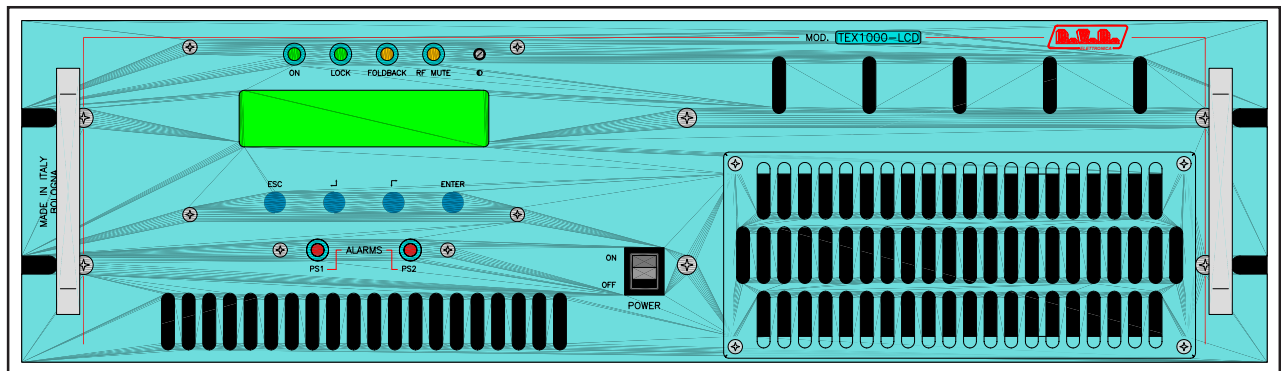


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# TEX1000-LCD



## User Manual Volume 1

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Manufactured by  Italy



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09/09/03	1.0	First Version	G. De Donno
23/06/05	1.1	Telemetry option upgrade	J. Berti

TEX1000-LCD - User Manual  
Version 1.1

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#### **Notification of intended purpose and limitations of product use**

This product is a FM transmitter intended for FM audio broadcasting. It utilises operating frequencies not harmonised in the intended countries of use. The user must obtain a license before using the product in intended country of use. Ensure respective country licensing requirements are complied with. Limitations of use can apply in respect of operating frequency, transmitter power and/or channel spacing.

#### **Declaration of Conformity**

Hereby, R.V.R. Elettronica SpA, declares that this FM transmitter is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.



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## 1. Preliminary Instructions

This manual is written as a general guide for those having previous knowledge and experience with this kind of equipment, well conscious of the risks connected with the operation of electrical equipment.

It is not intended to contain a complete statement of all safety rules which should be observed by personnel in using this or other electronic equipment.

The installation, use and maintenance of this piece of equipment involve risks both for the personnel performing them and for the device itself, that shall be used only by trained personnel.

**R.V.R. Elettronica SpA** doesn't assume responsibility for injury or damage resulting from improper procedures or practices by untrained/unqualified personnel in the handling of this unit.

Please observe all local codes and fire protection standards in the operations of this unit.



**WARNING:** always disconnect power before opening covers or removing any part of this unit.

Please observe all local codes and fire protection standards in the operations of this unit.



**WARNING:** this device can irradiate radio frequency waves, and if it's not installed following the instructions contained in the manual and local regulations it could generate interferences in radio communications.

This is a "CLASS A" equipment. In a residential place this equipment can cause hash. In this case can be requested to user to take the necessary measures.

**R.V.R. Elettronica SpA** reserves the right to modify the design and/or the technical specifications of the product and this manual without notice.

## 2. Warranty

Any product of **R.V.R. Elettronica** is covered by a 24 (twenty-four) month warranty.

For components like tubes for power amplifiers, the original manufacturer's warranty applies.

**R.V.R. Elettronica SpA** extends to the original end-user purchaser all manufacturers warranties which are transferrable and all claims are to be made directly to R.V.R. per indicated procedures.

Warranty shall not include:

- 1 Re-shipment of the unit to R.V.R. for repair purposes;
- 2 Any unauthorized repair/modification;
- 3 Incidental/consequential damages as a result of any defect;
- 4 Nominal non-incidentual defects;
- 5 Re-shipment costs or insurance of the unit or replacement units/parts.

Any damage to the goods must be reported to the carrier in writing on the shipment receipt.

Any discrepancy or damage discovered subsequent to delivery, shall be reported to **R.V.R. Elettronica** within 5 (five) days from delivery date.

To claim your rights under this warranty, you should follow this procedure:

- 1 Contact the dealer or distributor where you purchased the unit. Describe the problem and, so that a possible easy solution can be detected.

Dealers and Distributors are supplied with all the information about problems that may occur and usually they can repair the unit quicker than what the manufacturer could do. Very often installing errors are discovered by dealers.

- 2 If your dealer cannot help you, contact **R.V.R. Elettronica** and explain the problem. If it is decided to return the unit to the factory, **R.V.R. Elettronica** will mail you a regular authorization with all the necessary instructions to send back the goods;

- 3 When you receive the authorization, you can return the unit. Pack it carefully for the shipment, preferably using the original packing and seal the package perfectly. The customer always assumes the risks of loss (i.e., R.V.R. is never responsible for damage or loss), until the package reaches R.V.R. premises. For this reason, we suggest you to insure the goods for the whole value. Shipment must be effected C.I.F. (PREPAID) to the address specified by R.V.R.'s service manager on the authorization



**DO NOT RETURN UNITS WITHOUT OUR AUTHORIZATION AS THEY WILL BE REFUSED**

- 4 Be sure to enclose a written technical report where mention all the problems found and a copy of your original invoice establishing the starting date of the warranty.

Replacement and warranty parts may be ordered from the following address. Be sure to include the equipment model and serial number as well as part description and part number.



R.V.R. Elettronica SpA  
Via del Fonditore, 2/2c  
40138 BOLOGNA  
ITALY  
Tel. +39 051 6010506

## 3. First Aid

The personnel employed in the installation, use and maintenance of the device, shall be familiar with theory and practice of first aid.

### 3.1 Treatment of electrical shocks

#### 3.1.1 If the victim is not responsive

Follow the A-B-C's of basic life support.

- Place victim flat on his back on a hard surface.
- Open airway: lift up neck, push forehead back (**Figure 1**).

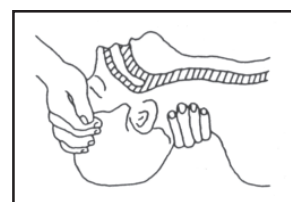


Figure 1

- clear out mouth if necessary and observe for breathing
- if not breathing, begin artificial breathing (**Figura 2**): tilt head, pinch nostrils, make airtight seal, four quick full breaths. Remember mouth to mouth resuscitation must be commenced as soon as possible.



Figura 2

- Check carotid pulse (**Figura 3**); if pulse is absent, begin artificial circulation (**Figura 4**) depressing sternum (**Figura 5**).



Figure 3

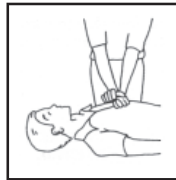


Figure 4

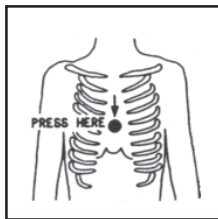


Figure 5

- In case of only one rescuer, 15 compressions alternated to two breaths.
- If there are two rescuers, the rythm shall be of one brath each 5 compressions.
- Do not interrupt the rythm of compressions when the second person is giving breath.
- Call for medical assistance as soon as possible.

3.1.2 If victim is responsive

- Keep them warm.
- Keep them as quiet as possible.
- Loosen their clothing (a reclining position is recommended).
- Call for medical help as soon as possible.

3.2 Treatment of electrical Burns

3.2.1 Extensive burned and broken skin

- Cover area with clean sheet or cloth.

- Do not break blisters, remove tissue, remove adhered particles of clothing, or apply any salve or ointment.
- Treat victim for shock as required.
- Arrange transportation to a hospital as quickly as possible.
- If arms or legs are affected keep them elevated.

If medical help will not be available within an hour and the victim is conscious and not vomiting, give him a weak solution of salt and soda: 1 level teaspoonful of salt and 1/2 level teaspoonful of baking soda to each quart of water (neither hot or cold).

Allow victim to sip slowly about 4 ounces (half a glass) over a period of 15 minutes.

Discontinue fluid if vomiting occurs.

DO NOT give alcohol.

3.2.2 Less severe burns

- Apply cool (not ice cold) compresses using the cleansed available cloth article.
- Do not break blisters, remove tissue, remove adhered particles of clothing, or apply salve or ointment.
- Apply clean dry dressing if necessary.
- Treat victim for shock as required.
- Arrange transportation to a hospital as quickly as possible.
- If arms or legs are affected keep them elevated.

## 4. General Description

The **TEX1000-LCD**, made by R.V.R. Elettronica SpA, is an **exciter for Frequency Modulated audio broadcasting** in a frequency modulation able to transmit in the band between 87.5 and 108 MHz in 10kHz step, with an output RF power adjustable up to a maximum of 1000 W into a 50 Ohm standard load.

The **TEX1000-LCD** is available in version with Integrated Stereo Coder.

This exciter contains a low-pass filter that reduces the harmonic emissions to below the limits allowed by international regulations (CCIR or FCC), and can therefore be used as a **transmitter** connected directly to the antenna.

Outstanding audio features this device has are low distortion and intermodulation values (typically 0.03%) and the high signal to noise ratio (typically 80 dB).

Important **TEX1000-LCD** features are compactness and great use simplicity. The machine, in fact, was designed to be modular: its various functions are run from modules nearly all connected to each other with male and female connectors or with flat cables ending in connectors. This type of design makes maintenance operations and any required module replacement easier.

The RF power section makes use of four MOSFET modules, able to deliver more than 300W each.

The operating frequency is governed by a thermally-compensated, reference oscillator working within a phase-locked loop (PLL). The **TEX1000-LCD** reaches frequency lock within a maximum of 30 seconds.

The **TEX1000-LCD** is able to work in all range frequency without calibration and setting operations.

The microprocessor system includes an LCD display on front panel and push-button panel for interaction with the user, and implements the following functions:

- Setting the output power
- Setting the operating frequency
- Activation and deactivation of power delivery
- Measurement and display of the working parameters of the exciter
- Communications with outside devices

Four LEDs indicate the machine status and are found on the front panel: ON, LOCK, FOLDBACK and RF MUTE, moreover two red LEDs indicate eventual Power Supply breakdowns.

The exciter's management software is based on a menu system. The user can navigate between the various submenus by using four push buttons: ESC, LEFT/UP, RIGHT/DOWN and ENTER.

On rear panel there are Mains connectors, with a voltage selector that allow to use different mains voltage (Full Range version), audio input and RF output connectors, telemetry connector, protection fuses, two inputs for modulated signals on subcarriers from special external encoders normally used in Europe for RDS (Radio Data System) transmission.

## **/TLM Option**

**(Designed for the alarm signalling in absence of power supply)**

The **TEX1000-LCD/TLM** allows to sent alarm messages, via SMS, to the user's cell-phone or to a group of users.

It is able to signal the Mains Alarm (in absence of power supply), also after long times of black-out.



## 5. Quick guide for installation and use

This chapter contains the necessary information for installing and using the machine. In the event any aspects are not completely clear, for example when using the machine for the first time, we recommend you carefully read the entire description contained in this manual.

### 5.1 Preparation

Unpack the exciter and before doing any other operation, be sure it has not been damaged during transport. In particular check that all the connectors are in perfect condition.

Check that the voltage selected coincide with mains voltage. The protection fuses can be accessed from the outside on the rear panel (see figures 6.2). Extract the fuse carrier with a screwdriver to check its integrity or for replacement, if necessary. The fuses to be used are different and depends from the mains voltage selected:

	@115V	@230V
SERVICE FUSE <i>(chap. 6.2 - positions [32])</i>	(1x) F1T type 5x20	(1x) F1T type 5x20
MAINS FUSE <i>(chap. 6.2 - positions [18]- [34])</i>	(2x) F25T type 10x38	(2x) F16T type 10x38

Check that the **TEX1000-LCD** switch is in the "off" position. POWER button is on the front panel (see figure 6.1) and inhibits "Surge Protection" machine's card.

Connect the RF output of the exciter to the antenna cable or to a dummy load able to dissipate the power generated by the **TEX1000-LCD**.



**ATTENTION:** without load, when machine is working, don't touch RF output connector to avoid electrical shocks and burns.

Connect the mains cable to the MAINS connector on rear panel (see figure 6.2).



**ATTENTION:** mains connector is a bare terminals, attention that line is not under voltage when you are connecting it.



**ATTENTION:** It is crucial that the mains system be provided with earthing to ensure both the operators' safety and correct operation of the device.

Connect the audio cables and RDS/SCA of the signal source to the proper connectors on the back of the exciter, help yourself with figure 6.2.

## 5.2 Use

Energize the exciter by putting the switch found on the front panel in the "ON" position.

Enter the "Set" menu and set the desired operating frequency. See chapter 5.4 for a description of the various menus..

By using the switches and trimmer found on the rear panel, set the characteristics (impedance, preemphasis and, if it's necessary, stereo/mono) and the levels of the audio and RDS inputs (if used).



**NOTE:** When the device leaves the factory, it is delivery with the output power adjustment at minimum and in the OFF position. It is however recommended that you always check the set level before activating power supply, especially if the machine is used as a modulator for a power amplifier.

Set the desired power level from the predefined menu.

Activate the RF power output from the "Fnc" menu.

## 5.3 Settings and calibration

The only adjustments to be manually made on the **TEX1000-LCD** are those relating to the audio operation levels and modes.

A trimmer for each one of the exciter's inputs is on the rear panel of the device. The printing on the panel indicates which input each trimmer refers to. The sensitivity of the various inputs can be adjusted using the trimmers within the limits described in the following tables:

Input sensitivity in Mono condition:

Input	Figure 6.2	Trimmer	Sensitivity	Note
SCA1	[9]	[13]	- 8 ÷ +13 dBm	Input level for 7,5 kHz deviation (-20 dB)
SCA2	[8]	[11]	- 8 ÷ +13 dBm	
MPX	[10]	[12]	-13 ÷ +13 dBm	Input level for 75 kHz deviation (0 dB)
Mono	[33]	[30]	-13 ÷ +13 dBm	

Input sensitivity in Stereo condition:

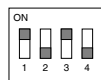
Input	Figure 6.3	Trimmer	Sensivity	Note
RDS	[10]	[12]	-20 ÷ +13 dBm	Input level for 75 kHz deviation (0 dB)
SCA1	[9]	[13]	- 8 ÷ +13 dBm	
SCA2	[8]	[11]	- 8 ÷ +13 dBm	Input level for 75 kHz deviation (0 dB)
Left	[33]	[30]	-13 ÷ +13 dBm	
Right	[15]	[14]	-13 ÷ +13 dBm	

When adjusting the sensitivity level of the inputs, keep in mind that the instantaneous modulation level is given in the predefined menu and that an indicator signals the 75 kHz level. To get a proper adjustment, we recommend you put a level signal on the machine's output equivalent to the level of its own audio program and adjust the relative trimmer until the instantaneous deviation coincides with the indication of 75 kHz.

To adjust the levels of the inputs of the subcarriers, you can use a similar procedure while getting help from the "x10" option that can be selected from the "Fnc" menu. With this option, the modulation level indicated is multiplied by a factor 10 so the drawn indication of the predefined menu coincides with a deviation value of 7.5 kHz.

There is a special menu in which the levels of the Right and Left channels are indicated separately with the relative indicators of the nominal levels for the maximum deviation of 75 kHz.

- Preemphasis (switch [6] Figure 6.2):



50  $\mu$ s



75  $\mu$ s

- L and R input impedance (type XLR) (switch [15] Figure 6.2):



Switch 1: R XLR input impedance, ON = 600  $\Omega$ , OFF = 10 k $\Omega$

Switch 2: L XLR input impedance, ON = 600  $\Omega$ , OFF = 10 k $\Omega$

- Operation mode/input impedance MPX ([7] Figure 6.2):



Switch 1: Operation mode ON = Mono, OFF = Stereo

Switch 2: MPX input impedance, ON = 50  $\Omega$ , OFF = 10 k $\Omega$

## 5.4 Software

The machine is provided with a two-line LCD display where a set of menus is shown. An overall view of the machine's menus is given in figure 5.1.

One of the following symbols may be present on the left side of the display, depending on the case:

- (Cursor) - The cursor identifies the selected menu where you can have access.
- ▶ (Full arrow) - The parameter highlighted by the arrow can be modified. This symbol is present on menu with two rows or more as navigation assistant.
- ▶▶▶ (Three empty arrows) - The parameter highlighted by the arrows is in phase of modification.

- ▶ (Empty Arrow) - The arrow points out the current line, the parameter of which cannot be modified. This symbol is present in the menus made up of more than two lines to help scroll the menu.

When turned on, the LCD display shows the predefined screen with the graphic representation of the instantaneous modulation level and indication of the direct power supplied:



Menu 1

The bar on right of "Mod" indicate the progress of the modulation in real time; the hatched bar signals the maximum nominal modulation level of 75 kHz (100%).

To **change the set power level** keep the **ENTER** push button pressed until it enters the **modification mode**.

The screen that is shown in the modification mode is similar to the following:



Menu 2

The bottom line gives the instantaneous reading of the power (997W in this example), whereas the bar indicates the set level. To increase the level, press the  $\leftarrow \uparrow$  push button and to reduce it, press  $\downarrow \rightarrow$ . As the set level increases or decreases, the bar becomes longer or shorter to display the current setting. When the desired level is reached, press **ENTER** to confirm and exit the predefined menu. Note that the set value is stored anyway, so if you press **ESC** or let the timeout go by without pressing a key, the power will remain at the last set level.

The first pressure of a whichever key serves in order to activate the retroillumination when the display is switched off.

If you press the **ESC** push button while you are in the predefined menu, you will be shown the following **selection screen** from which you can access all the other menus:

```

Enc Pwr P.A Set
Mix Urs L&R
    
```

Menu 3

If you instead want to go back to the predefined menu, all you have to do is press the **ESC** push button again.

To enter one of the submenus, select its name (which will be underlined by a blinking cursor) with the  $\leftarrow$  or  $\rightarrow$  push buttons and then press the **ENTER** push button.

Figure 5.1 shows the complete set of the machine's menus.

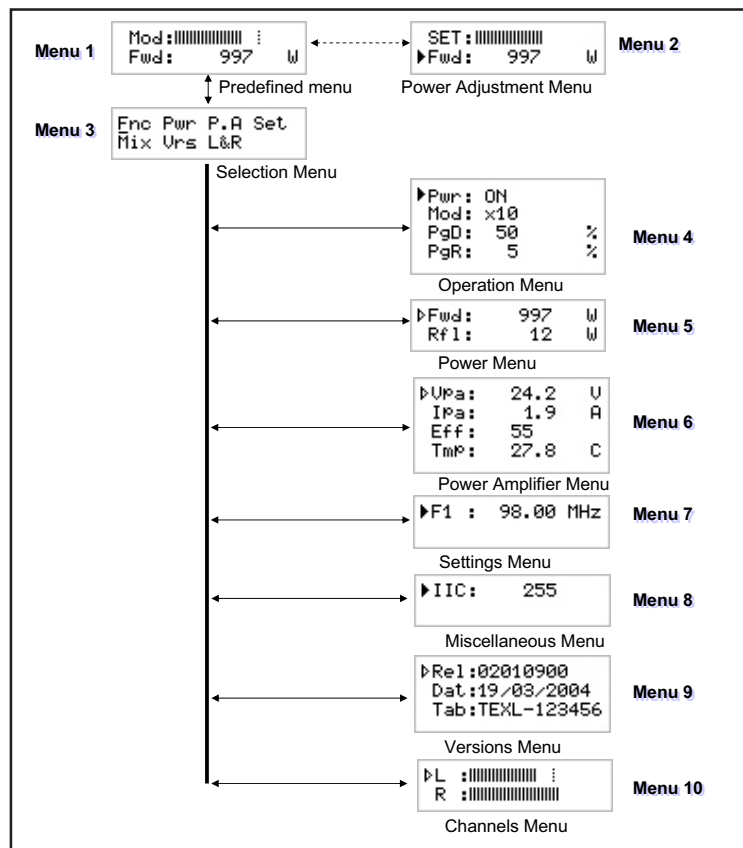


Figure 5-1

If the temperature alarm is enabled, the power supply will come inhibited in case of alarm threshold overcoming, and it will have displayed the following window only in case you are in the **predefined screen**:

```

!! ATTENTION !!
OVER TEMPERATURE
    
```

Status 1

Once restored the normal operation conditions, the power supply will come rehabilitated with the same modalities antecedent the alarm.

If the modulation ran out, under 20 kHz, for a time of about 5 minutes (not modifiable) the NO AUDIO status comes displayed in the **predefined screen**, but the power does not comes inhibited:

```

Mod: NO AUDIO
Fwd:      0      W
    
```

Status 2

#### 5.4.1 Operation Menu (Fnc)

From this menu the user can enable or disable the exciter **power supply**, set the deviation display modality and set up the percentage of **Forward (PgD)** or **Reflected Power Good (PgR)**.

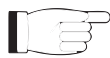
To operate on one of this voices, select the relative line by the  $\leftarrow \uparrow$  and  $\downarrow \rightarrow$  buttons, then press and keep pressed the **ENTER** button until the command doesn't come accepted. In this way the Pwr setting will become from On to Off, or viceversa, and the Mod setting from "x1" to "x10" or viceversa. To modify the Power Good value percentage is sufficient, after to have selected the "PgD" or "PgR" voice, set up the value through the  $\leftarrow \uparrow$  and  $\downarrow \rightarrow$  buttons, then confirm with **ENTER**.

```

▶ Pwr: ON
  Mod: x10
  PgD:  50      %
  PgR:   5      %
    
```

Menu 4

- Pwr** Enables (On) or disables (Off) the power supply of the exciter.
- Mod** Display modality of the modulation selectable between “x1” and “x10”. The indication of the instantaneous deviation is multiplied by a factor 10 in the "X10" mode, so the hatched indicator on the predefined menu will coincide with the 7.5 kHz value instead of 75 kHz. This display mode is useful when you want to view low deviation levels such as, for example, those due to the pilot tone or to the subcarriers.
- PgD** Regulation of the Power Good threshold relative to the forward power. The percentage value of Power Good is referred to the nominal power of the machine, that is 1000 W, not to the supplied forward power. If a value equal to 50% is setted, it will correspond indifferently to 500 W from the set up power. The Power Good function is a control and alarm function on the supplied power. When the output power fall under the threshold value of Power Good set, the machine modifies the pin state [7] of "Remote" DB15 connector on the rear panel (figure 6.2 note [29]).
- PgR** Regulation of the Power Good threshold relative to the forward power. The percentage value of Power Good is referred to the nominal power of the machine, that is 100 W, not to the supplied forward power. If a value equal to 5% is set, it will correspond to 5 W indifferently from the set up power.



**NOTE:** This alarm does not have effect on any output signal on the DB15 “Remote” connector, placed on the rear panel of the equipment, and it works only in presence of systems equipped of telemetry.

#### 5.4.2 Power Menu (Pwr)

This screen shows the user the measures relating to the exciter’s RF power output:



▷Fwd:	997	W
Rfl:	12	W

*Menu 5*

- Fwd** Visualization of the Forward Power (Fwd).
- Rfl** Visualization of the Reflected Power (Rfl).

The values shown are "readings", and therefore cannot be modified (note the empty triangle). To modify the power setting, use the predefined menu as described above.

### 5.4.3 Power Amplifier Menu (PA)

This screen, consisting of four lines that can be scrolled with the  and  push buttons, shows the user the measures relating to the device's final power amplifier:

```

▶Vpa:    50.2    V
  Ipa:    32.9    A
  Tmp:    27.8    C
    
```

*Menu 6*

- VPA Visualization of the amplifier module voltages.
- IPA Visualization of the amplifier module current.
- Eff Visualization of the efficiency.
- Tmp Visualization of the inner temperature of the machine.

### 5.4.4 Settings Menu (Set)

This menu lets you read and set the operating frequency.

```

▶F1 : 98.00 MHz
    
```

*Menu 7*

- F1 After having set a new frequency value, press the ENTER button to confirm the choice. The exciter will release from the current frequency (the LOCK LED turns off) and it will latch onto the new operating frequency (LOCK turns back on). Instead, if you press ESC or let the timeout go by, the frequency will remain set at the previous value.

### 5.4.5 Miscellaneous Menu (Mix)

This menu allows you to set the machine's address in a serial bus connection (I<sup>2</sup>C type):

```

▶IIC:    937
    
```

*Menu 8*





### 5.5.1 FSK Option

The FSK function, generates periodic shifts of the transmission carrier frequency, realizes in way to generate a Morse code that carried the Radio Identification Code.



***This function is typically used in the United States.***

By factory the amplitude of the frequency shifts is +10 KHz and the time lag of the code repeat is 60 minutes (for values different from these parameters, please contact R.V.R. Elettronica SpA). As regards the Radio code, it can be set by the user following the indications described in chapter 5.5.1.1.

The **selection screen**, in presence on FSK option, adds the indication to FSK submenu.

```

Fnc Pwr P.A Set
Mix Urs L&R FSK
    
```

Menu 11

The pressure of **ENTER** button, on FSK entry in the **selection screen**, serves in order to access to all the relative submenu:

```

▶ FSK:      ON
Cod: 012345
    
```

Menu12

FSK                    Enable or disable the transmission of the FSK code.

Cod                    Visualization of the code normally transmitted.

#### 5.5.1.1 Code Modification

In every moment the user is able to make changes to the Radio code transmitted in FSK.

In order to make the operation is necessaryto have:

- 1 RS232 male - female cable;
- Hyper Terminal Interface (verify that it has been installed together to the own copy of Windows®) or equivalent serial communication software.

The procedure to execute comes shortly described in the following:

- Connect a standard serial cable (DB9 Male - DB9 Female) the **COM** serial port place on PC to **SERVICE** connector placed on the rear panel of the **TEX500-LCD**.
- Turn on the exciter;
- Start up the serial communication software;
- Set up the following parameters for the communication:
  - Baud Rate:** 19200
  - Data Bit:** 8
  - Parity:** None
  - Stop Bit:** 1
  - Flow control:** None;
- Through the communication software activate the Caps-Lock key (capital), send the *CODE* string followed from the 6 characters of the station code and then confirm pressing Enter.



The code is considered only if is complete of 6 characters (alphanumeric and without spaces). In case the code is accepted, it comes repeated in echo towards the program, in contrary case the echo of the code does not come made.

### 5.5.2 UP/DOWN Power Option

The UP/DOWN Power modifies the function to receive signals present on the telemetry connector (see chap. 6.4.2).

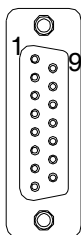
In this particular situation the control signals uses to enable or to disable the RF section, become control signals of the RF power level, allowing one regulation of UP/DOWN type.

The UP or DOWN command is supplied connecting the relative signal on the Remote connector to the ground, at least for 500mS (the pin has an inner pull-up towards feeding).



***This function is typically used in the United States.***

Configuration of the telemetry DB15F connector (Remote):



<b>Pin</b>	<b>Standard Function</b>	<b>UP/DOWN Power Function</b>
14	On cmd <i>Enables RF power supply</i>	Up cmd <i>Increases RFthe Power supply</i>
15	Off cmd <i>Disables RF power supply</i>	Down cmd <i>Reduces RFthe Power supply</i>

## 6 External Description

This chapter reports the elements of the front and rear panels of the **TEX1000-LCD**.

### 6.1 Front Panel

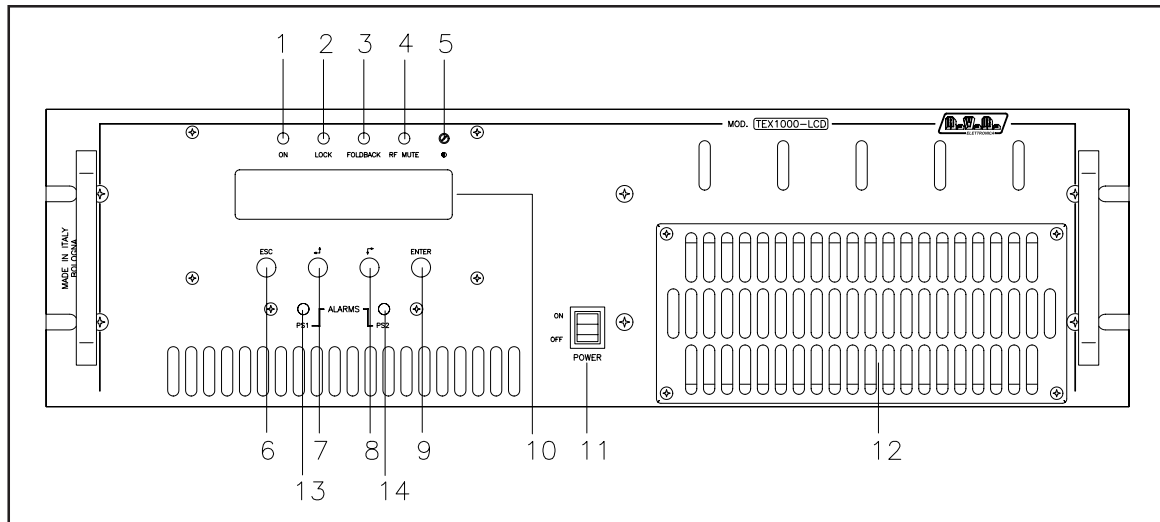


Figure 6.1

- |                 |  |
|-----------------|--|
| [1] ON          | Green LED, lit when the exciter is working.  |
| [2] LOCK        | Green LED, lit when the PLL is locked on the working frequency.  |
| [3] FOLDBACK    | Yellow LED, lit when the foldback function is operating (automatic reduction of the delivered RF power). |
| [4] R.F. MUTE   | Yellow LED, lit when the exciter's power output is inhibited by an external interlock command.           |
| [5] CONTRAST    | Display contrast adjusting trimmer.  |
| [6] ESC         | Push button to exit from a menu.   |
| [7] LEFT/UP     | Push button to move in the menu system and to modify the parameters.                                     |
| [8] RIGHT/DOWN  | Push button to move in the menu system and to modify the parameters.                                     |
| [9] ENTER       | Push button to confirm a parameter and to enter in a menu.   |
| [10] DISPLAY    | Liquid crystals display.   |
| [11] POWER      | ON/OFF switch.   |
| [12] AIR FLOW   | Grid for the intake of the air flow of the forced ventilation.   |
| [13] ALARMS PS1 | Red LED, lit when the Power Supply 1 doesn't work correctly.   |
| [14] ALARMS PS2 | Red LED, lit when the Power Supply 2 doesn't work correctly.   |

## 6.2 Rear Panel

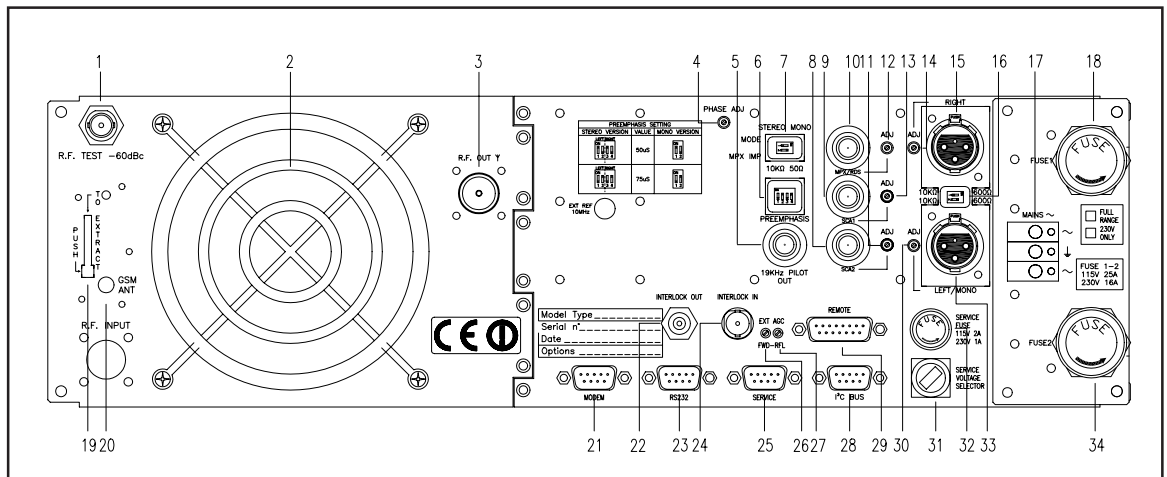


Figure 6.2

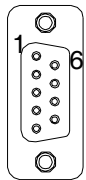
- |  |   |
|--|---|
| <p>[1] R.F. TEST</p> <p>[2] AIR FLOW</p> <p>[3] R.F. OUT</p> <p>[4] PHASE ADJ</p> <p>[5] 19 KHZ PILOT</p> <p>[6] PREEMPHASIS</p> <p>[7] MODE/MPX IMP</p> <p>[8] SCA 2</p> <p>[9] SCA 1</p> <p>[10] RDS</p> <p>[11] SCA2 ADJ</p> <p>[12] RDS ADJ</p> <p>[13] SCA1 ADJ</p> <p>[14] RIGHT ADJ</p> <p>[15] RIGHT</p> <p>[16] IMPEDANCE</p> <p>[17] MAINS</p> <p>[18] FUSE 1</p> <p>[19] GSM SLOT-IN</p> <p>[20] GSM ANT</p> <p>[21] MODEM</p> <p>[22] INTERLOCK OUT</p> <p>[23] RS232</p> <p>[24] INTERLOCK IN</p> <p>[25] SERVICE</p> | <p>Output at -60 dB referred to output power level, adapted to modulation monitoring. Do not use it for spectral analysis.</p> <p>Grid for the intake of the air flow ventilation.</p> <p>RF output connector, 7/8" type.</p> <p>Pilot tone phase adjustment trimmer.</p> <p>BNC output for the 19 kHz pilot tone. This can be used for external devices (e.g. RDS coder) synchronization.</p> <p>Dip-switch to set the preemphasis at 50 or 75 <math>\mu</math>s. The preemphasis setting is only relevant for the Left and Right inputs in stereo mode and for the mono input in mono mode, while MPX input is unaffected by this setting.</p> <p>Dip-switch to set the operation mode (STEREO or MONO) and the MPX input impedance, 50 <math>\Omega</math> or 10 k<math>\Omega</math>.</p> <p>BNC connector, SCA2 input.</p> <p>BNC connector, SCA1 input.</p> <p>Adjustment trimmer for RDS input.</p> <p>Adjustment trimmer for SCA2 input.</p> <p>Adjustment trimmer for RDS input.</p> <p>Adjustment trimmer for SCA1 input.</p> <p>Adjustment trimmer for the Right channel input.</p> <p>XLR connector, Right channel audio input.</p> <p>Dip-switch to set the balanced input impedance, 600 <math>\Omega</math> or 10 k<math>\Omega</math>.</p> <p>Mains supply connectors, 115 - 230 V 50-60 Hz.</p> <p>Mains supply fuse.</p> <p>Lodging for introduce the GSM card. Pushing the button is possible to extract the card from its lodging.</p> <p>GSM Antenna.</p> <p>DB9 connector for interconnections with external modem.</p> <p>BNC interlock out connector: when exciter is in stand-by mode, the inner conductor, usually floating, become grounded.</p> <p>DB9 connector for interconnection with other devices and for factory parameters programming.</p> <p>BNC interlock in connector: the exciter is forced in stand-by mode when the inner conductor is grounded.</p> <p>DB9 connector for research all processed parameters of the RF section.</p> |
|--|---|

[26] FWD EXT. AGC	Trimmer for the control of the delivered power in function of the FWD fold input (REMOTE connector).
[27] RFL EXT. AGC	Trimmer for the control of the delivered power in function of the RFL fold input (REMOTE connector).
[28] I <sup>2</sup> C BUS	DB9 connector for I <sup>2</sup> C bus networking.
[29] REMOTE	DB15 connector for telemetry of the machine.
[30] LEFT-MONO/MPX ADJ	Adjustment trimmer for Left-Mono channel input .
[31] SERVICE VOLTAGE SEL.	Mains voltage selector 120-240V.
[32] SERVICE FUSE	Service protection fuse.
[33] LEFT-MONO/MPX	XLR connector, Left-Mono channel input
[34] FUSE 2	Mains supply fuse.

## 6.3 Connectors description

### 6.3.1 RS232

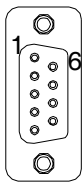
Type: DB9 male



1	NC
2	TX_D
3	RX_D
4	Internally connected with 6
5	GND
6	Internally connected with 4
7	Internally connected with 8
8	Internally connected with 7
9	NC

### 6.3.2 Service (for programming of factory parameters)

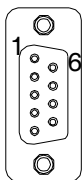
Type: DB9 female



1	NC
2	TX_D
3	RX_D
4	Internally connected with 6
5	GND
6	Internally connected with 4
7	Internally connected with 8
8	Internally connected with 7
9	NC

### 6.3.3 I<sup>2</sup>C Bus

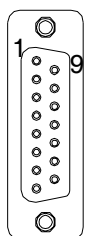
Type: DB9 male



1	NC
2	SDA Serial Data
3	SCL Serial Clock
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

### 6.3.4 Remote

Type: DB15 female



Pin	Name	Type	Meant
1	Interlock	IN	Inhibits power if closed to GND
2	Ext AGC FWD	IN	External signal for power limitation (AGC)
3	GND		Ground
4	SDA IIC	I/O	Serial data for IIC communications
5	VPA TIm	OUT anal.	Mains voltage PA: 5 V for 62 V
6	FWD tIm	OUT anal.	Forward power: 3 V for 1245 W
7	Power Good	OUT digit.	Open collector, ON when power is over set up threshold (cap. 5.4.1)
8	GND		Ground
9	GND		Ground
10	Ext AGC RFL	IN	External signal for power limitation (AGC)
11	SCL IIC	I/O	Clock for IIC communications
12	IPA TIm	OUT anal.	Mains current PA: 5 V for 47 A
13	RFL TIm	OUT anal.	Reflected power: 3 V for 230 W
14	On cmd	IN digit.	An impulse to ground (500 ms) active power output
15	OFF cmd	IN digit.	An impulse to ground (500 ms) inhibits power output

### 6.3.5 Left (MONO) / Right

Type: XLR female



1	GND
2	Positive
3	Negative



## 7. Technical specifications

### 7.1 Physical specifications

Panel size	483 mm (19") x 132.5 mm (3 HE)
Depth	650 mm (26 1/2")
Weight	33 Kg
Working Temperature	-10 °C ÷ 50 °C

### 7.2 Electrical specifications

#### General

RF output power	0 to 1000 W, adjustable with continuity
Frequency range	87.5 MHz ÷ 108 MHz, step 10kHz (you can require different step at the order)
Frequency setting	Direct software programming
Frequency stability	±1ppm from -10°C to 50°C
Modulation type	Direct carrier modulation
Spurious and Harmonics suppression	Respects relevant FCC and CCIR standards (typical -75 dB)
Modulation capability	Respects relevant FCC and CCIR standards (typical 240kHz MPX o Mono, 210 kHz Stereo)
Asynchronous residual AM	-65 dB wrt. 100% peak AM, without deemphasis
Synchronous residual AM	-55 dB wrt. 100% peak AM, with 75 kHz molation at 400Hz, without deemphasis
C.A. power supply	≅ 90 V ÷ 250 V, full-range. Power factor > 0.97 (with PFC)
Power consumption at 1000 W RF	≅1,7 kVA

#### Input

Left - Mono/MPX Input	Type XLR female balanced or unbalanced
Right/Mono Input	Type XLR female balanced or unbalanced
MPX/SCA/RDS input	Type: BNC, unbalanced
Input impedance	10 kOhm o 600 Ohm, XLR Left/Right/Mono 10 kOhm o 50 Ohm BNC MPX selectable with DIP-switch
Input level	-20 dBm ÷ +13 dBm, continuously adjustable with trimmer
Preemphasys	Selectable: 0 50 us (CCIR) 75 us (FCC)
SCA1 and SCA2 input	2 BNC unbal connectors
SCA1 and SCA2 input impedance	10 kOhm
SCA1 and SCA2 input level	-20 dBm ÷ +13 dBm for 2.0 kHz continuously adjustable

## Output

RF Out:	Standard connector 7/8", impedance 50 Ohm (7/16" on demand)
RF Test	BNC connector, -60 dB wrt. carrier level impedance 50 Ohm
19 kHz pilot tone	1 Vpp minimum load 4.7 kOhm

## MONO operation

S/N FM	> 75dB wrt. 75 kHz, measured in the band 20 Hz ÷ 20 kHz, 50 us deemph., RMS detect
Amplitude/frequency response	± 0.3 dB, 20Hz ÷ 15Khz (with preemphasis)
Total harmonic distortion (THD)	< 0.08%

## MPX operation

Composite S/N FM	> 75dB wrt. 75 kHz, measured in the band 20 Hz ÷ 100 kHz, 50 us deemphasis, RMS detect
MPX amplitude/frequency response	± 0.1 dB, 20 Hz ÷ 53 KHz ± 0.3 dB, 53 KHz ÷ 100 KHz
MPX Total harmonic distortion (THD)	< 0.05 %
Stereo separation	> 55 dB (typical 60dB)

## Stereo operation

S/N FM Stereo	> 72 dB wrt. 75 kHz, measured on decoded channels, in the band 20 Hz ÷ 20 KHz, 50 us deemphasis, RMS detector
Audio amplitude/frequency response	± 0.5 dB, 20 Hz ÷ 15 KHz (with preemphasis)
Total harmonic distortion (THD)	≤ 0.05 %
Stereo separation	> 50 dB (typical 55 dB)

## Remote connections

Interlock IN	BNC female: the exciter is forced in stand-by mode when the inner conductor is grounded
Interlock OUT	BNC female: when exciter is in stand-by mode, the inner conductor, usually floating, become grounded
Serial interface	DB9 female RS232
Telemetry card	DB15 female, give indications on the state of the device

## Options

/TLM	Telemetry interface, battery charger and GSM modem
------	--

## 8. Working Principles

A schematic view of the modules and connections making up the **TEX1000-LCD** is shown in figure 8.1.

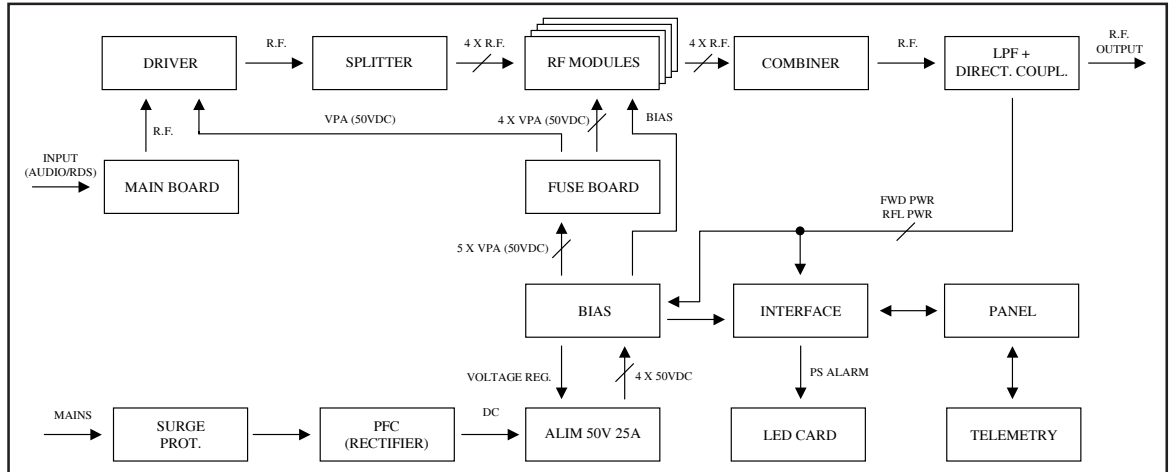


Figure 8.1

Below a brief description of each module's functions is given, whereas the complete diagrams and layout of the cards are given in the "Technical appendix" in vol.2.

### 8.1 Power Supply

The **TEX1000-LCD** power supply is composed by three important sections:

1. Over range protection. Surge Protection board (see cap. 8.1.1) protects machine from eventual unexpected variations of the mains voltage.
2. Service. This section contains elements that do not regard directly the power supply, they are:
  - Service transformer
  - Power switch
  - Service voltage selector
  - Service fuse
3. Power Supply. Various units supplies an adapted supply to RF power amplifier modules. The units that compose power supply are rectifiers (PFC or traditional) and switching supply. Machine is available in different configuration for voltage rectify:
  - One PFC (only 230V)
  - Two PFC (115-230V)
  - One rectifier (only 230V)
  - Two rectifiers (115-230V)

### 8.1.1 Surge Protection

This card contains two mains fuse accessible from outside (figure 6.2 note [18] and [34]) and it contains a MOV battery to protect main supply and machine from over range mains voltage. Then the mains voltage reaches the main Power switch placed on front panel and, if it is on ON state, mains voltage arrives to TR1 service transformer. One of its secondary output generates (through interface card) 24 V voltage that excites power relè placed on Surge card, so PFC or rectifier units, connect to it, will be on voltage.

### 8.1.2 PFC board (rectifiers)

PFC units are rectifiers that modulates absorbed current so that the wave shape is sinusoide, having so 99% power factor.

PFC can work with input mains voltage from 90 V to 250 V. When you use it with mains voltage of 110 V, is necessary to install two PFC units because there is a lot of absorbed current. In PFC output there are 350 V of rectified voltage.

You can replace PFC units with one or two “traditional” rectifying units (but without power factor protection).

### 8.1.3 Power supply

There are two power supply switching mode of 50 V 25 A, that have an input voltage check. Output voltage is set from microprocessor in function of RF power required. Two power supply units works in parallel mode and they have a balance current circuit so that the distributed current from every module is approximately the same one.

## 8.2 Panel board - CPU

The panel card contains the microcontroller (PIC18F452) that implements the machine's control software, the display and the other components needed to interface the user.

The card interfaces with the other machine modules, both for power supply distribution and for the control and measures.

## 8.3 Modem interface and battery-charger (Opz. /TLM)

Inside **TEX1000-LCD** is placed this interface that receives the mains signals of the equipment and it makes available them on the connectors.

This interface is connected to the telemetry connector, to the I<sup>2</sup>C connector and to the transformer from which it receives the various signals, feeds and to which it passes the eventual commandos.

This interface is designed in order to allow to take the MAINS signal from the telemetry connector and, in the case MAINS voltage lacks, in order to allow to send a message after an adjustable time of 5÷30 min. (by factory is set at 15min.). The system provides to the operations regarding the send on of SMS of alarm when the set up period is passed; therefore the relay placed on this card is released and switches off the CPU and the Modem in order to maintain the battery.

## 8.4 16-bit cpu card (Opz. /TLM)

This card is the heart of the transmitter as it handles and processes all information provided by the other cards and by other devices connected through the serial interface or the telemetry card.

The 1Mb Flash Memory enables firmware update through direct connection of **TEX1000-LCD** RS232 output to the serial port of a PC.

Card specifications are as follows::

- **Microprocessor:** 90F543G
- **Flash Memory size:** 1MBytes
- **Static RAM size:** 32KBytes
- **Communication Interface:** RS232 e I<sup>2</sup>C Bus
- **EEPROM size:** 2KBytes

No regulation is needed from this card.

## 8.5 Telemetry board

This card is the input/output CPU interface with external world. All the available input and output signals are replied on the DB15 "REMOTE" connector (see cap. 6.3.2). On the same board there is also the BNC connector of interlock to disable device. Closing the central pin to ground, the output power is reduced to zero until connection doesn't removed.

When it is used with a R.V.R. amplifier, this connector is connected, through a BNC-BNC connector, to REMOTE or to INTERLOCK of the power amplifier. In case of breakdowns of the amplifier, the central conductor is place to ground forcing the device to enter in stand-by mode.

## 8.6 Main board

The main card carries out the following functions:

- Audio and SCA input handling
- Generation of carrying frequency
- Modulation

### 8.6.1 Audio input section

The audio input section contains the circuits that perform the following functions:

- Input impedance selection
- 15 kHz filtering of the R and L channel
- Stereo coder
- Preemphasis
- Mixing of the mono, MPX and SCA channels
- Clipper (limits the level of the modulating signal so that the frequency deviation does not go past the 75 kHz level)
- Measurement of the modulating signal

### 8.6.2 PLL/VCO section

This section of the card generates the signal in modulated radiofrequency. It is based on a PLL diagram that uses an MB15E06 type of integrated PLL.

## 8.7 Driver card

Before going to the final power amplifier, the RF signal is pre-amplified in this section through a BFR 540 transistor. When the exciter is put in stand-by, the driver is inhibited.

## 8.8 Power amplifier

RF power amplifier section is made with four power amplifier modules combined through a Wilkinson splitter and a Wilkinson combiner in strip-line technology.

The splitter is used to divide input power from driver card and to supply a quarter of it to every RF module. The combiner is used to combine output power from every RF module so as to have total power amplifier.

Splitter, amplifier and combiner are plans so that powers generated from the amplifiers add its in phase, diminishing the loss of balance and therefore the dissipation of useful power.

All RF section is placed on a fin that supplies to the cooling through forced ventilation. Every RF module supplies 300W and is supplied from a switching supply. The active device used in amplifier module is a Mosfet (BLF278).

## 8.9 LPF card

This card is a low-pass filter and its function is to suppress the harmonic components generated by the amplifier below the levels required by regulations.

Moreover, in the end of filter, there is a directional coupler, its function is the measurement of the forward and reflected output power.

On this card there is an RF sample at -60dB compared with the output and it is available on a BNC connector. This sample is useful for checking the characteristics of the carrier, but not of the higher order harmonics.

## 8.10 BIAS card

Main function, of this card, is to check and to correct the polarization voltage (BIAS) of Mosfet in RF amplifier section.

Moreover it supplies the measure of the absorbed current as sum of the absorbed currents from every module and it contains a circuit for the signalling of the breakdowns in the Power Supply.

Without alarm condition, Bias voltage is regulated only in function of output power set up, with a feedback mechanism based on the reading of the effectively distributed power (AGC).

Bias voltage is also influenced from other factors like:

- Excess of reflected voltage
- External AGC signals (Ext. AGC FWD, Ext. AGC RFL,...)
- Excess of temperature
- Excess of absorbed current from a RF module.

## 9. Identification of the Modules

The **TEX1000-LCD** is made up of various modules connected to each other with connectors so as to make maintenance and any required module replacement easy.

### 9.1 Upper view

The 9.1 figure shows the view from above the machine with the various components pointed out.

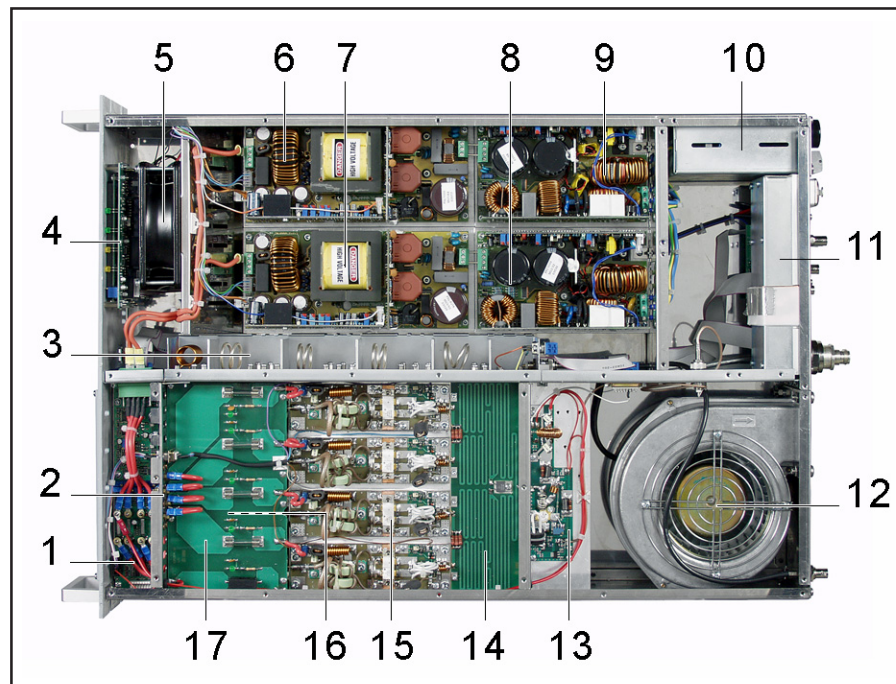


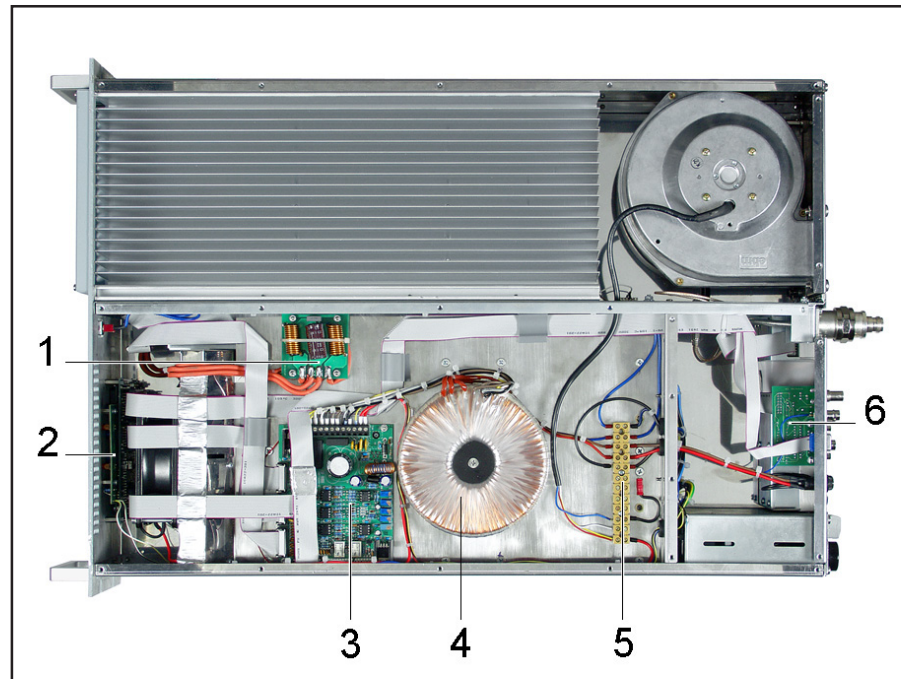
Figure 9.1

- [1] Bias Board (SLBIAS1K3U-2)
- [2] Pass Thru Board (SLFILPJ1KM)
- [3] LPF Board (SLLPFTEX1KL)
- [4] Panel Board (SL007PC2001)
- [5] Impeller FAN1 (VTL4184)
- [6] Alim 50V 25A Module 1 (PSL1000/PJ1K)
- [7] Alim 50V 25A Module 2 (PSL1000/PJ1K)
- [8] Power Factor Module 2 (PFCPSL1000) / Rectifier Module 2 (RCTPSL1000) - Depends on the requested version
- [9] Power Factor Module 1 (PFCPSL1000) / Rectifier Module 1 (RCTPSL1000) - Depends on the requested version
- [10] Surge Protection Board (SLSRGPRPJ1KM)
- [11] Main Board (SLMBDTEXLC04)
- [12] Turbine FAN2 (VTLG1E120)
- [13] Driver Board (SLDRVTEX500L)
- [14] Splitter Card(SLSPLPJ1KC1)
- [15] RF Board (SL010RF1001)
- [16] Combiner Card (SLCMBPJ1KC1)
- [17] Fuse Board(SLFUSRFPJ1KC)



## 9.2 Bottom view

The 9.2 figure shows the view from under the machine with the various components pointed out.



*figura 9.2*

- [1] Filter Card (SLFILPSPJ1KC)
- [2] LED PS Board(SLLEDPSTEX1K)
- [3] Interface Board (SL010IN1001)
- [4] Trasformer TR1 (TRFTEX1000T)
- [5] Bare Terminals MO1 (MORSWDMK3/12)
- [6] Telemetry Board (SLTLMTXLCD03)

## 10. Telemetry (Opt.)

In this chapter are described the potentiality introduced from **TEX1000-LCD/TLM** version and the necessary steps for its corrected configuration.

### 10.1 Telemetry description

The **TEX1000-LCD/TLM** is able to do the managing of the telesignalling through the sent of alarms and the reception of SMS commands with a GSM modem.

The parameters on which is possible activate the alarms are:

- Forward power of the **TEX1000-LCD/TLM** (FWD);
- Reflected power of the **TEX1000-LCD/TLM** (RFL);
- Audio signal absence;
- Mains voltage absence.

For more information on the sent and reception of the SMS messages SMS, see the chapter 11.

The machine have the following parameters by factory:

ALARMS	TIMES	THRESHOLD
Forward Power (Fwd Pwr)	25 Sec.	Power Good (PwG)
Reflected Power (Rfl Pwr)	25 Sec.	100W
Audio	25 Sec. (+5 Min. Start time <sup>1</sup> )	
Overtemperature	25 Sec.	72°C
Mains voltage	5 Min. (Start time <sup>2</sup> )	

<sup>1</sup>: The start time (**adjustable**) of 5 min. avoids that the system sends series of alarm messages when the machine is in switching on state.

<sup>2</sup>: The start time (**adjustable**) of 5 min., delays the MAINS alarm in order to avoid fakes alarms for short interruptions of mains voltage.

After the Start time the **TEX1000-LCD/TLM** controls the parameters thresholds and after the time indicated in table, if still present the alarm condition, comes generated the relative message. It comes, therefore, inserted one new line in the historian of the alarms stored from the **TEX1000-LCD/TLM**, until to a maximum of six.

In order to visualize the alarm is possible to be connected with the unit and visualize it through "TELECON" software, moreover comes forwarded via SMS a message of text with the following information:

- Station Name;
- Station ID;
- List of the measures in alarm.



The MAINS alarm comes generated only through the contact on the charge battery card and introduces a delay on the sent of the SMS equal to the Start Programmabile time from remote, but it doesn't leave trace in the historian.

## 10.2 SIM card installation

Signing a contract with an operator, come gave a SIM card with the relative details about the subscription, like the PIN, the eventual available optional services, and so on.



**WARNING:** The SIM card and its contacts can be easily damaged if they come scratches or bent. Take care when it is handled, the card is put or removed.

The SIM card to insert in the Modem must be enabled to the "Data Services and Fax" (see the contract example represented below).

The configuration of the SIM card for the DATA/FAX reception must have the following characteristic:

- Asynchronous
- Transparent;
- 300-9600 Baud.

The maximum speed of connection is 9600 baud in case of transmission on GSM telephone line.

The image shows a complex form for SIM card activation. A large, diagonal watermark reading "FACSIMILE" is overlaid on the entire form. A red arrow points to the "Servizio Dati e Fax" checkbox, which is checked. Other visible fields include "Nome", "Cognome", "Indirizzo", "Località", "CAP", "Prov.", "Nuovo Personal 195", "Programma Affari", "Programma Persona", "Me 95 034", "Opzione Segreteria", "Esclusione del numero telefonico", "Nominativo o numero telefonico", "Carta di Credito", "Addebito Diretto", "La Carta SIM", "Numero di Serie", "IMEI", "Numero Sottoscrizioni", "Codice del Rivenditore", "Timbro e firma", "Il Numero di Telefono", "Il Numero Dati e Fax", "Le Condizioni Speciali", "Anticipazione sulle Chiamate", "La Firma della Proposta", "Data", "Il Cliente o Delegato", and "La Firma dell'adesione".



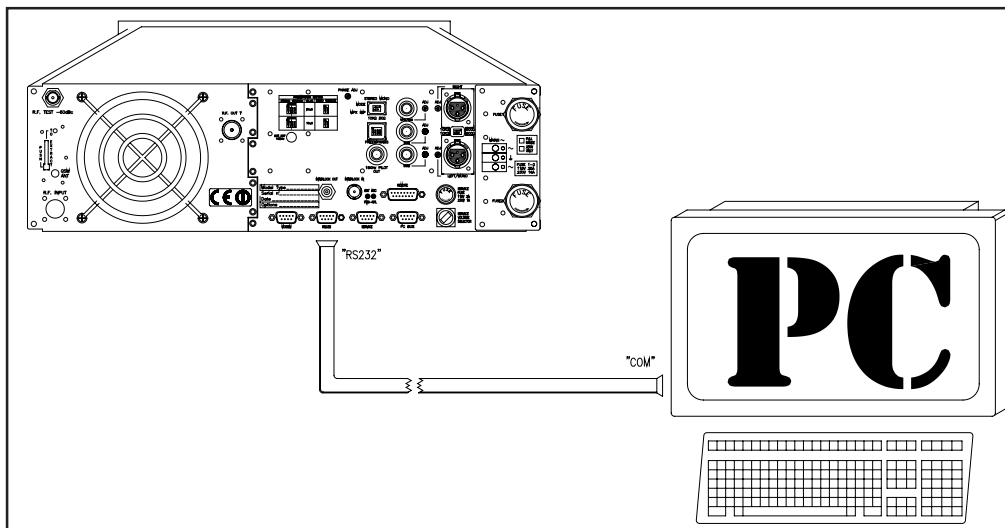
**WARNING:** the SIM card can show the demand for the PIN code, this cause a fault in the normally operation of the Modem. Verify to remove this protection with the support of a common mobile phone.

In order to correctly shape the connect to a **TEX1000-LCD** follow carefully the following instructions:

- 1) If necessary, switch off the **TEX1000-LCD** using the switch placed on the front panel, the FNC menu setting the "Pwr" value in "Off" position, or disconnecting the equipment from the mains power.
- 2) Extract the SIM-container from the "GSM SLOT-IN" lodging, placed on the rear panel, pressing on the indicated points.
- 3) Put the SIM on the SIM-container. Verify that the cut angle is placed to block itself inside the SIM-container, this to try to do that the gilt contacts are turns in the right direction once inserted the SIM inside the machine.
- 4) Insert the SIM card inside the **TEX1000-LCD**.
- 5) Connect the RS232 cable (DB9) between the **TEX1000-LCD** and the PC.
- 6) Connect to the "GSM ANT" (SMA) connector of the **TEX1000-LCD** GSM modem antenna. Use one directive wideband antenna like the Yagi antenna (700- 900 MHz).
- 7) Switch on the **TEX1000-LCD** using the switch place on frontal panel, the FNC menu setting the "Pwr" value in "On" position, or connecting the equipment to the mains power.
- 8) Program the inner EEPROM through the use of "TELECON" software.

## 10.3 Alarms Telesignalling configuration

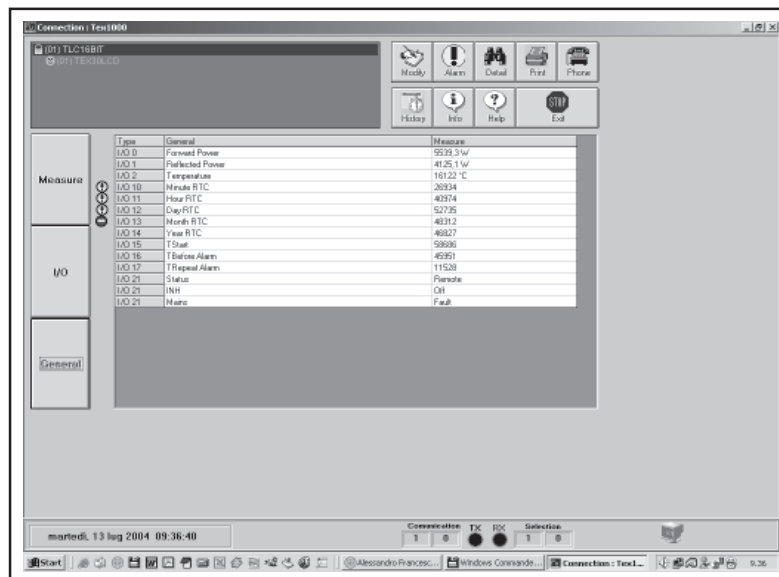
As first operation is necessary to set up correctly some parameter in the **TEX1000-LCD** through "TELECON" software. Connect, therefore, through a standard serial cable (DB9 Male - DB9 Female) the COM serial port of the PC with the RS232 connector present on the rear panel of the **TEX1000-LCD**.



The first time that "TELECON" software come used, after that you have chosen the station, it is necessary to insert:

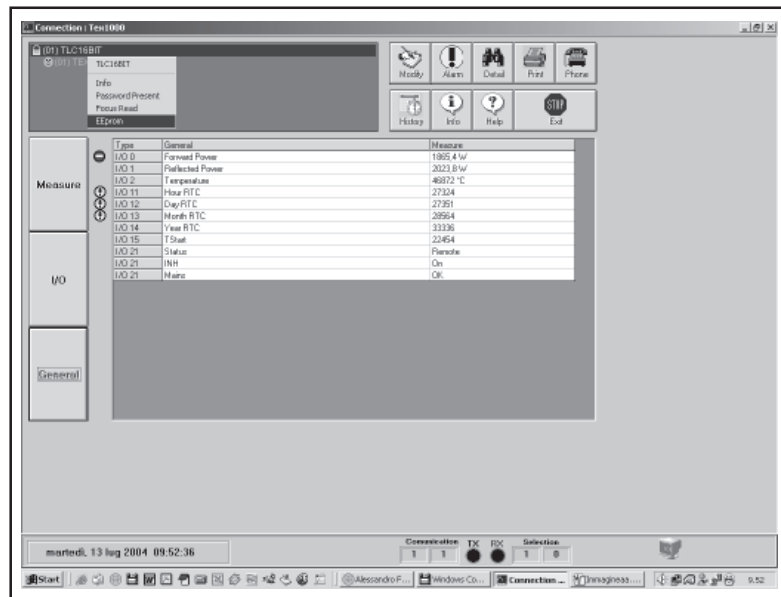
- the COM port used,
- the Baud rate (set up 9600),
- the kind of connection (set up direct via cable).

Once that the correct data are inserted, click on the "Start" button in order to confirm, it is entered in the main window of the "TELECON", like represented in figure:



Use this window in order to modify the Start time. In order to modify the parameter click with the left key of the mouse on "TStart" (standard set up to 300sec., equal to 5 min.), it will be opened a new window where it will be possible modify the value. Press enter in order to confirm.

Make double click on the green written, placed up on the left, that appears in the TELECON and select the "Eeprom" voice (like shown in the figure below).



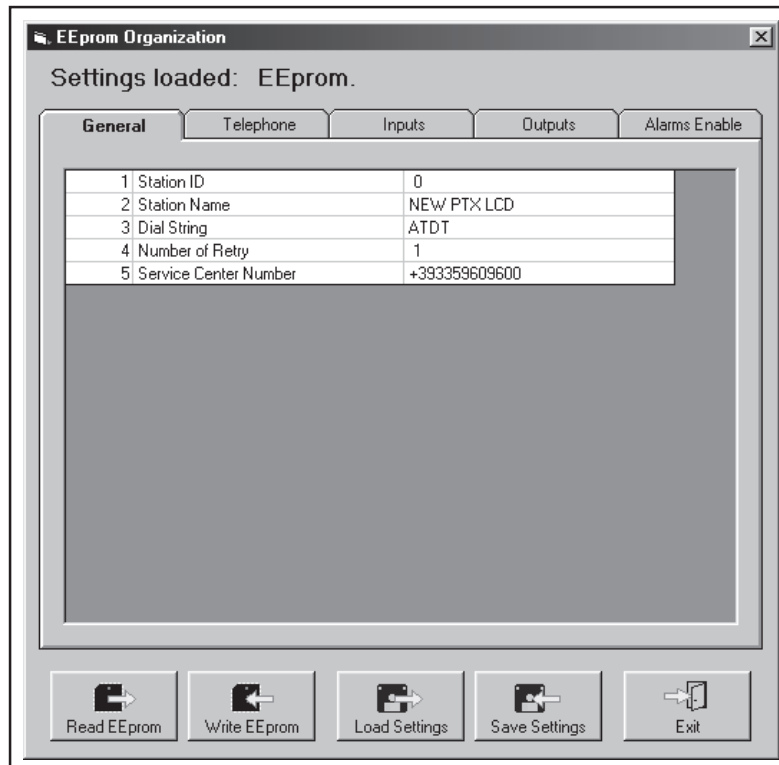
From the open menu press this key in order to read the parameters from the station.

Select the “General” data category and set up the 5 demands parameters:

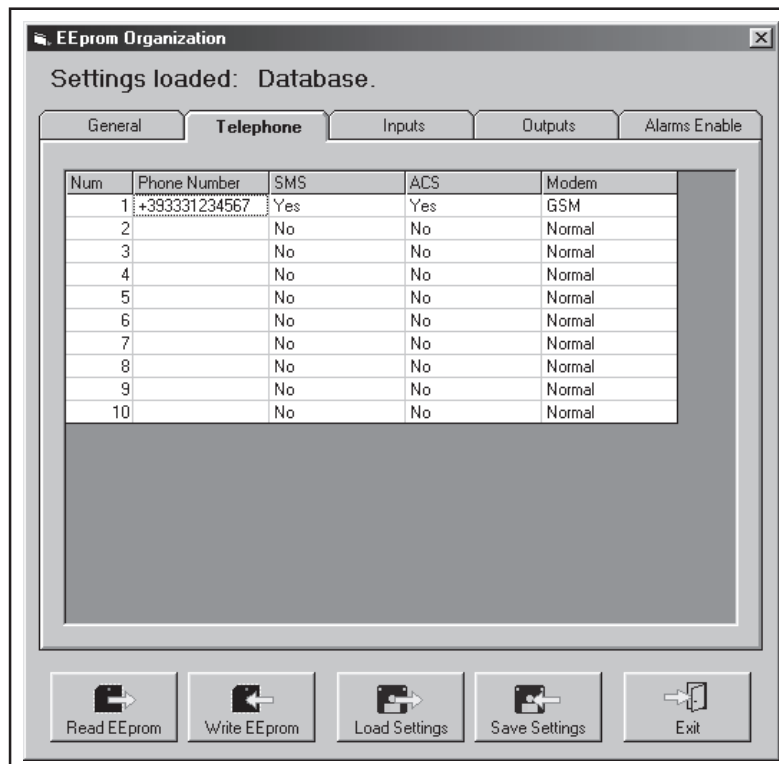
- **STATION ID:** Station identify number;
- **STATION NAME:** Station name (max 18 characters);
- **DIAL STRING:** for a GSM modem must be ATDT;
- **NUMBER OF RETRY:** number of retry of sent of the alarm;
- **SERVICE CENTER NUMBER:** service center number of the GSM operator for the sent and reception of SMS, preceded from the international code.

Example for the Italy:

TIM: +393359609600  
 VODAFONE: +393492000200  
 WIND: +393205858500



Select now the “Telephone” data category and set up:



- **PHONE NUMBER:** GSM telephone number recognized from the station to which sending the tele signalling;
- **SMS:** selecting “YES”, the sent of SMS command to the system is enabled;
- **ACS:** selecting “YES”, the SMS reception is enabled.



**Note:** For a corrected sent, the set up number must be prefixed from international code +XX (+39 for Italy).



Once completed the data set up, press this key to stored the information on the **TEX1000-LCD**.

Finished this operation, exit from the program window of the remote station by click on “Exit”.

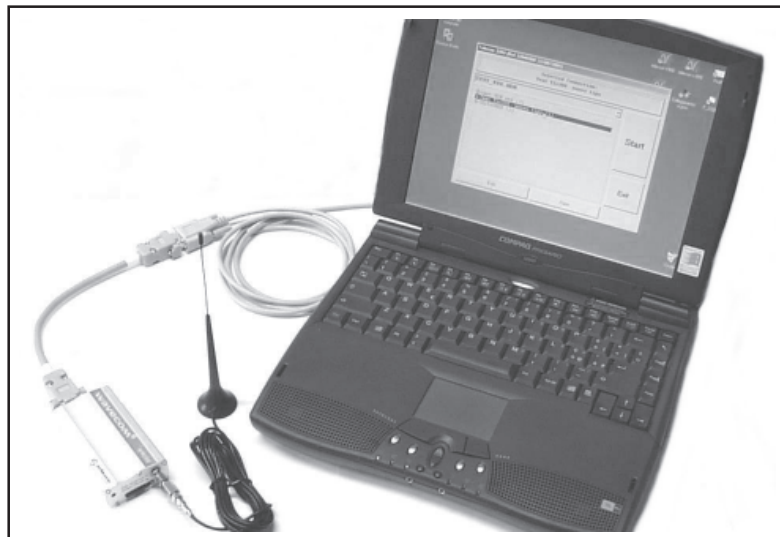
Return on the standard interface of the “TELECON” software, by a click on the chosen key of the “General” measures, is now possibile set up the threshold and the intervention times of the various alarms, following the logic illustrated on the “Alarms Management” chapter.



**Note:** in the choice of the alarms intervention thresholds is advisable to consider always a margin of some percentages points regarding the operation values at capacity.

## 10.4 Remote Control

Through the PC, opportunely connected to a modem, it is possible to carry out the reading of all the parameters of the **TEX1000-LCD**.



The “TELECON” software supplies the connection with the station through the telephone line and realizing the typical operations like: reset of all the alarms, switching on and switching off the transmitter, lowering of the feeding, supply to the tests on the dummy load, etc., therefore through the analysis, to find the eventual faults and to indicate spare parts necessary to repair it.



## 11. System Status Enquiries

### 11.1 Local enquiries

The **TEX1000-LCD** device indicate their status locally and concisely by means of the indicator lights on the front panel. More detailed information can be obtained from the setting and configuration menus.

### 11.2 Remote enquiries with remote control software (Opt.)

A PC with the "TELECON" telemetry and remote control software can be used to obtain a very detailed view of all system operating parameters and of all the settings both of the equipment and the devices connected to said equipment.

### 11.3 Remote enquiries with GSM modem + SMS

Any GSM mobile telephone can be used to query the devices with this system. The device will respond as outlined in the tables in the sections below.

Before querying the system by means of SMS messages, you must be connected by means of the "TELECON" program and set the number of the selected phone Service Center as well as the telephone numbers that can send this type of command to the devices (for the necessary operations see the chapter 10).

#### 11.3.1 List of the commands that can be sent via SMS

- Commands that can be sent to **TEX1000-LCD**:

<b>INFO</b>	Sent of the information on the system operation state
<b>TXON</b>	Switch On <b>TEX1000-LCD</b> "OnAir"
<b>TXOFF</b>	Switch off <b>TEX1000-LCD</b> "OnAir"
<b>ALARM</b>	Sent of the information on the present alarms in the <b>TEX1000-LCD</b> list (the command supplies the list of the last 6 alarms available in memory).
<b>RESET</b>	Reset of all the alarms stored

- Example of answer sent from the **TEX1000-LCD**, after the demands via SMS:

<b>INFO</b>	Station: "nome stazione"- ID: "numero identificativo"- FWD: "valore assoluto"- RFL: "valore assoluto"- Temp: "valore assoluto"- TX On (oppure TX Off)- Alarm Present / Alarm Absent
<b>TXON</b>	Station: "nome stazione"- ID: "numero identificativo"- TX is On -
<b>TXOFF</b>	Station: "nome stazione"- ID: "numero identificativo"- TX is Off -
<b>ALARM</b>	Station: "nome stazione"- ID: "numero identificativo"- Alarm: "lista allarmi in memoria"
<b>RESET</b>	Station: "nome stazione"- ID: "numero identificativo"- ALARM RESET OK-



**Note:** in order that the answer or the command demanded is effectively elaborates from the **TEX1000-LCD**, is necessary that the GSM number which comes the demand is stored on the number list of the **TEX1000-LCD**. Only to the INFO SMS the **TEX1000-LCD** answers to whichever number origin of the demand.