MOZART Series
FM Exciters/Transmitters

User's Manual
Release 1.0.9

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The constructor reserves the right to modify the information in this manual at any time without advising update.

Document History

Rev.	Date	Name	Details
1.0	September 2013	IC	
1.0.1	October 2013	IC	Integration and correction of the menu and technical parameters
1.0.2	October 2013	IC	Complete Series user manual
1.0.3	February 2014	AB+DS	Updated the menu description chapter
1.0.4	April 2014	IC	Update model 50W + RDS option
1.0.41	May 2014	IC	Change of software pages from SW 2.1 + top views + special 50W version
1.0.5	May 2014	IC	1U version for 50W
1.0.6	June 2014	IC	Update rear and front panel + new MIB tables + RDS pages on alarms From SW 2.13 – 1U
1.0.7	June 2014	AB + IC	Update Web pages – added weekly schedule and email notifications menu. Added paragraph 1.5 for FCC purposes
1.0.8	July 2014	IC	Change in input level MPX, Remote I/O pinout, mail pages
1.0.9	July 2014	IC	Update mail pages, correction of Pilot tone deviation step

Issued: July 2014 – Version 1.0.9

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All specifications, characteristics and circuit descriptions indicated in this manual are subject to change without notice.

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1 GENERAL INFORMATION

1.1 SAFETY NOTICES

To avoid risks of electrical shocks or fire, only qualified personnel should execute the procedures specified in this manual.

When the protective covers of any device or component connected to a 110 / 240 VAC source by a power cord are removed, voltages and currents dangerous to life may be exposed.

Contact with 110 / 240 Volts of alternating current and associated direct current and voltages can be fatal.

CAUTION

To reduce the risks of electrical shock, do not remove the cover (or the back). Refer, for servicing, to qualified service personnel. This installation should be done by a qualified person and should comply with to all local applicable laws.

Beryllium Oxide

It is dangerous component if inhaled, eaten or put into direct contact with skin, especially if the skin is cut or wounded.
Special care is required in handling beryllium material in order to NOT produce any dust, particles, fumes etc. etc. Whenever beryllium material is broken it is extremely important to collect all parts in a carefully sealed and marked container for discharging in a specific way through controlled channels. All above operations have to be affected using gloves and tongs, with special care taken not to produce dust.
After handling beryllium components it is essential to wash hands carefully.

Beryllium compounds are used in **RF Connectors.**

1.2 FIRST AID IN CASE OF ELECTROCUTION

Do not touch the victim until the electrical circuit has been interrupted to make sure the person is isolated. If this is not possible, move the victim away from the conductor by using insulated material.

If respiration is interrupted, artificial respiration must be applied (mouth-to-mouth respiration). Lay the patient on his back, feet elevated above the level of the head, chin up and head back.

Call a doctor urgently

In case of a mouth wound it may be necessary to apply mouth-to-nose respiration, blocking the patient's mouth.

In case of face wounds the need for manual artificial respiration may arise.
Push down on the chest of the prostrate patient whilst moving the patient's arms up and out.

If the victim has also suffered burns then, without obstructing breathing, proceed as follows:

- Do not remove clothing from burn wounds.
- If possible gently pour cold water over wounds to relieve pain.
- Do not use any medication.
- Call for urgent medical assistance.

1.3 WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

The purpose of the DIRECTIVE 2002/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003 on waste electrical and electronic equipment (WEEE) is, as first priority, the prevention of waste electrical and electronic equipment and, in addition, the reuse, recycling and other forms of recovery of such wastes so as to reduce the disposal of waste.

To do this, remember to collect separately all the electronic material.

1.4 MANUFACTURE LABELS

All the units are identified by a black silver label:

Fig. 1.1 - Units Label

Label fields:

1. **Product name**

   This field contains the model of the unit (part name).

2. **Serial number**

   This field contains the serial number of the module or equipment (made by 8 digits).

3. **Operating Frequency**

   This field contains the operating frequency (for FM units) or the channel and standard (for TV units) set by the factory. In case no indication is present, the unit is considered as broadband in its operating band.

4. **Return Loss**

   FACTORY USE ONLY

5. **Functional Test**

   A cross on this field indicates that the functional test of the unit has been done by the technician.

6. **Mechanical Test**

   A cross on this field indicates that the mechanical test of the unit has been done by the technician.

7. **Temp. Test**

   A cross on this field indicates that the temperature test of the unit has been done by the technician.

1.5 RF EXPOSURE STATEMENT

Antennas for broadcast transmitters should be mounted on outdoor permanent structures.
The FCC assesses RF exposure issues at the time of licensing of your station, with the required FCC Bureau(s), and this will include antenna co-location issues as required in 1.1307(b)(3).

Similarly Canada will also assess RF exposure at the time the station is licensed.

2 FM EXCITER GENERAL DESCRIPTION

The MOZART FM exciter/transmitter is the result of the development of the MSE (Magnetic Sound Enhancer) technology together with the improvements in the FM modulation and using high performances PFC filters for the AC/DC conversion. This unit is ideal as stand alone unit for low power transmissions or suitable as high performance exciter in modular transmitters.
This unit has been developed with the Green RF technology which increases the efficiency of the amplification part reducing the dimensions and power consumption without modifying the quality of the transmission.
The main advantages of this technology are:

- High RF efficiency
- Lower heating (lower necessity of air conditioning in the installation room)
- Higher devices safety
- Higher total reliability
- Lower AC power consumption

An user friendly interface with the combination of leds and LCD display offers a very easy method to control the MOZART main parameters with a metering accuracy that helps the user to install the unit and check its status even in case he doesn't have expensive test equipments.

In case of fault of the unit or antenna system, the protection system lowers automatically the output power, in order to bring back the operating conditions to a safe area without causing a system shut down, and it indicates on the front panel display the alarm message.

The protection system reduces or stops the output power in case of:

- V.S.W.R. too high.
- Heatsink temperature too high or cooling stop (OVER HEAT).
- Missing Enable command (in case of combination with external units like control logic units)

The switch-mode power supply is largely oversized and guarantees a regular operation even in the presence of wide main voltage fluctuations.
The systems cooling grants a safe operation even in hard climatic conditions.

The new MOzart FM Exciter/Transmitter is the latest audio excellence in the FM Broadcasting industry with the revolutionary MSE Technology

2.1 MAIN CHARACTERISTICS

- Reduced maintenance. Easy accessibility of all parts, external serviceable cooling air filters, very high MTBF for RF and power supply modules, are only some of the characteristics that explain the very high reduction of maintenance costs obtained.
- N+1 facility (optional). N+1 facility control available to modify remotely the frequency and power output for redundant systems.
- Very small dimensions and low weight, reduce transport costs and simplifying the logistic.
- High frequency stability, in short and long terms, is assured by Digital Phase Locked Loop circuit with low drift VTCXO
- External reference oscillator available as option: 10 MHz input SMA 0 dBm.
- Frequency Agile Broadband programmability from the front LCD panel with 10 KHz steps without any tuning or adjustment.
- Meets or exceeds all the international standards for safety and electrical specifications.

2.2 AUDIO HIGHLIGHTS

- MSE: Magnetic Sound Enhancer a magnetic barrier protects the VCO, the heart of FM modulator, increasing the sound quality.
- STEREO GENERATOR (optional): High performance built-in digital stereo coder provides separation typical>65dB
- Signal/noise ratio >80dB assures the highest audio quality.
- Input sensitivity and output deviation adjustable with high precision of 0,05dB through display interface or remotely by WEB.

- The level and the phase of the Pilot tone adjustable from the front panel and Web interface
- AES/EBU digital stereo audio interface available as option.
- Limiter keeps the maximum frequency deviation within international requirements to avoid over-modulation and adjacent channels invasion, the limiter levels can be set from the front panel.
- Switch-mode power supply with power factor control. Highly efficient and widely over-rated power supply modules insure low heating, low AC power consumption and superior reliability. The power factor control circuitry allows to meet all the international requirements for mains network disturbances.
- High efficiency cooling system. The air cooling system limits the heatsink temperature rise to only about 10°C above ambient temperature. This assures the transmitter ability to properly operate even in high ambient temperature sites with hard climate conditions.

2.3 HUMAN INTERFACE AND CONNECTIVITY AND WEB REMOTE CONTROL

- All parameters can be displayed and set by front panel or from Web interface.
- All the series shares the same human interface:
    - LCD Display.
    - Four arrows keys, OK key, ESC key, direct function push buttons ON/OFF, Local/Remote, Reset Alarms
    - All the main working parameters are displayed by leds to indicate the transmitter status at the first glance. On/Off, Local Remote, Trip-lock Out Alarm, On Air, Warning, Alarm, Interlock, Audio Alarm, Stereo Mode, Mpx Mode, RDS On/Off, SCA On/Off, Mono Mode, Pre-emphasis On/Off, Limiter On/Off
- Full control of the transmission and modulation parameters

- Latest WEB/SNMP interface (optional):
  - TCP/IP Remote control WEB Server SNMP (v2 and v3), with INFORMS, DHCP, FTP, TELNET for full remote control system.
  - The IP and all the network parameters can be easily read and set on the front panel.
  - Firmware remotely upgradable by TCP/IP, an easy procedure is on the WEB interface without the needing to use proprietary tools; the received software is controlled with a check-sum; after new release has been installed it's possible to return to the previous firmware release; from WEB / SNMP it's possible to select which release (the new or the old one) will run on air.
  - Every alarm event is displayed on the frontal panel, 200 events can be memorized in the transmitter memory and 64000 in the web board.
  - The log can be saved in the PC in common text format.
  - The log keeps track of commands given to the transmitter and of all the alarms happened, to rebuild accurately the all history of the transmitter.
  - Memory and recall of 10.000 working parameters pre-settings. The parameters of each station on the network can be memorized like: name, frequency, audio settings, alarms settings, etc.
- Short Messages on Portable phone (SMS) option: The transmitter can send short messages up to 5 portable phones specified by the customer, where the status of the transmitter is indicated. The customer can send also short messages to send commands to the transmitter, like a request for its status or switching on and off the equipment.
- Parallel Remote Control Connector Interface with Dry contact relays outputs and Opto-isolator inputs (option)
- Rs232/485 Interface
- RDS option: The Mozart RDS encoder meets requirements of most radio stations. Fully digital concept and uniquely effective design ensures high reliability, excellent signal characteristics and gives the user many advanced features. Includes scrolling, parsing, advanced weekly scheduling, EON, RT+, UECP, ASCII terminal control.

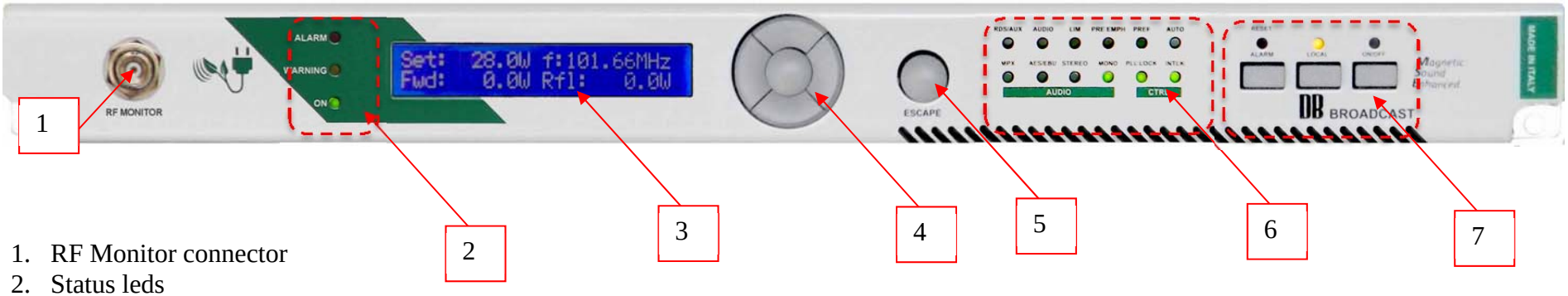
2.4 MECHANICAL CONSTRUCTION HIGHLIGHTS

- AIR FILTER: available as an option on all Mozart transmitters
- HOT-PLUG FANS: Maintenance time 5 Minutes without the need to access inside!
- 1 rack unit for 30W and 50W version, 2 rack units for the other models
- Protection against shocks: Mechanically studied to prevents damage to connectors, fans, and all the parts that typically may be damaged during transport or installation.
- AAD Technology prevents the corrosion produced by the air and increase the reliability
    - The construction is totally in aluminum.
    - The air is ducted to reduce the electronic boards‘contact.
    - The electronic boards are tropicalized with a special resin to protect the circuits against salt air.

2.5 HARDWARE AND SOFTWARE PROTECTIONS

- Soft protections provide uninterrupted service, an intelligent protection circuit reduces the output power without any on-air interruption, keeping the RF devices the cable and the antenna always within the safe operating parameters in the event of:
    - Load mismatching
    - Environmental over-temperature
    - Cooling failure
    - Failure in power supply
- Fast Hardware protections prevents hardware failures in case of very fast events that can damage the transmitter.
- The transmitter has two software levels of VSWR alarms: a Warning and a Failure Level.
- The microprocessor is protected against short main interruption with external Watch Dog and Power Supply Supervisory.

Fig. 2.1 - MOZART 30/50 FRONT VIEW



1. RF Monitor connector
2. Status leds
   a. ALARM: in case of a temporary alarm (it returns automatically to the normal status at next attempt of the unit) – RED led
   b. WARNING: in case of a warning is present - YELLOW led
   c. ON: in case the unit is connected to the mains and switched on – GREEN led
3. LCD Display
4. Navigation keys (UP /DOWN / RIGHT / LEFT / OK)
5. Escape key
6. AUDIO and CONTROL leds

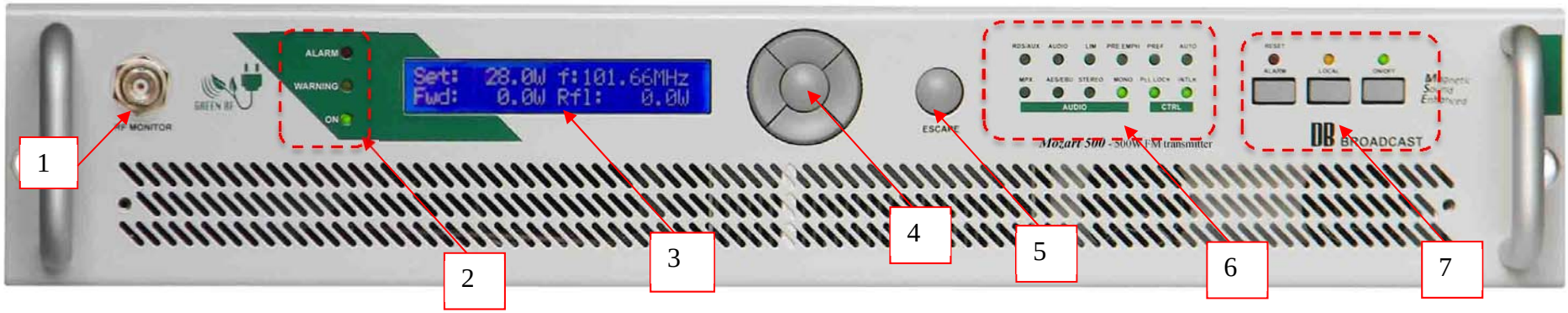
a. RDS/AUX: it is ON in case the RDS/SCA/AUX are on	b. MPX: it is ON in case the MPX EXT mode is selected
c. AUDIO: it is ON in case of correct level of input audio signal	d. AES-EBU: it is ON in case the AES-EBU is on
e. LIM: it is ON in case the limiter is set to on	f. STEREO: it is ON in case the MPX INT mode is selected
g. PRE EMPH: it is ON in case the pre-emphasis is on	h. MONO: it is ON in case the MONO mode is selected
i. PREF: no actually available	j. PLL LOCK: it is ON in case the PLL is correctly locked
k. AUTO: no actually available	l. INTLK: it is ON in case the ENABLE is closed

7. Command keys (Reset Alarms, Local/Remote, ON/OFF) and leds (Fault, Local, RF ON)

Fig. 2.2 - MOZART 30/50 REAR VIEW

1. AC input
2. LAN port
3. Cooling FAN
4. RF output connector (N)
5. Left XLR connector
6. Right XLR connector
7. AES/EBU XLR connector
8. 19kHz / MPX OUT BNC connector
9. AUX BNC connector
10. MOD OUT BNC connector
11. SCA BNC connector
12. MPX BNC connector
13. RDS BNC connector
14. ENABLE connector
15. RS 485 MASTER connector
16. RS 485 SLAVE connector
17. REMOTE connector
18. RDS port

Fig. 2.3 – MOZART 120/300/500/1000 FRONT VIEW

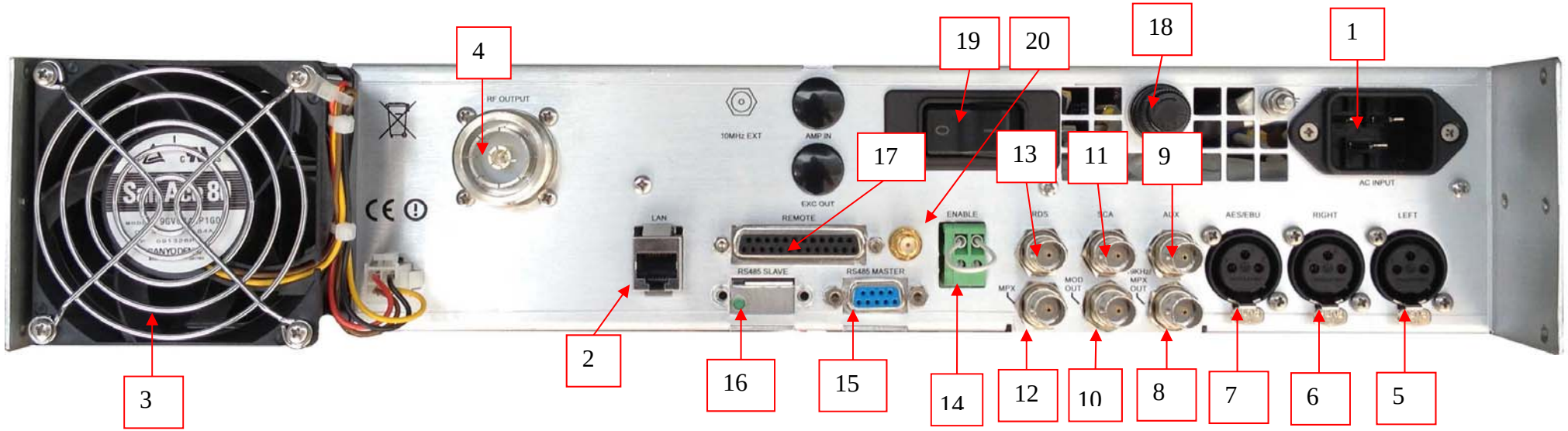


1. RF Monitor connector
2. Status leds
   a. ALARM: in case of a temporary alarm (it returns automatically to the normal status at next attempt of the unit) – RED led
   b. WARNING: in case of a warning is present - YELLOW led
   c. ON: in case the unit is connected to the mains and switched on – GREEN led
3. LCD Display
4. Navigation keys (UP / DOWN / RIGHT / LEFT / OK)
5. ESCAPE key
6. AUDIO and CONTROL leds

a. RDS/AUX: it is ON in case the RDS/SCA/AUX are on	b. MPX: it is ON in case the MPX EXT mode is selected
c. AUDIO: it is ON in case of correct level of input audio signal	d. AES-EBU: it is ON in case the AES-EBU is on
e. LIM: it is ON in case the limiter is set to on	f. STEREO: it is ON in case the MPX INT mode is selected
g. PRE EMPH: it is ON in case the pre-emphasis is on	h. MONO: it is ON in case the MONO mode is selected
i. PREF: no actually available	j. PLL LOCK: it is ON in case the PLL is correctly locked
k. AUTO: no actually available	l. INTLK: it is ON in case the ENABLE is closed

7. Command keys (Reset Alarms, Local/Remote, ON/OFF) and leds (Fault, Local, RF ON)

Fig. 2.4 – MOZART 120/300/500/1000 REAR VIEW



1. AC input
2. LAN port
3. Cooling FAN
4. RF output connector (N)
5. Left XLR connector
6. Right XLR connector
7. AES/EBU XLR connector
8. 19kHz / MPX OUT BNC connector
9. AUX BNC connector
10. MOD OUT BNC connector
11. SCA BNC connector
12. MPX BNC connector
13. RDS BNC connector
14. ENABLE connector
15. RS 485 MASTER connector
16. RS 485 AUX connector (or space for SIM card in case of SMS option)
17. REMOTE connector
18. Fuse
19. Switching on button
20. Antenna connector for SMS option

3 TECHNICAL SPECIFICATIONS

RF FEATURES	
RF Output impedance	50Ω unbalanced
Frequency range	87.5 to 108 MHz
Frequency control	Synthesizer µprocessor controlled
Off-lock attenuation	> 75 dBc (typical -80 dB)
Type of modulation	F3E / F8E direct FM at the carrier frequency
Modulation mode	Mono, Stereo, Multiplex, SCA, RDS, AUX (input selected by front panel)
Frequency deviation	±75 kHz =100 %, ±150 kHz capability (others on request)
Reference	VCTCXO 10 MHz ± 1ppm or 10 MHz external (Optional)
Constancy of freq. dev.	±1 % over six months
Variation of freq.	± 1ppm/year
Short term stability	± 1 ppm from -5 to +45 °C
Instantaneous BW	>20 MHz
RF harmonics	Exceeds CCIR/FCC requirements
RF spurious	Exceeds CCIR/FCC requirements
Pre-emphasis	Flat/50/75µs selectable via front panel
Pre-emphasis precision	Nominal 1% (typical 0.4%)
Stereo operation	CCIR 450/S2 "pilot tone system"

STEREO OPERATION	
1. Audio response	±0.3 dB da 20 Hz to 15 kHz
2. Audio filter attenuation	> 55 dB @ 19 kHz, >45dB 19 to 100kHz
3. Common mode rejection	20 Hz to 15 kHz > 45 dB
4. Stereo Separation	30-80Hz >53dB (typ. 56), 80Hz-15kHz >60 dB (typ.70)
5. Crosstalk attenuation (M / S)	> 40 dB 30 Hz to 15 kHz (typ. 52dB / 400Hz to 5kHz)
6. Spurious products	> 53 kHz > 50 dB
7. Subcarrier frequency	38 kHz ± 2 Hz
8. Subcarrier generation	Internal crystal
9. Pilot frequency	19 kHz ± 1 Hz
10. THD+N on encoded channels	< 0.03 % 30 Hz TO 15 kHz (typ -75dB)
11. Nominal pilot deviation	±7 kHz

MONO OPERATION	
Audio response	±0.3 dB 20 Hz to 15 kHz (+0/-2%)
THD+N on encoded channels	30 Hz to 15 kHz < 0.06% (typ. 0.03 %) typ. -78dB

MPX OPERATION (External coder)	
Audio response	30Hz - 100kHz ± 0.15 dB
THD+N on encoded channels	30 Hz to 15 kHz < 0.03% (typ. 0.02% , < -75dB)

AUDIO INPUTS						
Function	**Input level / Adjustment range**	**BW**	**Impedance**	**Type**	**Conn.**	**N°**
Composite	-6 ÷ +6 dBu (+6 ÷ +18 dBu available on request)	±0.15 dB 30 Hz÷100kHz	>5 kΩ	Unbal.	BNC	1
SCA/RDS/AUX	-19.5 ÷ -7.5 dBu	±0.15 dB 40kHz÷100kHz	~2 kΩ (other on request)	Unbal.	BNC	2
AES/EBU	-3 dBFS for ± 75 kHz 15 dBu (12.33 Vpp) -15 … 0 dBFS 0 to 15 dBu (2.19 Vpp to 12.3 Vpp)	0.15 dB 40kHz÷100kHz	110 Ω	Unbal	XLR	3
L	-9 ÷ +18 dBu	±0.15 dB 30Hz÷15kHz	10 kΩ 600 Ω	Unbal. Bal.	XLR	4
R	-9 ÷ +18 dBu	±0.15 dB 30Hz÷15kHz	10 kΩ 600 Ω	Unbal. Bal.	XLR	5

AUDIO OUTPUTS	
RF connector	N female
Monitor RF output	-44dBc±2dB from 87.5 to 108 MHz
Pilot/MPX	BNC connector 19 kHz or MPX, level 1 Vpp, internally adjustable
Mod. Output	BNC Connector

MODEL	NOMINAL POWER	CONNECTOR	SIZE
MOZART 30	30 W	N	1U x 19”
MOZART 50	50 W	N	1U x 19”
MOZART 120	120 W	N	2 U x 19”
MOZART 300	300 W	N	2 U x 19”
MOZART 500	500 W	N	2 U x 19”
MOZART 1000	1000 W	DIN 7/16	2 U x 19”

ENVIRONMENT	
Storage temperature	-20°C TO + 60 °C
Operating temperature	0 °C TO + 50 °C
Guaranteed performance temperature	0 °C TO + 45 °C
Relative non-condensing humidity	90 % MA
Max operating altitude	3000 mt.
Max extraneous field strength	≤10 V/m; ≤ 4 A/m

SIZE & ELECTRICS	
Power supply	110/220V single phase AC (+10 / -15 %) 50-60Hz/ ± 5%
Display	Blue back panel; 2 raw 24 character LCD
Cooling	Forced air, with external long life brushless ball bearing fan

Features and specifications subject to change without notice.

4 INSTALLATION AND ACTIVATION

4.1 INITIAL CHECK

The equipment becomes the property of the customer when the equipment is delivered to the carrier. Carefully unpack the transmitter. Perform a visual inspection to determine that no apparent damage has been incurred during shipment. All shipping materials should be retained until it is determined that the unit has not been damaged. Claims for damaged equipment must be promptly filed with the carrier or the carrier may not accept the claim.
The contents of the shipment should be as indicated on the packing list. If the contents are incomplete, or if the unit is damaged electrically or mechanically, notify both the carrier and the supplier.

CAUTION: Before switch the equipment on, ensure that all RF Loads, RF cables and connectors are properly connected. To prevent damage to the amplifiers, it is essential that either the feeder and antenna system or the dummy load have a good in band return loss.
Failure to observe the above caution and also the installation instructions of this amplifier may cause damages to the amplifiers for which the supplier cannot be considered responsible.

❶ PREVENTION OF ACCIDENTS

When it is used in normal applications and within the parameters defined in the technical specifications, this equipment does not endanger health and safety, provided that normal operating and engineering safety practices are observed and that it is used only by authorized, trained and qualified personnel.

❷ THERMIC AND ENVIRONMENTAL CONDITIONS

- A too high environmental temperature (in any case not higher than 45°C) shall cause a non-adequate rack cooling putting the equipment in hard working conditions.
- An air conditioner should be installed to keep the room temperature constant even in case of external temperature variation.

4.2 CONNECTIONS

Install the transmitter so that the space over and under the equipment is sufficient for the cooling air to flow through.

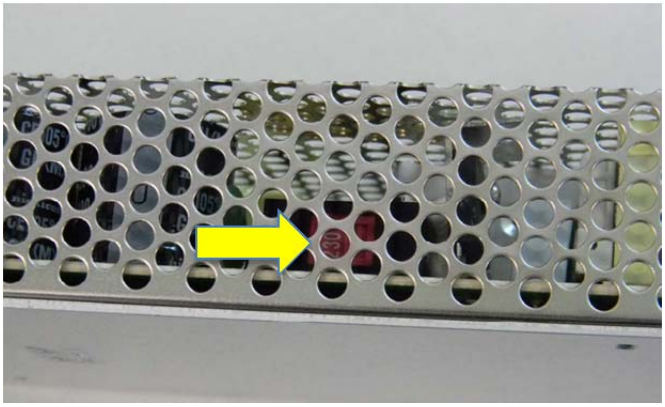
Before installing the equipment always make sure that the transmitter is not powered. This has the purpose to prevent electrical shocks to the operators and damage to the equipment.

Before carrying out any other electrical connection, connect the rack to the station ground.

- Connect the transmitting antenna cable or the cable related to the connection of the output filter to the output connector of the unit (in the latest case connect the output of the filter to the transmitting antenna) using a 50 Ohms coaxial cable.
- In case the transmitter is not connected to an external control unit, check that the ENABLE connector on the back panel is correctly inserted.
- Connect the power cord to an operating source. Make sure that the power supply source provides the nominal voltage prescribed.

Note: the unit is designed to operate with the nominal voltage ±15%. We suggest the installation of spike suppressors, line conditioners, isolation transformers, AVR and/or UPS or other devices useful to protect the equipment from eventual damages that can be caused by the mains fluctuations.

Note: In case of change of the AC supply voltage from 220 VAC to 110 VAC or vice versa, all the models will work in the correct way without any degradation. The AC/DC switching boards are all able to support these voltages but in case of Mozart 30 and Mozart 50 models, it is necessary to make a change in a switch present in the lateral side of the RS 150-48 switching board (while in the other models no change is necessary). See in the photo here below the dip switch position: move it with a screwdriver in the correct position.



5 MENU DESCRIPTION

5.1 VISUALIZATION

The following pages are related to parameters that are visualized on the front panel: they are indications of the actual operating parameters of the unit.

5.1.1 START PAGE

After the unit power on, the first page in the display shows information about the internal hardware revision and supplier (first row), and about firmware revision and unit model (second row).

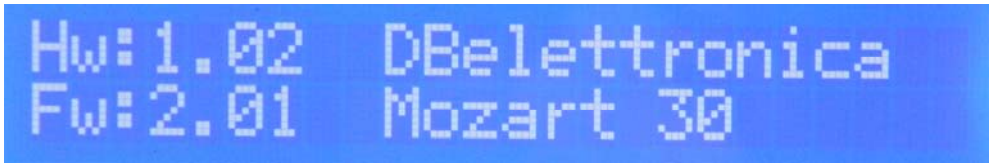


Fig. 5.1 – Start page

The page remains active for a few seconds before moving to the main menu.

5.1.2 MAIN MENU

This is the default page and it indicates the output power set by the customer (SET), the transmission frequency in MHz, the real forward power in Watt (that can be different from SET in case of an alarm, warning, failure or in case the unit is in OFF state), and the reflected power in Watt.

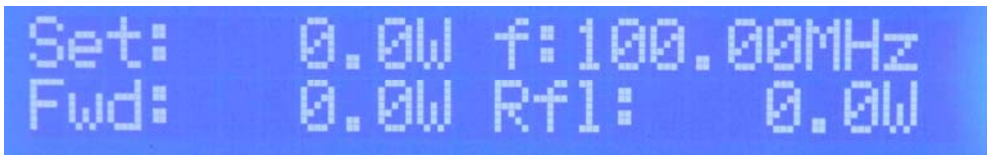


Fig. 5.2 – Main menu

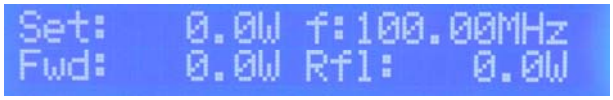
The unit moves to this page in case no key is pressed for 60 seconds.

5.2 VMETERS AND INFO MENU

In these menus it is possible to find the levels of the input channels, the internal voltages, currents, temperatures and the software/hardware revisions.

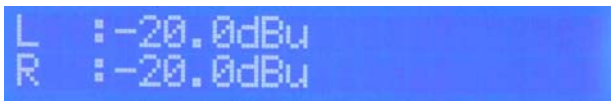
In the Main Menu page press DOWN key to enter these pages and UP and DOWN keys to navigate in the sub-menus.

[0]
Main Page

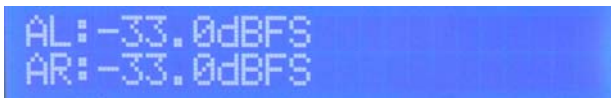


[1]
Output Modulation

[2]
Left and Right channels input level



[3]
Left and Right AES-EBU channels input level



[4]
MPX External, RDS External input levels

[5]
SCA and AUX input levels

[6]
Internal voltages and current

[7]
Heatsink temperature

[8]
Device information

Fig. 5.3 – Vmeters and Info menus flow graph

5.2.1 OUTPUT MODULATION

In this page the Total Output modulation level is indicated in KHz.

Fig. 5.4 – Output Total Modulation page

Pressing the UP or DOWN buttons you can move inside this menu and see the different pages indicated here below.

5.2.2 LEFT AND RIGHT CHANNELS LEVEL

In this page the analogic Left and Right channels levels are indicated in dBu.

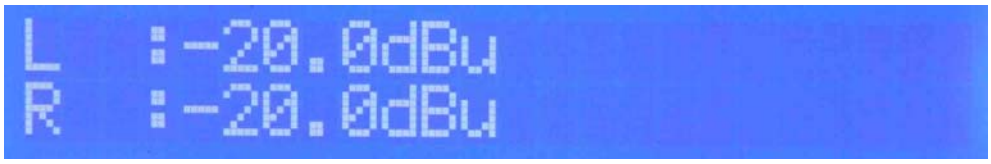


Fig. 5.5 – Analogic Left and Right input levels

5.2.3 AES-EBU LEFT AND RIGHT CHANNELS LEVEL

Pressing the DOWN button you can see the Left and Right levels for the AES-EBU input channels indicated in dBFS.

Fig. 5.6 – AES-EBU Left and Right input levels

5.2.4 AUXILIARY CHANNELS LEVEL

Pressing the DOWN button you can see the MPX External and RDS External levels indicated in dBu.

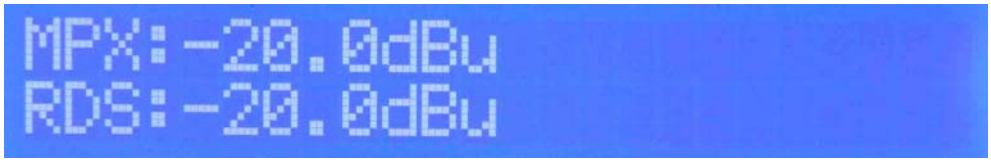


Fig. 5.7 – Auxiliary channels 1 input levels

Pressing the DOWN button you can see the SCA and AUX levels indicated in dBu.

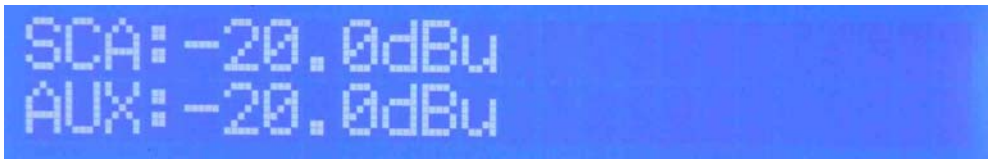


Fig. 5.8 – Auxiliary channels 2 input levels

5.2.5 VOLTAGES AND CURRENT

This page allows the visualization of the unit analogic working values:

VPA = voltage that supplies the RF module in Volt.

IPA = current absorbed by the RF module in Ampere.

VPu = Main power supply voltage in Volt.

VT = Voltage Tuning (VCO working voltage) in Volt.

Fig. 5.9 – Voltages and Current page

5.2.6 HEATSINK TEMPERATURE

This page allows the visualization of the RF heatsink temperature in Celsius degrees.

Fig. 5.10 – Heatsink temperature page

5.2.7 DEVICE INFORMATION

This page allows the visualization of device model, manufacturer name, hardware and firmware revisions.

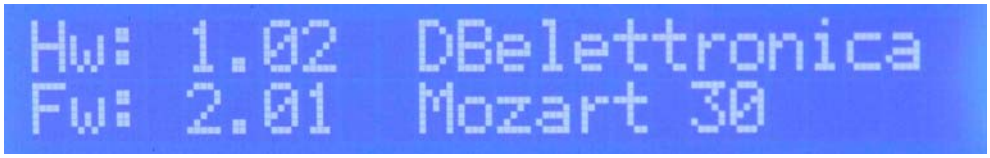


Fig. 5.11 – Device information page

5.3 SETTINGS MENU

The following pages are related to the unit main parameters. To navigate on **Setting** menu press LEFT or RIGHT key from Main Menu.

In case sub-menu is present, an arrow pointing downwards will be showed in the second row on the right, press DOWN or UP to navigate on sub-menus.

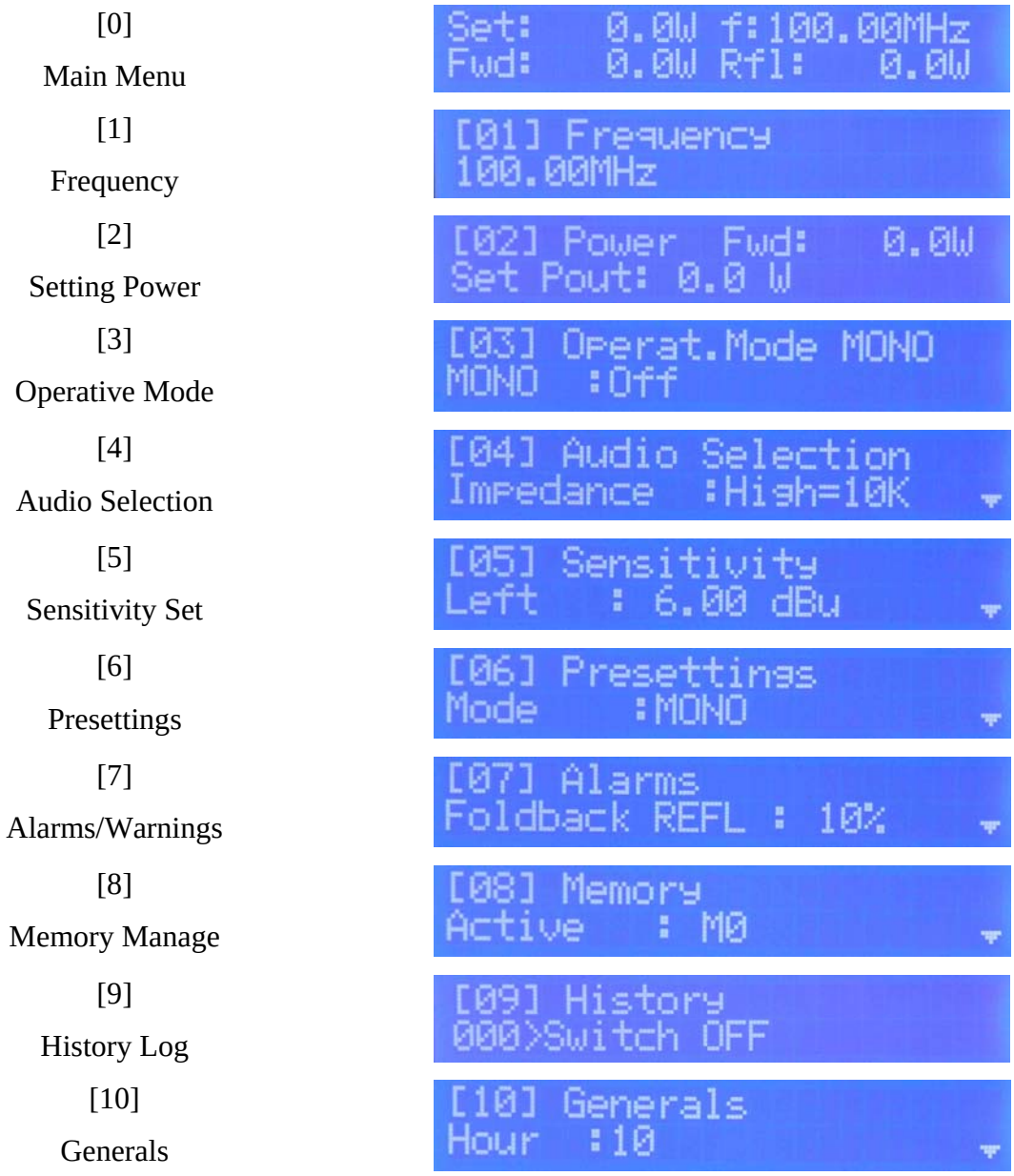


Fig. 5.12 – Setting menu flow graph

5.3.1 FREQUENCY SET MENU

Press the LEFT or RIGHT keys to access the slide to program the frequency. Push the OK key to enter the menu (a blinking arrow will be showed in the second row on the right), press UP key to increase or DOWN key to decrease the frequency value. Confirm the new value pressing the OK key or ESC key to exit without saving.
During the frequency change the PLL LOCK led will be switched off until the PLL will be locked to the new frequency.

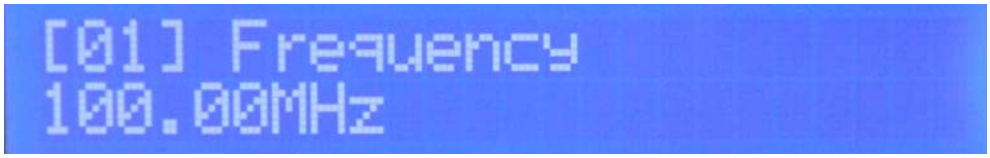


Fig. 5.13 – Set frequency menu

MIN value: 87.50 MHz	MAX value: 108.00 MHz	STEP: ±0.01MHz

Table 5.1 – Frequency permitted values

5.3.2 POWER SET MENU

To program the RF Power output in Watt, press the LEFT or RIGHT key up to arrive to the slide here below. Press the OK key to enter the program mode (blinking arrow in second row on the right).
In the first row the forward power value indicates the actual output power, in the second row the Set Pout is the value that the customer is setting.

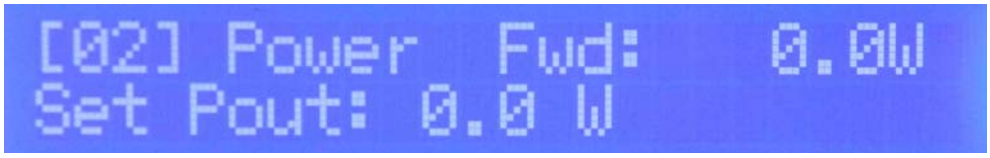


Fig. 5.14 – Set power menu

The value can be modified pressing UP and DOWN keys to increase or decrease the value. Confirm new value and exit routine pressing the OK button or press ESC key to exit without saving.
The new power value is applied in real time.

NOMINAL POWER	MIN POWER	MAX POWER	STEP
30 W	0 W	30 W	0.1 W
50 W	0 W	60 W	1 W
120 W	0 W	150 W	1 W
300 W	0 W	330 W	1 W
500 W	0 W	550 W	10 W
1000 W	0 W	1100 W	10 W

Table 5.2 – Setting power specifics

5.3.3 OPERATIVE MODE MENU

In the Operative Mode menu is possible activate/deactivate the various input channels depending on the configuration MONO/STEREO in the **Presettings** Menu.

5.3.3.1 MONO ACTIVE

In case the MONO is active, the page in the Operative Mode menu will be the one here below:

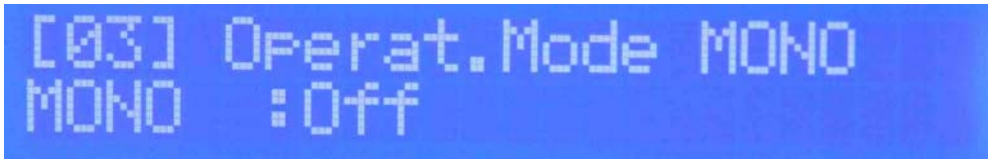


Fig. 5.15 – Operative Mode MONO

Starting condition in case the configuration is changed from STEREO to MONO is always **OFF**.

To activate the desired channel press the OK key to enter the program mode (blinking arrow in second row on the right).

To select Left, Right or Left+Right channels press UP or DOWN keys, press OK key to confirm the channel selected or ESC key to exit routine without saving.

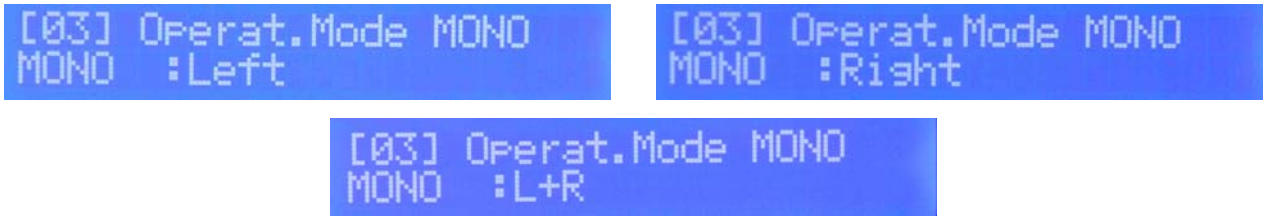


Fig. 5.16 – Operative Mode MONO channel selection

In case the AES-EBU is active (Presetting Menu), the enabled channel is relative to AES-EBU, please select **AES-EBU:Off** for using the analogic input channels.

5.3.3.2 STEREO ACTIVE

In case the STEREO is active, in the Operative Mode is present a sub menu due to the possibilities to activate the auxiliary channels:

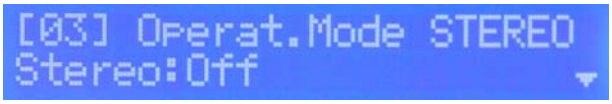
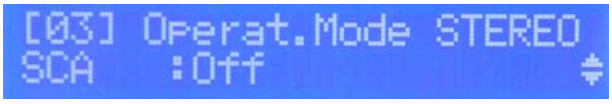
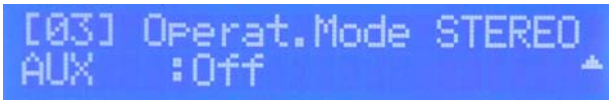
[0] STEREO selection	
[1] Auxiliary channel RDS	
[2] Auxiliary channel SCA	
[3] Auxiliary channel AUX	

Fig. 5.17 – Operative Mode STEREO options

Starting condition for STEREO selection and auxiliary channels, in case the mode is changed from MONO to STEREO, is always **OFF**.

In the STEREO selection can be selected the MPX External (rear connector) or the MPX Internal (if Stereo Coder card is available) mode.

Fig. 5.18 – Operative Mode STEREO MPX

To activate the desired mode press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select the desired mode. Press OK key to confirm or ESC key to exit routine without saving.

5.3.3.3 AUXILIARY CHANNELS

To enable the auxiliary channels (available only in STEREO mode) navigate in the sub-menu with the UP and DOWN keys until the channel desired and press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to change the ON/OFF state. Press OK key to confirm or ESC key to exit routine without saving.

Fig. 5.19 – Auxiliary channels options

In case one auxiliary channel is enabled the led RDS/AUX in the frontal panel will be switched on.

5.3.4 AUDIO SELECTION MENU

In the Audio Selection sub-menu the regulations of input impedance, pre-emphasis and limiter are available.

To navigate in the sub-menu press UP or DOWN keys.

Fig. 5.20 – Audio Selection menu options

5.3.4.1 INPUT IMPEDANCE

In this sub-menu the impedance of analogic Left and Right channels can be selected.

Fig. 5.21 – Input Impedance menu

To change the input impedance, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select the impedance value. Press OK key to confirm or ESC key to exit routine without saving.

Impedance value:	600, 10K

Table 5.3 – Impedance permitted values

5.3.4.2 PRE-EMPHASIS REGULATION

In this sub-menu pre-emphasis value can be changed.

Fig. 5.22 – Pre-emphasis menu

To change the pre-emphasis value, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select the new value. Press OK key to confirm or ESC key to exit routine without saving.

Pre-emphasis values:	Linear, 50us, 75us

Table 5.4 – Pre-emphasis permitted values

In case the pre-emphasis is set different from Linear the led PRE EMPH on the frontal panel will be switched on.

5.3.4.3 LIMITER REGULATION

In these sub-menus an upper limit for the output signal deviation can be enabled and regulated.
The menu **Limiter** permits to enable or disable the limiter, if the limiter is enabled the value can be regulated in the next menu.

Fig. 5.23 – Enable limiter menu

To enable/disable the limiter press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select the on/off state. Press OK key to confirm or ESC key to exit routine without saving.

In case the Limiter is enabled the green led LIM on the frontal panel will switched on.

To adjust the limiter value, press DOWN key to select the Limiter value sub-menu.

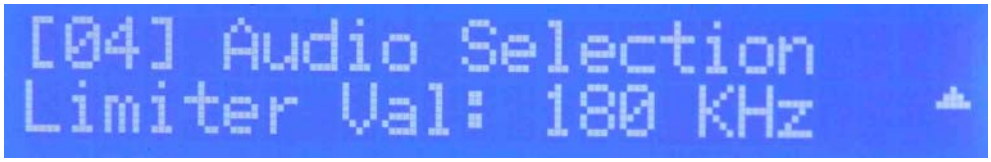


Fig. 5.24 – Limiter value menu

To change the limiter value, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select the new value. Press OK key to confirm or ESC key to exit routine without saving.
The limiter value is applied in real time and only if the limiter is enabled.

MIN value: 30 KHz	MAX value: 180 KHz	STEP: 1 KHz

Table 5.5 – Limiter permitted values

5.3.5 SENSITIVITY MENU

In this menu it is possible to set the sensitivity value in of all available unit input channels, the sensitivity level will induce a regulation of channels internal attenuators.

A sensitivity value equal to the relative channel input level will cause an output signal deviation of 75 KHz in case of mono signal or 71 KHz in case of stereo signal.

To navigate in this sub-menu press UP or DOWN keys until the channel desired.

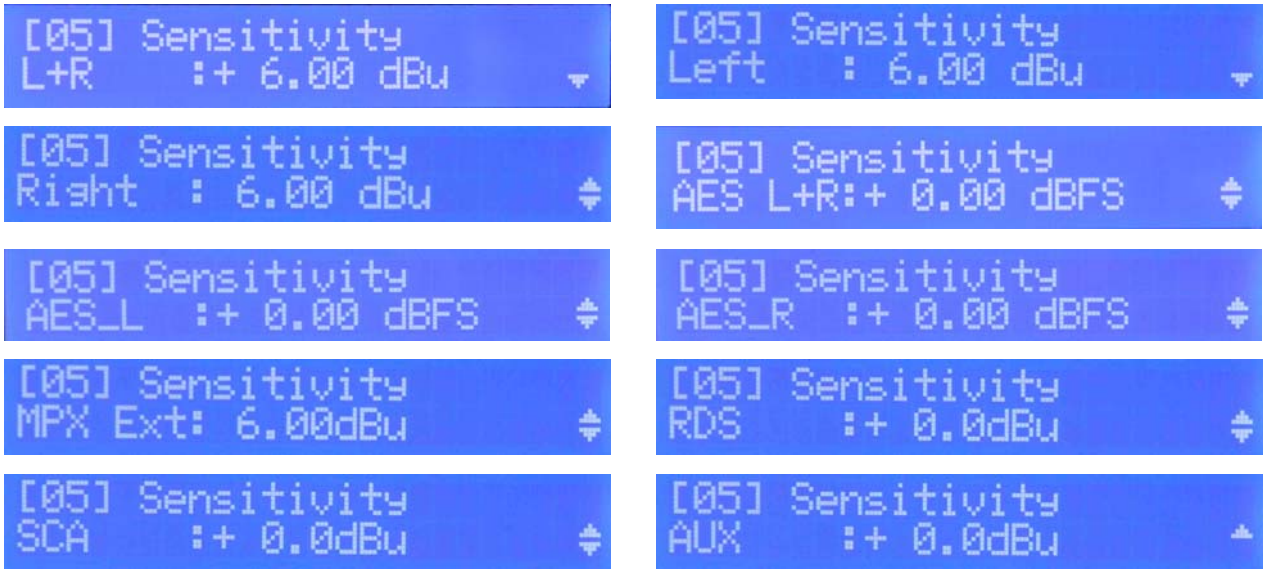


Fig. 5.25 – Channels Sensitivity

To change the sensitivity level, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to increase or decrease the value. Press OK key to confirm or ESC key to exit routine without saving.

The sensitivity value is applied in real time and only if the relative channel is in ON state (see menu **Operat.Mode**).

CHANNELS	MIN value	MAX value	STEP
LEFT+RIGHT, LEFT, RIGHT	-9 dBu	+18 dBu	±0.05 dB
AES-EBU LEFT, RIGHT, LEFT+RIGHT	-15 dBFS	0 dBFS	±0.05 dB
MPX Ext (standard)	-6 dBu	+6 dBu	±0.05 dB
MPX Ext available on request	+6 dBu	+18 dBu	±0.05 dB
RDS, SCA, AUX	-19.5 dBu	-7.5 dBu	±0.5 dB

Table 5.6 – Sensitivity permitted values

5.3.6 PRESETTING MENU

In this menu it is possible to set the other main parameters of the unit: MONO/STEREO mode, channels deviation offset, pilot tone frequency and phase shift, AES-EBU and MPX/19KHz Out.
The menu layout is different depending on MONO, STEREO (MPX Int or MPX Ext) mode.

5.3.6.1 MODE: MONO/STEREO

To change the operational mode, select the first entry in the **Presettings** menu and press the OK key to enter the program mode (blinking arrow in second row on the right).
Press UP or DOWN keys to select MONO or STEREO. Press OK key to confirm or ESC key to exit routine without saving.

Fig. 5.26 – Presetting mode

*Note: Now in the menu **Operat.Mode** the channels or the configuration MPX Internal/MPX External (in case of STEREO mode) have to be activated.*
*Every change from MONO-to-STEREO or STEREO-to-MONO will set the channels and the MPX Int/Ext in OFF state so the configuration has to be set again in the menu **Operat.Mode.***

If MONO mode is enabled the led MONO in the frontal panel will be switched on, in case of STEREO MPX Internal is enabled the led STEREO will be switched on, in case of STEREO MPX External is enabled the led MPX will be switched on.

5.3.6.2 PRESETTINGS IN MONO MODE

[0]
Mode Selection

[1]
Total Deviation Adjustment

[2]
AES-EBU Deviation Adjustment

[3]
AES-EBU Enable

[4]
AES-EBU Ratio

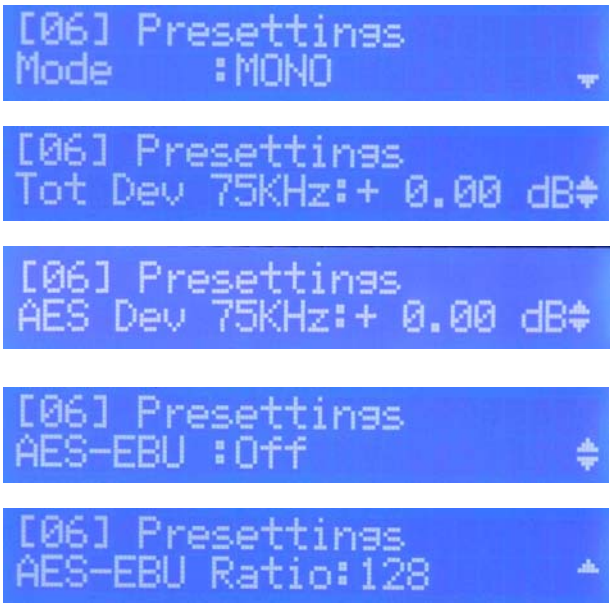


Fig. 5.27 – Presetting MONO mode menu

In MONO mode the options available are the fine adjustment of output signal deviation and the AES-EBU controls. To navigate in these menus press UP or DOWN keys.

5.3.6.3 PRESETTINGS IN STEREO MPX INTERNAL MODE

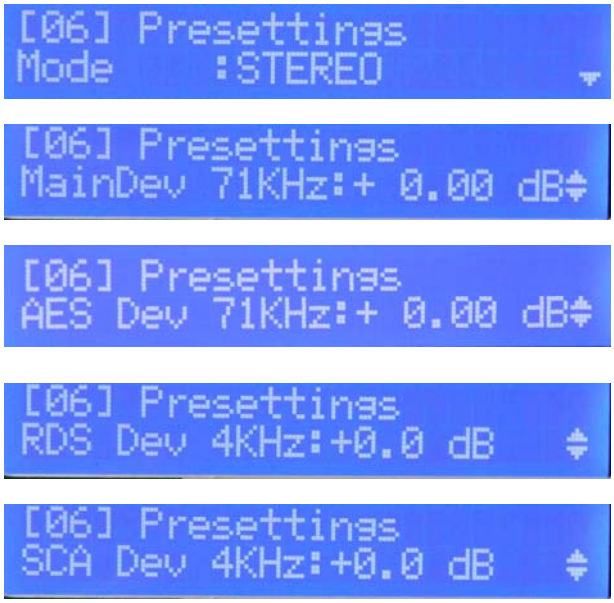
[0]
Mode Selection

[1]
Total Deviation Adjustment

[2]
AES-EBU Deviation Adjustment

[3]
RDS Deviation Adjustment

[4]
SCA Deviation Adjustment



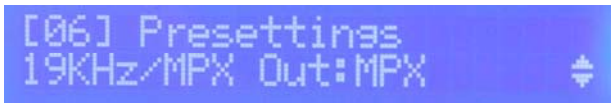
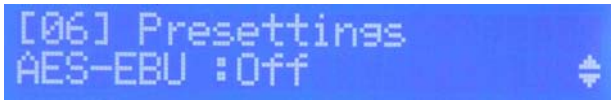
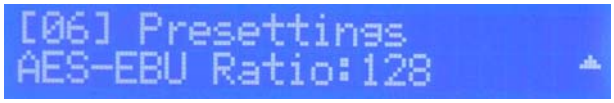
[5] AUX Deviation Adjustment	
[6] 19KHz/MPX Selection	
[7] Pilot Tone Deviation	
[8] Pilot Tone Phase Shift	
[9] AES-EBU Enable	
[10] AES-EBU Ratio	

Fig. 5.28 – Presetting STEREO MPX Int mode menu

In STEREO mode MPX Internal enabled, the options available are the fine adjustment of output signal and auxiliary channels deviation, 19KHz/MPX output selection, Pilot Tone regulation and AES-EBU controls.

To navigate in these menus press UP or DOWN keys.

5.3.6.4 PRESETTINGS IN STEREO MPX EXTERNAL MODE

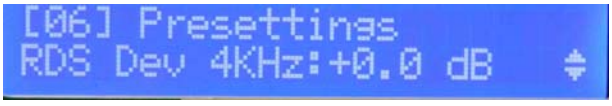
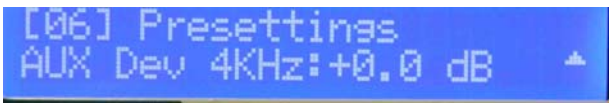
[0] Mode Selection	
[1] Total Deviation Adjustment	
[2] RDS Deviation Adjustment	
[3] SCA Deviation Adjustment	
[4] AUX Deviation Adjustment	

Table 5.7 - Presetting STEREO MPX Ext mode menu

5.3.6.5 TOTAL DEVIATION ADJUSTMENT

In this menu it is possible to adjust an internal circuit offset (in dB) to set the total output signal deviation to 75KHz (in MONO mode) or 71KHz (in STEREO MODE) regardless the sensitivity level set in the **Sensitivity** menu.

Fig. 5.29 – Presetting total deviation adjustment

To change the offset value, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to increase or decrease the value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: -3 dB	MAX value: +3 dB	STEP: ±0.05 dB

Table 5.8 – Total deviation adjustment permitted values

5.3.6.6 RDS, SCA, AUX DEVIATION ADJUSTMENT

In this menu it is possible to adjust an internal circuit offset (in dB) to set the particular auxiliary channel deviation to 4KHz regardless the sensitivity level set in the **Sensitivity** menu.
This option is available only in STEREO mode.

Fig. 5.30 – Presetting auxiliary channels deviation adjustment

Press UP or DOWN key to select the channel desired. To change the offset value, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to increase or decrease the value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: -2 dB	MAX value: +2 dB	STEP: ±0.5 dB

Table 5.9 – Auxiliary channels deviation adjustment permitted value

5.3.6.7 19KHZ/MPX OUTPUT SELECTION

In this menu it is possible to select the output signal at the **19KHz/MPX OUT** rear connector: the 19KHz signal or the MPX Internal signal.
This option is available only in STEREO MPX Internal mode.

Fig. 5.31 – Presetting 19KHz/MPX Out menu

To change the output, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select the desired output. Press OK key to confirm or ESC key to exit routine without saving.

5.3.6.8 PILOT TONE DEVIATION

In this menu it is possible adjust the deviation of pilot tone, the standard value is 7 KHz (10% of stereo signal deviation of 71 KHz). The deviation change is obtained through an increment-decrement of the pilot tone level.
This option is available only in STEREO MPX Internal mode.

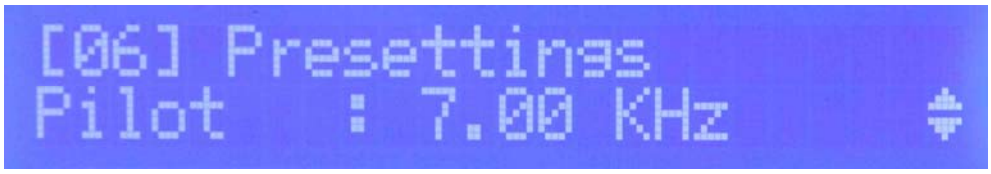


Fig. 5.32 – Pilot tone deviation adjustment

To change the deviation value, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to increase or decrease the deviation value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: 2 KHz	MAX value: 15KHz	STEP: ±0.25 KHz

Table 5.10 – Pilot tone deviation adjustment permitted values

5.3.6.9 PILOT TONE PHASE SHIFT

In this menu it is possible adjust the phase of 19KHz pilot tone. This option is available only in STEREO MPX Internal mode.

Fig. 5.33 – Pilot tone phase adjustment

To change the phase value, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to increase or decrease the value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: -100°	MAX value: +100°	STEP: ±1°

Table 5.11 – Pilot tone phase adjustment permitted values

5.3.6.10 AES-EBU CONTROLS

In these menus it is possible enable/disable the AES-EBU interface. The menus are available in MONO and STEREO MPX Internal modes.

Fig. 5.34 – AES-EBU interface enable menu

To enable/disable the AES-EBU interface, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select ON or OFF. Press OK key to confirm or ESC key to exit routine without saving.

If the interface is enabled, the internal switch will commutate from analogic Left/Right channels to digital Left/Right ones but the active channels set in the **Operat.Mode** menu will not change.
In case of interface enabled the AES-EBU led in the frontal panel will be switched on.

It is possible to change the AES-EBU interface Recovered Master Clock Frequency in the Ratio menu.

Fig. 5.35 – AES-EBU Ratio menu

To change the AES-EBU Ratio, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

Values available:	128, 256

Table 5.12 – AES-EBU Ratio permitted values

5.3.7 ALARMS MENU

In these menus it is possible to set the thresholds of intervention of alarms/warnings. In case an event is verified an info will be saved in the history log and the warning or alarm led (depending on event type) will be switched on. To navigate in these menus press UP or DOWN keys.

[0]
Foldback Reflected

[1]
Warning Reflected

[2]
Warning Power Low

[3]
Alarm Power Low

[4]
Audio Low Level

[5]
Audio Low T1

[6]
Audio Low T2

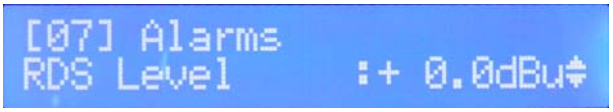
[7]
Audio Over Level

[8]
Audio Over T1

[9]
Audio Over T2

[10]
Audio Event Type

[11]
RDS Level



[12]
RDS timer

Fig. 5.36 – Alarms/Warnings menu flow graph

5.3.7.1 WARNING FOLDBACK REFLECTED POWER

The unit is provided with a reflected power level proportional protection: in case the output reflected power exceeds the foldback threshold value the unit enters in warning mode and the output forward power is proportionally lowered to maintain the reflected power under the foldback threshold level.

The folbadck threshold is indicated as percentage of nominal unit power. **Standard factory calibration is 15% of nominal power.**

Fig. 5.37 – Foldback Reflected menu

To change the foldback threshold level, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: 0%	MAX value: 100%	STEP: ±1%

Table 5.13 – Foldback Reflected permitted values

5.3.7.2 WARNING REFLECTED POWER

In this menu it is possible to set a threshold value for a reflected power warning in similar way to the previous menu.

The presence of this warning does not alter in any way the output forward power unlike by the foldback reflected warning.

The Warning Reflected threshold is indicated as percentage of nominal unit power.

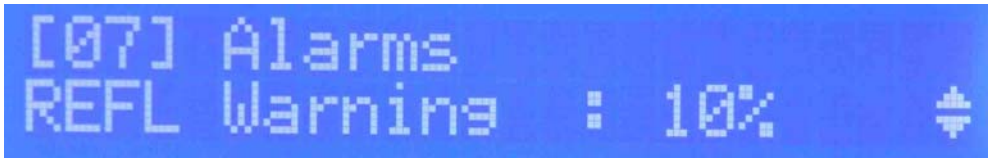


Fig. 5.38 – Warning Reflected menu

To change the Warning Reflected threshold level, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: 0%	MAX value: 100%	STEP: ±1%

Table 5.14 – Warning Reflected permitted values

To disable this warning set the Warning Reflected to 0%.

5.3.7.3 WARNING POWER LOW

In this menu it is possible to set a warning in case the forward power level drops below a threshold. In case the forward power never exceeds the Warning Power Low threshold from the unit switch ON the warning is generated after 40 seconds otherwise after 4 seconds.
The Warning Power Low threshold is indicated as percentage of nominal unit power.

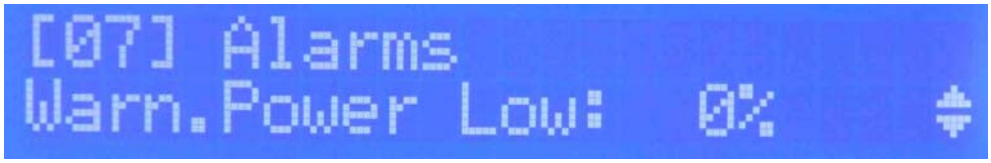


Fig. 5.39 – Warning power Low menu

To change the Warning Power Low threshold, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: 0%	MAX value: 100%	STEP: ±1%

Table 5.15 – Warning power Low permitted values

To disable this warning set the Warning Power Low to 0%.

5.3.7.4 ALARM POWER LOW

In this menu it is possible to set an alarm in case the forward power level drops below a threshold in a similar mode as previous menu.

In case the forward power never exceeds the Alarm Power Low threshold from the unit switch ON the warning is generated after 40 seconds otherwise after 4 seconds.

The Alarm Power Low threshold is indicated as percentage of nominal unit power.

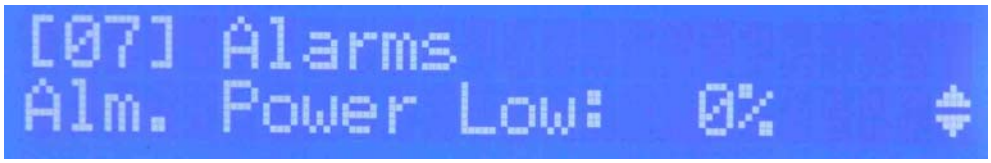


Fig. 5.40 – Alarm power Low menu

To change the Alarm Power Low threshold, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: 0%	MAX value: 100%	STEP: ±1%

Table 5.16 – Alarm power Low permitted values

To disable this alarm set the Alarm Power Low to 0%.

5.3.7.5 AUDIO LOW EVENT

The Audio Low warning/alarm is generated if the audio level at an active input channel drops below a threshold set in the menu **Audio Low Level** for at least T1 seconds.

In presence of Audio Low warning/alarm in case the audio level exceeds the Audio Low threshold for at least T2 seconds the warning/alarm status is automatically ended. In case the input audio signal is lower than Audio Low Level the front panel led AUDIO will be switched off.

The timeouts T1 and T2 are set in the menus **Audio Low T1** and **Audio Low T2**.

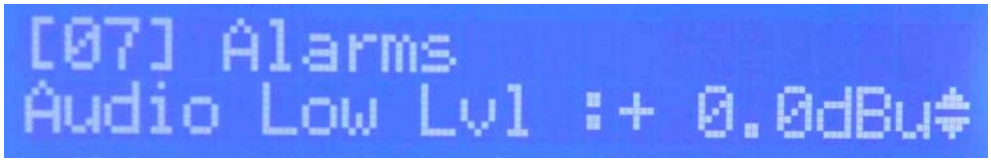


Fig. 5.41 – Audio Low Level menu

To change the Audio Low level, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: -20 dBu	MAX value: +20 dBu	STEP: ±0.1 dB

Table 5.17 – Audio Low Level permitted values

To setup the timeouts Audio Low T1 and T2 navigate to the relative menus with UP or DOWN keys.

Fig. 5.42 – Audio Low timeout menus

To change the Audio Low timeouts, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: 0 sec	MAX value: 1000 sec	STEP: ±1 sec

Table 5.18 – Audio Low timeouts permitted values

To disable this warning/alarm set both the timeouts Audio Low T1 and T2 to 0 sec.

5.3.7.6 AUDIO OVER EVENT

The Audio Over warning/alarm is generated if the audio level at an active input channel exceeds a threshold set in the menu **Audio Over Level** for at least T1 seconds.
In presence of Audio Over warning/alarm in case the audio level drops below the Audio Over threshold for at least T2 seconds the warning/alarm status is automatically ended. In case the input audio signal is higher than Audio Over Level the front panel led AUDIO will be switched off.
The timeouts T1 and T2 are set in the menus **Audio Over T1** and **Audio Over T2**.

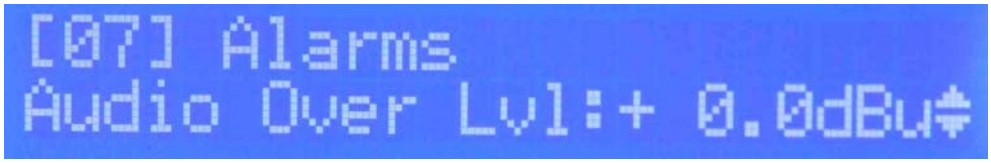


Fig. 5.43 – Audio Over Level menu

To change the Audio Over level, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: -20 dBu	MAX value: +20 dBu	STEP: ±0.1 dB

Table 5.19 – Audio Over Level permitted values

To setup the Audio Over timeouts navigate to the relative menus with UP or DOWN keys.

Fig. 5.44 – Audio Over timeout menus

To change the Audio Over timeouts, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: 0 sec	MAX value: 1000 sec	STEP: 1 sec

Table 5.20 – Audio Over timeouts permitted values

To disable this warning/alarm set both the timeouts Audio Over T1 and T2 to 0 sec.

5.3.7.7 AUDIO WARNING/ALARMS MENU

In this menu it is possible to configure the type of audio event for both Audio Low and Audio Over. In case the audio event is configured as warning the yellow warning led will be switched on in the frontal panel and in the history log the event will be saved as warning.
In case the audio event is configured as alarm, the red alarm led will be switched on in the frontal panel and the event will be saved as alarm in the history log.

Fig. 5.45 – Audio events type menu

To change the Audio Event type, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select type desired. Press OK key to confirm or ESC key to exit routine without saving.

TYPE AVAILABLE:	Warning, Alarm

Table 5.21 – Audio events permitted types

5.3.7.8 ALARM RDS LEVEL

The alarm RDS level is generated if the RDS signal level drops below a threshold set in the menu **RDS Level** for at least a defined time (RDS timer).
In case the RDS level exceeds the specified threshold the alarm status is automatically ended.

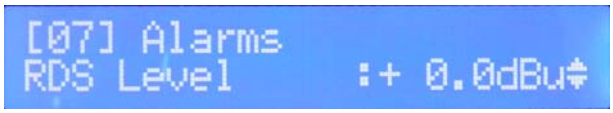


Fig. 5.46 – RDS Level menu

To change the RDS level, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: -20 dBu	MAX value: +20 dBu	STEP: ±0.1 dB

Table 5.22 – RDS Level permitted values

To setup the timeout for RDS alarm navigate to the relative menu with UP or DOWN keys.

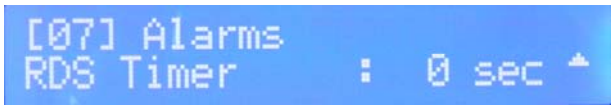


Fig. 5.47 – RDS timeout menu

To change the RDS timeout, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select desired value. Press OK key to confirm or ESC key to exit routine without saving.

MIN value: 0 sec	MAX value: 1000 sec	STEP: ±1 sec

Table 5.23 – RDS timeout permitted values

To disable this alarm set the timeout to 0 sec.

5.3.8 MEMORY MENU

The unit can be completely configured in 6 different modes (Memories) and these configurations are stored in the internal unit memory.

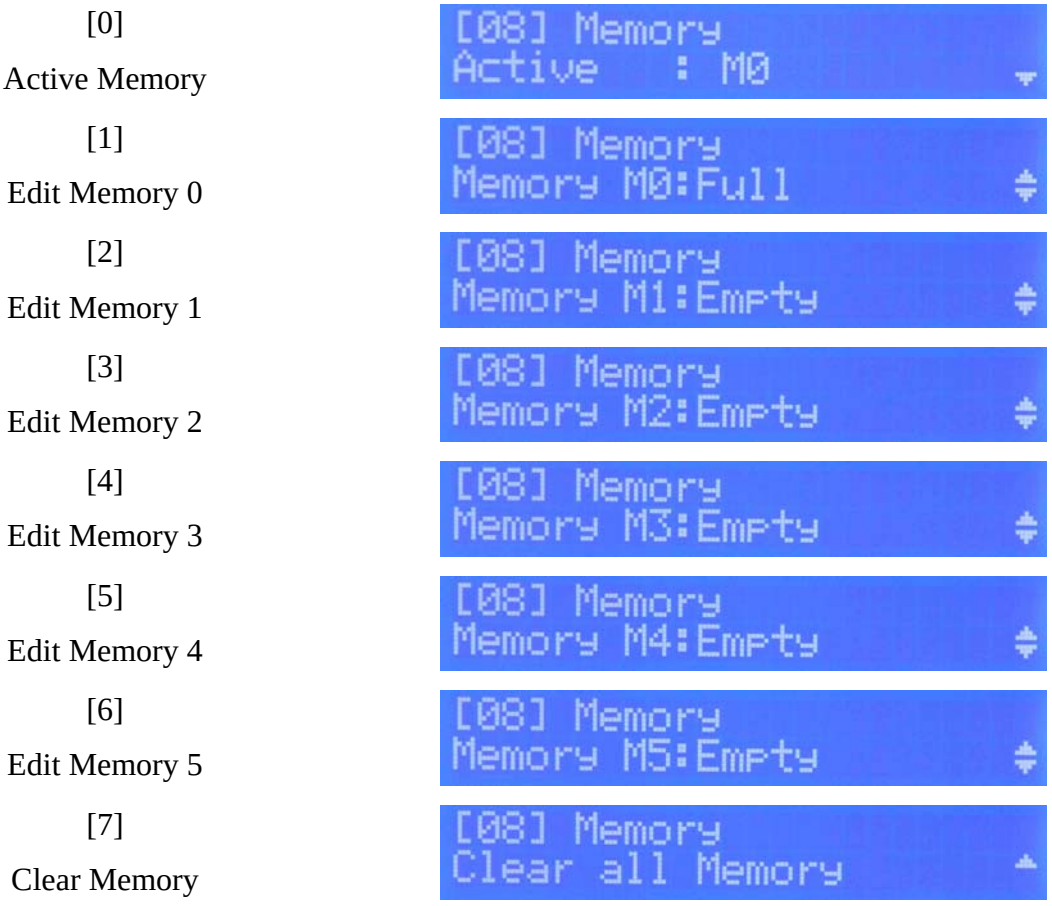


Fig. 5.48 – Memory menu flow graph

5.3.8.1 ACTIVE MEMORY

The active Memory is the current configuration applied to the unit. Any parameter changed during normal unit working mode is automatically applied and saved in the current active Memory.
The active Memory is indicated in the sub-menu **Active.**

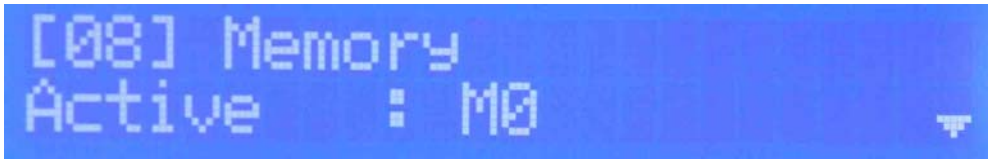


Fig. 5.49 – Active Memory menu

To change the active Memory, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select Memory desired. Press OK key to confirm or ESC key to exit routine without saving.

MEMORY AVAILABLE:	M0, M1, M2, M3, M4, M5

Table 5.24 – Memory available

When a Memory is recalled the unit is reconfigured with the parameters saved in that particular Memory.

5.3.8.2 EDITING A MEMORY

In these menus it is possible enable the editing of a Memory parameters, the editing is not available for the Active Memory because for this particular Memory the parameters change is executed and saved in real time.

Fig. 5.50 – Edit Memory menus

A Memory already manually edited has Full state otherwise is Empty. It has no sense to recall an empty Memory but, if it is recalled, the empty Memory will be an exact copy of the last Active Memory.

To enable the editing of a Memory navigate with UP or DOWN keys in the sub-menus up to the desired Memory M, keep pressing OK key until the display shows the line

Fig. 5.51 – Enable Memory editing page

Press RIGHT key to enable the editing or LEFT key to exit, if the editing is confirmed the display shows the following line

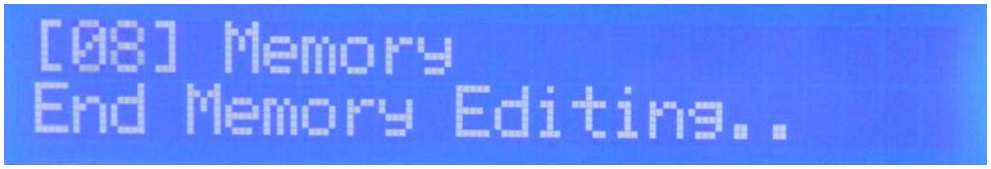


Fig. 5.52 – Ending Editing Memory page

If editing Memory is enabled, in the first row of every menu between the brackets the edited Memory number will be alternated with the menu ID. Changing parameters in this modality does not influence the unit on air working mode but the parameters are saved in the Memory edited.
Pressing ESC key will exit from editing Memory state without any change in that Memory.
To save the new parameters it is necessary return in the **Memory** menu

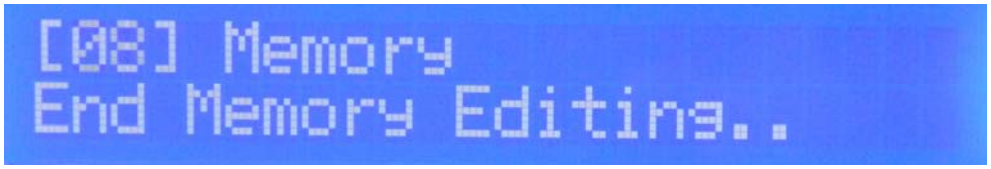


Fig. 5.53 - Memory menu during editing

And keep pressing the OK key until the display shows the line

Fig. 5.54 – Confirmation editing Memory page

Press RIGHT key to confirm the saving procedure or LEFT key to discard the editing.

5.3.8.3 CLEAR ALL MEMORY

It is possible clear all Memory configurations with the exception of the Active Memory one. To clear all Memory navigate to the menu **Clear all Memory** with DOWN key.

Fig. 5.55 – Clear all Memory menu

Keep pressing the OK key until the display shows the line

Fig. 5.56 – Clear all Memory confirmation page

Press RIGHT key to confirm the cleaning operation, press LEFT key to exit without cleaning.

5.3.9 HISTORY MENU

In the History menu is present the list of events occurred during the unit operation. The events recorded can be grouped in three types: alarm, warning and info.

The alarm is an event type that can compromise the normal unit operation, the warning doesn't compromise the unit operation but have to be examined to prevent alarms. The info is an information about a unit change of state (for example passing in local mode, or exit from warning or alarm state).

The menu shows always the last event happened

Fig. 5.57 – History menu

In the second row on the left the numbers 000 identify the last event (there is the possibility to check the last 200 events), after the symbol ">" a brief event description is provided.

To see a total event information and the complete event list press OK key:

Fig. 5.58 – History menu event detail page

The first row shows the same message as the second row of previous menu, while in the second row the information showed are in order: date, hour and code of event recorded.

Press UP or DOWN keys to navigate the event list press OK or ESC key to exit.

Here below the complete list of events recognized is indicated:

EVENT	TYPE	CODE	
Max Current	ALARM	0001	
Max Environment Temp	ALARM	0002	
Alarm FWD Read	ALARM	0003	If FWD reading not present
Foldback Reflected	WARNING	0004	
Reset	INFO	0005	
Max Heatsink Temp	ALARM	0006	If Temperature > 68°C
Max Supply Temp	ALARM	0007	
-	*[Not used]*	*0008*	*[Not used]*
Interlock Open	WARNING	0009	
Power On	INFO	0010	
Max Hardware Reflected	ALARM	0011	
Fan Warning	WARNING	0012	
Frequency Change	INFO	0013	
Change to Local	INFO	0014	
Change to Remote	INFO	0015	
Audio Low	ALARM	0016	Alarm version
Power Low	ALARM	0017	Alarm version
Switch ON	INFO	0018	
Switch OFF	INFO	0019	
Fault too many Alarms	ALARM	0020	
End PLL Unlock	INFO	0021	
PLL Unlock	ALARM	0022	
Audio Over	ALARM	0023	Alarm version
End Foldback Reflected	INFO	0024	
End Hardware Reflected	INFO	0025	
End Power Low	INFO	0026	For Alarm version
End Audio Low	INFO	0027	For Alarm version
End Audio Over	INFO	0028	For Alarm version
End Fan Warning	INFO	0029	
End Max Heatsink Temp	INFO	0030	
Fault Hardware Reflected	ALARM	0031	Too many hardware reflected events
Power Low	WARNING	0032	Warning version
RDS Alarm	ALARM	0033	
End RDS Alarm	INFO	0034	
Alarms Present	ALARM	0035	At least 1 alarm present
Alarms Absent	INFO	0036	No alarm present
Warnings Present	INFO	0037	At least 1 warning present
Warnings Absent	INFO	0038	No warning present
RF Present	INFO	0039	If Pout > 10% of power set value
RF Absent	INFO	0040	If Pout < 10% of power set value
-	*[Not used]*	*0041*	*[Not used]*
End alarm FWD read	INFO	0042	
Audio Low	WARNING	0043	Warning version
End Audio Low	INFO	0044	For Warning version
End Power Low	INFO	0045	For Warning version
Audio Over	WARNING	0046	Warning version
End Audio Over	INFO	0047	For Warning version
NTP Synchronization	WARNING	0048	
End NTP Synchronization	INFO	0049	
Warning Reflected	WARNING	0050	
End Warning Reflected	INFO	0051	

Table 5.25 – Events list

Every Warning and Alarm event has the corresponding END info event to indicate the time instant of ending from that particular warning/alarm condition.

5.3.10 GENERALS MENU

The Generals menu contains options as time and date set, the RS-485 address, the IP address and netmask.

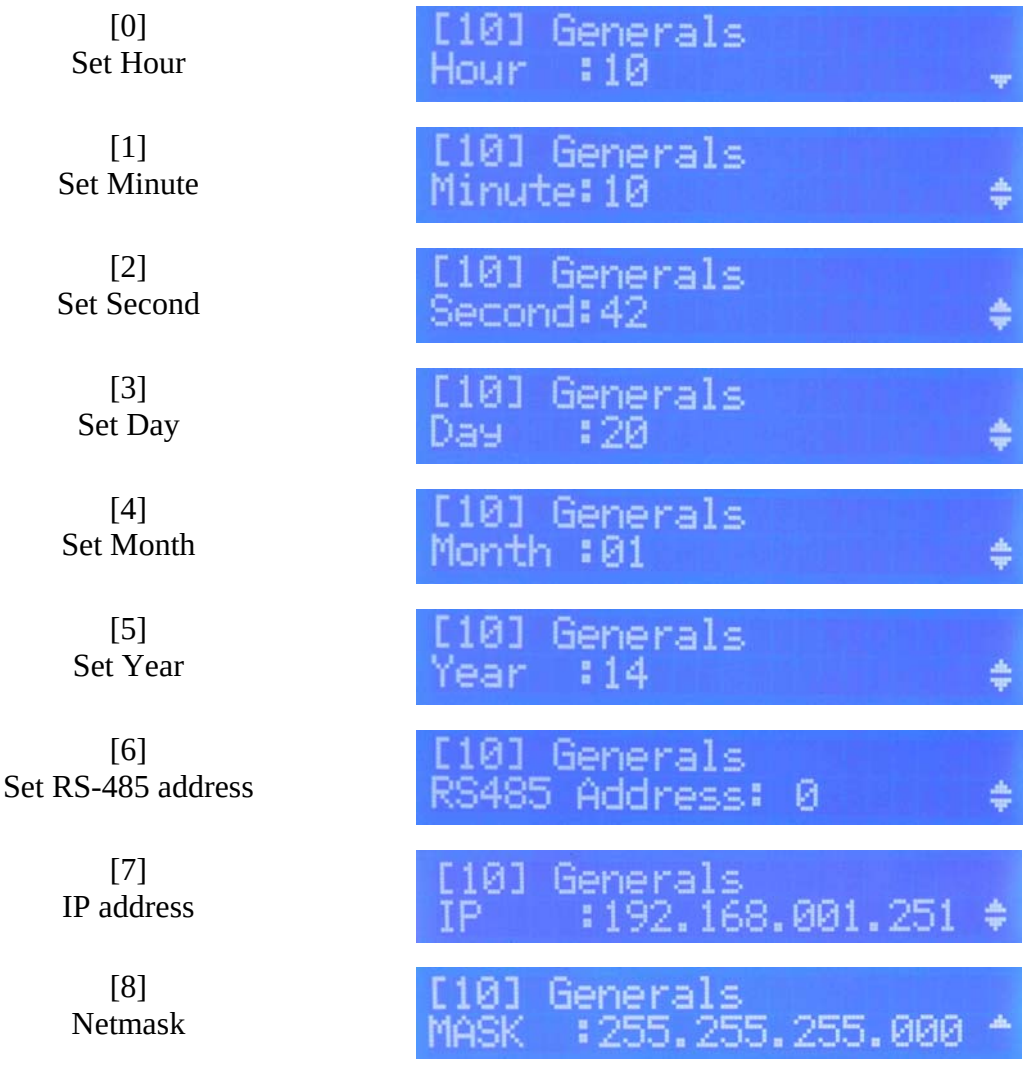


Fig. 5.59 – Generals menu flow graph

5.3.10.1 TIME SET

In these menus it is possible to set the time of day: this time is used in the history log menu during the events saving.

To adjust the hour localize the menu

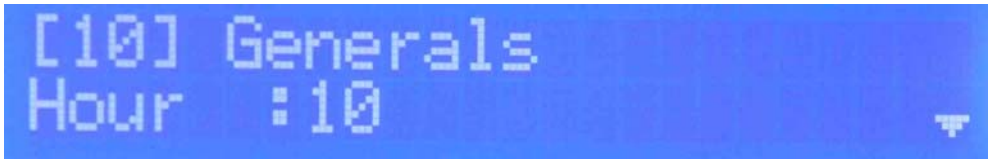


Fig. 5.60 – Set hour page

To change the hour, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select right value. Press OK key to confirm or ESC key to exit routine without saving.

To adjust the minutes press UP or DOWN key

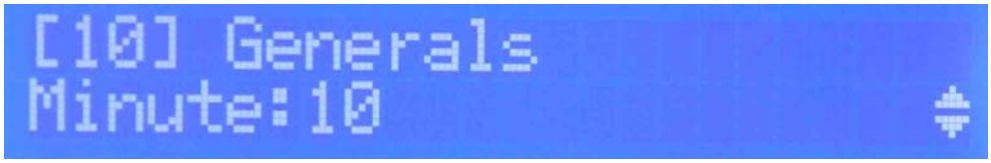


Fig. 5.61 – Set minute page

To change the minutes, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select right value. Press OK key to confirm or ESC key to exit routine without saving.

To adjust the seconds press UP or DOWN key

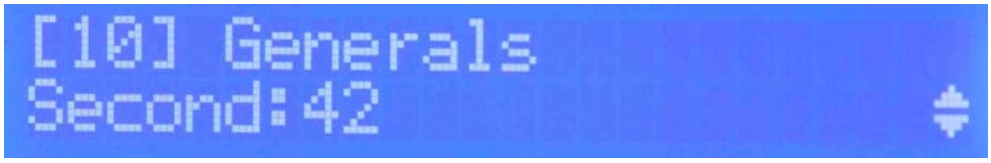


Fig. 5.62 – Set second page

To change the seconds, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select right value. Press OK key to confirm or ESC key to exit routine without saving.

5.3.10.2 DATE SET

In these menus it is possible to set the date: the date is used in the history log menu during the events saving as the time of the day.
To adjust the day press UP or DOWN key

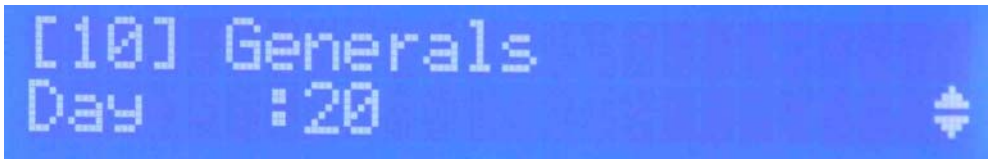


Fig. 5.63 – Set day page

To change the current day, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select right value. Press OK key to confirm or ESC key to exit routine without saving.

To adjust the month press UP or DOWN key

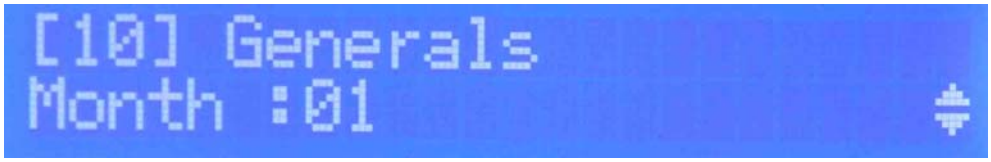


Fig. 5.64 – Set month page

To change the current month, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select right value. Press OK key to confirm or ESC key to exit routine without saving.

To adjust the year press UP or DOWN key

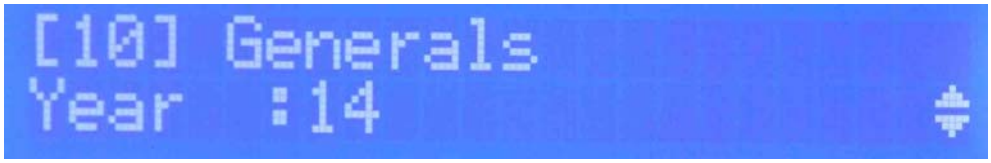


Fig. 5.65 – Set year page

To change the current year, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select right value. Press OK key to confirm or ESC key to exit routine without saving.

5.3.10.3 RS-485 ADDRESS MENU

In this menu it is possible set the RS-485 address in case the unit is used as slave device in a bus system (for example a high power transmitter or a 1+1 system).
Navigate to the menu **RS485 Address** with UP or DOWN key.

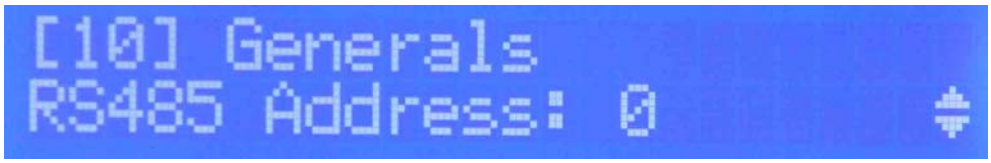


Fig. 5.66 – Set RS-485 address page

To change the RS-485 address, press the OK key to enter the program mode (blinking arrow in second row on the right). Press UP or DOWN keys to select the desired value. Press OK key to confirm or ESC key to exit routine without saving.

5.3.10.4 NETWORK PARAMETERS

These are read only menus, the IP address and Netmask are set directly from webpage if webserver option is available.

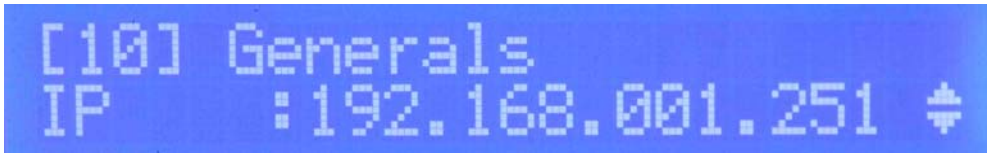


Fig. 5.67 – Unit IP address page

In this menu the actual unit IP address is showed.

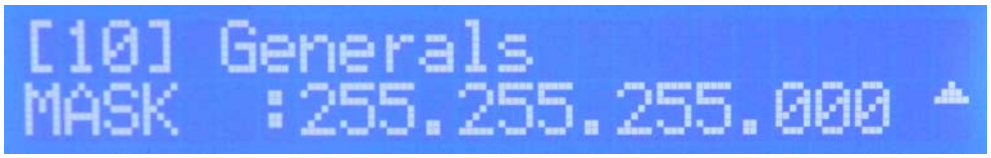


Fig. 5.68 – Unit netmask page

In this menu the actual netmask is showed.

6 FRONT PANEL

Not all the functions are available from the LCD display: the most important ones are available from the front panel keys and leds present on the unit front panel.

6.1 FRONT PANEL KEYS

- **Reset**

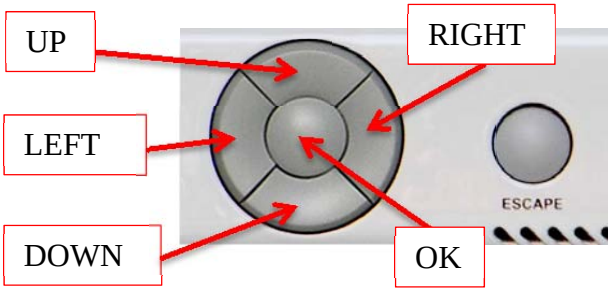
In case the unit is completely blocked (Fault status) due for example to the repetition of an alarm multiple times, the FAULT led will switch on and to restore the functioning of the unit it is sufficient to press this key (Reset of the alarm/warning/fault status).

- **Local**

In case the led LOCAL is switched on, the unit is in LOCAL mode and all the functions from the front panel are enabled. If the led is off the unit is in REMOTE mode and it will accept only the commands given by remote. To change the status of the led it is sufficient to press the key.

- **ON/OFF**

In case the led ON/OFF is switched on, the unit is in ON mode and the RF power is enabled. If the led is off the unit is in OFF mode (standby) and it is only powered but it will not give any output power. To change the status of the led it is sufficient to press the key.



- **UP/DOWN/LEFT/RIGHT**

The keys are available for the menus navigation and the parameter editing if the menu editing is enabled.

- **OK**

The key is available to enable the editing menu mode and to confirm the parameters change.

- **ESCAPE**

The key is available to exit from editing menu mode without any change or to return to main menu from any other menu.

6.2 FRONT PANEL LEDS

The frontal panel leds don’t change depending on units model. For the leds name see the Fig.2.1 or Fig.2.3

6.2.1 STATUS LEDS

- **ALARM led**

This led is switched on in case an alarm event is recognized. It is automatically switched off at the end of the alarm event without the reset needed. It is still possible press reset key to clear the alarm condition.

- **WARNING led**

This led is switched on in case a warning event is recognized or in case of a parameter is saved or read from unit internal Eeprom memory. It is automatically switched off at the end of the warning event or when the read/write operation on internal Eeprom memory is terminated.

- **ON led**

This led is switched on at the unit power on.

6.2.2 AUDIO LEDS

- **RDS/AUX led**

This led is switched on if an auxiliary channel (RDS, SCA, AUX) is enabled.

- **MPX led**

This led is switched on in case the STEREO MPX External mode is enabled.

- **AUDIO led**

This led is switched on in case of the input audio signal has a level between the Audio Low and Audio Over thresholds.

- **AES EBU led**

This led is switched on in case the AES-EBU interface is enabled.

- **LIM led**

This led is switched on in case the limiter is enabled.

- **STEREO led**

This led is switched on in case the STEREO MPX Internal mode is enabled.

- **PRE EMPH led**

This led is switched on in case the preemphasis value set is different from Linear.

- **MONO led**

This led is switched on in case the MONO mode is enabled.

6.2.3 CONTROL LEDS

- **PREF led**

This led is reserved for future uses.

- **PLL LOCK led**

This led is switched on when the PLL is locked to the frequency set value.

- **AUTO led**

This led is reserved for future uses.

- **INTLK led**

This led is switched on in case the rear connector ENABLE is closed.

6.2.4 COMMAND LEDS

- **ALARM RESET led**

This led is switched on in case of unit fault. The unit enters in fault state when 5 alarm hardware reflected events are recognized in 2 minutes. In this case a reset is necessary.

- **LOCAL led**

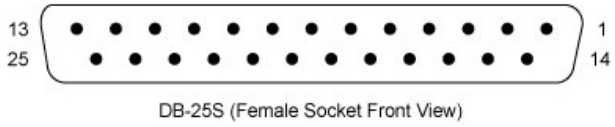
This led is switched on in case the unit is in local mode.

- **RF ON led**

This led is switched on in case the unit is switched on and the RF power is enabled. The output power level is set in the relative menu.

7 REMOTE I/O (OPTIONAL)

The Remote I/O is an optional interface that provides the DB25 connector **REMOTE** to monitor and control the unit through digital signals. The signals available are:



DB-25S (Female Socket Front View)

Pin	Name	I/O	Function
1	TC_1	Tele Command	-
2	TC_3	Tele Command	OFF
3	TC_5	Tele Command	Change to MEMORY 0
4	TC_7	Tele Command	Change to MEMORY 2
5	TC_9	Tele Command	Change to MEMORY 4
6	TC_11	Tele Command	-
7	VCC_FIELD	Vcc	+12V
8	TS_11_TM4	Tele Signal	ON
9	TS_9_TM2	Tele Signal	REMOTE
10	TS_7/OUT_ANA7	Tele Signal	AUDIO_OK
11	TS_5/OUT_ANA5	Tele Signal	MEMORY 1
12	TS_3/OUT_ANA3	Tele Signal	MEMORY 3
13	TS_1/OUT_ANA1	Tele Signal	MEMORY 5
14	TC_2	Tele Command	ON
15	TC_4	Tele Command	RESET
16	TC_6	Tele Command	Change to MEMORY 1
17	TC_8	Tele Command	Change to MEMORY 3
18	TC_10	Tele Command	Change to MEMORY 5
19	GND_OUT	GND	GND
20	TS_COM	COMMON	Tele Signals Common
21	TS_10_TM3	Tele Signal	NO_FAULT
22	TS_8_TM1/OUT_ANA8	Tele Signal	RF_OK
23	TS_6/OUT_ANA6	Tele Signal	MEMORY 0
24	TS_4/OUT_ANA4	Tele Signal	MEMORY 2
25	TS_2/OUT_ANA2	Tele Signal	MEMORY 4

Table 7.1 – Remote I/O pinout

The particular unit state is verified if there is a short-circuit between the relative Tele Signal pin and the Common pin (pin 20).

To send a command to the unit (only in remote state) is necessary a short-circuit between the particular Tele Command pin and GND for at least 100ms.

8 WEB SERVER (OPTIONAL)

As option it is possible to add a remote webserver system via TCP/IP and SNMP.
A webserver board is installed on the exciter and, through an Ethernet port, it is possible to read the main parameters of the transmitter and make all main settings.

NOTE: The WEB GUI commands work only if the unit is in REMOTE MODE.

Connect the unit to a LAN or directly to the computer using a cross cable. Enter the default address from an internet browser. This address is indicated in the **GENERALS** menu on the front panel of the unit.

8.1 WEB PAGES

8.1.1 MAIN PAGE

The default page is the MAIN page:

Fig. 8.1 – Webserver main page

Here all the information regarding the unit and the software are indicated:

1. Unit audio and RF state
2. Login Status: Administrator, Guest
3. Available web pages
4. Unit model and hardware/firmware revision
5. Webserver info and firmware build

8.1.2 LOGIN PAGE

To have the possibility to change the functioning parameters of the unit you need to enter as administrator.

Here the Login page:

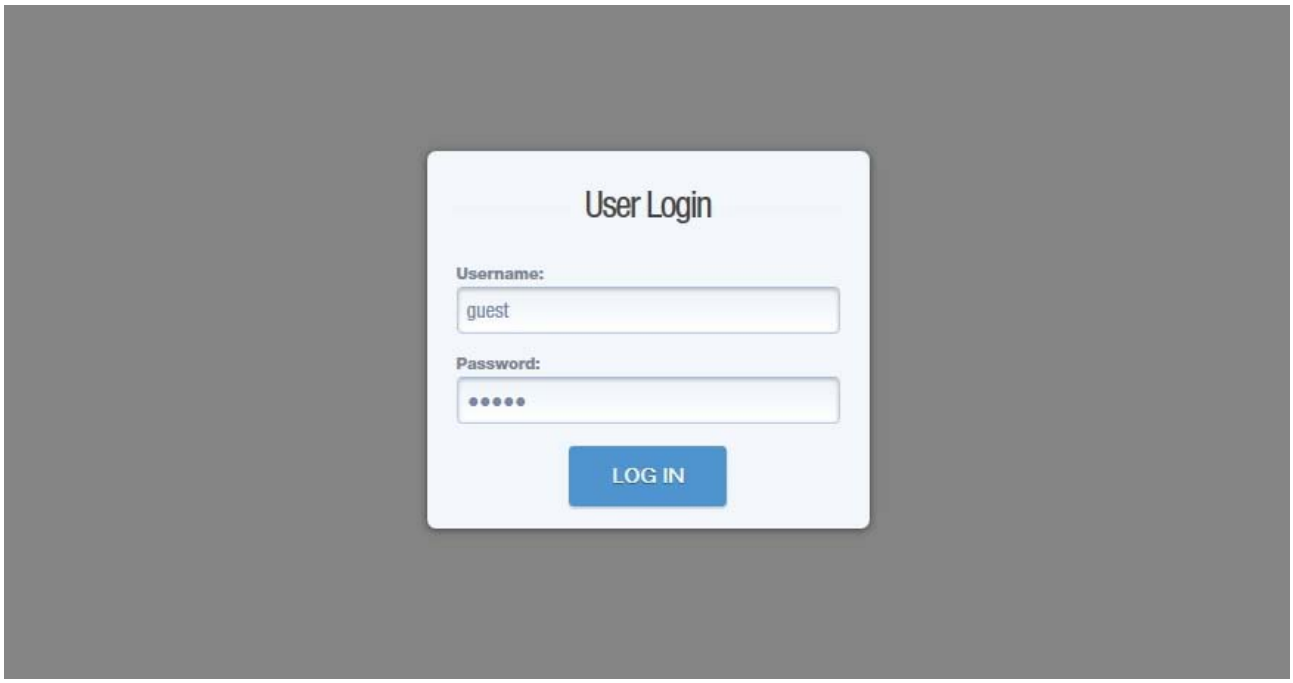


Fig. 8.2 – Webserver Login page

The standard Administration username and password:

FACTORY ADMIN ID: admin
FACTORY ADMIN PASSWORD: admin
FACTORY IP ADDRESS: 192.168.1.251

8.1.3 SETTINGS PAGE

In this page is present a view of the status of unit parameters, as normally indicated in the front panel on the LCD display. If the login has been done it will be possible to change the values, otherwise it is possible only to see them.

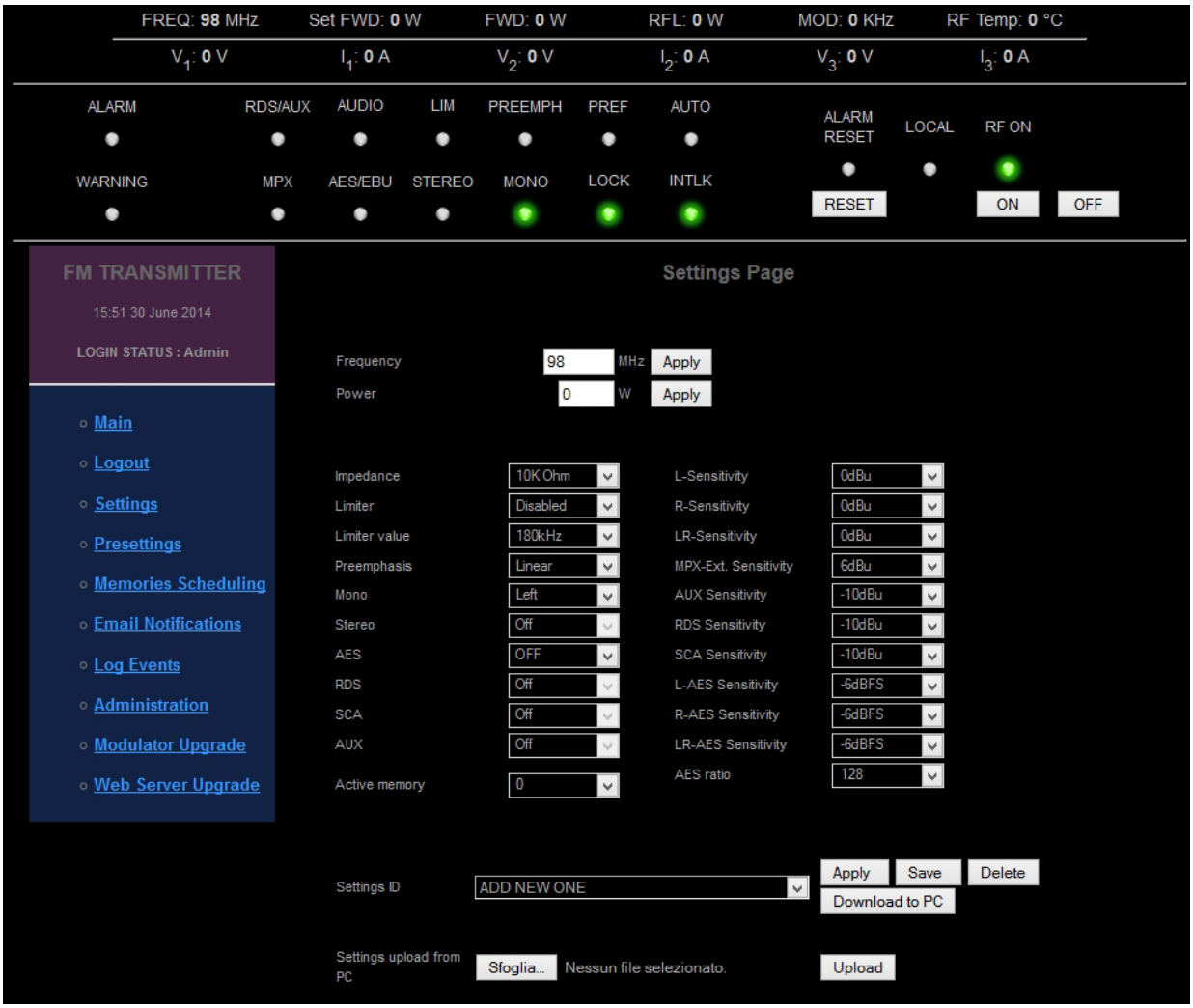


Fig. 8.3 – Webserver Setting page

The parameters available in this page are:

1. Frequency
2. Power Set
3. Audio options
4. Sensitivity option
5. AES-EBU options
6. Mono/Stereo and Auxiliary channels enable
7. Active Memory status

8.1.4 PRESETTINGS PAGE

In the Presettings page it is possible to see and change the status of all remains unit parameters. If the login has been done it will be possible to change the values, otherwise it is possible only to see them.

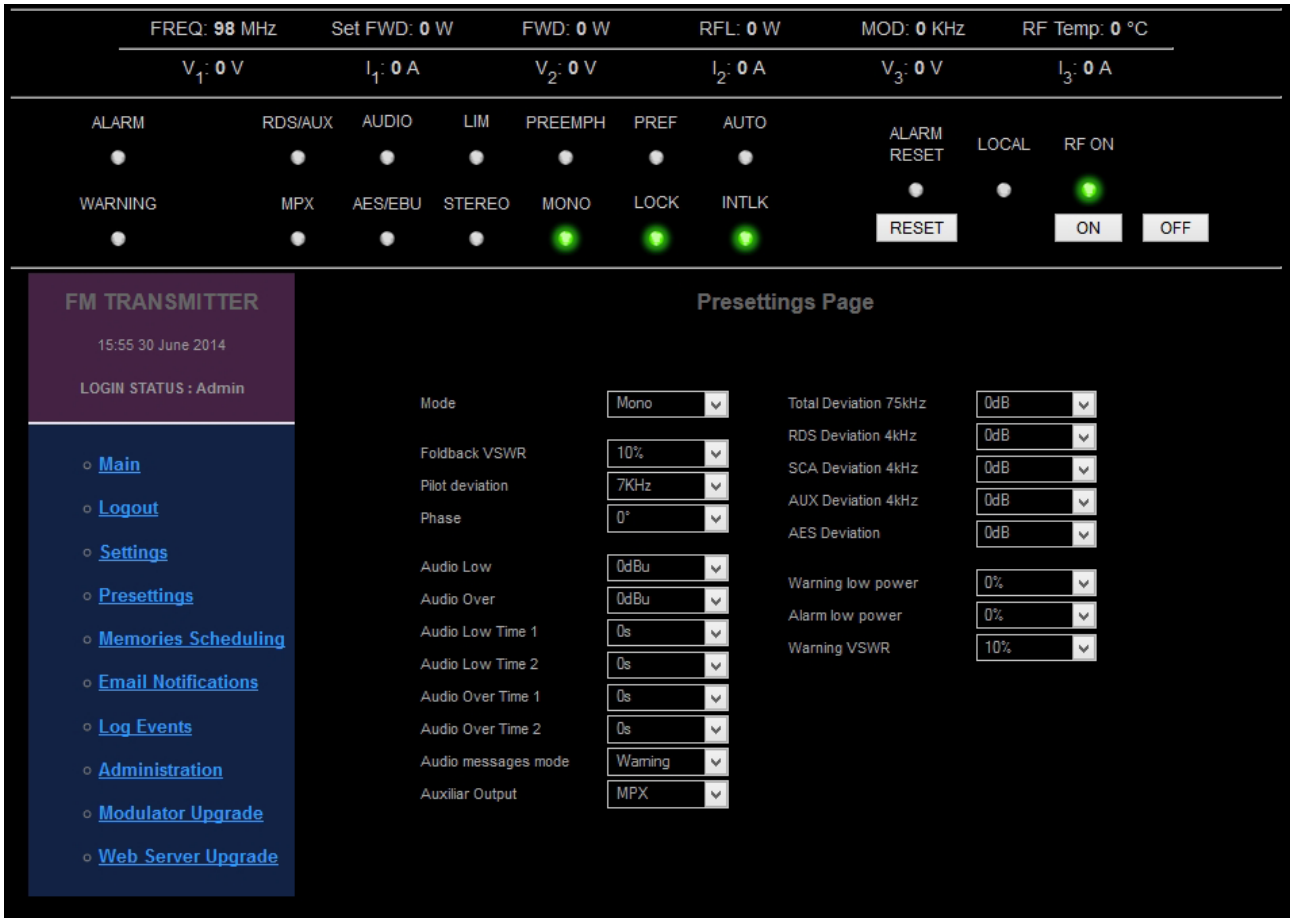


Fig. 8.4 – Webserver Presetting page

Parameters available are:

1. Mono/Stereo mode
2. Alarms and Warnings Settings
3. Deviation offsets adjustment

8.1.5 MEMORIES SCHEDULING

In the Memories scheduling page it is possible to set a desired scheduling memories for one week with 4 different start times.

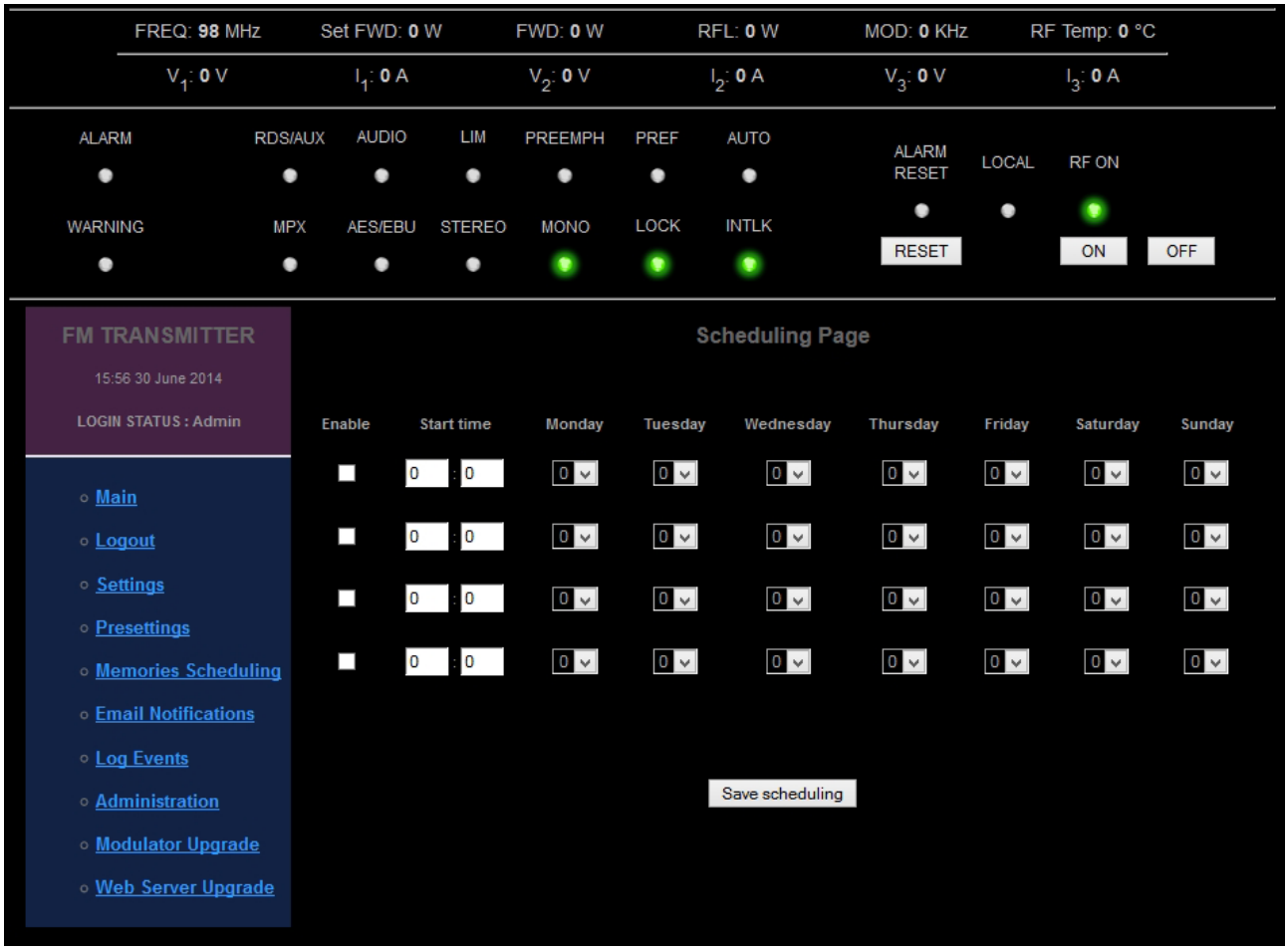


Fig. 8.5 – Webserver Memories scheduling page

8.1.6 EMAIL NOTIFICATIONS

The remote monitoring interface includes an automatic e-mail notification: e-mails are sent to recipients in case of alarm events or warnings in the modulator.

The notification e-mail indicates the main parameters of the unit (also present in the front panel menu) and a summary of the history of the equipment (events log file).

1) Configuration of the notification system

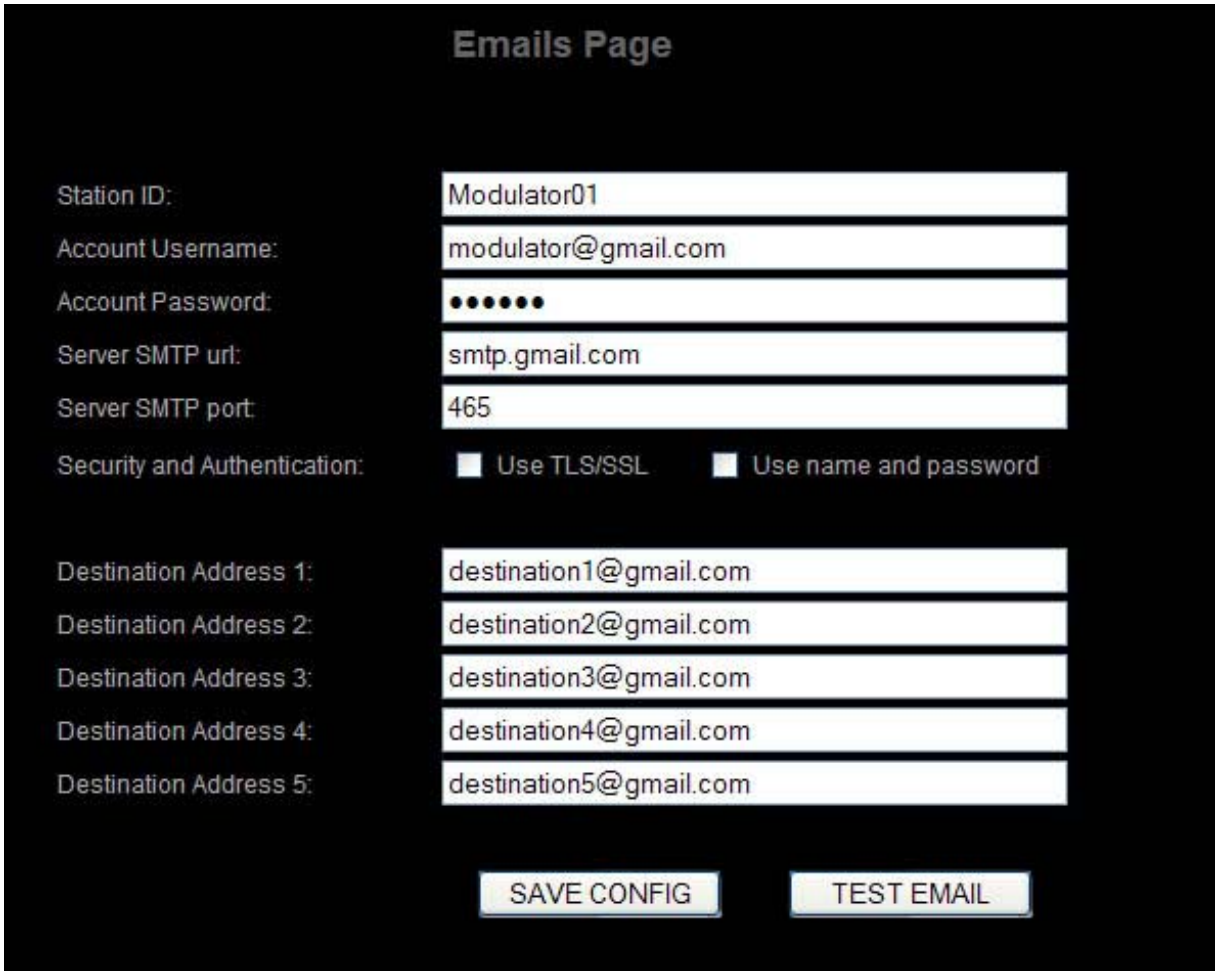


Fig. 8.6 – E-mail notifications page

The explanation of all the fields is indicated in the table present in next page.

Fields	Description
Station ID	Insert the name that will appear as the sender of the notification e-mail.
Account Username	Insert the email account username. *Ex: modulator@gmail.com*
Account Password	Insert the email account password.
Server SMTP url	Insert the Server SMPT url of the email account. *Ex: smtp.gmail.com (google SMTP server)*
Server SMTP port	Enter the port of the SMTP server. *Ex: 25, 465 or 587 (typical ports)*
Security and Authentication	Select “TLS/SSL” checkbox to enable the TLS/SSL protocols. Select “Use name and password” checkbox if the SMTP server requires the authentication.
Destination Address	Enter the email addresses of notification recipients. Note: Up to 5 emails are allowed.

Press the “SAVE CONFIG” button to save the configurations and press “OK” when the following pop-up window will appear:

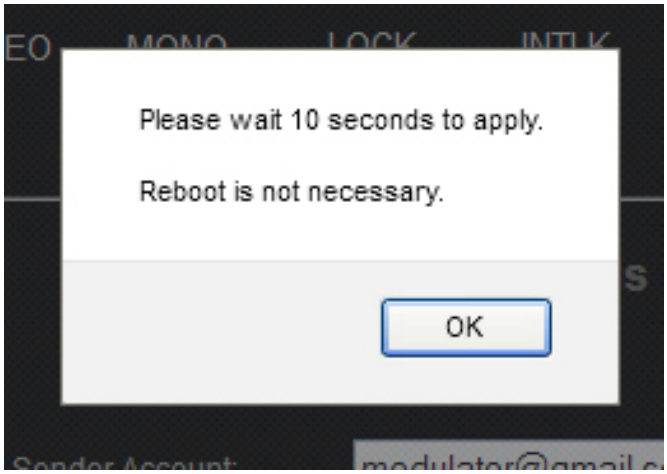


Fig. 8.7 – E-mail notifications saving settings

The content of the e-mail notification is provided in the following format:

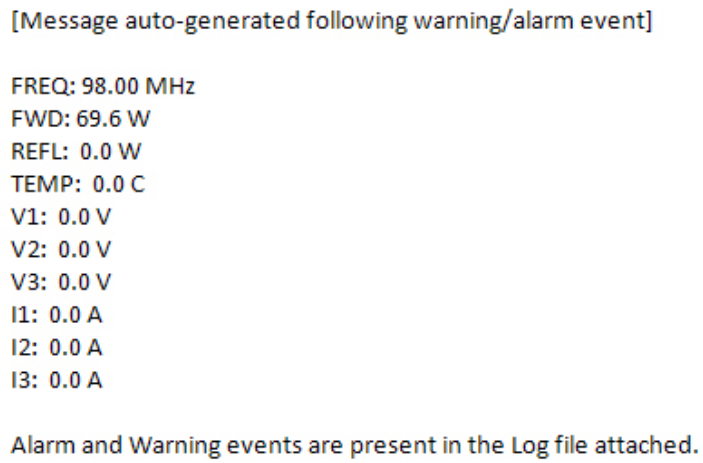


Fig. 8.8 – E-mail notifications content format

In the notification the information indicated are:

- Transmission frequency (in MHz)
- Forward power (in Watt)
- Reflected power (in Watt)
- Heat-sink temperature (in degrees Celsius)
- DC voltage to supply each RF board (in Volt)
- Absorbed current of each RF board (in Ampere)

Information about the type of event that generated the notification is present in the attached file **log_events.txt** with following format:

[TIME DATE] [EVENT TYPE]

```
[11:38  30/06/2014] [Switch ON          ]
[11:38  30/06/2014] [Warning Interlock  ]
[11:38  30/06/2014] [Warnings Present   ]
[12:00  30/06/2014] [RF Present         ]
[12:00  30/06/2014] [Interlock OK       ]
[12:00  30/06/2014] [Warnings Absent    ]
```

Fig. 8.9 – Log event .txt

This log file has a capacity of 200 events listed for lines. Exceeded this number all the events are automatically erased and a new file is started. The complete log file can be accessed also from the web page.

2) You can test the notification system using the button “TEST EMAIL”, in this way, a test e-mail will be sent to the address set in the “Destination address 1” field.

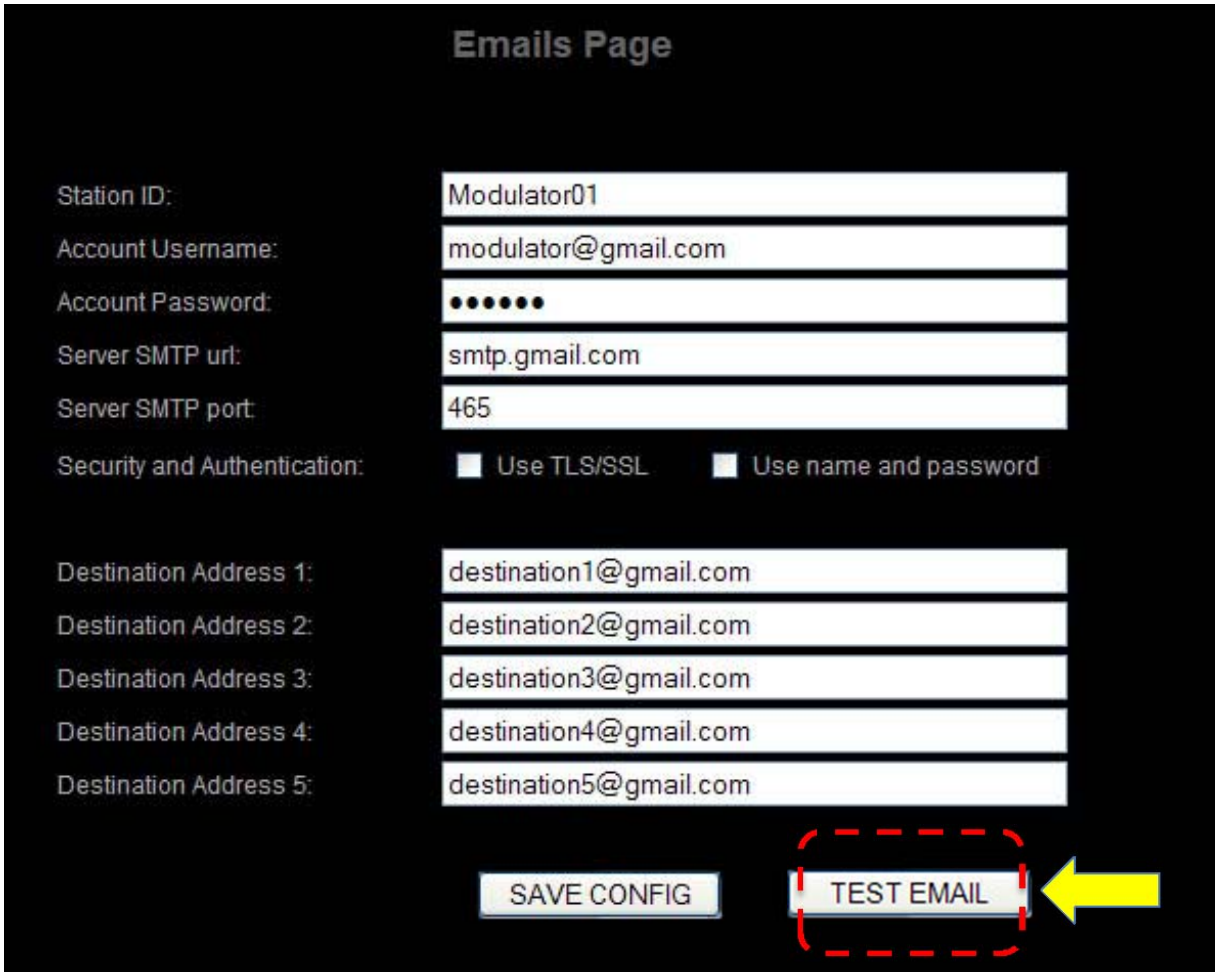


Fig. 8.10 – TEST EMAIL button

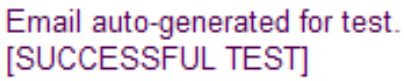


Fig. 8.11 – Confirmation message in the received test email

8.1.7 LOG PAGE

The LOG page allows the visualization and the download of the unit history (the register of all the events happened with date, hour and event code). If the login has been done it will be possible to download the file, otherwise it is possible only to see it.

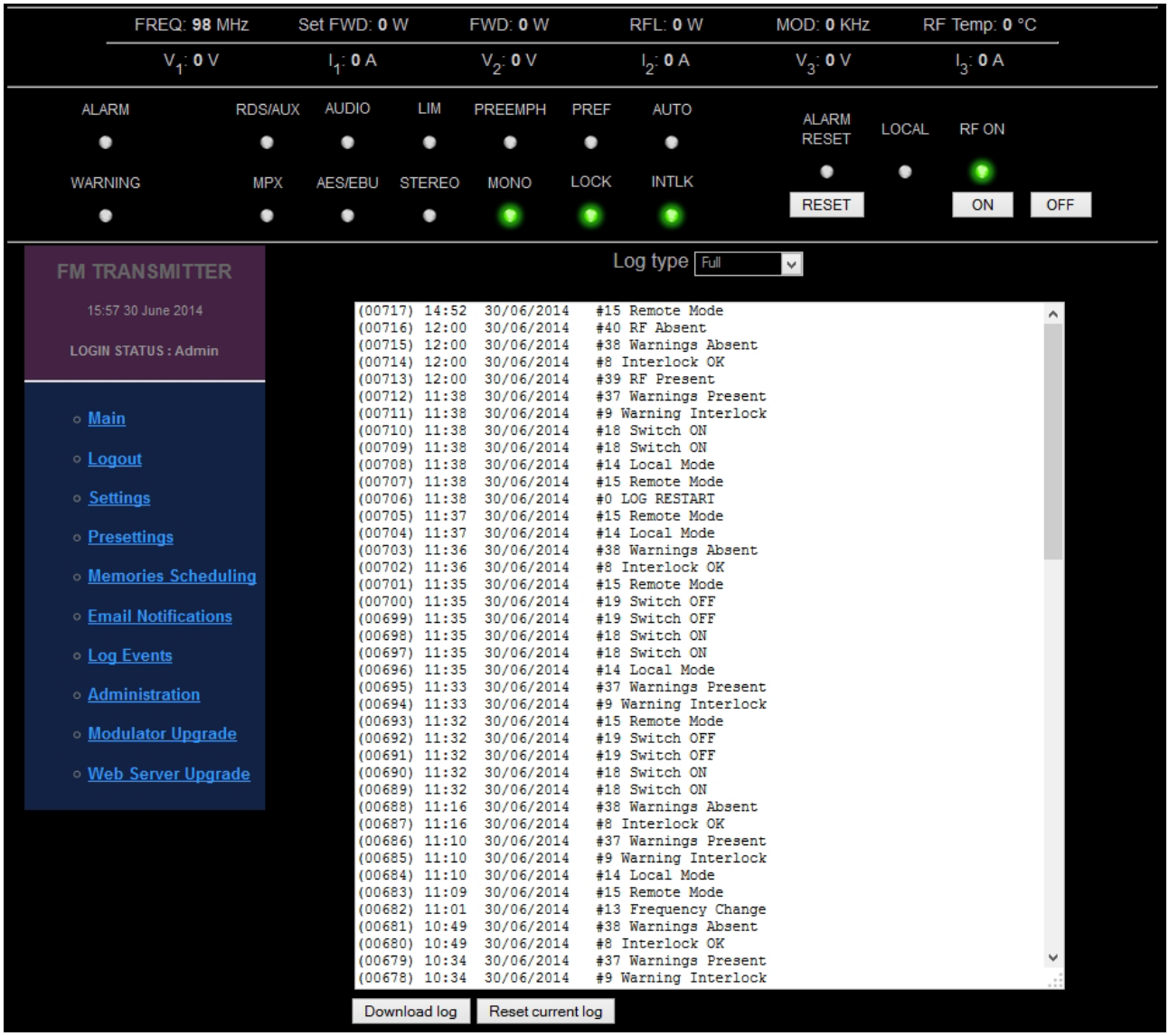


Fig. 8.12 – Webserver Log page

The Log type can be configured as FULL or RECENT.

In FULL mode it is possible see the unit complete list of event saved, in RECENT mode it is available a list of events starting from the selection of RECENT option.

The *Reset current log* button will restart only the RECENT mode of the Log. To restart the Log FULL mode it is necessary to go on Administration page.

8.1.8 ADMINISTRATION PAGE

If the user is logged as administrator it is possible change all parameters related to the connection of the unit to the network and the SNMP configuration.

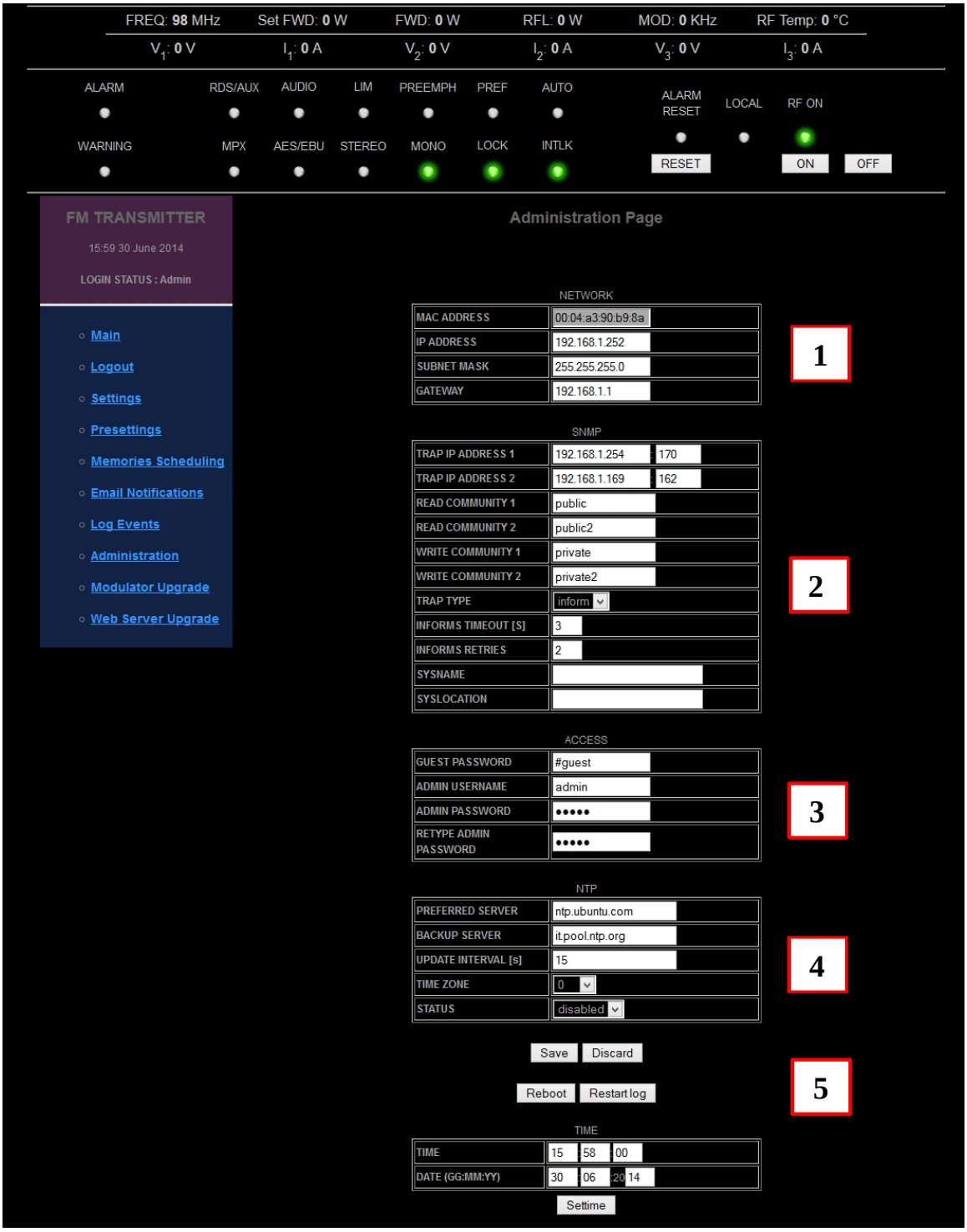


Fig. 8.13 – Webserver Administration page

The parameters available are:

1. Network parameters: IP address, netmask and Gateway address.
2. SNMP configuration.
3. Username and password for both administrator and guest users.
4. NTP configuration
5. Buttons necessary to reconfigure the webserver board.

To save a new network or SNMP configuration press SAVE button after the new parameters are set.

To apply the new configuration press REBOOT button to restart the webserver board.

The RESTART LOG button will restart the FULL mode of webserver Log.

8.1.9 MODULATOR UPGRADE PAGE

If the login has been done it is possible to upgrade the firmware of the unit uploading the file from this page. The upgrade will be automatically done once the file has been uploaded. The upload is done in 2 steps:

- The software is uploaded into the web server board (web module) and stored in it
- The software is passed from the web module to the microprocessor of the unit

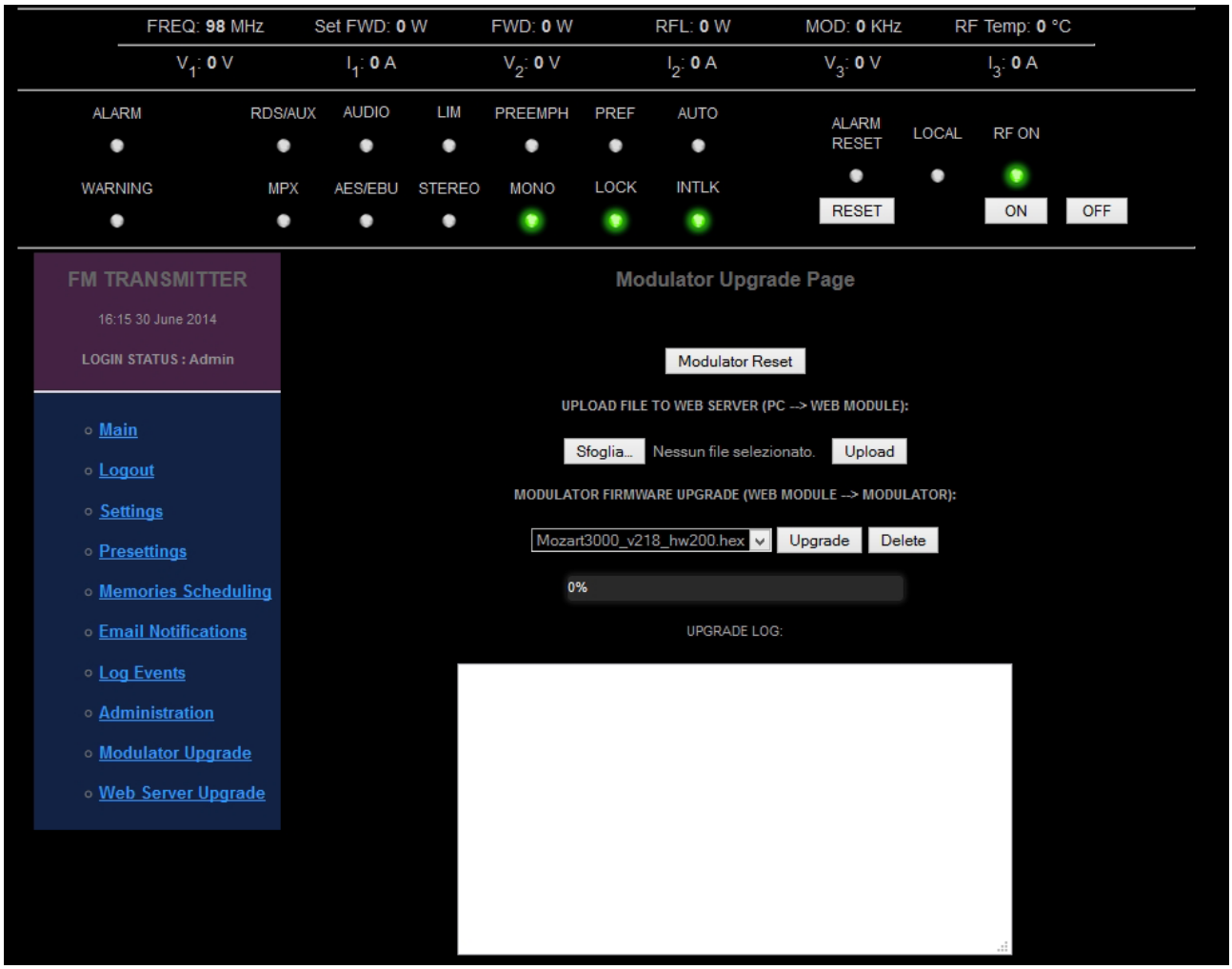


Fig. 8.14 – Webserver Modulator Upgrade page

To upgrade the modulator refer to the “Upgrading modulator firmware” paragraph.

8.1.10 WEBSERVER UPGRADE PAGE

If the login has been done it will be possible to upgrade the firmware of the webserver board uploading the file from this page. The upgrade will be automatically done once the file has been uploaded. The upgrade will be automatically done once the file has been uploaded. The upload is done in 2 steps:

- The software is uploaded into the webserver board (web module) and stored in it
- The software is applied to the web server

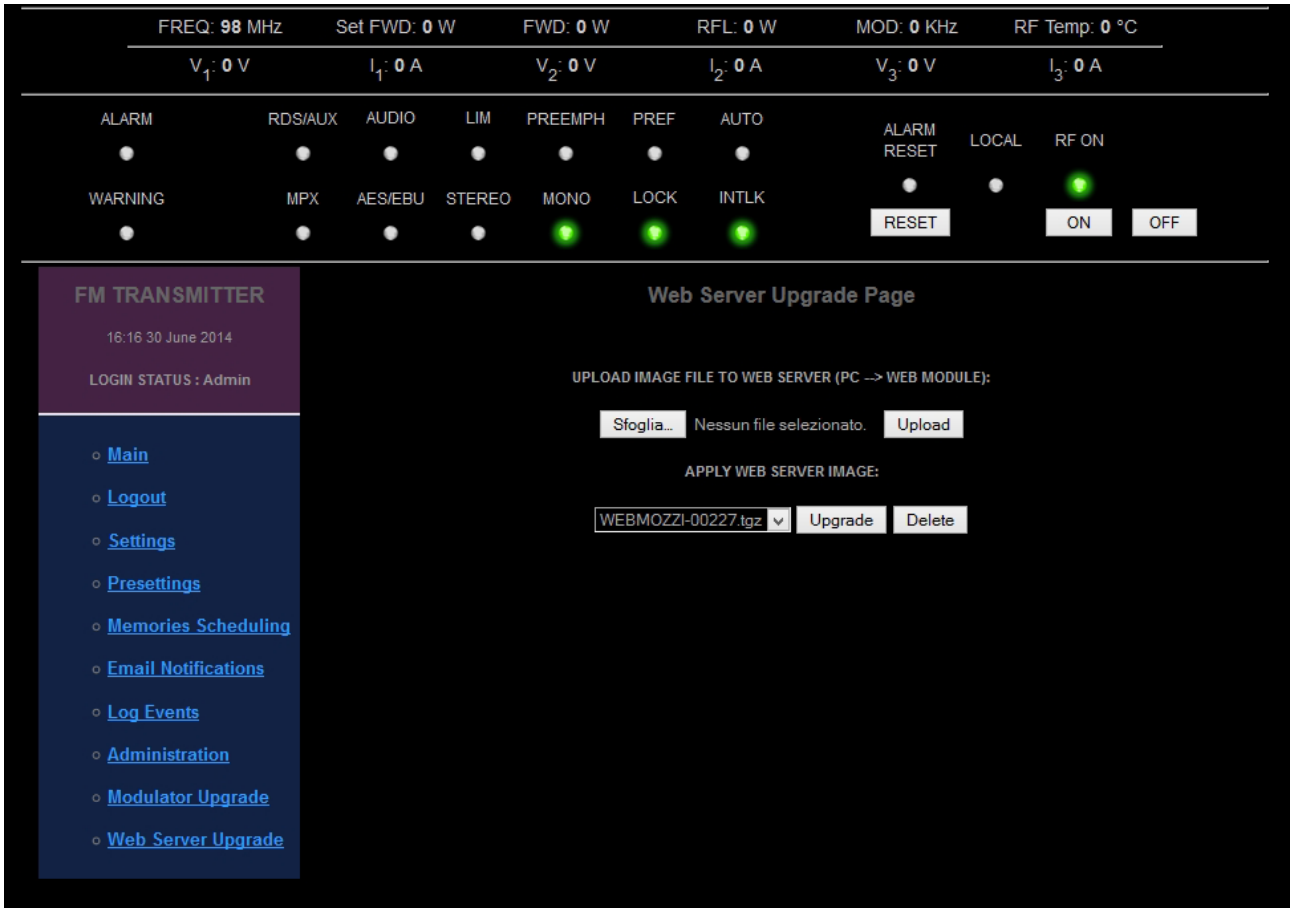


Fig. 8.15 – Webserver Upgrade page

To upgrade the webserver board refer to the “Upgrading webserver board firmware” paragraph.

8.2 UPGRADING PROCEDURES

8.2.1 UPGRADING THE MODULATOR FIRMWARE

The modulator firmware upgrade is available only with the webserver board installed.
The copies of modulator firmwares are always stored in the webserver board so it is possible the downgrade in case of failed upgrading attempts.

To start the procedure please follow these points:

1. Power on the unit maintaining pressed the OK key to start the unit in bootloader mode.

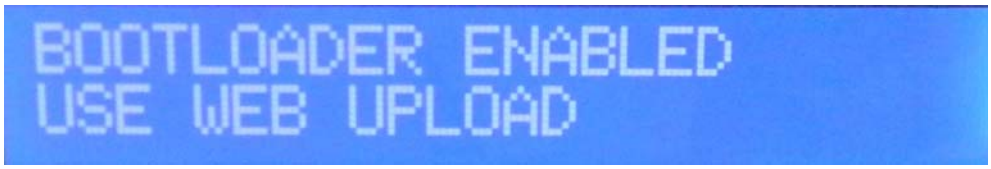


Fig. 8.16 – Start in bootloader mode

2. Connect a PC to the unit using a crossover LAN cable. Open a browser and type the IP address of the unit. Usually the boot time of webserver loading is 1 minute, after that the webpage will be active.
3. Login as administrator.
4. Go to the “Modulator Upgrade” menu and press the “Sfoglia” button to select the new firmware.

Fig. 8.17 – Modulator Upgrade page

5. Select the latest firmware *.hex* file and click "OPEN" (The file below is just an example, please use the firmware provided by DB Elettronica).

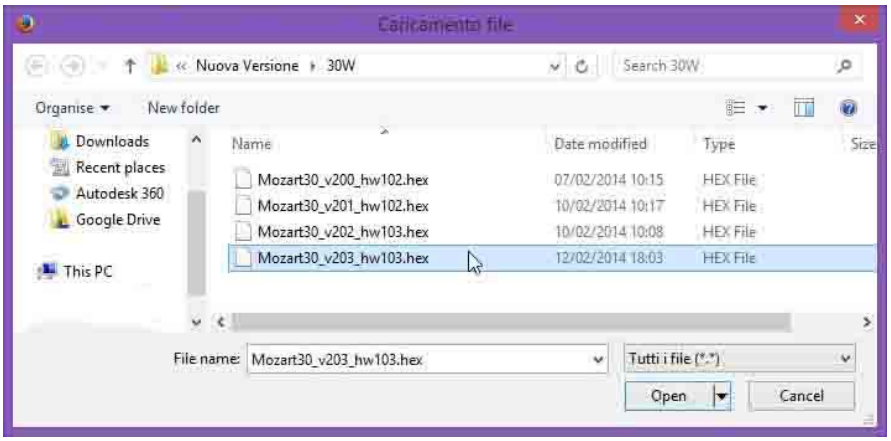


Fig. 8.18 – New firmware selection

6. Click on "Upload" button and confirm the operation pressing "OK" button on the popup window.

Fig. 8.19 – Upload the new firmware

Fig. 8.20 – Confirm the upload

7. The new firmware will be added on the list. Select it from the list and click on “Upgrade” button.

Fig. 8.21 – Upgrade to the new firmware

8. The procedure starts erasing the flash, on the display of the transmitter the text “ERASE FLASH” will show on.

Fig. 8.22 – Erase the flash before the upgrade

9. During the firmware upgrade on the display of the transmitter the text “upgrading …” will show on.

Fig. 8.23 – Upgrade in working

10. The Control Board will be upgraded with the new firmware. The operation process will take about 5 minutes. When the process is finished the text “END” will be shown at the end of the log report.

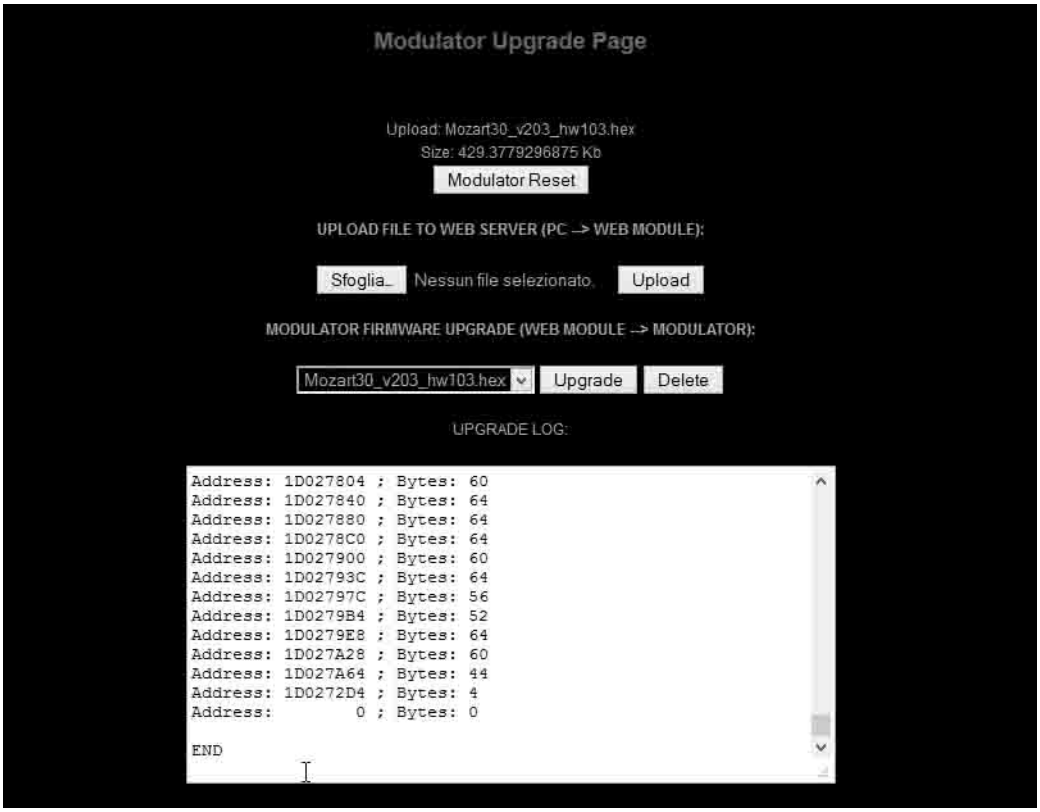


Fig. 8.24 – Upgrade complete

When the upgrade is complete, the transmitter will be restarted automatically. In case of procedure failed, power off the unit, wait some seconds and power on the unit. Now retry the upgrade procedure again.

In case of new upgrading failed contact the assistance.

8.2.2 UPGRADING THE WEBSERVER BOARD FIRMWARE

To upgrade the webserver board please follow the next steps:

1. Connect a PC to the Mozart transmitter using a crossover LAN cable. Open a browser and type the IP Address of transmitter.
2. Login as administrator.
3. Go to the "Webserver Upgrade" menu and click on "Sfoglia" button.

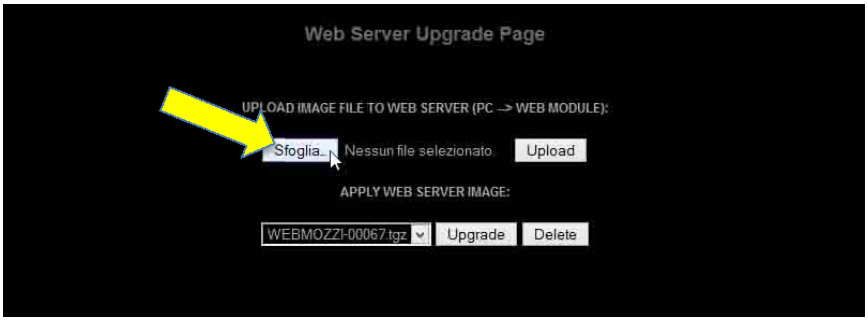


Fig. 8.25 – Webserver Upgrade page

4. Select the latest firmware .tgz file and click "OPEN". (The file below is just an example, please use the firmware provided by DB Elettronica).

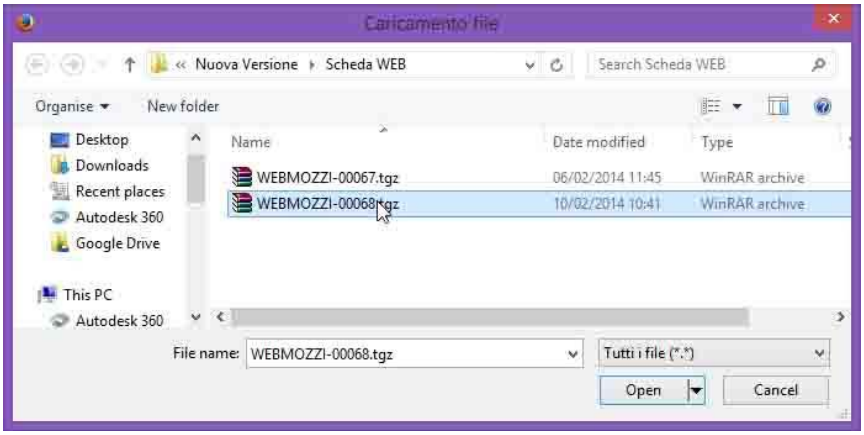


Fig. 8.26 – Select the new webserver board firmware

5. Click on “Upload” button and confirm the operation pressing “OK” button.

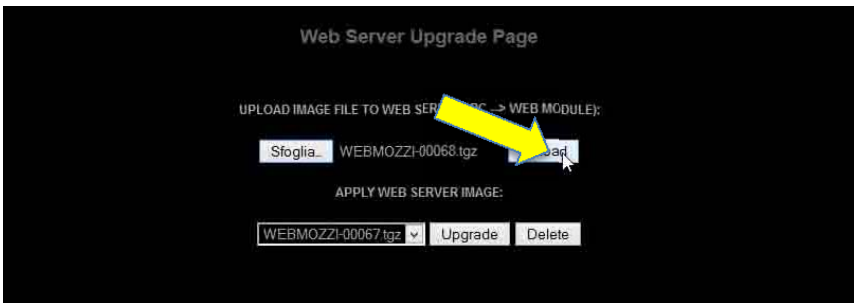


Fig. 8.27 – Upload the firmware to webserver

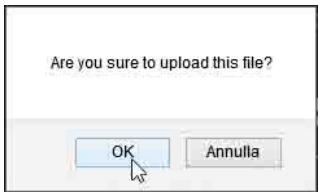


Fig. 8.28 – Confirm the uploading

6. The following screen will be shown on while the process is running.

Fig. 8.29 – Busy state during upload procedure

7. The new firmware will be added on the list. Select it and click on “Upgrade” button.

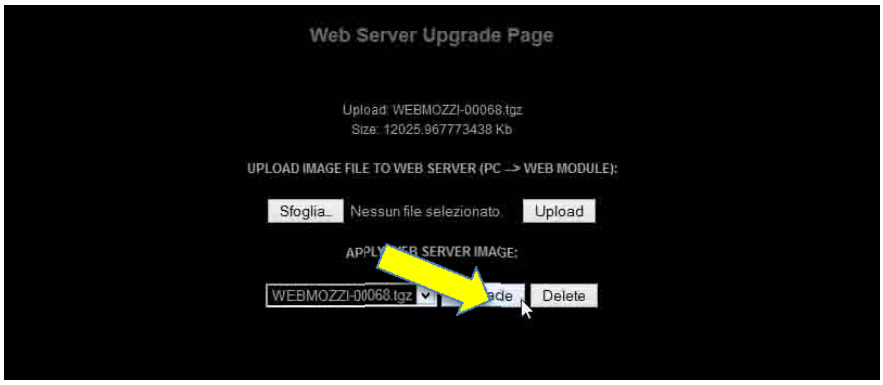


Fig. 8.30 – New firmware ready to upgrade

8. Select “OK” to confirm the operation and “OK” after the message was read.

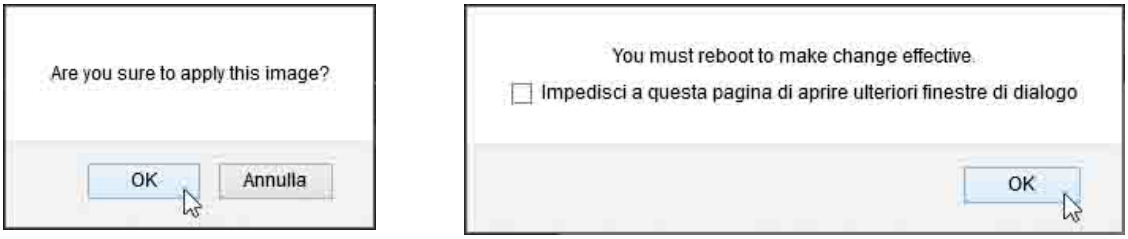


Fig. 8.31 – Confirmations to upgrade

9. Wait until the following screen will disappear

Fig. 8.32 – Upgrade in working

10. The webserver is ready to be upgraded. Go to “Administration” menu and click on the “REBOOT” button. Confirm the operation pressing “OK” button. The webserver will be restarted with the new firmware.

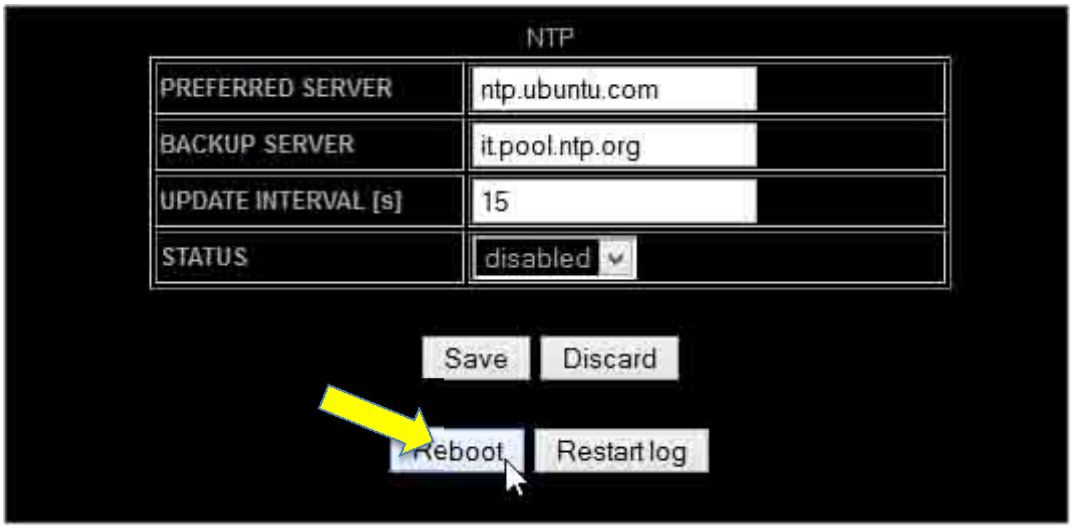


Fig. 8.33 – Reboot the webserver

Fig. 8.34 – Confirm the reboot

11. Wait until the process is finished. The operation process will take about 90 seconds.

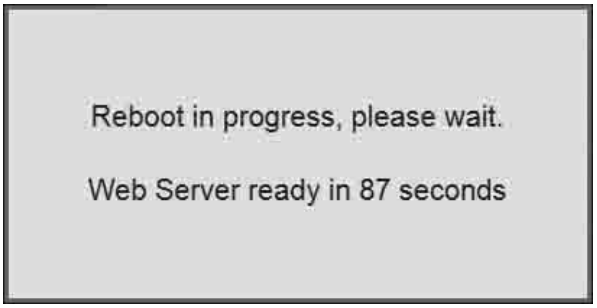


Fig. 8.35 – Wait until the reboot is completed

8.3 SNMP PROTOCOL

SNMP (Simple Network Management Protocol) is used for monitoring and controlling a wide variety of different units in a network.

A description of the unit - the MIB (Management Information Base) - must be loaded in the central unit ("manager") from which the unit is monitored.

A monitored unit contains a program ("agent") which can answer queries from the manager and execute commands. Furthermore, the agent may of its own accord generate a message (“trap” or “inform”) and send it to the manager. In this way, the central unit can be informed of a fault.

8.3.1 MANAGEMENT INFORMATION BASE MIB

The MIBs required for monitoring and controlling the unit can be requested to assistance. The packet **IRT-TC-MIB.04.05.2007** contains a group of files:

Fig. 8.36 – List of file of MIB packet

Select and open the FM folder and load the file **IRT-FM-SINGLETRANSMITTER-MIB** in the MIB browser of manager unit.

The supported protocol is SNMPv2c.

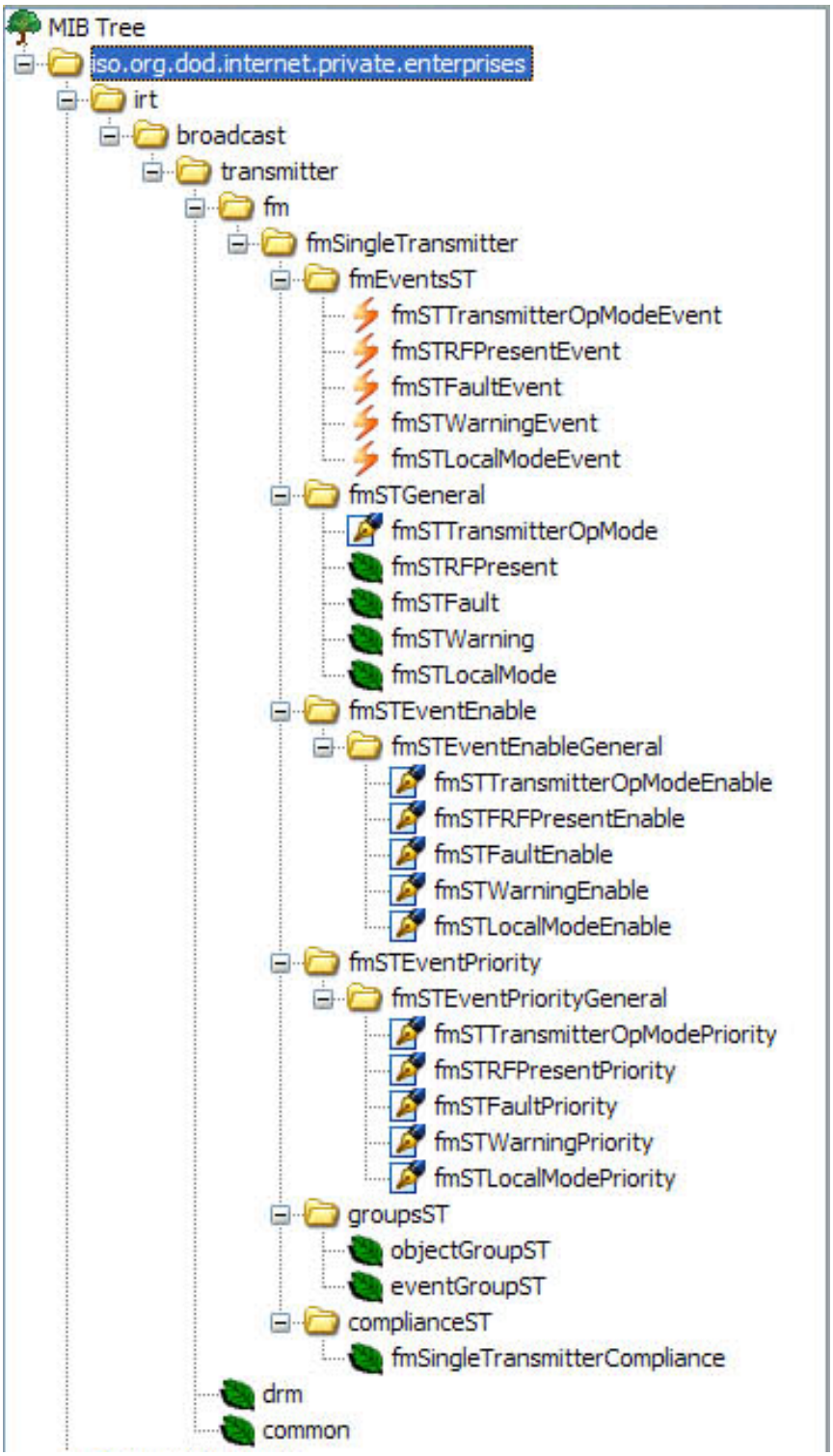


Fig. 8.37 – FM Single Transmitter MIB

Another model of MIB can be also available (dBBROADCAST table): the packet contains the following files:

Select and open the FM folder and load the file **FMDB-SINGLETRANSMITTER-MIB** in the MIB browser of manager unit.

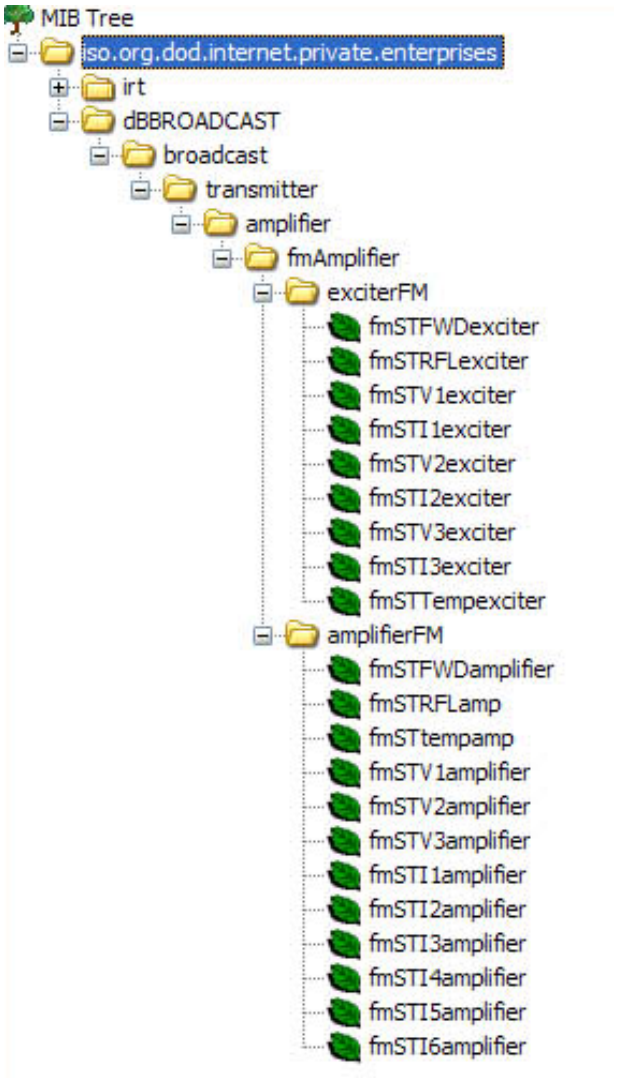


Fig. 8.38 – dBBROADCAST MIB

8.3.2 MESSAGE TRAP AND INFORM

The events that can generate a trap or inform (depending on user configuration) are grouped in the **fmEventsST** folder:

EVENT	OID	DESCRIPTION
fmSTTransmitterOpModeEvent	.1.3.6.1.4.1.19831.1.1.3.1.0.1	Unit in ON state
fmSTRFPresentEvent	.1.3.6.1.4.1.19831.1.1.3.1.0.2	RF present event recognized
fmSTFaultEvent	.1.3.6.1.4.1.19831.1.1.3.1.0.3	Presence of alarms
fwSTWarningEvent	.1.3.6.1.4.1.19831.1.1.3.1.0.4	Presence of Warnings
fmSTLocalModeEvent	.1.3.6.1.4.1.19831.1.1.3.1.0.5	Unit in Local mode

Table 8.1 – Traps and Informs available

The Traps/Informs can be configured in the webpage on Administration menu.

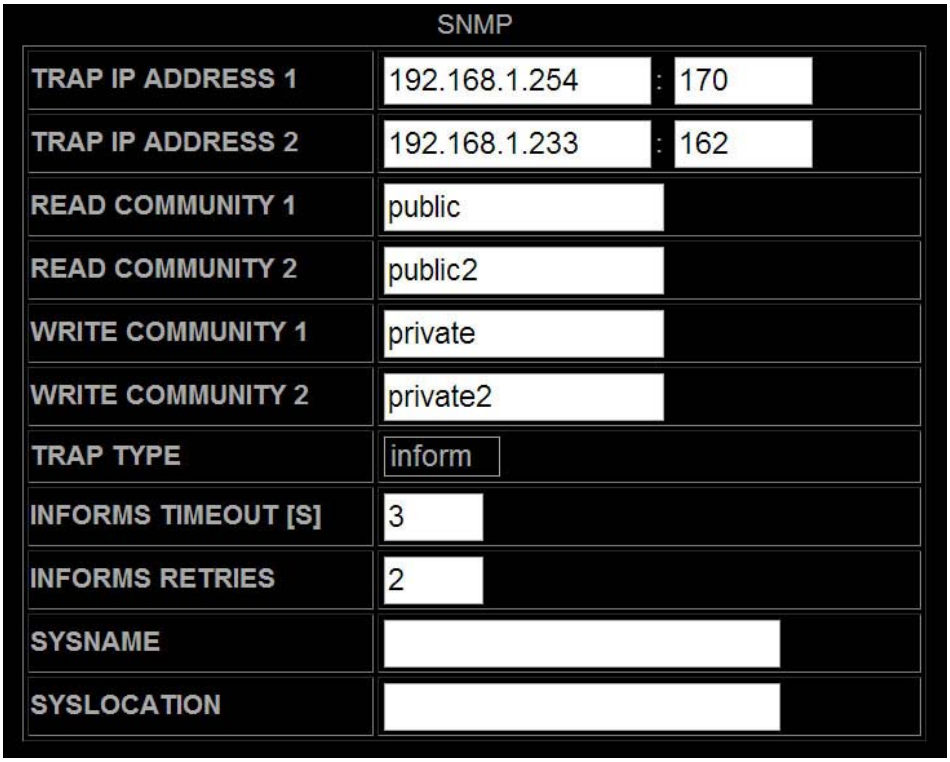


Fig. 8.39 - Traps and Informs configuration

The trap/inform messages can be sent to 2 different IP address set in TRAP IP ADDRESS box with the relative port.

In the TRAP TYPE box select the message type desired, trap or inform. If inform is selected, the timeout the agent waits (if no answer from the manager) before re-send the inform message can be set in the INFORMS TIMEOUT box, the number of inform retransmission can be set in INFORMS RETRIES box.

The messages trap/inform have to be enable and can be enable singly. The enable is provided to the OIDs (**fmSTEventEnable** folder):

EVENT	OID	DESCRIPTION
fmSTTransmitterOpModeEventEnable	.1.3.6.1.4.1.19831.1.1.3.1.2.1.1	1=Enable, 2=Disable
fmSTRFPresentEventEnable	.1.3.6.1.4.1.19831.1.1.3.1.2.1.2	1=Enable, 2=Disable
fmSTFaultEventEnable	.1.3.6.1.4.1.19831.1.1.3.1.2.1.3	1=Enable, 2=Disable
fwSTWarningEventEnable	.1.3.6.1.4.1.19831.1.1.3.1.2.1.4	1=Enable, 2=Disable
fmSTLocalModeEventEnable	.1.3.6.1.4.1.19831.1.1.3.1.2.1.5	1=Enable, 2=Disable

8.3.3 COMMANDS AND STATE

Commands and State available through SNMP are summed in the following table:

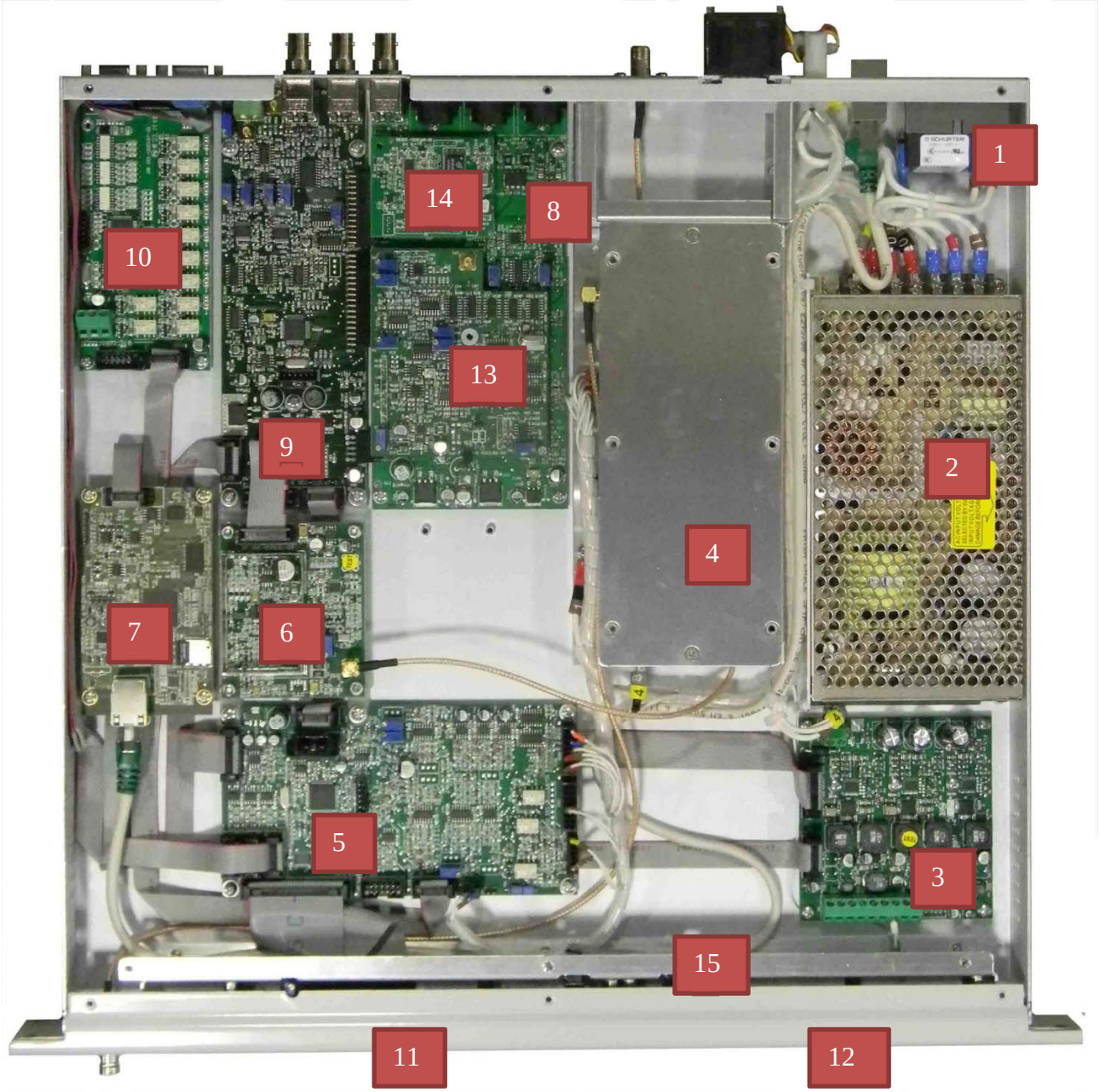
EVENT	OID	TYPE	DESCIPTION
fmSTTransmitterOpMode	.1.3.6.1.4.1.19831.1.1.3.1.1.1	Read and Write	1=ON, 2=OFF
fmSTRFPresent	.1.3.6.1.4.1.19831.1.1.3.1.1.2	Read only	1=Present, 2=Not Present
fmSTFault	.1.3.6.1.4.1.19831.1.1.3.1.1.3	Read only	1=Fault, 2=No Fault
fwSTWarning	.1.3.6.1.4.1.19831.1.1.3.1.1.4	Read only	1=Warning, 2=No Warning
fmSTLocalMode	.1.3.6.1.4.1.19831.1.1.3.1.1.5	Read only	1=Local, 2=Remote

The commands are accepted by the unit only in remote mode and if the community strings are correctly set for both read and write operations.

The community read/write strings have to be set both to the agent and manager units. In the webpage can be set in the Administration menu.

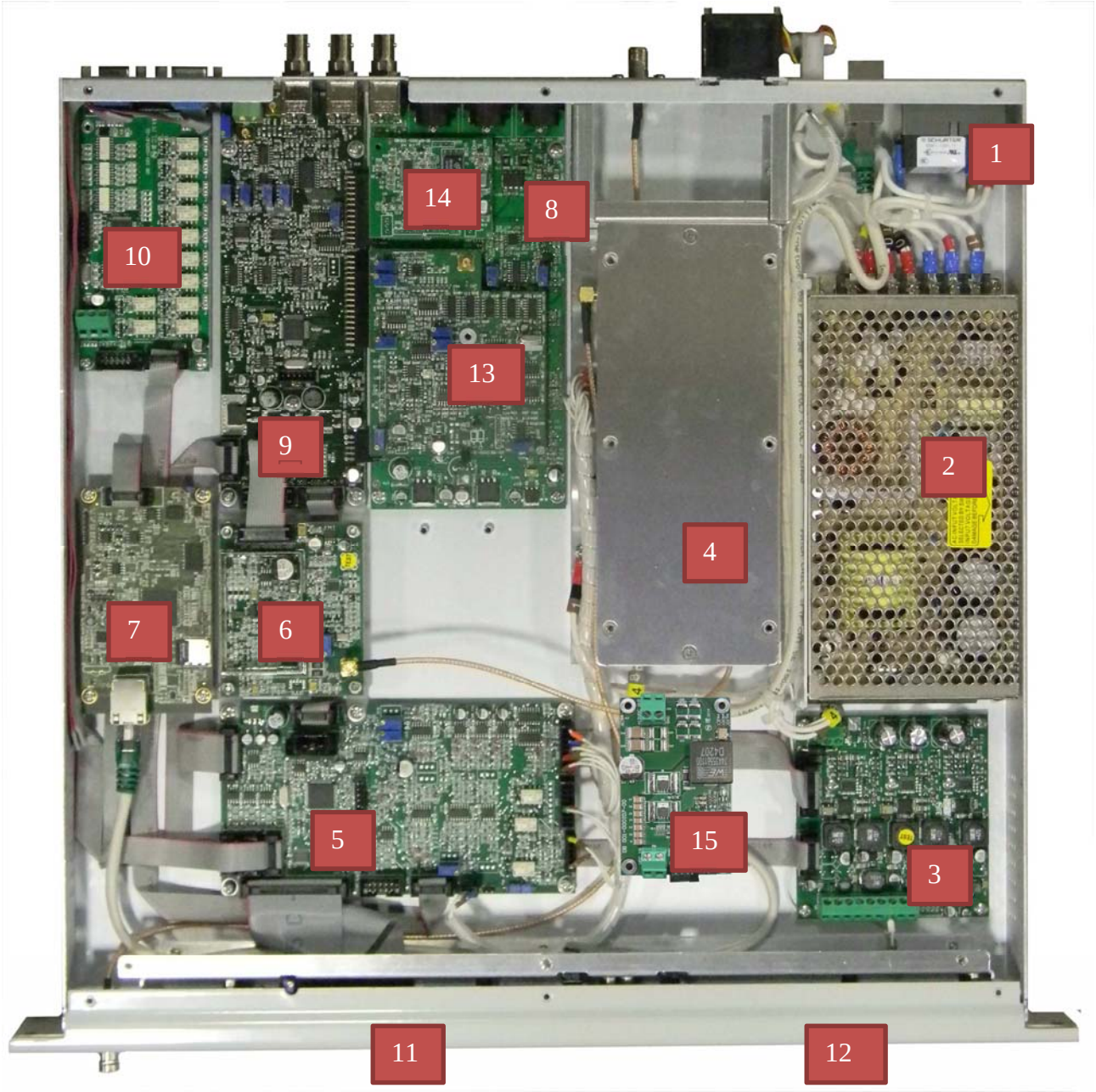
9 TOP VIEWS

Fig. 9.1 – MOZART 30 TOP VIEW



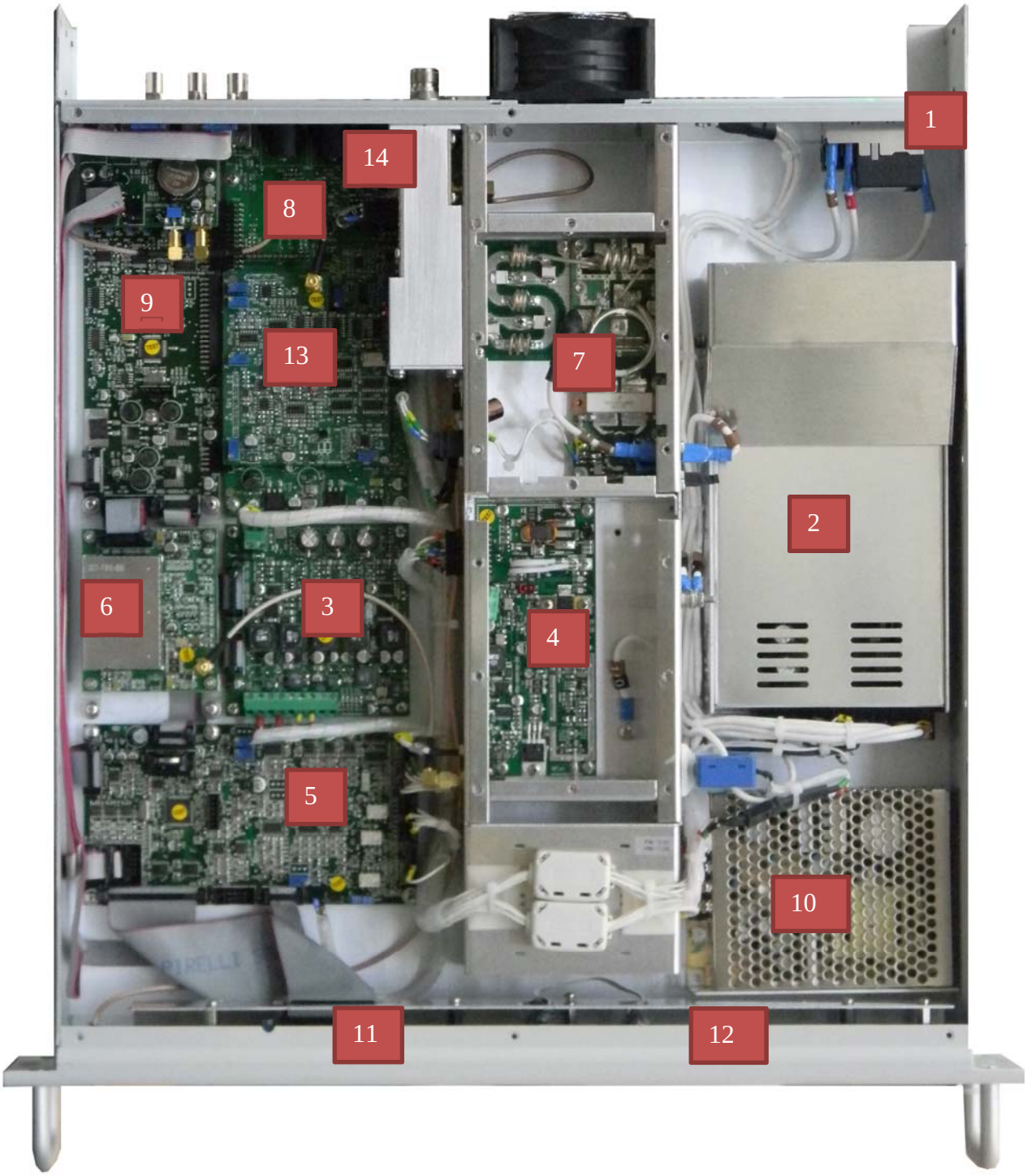
1. AC Mains input
2. RS-150 AC/DC power supply
3. DC-DC converter (200-000185)
4. RF board for 50W (AMF00200)
5. Control Board (200-000166)
6. PLL-VCO board (200-000181)
7. WebServer board (200-000106)
8. Left & Right audio board (200-000168)
9. MPX audio board (200-000167)
10. Remote I/O board (200-000187)
11. LCD Display board (200-000178)
12. Buttons & led board (200-000179)
13. Coder stereo board (200-000186)
14. AES/EBU board (200-000169)
15. DC/DC converter (48V – 12/26V)

Fig. 9.2 – MOZART 50 TOP VIEW



1. AC Mains input
2. RS-150 AC/DC power supply
3. DC-DC converter (200-000185)
4. RF board for 50W (AMF00200)
5. Control Board (200-000166)
6. PLL-VCO board (200-000181)
7. WebServer board (200-000106)
8. Left & Right audio board (200-000168)
9. MPX audio board (200-000167)
10. Remote I/O board (200-000187)
11. LCD Display board (200-000178)
12. Buttons & led board (200-000179)
13. Coder stereo board (200-000186)
14. AES/EBU board (200-000169)
15. DC/DC converter

Fig. 9.3 – MOZART 120/300 TOP VIEW



1. AC Mains input
2. RSP 750-48 AC/DC power supply
3. DC-DC converter (200-000185)
4. AMP30 board (200-000192)
5. Control Board (200-000166)
6. PLL-VCO board (200-000181)
7. RF board (200-000149)

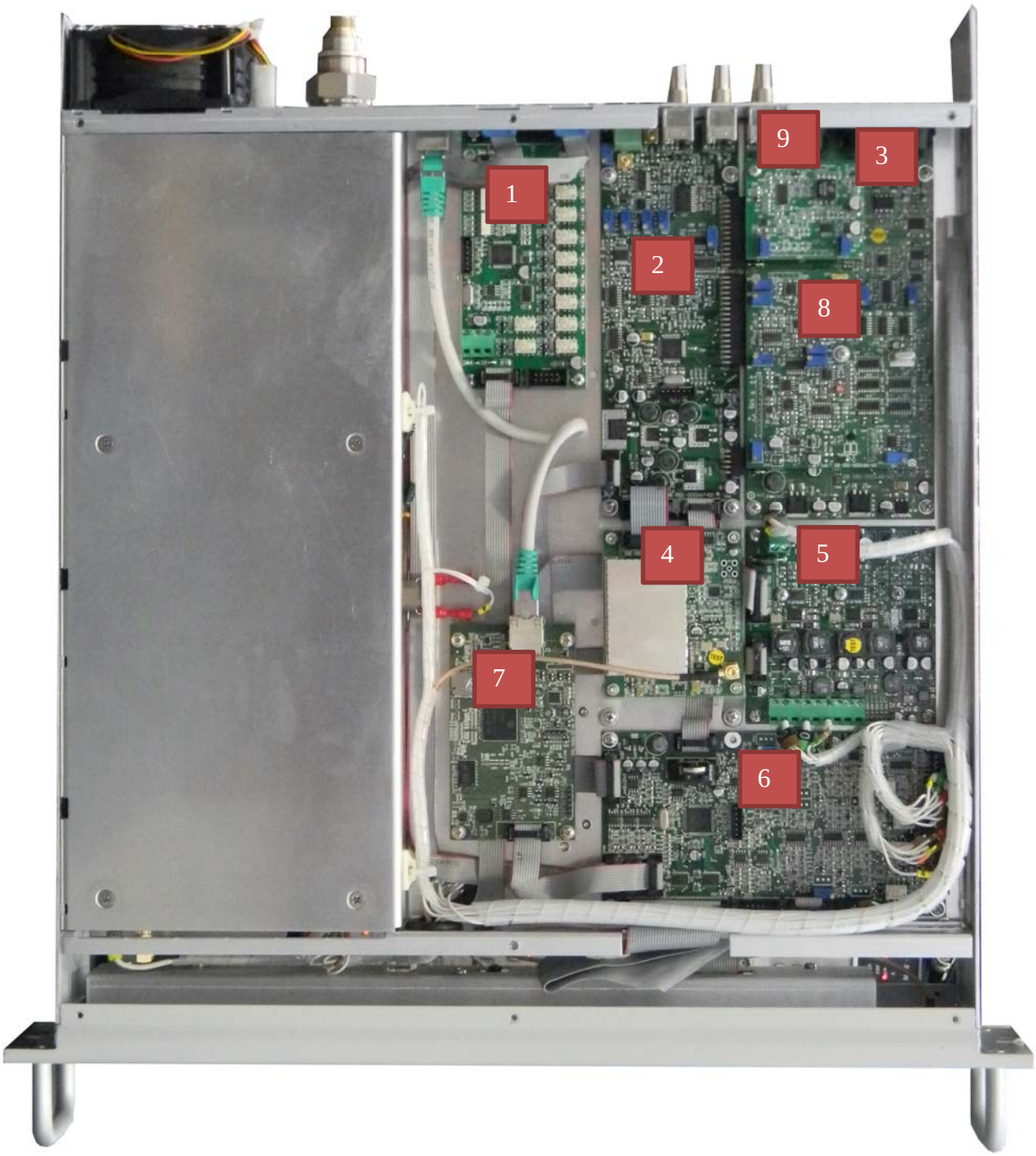
   Available options Remote I/O board
8. Left & Right audio board (200-000168)
9. MPX audio board (200-000167)
10. RS 100-24 AC/DC power supply
11. LCD Display board (200-000178)
12. Buttons & led board (200-000179)
13. Coder stereo board (200-000186)
14. AES/EBU board (200-000169)

    and Webserver board

Fig. 9.4 – MOZART 500/1000 TOP VIEW

1. AC Mains input
2. RSP AC/DC power supply
   RSP 2000-48
3. RS 100-24 AC/DC power supply
4. AMP1000 board (200-000148)
5. RF board (200-000149)
6. LCD Display board (200-000178)
7. Buttons & led board (200-000179)

Fig. 9.5 – MOZART 500/1000 BOTTOM VIEW



1. Remote I/O board (200-000187)
2. MPX audio board (200-000167)
3. Left & Right audio board (200-000168)
4. PLL-VCO board (200-000181)
5. DC-DC converter (200-000185)
6. Control Board (200-000166)
7. WebServer board (200-000106)
8. Coder stereo board (200-000186-00)
9. AES/EBU board (200-000169)