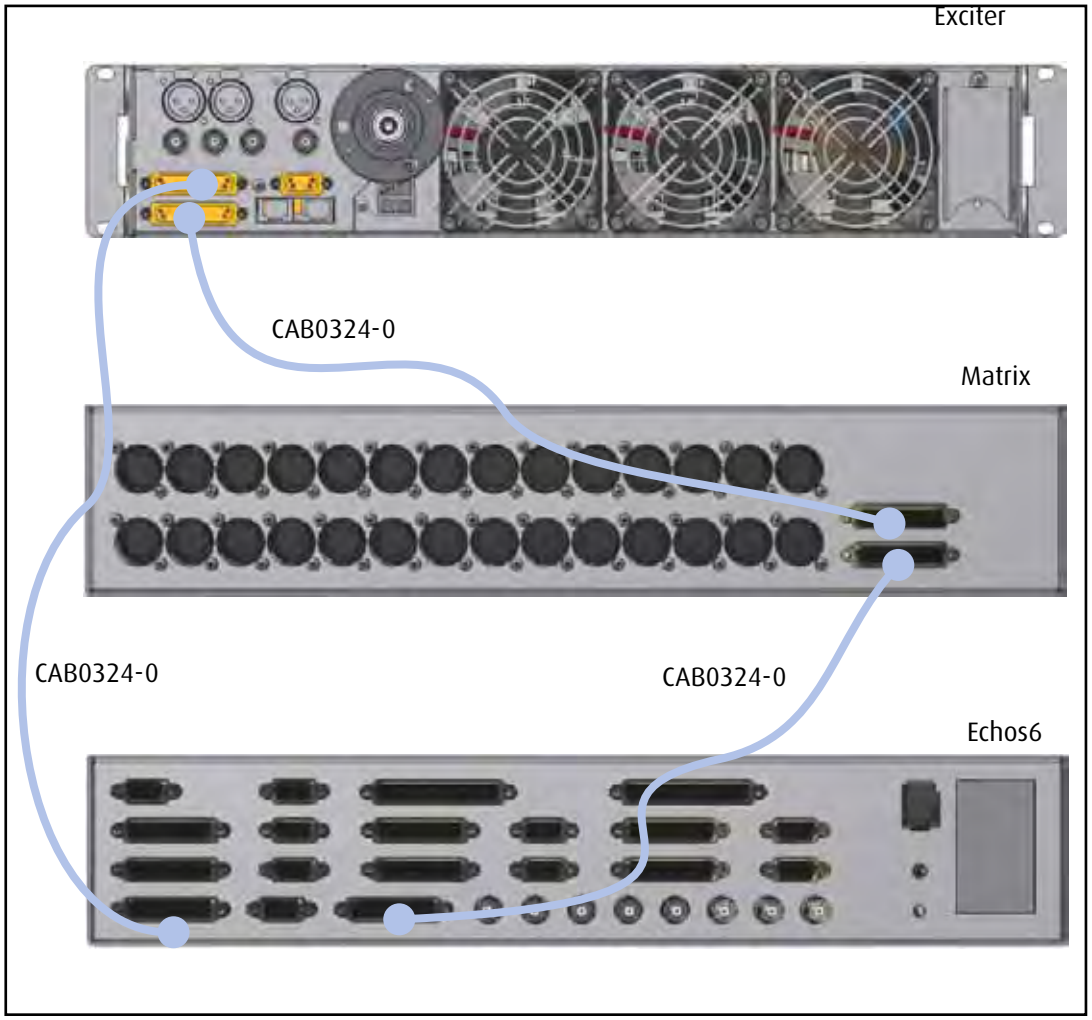
These cables are shipped with the unit of exchange (Elenos code CAB0324-0).

The connection may be did also during running machine, but not the RF connection.

For more information, please see “Exchange unit” manual.




Exciter
CAB0324-0
CAB0324-0
Echos6


Exciter
CAB0324-0
Matrix
CAB0324-0
CAB0324-0
Echos6

3.4.4 Amplifier connection

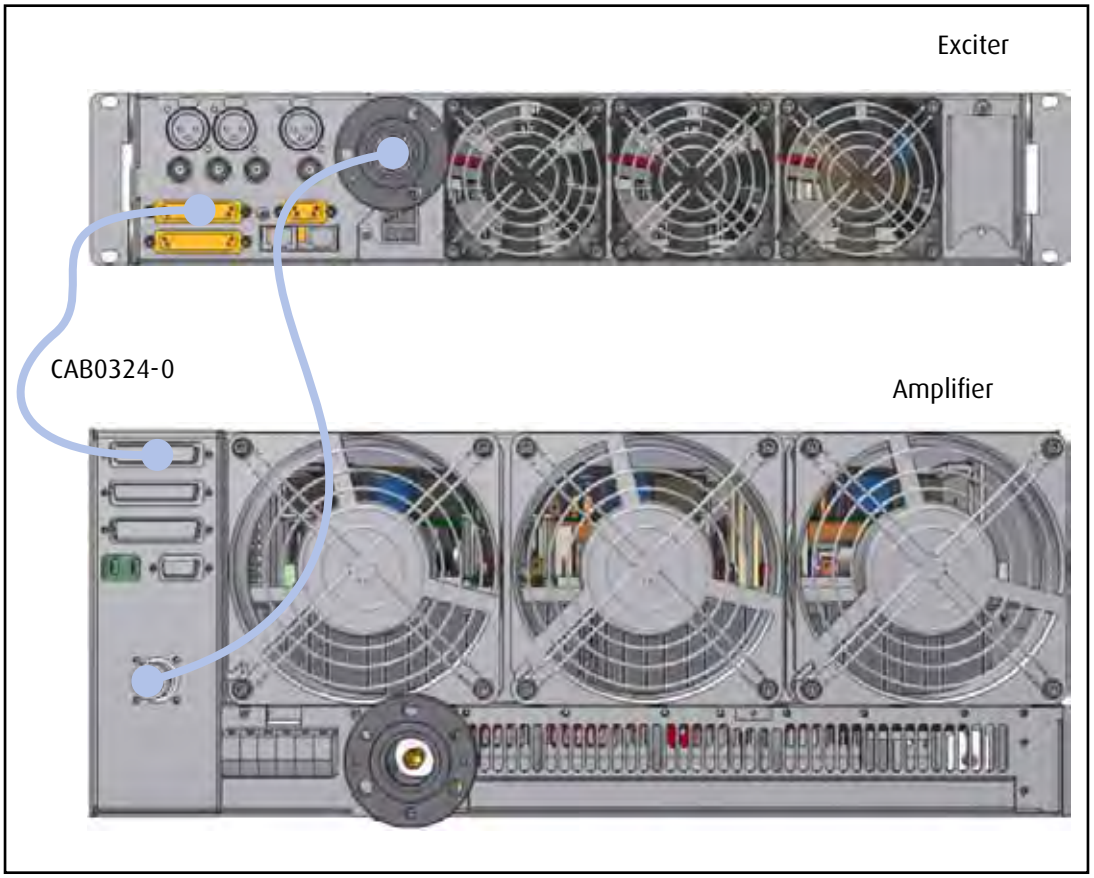
This connection is to increase the power transmission using a RF power amplifier.

To use the ETG as an exciter of a higher power amplifier to connect the ETG RF output connector to amplifier RF input connector through a RF coaxial cable, which is capable of withstanding the maximum power of ETG (Elenos code depending on connector type).

In addition to the RF connection, should be included a cable to insert in TC/TS connector, DB25, on the rear panel (Elenos code CAB0324-0).

This cable ships on demand and it's important check exciter functionality of the in the case of amplifier protection (eg exciter shutdown in case of ROS / VSWR amplifier protection).

To RF connection the machine must be turned off.
For more information, please see "Amplifier" manuals.

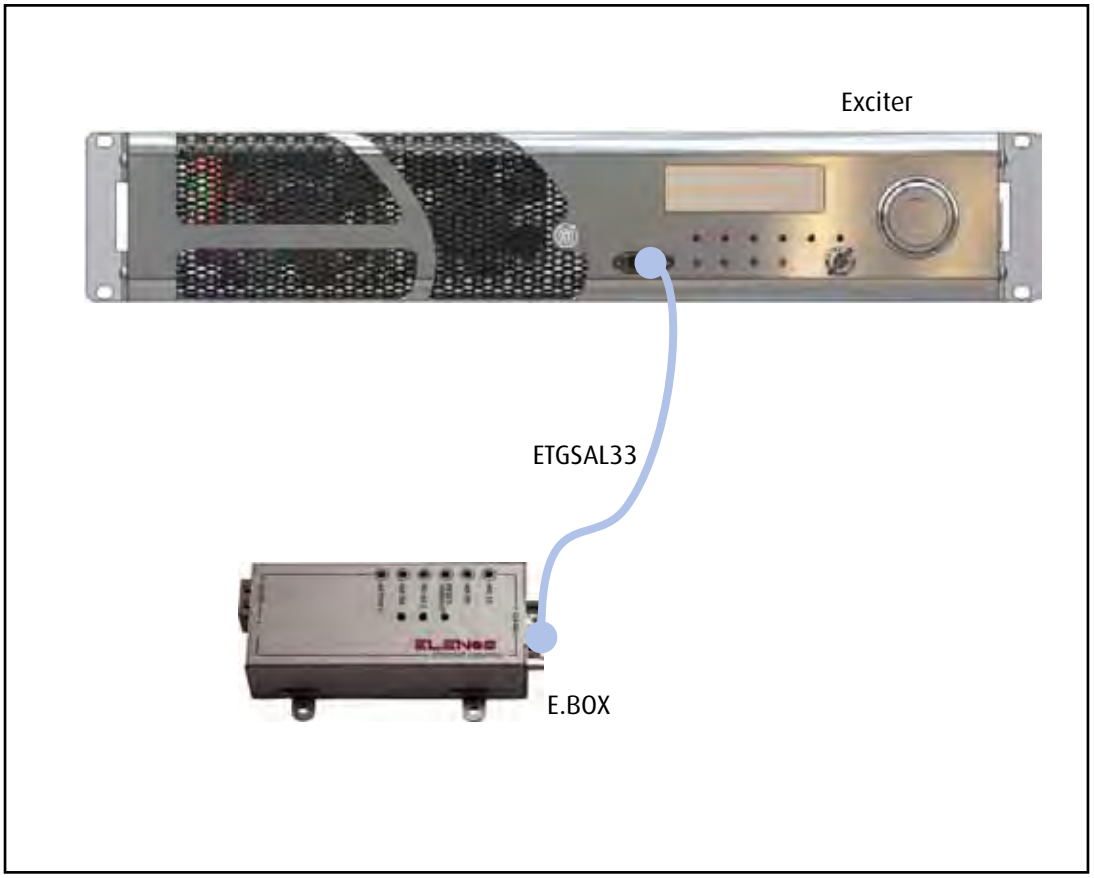


3.4.5 E.BOX module connection

Tale collegamento consente di avere un “ponte” tra il bus EIA485 dell’apparato e la rete Ethernet.

To E.BOX connection a standard cable must be inserted into “EIA485” connector, DB9, on the front or rear panel of the machine.
This cable is shipped withE.BOX (Elenos code ETGSAL33).

The connection may be did also during running machine.
For more information, please see “E.BOX” manuals.



4 Maintenance

4.1 Maintenance (cleaning, replacement, control)

During normal operation periodic inspections are recommended, in order to verify the absence of critical operating conditions.
It is recommended to adopt the following program:

Frequence	Type of maintenance
15 days	To clean filter (very dusty environment).
30 days	To clean filter (slightly dusty environment).
	To check direct and reflected output power.
	To verify telemetry, if present.
	To verify RF modules.
	To verify power supplies.
6 months	To verify fans.
	To verify temperatures.
	To verify electricity consumption.
12 months	To verify tightening of the RF output connector.
	To verify mains connections.
	To verify fan blades cleaning and the air grid (dusty environment). To be made with the unit in standby.
	To wash filters (dusty environment).
24 months	To wash filters (slightly dusty environment).
	To change filters (dusty environment).

4.2 Malfunction (effects, causes and solutions)

Effect	Cause	Solution
Transmitter does not turn on	• Power cord defective or missing	• Replace the cable or connect to apparatus
	• Auxiliary power incorrect (MAINS LED on front panel off)	• Call the manufacturer
	• Fault in power stage	• Call the manufacturer
Transmitter does not reach the required power	• Transmitter in Stand By	• Set the transmitter in RF ON
	• No interlock connection (if TC/TS option)	• Connect interlock connection
	• PLL not locked (ON AIR LED on front panel off)	• Call the manufacturer
	• Power supply fault	• Call the manufacturer
	• RF module fault	• Call the manufacturer
	• Measure point fault	• Call the manufacturer
Transmitter transmits on a frequency different from required frequence	• PLL board fault	• Call the manufacturer
	• VCO board fault	• Call the manufacturer
No modulation in output and on display	• Absence or interruption audio cables	• Connect or change audio cables
	• MPX board fault	• Call the manufacturer
	• Stereo Coder board fault	• Call the manufacturer
	• Modulation off	• Activate modulation by related menù
No modulation in output, but displayed	• MPX board fault	• Call the manufacturer
	• Stereo Coder board fault	• Call the manufacturer
Modulation in output that not reaches the desired value	• Low audio level input	• Increase source audio level
	• MPX board fault	• Increase ETG input sensitivity or call the manufacturer
No stereo modulation	• Stereo carrier off	• Turn on the stereo carrier from the related menu
	• Absence or interruption audio cables	• Connect or change audio cables
	• Stereo Coder board fault	• Call the manufacturer
	• Absence Stereo Coder board	• Transmitter can not be used for stereo broadcasts
One or more fans stopped	• Fans fault	• Call the manufacturer
	• Fans power supply fault	• Call the manufacturer

No communication with telemetria/PC	• Address incorrect	• Set the correct address
	• Connection cable not suitable	• Verify that the cable used is that provided by Elenos or an equivalent
	• Parameters setting incorrect	• Check correct parameters in "Use instructions" section, "Optional equipment can be connected" (user manual) and to set them
	• Connection cable fault or interrupted	• Connect or change cable
	• CPU board fault	• Call the manufacturer

The manufacturer shall provide at the technical staff the spare parts manual and the service manual.
These documents contain confidential design information, so if you need them you must require in writing form Elenos s.r.l. autorization.

APPENDIX USER MANUAL
ETG 2000.20
ETG 1500.15
ETG 1000.10
ETG 700.7
ETG 500.5
ETG 300.3
ETG 150

ELENOS®
broadcast experience

Operational headquarters : via G. Amendola 9, 44028 Poggio Renatico (Fe) ITALY
C.C.I.A.A. 101 216
Tax code and VAT reg. no. IT00415540384

UNI EN ISO 9001:2008 certified company
Certificate No.102222A

Please contact Elenos technical support service for information and assistance:

Tel : +39 0532 829965
Fax : +39 0532 829177
E-mail : info@elenos.com
Website : www.elenos.com

Please provide the equipment serial number (indicated on the nameplate).

Elenos s.r.l. declares that the equipment described in this document is compliant with the 1999/05/EC Directive.

CE 0470

For details please refer to the “EC Marking” section.

Contents

1.1 Changes to software update

The user interfaces described, and referred, in the quick start and user manuals are related to the software version number to 2.41.
For software version greater than 2.41 interfaces are those described below.

Warning : The screen images shown here are only for illustrative purposes only, as well as the values assigned to parameters. The parameters displayed may differ slightly depending on the type of machine and the type and settings of your stereo coder board.

TX CONTROL PANEL

PROFILE RF/BASEBAND MODE

PROFILE BASEBAND LEVELS

VIEW TX PARAMETERS 1

VIEW TX PARAMETERS 2

BASEBAND LEVELS

ALARMS LIST

EVENTS HISTORY

PASSWORD

PASSWORD SETTING

PASSWORD RECOVERY

MENU SYSTEM

EXIT

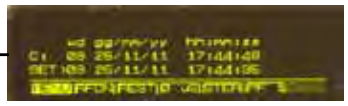
SYSTEM CONFIG

AUDIO TRIM & ALRM

COMMUNICATION PORT SET

SYSTEM INFO

SYSTEM TIME



CLOCK PWR TARGET 1 OF 2

CLOCK PWR TARGET 2 OF 2

ENABLE ALARMS SMS

DISPLAY ALARMS BIT

USER ALARMS DATA

USER ALARMS TIMERS

LIFEXTENDER

MENU GSM/MODEM

EXIT

GSM AND MODEM SERVICE

PHONE N.1 TO 4

PHONE N.5 TO 8

EXIT

1.1.1 TX control panel

Main screen which appears automatically when turning on in LOCAL mode. It is used to set and check the main operating parameters.

Warning light: when it is on it indicates the opening of the interlock contacts.

Target frequency

Target audio level

Vu-meter: it must indicate approx. 0dB

Warning light: when it is on it indicates a power drop below 3dB (<50% of target)

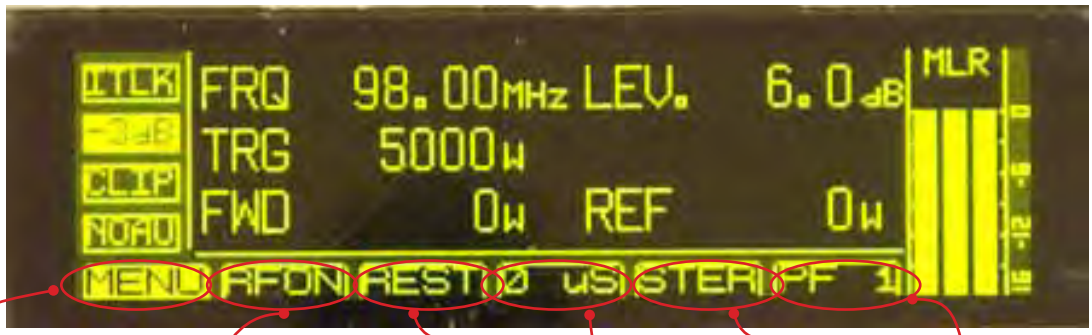
Warning light: when it is on it indicates the clipper engagement caused by overdrive

Warning light: when it is on it indicates an absence of signal beyond the limits set

Target power

Forward power effectively delivered

Reflected power: it must be null or very low



To access the list of menus

To switch on /put the system on stand-by

To reset the alarms

To set the pre-emphasis level

To set the audio signal

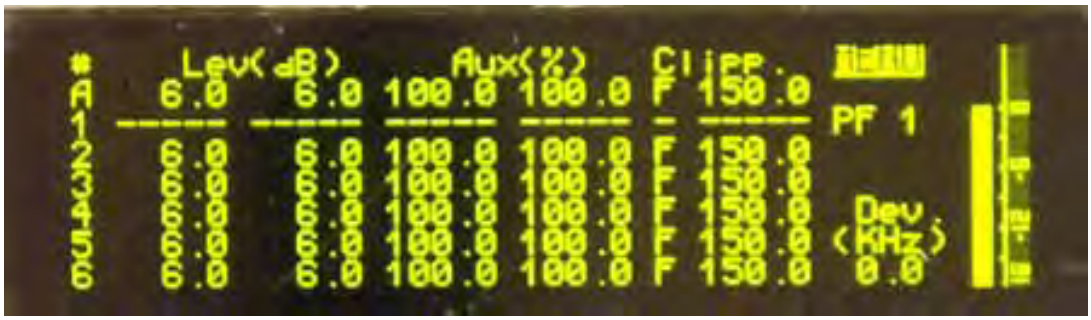
To set the profile

1.1.2 Profile RF/Baseband mode

Setting and display screen.
For every profile, the frequency, target power, type of audio signal and pre-emphasis are defined.
The active profile values are indicated by the letter “A”. The deviation is displayed (in kHz).

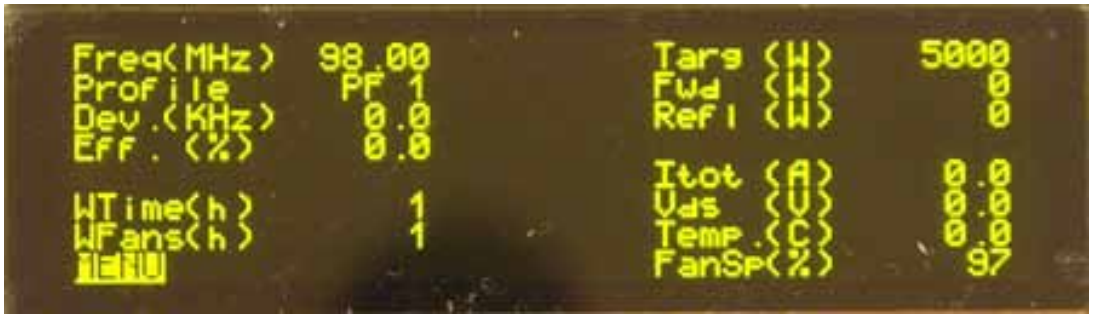
1.1.3 Profile baseband levels

Setting and display screen.
For each profile, the audio signal level, auxiliary channel level (expressed as a percentage, 100% equals the maximum amplitude for 75kHz deviation), clipping value and reference voltage value are defined.
The active profile values are indicated by the letter “A”. The deviation is displayed (in kHz).



1.1.4 View TX parameters 1

Display only screen.
The parameters which can be monitored are as follows: frequency, active profile number, deviation, efficiency, transmitter working hours, fan working hours, direct power target, effective direct power value, reflected power, current, voltage, maximum temperature (the following pictures show the probe position) and fan speed.



1.1.5 View TX parameters 2

Display only screen.
The parameters which can be monitored are as follows: current and temperature of the amplifier modules, current, voltage and temperature of the power supplies, voltages and auxiliary power supply polarization, sum of the power supply currents, sum of the module currents, voltage, ambient temperature and efficiency.

1.1.6 Baseband levels

Setting and display screen.
There are levels of the audio signal.
The display changes depending on the audio mode selected.

1.1.7 Alarms list

Display only screen.
It is possible to monitor the list of most recent alarms. The alarms indicated by the letter "A" are still active.
In order to understand the meaning of the alarms, please refer to paragraph "Alarms/ events list".

1.1.8 Events history

Display only screen.
The log of all the events/alarms occurred (up to 99) can be monitored. These are indicated by code, description, date and time.

1.1.9 Password

The equipment is delivered with the default password “0000” that can be customized by the user (for more details, please see paragraph “Password Setting”).
In this screen the access password must be entered.

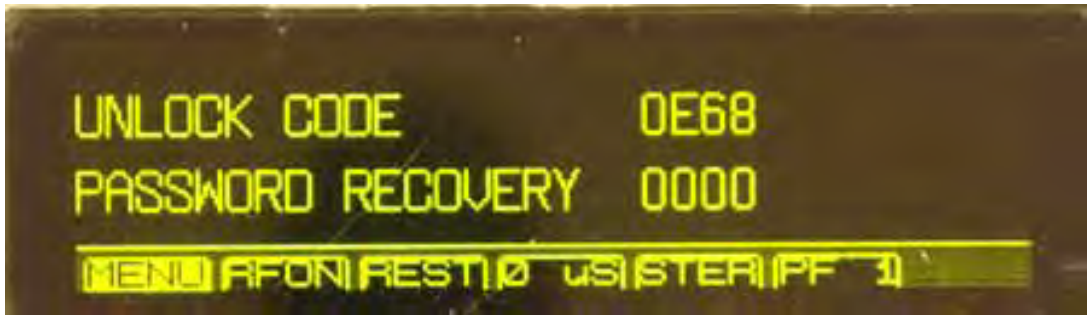
1.1.10 Password setting

There are two levels of user privilege: USER and SYSTEM, which are both initially protected by the default password “0000”.
In this screen it is possible to define customized passwords by the user with “SYSTEM” privileges.

Other parameters that can be set from this menu are the machine addresses (reference for communication with it).

1.1.11 Password recovery

If you lose your password, please contact Elenos.
Elenos must be given the “Unlock code” in this screen.
Elenos will provide a password valid for 24 hours to be entered on the same screen under the “Password Recovery” item.
The user must later define new passwords through the “Password Setting” screen.



1.1.12 System config

Setting and display screen.
The following parameters can be set by the user: temperature measurement unit (Temp. U.), remote display operating mode (Show D.), audio board model (BB model, automatically detected, or STEREO view as default), equipment protection in case of oscillations (PwOscChk), power target when working with a UPS (UPS T), VCO synchronization (Time base, internal or external
at 10MHz), power reading calibration (FwdPwrCal), SWR foldback, polarization threshold (IPA Bias Tres.), reflected power nominal threshold (Refl.Pwr T.N., when active it is 10% of direct power), reflected power customized threshold (Refl.Pwr T.Lev., when the nominal threshold is inactive, it is possible to set values below10%), final polarization (PAbias), maximum settable power full scale (Max Target Pwr).

1.1.12.1 Power oscillation algorithm

In Elenos devices, if there is a power variation of “n” W (“n” being defined in specific tables) at least 3 consecutive times within 15 seconds, the “035” alarm is activated and the three block out mechanism is triggered (if this mechanism fails, the “003” alarm is then activated).

1.1.12.2 Foldback algorithm

The Elenos devices feature two different and independent protections which are activated when there is an excess of reflected power.
The first is a hardware threshold which operates when the reflected power exceeds 10% of the maximum rated output power of the transmitter in a very short space of time.
In these conditions the transmitter switches off.
The second is a software protection, called “foldback algorithm”.
It is activated when the reflected power increase is slower (for example, when there is snow or ice on the antenna).
In these conditions, the transmitter gradually reduces its output power until the reflected power threshold is exceeded, while the output power is gradually restored when the values go back to normal.
If normal operating conditions continue for more than 60 seconds, the algorithm is inactive.
The activation of this second protection is left to the user (from the
System config screen).

1.1.13 Audio trim & alrm

Setting and display screen.
The following parameters can be set by the user: pilot tone level, pilot tone phase, clipping voltage.
It is possible to monitor the audio board model (BB board model, automatically detected, or STEREO view as default) and the firmware version of the audio board (BB Firmware).
The alarms connected to the audio section are set. The management uses the TC/TS connector.
The alarm is activated when it is below the threshold set (Modulation), after the set period of time (Dlay Alarm Timer).
The user can choose from five operating modes (Bad mod.) : DISABLE, NO AUDIO, SWAP, FAULT, FLT/SWAP.

1.1.13.1 Audio “Disable” alarm

By setting the “Bad mod.” field to “DISABLE”, the alarm is completely deactivated without needing to change the levels (Modulation, Dlay Alarm Timer).

1.1.13.2 “No audio” audio alarm

By setting the “Bad mod.” field to “NO AUDIO”, the default setting is kept, i.e. “No Audio” on pin 23 of the TC/TS connector.
If the transmitter is inside an N+1 system, the “No Audio” signal is not available at the exchange unit.

1.1.13.3 “Swap” audio alarm

By setting the “Bad mod.” field to “SWAP”, the “No Audio” line (pin 23) is exchanged with the “Warning” line (pin 13) on the TC/TS connector.
If the transmitter is inside an N+1 system, the “No Audio” signal is available at the exchange unit.

1.1.13.4 “Fault” audio alarm

By setting the “Bad mod.” field to “FAULT”, the “No Audio” line (pin 23) is in “or” condition with the “Fault” line (pin 24) on the TC/TS connector.
If the transmitter is inside an N+1 system, the exchange unit activates the switching in the presence of No Audio.

1.1.13.5 “Flt/Swap” audio alarm

By setting the “Bad mod.” field to “FLT/SWAP”, there is a combination of the two “Swap” and “Fault” modes.
In this way, if the transmitter is inside an N+1 system, the “No Audio” signal is available at the exchange unit and the exchange unit actives the switching.

1.1.14 Communication port set

Setting and display screen.
The parameters which can be set by the user are the speed and the front and rear 485 door addresses.

1.1.15 System info

Setting and display screen.
The equipment software version, the protocol version, the equipment activity time and the fan operating time are indicated.
It is possible to reset the latter by clicking "R".

1.1.16 System Time

Setting and display screen.
The following parameters can be set by the user: the day of the week, date and time.

1.1.17 Clock Pwr Target

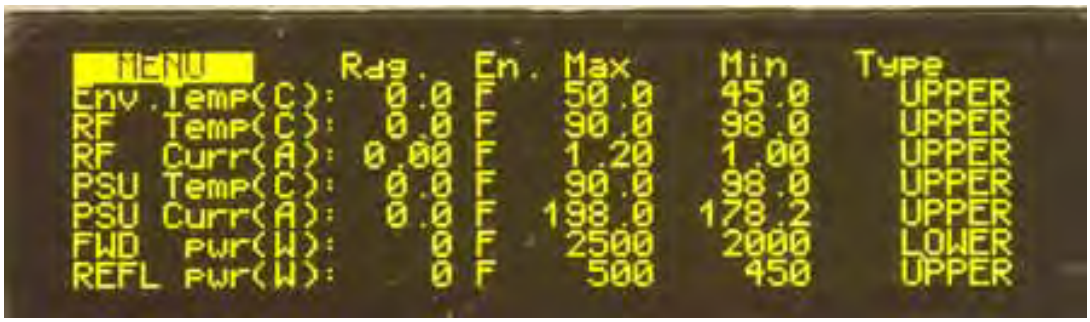
Setting and display screen.
As well as the standard power adjustment, it can also be set according to time slots in order to save energy. In order to be able to set the power according to individual time slots, the field “Target Power Mode” must be set to “CLOCKED”.
Then, the various times of day can be matched with four different power percentage values (100%, 75%, 50% or 25% of the set power).
After defining the day of the week to be set (Target Power on day of) for each time of day, press the cursor to enter the setting bar, rotate it to define the percentage (nothing displayed corresponds to 25%, T1 corresponds to 50%, T2 corresponds to 75%, T3 corresponds to 100%) and press the cursor to confirm.
By setting the “Copy over next day” field to “T”, the previous day setting is copied to the next day.
By setting the “Reset at default” field to “T”, the settings are reset to default, where the power is low at night and full during the day.

1.1.18 Enable Alarms Sms

Setting and display screen.
Besides the alarm management “by status”, it is possible to have
alarm management “by event”.
The alarms for which this management mode is enabled merge in a buffer.
If the value “0” is attributed to the relative alarm, it means that is deactivated, while the value
“1” means that is activated to be managed in “by event” mode.
This function is available only by means of connection on the Omron protocol.
In order to understand the meaning of the alarms, please refer to paragraph “Alarms/ events list”.

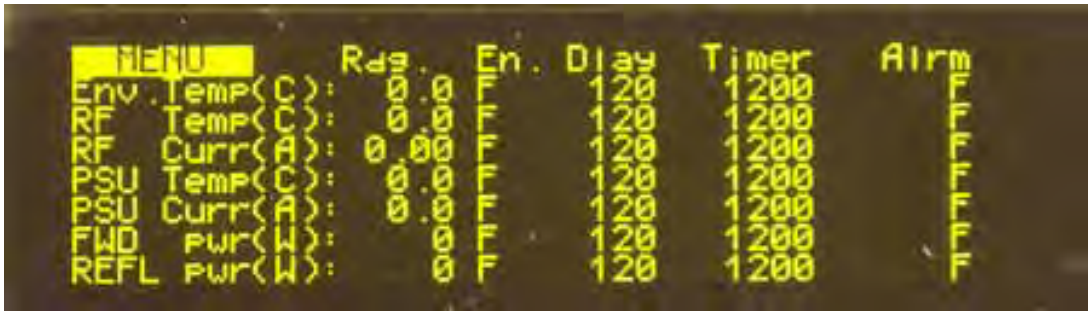
1.1.19 User Alarms Data

Setting and display screen.
Some alarms can be set according to activation conditions.
The current value of the alarm condition parameter (ambient temperature, RF temperature, RF current, power supply temperature, power supply current, direct power, reflected power) can be monitored.
By setting the “En.” parameter to “T/F” the respective alarm is enabled/disabled.
The following parameters can be set by the user: the parameter minimum and maximum values, and the type of condition to be met (upper, lower, inside, outside).



1.1.20 User Alarms Timers

Setting and display screen.
In some alarms, it is possible to set a time frame in which the condition must occur in order to make the alarm effective (“Dlay”).
The trend of the meter for this time can be monitored as well as the possible enabling of the alarm by means of a status flag (Alrm).



1.1.21 Lifextender

Setting and display screen.
The parameters relative to the Lifextender option can be monitored: equipment serial number, equipment code (parameter to be notified to Elenos should the user require the activation/deactivation of this function), activation/deactivation code (parameter supplied by Elenos to be entered for the function activation/deactivation), function status, work days in good operating conditions, work days in critical operating conditions.
The algorithm considers the following parameters to define the critical days: RF temperature, power supply temperature, ambient temperature and reflected power with respect to maximum operating power.
These parameters must exceed the threshold values for a certain amount of time.
In this way, the duration and intensity of the event is assessed: intense short events are heavy; less intense but longer events are heavy too.

1.1.22 GSM and modem service

Setting and display screen.
The GSM signal field intensity can be monitored.
It is possible to enable the submission of an alarm by SMS and/or PSTN in case of no mains power (No Mains SMS) for the period of time set (Delay).
It is possible to enable the submission of an alarm by SMS and/or PSTN if the power delivered is at least 3dB less than the target set (SMS FWD over 2/3).
The codes to be displayed in the different message strings can be defined (PagerId, StatId, String Id).

1.1.23 Phone N.1 to N.8

Setting and display screen.
The equipment can “communicate” with up to 8 SIM cards.
The telephone numbers and authorizations can be defined in international format
The number can be globally enabled for SMS transmission and reception SMS (En.), be enabled to send commands (Cmd), be enabled to request and receive the machine status (Sts), be enabled to receive the echo any of commands sent by other numbers (Glb) and be enabled to receive SMSs in text or digital format (PC.).