

ETG 3000.30 DIGITAL
ETG 2000.20 DIGITAL
ETG 1500.15 DIGITAL
ETG 1000.10 DIGITAL
ETG 500.5 DIGITAL
ETG 300.3 DIGITAL
ETG 150 DIGITAL
ETG 100 DIGITAL
ETG 20 DIGITAL

(variants listing available inside of the manual)

FM SOLID STATE TRANSMITTER

Rev. 00- 22/07/2014
Cod. MAN1030QUK

ELENOS

World Broadcast Experience

IDENTIFICATION AND QUICK START MANUAL



World Broadcast Experience

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

We kindly remember you to always register your product on <http://www.elenos.com/product-registration/>

For further informations and assistance please contact the technical assistance service

Elenos

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It is kindly requested to fill in the RMA form (ITA <http://www.elenos.com/it/elenos-rma/> o ENG <http://www.elenos.com/elenos-rma/>) and to always communicate the device's serial number (available on the identification label).

Elenos Srl certifies the compliance of the device presented in this documentation with 1999/05/CE directive.



For further details please see the "CE Marking" section.

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Revision

N°	Date	Description
00	22/07/2014	First release

Family variants

Transmitter	N° of RF modules	N° of driver	Max output power
ETG 3000.30 DIGITAL ETG 2900.30 DIGITAL ETG 2800.30 DIGITAL ETG 2700.30 DIGITAL ETG 2600.30 DIGITAL ETG 2500.30 DIGITAL ETG 2400.30 DIGITAL ETG 2200.30 DIGITAL ETG 2000.30 DIGITAL ETG 1900.30 DIGITAL ETG 1800.30 DIGITAL ETG 1700.30 DIGITAL ETG 1600.30 DIGITAL ETG 1500.20 DIGITAL ETG 1400.30 DIGITAL ETG 1200.30 DIGITAL ETG 1000.30 DIGITAL ETG 900.30 DIGITAL ETG 800.30 DIGITAL ETG 700.30 DIGITAL ETG 600.30 DIGITAL ETG 500.30 DIGITAL ETG 400.30 DIGITAL ETG 300.30 DIGITAL ETG 250.30 DIGITAL ETG 200.30 DIGITAL	n°4 FREESCALE MRFE6VP61K25HR or NXP BLF188XR	n°1 NXP BLF245	Nominal value

ETG 2000.20 DIGITAL ETG 1900.20 DIGITAL ETG 1800.20 DIGITAL ETG 1700.20 DIGITAL ETG 1600.20 DIGITAL ETG 1500.20 DIGITAL ETG 1400.20 DIGITAL ETG 1200.20 DIGITAL ETG 1000.20 DIGITAL ETG 900.20 DIGITAL ETG 800.20 DIGITAL ETG 700.20 DIGITAL ETG 600.20 DIGITAL ETG 500.20 DIGITAL ETG 400.20 DIGITAL ETG 300.20 DIGITAL ETG 250.20 DIGITAL ETG 200.20 DIGITAL ETG 150.20 DIGITAL ETG 100.20 DIGITAL	n°3 FREESCALE MRF6VP11KH or NXP BLF178	n°1 NXP BLF245	Nominal value
ETG 1500.15 DIGITAL ETG 1400.15 DIGITAL ETG 1200.15 DIGITAL ETG 1000.15 DIGITAL ETG 900.15 DIGITAL ETG 800.15 DIGITAL ETG 700.15 DIGITAL ETG 600.15 DIGITAL ETG 500.15 DIGITAL ETG 400.15 DIGITAL ETG 300.15 DIGITAL ETG 250.15 DIGITAL ETG 200.15 DIGITAL ETG 150.15 DIGITAL ETG 100.15 DIGITAL ETG 80.15 DIGITAL	n°2 FREESCALE MRF6VP11KH or NXP BLF178	n°1 NXP BLF245	Nominal value

ETG 1000.10 DIGITAL ETG 900.10 DIGITAL ETG 800.10 DIGITAL ETG 700.10 DIGITAL ETG 600.10 DIGITAL ETG 500.10 DIGITAL ETG 400.10 DIGITAL ETG 300.10 DIGITAL ETG 250.10 DIGITAL ETG 200.10 DIGITAL ETG 150.10 DIGITAL ETG 100.10 DIGITAL ETG 80.10 DIGITAL	n°2 FREESCALE MRF6VP2006H or FREESCALE MRF6VP11KH or NXP BLF178	n°1 NXP BLF245	Nominal value
ETG 500.5 DIGITAL ETG 400.5 DIGITAL ETG 300.5 DIGITAL ETG 250.5 DIGITAL ETG 200.5 DIGITAL ETG 150.5 DIGITAL ETG 100.5 DIGITAL ETG 80.5 DIGITAL ETG 50.5 DIGITAL	n°1 NXP BLF178	n°0	Nominal value
ETG 300.3 DIGITAL ETG 250.3 DIGITAL ETG 200.3 DIGITAL ETG 150.3 DIGITAL ETG 100.3 DIGITAL ETG 80.3 DIGITAL ETG 50.3 DIGITAL	n°1 FREESCALE MRF6V4300NR1 or NXP BLF178	n°0	Nominal value
ETG 150 DIGITAL	n°1 FREESCALE MRF6V2150NR1 or FREESCALE MRF6V4300NR1	n°0	Nominal value
ETG 100 DIGITAL ETG 80 DIGITAL ETG 50 DIGITAL ETG 40 DIGITAL ETG 30 DIGITAL	n°1 FREESCALE MRF6V2150NR1 or FREESCALE MRF6V4300NR1	n°0	Nominal value
ETG 20 DIGITAL ETG 10 DIGITAL	n°0	n°1 NXP BLF245	Nominal value

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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 as long as periodical controls and essential maintenance work are carried out as required.

However, before attempting any kind of operation an accurate reading of this manual and of all relevant documentation attached is recommended to the user.

ELENOS s.r.l Management

1.1 Personnel in charge

This manual has to be intended as an integral part constituting the equipment, and **must be readily at hand to all the personnel responsible for its installation, use and maintenance.**

The installation, use and maintenance of the device concerned in this case must be permitted exclusively to properly trained and qualified personnel, who must have received the appropriate training on the use of the equipment and who are aware of every possible risk occurring when operating with devices connected to dangerous voltage electrical networks, operating with high internal voltages and generating high power radiofrequency.

This manual does not claim to be a comprehensive collection of safety standards required for the use of the equipment.

However, **the user and the maintenance technician are required to know the content of these manual** and of all its connected attachments.

This equipment must be used only by holders of governmental licenses and/or ministerial authorizations only.

AVVISO IMPORTANTE

Il presente apparato è utilizzabile solo da
titolari di Concessioni Governative
e/o Autorizzazioni Ministeriali

Elenos Srl

WARNING

The use of this device
is subject
to National Regulations.

Elenos Srl

1.2 Warranty

The products sold to the Customer by Elenos Srl are covered by a 24-month warranty starting from the FOB date of shipment from Elenos Srl site; this warranty is granted both to the Customer and to any other possible subsequent purchaser of the product and covers any kind of fault caused by defective components of the product itself, as long as it is maintained in an excellent controlled condition. It is essential to the effective coverage of the warranty issued by Elenos Srl the registration of the product by the Customer through the web site www.elenos.com/product-registration/.

In case the Customer encounters a fault while the warranty is in force, it's essential to send immediately a written notification to Elenos Srl and to send the product for evaluation on one's own expenses to the nearest Elenos Srl site or Elenos Srl certified service center. In case of expedition to an Elenos Srl site, the same site will grant a free replacement of the defective part inside of 45 days; in case of an expedition to a certified service center, Elenos Srl grants the refund of the reparation costs accordingly to a tariff plan that will be previously defined and agreed between customers and Elenos Srl. Should the product purchased by the Customer fall within the "reduced mobility" (over 50 kg weight product) category, its maintenance operations or the replacement of a defective part constituting it must take place in the site where the equipment is located by certified personnel sent by the nearest Elenos Srl center. All of the above is valid notwithstanding the judgment of the same appointed personnel of the existence of one of the above mentioned cases of warranty exclusion.

For details, please consult the Terms and Conditions documents.

1.3 Exclusion

The customer expressly accepts the exclusion from the terms of Elenos Srl warranty's coverage all damages caused by electrical discharges and incorrect power supply voltages, as well as by the Customer's negligence, carelessness or unskillfulness, or by unauthorized staff maintenance operations or by replacements of original parts of the equipment with new systems or spare parts not directly supplied by Elenos Srl or by its authorized distributors, or by a use of the product other than those intended for the same product, or from any action or fact attributed to third parties who have access to the product for the same Customer's approval or even without the Customer being aware thereof after that the latter has received the delivery of the products.

The warranty expressly excludes coverage for damages caused by fires, floods, or other natural disasters, wars, revolts, as well as in all cases the intended equipment becomes the material object of a crime.

The warranty is also expressly excluding coverage for damages occurred after the delivery of the equipment by Elenos Srl to the carrier, being the Customer responsible for any risk connected with the transport, since its time-frames, costs and methods are chosen and covered by the same Customer.

1.4 Exemption from liability

The Customer is responsible for the product's installation, maintenance and inspection, as well as for the examination of the specific environmental and weather conditions of the site in which the equipment is placed in order to determine whether suitable for the product's use and its operation, all this in accordance with Elenos Srl instructions manual delivered with the purchased product, so to be validly and effectively able to request replacements or repairs when the warranty is in force. Should the Customer not comply with the requirements contained in the instruction manual or fails to observe a minimum degree of diligence as normally is required to the user working with this kind of equipments, Elenos Srl warranty will be invalid and the Customer himself will have to take the risk for any possible damage occurring to the products.

Elenos Srl reserves the right to make possible changes to parts, details and accessories that may be considered appropriated to be done for the improvement of the equipment, or to meet the needs connected to constructive and commercial requirements, in any moment, without prior notice of it and without committing to upgrade immediately this manual.

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.

EC Declaration of Conformity

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



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

Declare under our sole responsibility that the product:

ETG 3000.30 DIGITAL, ETG 2900.30 DIGITAL, ETG 2800.30 DIGITAL, ETG 2700.30 DIGITAL,
ETG 2600.30 DIGITAL, ETG 2500.30 DIGITAL, ETG 2400.30 DIGITAL, ETG 2200.30 DIGITAL,
ETG 2000.30 DIGITAL, ETG 1900.30 DIGITAL, ETG 1800.30 DIGITAL, ETG 1700.30 DIGITAL,
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ETG 80.3 DIGITAL, ETG 50.3 DIGITAL
ETG 150 DIGITAL
ETG 100 DIGITAL, ETG 80 DIGITAL, ETG 50 DIGITAL, ETG 40 DIGITAL, ETG 30 DIGITAL
ETG 20 DIGITAL, ETG 10 DIGITAL

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 February 12, 2014

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

Signature

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		

Other types of certifications are managed according to the country of use of the apparatus.

3 Safety

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

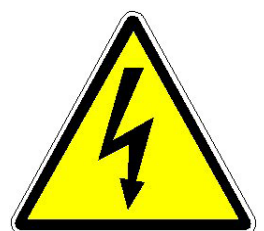
3.1 Safety precautions

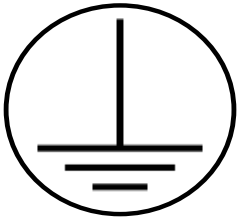


The user must follow also the safety precautions listed below:

- The original configuration of the equipment must absolutely not be modified. On receipt of the same equipment it is essential to check whether the supply is compliant with the order's specific terms and in case of nonconformities please report it immediately Elenos Srl.
- Protective devices must not be disconnected (with exception of their replacement), altered or modified without authorization.
- Check all protective devices periodically after the occurrence of a fault (e.g. devices against excess voltage, against excess currents, circuit breakers, etc.).
- To guarantee safety of the personnel and to protect the equipment from damages it is absolutely forbidden to put it into operation and/or to use it while the doors are open and/or without the partial or whole presence of protection panels and/or without grounding connection, which must always be of extremely high quality and in accordance with regulations in force. It is also forbidden to disconnect and/or to alter the equipment's means of protection.
- Before starting any operation, the equipment must be disconnected from the mains. Disconnection must be verified via visual inspection.
- The equipment must be powered exclusively with the appropriate voltage. An incorrect power voltage can cause irreparable damages to the equipment and to the personnel working with it. This same information is reported on the product's nameplate, which is generally located upon 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 the regulations in force.
- On the equipment can be found further pictograms reporting safety warnings that must be carefully followed by anyone that has to work with it. The lack of respect for rules here described exempts the Constructor from all liability for all possible damages or accidents occurring to persons or property and place responsibility to the user himself.

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 a correct use of the equipment do not obstruct the ventilation grids. Do not put the equipment close to heat sources, flammable products, or inside closed installations lacking of a proper air circulation.
- It is required to observe general and firefighting rules for the place hosting the equipment.
- Avoid any liquid contamination to the equipment. Always disconnect power supply to the equipment before carrying out any cleansing 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, the utmost care must be taken when coming in physical contact through hands or other means with the equipment.
- Please ensure that any person in charge of the use or the maintenance of a transmitter presenting one or more parts under hazardous voltage is able to perform artificial respiration and cardiac massage; all the staff must be trained on how to provide first medical aid in case of emergency. It is strongly advised to hang in a visible position an informative panel reporting clear instructions regarding first aid's procedures for the rescue of people injured in a work accident and to supply rooms where electrical equipment is present with first aid kits. It is strongly advised to organize an intervention plan in order to ensure a quick connection with local public or private first aid institutions so to be easily available for all the people hosted within the site.

3.2 First aid

This paragraph does NOT represent a complete guide about first aid procedures, it is rather intended as a brief summary to be used as a reference. It must be in fact an impelling duty for all the personnel operating with this equipment to be capable of performing 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, not remove tissue, not remove adhered particles of clothing, or apply any ointment.
- Treat the victim accordingly to the type of shock suffered.
- Arrange transportation to a hospital as quickly as possible.
- If arms and legs are injured, keep them raised.

WARNING:

If medical aid is not available within one hour and if the victim is conscious and if it does not present retching problems, administer a salt and soda liquid solution to be drank: 1 full teaspoon of salt and half teaspoon of sodium bicarbonate for every 250 ml of tepid water, let the victim sip this solution slowly, for about four times (1/2 glass over a period of 15 minutes passing).

Stop this operation if retching problems occur. Do not administer alcoholic solutions.

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

- Apply on the burns cool (not ice-cold) gauze compresses using the cleanest available cloth.
- Do not break blisters, not remove tissue, not remove adhered particles of clothing, or not apply any ointment.
- If necessary, put on clean and dry clothes
- Treat the victim accordingly to the type of shock suffered.
- 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

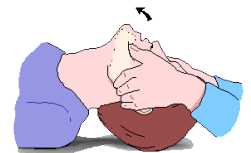
3.2.2.1 If the victim is unresponsive

Place victim flat on his back on a hard surface

A) Airways (fig. a):

- if the victim is unresponsive open the victim's airways
- push the victim's forehead backwards
- open the victim's mouth if necessary
- check the victim's breathing

fig.a



B) Artificial respiration (fig. b):

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

fig.b



fig.c1

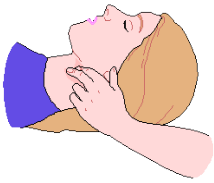


fig.c2



fig.c3



C) Circulation (fig. c1):

- check the victim's 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 duct's length or size is such to presume it may be causing a consistent loss of load to the air flow rate it is necessary to add an extraction apparatus. At the conveyor's outlet intrusion protection devices must be provided against insects or other kinds of animals and suitable precautionary measures against liquid or other materials intrusion must be applied.

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 features

The electrical network installation has to be set in accordance with the regulations in force. The power supply network must allow an appropriate power provision 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 disconnect (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 (lightning), 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 **ICEFET**® – RF modules design technology providing an extremely high efficiency for all kinds of output power, very low temperatures hence a longer resistance for MOS devices along the time.

2 **LIFEXTENDER**® – Optional system located within the equipment. Once in place it allows a safe operation even under extremely severe environmental conditions.

3 **ECOSAVING**® (Energy consumption reduction) – The equipment's operational features provide great advantage for ecology and operational costs.

4 **INDIUM SERIES** – Name of the transmitter's product category. The Indium series denotes a number of equipments presenting the same characteristics as the ones featuring the nobel metal Indium. Indium offers mechanical adaptability and thermal conductivity properties, with heat exchange efficiency performances remaining unchanged in an unlimited time.



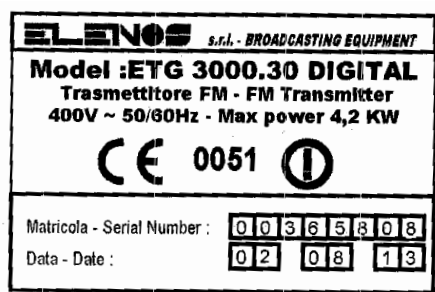
5 **NAMEPLATE** – Label indicating all main characteristics of the equipment: manufacturing company, product's model, type of power supply, power consumption, CE conformity marking, serial number, quality control date, testing employee's name. Warning: do not ever remove this label.

6 **ASSISTANCE PLATE** – Label providing all main contacts for Elenos assistance service.

7 **DISPOSAL PLATE** – Label warning on how should the equipment be disposed properly complying with regulations in force.

8 **WARNING PLATE** – Label indicating how should the equipment be operated in a proper way.

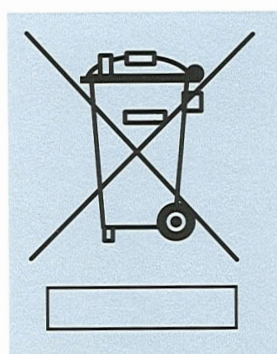
9 **WARRANTY SEAL** - Removing or tampering with any of these seals located on the screw without authorization implies exclusion from the warranty.



[5]



[6]



[7]



[8]



[9]

4.2 Front panel

1 **OLED technology display** – Graphic display indicating the operational parameters and the selected functions by means of the encoder.

2 **Encoder** – Multifunctional knob providing operation functions menu exploration and operational parameters modifications.

3 **Key-operated selector** – When turning the key supplied with the equipment, it can be switched on LOCAL mode by means of the front panel, or it can be switched on REMOTE mode by means of a PC.

4 **Indicator lights** – Leds listing :

- MAINS (green) _ this indicator light turns on in presence of network supply;
- ST-BY (yellow) _ this indicator light turns on when the equipment is not broadcasting;
- ON AIR (green) _ this indicator light turns on when the equipment is broadcasting;
- PLL LOCK (yellow) _ this indicator light turns on when the PLL is locked;
- FAULT (red) _ this indicator light turns on when a failure occurs to the equipment;
- LOCAL (light blue) _ this indicator turns on during local mode setting.

5 **Buttons/Controls**– Buttons listing :

- LIFEEXTENDER _ this button allows to visualise LifeExtender's optional function situation (active/ not active, days of production, critical days of production);
- OFF _ this button allows to switch the equipment on Stand-by;
- ON _ this button allows to switch the equipment OnAir;
- ESC _ this button leads to a level backwards in the menu.

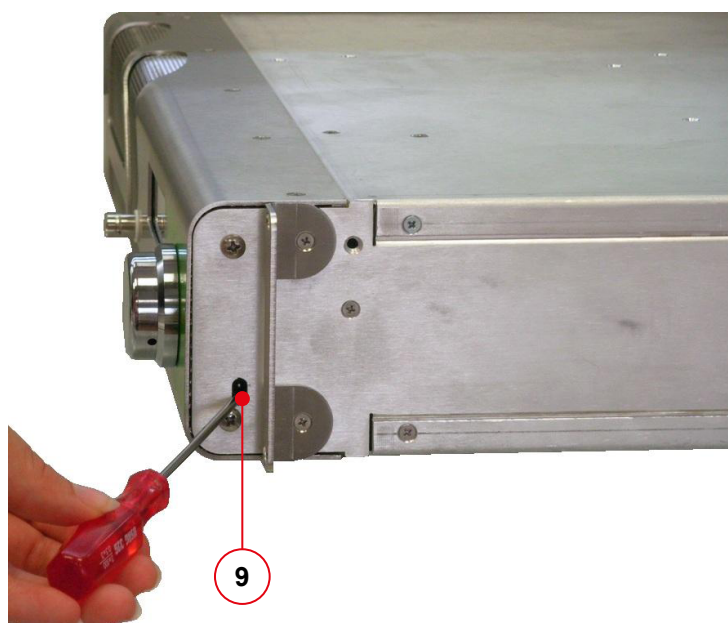
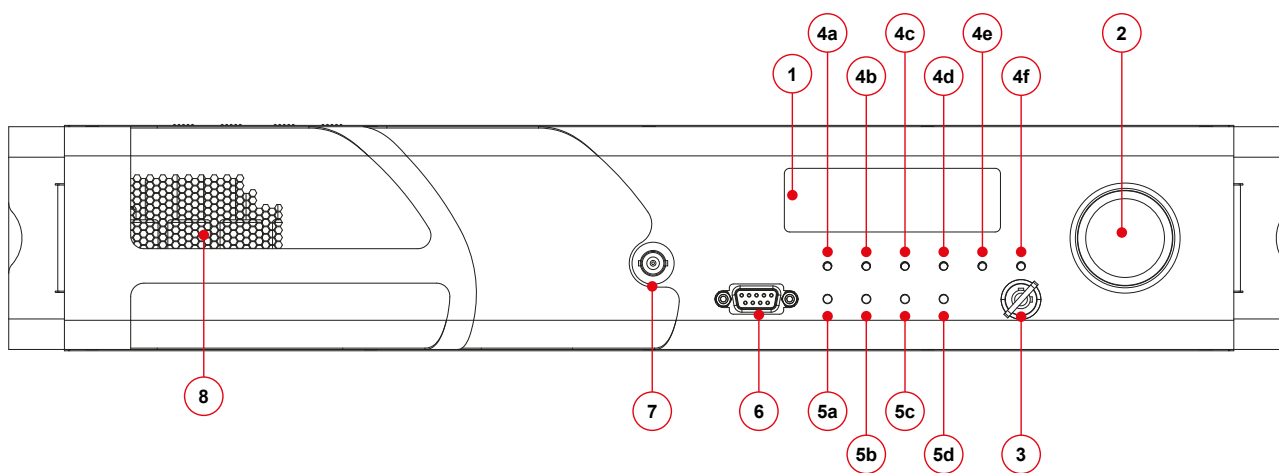
6 **EIA485 Connector/Telemetry** – DB9 Connector, dedicated to the binding with telemetry with regard of EIA485 standard or with a PC.

7 **MONITOR RF Connector** – BCN Connector, dedicated to the connection with external measuring instruments, allows to pick up low level RF signal (full scale 0dBm). Since this monitor is not calibrated, a perfectly steady output level is not granted as the frequency varies.

This connector can NOT be used to measure the output power rating nor the harmonic components.

8 **Ventilation grid** – Facilitates the cooling of the equipment

9 **Programming lever** – When looking at the front of the machine, it is located on the right side of the panel. It can be moved with a flat screwdriver upwards (on Program mode) and downwards (on Running mode). For a detailed loading software procedure it is necessary to ask the manufacturing company for the technical bulletin No. 125.



4.3 Rear panel

- 1 **Optical AES/EBU** - Fiber optic receiver for AES/EBU optical input.
- 3 **MPX Monitor** – BNC F output connector monitoring MPX signal.
- 2 **19kHz Monitor** – BNC F output connector monitoring subcarrier's 19kHz signal.
- 4 **Digital AES/EBU** – Connettore di ingresso, di tipo XLR, per applicazione segnale AES/EBU di tipo digitale.
- 7 **Balance +** – BNC F input connector for balanced MPX signal's application.
- 6 **Analogic LEFT** – XLR input connector for digital AES/EBU signal's application
- 5 **Unbalance/Balance +** – BNC F input connector for balanced/unbalanced MPX signal's application.
- 8 **Analogic RIGHT (or MONO)** – XLR input connector for right audio channel's application. It can be used as a MONO input as well.
- 9 **SCA** – BNC F input connector for SCA signal.
- 10 **PPS Output** - SMB output connector providing 1pps (pulse per second) reference.
- 11 **GPS Antenna (optional)** - SMA input connector for external GPS antenna's connection.
- 12 **10MHz Input** - SMA input connector dedicated to 10MHz signal supplying reference for working frequency's synchronization.
- 13 **10MHz Output** - SMB output connector providing 10MHz reference signal.
- 14 **PPS Input** - SMA input connector synchronizing the working frequency.
- 15 **RDS Connector** – BNC F input connector for RDS signal.
- 16 **TC/TS Connector** – DB25 connector for tele-control, tele-signalling to external devices and for the interlock function.
- 17 **Profiles Connector** – DB25 connector for the employment of reserve device within an N + 2 system to set RDS datasets.
- 18 **TCP/IP Connector** – RJ45 connector for remote control functionality.

19 **EIA485 Connector** – DB9 connector for telemetry connection in accordance with EIA485 standard.

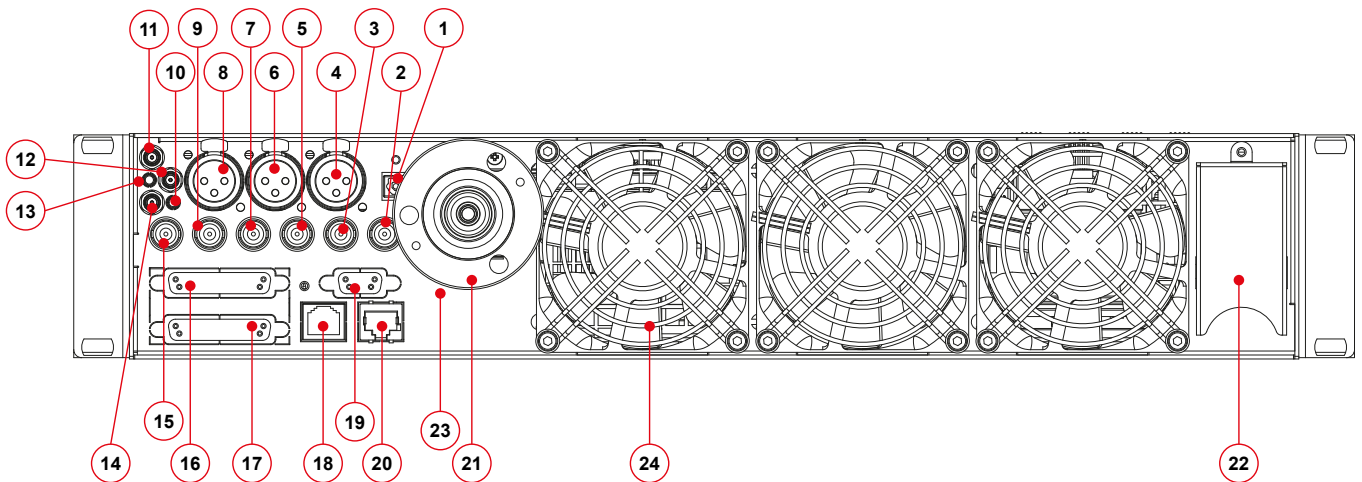
20 **RESERVED Connector** – (optional) RJ45 connector.

21 **RF Connector** – Depending on the specific model of the device it can be 7/8, 7/16 or N.

22 **Power supply terminal block** – Terminal block providing connection with electrical supply. To grant electrical safety to the personnel it is protected by an adequate protective plate.

23 **Earth connection screw** – Eyelet providing grounding connection.

24 **Cooling fans** – Fans providing the cooling of the device. Depending on the specific model of the device they are in a quantity equal to 2 or 3; the dimensions are 80x80x38 mm; 24 Vdc, 153m3/h or 222m3/h.



5 Quick start guide

Warning: the following images may present differences compared to the effective device in your posses. We recommend you therefore to consider them just as a visual support to the descriptive text that has to be regarded as your reference guide.

5.1 Installation



1

Insert and install the device into a rack cabinet, if you have one at your disposal.

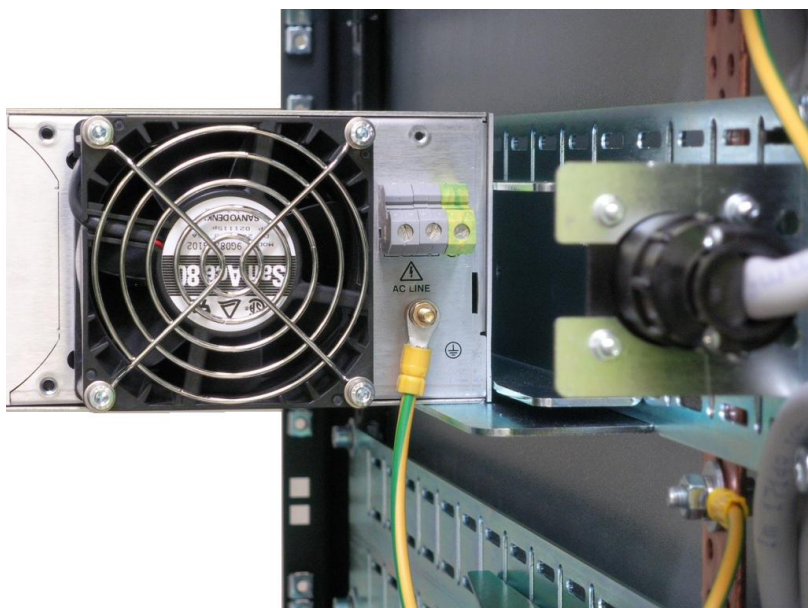


However, if you are not provided with a rack please remind the following warnings:

- to allow a correct installment and maintenance, the device must be placed far enough from walls;
- the device's air vents grids must be free of any kind of obstruction;
- the device must be far from heat sources or inflammable materials;
- the device must be protected against liquids.

In presence of high humidity rates, when transmitters have to be kept switched off for a long time, in order to lower moisture laden air in the transmitter's environment Elenos Srl recommends you **to use dehumidifiers**

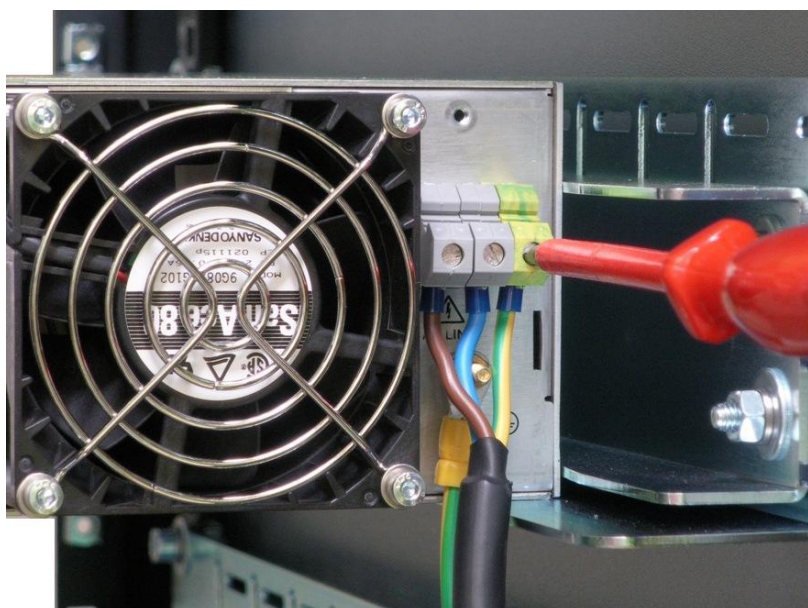




2

Be sure you have set up an appropriate earth connection with the screw under the power supply's terminal block and/or the yellow-green clip.

3



Check the conductors and the available value of the electric tension. If both are suitable for the connection (see TABLE1) you can fit the active and the neutral wire into the power supply's terminal block. This device is designed to be connected to a 230AV single-phase system electric power supply. In case the available electric power supply is a 115VAC single-phase system, the electricity guaranteed maximum standard hence may be lowered (see TABLE 1).



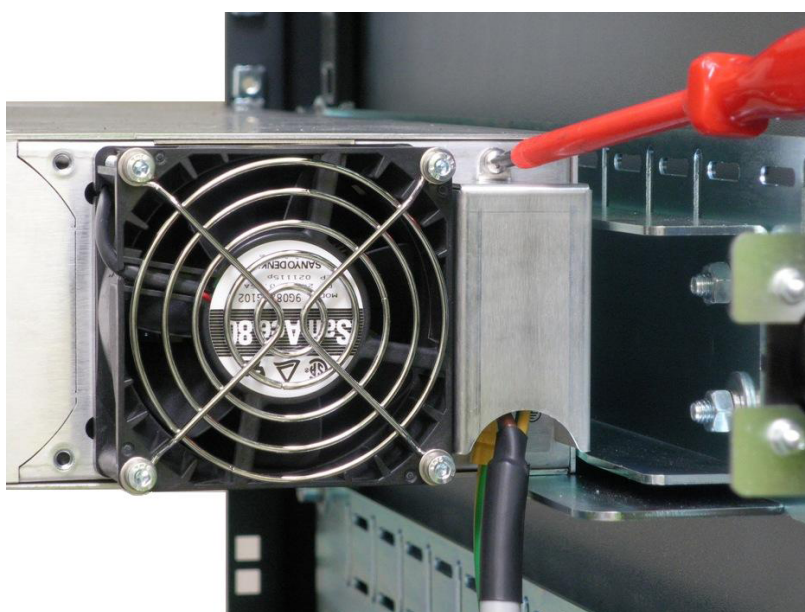
WARNING: when connecting the feeder cable to the device's clips, all wiring operations must be done **only when the cable is either DISCONNECTED from the electric network or at least NOT UNDER TENSION.**

If you have to disconnect the device from the network repeat backwards these wiring operations, firstly disconnecting the cable from the electric outlet and eventually the clips from the power supply's terminal block.

	Average full load power consumption@230VAC	Average full load power consumption@115VAC	Average current absorption@230VAC	Average current absorption @115VAC	Minimum advised cable cross section	Circuit breaker
ETG 20 DIGITAL	30W	230W	0.3A	0.6A	2.5mmq (13AWG)	6A C CLASS
ETG 100 DIGITAL	220W	220W	1A	2A	2.5mmq (13AWG)	6A C CLASS
ETG 150 DIGITAL	230W	230W	1A	2A	2.5mmq (13AWG)	6A C CLASS
ETG 300.3 DIGITAL	430W	430W	1.9A	3.8A	2.5mmq (13AWG)	6A C CLASS
ETG 500.5 DIGITAL	690W	690W	3A	6A	2.5mmq (13AWG)	10A C CLASS
ETG 1000.10 DIGITAL	1400W	50% of power consumption@230VAC, since with 115VAC the granted RF power is 50% of the one granted with 230VAC	6A	6A	2.5mmq (13AWG)	10A C CLASS
ETG 1500.15 DIGITAL	2000W	50% of power consumption@230VAC, since with 115VAC the granted RF power is 50% of the one granted with 230VAC	8.7A	8.7A	2.5mmq (13AWG)	10A C CLASS
ETG 2000.20 DIGITAL	2700W	50% of power consumption@230VAC, since with 115VAC the granted RF power is 50% of the one granted with 230VAC	11.7A	11.7A	2.5mmq (13AWG)	16A C CLASS
ETG 3000.30 DIGITAL	4200W	50% of power consumption@230VAC, since with 115VAC the granted RF power is 50% of the one granted with 230VAC	19A	19A	4mmq (11AWG)	25A C CLASS

TABLE 1

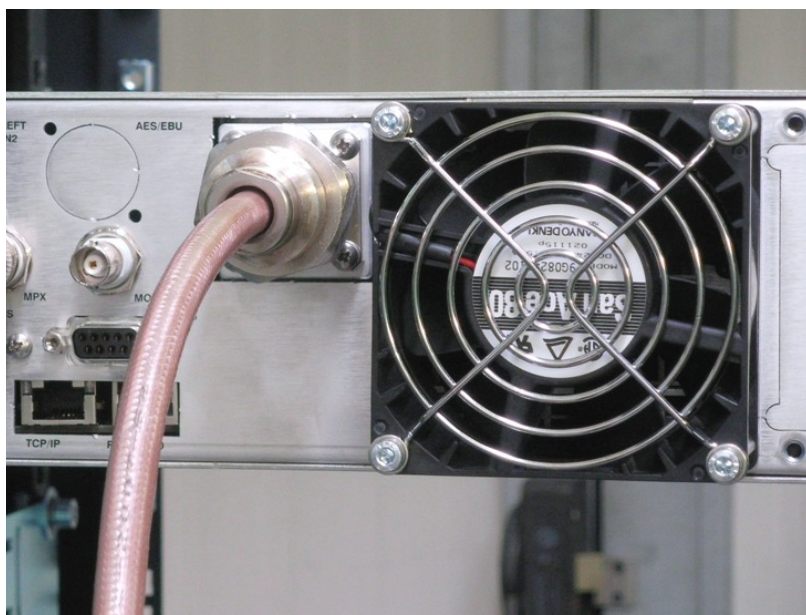
To avoid high voltage spikes derived damages due for example to thunder storms occurring nearby the transmitter's location, Elenos Srl recommends you to **use surge suppressors for the AC lines.**



4

Fix on the power supply's terminal box its own protective screen.

5



Connect the equipment's RF output connector to the antenna's cable (before using the device you can test its performance with a dummy load that can dissipate the power coming out from it).

WARNING: Before connecting the antenna's cable to your Elenos transmitter please be sure that connectors, cables and the antenna are all organized accordingly to a correct connection to ground, as Elenos Srl kindly recommends you. **In lack of a proper antenna grounding system, serious damages to the transmitter can occur!**

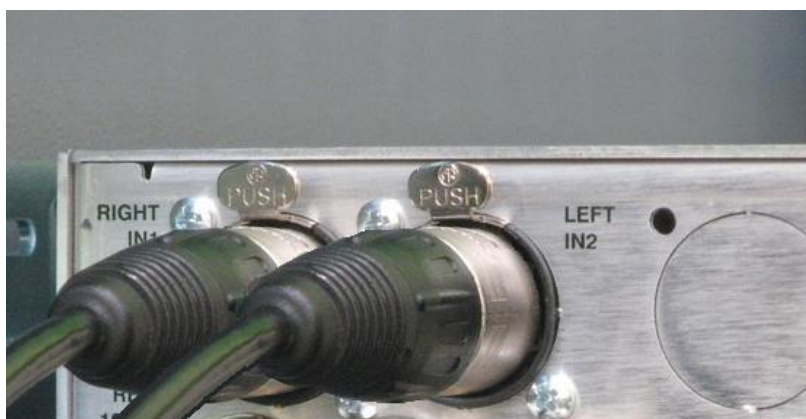


All possible damages occurring to Elenos transmitters because of an incorrect electrical grounding operation are not covered by warranty.

6



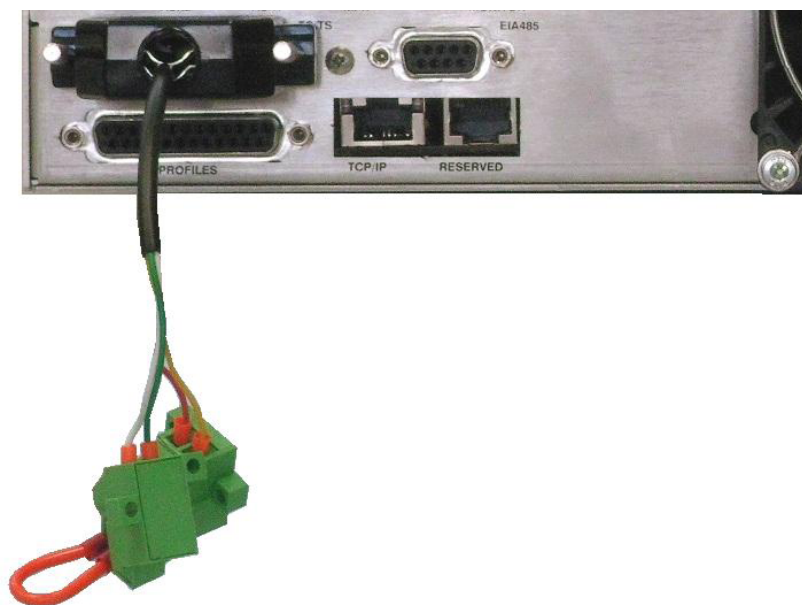
Connect the audio-cables and set the other connections you may require (such as GPS, 10MHz, PPS and connectivity). Further informations on connectors available in the chapter "Product's presentation".

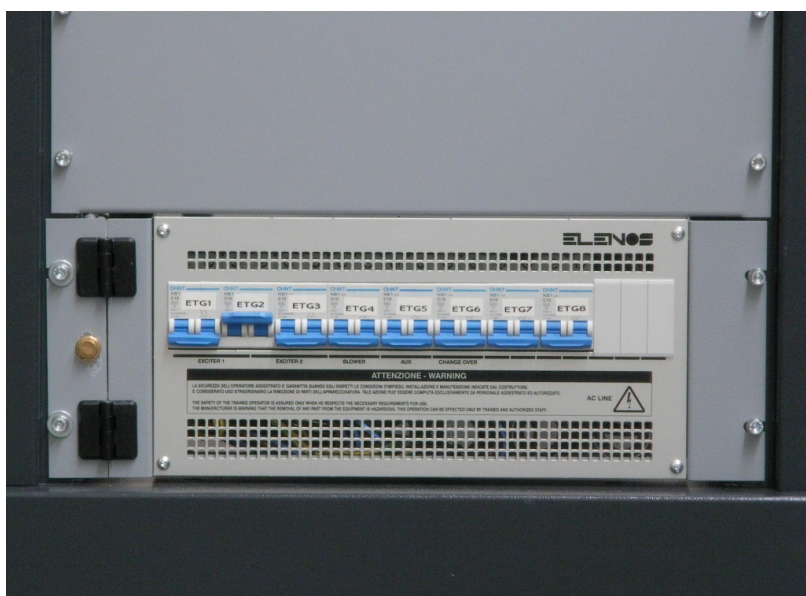
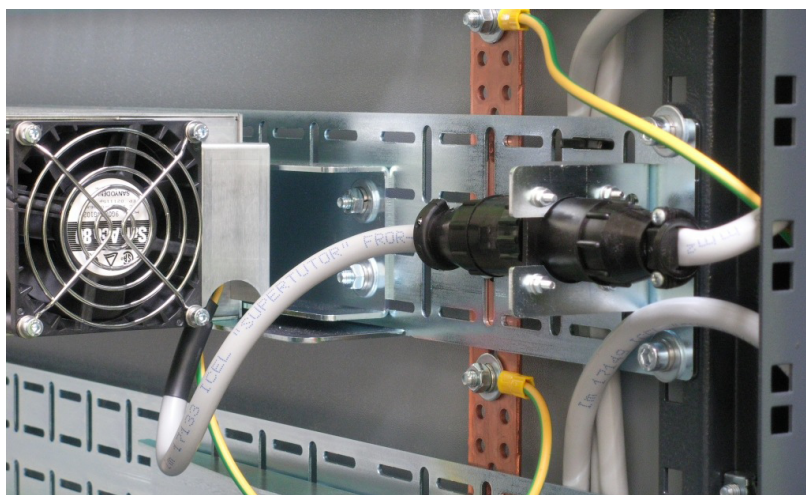




7

Insert the interlock cable on the TC/TS connector.





8

If the device is placed inside of an Elenos rack cabinet, connect the networking cable to the cabinet's jack and ensure that the electromechanical drawer is properly wired. Finally you can open the disconnectors and turn on the electricity. The equipment will automatically turn on and set on Stand-by mode.

If you lack an Elenos rack, connect the energy supply cable to a proper electric outlet.



WARNING: DO NOT EVER let the device generate RF power unless before doing it you have properly connected the equipment to the antenna.

5.2 Default settings

As the equipment leaves the fabric it presents the following default settings.

If the default settings comply with the user's needs it is then sufficient to set the desired power rate and to switch the machine on RF ON. If different settings are instead to be wanted, please find below instructions in the "Main parameters setting" belonging to this section.

FACTORY PARAMETERS	
Output power (TRG)	Maximum value
Output power (TRG)	Maximum value
Transmission frequency	98.000 MHz
Input sensibility L,R per +/-75kHz deviation	0dBm
Input sensibility L,R per +/-75kHz deviation	0dBm
Inputs sensibility AUX (RDS, SCA)	0dBm
Stereo subcarrier 19kHz	OFF (MPX input mode)
Preemphasis	0uS (linear)
Clipper	OFF
Canale MPX	Unbalanced, high impedance
Canale L/R	Unbalanced, high impedance
SFN (option)	Unabled
SFN Delay (option)	0s (configurable with 100ns from 0 to 1s step)
RDS	Unabled
57kHz Level	0
Frequency reference	INT_10MHz_FREQ_REF
"NO AUDIO" alarm	DISABLE, set with non intervention tresholds (-25 dB for 600s)
VSWR/ROS foldback	ON, threshold protection
Interlock	Outer cable
ID Profile	1

The equipment leaves the factory with its programming lever downwards (running mode).

5.3 Main parameters setting

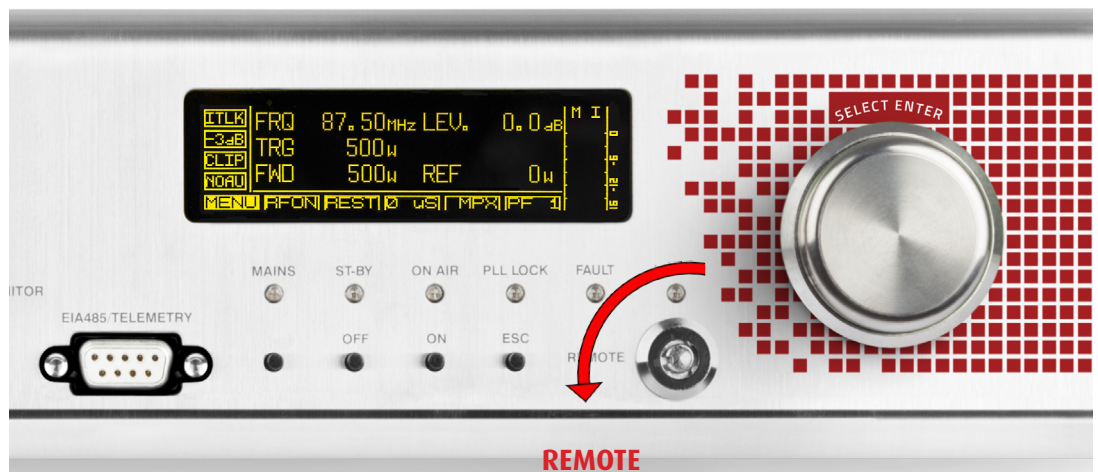
In order to set the parameters from the display, the equipment must be switched on LOCAL mode

It is furthermore possible to vision part of the menus even with the REMOTE mode, as long as "SHOW D. :ALWAYS" parameter is present (for further details please read "User's interface" paragraph, "System config." screen).

The change from LOCAL to REMOTE mode can be operated when turning the key supplied with the equipment in the selector.

In LOCAL mode the blue led turns on and automatically "TX control panel" screen will be visualized.

9



All browsing phases are managed by the front panel encoder. All possible operations to be done with the knob are the following:

- HIGHLIGHTED ITEM SELECTION: press the knob rapidly.
- SCROLLING OF THE AVAILABLE ITEMS: turn the knob in a clockwise or counter-clockwise rotation.
- INCREASE/DECREASE: turn the knob with a clockwise or counterclockwise rotation.
- RETURN TO MAIN MENU: press the knob persistently.



SCROLLING



SELECTION

5.3.1 Frequency setting

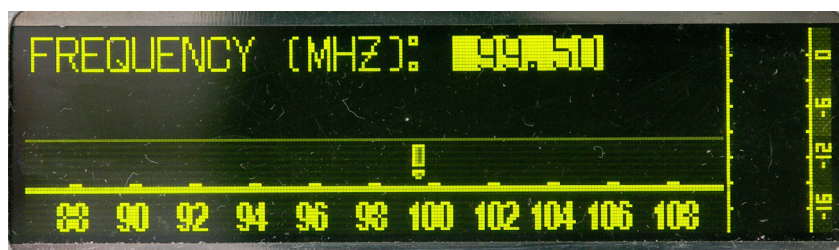
10

When the “TX control panel” screen is displayed, turn the encoder until the set frequency is highlighted.

Press one time to access the control interface. The frequency field will be so highlighted and editable: turn the encoder in a clockwise or counterclockwise rotation to increase or decrease the value.

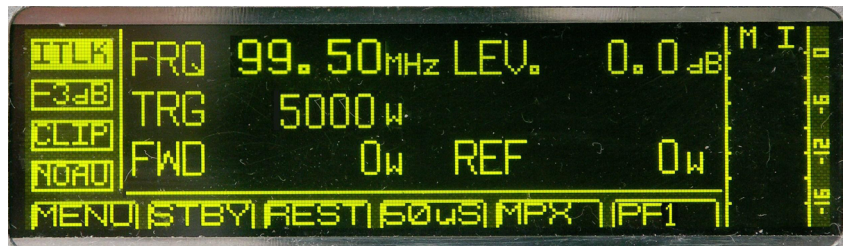
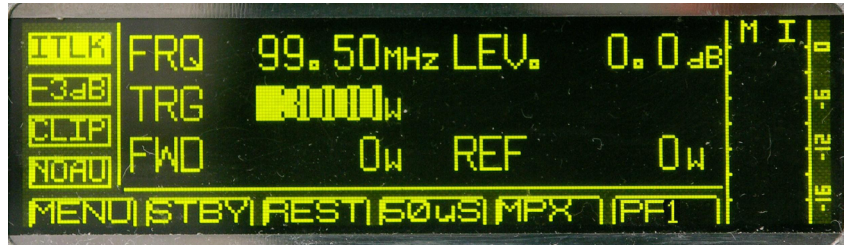
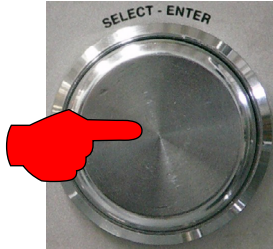
Press one time the encoder in order to confirm.

At this stage the dialog box will display the new operating frequency rate that has been set.



5.3.2 Power settings

In the "TX control panel" turn the encoder until the set power is highlighted. Press one time to enter the control interface. The power field is now highlighted and so editable: turn the encoder in a clockwise or counterclockwise rotation in order to increase or decrease properly the value. Press the encoder in order to confirm. At this point the dialog box will display the new power rate that has been set.



5.3.3 Audio signal setting

Depending on the kind of audio signal implemented to modulate, the corresponding input has to be selected. In the "TX control panel" the encoder has to be turned until the horizontal menu's fifth section is highlighted.

Press one time to make the field editable.

At this point turn the encoder in order to view all possible options.

5.3.3.1 MUTE

Mode silencing all inputs. Normally used during technical interventions.

5.3.3.2 MPX

In order to use a MPX signal you have to select this modality on the display by turning the encoder and then press on it to confirm.

Apply MPX signal on the corresponding BNC connectors located on the rear panel.

Audio signal can be balanced as well as unbalanced.

5.3.3.3 STEREO

In order to use a STEREO signal you have to select this modality on the display by turning the encoder and then pressing to confirm.

Apply STEREO signal on the corresponding XLR connectors located on the rear panel.

Select the preemphasis level that has to be used for the transmission by entering the horizontal menu's fourth section.

Press the encoder in order to be able to edit the field.

Turn the encoder in order to select the desired level.

Press the encoder in order to confirm.

It is possible to choose between 0, 25, 50 and 75µS.

Normally the European standard is 50 µS and 75 µS is the USA standard.

5.3.3.4 MONO

In order to use a MONO signal you have to select this modality on the display by turning the encoder and then by pressing in order to confirm. Apply MONO signal to XLR RIGHT connector that is located on the rear panel. The audio signal can be balanced as well as unbalanced. We kindly remember you that is also possible to use other different inputs that are not settable directly from the "TX control panel" screen.

5.3.3.5 AES/EBU

In order to use an AES/EBU signal it is sufficient to apply the signal to the correspondent XLR connector that is located on the rear panel. The signal is automatically recognized. For more specific setting please read the "User's interface" paragraph.

5.3.3.6 AUX SIGNALS (RDS/SCA)

In order to use an auxiliary signal it is sufficient to apply the signal to the correspondent BCN connectors that are located on the rear panel. For more specific setting please read the "User's interface" paragraph.

For more specific setting please read the "User's interface" paragraph.



[TLK]	FRQ	101.42MHz	LEV.	-3.5 dB	M I	0
[3dB]	TRG	2000W				9
[CLIP]	FWD	0W	REF	0W		2
[NOAU]						1
MENU [STBY] [REST] [0] [US] [MPX] [PF 1]						15



[TLK]	FRQ	101.42MHz	LEV.	-3.5 dB	M21	0
[3dB]	TRG	2000W				9
[CLIP]	FWD	0W	REF	0W		2
[NOAU]						1
MENU [STBY] [REST] [0] [US] [MONO] [PF 1]						15

[TLK]	FRQ	101.42MHz	LEV.	-3.5 dB	M21	0
[3dB]	TRG	2000W				9
[CLIP]	FWD	0W	REF	0W		2
[NOAU]						1
MENU [STBY] [REST] [0] [US] [MUTE] [PF 1]						15



[TLK]	FRQ	101.42MHz	LEV.	-3.5 dB	MLR	0
[3dB]	TRG	2000W				9
[CLIP]	FWD	0W	REF	0W		2
[NOAU]						1
MENU [STBY] [REST] [0] [US] [STER] [PF 1]						15



5.3.4 Audio level setting

In the "TX control panel" screen you have to turn the encoder until the set audio level is highlighted.

Press one time in order to be able to edit the field.

Turn the encoder to lower to the minimum level the amplifier (-15dB)

Apply the audio signal.

Slowly raise the gain level until the Vu-Meter reach the 0dB level in accordance with the audio signals peaks. In order to confirm its rate press the encoder.



5.3.5 Digital functionalities settings

14

In the “Mod. digital config” screen it is possible :

- To activate the RDS functionality along with its correspondent 57kHz level setting in a range going from -10% to +10% of the nominal value.
- Activate the SFN functionality, when this option is present, along with the correspondent delay setting with 100ns step in a range going from 0s to 1s while monitoring its state (hooked or in research phase).
- Set the referring frequency typology (10MHz internal, 10MHz external, 1PPS internal, 1PPS external).
- Check the GPS state, when this option is present, (hooked or in research phase).
- The settable items are editable when turning the encoder until the desired parameter is set.

The settable items are editable when turning the encoder until the desired parameter is set.

Press one time in order to edit the field.

Turn in order to set the value.

Press in order to confirm.



5.3.6 Starting

In the “TX control panel” screen the starting has to be done by turning the encoder until the horizontal menu’s second section is highlighted.
Press the encoder in order to display the RFON item.

When on LOCAL mode in order to have a correct situation it is essential that:

- the four indicator lights (ITLK, -3dB, CLIP, NOAU) have to be turned off;
- the frequency set is wanted
- the direct power is wanted;
- the reflected power has to be absent or low rated;
- the Vu-Meter are set on 0dB.

At the end of all setting and programming phases switch the equipment on REMOTE mode by turning the key switch. In this modality in order to obtain a correct situation it is essential that:

- the PLL LOCK led is turned on;
- the ON AIR led is turned on;
- the MAINS led is turned on;
- all remaining leds are turned off;
- When “SHOW D. :LOCAL” setting is present the company’s logo is displayed, or when the “SHOW D. :ALWAYS” setting is present the menu tree to be scrolled is displayed.

Warning: it is kindly advised to keep a key switch copy in some place safe within the work station.

6 Intervention inventory

6.1 Check list

Check date	Operation hours
Description	
Notes	Signature

Check date	Operation hours
Description	
Notes	Signature

Check date	Operation hours
Description	
Notes	Signature

Check date	Operation hours
Description	
Notes	Signature

Check date	Operation hours
Description	
Notes	Signature

Check date	Operation hours
Description	
Notes	Signature

Check date	Operation hours
Description	
Notes	Signature

Check date	Operation hours
Description	
Notes	Signature

Check date	Operation hours
Description	
Notes	Signature

6.2 Maintenance inventory

Maintenance date	Operation hours
Description	
Notes	Signature

Maintenance date	Operation hours
Description	
Notes	Signature

Maintenance date	Operation hours
Description	
Notes	Signature

Maintenance date	Operation hours
Description	
Notes	Signature

Maintenance date	Operation hours
Description	
Notes	Signature

Maintenance date	Operation hours
Description	
Notes	Signature

Maintenance date	Operation hours
Description	
Notes	Signature

Maintenance date	Operation hours
Description	
Notes	Signature

Maintenance date	Operation hours
Description	
Notes	Signature

6.3 Repair inventory

Repair date	Operation hours
Description	
Notes	Signature

Repair date	Operation hours
Description	
Notes	Signature

Repair date	Operation hours
Description	
Notes	Signature

Repair date	Operation hours
Description	
Notes	Signature

Repair date	Operation hours
Description	
Notes	Signature

Repair date	Operation hours
Description	
Notes	Signature

Repair date	Operation hours
Description	
Notes	Signature

Repair date	Operation hours
Description	
Notes	Signature

Repair date	Operation hours
Description	
Notes	Signature

Repair date	Operation hours
Description	
Notes	Signature

6.4 Intervention request sheet

The following pages report the sheets to be filled in and attached to the product should it need to be sent to ELENOS for checks and/or repairs.

The correct and detailed completion of the sheet will allow us to detect the problem more quickly.

FAILURE SHEET

To be sent with the equipment to:
ELENOS S.r.l. Via G. Amendola, 9
44028 Poggio Renatico (FERRARA) Italy

Serial Number :	
Date of production :	

ALARMS LIST (Main Menù) - Active alarms

0) A	
1) A	
2) A	
3) A	
.. A	

EVENTS HISTORY (Main Menù) - Latest events

99)	
98)	
97)	
96)	
...	

VIEW TX PARAMETERS 1 (Main Menù)

Freq (MHz)		Targ (W)	
Profile		Fwd (W)	
Dev. (KHz)		Refl (W)	
Eff. (%)			
		Itot (A)	
WTime (h)		Vds (V)	
WFans(h)		Temp. (C)	
		FanSp (%)	

VIEW TX PARAMETERS 2 (Main Menù)

Device n.	1	2	3	4	5	6	7
Ampl (A)							
Ampl (C)							
PSU (A)					I PSU (A)		
PSU (V)					Iampl (A)		
PSU (C)					Vds (V)		
Aux-->	VCC	+V1	-V1	Bias	Tenv. (C)		
					Eff. (%)		

LEDs

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

The failure occurred: () during start-up () during normal operation () after lightning

Voltage:VAC

Address and site name:

Maintenance repair technician:

Failure description:

.....

.....

FAILURE SHEET

To be sent with the equipment to:
ELENOS S.r.l. Via G. Amendola, 9
44028 Poggio Renatico (FERRARA) Italy

Serial Number :	
Date of production :	

ALARMS LIST (Main Menù) - Active alarms

0) A	
1) A	
2) A	
3) A	
.. A	

EVENTS HISTORY (Main Menù) - Latest events

99)	
98)	
97)	
96)	
...	

VIEW TX PARAMETERS 1 (Main Menù)

Freq (MHz)		Targ (W)	
Profile		Fwd (W)	
Dev. (KHz)		Refl (W)	
Eff. (%)			
		Itot (A)	
WTime (h)		Vds (V)	
WFans(h)		Temp. (C)	
		FanSp (%)	

VIEW TX PARAMETERS 2 (Main Menù)

Device n.	1	2	3	4	5	6	7
Ampl (A)							
Ampl (C)							
PSU (A)					I PSU (A)		
PSU (V)					Iampl (A)		
PSU (C)					Vds (V)		
Aux-->	VCC	+V1	-V1	Bias	Tenv. (C)		
					Eff. (%)		

LEDs

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

The failure occurred: () during start-up () during normal operation () after lightning

Voltage:VAC

Address and site name:

Maintenance repair technician:

Failure description:

.....

.....

FAILURE SHEET

To be sent with the equipment to:
ELENOS S.r.l. Via G. Amendola, 9
44028 Poggio Renatico (FERRARA) Italy

Serial Number :	
Date of production :	

ALARMS LIST (Main Menù) - Active alarms

0) A	
1) A	
2) A	
3) A	
.. A	

EVENTS HISTORY (Main Menù) - Latest events

99)	
98)	
97)	
96)	
...	

VIEW TX PARAMETERS 1 (Main Menù)

Freq (MHz)		Targ (W)	
Profile		Fwd (W)	
Dev. (KHz)		Refl (W)	
Eff. (%)			
		Itot (A)	
WTime (h)		Vds (V)	
WFans(h)		Temp. (C)	
		FanSp (%)	

VIEW TX PARAMETERS 2 (Main Menù)

Device n.	1	2	3	4	5	6	7
Ampl (A)							
Ampl (C)							
PSU (A)					I PSU (A)		
PSU (V)					Iampl (A)		
PSU (C)					Vds (V)		
Aux-->	VCC	+V1	-V1	Bias	Tenv. (C)		
					Eff. (%)		

LEDs

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

The failure occurred: () during start-up () during normal operation () after lightning

Voltage:VAC

Address and site name:

Maintenance repair technician:

Failure description:

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