ETG 2000.20
ETG 1500.15
ETG 1000.10
ETG 700.7
ETG 500.5
ETG 300.3
ETG 150

(the list of variants is in the manual)

SOLID STATE FM TRANSMITTER

Rev. 01- 27/11/2013
Cod. MAN1009QUK

ELENOS®
broadcast experience

IDENTIFICATION AND QUICK START MANUAL

Transmitter	N° RF modules	N° driver	Max output power
ETG 1000.10 ETG 900.10 ETG 800.10 ETG 700.10 ETG 600.10 ETG 500.10 ETG 400.10 ETG 300.10 ETG 250.10 ETG 200.10 ETG 150.10 ETG 100.10 ETG 80.10	2 FREESCALE MRF6VP2006H	1	From 1000W to 80W depending of variants
ETG 700.7 ETG 600.7 ETG 500.7 ETG 400.7 ETG 300.7 ETG 250.7 ETG 200.7 ETG 150.7 ETG 100.7 ETG 80.7 ETG 50.7	1 PHILIPS BLF578	0	From 700W to 50W depending of variants
ETG 500.5 ETG 400.5 ETG 300.5 ETG 250.5 ETG 200.5 ETG 150.5 ETG 100.5 ETG 80.5 ETG 50.5	1 PHILIPS BLF578	0	From 500W to 50W depending of variants

Transmitter	N° RF modules	N° driver	Max output power
ETG 300.3 ETG 250.3 ETG 200.3 ETG 150.3 ETG 100.3 ETG 80.3 ETG 50.3	1 FREESCALE MRF6V4300NR1	0	From 300W to 50W depending of variants
ETG 150 ETG 100 ETG 80 ETG 50 ETG 40 ETG 30 ETG 20 ETG 10	1 FREESCALE MRF6V2150NR1	0	From 150W to 10W depending of variants

Index

1 Informative letter

Dear Customer,
Thank you for choosing an Elenos product.
ELENOS s.r.l. produces solid state VHF/FM sound broadcasting transmitters ranging from minimum power of 10W to maximum power of 30kW, exchange units, remote control units, etc.

The equipment has been produced to ensure constant performance over time, provided all periodic checks and simple maintenance repairs required are carried out.

This equipment is very intuitive and user friendly. However, we recommend that the user reads this manual thoroughly as well as its attachments before carrying out any operation.

ELENOS s.r.l Management

1.1 Personnel in charge

This manual is an integral part of the equipment and **must be at hand for the personnel in charge of its installation, use and maintenance.**
The installation, use and maintenance of the device herein described **should be permitted to trained and experienced personnel only**, who have received the appropriate training on the use of the equipment and are aware of the risk connected to the use of a dangerous voltage device using high internal voltage generating radiofrequency at high power.
This manual should not be considered a comprehensive collection of the safety standards required for the use of the equipment.
The user and the maintenance technician must be aware of the content of this manual and its attachments.
This equipment can be used by holders of government licences and/or ministerial authorizations only.

This product must be used only by holders of Government Grant and is subject to National Regulations.

1.2 Warranty

The products sold to the Customer by Elenos Srl are covered by a 24-month warranty from the FOB date of shipment from Elenos Srl; this warranty covers both the customer and any subsequent purchasers of the product, as long as it is kept in excellent condition, and covers all types of faults due to defective parts on the product itself. An essential condition for the warranty issued by Elenos Srl to operate effectively is the registration of the product by the Customer through the website www.elenos.com/product-registration/.

Should the Customer encounter a fault while the warranty is in force, it must send immediate written notification to Elenos Srl and send the product to Elenos Srl or the nearest qualified Elenos Srl center at its own cost; Should the product purchased by the Customer fall within the category of "reduced mobility" products (weight over 50 kg), the maintenance or replacement of the defective part will take place in the place where the equipment is located by an engineer from the nearest qualified Elenos Srl center. All of the above is valid notwithstanding the judgment of the engineer appointed by Elenos Srl of the existence of one of the cases of exclusion from the warranty indicated above.

For details, please consult the Terms and Conditions documents.

1.3 Exclusion

The Customer expressly accepts the exclusion of Elenos Srl from the warranty of any faults caused by electric shocks, incorrect power supply voltages, negligence, carelessness or unskillfulness by the Customer, repairs, servicing or checks performed by unauthorized staff, installation or replacement of original parts with parts, systems or spare parts not supplied directly by Elenos Srl or by its authorized distributors, use of products other than those envisaged and any action or fact attributed to third parties who are granted availability of the products, or without the Customer being aware thereof, after the latter has received the delivery of the products.

The warranty expressly excludes the damage suffered by the products due to fires, floods or other natural disasters, wars, revolts, and in all cases in which the products are material object of a crime.

The warranty also expressly excludes damage suffered by products after the delivery of the goods by Elenos Srl to the carrier, the Customer being responsible for any risks connected with transport, whose time-frames, costs and methods are chosen and covered by the Customer.

For details, please consult the Terms and Conditions documents.

1.4 Exemption from liability

The Customer is responsible for the installation, maintenance and inspection of the products, as well as checking that the climatic and environmental conditions in which the products are placed for their use are suitable and do not compromise operation, all according to the Elenos Srl instruction manual delivered with the purchased product. Otherwise, should the Customer fail to observe the instructions contained in the instruction manual, and the minimum diligence required of normal users of the equipment, the warranty granted by Elenos Srl shall be invalid and the Customer takes full responsibility for the risk and any damage suffered by the products.

ELENOS s.r.l. reserves the right to modify parts, details and accessories should the company consider it necessary for the improvement of the equipment or for constructive or commercial purposes, at any time and without notice or without the need to update this manual immediately.

For details, please consult the Terms and Conditions documents.

2 CE conformity

For launching all its products on the market, **ELENOS s.r.l respects the procedures envisaged by the 1999/5/EC Directive.**
This includes the following:

- Technical documentation available exclusively to the Control Authority for 10 years after the launch on the market of the last equipment produced for that type. Such documentation contains the product description, the drawings, the electrical diagrams, circuits, etc., the standards to which it complies and the list of technical solutions guaranteeing observance and the reports of the technical tests performed, proof of respect for production standards.
- Declaration of Conformity - supplied with the product.
- EC marking indicated on the product and on the documentation.
- Written technical report from the European Notified Body, contained in the Technical file.
- Notification to the Authority of the member states where the product will be distributed.

ELENOS products comply with the essential requirements of relevant legislation, i.e.:
a) The user or any other person's health and safety protection, including the objectives in terms of the safety requirements required by law no. 791 of 18 October 1977, amended by Legislative Decree no. 626 of 25 November 1996, but without the application of voltage limits;
b) Protection requirements in terms of electromagnetic compatibility according to Legislative Decree no. 615 of 12 November 1996;
c) According to the national frequency allocation plan, radio equipment is built so as to efficiently use the spectrum attributed to earth and space radiocommunications and to orbital resources, thus avoiding dangerous interference;
d) Other essential requirements are those set forth by the European Commission according to which equipment belonging to certain categories or types must be built so as to:

- interact with other equipment through networks and be able to be connected to interfaces of appropriate type;
- not to damage the network or its operation, nor misuse the network resources, thus generating an unacceptable deterioration of the service;
- contain safety elements in order to guarantee the user's or subscriber's private life and personal data protection;
- support special functions which allow fraud to be prevented;
- support special functions which allow access to the emergency services;
- support special functions which facilitate use by disabled users.

LIST OF COUNTRIES WHERE THIS APPARATUS CAN BE USED		
AT	FI	LV
BE	FR	MT
BG	GB	NL
CH	GR	NO
CY	HU	PL
CZ	IE	PT
DE	IS	RO
DK	IT	SK
EE	LT	SI
ES	LU	SE
AUTHORIZATION IS REQUIRED TO USE THIS EQUIPMENT		

3 Safety

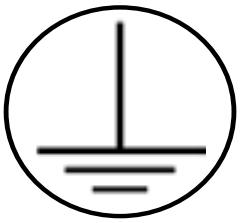
All ELENOS s.r.l products are compliant with the safety standards required for this type of equipment.

3.1 Precautions

The user must follow also the precautions listed below:

- The original configuration of the equipment must absolutely not be modified. Upon receipt, check that the supply is compliant with the order specifications and if not, report it to ELENOS s.r.l. immediately.
- Protective devices must not be disconnected, altered or modified without authorization (except for their replacement).
- Check all protective devices periodically and after a failure (e.g. devices against excess voltage, against excess currents, circuit breakers, etc.).
- For the safety of personnel and to guarantee the integrity of the equipment, it is absolutely forbidden to operate it and/or handle it with open doors and/or without its protection panels (even partially) and/or without the earth connection, which must always be of high quality and compliant to applicable laws. It is further forbidden to disconnect and/or alter the protective devices on the equipment.
- Before starting any operation, the equipment must be disconnected from the mains. Disconnection must be verified by a visual check.
- The equipment must be powered only at the appropriate voltage. Incorrect power voltage can cause irreparable damage to the equipment and the operator. This information can be found on the product nameplate, which is usually located on its casing. In no case must the nameplate be removed, even if the equipment is resold.
- The equipment must be powered by an electrical system which is compliant with applicable law.
- Other pictograms can be found on the equipment indicating the safety warnings which must be carefully followed by any operator. Failure to do so releases the Constructor from any liability for damages/injuries which may result to people or properties and makes the operator responsible for them.

Hazardous voltage



The equipment is directly connected to the "building installation"

Between the equipment and the "building connection" there is an interposed structure

- To ensure its correct operation do not cover the ventilation grids on the equipment. Do not place the equipment close to heat sources, flammable products or closed installations without appropriate ventilation.
- All firefighting and safety rules for the room where the equipment is located must be carefully followed.
- Avoid any contact between the equipment and liquids. Always disconnect the equipment before carrying out any cleaning operations. Do not use liquid or spray detergents.
- Some components contain TOXIC SUBSTANCES, such as for example BERYLLUM OXIDE. Please be aware that in some countries rules for storing and disposing of hazardous materials may apply.
- Following a visual check, if any component seems damaged, fractured or not intact, apply maximum care to its removal by hand or other means.
- Please ensure that any person in charge of the maintenance or use of a transmitter with parts under hazardous voltage is able to perform artificial respiration and cardiac massage. All staff must be trained on first aid practices. It is recommended to hang in a visible position a panel with clear instructions of first aid procedures for people injured in a work accident and to supply rooms where electrical equipment is present with first aid kits. It is recommended to organize and make available to all staff an intervention plan for connections with local public institutions or private first aid facilities.

3.2 First aid

This paragraph is NOT a comprehensive guide to first aid procedures; it is intended as a summary to be used as a reference.
It is the duty of all staff using this device to perform appropriate first aid procedures in order to prevent avoidable deaths.

3.2.1 Treatment of electrical burns

3.2.1.1 Extensive burns and skin cuts

- Cover the area with a clean sheet or cloth.
- Do not break blisters, remove tissue, remove adhered particles of clothing, or apply any ointment.
- Treat the victim for shock as required.
- Arrange transportation to a hospital as quickly as possible.
- If arms and legs are injured, keep them raised.

WARNING:
If medical help will not be available within one hour and the victim is responsive and has no bouts of sickness, administer them a salt and soda solution: 1 full teaspoon of salt and half teaspoon of sodium bicarbonate for every 250 ml of tepid water (neither hot or cold), allow the victim to sip it slowly about 4 times (1/2 glass) over a period of 15 minutes.
Discontinue if the victim suffers bouts of sickness. Do not administer alcohol.

3.2.1.2 Less severe burns (1st and 2nd degree)

- Apply cool (not ice cold) compresses using the cleanest available cloth.
- Do not break blisters, remove tissue, remove adhered particles of clothing, or apply any ointment.
- If necessary, put on clean and dry clothes
- Treat the victim for shock as required.
- Arrange transportation to a hospital as quickly as possible.
- If arms and legs are injured, keep them raised.

3.2.2 Treatment of electric shocks

3.2.2.1 If the victim is unresponsive

Place victim flat on his back on a hard surface

A) Airways (fig. a):

- if the victim is not responsive open the airways
- push the forehead back
- open the mouth if necessary
- check breathing

fig.a

B) Respiration (fig. b):

- if the victim cannot breathe, perform artificial respiration
- incline the head
- close the nostrils
- place your mouth on the victim's mouth
- perform 4 quick blows
- remember to start breathing immediately

fig.b

fig.c1

fig.c2

fig.c3

C) Circulation (fig. c1):

- check the pulse (fig. c1)
- if absent, start cardiac massage (fig. c2)
- compress the chest every 1.5 - 2 seconds
- if a rescuer is present, perform 15 compressions in approximately 80 seconds, + 2 quick blows
- if there are two rescuers, perform 5 compressions in approximately 60 seconds, + 1 quick blow (fig. c3)

WARNING :
Do not interrupt the rhythm of compressions when the second person is performing artificial respiration.

3.2.2.2 If the victim is responsive

- cover the victim with a blanket
- keep them as calm as possible
- loosen their clothing and place them in a reclining position

WARNING :
CALL FOR MEDICAL ASSISTANCE AS SOON AS POSSIBLE IN ALL CASES

3.3 Workplace characteristics

3.3.1 Room characteristics

In order to work freely on the equipment and to be able to perform the relative installation or maintenance operations, it is necessary to keep a minimum distance from the walls on all sides of the machine.

The room must be equipped with an appropriate system of clean and dust-filtered air ventilation with a flow rate suitable for the characteristics of the equipment operating in the room itself.

Outgoing exhausted air must be conveyed directly outside. If the size or the length of the duct is such that a significant loss in the air flow can be anticipated, it is necessary to add an extraction device. Anti-intrusion devices must be provided at the conveyor outlet (for insects or other animals) and precautions must be taken to prevent the entrance of liquids or other materials.

The equipment can operate properly if the temperature ranges from
-5°C to +45°C, with 95% RH non-condensing at +40°C.

3.3.2 Electrical system characteristics

The electrical system must comply with all applicable laws. The power supply network must allow the supply of the appropriate power according to the laws in force in the Country of installation on the quality of the electrical energy supply service.

It is highly recommended to use a transformer/network separator and a reduction network for discharging high voltage.

Provide a protected under load disconnector (circuit breaker or fuses) with appropriate disconnection power and capacity according to the absorption characteristics of the

equipment model.

Use cables of an appropriate size with respect to the rated absorbed current.

Earth connection must be performed according to the applicable laws.
Special care must be applied to the earth connection of the antenna system since it is exposed to electrical atmospheric events.
Never forget that despite the earth connection of the equipment frame and the whole antenna system, it is always dangerous to operate on the equipment in the event of bad weather with atmospheric discharge. In fact, in the event of high energy discharge (lighting), the equipment frame can instantly reach very dangerous voltage levels, due to the earth connection inductance.
For this reason, the equipment should be installed in rooms accessible to maintenance personnel only and for the time necessary for repairs and checks only.

4 Product presentation

4.1 Marks and labels

1 **INDIUM SERIES** ® – Transmitter series name. Indium series indicates the range of devices that use the precious metal indium. Indium has adaptability and thermal conductivity properties, with benefits of exchange efficiency that remain unchanged in an infinite time.

2 **ICEFET** ® – RF module design is such to ensure very high efficiency in the entire range of power output, low temperatures and, thus, a MOS devices life extention.

3 **LIFEXTENDER** ® – Optional system. Once operative it permits safe operation even in extremely harsh environmental conditions.

4 **ECOSAVING** ® (Reduction of energy consumption) – The device operative characteristics can ensure a great benefit to the ecology and operating costs.

[1]

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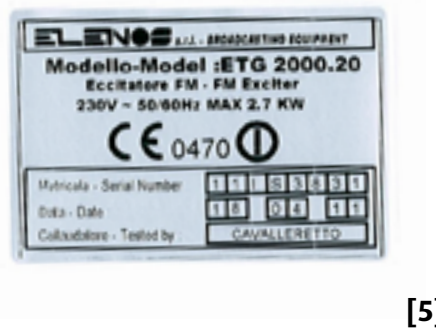
5 **IDENTIFICATION LABEL** – This label contains the main features : manufacturer name, model, power supply tipe, power consumption, CE marking, serial number, test date, tester name. Warning: do not remove this label.

6 **SERVICE LABEL** – This label contains the main references for Elenos assistance.

7 **DISPOSAL LABEL** – This label highlights how the equipment should be disposed in an appropriate manner, in accordance with the regulations.

8 **WARNING LABEL** – This label highlights how the equipment should be used in an appropriate manner.



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4.2 Front panel

1 **OLED display** – Graphic display that shows operative parameters and functions selected by encoder.

2 **Encoder** – Multi-function knob that allows to see functions menu and to modify operative parameters.

3 **Keyswitch** – It can be placed in LOCAL mode (front panel-manageable) or REMOTE mode (PC-manageable), by rotating the key supplied with the apparatus.

4 **Leds** – Leds list :

- MAINS (green) _ it is on in the presence of power supply;
- ST-BY (yellow) _ it is on when the transmitter is in stand-by;
- ON AIR (green) _ it is on when the transmitter is on air;
- PLL LOCK (yellow) _ it is on when the PLL is locked;
- FAULT (red) _ it is on when the transmitter is in a fault condition;
- LOCAL (blue) _ it is on if the tansmitter is in local mode.

5 **Button/Command** – Button list :

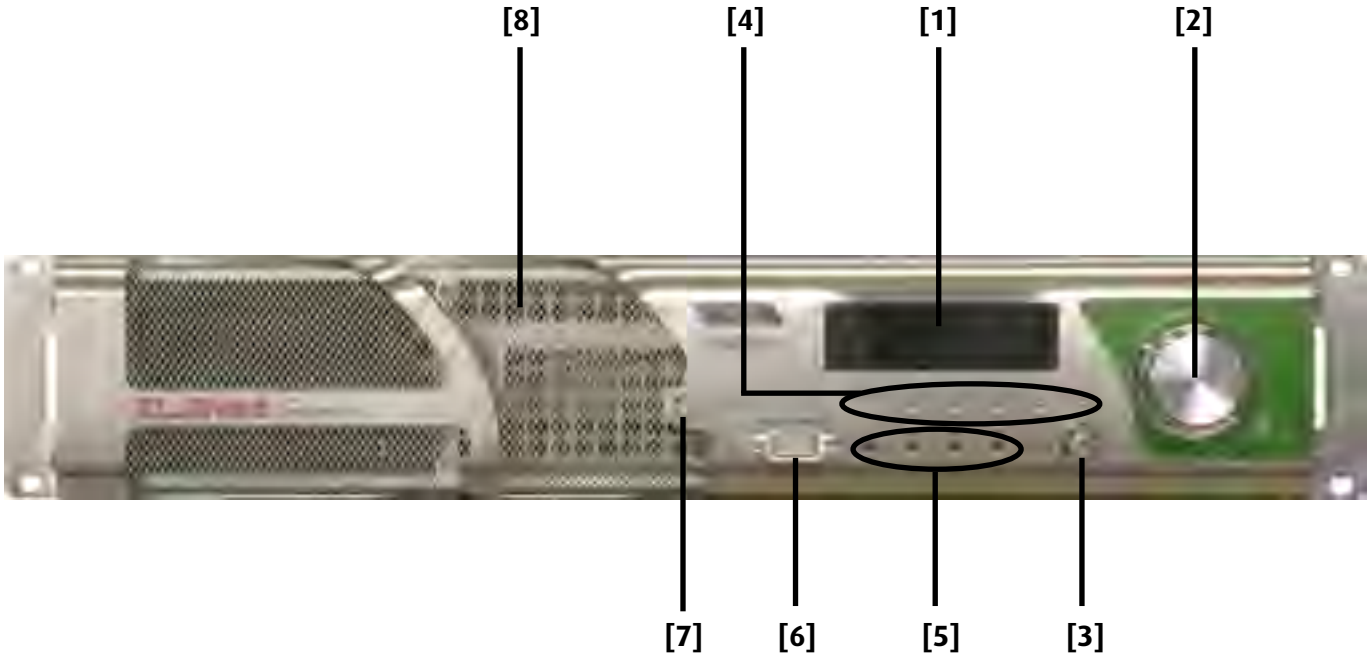
- LIFEXTENDER _ this button displays the status of LifExtender optional function (active / inactive, activity days, critical days);
- OFF _ through this button the user can put in stan-by the transmitter;
- ON _ through this button the user can put on air the transmitter;
- ESC _ through this button the user can back to main menù.

6 **EIA485/Telemetry connector** – DB9 connector, to connect a telemetry or a PC, according to EIA485 standard.

7 **RF Monitor connector** – BNC connector, to connect external measuring devices, it allows the measure of low level RF signal (0dBm full scale).
This monitor is not calibrated, so a perfectly constant output level, with frequency, is not guaranteed.
NOT used to measure the output power, nor to measure harmonic components.

8 **Ventilation grid** – It promotes cooling.

9 **Programming lever** – Located on the right side of the panel, looking at the machine front. It can be moved (using a screwdriver) to top (program mode), to bottom (running mode). For detailed steps of loading the software ask to the manufacturer the technical bulletin N° 125.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4.3 Rear Panel

1 **Power terminals** – To power supply connection. These terminals are protected by a special box to ensure the operator electrical safety.

2 **Screw for grounding** – Screw to put on ground the device.

3 **Fans** – Fans for cooling. Depending on the model they may be present in numbers equal to 2 or 3.

4 **RF connector** – Depending on power output it can be either 7/16 (ETG 2000.20, ETG 1500.15, ETG 1000.10, ETG 700.7, ETG 500.5) or N (ETG 300.3, ETG 150).

5 **LEFT/RIGHT (or MONO) analog inputs** – XLR connectors for audio inputs, left or right channels. The RIGHT input can be used as MONO input. They may be present or not, depending on the model.

6 **AES/EBU digital input** – XLR connector for AES/EBU digital audio input. It may be present or not, depending on the model.

7 **AUX inputs** – BNC connectors for channel modulating auxiliary input (RDS/SCA).

8 **MPX input** – BNC connector for the stereo modulating compound signal input.

9 **Monitor/19kHz OUT connector** – Output connector, BNC type, to monitor MPX, RDS or SCA signals, or to extract 19kHz signal of stereo subcarrier to synchronization. Set by hardware (jumper JP3).

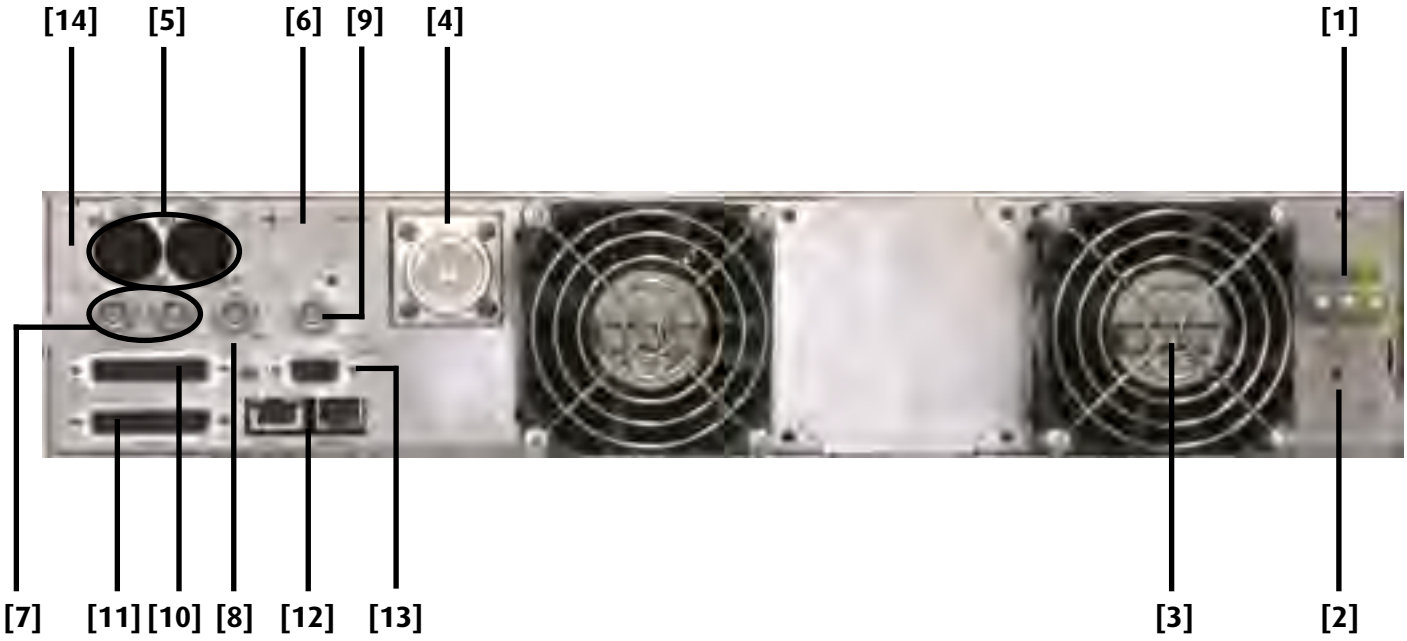
10 **TC/TS connector** – DB25 connector to remote TeleControl and TeleSignal (optional).

11 **Profiles connector** – DB25 connector to use the transmitter as reserve in N+1 system (optional).

12 **TCP/IP, RESERVED connector** – Connector to remote connection (optional).

13 **EIA485 connector** – DB9 connector to connect a telemetry, according to EIA485 standard (optional).

14 **EXT.REF 10MHz** - To synchronize the VCO to an external source (optional).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5.1 Installation

1

If you have available a rack insert the apparatus in it and fix it.

Without a rack it is important that:

- apparatus has been positioned at such a distance from the walls of the room, so you can perform installation and maintenance in a comfortable way;
- air holes are not obstructed;
- the apparatus as far away as possible from sources of heat or flammable products;
- the apparatus is as isolated as possible from contact with liquids.

2

To be sure of the proper grounding to be made at the screw located below the supply terminals and/or to the terminal referenced by the ground symbol (terminal yellow / green).

3

Verify that the value of the mains voltage and the conductors used are appropriate (see Table 1), then apply the line and neutral wires to the power terminal block.

The apparatus is designed for single-phase 230VAC power. Where the power supply is single-phase 115VAC, the guaranteed maximum power can be reduced (see Table 1).

WARNING: to connect the power cord to the terminals of the apparatus, be sure that **the cord is DISCONNECTED from the mains, or strictly UNPOWERED.**

if you need to disconnect the equipment to do backwards, always first disconnecting the plug from the mains and then removing the wires from the terminals.

	Typical consumption at rated power @ 230VAC	Typical consumption at rated power @ 115VAC	Typical current absorption @ 230VAC	Typical current absorption @ 115VAC	Cable cross section (minimum recommended)
ETG 150	230W	230W	1A	2A	2.5mmq (13AWG)
ETG 300.3	430W	430W	1.9A	3.8A	
ETG 500.5	690W	690W	3A	6A	
ETG 700.7	980W	980W	4.3A	8.6A	
ETG 1000.10	1400W	50% of consumption @230VAC, since the RF power provided @115VAC is 50% lower that @230VAC	6A	6A	
ETG 1500.15	2000W	50% of consumption @230VAC, since the RF power provided @115VAC is 50% lower that @230VAC	8.7A	8.7A	
ETG 2000.20	2700W	50% of consumption @230VAC, since the RF power provided @115VAC is 50% lower that @230VAC	11.7A	11.7A	

TABLE 1

4

Fix the protective screen of the terminals.

5

Connect the RF output connector to the antenna cable (to test the performance of the apparatus can be connected to a dummy load capable to consume the power supplied from the apparatus).

6

Connect the audio cables you need.

7

In case of option TC/TS, connect the interlock cable.

8

If the equipment is inside a Elenos rack connect the network cable to the socket on the rack and make sure that the circuit box is properly wired.
Arm the appropriate sections.
The device will automatically turn on in standby mode.

Without Elenos rack connect the power cord into an outlet suitable.

WARNING: **don't deliver RF power before you have connected the device to the antenna.**

5.2 Factory settings

The device leaves the factory with the following default settings.
If they match with the needs of the user simply set the desired power and place the device in RF ON.
Instead, if there was a need to change the parameters, refer to “Main parameters setting” in this section.

	EXCITER TYPE		
FACRTORY SETTINGS	With Stereo Coder (can operate in MPX mode, Stereo mode, and Mono mode)	With Stereo Coder + AES / EBU (can operate in MPX mode, Stereo mode, Mono mode, and AES / EBU mode)	With MPX (can operate in MPX mode only)
Output power	0W	0W	0W
Frequency transmission	98.000 MHz	98.000 MHz	98.000 MHz
Sensitivity L,R inputs for +/-75 kHz deviation	0dBm	0dBm	0dBm
Sensitivity MPX input for +/-75 kHz deviation	0dBm	0dBm	0dBm
Sensitivity AUX input	0dBm	0dBm	0dBm
19kHz subcarrier stereo	OFF (MPX input)	OFF (MPX input)	Not available
Preemphasis	0uS (linear)	0uS (linear)	Not available
Clipper	OFF	OFF	OFF
“NO AUDIO” alarm	ON, with thresholds setted for not intervening (-45 dB for 5 minutes)	ON, with thresholds setted for not intervening (-45 dB for 5 minutes)	ON, with thresholds setted for not intervening (-45 dB for 5 minutes)
VSWR/ROS foldback	OFF, protection by threshold	OFF, protection by threshold	OFF, protection by threshold

The device leaves the factory already programming with the lever down (running mode).
If there is Profile board the device profile ID is set to 1.

5.3 Main parameters setting

To set the parameters to the display device must be in LOCAL mode.

Instead, you can see part of the menu, even if it is in REMOTE mode, if there is the setting "DIP.ON REMOTE SHOW: TRUE" (for details refer to the "User Interface" paragraph).

The transition from LOCAL to REMOTE there is by turning the key, supplied, in the selector.

In LOCAL the blu led lights and automatically appears the "Status&Settings" screen.

9

All phases of navigation are operated from the encoder on the front panel.

The actions that can be accomplished through the knob are:

- SELECTION HIGHLIGHTED ITEM: short press of the knob.
- SCROLL OF ITEMS: turning the knob clockwise / counterclockwise.
- INCREASE / DECREASE: turning the knob clockwise / counterclockwise.
- RETURN TO MAIN MENU: long press of the knob (at least 1 sec.).

SCROLLING

SELECTION

5.3.1 Frequency setting

In Status&Settings screen rotate the encoder up to highlight the field frequency.
Press once to enter in the mask for adjustment.
The frequency field is now highlighted and editable: rotate clockwise/counterclockwise the encoder, respectively, to increase decrease the value.
Press the encoder to confirm.
The window now shows the new working frequency.

11

5.3.2 Power setting

In Status&Settings screen rotate the encoder up to highlight the field power.
Press once to enter in the mask for adjustment.
The power field is now highlighted and editable: rotate clockwise/counterclockwise the encoder, respectively, to increase decrease the value.
Press the encoder to confirm.
The window now shows the new working power.

5.3.3 Audio input setting

Depending on the audio signal type used to modulate, you must select the corresponding input.
In Status&Settings screen rotate the encoder until highlight the five horizontal tab menu.
Press to make the field editable.
Now rotate the encoder to see other options:

5.3.3.1 MUTE

Used to mute all inputs. It is usually used during maintenance.

5.3.3.2 MPX

To use an MPX signal, select this mode by moving the cursor on the display and press the encoder to confirm.
Apply the MPX signal to the BNC connector on rear panel.

5.3.3.3 STEREO

To use a STEREO signal, select this mode by moving the cursor on the display and press the encoder to confirm.
Apply the stereo signal to the XLR connectors on rear panel.
The audio signal can be both balanced and unbalanced. In the latter case there is a reduction of 3dB level.
Select the appropriate level of pre-emphasis for transmission by placing the cursor on the fourth tab on the horizontal menu.
Press the encoder to make the field editable. Rotate the encoder to select the desired level, then press to confirm.
You can choose between the values: 0, 25, 50 and 75µS.
Usually 50µS is the standard in the U.S. and 75µS in the EU.

5.3.3.4 MONO

To use a mono signal, select this mode on the display by turning the encoder and press to confirm.
Apply the signal to the connector XLR MONO/RIGHT on rear panel.
The audio signal can be both balanced and unbalanced. In the latter case there is a reduction of 3dB level.

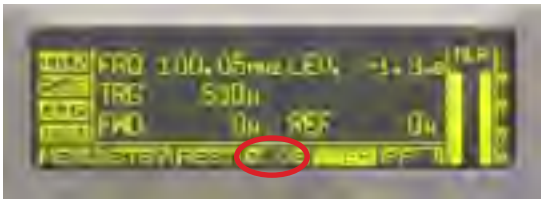
You can use other inputs, but they not be set directly from the screen Status&Settings.

5.3.3.5 AES/EBU

To use a signal AES/EBU is sufficient apply the signal to the XLR dedicated, located on the rear panel.
The signal is automatically recognized.
For more details on settings, see “User Interface” paragraph.

5.3.3.6 AUX SIGNALS (RDS/SCA)

To use an auxiliary signal is sufficient apply the signal to the corresponding BNC connector, located on the rear panel.
For more details on settings, see “User Interface” paragraph.



SAME PROCEDURE FOR PRE-EMPHASIS LEVEL

5.3.4 Audio level setting

In Status&Settings screen rotate the encoder up to highlight the field LEV.
Press the encoder to make it editable.
Rotare the encoder to turn down the amplification (-15dB).
Apply the desired audio signal.
Increase slowly the gain until the Vu-meter reach the 0 dB level in accordance with the audio signal peaks.
Confirm the value by pressing the encoder.
During operation the field CLIPPER should not light up, otherwise it means that the deviation is too high and therefore there is overmodulation.

APPLY AUDIO SIGNAL

5.3.5 Turn on

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In Status&Settings screen, to turn on the unit, rotate the encoder until highlight the second tab of the horizontal menu.
Press the encoder to make display the written RFON.

In LOCAL mode, you have a situation of conformity where occurs that:

- the 4 indicators (ITLK, -3dB, CLIP, NOAU) are off;
- the frequency is set to match the desired;
- the output power corresponds to the desired;
- the reflected power is zero or low value;
- Vu-Meter indicates the value 0dB.

15

After all phases of installation and programming, turn the unit in REMOTE mode using the key switch.
In REMOTE mode, you have a situation of conformity where occurs that:

- PLL LOCK LED is lit;
- ON AIR LED is lit;
- MAINS LED IS LIT;
- all remaining LEDs are off;
- the display shows the company logo if you have the setting “DIP.ON REMOTE SHOW: FALSE”, otherwise the display shows the menu to be scrolled if there is the setting “DIP.ON REMOTE SHOW: TRUE”.

Warning: you should keep a copy of the key in a secure location of the station.

6 Intervention register

6.1 Control register

Control data	Operation hours
Description	

Note	Signature

Control data	Operation hours
Description	

Note	Signature

Control data	Operation hours
Description	

Note	Signature

Control data	Operation hours
Description	

Note	Signature

Control data	Operation hours
Description	

Note	Signature

Control data	Operation hours
Description	

Note	Signature

Control data	Operation hours
Description	

Note	Signature

ETG 2000.20
ETG 1500.15
ETG 1000.10
ETG 700.7
ETG 500.5
ETG 300.3
ETG 150

(the list of variants is in the manual)

SOLID STATE FM TRANSMITTER

ELENOS®

broadcast experience

USER MANUAL

Rev. 00- 11/07/2011
Cod. MAN1009UUK

Operative Office : via G. Amendola 9, 44028 Poggio Renatico (Fe) ITALY
C.C.I.A.A. 101 216
C.Fisc. e P.IVA IT00415540384

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

For information and assistance please contact the Elenos Technical Assistance Service :

Phone : +39 0532 829965
Fax : +39 0532 829177
E-mail : info@elenos.com
Website : www.elenos.com (in On line Support page)

Please, give us information about the device serial number (shown on the identifying label).

Elenos s.r.l. declares that the equipment in this documentation complies with 1999/05/CE Directive.

CE 0470 ⓘ

For details see “CE Conformity” Section.

EC Declaration of Conformity

According to Directive 1999/5/EC (R&TTE)

CE

We : **ELENOS s.r.l. - via G.Amendola, 9 – 44028 Poggio Renatico (FE) - Italy**

Declare under our sole responsibility that the product:
ETG 2000.3, ETG 1900.3, ETG 1800.3, ETG 1700.3, ETG 1600.3, ETG 1500.3, ETG 1400.3, ETG 1200.3, ETG 1000.3, ETG 900.3, ETG 800.3, ETG 700.3, ETG 600.3, ETG 500.3, ETG 400.3, ETG 300.3, ETG 250.3, ETG 200.3, ETG 150.3, ETG 100.3
ETG 1400.2, ETG 1200.2, ETG 1000.2, ETG 900.2, ETG 800.2, ETG 700.2, ETG 600.2, ETG 500.2, ETG 400.2, ETG 300.2, ETG 250.2, ETG 200.2, ETG 150.2, ETG 100.2, ETG 80.2
ETG 800.1, ETG 700.1, ETG 600.1, ETG 500.1, ETG 400.1, ETG 300.1, ETG 250.1, ETG 200.1, ETG 150.1, ETG 100.1, ETG 80.1, ETG 50.1,
ETG 150, ETG 100, ETG 80, ETG 50, ETG 40, ETG 30, ETG 20, ETG 10
ETG 2000.20, ETG 1900.20, ETG 1800.20, ETG 1700.20, ETG 1600.20, ETG 1500.20, ETG 1400.20, ETG 1200.20, ETG 1000.20, ETG 900.20, ETG 800.20, ETG 700.20, ETG 600.20, ETG 500.20, ETG 400.20, ETG 300.20, ETG 250.20, ETG 200.20, ETG 150.20, ETG 100.20
ETG 1500.15, ETG 1400.15, ETG 1200.15, ETG 1000.15, ETG 900.15, ETG 800.15, ETG 700.15, ETG 600.15, ETG 500.15, ETG 400.15, ETG 300.15, ETG 250.15, ETG 200.15, ETG 150.15, ETG 100.15, ETG 80.15
ETG 1000.10, ETG 900.10, ETG 800.10, ETG 700.10, ETG 600.10, ETG 500.10, ETG 400.10, ETG 300.10, ETG 250.10, ETG 200.10, ETG 150.10, ETG 100.10, ETG 80.10
ETG 700.7, ETG 600.7, ETG 500.7, ETG 400.7, ETG 300.7, ETG 250.7, ETG 200.7, ETG 150.7, ETG 100.7, ETG 80.7, ETG 50.7
ETG 500.5, ETG 400.5, ETG 300.5, ETG 250.5, ETG 200.5, ETG 150.5, ETG 100.5, ETG 80.5, ETG 50.5
ETG 300.3, ETG 250.3, ETG 200.3, ETG 150.3, ETG 100.3, ETG 80.3, ETG 50.3

With intended purpose: VHF FM broadcast transmitters
And manufactured by: ELENOS s.r.l.

To which this declaration relates is in conformity with the essential requirements and other relevant requirements of the R&TTE Directive (1999/5/CE).
The product is in conformity with the following standards and/or other normative documents:

Health and safety requirements pursuant to Article 3.1.a
Standards applied: EN60215: 1989/A1:1992/A2:1994
Protection requirements concerning electromagnetic compatibility pursuant to article 3.1.b
Standards applied: EN301 489-1 V 1.8.1 ; EN301 489-11 V 1.3.1;
Measures for the efficient use of the radio frequency spectrum pursuant to article 3.2
Standards applied: EN302 018-2 V1.2.1

Supplementary information :
Notified body involved: Nemko AS
Technical file held by : Elenos s.r.l and Nemko AS

Place and Date: Ferrara My 16, 2011

Responsible person: Leonardo Busi (Amministratore unico)
Tel. +39 0532 829965
e.mail : leonardobusi@elenos.com

Signature

AMMINISTRATORE UNICO

Family variants

Transmitter	N° RF modules	N° driver	Max output power
ETG 2000.20 ETG 1900.20 ETG 1800.20 ETG 1700.20 ETG 1600.20 ETG 1500.20 ETG 1400.20 ETG 1200.20 ETG 1000.20 ETG 900.20 ETG 800.20 ETG 700.20 ETG 600.20 ETG 500.20 ETG 400.20 ETG 300.20 ETG 250.20 ETG 200.20 ETG 150.20 ETG 100.20	3 FREESCALE MRF6VP11KH	1	From 2000W to 100W depending of variants
ETG 1500.15 ETG 1400.15 ETG 1200.15 ETG 1000.15 ETG 900.15 ETG 800.15 ETG 700.15 ETG 600.15 ETG 500.15 ETG 400.15 ETG 300.15 ETG 250.15 ETG 200.15 ETG 150.15 ETG 100.15 ETG 80.15	2 FREESCALE MRF6VP11KH	1	From 1500W to 80W depending of variants

Transmitter	N° RF modules	N° driver	Max output power
ETG 1000.10 ETG 900.10 ETG 800.10 ETG 700.10 ETG 600.10 ETG 500.10 ETG 400.10 ETG 300.10 ETG 250.10 ETG 200.10 ETG 150.10 ETG 100.10 ETG 80.10	2 FREESCALE MRF6VP2006H	1	From 1000W to 80W depending of variants
ETG 700.7 ETG 600.7 ETG 500.7 ETG 400.7 ETG 300.7 ETG 250.7 ETG 200.7 ETG 150.7 ETG 100.7 ETG 80.7 ETG 50.7	1 PHILIPS BLF578	0	From 700W to 50W depending of variants
ETG 500.5 ETG 400.5 ETG 300.5 ETG 250.5 ETG 200.5 ETG 150.5 ETG 100.5 ETG 80.5 ETG 50.5	1 PHILIPS BLF578	0	From 500W to 50W depending of variants

Transmitter	N° RF modules	N° driver	Max output power
ETG 300.3 ETG 250.3 ETG 200.3 ETG 150.3 ETG 100.3 ETG 80.3 ETG 50.3	1 FREESCALE MRF6V4300NR1	0	From 300W to 50W depending of variants
ETG 150 ETG 100 ETG 80 ETG 50 ETG 40 ETG 30 ETG 20 ETG 10	1 FREESCALE MRF6V2150NR1	0	From 150W to 10W depending of variants

Index

1 General information

1.1 Intended use

The products described in this document are solid state transmitters with an output power adjustable from 0W up to the maximum rating (see “Family variants“ section), using in FM band between 87.5 and 108MHz at 10kHz steps.
The Indium series, this is its name, that already stands for new lines, new colors, an innovative look, and especially new technology designed to outstanding performance, has been further improved.
More compact size, weight not exceeding 10kg, with an extension of output power maximum range (up to 2000W).
The RF performance, obtained with a number of modules from 3 to 1 depending on the model purchased, are close to the finish line that is not superable in terms of efficiency, with devices and technologies of today.
Thanks to these features, ETG series allows a drastic electricity costs reduction.
The product distinguishing features remain : ECOSAVING, ICEFET, VSWR PEAK HOLD, monitoring capability, protection against corrosion.
The options would satisfy all needs : MPX, STEREO or AES/EBU versions; TC/TS, TC/TS+ETHERNET+PROFILES options; LIFEXTENDER.

1.2 Shipment

The shipment may only be performed in its original packaging.
However, although this is designed to avoid product damages, even in mishandling case, it is recommended to respect the “UP/DOWN” side and to not give shocks.
To make sure that the type of transport and lifting equipment type are capable to support the weight.

1.3 Unpacking

The staff, handling the product, should operate with gloves and shoes against injury.
Before lifting or handling equipment to verify that you have done to clear the area of operation, considering a safety area large enough to avoid damage to persons or objects that may be in the range of maneuver.

1.4 Storage

If you wish, for whatever reason, store the product it is necessary that:

- the temperatures, in the storage, are not exceeded -20 ° - +55 ° C, with humidity not exceeding 90% at 55 ° C;
- the equipment must be disconnected from the sources of energy;
- the equipment is clean and there are any dust;
- the equipment is covered with a waterproof sheet.

1.5 Off line and disposal

For all aspects concerning the product disposal, reference should be made the specifications required by European Directives.
However, please note that **the equipment DOES NOT CONTAIN OILS POLLUTION.**

1.6 Purchased product verification

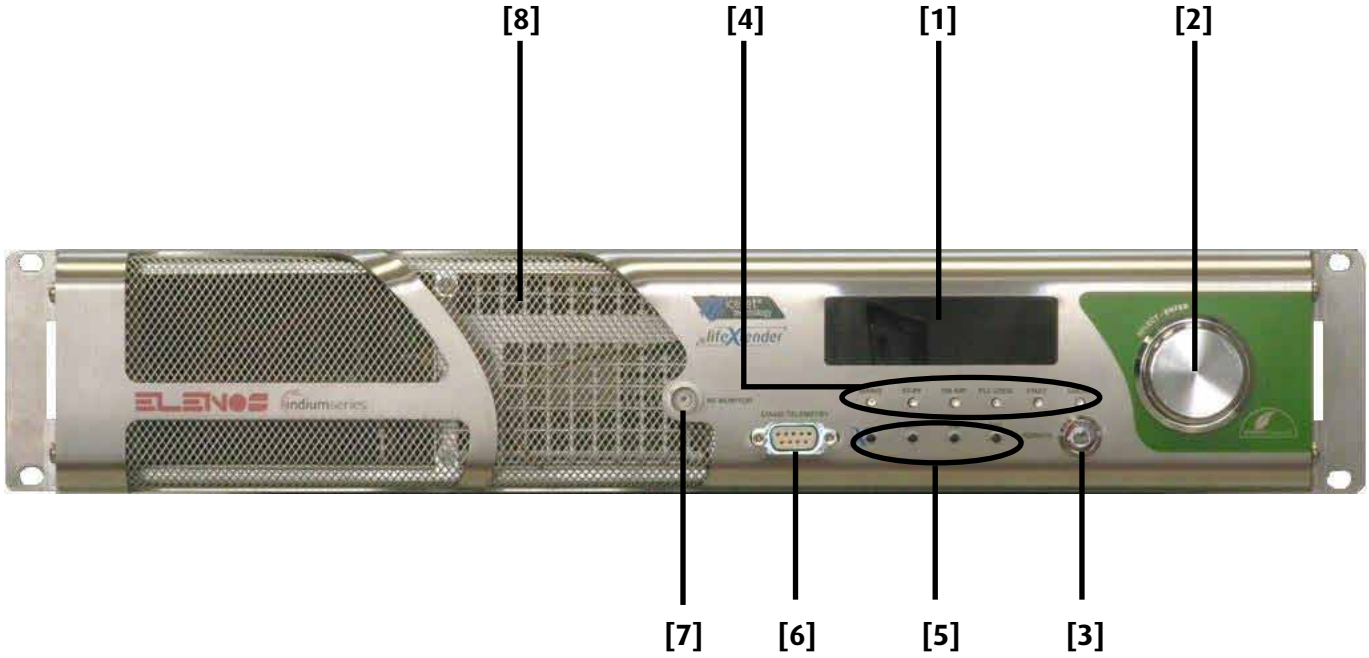
Please note, before installing the equipment, to verify that it has not been damaged during transportation or storage conditions.
Check that all standard components and accessories ordered have been delivered correctly, and if not please contact Elenos for material adjustment.

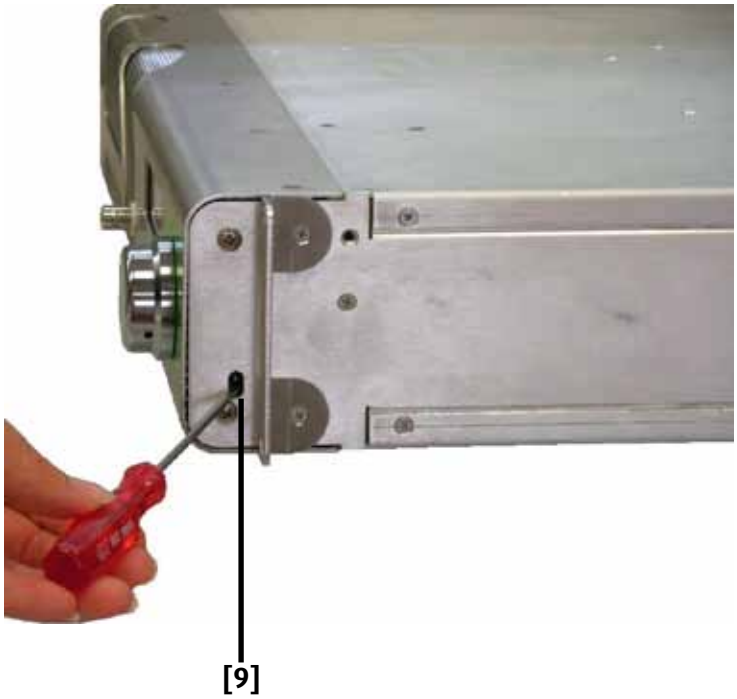
In this case the package must contain at least :

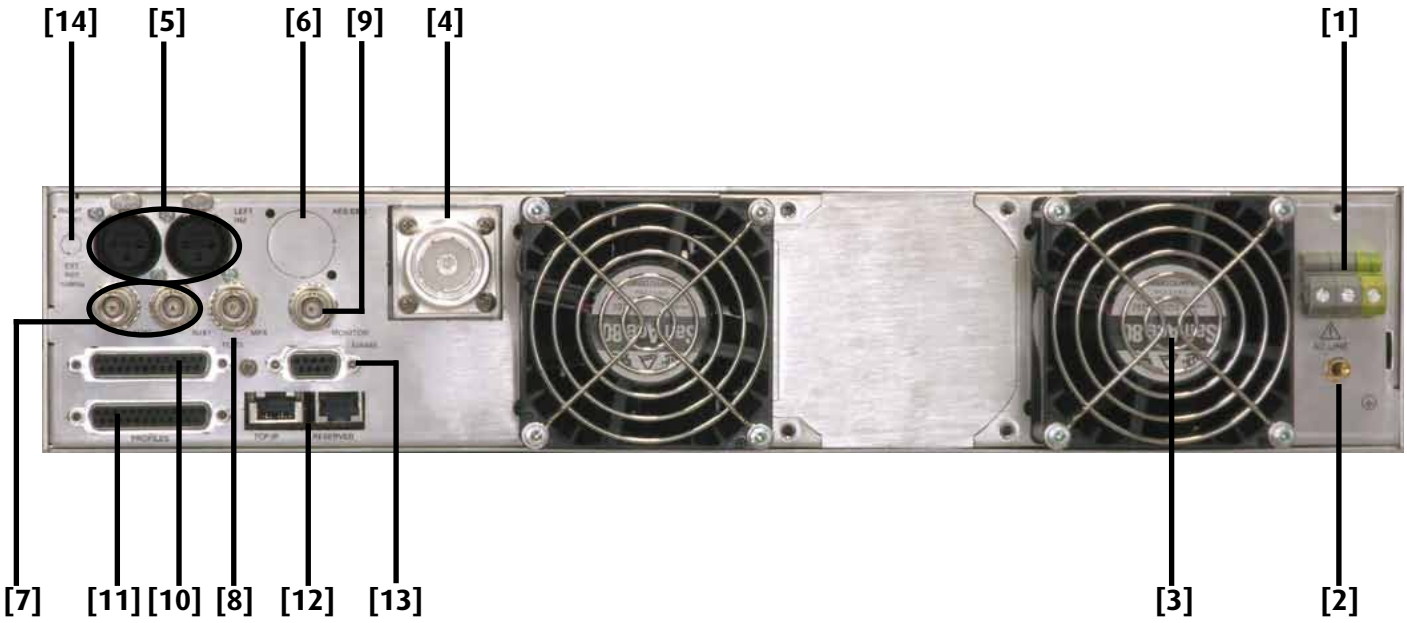
- n°1 Indium series product;
- n°1 “Identification and Quick Start” manual, which should be kept at station, always attached to the product;
- n°1 “User” manual.

Cables, spare parts and other accessories can be obtained by Elenos or Elenos dealers.

2 Product description



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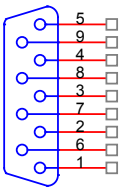
[3]
[2]

2.1 External connectors description

2.1.1 EIA485/Telemetry connector

N°[6] Front panel (DB9 Female)

Connector	Pin No.	Signal	Remark
CN3 Panel board			
	1	TX_1	485 filtered output Differential signal (+)
	2	/TX_1	485 filtered output Differential signal (-)
	3	RX_1	485 filtered input Differential signal (+)
	4	/ RX_1	485 filtered input Differential signal (-)
	5	GND / Common	
	6	GND / Common	
	7	GND / Common	
	8	GND / Common	
	9	GND / Common	



2.1.2 LEFT/RIGHT connectors

N°[5] Rear panel (XLR Female)

Connector	Pin No.	Signal	Remark
J1 or 101 Stereo or AES/EBU board			
	1	GND / Common	
	2	Differential audio input "positive"	Right channel
	3	Differential audio input "negative"	Right channel
	4	Frame to ground	

Connector	Pin No.	Signal	Remark
J2 or 102 Stereo or AES/EBU board			
	1	GND / Common	
	2	Differential audio input "positive"	Left channel
	3	Differential audio input "negative"	Left channel
	4	Frame to ground	

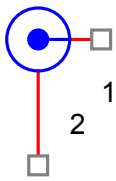
2.1.3 AES/EBU connector

N°[6] Rear panel (XLR Female)

Connector	Pin No.	Signal	Remark
J3 AES/EBU board			
	1	GND / Common	
	2	Differential audio input "positive"	Left channel
	3	Differential audio input "negative"	Left channel
	4	Frame to ground	

2.1.4 AUX connectors

N°[7] Rear panel (BNC Female)

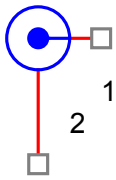


Connector	Pin No.	Signal	Remark
J2 or CN2 Coder Stereo or MPX board			
	1	RDS/SCA/AUX1	Input (RDS/SCA only with Coder Stereo board)
	2	GND / Common	

Connector	Pin No.	Signal	Remark
J3 Coder Stereo board			
	1	AUX2	Input
	2	GND / Common	

2.1.5 MPX connector

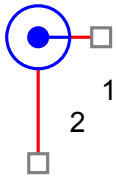
N°[8] Rear panel (BNC Female)



Connector	Pin No.	Signal	Remark
J1 or CN1 Coder Stero or MPX board			
	1	External MPX	Input
	2	GND / Common	

2.1.6 Monitor/19kHz connector

N°[9] Rear panel (BNC Female)

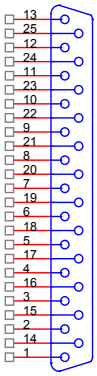


Connector	Pin No.	Signal	Remark
J4 or CN3 Coder Stero or MPX board			
	1	Monitor MPX-19KHz	Input (10KHz only with Coder Stereo board)
	2	GND / Common	

2.1.7 TC/TS connector (option)

N°[10] Rear panel (DB25 Female). Signals compatible with IEC 60864-1 standard).

Connector	Pin No.	Signal	Remark
CN1 TC/TS board			
	1	F_TC_INTRLCK	Interlock (Enable) Pin connected to ground = command active
500ms	2	F_TC_TX_ON	TX ON Pin connected to ground = command active
500ms	3	F_TC_TX_OFF	TX OFF Pin connected to ground = command active
V	4	F_DTM_REFL_PWR	Analog voltage output reflected power (see 2 .1.7.1 paragraph user manual)
	5	GND / Common	
	6	F_RX-	EIA485
	7	-	Not connected
	8	F_TX-	EIA485
	9	GND / Common	
V	10	F_DTM_I_PA	Analog voltage output current Power Amplifier (see 2.1.7.1 paragraph user manual)
open collector	11	F_TS_/FLT_MAIN	FAULT status mains Pin must be externally powered. “Open” status → Fault active
open collector	12	F_TS_TX_ON	TX ON status Pin must be externally powered. “Closed to ground” status → TX ON
open collector	13	F_TS_WARNING	Warning Pin must be externally powered. “Closed to ground” status → Warning active
	14	F_TC_ALRM_RST	Reset allarms Pin connected to ground = command active
	15	-	Spare pin
	16	-	Reserved Elenos
V	17	F_DTM_FWD_PWR	Analog voltage output direct power (see 2 .1.7.1 paragraph user manual)
	18	GND / Common	
	19	F_RX+	EIA485
	20	F_TX+	EIA485
	21	GND / Common	
V	22	F_DTM_V_PA	Analog voltage output voltage Power Amplifier (see 2.1.7.1 paragraph user manual)
open collector	23	F_TS_FLT_AUDIO	Allarm FAULT audio Pin must be externally powered. “Closed to ground” status → Alarm active
open collector	24	F_TS_/FLT	Allarm FAULT Pin must be externally powered. “Open” status → Alarm active
open collector	25	F_TS_REMOTE	Remote status Pin must be externally powered. “Closed to ground” status → Remote signal active



2.1.7.1 Analog output scale value

The TC/TS analog output scale are normalized at 4V. The resolution is equal to 1/204.

Device	Parameters	Scale output	fs factor
ETG 150	FWD pwr	150W	1V/37.5W
	REFL pwr	15W	1V/3.75W
	PA current	10A	1V/2.5A
	PA voltage	50V	1V/12.5V

Device	Parameters	Scale output	fs factor
ETG 300.3	FWD pwr	300W	1V/75W
	REFL pwr	30W	1V/7.5W
	PA current	10A	1V/2.5A
	PA voltage	50V	1V/12.5V

Device	Parameters	Scale output	fs factor
ETG 500.5	FWD pwr	500W	1V/125W
	REFL pwr	50W	1V/12.5W
	PA current	25A	1V/6.25A
	PA voltage	50V	1V/12.5V

Device	Parameters	Scale output	fs factor
ETG 700.7	FWD pwr	700W	1V/175W
	REFL pwr	70W	1V/17.5W
	PA current	25A	1V/6.25A
	PA voltage	50V	1V/12.5V

Device	Parameters	Scale output	fs factor
ETG 1000.10	FWD pwr	1000W	1V/250W
	REFL pwr	100W	1V/25W
	PA current	50A	1V/12.5A
	PA voltage	50V	1V/12.5V

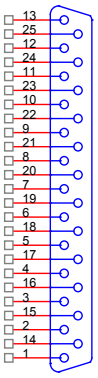
Device	Parameters	Scale output	fs factor
ETG 1500.15	FWD pwr	1500W	1V/375W
	REFL pwr	150W	1V/37.5W
	PA current	50A	1V/12.5A
	PA voltage	50V	1V/12.5V

Device	Parameters	Scale output	fs factor
ETG 2000.20	FWD pwr	2000W	1V/500W
	REFL pwr	200W	1V/50W
	PA current	75A	1V/18.75A
	PA voltage	50V	1V/12.5V

2.1.8 Profiles connector (option)

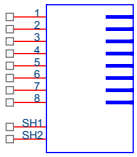
N°[11] Rear panel (DB25 Female)

Connector	Pin No.	Signal	Remark
CN1 Channel board			
	1	Telecontrol input channel 1 (0V..12V)	0V..24V
	2	Telecontrol input channel 3 (0V..12V)	0V..24V
	3	Telecontrol input channel 5 (0V..12V)	0V..24V
	4	Telecontrol input channel riserve (0V..12V)	0V..24V
	5	GND / Common	
	6	GND / Common	
	7	-	Not connected
	8	GND / Common	
	9	GND / Common	
	10	GND / Common	
	11	Telesignal output channel 5 (0V..24V)	Max current 50mA
	12	Telesignal output channel 3 (0V..24V)	Max current 50mA
	13	Telesignal output channel 1 (0V..24V)	Max current 50mA
	14	Telecontrol input channel 2 (0V..12V)	0V..24V
	15	Telecontrol input channel 4 (0V..12V)	0V..24V
	16	Telecontrol input channel 6 (0V..12V)	0V..24V
	17	-	Not connected
	18	GND / Common	
	19	GND / Common	
	20	GND / Common	
	21	GND / Common	
	22	GND / Common	
	23	Telesignal output channel 6 (0V..24V)	Max current 50mA
	24	Telesignal output channel 4 (0V..24V)	Max current 50mA
	25	Telesignal output channel 2 (0V..24V)	Max current 50mA



2.1.9 TCP/IP - Reserved connectors (option)

N°[12] Rear panel (RJ48)

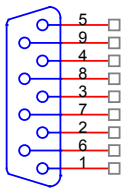


Connector	Pin No.	Signal	Remark
CN2 Channel board			
	1	GND / Common	Standard EIA485 (0..5V)
	2	Signal TX-	Standard EIA485 (0..5V)
	3	Signal TX+	Standard EIA485 (0..5V)
	4	Signal RX+	Standard EIA485 (0..5V)
	5	Signal RX-	
	6	GND / Common	
	7	Interlock	Open Collector signal without protection diode
	8	GND / Common	

Connector	Pin No.	Signal	Remark
CN3 Channel board			
	1	ETHERNET connector	
	2	ETHERNET connector	
	3	ETHERNET connector	
	4	ETHERNET connector	
	5	ETHERNET connector	
	6	ETHERNET connector	
	7	ETHERNET connector	
	8	ETHERNET connector	

2.1.10 EIA485 connector (option)

N°[13] Rear panel (DB9 Female)



Connector	Pin No.	Signal	Remark
CN2 TC/TS board			
	1	TX_1	EIA485
	2	/TX_1	EIA485
	3	RX_1	EIA485
	4	/RX_1	EIA485
	5	GND / Common	
	6	GND / Common	
	7	GND / Common	
	8	GND / Common	
	9	GND / Common	

2.4 Options

ETG models can be purchased with options :

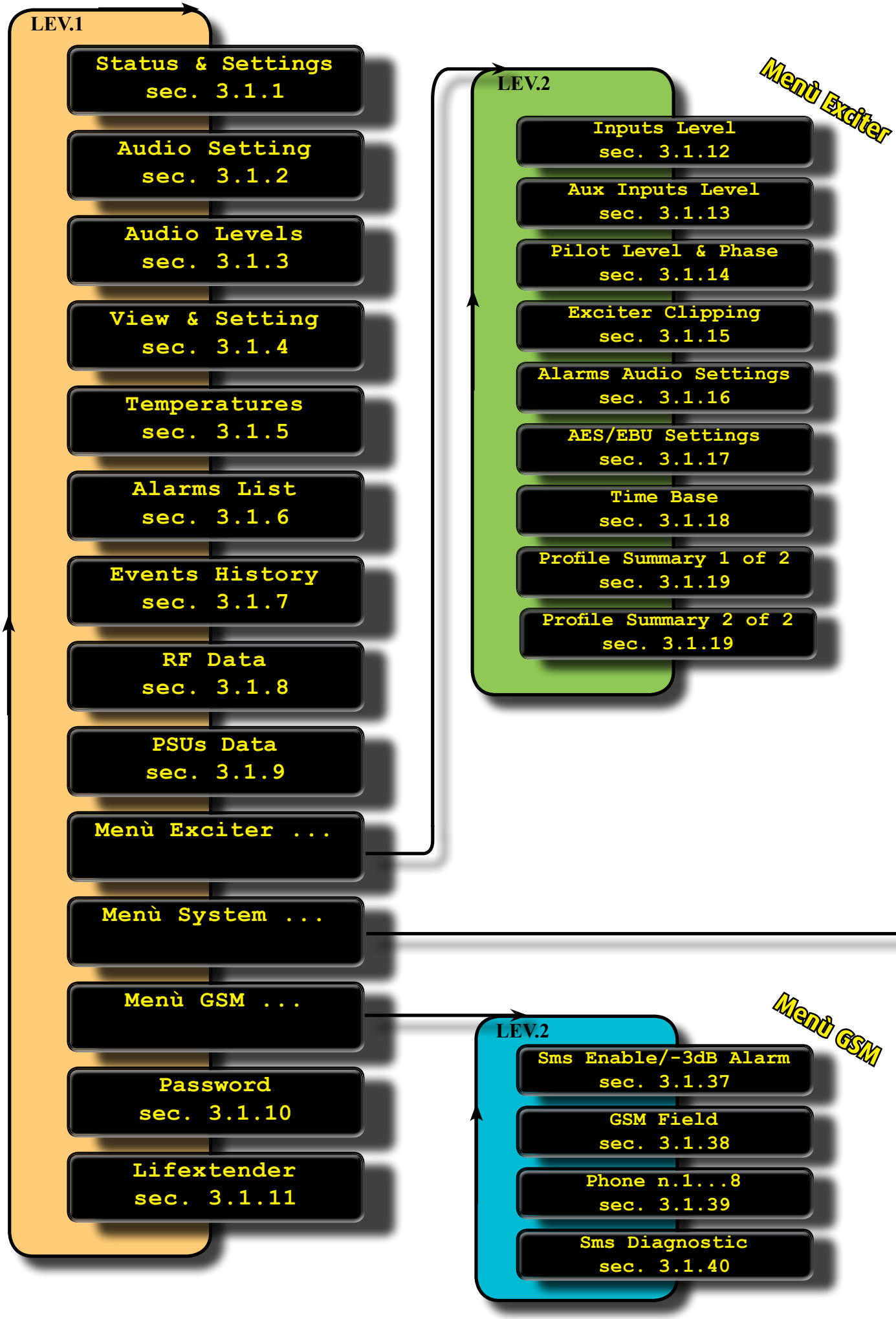
Input modulating signal version	Option	Purchase information model code
MPX Inputs: • MPX • Aux 1 Outputs: • MPX monitor	BASE	00E-XAX-10 (ETG 2000.20) 00E-WAX-10 (ETG 1500.15) 00E-TAX-10 (ETG 1000.10) 00E-KAX-10 (ETG 700.7) 00E-SAX-10 (ETG 500.5) 00E-UAX-10 (ETG 300.3) 00E-VAX-10 (ETG 150)
	TC/TS	00E-XAX-20 (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)

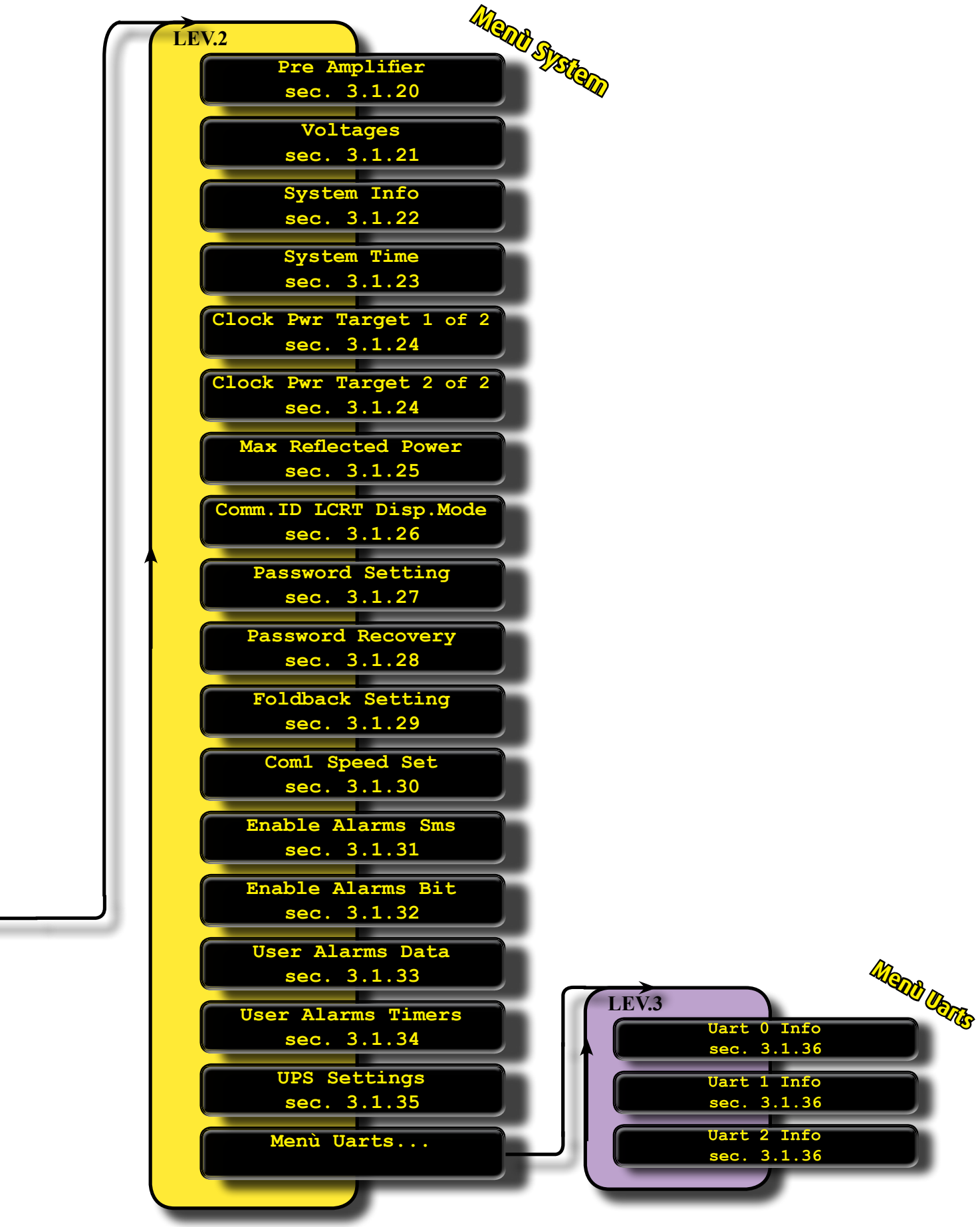
If you want the Lifextender functionality please specify it in order.

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.

Indication : when lit indicates that the interlock contacts are open

Indication : when lit indicates a power loss below 3 dB (<50% of target)

Indication : when lit indicates the clipper action caused by an audio overdriving

Indication : when lit indicates no signal beyond the preset limits

Target frequency

Forward power

Target audio level

Vu-meter : should achieve near 0dB

Forward power really present

Reflected power : must be zero or low value

To see the list of all available manù

To turn on, or put on stand-by the system

To reset alarms

To set the preemphasis level

Per settare il segnale audio

To set the profile

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

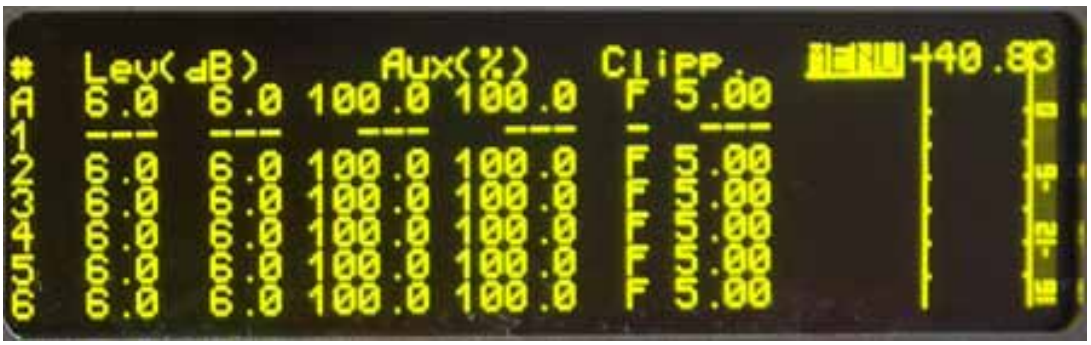
If you have AES/EBU connection you can still choose the ANALOG operating mode through this screen, setting “Audio input mode” properly as ANALOG or AUTO.
The “Current mode” value automatically adapts.

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.

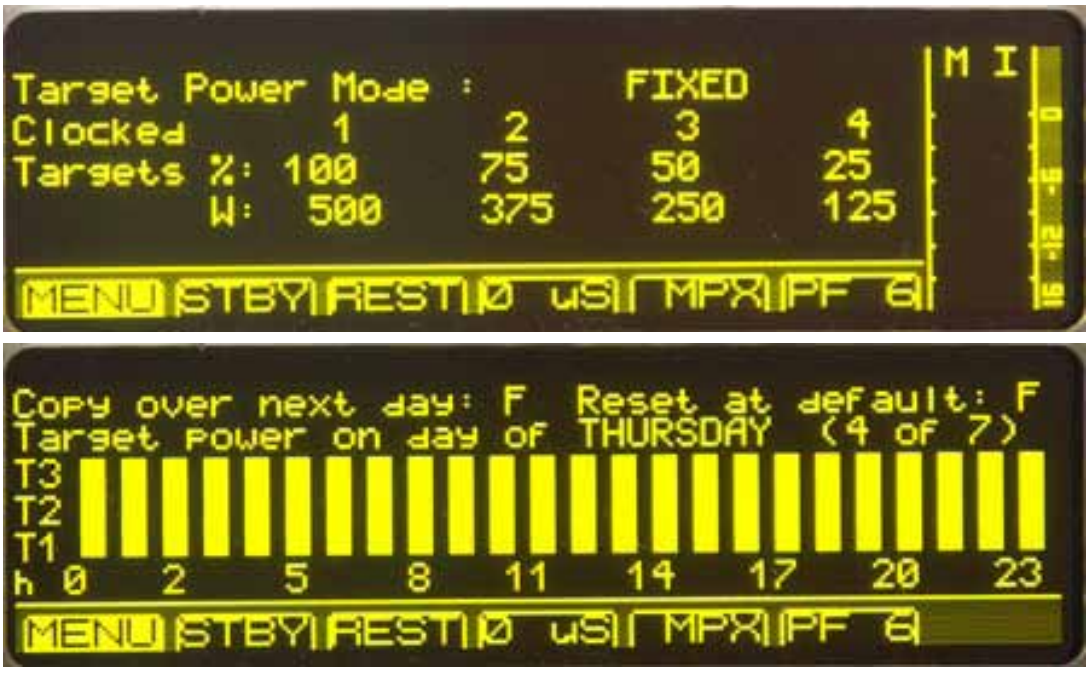
To set the output power as time slots the field "Target Power Mode" must be setted as "CLOCKED".

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

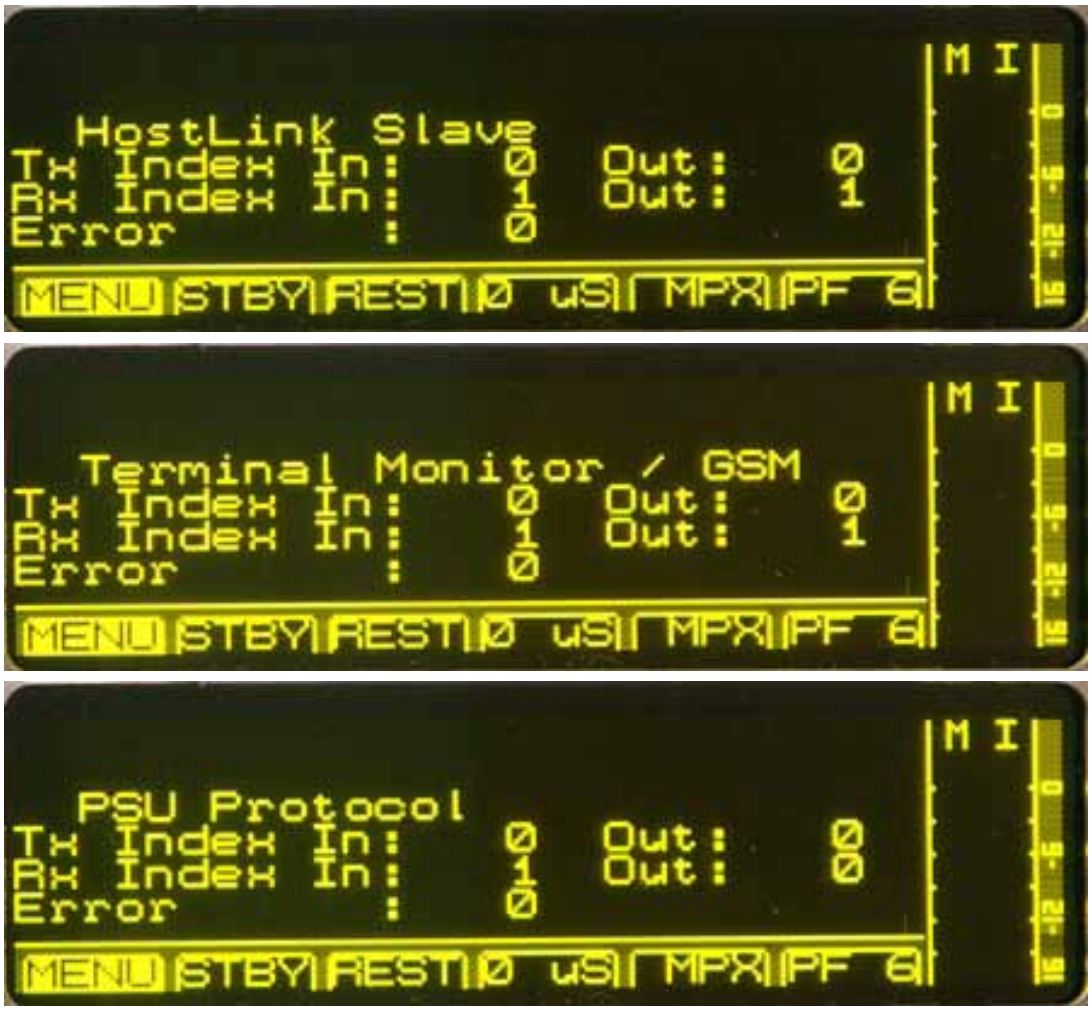
For the alarms mentioned above can also set a time for which the condition must occur to consider the alert real (“dlay).
From this screen you can also view the progress of the timer that keeps track of this time and the enable of an alarm via a status flags.

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.

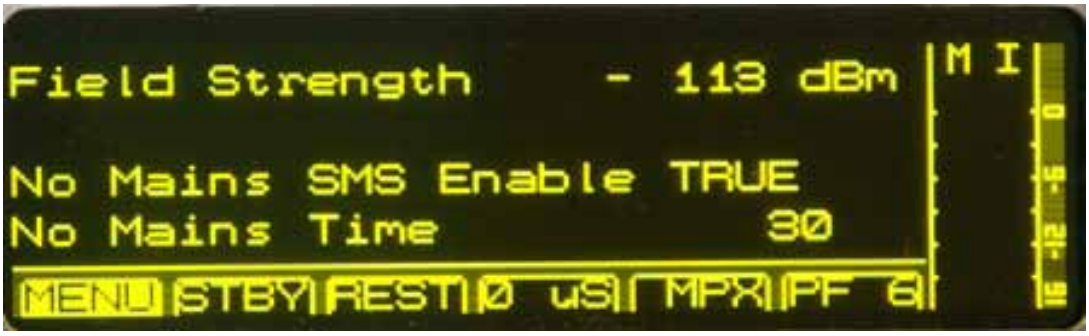


3.1.37 SMS Enable/-3dB Alarm

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

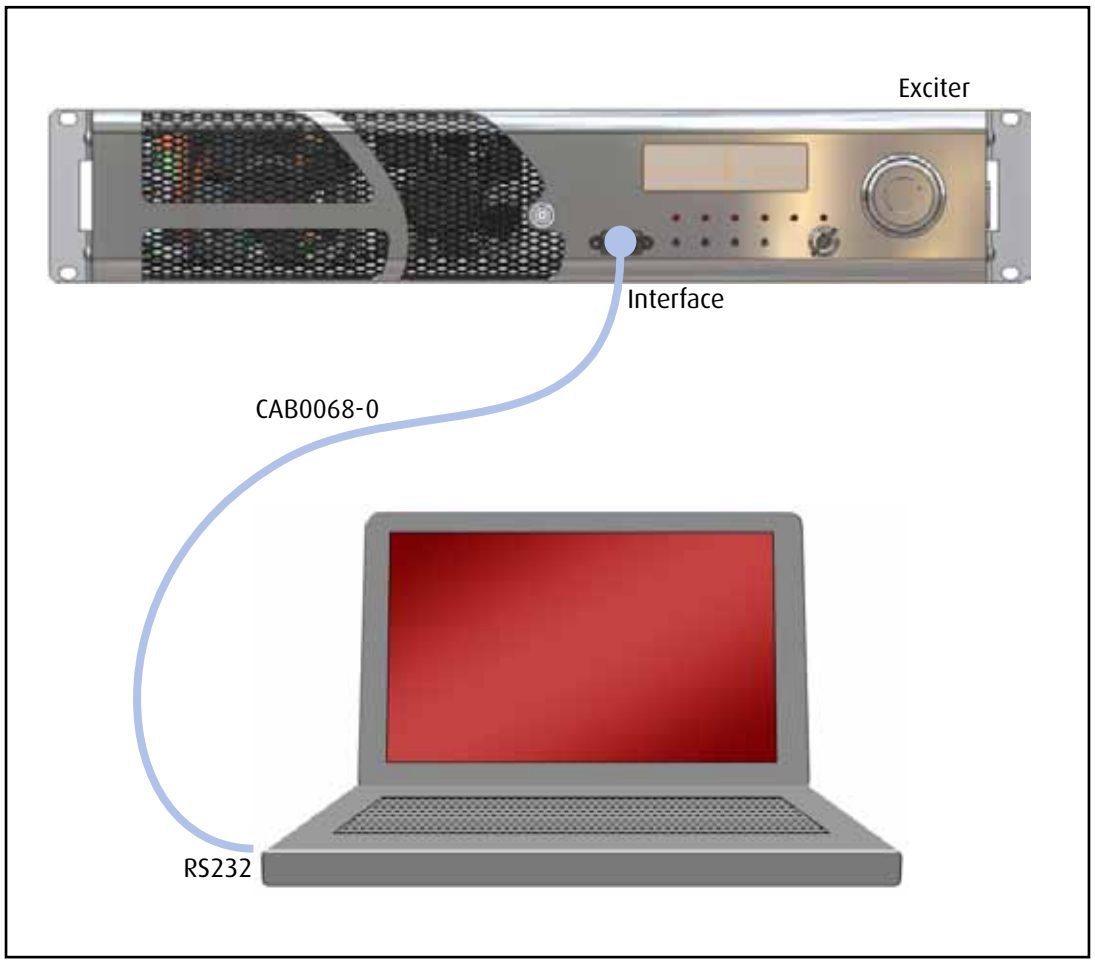
3.4.1 PC connection

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 :                                                             |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
|                                                                         |
+-------------------------------------------------------------------------+
```

```
+-------------------------------------------------------------------------------+
| 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 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 SETTINGS ===>                                                        |
|-------------------------------------------------------------------------------|
|                                                                               |
|                                                                               |
| User   password        (n.): 0000                                             |
| System password        (n.): 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   |
|-------------------------------------------------------------------------------|
| 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 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)

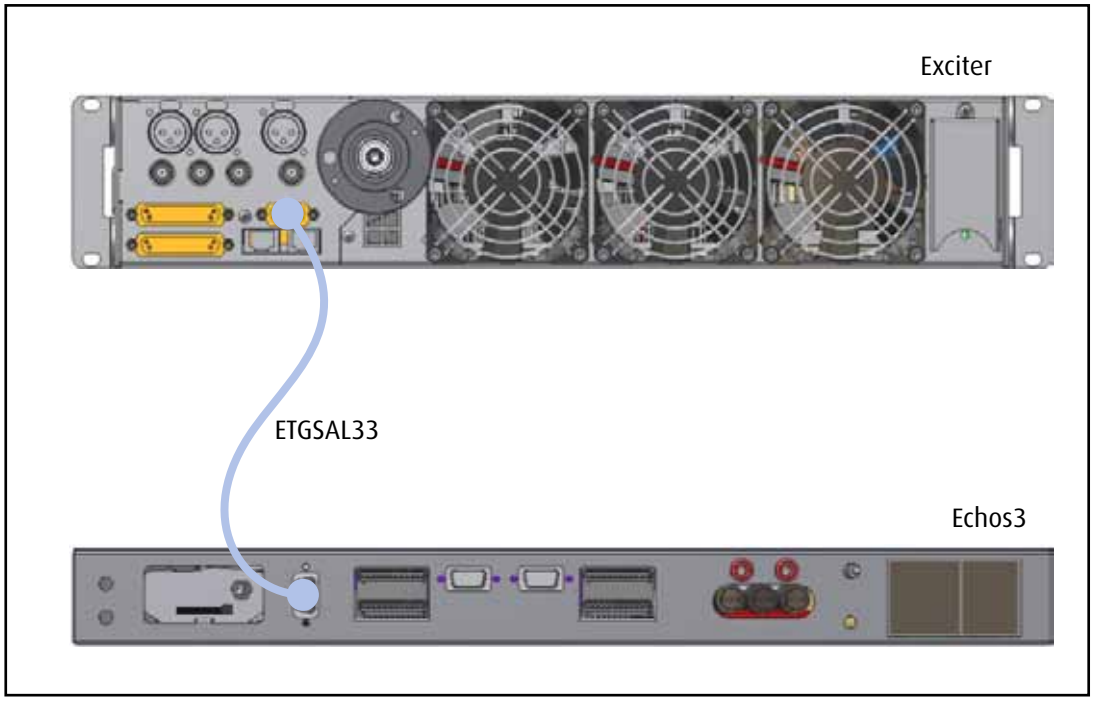
```
+-------------------------------------------------------------------------------+
| ELENOS ETG500_1P  S/N.06SA0000  ELENOS <id 0000> life eXtender [menu=Q]       |
|-------------------------------------------------------------------------------|
| Status : 004 STOP                              08:52 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.

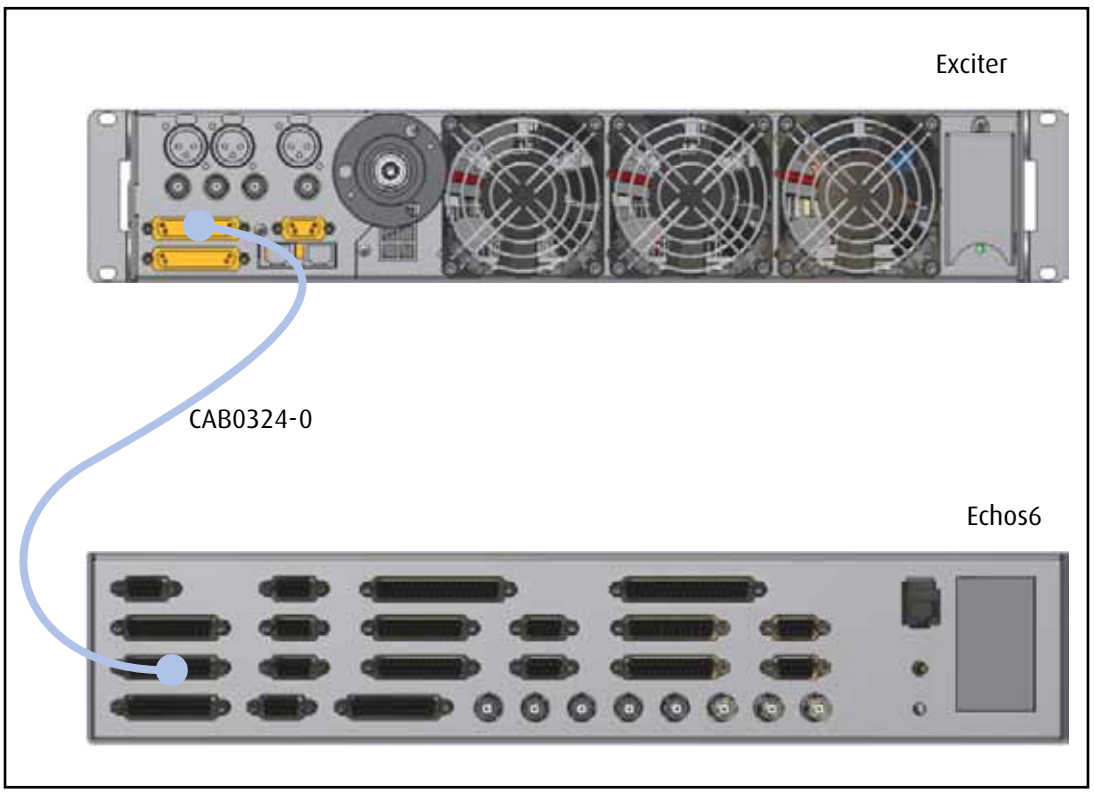
If the device is a reserve to use an additional shielded cable to insert in “PROFILES” connector, DB25, in the rear panel of the machine.

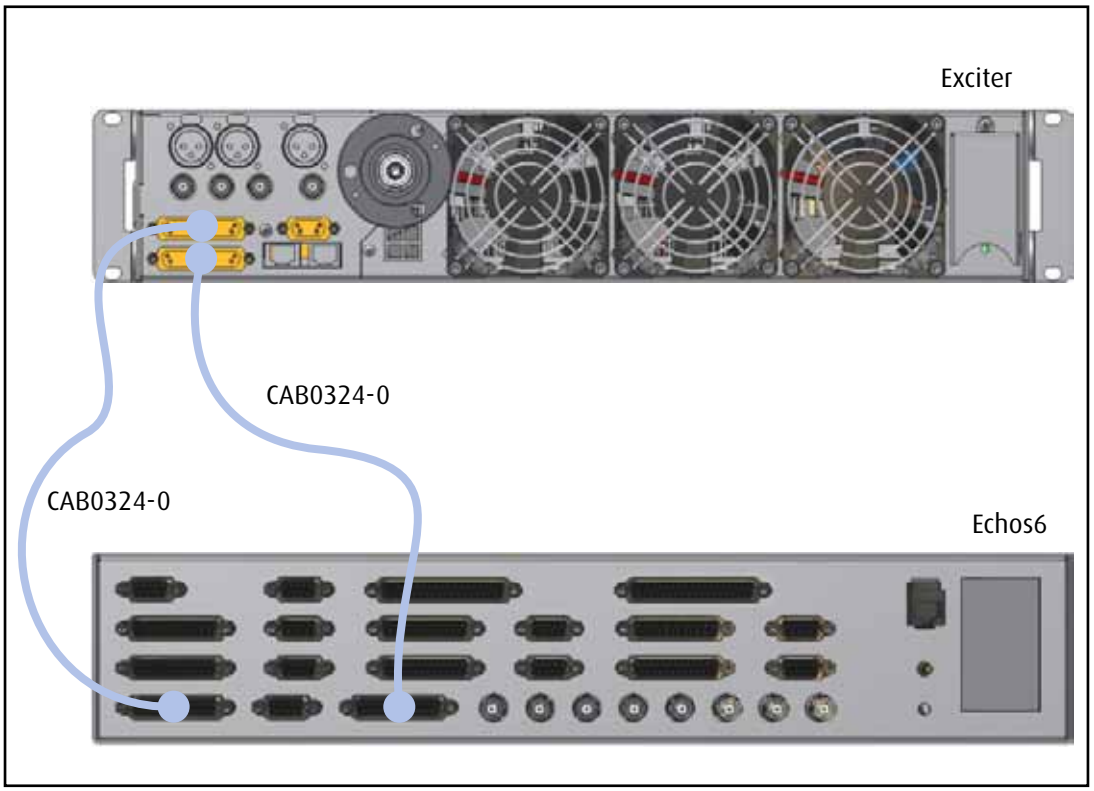
This last cable will connect to the audio matrix, if there is an audio matrix.

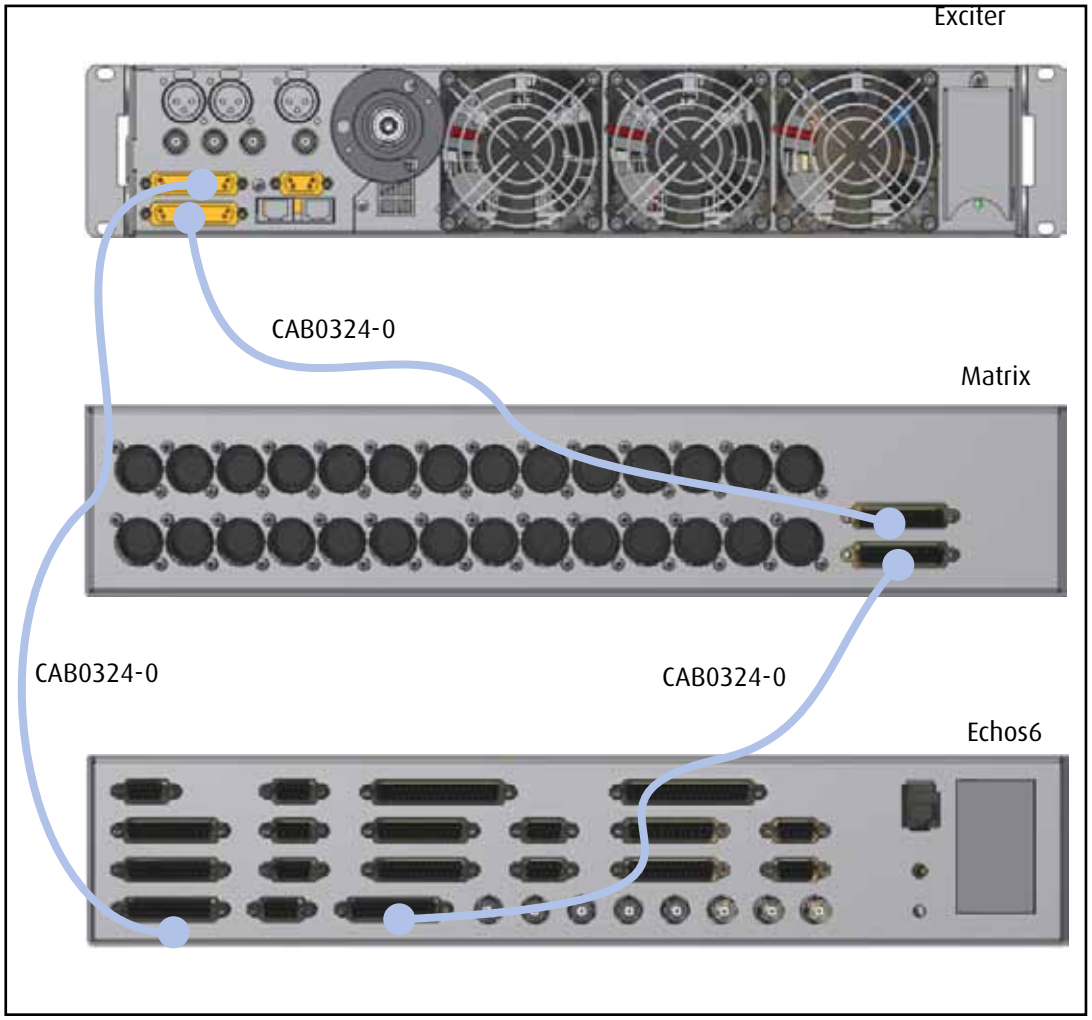
These cables are shipped with the unit of exchange (Elenos code CAB0324-0).

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

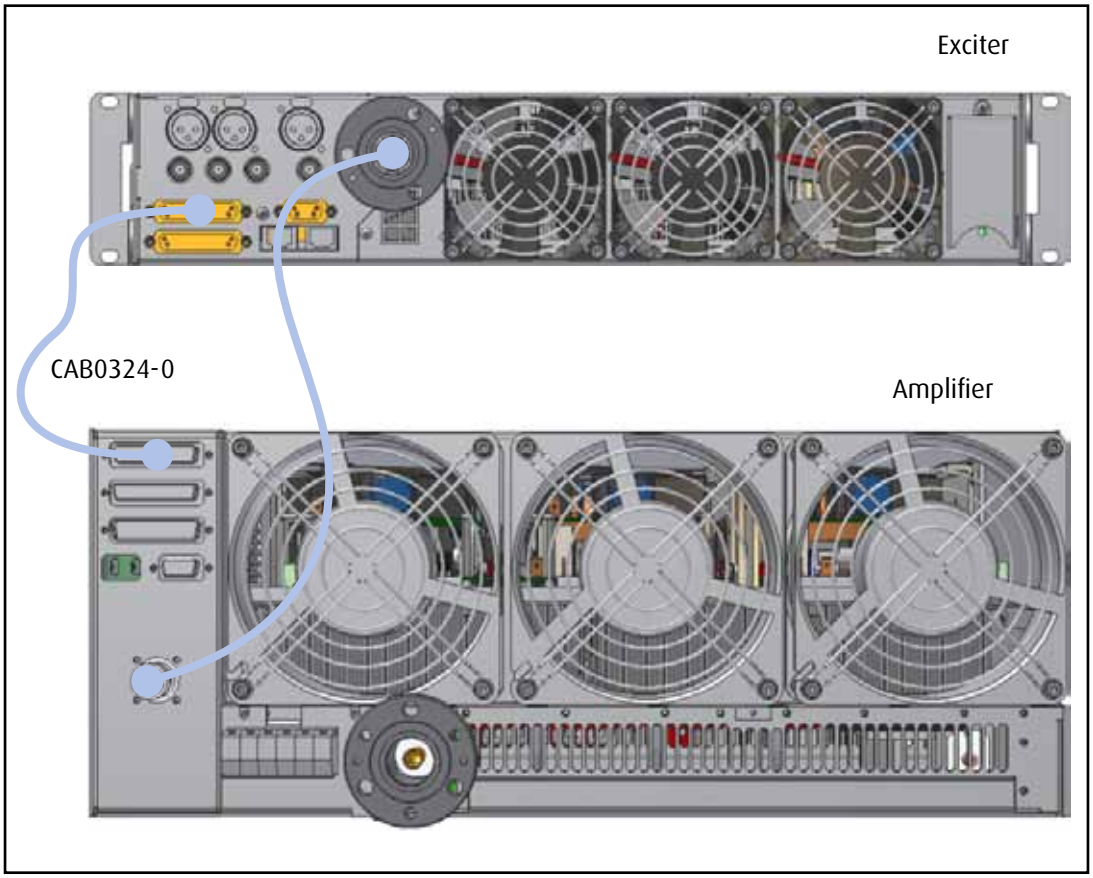
This connection is to increase the power transmission using a RF power amplifier.

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.

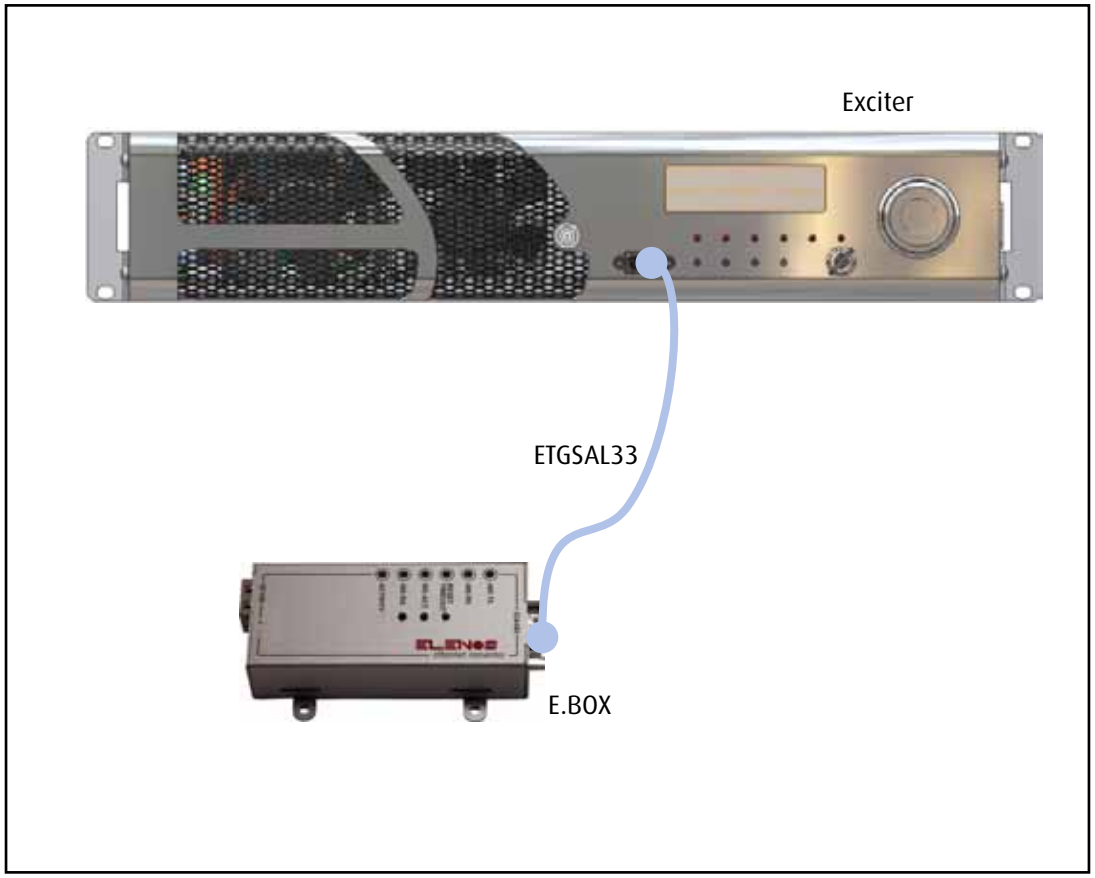


3.4.5 E.BOX module connection

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

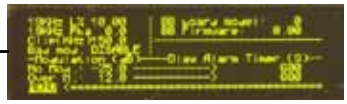
PASSWORD RECOVERY

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

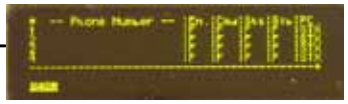
LIFEXTENDER

MENU GSM/MODEM

EXIT

GSM AND MODEM SERVICE

PHONE N.1 TO 4

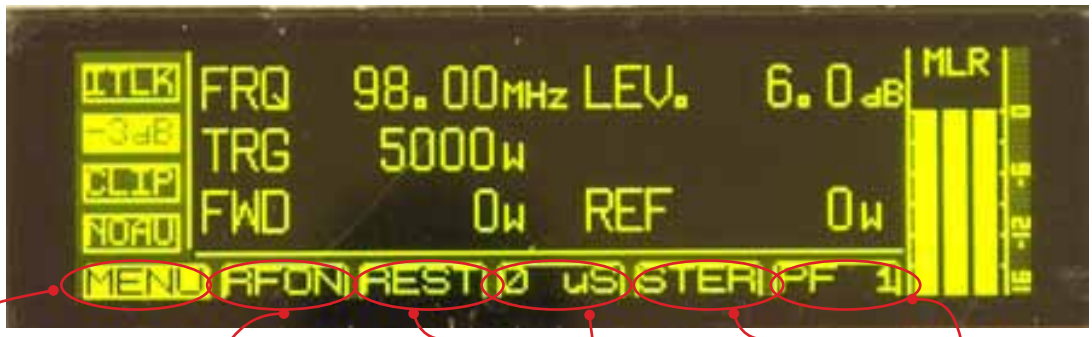


PHONE N.5 TO 8

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.



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

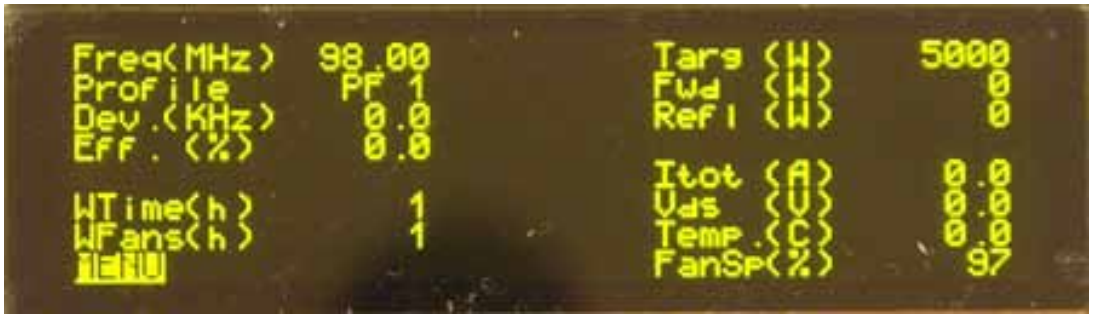
Setting and display screen.
For every profile, the frequency, target power, type of audio signal and pre-emphasis are defined.
The active profile values are indicated by the letter “A”. The deviation is displayed (in kHz).

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

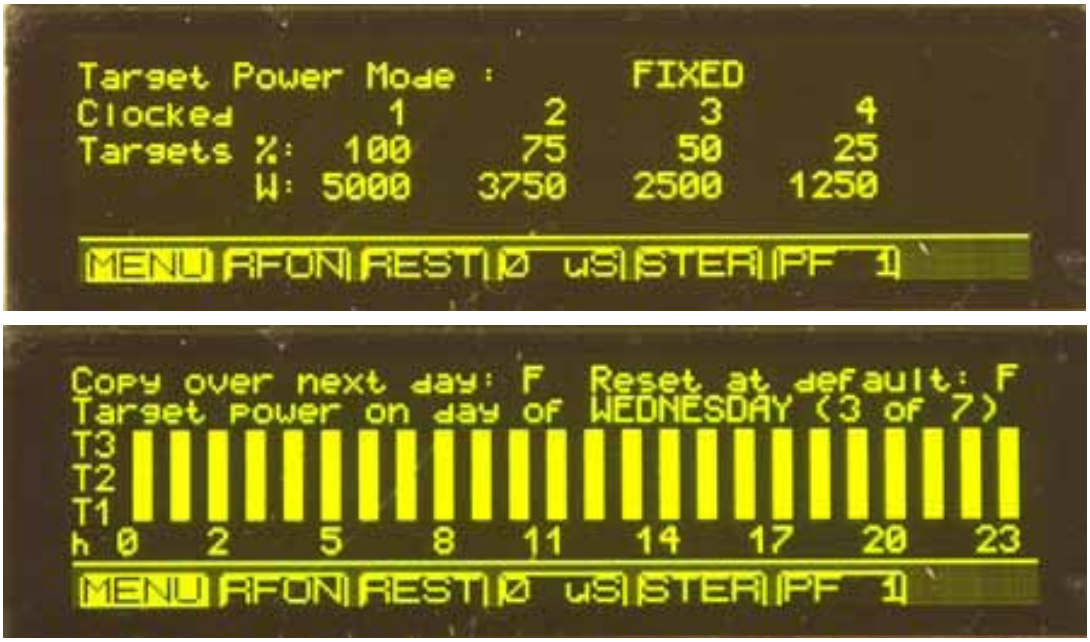
Setting and display screen.
The equipment software version, the protocol version, the equipment activity time and the fan operating time are indicated.
It is possible to reset the latter by clicking "R".

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.

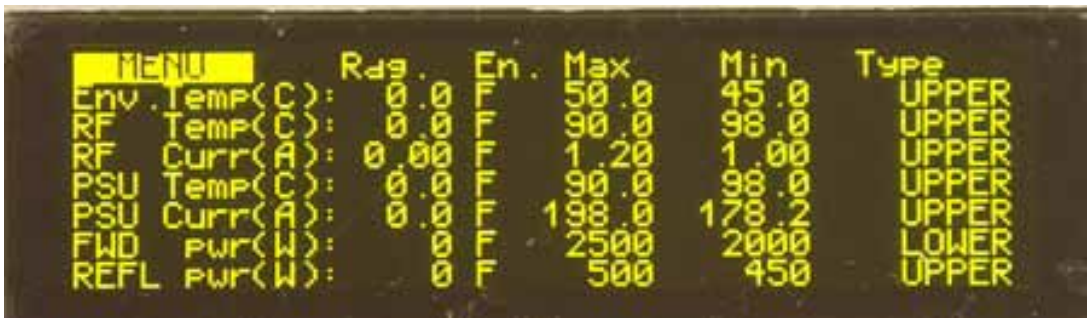


1.1.18 Enable Alarms Sms

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.).

6.2 Maintenance register

Maintenance data	Operation hours
Description	
Note	Signature

Maintenance data	Operation hours
Description	
Note	Signature

Maintenance data	Operation hours
Description	
Note	Signature

Maintenance data	Operation hours
Description	
Note	Signature

Maintenance data	Operation hours
Description	
Note	Signature

Maintenance data	Operation hours
Description	
Note	Signature

Maintenance data	Operation hours
Description	
Note	Signature

Maintenance data	Operation hours
Description	
Note	Signature

6.3 Repair register

Repair Data	Operation hours
Description	
Note	Signature
Repair Data	Operation hours
Description	
Note	Signature
Repair Data	Operation hours
Description	
Note	Signature
Repair Data	Operation hours
Description	
Note	Signature
Repair Data	Operation hours
Description	
Note	Signature
Repair Data	Operation hours
Description	
Note	Signature
Repair Data	Operation hours
Description	
Note	Signature
Repair Data	Operation hours
Description	
Note	Signature

6.4 Intervention request

In the following pages tabs are given. They must be attached to the product requiring repair or maintenance, after a detailed compilation.

FAILURE CARD

To send with the device at :
ELENOS S.r.l. Via G. Amendola, 9
44028 Poggio Renatico (FERRARA) Italy

Fill in the following tables as detailed as possible.

Serial Number :	
Date of production :	

VIEW & SETTINGS (Main Menù)

FREQ :		EFF :	
TRG :		VDS :	
FWD :		IDS :	
REF :		TMAX :	

PSUs DATA (Main Menù)

PSU VDS (V) :	
IDS (A) :	
TEMP (C) :	
ENABLE :	

RF AMP. CURRENT (Main Menù)

RF TEMP. (Main Menù)

TEMPERATURES (Main Menù)

INT (C) :		FAN % :	
RF (C) :		Temp. UM :	
PSU (C) :			

LEDs

MAINS	ON	OFF
ST-BY	ON	OFF
ON AIR	ON	OFF
PLL LOCK	ON	OFF
FAULT	ON	OFF
LOCAL	ON	OFF

The failure occurred: ( ) in switch on phase ( ) during operation ( ) due to lightning
Voltage: .....VAC
Name and address station: .....
Maintenance operator: .....
Failure description: .....
.....
.....
.....
.....

FAILURE CARD

To send with the device at :
ELENOS S.r.l. Via G. Amendola, 9
44028 Poggio Renatico (FERRARA) Italy

Fill in the following tables as detailed as possible.

Serial Number :	
Date of production :	

VIEW & SETTINGS (Main Menù)

FREQ :		EFF :	
TRG :		VDS :	
FWD :		IDS :	
REF :		TMAX :	

PSUs DATA (Main Menù)

PSU VDS (V) :	
IDS (A) :	
TEMP (C) :	
ENABLE :	

RF AMP. CURRENT (Main Menù)

RF TEMP. (Main Menù)

TEMPERATURES (Main Menù)

INT (C) :		FAN % :	
RF (C) :		Temp. UM :	
PSU (C) :			

LEDs

MAINS	ON	OFF
ST-BY	ON	OFF
ON AIR	ON	OFF
PLL LOCK	ON	OFF
FAULT	ON	OFF
LOCAL	ON	OFF

The failure occurred: ( ) in switch on phase ( ) during operation ( ) due to lightning
Voltage: .....VAC
Name and address station: .....
Maintenance operator: .....
Failure description: .....
.....
.....
.....
.....

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