

MAINTENANCE AND OPERATION
INSTRUCTION MANUAL

DB910

Full Duplex Compact IP Audio Codec



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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.

Typographic conventions

The following table describes important conventions used in the manual.

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

General Information

Inspired by DEVA continuous strive for excellence, and based on our long-term formative experience in the field of IP audio broadcasting tools, DEVA product portfolio is extended with yet another strategic solution - the DB910 Full Duplex IP Audio Codec.

A full duplex solution when two tools are in use, the DB910 allows you to send and receive audio at the same time, while guaranteeing fast and easy monitoring of the signal fed to the transmitter. Where two-way transmission is not required, DB910 may be used as a decoder, being fully compatible with DEVA's already widely-known hallmark IP audio codecs.

The real time audio encoding/decoding into a high quality configurable format process is uncompromisingly guaranteed by the powerful DSP processor. Supporting all the mandatory compressed audio streams and lossless, uncompressed PCM stream, the DB910 can be used for a wide range of professional audio applications: Broadcast, Internet Radio, Studio to Transmitter Link and VoIP.

Apart from its main audio source, DB910 supports several IP audio sources and a built-in MP3 Backup Audio Player in addition. With several backup audio sources incorporated, the DB910 will immediately switch between the sources when the audio is lost, and return to the main one when the audio is restored, with no user intervention. The audio content for the MP3 player is recorded on the internal SD card. The backup files can be managed remotely through the built-in FTP Server, via standard FTP client.

Combining the super compact form of the DB90 and some of the most impressive features of the renowned DB9000 line in a single product, the DB910 will meet the requirements of the most demanding broadcasters. This advanced radio gear is equipped with two-way GPIOs and RS-232 serial communication that could be used for telemetry and automation. The front panel audio level bar graphs and LED indicators of the unit allow reading the current state of the device at a glance.

Controlled through a simple and intuitive HTML5 interface and any kind of web browser, be it your PC, smart phone or tablet, the DB910 could be managed remotely or locally.

DB910 is the ultimate all-in-one solution to maintain your competitiveness, combining essential professional applications and key trends.

Product Features

- Full duplex IP audio transmission
- Analog Audio Output and Input (4 x ¼" phone jack connectors)
- Digital Audio Output and Input (2 x ¼" phone jack connectors)
- High Quality HE-AAC (v.1 and v.2), MPEG-1 and MPEG-3 Decoding
- 32 kHz, 44.1 and 48 kHz sample rates support
- Decoding of all standard bitrates and VBR as well
- Auto backup switching in the event of an audio loss
- Build-in MP3 Player
- 6 x General Purpose Inputs
- 6 x General Purpose Outputs
- 2 x 6 LED front panel audio level bar graphs
- 2 x 6 GPIO and 4 x Status LEDs, and Phones output for quick diagnostics
- Full Control and easy setup via a standard web browser
- DHCP Client automatically assigning Network Settings
- IP address pronunciation at startup (through the headphones)
- UPnP for easy discovery in Local Networks

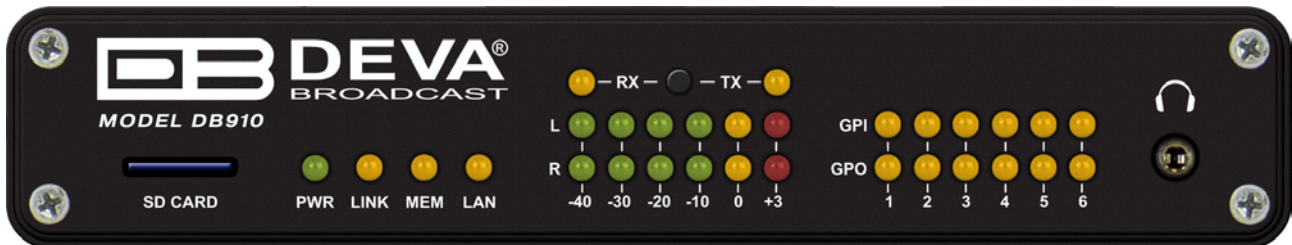
Technical Specifications

OPERATING MODES	
Two-way	Full-duplex RTP
Receiver	IP Audio Client, RTP
File Player	SD Card based player
AUDIO CODECS	
Channels	1 or 2
Sample Rates	32 kHz, 44.1 kHz, 48 kHz
Codec	MPEG-1 Layer 3; HE-AAC (v.1 and v.2); 16-bit PCM
Bitrates (Encoding)	Up to 320 kbps (MPEG-1); Up to 88 kbps (HE-AAC); Up to 1536 kbps (PCM);
Bitrates (Decoding)	All standard bit rates, including VBR
AUDIO BACKUP	
Source	Any of the available sources; Up to 3 configurable backups
Trigger	Audio Silence Detector
Threshold	Adjustable, -90dBfs to 0dBfs
Trigger time	Adjustable, 1s to 240s
FILE PLAYER	
Storage	microSD Card
Supported codecs	MPEG-1 Layer 3, HE-AAC (v.1 and v.2)
Supported file types	*.MP3, *.AAC, *.M4A, *.M3U
Playback modes	Alphabetical ascending and descending, Shuffle, Playlist and Shuffled playlist
Remote file management	Build-in FTP server
ANALOG AUDIO INPUT	
Connector	2 x 1/4" (6,3mm) phone jack; Shared with Digital input, software selectable
Type	Balanced
Impedance	600Ω or High Impedance, software selectable
Level (0 dBFS)	-12dBu to +18dBu, software selectable
Frequency response	±0.5dB, 10Hz-20kHz
Distortion	<0.01% THD+N
Dynamic range	>100 dB
ANALOG AUDIO OUTPUT	
Connector	2 x 1/4" (6,3mm) phone jack; Shared with Digital output, Soft. select
Type	Balanced
Impedance	600Ω or High Impedance, software selectable
Level (0 dBFS)	-12dBu to +18dBu, Software selectable
Frequency Response	±0.5dB, 10Hz-20kHz
Distortion	<0.01% THD+N
Dynamic range	>100 dB

DIGITAL AUDIO INPUT	
Connector	1/4" (6,3mm) phone jack; Shared with Left Analog input, software selectable
Type	AES/EBU (IEC 60958)
Sample rate	32kHz, 44.1kHz and 48kHz
DIGITAL AUDIO OUTPUT	
Connectors	1/4" (6,3mm) phone jack; Shared with Left Analog output, software selectable
Type	AES/EBU (IEC 60958)
Sample rate	48kHz
GPIO	
Type	6 x GPI; 3.3V TTL logic with internal pull-up 6 x GPO; Open-collector; 20V/100mA 1 x RS-232
Connector	DB-15
GPI Operating Modes	Transparent two-way channel or Force Audio source trigger
GPO Operating Modes	Transparent two-way channel or Source Audio loss indicator
RS-232 Operating Modes	Transparent two-way channel or TCP/IP to RS-232 Redirector
RS-232 baud rate	9600 to 115200 bps
FRONT PANEL	
Level Indicators	2 x 6 LED bar graphs
GPIO Indicators	2 x 6 LEDs
Status Indicators	4 LEDs
Headphones	1/8" (3.5mm) phones jack
SD Card	microSD card slot up to 16GB
REMOTE CONTROL	
Web interface	Built-in web server with HTML5 interface
SNMP	SNMP 2c
NETWORK	
Connector	RJ-45
Type	10/100Mbps Ethernet
Device Discovery	UPnP Support
OPERATING CONDITIONS	
Temperature	10°C - 45°C
Humidity	< 75%, non-condensing
POWER	
Voltage	12V DC, 1A
Power Consumption	10VA
Connector	Power Jack 5.5mm
SIZE AND WEIGHT	
Dimensions (W;H;D)	170 x 35 x 167 mm
Shipping Weight	270 x 54 x 230 mm / 0.9kg
HS Code	8517620000

Panel Indicators and Appointments

FRONT PANEL



1. SD Card
2. PWR LED – Power LED Indicator
3. LINK LED – Connection status Indicator. This LED can be in one of the following states:
 - Off – NO active IP connection;
 - Blinking – at least one IP connection is active;
4. MEM LED – microSD card status indicator.
5. LAN LED – Network status indicator
6. L & R LED Meters – The full-time LED meters allow quick and easy monitoring of the Left and Right Audio channels.
7. RX/TX LEDs and button – Select L&R LED Meter source - input or output
8. Phones Output – The following audio signals are reproduced through the headphones:
 - Voice Announcement of DB910 IP Audio Encoder's IP address upon startup;
 - Audio signal from the currently active audio source.

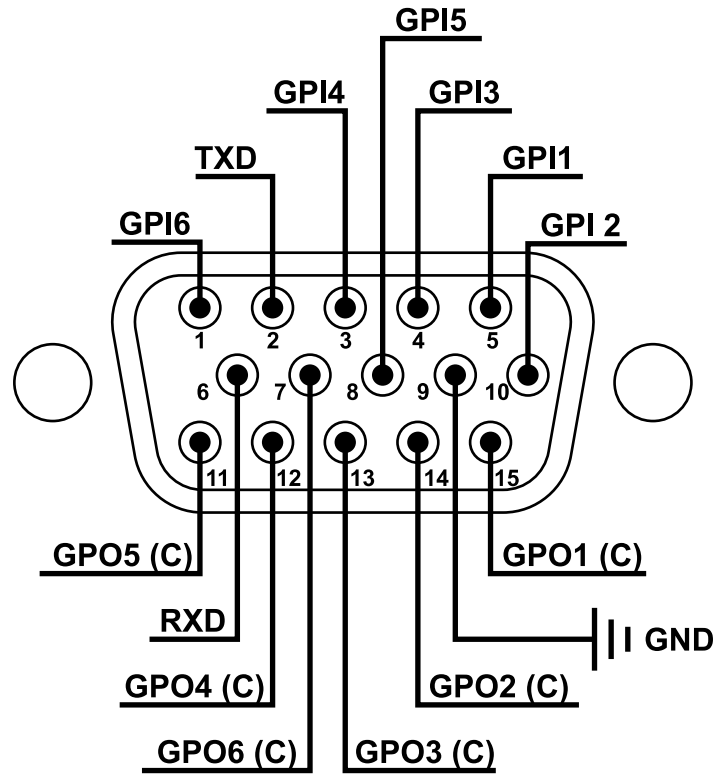
REAR PANEL



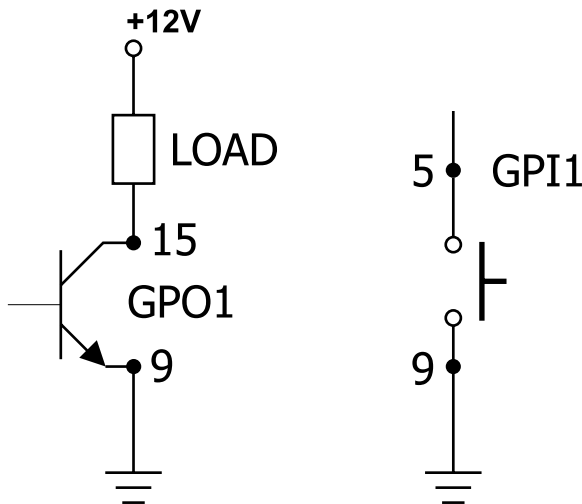
1. Power Supply (12 V, 1A);
2. Left Line Analog or AES/EBU Digital Input – 1/4" (6,3mm) Phone jack, female;
3. Right Line Analog Input – 1/4" (6,3mm) Phone jack, female;
4. Factory Defaults Reset button;
5. Left Line Analog or AES/EBU Digital Output – 1/4" (6,3mm) Phone jack, female;
6. Right Line Analog Output – 1/4" (6,3mm) Phone jack, female;
7. GPIO & RS-232 port – male DB15 connector;
8. LAN Port – standard RJ-45 port.

REAR PANEL GENERAL PURPOSE PORTS

Connector Pinouts

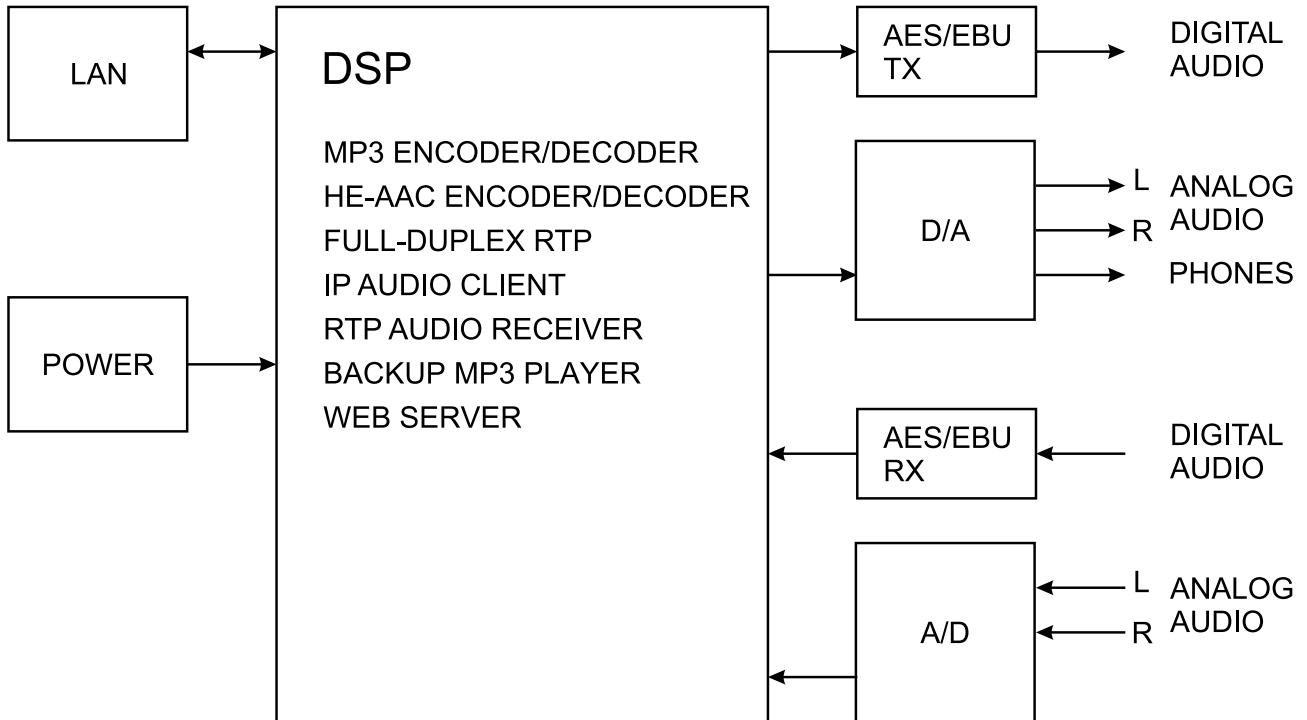


- | | |
|---------------------------|----------------------------|
| 1. GPI 6 | 9. GND - Common Ground |
| 2. TXD - RS232 Tx line | 10. GPI 2 |
| 3. GPI 4 | 11. GPO 5 (open collector) |
| 4. GPI 3 | 12. GPO 4 (open collector) |
| 5. GPI 1 | 13. GPO 3 (open collector) |
| 6. RXD - RS232 Rx line | 14. GPO 2 (open collector) |
| 7. GPO 6 (open collector) | 15. GPO 1 (open collector) |
| 8. GPI 5 | |



Block Diagram

A simplified block diagram of DB910 IP Audio Encoder is shown below:



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

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 1 $\frac{3}{4}$ 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.

Getting Started

In order for the normal operation of the DB910 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 DB910 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 DB910 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 DB910 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

ANALOG AUDIO INPUTS

Using a cable ending with two standard Phone jacks connect DB910 analog input the analog audio outputs of your equipment.

WARNING: Do not exceed maximum input level. This may permanently damage the device.

DIGITAL AUDIO INPUT

Using a cable ending with a standard Phone jack connect DB910 AES/EBU input to the AES/EBU audio output of your equipment.

ANALOG AUDIO OUTPUTS

Using a cable ending with two standard Phone jacks connect DB910 analog outputs to the analog audio inputs of your equipment.

DIGITAL AUDIO OUTPUT

Using a cable ending with a standard Phone jack connect DB910 AES/EBU output to the AES/EBU audio input of your equipment.

LAN PORT

For normal operation it is necessary the device to be connected to a local network or Internet by cable with RJ-45 connector.

WEB Interface

DB910 is controlled through a built-in WEB Server and a standard web browser can be used to monitor its status or to make some adjustments. To operate the device you need to know its IP Address. In case you are not aware of it, you can hear it through the headphones when you turn on the device. Alternatively, use the Network discovery feature at Local networks. Then open a new WEB Browser and enter the device IP address in the address field then press [Enter].

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.

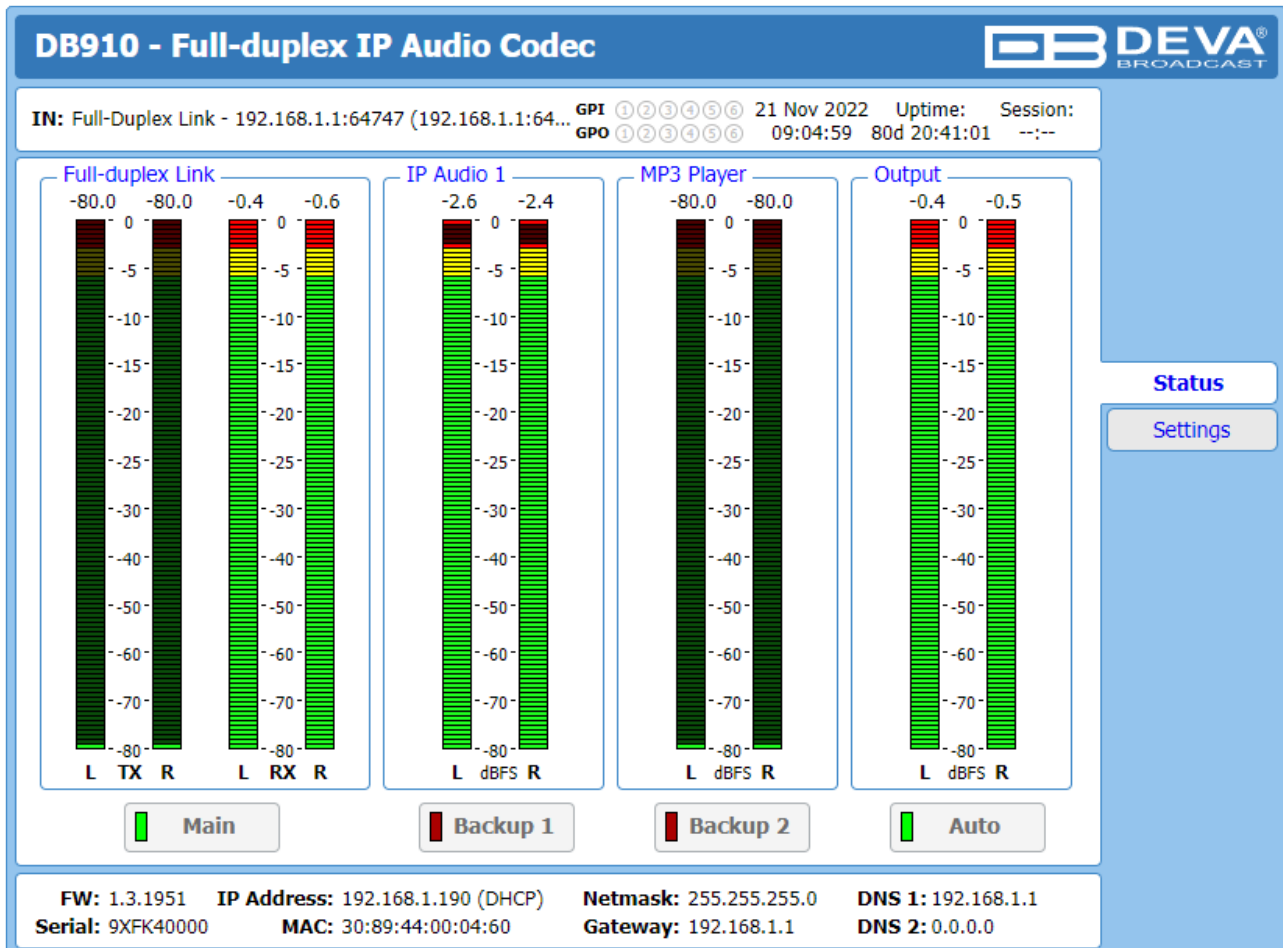
If you have already enabled this function on your computer DB910 will be automatically added to the Device list section. The device will be ready for usage and no additional adjustments will be required except user name and password.

ACCESS

DB910 provides you with a protected access to the device settings. To make the necessary adjustments to the device, please log in as an ADMINISTRATOR. The default values being username: admin, password: pass.

WEB Interface Menu pages

STATUS



Upon opening the WEB interface, the main Status window will appear. The page contains information on the device's current status - the LED bar-graph representation of the audio sources' audio levels. The interactive buttons placed over the LED bar-graphs allow the audio source to be manually changed.

IMPORTANT NOTE: When the DB910 works in [Auto] mode the Backup option is working as per the set priority in the relevant section. If the source is manually changed, or Dayparting is activated, the Backup option will be deactivated, and only the selected audio source will be used. Meaning that in case of audio loss, the DB910 will not switch to a backup source.

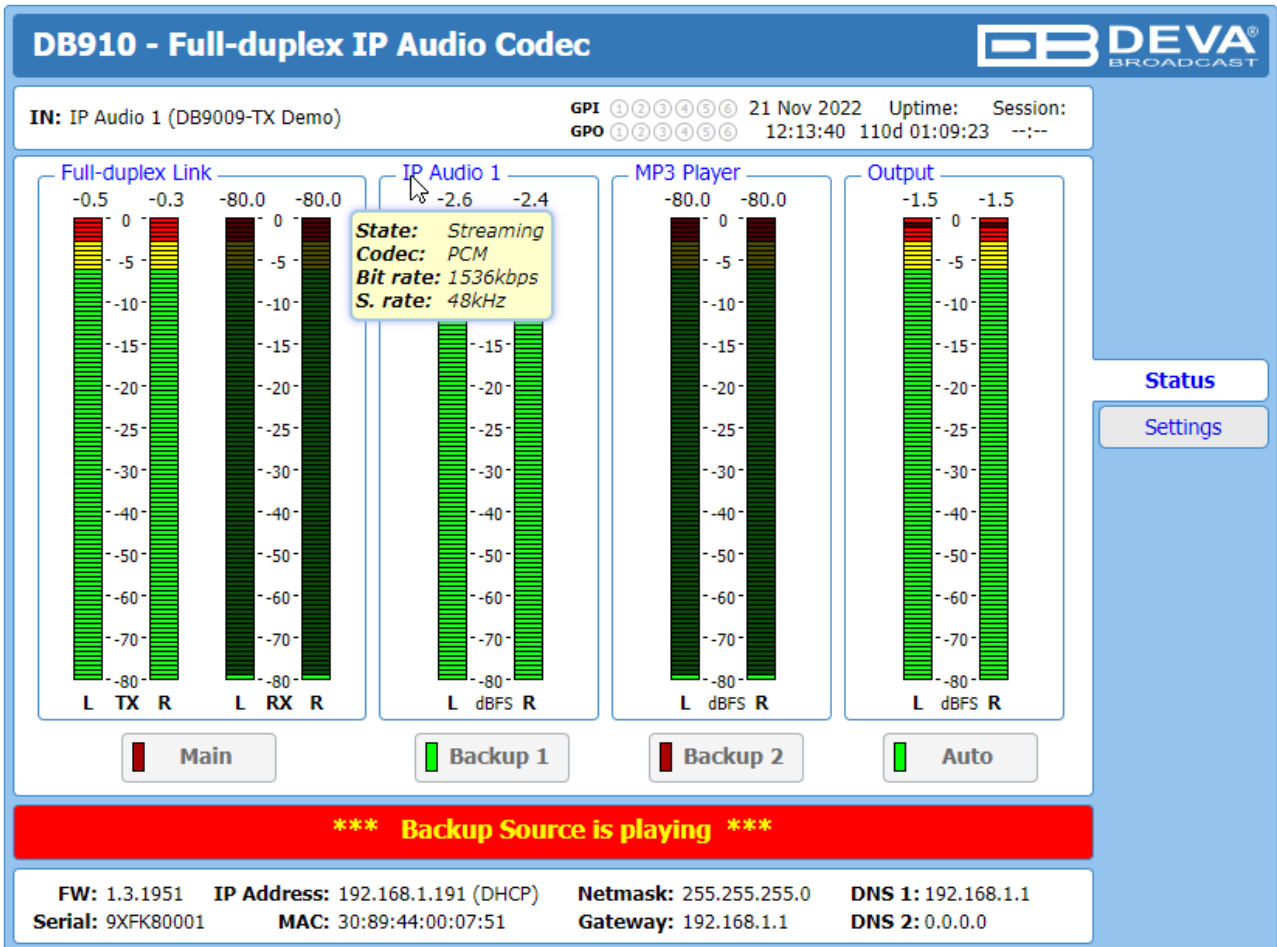
At the top of the control window is placed a constant section, containing information about the input in use, Date/Time, Uptime and session timeout.

At the bottom of the control window is an information bar, gathering all the important connection parameters – firmware version in use, serial number, IP Address, and etc.

Upon change of the Web Interface screens, the main status window will resize automatically and become a constant part of each tab. Thus, allowing reading at a glance of all the mandatory parameters.

In case the Backup source is activated, you will be notified immediately via one of the possible methods (E-mail, SNMP) and with a message alerting that the backup source is on-air.

If a backup source is activated, the following message will appear on the main screen:



If the mouse cursor is pointed at a label of an audio source, a balloon containing information for the **Codec**, **Bit rate** and **Sample rate** will appear (as depicted above).

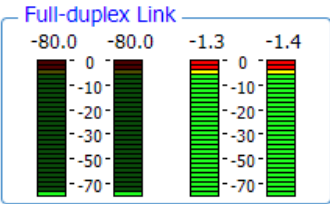
SETTINGS

DB910 - Full-duplex IP Audio Codec

IN: Full-Duplex Link - 192.168.1.1:64747 (192.168.1.1:64...
GPI ①②③④⑤⑥ 21 Nov 2022 Uptime: Session:
GPO ①②③④⑤⑥ 09:27:34 80d 21:03:36 --:--

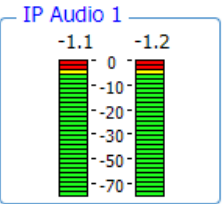
Full-duplex Link

-80.0 -80.0 -1.3 -1.4



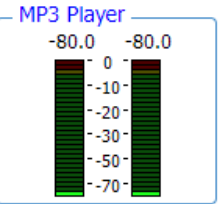
IP Audio 1

-1.1 -1.2



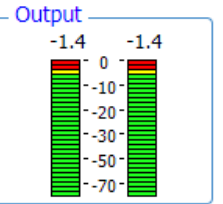
MP3 Player

-80.0 -80.0



Output

-1.4 -1.4



[Status](#)
[Settings](#)

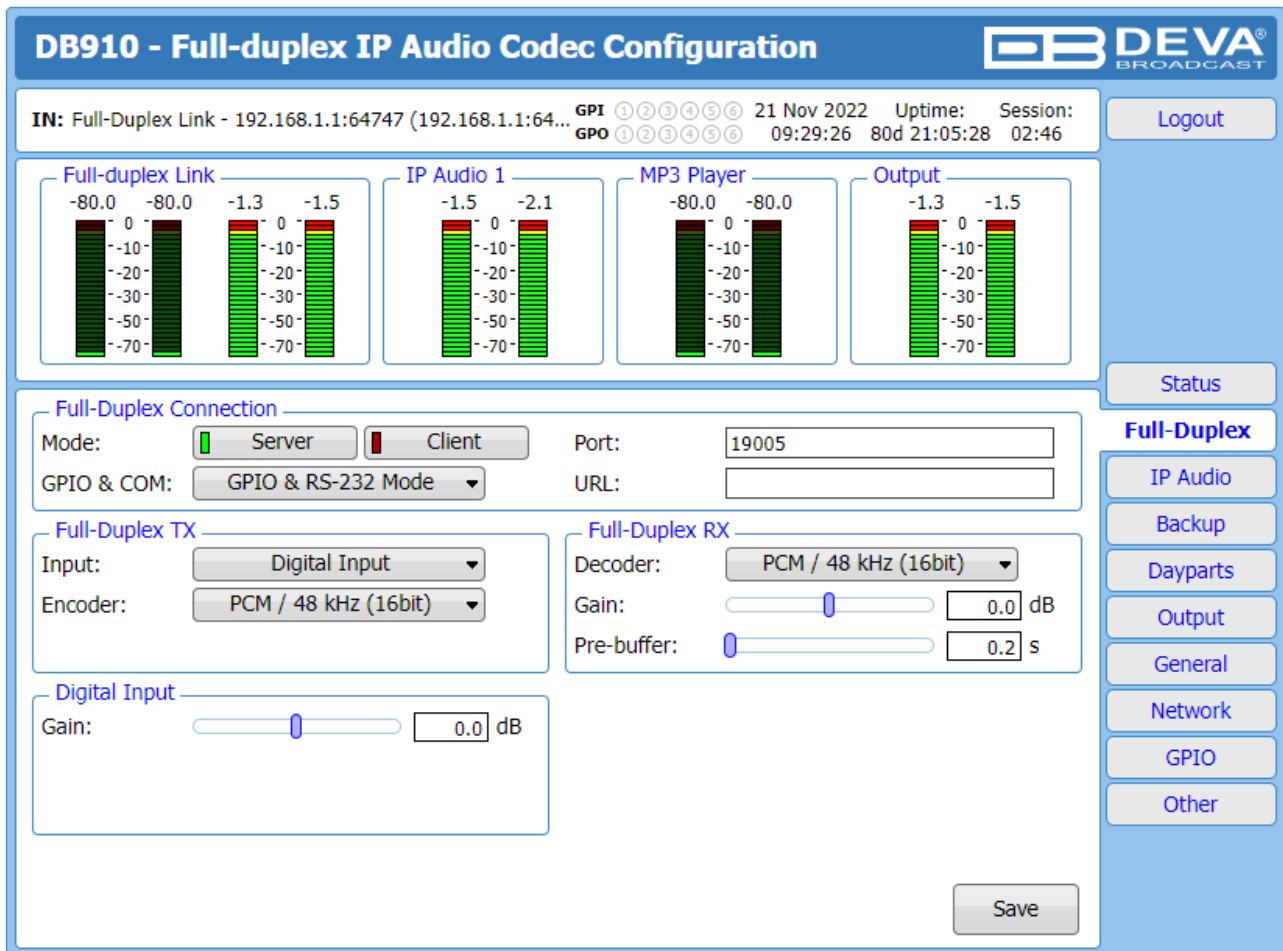
Welcome!

Username:

Password:

DB910 provides you with a protected access to the device settings. To make the necessary adjustments to the device, please log in as an ADMINISTRATOR. The default values being username: admin, password: pass.

FULL-DUPLEX



Full-Duplex Connection

Mode – Select Server or Client mode of operation. For Full-duplex to be used one DB910 must be a Server and the other a Client

GPIO & COM – Select GPIO and RS-232 passthrough mode. The corresponding GPIO pins and RS-232 must be configured in GPIO Setting ([see “GPIO” on page 37](#))

Port – Select Full-duplex UDP port. It is also used by the Client DB910 to connect to.

URL – Enter URL (IP address and port) of the server DB910. This field is used in Client mode only.

Full-Duplex TX

Input – Select Full-duplex TX audio source: Analog Input, Digital Input or Analog Output Loopback.

Encoder – Select Full-duplex TX encoder. The same CODEC must be set in Full-duplex RX of the other unit.

Full-Duplex RX

Decoder – Select Full-duplex RX decoder. The same CODEC must be set in Full-duplex TX of the other unit.

Gain – audio gain adjustment. The Gain adjust is digital and if the sum of signal level and the Gain is greater than 0dBFs the signal will be distorted;

Pre-buffer – Set audio pre-buffer. Larger setting ensures a more stable connection in expense of increased audio delay.

Digital Input

Gain – audio gain adjustment. The Gain adjust is digital and if the sum of signal level and the Gain is greater than 0dBfs the signal will be distorted;

Analog input

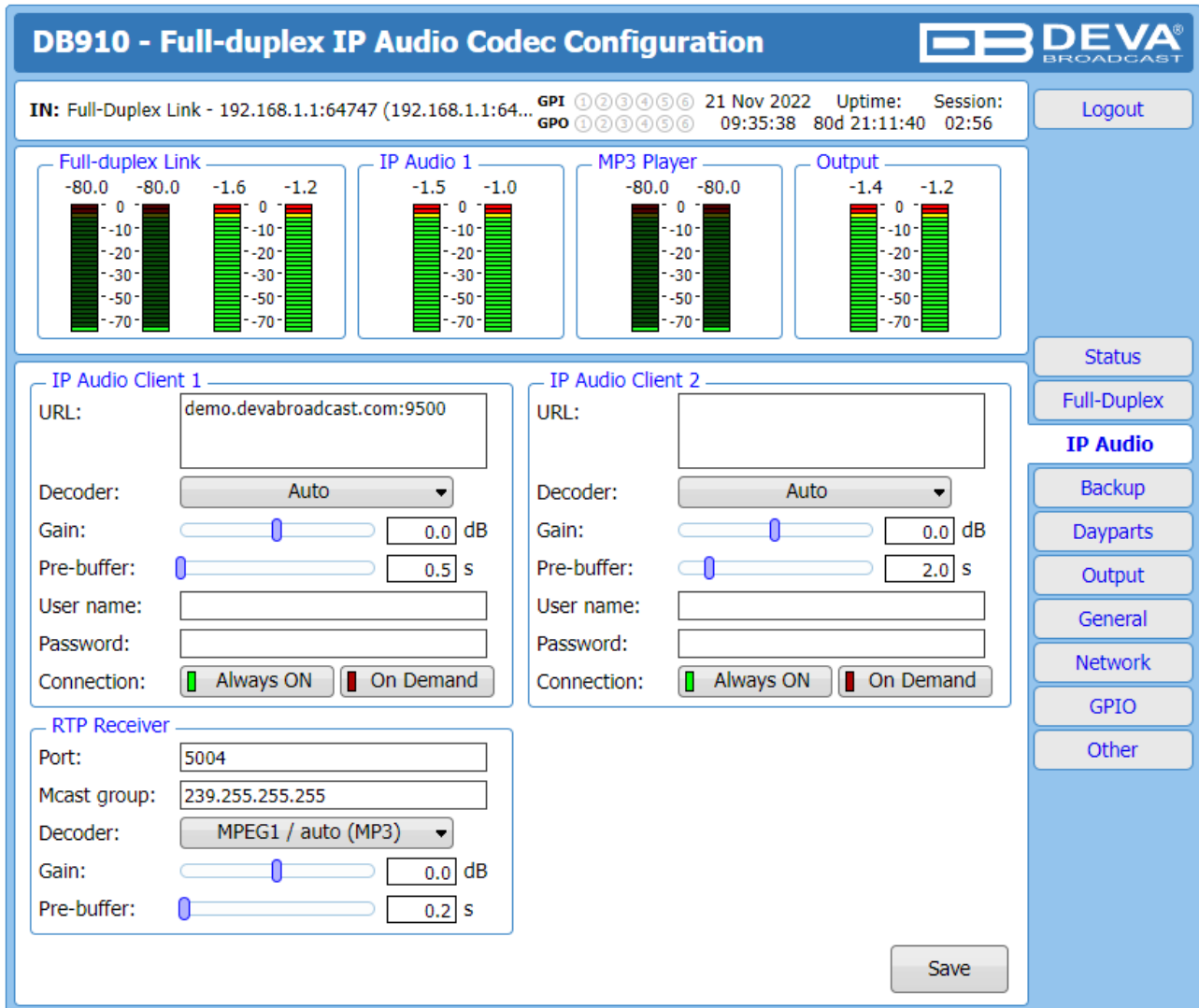
Gain – audio gain adjustment. The Gain adjust is digital and if the sum of signal level and the Gain is greater than 0dBfs the signal will be distorted;

Range – Select Analog input range.

WARNING: DO NOT feed any signals that are higher than the set input range!

Impedance – Select Analog input impedance.

IP AUDIO



DB910 - Full-duplex IP Audio Codec Configuration

IN: Full-Duplex Link - 192.168.1.1:64747 (192.168.1.1:64... GPI ①②③④⑤⑥ 21 Nov 2022 Uptime: Session: 09:35:38 80d 21:11:40 02:56

Full-duplex Link: -80.0 -80.0 -1.6 -1.2

IP Audio 1: -1.5 -1.0

MP3 Player: -80.0 -80.0

Output: -1.4 -1.2

IP Audio Client 1
 URL: demo.devabroadcast.com:9500
 Decoder: Auto
 Gain: 0.0 dB
 Pre-buffer: 0.5 s
 User name:
 Password:
 Connection: Always ON On Demand

IP Audio Client 2
 URL:
 Decoder: Auto
 Gain: 0.0 dB
 Pre-buffer: 2.0 s
 User name:
 Password:
 Connection: Always ON On Demand

RTP Receiver
 Port: 5004
 Mcast group: 239.255.255.255
 Decoder: MPEG1 / auto (MP3)
 Gain: 0.0 dB
 Pre-buffer: 0.2 s

Save

Logout

Status

Full-Duplex

IP Audio

Backup

Dayparts

Output

General

Network

GPIO

Other

The settings applied to IP Audio Client 1, 2 and 3 are identical – Set Decoder from the drop-down menu, and URL of the stream server. Up to 63 characters can be entered.

Decoder (+ Sample rate) – Select decoder and sample rate. It can be set to Auto or manually set to a known decoder and sample rate. In Auto mode, the DB910 will adjust decoder and sample rate, using stream supplied information. For PCM (uncompressed) sample rate can be 32 kHz, 44.1 kHz or 48 kHz. For MPEG1 and HE-AAC the sample rate is determined automatically from the stream;

Gain – audio source gain adjustment. The Gain adjust is digital and if the sum of signal level and the Gain is greater than 0dBFS the signal will be distorted;

Pre-buffer – The minimum amount of time in which the unit will pre-buffer before playing starts in order for problems with the connection to be prevented.

NOTE: In order to ensure normal operation when PCM is used, it is necessary to select the same sample rate at both encoding and decoding side.

User name & Password – enter **User name** and **Password** if the stream server is password protected. Otherwise leave blank.

Connection - Select connection type. **On Demand** will instruct IP Audio Client to establish a connection only when it is the current audio source, otherwise it will stay disconnected. This mode is useful for metered Internet connections. When set to **Always ON** the IP Audio Client will keep the connection active even when it is not the current source.

NOTE: **On Demand** does not apply if IP Audio Client is the Main backup priority. In this case it will work in **Always ON** mode.

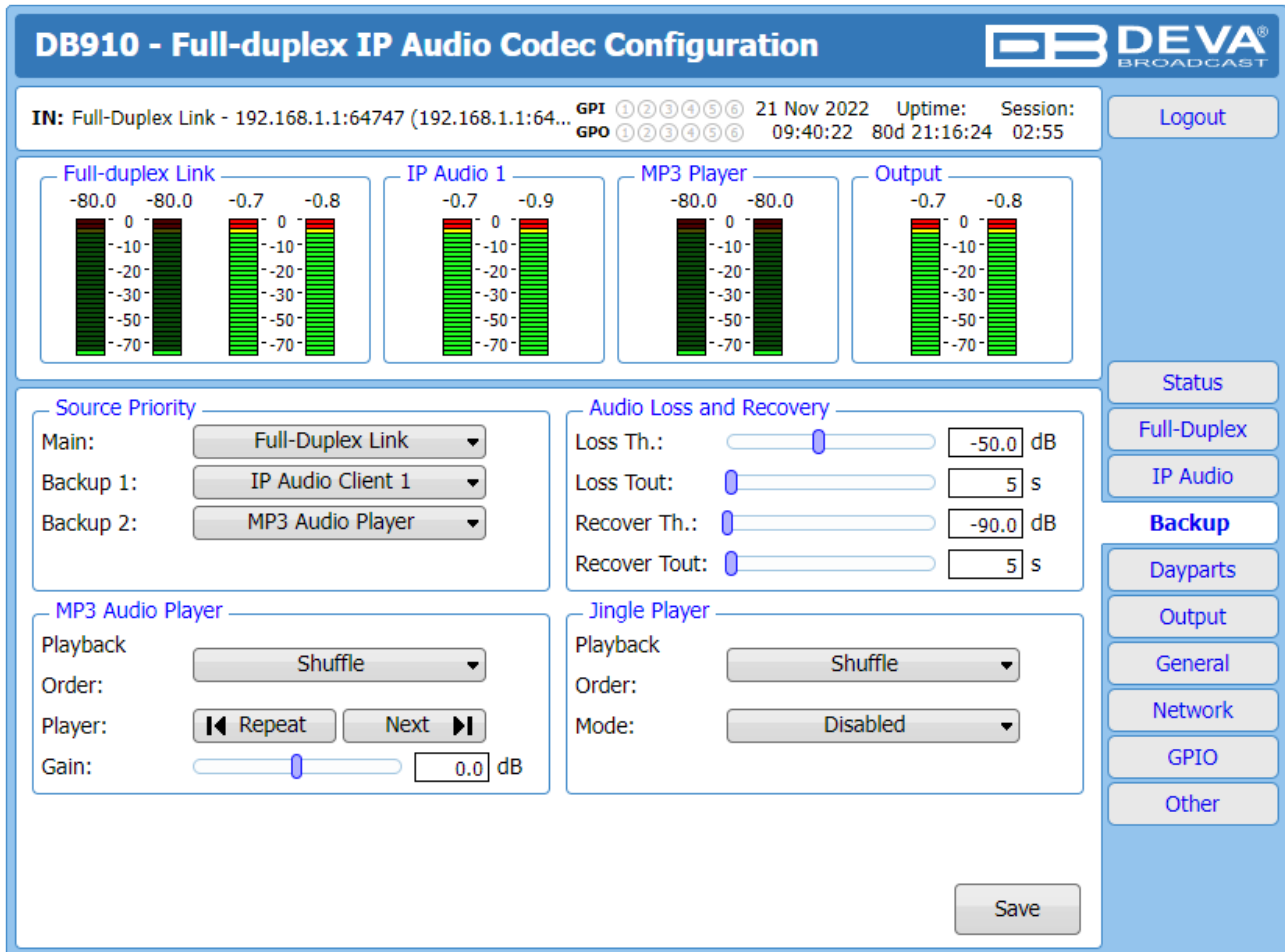
NOTE: If Silence is detected while in **On Demand** mode, DB910 will switch to the next backup priority and will disconnect the IP Audio Client connection. It will not return to IP Audio Client again before it switches to Main first.

RTP Receiver – Specify *Port, Decoder, Gain, Pre-Buffer* adjustments and *Multicast group IP*.

FOR YOUR INFORMATION: A multicast address (*Mcast group*) is a logical identifier for a group of hosts in a computer network, that are available to process datagrams or frames intended to be multicasted for a designated network service.

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

BACKUP



Through this screen are applied all needed settings to the alternative sources. The backup sources priority is user-defined and can be set through the relevant section. If the audio from the main source disappears, the DB910 will automatically switch to the first backup source; if it also fails, the unit will switch to the second. Once a source with higher priority is restored, the unit will switch back to it.

Audio Loss and Audio Recover – Select the appropriate levels of loss and recovery of the audio signal. Do not forget to set the corresponding timeouts.

MP3 Audio Player – The Playback Order can be changed from here. The following options are available: A-Z, Z-A, Shuffle, Playlist, and Shuffled Playlist. Information on the used and available SD card storage respectively, could also be found in this section. [Repeat] and [Next] button to navigate through the playlist if need be, are also available.


MP3 Files Upload via FTP – Through the use of a standard FTP client, you have the opportunity to update the backup content at will via any PC. The supported format is .mp3. An important requirement for the MP3 Player configuration is that all MP3 files should be stored in a folder named Audio (no sub-folders are allowed). The folder should be located in the root of the SD Card. The playlist file must be named playlist.m3u.

Jingle Player – This option is available only when the audio source is set to MP3 Audio Player. The Jingle player is designed for playing jingles (speech and music) at different intervals specified by the user. The intervals are counted by songs. From the Mode drop down menu the number of songs after which a jingle should be played is chosen. The Playback Order is also user-defined. Generally speaking, the Jingle Player allows you to make a simple radio play out.

Jingle Files Upload via FTP – Through the use of a standard FTP client, you have the opportunity to update the backup content at will via any PC. The supported format is .mp3. An important requirement is that all jingles should be stored in a folder named 'Jingles' (no sub-folders are allowed). The folder should be located in the root of the SD Card. The playlist file must be named playlist.m3u.

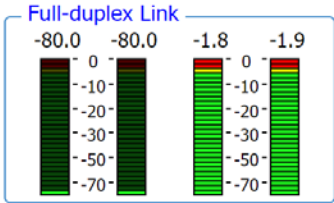
For information on how the connection between the DB910 and an FTP Client should be configured, please [refer to “Download files via FTP” on page 44](#).

DAYPARTS

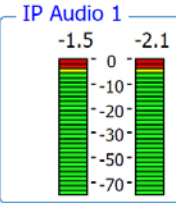
DB910 - Full-duplex IP Audio Codec Configuration


IN: Full-Duplex Link - 192.168.1.1:64747 (192.168.1.1:64... **GPI** ①②③④⑤⑥ 21 Nov 2022 Uptime: Session:
GPO ①②③④⑤⑥ 09:44:49 80d 21:20:51 01:01 Logout

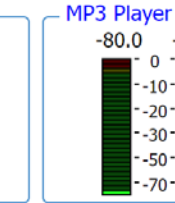
Full-duplex Link



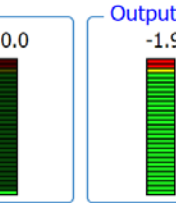
IP Audio 1



MP3 Player



Output



General

Dayparting: Enabled Disabled

Daypart 1

Day: Never

Date: 15/06/2012

Start Time: 00:00:00

Duration: 00:00:00

Source:

Daypart 2

Day: Never

Date: 15/06/2012

Start Time: 00:00:00

Duration: 00:00:00

Source:

Daypart 3

Day: Never

Date: 15/06/2012

Start Time: 00:00:00

Duration: 00:00:00

Source:

Daypart 4

Day: Never

Date: 15/06/2012

Start Time: 00:00:00

Duration: 00:00:00

Source:

Daypart 5

Day: Never

Date: 15/06/2012

Start Time: 00:00:00

Duration: 00:00:00

Source:

Daypart 6

Day: Never

Date: 15/06/2012

Start Time: 00:00:00

Duration: 00:00:00

Source:

Daypart 7

Day: Never

Date: 15/06/2012

Start Time: 00:00:00

Duration: 00:00:00

Source:

Daypart 8

Day: Never

Date: 15/06/2012

Start Time: 00:00:00

Duration: 00:00:00

Source:

Save

Status

Full-Duplex

IP Audio

Backup

Dayparts

Output

General

Network

GPIO

Other

Dayparting is the practice of dividing the day into several parts, during which a different type of audio source will be used. This function will allow a broadcasting pattern based on the radio's timetable to be made.

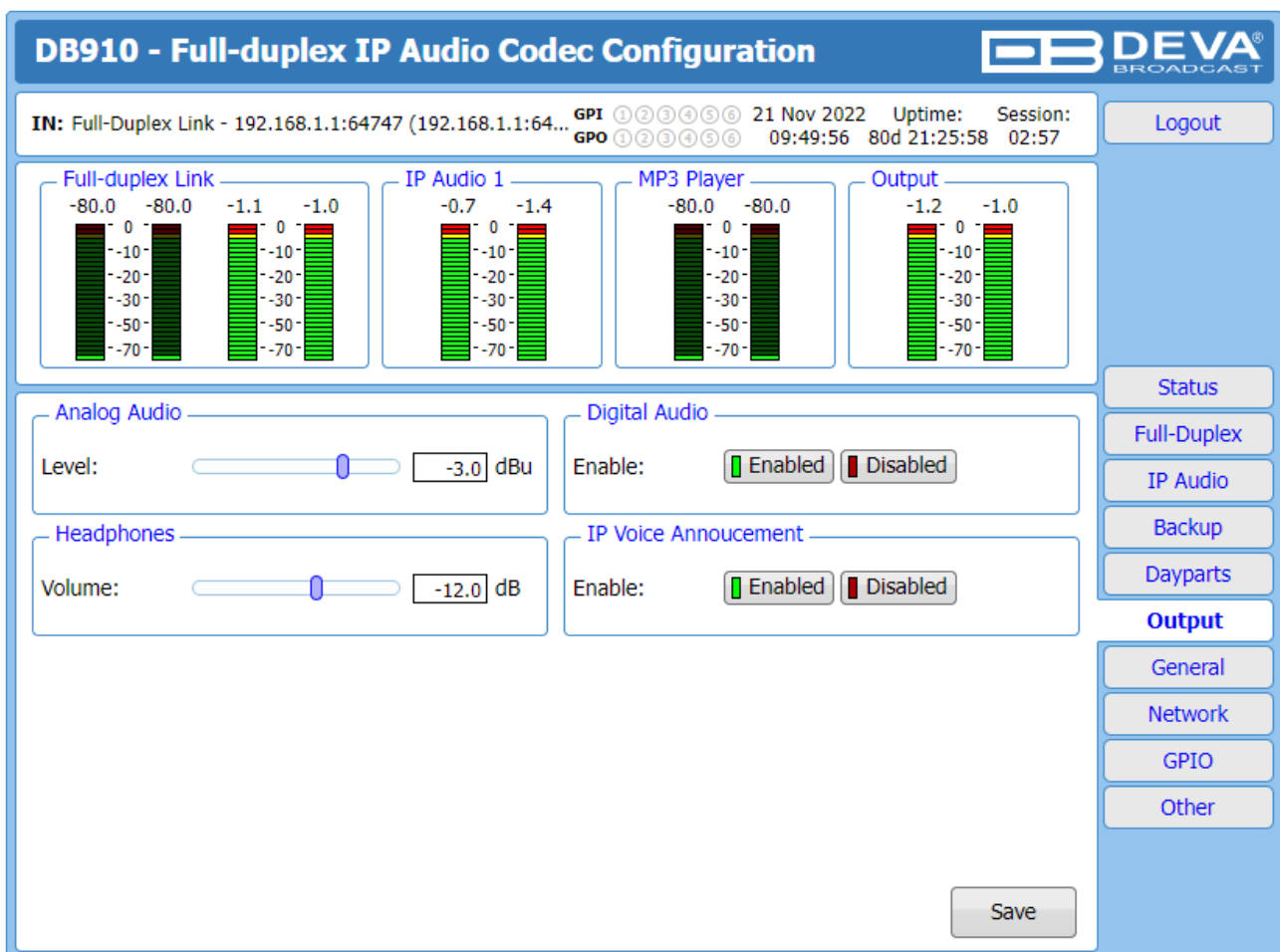
Generally enable the Dayparts function in order to use it. Please bear in mind that if the option is generally disabled the function will not be used, nevertheless the applied settings in sections *Daypart 1* to *Daypart 8*.

There are eight positions at your disposal that can be set. The settings to be applied for each of them are identical:

1. Set the desired Weekday from the drop-down menu. For your convenience, the option Every day is also available;
 2. Set the Start Time and Duration;
 3. To finalize the setup, select the Source that should be used during this time period.
- Repeat the same procedure for each of the positions that should be used.

NOTE: If the Weekday is set to Never the relative daypart will not be used. It is recommended the unused dayparts to be set to Never.

OUTPUT



Analog Audio – set the level of the Analog Audio output (in dBu).

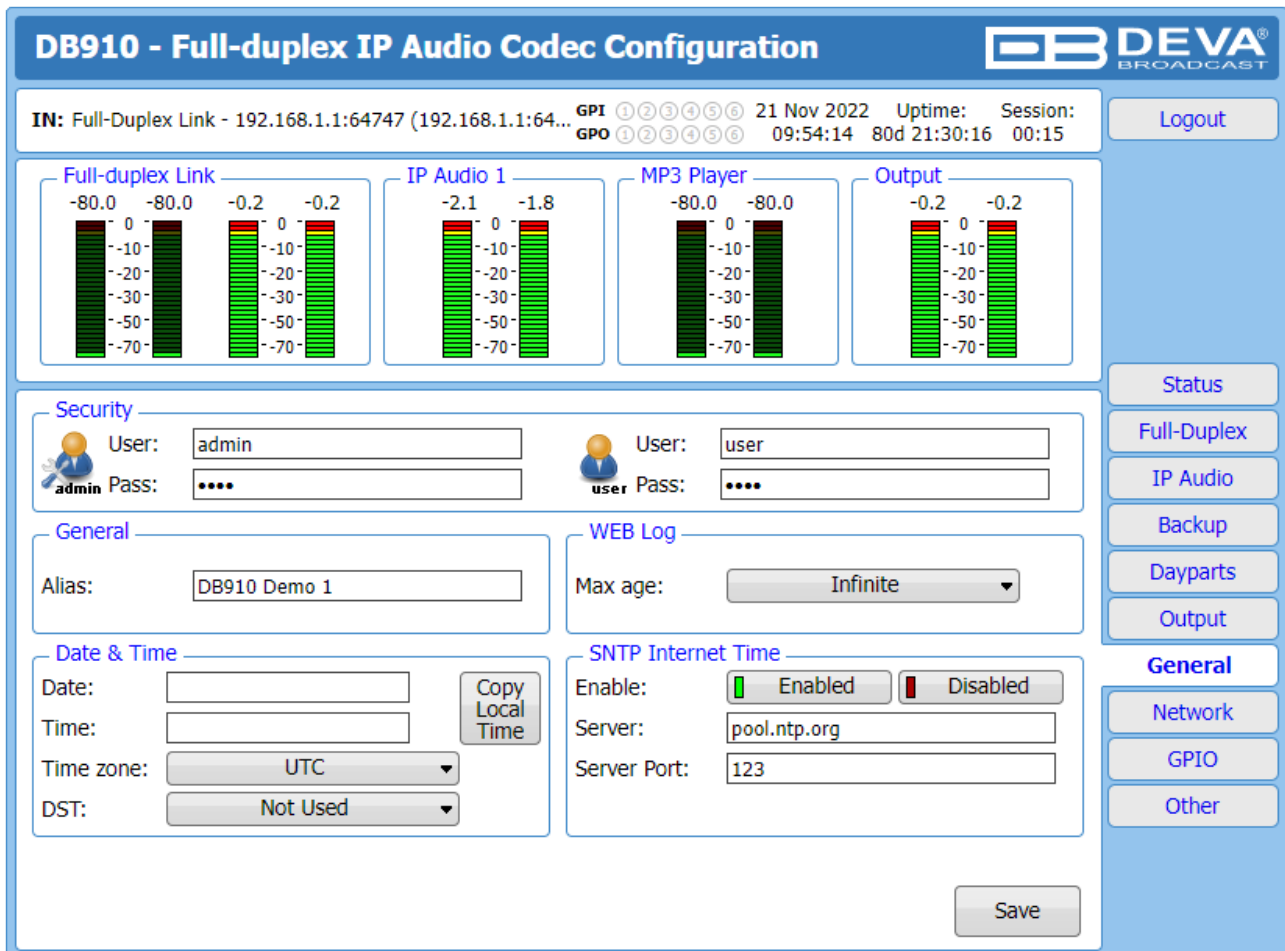
Digital Audio – Enable or disable the Digital Audio output.

Headphones – set the level of the Headphones output.

IP Voice Announcement - Enables or disables the IP Voice Announcement option. By default and to ease the set-up process the option is enabled. Once the set-up process is completed, it is recommended the option to be disabled. Otherwise, the IP Voice Announcement will continue to be played.

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

GENERAL



DB910 - Full-duplex IP Audio Codec Configuration

IN: Full-Duplex Link - 192.168.1.1:64747 (192.168.1.1:64... GPI ①②③④⑤⑥ 21 Nov 2022 Uptime: Session: 09:54:14 80d 21:30:16 00:15

Full-duplex Link: -80.0 -80.0 -0.2 -0.2

IP Audio 1: -2.1 0 -1.8

MP3 Player: -80.0 -80.0

Output: -0.2 0 -0.2

Security

admin User: admin Pass: ****

user User: user Pass: ****

General

Alias: DB910 Demo 1

WEB Log

Max age: Infinite

Date & Time

Date: [] Time: [] Time zone: UTC DST: Not Used

SNTP Internet Time

Enable: Enabled Server: pool.ntp.org Server Port: 123

Save

DB910 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, while all the settings remain locked.

In order for the security of DB910 to be enhanced, new username and password could be set from the Security section.

By choice, you can change the name of the device (*General* section). Later on, it will be used as a title name on all WEB pages. Customizing the name will make the device more recognizable.

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


SNTP Internet Time – Synchronizes automatically DB910’s clock time with the Internet time server. Enable this function in order to use it (Specifying the server closest to your location will improve the accuracy).

WEB Log – the maximum storage time of the log files is chosen from here. Log files older than the specified will be permanently deleted.

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

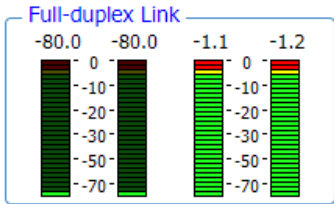
NETWORK

DB910 - Full-duplex IP Audio Codec Configuration

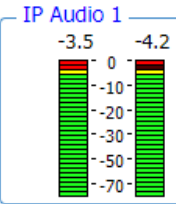


IN: Full-Duplex Link - 192.168.1.1:64747 (192.168.1.1:64... GPI ①②③④⑤⑥ 21 Nov 2022 Uptime: Session:
 GPO ①②③④⑤⑥ 09:55:17 80d 21:31:19 02:43

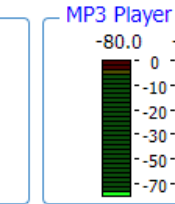
Full-duplex Link



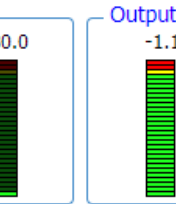
IP Audio 1



MP3 Player



Output



Network

Enable: Enabled

DHCP: Enabled Disabled

IP Address:

Netmask:

Gateway:

Primary DNS:

Sec. DNS:

HTTP Server

Enable: Enabled

Server Port:

Session time: min

FTP Server

Enable: Enabled Disabled

Cmd Port:

Data Port:

E-mail

Enable: SMTP DEVA Disabled

E-mail 1:

E-mail 2:

Sender:

Username:

Password:

Host name:

Connection:

Server:

Server Port:

SNMP Agent

Agent: Enabled Disabled

Agent Port:

Agent ses. time: min

Agent ID:

Read Community:

Write Community:

Manager IP:

Manager Port:

SNMP MIB File:

▲ - These settings require reboot.

Network

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, DB910 will use Auto IP and will generate an IP Address.

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:

DB910 Test Message.

Please do not reply to this e-mail.

HTTP Server

Enable/Disable the *HTTP Server*. Specify the *Server Port* and *Session Timeout*.

FTP Server

Enable/Disable the *FTP Server*. Specify the *Command* and *Data Ports* to be used.

For information on how the connection between the DB910 and an FTP Client should be configured, please [refer to “Download files via FTP” on page 44](#).

SNMP Agent

Specify *Agent ID*, *Agent Port*, *Read/Write Communities*, *Manager IP*, *Manager Port* and *Agent Session Time*.

Agent – enables/disables SNMP Agent.

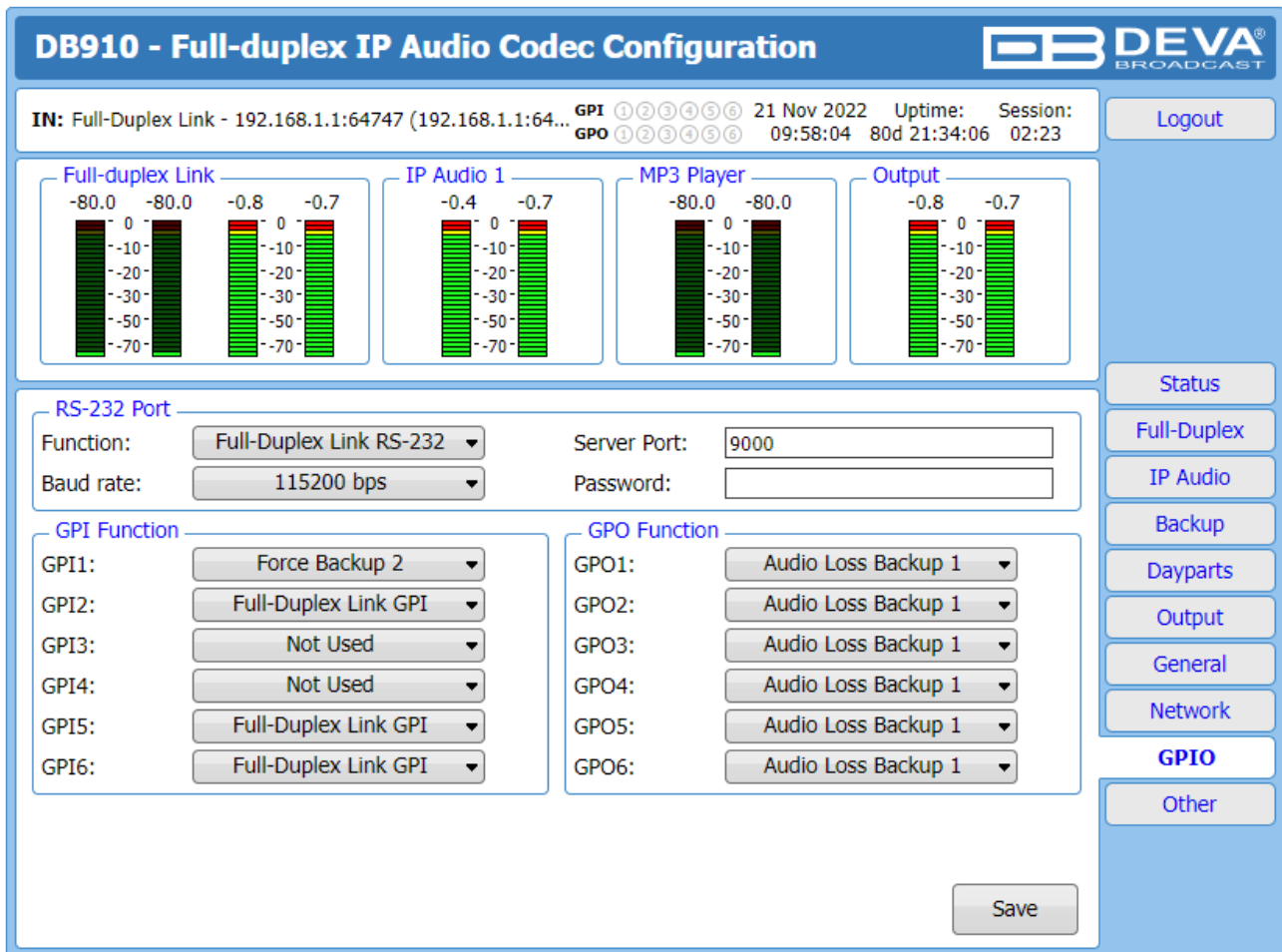
Agent ID – is used for identification of the device among others, when an SNMP notification is being sent.

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 DB910 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.

GPIO



RS-232 Port

Function – select RS-232 port function. Full-duplex Link RS-232 option should also be configured in Full-duplex settings ([see “Full-Duplex” on page 26](#))

Baud rate – RS-232 baud rate

Server Port – RS-232 Redirector server port. Only used when Function is set to RS-232 Redirector Server.

Password – RS-232 Redirector password. Only used when Function is set to RS-232 Redirector Server

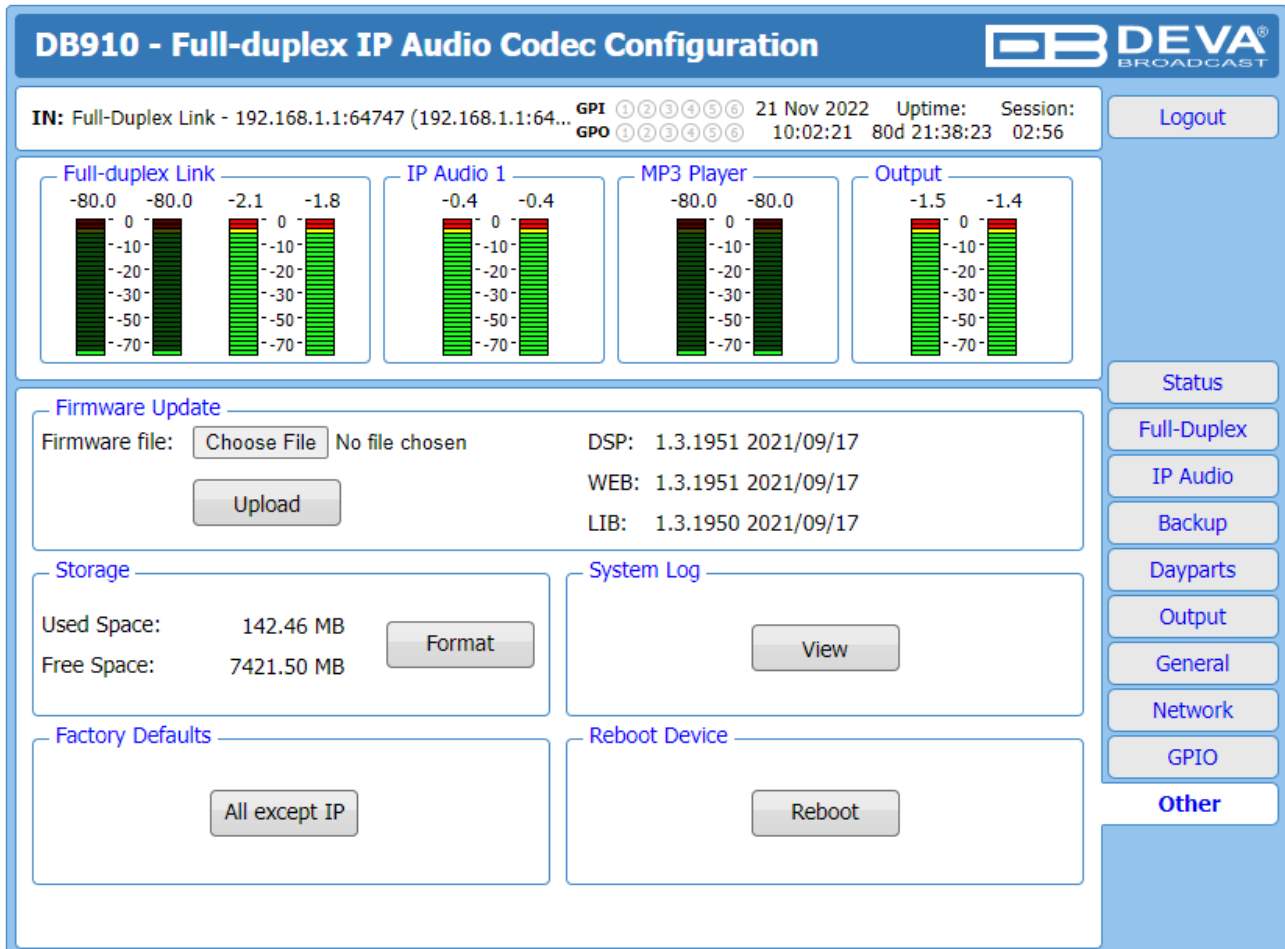
GPI Function

GPI1-GPI6 – select GPI function. *Force Main/Backup 1/Backup 2* will switch to the selected audio source while the pin is active. Full-duplex GPI option should also be configured in Full-duplex settings ([see “Full-Duplex” on page 26](#))

GPO Function

GPO1-GPO6 – select GPO function. *Audio loss Main/Backup 1/Backup 2* will set the pin active while there is an audio loss on the selected audio source. Full-duplex GPO option should also be configured in Full-duplex settings ([see “Full-Duplex” on page 26](#))

OTHER



DB910 - Full-duplex IP Audio Codec Configuration

IN: Full-Duplex Link - 192.168.1.1:64747 (192.168.1.1:64...
 GPI ①②③④⑤⑥ 21 Nov 2022 Uptime: Session:
 GPO ①②③④⑤⑥ 10:02:21 80d 21:38:23 02:56

Full-duplex Link
 -80.0 -80.0 -2.1 -1.8
 0 0
 -10 -10
 -20 -20
 -30 -30
 -50 -50
 -70 -70

IP Audio 1
 -0.4 -0.4
 0 0
 -10 -10
 -20 -20
 -30 -30
 -50 -50
 -70 -70

MP3 Player
 -80.0 -80.0
 0 0
 -10 -10
 -20 -20
 -30 -30
 -50 -50
 -70 -70

Output
 -1.5 -1.4
 0 0
 -10 -10
 -20 -20
 -30 -30
 -50 -50
 -70 -70

Firmware Update
 Firmware file: No file chosen

 DSP: 1.3.1951 2021/09/17
 WEB: 1.3.1951 2021/09/17
 LIB: 1.3.1950 2021/09/17

Storage
 Used Space: 142.46 MB
 Free Space: 7421.50 MB

System Log

Factory Defaults

Reboot Device

Logout
 Status
 Full-Duplex
 IP Audio
 Backup
 Dayparts
 Output
 General
 Network
 GPIO
 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.

Factory Defaults

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

To restore DB910 to its factory defaults 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 DB910, 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.

SYSTEM LOG

By pressing the [View] button, a window with the following options will appear:

DB910 - Full-duplex IP Audio Codec Configuration

IN: Full-Duplex Link - 192.168.1.1:64747 (192.168.1.1:64... **GPI** ①②③④⑤⑥ 21 Nov 2022 Uptime: Session:
GPO ①②③④⑤⑥ 10:04:55 80d 21:40:57 00:22 Logout

Full-duplex Link

IP Audio 1

MP3 Player

Output

Clear System Log

Reload

2016-06-02 07:22:31	Control	Source Change, MP3 Player, Forced over WEB
2016-06-02 07:22:35	Control	Source Change, IP Audio Client 1, Auto selected
2016-06-02 07:49:15	Control	WEB Logout, 192.168.20.55
2016-06-02 07:56:20	Control	WEB Login, 192.168.20.78, Admin
2016-06-02 08:05:33	Control	Source Change, MP3 Player, Forced over WEB
2016-06-02 08:05:35	Control	Source Change, IP Audio Client 1, Auto selected
2016-06-02 08:07:16	Control	Source Change, MP3 Player, Forced over WEB
2016-06-02 08:07:19	Control	Source Change, IP Audio Client 1, Auto selected
2016-06-02 08:16:38	Control	WEB Logout, 192.168.20.78
2016-06-02 08:45:31	Control	WEB Login, 192.168.20.78, Admin
2016-06-02 08:46:01	Control	WEB Logout, 192.168.20.78
2016-06-02 08:59:37	Control	WEB Login, 192.168.20.55, Admin
2016-06-02 09:24:13	System	Storage init OK
2016-06-02 09:24:13	Control	Source Change, MP3 Player, Auto selected

Status
Full-Duplex
IP Audio
Backup
Dayparts
Output
General
Network
GPIO
Other

Pressing the [Clear] button will delete all recorded in the system log information.

Pressing the [Reload] button will update the displayed information.

HARDWARE RESET

This process will fully restore DB910 to its Factory Defaults, including the Network settings. To hardware reset the device, follow the instructions below:

1. Disconnect the unit from the power supply;
2. Locate the RESET button on Rear panel;
3. Press and hold the RESET button;
4. Connect the power supply cable to the unit;
5. Keep the RESET button hold until the POWER led starts blinking;
6. Release the RESET button;
7. Wait for DB910 to reboot.

Upon completion of the process, DB910 settings will have the following values:

Network Default Settings

- **DHCP:** enabled

WEB Server Default Settings

- **Port:** 80
- **Username:** user
- **Password:** pass

NOTE: Upon completion of the process, the DHCP Client is enabled and the DB910 will obtain an IP address from the DHCP server.

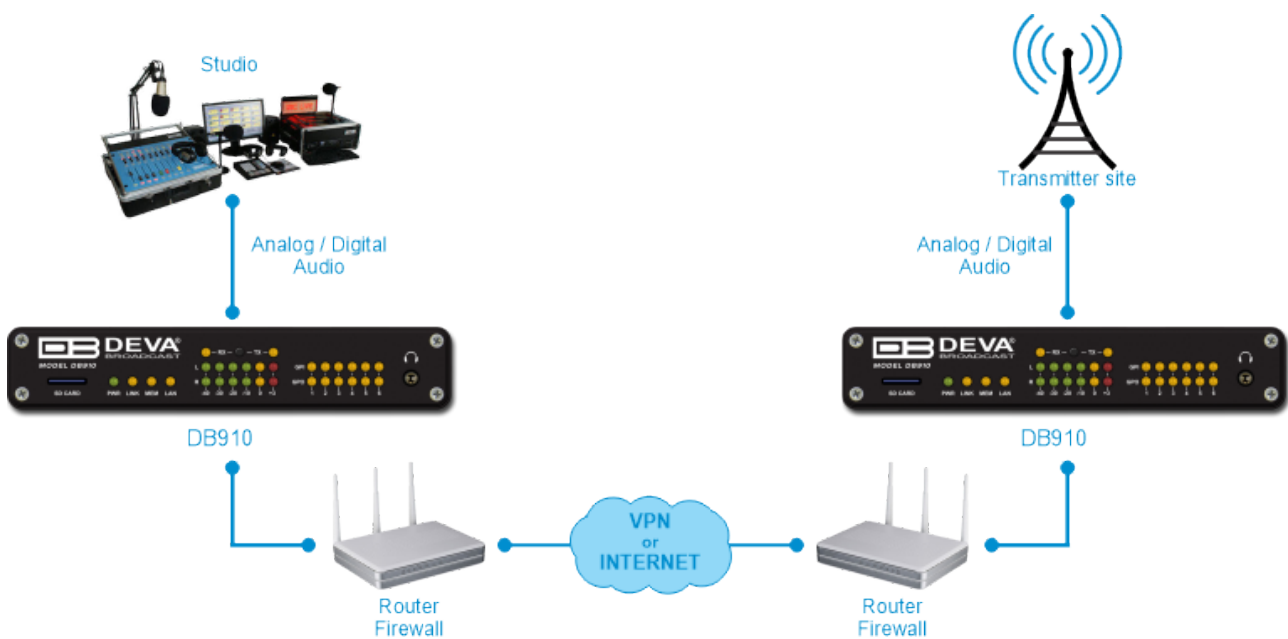
ATTENTION: Upon restoring the unit to its factory defaults, the WEB Server's username and password will be changed. Having that in mind, please note that you may be asked to re-enter the values in order for the WEB page to be loaded.

APPENDIX A

HOW TO SET A PAIR OF DB910 TO WORK IN FULL-DUPLEX MODE

The DB910 is controlled through a built-in WEB Server and a standard web browser is used to monitor its status or to make some adjustments. To operate the devices you need to know their IP Address.

FULL-DUPLEX AUDIO TRANSMISSION

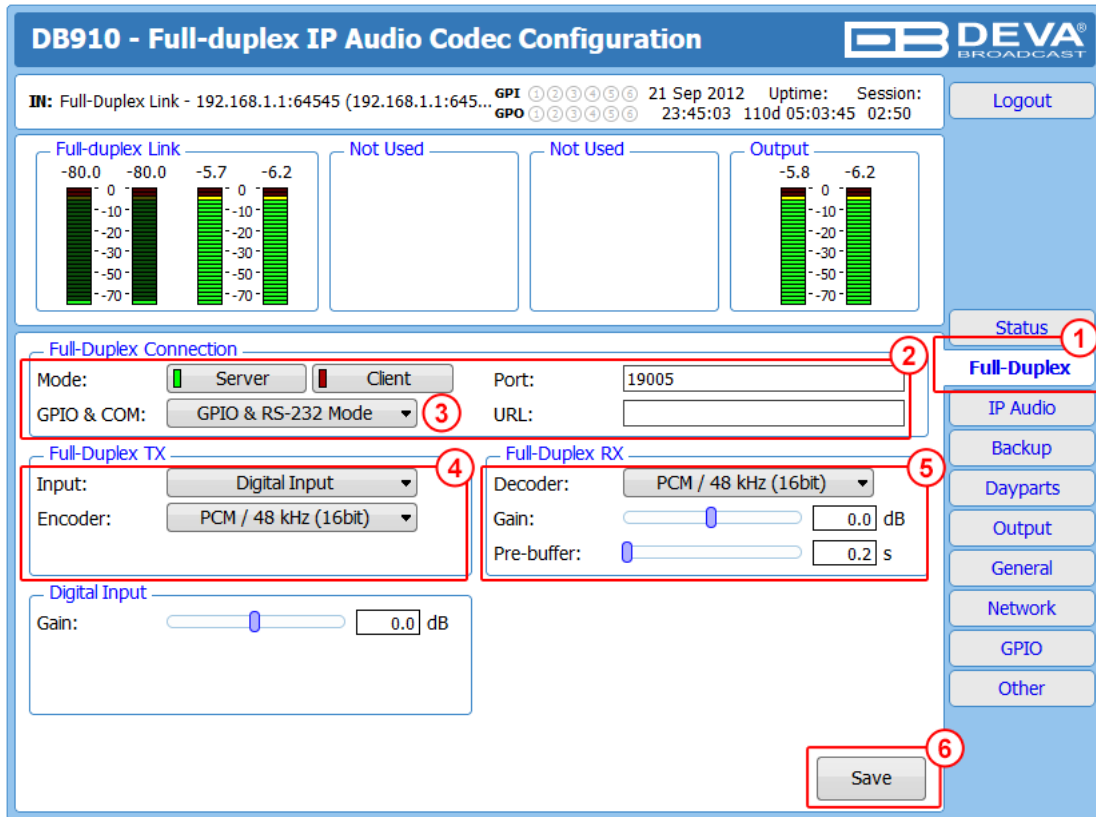


DB910 SET-UP

Prior to implementing the below written adjustments, the following requirements should be fulfilled:

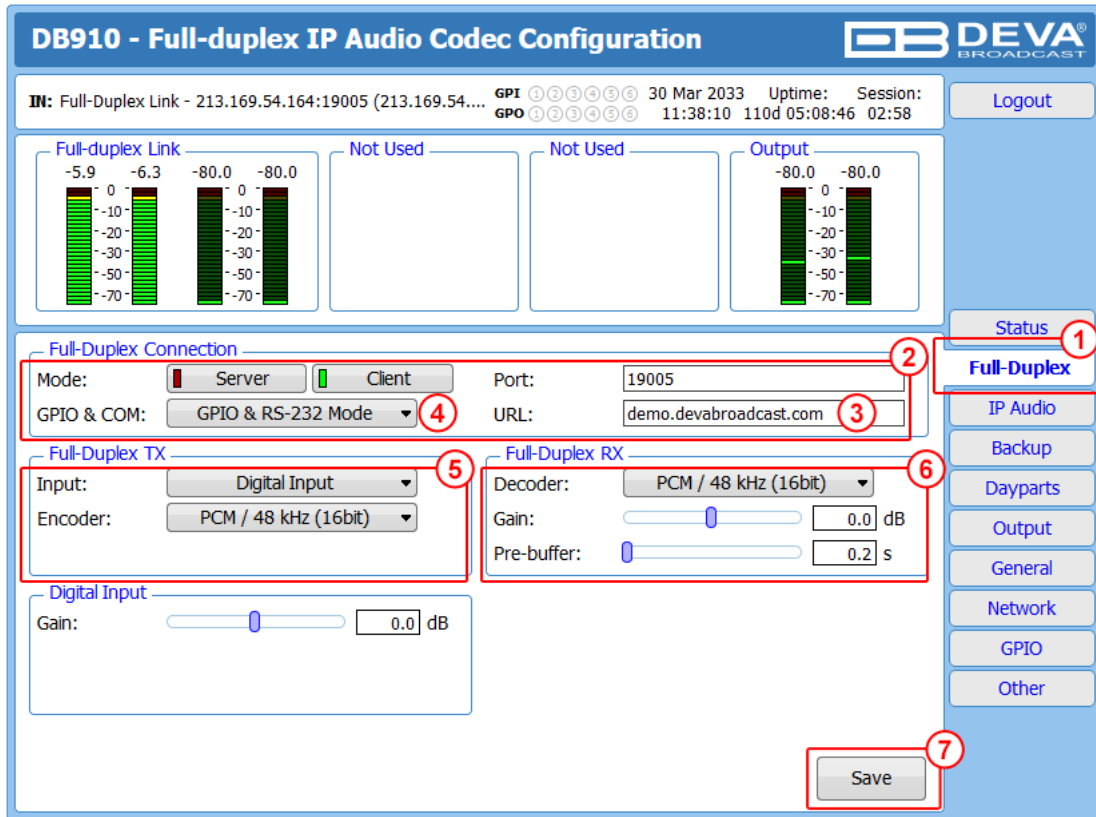
- One of the DB910 will be set as a Server and the other one will be set as a Client
- Server DB910 must have a static IP address;
- Client DB910 may have a dynamic IP address;
- If any (or both) of the two devices is placed behind a router, you will have to make sure that the Full-Duplex Port is properly NAT forwarded;
- Client DB910 should have access to Server DB910 over the network (Internet or LAN)

SERVER DB910 SET-UP



1. Go to “Full-duplex” tab;
2. In section “Full-duplex Connection” set Mode to Server and leave URL field empty;
3. If GPIO and COM Port are to be used set the appropriate mode in the same section;
4. In section “Full-duplex TX” set the desired Input, Encoder and Quality. The same CODEC must be set as Decoder in Client DB910’s Full-Duplex RX section;
5. In section “Full-duplex RX” set the desired Decoder and Pre-buffer. The same CODEC must be set as Encoder in Client DB910’s Full-Duplex TX section;
6. Press [Save] to save the applied changes.

CLIENT DB910 SET-UP



1. Go to “Full-duplex” tab;
2. In section “Full-duplex Connection” set Mode to Client;
3. Enter the IP address (or URL) of DB910 Server in the URL field;
4. If GPIO and COM Port are to be used set the appropriate mode in the same section;
5. In section “Full-duplex TX” set the desired Input, Encoder and Quality. The same CODEC must be set as Decoder in Server DB910’s Full-Duplex RX section;
6. In section “Full-duplex RX” set the desired Decoder and Pre-buffer. The same CODEC must be set as Encoder in Server DB910’s Full-Duplex TX section;
7. Press [Save] to save the applied changes.

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

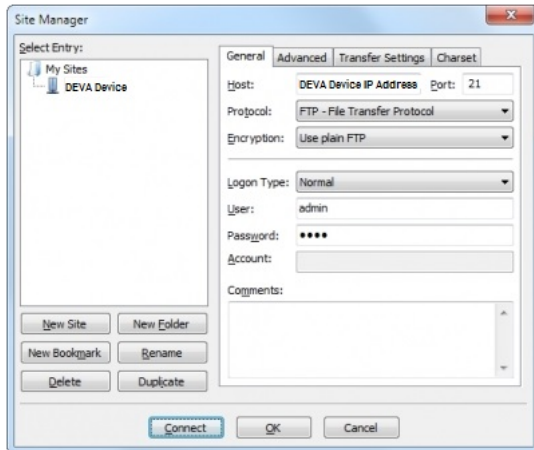
If the connection to the device is made through a Network address translation (NAT) router or firewall, the port forwarding feature of the router should be configured. The port forwarding is usually set in the firewall section of the router's menu. As each router has different port forwarding procedure,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

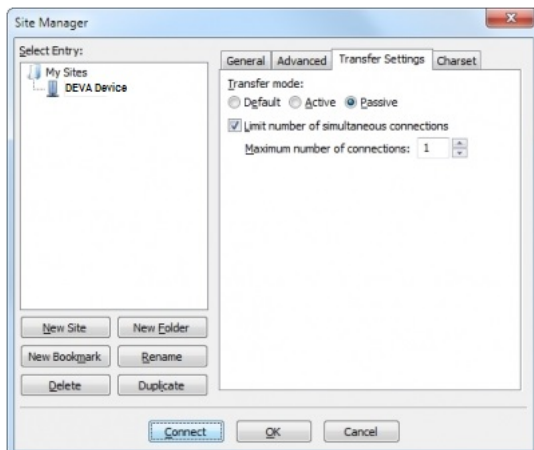
3. Example of FTP Client (FileZilla) Settings

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.

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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).

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