MAINTENANCE AND OPERATION
INSTRUCTION MANUAL

# Radio Explorer III DAB

Advanced Mobile DAB/DAB+ Radio Analyzer

**DAB**
*DigitalAudioBroadcasting*    **dab+**

50 Channel GPS Receiver

**GPS**

**DB DEVA®**
BROADCAST

# Contents

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# Introduction

DEVA Broadcast Ltd. is an international communications and high-technology manufacturing organization, its corporate headquarters and facility located in Burgas, Bulgaria. The company serves the broadcast and corporate markets worldwide – from consumers and small businesses to the largest global organizations. It is dedicated to the research, design, development and provision of advanced products, systems and services. DEVA launched its own brand back in 1997 and has nowadays evolved to become known as a market leader and internationally reputed manufacturer of user-friendly, cost-effective and innovative broadcast products.

Creativity and innovation are deeply woven into DEVA corporate culture. Through successful engineering, marketing and management our team of dedicated professionals creates future-oriented solutions to improve customers' performance. You may rely that all issues communicated to our crew would be addressed accordingly. We pride ourselves on our pre and post-sales support and purchase services, which along with the outstanding quality of our radio gear have won us due respect and the market authority position.

DEVA best-of-breed solutions have become the best sellers for our partners. The strategic partnerships which have been formed with industry leaders during all these years that we have been operating on the broadcasting market, have proved us a reliable business partner and a valuable asset, as our dealers worldwide would confirm. In constant pursuit of precision and long-term satisfaction, DEVA enhances the reputation of our partners and clients alike. Furthermore, we have already a proven merit as a credible partner provider.

Our portfolio offers complete line of high quality and competitive products for FM and Digital Radio, Radio Networks, Telecommunication Operators and regulation authorities. For almost two decades of intensive software and hardware development, we have achieved a unique price-performance and endurance of our product lines. Our company's multitude of equipment and services is in line with the latest technologies and key trends. The most recognizable characteristics attributed to DEVA products are their clear-cut, streamlined design, easiness of use and cost-effectiveness: simplicity of forms but multiplicity of functions.

For us there is no stage when we deem that we have reached the most satisfactory level in our work. Our engineers are in constant pursuit of new ideas and technologies to be captured in DEVA solutions. Simultaneously, a strict control is being exercised at each step of any new development. Experience and hard work are our fundament but the continuous improving process is what we never leave aside. DEVA participates on a regular basis in all landmark broadcasting events, not only to promote its products, but to exchange valuable know-how and experience. We are also engaged in international large-scale projects involving radio and audio solutions which makes us even more competitive on the global market.

All DEVA products are developed and produced in accordance with the latest ISO 9001 quality control standards.

# Typographic conventions

The following table describes important conventions used in the manual.

| Convention and Style | Description | Examples |
|---|---|---|
| *Menu > Sub Menu > Menu Command* | A menu item(s) and menu command that you need to click in sequence | Click ***Settings > General*** |
| [Button] | Interface Interactive buttons | Press [OK] to save the changes |
| **NOTE** | Important notes and recommendations | **NOTE:** The notification will appear only once |
| "Reference Name" on Page XXX | References and links | refer to "New Connection" (see "Monitoring" on page 56) |
| Example | Used when example text is cited | Example for E-mail Notification: Date: 04 Nov 2013, 07:31:11 |

# General Information

Radio Explorer III DAB adds another dimension to DEVA Broadcast's already spectacular range of DAB/DAB+ products. This is an advanced coverage survey mobile tool in full compliance with the ETSI EN 300 401 DAB standard. Among its most important advantages are the two powerful DAB tuners, which account for the unprecedented accuracy and reliability to this product.

Radio Explorer III DAB allows you to monitor up to 10 services within the DAB ensemble with predefined acquisition time in a round-robin scheduler and stores the measured parameters in a log file for further analysis through the DEVA Device Manager software.

It offers support for Program Associated Data (PAD), as well as all standard bitrates and VBR, and automatically displays live metadata. As a tool of immense precision, it also measures the following DAB signals: RSSI, SNR, CNR, FIC Quality, FIB Errors, FFT Offset and the Left & Right Audio level values.

The BandScan function of the Radio Explorer III DAB presents an overview of all DAB/DAB+ signals available, plus their RF signal strength. BandScans are possible within any section of Band III, whereas the generated spectrum diagram shows the RF Level vs. the channels. Another great asset to this tool is the Loudness meter, which can be shown as defined by ITU BS.1770-4 and EBU R128 recommendations, as the product supports both.

As a matter of course, our aim with Radio Explorer III DAB has once again been to make sophisticated, high quality equipment easy to use. This product has a high-resolution graphical OLED display with front panel navigational buttons and soft buttons for quick access to the device's various functions. Another option to control the unit is via the built-in Web server - a standard web browser can be used to monitor its status or to make some adjustments. iOS and Android devices are also supported. The Main Screen of the WEB Interface shows all mandatory parameters represented as LED bar graph readings.

The DEVA Device Manager Software, supplied free of charge, also allows for quick and easy connection to the device.

Another elegant solution in our DAB/DAB+ line, the Radio Explorer III DAB brings precision, effectiveness and the customary DEVA quality.
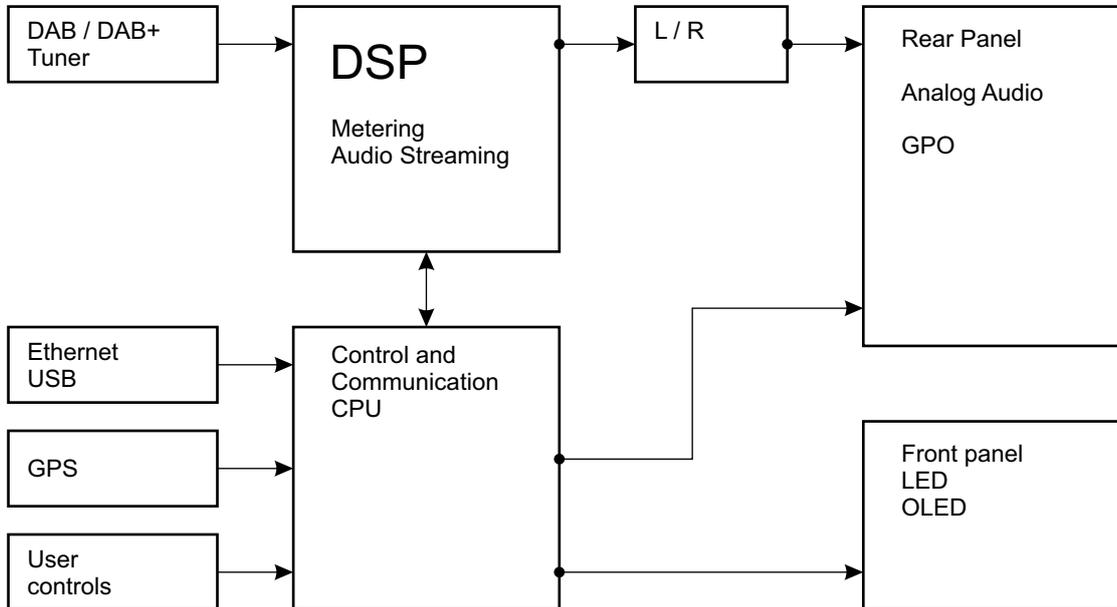
# Product Features

- DAB/DAB+ compliant receiver
- Support for Program Associated Data (PAD)
- Predefined DAB channels scan or manual tune
- Detailed DAB component information
- High-end digital tuner
- Dual tuner frontend for faster service switching
- Protected access to the device settings
- SNTP for automatic synchronization of the built-in clock
- LAN port for full TCP/IP remote control and monitoring
- Adjustable MIN/MAX alarms for RF, Left & Right Audio Levels
- Alarm dispatch via E-mail, SNMP ver.2C and GPO
- Firmware updates will ensure improved operation
- Antenna port supporting up to 110 dBμV direct RF Antenna Input
- Built-in 50-channels GPS Receiver
- Front panel OLED Graphical Display
- Easy to use WEB Interface
- Apple and Android devices support
- Very Intuitive Application Interface
- SNMP for adjustments and control
- Maintenance via DEVA Device Manager Software
- Measurement results visualization in Google Earth
- Accurate front-panel metering for local use
- Headphone output with front panel level control
- 3 General purpose outputs
- Built-in FTP Server for easy download of the Log files
- Robust, custom made Metal Case for high RF immunity

# TECHNICAL SPECIFICATIONS

| DAB/DAB+ RADIO INPUT | |
|---|---|
| RF frequency range | 168 - 240 MHz |
| DAB/DAB+ | Band III Channels 5A - 13F |
| Sensitivity | 18 dBμV |
| Input connector | BNC 50Ω |
| In compliance with | ETSI EN 300 401 |
| Ensemble acquisition Time | 940 ms |
| L&R Audio | 1%, +5.0 to -50.0 dB, 0.1 dB resolution |
| **DAB/DAB+ RADIO METERING** | |
| Quality indicators | RSSI, SNR, CNR, FIC Quality, FIB Errors, FFT Offset |
| PAD | DLS, MOT |
| Metadata Displayed | Ensemble Label, Component List & ID, Service List & ID, Dynamic Label, PTY, Sample Rate, Bit Rate, Gain, Mode, Service Mode, Protection Info, Current CU & Address, Country, Language, Time & Date |
| **OUTPUTS** | |
| Audio (L, R) | +6 dBu, 600Ω, balanced XLR Connector |
| GPO | Terminals on rear panel, optoisolated |
| Headphone | 6,3mm (1/4") Phone Jack |
| **COMMUNICATION INTERFACES** | |
| USB | B-type Connector |
| Ethernet 10/100 Base-T | RJ45 Connector |
| **GPS RECEIVER** | |
| Number of channels | 50 |
| Antenna | Pre-amplified, 5m of cable, magnetic |
| Connector | SMA, rear panel |
| **MEASUREMENT STORAGE** | |
| Storage | 16GB Build-in Memory Card |
| Data format | Text, CSV |
| **POWER REQUIREMENT** | |
| Voltage | 12 DC (11-15V) / 2A max at 12V |
| Connector | XLR (on rear panel) |
| **SIZE AND WEIGHT** | |
| Dimensions (W;H;D) | 210 x 76 x 215 mm |
| Shipping Weight | 470 x 180 x 310 mm / 4.031 kg |
| HS Code | 8527212000 |

# BLOCK DIAGRAM

A simplified block diagram of Radio Explorer III DAB is shown below

```
┌──────────────┐      ┌─────────────────┐   ┌─────────┐   ┌──────────────┐
│ DAB / DAB+   │─────▶│      DSP        │──▶│  L / R  │──▶│ Rear Panel   │
│ Tuner        │      │                 │   └─────────┘   │              │
└──────────────┘      │  Metering       │                 │ Analog Audio │
                      │  Audio Streaming│                 │              │
                      │                 │                 │ GPO          │
                      └────────┬────────┘                 └──────────────┘
                               ▲
                               ▼
┌──────────────┐      ┌─────────────────┐
│ Ethernet     │─────▶│ Control and     │
│ USB          │      │ Communication   │
└──────────────┘      │ CPU             │
┌──────────────┐      │                 │                 ┌──────────────┐
│ GPS          │─────▶│                 │                 │ Front panel  │
└──────────────┘      │                 │                 │ LED          │
┌──────────────┐      │                 │                 │ OLED         │
│ User         │─────▶│                 │────────────────▶│              │
│ controls     │      └─────────────────┘                 └──────────────┘
└──────────────┘
```

Because of the all-digital, minimalist-discrete-component nature of device circuitry, we have not provided schematic diagrams of the Radio Explorer III DAB in this Manual. Please, note that:

# NO USER-SERVICEABLE COMPONENTS INSIDE.
# REFER ALL SERVICING TO
# QUALIFIED TECHNICAL PERSONNEL.

# Panel Indicators, Switches and Connectors



## OLED DISPLAY

Radio Explorer III DAB has easy to read, high-resolution OLED graphical display that visualizes all measurements of the received signal and Radio Explorer III DAB's settings.

## CONTEXT-SENSITIVE SOFT BUTTONS

Used for navigation through the menus, quick access to the parameters, modes, functions and to alter their values. The soft buttons indicators are placed on the bottom side of the OLED display. Depending on the currently selected menu context the indicators change their function. The soft buttons will be referred as (left-to-right) [SB1], [SB2], [SB3] and [SB4].

## NAVIGATIONAL BUTTONS

[UP], [DOWN], [LEFT], [RIGHT] and [OK] buttons, are used to navigate through the menus selecting various functions and parameters of Radio Explorer III DAB.

# FRONT PANEL
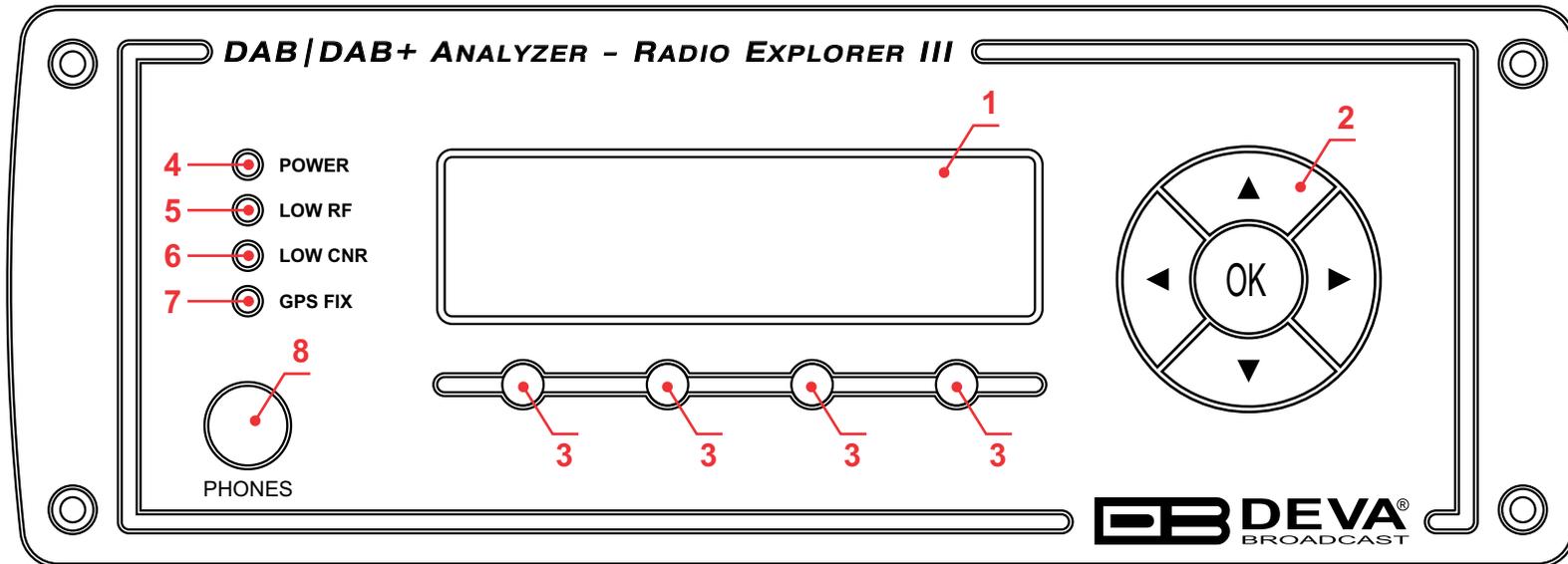


1. **High resolution OLED Graphical Display.**
2. **Navigational Buttons** – *UP* and *DOWN*, *LEFT* and *RIGHT* and *OK* buttons are used to navigate through the OLED menus selecting various functions and parameters.
3. **Soft Buttons** – will be referred to as (left-to-right) *SB1*, *SB2*, *SB3* and *SB4*.
4. **Power** indicator
5. **LOW RF** – This LED shows that the incoming RF signal of the tuned frequency is below the specified threshold.
6. **LOW CNR** – This LED shows that the CNR of the tuned frequency is below the specified threshold.
7. **GPS FIX** – The LED indicator will be lit when the GPS receiver acquires a GPS fix. In case of poor GPS reception or insufficient satellites the LED will remain unlit.
8. **PHONES** – The 1/4" (6.3mm) phone jack provides the audio signal of tuned station for listening.

# REAR PANEL
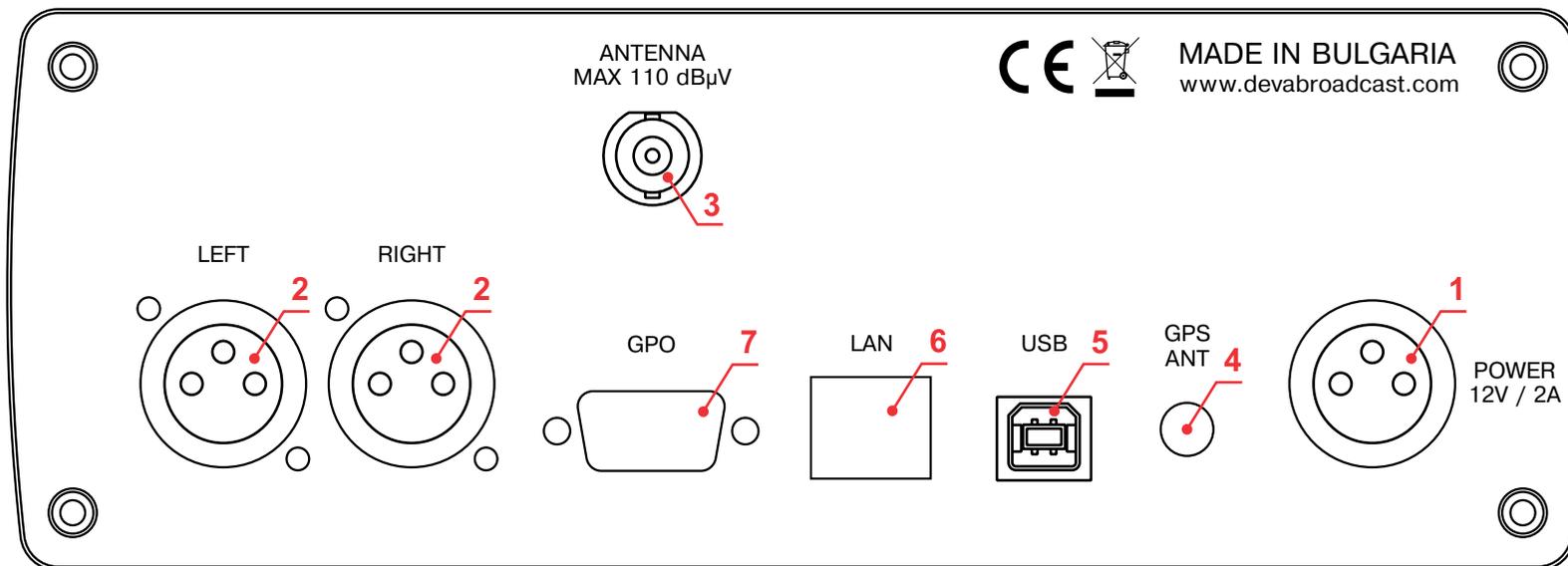


1. **POWER CONNECTOR** - DC 12V;
2. **PROGRAM OUTPUT** – XLR connectors for Left and Right analog audio outputs;
3. **ANTENNA INPUT** – 50 Ω BNC connector for Antenna input;
4. **GPS ANTENNA** – Consumer-standard SMA connector for GPS Antenna input;
5. **USB –** USB 2.0 Communication Port
6. **LAN** – 10/100 Mbit Ethernet port
7. **GPO** – Optoisolated, Female D-Sub 9 pins;

# REAR PANEL GPO TERMINAL
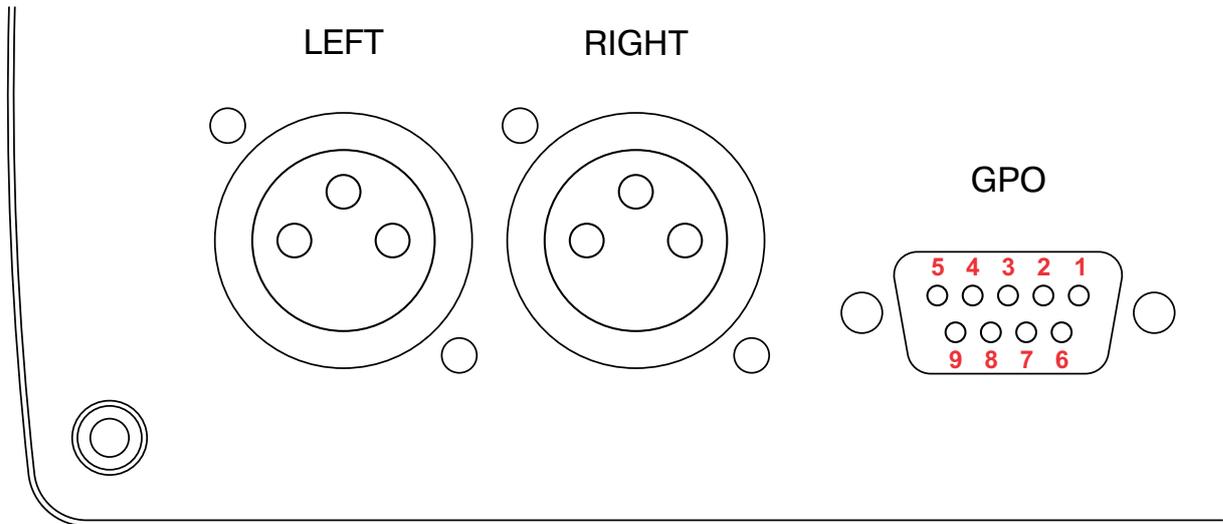


1 - + 12V DC
2 - GPO1 Collector
3 - GPO2 Collector
4 - GPO3 Collector
5 - GND
6 - GPO1 Emitter
7 - GPO2 Emitter
8 - GPO3 Emitter
9 - GND
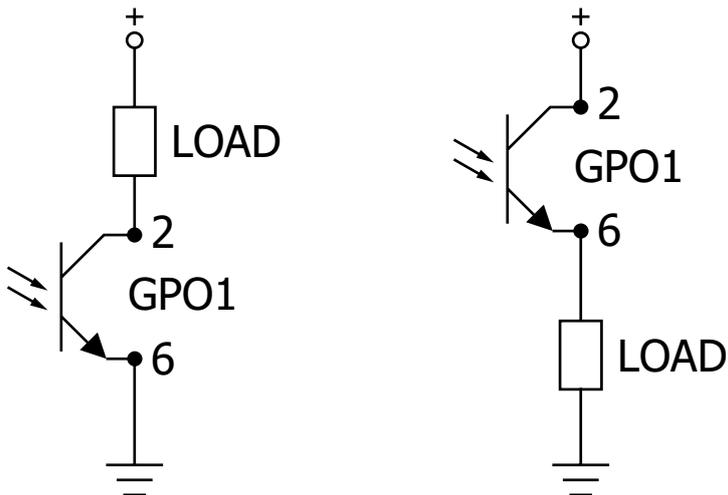
# Safety Warning

**ALWAYS OBSERVE THE SAFETY PRECAUTIONS.**

Careful observance of the safety precautions will help prevent physical injury, damage of the equipment, and extend the equipment life.

- The servicing of electronic equipment should be performed only by qualified personnel;
- Before removing the covers the unit must be switched off and the mains cable unplugged;
- When the equipment is open, the power supply capacitors should be discharged using a suitable resistor;
- Never touch the wires or the electrical circuits;
- Use insulated tools only;
- Never touch the metal semiconductor. They might carry high voltages;
- For removing and installing electronic components, follow the recommendations for handling MOS components.
- Do not remove the factory sticker from the equipment. It contains information as regards the name, serial number and MAC address of the device.
- To join the equipment to the mains supply, use the power cord purchased with the equipment.

**ATTENTION**: The device has an internal Lithium battery. Do not try to re-charge this battery! In case the battery needs to be changed, please contact us for detailed instructions and information of the battery type.

# Operating Recommendations

To ensure normal operation of the DEVA unit, we recommend following the instructions listed below.

- Install the unit in places with good air conditioning. The unit is designed to operate within the ambient temperature range of 10 to 50°C. The equipment rack should be ventilated in order for the device to keep its internal temperature below the maximum ambient temperatures;
- We do not recommend installation in rooms with high humidity, dusty places or other aggressive conditions;
- Although the device is intended to be installed closed to exciters or transmitters, we do recommend the device to be located away from abnormally high RF fields.
- Use only checked power supply cables. We strongly recommend the usage of shielded cables;
- Connect the DEVA unit to reliable power supply sources only. In case of unstable power supply, please use Uninterruptible Power Supply (UPS);
- Use the device only with its top cover on to avoid electromagnetic anomalies. Otherwise, this may cause problems with the normal functionality of the unit;
- To ensure normal remote operation of the unit, make sure to connect the device to a good quality Internet connection;
- For the normal operation of your DEVA device, check if the network settings past through all the required data traffic.

# Unpacking and inspection

Upon receipt, the equipment should be inspected for possible shipping damages. If such are found or suspected, notify the carrier at once and contact DEVA Broadcast Ltd. The original shipping carton box and packing materials should be kept for possible reuse, in case of return for Warranty repair, for example. Shipping damages as a result of improper packing for return may invalidate the Warranty!

**The packing material (plastic bags, polystyrene, nails, etc.) must never be left within reach of children, as these items are potential sources of danger.**

**IT IS VERY IMPORTANT** that the "Product Registration Card" included in the Manual be completed accurately and returned. This will assure coverage of the terms of the Warranty and it will provide a means of trace in case of lost or stolen equipment. In addition, the user will automatically receive SERVICE OR MODIFICATION INSTRUCTIONS from DEVA Broadcast Ltd.

# Mounting

## RACK REQUIREMENTS 1U

The unit mounts in a standard 19-inch equipment rack and requires only 1¾ inches (1U) of vertical rack space. In order the painted finish around the mounting holes to be protected, the use of plastic washers is recommended.

## RACK REQUIREMENTS COMPACT UNITS

Our customized 1U 19-inch rack accessory provides a professional mounting option for up to three compact size DEVA units. It is made of milled aluminum and finished in black powder coat. Two extra blanking panels and set of mounting screws are provided with each rack bracket kit.

## STAND-ALONE DEVICES

DEVA's stand-alone units (Radio Explorer series, BandScanner series, DVB Explorer) do not require additional tools or installation brackets.

# DEVICE CONNECTION

1. Connect the supplied FM and GPS Antennas to the BNC and SMA connector, placed on the rear panel of the device;
2. Select a suitable location for installation of the GPS antenna that would allow routing of the antenna cable to the Radio Explorer III DAB and also would provide a clear view of the sky for a good satellite reception;
3. By using the supplied Car Cigarette Lighter adapter, connect Radio Explorer III DAB to the Car Cigarette Lighter;
4. Configure the desired operating mode.

**NOTE:** Make sure that you have routed the cable in such a manner which would prevent pinching and/or cutting the cable by doors, windows or trunk lids, when opened or closed.

# Getting Started

In order for the normal operation of the Radio Explorer III DAB to be guaranteed, you will need fulfill the following conditions:

1. Standard Ethernet 10/100M connection;
2. Correctly assigned Network configuration and device settings.

To make sure that all the conditions are fulfilled please, follow the instructions below.

## CONNECTION

1. Install the unit on its operation place;
2. Using the provided power cable, connect the unit to the power supply network;
3. Connect the antenna cable to the RF antenna input connector located on the rear panel of the device;
4. Connect the Radio Explorer III DAB to the TCP/IP network using direct network cable;
5. **IF GSM OPTION IS SUPPORTED** - Using the connection cable provided, connect the optional GSM modem. In order for better GSM network coverage to be achieved, please select proper place for the GSM antenna.

**NOTE:** The GSM antenna must be installed far enough from the monitoring devices. The GSM modem radiates RF signal that may cause spurious emissions that will may interfere with the accuracy of the measurements.

# NETWORK SETTINGS

After connecting the network cable the Led 'LAN' located on the rear panel must be ON or flashing. The next and most important step for configuration is the adjustment procedure of the Network Communication. The settings shown below are Default Network Settings:

| DHCP | Enabled |
|---|---|
| IP | Assigned by DHCP |
| Mask | Assigned by DHCP |
| Gateway | Assigned by DHCP |
| DNS | Assigned by DHCP |
| HTTP Port | 80 |

# NETWORK DISCOVERY

This is a network setting that defines whether your computer can see (find) other computers and devices on the network and whether other computers on the network can see your computer. By default, Windows Firewall blocks network discovery but you can enable it.

1. Open Advanced sharing settings by clicking the Start button, and then on "Control Panel". In the search box, type "network", click "Network and Sharing Center", and then, in the left pane click "Change advanced sharing settings";
2. Select your current network profile;
3. Click "Turn on network discovery", and then click save changes.

**NOTE:** If you're prompted for an administrator password or confirmation, type the password, provide confirmation or contact your system administrator.

If you have already enabled this function on your computer Radio Explorer III DAB will be automatically added to the Device list section. The device will be ready for usage and no additional adjustments will be required except user name and password.

**NOTE:** If the port is different than the default one (80), it is necessary to specify it, for example: `http://192.168.1.2:9000`

**ATTENTION:** Depending on Internet Protocol Settings, the assigned IP address may not be visible outside your local network, thus the device may be accessed only within that network. Consult with your network administrator for the appropriate IP settings.

# NETWORK SECURITY RECOMMENDATIONS

1. It is not recommended the Radio Explorer III DAB to be directly connected to the Internet. This may lead to unregulated access and/or problematic operation of the device. To ensure secure connection, we recommend the device to be installed behind a router with an active firewall.
2. If remote access to the device is needed, we recommend using VPN to the router or the port of the relevant service (WEB, SNMP, Application, etc.) to be properly NAT forwarded.
3. If NAT forward is used, it is highly recommended random ports of your choice to be used. Not the standard ones (80 for WEB, 161 for SNMP, etc.).
4. Using DMZ connection is not recommended.
5. Make sure to change the standard access credentials (usernames and passwords, SNMP communities).

For detailed information as regards the recommendations listed above or need of further instructions, please contact your network administrator.

# Basic Setup

## OLED DISPLAY

Radio Explorer III DAB has an easy to read, high-resolution OLED graphical display that visualizes all measurements of the received signal and settings. Upon switching it on, the Company Logo and model of the device will be displayed. After a few seconds the start-up screen will disappear, replaced by the main screen. This is the starting point of the navigation process.

Radio Explorer III DAB's OLED display has three function areas: header, soft buttons and main screen working area.

## HOW TO CHANGE DEVICE PARAMETERS

### Set-up menu title

Shows the path to the currently selected menu. Note that the parameter should be included in the settings menu title. For example: *Setup> Communication> HTTP> Port* is different from *Setup> Communication> FTP> Data Port*.

### Navigation area

Selection of branches / parameters is made in this area. The selected item is highlighted. All parameters are listed on the left side of the navigational area. All parameter values are displayed on the right side against the parameter name. As the branches have no values associated, tree dots are shown instead. This indicates that a transition to a sub-menu is available.

Front panel buttons usage:

[OK] – Depending on the selected menu element can perform different actions:
- Menu branch – transition to selected sub-menu will be made;
- Menu parameter – when a name of a parameter is highlighted pressing [OK] will highlight the value and switch to edit mode;
- Menu complex parameter (such as *Alarm*) – the parameter editor screen will be shown.

[UP] / [DOWN] – If edit mode is active, the value of the selected parameter will be changed. Otherwise, are used for navigation through the menu;

[LEFT] / [RIGHT] – Change the selection when the parameter value is in edit mode;

[SB4] – Return one level up or cancel edit mode.

There are several parameter types available in Radio Explorer III DAB. The way of editing depends of the parameter type. Every parameter type has its own editing rules.

### Numerical parameter

Represents numerical value.

Example: **RF Threshold** can be changed in the range **0** to **110 dBµV.**

Front panel buttons usage:

[UP] / [DOWN] – Change the value of the parameter with one step. The step value may vary depending on the selected parameter. The value always stays in permitted parameter range;

[OK] – Accept the changed value and exit edit mode;

[SB4] – will discard the value and cancel edit mode.

### Enumerated parameter

Represent the selection of a value among set of predefined enumerated values.

Example: **DAB Channel** can be selected from **5A**, **5B** ... **13F**

Front panel buttons usage:

[UP] / [DOWN] – Cycle through the possible values;

[OK] – Accept the changed value and exit edit mode;

[SB4] – will discard the value and cancel edit mode.

### IP address

Represents an IPv4 address.

Example: `Primary DNS        192.168.001.001` , `Network Mask    255.255.255.000`

Front panel buttons usage:

[LEFT] / [RIGHT]  – Select edit marker position;

[UP] / [DOWN] – Cycle through the possible values;

[OK] – Accept the changed value and exit edit mode;

[SB4] – Discards all changes and cancels edit mode.

### IP port

Represents TCP or UDP port.

Example: `Manager Port                162`

Front panel buttons usage: Refer to IP address.

### Date

Represent date from the calendar.

Example: `Date                15-Jun-2012`

Front panel buttons usage:

[LEFT] / [RIGHT]  – Selects previous/next segment from the date;

[UP] / [DOWN] – Cycle through the possible values;

[OK] – Accept the changed value and exit edit mode;

[SB4] – Discards all changes and cancels edit mode.

### Time

Represent time information.

Example: `Time                02:00:00`

Front panel buttons usage:  Refer to Date.

### Timer

Represents relative time interval.

Example: **Screen Saver**     **2 min**

Front panel buttons usage:

[UP] / [DOWN] – Increments/decrements value with one step. The unit value will be changed automatically from seconds to minutes and vice-versa;

[OK] – Accept the changed value and exit edit mode;

[SB4] – Discards all changes and cancels edit mode.

### String

Represents string.

Example: **User Name**     **user**

Front panel buttons usage:

[LEFT] / [RIGHT] – Select edit marker position. If [RIGHT] button is pressed when the marker is at the last character, a space character will be added at the end of the string. When the [LEFT] button is pressed all trailing spaces will be removed;

[UP] / [DOWN] – Cycle through the possible values. Depending on the string context there is a limitation in the permitted char set. For example phone number string can contain only 1234567890+ and blank space characters;

[OK] – Accept the changed value and exit edit mode. Some strings, like e-mail addresses, must pass a validation check. If the validation fails, message box will appear. Press [OK] to dismiss the message. Note that edit mode will not be left. For example:



*If [OK] is pressed*



*If [OK] is pressed*

[Insert] – Inserts blank space before the selected character:

 – before

 – after

[Delete] – Deletes the selected character:

 – before

 – after

[Cancel] – Discards all changes and cancels edit mode.

# HOME SCREEN

The home screen contains all the needed information as regards the signal received. The header is located on the left part of the screen. The header content is determined according to the work area context and may include the functions described below.



1.  Parameter FIC quality (0 to 100%)
2.  Audio transmit mode
3.  Channel mode – Mono, Stereo, Dual channels. The graphic indicator will change depending on the channel mode.
4.  Headphones volume indicator (0 to 100%)
5.  DAB Channel number
6.  DAB Channel frequency (in MHz)
7.  Indicates the current service chosen, and the number of services available
8.  Indicates whether the device is in DAB or DAB+ mode
9.  Indicates the audio codec in use
10. Service name
11. Bit Rate and Sample Rate
12. Ensemble name
13. Date and Time – transmitted by DAB/DAB+
14. Indicates whether there is multimedia object transport (MOT) at the current service
15. Genre
16. DLS

# BANDSCAN PAGE

Select Bandscan icon from the Menu page and press "*OK*" to enter it.



The last Bandscan data will be displayed.
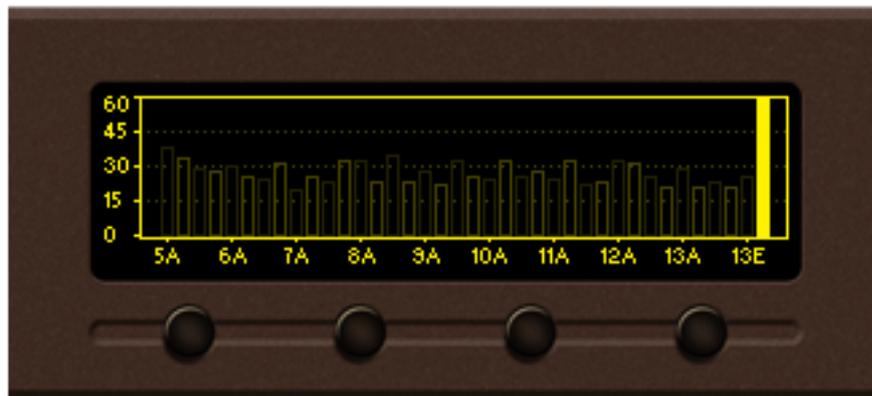


Empty grid will be displayed if no bandscan data is available at the moment.
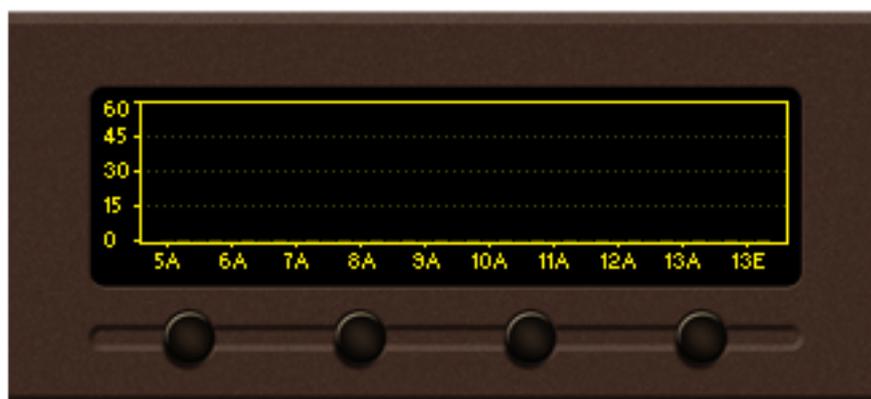


To ensure better reading of the data plot, the Header area and the Soft Buttons labels will be hidden automatically a short time after the soft button is released. Pressing a button will display the function labels again.

There are three control states in Bandscan page – Span control, Marker control and Parameter control. The states can be identified by the labels of the Soft buttons. If the labels appear as shown on the picture below, the page is in the Marker control state.



**For example:** When the following menu is selected pressing *SB3* will change the screen from Marker to Span control and vice-versa. All Soft button labels will change according to the sub-menu. The control state of the page will change upon every *SB3* pressing. Pressing the *OK* button either in Marker or Span control state will make the transition to Parameter control state. The screen will be visible until the *OK* button is pressed again or the timeout of 2 seconds elapses.
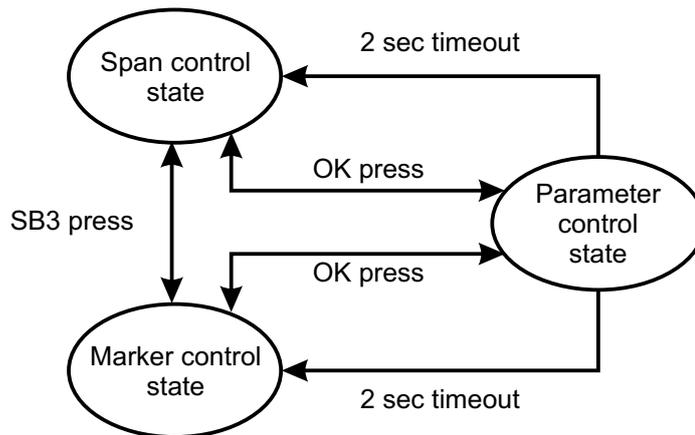
**Span control state**

*SB1*, *SB2* and *Arrow buttons* control the Span of the data plot. Depending on the Span control state the Soft buttons have different usage.

**X Span** – (*SB1*) cycles through available span values for the X axis of the data plot. The possible values are 26, 30, 34 and 38. Once a key is pressed the next span value will be selected and displayed on the screen.

**NOTE:** Changing X span may also change the center channel, in order to keep the data plot in bounds.
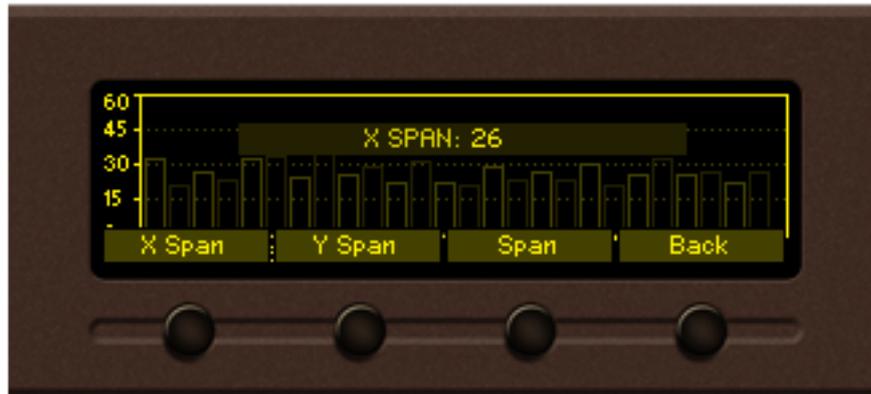
*26 X span is selected*

**Y Span** – (*SB1*) cycles through available span values for Y axis of the data plot. The possible values are 20, 30, 40, 50 and 60 dBμV. Note that in order to keep the data plot in bounds changing Y span may also change the Y reference. When the button is pressed the new value will be selected and displayed on the screen.
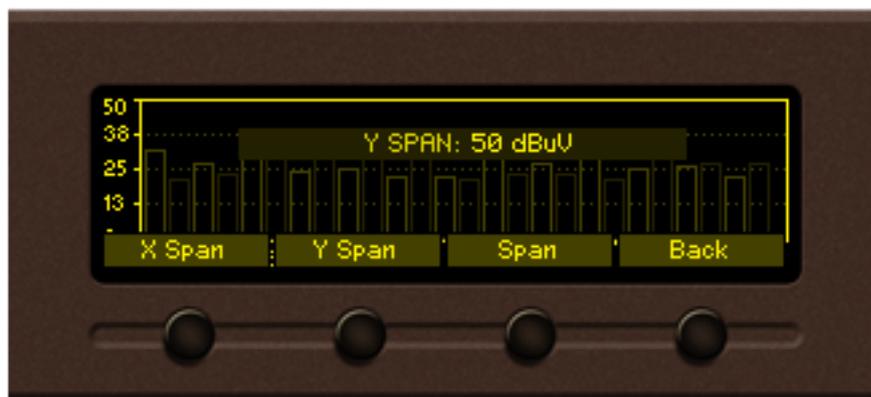
*50 dBμV Y span is selected*

*Left / Right Buttons* – change the center channel of the data plot. The center channel permitted values depend on the currently selected X span. The selected center channel value is briefly displayed on the screen.
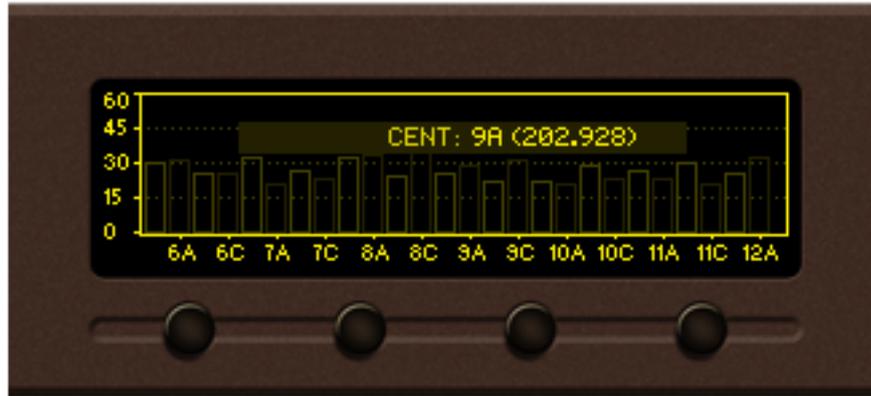


*9A center channel is selected*

*Up / Down Buttons* – changes Y axis reference (the value for the bottom of the Y scale). Permitted values vary from 0dBµV to 40dBµV in 10dBµV increments. The upper limit of the Y reference depends on the currently selected Y span. Upon selection, the Y reference is briefly displayed on the screen.
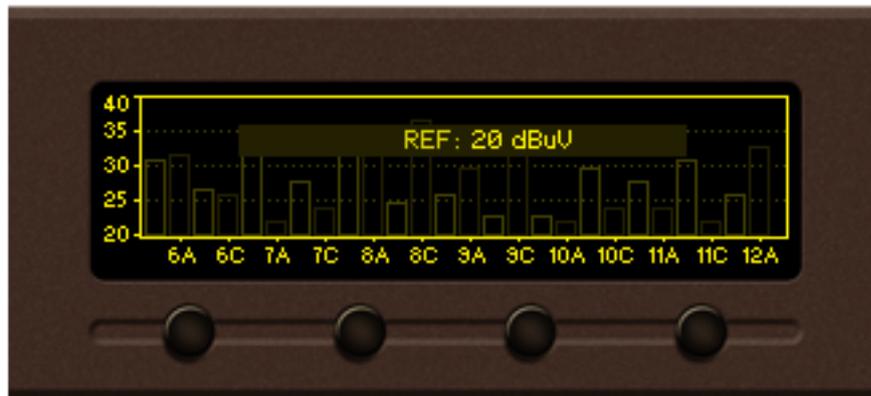


*20 dBµV reference is selected*

**Marker control state**

Two markers, named "A" and "B" are available on Bandscan page. *SB1*, *SB2*, *Left* and *Right* buttons control the visibility and position of the Markers.

Buttons *SB1* / *SB2* control Marker A / Marker B appearance. According to your needs the markers can be:

• Hidden – marker is not visible;
• Shown – marker is visible but not selected;
• Selected – marker is visible and selected.

When markers "A" and/or "B" are visible (shown or selected) a readout about X and Y axes will appear on the left side of the data plot. The selected marker is represented as highlighted, dashed line; the marker's readout is also highlighted. Only one marker at a time can be selected. If only one of the markers is visible, it will be always selected.
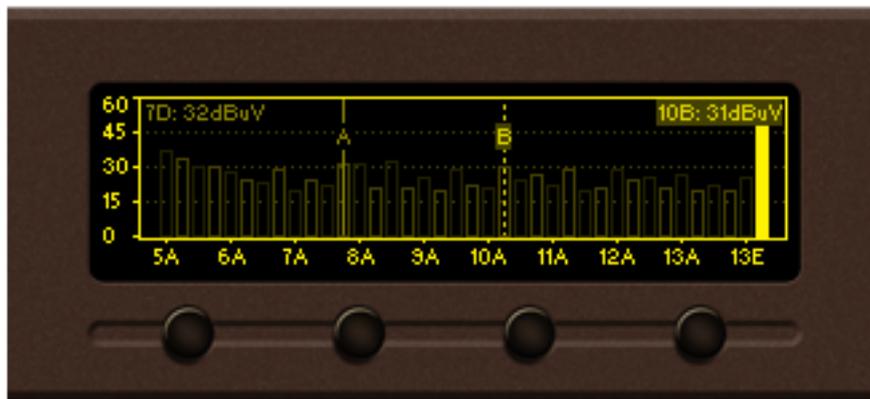


*Marker A is shown, Marker B is selected*

Following is a diagram explaining the transition between these states:
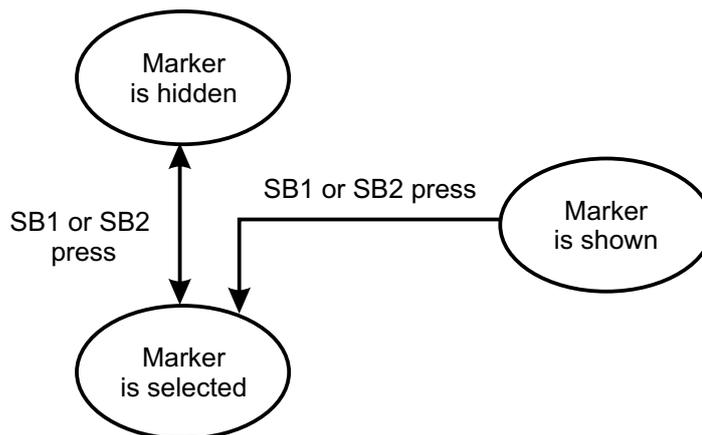


*Left / Right Buttons* – move the selected marker to the left or right with one DAB Channel increment.

**NOTE:** The step resolution of marker movement depends from the selected X span.
*Up / Down Buttons* – are used to change the Y reference like in the Span control state.

**Parameter control state**

The parameter control state allows specific parameters to be set before starting the bandscan.
*OK* – show/hide Parameter control
*Left / Right Buttons* – cycle through the available parameters.
*Up / Down Buttons* – change the value of the selected parameter.
The name and value of the selected parameter appear briefly on the data plot.
**NOTE:** Parameter control state will automatically disappear from the screen if no button is pressed for 2 seconds.
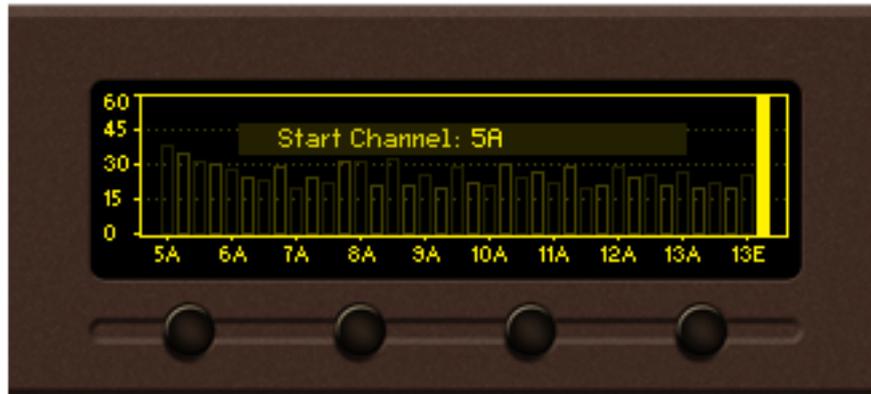
**Bandscan page parameters**

**Bandscan**: Start / Stop – Used for starting/stopping of the bandscan process. Upon completion, the Bandscan parameter value will be automatically set to "Stop".
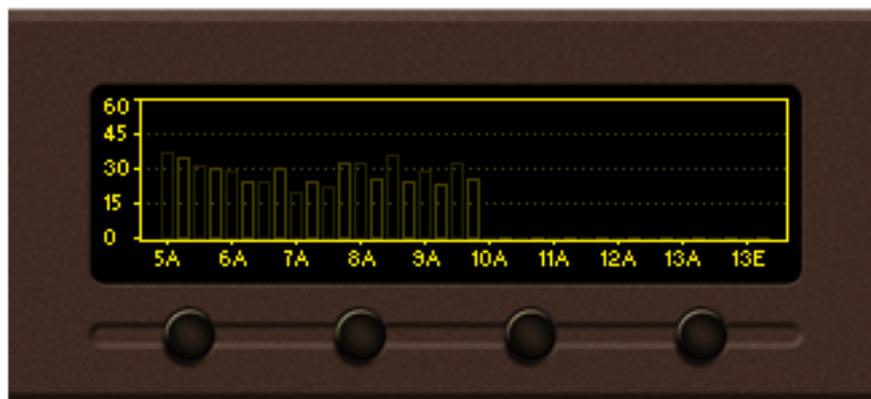
*Bandscan in progress*

Running bandscan can be stopped manually by setting the Bandscan parameter value to "Stop".
**Start Frequency**: – set the start channel of the bandscan.
**End Frequency**: – set the end channel of the bandscan.

**NOTE:** Leaving the page will not stop the bandscan process. The process will continue until it is finished or the Bandscan parameter value is set to "Stop".

# LEVELS PAGE

Select the Levels icon from the Menu page and press the *OK* button to enter the menu.



The Levels page shows a bar graph representation of the signals measured by Radio Explorer III DAB. The parameters are divided into groups. Each bar graph displays the low, average and high values of the signal. The number, placed below the bar graph - in the middle, represents the average value. The shaded color number, placed on the left and right bottom edges, denotes the measurement range of the signal. Measurement units and name of the signal are written above the corresponding bar graph.



*Group 1. RF, SNR, FIC and CNR parameters*



*Group 2. Left and Right Audio parameters*

*Group 2. Loudness related parameters*

This page shows the average program loudness measurements as defined by ITU BS.1770-4 and EBU R128 recommendations. The following measurements are available:

**Momentary** – average program loudness measured over a 0.4s sliding time window, not gated;

**Short-term** – average program loudness measured over a 3s sliding time window, not gated;

**Long-term** – average program loudness measured over a variable sliding time window, gated as described in ITU BS.1770-4. The time window can be varied between 10s and 120s.

# STATUS PAGE

Select the Status icon from the Menu page and press the *OK* button to enter the menu.



The Status Page contains all basic information regarding the device:

### Status > Device

This section contains information about the Model, Serial No., Firmware version used, Calibration date and Available Storage capacity.



### Status > IP Address

This Section contains information regarding the IP, Network Mask, Gateway, Primary and Seconday DNS.

**Status > GPS**

Contains information of the device's current location and GPS Signal in Range.



**Loc**: The current location of the device - Longitude and Latitude in degrees.

**UTC**: Current GPS date and time.

**Fix**: The current condition of the GPS fix and type.

**Sats used**: The number of satellites used out from the satellites in view.

# SETTINGS PAGE

Enter the Main Menu page, select Settings Icon and press *OK*.



The Settings menu is organized into a hierarchical tree menu and all similar parameters are grouped into sections (branches). The structure of the menu is shown below.



*"Tuner" section (branch) of the root Settings menu*



*"DAB Channel" parameter from "Tuner" branch*

**Settings Menu screen structure**

**Settings menu title**

`Settings>Tuner` – shows the path to the currently selected menu. Note that the parameter should be included in the settings menu title.

For example: ***Settings > Communication > Application - Port*** is different from ***Settings > Communication > HTTP - Port***.

**Navigation area**

`Tuner` ... `Communication` ... `Security` ... – selection of branches / parameters is made in this area. The selected item is highlighted. All parameters are listed on the left side of the navigational area. All parameter values are displayed on the right side against the parameter name. Since branches have no values associated, tree dots are shown instead. This indicates that a transition to a sub-menu is available.

Front panel buttons usage:

*OK* – Depending on the selected menu element can perform different actions:
• Menu branch – transition to selected sub-menu will be made;
• Menu parameter – when a value of a parameter is highlighted pressing *OK* will switch to edit mode;
• Menu complex parameter (such as Alarm) – the parameter editor screen will be shown.

*Up/Down* – If edit mode is active, the value of the selected parameter will be changed. Otherwise, are used for navigation through the menu;

*Left/Right* – Change the selection when the parameter value is in edit mode;

*SB4* – Return one level up or cancel edit mode.

There are several parameter types available. The way of editing depends of the parameter type. Every parameter type has its own editing rules.

*Numerical parameter* (**INT**). Represents numerical value.

Example: `Frequency` `98.05 MHz` The value frequency can be changed in the range of 87.1-108 MHz (CCIR), 65-74 MHz (OIRT), 76-95 MHz (Japan) and step of 10, 20, 50 or 100 kHz.

**INT** mode, front panel buttons usage:

*Up/Down* – Change the value of the parameter with one step. The step value may vary depending on the selected parameter. The value always stays in permitted parameter range;

*OK* – Accept the changed value and exit edit mode;

*SB4* will discard the value and cancel edit mode.

*Enumerated parameter* (**ENUM**, **TZONE**). Represent the selection of a value among set of predefined enumerated values.

Example: `Attenuator Ant 1` `Auto` The value Attenuator can be selected from "Auto", "OFF", "-10dB", "-20dB" and "-30dB".

**ENUM** mode, front panel buttons usage:

*Up/Down* – Cycle through the possible values;

*OK* – Accept the changed value and exit edit mode;

*SB4* will discard the value and cancel edit mode.

*IP address* (**IP**). Represents an IPv4 address.

Example: `Primary DNS      192.168.001.001` , `Network Mask    255.255.255.000`

IP mode, front panel buttons usage:

*Left/Right* – Select edit marker position;

*Up/Down* – Cycle through the possible values;

*OK* – Accept the changed value and exit edit mode;

*SB4* – Discards all changes and cancels edit mode.


*IP port* (**PORT**). Represents TCP or UDP port.

Example: `Manager Port             162`

IP **PORT** mode, front panel buttons usage:

Refer to "IP mode, front panel buttons usage".


*RDS Program Identification* (**PI**). Represents RDS Program Identification.

RDS **PI** edit mode, front panel buttons usage:

Refer to "IP mode, front panel buttons usage".


*Date* (**DATE**). Represent date from the calendar.

Example: `Date               15-Jun-2012`

**DATE** mode, front panel buttons usage:

*Left/Right* – Selects previous/next segment from the date;

*Up/Down* – Cycle through the possible values;

*OK* – Accept the changed value and exit edit mode;

*SB4* – Discards all changes and cancels edit mode.


*Time* (**TIME**). Represent time information.

Example: `Time                 02:00:00`

**TIME** mode, front panel buttons usage:

Refer to "DATE mode, front panel buttons usage".


*Timer* (**TIMER**). Represents relative time interval.

Example: `Screen Saver          2 min`

**TIMER** mode, front panel buttons usage:

*Up/Down* – Increments/decrements value with one step. The unit value will be changed automatically from seconds to minutes and vice-versa;

*OK* – Accept the changed value and exit edit mode;

*SB4* – Discards all changes and cancels edit mode.


*String* (**STR**). Represents string.

Example: `User Name             user`

**STR** mode, front panel buttons usage:

*Left/Right* – Select edit marker position. If *Right* button is pressed when the marker is at the last character, a space character will be added at the end of the string. When the *Left* button is pressed all trailing spaces will be removed;

*Up/Down* – Cycle through the possible values. Depending on the string context there is a limitation in the permitted char set. For example phone number string can contain only "1234567890+" and blank space characters;

*OK* – Accept the changed value and exit edit mode. Some Strings must pass a validation check. If the validation fails, a message box will appear. Press *OK* to dismiss the message. Note that edit mode will not be left. For example:

*OK press*



*OK press*



*SB2* – Inserts blank space before the selected character:

 – before;

 – after.

*SB3* – Deletes the selected character:

 – before;

 – after.

*SB4* – Discards all changes and cancels edit mode.

# HOW TO START A LOGGER CAMPAIGN USING THE FRONT PANEL MENU?

In order to set up a campaign via the front panel menu, the following steps should be completed:

1. Press the [OK] button to enter the Menu Page;



2. Select Logger icon from the Menu page and press "OK" to enter it.
3. Then select *Logger> Channel 1*;
4. Specify name of the Channel, frequency and for 'Active' - select Antenna 1; to exclude a station from the campaign the "Disable" button should be selected;
5. Change the Acquisition time as per your preferences. We recommend setting it to 10 seconds;
6. Steps from 3 to 5 should be applied for each of the channels to be monitored. Once all Channels are set you can proceed to the last step
7. Go to *Logger> Logger Mode* and as a value set 10 seconds. In order for a campaign to be commenced the device should be inactive for the specified time.

**NOTE:** The Front Panel inactivity time should expire prior the Logger mode countdown to begin.

# Restore factory defaults

In the very rare case when an emergency recovery is needed, Radio Explorer III DAB can Restore Factory Defaults from its non-volatile memory. The Factory default settings could be applied trough the Front panel Navigational Menu, the WEB Interface or DEVA Device Manager Software.

In order to apply the Factory defaults through the Front panel navigational menu go to: ***Settings> Device> Factory defaults> Apply to***. Radio Explorer III DAB utilizes three types of Factory Defaults:

1. **All** – all applied settings will be restored to the factory defaults;
2. **Retain Comm.** – all settings except for the Network settings (IP Address), the WEB Server and DEVA Device Manager Software settings will be restored to the factory defaults;
3. **Channels** – all settings applied to the channels of the Logger will be restored to the factory defaults.

# WEB Interface

Radio Explorer III DAB is also controlled through a built-in web server. A standard web browser can be used to monitor its status or to make some adjustments.

There are two options for access to the WEB Interface of Radio Explorer III DAB: through manual identification of the IP address of the device, and alternatively through the Network discovery option.

## MANUAL IP ADDRESS IDENTIFICATION

Connect the device to a local network or to the Internet by the applied LAN cable. Through the Front panel navigational menu pressing the "*OK*" button you will enable you to enter the device main menu.

Using the "*Right*" navigational button find the "Status" section located at the end of the Menu.



Press the "*OK*" Button to enter the "Status Section". Via the Front panel navigational menu press the "*DOWN*" button.

This operation will visualize the screen containing information about the IP Address of the device.



Open a new WEB Browser and enter the device IP address in the address field then press "*Enter*".
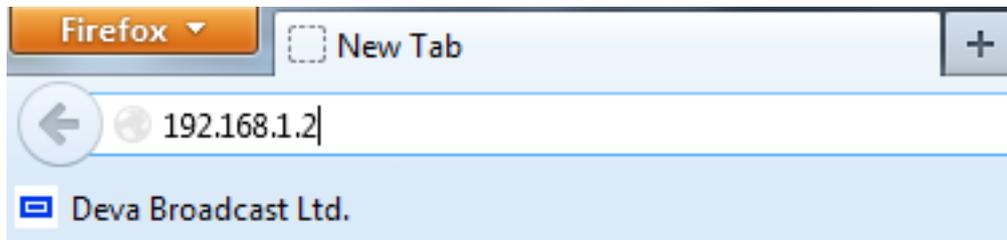


**NOTE:** Due to the inability of some WEB Browsers to read the IP address format displayed on the screen of the device, the numbers included in the IP Address must be written without the leading zeros. For example: 192.168.020.095 must be written as 192.168.20.95

A window that requires username and password will appear.

# NETWORK DISCOVERY

This is a network setting that defines whether your computer can see (find) other computers and devices on the network and whether other computers on the network can see your computer. By default, Windows Firewall blocks network discovery but you can enable it.

1. Open Advanced sharing settings by clicking the Start button, and then on "Control Panel". In the search box, type "network", click "Network and Sharing Center", and then, in the left pane click "Change advanced sharing settings";
2. Select your current network profile;
3. Click Turn on network discovery, and then click save changes.

**NOTE:** If you're prompted for an administrator password or confirmation, type the password, provide confirmation or contact your system administrator.

If you have already enabled this function on your computer Radio Explorer III DAB will be automatically added to the Device list section. The device will be ready for usage and no additional adjustments will be required except *user name* and *password*.

# ACCESS

Radio Explorer III DAB provides you with a protected access to the device settings. You can choose between two types of log in:

1. As an ADMINISTRATOR – it will give you full control over the settings (username: *admin*, password: *pass*);
2. As a USER – this type of log-in will allow you to monitor the device and to choose different stations without applying settings (username: *user*, password: *pass*).

In order to make the necessary adjustments to the device, please log in as an ADMINISTRATOR.

# DEVICE CONTROL INTERFACE

The WEB Interface is visually divided into two sections Left and Right.
- On the Right are the specific contextual readings of the currently selected menu page.
- On the Left is the so called "dashboard" of the device - General Tuner and Channel readings, functional buttons. This section of the WEB interface is constant part of each screen, hence allowing immediate tuner interactions.

Radio Explorer III DAB "dashboard" content:
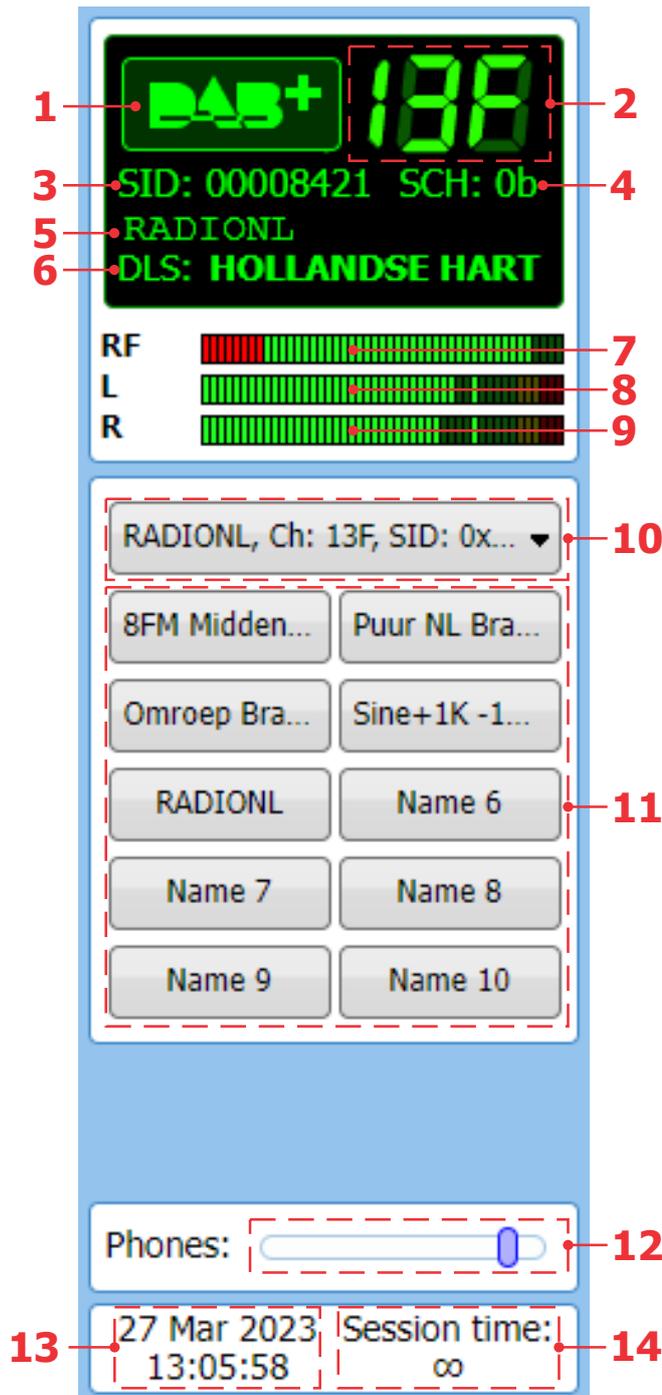
1. DAB+ Logo
2. Channel indicator showing currently tuned channel;
3. SID – This 16-bit field shall specify the DAB Service Identifier (SID) to which the information block data applies;
4. SCH – Sub Channel ID;
5. Currently selected service label;
6. DLS – (Dynamic Label Segment) scrolling text;
7. RF Level indicator. The red zone (low level) indicates low RF level;
8. Left Audio indicator;
9. Right Audio indicator;
10. Drop-down Select Service menu;
11. Service Preset Buttons – when one of the buttons is pressed, the Tuner will be set to the predefined service.
12. Phones volume adjust control;
13. Device Time and Date;
14. Session time;

Drop-down Select Service menu options:
A list containing all services available in the current Ensemble.
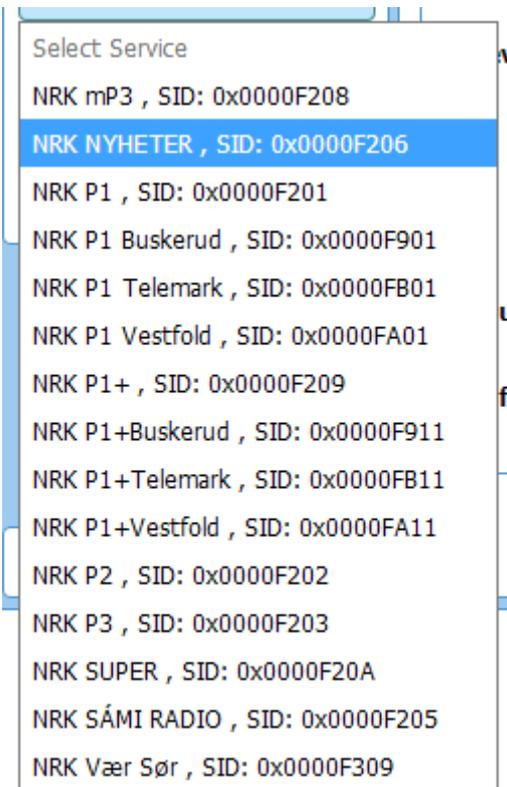
# MAIN
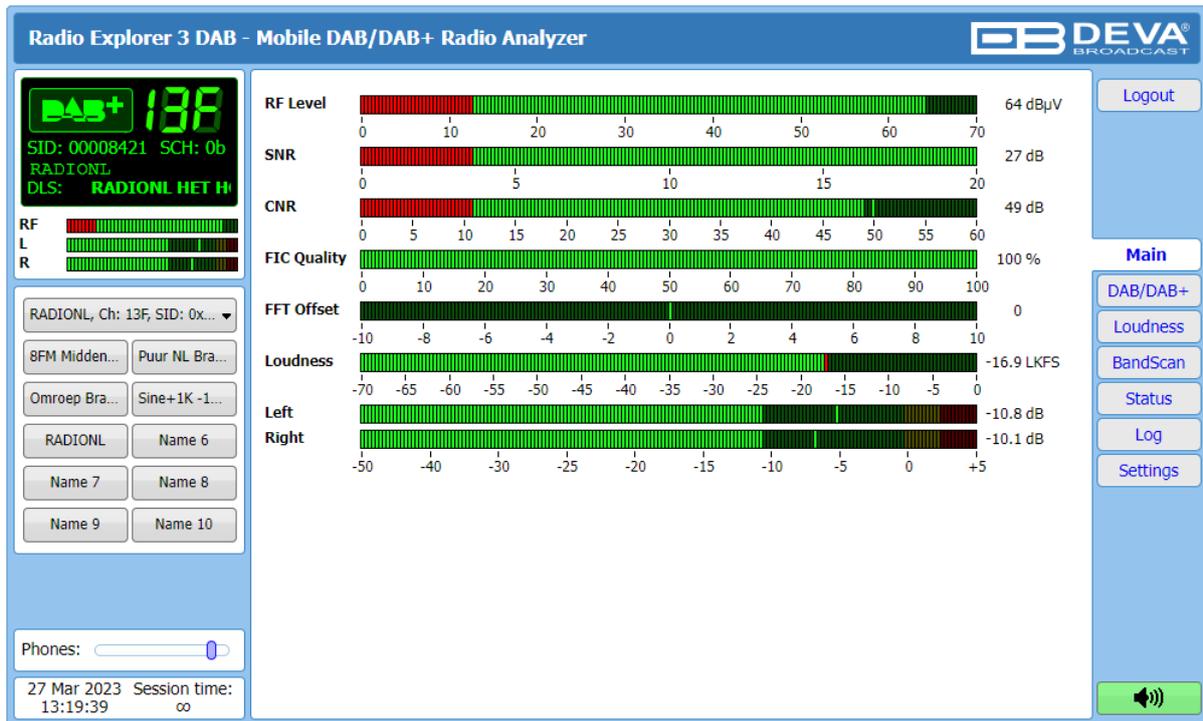


    The Main Screen of the WEB Interface shows all the mandatory parameters represented as LED readings and the current DAB station status (DAB Station).

    Using the selection buttons, placed on the left part of the screen, you can easily select the preferred audio frequency. All station presets are user defined.

    [Listen] button – used to Play/Stop the current audio stream (an audio device will be required).

# DAB / DAB+



This page contains information on all the mandatory parameters of the currently selected service. Slideshow is also displayed (if available).

# LOUDNESS
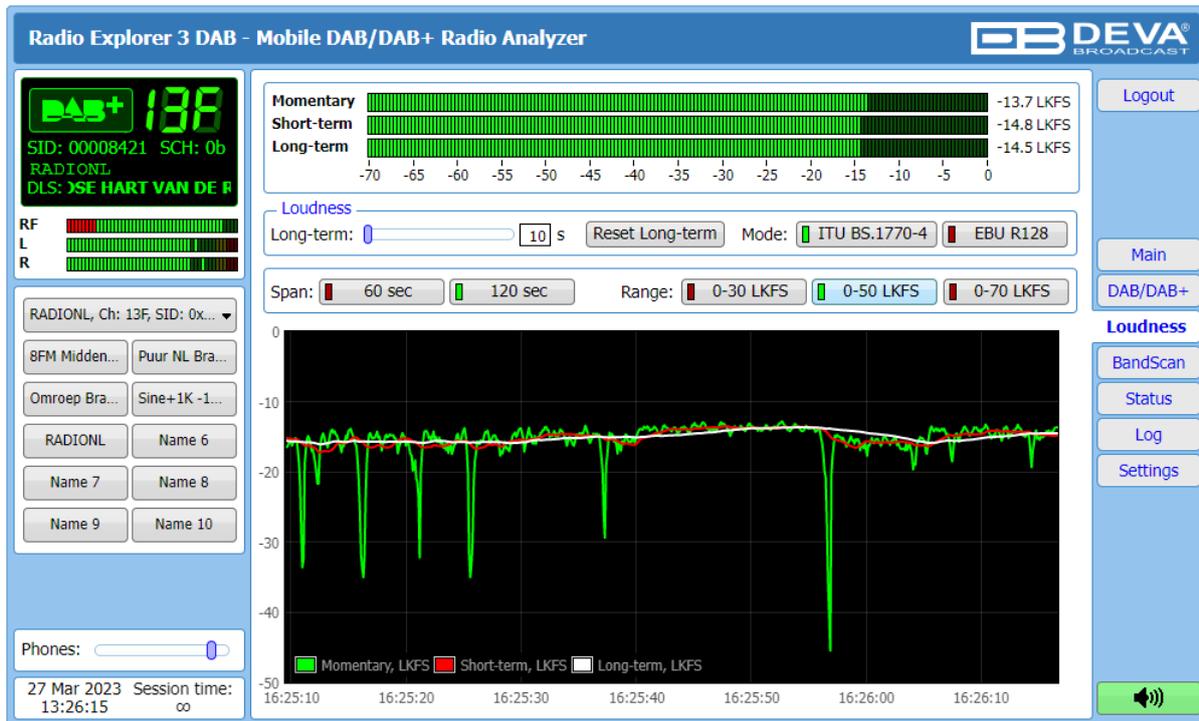


The average program loudness measurements as defined by the ITU BS.1770-4 and EBU R128 recommendations are represented in this page. The following measurements are available:

- **Momentary** – average program loudness measured over a 0.4 seconds sliding time window, not gated;
- **Short-term** – average program loudness measured over a 3 seconds sliding time window, not gated;
- **Long-term** – average program loudness measured over a variable sliding time window, gated as described in ITU BS.1770-4. The time window can be varied between 10s and 120 seconds.

The page offers all the above measurements in two display forms – high refresh rate bar graphs for displaying current values and a time graph for extended visualization over time.

The user can modify the processing and appearance of the measurement using the following settings:

- **Long-term** – allows the user to select the length of the Long-term loudness measurement sliding time window. The time-based sliding window could be set with length from 10 to 120 seconds;
- **[Reset Long-term]** – resets the Long-term measurement;
- **Mode** – select between [ITU BS.1770-4] and [EBU R128] mode;
- **Span** – select time graph time span;
- **Range** – the option buttons allow the user to set the preferred measurement range.

# BAND SCAN
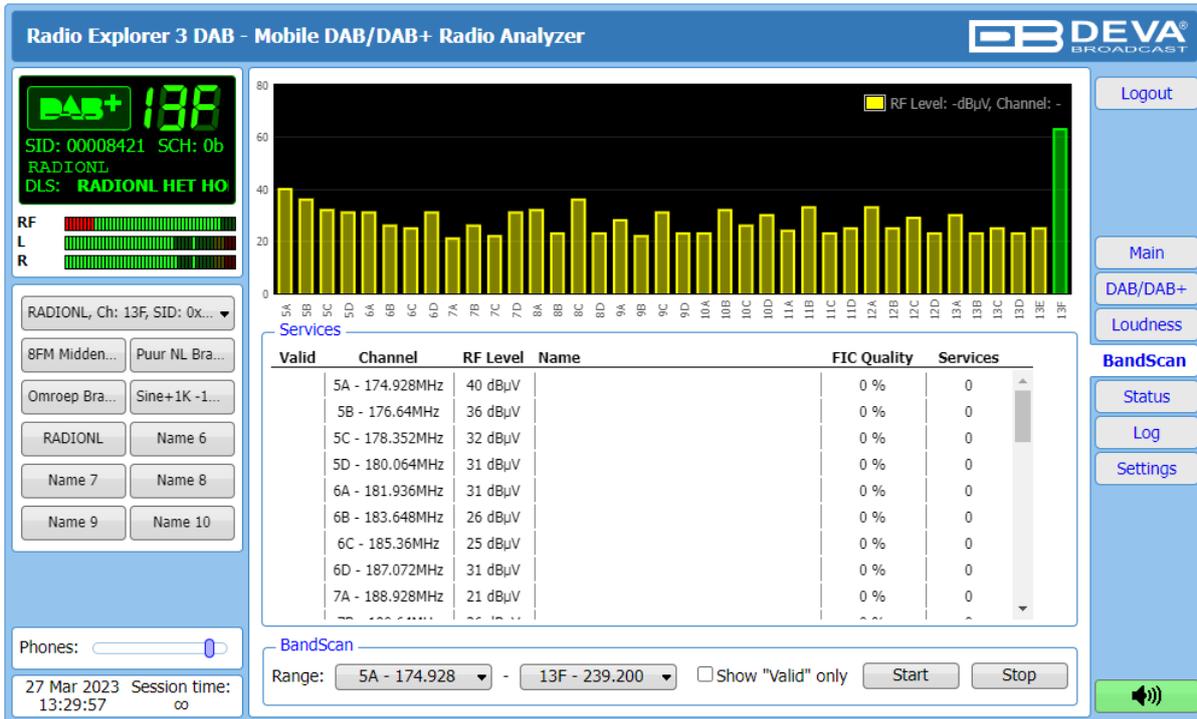


The bandscanning mode is easily customized by setting range of the scan. To start a bandscan follow the instructions listed below:

1. Set the bandscan range;
2. Specified whether all results or the Valid only will be shown;
3. Press the [Start] button;
4. The scan can be stopped at any point by pressing the [Stop] button.

All valid results will be illuminated in green.

When the option Show "Valid" only is enabled, only the valid results will be listed:
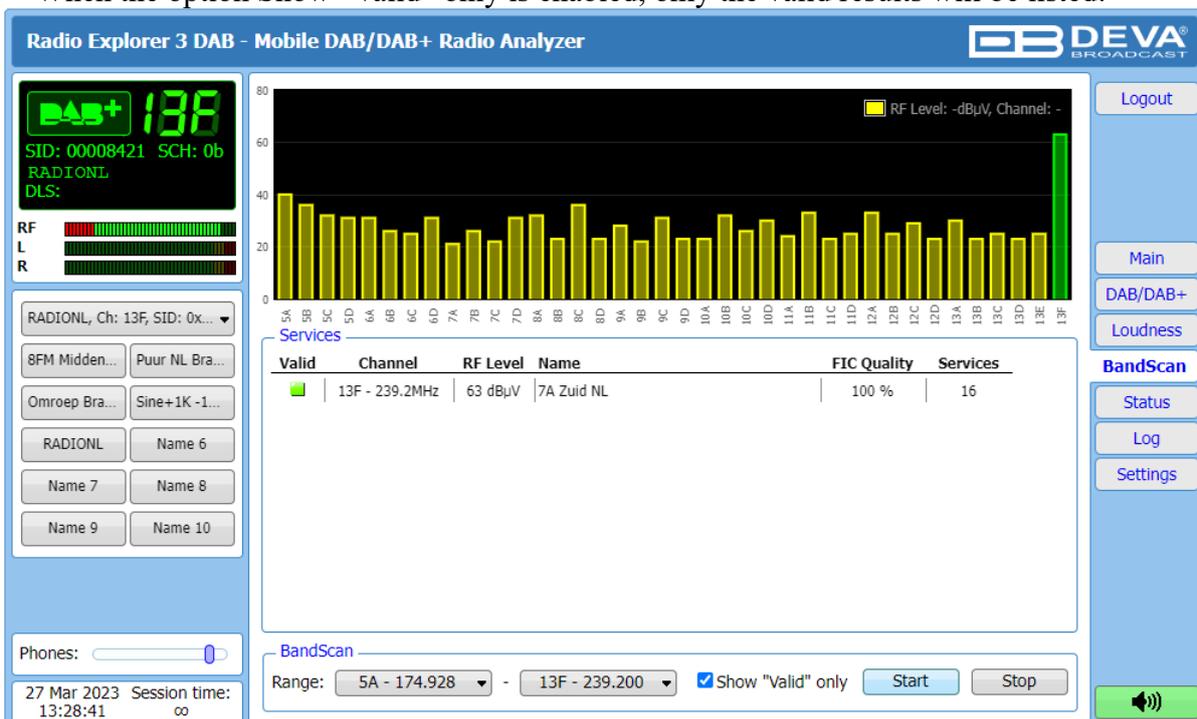
# STATUS
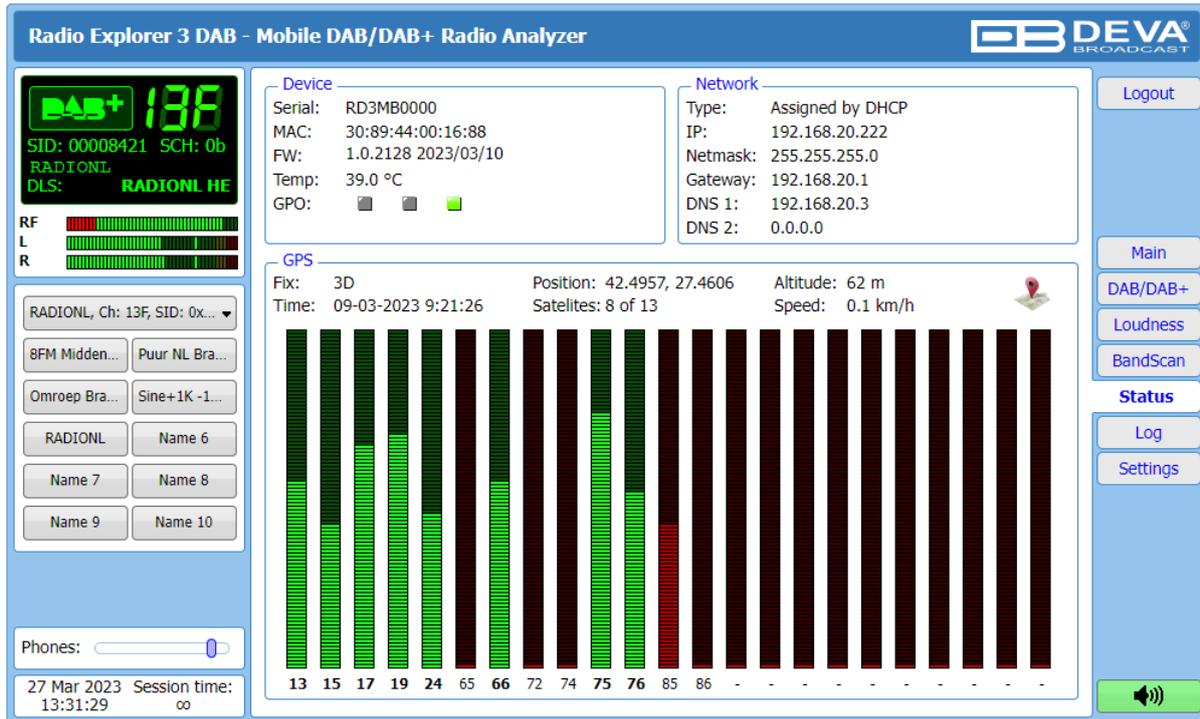


Sections Device and Network contain information about the current status of the device.

Section GPS contains information about the position and visualizes signal of all Satellites in view, that Radio Explorer III DAB can detect.

"View position in Google Maps" button will open a new tab with a map indicating your current position.

# LOG



Here are listed all the Device System Events. The local measurements and logs are saved in the internal device memory. All log files can be downloaded via the built-in FTP server. For information on how the connection between the Radio Explorer III DAB and an FTP Client should be configured, please refer to "Download files via FTP" on page 63.

[Clear] will delete the System log.

[Reload] will refresh the information.

# GENERAL SETTINGS
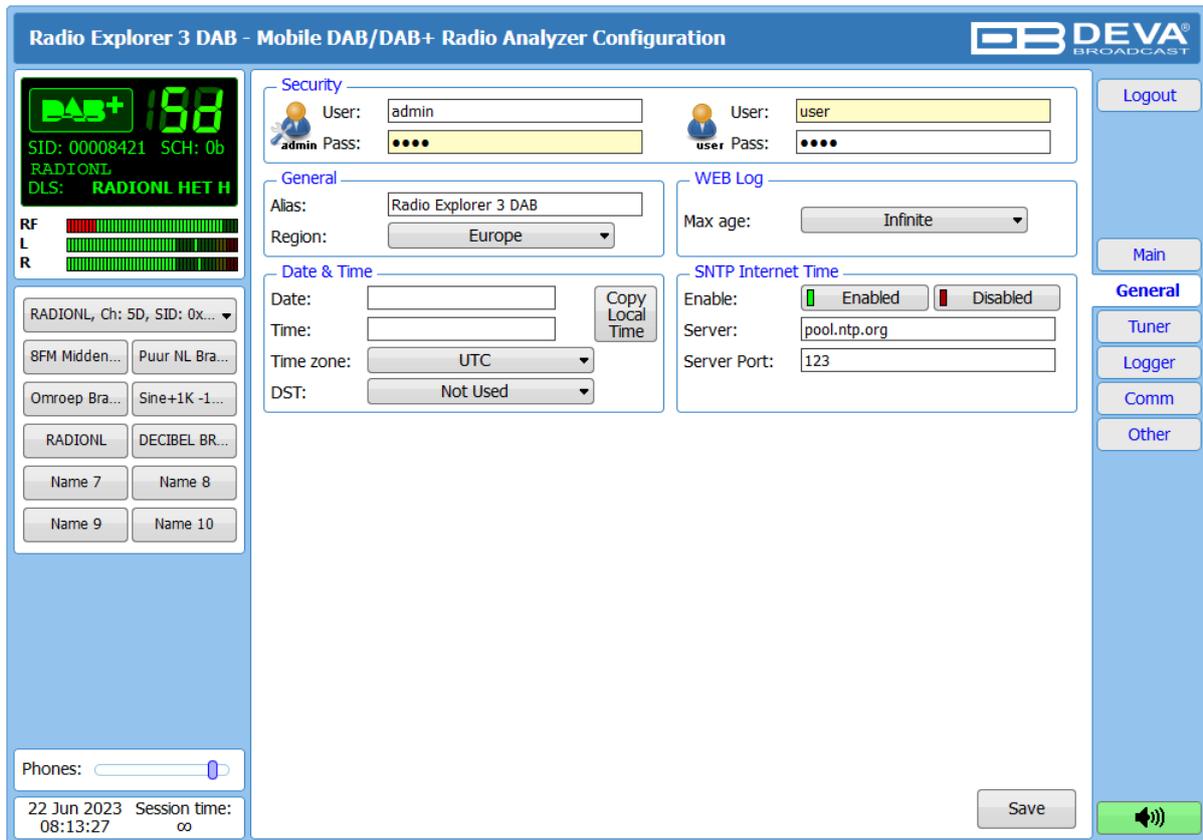


Radio Explorer III DAB provides you with protected access to the device settings. You can choose between two types of log in.

- As an ADMINISTRATOR – It will give you full control over the device's settings;
- As a USER – that will allow you to just monitor the device and to choose different stations, while the SETTINGS bar remains locked.

In order for the security of Radio Explorer III DAB to be enhanced, new username and password could be set from the "Security" section.

**Alias** – allow the name of the device to be changed. Later on, it will be used as a title name on all WEB pages. Customizing the name will make the device more recognizable.

**Region** – select the region in which the Radio Explorer III DAB is used.

**WEB Log** – the maximum storage time of the log files is chosen from here.

**Date & Time** – used for manually determining the current Date and Time. [Copy Local Time] button will set the Date and Time to correspond to that of your computer.

**SNTP Internet Time** – Synchronizes automatically the Radio Explorer III DAB clock time to a millisecond with the Internet time server. Enable this function in order to use it (Specifying the server closest to your location will improve the accuracy).

**NOTE:** In order the applied settings to be used press the [Save] button, placed on the bottom right part of the screen.
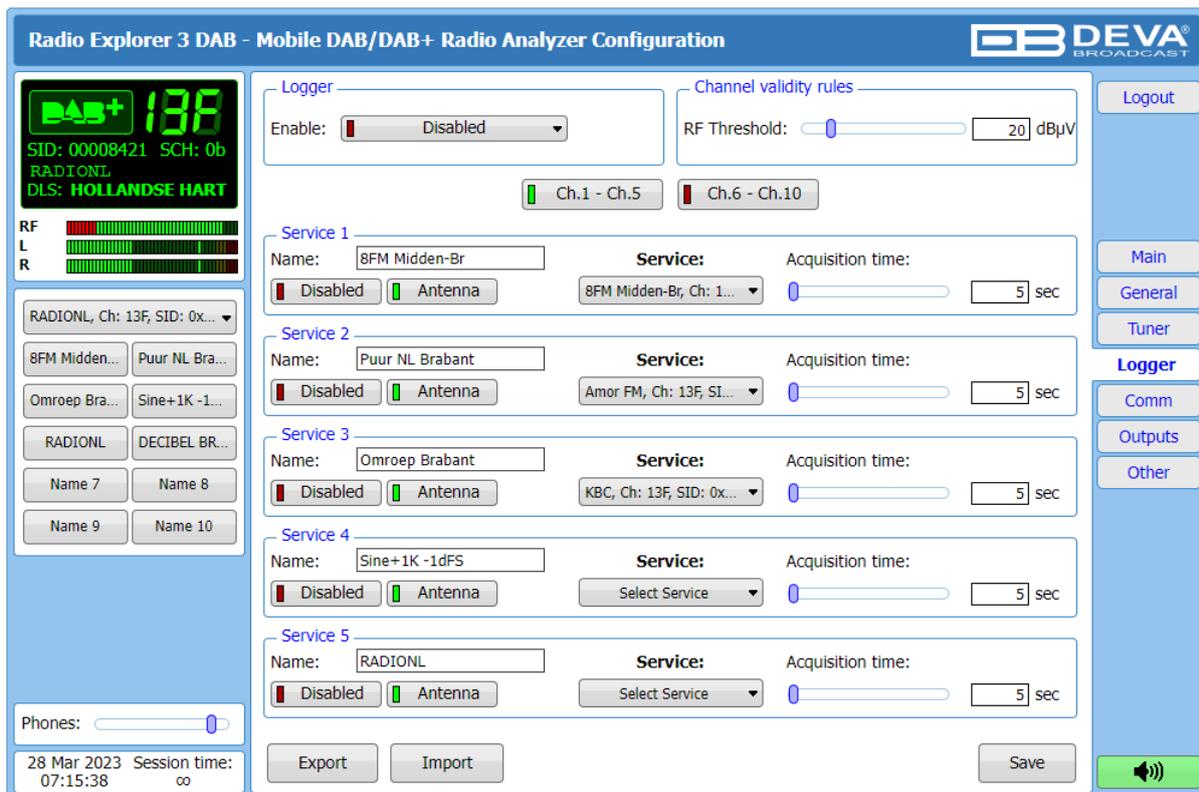
# TUNER SETTINGS



The Tuner Section gives control over Tuner settings, allowing you to select a DAB channel and service. All available services will be listed below once the list is collected from the multiplex data.

# LOGGER



Trough this section of the WEB Interface, up to 10 channels could be chosen and monitored, by applying the needed settings. When the desired adjustments are made, Radio Explorer III DAB will monitor all of the selected channels at regular intervals. All of the collected information is accessible through the built-in FTP Server;

**Logger** – generally enables/disables the campaign. In order for a campaign to be performed, the setting should be enabled and set to the desired time.

**Channel validity rules** – When the RF level of channel at which the Radio Explorer III DAB is currently tuned is below the specified threshold, the data collection will be stopped and the unit will switch to the next channel. Correctly set, this parameter will filter the unneeded information if the field intensity in the analyzed point is below the specified RF threshold. The value is user defined and is set depending on the antenna used. If the Radio Explorer III DAB is to be used with the included in the set antenna, the recommended value of the RF Threshold is 25 dBµV. If the default value is left, the analyzed points will not be filtered and there might be points with missing information on the map.

**Buttons [Ch.1 - Ch,5], [Ch.6 - Ch.10]** are used for easy navigation through the list of all monitored stations.

**[Export]** – Pressing export will export the list of the channels and the settings applied. This option is very useful when several devices in one region are used, or just to store the information for future usage. To export the list of channels and their settings, follow the instructions below:
1. Press [Export], a new dialog window will appear;
2. Choose a directory to save the (*.ssi) file;
3. Press [Save].

**[Import]** – Allows you to import a preliminary saved list of the channels and their settings. To import the list of channels and their settings, follow the instructions below:
1. Press [Import], a new dialog window will appear;
2. Choose a PI campaign (*.ssi) file to be uploaded;
3. Press [OK] and wait for the process to be completed;
4. Press [Save] to save the changes.

**Important recommendations when acquisition time is set**

Acquisition time defines the time between the examining points. Meaning that if the acquisition time is set to 10 seconds, the Radio Explorer III DAB will mark a point on the map each 10th second of the campaign. Having in mind that the device will scan the channels preset after preset, the driving speed should be carefully considered.

**Below is a table with the expected distance between the measurements of a particular point/frequency, depending on the speed and number of monitored channels, when the device is used in Logger Mode. Please note that the cited parameters are approximate and depend on the re-tuning time between the channels, and the overall configuration. As it can be seen from the table, the time period for two channels is more than two times bigger than the one needed for 1 channel as time for re-tuning is also added.**

| Approximate distance between the obtained measurement points of same frequency depending on the speed and number of channels monitored in Logger mode | | | | | | | |
|---|---|---|---|---|---|---|---|
| Number of monitored channels | Acquisition time | Speed 50km/h 31mph | | Speed 90km/h 56mph | | Speed 120km/h 75mph | |
| | | m | feet | m | feet | m | feet |
| 1 | 5 seconds | 69 | 226 | 130 | 427 | 173 | 568 |
| | 10 seconds | 137 | 449 | 252 | 827 | 335 | 1099 |
| 2 | 5 seconds | 140 | 459 | 258 | 846 | 341 | 1119 |
| | 10 seconds | 276 | 906 | 508 | 1667 | 701 | 2300 |
| 3 | 5 seconds | 202 | 663 | 388 | 1273 | 508 | 1667 |
| | 10 seconds | 413 | 1355 | 761 | 2497 | 1003 | 3291 |
| 4 | 5 seconds | 273 | 896 | 509 | 1670 | 673 | 2208 |
| | 10 seconds | 551 | 1808 | 1015 | 3330 | 1340 | 4396 |
| 5 | 5 seconds | 345 | 1132 | 638 | 2093 | 842 | 2762 |
| | 10 seconds | 692 | 2270 | 1265 | 4150 | 1682 | 5518 |
| 6 | 5 seconds | 412 | 1352 | 760 | 2493 | 1180 | 3871 |
| | 10 seconds | 830 | 2723 | 1512 | 4961 | 2004 | 6575 |
| 7 | 5 seconds | 480 | 1575 | 890 | 2920 | 1335 | 4380 |
| | 10 seconds | 964 | 3163 | 1765 | 5791 | 2340 | 7677 |
| 8 | 5 seconds | 552 | 1811 | 1013 | 3323 | 1510 | 4954 |
| | 10 seconds | 1105 | 3625 | 2020 | 6627 | 2675 | 8776 |
| 9 | 5 seconds | 622 | 2041 | 1142 | 3747 | 1680 | 5512 |
| | 10 seconds | 1242 | 4075 | 2270 | 7448 | 3010 | 9875 |
| 10 | 5 seconds | 692 | 2270 | 1270 | 4167 | 1847 | 6060 |
| | 10 seconds | 1395 | 4577 | 2535 | 8317 | 3342 | 10965 |

**How to start a Logger campaign?**

1. Open the main application window and go to ***Settings> Channels*** tab;
2. Set the Campaign's start time delay from the "Logger" box placed at the top of the window;
3. Set the Name, Service and Acquisition time parameters for each of the channels;
4. In order for a station to be included in the campaign, the [Ant1] button should be selected; to exclude a station from the campaign the [Disable] button should be selected;
5. Steps from 2 to 4 should be applied for each of the channels to be monitored. Once all channels are set you can proceed to the last step;
6. Press the [Save] button to save the applied changes;
7. Disconnect the device from the local network connection and wait for the campaign to be commenced

**NOTE:** In order for a Campaign to be commenced the device should be inactive for the specified time. During the campaign, the device should be inactive. The front panel navigational menu, WEB Interface and Device Manager Software should not be used.

# COMMUNICATION SETTINGS
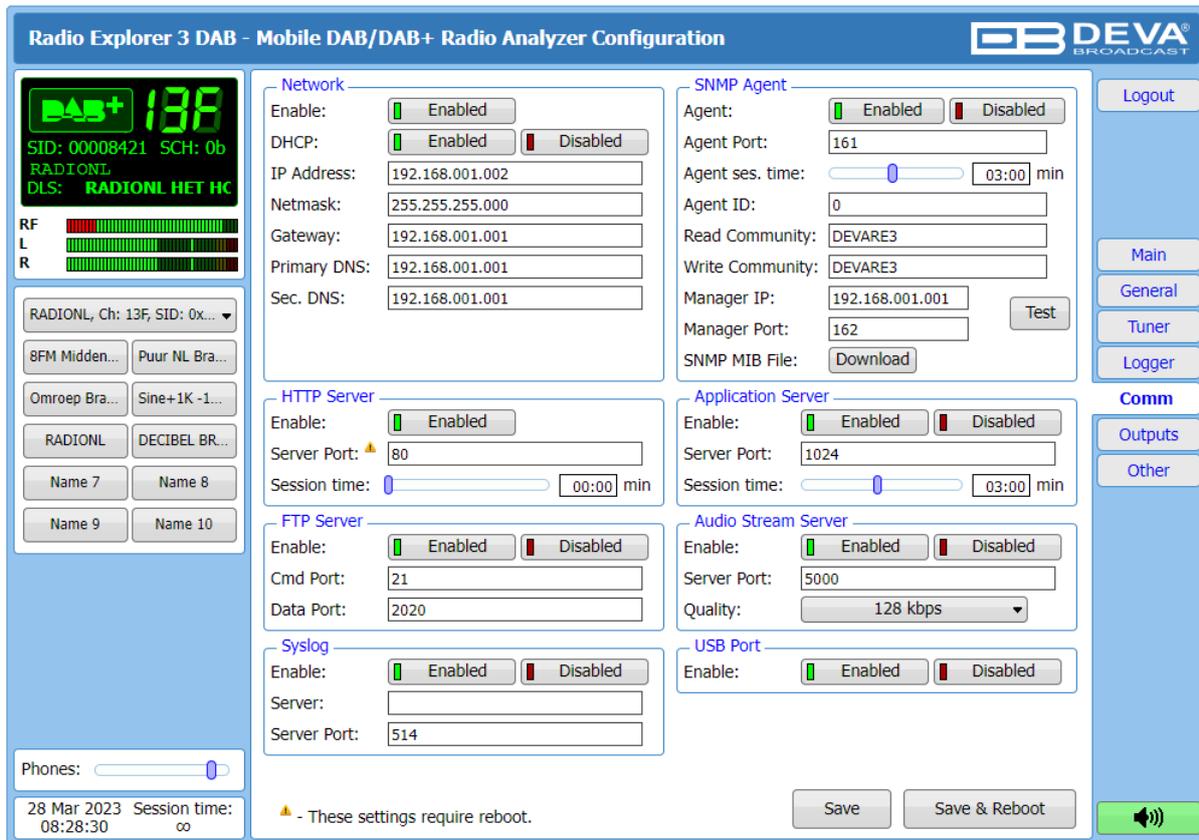


## Network

The network addresses could be set manually (static IP) or automatically via a DHCP server. To set static IP, MASK, GATEWAY and DNS addresses, the DHCP should be disabled. In order for the built-in DHCP client to be activated, the function should be enabled. When the DHCP client is activated, all assigned values will be shown in the relevant fields on the Status Screen. If due to any reason, the DHCP procedure cannot be completed, Radio Explorer III DAB will use AutoIP and will generate an IP Address.

## SNMP Agent

Agent – [Enabled]/[Disabled] the SNMP Agent.

Specify Agent ID, Agent Port, Read/Write Communities, Manager IP, Manager Port and session timeout. Agent ID is used for identification of the device among others, when an SNMP notification is being sent.

Once all needed settings are applied, use the [Test] button to generate a test notification, which upon success will be received by the SNMP Manager.

Press the [Download] button to download the latest available Radio Explorer III DAB SNMP MIB file.

**NOTE:** The MIB file may vary from one firmware revision to another. Downloading this file from the device, guarantees that you have the proper MIB file.

## HTTP Server

[Enabled] the HTTP Server. Specify the Server Port and session timeout. If the [Enabled] button is not illuminated in green, the option is disabled.

### Application Server

[Enabled]/[Disabled] the Application Server. Specify the Server Port and session timeout. If the [Enabled] button is not illuminated in green, the option is disabled.

### FTP Server

[Enabled]/[Disabled] the FTP Server. Specify the Command and Data Ports to be used.

### Audio Stream Server

[Enabled]/[Disabled] the Audio Stream Server. Then specify Port for audio Streaming, and Quality (64, 96, 128, 192 or 256 kbps). The Audio Stream could be heard using suitable audio player (Media Player, Winamp, etc.) or through the WEB interface by pressing the [Listen] button.
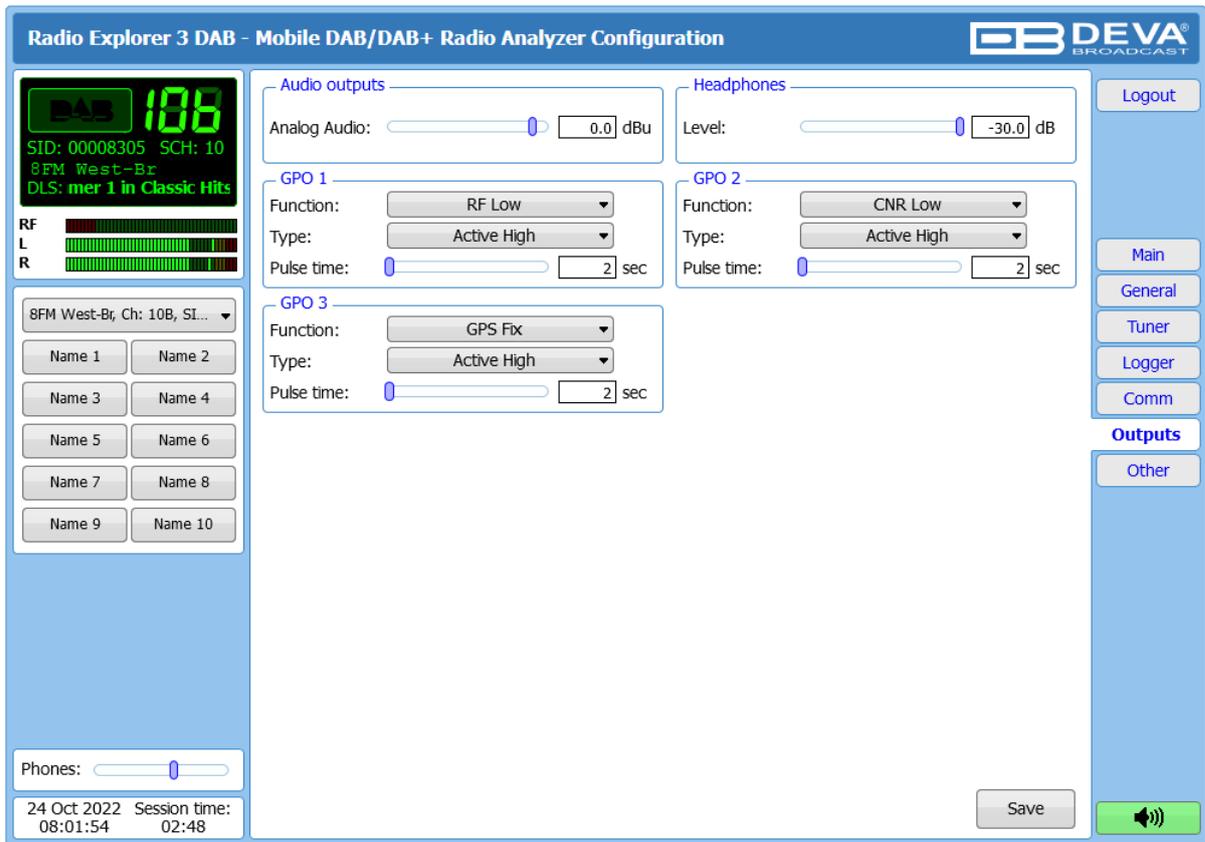
### Syslog Server

[Enabled]/[Disabled] the Syslog Server. Specify the Server Address and Por. If the [Enabled] button is not illuminated in green, the option is disabled.

### USB port

[Enabled]/[Disabled] the USB Port feature.

**NOTE:** In order for the applied settings to be used press the [Save] button, placed on the bottom right part of the screen.

# OUTPUTS SETTINGS



The general purpose outputs settings are applied through this page. The Audio/Headphones output section allows the setting of the Audio and Headphones Outputs, according to your needs.

The three General Purpose Outputs are assigned as follows:
- RF Low (GPO 1) – Indicates Low RF signal level;
- CNR Low (GPO 2) – Indicates Low CNR signal level;
- GPS Fix (GPO 3) – Indicates if GPS fix is available;

# OTHER SETTINGS



## Firmware Update

To update the device firmware, select the new firmware file. After having pressed the Upload button, a dialog window will appear. Confirm the firmware update and wait for the process to complete. Information on current DSP, TUN and LIB version is also found in this section.

## Storage

Information about the device storage space is found in this section. The entire internal storage could be deleted by pressing the [Format] button.

## System Log

By pressing the [Clear] button, all records in the system log will be deleted.

## Factory Defaults

[All except IP] – all settings, except for the Network settings (IP Address) will be deleted.

To restore Radio Explorer III DAB to its Factory Defaults, press [All except IP]. A new window will appear – confirm that you want to restore the factory defaults and wait for the process to be completed. On completion of the process, the settings should have the proper default values.

## Reboot

To start Rebooting of Radio Explorer III DAB, press the [Reboot] button. A dialog warning window will appear. Confirm that you want to reboot the device and wait for the process to be completed.

# APPENDIX B

## HOW SHOULD I CONFIGURE THE CONNECTION BETWEEN MY DEVA DEVICE AND AN FTP CLIENT?

In order for a connection to be established the following setting should be applied:

### 1. FTP Server Settings

The built-in FTP Server has four important parameters that should be configured: Command Port, Data Port, User name and Password. These parameters are to be used in the FTP client's connection configuration. Further information on how to change the FTP Server's settings and their respective default values can be found in the device's User manual.

**WE RECOMMEND** the usage of FileZilla (https://filezilla-project.org). This is a widespread open source software distributed free of charge, hence available for downloading from the Internet.

**NOTE:** The FTP Server can manage only one connection at a time. The FTP Server works in Passive mode. Hence, the FTP Client should also be set in passive mode.

### 2. IP Router and Port Translation Settings

If the connection to the device is made through a Network address translation (NAT) router or firewall, the port forwarding feature of the router should be configured. The port forwarding is usually set in the firewall section of the router's menu. As each router has different port forwarding procedure, we recommend you to refer to its complete manual. To allow proper data flow through the router, the FTP Command and FTP Data ports should be open.

**NOTE:** The FTP port numbers to be used in the port forwarding feature configuration can be found in the device.

### 3. Example of FTP Client (FileZilla) Settings

In some cases, FileZilla's "Quick connect" feature is not able to connect with the DEVA unit. That is why we recommend the device to be assigned in the program manually.

Enter the FTP Client and go to: *File > Site manager > New Site*. A dialog box requiring obligatory information about the device will appear. Fill in the needed information and press "OK".
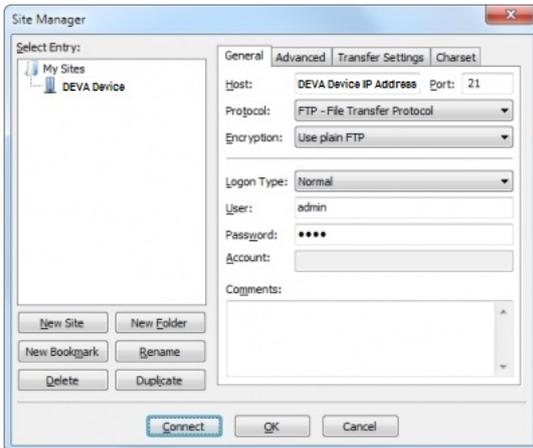
Select "Transfer Settings" sub-menu and apply the settings as shown below:
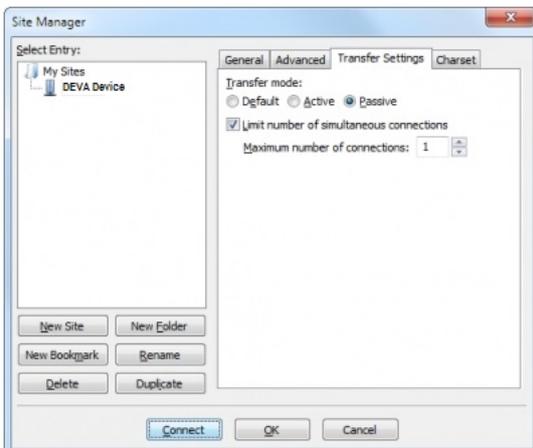
# WARRANTY TERMS AND CONDITIONS

**I. TERMS OF SALE:** DEVA Broadcast Ltd. products are sold with an understanding of "full satisfaction"; that is, full credit or refund will be issued for products sold as new if returned to the point of purchase within 30 days following their receipt, provided that they are returned complete and in an "as received" condition.

**II. CONDITIONS OF WARRANTY:** The following terms apply unless amended in writing by DEVA Broadcast Ltd.

**A.** The Warranty Registration Card supplied with this product must be completed and returned to DEVA Broadcast Ltd. within 10 days of delivery.

**B.** This Warranty applies only to products sold "as new." It is extended only to the original end-user and may not be transferred or assigned without prior written approval by DEVA Broadcast Ltd.

**C.** This Warranty does not apply to damage caused by improper mains settings and/or power supply.

**D.** This Warranty does not apply to damage caused by misuse, abuse, accident or neglect. This Warranty is voided by unauthorized attempts at repair or modification, or if the serial identification label has been removed or altered.

**III. TERMS OF WARRANTY:** DEVA Broadcast Ltd. products are warranted to be free from defects in materials and workmanship.

**A.** Any discrepancies noted within TWO YEARS of the date of delivery will be repaired free of charge, or the equipment will be replaced with a new or remanufactured product at DEVA Broadcast Ltd. option.

**B.** Parts and labor for factory repair required after the two-year Warranty period will be billed at prevailing prices and rates.

**IV. RETURNING GOODS FOR FACTORY REPAIR:**

**A.** Equipment will not be accepted for Warranty or other repair without a Return Material Authorization (RMA) number issued by DEVA Broadcast Ltd. prior to its return. An RMA number may be obtained by calling the factory. The number should be prominently marked on the outside of the shipping carton.

**B.** Equipment must be shipped prepaid to DEVA Broadcast Ltd. Shipping charges will be reimbursed for valid Warranty claims. Damage sustained as a result of improper packing for return to the factory is not covered under terms of the Warranty and may occasion additional charges.

# PRODUCT REGISTRATION CARD

• All fields are required, or warranty registration is invalid and void

Your Company Name_____

Contact_____

Address Line 1_____

Address Line 2_____

City_____

State/Province_____ ZIP/Postal Code_____

Country_____

E-mail_____ Phone_____ Fax_____

Which DEVA Broadcast Ltd. product did you purchase?_____

_____

_____

Product Serial #_____

Purchase date_____/_____/_____        Installation date_____/_____/_____

_____
Your signature*

*Signing this warranty registration form you are stating that all the information provided to DEVA Broadcast Ltd. are truth and correct. DEVA Broadcast Ltd. declines any responsibility for the provided information that could result in an immediate loss of warranty for the above specified product(s).

**Privacy statement: DEVA Broadcast Ltd. will not share the personal information you provide on this card with any other parties.**