

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.



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...

LEV.3

Uart 0 Info
sec. 3.1.36

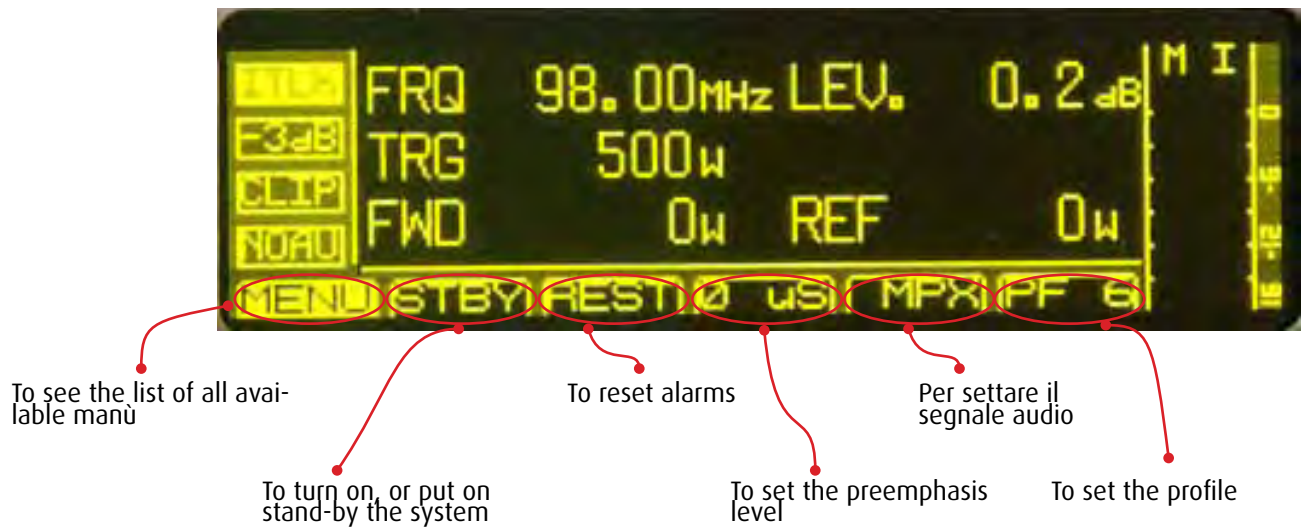
Uart 1 Info
sec. 3.1.36

Uart 2 Info
sec. 3.1.36

Menù Uarts

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 the password.



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.



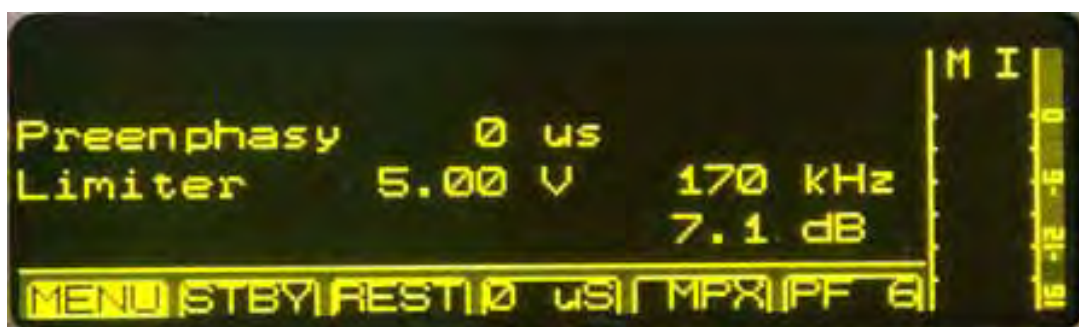
3.1.14 Pilot Level & Phase

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.

#	Freq.	Trg.	Mode	Inp.	Pre	
A	98.00	2000	MPX	AUTO	0	40.80
1	98.00	2000	MPX	AUTO	0	
2	98.00	2000	MPX	AUTO	0	
3	98.00	2000	MPX	AUTO	0	
4	98.00	2000	MPX	AUTO	0	
5	98.00	2000	MPX	AUTO	0	
6	98.00	2000	MPX	AUTO	0	

#	Lev(dB)	Aux(%)	Clipp	
A	6.0	100.0	5.00	40.80
1	6.0	100.0	5.00	
2	6.0	100.0	5.00	
3	6.0	100.0	5.00	
4	6.0	100.0	5.00	
5	6.0	100.0	5.00	
6	6.0	100.0	5.00	

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 menu 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 menu involved are Temperatures, PSUs Data, System Info, Clock Pwr Target, Pre Amplifier, Max Reflected Power, Password Setting, Foldback Setting, UPS Settings, Menu GSM, Menu 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/PTSN 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).

	Reg.	En.	Max	Min	Type
Env. Temp(C):	0.0	F	50.0	45.0	UPPER
RF Temp(C):	31.4	F	90.0	98.0	UPPER
RF Curr(A):	0.00	F	1.20	1.00	UPPER
PSU Temp(C):	0.0	F	90.0	98.0	UPPER
PSU Curr(A):	0.0	F	47.5	42.7	UPPER
FWD PWR(W):	0	F	500	400	LOWER
REFL PWR(W):	0	F	100	90	UPPER

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.



		Rdg.	En.	Dlay	Timer	Alarm
Env.	Temp(C):	0.0	F	120	1200	
RF	Temp(C):	31.4	F	120	1200	
RF	Curr(A):	0.00	F	120	1200	
PSU	Temp(C):	0.0	F	120	1200	
PSU	Curr(A):	0.0	F	120	1200	
FWD	Pwr(W):	0	F	120	1200	
REFL	Pwr(W):	0	F	120	1200	

3.1.35 UPS Settings

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



UPS TARGET : 520		M I
		0 5 20 31
MENU STBY REST 10 us MPX PF 6		

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 Eleos 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
Actiyation of power output in CLOKED 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 yyyyyy W	Direct power yyyyyy (W)
REFL yyyyyy W	Reflected power yyyyyy (W)
FRQ yyyyyy MHz	Frequence yyyyyy (MHz)
VDS yyyyyy V	Voltage yyyyyy (V)
IDS yyyyyy A	Current yyyyyy (A)
TEMPMAX yyyyyy F/C	Max temperature yyyyyy (F or C)
TEMPENV yyyyyy F/C	Environment temperature yyyyyy (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

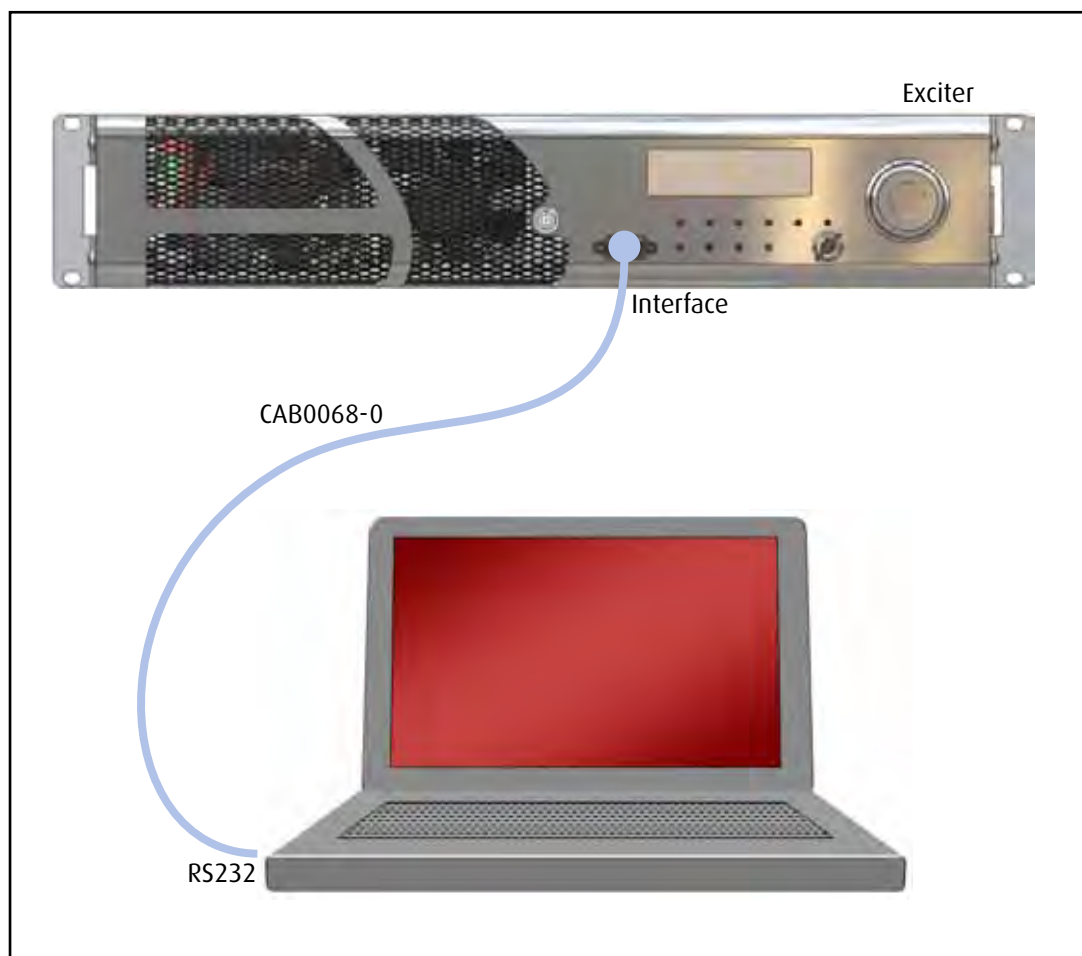
This connection is useful to examine in detail the operating parameters, for example during the performance evaluation or repair activities.

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 |
| O = Profiles |
| S = Status/Alarms |
| H = Events History |
| K = Password... |
| Y = System... |
|
| E L E N O S Srl |
| 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

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 | Pl1 : LOCK |
|-----|
```

Main Menù
All Data (W)

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

Main Menù
Profiles (0)

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
| Q = Exit
|
| E L E N O S Srl
| 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)

```
-----
| 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 RESET ==>
|-----
|
| Unlock Code      : 0923
| Password Recovery : 0000
|-----
|-----
```

Main Menù
Password (K)
Password settings (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
|-----
| PASSWORD SETTINGS ==>
|-----
|
| User  password      (n.): 0000
| System password     (n.): 0000
|-----
|-----
```

Main Menù
System (Y)

```
-----
| 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 MENU (level 2) ==>                        08:52:00 Fr 08/07/2011
|-----
| X = System settings
| U = Comm. settings                               +-----+
| J = Audio trim & alrm                            | E L E N O S Srl
| C = Clock power set                               | Via G.Amendola, 9
| P = SMS Phone set.                               | 44028 Poggio Renatico (FE)
|                                                    | ITALY
| F = User Warning                                 | Tel.+39 0532 829965
| V = En. 0-31 Alrm SMS                           | Fax.+39 0532 829177
| B = En.32-63 Alrm SMS                           | www.elenos.com
| L = Life eXtender                               +-----+
|                                                    Ver. 2.14 /1.07 (c)2011 Elenos
| Q = Exit
|-----
|-----
```

Main Menü

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 Menü

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 Menü

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 |
+-----+
```

Main Menu
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
-----
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 Menu
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
-----
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 sent 0 0 | Mains alarm delay (m): 30
Sms received 0 0 | FWD over 2/3 TARGET (-1,76DB): FALSE
-----
```

Main Menu
System (Y)
User Warning (F)

```
-----
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)

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

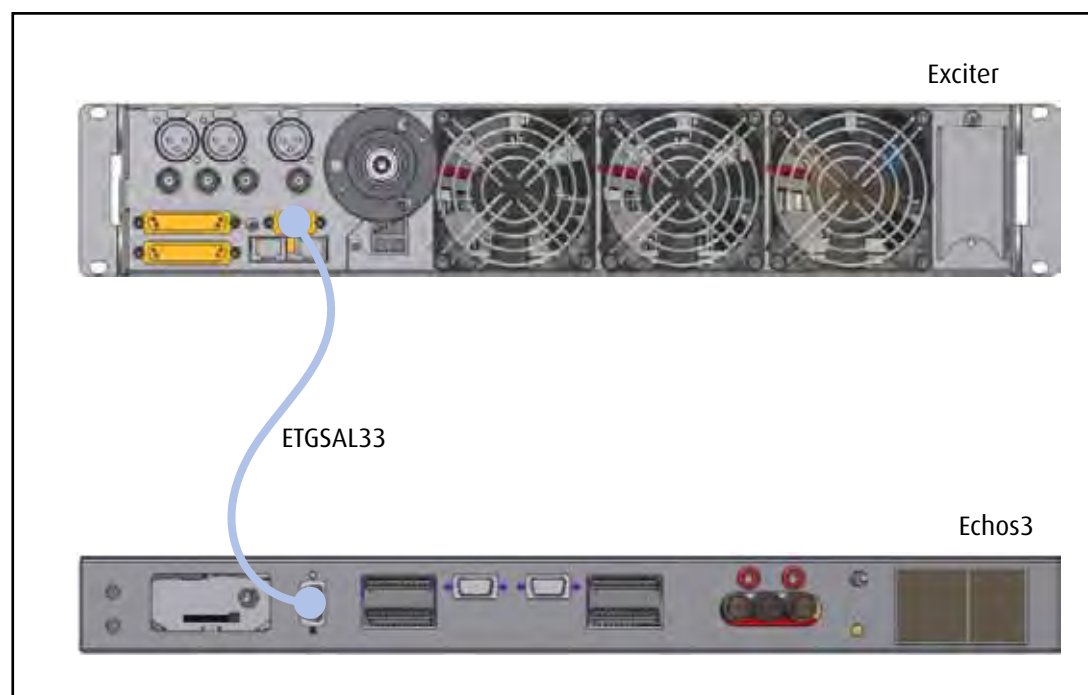
This connection allows remote control through the equipment specifically designed for that purpose. The telemetry unit provides backup energy for the continuous operation of the modem, and is equipped with all utilities for equipments and station parameters supervision.

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.

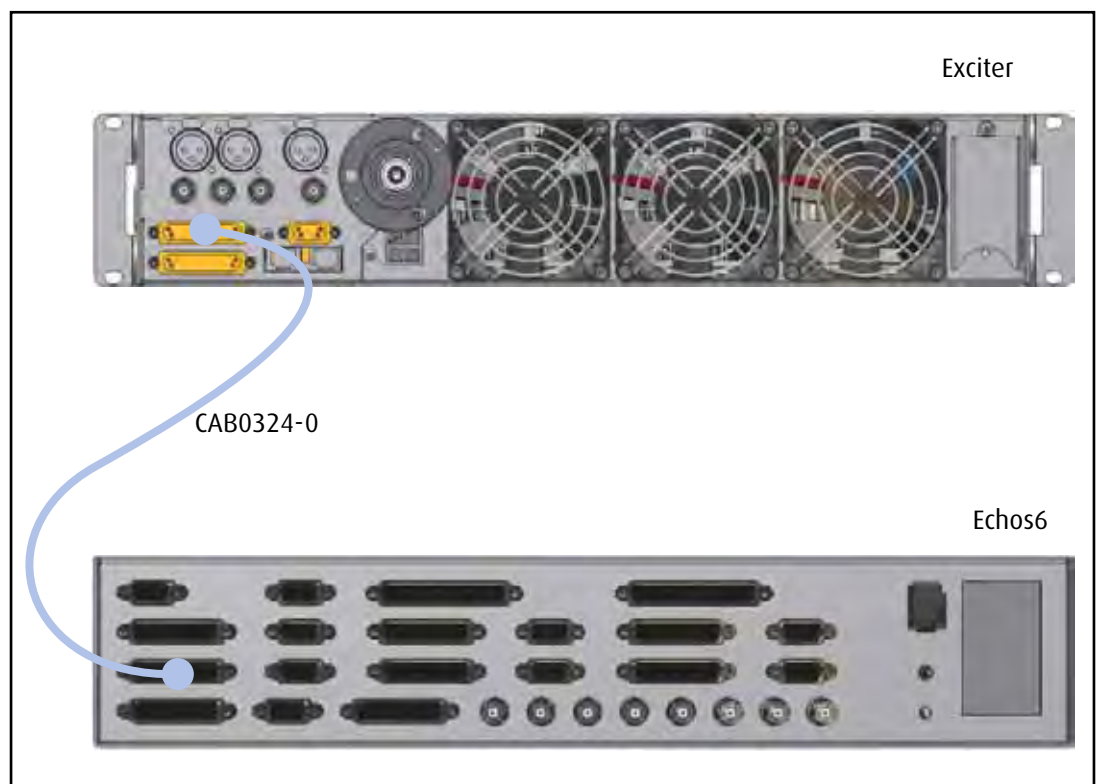
If the device is a reserve to use an additional shielded cable to insert in "PROFILES" connector, DB25, in the rear panel of the machine.

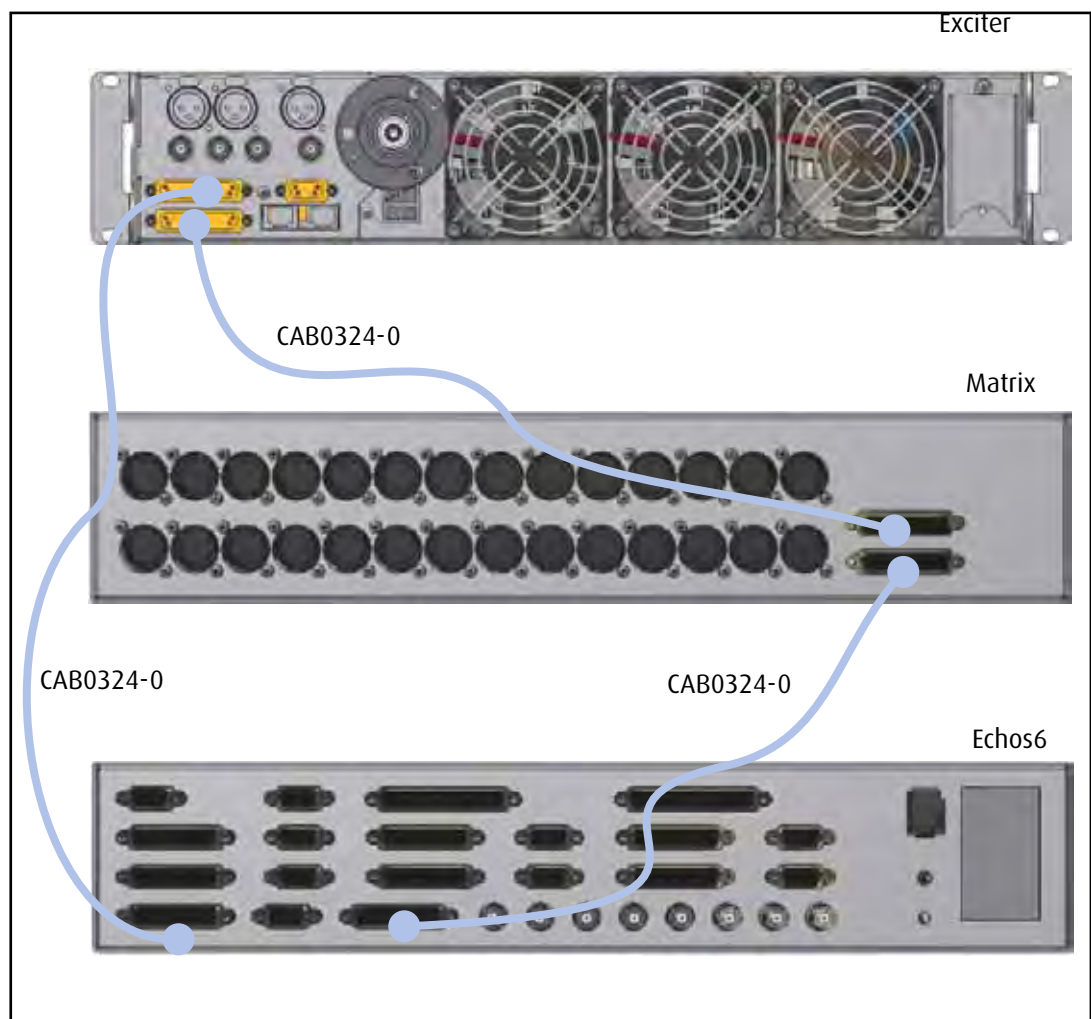
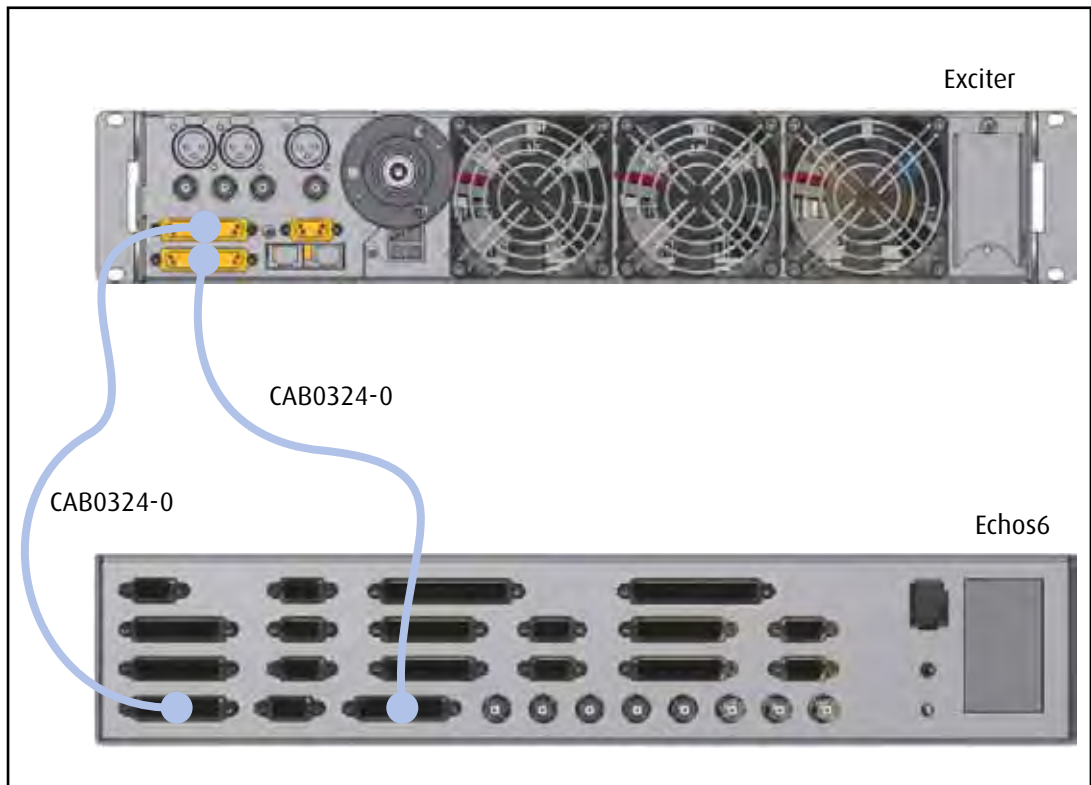
This last cable will connect to the audio matrix, if there is an audio matrix.

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.





3.4.4 Amplifier connection

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

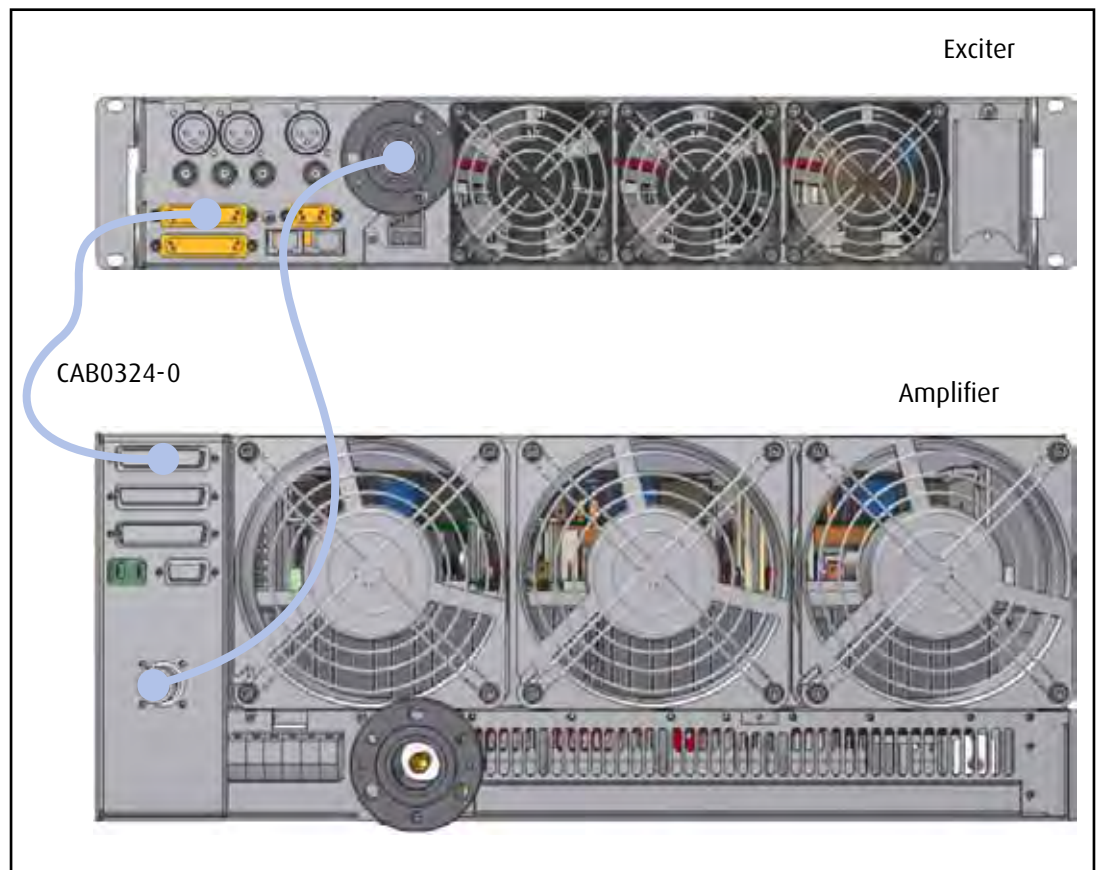
To use the ETG as an exciter of a higher power amplifier to connect the ETG RF output connector to amplifier RF input connector through a RF coaxial cable, which is capable of withstanding the maximum power of ETG (Elenos code depending on connector type).

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

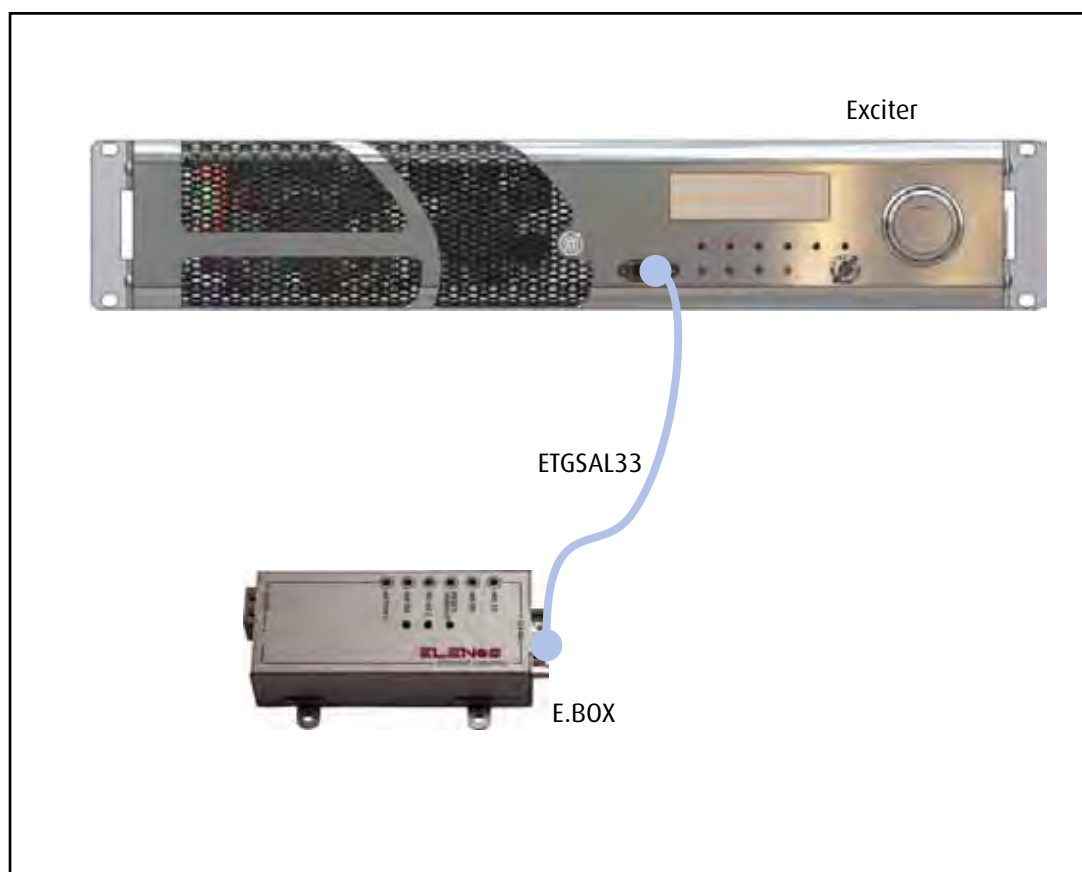
Tale collegamento consente di avere un “ponte” tra il bus EIA485 dell'apparato e la rete Ethernet.

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 with E.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:

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

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

APPENDIX USER MANUAL

ETG 2000.20

ETG 1500.15

ETG 1000.10

ETG 700.7

ETG 500.5

ETG 300.3

ETG 150



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.



For details please refer to the "EC Marking" section.

Contents

1.1 Changes to software update.....	5
1.1.1 TX control panel.....	7
1.1.2 Profile RF/Baseband mode.....	8
1.1.3 Profile baseband levels.....	8
1.1.4 View TX parameters 1.....	9
1.1.5 View TX parameters 2.....	9
1.1.6 Baseband levels.....	10
1.1.7 Alarms list.....	10
1.1.8 Events history.....	10
1.1.9 Password.....	11
1.1.10 Password setting.....	11
1.1.11 Password recovery.....	11
1.1.12 System config.....	12
1.1.12.1 Power oscillation algorithm.....	12
1.1.12.2 Foldback algorithm.....	12
1.1.13 Audio trim & alarm.....	13
1.1.13.1 Audio "Disable" alarm.....	13
1.1.13.2 "No audio" audio alarm.....	13
1.1.13.3 "Swap" audio alarm.....	13
1.1.13.4 "Fault" audio alarm.....	13
1.1.13.5 "Flt/Swap" audio alarm.....	13
1.1.14 Communication port set.....	14
1.1.15 System info.....	14
1.1.16 System Time.....	14
1.1.17 Clock Pwr Target.....	15
1.1.18 Enable Alarms Sms.....	16
1.1.19 User Alarms Data.....	16
1.1.20 User Alarms Timers.....	17
1.1.21 Lifextender.....	18
1.1.22 GSM and modem service.....	19
1.1.23 Phone N.1 to N.8.....	19

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



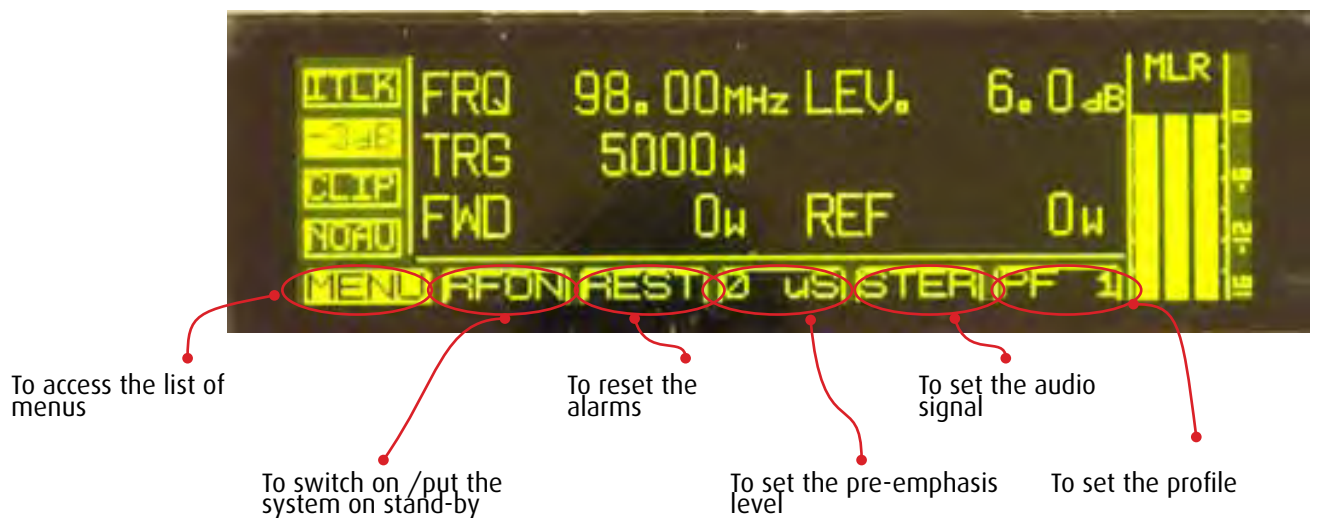
PHONE N.5 TO 8



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.



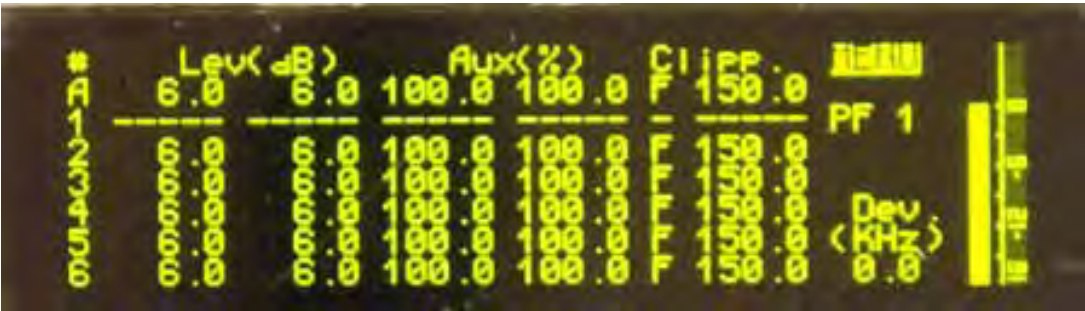
1.1.2 Profile RF/Baseband mode

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.



Freq(MHz)	98.00	Targ (W)	5000
Profile	PF 1	Fwd (W)	0
Dev.(KHz)	0.0	Ref l (W)	0
Eff. (%)	0.0	Itot (A)	0.0
WTime(h)	1	Uds (U)	0.0
WFans(h)	1	Temp.(C)	0.0
		FanSp(%)	97

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.



Device n.	1	2	3	4	5	6	7
Ampl(A)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ampl(C)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PSU(A)	0.0	0.0	0.0	0.0	I PSU(A)	0.0	0.0
PSU(U)	0.0	0.0	0.0	0.0	IampI(A)	0.0	0.0
PSU(C)	0.0	0.0	0.0	0.0	Uds (U)	0.0	0.0
Aux-> UCC	+U1	-U1	Bias		Tenv.(C)	0.0	0.0
	5.0	12.0	-12.2	-10.2	Eff. (%)	0.0	0.0

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 below 10%), 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 & alarm

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 (Delay 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, Delay 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 "Ft/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 activates 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.

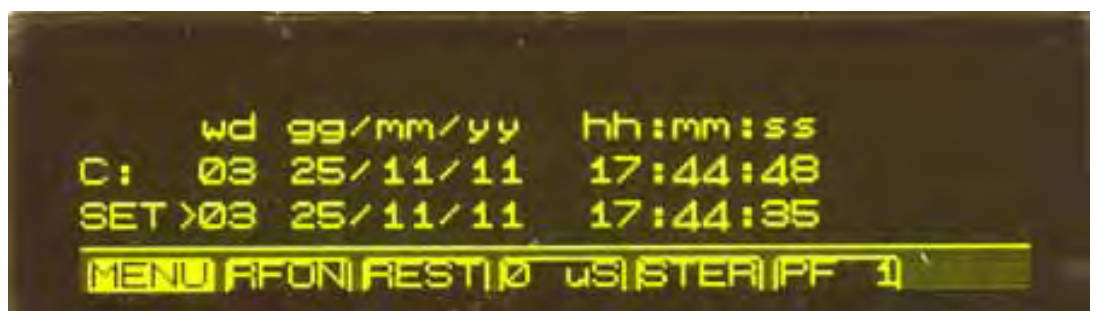
It is possible to reset the latter by clicking "R".



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".

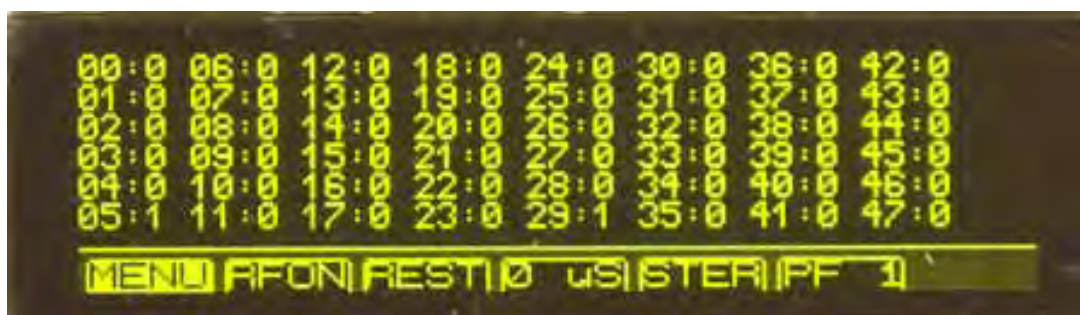
The alarms for which this management mode is enabled merge in a buffer.

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).

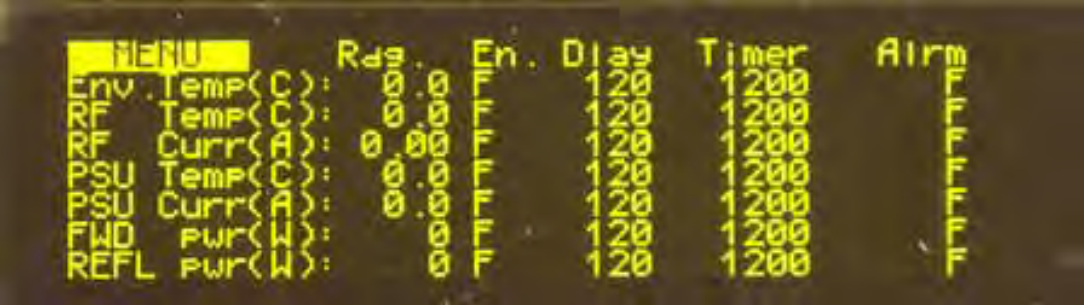
	Max	Min	Type
Env Temp(C):	50.0	45.0	UPPER
RF Temp(C):	90.0	98.0	UPPER
RF Curr(A):	1.20	1.00	UPPER
PSU Temp(C):	90.0	98.0	UPPER
PSU Curr(A):	198.0	178.2	UPPER
FWD Pwr(W):	2500	2000	LOWER
REFL Pwr(W):	500	450	UPPER

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).



The screenshot shows a table of alarm settings on a dark background with yellow text. The table has columns for parameter names, Read (Rds), Enable (En), Delay (Dlay), Timer, and Alarm (Alrm) status.

	Rds	En	Dlay	Timer	Alrm
Env Temp(C):	0.0	F	120	1200	F
RF Temp(C):	0.0	F	120	1200	F
RF Curr(A):	0.00	F	120	1200	F
PSU Temp(C):	0.0	F	120	1200	F
PSU Curr(A):	0.0	F	120	1200	F
FWD Pwr(W):	0	F	120	1200	F
REFL Pwr(W):	0	F	120	1200	F

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.).



