

# R V R Elettronica RDMODWEB FM Transmitter User Manual

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### **R V R Elettronica RDMODWEB FM Transmitter**



The lightning flash with arrowhead, within a triangle, is intended to alert the user of the presence of dangerous voltage that may constitute a risk of electric shock. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the equipment.

### **Preliminary Instructions**

#### **General Warnings**

This equipment should only be operated, installed and maintained by "trained" or "qualified" personnel who are familiar with risks involved in working on electric and electronic circuits. "Trained" means personnel who have technical knowledge of equipment operation and who are responsible for their own safety and that of other unqualified personnel placed under their supervision when working on the equipment. "Qualified" means personnel who are trained in and experienced with equipment operation and who are responsible for their own safety and that of other unqualified personnel placed under their supervision when working on the equipment.

**WARNING**: Residual voltage may be present inside the equipment even when the ON/OFF switch is set to Off. Before servicing the equipment, disconnect the power cord or switch off the main power panel and make sure the safety earth connection is connected. Some service situations may require inspecting the equipment with live circuits. Only trained and qualified personnel may work on the equipment live and shall be assisted by a trained person who shall keep ready to disconnect power supply at need.

**R.V.R. Elettronica SpA** shall not be liable for injury to persons or damage to property resulting from improper use or operation by trained/untrained and qualified/unqualified persons.

**WARNING**: The equipment is not water resistant. Any water entering the enclosure might impair proper operation. To prevent the risk of electrical shock or fire, do not expose this equipment to rain, dripping or moisture. Please observe local codes and fire prevention rules when installing and operating this equipment.

**WARNING**: This equipment contains exposed live parts involving an electrical shock hazard. Always disconnect power supply before removing any covers or other parts of the equipment. Ventilation slits and holes are provided to ensure reliable operation and prevent overheating; do not obstruct or cover these slits. Do not obstruct the ventilation slits under any circumstances. The product must not be incorporated in a rack unless adequate ventilation is provided or the manufacturer's instructions are followed closely.

**WARNING**: This equipment can radiate radiofrequency energy and, if not installed in compliance with manual instructions and applicable regulations, may cause interference with radio communications.

**WARNING**: This equipment is fitted with earth connections both in the power cord and for the chassis. Make sure both are properly connected.

Operation of this equipment in a residential area may cause radio interference, in which case the user may be required to take adequate measures. The specifications and data contained herein are provided for information only and are subject to changes without prior notice. R.V.R. Elettronica SpA disclaims all warranties, express or implied. While R.V.R. Elettronica SpA attempts to provide accurate information, it cannot accept responsibility or liability for any errors or inaccuracies in this manual, including the products and the software described herein. R.V.R. Elettronica SpA reserves the right to make changes to equipment design and/or specifications and to this manual at any time without prior notice.

#### Notice concerning product intended purpose and use limitations.

This product is a radio transmitter suitable for frequencymodulation audio radio broadcasting. Its operating frequencies are not harmonised in designated user countries. Before operating this equipment, user must obtain a licence to use radio spectrum from the competent authority in the designated user country. Operating

frequency, transmitter power and other characteristics of the transmission system are subject to restrictions as specified in the licence.

### Warranty

La R.V.R. Elettronica S.P.A. warrants this product to be free from defects in workmanship and its proper operation subject to the limitations set forth in the supplied Terms and Conditions. Please read the Terms and Conditions carefully, as the purchase of the product or acceptance of the order acknowledgment imply acceptance of the Terms and Conditions. For the latest updated terms and conditions, please visit our web site at WWW.RVR.IT. The web site may be modified, removed or updated for any reason whatsoever without prior notice. The warranty will become null and void in the event the product enclosure is opened, the product is physically damaged, is repaired by unauthorized persons or is used for purposes other than its intended use, as well as in the event of improper use, unauthorized changes or neglect. In the event a defect is found, follow this procedure:

- 1. Contact the seller or distributor who sold the equipment; provide a description of the problem or malfunction for the event a quick fix is available. Sellers and Distributors can provide the necessary information to troubleshoot the most frequently encountered problems. Normally, Sellers and Distributors can offer a faster repair service than the Manufacturer would. Please note that Sellers can pinpoint problems due to wrong installation.
- 2. If your Seller cannot help you, contact R.V.R. Elettronica and describe the problem; if our staff deems it appropriate, you will receive an authorization to return the equipment along with suitable instructions;
- 3. When you have received the authorization, you may return the unit. Pack the unit carefully before shipment; use the original packaging whenever possible and seal the package perfectly. The customer bears all risks of loss (i.e., R.V.R. shall not be liable for loss or damage) until the package reaches the R.V.R. factory. For this reason, we recommend insuring the goods for their full value. Returns must be sent on a C.I.F. basis (PREPAID) to the address stated on the authorization as specified by the R.V.R. Service Manager. Units returned without a return authorization may be rejected and sent back to the sender.
- 4. Be sure to include a detailed report mentioning all problems you have found and copy of your original invoice (to show when the warranty period began) with the shipment. Please send spare and warranty replacement parts orders to the address provided below. Make sure to specify equipment model and serial number, as well as part description and quantity.

### **First Aid**

All personnel engaged in equipment installation, operation and maintenance must be familiar with first aid procedures and routines.

#### **Electric shock treatment**

If the victim is unconscious Follow the first aid procedures outlined below.

- Lay the victim down on his/her back on a firm surface.
- the neck and tilt the head backwards to free the airway system (Figure 1).

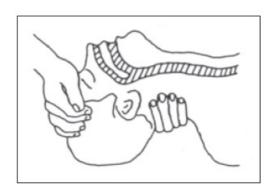


Figure 1

- If needed, open the victim's mouth and check for breathing.
- If there is no breathing, start artificial respiration without delay (Figure 2) as follows: tilt the head backwards, pinch the nostrils, seal your mouth around the victim's mouth and give four fast rescue breaths.



Figure 2

• Check for the heartbeat (Figure 3); if there is no heartbeat, begin chest compressions immediately (Figure 4) placing your hands in the centre of the victim's chest (Figure 5).

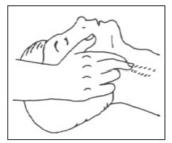






Figure 3

Figure 4

Figure 5

- One rescuer: give 2 quick rescue breaths after each 15 compressions.
- Two rescuers: one rescue breath after each 5 compressions.
- · Do not stop chest compressions while giving artificial breathing.
- · Call for medical help as soon as possible.

#### If the victim is conscious

- · Cover victim with a blanket.
- · Try to reassure the victim.
- Loosen the victim's clothing and have him/her lie down.
- · Call for medical help as soon as possible.

#### Treatment of electric burns

Large burns and broken skin

- Cover affected area with a clean cloth or linen.
- Do not break any blisters that have formed; remove any clothing or fabric that is stuck to the skin; apply
  adequate ointment.
- Administer adequate treatment for the type of accident.
- Get the victim to a hospital as quickly as possible.
- Elevate arms and legs if injured. If medical help is not available within an hour, the victim is conscious and is
  not retching, administer a solution of table salt and baking soda (one teaspoon of table salt to half teaspoon of
  baking soda every 250 ml of water). Have the victim slowly drink half a glass of solution for four times during a
  period of 15 minutes. Stop at the first sign of retching. Do not administer alcoholic beverages.

#### Minor burns

- Apply cold (not ice cold) strips of gauze or dress wound with clean cloth.
- Do not break any blisters that have formed; remove any clothing or fabric that is stuck to the skin; apply
  adequate ointment.
- If needed, have the victim change into clean, dry clothing.
- · Administer adequate treatment for the type of accident.
- Get the victim to a hospital as quickly as possible.
- Elevate arms and legs if injured.

#### **General Description**

The RDMODWEB is a TCP/IP interface that makes available the telemetry of exciters by R.V.R. Elettronica SpA on the internet, by means of connections with LAN/Ethernet networks 10Base-T. The RDMODWEB have been designed for installation in a 1HE box for 19" rack.

#### Unpacking

The package contains:

- 1 RDMODWEB
- 1 User Manual
- 1 Mains Power Cable

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

Accessories, spare parts and cables.

#### **Specification**

The RDMODWEB uses a 16bit DSP, that is the ideal solution to adjust the device to the specific connection needs, it also implements the protocols to exchange data through the Internet, such as ARP & DHCP to assign IP addresses, or like the conformity to RFC for TCP/IP applications (such as HTTP, FTP server or email). An important feature of the RDMODWEB is the extreme user-friendliness of the control system that allows interaction with user and implements the following functions, via a web browser:

· Remote setting of the output power, operating frequency and power output by the transmitter connected to the

#### RDMODWEB interface.

- Displaying of the work parameters of the transmitter connected to the RDMODWEB interface.
- · Alarm display and settings.
- RDMODWEB interface display and settings.
- Communications with external devices, such as ADSL router or PC or LAN networks, through Ethernet cable.
   Status is indicated by eight LEDs available on the front panel: ON, ALARM, MODEM, SMS, COM, RS232, LOCAL, WAIT.

### **Front Panel Description**



- 1. ON Green LED, turns on when the equipment is connected to mains power supply.
- 2. ALARM Red LED, turns on when an alarm detected by the telemetry system is present.
- 3. MODEM Green LED, turns on when modem is connected.
- 4. SMS Yellow LED, indicates that SMS messaging is active.
- 5. COM Yellow LED, indicates the remote communication, or rather telephone connection through TELECON software.
- 6. RS232 Yellow LED, indicates that communication via RS232 serial port is in progress.
- 7. LOCAL N.C. (Provided for future expansion).
- 8. WAIT Yellow LED, when on, indicates that Start time is active. No alarm messages will be sent until this LED turns off.
- 9. RS232 DB9 female loop connector connected to telemetry unit.
- 10. MODEM DB9 female loop connector connected to TCP/IP interface.

### **Rear Panel Description**



- 1. MAINS IN VDE mains power supply connector.
- 2. NETWORK RJ45 connector for LAN communication.
- 3. RS485 DB9 female connector for RS485 communication to external devices.
- 4. RS232 Not used.

5. I2C BUS DB9 male connector for I2C standard communication with exterbal devices.

### **Connector Description**

#### **RS232**

4.5.1 RS232

Type: DB9 Male



- NC 2 3 TXD RXD 4 NC GND
- 6 NC 7 NC
- NC 8 NC

### 4.5.2 I2C BUS

Type: DB9 Male



- NC 2 SDA
- 3 SCL NC
- 5 GND
- NC
- 7 NC
- 8 NC
- NC 9

### 4.5.3 RS485 BUS

Type: DB9 Female



- NC В
- 2 3 4 5
- NC GND
- 6 NC
- NC
- 8 NC
- NC

#### LAN

# 4.5.4 LAN

Type: RJ45 Female



- 1 TX+
- 2 TX-3 RX+
- 4 N.C.
- 5 N.C.
- 6 RX-
- 7 N.C.
- N.C.

## **Technical Specifications**

Parameters			RDMODWEB
GENERA	LS		
Primary Power			115/230 VAC ±15% (internally
Phisical Dimensions (W x H x D)			483 x 44 x 238 mm
Weigh			6,5 kg
Environmental working temperature			-10 to + 50 °C
Cooling type			_
INPUT			
Analog			_
Digital/Analog			_
OUTPUTS			
Relay			_
I R FAC E			
RS232			_
RS485			Yes
IIC BUS			Yes
RJ 45 (LAN)			Yes
STANDARD COMP		A N E C	
Safety			EN60215:1997
EMC			EN 301 489-11 V1.4.1
Spectrum Optimization			_

### Installation and configuration procedure

This section provides a step-by-step description of device 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 device 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.

#### **Preparation**

#### **Preliminary checks**

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

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

- Connection cable kit including:
- Mains supply, 230 VAC (-15% / +10%), with adequate ground connection;
- Cable for connection of the exciter telemetry signal;
- Ethernet cable (not included) for connection to an ADSL router or LAN network; or
- Crossover Ethernet cable (not included) for connection to an ADSL router or LAN network.

#### **Connections**

- 1. Connect transmitter I2C output to RDMODWEB interface I2C input.
- 2. Connect the RDMODWEB interface NETWORK output to the relevant input of its ADSL router or LAN network.

  If your connection equipment is different, identify an equivalent output.

**Note**: If you intend to connect it directly to a PC, it is necessary to use a crossover ethernet cable. This is a basic prerequisite to ensure equipment correct operation.

3. Connect the network cable to the relevant MAINS IN connector on RDMODWEB interface.

#### First Power-On and Set-Up

Perform this procedure upon first power-up and each time you make changes to the configuration this component is integrated into.

#### 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 and operation data. Follow the procedure below to open the WUI:

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



**Note**: If address <a href="http://192.168.0.244">http://192.168.0.244</a> does not work, check and set IP address as 192.168.0.XXX (where XXX is a figure between 0 and 255, excluding 244 that is RDMODWEB 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.

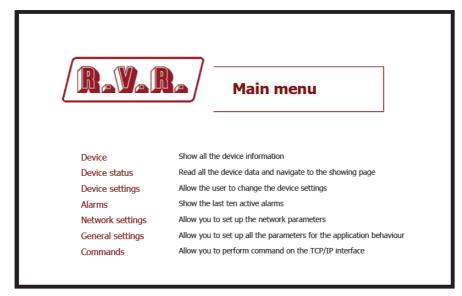
2. If the User Name and the Password have not been entered and saved yet, and if no changes were made to access modes, enter RVR and RVR to enter as administrator (if access data were modified, enter the new User Name and Password). Then click on Login.

**Note**: To enter as user, type user and user into User Name and Password fields. This enables WUI read-only mode.

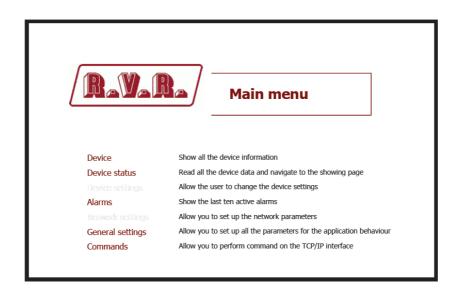
3. Now interface is ready to remotely read data and modify the various settings of the equipment.

#### **Management Software**

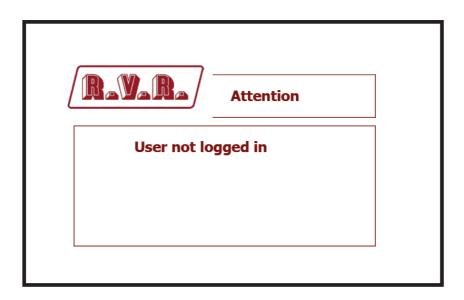
1. After access is made, the Main menu (main page) opens and shows possible viewing options. This picture shows the Main menu after access as administrator:



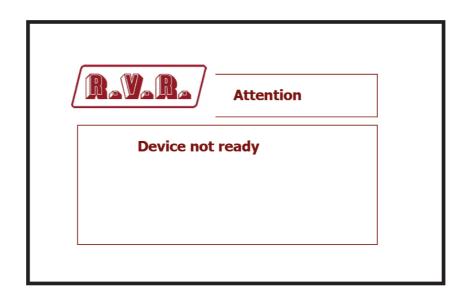
1. If you enter as user, with no administrator privileges, only reading functions will be available within the WUI, and the Main menu will be like this:



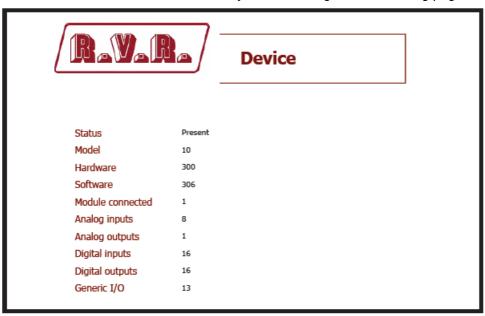
To enter in one of the sub-menus, select the name and then click on item to enter. To go back to MAIN menu, just click on RVR logo at top left of all sub-menus. If user tries to enter a sub-menu with no prior login, or after a certain period of inactivity that can be set and causes automatic logout, upon attempt to enter any of the sub-menus, the following page is displayed:



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 click on RVR logo at top left of all sub-menus. If user tries to enter a sub-menu with no prior login, or after a certain period of inactivity that can be set and causes automatic logout, upon attempt to enter any of the sub-menus, the following page is displayed:



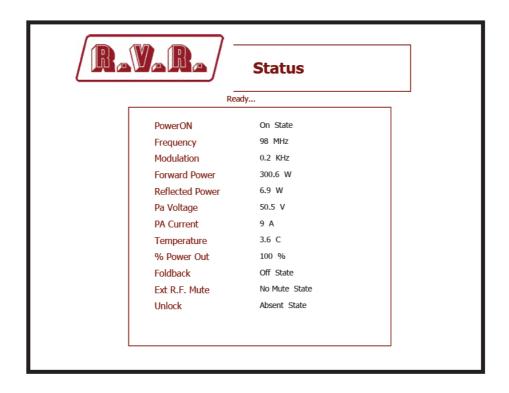
Repeat WUI access procedure to restore operating conditions with the same mode valid before logout. If user enters information sub-menu about a device that is not yet acknowledged, the following page is displayed:



In this case, allow a few seconds for RDMODWEB interface acknowledgement. While to go back to MAIN menu, just click on RVR logo at top left of the submenu.

### **Device Menu**

Values found here are "live readings", and as such they can not be modified. This page shows the user the data of the exciter connected to the RDMODWEB interface:



• Status: Shows exciter connection state.

• Model: Shows exciter decimal ID number (10 is for TEX-LCD series).

• Hardware: Shows exciter hardware release.

• Software: Shows exciter firmware release.

• Module connected: Shows devices connected to exciter.

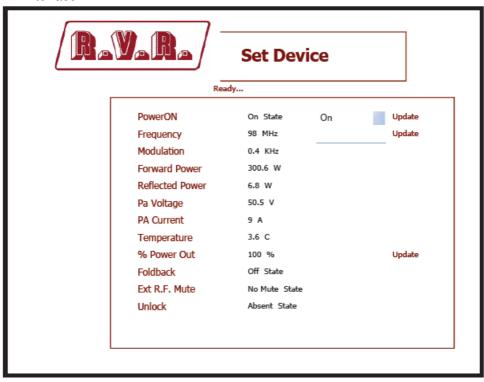
• Analog inputs: Shows the analogue inputs managed by exciter.

• Analog outputs: Shows the analogue outputs managed by exciter.

• Generic I/O: Shows the general inputs and outputs managed by RDMODWEB interface.

#### Status Menu

Values found here are "live readings", and as such they can not be modified. To change power setting use the Set Device (chapt. 5.3.3) after logging in as administrator. This page shows the user the data of the exciter connected to the RDMODWEB interface:



Power ON

Shows exciter operating status.

Frequency

Shows exciter operating frequency.

Modulation

Shows exciter modulation.

Forward Power

Shows exciter forward power.

Reflected Power

Shows exciter reflected power.

· Pa Voltage

Shows exciter amplifier module voltage.

Pa Current

Shows exciter amplifier module current.

Temperature

Shows equipment internal temperature reading.

Power Out

Shows power setting efficiency.

Foldback

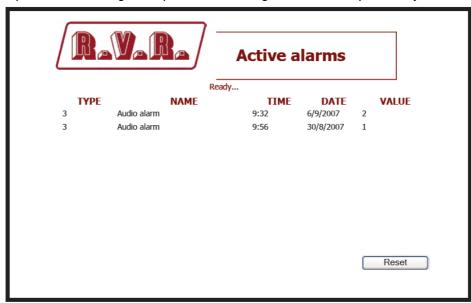
Shows the triggered status of the foldback function (automatic reduction of output power).

Ext R.F. Mute

Shows the status of power inhibition by an interlock signal. Unlock Shows the status of lock at frequency set by PLL.

### **Device Setting Menu**

This page not only shows the user the information about the exciter connected to the RDMODWEB interface, but also allows setting various parameters. Following is a description of the items that allow modification of the parameter, with respect to the Status menu (chapt. 5.3.2). Press the Update button to confirm selection; if you let timer to time out or press the RVR logo, the parameter setting will remain as previously set.



Enables (ON) or disables (OFF) exciter power output.

Frequency

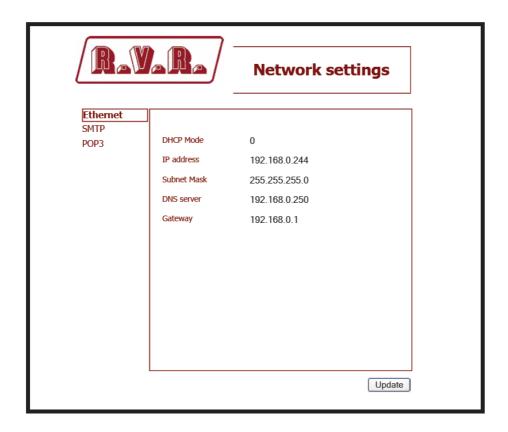
Remote adjustment of exciter frequency. This value, in MHz, can be modified according to one's own band in 0.1 MHz steps.

· % Power Out

Remote adjustment of exciter power. This value, in %, can be modified in the range 0 to 100, in steps of 1%.

#### **Active alarms**

Values found here are "live readings", and as such they can not be modified. To change alarms settings, use the General Settings menu (chapt. 5.3.6) after logging in as administrator. Within this menu you can display all 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 RDMODWEB interface:



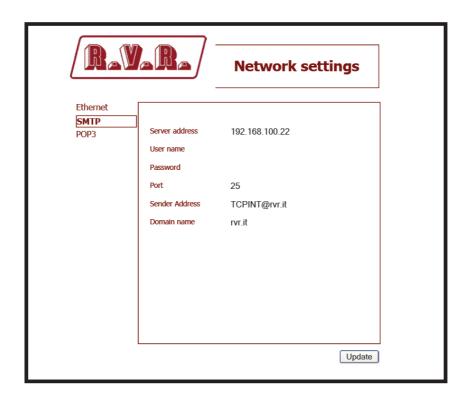
- Type Shows the alarm code.
- Name Shows the description for the error that led to event recording.
- Time Shows event recording time (hh:mm).
- Date Shows the day event was recorded (dd/MM/yyyy).
- Value Shows progressive number for event recording.

#### **Network settings**

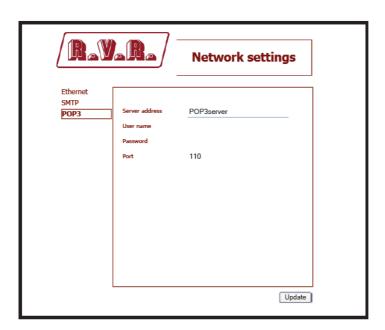
**Note**: Access to this menu and modification of these parameters are only possible after login with administrator rights.

This page not only shows the user the information about the RDMODWEB interface network connection, but also allows setting various parameters. Press the Update button to confirm selection; if you let timer to time out or press the RVR logo, the parameter setting will remain as previously set.

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



#### **Ethernet menu**



This page allows configuration of the parameters needed for connecting to an ethernet network.

### **DHCP Mode**

Enables (0) or disables (1) dynamic address configuration mode (Dynamic Host Configuration Protocol).

### **IP address**

Shows and sets 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 and sets 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.

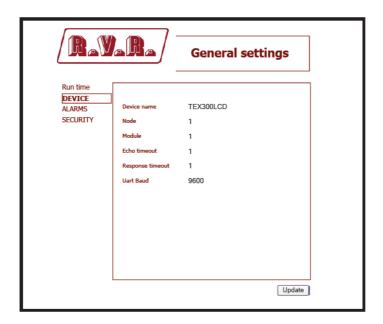
#### **DNS** server

Shows and sets 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.

#### Gateway

Shows and sets 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.

#### SMTP menu



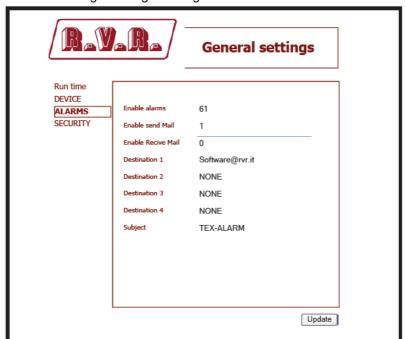
This page allows parameter configuration for sending messages through the network.

#### Server address

Shows and sets the address of the server used for routing message traffic.

#### User name

Shows and sets user name for enabling sending messages.



Shows and sets password for enabling sending messages. Port Shows and sets the port used by TCP transmission protocol.

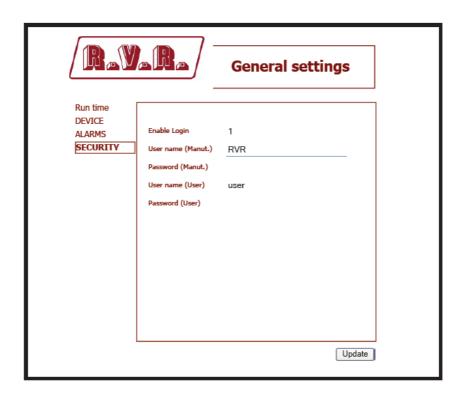
#### **Sender Address**

Shows and sets the transmission address used for sending messages.

#### **Domain name**

Shows and sets domain name.

#### POP3 menu



This page allows parameter configuration for receiving control messages through the network.

#### Server address

Shows and sets the address of the server used for routing message traffic.

### User name

Shows and sets user name for enabling messages reception.

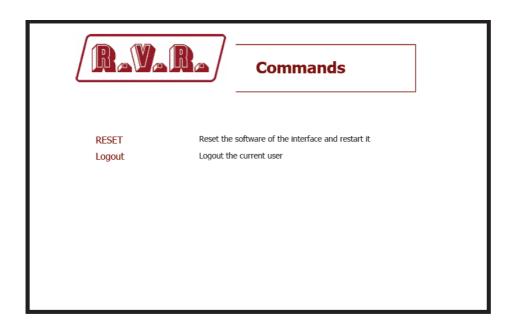
#### **Password**

Shows and sets password for enabling messages reception. Port Shows and sets the port used by TCP transmission protocol.

### **General settings**

**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 the exciter connected to the RDMODWEB interface, but also allows setting various parameters. Following is a description of the items that allow modification of the parameter, with respect to the Status menu (chapt. 5.3.2). Press the Update button to confirm selection; if you let timer to time out or press the RVR logo, the parameter setting will remain as previously set.



#### Device menu

This page allows configuration of serial protocol parameters.

**Note**: To avoid device malfunction, it is highly recommended not to make changes within this sub-menu, if not otherwise explicitly suggested by RVR. Only Device Name item can be modified with no problems.

#### **Device name**

Shows and sets device name. Node Shows and sets the node for serial protocol. Module Shows and sets the module for serial protocol.

#### **Echo timeout**

Shows and sets waiting time for receiving the echo character for the serial protocol.

### Response timeout

Shows and sets waiting time for receiving the response frame for the serial protocol.

#### **Uart Baud**

Shows and sets serial protocol speed.

#### Alarms menu

This page allows configuration of the signal for alarms of the exciter connected to RDMODWEB interface.

#### **Enable alarms**

Shows and sets alarm presence sampling time, in seconds. If the value is equal to 0, alarm check task is disabled.

### **Enable send mail**

Enables (0) or disables (1) mail output after alarms.

#### **Enable receive mail**

Enables (0) or disables (1) control message reception.

#### **Destination X**

Shows and sets the list of addresses to which alarm warning mail messages shall be sent. Maximum 4 different addresses can be saved.

#### **Subject**

Shows and sets the description of the "subject" field of the mail.

#### Security menu

This page allows configuration of the access to RDMODWEB interface via WUI.

### **Enable login**

Enables (0) or disables (1) access to the menus by means of the login page.

#### **User Name (Manut.)**

Shows and sets the user name for administrator functions (parameter reading and change enabling).

#### Password (Manut.)

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

### **User Name (User)**

Shows and sets the user name for user functions (parameter read-only enabling).

#### Password (User)

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

#### Commands menu

This menu allows you to logout from WUI. Furthermore, using the Reset item, at bottom right of this menu, it is possible to restore software factory settings (backup).

Reset Press this item to take settings (possibly modified) back to original factory values.

Logout Press this item to disconnect from current session.

#### **Module Identification**

The RDMODWEB is made up of several modules connected through connectors to facilitate maintenance and replacement (if needed).

#### **Top View**

Figure 6.1 shows a top view of the equipment and component locations.

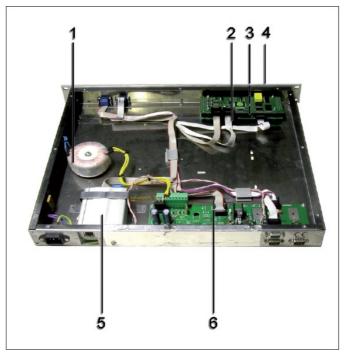


Figure 6.1

- 1. Transformer.
- 2. CPU16Bit Board.
- 3. CPU16Bit Interface Board.
- 4. LED Board for CPU16bit.
- 5. TCP/IP interface.
- 6. Main Board and Power Supply

### R.V.R Elettronica S.p.A.

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### **Documents / Resources**



RVR Elettronica RDMODWEB FM Transmitter [pdf] User Manual RDMODWEB FM Transmitter, RDMODWEB, FM Transmitter, Transmitter

## References

- R.V.R. Elettronica Broadcast Systems
- R.V.R. Elettronica Broadcast Systems

Manuals+,