MAINTENANCE AND OPERATION
INSTRUCTION MANUAL

DB3010

FM Radio & IP Audio
Confidence Monitoring Receiver

DEVA® BROADCAST

Publish Date: 14-Sep-2026

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

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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

True to our strive for innovation and prepared to meet the evolving customer needs, DEVA is bringing to the market an extension to our monitoring portfolio to stand out confidently against everything that is on the market - the DB3010 FM Radio & IP Audio Confidence Monitoring Receiver. Our debut tool supervises simultaneously the FM and the online stream of the radio station, thus ensuring perfect service and performance, while maintaining full fidelity program monitoring.

Affordable and rich in features, the DB3010 is a unique value proposition for new stations and for the ones in need of upgrade. Internet radio has permanently established itself as a preferred medium for access to favorite music. Surveys show the progressive increase in the number of online radio listeners. The growth of technology and the unlimited internet access have influenced the market and DEVA is ready to respond with a device to supervise simultaneously the FM and the online stream of the radio station, thus ensuring immaculate performance.

In continued adherence to DEVA hallmark characteristic, the user-friendly operation, our confidence monitoring receiver guarantees crystal clear sound reproduction. This rack -mountable unit is equipped with two speakers to reproduce mid- and high-range audio frequencies, and one high-efficiency bass reflex speaker for high-quality sound, without a trace of distortion. The tool supports MP3 and PCM IP audio codecs. In addition, DB3010 allows users to toggle through the FM and online stream of your radio station to confirm audio presence and quality in live broadcast environments. The device is compatible with the most popular streaming media platforms, Icecast and Shoutcast included.

This state-of-the-art monitoring solution has a built-in sensitive and high-selective DSP-based tuner that allows the FM and online stream of the station to be selected, monitored and listened to through the top-quality speakers or headphones. This dedicated hardware will not only allow you to constantly monitor the sound of your station, but will also measure and store for future analysis the RF level, MPX deviation, Left & Right Audio levels values. To boost performance even more, the DB3010 comes with a built-in RDS/RBDS decoder for self-monitoring purposes. The rear-panel alarm GPOs, E-mail and SNMP ver. 2C provide local alarm options, and online notifications in case of Stream and Internet loss or change in the RF, Left and Right Audio Levels.

The DB3010 has easy to read, high-resolution OLED graphical display and three ultra-bright LED bargraph indicators that allow reading the main signal parameters at a glance. The intuitive front panel navigation menu and set of four soft buttons, allow easy navigation through the menus and quick access to DB3010's various functions. The tool provides fast remote monitoring and setup. Its WEB interface is accessible with no more than a click and you will be able to listen to both the FM Station and the online stream. The setup and control of the unit could be done through your PC, tablet or smartphone via a standard web browser. All operating systems are supported without a compromise.

With its extensive set of features to match the latest trends, user-friendly control options and guaranteed 24/7 operation, DB3010 is the perfect asset for any radio station system.

Product Features

- FM Band 87.1 - 107.9 MHz DSP-based Tuner
- Up to 100 dBµV direct RF Antenna Input
- Selectable wide range IF filter bandwidth
- Selectable De-emphasis - 50µs and 75µs
- RDS and RBDS decoder with BER meter
- Wide angle, easy to read OLED display
- Very Intuitive Navigational Menu
- Quick Station access via 4 Presets
- Real Time Audio Program Streaming
- Full fidelity radio program monitoring in only 1RU
- Built-in WEB server
- Easy to use WEB interface
- Apple and Android devices support
- Restore Factory Parameters option
- Protected access to the device settings
- Easy Installation and Setup
- Wide operating voltage range: 100-240V AC
- Bright bar graph LED metering of the RF and Audio Levels
- Headphone output with front panel level control
- Advanced Internet Radio Monitoring Capabilities
- Automatically decodes MP3 and PCM IP Audio
- Support of all standard bitrates and VBR as well
- SHOUTcast / ICEcast compatible
- Automatically displays live metadata for all standards
- Adjustable alarms for Stream Loss and Internet Loss
- DSP controlled, high efficient class-D switching amplifier
- Accurate 3-way speaker system
- Two mid/high frequency speakers for excellent stereo imaging.
- Active crossover for perfect separation between mid-range and bass bands
- Magnetically shielded drivers that allows placement next to video monitors
- SNTP for automatic synchronization of the built-in clock
- Level Adjustable, Balanced Analog Audio Outputs on XLR Connectors
- Professional AES/EBU Digital audio output
- 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
- Multi-point screw fixings ensured 19“ aluminum case

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TECHNICAL SPECIFICATIONS

IP AUDIO PLAYER	
Decoder/Supported formats	MPEG-1 Layer 3 and raw PCM
Sample rates	32, 44.1 and 48 kHz
Bit rates	All standard bit rates, including VBR
Metadata decoder	Station/Streamer's ID, Song/Title (artist and title or program name), Quality (streaming rate, encoding format, mono or stereo and original sampling rate)
Stream client	Shoutcast/Icecast compatible TCP/IP client
FM RADIO TUNER	
Tuning Range	87.1 to 107.9 MHz, Frequency Agile
Tuning Step	10, 20, 50, 100 kHz
Tuner Sensitivity	≤ 10µV for 50dB monaural FM S/N
Antenna Port	BNC Connectors, 50Ω
Internal Attenuator	0, 10, 20 and 30 dB
Dynamic range	100 dB
FM DEMOD	
IF Filter Bandwindth	Adjustable from 10kHz to 150kHz
Frequency Response	±0.1 dB, 10 Hz to 86 kHz
Dynamic range	90 dB
STEREO DECODER	
Frequency Response (L and R)	±0.1 dB, 10 Hz to 15 kHz
SNR (Stereo)	60 dB, 50 µs de-emphasis
THD	0.1%, 10 Hz to 15 kHz, 50 µs de-emphasis
Stereo Separation	50 dB, 50 Hz to 10 kHz, 50 µs de-emphasis
RDS DECODER	
Standards	European RDS CENELEC; United States RBDS NRSC
Error Correction & Counting	Yes
Decoder	PI, PS, PTY, AF, RT, RT+, DI, MS, TA, TP, CT, ODA
Group Analyzer	Yes
BER Analyzer	Yes
Group Sequence Display	Yes
RDS RAW Data Display	Yes
METERING ACCURACY	
RF Level	1%, 0 to 100 dBµV, 1dB resolution
Audio	1%, +5.0 to -50.0 dB, 0.1 dB resolution
AMPLIFIER & LOUDSPEAKERS	
Configuration	Three-way with stereo mid/ high-frequency drivers & mono low-frequency driver
Power Output	2 x 6W (HF) + 12W (LF) with protective limiter
Crossover	250Hz, 24dB/octave, Linkwitz-Riley
Distortion, HF Outputs	< 0.1% - 1kHz, 3W output (below limit threshold)
Distortion, LF Output	< 0.05% - 100Hz, 6W output (below limit threshold)

Noise	Better than -72 dB below full output
Volume Control	Mute to Full, Front panel, Rotary type
Balance Trim	±32dB, Front panel, Rotary type
Peak Acoustic Level	98dB SPL @ 2ft
OUTPUTS	
Analog Audio Outputs (L, R)	+10 dBu, balanced XLR Connector
AES/EBU Output (L, R)	5.0 Vp-p, 110Ω, balanced XLR Connector
Alarms	Programmable terminals on rear panel, Optoisolated
Headphone	6,3mm (1/4”) Phone Jack
NETWORK	
Connector	RJ-45
Type	Ethernet
Device discovery	UPnP support
MEASUREMENTS AND LOG STORAGE	
Storage	2GB Build-in Memory Card
Data format	Text, CSV
OPERATING CONDITIONS	
Temperature	-15°C to 55°C
Humidity	< 95%, non-condensing
Altitude	0 to 5000m above sea level
POWER SUPPLY	
Voltage	100-240V / 50-60 Hz / 25W
Connector	IEC320
SIZE AND WEIGHT	
Dimensions (W;H;D)	485 x 44 x 320 mm
Shipping Weight	540 x 125 x 450 mm / 4.5kg

Panel Indicators, Switches and Connectors

OLED DISPLAY

DB3010 has easy to read, high-resolution OLED graphical display that visualizes all measurements of the received signal and DB3010's settings.

LED METERS

The full-time LED meters allow quick and easy monitoring of the metering, making the setup, adjustment and programming easy.

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 DB3010.

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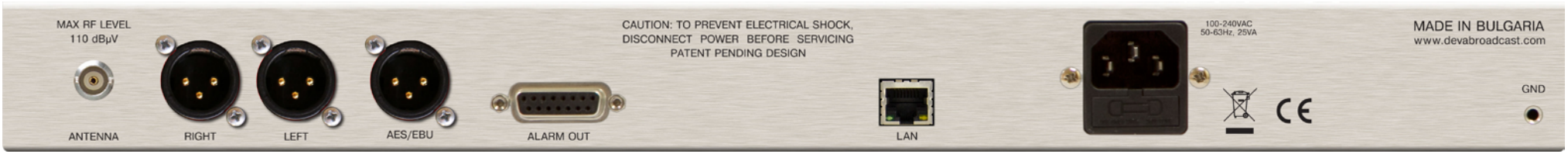
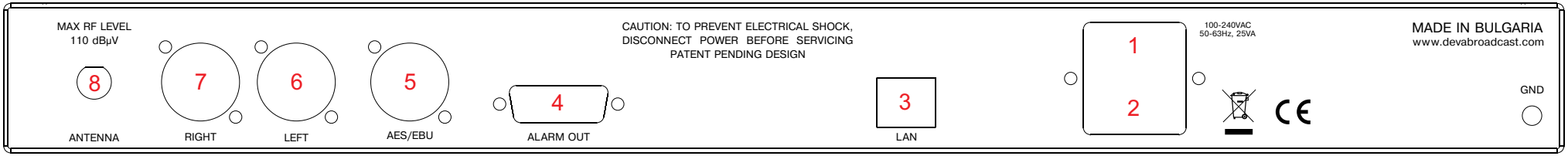
REAR PANEL





1. Mains connector, 110-240VAC, IEC-320 C14 type;
2. Fuse holder;
3. Ethernet T-BASE10/100 RJ45;
4. GPO – Opto-isolated, Female D-Sub 15 pins.
5. Audio AES/EBU Output - XLR;
6. Audio Left Output - XLR;
7. Audio Right Output - XLR;
8. RF Input 1 (Antenna) - BNC;

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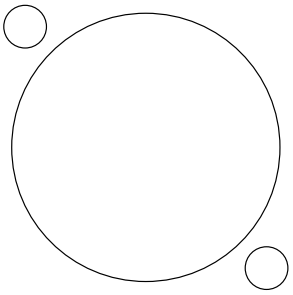
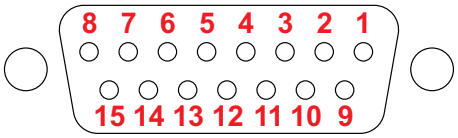
REAR PANEL ALARM TERMINAL

CAUTIC
DISCOI



AES/EBU

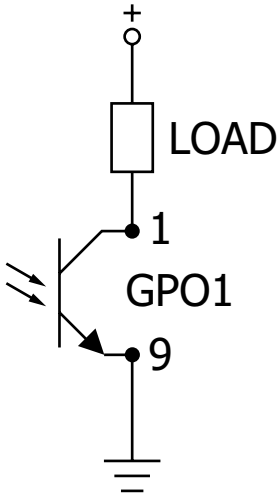


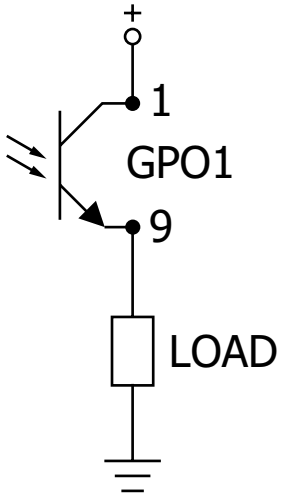
ALARM OUT

1 - GPO1 Collector
2 - GPO2 Collector
3 - GPO3 Collector
4 - GPO4 Collector
5 - GPO5 Collector
6 - GPO6 Collector
7 - GPO7 Collector

8 - GND

9 - GPO1 Emitter
10 - GPO2 Emitter
11 - GPO3 Emitter
12 - GPO4 Emitter
13 - GPO5 Emitter
14 - GPO6 Emitter
15 - GPO7 Emitter





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 for RTC timekeeping. Do not try to re-charge this battery!

NOTE: A depleted RTC battery may cause the device to start with an incorrect or random time and date. For the RTC battery replacement procedure, refer to APPENDIX "Battery Replacement Procedure" on page 63.

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.

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AC Mains Power

FUSE HOLDER

The fuse holder is placed inside the unit, next to the voltage selector. Apply downward pressure and pull the cap outward to access the 5mm mains fuse. The reverse process will release the cap.

MAINS VOLTAGE SELECTOR

Before connecting the AC Power, make sure that the internal Power Switch is in accordance with the mains supply at your location. The Power Supply Factory Settings are:

- 100 - 240 VAC
- 1 Amp Fuse

CAUTION: Permanent damage will result if improper AC supply voltage is applied to the device. The warranty DOES NOT cover damages caused by applying improper supply voltage or usage of improper fuse.

POWER CORD

The detachable IEC-type power cord is supplied with the unit. The individual cord conductors may be color-coded in either of two ways:

1) In accordance with US standards:
BLACK = AC “HOT”
WHITE = AC NEUTRAL
GREEN = EARTH GROUND

2) To European CEE standards:
BROWN = AC “HOT”
BLUE = AC NEUTRAL
GREEN/YELLOW = EARTH GROUND

GROUND LOOPS

Because the unbalanced INPUTS/OUTPUTS of the device are chassis-ground-referenced, a mains frequency or INPUT/OUTPUT ground loop could be formed between the input or output cable shield grounds and the AC power cord ground. A ‘ground-lifting’ AC adapter may help in this situation, although the chassis must be properly grounded for safety purposes. In general, the equipment being installed in a rack will satisfy the safety requirement.

Getting Started

In order for the normal operation of the DB3010 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 DB3010 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 DB3010 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 DB3010 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

DB3010 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.

DB3010'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 DB3010. The way of editing depends of the parameter type. Every parameter type has its own editing rules.

Numerical parameter

Represents numerical value.

Example: The value ***Frequency*** can be changed in the range of **87.10 MHz** to **108.10 MHz** and ***Frequency Step*** of **10 kHz**, **20 kHz**, **50 kHz** or **100 kHz**.

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: The value ***Attenuator*** can be selected from **Auto**, **OFF**, **-10dB**, **-20dB** and **-30dB**.

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:

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:

Front panel buttons usage: Refer to IP address.

Date

Represent date from the calendar.

Example:

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:

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;

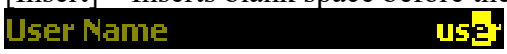
[UP] / [DOWN] – Cycle through the possible values. Depending on the string context there is a limitation in the permitted char set. For example phone number string can contain only `1234567890+` and blank space characters;

[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

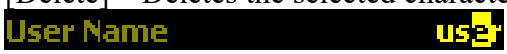
[Insert] – Inserts blank space before the selected character:



– before

– after

[Delete] – Deletes the selected character:



– before

– after

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

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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) Volume indicator - Indicator showing the phones audio volume;

(2) Tuner alarms - The indicators are alarms related and if illuminated have the following meanings:

– ***RF Alarm*** is activated;

– ***Stereo Loss Alarm*** is activated;

– ***FM Left Audio Alarm*** or ***FM Right Audio Alarm*** is activated.

(3) IP Audio Alarms

– ***IP Link Alarm*** is activated;

– ***Internet Stream Alarm*** is activated;

– ***IP Left Audio Alarm*** or ***IP Right Audio Alarm*** is activated.

The Home screen also contains information on the Station, song Title, Codec, Bit rate, Sample rate, Buffer.

Soft buttons [SB1], [SB2], [SB3] and [SB4] are/could be assigned with quick access presets.

The [UP] and [DOWN] buttons will visualize list with all available (created) presets, hence allowing fast switch between them.

Also, if the some of the parameters of the currently selected FM or Internet radio has been changed, the new preset could be saved via the [Save] button.

MAIN SCREEN WORKING AREA

The main part of the OLED screen is where the data changes dynamically, depending on the selected operating mode. The ***Menu*** screen (shown above) appears upon pressing of the [OK] button. DB3010's ***Menu*** page contains selectable icons and soft buttons for selecting modes and functions. Pressing [LEFT] and [RIGHT] arrow buttons will change the icon selection on the ***Menu*** page. The current selection is shown as a rectangle focus frame around the icon. Pressing [OK] button will navigate to the corresponding page.

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 to as (left-to-right) [SB1], [SB2], [SB3] and [SB4]. The purpose of all soft button corresponds to the selected menu page. Most pages have the same or similar functional areas. The corresponding functions as ***Menu*** page, parameter to be changed, etc., linked with the soft buttons will appear as labels above them. For example:

[SB1] – ***Home***
[SB2] – ***About***
[SB3] – ***Status***
[SB4] – ***Back***

NOTE: On some pages, the header and soft button area will disappear in order to expose the content underneath.

NAVIGATION BUTTONS

[UP], [DOWN], [LEFT], [RIGHT] and [OK] buttons are used to navigate through the menus, for selecting various functions and parameters of DB3010. The main menu structure has an up-and-down basis, expanded with left-to-right branches.

MENU PAGES

TUNER

This menu allows you to change the Input and apply changes to the currently selected FM or Internet radio. The new presets are also created through this menu. For further information, please refer to "How to create a preset" on page 30

PRESETS

Through this menu, the user has full access to the entire set of presets, thus allowing fast switch up between the FM and Internet radio stations.

When a preset is market with ☑ in front of it, this means that the preset is in use. If the ✖ appears, this means that some changes have been made to the preset and if you would like you could save it as a new one or overwrite the existing.

HOW TO CREATE A PRESET

You can create up-to 10 presets. The number of FM or Internet radio preset is not limited. For example, you can set 7 FM presets and 3 Internet radio presets, or 10 FM Radio presets, and etc. There is no limitation as regards the possible configurations. A new preset could also be created via the WEB Interface, for further information, please refer to "Presets" on page 46.

Please have in mind that if you would like a preset to be assigned to one of the four soft buttons on the front panel menu, the preset should be set in positions 1 to 4, as these are the positions to be used for quick access via the soft buttons.

The menu path for creating a new preset is ***Main menu> Tuner***, then:

1. ***Input Select*** – Select the input – **Internet Radio** or **FM Radio**;
2. If **FM Radio** is chosen, select ***FM Radio*** and press the [OK] button to enter the menu. Specify ***Frequency***, ***RF Attenuator***, ***Frequency Step***, ***IF Bandwidth***, ***De-emphasis***, ***RDS Mode***, and if need be, change the default audio processing settings – ***Stereo Blend***, ***High Cut***, ***High Blend*** and ***Soft Mute***.
3. If **Internet Radio** is chosen, select ***Internet Radio*** and press the [OK] button to enter the menu. Then, set the ***URL*** (press the [OK] button and navigate through the letters via the [UP] and [DOWN] buttons), specify ***Decoder***, ***Channels***, ***Pre-buffer***, ***Buffering timeout*** and ***Gain adjust***.
4. To save the newly added FM or Internet radio, go to ***Presets*** and choose one of the available presets, or an old one and press the soft button labeled [Save]. If you choose to overwrite an existing preset, the message below will appear. Press [OK] to save the preset.

NOTE: The name of the preset cannot be user-defined as it is automatically generated by the device. When FM radio preset is created, the name is composed of the frequency and the PS (if the device has decoded RDS). For the Internet radio, as a title is used the station name received from the broadcasted meta information.

OUTPUT

The settings applied through this menu have influence on the audio level of the analog and digital outputs. From here you can easily disable the ***Digital Out***, and regulate the output level of the ***Digital Out Volume*** and ***Analog Out Volume*** simultaneously.

SETUP

Enter the main ***Menu*** page, select ***Setup*** icon and press [OK].

The ***Setup*** menu is organized into a hierarchical tree menu and all similar parameters are grouped into sections (branches). The structure of the menu is:

- **Communication** – grants you access to the ***General Setup*** (to enable or disable the functions included in the menu), **Ethernet**, **SNMP**, **HTTP**, **FTP**, **SNTP** and **Email**.
- **Security** – From here you could set-up, change or disable the password protected access to the ***Front Panel*** or ***Remote access***.
- **Device** – allows you to change the name of the device, set-up the ***Date/Time***, change the default settings of the OLED graphical display (menu ***Front panel***), change the ***Home Screen***, specify the ***Weblog Max Days***, average and peak values and finally to return the device to its ***Factory Defaults***. ***Country Region*** allows you to specify the region in which the device will be used - Europe, USA and Japan. The RDS standard utilized will be changed accordingly.

SECURITY

Keyboard lock

To prevent unauthorized local access, the DB3010 offers password protected keyboard locking. By default the keyboard is unprotected. To enable this function, using the front panel navigational menu, go to ***Setup> Security> Front Panel***, then press [OK] and **Enable** the ***Access Control*** function. Set the preferred 5 digit password and ***Access Timeout***. Once the keyboard lock function is enabled, every attempt to use it will require a password:

`ENTER PASSWORD:0****`. Access will be denied upon false entry.

Keyboard unlock

If the keyboard unlock function has been activated by mistake, try to unlock it using the default password **01234**. In order to deactivate the code protection, once the front panel menu is unlocked follow the menu path ***Setup> Security> Front Panel> Access Control*** and then select **Disabled**. If you do not manage to unlock the front panel with the default password, nevertheless whether it has been changed intentionally or not, DB3010 should be returned to its factory defaults in order for the password security to be disabled.

NOTE: The password consists of 5 digits. The leading zeroes are not shown in the menu, but should be specified when entering the unlock password. For example, if your password is `123`, when entering the password `00123` should be written.

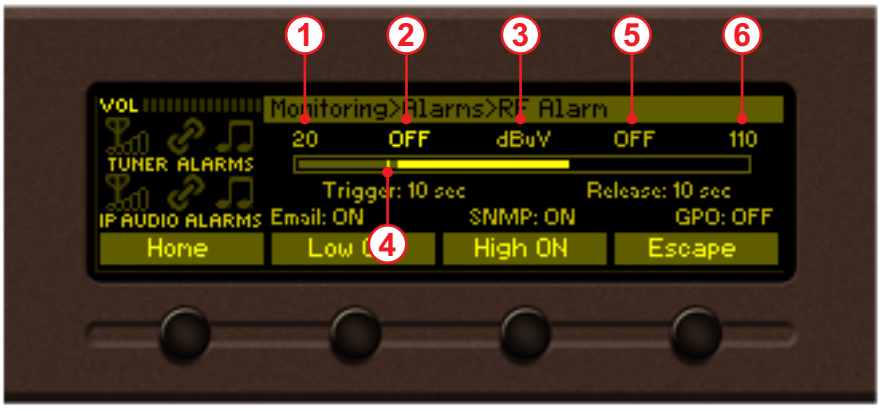
MONITORING

This menu pages allows you to apply the needed settings to the alarms. The following submenus are available:

- ***Alarm Notification*** – you can enable/disable the available notification types.
- ***Alarms*** – gives you full control to all alarms that could be generated.
- ***GP Outputs*** – from here you can assign function to the General Purpose Outputs.

Alarms is a special parameter type with its own dialog editor. Each alarm parameter is composed of the following sub-parameters:

- ***Low threshold*** – the lower alarm limit of the measured signal. If the value stays below this limit for predefined time "low alarm" event will be generated;
- ***High threshold*** – the higher alarm limit of the measured signal. If the value stays above this limit for predefined time "high alarm" event will be generated;
- ***Trigger time*** – waiting time before a "low alarm" or "high alarm" event is generated;
- ***Release time*** – waiting time before an "Idle alarm" event is generated;
- Set of notification channels – In case of alarm, maintenance staff will be immediately alerted via ***E-mail***, ***SNMP*** or ***GPO***, which allows technicians to restore the normal service as soon as possible.



Depicted above is the structure of the alarm editor dialog for the following alarms: ***RF Alarm***, ***FM Left Alarm***, ***FM Right Alarm***. ***IP Left Alarm***, ***IP Right Alarm***. The bar graph indicates the signal range of the alarm. The highlighted area represents the permitted signal value range. If current signal value (pos. 4) is in this range, no alarm event will be generated. Basic elements of the alarm editor dialog:

1. Lower limit of the alarm range;
2. Low threshold value;

3. Measurement unit;
4. Current value of the signal;
5. High threshold;
6. Higher limit of the alarm range.

Depicted above is the structure of the alarm editor dialog for the following alarms: ***Stereo Loss Alarm***, ***IP Link Alarm***, ***Internet Stream Alarm***. The basic elements of the alarm editor dialog are:

1. Alarm turned ON/OFF;
2. Trigger time (default value is set to 5 minutes);
3. Release time (default value is set to 5 minutes).

Alarm edit dialog, front panel buttons usage:

[LEFT] / [RIGHT] – Selects previous/next sub-parameter of the alarm.

[UP] / [DOWN] – Change the value of the selected (highlighted) sub-parameter. The value always stays in the permitted parameter range. Low threshold value cannot exceed the high threshold and vice-versa;

[OK] – Accept the value and exits edit dialog;

[SB2] – Toggles ON/OFF the low alarm generation;

[SB3] – Toggles ON/OFF the high alarm event generation;

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

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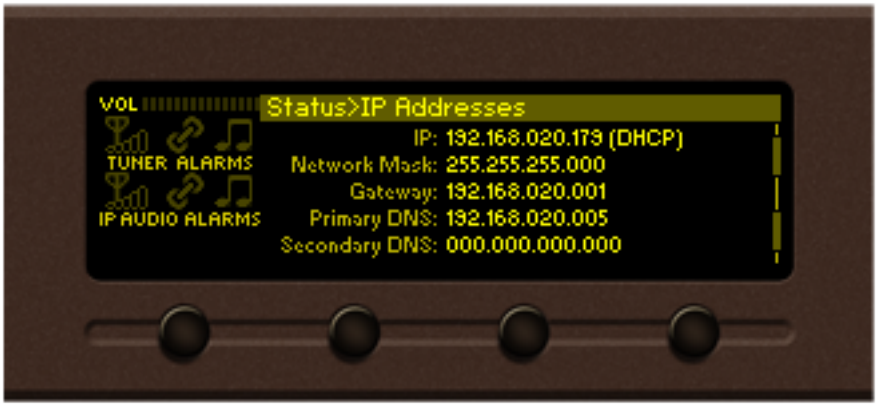
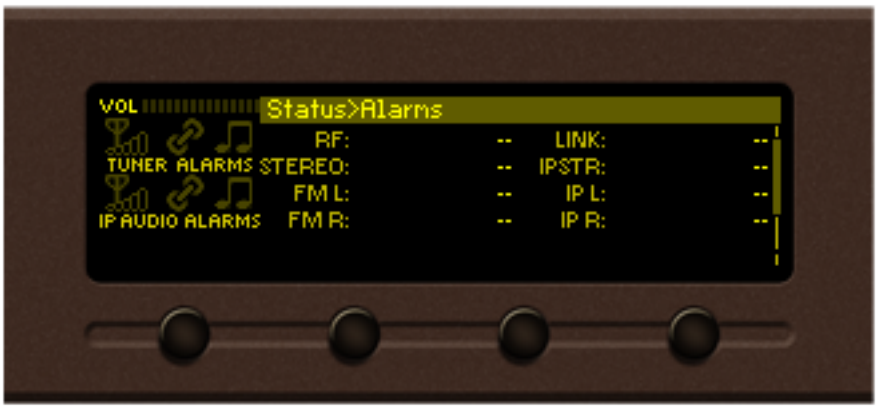
STATUS

The basic/general information on the device is found here:

- ***Device*** – ***Model***, ***Serial number***, ***Firmware*** version in use, ***Calibration***, ***Storage*** capacity;
- ***IP address*** – ***IP***, ***Network Mask***, ***Gateway***, ***Primary DNS***, ***Secondary DNS***;
- ***Alarms*** – the current alarm status is available here.





WEB Interface

DB3010 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 DB3010:

- via a standard WEB browser by specifying the device's IP address (the IP address should be manually identified first);
- via 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 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.

Default values being – ***Username***: `user` or `admin`, ***Password***: `pass`

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 DB3010 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

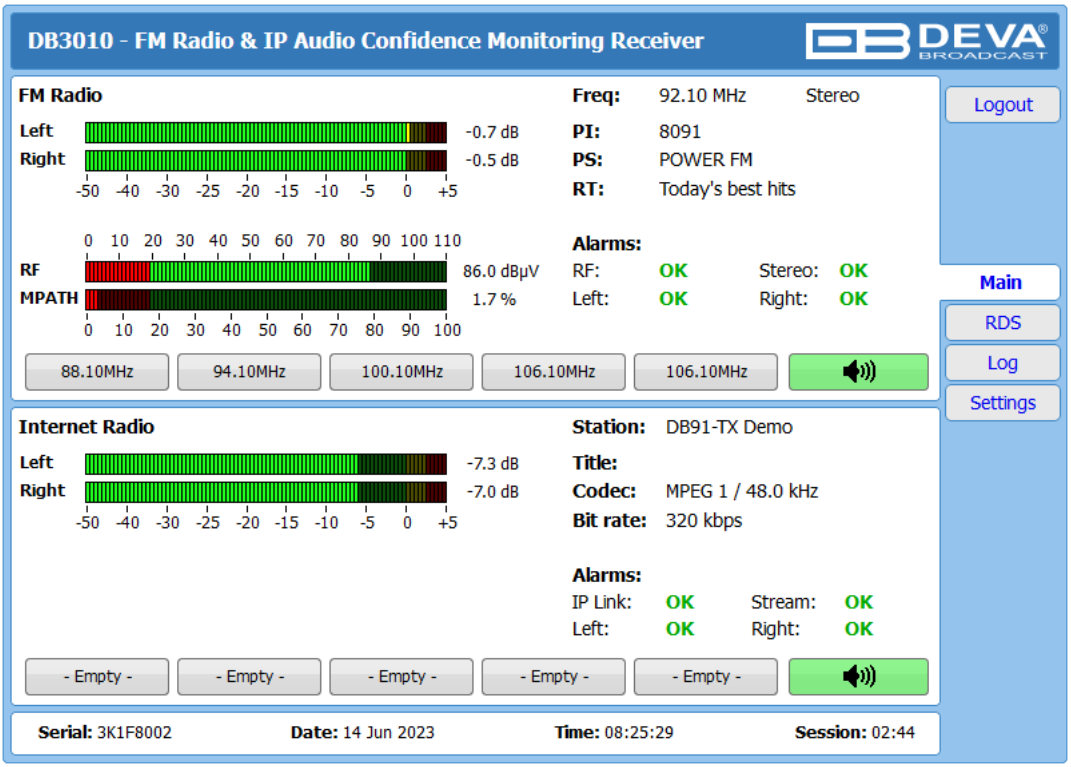
DB3010 provides you with a protected access to the device settings. You can choose between two types of log in:

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.

WEB Interface Menu pages

MAIN



The main screen contains information on the mandatory parameters for the currently selected FM and Internet radio. A set of interactive buttons enabling the fast switch between the presets assigned is also available.

FM Radio

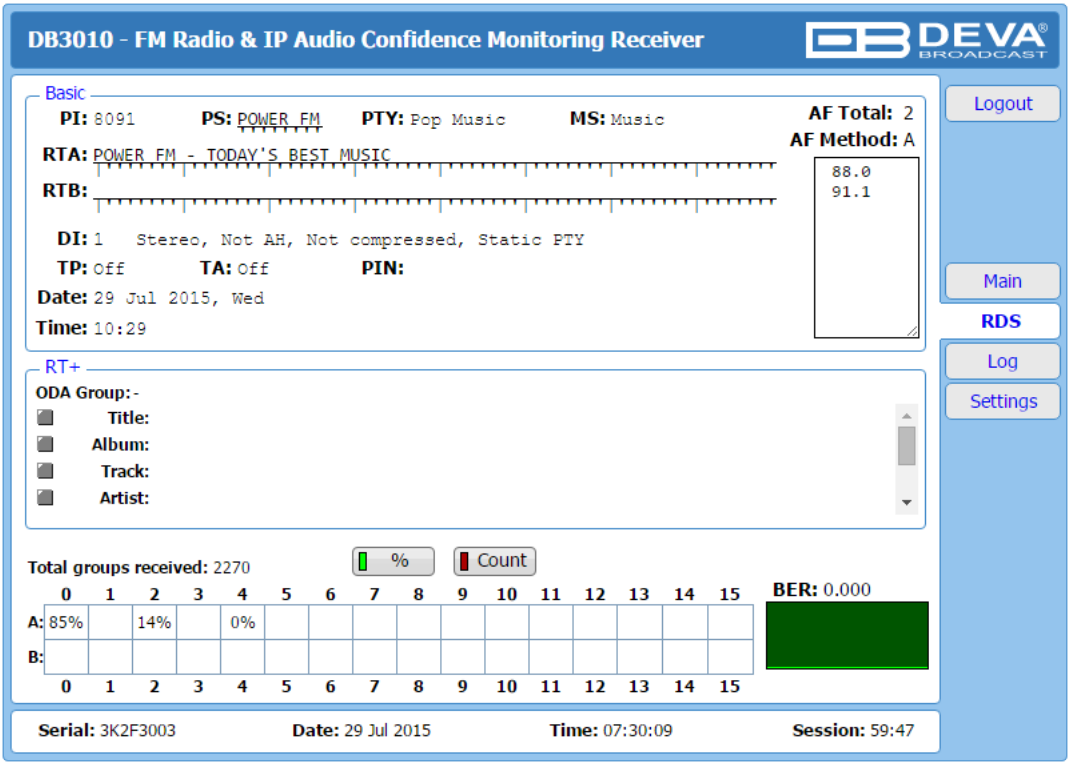
The accurate bar-graph indicators show the current values of the ***Left*** and ***Right*** audio channels, ***RF*** and ***MPATH*** (multipath) levels. On the top right side, information on the ***Freq*** (Frequency), ***PI***, ***PS***, ***RT*** and the ***Alarms*** generated is available.

Internet Radio

The accurate bar-graph indicators show the current values of the ***Left*** and ***Right*** audio channels levels. Next to them you will find information on the ***Station*** name, ***Title***, ***Codec***, ***Bit rate*** and the ***Alarms*** generated.

The number of FM or Internet radio preset is not limited. For example, you can set 7 FM presets and 3 Internet radio presets, or 10 FM radio presets, and etc. There is no limitation as regards the possible configurations. The interactive buttons, on the other hand, cannot be changed depending on the configuration that you have made. Only 5 interactive buttons are available for the FM radio and Internet radio. Even so, you could easily change the presets via the Presets menu (see “Presets” on page 46). The menu path is ***Settings> Presets***.

RDS



All basic elements of the RDS/RBDS are displayed on the screen – ***PI***, ***PS***, ***RT***, ***TA/TP***, etc. Represented a list, also available are the Alternative frequencies (***AF***). DB3010 supports one of the most used ODA Applications - ***RT+*** (Radio Text Plus). If your radio station has ***RT+***, DB3010 will display the information.

Total groups received indicator

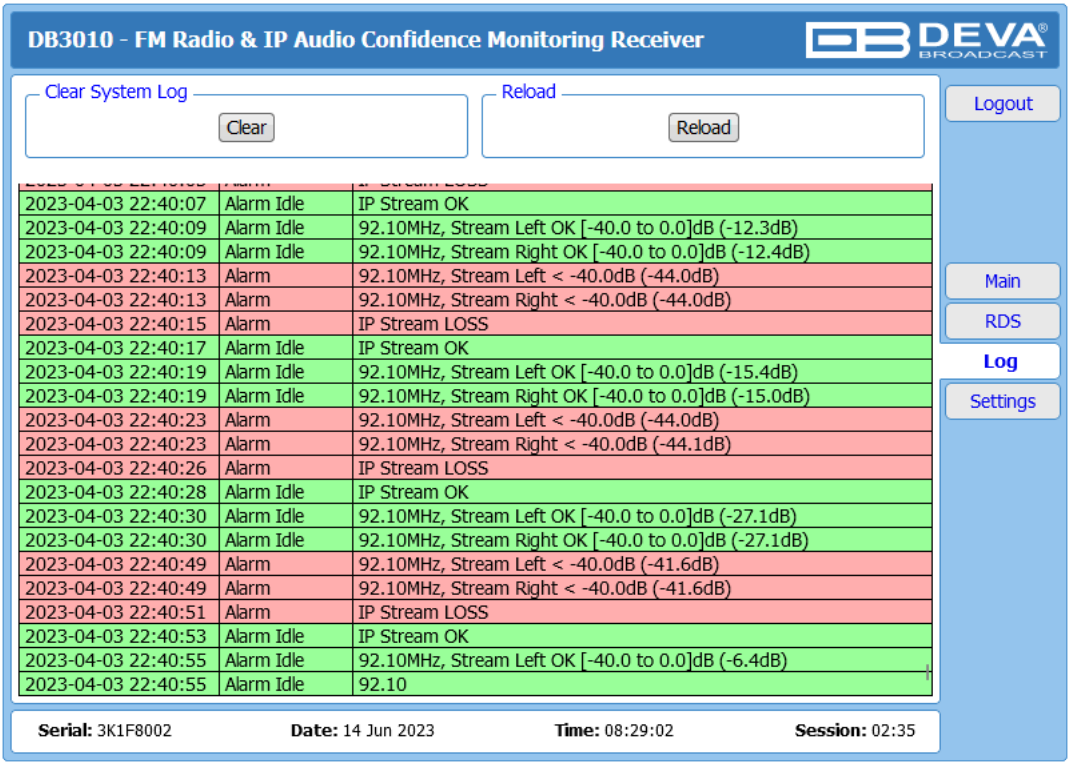
All received groups are systematized into a table, representing the percentage/quantity of the groups in the received RDS/RBDS signal. The user selects how the ***Total groups received*** data should be represented: as percents [%] or as [Count], by selecting the corresponding button.

BER

Indicator with graphics is placed at the right bottom part of the screen, showing 60 sec. history of the BER quantities.

NOTE: The bit error rate or bit error ratio (***BER***) is the number of bit errors, divided by the total number of transferred bits during the observed time interval. Result closer or equal to 0 indicates that no bit errors are detected and vice versa - result closer or equal to 1 indicates that the received transferred bits are only errors.

LOG



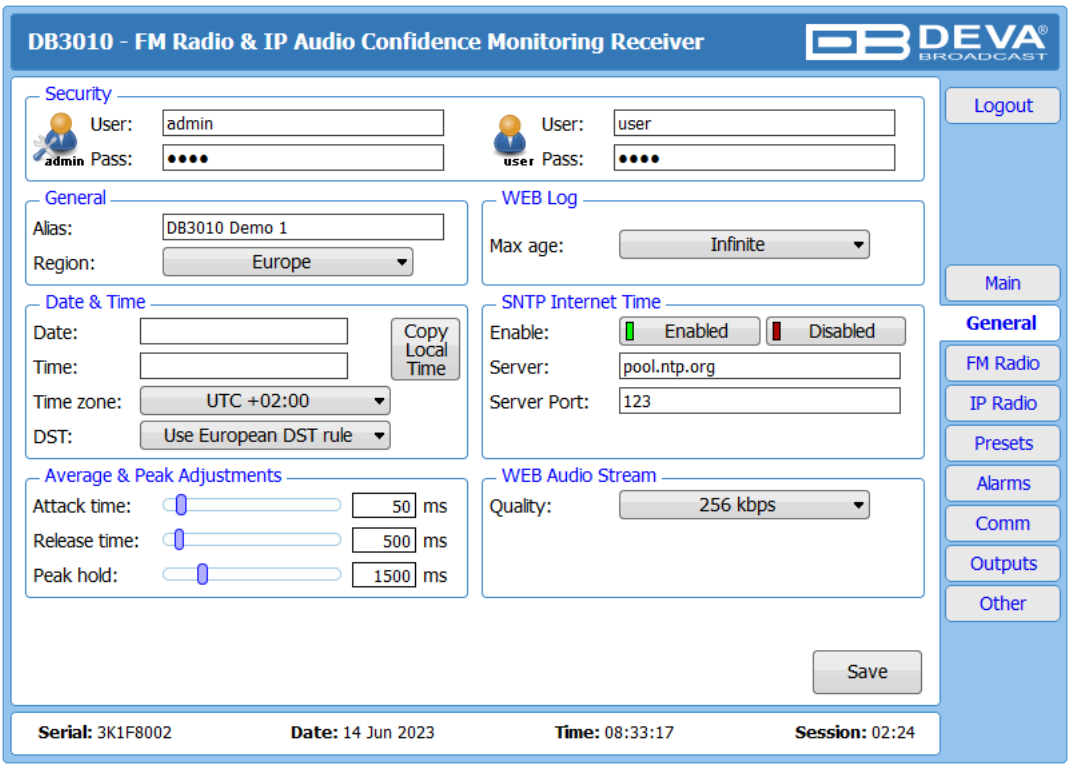
Here are listed all the device system events, including the front panel activity WEB remote connection sessions. To clear the system log, press the [Clear] button. To reload it, press [Reload].

The local measurements and logs are saved in the internal device memory. All log files can be downloaded via the built-in FTP server using any kind of FTP client.

For information on how the connection between the DB3010 and an FTP Client should be configured, please refer to “Download files via FTP” on page 61.

SETTINGS

General Settings



DB3010 provides you with protected access to the device settings.

Security

In order for the security of DB3010 to be enhanced, a new username and password could be set from the menu. You can choose between two types of log in.

- As an administrator (admin) – 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.

NOTE: All user name and password fields support up to 31 characters. These settings can use any symbol with a character code between 32 and 125 in the ASCII character table. This includes all small and capital letters, numbers and the following symbols:_,.<>/\=+(){}[]&%~|@

General

- ***Alias*** – by choice, you can change the name of the device. Later on, it will be used as a title name for all WEB pages. Customizing the name will make the device more recognizable.
- ***Region*** – allows you to specify the region in which the device will be used. Three options are available - Europe, USA and Japan. The RDS standard utilized will be changed accordingly.

WEB Log

The maximum storage time of the system log file is chosen from here. If the file is older than the specified maximum will be deleted.

Date & Time

Used to manually set the current ***Date*** and ***Time***. [Copy Local Time] button will set the date and time to correspond to that of your computer. Preferred Daylight Saving Time option could also be set to European or USA DST Rule.

SNTP Internet Time

Synchronizes automatically the DB3010 clock to a millisecond with the Internet time server. Press [Enable] to use the function. (Specifying the server closest to your location will improve the accuracy).

Average & Peak Adjustments

Section is used for setting of the indicators response times. ***Attack time*** and ***Release time*** set the rate in which the indicators' level will change in response to the signal. For most of the applications (including this one), the recommended attack time is shorter than the release time.

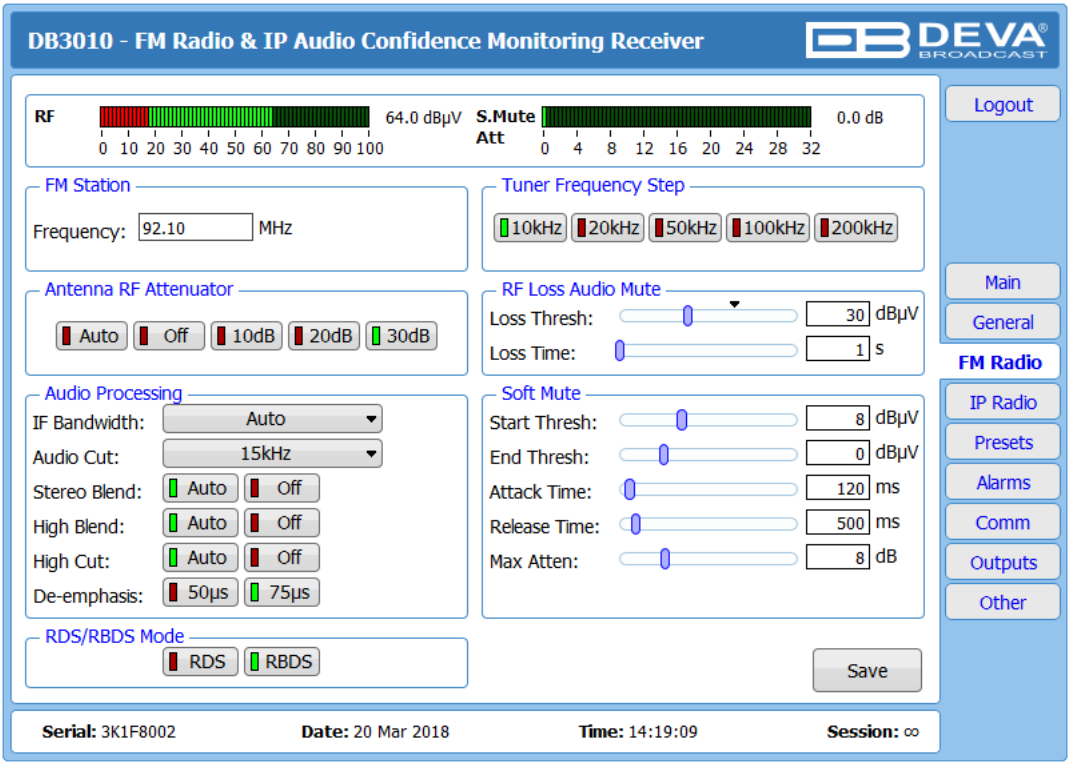
Peak-hold time – Permits retaining and displaying the peak value reached by the signal for a period of time predefined by the user, in milliseconds.

WEB Audio Stream

Allows the user to select the preferred WEB audio stream quality. The following options are available: 256 kbps, 224 kbps, 192 kbps, 160 kbps, 128 kbps, 96 kbps, 64 kbps

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

FM Radio



The ***FM Radio*** tab gives full control over the tuner, ***Audio Processing***, ***RDS/RBDS mode*** and the ***De-emphasis***. These settings provide all the needed adjustments to the algorithm which DB3010 demodulates and processes the signal.

Antenna RF Attenuator

Could be applied at the FM Input of DB3010, if need be. The available options are **Auto**, **Off**, **-10 dB**, **-20 dB**, **-30 dB**.

Tuner Frequency Step and De-emphasis

User defined frequency step and De-emphasis could also be set, where the default values are **50 kHz** ***Frequency Step*** and **50 µs** ***De-emphasis***.

RF Loss Audio Mute

The Audio will be muted if the RF Level drops below the Loss Threshold for the Loss Time period specified. The Audio will be restored once the RF Level is over the Loss Threshold level for the Loss Time period specified.

Audio Processing

If set to **Auto**, these settings depend on the quality of the received signal (RF Level, Multipath, and etc.). If any changes in the signal are detected, the unit will automatically adjust to the correct values.

- ***Stereo Blend*** – reduces the stereo separation if the received signal is bad;
- ***High Blend*** – applies low pass filter to the L-R audio levels;
- ***High Cut*** – applies low pass filter to the L+R audio levels;

RDS/RBDS Mode

Depending on the client's preferences, the deviation could be measured in % [RBDS] or in kHz [RDS].

Soft Mute

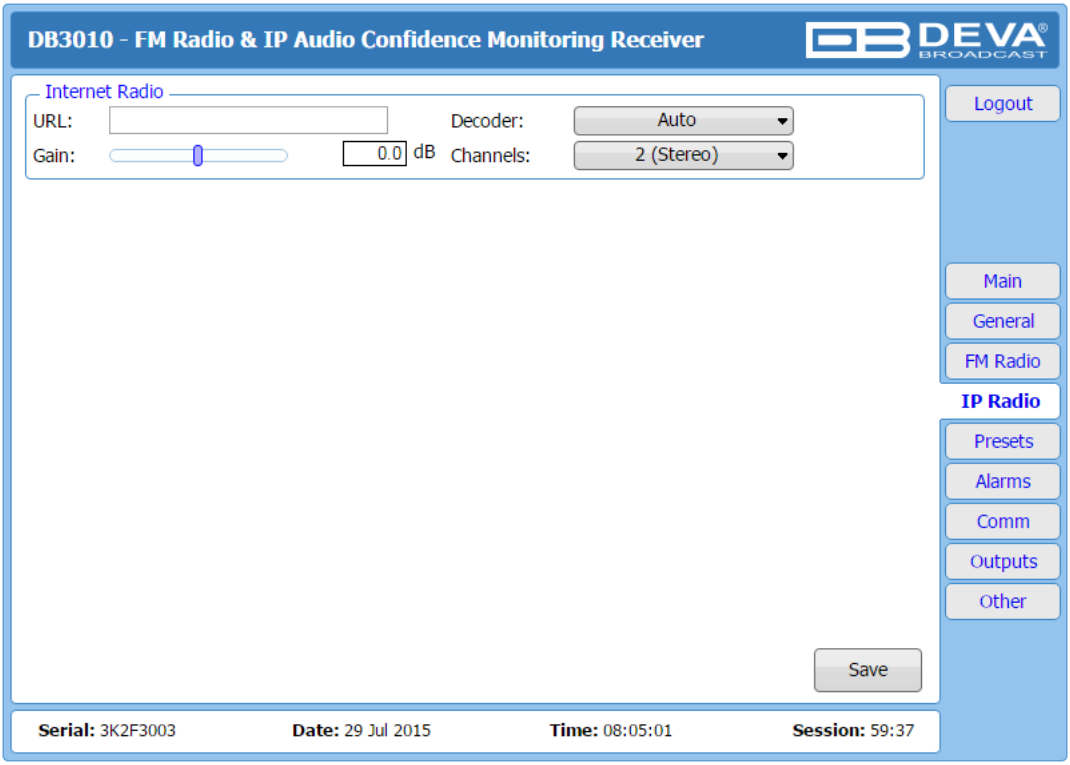
Reduces the level of the audio if the RF level is too low.

- **Start Thresh** – Property sets the RF Level threshold in dBµV to engage Soft Mute function to audio output;
- **End Thresh** – Sets the RF Level threshold in dBµV at which soft mute attenuation will be set to its maximum value, determined by "Max Atten" setting;
- **Attack time** – Sets the maximum time in ms it takes to mute the audio;
- **Release time** – Sets the maximum time in ms it takes to unmute the audio;
- **Max Atten** – sets the maximum attenuation in dB that will be applied by the soft mute feature to the audio output.

The **S.Mute Att** bar-graph (placed on top of the page) is directly related to the settings in Soft Mute section, and indicates the attenuation in dB that is currently applied by the soft mute feature to the audio output.

The accurate RF bar-graph indicator shows the current value of the RF level.

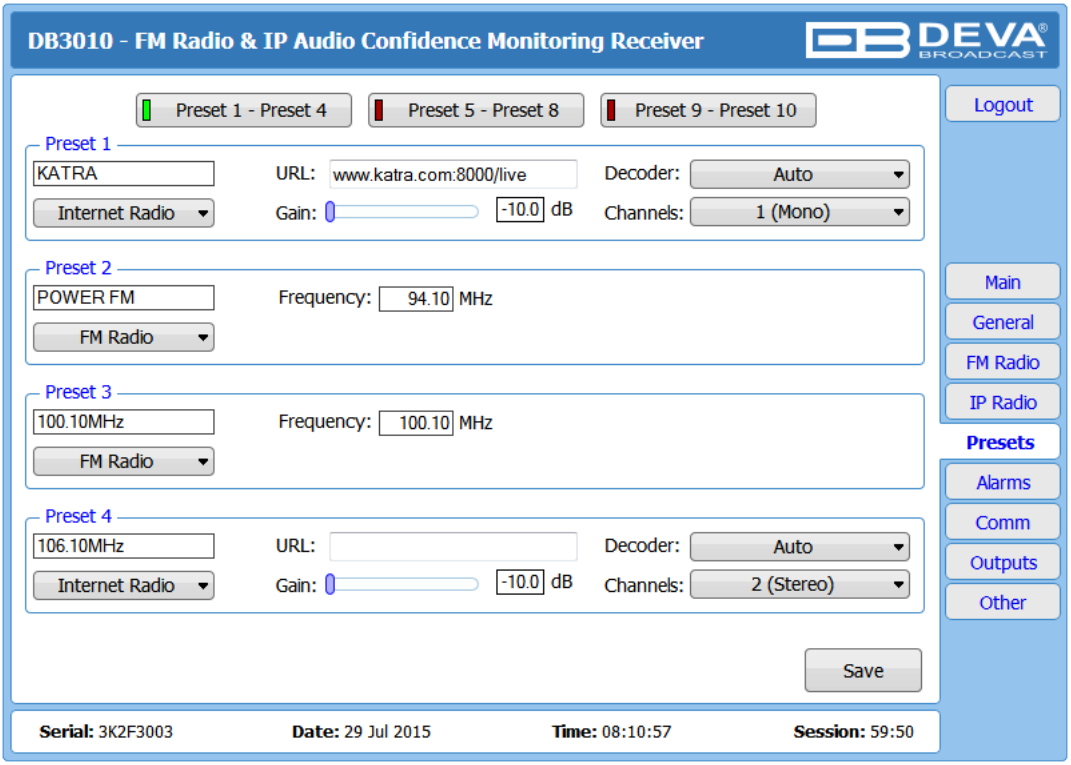
Internet radio



The ***Internet radio*** tab allows you to change the setting of the currently selected internet stream, or to specify a new one. If a new internet stream is added, the DB3010 will automatically switch to it upon pressing the [Save] button.

The information contained here is updated depending on the currently selected Internet radio stream. You can switch between the presets through the WEB interface ***Main*** page. A new preset can be added in the ***Presets*** page.

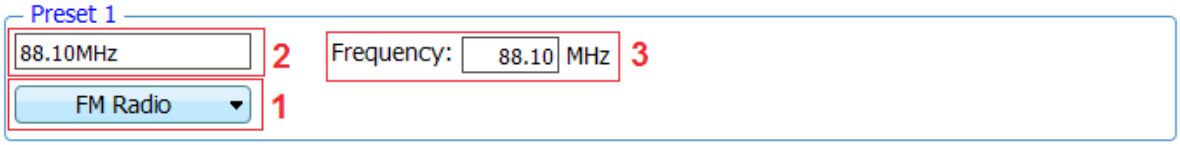
Presets



The DB3010 allows 10 user presets to be set and saved in the device's memory. The procedure of adding a new preset is quite simplified.

How to make an FM Radio preset

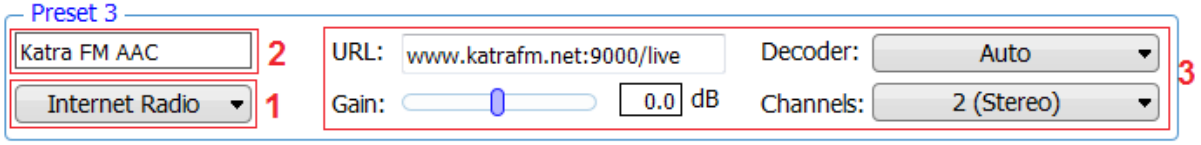
Once an available preset is selected, in order for an FM Radio preset to be made:



1. Select FM Radio from the drop-down menu;
2. Specify Name;
3. Specify Frequency;
4. Press the [Save] button placed on the bottom right corner of the WEB interface.

How to make an Internet Radio preset

Once an available preset is selected, in order for an Internet Radio preset to be made:



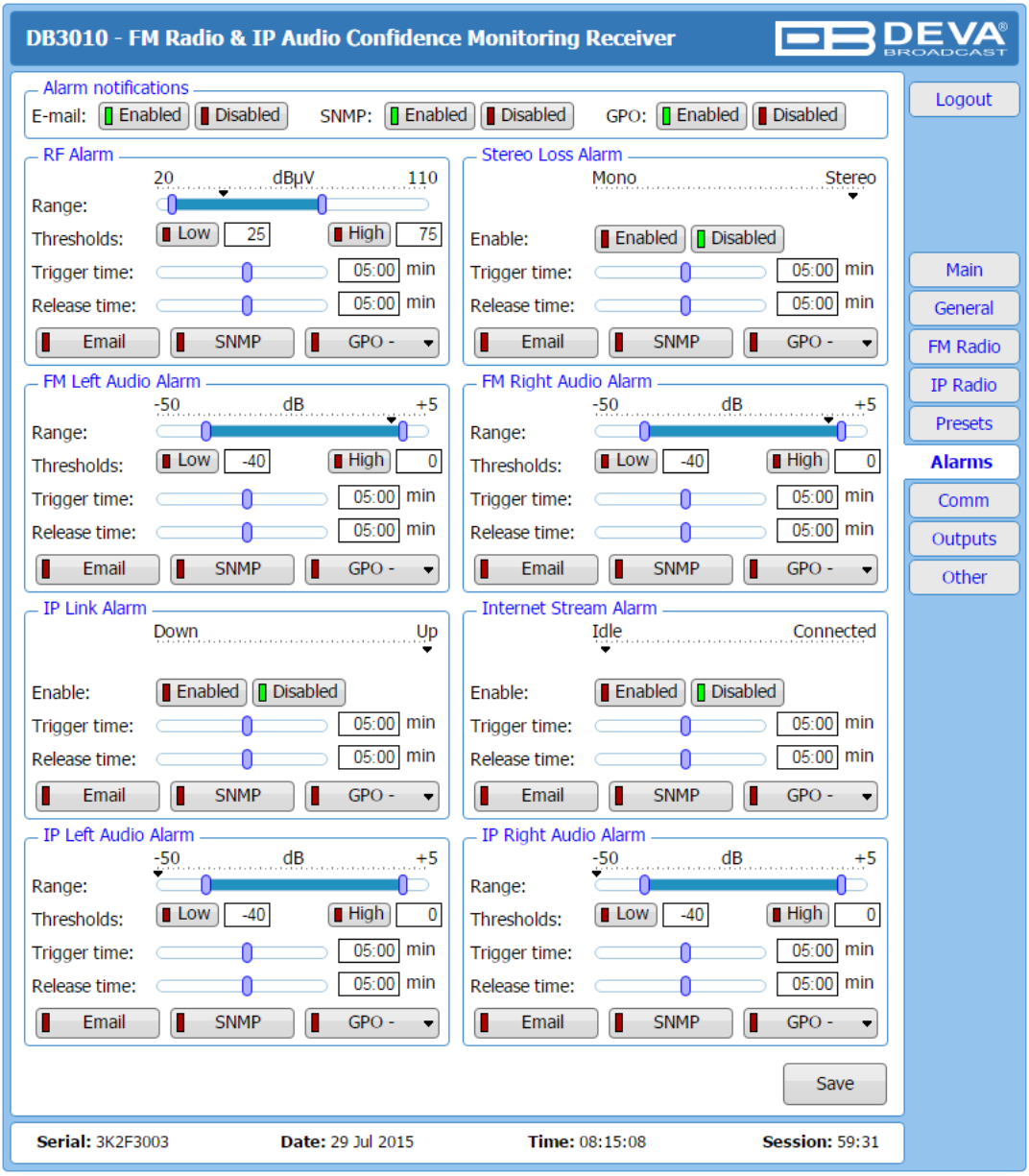
1. Select Internet Radio from the drop-down menu;
2. Specify name;
3. Specify URL, Gain, Decoder and Channels;
4. Press the [Save] button placed on the bottom right corner of the WEB interface.

The here specified presets could be easily changed via the interactive buttons placed in the ***Main*** page of the WEB interface.

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

The number of FM or Internet radio preset is not limited. For example, you can set 7 FM presets and 3 Internet radio presets, or 10 FM radio presets, and etc. There is no limitation as regards the possible configurations. The interactive buttons, on the other hand, cannot be changed depending on the configuration that you have made. Only 5 interactive buttons are available for the FM radio and Internet radio.

Alarms



Alarm notifications

[E-mail] – global enable/disable E-mail notification;
[SNMP] – global enable/disable SNMP notification;
[GPO] – global enable/disable GPO actions.

NOTE: If the monitoring option is disabled, notifications will not be sent, nevertheless whether they are enabled or disabled.

RF, FM Left Audio, FM Right Audio, IP Left Audio, IP Right Audio Alarms

The settings applied to these alarms - are identical and are explained in details below.

Range – interactive slider used to adjust the ***Low & High thresholds*** at which an alarm will be generated;

Thresholds –sets the desired ***Low & High thresholds*** (as explained above) but in figures.

Trigger Time – waiting time before active alarm is generated;

Release Time – waiting time before idle alarm is generated;

Once the ***Range***, ***Thresholds***, ***Trigger*** and ***Release times*** are set, the preferred alarm type should be selected.

PLEASE HAVE IN MIND that if the alarm notification is globally disabled, notification will not be sent, and the event will only be registered in the Log.

Stereo Loss Alarm, IP Link Alarm, Internet Stream Alarm

The settings applied to these alarms are identical and are explained in details below.
Enable – In order for the alarm to be generated, the function should be enabled;
Trigger Time – waiting time before active alarm is generated;
Release Time – waiting time before idle alarm is generated.

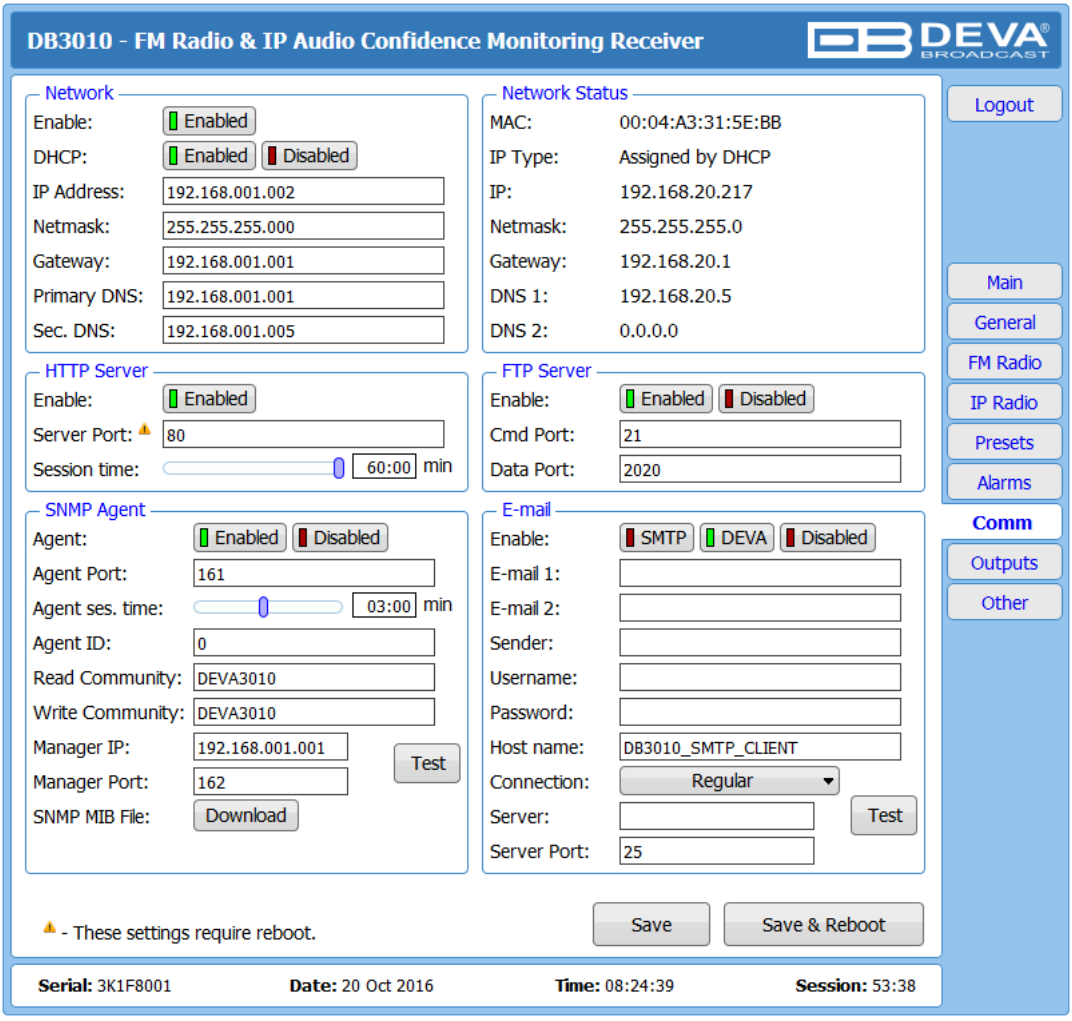
Stereo Loss Alarm, ***IP Link Alarm*** and ***Internet Stream Alarm*** are flags related alarms, meaning that:

- ***Stereo Loss*** – when the indicator points at **Stereo** on the interactive slider, the device is working properly. If the indicator is under **Mono**, an alarm will be generated because of Stereo loss.
- ***IP Link*** – when the indicator points at **UP** on the interactive slider, the device is working properly. If the indicator is under **Down**, an alarm will be generated because the IP link is lost.
- ***Internet Stream*** – when the indicator points at **Connected** on the interactive slider, the device is working properly. If the indicator is under **Idle**, an alarm will be generated because the device will not be able to obtain stream.

We recommend, as a preferred notification method in case ***IP Link alarm*** is generated, **GPO** to be set as when IP link is missing **Email** and **SNMP** could not be sent, and he event will only be registered in the Log. You will be notified of the event upon the IP link is restored.

NOTE: For detailed information on Alarm trigger and notifications refer to "APPENDIX A : Alarm Triggers" on page 57.

Communication



WARNING: The applied changes will take effect upon pressing the [Save] button. All settings marked with the symbol ⚠ require reboot, therefore the [Save & Reboot] button should be used.

NOTE: If the new value is invalid or out of range, the edited field will become red.

Network

The network addresses could be set manually (static IP)or automatically via a ***DHCP*** server. To set static ***IP address***, ***Netmask***, ***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 ***Network Status***. If due to any reason, the DHCP procedure cannot be completed, DB3010 will use AutoIP and will generate an IP address.

Network Status

Information on the current status of the network can be found here – ***MAC***, ***IP Type***, ***IP***, ***Netmask***, ***Gateway***, ***DNS 1***, and ***DNS 2***.

HTTP Server

[Enabled] / [Disabled] the HTTP Server. Specify the ***Server Port*** and ***Session timeout***.

FTP Server

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

SNMP Agent

Specify ***Agent ID***, ***Agent Port***, ***Agent ses. time***, ***Read/Write Communities***, ***Manager IP*** and ***Manager Port***.

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

Agent ID is used for identification of the device among others, when an SNMP notification is 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.

SNMP MIB File

The latest MIB file can be downloaded directly from the DB3010 by pressing the [Download] button. Downloading this file from the device, guarantees that you have the proper MIB file.

E-mail

Enter the desired alarm recipients in ***E-mail 1*** and/or ***E-mail 2*** fields. Fill in your e-mail account settings: ***Sender***, ***Username*** and ***Password***, ***Server***, ***SNMP port*** and ***Connection type***.

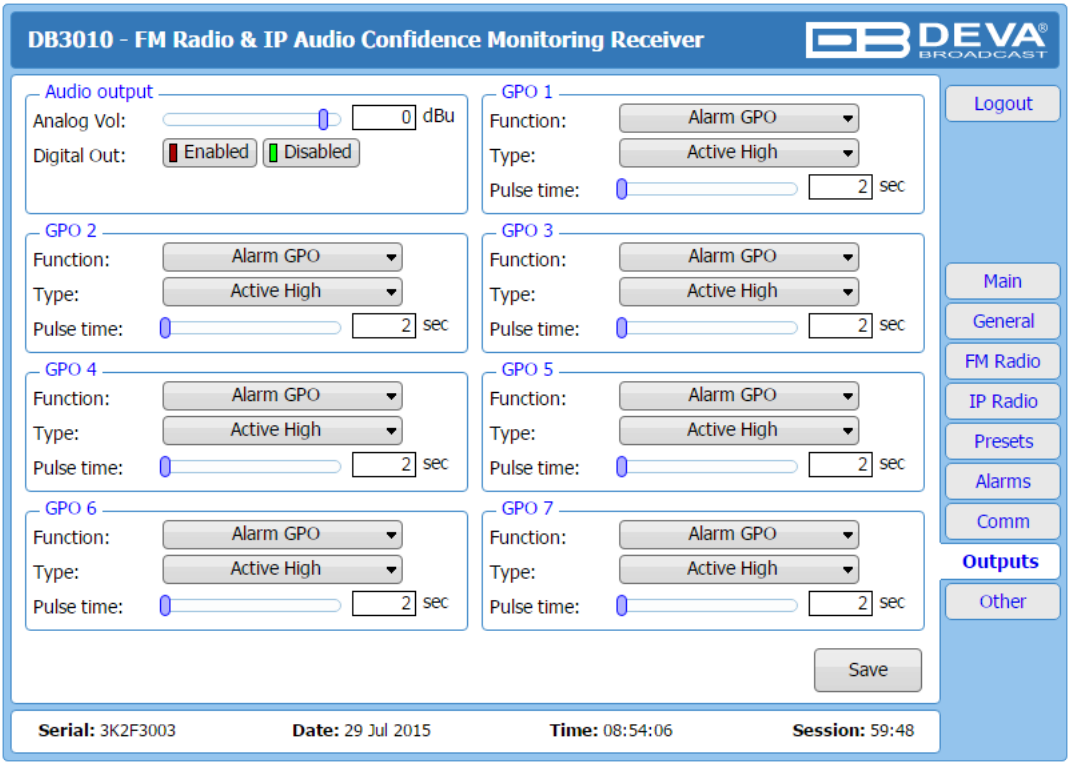
If you experience difficulties in the set-up, or would like to use DEVA account for sending of alarm email notifications, press the [DEVA] button option, and complete the recipient emails (E-mail 1 and E-mail 2) only. The other fields must be left blank, otherwise the email notification option will not be working. Event though using the DEVA account eases the set-up process, we recommend user account to be used for sending of email notifications, and the DEVA account for test purposes. When using DEVA account, please note that the stable 24/7 connection depends on the mail service provider and cannot be guaranteed.

We recommend you to use the [Test] button and generate a test e-mail, which upon success will be delivered to the specified E-mail 1 and/or E-mail 2.

Example of Test E-mail Message:

```
DB3010 Test Message.
Please do not reply to this e-mail.
```

Outputs

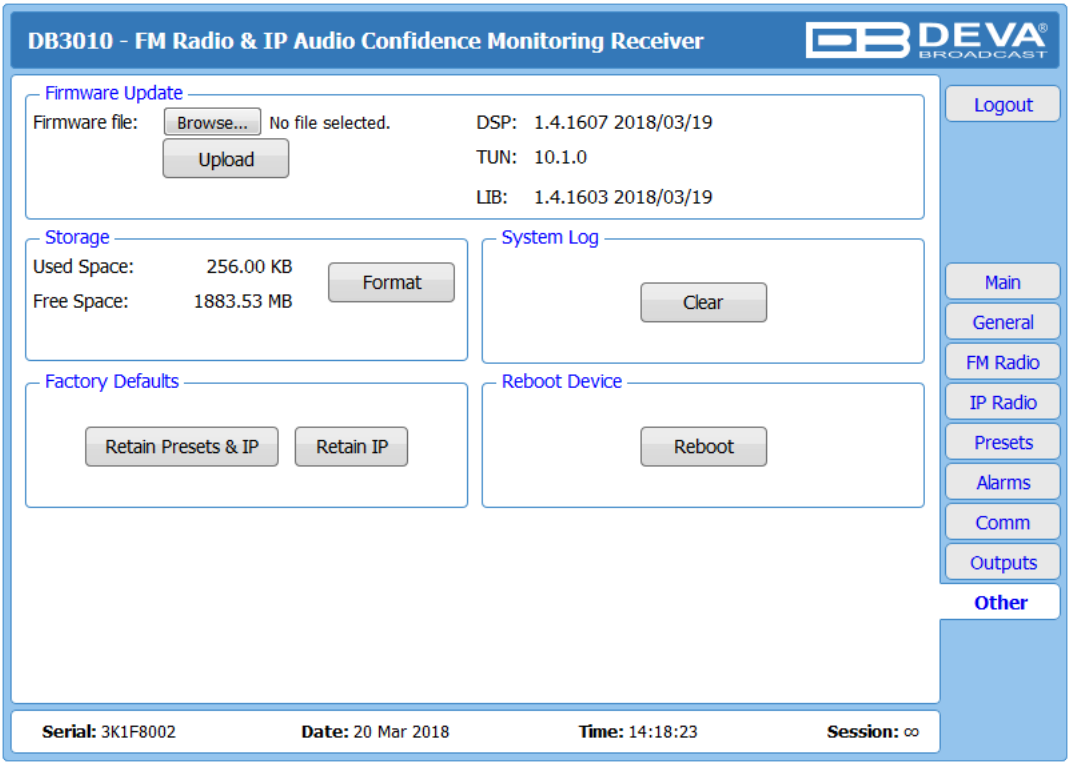


The general purpose outputs settings are applied through this page. The ***Audio output*** section allows ***Audio Vol*** for the analog output to be set, and the ***Digital Out*** to be [Enabled] or [Disabled].

Function, ***Type*** and ***Pulse time*** for each of the GPOs could be set individually. You can choose between the following ***Functions***: **Alarm GPO**, **RDS Lock**, **TA Flag** and **TP Flag**. ***Type*** is used for specifying of the active level or active pulse polarity. When a GPO assigned event is triggered the output can change the level to Active High/Low or to generate High/Low Pulse for the specified duration.

PLEASE NOTE that if the GPO's function is not assigned as Alarm GPO and the selfsame is chosen as a preferred alarm, notifications will not be indicated, nevertheless one is being generated.

Other



Firmware Update

To update the device firmware,press [Browse].and 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.

Storage

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

System Log

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

Factory Defaults

[Retain Presets & IP] - all settings except for the ***Presets*** and ***Network settings*** (IP addresses) will be deleted;

[Retain IP] – all settings except for the Network settings (IP addresses) will be deleted.

To restore DB3010 to its factory defaults select one of the available options (described above) and then press the button. 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 Device

To reboot the DB3010, 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 A

RDS: EUROPE VS AMERICA

The European Broadcasting Union (EBU) and its member countries originated the concept of "Radio Data" transmission. The European RDS specification, CENELEC Standard EN50067, was first published in 1984. It was revised in 1986, 1990, 1991 and 1992.

European RDS has grown in use following initial adoption of the Standard. RDS is nearly universal throughout Europe; it is almost impossible to find a European FM broadcasting station that does not carry a radio data subcarrier.

The popularity of RDS in Europe is very much in contrast with initial reluctance on the part of US broadcasters to embrace this technology. This can be ascribed to material differences in broadcasting practices.

Almost without exception, FM broadcasting in the United States is 'detached' and independent - each station originates its own programming. America's National Public Radio might be considered as an exception, though for most of the broadcast day even NPR stations originate, or at least schedule, their own programs.

Most of European broadcasting is similar to the concept of network radio that was common in the US prior to the 1950s. In Europe, a central program originator may have many transmitting facilities of modest power situated throughout the country, at several different frequencies to blanket a designated service area. The European disposition, toward lower-power transmitters can be found on the "local radio" level, as well.

The European concept of a service area equates to the US broadcaster's market. The subtle difference between these designations further characterizes broadcasting practices and ethics. RDS benefits the European broadcaster through almost an altruistic endeavor to be of service to his listeners. The US broadcaster is marketing his programming and is primarily interested in how he can create additional revenue from RDS.

THE RDS SYSTEM

RDS is a digital data channel, transmitted as a low-level subcarrier above the range of the composite stereo program signal in the FM baseband. The data transmission (baud) rate is comparatively low, yet it is quite robust because of data redundancy and effective error correction.

It is not within the scope of this Manual to cover the details of RDS subcarrier coding and modulation. For this, the reader is directed to the Specification appropriate to his location either the CENELEC EN50067 Specification for Europe or the United States NRSC Specification. Since the Manual will deal with specific implication of RDS implemented with the DB3010, it is assumed that the user is familiar with the RDS concept.

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APPENDIX B.1

PTY Code Description Used in RBDS Mode – North America

PTY	Short Name	Description
1	News	News reports, either local or network in origin.
2	Information	Programming that is intended to impart advice.
3	Sports	Sports reporting, commentary, and/or live event coverage, either local or network in origin.
4	Talk	Call-in and/or interview talk shows either local or national in origin.
5	Rock	Album cuts.
6	Classic Rock	Rock oriented oldies, often mixed with hit oldies, from a decade or more ago.
7	Adult Hits	An up-tempo contemporary hits format with no hard rock and no rap.
8	Soft Rock	Album cuts with a generally soft tempo.
9	Top 40	Current hits, often encompassing a variety of rock styles.
10	Country	Country music, including contemporary and traditional styles.
11	Oldies	Popular music, usually rock, with 80% or greater non-current music.
12	Soft	A cross between adult hits and classical, primarily non-current softrock originals.
13	Nostalgia	Big-band music.
14	Jazz	Mostly instrumental, includes both traditional jazz and more modern “smooth jazz.”
15	Classical	Mostly instrumentals, usually orchestral or symphonic music.
16	Rhythm and Blues	A wide range of musical styles, often called “urban contemporary.”
17	Soft R and B	Rhythm and blues with a generally soft tempo.
18	Foreign Language	Any programming format in a language other than English.
19	Religious Music	Music programming with religious lyrics.
20	Religious Talk	Call-in shows, interview programs, etc. with a religious theme.
21	Personality	A radio show where the on-air personality is the main attraction.
22	Public	Programming that is supported by listeners and/or corporate sponsors instead of advertising.
23	College	Programming produced by a college or university radio station.
24	Spanish Talk	Call-in shows, interview programs, etc. in the Spanish language
25	Spanish Music	Music programming in the Spanish language
26	Hip-Hop	Popular music incorporating elements of rap, rhythm-and-blues, funk, and soul
27-28	Unassigned	
29	Weather	Weather forecasts or bulletins that are non-emergency in nature.
30	Emergency Test	Broadcast when testing emergency broadcast equipment or receivers. Not intended for searching or dynamic switching for consumer receivers. Receivers may, if desired, display “TEST” or “Emergency Test”.
31	Emergency	Emergency announcement made under exceptional circumstances to give warning of events causing danger of a general nature. Not to be used for searching - only used in a receiver for dynamic switching.

NOTE: These definitions can differ slightly between various language versions.

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APPENDIX B.2

PTY Code Description Used in RDS Mode – Europe, Asia

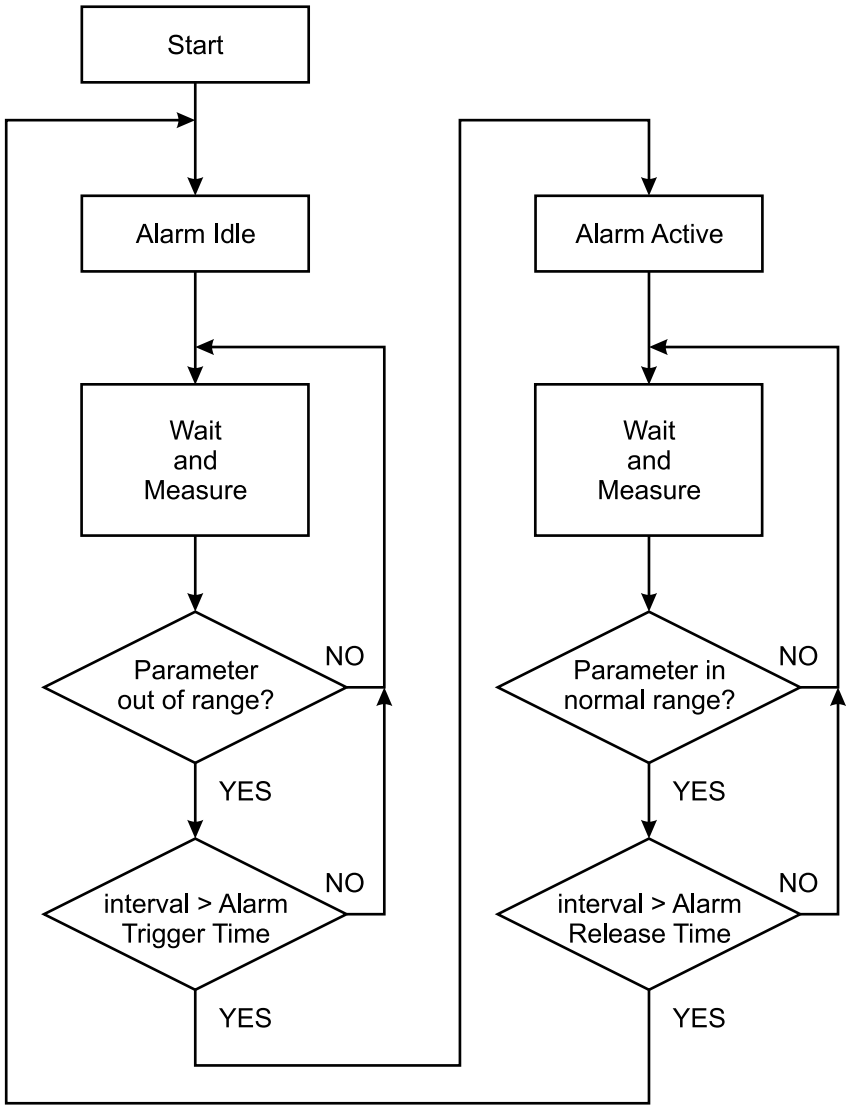
PTY	Short Name	Description
1	News	Short accounts of facts, events and publicly expressed views, reportage and actuality.
2	Current affairs	Topical program expanding or enlarging upon the news, generally in different presentation style or concept, including debate, or analysis.
3	Information	Program the purpose of which is to impart advice in the widest sense.
4	Sport	Program concerned with any aspect of sport.
5	Education	Program intended primarily to educate, of which the formal element is fundamental.
6	Drama	All radio plays and serials.
7	Culture	Programs concerned with any aspect of national or regional culture.
8	Science	Programs about the natural sciences and technology.
9	Varied	Used for mainly speech-based programs usually of light-entertainment nature, not covered by other categories. Examples include: quizzes, games, personality interviews.
10	Pop	Commercial music, which would generally be considered to be of current popular appeal, often featuring in current or recent record sales charts.
11	Rock	Contemporary modern music, usually written and performed by young musicians.
12	Easy Listening	Current contemporary music considered to be “easy-listening”, as opposed to Pop, Rock or Classical, or one of the specialized music styles, Jazz, Folk or Country. Music in this category is often but not always, vocal, and usually of short duration.
13	Light classics	Classical Musical for general, rather than specialist appreciation. Examples of music in this category are instrumental music, and vocal or choral works.
14	Serious classics	Performances of major orchestral works, symphonies, chamber music etc., and including Grand Opera.
15	Other music	Musical styles not fitting into any of the other categories. Particularly used for specialist music of which Rhythm & Blues and Reggae are examples.
16	Weather	Weather reports and forecasts and Meteorological information.
17	Finance	Stock Market reports, commerce, trading etc.
18	Children’s programs	For programs targeted at a young audience, primarily for entertainment and interest, rather than where the objective is to educate.
19	Social Affairs	Programs about people and things that influence them individually or in groups. Includes: sociology, history, geography, psychology and society.
20	Religion	Any aspect of beliefs and faiths, involving a God or Gods, the nature of existence and ethics.
21	Phone In	Involving members of the public expressing their views either by phone or at a public forum.
22	Travel	Features and programs concerned with travel to near and far destinations, package tours and travel ideas and opportunities. Not for use for Announcements about problems, delays, or roadworks affecting immediate travel where TP/TA should be used.
23	Leisure	Programs concerned with recreational activities in which the listener might participate. Examples include, Gardening, Fishing, Antique collecting, Cooking, Food & Wine etc.
24	Jazz Music	Polyphonic, syncopated music characterized by improvisation.
25	Country Music	Songs which originate from, or continue the musical tradition of the American Southern States. Characterized by a straightforward melody and narrative story line.
26	National Music	Current Popular Music of the Nation or Region in that country’s language, as opposed to International ‘Pop’ which is usually US or UK inspired and in English.
27	Oldies Music	Music from the so-called “golden age” of popular music.
28	Folk Music	Music which has its roots in the musical culture of a particular nation, usually played on acoustic instruments. The narrative or story may be based on historical events or people.
29	Documentary	Program concerned with factual matters, presented in an investigative style.
30	Alarm Test	Broadcast when testing emergency broadcast equipment or receivers. Not intended for searching or dynamic switching for consumer receivers.. Receivers may, if desired, display “TEST” or “Alarm Test”.
31	Alarm	Emergency announcement made under exceptional circumstances to give warning of events causing danger of a general nature. Not to be used for searching - only used in a receiver for dynamic switching.

APPENDIX C

ALARM TRIGGERS

After collecting all the data, the DSP-based core compares the values measured with the predefined by the user threshold levels, for all the alarms monitored. In case that a parameter is beyond limits, the device will initiate the sending of an alarm notification via the selected communication path. All the alarm events are stored in the device's log. It is essential that, if there is a very short fault of the signal, with duration shorter than the alarm ***Trigger time***, the device would not trigger an alarm.

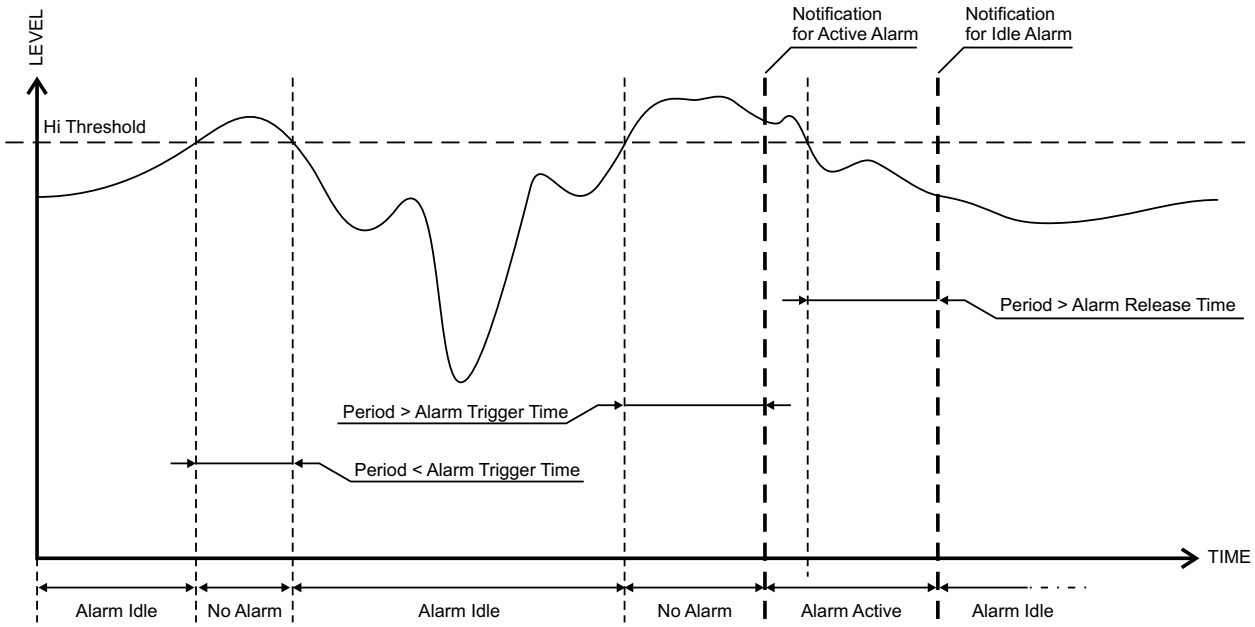
There are several Alarm Triggers for the following parameters: ***RF***, ***Stereo Loss***, ***FM Left Audio***, ***FM Right Audio***, ***IP Left Audio***, ***IP right Audio***. An option for defining different limits for each of the parameters is present. All these values, the ***Trigger time*** and the ***Release time*** have to be assigned separately for each of the alarms.



Block Diagram of Alarm Automata

When an observation event takes place, the alarm trigger's state will refresh, if necessary. Should we consider an instance when the alarm trigger is in **Idle** state, having in mind that an alarm is not triggered immediately when a parameter level passes beyond threshold: If the

parameter level becomes stable, within thresholds, and the alarm ***Trigger time*** is not elapsed, then the Alarm Trigger remains in **Idle** state. If the alarm ***Trigger time*** expires and the parameter level is still beyond limits, the ***Alarm trigger*** would change its state to **High/Low**. This would result in predefined actions - alarm notifications (E-mail, SNMP trap) and save a log record. The state will not be immediately switched into **Idle** when the parameter stabilizes, within threshold levels, not up until the alarm ***Release time*** is elapsed. Meanwhile, if the parameter crosses again any threshold, the ***Alarm trigger*** will remain in active state. If the parameter remain within the threshold levels and the alarm ***Release time*** expires, then the ***Alarm trigger*** would switch into **Idle** state and again predefined actions would be initiated.



ALARM NOTIFICATION

The E-mail, SNMP trap alarm notifications contain the following information - device's Alias, date and time of alarm triggered, frequency and information about the alarm activation/ deactivation. The basic signal parameters are also included.

Example for E-mal Notification:

Example Stereo Recover

```
Date: 01 Apr 2015, 16:48:36

DB3010 reports IDLE alarm

Idle: Stereo RECOVERED

Signal parameters:
RF: 21dBuV
Stereo: OK
FM Tuner Left: -11.6dBFs
FM Tuner Right: -11.6dBFs
Link: OK
IP Stream: OK
Stream Left: -11.3dBFs
Stream Right: -10.4dBFs
```

Example Stereo Loss

```
Date: 01 Apr 2015, 17:55:12

DB3010 reports ACTIVE alarm

Alarm: Stereo LOSS

Signal parameters:
RF: 6dBuV
Stereo: LOSS
FM Tuner Left: -15.9dBFs
FM Tuner Right: -15.9dBFs
Link: OK
IP Stream: OK
Stream Left: -12.3dBFs
Stream Right: -10.8dBFs
```

Example RF

```
Date: 06 Apr 2015, 17:33:22

DB3010 reports ACTIVE alarm

Alarm: RF < 46dBuV

Signal parameters:
RF: 39dBuV
Stereo: OK
FM Tuner Left: -14.2dB
FM Tuner Right: -14.2dB
Link: OK
IP Stream: OK
Stream Left: -6.6dB
Stream Right: -5.7dB
```

APPENDIX D

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

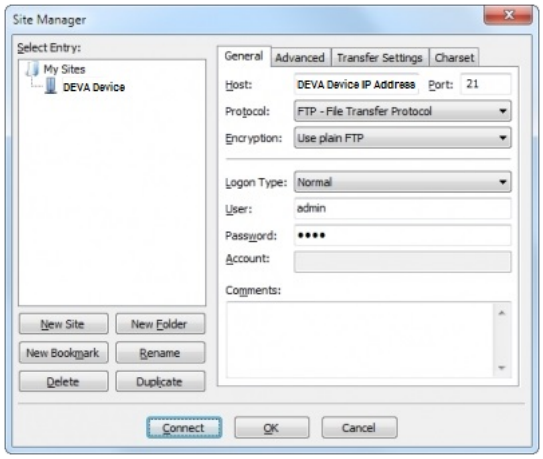
If the connection to the device is made through a Network address translation (NAT) router or firewall, the port forwarding feature of the router should be configured. The port forwarding is usually set in the firewall section of the router's menu. As each router has different port forwarding procedure, 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.

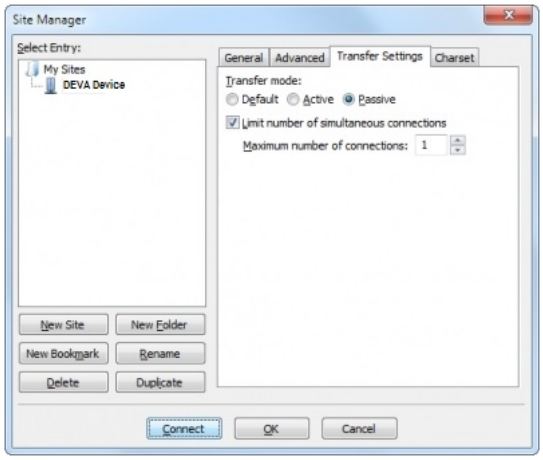
3. Example of FTP Client (FileZilla) Settings

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:



APPENDIX E

BATTERY REPLACEMENT PROCEDURE

IMPORTANT: Before starting the procedure, power off and disconnect the device. Perform the battery replacement on a static-resistant work surface and follow all applicable safety precautions.

REPLACEMENT

1. Using a suitable screwdriver, remove the bolts securing the top cover to the chassis.
2. Handle the motherboard with care and avoid applying excessive force.
3. Locate the RTC battery socket on the motherboard.
4. Remove the depleted battery from the socket.
5. Insert a new **3V Lithium CR2032** battery into the battery socket. Ensure that the battery is correctly oriented and securely seated in the socket.

REASSEMBLY

1. Align the top cover with the chassis.
2. Using a suitable screwdriver, tighten the bolts securely. Do not overtighten.
3. Power on the device and verify that the time and date are displayed correctly.

VERIFICATION

If the time and date are retained correctly after the device is powered off and restarted, the RTC battery replacement has been completed successfully.

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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 must be completed and returned to DEVA Broadcast Ltd. within 10 days of delivery. Product registration can also be done digitally at https://www.devabroadcast.com/members/product-registration, after registering on our website, 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 purchase 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 placing an RMA request at https://www.devabroadcast.com/rma. The number should be prominently marked on the outside of the shipping carton.

B. Equipment must be shipped prepaid to DEVA Broadcast Ltd. 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.

V. UPDATES TO THE TERMS OF SERVICE:

For the most up-to-date, valid, and accurate terms, conditions, and product documentation, please visit the official DEVA Broadcast Ltd. website downloads section at https://www.devabroadcast.com/downloads/deva-documents. Printed documents may not reflect recent amendments. Reviewing the current online versions ensures you have the latest information.

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E-mail: office@devabroadcast.com ,Web: www.devabroadcast.com

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.