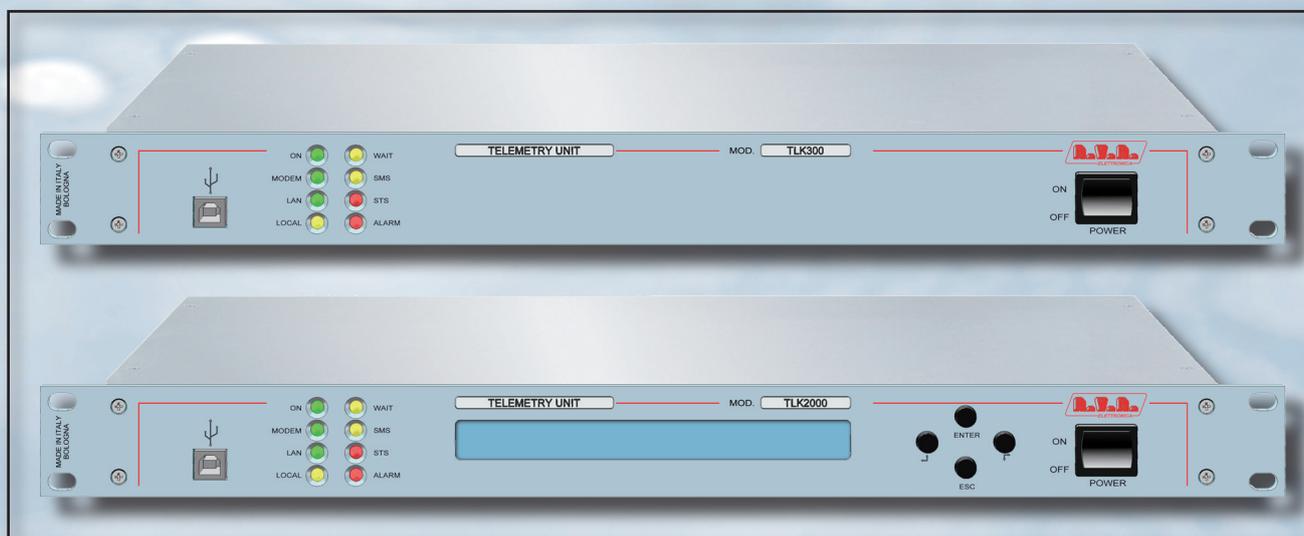




# TLK300 & TLK2000 ( /V5, /V6 , /V7 & /V8 )

USER MANUAL  
VOLUME1



**File Name:** TLK300\_2000\_V5-V6-V7-V8\_ING\_1.0.indb

**Version:** 1.0

**Date:** 25/07/2014

### Revision History

Date	Version	Reason	Editor
25/07/2014	1.0	First Version	J. H. Berti

TLK300 & TLK2000 ( /V5, /V6 , /V7 & /V8 ) - User Manual  
Version 1.0

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#### 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.





## DECLARATION OF CONFORMITY

**We, the undersigned,**

Manufacturer's Name: **R.V.R. Elettronica SpA**

Manufacturer's Address: **Via del Fonditore 2/2c  
Zona Ind. Roveri  
40138 Bologna  
Italy**

**Certify and declare under our sole responsibility that the product:**

Product Description: **Telemetry Unit**

Models: **TLK2000**

Variants: **TLK300**

**when used for its intended purpose, is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/CE "R&TTE", and therefore carries the "CE" mark.**

The conformity assessment procedure referred in Article 10 and detailed in Annex III of Directive 1999/5/EC has been followed.

The following harmonized standard have been applied:

**ElectroMagnetic Compatibility (3.1b):** EN 301 489-1 V1.9.2 (2011-09) +  
EN 301 489-11 V1.3.1 (2006-05)

**Safety (3.1a):** EN 60215 (1997-10) +  
EN 60065 (2011-01)

The technical documentation is held at the location above, as required by the conformity assessment procedure.

Bologna, Italia, 20/06/2013



  
Ravagnani Stefano  
Direttore Tecnico  
R.V.R. Elettronica S.p.A.

# Technical Description

			TLK300	TLK2000	
Parameters	Conditions	U.M.	Value		Notes
<b>GENERALS</b>					
Ambient working temperature		°C	-10 to + 50	-10 to + 50	Whithout condensing
<b>POWER REQUIREMENTS</b>					
AC Power Input	AC Supply Voltage	VAC	80 - 260 (*)	80 - 260 (*)	(*) Full range (**) Internal switch
	Active Power Consumption	W	25	25	
	Connector		VDE IEC Standard	VDE IEC Standard	
DC Power Input	DC Supply Voltage	VDC	12	12	
	DC Current	ADC	< 3	< 3	(*)max 25W (**) max 140W
<b>FUSES</b>					
On Mains			1 External fuse F 1 A F - 5X20 mm	1 External fuse F 1 A F - 5X20 mm	
<b>MECHANICAL DIMENSIONS</b>					
Physical Dimensions	Front panel width	mm	483 (19")	483 (19")	19" EIA rack
	Front panel height	mm	44 1HE	44 1HE	
	Overall depth	mm	263	263	
	Chassis depth	mm	239	239	
Weight		kg	about 4,3	about 4,9	
<b>INTERFACES</b>					
Signalling LEDs			Yes	Yes	
Display	40x2 Alphanumerical		No	Yes	
Push buttons	4 (UP, DOWN , ENTER, ESC)		No	Yes	
USB	TELECON Protocol		Yes	Yes	
RS232	TELECON Protocol		Yes	Yes	
RS 485	PLUS-IN protocol		Yes (only on WEB+GSM versions)	Yes (only on WEB+GSM versions)	
i²C			Yes	Yes	
RJ45	LAN		Yes (only on WEB versions)	Yes (only on WEB versions)	
SIM slot & ANTENNA			Yes (only on GSM versions)	Yes (only on GSM versions)	
<b>VARIOUS</b>					
Cooling			Convection cooling	Convection cooling	
Acoustic Noise		dBA	0	0	

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## IMPORTANT



The symbol of lightning inside a triangle placed on the product, evidences the operations for which is necessary gave it full attention to avoid risk of electric shocks.



The symbol of exclamation mark inside a triangle placed on the product, informs the user about the presence of instructions inside the manual that accompanies the equipment, important for the efficacy and the maintenance (repairs).

## 1. Preliminary Instructions

### • General foreword

The equipment in object is to considering for uses, installation and maintenance from "trained" or "qualified" staff, they conscious of the risks connected to operate on electronic and electrical circuits electrical.

The "trained" definition means staff with technical knowledge about the use of the equipment and with responsibility regarding the own safety and the other not qualified staff safety place under his directed surveillance in case of works on the equipment.

The "qualified" definition means staff with instruction and experience about the use of the equipment and with responsibility regarding the own safety and the other not qualified staff safety place under his directed surveillance in case of works on the equipment.

**⚡ WARNING: The machine can be equipped with an ON/OFF switch which could not remove completely voltages inside the machine. It is necessary to have disconnected the feeding cord, or to have switched off the control panel, before to execute technical operations, making sure himself that the safety connection to ground is connected.**

**The technical interventions that expect the equipment inspection with circuits under voltage must be carry out from trained and qualified staff in presence of a second trained person that it is ready to intervene removing voltage in case of need.**

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.

**⚡ WARNING: The equipment is not water resistant and an infiltration could seriously compromise its correct operation. In order to prevent fires or electric shocks, do not expose the equipment to rain, infiltrations or humidity.**

Please observe all local codes and fire protection standards during installation and use of this unit.

**⚡ WARNING: The equipment has to its inside exposed parts to risk of electric shock, always disconnect power before opening covers or removing any part of this unit.**

Fissures and holes are supplied for the ventilation in order to assure a reliable efficacy of the product that for protect itself from excessive heating, these fissures do not have to be obstructed or to be covered. The fissures doesn't be obstructed in no case. The product must not be incorporated in a rack, unless it is supplied with a suitable ventilation or that the manufacturer's instructions are been followed.

**⚠ WARNING: This equipment can irradiate radio frequency energy and if it's not installed following the instructions contained in the manual and local regulations it could generate interferences in radio communications.**



**WIRING: This device has a connection to ground on the power cord and on the chassis. Check that they are correctly connected.**

Operate with this device in a residential ambient can cause radio disturbs; in this case, it can be demanded to the user to take adequate measures.

Specifications and informations contained in this manual are furnished for information only, and are subject to change at any time without notice, and should not be construed as a commitment by **R.V.R. Elettronica SpA**.

The **R.V.R. Elettronica SpA** assumes no responsibility or liability for any errors or inaccuracies that may appear in this manual, including the products and software described in it; and it reserves the right to modify the design and/or the technical specifications of the product and this manual without notice.

**• Warning regarding the use designated and the use limitations of the product.**

This product is an transmitter radio indicated for the audio broadcasting service in frequency modulation. It uses working frequencies that are not harmonized in the states of designated user.

The user of this product must obtain from the Authority for spectrum management in the state of designated user the appropriate authorization to use the radio spectrum, before putting in exercise this equipment.

The working frequency, the transmitter power, let alone other specifications of the transmission system are subject to limitation and defined in the authorization obtained.

## 2. Warranty

**R.V.R. Electronics S.P.A.** guarantees absence of manufacturing defect and the good operation for the products, within the provided terms and conditions.

Please read the terms carefully, because the purchase of the product or acceptance of order confirmation, constitutes acceptance of the terms and conditions.

For the last legal terms and conditions, please visit our web site ([WWW.RVR.IT](http://WWW.RVR.IT)) wich may also be changed, removed or updated for any reason without prior notice.

Warranty will be void in cases of opened products, physical damage, misuse, modification, repair by unauthorised persons, carelessness and using the product for other purpose than its intended use.

In case of defect, proceed like described in the following:

- 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**

- 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**).

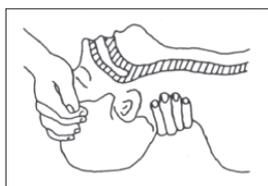


Figure 1

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



Figure 2

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

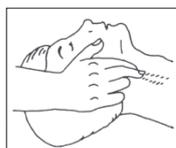


Figure 3



Figure 4

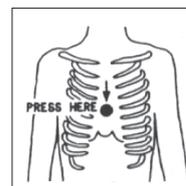


Figure 5

- In case of only one rescuer, 15 compressions alternated to two breaths.
- If there are two rescuers, the rhythm shall be of one breath each 5 compressions.
- Do not interrupt the rhythm 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 **TLK300** and the **TLK2000**, manufactured by R.V.R. Elettronica SpA, are telemetry systems that allows an immediate intervention in case of fault, thanks to the radio station remote control. Equipment great flexibility makes it possible to control a high number of devices or to modify the station layout. This operation does not involve any radical changes of the control system, it is simply a matter of adding expansion boards that will increase the number of operating parameters the system can manage.

**TLK300** and **TLK2000** are designed to being contained into a 19" rack box of 1HE.

### 4.1 Unpacking

The package contains:

- 1 **TLK300** or **TLK2000**
- 1 User Manual
- 1 Cavo di Alimentazione da Rete

The following accessories are also available from Your R.V.R. Dealer:

- **Accessories, spare parts and cables**

### 4.2 Features

The **TLK300**, and **TLK2000**, telemetry device manage and control the alarms, send/receive text messages (SMS), connect to external/internal GSM and PSTN modems, WEB interfaces, send EMAIL and use the telecon control software designed by RVR. The various function depend on product versions.

On the front panel there is also a set of LEDs, again depending on the preset configuration, which show system status at a glance.

In the case of the model **TLK2000** is also present on the front panel is a clear user interface which allows you to read and set the operating parameters; the entire system can be controlled using the keys.

On rear panel are present all connectors to be used for connections to various components of the station.

The **TLK300**, and **TLK2000**,telemetry system and relative management software were designed to solve all of those problems arising from the management of radio stations located in areas that are not easily reached or which would require a significant amount of time for the operator to reach.

The system has the following main functions (the functions depends on version used) :

- Management and control of alarms;
- Telemetrization of operating parameters of device present in each station;
- Sending and receiving of SMS;
- Connecting to modem External / Internal GSM and PSTN;
- WEB interfaces;
- Sending of MAIL;
- Use of TELECON management software developed by RVR;
- Storage of events that caused faults.

This system allows remote management of the radio station, allowing the operator to intervene immediately in the event of a fault.

On the rear panel are all of the connectors to be used for connecting the device to the various station components.

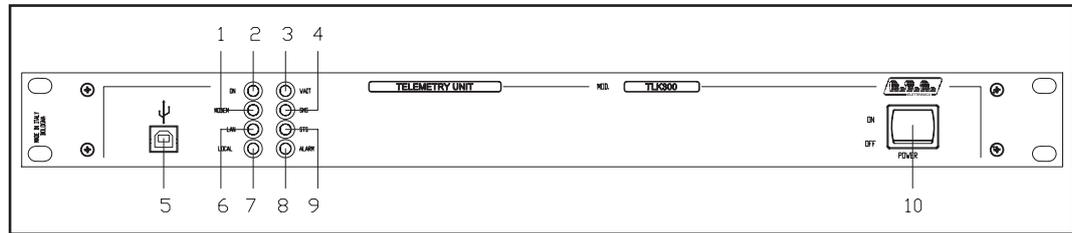
The TELECON management software is easy to understand, as well as the WEB interface used for remote management of the device it is fully compatible with all browsers.

The **TLK300**, and **TLK2000**, telemetry system comes in different configurations summarized below:

- Version **V5**: serial telemetry unit for transmitter of Plug-in family.
- Version **V6**: GSM telemetry unit for transmitter of Plug-in family.
- Version **V7**: WEB telemetry unit for transmitter of Plug-in family.
- Version **V8**: GSM e WEB telemetry unit for transmitter of Plug-in family.

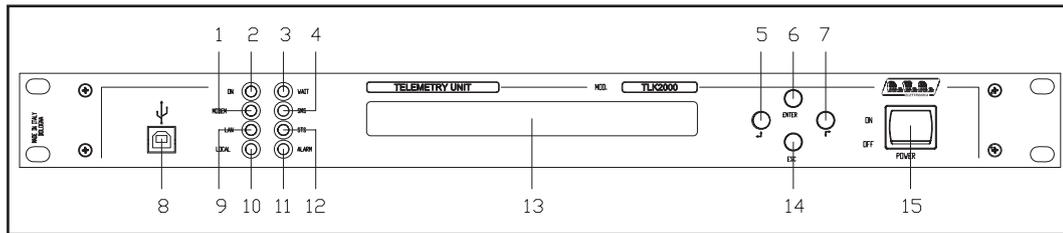
## 4.3 Frontal Panel Description

### 4.3.1 Frontal Panel Description of TLK300



- |            |   |
|------------|---|
| [1] MODEM  | Green LED, turns on when modem is connected and it is properly initialized.   |
| [2] ON     | Green LED, turns on when the equipment is connected to mains power supply.  |
| [3] WAIT   | Yellow LED, when flashing indicates the Start up of equipment. When on, indicates that Start time is active. No alarm messages will be sent until this LED turns off. |
| [4] SMS    | Yellow LED, indicates that it is transmitting an alarm signal by SMS.   |
| [5] USB    | USB Type B connector for programming of firmware and local interfacing with TELECON software.   |
| [6] LAN    | The USB connection automatically puts the unit in local mode. Green LED, turns on when the LAN option is present and properly communicating.                          |
| [7] LOCAL  | Yellow LED, turns on when the equipment is in local operating status.   |
| [8] ALARM  | Red LED, turns on when an alarm is present in the alarm list.   |
| [9] STS    | Red LED, turns on when one of alarm condition is present.   |
| [10] POWER | ON/OFF switch.  |

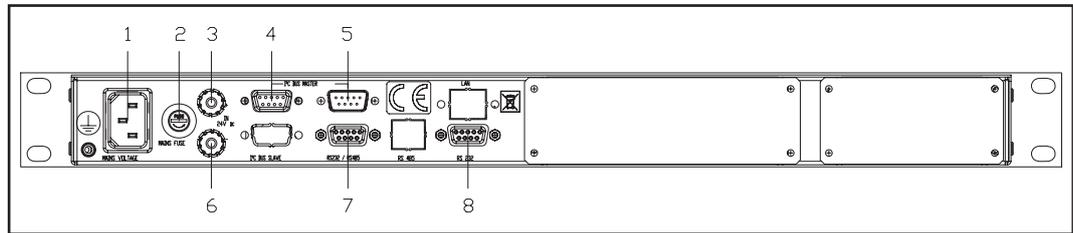
## 4.3.2 Frontal Panel Description of TLK2000



- |              |   |
|--------------|---|
| [1] MODEM    | Green LED, turns on when modem is connected and it is properly initialized.   |
| [2] ON       | Green LED, turns on when the equipment is connected to mains power supply.  |
| [3] WAIT     | Yellow LED, when flashing indicates the Start up of equipment. When on, indicates that Start time is active. No alarm messages will be sent until this LED turns off. |
| [4] SMS      | Yellow LED, indicates that it is transmitting an alarm signal by SMS.   |
| [5]          | Push button to move in the menu system and to modify the parameters.  |
| [6] ENTER    | Push button to confirm a parameter and to enter in a menu.  |
| [7]          | Push button to move in the menu system and to modify the parameters.  |
| [8] USB      | USB Type B connector for programming of firmware and local interfacing with TELECON software.   |
| [9] LAN      | The USB connection automatically puts the unit in local mode. Green LED, turns on when the LAN option is present and properly communicating.                          |
| [10] LOCAL   | Yellow LED, turns on when the equipment is in local operating status.   |
| [11] ALARM   | Red LED, turns on when an alarm is present in the alarm list.   |
| [12] STS     | Red LED, turns on when one of alarm condition is present.   |
| [13] DISPLAY | Liquid crystals display.  |
| [14] ESC     | Push button to exit from a menu.  |
| [15] POWER   | ON/OFF switch.  |

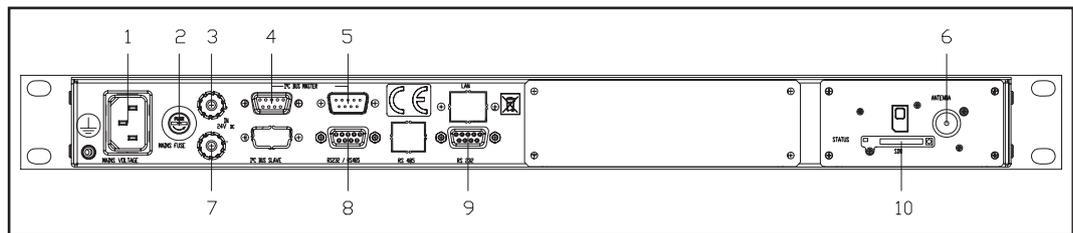
## 4.4 Rear Panel Description

### 4.4.1 Rear Panel Description of TLK300&2000 /V5



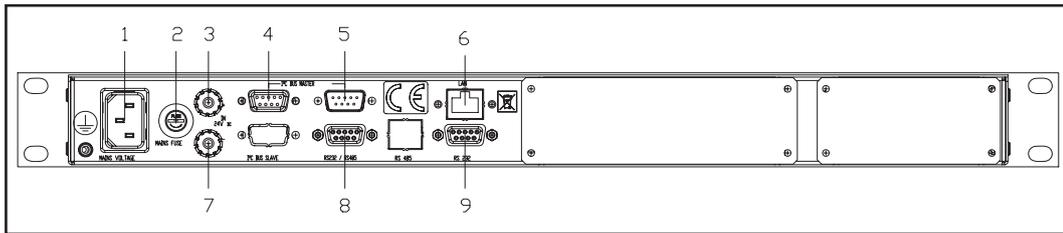
- |                          |   |
|--------------------------|---|
| [1] PLUG                 | VDE mains power supply connector.   |
| [2] MAINS FUSE           | Fuse carrier. Use a screwdriver to access the fuse.   |
| [3] 12 VDC IN +          | External 12Vdc supply input. Positive (red).  |
| [4] I <sup>2</sup> C BUS | DB9 female connector, for I <sup>2</sup> C sampling.  |
| [5] I <sup>2</sup> C BUS | DB9 male connector, for I <sup>2</sup> C sampling.  |
| [6] 12 VDC IN -          | External 12Vdc supply input. Negative (black).  |
| [7] RS232 / 485          | DB9 female connector for serial sampling.   |
| [8] RS232                | DB9 connector for direct serial communication with the TELECON program and software update in exchange with frontal USB socket. |

### 4.4.2 Rear Panel Description TLK300&2000 /V6



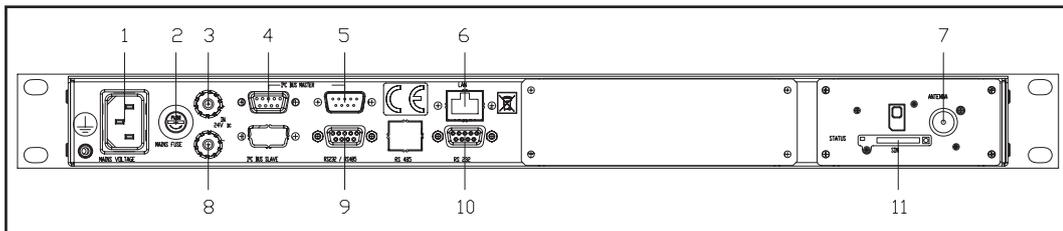
- |                          |   |
|--------------------------|---|
| [1] PLUG                 | VDE mains power supply connector.   |
| [2] MAINS FUSE           | Fuse carrier. Use a screwdriver to access the fuse.   |
| [3] 12 VDC IN +          | External 12Vdc supply input. Positive (red).  |
| [4] I <sup>2</sup> C BUS | DB9 female connector, for I <sup>2</sup> C sampling.  |
| [5] I <sup>2</sup> C BUS | DB9 male connector, for I <sup>2</sup> C sampling.  |
| [6] ANTENNA              | SMA female connector for connection to a GSM antenna.   |
| [7] 12 VDC IN -          | External 12Vdc supply input. Negative (black).  |
| [8] RS232 / 485          | DB9 female connector for serial sampling.   |
| [9] RS232                | DB9 connector for direct serial communication with the TELECON program and software update in exchange with frontal USB socket. |
| [10] SIM                 | SIM card tray.<br>On the left side there is a status LED.<br>On the right side there is the eject button for SIM card tray.     |

## 4.4.3 Rear Panel Description TLK300&2000 /V7



- |                          |   |
|--------------------------|---|
| [1] PLUG                 | VDE mains power supply connector.   |
| [2] MAINS FUSE           | Fuse carrier. Use a screwdriver to access the fuse.   |
| [3] 12 VDC IN +          | External 12Vdc supply input. Positive (red).  |
| [4] I <sup>2</sup> C BUS | DB9 female connector, for I <sup>2</sup> C sampling.  |
| [5] I <sup>2</sup> C BUS | DB9 male connector, for I <sup>2</sup> C sampling.  |
| [6] LAN                  | RJ45 connector for TCP/IP communication.  |
| [7] 12 VDC IN -          | External 12Vdc supply input. Negative (black).  |
| [8] RS232 / 485          | DB9 female connector for serial sampling.   |
| [9] RS232                | DB9 connector for direct serial communication with the TELECON program and software update in exchange with frontal USB socket. |

## 4.4.4 Rear Panel Description TLK300&2000 /V8

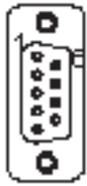


- |                          |   |
|--------------------------|---|
| [1] PLUG                 | VDE mains power supply connector.   |
| [2] MAINS FUSE           | Fuse carrier. Use a screwdriver to access the fuse.   |
| [3] 12 VDC IN +          | External 12Vdc supply input. Positive (red).  |
| [4] I <sup>2</sup> C BUS | DB9 female connector, for I <sup>2</sup> C sampling.  |
| [5] I <sup>2</sup> C BUS | DB9 male connector, for I <sup>2</sup> C sampling.  |
| [6] LAN                  | RJ45 connector for TCP/IP communication.  |
| [7] ANTENNA              | SMA female connector for connection to a GSM antenna.   |
| [8] 12 VDC IN -          | External 12Vdc supply input. Negative (black).  |
| [9] RS232 / 485          | DB9 female connector for serial sampling.   |
| [10] RS232               | DB9 connector for direct serial communication with the TELECON program and software update in exchange with frontal USB socket. |
| [11] SIM                 | SIM card tray.<br>On the left side there is a status LED.<br>On the right side there is the eject button for SIM card tray.     |

## 4.5 Connectors Description

### 4.5.1 RS232

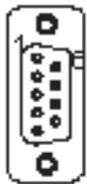
Type: Female DB9



- |   |      |
|---|------|
| 1 | NC   |
| 2 | TX_D |
| 3 | RX_D |
| 4 | NC   |
| 5 | GND  |
| 6 | NC   |
| 7 | NC   |
| 8 | NC   |
| 9 | NC   |

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

Type: Male DB9



- |   |     |
|---|-----|
| 1 | NC  |
| 2 | SDA |
| 3 | SCL |
| 4 | NC  |
| 5 | GND |
| 6 | NC  |
| 7 | NC  |
| 8 | NC  |
| 9 | NC  |

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

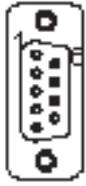
Type: Female DB9



- |   |     |
|---|-----|
| 1 | NC  |
| 2 | SDA |
| 3 | SCL |
| 4 | NC  |
| 5 | GND |
| 6 | NC  |
| 7 | NC  |
| 8 | NC  |
| 9 | NC  |

## 4.5.4 RS485

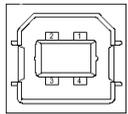
Type: Female DB9



- 1 RS485 +
- 2 IC internally connected. Do not use.
- 3 GND
- 4 NC
- 5 IC internally connected. Do not use.
- 6 RS485 -
- 7 NC
- 8 NC
- 9 NC

## 4.5.5 USB

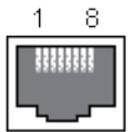
Type: Female type-B



- 1 +V In
- 2 D-
- 3 D+
- 4 GND

## 4.5.6 LAN

Type: female RJ45



- 1 TX+
- 2 TX-
- 3 RX+
- 4 NC
- 5 NC
- 6 RX-
- 7 NC
- 8 NC

## 5. Quick guide for installation and use

This section provides a step-by-step description of equipment installation and configuration procedure. Follow these procedures closely upon first power-on and each time any change is made to general configuration, such as when a new transmission station is added or the equipment is replaced.

Once the desired configuration has been set up, no more settings are required for normal operation; at each power-up (even after an accidental shutdown), the equipment defaults to the parameters set during the initial configuration procedure.

The topics covered in this section are discussed at greater length in the next sections, with detailed descriptions of all hardware and firmware features and capabilities. Please see the relevant sections for additional details.



**IMPORTANT:** When configuring and testing the transmitter in which the equipment is integrated, be sure to have the Final Test Table supplied with the equipment ready at hand throughout the whole procedure; the Final Test Table lists all operating parameters as set and tested at the factory.

### 5.1 Preparation

#### 5.1.1 Preliminary checks

Unpack the transmitter and immediately inspect it for transport damage. Ensure that all connectors are in perfect condition.

The main fuse can be accessed from the outside on the rear panel. Extract the fuse carrier with a screwdriver to check its integrity or for replacement, if necessary. The fuse to be used is this type:

	@ 230 ±15% Vac
TLK300 & TLK2000 @ 230 Vac/115 Vac	(1x) 2A type 5x20

Table 5.1: Fuses

Provide for the following (applicable to operating tests and putting into service):

- ✓ Single-phase mains power supply, with adequate earth connection.
- ✓ Connection cable kit (**NOT INCLUDED**), including:
  - Cables for telemetry signals and sampling.
  - If a LAN output is present: Ethernet cable (with RJ45 connector) for connection to ADSL router or LAN.

### 5.1.2 Connections



**Note:** the mains must be equipped with adequate earth connection properly connected to the equipment. This is a pre-requisite for ensuring operator safety and correct operation.

Connect the sampling cables of **TLK300** or **TLK2000** sources to output connectors of system to telemetric data, such as the **REMOTE** connector of transmitters.

If LAN output is present, connect the **ETHERNET** output of **TLK300** or **TLK2000** to the appropriate input of your ADSL router or LAN network. If the connecting device was different, identify an equivalent.

Connect the mains cable to the corresponding connector MAINS on **TLK300** or **TLK2000**.

### 5.1.3 Dip Switch configuration

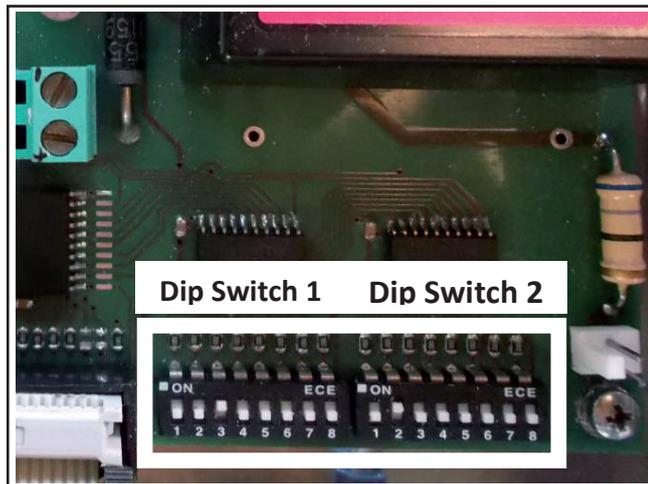


Photo 5.1: Dip Switch

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Modem None																
Modem PSTN Option	x															
Modem GSM Option		x														
Lan Option			x													
Not used				x												
Config TX									x	x	x	x	x	x		
Not used					x	x	x	x							x	x

Table 5.2: Dip Switch

Dip Switch, from position 6 to position 1 (CONFIG TX), is to set as binary number based on the configuration number to which reference is made (for example the configuration 12 is equal to 000110, or the configuration 20 is equal to 000101).



**Note:** for insights on possible configurations, and on correct setting of dip switch, read the chapter on Configurations present in the following of this manual.

### 5.1.3.1 Configuration of transmitter Version from V5 to V8

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 01	1		3	4	5										
Config 02	1		3	4	5	6	7								
Config 03	1		3	4	5	6	7	8							
Config 04	1		3	4	5	6	7	8	9						
Config 05	1		3	4	5	6	7	8	9	10					
Config 06	1		3	4	5	6	7	8	9	10	11				
Config 07	1		3	4	5	6	7	8	9	10	11	12			
Config 08	1		3	4	5	6	7	8	9	10	11	12	13		
Config 09	1		3	4	5	6	7	8	9	10	11	12	13	14	
Config 10	1		3	4	5	6	7	8	9	10	11	12	13	14	15
Config 11	1	2	3	4	5										
Config 12	1	2	3	4	5	6	7								
Config 13	1	2	3	4	5	6	7	8							
Config 14	1	2	3	4	5	6	7	8	9						
Config 15	1	2	3	4	5	6	7	8	9	10					
Config 16	1	2	3	4	5	6	7	8	9	10	11				
Config 17	1	2	3	4	5	6	7	8	9	10	11	12			
Config 18	1	2	3	4	5	6	7	8	9	10	11	12	13		
Config 19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Config 20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 21	1		3	4	5										
Config 22	1		3	4	5	6	7								
Config 23	1		3	4	5	6	7	8							
Config 24	1		3	4	5	6	7	8	9						
Config 25	1		3	4	5	6	7	8	9	10					
Config 26	1		3	4	5	6	7	8	9	10	11				
Config 27	1		3	4	5	6	7	8	9	10	11	12			
Config 28	1		3	4	5	6	7	8	9	10	11	12	13		
Config 29	1		3	4	5	6	7	8	9	10	11	12	13	14	
Config 30	1		3	4	5	6	7	8	9	10	11	12	13	14	15
Config 31	1	2	3	4	5										
Config 32	1	2	3	4	5	6	7								
Config 33	1	2	3	4	5	6	7	8							
Config 34	1	2	3	4	5	6	7	8	9						
Config 35	1	2	3	4	5	6	7	8	9	10					
Config 36	1	2	3	4	5	6	7	8	9	10	11				
Config 37	1	2	3	4	5	6	7	8	9	10	11	12			
Config 38	1	2	3	4	5	6	7	8	9	10	11	12	13		
Config 39	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Config 40	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Table 5.3: TX configurations in versions from V5 to V8

## 5.2 Management Firmware



**Note:** For better clarity, only the typical screens of **TLK2000** are reported below. The **TLK300** model is not equipped with LCD display.

The equipment features an LCD with two lines by 16 characters that displays a set of menus. The figure below provides an overview of equipment menus.

The symbols listed below appear in the left portion of the display as appropriate:

- (Cursor) - Highlights selected (i.e. accessible) menu.
- ▶ (Filled arrow) - Editable parameter marker. This symbol appears in menus that take up more than two lines to aid browsing.
- ▶▶▶ (Three empty arrows) - Parameter is being edited.
- ▷ (Empty arrow) - Current line marker; the parameter in this line cannot be edited. This symbol appears in menus that take up more than two lines to aid browsing.

Switch on the equipment and verify that the led ON is lit. The LCD will display an indication of the status of operation about modem and Lan.

```
Modem : Not in use
Lan    : Not in use
```

*Menu 1*

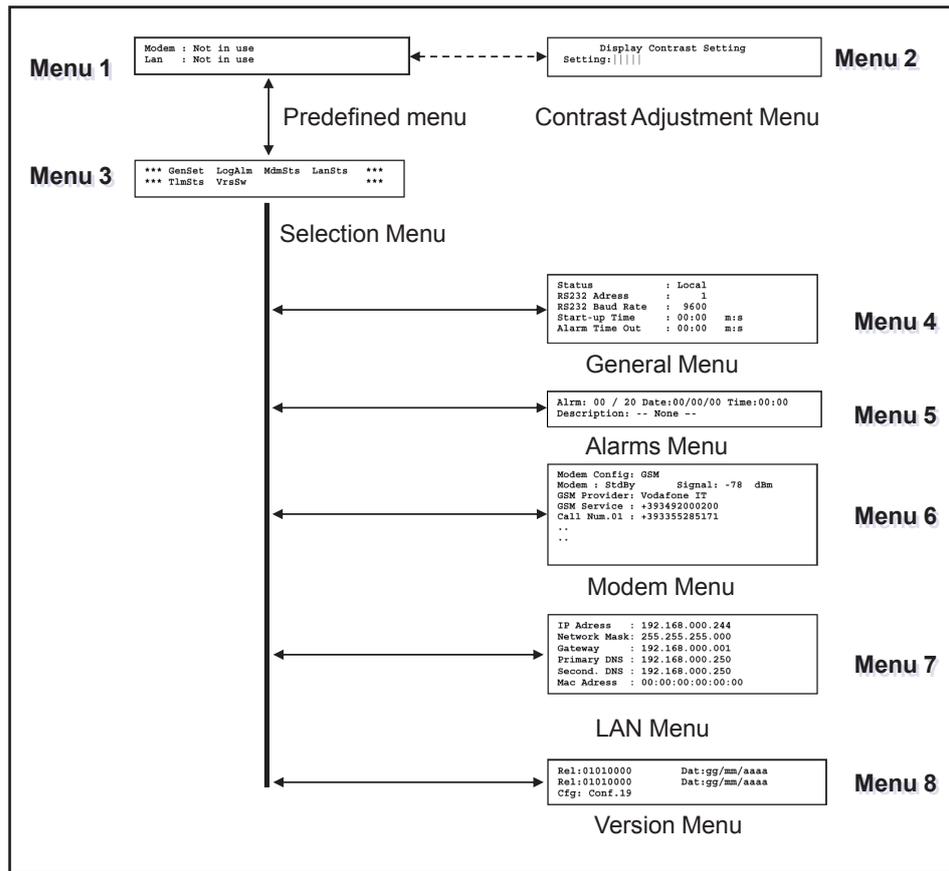


Figure 1

When the display is off, touching any key will turn on backlightin.

When the display is on, by pressing the **ENTER** button for about 3 seconds while you are in the **default menu** (menu 1), is used to call up the **contrast adjustment menu** (menu 4). Once you choose the setting, by press **ENTER** again and you will exit the present menu, confirming the change.

```

Display Contrast Setting
Setting:|||||
  
```

Menu 2

When the display is on, by pressing the **ESC** button from the **default menu** (menu 1), calls up the **selection screen** (menu 3), which gives access to all other menus:

```

*** GenSet LogAlm MdmSts LanSts ***
*** TlmSts VrsSw ***
  
```

Menu 3

If you want to return to the **default menu** (menu 1), simply press the **ESC** button.

## 5.2.1 General menu (GenSts)

In this menu, you can toggle **local control**, set the **address** and **speed** of **serial ports**, and set the time both of **Start-up** and of **alarms generation**.

To edit an item, highlight the appropriate line using the   and   buttons and then press and hold the **ENTER** button until the command is accepted. In this way, the setting is toggled between Local and Remote or viceversa. To edit the parameters, simply select item and edit its value using the UP and DOWN buttons; finally, press **ENTER** to confirm.

Status	:	Local	
RS232 Adress	:	1	
RS232 Baud Rate	:	9600	
Start-up Time	:	00:00	m:s
Alarm Time Out	:	00:00	m:s

*Menu 4*

**Status** The equipment can read and modify their own operating parameters in local mode (LOCAL) through the navigation keys and firmware management, excluding all other sources. The equipment can only read in remote mode (REMOTE), but not modify the operating parameters, except through commands provided by the LAN interfaces or GSM connected.

**RS232 Adress**  
Selection of serial address or USB for TELECON. The serial address is relevant when the unit is connected to an RVR transmission system which provides for use of this protocol. It is recommended, however, to not change it for any reason. It is selectable from 1 to 200.

**RS232 Baud Rate**  
Selection of the baud rate for the serial port data transfer selectable between 1200, 2400, 4800, 9600, 19200 and 38400.

**Start-up Time**  
Setting of start-up time expressed in mm:ss.

**Alarm Time Out**  
Setting of time for alarms generation expressed in mm:ss.

## 5.2.2 Alarms menu (LogAlm)

This menu provides general information on the last twenty alarms stored in a non volatile memory from the exciter.

In case the buffer is full, the previous alarms stored will have replaced with the new one, normally it visualized the last alarm saved in memory.

To change the alarm displayed press the  and  buttons, turn until the indicator is highlighted on the "Alarm" label and then press again to confirm. Select one of the twenty alarms choose itself from the list of alarms 1 ... 20 using the buttons.

If the user confirm or doesn't confirm the new value (i.e., the **ENTER** button is not pressed), the cursor stops blinking and remains on the first alarm stored.

```

Alrm: 00 / 20 Date:00/00/00 Time:00:00
Description: -- None --
```

*Menu 5*

- Alrm     Visualization and selection of the stored alarm number.
- Date     Visualization of the alarm record date expressed as dd/MM/yy.
- Time     Visualization of the alarm record time expressed as HH:mm.
- Description  
           Visualization of the of stored alarm name.

Note that these are readings, rather than settings, and cannot be edited (note the empty triangle).

## 5.2.3 Modem menu (MdmSts)



**Note:** this menu is present on **TLK2000** only in version **/V2, /V6, /V4 and /V8**.

This menu provides general information on the modem in case it is installed in the equipment:

```

Modem Config: GSM
Modem : StdBBy      Signal: -78  dBm
GSM Provider: Vodafone IT
GSM Service : +393492000200
Call Num.01 : +393355285171
..
..
    
```

*Menu 6*

- Modem Config  
Visualization of modem type selected.
- Modem Visualization of the modem status.
- Signal Visualization of the GSM signal level received in antenna expressed in dBm.
- GSM Provider  
Visualization of the customer number manager.
- GSM Service  
Visualization of the Service Centre Number.
- Call Num.xx  
Visualization of last 10 numbers for calls and SMS.

Note that these are readings, rather than settings, and cannot be edited (note the empty triangle).

## 5.2.4 Lan Menu (LanSts)

This page shows to the user the information about the presence of LAN interface on the machine.

<b>IP Address</b>	: 192.168.000.244
<b>Network Mask</b>	: 255.255.255.000
<b>Gateway</b>	: 192.168.000.001
<b>Primary DNS</b>	: 192.168.000.250
<b>Second. DNS</b>	: 192.168.000.250
<b>Mac Address</b>	: 00:00:00:00:00:00

### Menu 5

#### IP Address

Shows the number that unequivocally identifies, within a single network, the devices connected to an IT network that uses the IP standard (Internet Protocol).

#### Network Mask

Shows the subnet mask, necessary for the computer that must communicate with another IP address to know if it should route packages toward the gateway of its local network or use the address of the receiver local network.

#### Gateway

Shows gateway address. In simpler networks, there is only one gateway that forwards to the internet network all the outbound traffic. In more complicated networks where many subnets are available, each of them refers to a gateway that will route data traffic towards the other subnets or forward it to other gateways.

#### Primary DNS

Shows the first DNS server address (Domain Name System); in case the server should change the server hosting a service, or it is necessary to change its IP address, it is enough to change the DNS record, without changing client settings.

#### Second DNS

Shows the second DNS server address (Domain Name System); in case the server should change the server hosting a service, or it is necessary to change its IP address, it is enough to change the DNS record, without changing client settings.

#### MAC Address

Shows the MAC (Media Access Control) address; this address is uniquely assigned to the ethernet network card present on exciter. It can be useful if you want to add in your router, or firewall, a list of MAC addresses of network cards authorized to connect to the network.

Note that these are readings, rather than settings, and cannot be edited (note the empty triangle).

## 5.2.5 Version menu (VrsSw)

This menu provides general information on the release installed:

Rel:01010000	Dat:gg/mm/aaaa
Rel:01010000	Dat:gg/mm/aaaa
Cfg: Conf.19	

*Menu 6*

Note that these are readings, rather than settings, and cannot be edited (note the empty triangle).

- Rel Visualization of firmware release (first row) or Bios information (second row).
- Dat Visualization of release date about firmware (first row) or Bios (second row).
- Cfg Visualization of table loaded set via dip-Swtiches.

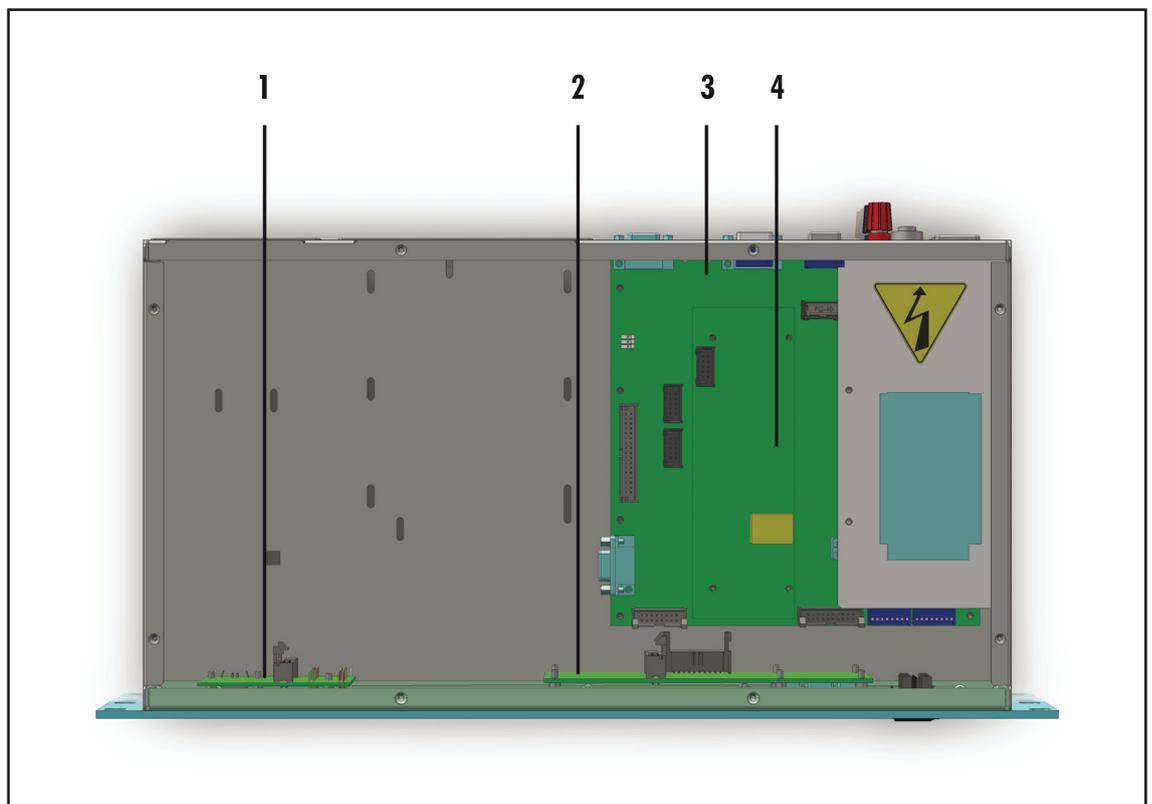
## 6. Identification and Access to the Modules

### 6.1 Identification of the Modules

The **TLK300** and **TLK2000** are made up of various modules linked to each other through connectors so as to make maintenance and any required module replacement easier.

#### 6.1.1 TL300 and TLK2000 versions /V5 - Upper view

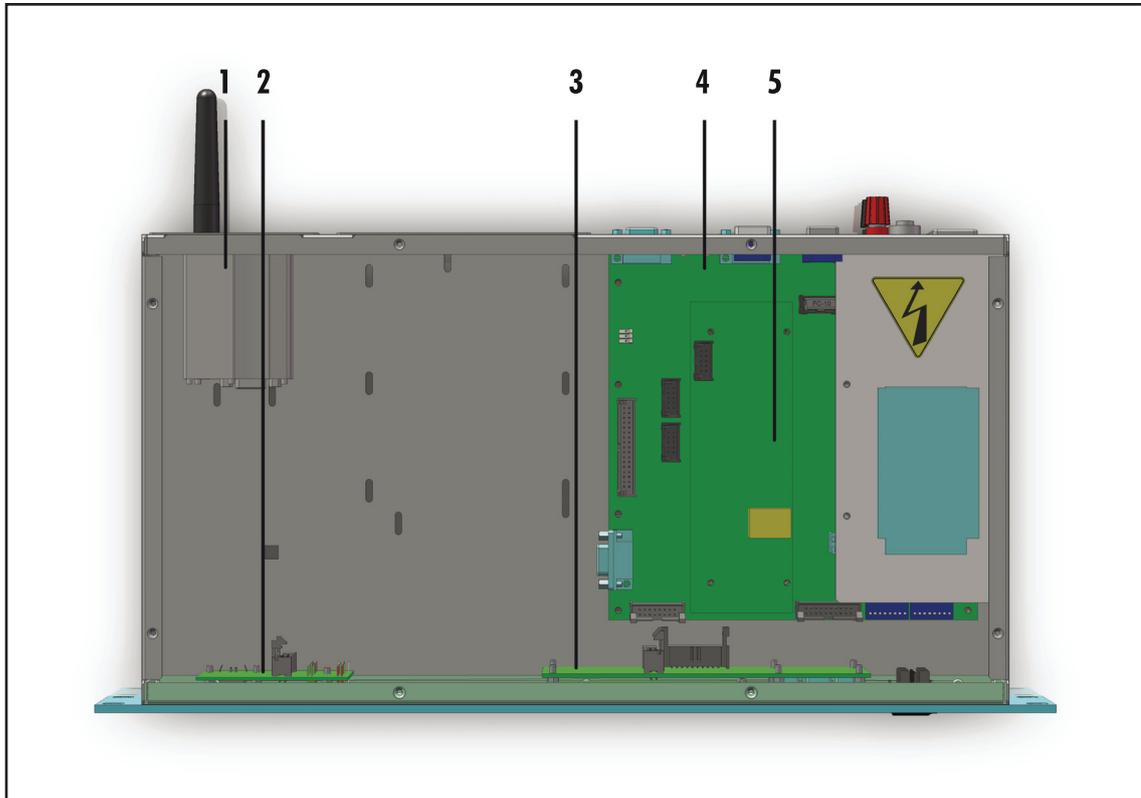
The figure below shows the equipment upper view with the various components pointed out.



- [1] USB & LED card
- [2] Panel card (**not present on TLK300**)
- [3] Mainboard & Power Supply card
- [4] 16-bit CPU card

## 6.1.2 TL300 and TLK2000 versions /V6 - Upper view

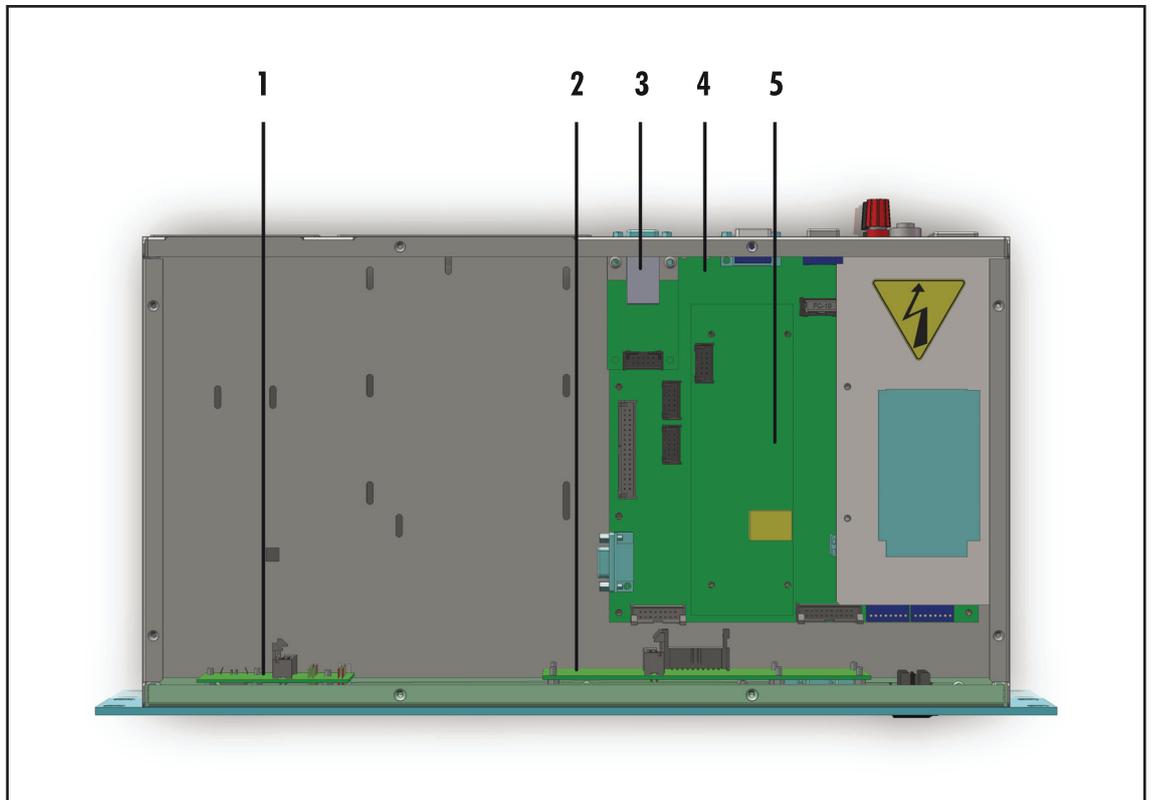
The figure below shows the equipment upper view with the various components pointed out.



- [1] GSM Modem & Antenna
- [2] USB & LED card
- [3] Panel card (**not present on TLK300**)
- [4] Mainboard & Power Supply card
- [5] 16-bit CPU card

## 6.1.3 TL300 and TLK2000 versions /V7 - Upper view

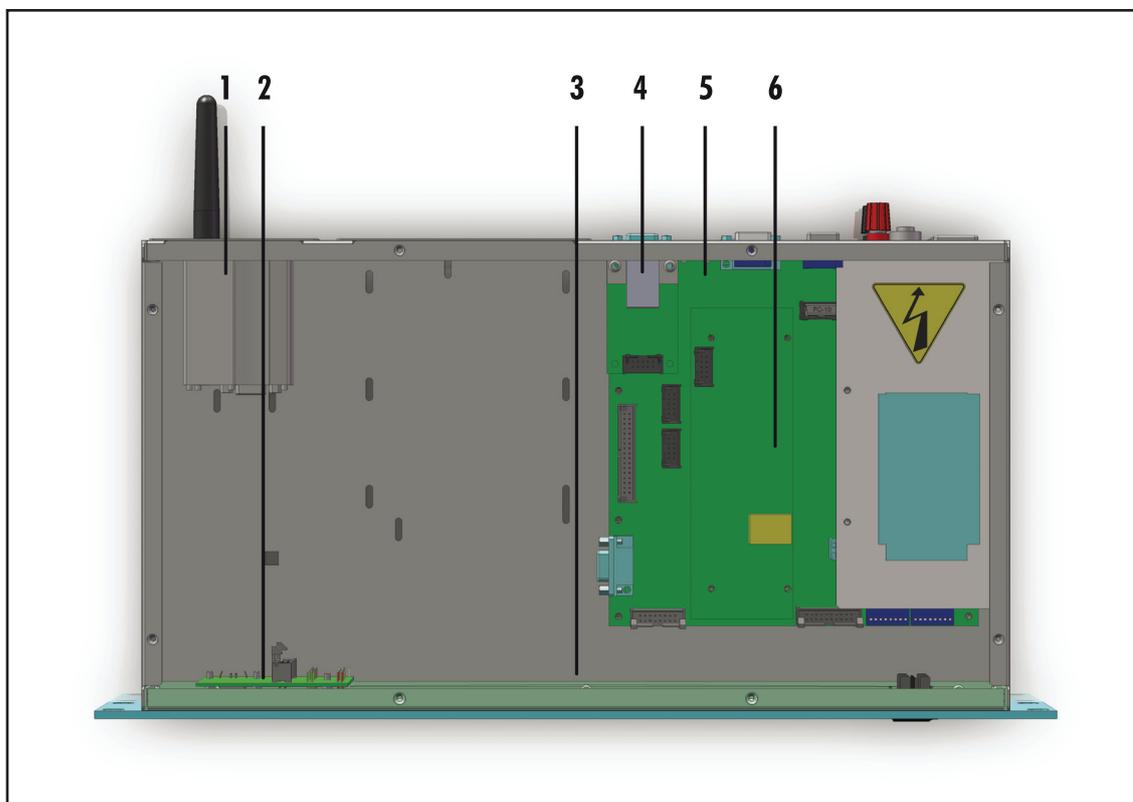
The figure below shows the equipment upper view with the various components pointed out.



- [1] USB & LED card
- [2] Panel card (**not present on TLK300**)
- [3] LAN card
- [4] Mainboard & Power Supply card
- [5] 16-bit CPU card

## 6.1.4 TL300 and TLK2000 versions /V8 - Upper view

The figure below shows the equipment upper view with the various components pointed out.



- [1] GSM Modem & Antenna
- [2] USB & LED card
- [3] Panel card (**not present on TLK300**)
- [4] LAN card
- [5] Mainboard & Power Supply card
- [6] 16-bit CPU card

## **7. Working Principles**

### **7.1 Panel card**

The panel card contains display and keys needed to interface with the user.

### **7.2 Mainboard**

The main board carries out the following functions:

- RS232, RS485, USB and I<sup>2</sup>C input/output treatment;
- Signal Processing Control;
- Management measures;
- Distribution of power supplies

The power supply is a “direct from mains” type and it can be connected to any voltage between 90 and 260 V without any adjustments or manual settings.

### **7.3 16-bit CPU Card**

The CPU card is located on the mainboard.

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

It is possible to perform firmware updates by directly connecting the RS232 output of **TLK300 & TLK2000** to serial or USB port of one PC.

The card has a diagnostic LEDs to verify it works.

### **7.4 USB card**

This card adds an USB 2.0 port to allow connection to one PC by creating a virtual serial port.

The USB connector is used to program the firmware and to interface in local with TELECON software.

The USB connection automatically puts the equipment in local mode.

## 7.5 LAN card

This card adds a LAN port that allows you to connect itself to an equipment via TCP/IP. The visualization and modification of working parameters concern transmitter is so possible using an Internet browser in added Java and Ajax features.

## 7.5 Alarm generation

Alarm generation parameters are listed below:

- Alarm generation parameters are listed below:
- Exciter output power (forward power good “PgD”);
- Reflected power at the exciter (reflected power good “PgR”);
- Temperature state (OVER TEMPERATURE);
- Audio Signal presence;
- Mains voltage state (present or missing).

An inhibit time (start time) after power-on is provided to ensure false alarm prevention. When this inhibit time times out, the thresholds of alarm generation parameters are checked and remote alarms are sent if needed.

Alarm generation technique is outlined in the figure below; remote alarm delay, i.e. the amount of time the system waits before issuing a remote alarm after an alarm condition occurs is indicated in figure 7.1. When appropriate, a new line is added to the alarm log stored, up to twenty lines maximum.

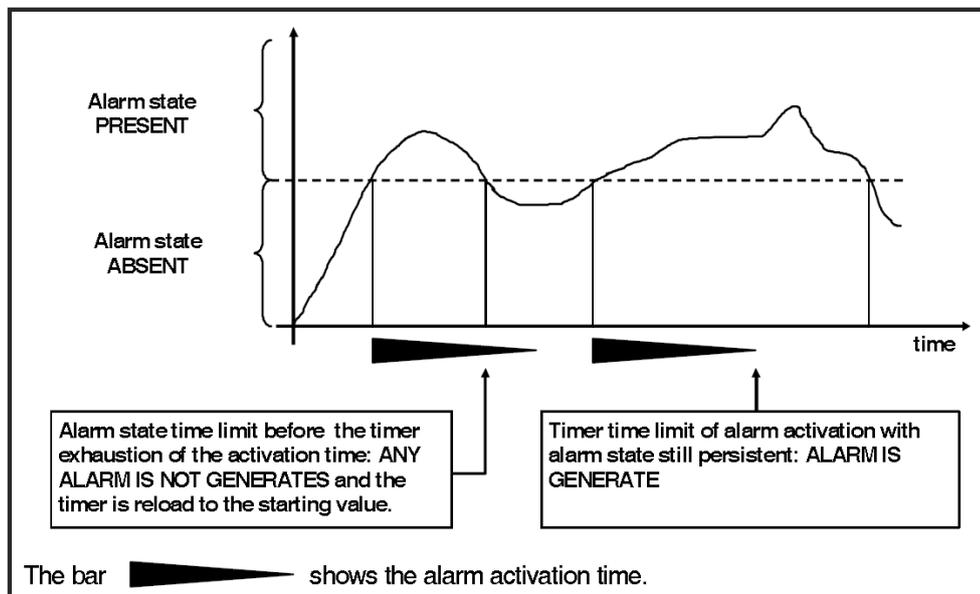
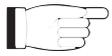


Figure 7.1

The alarm log may be reviewed using the “TELECON” software, or through SMS (see relevant section) only for GSM model when connected to an external modem, or through Trap viewable in a MIB browser only for WEB version with SNMP.



**WARNING:** The mains alarm is internally generated if the device is powered through appropriate terminals with an external  $12V_{DC}$ ; instead, an SMS message indicating a normal condition is sent upon next start-up.

## 8. Web User Interface (WUI)

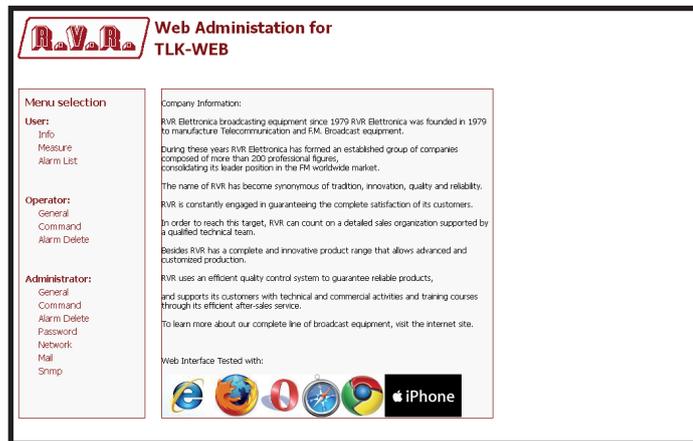
Once all connections previously described are performed, the equipment is ready for commissioning.

The **WUI** (Web User Interface) allows you to adjust, modify or display the configuration variables such as IP, netmask and gateway address. Follow the procedure below to open the **WUI**:

- 1) Open your web browser on your PC, and connect to **http://192.168.0.244** address to connect to the **WUI** (if LAN IP address was previously modified, it is necessary to use the new one). At this point the following page opens.

By factory the RVR uses the following adjustments:

- IP address: **192.168.0.244**
- Netmask address: **255.255.255.0**
- Gateway address: **192.168.0.1**



Menu 1



**Note :** If address **http://192.168.0.244** does not work, check and set IP address as **192.168.0.XXX** (where **XXX** is a figure between 1 and 254, excluding 244 that is **TLK300&2000** interface default address). To change the IP address, follow the instructions in the manual or in the online guide and technical help, specific for the Operating System you use.

- 2) If you have changed the access mode , enter the **User Name** and **Password** previously saved. Enter your credentials to log in as user, operator or administrator and then click **OK** on the item.



**Note :** the user name user to log in as **user**, that one to enter as operator is **operator**, while the username to log in as administrator is **admin**, and then click **OK** on the item. The user names are not editable by the user.

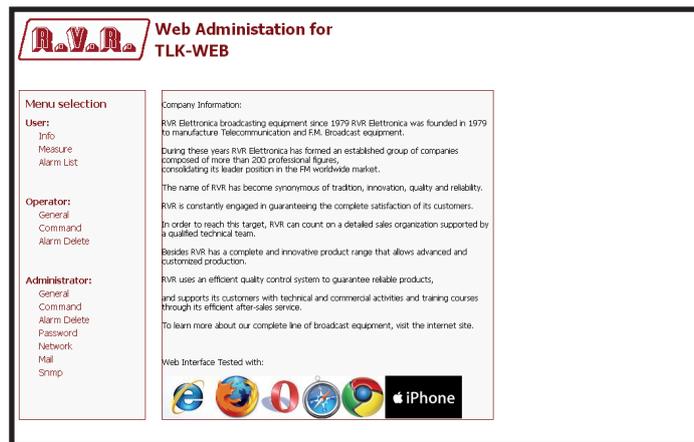


**Note :** Login as user enables read-only mode through the menus.  
If the administrator password is not set, it can not be enabled for user or operator.

- 2) Modify the parameters in accordance with the own needs.
- 3) Now interface is ready to remotely read data and modify the various settings of the equipment.

## 8.1 Management Software

- 1) After access is made, the **Main menu** (main page) opens and shows possible viewing options. This picture shows the **Main menu** after access:



Menu 1

To enter in one of the sub-menus, select the name and then click on item to enter.

To go back to **MAIN menu**, just press the F5 key on your computer's keyboard to force the WEB page reload.

The page that appears is divided into three frames:

- 1) **Title:** it has the logo and an identification of the current page displayed. It is located on the top of the page.
- 2) **Navigation menu:** it allows you to select the page to display.  
To enter into a submenu, select the name and then click on the item to enter.
- 3) **Body:** area where the page displays information about the selected menu.

## 8.1.1 Info Menu - User

Values found here are “live readings”, and as such they can not be modified. To change the settings, use the **operator** or **administrator General** menu.

This page shows the user the data of **TLK300** or **TLK2000** interface:



*Menu 2*

Web Software Release

Shows the release of WEB firmware.

Web Software Date

Shows the issue date of WEB firmware.

Device Date

Shows the day stored on the equipment (dd/MM/yyyy).

Device Time

Shows the time stored on the equipment (hh:mm).

Local Date

Shows the day stored in your browser/PC (dd/MM/yyyy).

Local Time

Shows the time stored in your browser/PC (hh:mm).

Station Name

Shows the ID name of transmitting station.

## 8.1.2 Measure Menu - User

Values found here are “live readings”, and as such they can not be modified. To change the settings, use the **operator** or **administrator Command Menu**.

The upper part allows you to enable or disable the Auto-refresh by clicking on the relevant box.

With Auto-refresh enabled the measures are taken every 3 seconds (“Get Data ..”) and gave available in a legible form by the current page (“Ready”).

With Auto-refresh disabled the measures are frozen (“Stopped”) at the time when you uncheck the box and gave available in a legible form by the current page.

This page shows the user the data of the exciter connected to the **TLK300** or **TLK2000** interface:



Menu 3



**Note:** an example of **TLK300** or **TLK2000** connected to **TEX-LCD**, made by **RVR**, is in the case shown above. The **x** next to **EXC** words is refer to the number of exciter to which the measure makes reference.

Status

Shows the status of remote control.

Forward Power

Shows exciter forward power expressed in W.

Reflected Power

Shows exciter reflected power expressed in W.

Temperature

Shows equipment internal temperature reading expressed in °C.

Exc x Freq.

Shows operating frequency of exciter expressed in MHz.

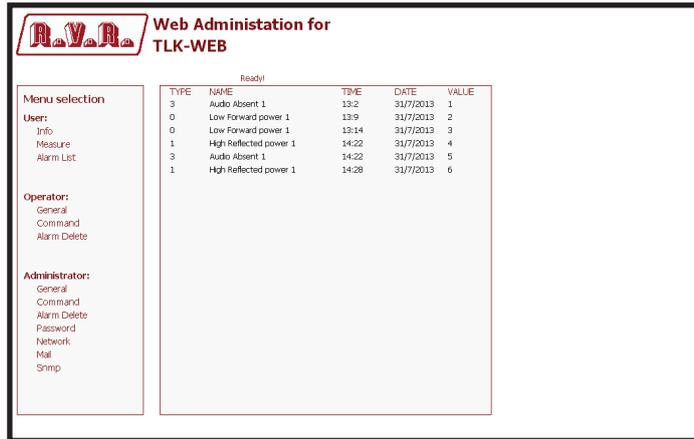
- Exc x Mod.  
Shows exciter modulation expressed in kHz.
- Exc x Vpa  
Shows exciter amplifier module voltage expressed in V.
- Exc x Ipa  
Shows exciter amplifier module current expressed in A.
- Exc x Mod.L  
Shows modulation on left channel of exciter expressed in kHz.
- Exc x Mod.R  
Shows modulation on right channel of exciter expressed in kHz.
- Exc x PLL Lock  
Shows the lock status at frequency set by PLL.
- Exc x Audio Alarm  
Shows the status of an impasse due to excessive SWR.
- Exc x Foldback  
Shows the triggered status of the foldback function (automatic reduction of output power).
- Exc x Ext R.F. Mute  
Shows the status of power inhibition by an interlock signal.
- CMD ON  
Not allowed through User credentials.
- CMD OFF  
Not allowed through User credentials.

## 8.1.3 Alarm List menu - User

Values found here are “live readings”, and as such they can not be modified. To change the settings, use the **operator** or **administrator Alarm Delete** Menu.

Within this menu you can display all alarms saved by the system: any new event will automatically delete the older ones.

This page shows the user the alarms of the exciter connected to the **TLK300** or **TLK2000** interface:



The screenshot shows the 'Web Administration for TLK-WEB' interface. On the left, there is a 'Menu selection' sidebar with options for 'User', 'Operator', and 'Administrator'. The 'User' menu is expanded, showing 'Info', 'Measure', and 'Alarm List'. The 'Alarm List' option is selected. The main content area displays a table of alarm events with columns for TYPE, NAME, TIME, DATE, and VALUE. The table contains six rows of data.

TYPE	NAME	TIME	DATE	VALUE
3	Audio Absent 1	13:22	31/7/2013	1
0	Low Forward power 1	13:9	31/7/2013	2
0	Low Forward power 1	13:14	31/7/2013	3
1	High Reflected power 1	14:22	31/7/2013	4
3	Audio Absent 1	14:22	31/7/2013	5
1	High Reflected power 1	14:28	31/7/2013	6

Menu 4

Type

Shows the alarm code.

Name

Shows the description for the error that led to event recording.

Time

Shows event recording time (hh:mm).

Date

Shows the day event was recorded (dd/MM/yyyy).

Value

Shows progressive number for event recording.

## 8.1.4 General Menu - Operator & Administrator



**Note :** Access to this menu and modification of these parameters are only possible after login with operator or administrator rights.

This page not only shows the user the information about the exciter connected to **TLK300** or **TLK2000** interface, but also allows setting various parameters.

Below will be described only items that allow the modification of the parameter, with respect to the Info menu. Press the buttons to confirm your choice; if you let timer to time out, the parameter setting will remain as previously set.

Menu 5

Web Software Release

Shows ID number of firmware release.

Web Software Date

Shows the date of firmware release.

Device Date

Allows you to align the date stored in the equipment with that of browser device, by pressing the **Synchronize Clock** button (dd/MM/yyyy).

Device Time

Allows you to align the time stored in the equipment with that of browser device, by pressing the **Synchronize Clock** button (hh:mm).

Local Date

Shows the current local Date stored relates on own browser/PC (dd/MM/yyyy).

Local Time

Shows the current local Time stored relates on own browser/PC (hh:mm).

Station Name

Shows ID (identifier) name of transmitting station.

## New Station Name

Setting of the station name. Write the name in the box that you want to assign, then press the **Change Name** button to apply the choice.

### 8.1.5 Command Menu - Operator & Administrator



**Note :** Access to this menu and modification of these parameters are only possible after login with operator or administrator rights.

This page not only shows the user the information about the exciter connected to the **TLK300** or **TLK2000** interface, but also allows setting various parameters.

The upper part allows you to enable or disable the Auto-refresh by clicking on the relevant box.

With Auto-refresh enabled the measures are taken every 3 seconds (“Get Data ..”) and gave available in a legible form by the current page (“Ready”).

With Auto-refresh disabled the measures are frozen (“Stopped”) at the time when you uncheck the box and gave available in a legible form by the current page.

Following is a description of the items that allow modification of the parameter, with respect to the Info menu. Press the buttons to confirm your choice; if you let timer to time out, the parameter setting will remain as previously set.



Menu selection	Parameter	Value	Action
User: Info Measure Alarm List	TEX-LCD		<input type="checkbox"/> Auto Refresh: Ready   <input type="button" value="Set"/>
	Status	Remote	<input type="button" value="Set"/>
	Forward Power	0 W	<input type="button" value="Set"/>
	Reflected Power	0 W	<input type="button" value="Set"/>
Operator: General Command Alarm Delete	Temperature	0 C	<input type="button" value="Set"/>
	Exci1 Freq	0 MHz	<input type="button" value="Set"/>
	Exci1 Mod	0 kHz	<input type="button" value="Set"/>
	Exci1 Ipa	0 V	<input type="button" value="Set"/>
	Exci1 Ipb	0 A	<input type="button" value="Set"/>
	Exci1 Mod. L	0 kHz	<input type="button" value="Set"/>
Administrator: General Command Alarm Delete Password Network Mail Simp	Exci1 Mod. R	0 kHz	<input type="button" value="Set"/>
	Exci1 PLL Lock	Absent	<input type="button" value="Set"/>
	Exci1 Audio Alarm	Absent	<input type="button" value="Set"/>
	Exci1 Foldback	Absent	<input type="button" value="Set"/>
	Exci1 R.F. Mute	Absent	<input type="button" value="Set"/>
	Ack ON	Present	<input type="button" value="Set"/>
	Ack OFF	Absent	<input type="button" value="Set"/>

Menu 6



**Note:** an example of **TLK300** or **TLK2000** connected to **TEX-LCD**, made by **RVR**, is in the case shown above. The **x** next to **EXC** words is refer to the number of exciter to which the measure makes reference.

## Status

Shows the status of remote control.

- Forward Power  
Mostra la potenza diretta dell'eccitatore espressa in W.
- Reflected Power  
Mostra la potenza riflessa dell'eccitatore espressa in W.
- Temperature  
Mostra la lettura della temperatura interna dell' apparecchiatura espressa in °C.
- Exc x Freq.  
Shows operating frequency of exciter expressed in MHz.
- Exc x Mod.  
Shows exciter modulation expressed in kHz.
- Exc x Vpa  
Shows exciter amplifier module voltage expressed in V.
- Exc x Ipa  
Shows exciter amplifier module current expressed in A.
- Exc x Mod.L  
Shows modulation on left channel of exciter expressed in kHz.
- Exc x Mod.R  
Shows modulation on right channel of exciter expressed in kHz.
- Exc x PLL Lock  
Shows the lock status at frequency set by PLL.
- Exc x Audio Alarm  
Shows the status of an impasse due to excessive SWR.
- Exc x Foldback  
Shows the triggered status of the foldback function (automatic reduction of output power).
- Exc x Ext R.F. Mute  
Shows the status of power inhibition by an interlock signal.
- CMD ON  
Press **Set** to change the logical state of the data.
- CMD OFF  
Press **Set** to change the logical state of the data.

## 8.1.6 Alarm Delete Menu - Operator & Administrator

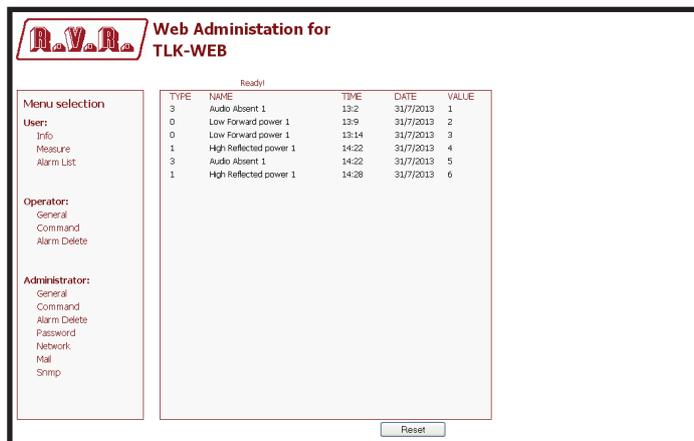


**Note :** Access to this menu and modification of these parameters are only possible after login with operator or administrator rights.

Values found here are “live readings”, and as such they can not be modified.

Within this menu you can display the last 20 alarms saved by the system: any new event will automatically delete the older ones. Using **Reset** item at bottom right of the menu, you can delete all pending alarms.

This page shows the user the alarms of the exciter connected to the **TLK300** or **TLK2000** interface:



Ready!					
Menu selection	TYPE	NAME	TIME	DATE	VALUE
User:	3	Audio Absent 1	13:2	31/7/2013	1
Info:	0	Low Forward power 1	13:9	31/7/2013	2
Measure:	0	Low Forward power 1	13:14	31/7/2013	3
Alarm List:	1	High Reflected power 1	14:22	31/7/2013	4
	3	Audio Absent 1	14:22	31/7/2013	5
	1	High Reflected power 1	14:28	31/7/2013	6

Operator:  
General  
Command  
Alarm Delete

Administrator:  
General  
Command  
Alarm Delete  
Password  
Network  
Mail  
Sntp

Reset

Menu 7

Type

Shows the alarm code.

Name

Shows the description for the error that led to event recording.

Time

Shows event recording time (hh:mm).

Date

Shows the day event was recorded (dd/MM/yyyy).

Value

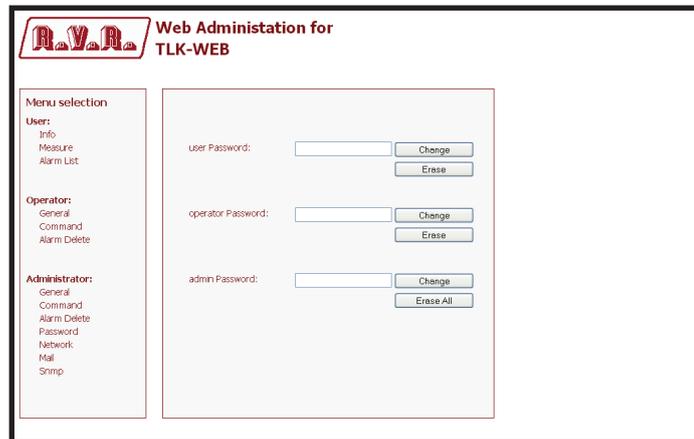
Shows progressive number for event recording.

## 8.1.7 Password Menu - Administrator



**Note :** Access to this menu and modification of these parameters are only possible after login with administrator rights.

This page allows the configuration of login as an administrator and maintenance of **TLK300** or **TLK2000** interface via WUI:



Menu 8

### User Password

Shows and set the password for user functions (parameter read-only enabling).

The **Erase** button allows you to delete the password set for maintenance.

### Operator Password

Shows and set the password for operator functions (parameter reading and partial change enabling).

The **Erase** button allows you to delete the password set for maintenance.

### Admin Password

Shows and set the password for administrator functions (parameter reading and full change enabling).

The **Erase All** button allows you to delete the password set both for the administrator and for the maintenance.

## 8.1.8 Network Menu - Administrator



**Note :** Access to this menu and modification of these parameters are only possible after login with administrator rights.

This page not only shows the user the information about **TLK300** or **TLK2000** interface network connection, but also allows setting various parameters.

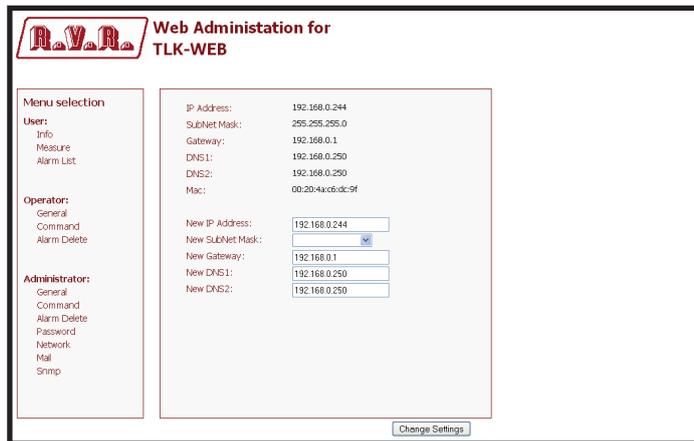
Press the **Change Settings** button to confirm selection; if you let timer to time out, the parameter setting will remain as previously set.



**Note :** to make changes within these sub-menus you need to have through technical knowledge of network management. It is recommended to have changes performed by trained or qualified personnel.



**Note:** The IP address must be set to static and does not have the opportunity to acquire an address from DHCP server on network.



Web Administration for TLK-WEB	
<b>Menu selection</b>	IP Address: 192.168.0.244 SubNet Mask: 255.255.255.0 Gateway: 192.168.0.1 DNS1: 192.168.0.250 DNS2: 192.168.0.250 Mac: 00:20:4a:c6:d0:9f
<b>User:</b> Info Measure Alarm List	New IP Address: <input type="text" value="192.168.0.244"/> New SubNet Mask: <input type="text" value="255.255.255.0"/> New Gateway: <input type="text" value="192.168.0.1"/> New DNS1: <input type="text" value="192.168.0.250"/> New DNS2: <input type="text" value="192.168.0.250"/>
<b>Operator:</b> General Command Alarm Delete	<input type="button" value="Change Settings"/>
<b>Administrator:</b> General Command Alarm Delete Password Network Mail Snmp	

Menu 9

### IP Address

Shows the number that unequivocally identifies, within a single network, the devices connected to an IT network that uses the IP standard (Internet Protocol).

### Subnet Mask

Shows the subnet mask, necessary for the computer that must communicate with another IP address to know if it should route packages toward the gateway of its local network or use the address of the receiver local network.

### Gateway

Shows gateway address. In simpler networks, there is only one gateway that forwards to the internet network all the outbound traffic. In more complicated networks where many subnets are available, each of them refers to a gateway that will route data traffic towards the other subnets or forward it to other gateways.

## DNS1 server

Shows the first DNS server address (Domain Name System); in case the server should change the server hosting a service, or it is necessary to change its IP address, it is enough to change the DNS record, without changing client settings.

## DNS2 server

Shows the second DNS server address (Domain Name System); in case the server should change the server hosting a service, or it is necessary to change its IP address, it is enough to change the DNS record, without changing client settings.

## MAC Address

Shows the MAC (Media Access Control) address; this address is uniquely assigned to the ethernet network card present on exciter. It can be useful if you want to add in your router, or firewall, a list of MAC addresses of network cards authorized to connect to the network.

## New IP address

Set the new IP (Internet Protocol) number.

## New Subnet Mask

Set the new subnet mask.

## New Gateway

Set the new gateway address.

## DNS1 server

Set the new first DNS server address (Domain Name System).

## DNS2 server

Set the new second DNS server address (Domain Name System).

## 8.1.9 Network Menu - Administrator



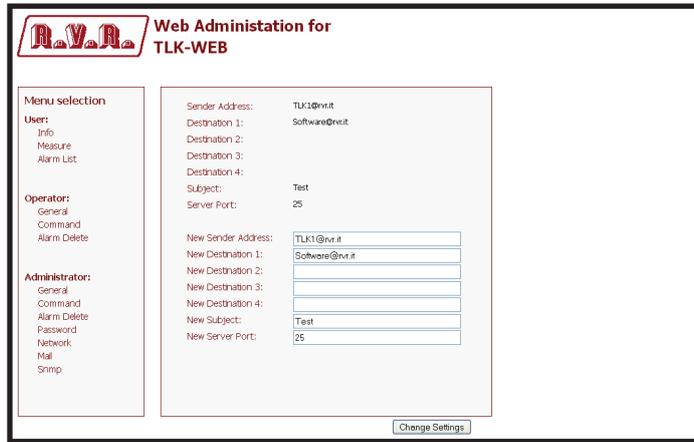
**Note :** Access to this menu and modification of these parameters are only possible after login with administrator rights.

This page not only shows the user the information about sending messages through **TLK300** or **TLK2000** interface network connection, but also allows setting various parameters.

Press the **Change Settings** button to confirm selection; if you let timer to time out, the parameter setting will remain as previously set.



**Note :** to make changes within these sub-menus you need to have through technical knowledge of network management. It is recommended to have changes performed by trained or qualified personnel.



Web Administration for TLK-WEB	
<b>Menu selection</b>	Sender Address: TLK1@vut Destination 1: Software@vut Destination 2: Destination 3: Destination 4: Subject: Test Server Port: 25  New Sender Address: TLK1@vut New Destination 1: Software@vut New Destination 2: New Destination 3: New Destination 4: New Subject: Test New Server Port: 25
<b>User:</b> Info Measure Alarm List	
<b>Operator:</b> General Command Alarm Delete	
<b>Administrator:</b> General Command Alarm Delete Password Network Mail Snmp	
	Change Settings

Menu 14

Sender Address

Shows the transmission address used for sending messages.

Destination 1

Shows the first address to which alarm warning mail messages shall be sent.

Destination 2

Shows the second address to which alarm warning mail messages shall be sent.

Destination 3

Shows the third address to which alarm warning mail messages shall be sent.

Destination 4

Shows the fourth address to which alarm warning mail messages shall be sent.

## Subject

Shows the description of the “subject” field of mail in case of sending alarm messages.

## Server Port

Shows the port used by TCP transmission protocol.

## New Sender Address

Set the new transmission address used for sending messages.

## New Destination 1

Set the new first email address to which alarm warning mail messages shall be sent.

## New Destination 2

Set the new second email address to which alarm warning mail messages shall be sent.

## New Destination 3

Set the new third email address to which alarm warning mail messages shall be sent.

## New Destination 4

Set the new fourth email address to which alarm warning mail messages shall be sent.

## New Subject

Set the new description of the “subject” field of the mail in case of sending alarm messages.

## New Server Port

Set the new port used by SMTP server for the transmission of email.

## 8.1.10 SNMP Menu - Administrator



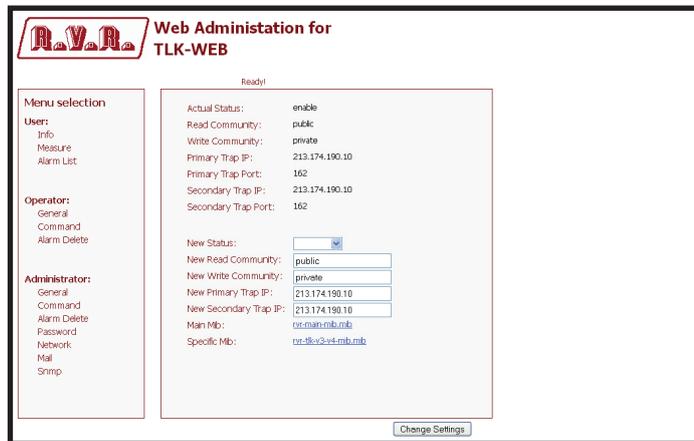
**Note :** Access to this menu and modification of these parameters are only possible after login with administrator rights.

This page not only shows the user the information related to the management and supervision of the devices connected to the network via SNMP (Simple Network Management Protocol), but also allows setting various parameters.

Press the **Change Settings** button to confirm selection; if you let timer to time out, the parameter setting will remain as previously set.



**Note :** to make changes within these sub-menus you need to have through technical knowledge of network management. It is recommended to have changes performed by trained or qualified personnel.



**Web Administration for TLK-WEB**

Ready!

Menu selection	Actual Status:
<b>User:</b> Info Measure Alarm List	enable
<b>Operator:</b> General Command Alarm Delete	Read Community: public
<b>Administrator:</b> General Command Alarm Delete Password Network Mail Snmip	Write Community: private
	Primary Trap IP: 213.174.190.10
	Primary Trap Port: 162
	Secondary Trap IP: 213.174.190.10
	Secondary Trap Port: 162
	New Status: <input type="checkbox"/> enable
	New Read Community: <input type="text" value="public"/>
	New Write Community: <input type="text" value="private"/>
	New Primary Trap IP: <input type="text" value="213.174.190.10"/>
	New Secondary Trap IP: <input type="text" value="213.174.190.10"/>
	Main Mb: <input type="text" value="rr-main.mib.mib"/>
	Specific Mb: <input type="text" value="rr-8k-v3-v4.mib.mib"/>

Menù 9

Actual Status

Viewing the status of the SNMP service.

Read Community

Viewing the set string for GET command that allows you to monitor the different variables of the system managed.

Write Community

Viewing the set string for SET command that allows you to monitor the different variables of the system managed.

Primary Trap IP

Viewing the first Trap destination with the IP to which alarm warning messages shall be sent.

Primary Trap Port

Viewing the first Trap destination with the Port to which alarm warning messages shall be sent. The destination port of the Trap can not be edited.

## Secondary Trap IP

Viewing the second Trap destination with the IP to which alarm warning messages shall be sent.

## Secondary Trap Port

Viewing the second Trap destination with the Port to which alarm warning messages shall be sent. The destination port of the Trap can not be edited.

## New Read Community

Imposta la stringa per il comando SET.

## New Write Community

Imposta la stringa per il comando GET.

## New Primary Trap IP

Set the identification number of the primary IP address set to send the Trap signaling. It must be in dotted format XXX.XXX.XXX.XXX (ie: 192.168.0.5).

## New Secondary Trap IP

Set the identification number of the secondary IP address set to send the Trap signaling. It must be in dotted format XXX.XXX.XXX.XXX (ie: 192.168.0.5).

## Main MIB

By pressing the \*.MIB you can download onto your PC, or browser device, the main MIB files of manufacturer of product stored in **TLK300 & TLK2000**.

## Specific MIB

By pressing the \*.MIB you can download onto your PC, or browser device, the specific MIB files of product stored in **TLK300 & TLK2000**.

## 9. Versions with GSM

This section describes the features introduced with versions **V2** and **V4** (option with GSM telemetry) and the necessary steps for their proper configuration.

These versions are able to handle remote the alarm reporting by sending SMS messages through a internal GSM modem or through a dial-up external PSTN modem (option on demand) by sending an alarm message string to a connected PC.

Before querying the system using SMS messages, establish a connection using the “TELECON” software and set the provider service centre number and the telephone numbers authorised to send these commands to the devices.

When any one of the parameters listed above changes state, a text message with the following information is sent via modem (if fitted):

- Station Name.
- Station ID.
- State of measurements.

ES1. (example of TLK300/2000 in double exciter configuration with external switching unit)

*TLK ID:01-Station name-  
FwdPwr1 OK-  
RflPwr1 OK-  
Temp1 OK-  
Audio1 OK-  
Mains OK-  
SCM Fault OK-  
Audio2 OK-*

ES2. (example of TLK300/2000 in single exciter configuration)

*TLK ID:01-Station name-  
FwdPwr1 OK-  
RflPwr1 OK-  
Temp1 OK-  
Audio OK-  
Mains OK-*

The versions with GSM support the following commands:

Command	Response	Description
<b>INFO</b>	Station Name: (string 16char max) Station ID: (to 000 from 999) FWD Power: (Exciter Forward Power in W) RFL Power: (Exciter Reflected Power in W) Temp: (Temperature in °C) Tx ON (Tx state ON/OFF/STAND-BY) Local (Local, Remote) Alarm Present (Present/Absent)	Transmitter status information
<b>TXON</b>	Station Name: (string 16char max) Station ID: (from 000 to 999) Tx is ON, Fault Command	Transmitter power-on
<b>TXOFF</b>	Station Name: (string 16char max) Station ID: (from 000 to 999) Tx is OFF, Fault Command	Transmitter power-off
<b>LOWPWR</b>	Station Name: (string 16char max) Station ID: (to 000 from 999) LowPwr OK , NomPwr OK	Low power information
<b>NOMPWR</b>	Station Name: (string 16char max) Station ID: (to 000 from 999) NomPwr OK, LowPwr OK	Nominal power information
<b>ALARM</b>	Station Name: (string 16char max) Station ID: (to 000 from 999) Record: (Last 4 alarm list store in memory)	Alarm log
<b>RESET</b>	Station Name: (string 16char max) Station ID: (to 000 from 999) RESET stored Record	Clear Alarm Log
<b>STATUS</b>	Station Name: (string 16char max) Station ID: (to 000 from 999) STATUS: Resend status alarm message	Resend the alarm status information
<b>VERSION</b>	Station Name: (string 16char max) Station ID: (to 000 from 999) Release App, Release Bios, Table Code	Software Version informations

Table 9.2 - V6 and V8 versions

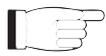


**Note:** Response time to SMS commands may vary with different GSM network providers; as a general rule, response time should not exceed 7-10 minutes maximum.

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## 10. Configurations of Transmitter System

Below are listed the several possible system configurations, the configuration that needs to assume on the dip switch and the screens obtainable via WEB.



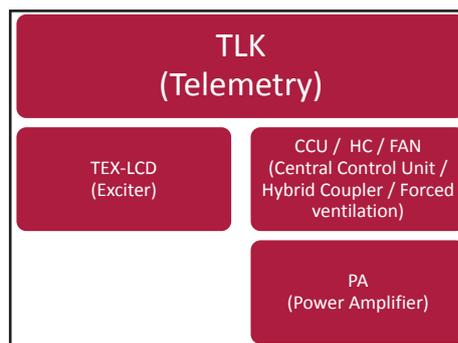
**Note:** for further information on the Dip Switch, please read the section on Dip Switch Configuration present in this manual.

### 10.1 Configuration of Transmitter from V5 to V8 Versions

#### 10.1.1 Configuration del System 01

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- PA (power amplifier module)



Configuration #01: **System**

##### 10.1.1.1 Configuration of Dip Switch for System 01

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 1									x							

Configuration #01: **Dip Switch**

##### 10.1.1.2 I<sup>2</sup>C Address for System 01

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 01	1		3	4	5										

Configuration #01: **I<sup>2</sup>C Address**

## 10.1.1.3 Command Menu - Operator & Administrator for System 01

**Web Administration for**  
**TLK-WEB**

Auto Refresh: Ready!

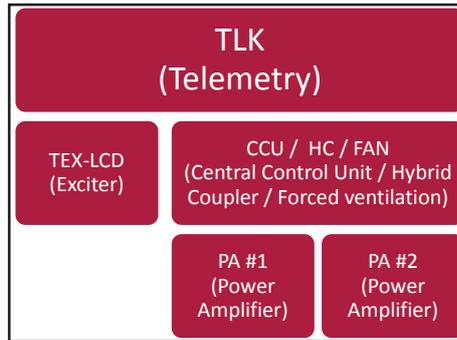
<b>Menu selection</b>	Configuration	1	Exc1 Freq.	0 MHz	Exc2 Ipa	0 A	PA6 StdB	Absent
<b>User:</b>	Status	Local	Exc1 Mod.	0 KHz	Exc2 Mod. L	0 KHz	PA6 Fault	Absent
Info	Forward Power	0 W	Exc1 Fwid	0 W	Exc2 Mod. R	0 KHz	PA7 StdB	Absent
Measure	Reflected Power	0 W	Exc1 RFI	0 W	Exc2 Pwr	0 %	PA7 Fault	Absent
Alarm List	Unbal. Power	0 W	Exc1 Vpa	0 V	Exc2 PLL Lock	Absent	-----	
<b>Operator:</b>	Temperature	35 C	Exc1 Ipa	0 A	Exc2 Audio Alarm	Absent	Ack ON	Present
General	Ack-FALLT	Absent	Exc1 Mod. L	0 KHz	Exc2 Foldback	Absent	CHD ON	<input type="checkbox"/> Set
Command	Ack-WAIT	Absent	Exc1 Mod. R	0 KHz	Exc2 R.F. Mute	Absent	Ack-STD-By	Absent
Alarm Delete	Ack-WARNING	Absent	Exc1 Pwr	0 %	-----	-----	CHD-STD-By	<input type="checkbox"/> Set
<b>Administrator:</b>	CHD RESET	<input type="checkbox"/> Set	Exc1 PLL Lock	Absent	PA1 StdB	Absent	Ack OFF	Absent
General	Ack Cng	Auto	Exc1 Audio Alarm	Absent	PA1 Fault	Absent	CHD OFF	<input type="checkbox"/> Set
Command	CHD Auto/Man	<input type="checkbox"/> Set	Exc1 Foldback	Absent	PA2 StdB	Absent	Ack-NOM PWR	Present
Alarm Delete	Ack CngPos	Exc1	Exc1 R.F. Mute	Absent	PA2 Fault	Absent	CHD-NOM PWR	<input type="checkbox"/> Set
Password	CHD Exchange	<input type="checkbox"/> Set	-----	-----	PA3 StdB	Absent	NOM PWR	100 % <input type="checkbox"/> Set
Network	SET1	80 % <input type="checkbox"/> Set	Exc2 Freq.	0 MHz	PA3 Fault	Absent	Ack-LOW PWR	Absent
Mail	SET2	50 % <input type="checkbox"/> Set	Exc2 Mod.	0 KHz	PA4 StdB	Absent	CHD-LOW PWR	<input type="checkbox"/> Set
Sntp	SET3	50 % <input type="checkbox"/> Set	Exc2 Fwid	0 W	PA4 Fault	Absent	LOW PWR	55 % <input type="checkbox"/> Set
	SET4	50 % <input type="checkbox"/> Set	Exc2 RFI	0 W	PA5 StdB	Absent		
	-----		Exc2 Vpa	0 V	PA5 Fault	Absent		

**Configuration #01: Screen Command**

## 10.1.2 Configuration del System 02

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 2x PA (power amplifier module)



Configuration #02: System

### 10.1.2.1 Configuration of Dip Switch for System 02

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 2										x						

Configuration #02: Dip Switch

### 10.1.2.2 I<sup>2</sup>C Address for System 02

adr	TEX#1	TEX#2	CCU	HC	FAN	PA								
Config 02	1		3	4	5	6	7							

Configuration #02: I<sup>2</sup>C Address

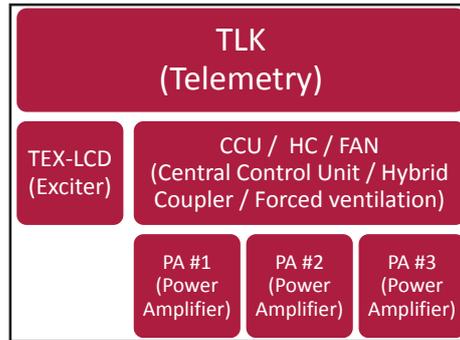
### 10.1.2.3 Command Menu - Operator & Administrator for System 02

Configuration #02: Screen Command

## 10.1.3 Configuration del System 03

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 3x PA (power amplifier module)



Configuration #03: System

### 10.1.3.1 Configuration of Dip Switch for System 03

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 3									x	x						

Configuration #03: Dip Switch

### 10.1.3.2 I<sup>2</sup>C Address for System 03

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 03	1		3	4	5	6	7	8							

Configuration #03: I<sup>2</sup>C Address

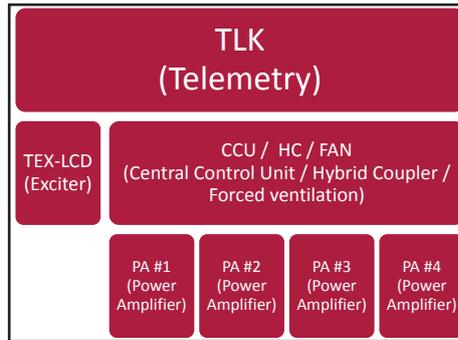
### 10.1.3.3 Command Menu - Operator & Administrator for System 03

Configuration #03: Screen Command

## 10.1.4 Configuration del System 04

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 4x PA (power amplifier module)



Configuration #04: System

### 10.1.4.1 Configuration of Dip Switch for System 04

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 4											X					

Configuration #04: Dip Switch

### 10.1.4.2 I<sup>2</sup>C Address for System 04

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 04	1		3	4	5	6	7	8	9						

Configuration #04: I<sup>2</sup>C Address

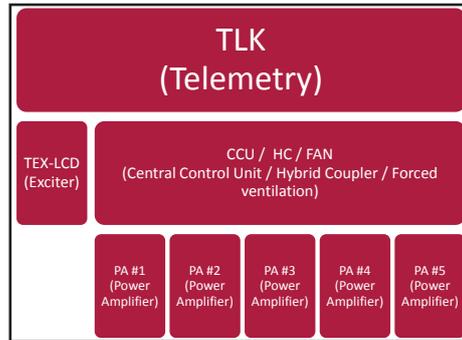
### 10.1.4.3 Command Menu - Operator & Administrator for System 04

Configuration #04: Screen Command

## 10.1.5 Configuration del System 05

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 5x PA (power amplifier module)



Configuration #05: System

### 10.1.5.1 Configuration of Dip Switch for System 05

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 5									x		x					

Configuration #05: Dip Switch

### 10.1.5.2 I<sup>2</sup>C Address for System 05

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 05	1		3	4	5	6	7	8	9	10					

Configuration #05: I<sup>2</sup>C Address

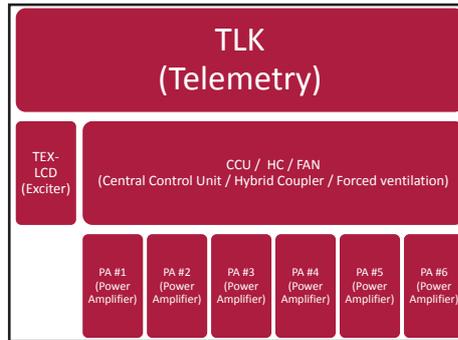
### 10.1.5.3 Command Menu - Operator & Administrator for System 05

Configuration #05: Screen Command

## 10.1.6 Configuration del System 06

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 6x PA (power amplifier module)



Configuration #06: System

### 10.1.6.1 Configuration of Dip Switch for System 06

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 6										x	x					

Configuration #06: Dip Switch

### 10.1.6.2 I<sup>2</sup>C Address for System 06

adr	TEX#1	TEX#2	CCU	HC	FAN	PA								
Config 06	1		3	4	5	6	7	8	9	10	11			

Configuration #06: I<sup>2</sup>C Address

### 10.1.6.3 Command Menu - Operator & Administrator for System 06

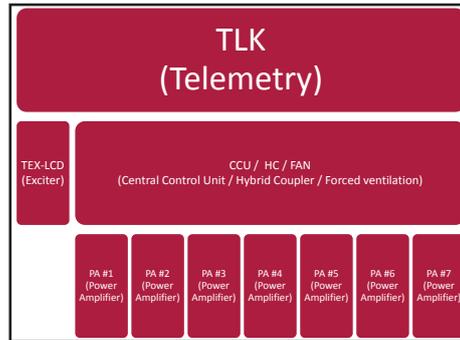
Configuration	Exc1 Freq.	Exc2 Freq.	Exc1 Ipa	Exc2 Ipa	PA6 StdB	PA7 StdB	PA8 StdB	PA9 StdB	PA10 StdB	PA11 StdB	PA12 StdB	PA13 StdB	PA14 StdB	PA15 StdB
6	0 MHz	0 MHz	0 A	0 A	Absent									
Local	Exc1 Mod.	Exc2 Mod.	Exc1 Pwr	Exc2 Pwr	Exc1 PLL Lock	Exc2 PLL Lock	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk
Forward Power	0 W	0 W	0 W	0 W	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %
Reflected Power	0 W	0 W	0 W	0 W	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %	0 %
Unbal. Power	0 W	0 W	0 V	0 V	Absent									
Temperature	35 C	35 C	0 A	0 A	Absent									
Ack FALUT	Absent	Exc1 Mod. L	Exc2 Mod. R	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute
Ack WAIT	Absent	Exc1 Mod. R	Exc2 Mod. L	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute
Ack WARNING	Absent	Exc1 Pwr	Exc2 Pwr	Exc1 PLL Lock	Exc2 PLL Lock	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute
CMD RESET	Set	Exc1 PLL Lock	Exc2 PLL Lock	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute
Ack Cng	Auto	Exc1 Audio Alarm	Exc2 Audio Alarm	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute
CMD Auto/Man	Set	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk
Ack CngPos	Exc1	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute
CMD Exchange	Set	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk
SET1	50 %	Set	Exc2 Freq.	Exc1 Freq.	Exc1 Ipa	Exc2 Ipa	Exc1 Pwr	Exc2 Pwr	Exc1 PLL Lock	Exc2 PLL Lock	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk
SET2	50 %	Set	Exc2 Mod.	Exc1 Mod.	Exc1 Pwr	Exc2 Pwr	Exc1 PLL Lock	Exc2 PLL Lock	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute
SET3	50 %	Set	Exc2 Fwd	Exc1 Fwd	Exc1 Pwr	Exc2 Pwr	Exc1 PLL Lock	Exc2 PLL Lock	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute
SET4	50 %	Set	Exc2 RfI	Exc1 RfI	Exc1 Pwr	Exc2 Pwr	Exc1 PLL Lock	Exc2 PLL Lock	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute
-----	-----	-----	Exc2 Vpa	Exc1 Vpa	Exc1 Pwr	Exc2 Pwr	Exc1 PLL Lock	Exc2 PLL Lock	Exc1 R.F. Mute	Exc2 R.F. Mute	Exc1 Fdbk	Exc2 Fdbk	Exc1 R.F. Mute	Exc2 R.F. Mute

Configuration #06: Screen Command

## 10.1.7 Configuration del System 07

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 7x PA (power amplifier module)



Configuration #07: System

### 10.1.7.1 Configuration of Dip Switch for System 07

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 7									X	X	X					

Configuration #07: Dip Switch

### 10.1.7.2 I<sup>2</sup>C Address for System 07

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 06	1		3	4	5	6	7	8	9	10	11				

Configuration #07: I<sup>2</sup>C Address

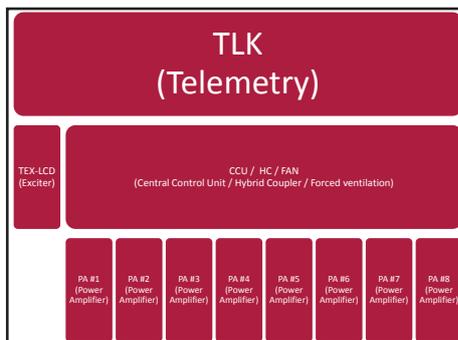
### 10.1.7.3 Command Menu - Operator & Administrator for System 07

Configuration #07: Screen Command

## 10.1.8 Configuration del System 08

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 8x PA (power amplifier module)



Configuration #08: System

### 10.1.8.1 Configuration of Dip Switch for System 08

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 8												X				

Configuration #08: Dip Switch

### 10.1.8.2 I<sup>2</sup>C Address for System 08

adr	TEX#1	TEX#2	CCU	HC	FAN	PA								
Config 08	1		3	4	5	6	7	8	9	10	11	12	13	

Configuration #08: I<sup>2</sup>C Address

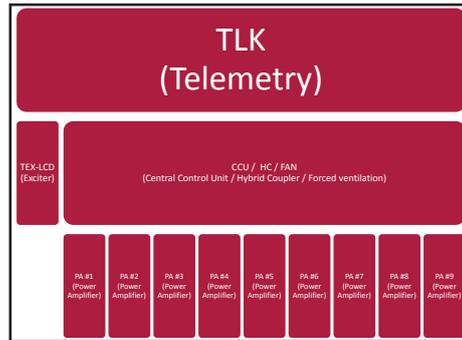
### 10.1.8.3 Command Menu - Operator & Administrator for System 08

Configuration #08: Screen Command

## 10.1.9 Configuration del System 09

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 9x PA (power amplifier module)



Configuration #09: System

### 10.1.9.1 Configuration of Dip Switch for System 09

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 9									x			x				

Configuration #09: Dip Switch

### 10.1.9.2 I<sup>2</sup>C Address for System 09

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 09	1		3	4	5	6	7	8	9	10	11	12	13	14	

Configuration #09: I<sup>2</sup>C Address

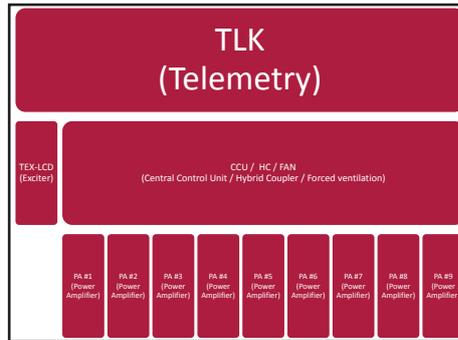
### 10.1.9.3 Command Menu - Operator & Administrator for System 09

Configuration #09: Screen Command

## 10.1.10 Configuration del System 10

Composition:

- TLK (telemetry)
- TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 10x PA (power amplifier module)



Configuration #10: System

### 10.1.10.1 Configuration of Dip Switch for System 10

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 9									X			X				

Configuration #10: Dip Switch

### 10.1.10.2 I<sup>2</sup>C Address for System 10

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 09	1		3	4	5	6	7	8	9	10	11	12	13	14	

Configuration #10: I<sup>2</sup>C Address

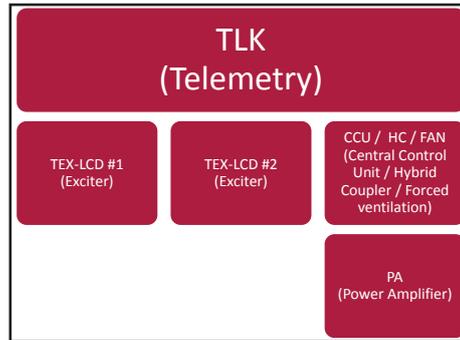
### 10.1.10.3 Command Menu - Operator & Administrator for System 10

Configuration #10: Screen Command

## 10.1.11 Configuration del System 11

Composition:

- TLK (telemetry)
- 2x TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- PA (power amplifier module)



Configuration #11: System

### 10.1.11.1 Configuration of Dip Switch for System 11

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 11									x	x		x				

Configuration #11: Dip Switch

### 10.1.11.2 I<sup>2</sup>C Address for System 11

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 11	1	2	3	4	5										

Configuration #11: I<sup>2</sup>C Address

### 10.1.11.3 Command Menu - Operator & Administrator for System 11

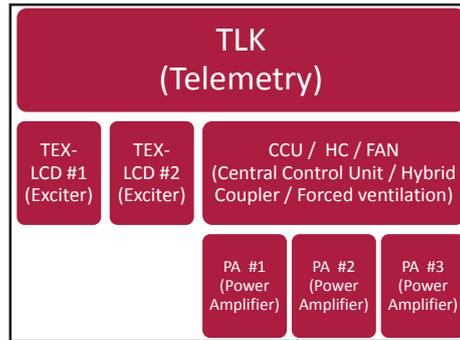
Configuration #11: Screen Command



## 10.1.13 Configuration del System 13

Composition:

- TLK (telemetry)
- 2x TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 3x PA (power amplifier module)



Configuration #13: System

### 10.1.13.1 Configuration of Dip Switch for System 13

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 13									x		x	x				

Configuration #13: Dip Switch

### 10.1.13.2 I<sup>2</sup>C Address for System 13

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 13	1	2	3	4	5	6	7	8							

Configuration #13: I<sup>2</sup>C Address

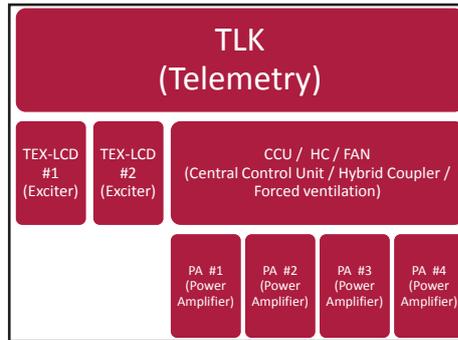
### 10.1.13.3 Command Menu - Operator & Administrator for System 13

Configuration #13: Screen Command

## 10.1.14 Configuration del System 14

Composition:

- TLK (telemetry)
- 2x TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 4x PA (power amplifier module)



Configuration #14: System

### 10.1.14.1 Configuration of Dip Switch for System 14

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 14										x	x	x				

Configuration #14: Dip Switch

### 10.1.14.2 I<sup>2</sup>C Address for System 14

adr	TEX#1	TEX#2	CCU	HC	FAN	PA								
Config 14	1	2	3	4	5	6	7	8	9					

Configuration #14: I<sup>2</sup>C Address

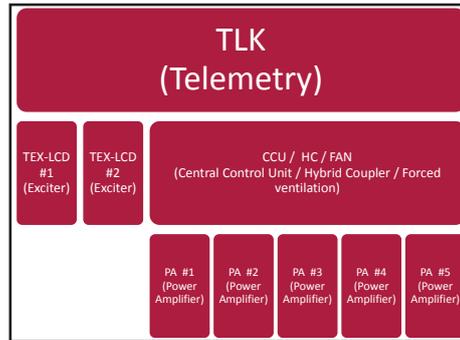
### 10.1.14.3 Command Menu - Operator & Administrator for System 14

Configuration #14: Screen Command

## 10.1.15 Configuration del System 15

Composition:

- TLK (telemetry)
- 2x TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 5x PA (power amplifier module)



Configuration #15: System

### 10.1.15.1 Configuration of Dip Switch for System 15

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 15									X	X	X	X				

Configuration #15: Dip Switch

### 10.1.15.2 I<sup>2</sup>C Address for System 15

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 15	1	2	3	4	5	6	7	8	9	10					

Configuration #15: I<sup>2</sup>C Address

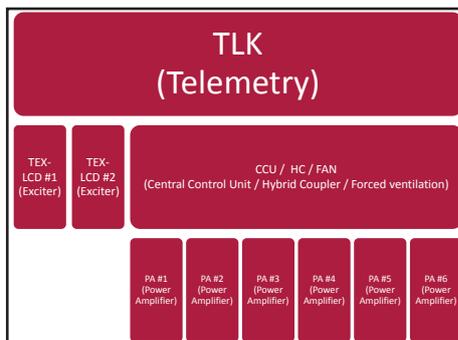
### 10.1.15.3 Command Menu - Operator & Administrator for System 15

Configuration #15: Screen Command

## 10.1.16 Configuration del System 16

Composition:

- TLK (telemetry)
- 2x TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 6x PA (power amplifier module)



Configuration #16: System

### 10.1.16.1 Configuration of Dip Switch for System 16

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 16													X			

Configuration #16: Dip Switch

### 10.1.16.2 I<sup>2</sup>C Address for System 16

adr	TEX#1	TEX#2	CCU	HC	FAN	PA								
Config 16	1	2	3	4	5	6	7	8	9	10	11			

Configuration #16: I<sup>2</sup>C Address

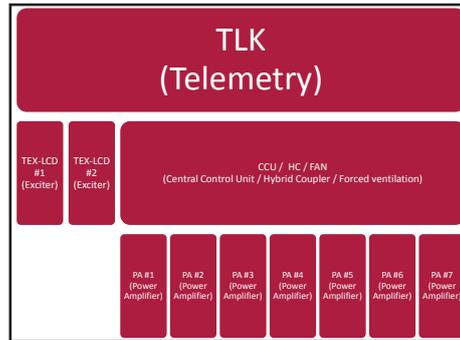
### 10.1.16.3 Command Menu - Operator & Administrator for System 16

Configuration #16: Screen Command

## 10.1.17 Configuration del System 17

Composition:

- TLK (telemetry)
- 2x TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 7x PA (power amplifier module)



Configuration #17: System

### 10.1.17.1 Configuration of Dip Switch for System 17

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 17									x				x			

Configuration #17: Dip Switch

### 10.1.17.2 I<sup>2</sup>C Address for System 17

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 17	1	2	3	4	5	6	7	8	9	10	11	12			

Configuration #17: I<sup>2</sup>C Address

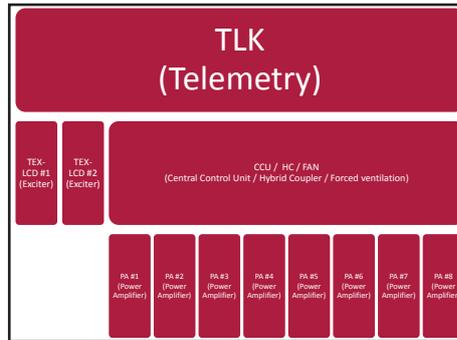
### 10.1.17.3 Command Menu - Operator & Administrator for System 17

Configuration #17: Screen Command

## 10.1.18 Configuration del System 18

Composition:

- TLK (telemetry)
- 2x TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 8x PA (power amplifier module)



Configuration #18: System

### 10.1.18.1 Configuration of Dip Switch for System 18

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 18										X			X			

Configuration #18: Dip Switch

### 10.1.18.2 I<sup>2</sup>C Address for System 18

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 18	1	2	3	4	5	6	7	8	9	10	11	12	13		

Configuration #18: I<sup>2</sup>C Address

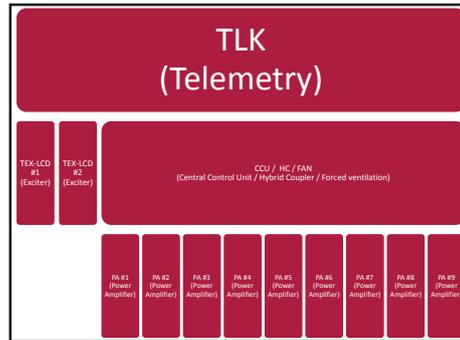
### 10.1.18.3 Command Menu - Operator & Administrator for System 18

Configuration #18: Screen Command

## 10.1.19 Configuration del System 19

Composition:

- TLK (telemetry)
- 2x TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 9x PA (power amplifier module)



Configuration #19: System

### 10.1.19.1 Configuration of Dip Switch for System 19

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 19									x	x			x			

Configuration #19: Dip Switch

### 10.1.19.2 I<sup>2</sup>C Address for System 19

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	

Configuration #19: I<sup>2</sup>C Address

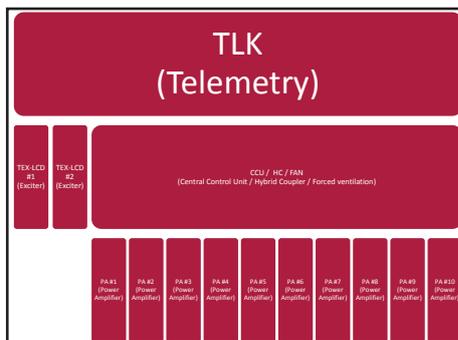
### 10.1.19.3 Command Menu - Operator & Administrator for System 19

Configuration #19: Screen Command

## 10.1.20 Configuration del System 20

Composition:

- TLK (telemetry)
- 2x TEX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 10x PA (power amplifier module)



Configuration #20: System

### 10.1.20.1 Configuration of Dip Switch for System 20

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 20											X		X			

Configuration #20: Dip Switch

### 10.1.20.2 I<sup>2</sup>C Address for System 20

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Configuration #20: I<sup>2</sup>C Address

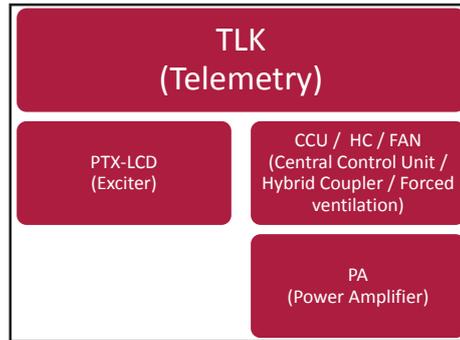
### 10.1.20.3 Command Menu - Operator & Administrator for System 20

Configuration #20: Screen Command

## 10.1.21 Configuration del System 21

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- PA (power amplifier module)



Configuration #21: System

### 10.1.21.1 Configuration of Dip Switch for System 21

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 21									x		x		x			

Configuration #21: Dip Switch

### 10.1.21.2 I<sup>2</sup>C Address for System 21

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 21	1		3	4	5										

Configuration #21: I<sup>2</sup>C Address

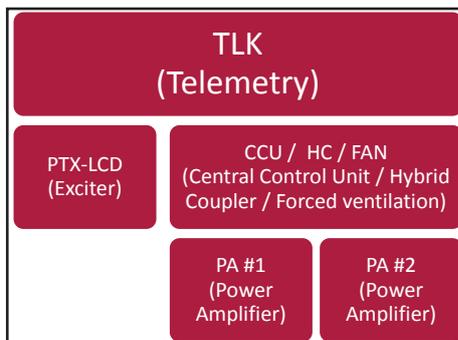
### 10.1.21.3 Command Menu - Operator & Administrator for System 21

Configuration #21: Screen Command

## 10.1.22 Configuration del System 22

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 2x PA (power amplifier module)



Configuration #22: System

### 10.1.22.1 Configuration of Dip Switch for System 22

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 22										x	x		x			

Configuration #22: Dip Switch

### 10.1.22.2 I<sup>2</sup>C Address for System 22

adr	PTX#1	PTX#2	CCU	HC	FAN	PA								
Config 22	1		3	4	5	6	7							

Configuration #22: I<sup>2</sup>C Address

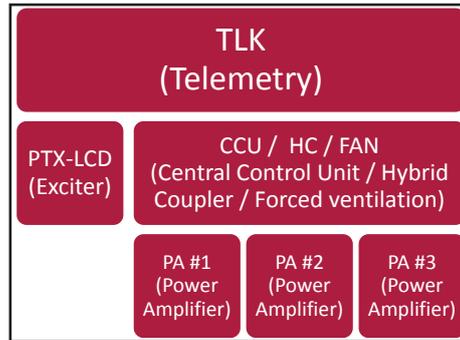
### 10.1.22.3 Command Menu - Operator & Administrator for System 22

Configuration #22: Screen Command

## 10.1.23 Configuration del System 23

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 3x PA (power amplifier module)



Configuration #23: System

### 10.1.23.1 Configuration of Dip Switch for System 23

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 23									x	x	x		x			

Configuration #23: Dip Switch

### 10.1.23.2 I<sup>2</sup>C Address for System 23

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 23	1		3	4	5	6	7	8							

Configuration #23: I<sup>2</sup>C Address

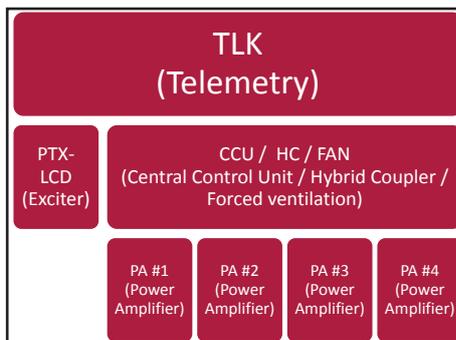
### 10.1.23.3 Command Menu - Operator & Administrator for System 23

Configuration #23: Screen Command

## 10.1.24 Configuration del System 24

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 4x PA (power amplifier module)



Configuration #24: System

### 10.1.24.1 Configuration of Dip Switch for System 24

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 24												X	X			

Configuration #24: Dip Switch

### 10.1.24.2 I<sup>2</sup>C Address for System 24

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 24	1		3	4	5	6	7	8	9						

Configuration #24: I<sup>2</sup>C Address

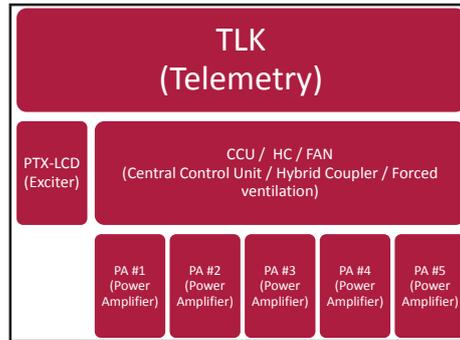
### 10.1.24.3 Command Menu - Operator & Administrator for System 24

Configuration #24: Screen Command

## 10.1.25 Configuration del System 25

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 5x PA (power amplifier module)



Configuration #25: System

### 10.1.25.1 Configuration of Dip Switch for System 25

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 25									x			x	x			

Configuration #25: Dip Switch

### 10.1.25.2 I<sup>2</sup>C Address for System 25

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 25	1		3	4	5	6	7	8	9	10					

Configuration #25: I<sup>2</sup>C Address

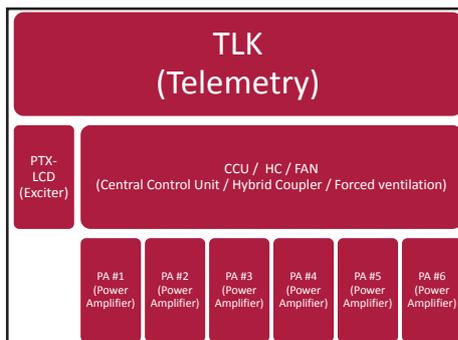
### 10.1.25.3 Command Menu - Operator & Administrator for System 25

Configuration #25: Screen Command

## 10.1.26 Configuration del System 26

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 6x PA (power amplifier module)



Configuration #26: System

### 10.1.26.1 Configuration of Dip Switch for System 26

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 26										X		X	X			

Configuration #26: Dip Switch

### 10.1.26.2 I<sup>2</sup>C Address for System 26

adr	PTX#1	PTX#2	CCU	HC	FAN	PA								
Config 26	1		3	4	5	6	7	8	9	10	11			

Configuration #26: I<sup>2</sup>C Address

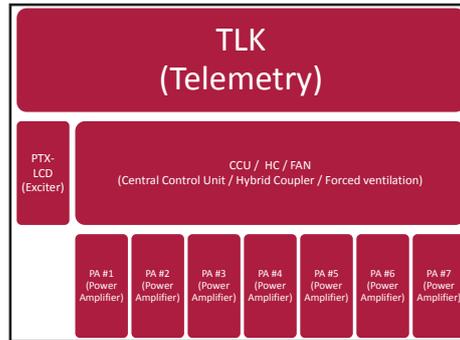
### 10.1.26.3 Command Menu - Operator & Administrator for System 26

Configuration #26: Screen Command

## 10.1.27 Configuration del System 27

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 7x PA (power amplifier module)



Configuration #27: System

### 10.1.27.1 Configuration of Dip Switch for System 27

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 27									X	X		X	X			

Configuration #27: Dip Switch

### 10.1.27.2 I<sup>2</sup>C Address for System 27

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 27	1		3	4	5	6	7	8	9	10	11	12			

Configuration #27: I<sup>2</sup>C Address

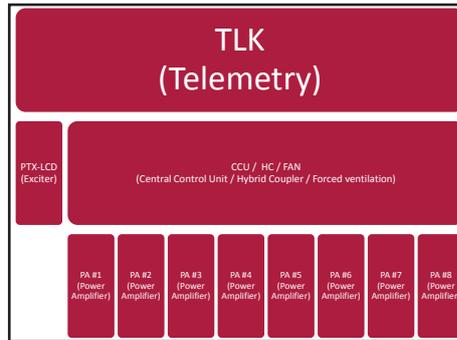
### 10.1.27.3 Command Menu - Operator & Administrator for System 27

Configuration #27: Screen Command

## 10.1.28 Configuration del System 28

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 8x PA (power amplifier module)



Configuration #28: System

### 10.1.28.1 Configuration of Dip Switch for System 28

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 28											X	X	X			

Configuration #28: Dip Switch

### 10.1.28.2 I<sup>2</sup>C Address for System 28

adr	PTX#1	PTX#2	CCU	HC	FAN	PA								
Config 28	1		3	4	5	6	7	8	9	10	11	12	13	

Configuration #28: I<sup>2</sup>C Address

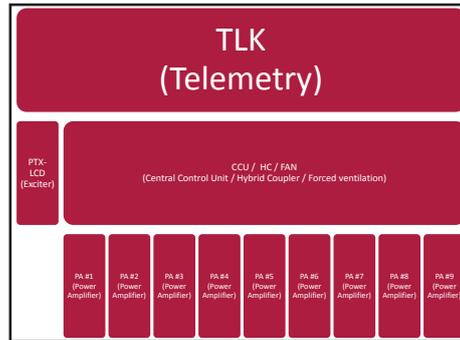
### 10.1.28.3 Command Menu - Operator & Administrator for System 28

Configuration #28: Screen Command

## 10.1.29 Configuration del System 29

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 9x PA (power amplifier module)



Configuration #29: System

### 10.1.29.1 Configuration of Dip Switch for System 29

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 29									X		X	X	X			

Configuration #29: Dip Switch

### 10.1.29.2 I<sup>2</sup>C Address for System 29

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 29	1		3	4	5	6	7	8	9	10	11	12	13	14	

Configuration #29: I<sup>2</sup>C Address

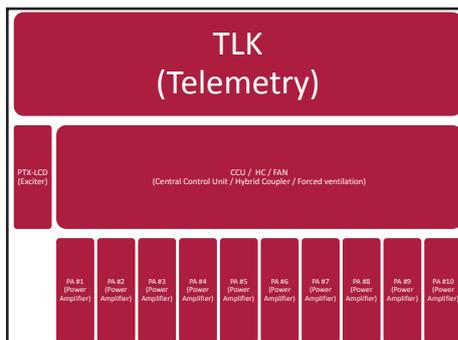
### 10.1.29.3 Command Menu - Operator & Administrator for System 29

Configuration #29: Screen Command

## 10.1.30 Configuration del System 30

Composition:

- TLK (telemetry)
- PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 10x PA (power amplifier module)



Configuration #30: System

### 10.1.30.1 Configuration of Dip Switch for System 30

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 30										X	X	X	X			

Configuration #30: Dip Switch

### 10.1.30.2 I<sup>2</sup>C Address for System 30

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 30	1		3	4	5	6	7	8	9	10	11	12	13	14	15

Configuration #30: I<sup>2</sup>C Address

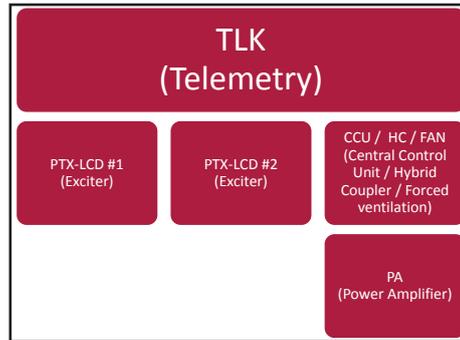
### 10.1.30.3 Command Menu - Operator & Administrator for System 30

Configuration #30: Screen Command

## 10.1.31 Configuration del System 31

Composition:

- TLK (telemetry)
- 2x PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- PA (power amplifier module)



Configuration #31: System

### 10.1.31.1 Configuration of Dip Switch for System 31

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 31									X	X	X	X	X			

Configuration #31: Dip Switch

### 10.1.31.2 I<sup>2</sup>C Address for System 31

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 31	1	2	3	4	5										

Configuration #31: I<sup>2</sup>C Address

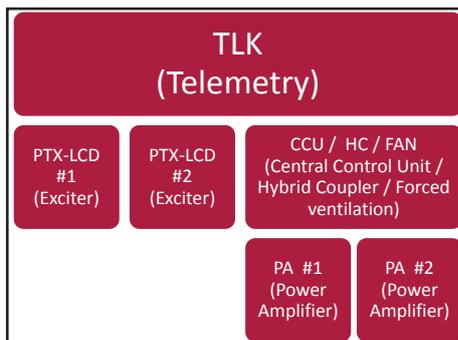
### 10.1.31.3 Command Menu - Operator & Administrator for System 31

Configuration #31: Screen Command

## 10.1.32 Configuration del System 32

Composition:

- TLK (telemetry)
- 2x PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 2x PA (power amplifier module)



Configuration #32: System

### 10.1.32.1 Configuration of Dip Switch for System 32

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 32														X		

Configuration #32: Dip Switch

### 10.1.32.2 I<sup>2</sup>C Address for System 32

adr	PTX#1	PTX#2	CCU	HC	FAN	PA								
Config 32	1	2	3	4	5	6	7							

Configuration #32: I<sup>2</sup>C Address

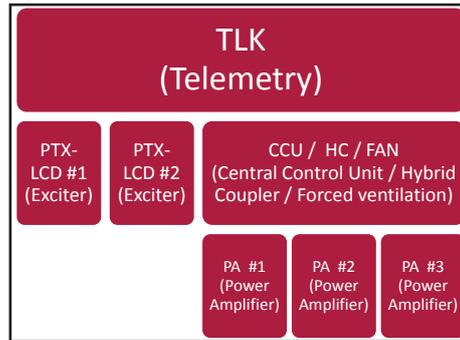
### 10.1.32.3 Command Menu - Operator & Administrator for System 32

Configuration #32: Screen Command

## 10.1.33 Configuration del System 33

Composition:

- TLK (telemetry)
- 2x PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 3x PA (power amplifier module)



Configuration #33: System

### 10.1.33.1 Configuration of Dip Switch for System 33

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 33									x					x		

Configuration #33: Dip Switch

### 10.1.33.2 I<sup>2</sup>C Address for System 33

adr	TEX#1	TEX#2	CCU	HC	FAN	PA									
Config 33	1	2	3	4	5	6	7	8							

Configuration #33: I<sup>2</sup>C Address

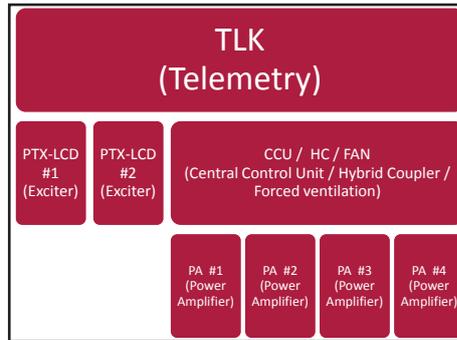
### 10.1.33.3 Command Menu - Operator & Administrator for System 33

Configuration #33: Screen Command

## 10.1.34 Configuration del System 34

Composition:

- TLK (telemetry)
- 2x PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 4x PA (power amplifier module)



Configuration #34: System

### 10.1.34.1 Configuration of Dip Switch for System 34

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	
Config TX 34										x					x		

Configuration #34: Dip Switch

### 10.1.34.2 I<sup>2</sup>C Address for System 34

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 34	1	2	3	4	5	6	7	8	9						

Configuration #34: I<sup>2</sup>C Address

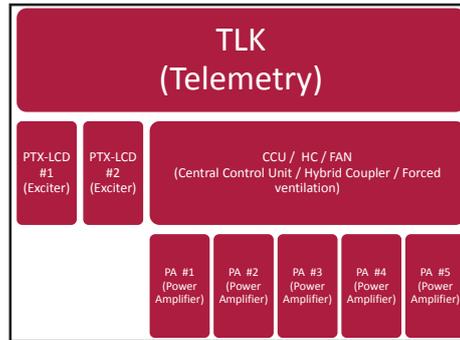
### 10.1.34.3 Command Menu - Operator & Administrator for System 34

Configuration #34: Screen Command

## 10.1.35 Configuration del System 35

Composition:

- TLK (telemetry)
- 2x PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 5x PA (power amplifier module)



Configuration #35: System

### 10.1.35.1 Configuration of Dip Switch for System 35

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 35									x	x				x		

Configuration #35: Dip Switch

### 10.1.35.2 I<sup>2</sup>C Address for System 35

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 35	1	2	3	4	5	6	7	8	9	10					

Configuration #35: I<sup>2</sup>C Address

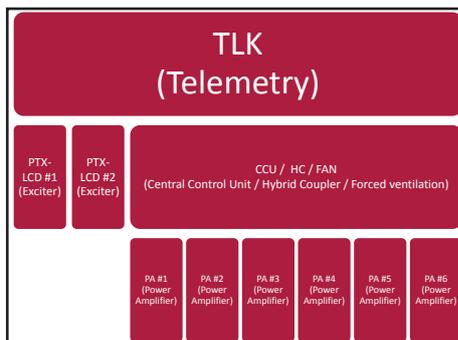
### 10.1.35.3 Command Menu - Operator & Administrator for System 35

Configuration #35: Screen Command

## 10.1.36 Configuration del System 36

Composition:

- TLK (telemetry)
- 2x PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 6x PA (power amplifier module)



Configuration #36: System

### 10.1.36.1 Configuration of Dip Switch for System 36

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 36											X			X		

Configuration #36: Dip Switch

### 10.1.36.2 I<sup>2</sup>C Address for System 36

adr	PTX#1	PTX#2	CCU	HC	FAN	PA										
-----	-------	-------	-----	----	-----	----	----	----	----	----	----	----	----	----	----	----

Configuration #36: I<sup>2</sup>C Address

### 10.1.36.3 Command Menu - Operator & Administrator for System 36

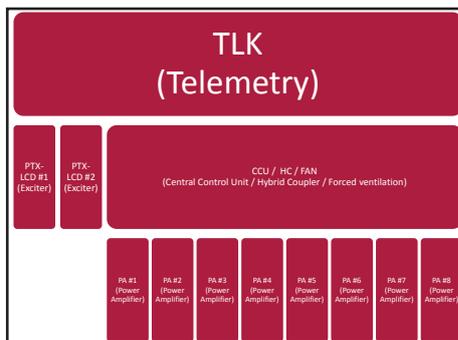
Configuration #36: Screen Command



## 10.1.38 Configuration del System 38

Composition:

- TLK (telemetry)
- 2x PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 8x PA (power amplifier module)



Configuration #38: System

### 10.1.38.1 Configuration of Dip Switch for System 38

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 38										X	X				X	

Configuration #38: Dip Switch

### 10.1.38.2 I<sup>2</sup>C Address for System 38

adr	PTX#1	PTX#2	CCU	HC	FAN	PA								
Config 38	1	2	3	4	5	6	7	8	9	10	11	12	13	

Configuration #38: I<sup>2</sup>C Address

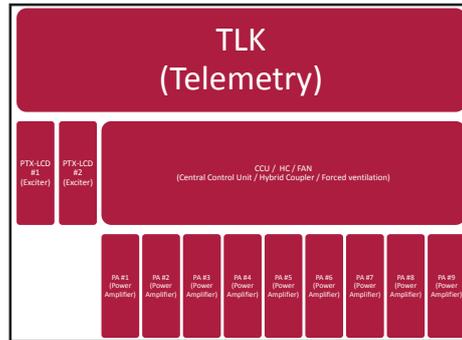
### 10.1.38.3 Command Menu - Operator & Administrator for System 38

Configuration #38: Screen Command

## 10.1.39 Configuration del System 39

Composition:

- TLK (telemetry)
- 2x PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 9x PA (power amplifier module)



Configuration #39: System

### 10.1.39.1 Configuration of Dip Switch for System 39

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 39									X	X	X			X		

Configuration #39: Dip Switch

### 10.1.39.2 I<sup>2</sup>C Address for System 39

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 39	1	2	3	4	5	6	7	8	9	10	11	12	13	14	

Configuration #39: I<sup>2</sup>C Address

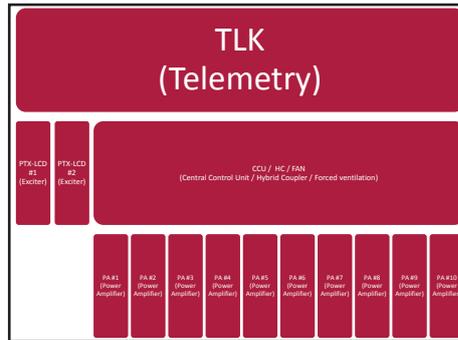
### 10.1.39.3 Command Menu - Operator & Administrator for System 39

Configuration #39: Screen Command

## 10.1.40 Configuration del System 40

Composition:

- TLK (telemetry)
- 2x PTX-LCD (exciter)
- CCU/HC/FAN (Control Central Unit/hybrid coupler/forced ventilation)
- 10x PA (power amplifier module)



Configuration #40: System

### 10.1.40.1 Configuration of Dip Switch for System 40

	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8
Config TX 40												X		X		

Configuration #40: Dip Switch

### 10.1.40.2 I<sup>2</sup>C Address for System 40

adr	PTX#1	PTX#2	CCU	HC	FAN	PA									
Config 40	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Configuration #40: I<sup>2</sup>C Address

### 10.1.40.3 Command Menu - Operator & Administrator for System 40

Configuration #40: Screen Command

## 11. SNMP Telemetry

SNMP (Simple Network Management Protocol) is a worldwide protocol that allows the management and supervision of the equipment connected to the network.

Measurements and commands are described by a MIB (Management Information Base), which is a list of OID (Object Identifier). Each OID is a variable that can be written (SET) or read (GET) through a NMS (Network Management System) compatible with SNMP.

The MIB is a text file written in ASN.1 and it is imported from the NMS in order to know what OID can be expected by the AGENT (proxy card) and how to interpret the information received.



**Note :** *The user can not freely distribute the MIB, unless written authorization issued by the manufacturer. The MIB is property of the manufacturer.*

The SNMP version used in this application is the v2, and is compatible with all NMS systems.

New Write Community:	private
New Primary Trap IP:	213.174.190.10
New Secondary Trap IP:	213.174.190.10
Main Mib:	<a href="#">rvr-main-mib.mib</a>
Specific Mib:	<a href="#">rvr-tlk-v3-v4-mib.mib</a>

Menu 1



**Note :** *Use a MIB BROWSER (not included) to use the MIB of RVR equipments. These are usually provided in an accompanying CD with the system in which the TLK300 & TLK2000 is installed.*

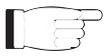
### 11.1 MAIN MIB Description

The MAIN MIB reads and manages the main parameters of **TLK300 & TLK2000** and provides general information related to manufacturer.

Through this MIB you can read, and in some cases set, parameters such as IP address, Netmask, Gateway and DNS address.

It is also possible to manage IP address, time and date stored within the telemetry system.

In cases where the parameter is a read-only, and you can not change it, it will be indicated by a red X over the icon reference. In some cases to apply a particular change, it is necessary to click on the OID item “Apply Changes”.



**Note :** In the following examples is used a MIB browser of ManageEngine, but any MIB Browser can be used.

## 11.1.1 Reading and Settings of parameters

The description of each variable is specified inside MIB, which are subsequently reported in the description box (Description) at the end.

The screenshot shows the ManageEngine MIB browser interface. On the left, a tree view displays loaded MIB modules, including 'RVR-MAIN-MIB' and 'nr-eletronica'. The 'nr-eletronica' module is expanded to show 'interface-info', which contains 'ip-address'. The right pane shows the configuration for the selected 'ip-address' parameter. It includes fields for Host (localhost), Port (161), Community (\*\*\*\*\*), Write Community (\*\*\*\*\*), Set Value (1), and Object ID (.iso.org.dod.internet.private.enterprises.nr-eletronica.interface-info.ip-address). Below these fields, a log shows the successful loading of MIBs. At the bottom, a table provides details for the parameter:

Description	MultiVar	Status	mandatory
Syntax	OCTET STRING	Reference	
Access	read-write		
Index			
Object ID	.1.3.6.1.4.1.13963.1.1		
Description	"IP address of the transmitter this should be in the form of xxx.xxx.xxx.xxx the default value is		

Menu 2

The telemetry system is capable to sending Trap up to two different addresses. Different addresses can be set using the OID in major MIB, in this case:

- IP address for the destination of the Trap.

## 11.2 SPECIFIC MIB Description

The SPECIFIC MIB reads and manages the parameters administrated by **TLK300 & TLK2000** included in transmitter station.

Through this MIB you can read powers (forward, reflected or unbalanced), temperature, voltages and currents on modules of possible amplifiers, exciters and changeovers connected to **TLK300 & TLK2000**.



**Note :** In MIB browser will always display the maximum configuration of amplifiers, exciters and changeover available. The machines not present, will report zero readings.

It is also possible to manage to control the switching on or off of transmitter, the alarm reset, automatic or manual changeover.

In cases where the parameter is a read-only, and you can not change it, it will be indicated by a red X over the icon reference. In some cases to apply a particular change, it is necessary to click on the OID item “Apply Changes”.



**Note :** In the following examples is used a MIB browser of ManageEngine, but any MIB Browser can be used.

## 11.2.1 Reading of Measurement

Each transmitter has a range of measures that can be read.

The description of each variable is specified inside MIB, which are subsequently reported in the description box (Description) at the end.

The screenshot shows a MIB browser interface. On the left, a tree view displays the hierarchy of MIB objects. The selected object is `forward-power` under the path `tlk-tlk-v3-v4-readings-power-readings-system-1-power-system-power-readings`. The right pane shows the configuration for this object, including Host (localhost), Port (161), and Object ID (`1.3.6.1.4.1.13963.4.150.1.1.1.1.1`). The description box at the bottom right contains the following text:

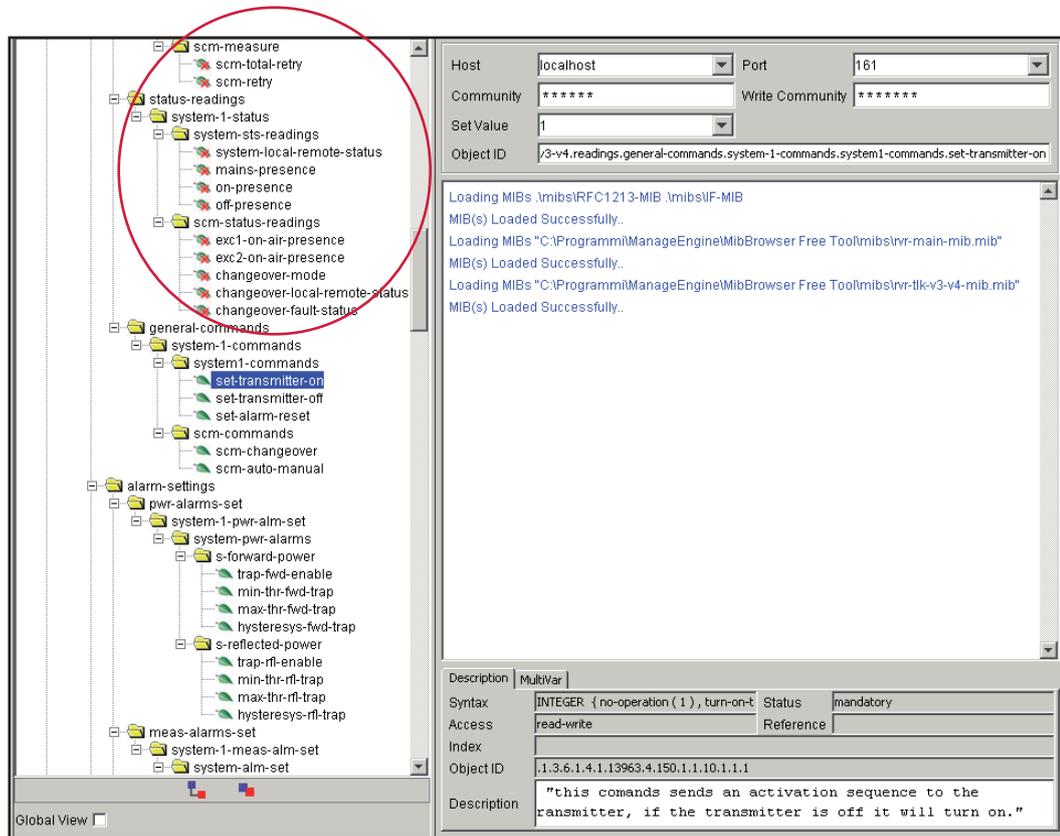
Description	Multivar	Status	mandatory
Syntax	INTEGER	Reference	
Access	read-only		
Index			
Object ID	1.3.6.1.4.1.13963.4.150.1.1.1.1.1		
Description	"Total forward power expressed in WATTS. This is the total output of the transmitter."		

Menu 3

## 11.2.1 Reading of Status

Similarly to measurements, each transmitter has a range of states that can be read.

The description of each variable is specified inside MIB, which are subsequently reported in the description box (Description) at the end..



Menu 4

The indications on the states can be of three types:

- **0** Indication of absence of the transmitter system component.
- **1** Indication of ON state, presence or activation of parameter.
- **2** Indication of OFF state, absence or deactivation of parameter.

## 11.2.2 Comand sending

Similarly to measurements, the commands have a number of OID that are only in write mode. For each transmitter, the MIB export a specific set of OID.

The commands set are of two types: bistable (ON / OFF) or impulsive type.

- **Bistable control:** in order to activate (ON), the user must send a “2” as value; in order to disable (OFF), the user must send a “1” as value. No other value is accepted like a command.

- **Impulsive control:** typically the commands are impulsive type. In other words, if you put the transmitter “ON” (“2” value), the next command is “OFF” (“2” value) and not a disable for “ON” command (“1” value).

The screenshot shows a network management interface. On the left is a tree view of the device's configuration. The 'general-commands' folder is expanded, and 'system1-commands' is selected. Within 'system1-commands', 'set-transmitter-on' is highlighted with a red circle. On the right, a configuration panel for 'set-transmitter-on' is shown. It includes fields for Host (localhost), Port (161), Community (\*\*\*\*\*), Write Community (\*\*\*\*\*), Set Value (1), and Object ID (/3-v4.readings.general-commands.system-1-commands.system1-commands.set-transmitter-on). Below these fields is a log showing MIB loading status. At the bottom, a table provides details for the command:

Description	Multivar
Syntax	INTEGER { no-operation ( 1 ) , turn-on-t
Access	read-write Reference
Index	
Object ID	.1.3.6.1.4.1.13963.4.150.1.1.10.1.1.1
Description	"this comands sends an activation sequence to the ransmitter, if the transmitter is off it will turn on."

Menu 5

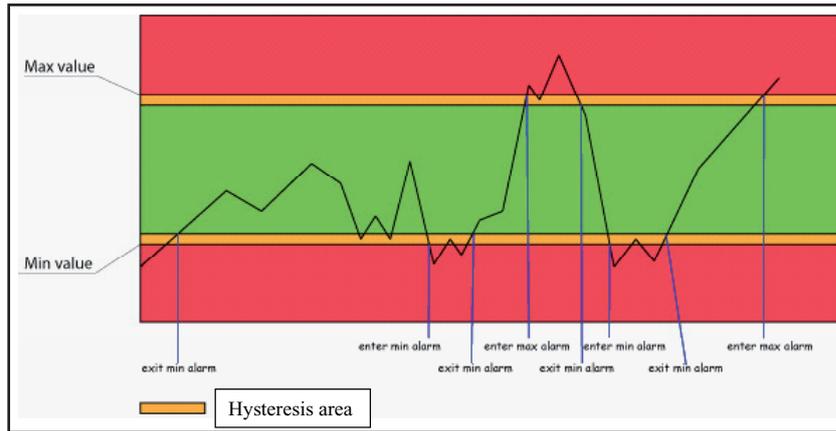


**Note:** In the example above, all controls are impulsive type.

### 11.2.3 Reading and Settings of Trap

For each Trap related to measurement can be set:

- Enabler Trap command on a power measure.
- The minimum value (MIN) is the fixed point below which is sent a Trap.
- The maximum value (MAX) is the fixed point beyond which is sent a Trap.
- The hysteresis value is a nominal value that the system adds (or subtracts) to real value in order to exit from alarm condition. In other words, it is helpful to avoid situations of continuous alarm, if readout is very close to the set point alarm.



Menu 6

As you can see the hysteresis is a protected area in which the alarm is not sent, when the value exceeds the minimum value (MIN) when there is no alarm or the maximum value (MAX) alarm is active, the minimum value (MIN) alarm is set. To exit the MIN alarm condition, the value should be equal to the MIN value plus the value of hysteresis.



**Note :** the hysteresis value must be less than  $\frac{1}{2}$  referred to distance between the minimum value (MIN) and maximum value (MAX).

An example of an analog alarm setting, are included in the following section in the SNMP tree:

Description	Multivar	Status	mandatory
Syntax	INTEGER {no-operation(1), turn-on-t	Reference	
Access	read-write		
Index			
Object ID	.1.3.6.1.4.1.13963.4.150.1.1.10.1.1.1		
Description	"this comands sends an activation sequence to the transmitter, if the transmitter is off it will turn on."		

Menu 7

An example of an alarm where you can edit only the enabler of states is shown below:

The screenshot shows a MIB browser interface. On the left, a tree view displays various MIB nodes under 'TRAPS'. The 'exc-1-audio-alm-set' node is circled in red. On the right, the detailed view for the selected node shows the following information:

Host	localhost	Port	161
Community	*****	Write Community	*****
Set Value	1		
Object ID	/3-v4.readings.general-commands.system-1-commands.system1-commands.set-transmitter-on		
Loading MIBs \mibs\RFC1213-MIB \mibs\IF-MIB MIB(s) Loaded Successfully.			
Loading MIBs "C:\Programmi\ManageEngine\MibBrowser Free Tool\mibs\rvr-main-mib.mib" MIB(s) Loaded Successfully.			
Loading MIBs "C:\Programmi\ManageEngine\MibBrowser Free Tool\mibs\rvr-tlk-v3-v4-mib.mib" MIB(s) Loaded Successfully.			
Description	MultiVar		
Syntax	INTEGER { no-operation ( 1 ), turn-on-t	Status	mandatory
Access	read-write	Reference	
Index			
Object ID	1.3.6.1.4.1.13963.4.150.1.1.10.1.1.1		
Description	"this comands sends an activation sequence to the ransmitter, if the transmitter is off it will turn on."		

Menu 8

Below are shown the OID descriptions of the trap sent by system:

The screenshot shows a MIB browser interface. On the left, a tree view displays various MIB nodes under 'TRAPS'. The 'TRAPS' node is circled in red. On the right, the detailed view for the selected node shows the following information:

Host	localhost	Port	161
Community	*****	Write Community	*****
Set Value	1		
Object ID	/3-v4.readings.general-commands.system-1-commands.system1-commands.set-transmitter-on		
Loading MIBs \mibs\RFC1213-MIB \mibs\IF-MIB MIB(s) Loaded Successfully.			
Loading MIBs "C:\Programmi\ManageEngine\MibBrowser Free Tool\mibs\rvr-main-mib.mib" MIB(s) Loaded Successfully.			
Loading MIBs "C:\Programmi\ManageEngine\MibBrowser Free Tool\mibs\rvr-tlk-v3-v4-mib.mib" MIB(s) Loaded Successfully.			
Description	MultiVar		
Syntax	INTEGER { no-operation ( 1 ), turn-on-t	Status	mandatory
Access	read-write	Reference	
Index			
Object ID	1.3.6.1.4.1.13963.4.150.1.1.10.1.1.1		
Description	"this comands sends an activation sequence to the ransmitter, if the transmitter is off it will turn on."		

Menu 9

## 12. Connecting TLK to Internet network

In order to connect the system to the public network TLK you must have an internet connection typically provided through a router with NAT (Network Address Translation), which allows devices connected to the LAN to go out with the number router's public IP and protect any attempts at forcing.

In case you have connecting directly with the public IP address on the LAN socket is advisable to insert a router / firewall to avoid exposing the system TLK directly to the public network but manage only the ports used by TLK for the functions of the web interface, SNMP, and SMTP .

The system uses incoming port 80, can not be changed, such as web interface visible from any Web Browser and port 161 can not be changed, such as SNMP port.

For sending the email TLK uses port 25, modifiable, and port 162 can not be changed, for the sending of SNMP Trap.

To ensure that the TLK is visible from the outside is necessary that the router / firewall is set up port forwarding, the function can have different names depending on the brand of your router.

The public port 80 from IP to the IP of TLK for WEB and port 161 of the public interface to the IP of TLK for SNMP data.

To ensure that the unit can send the Trap and the Email needs to be able to use the network at its output ports 162 for Trap and the port 25 for email.

To send the e-mail system TLK uses the MX record for the target domain DNS asked that must be set correctly in the appropriate fields otherwise not be able to send emails.

Also for the emails you must make sure that the destination server accept email from the public IP of our digestive system because the ships directly to the destination SMTP server without going through a server forward as is usual practice for mailers electronics installed on personal computers.

The apparatus as said default IP is set to RVR as 192.168.0.244 and will be adjusted on the network configured as your router's LAN port is used for port forwarding.

If you have multiple devices connected to the LAN after the router is necessary to use different ports on the public interface that will be routed to the fixed ports of the devices TLK must have a LAN IP different from each other.

- TLK#1 IP 192.168.0.244 Port forwarding port 80 > port 80 of 192.168.0.244
- TLK#1 IP 192.168.0.244 Port forwarding port 161 > port 161 of 192.168.0.244
- TLK#2 IP 192.168.0.245 Port forwarding port 81 > port 80 of 192.168.0.245
- TLK#2 IP 192.168.0.245 Port forwarding port 163 > port 161 of 192.168.0.245

With this configuration, the apparatus TLK # 1 will be visible from WEB as <http://public.ip> and apparatus TLK # 2 will be visible from as <http://public.ip:81> WEB, SNMP and how you must use port 161 to see the TLK # 1 and port 163 to see the TLK # 2.

To send the Trap or Email being output there is no problem, as long as there are no restrictions on using ports 25 and 162 are wanted by the service provider.

To know the public IP of our apparatus is desirable to have a FIXED IP connection service that is provided by the provider, if the service has a dynamic IP you will have to rely on a DNS service that gives a name to our IP and keep updated in the event of a change of IP in order to reach the TLK always writing the same name.

This service is provided by many providers, some free and some paid, and usually some routers include this function that can handle some of the service providers, and in case you need to use this service will need to be programmed into your router by following the instructions in that, given the various methods used to manage this function, we can not include this function in the system TLK.

In case your network TLK has many systems connected to the Internet the safest way to manage and functional systems is to create a VPN between all stations and the headquarters in order to have all the devices in the same network in order to view them directly with their IP without the limitations of different ports for devices in the same location, not all routers have this programming possibilities, limits the output ports and having to manage any dynamic IP with a DNS service.

In this case, the customer will have to rely on a company that specializes in networks to configure your VPN between locations.

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