

MPX Board
INSTALLATION GUIDE

DB9000-RX

Professional IP Audio Decoder
with
Stereo & RDS Encoder Module



In order to facilitate the assembling of DB9000-RX with the Stereo and RDS Encoder module we have written these detailed instructions.

The instructions will acquaint you with the assembly of the RDS encoder module. Please read them carefully before you start.

We have illustrated with a photograph each step of the assembling process. If you have any doubts, before the beginning of a step refer to these photos to check the accuracy of the assembly process.

PLEASE NOTE that the device must **NOT** be connected to the electrical network during the assembly. **PLEASE OBSERVE THE SAFETY STANDARDS.**

Basic Assembly Principles

Here are a few tips that would make the assembly of the DB9000-RX Professional IP Audio Decoder and the Stereo and RDS Encoder Module quick and easy. By using these principles, you can simplify the process and save yourself some extra time and effort.

1. When you are having a trouble placing a bolt between two separate pieces, you can get the bolt holes to line up by gently lifting and slightly gliding one of the pieces, so that it matches the factory holes perfectly.
2. You can make the assembly process faster by gathering the pieces you need for each step, prior to starting the step.
3. As a general rule for all bolts and locknuts - turning toward the right will tighten them, turning toward the left will loosen them.

Tools You Will Need

You will need the following tools to complete the assembly of the DB9000-RX Professional IP Audio Decoder with the Stereo and RDS Encoder Module. If you don't have these tools, you can find them at any hardware or department store.

- Star shaped screwdriver №PH1 and №PH2
- Hex screwdriver №5

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Step 1 – TopCover

Place the device on a working table with static surface. The rear part of the device must be set against you (**Picture 1** represents the proper position for the device).

Next, using a **star blade screwdriver №PH2** unscrew the three bolts that hold the cover of the device. **Picture 1** displays the position of the bolts. (For your convenience we have circled them in red.)

Place the unscrewed bolts near you so that they can be at hand during the reassembling of DB9000-RX Professional IP Audio Decoder with Stereo and RDS Encoder Module.



Picture 1

PLEASE NOTE that the device must **NOT** be connected to the electrical network during the assembly. **PLEASE OBSERVE THE SAFETY STANDARDS.**

Step 2 – Front Panel

Use a **star blade screwdriver №PH2** to unbolt the bolts holding the front panel of the device on its left and right side. **Picture 2** and **Picture 3** show the position of the bolts. (For your convenience we have circled them in red.)

Place the unscrewed bolts near you so that they can be at hand during the reassembling of DB9000-RX Professional IP Audio Decoder with Stereo and RDS Encoder Module.



Picture 2

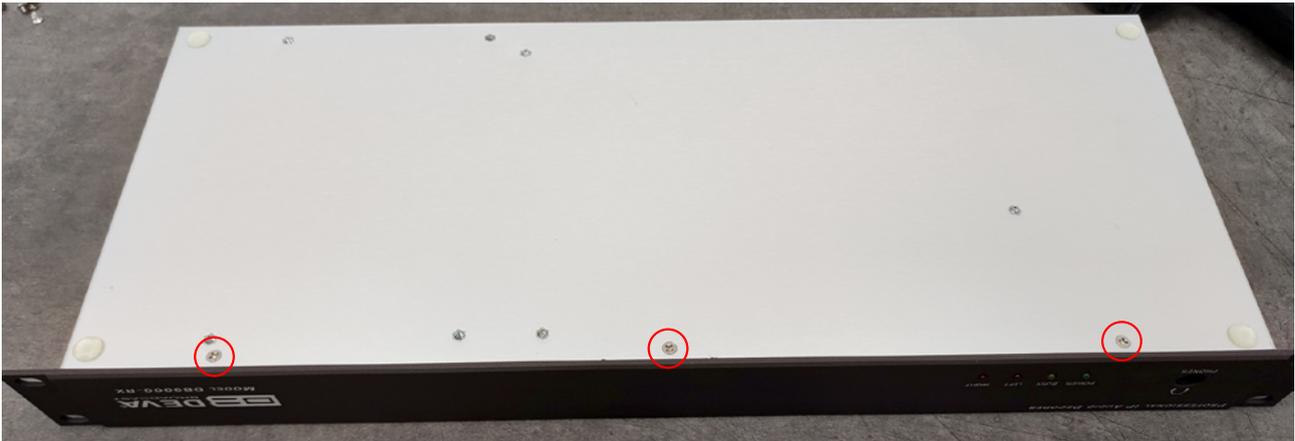


Picture 3

PLEASE NOTE that the device must **NOT** be connected to the electrical network during the assembly. **PLEASE OBSERVE THE SAFETY STANDARDS.**

Step 3 – Bottom Panel

Use a **star blade screwdriver №PH2** to unbolt the bolts holding the bottom cover of the device. **Picture 4** shows the position of the bolts. (For your convenience we have circled them in red.)



Picture 4

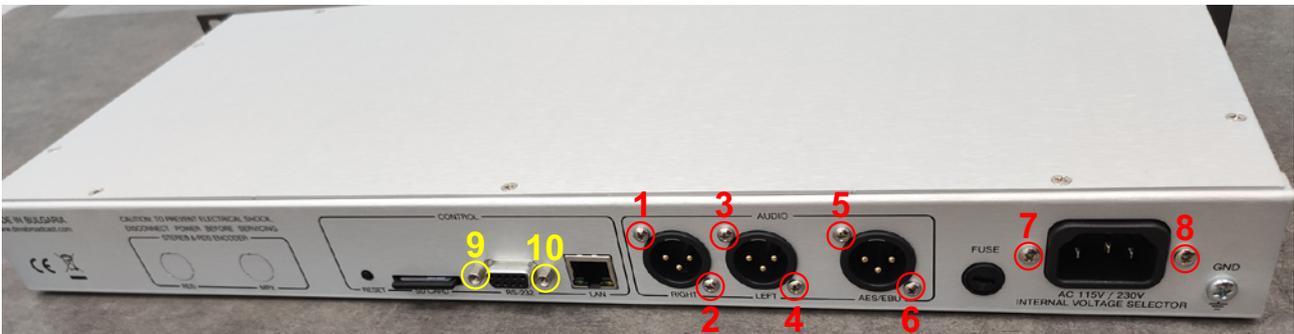
PLEASE NOTE that the device must **NOT** be connected to the electrical network during the assembly. **PLEASE OBSERVE THE SAFETY STANDARDS.**

Step 4 – Rear Panel

Use a **star blade screwdriver №PH1** to unscrew bolts with numbers from 1 to 8 which hold the rear cover of the device. **Picture 5** displays the position of the bolts. (For your convenience we have circled them in red.)

Bolts 9 and 10, placed on both sides of the RS-232 Com-port, have to be unscrewed with a **hex screwdriver №5**. (Circled in yellow on **Picture 5**)

Place the unscrewed bolts near you so that they can be at hand during the reassembling of DB9000-RX Professional IP Audio Decoder with Stereo and RDS Encoder Module.



Picture 5

PLEASE NOTE that the device must **NOT** be connected to the electrical network during the assembly. **PLEASE OBSERVE THE SAFETY STANDARDS.**

Step 5 – Rear panel - knockouts

The next step of the process is the removal of the knockouts (circled in red on **Picture 6**). This will ensure space for the cable terminals of the Stereo and RDS Encoder Module.

1. Using a screwdriver (or other suitable instrument), press the knockouts to the inside;
2. Remove the knockouts (**Picture 7**).



Picture 6



Picture 7

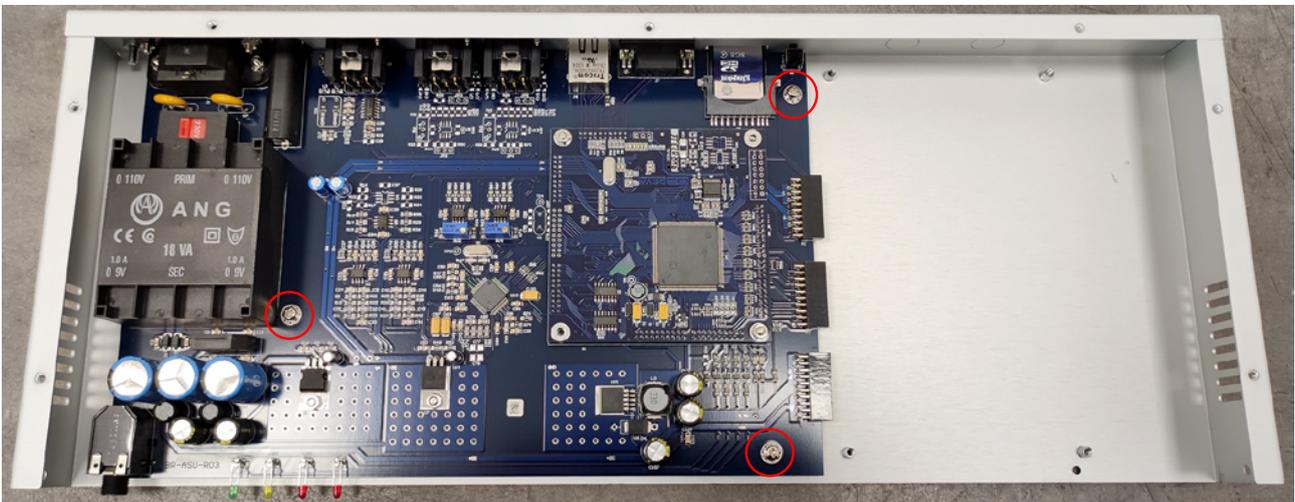
PLEASE NOTE that the device must **NOT** be connected to the electrical network during the assembly. **PLEASE OBSERVE THE SAFETY STANDARDS.**

Step 6 – Motherboard

Use a **star blade screwdriver №PH2** to gently unbolt the bolts holding the motherboard to the metal bottom of DB9000-RX. **Picture 8** displays the position of the bolts. (For your convenience we have circled them in red.)

Gently remove the motherboard from the device's metal body and place it on a static surface.

Place the unscrewed bolts near you so that they can be at hand during the reassembling of DB9000-RX Professional IP Audio Decoder with Stereo and RDS Encoder Module.



Picture 8

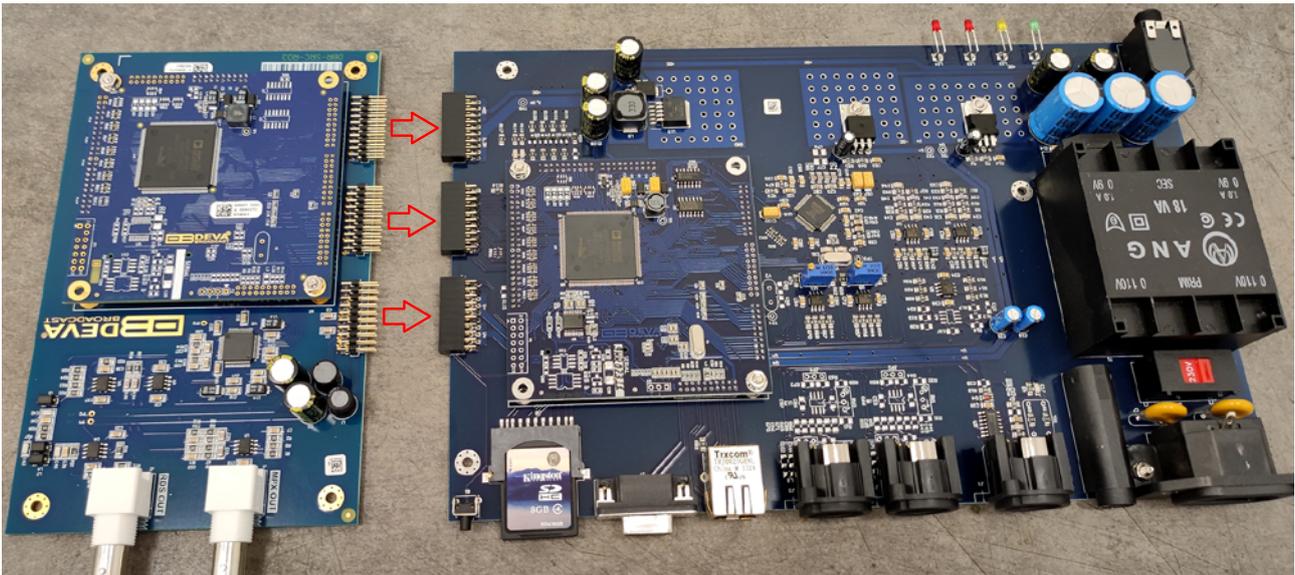
**PLEASE DO NOT REMOVE OR DAMAGE
ANY PARTS OF THE MOTHERBOARD!**

PLEASE NOTE that the device must **NOT** be connected to the electrical network during the assembly. **PLEASE OBSERVE THE SAFETY STANDARDS.**

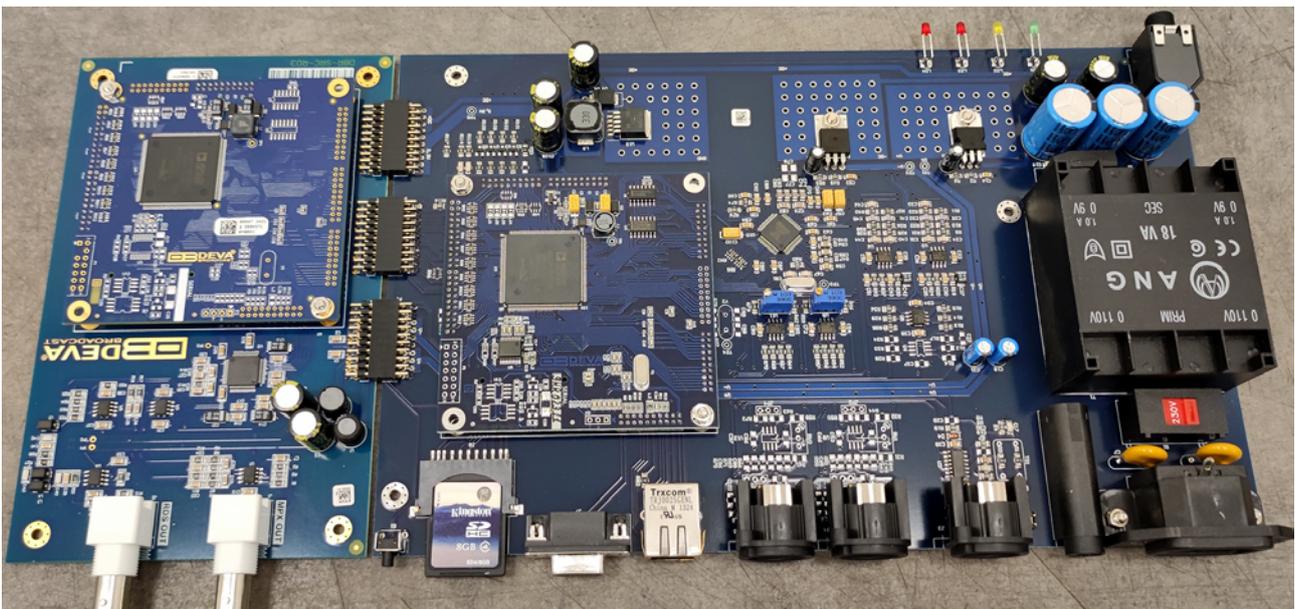
Step 7 – MPX Board Installation

Before we continue with the next step, please pay special attention to **Picture 9a**.

Carefully place both motherboards one next to the other and fit together the plug and socket connectors. Do not displace them to the left or right. They must fit perfectly (**Picture 9b**).



Picture 9a



Picture 9b

**PLEASE DO NOT REMOVE OR DAMAGE
ANY PARTS OF THE MOTHERBOARD!**

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Step 7.1 – MPX Board Installation

Carefully place the connected motherboards into the device's metal body. The picture below shows the correct position of the motherboards and the cable terminals.

Use a **star blade screwdriver №PH2** and the additional bolts, included in the set, to gently screw in the bolts to the metal bottom of the device as shown on **Picture 10**.



Picture 10

**PLEASE DO NOT REMOVE OR DAMAGE
ANY PARTS OF THE MOTHERBOARD!**

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Step 8 – Reassembling

Once the Stereo and RDS Encoder Module is added to DB9000-RX Advanced IP Audio Decoder, the entire unit has to be reassembled following the steps listed above in a reverse order – from **Step 6** to **Step 1**.

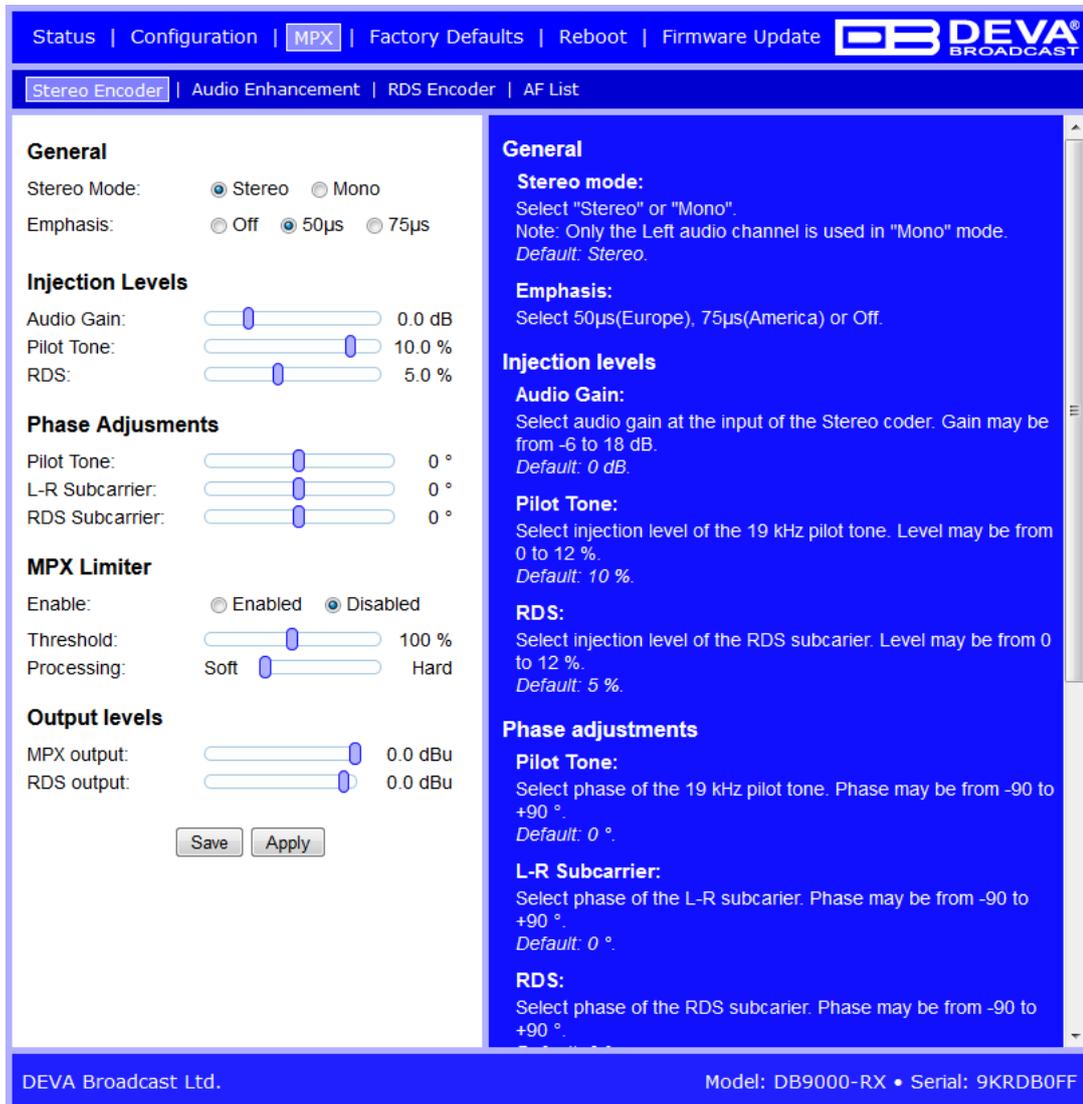
PLEASE OBSERVE THE SAFETY STANDARDS!

**PLEASE DO NOT REMOVE OR DAMAGE
ANY PARTS OF THE MOTHERBOARD!**

**BEFORE YOU CONNECT THE DEVICE TO THE ELECTRICAL NETWORK,
MAKE SURE THAT THE DEVICE IS CLOSED PROPERLY
AND THERE ARE NO FACTORY BOLTS LEFT UNUSED.**

Step 9 – WEB Interface

If the set-up procedure has been completed successfully, there is not a hardware problem, and the boards are communicating properly, upon establishing a connection with the WEB interface, the MPX function should be available (as depicted on the screenshot).



The screenshot displays the MPX configuration page of the DEVA Broadcast web interface. The page is divided into two main columns. The left column contains the configuration controls, and the right column contains detailed instructions for each section.

Navigation: Status | Configuration | **MPX** | Factory Defaults | Reboot | Firmware Update

Sub-navigation: Stereo Encoder | Audio Enhancement | RDS Encoder | AF List

Left Column (Configuration):

- General:** Stereo Mode: Stereo Mono; Emphasis: Off 50µs 75µs
- Injection Levels:** Audio Gain: 0.0 dB; Pilot Tone: 10.0 %; RDS: 5.0 %
- Phase Adjustments:** Pilot Tone: 0 °; L-R Subcarrier: 0 °; RDS Subcarrier: 0 °
- MPX Limiter:** Enable: Enabled Disabled; Threshold: 100 %; Processing: Soft to Hard
- Output levels:** MPX output: 0.0 dBu; RDS output: 0.0 dBu

Right Column (Instructions):

- General:** Stereo mode: Select "Stereo" or "Mono". Note: Only the Left audio channel is used in "Mono" mode. Default: Stereo. Emphasis: Select 50µs(Europe), 75µs(America) or Off.
- Injection levels:** Audio Gain: Select audio gain at the input of the Stereo coder. Gain may be from -6 to 18 dB. Default: 0 dB. Pilot Tone: Select injection level of the 19 kHz pilot tone. Level may be from 0 to 12 %. Default: 10 %. RDS: Select injection level of the RDS subcarrier. Level may be from 0 to 12 %. Default: 5 %.
- Phase adjustments:** Pilot Tone: Select phase of the 19 kHz pilot tone. Phase may be from -90 to +90 °. Default: 0 °. L-R Subcarrier: Select phase of the L-R subcarrier. Phase may be from -90 to +90 °. Default: 0 °. RDS: Select phase of the RDS subcarrier. Phase may be from -90 to +90 °.

Buttons: Save, Apply

Footer: DEVA Broadcast Ltd. Model: DB9000-RX • Serial: 9KRDB0FF

If a problem during the process of installation has occurred, or the boards are not communicating properly, upon establishing a connection with the WEB interface, when MPX function is selected, the following message will appear (as depicted on the screenshot).



In this case, following strictly the previously described procedure, remove the equipment's lid (Steps 1 & Step 2) and make sure that the MPX board has been properly installed.

PLEASE NOTE that the device must **NOT** be connected to the electrical network during the assembly. **PLEASE OBSERVE THE SAFETY STANDARDS.**

After reassembling the unit, connect the device via the WEB interface. If the message "STEREO ENCODER BOARD IS NOT INSTALLED" appears again, please contact us at support@devabroadcast.com