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808-9192 TRE Accelerator Card Hardware Installation Manual

Revision 1.0 – 02/20/2004

Overview

This document describes the physical installation of the 808-9192 TRE accelerator card into the Audemat-Aztec FMB10 RDS encoder chassis as well as the necessary hardware configuration. To successfully complete this installation, the following tools and materials are required:

Required tools

- PH1 tip Phillips screwdriver
- 2.5mm hex key (3/32" will probably also work)
- 3/16" nut driver
- Tweezers or chain nose pliers (for moving jumper shunts)

Required materials (included with RDS Accelerator)

- One (1) RDS Accelerator printed circuit board
- One (1) 26 conductor 2" flat ribbon cable
- One (1) custom IO back plate
- Four (4) M3 Phillips machine screws
- Two (2) 4-40 "jack screws" (for D connector)



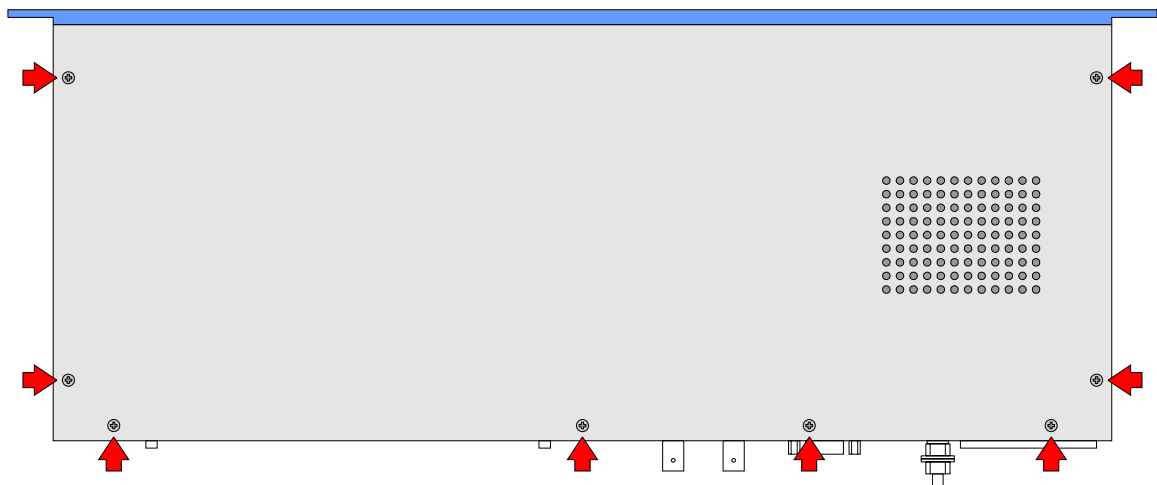
1.0 Remove the RDS encoder from service

Before installing the RDS Accelerator expansion into the FMB10 RDS encoder chassis it is necessary to remove the encoder from service. Power off the encoder using the AC main switch located at the right side of the rear panel. Disconnect the power, data, and signal (composite) cables attached to the encoder and remove the encoder from the equipment rack.

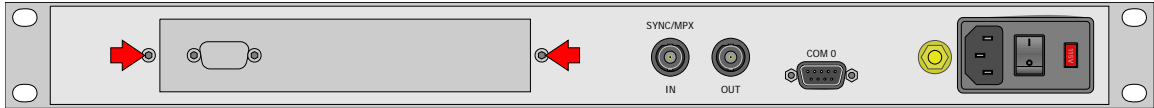
If the encoder is operating as a "loop thru" device (that is, the stereo generator output is attached to the "sync/mpx" input of the encoder and the encoder output is attached to the FM exciter input) then removing the encoder from service will require a temporary break in the composite signal chain!

As an alternative, if all of the attached cables have sufficient length to gain access to the top panel of the encoder without fully removing it from the equipment rack you may choose to work on the encoder "in place." However, it is absolutely necessary to power off the encoder before working inside the chassis.

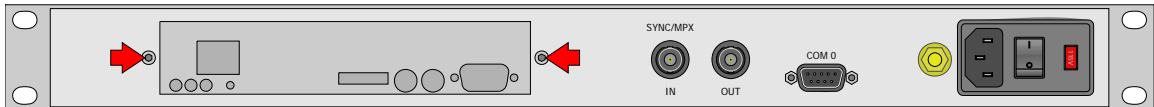
1.1 Prepare the RDS encoder chassis



Using a PH1 tip Phillips screwdriver remove the eight (8) M3 machine screws from the top of the RDS encoder chassis as indicated by the red arrows in the above diagram. Remove the lid from the chassis by slightly lifting at the rear corners and then pulling toward the back to release the lid from the slot on the front face. (The front edge of the lid fits into a slot along the backside of the front face.)

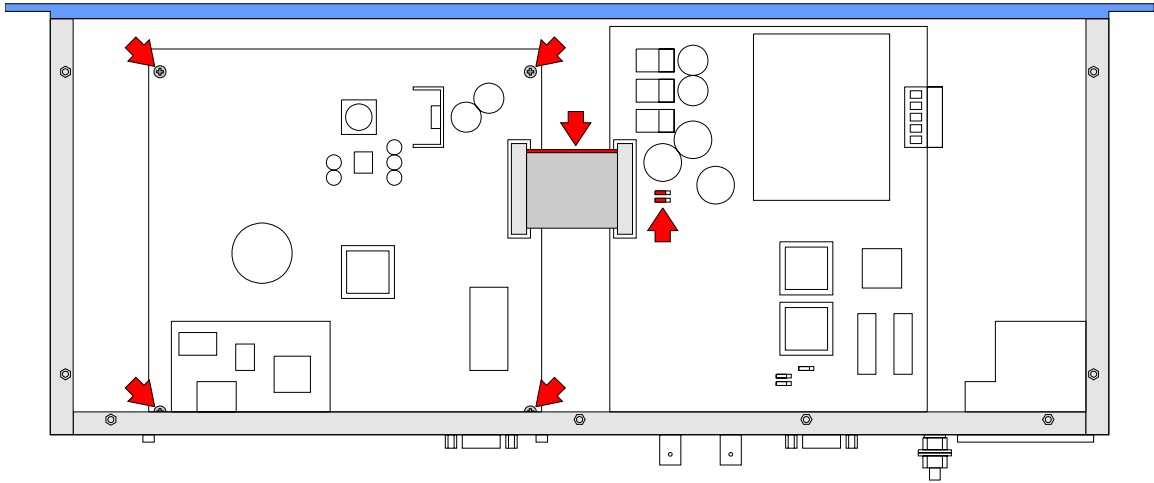


Using a 2.5mm hex key remove the two (2) M3 socket cap screws from the rear of the RDS encoder chassis as indicated by the red arrows in the above diagram. These two screws hold the IO back plate in place. Remove the factory provided IO back plate and keep this plate in a safe location. (The factory provided IO back plate might be useful in the future should it ever be necessary to remove the RDS Accelerator.)



Install the provided RDS Accelerator custom IO back plate into the chassis using the two (2) M3 socket cap screws from the previous step. It is a good idea not to fully tighten these screws at this stage as there is a small amount of play that is useful when installing the circuit board in the next step.

1.2 Install the RDS Accelerator into the encoder chassis



When working inside the chassis please exercise caution to prevent damage to internal components by electrostatic discharge. At a minimum, always touch the exterior metal surface of the chassis to discharge any static electricity from your body before handling the printed circuit board!

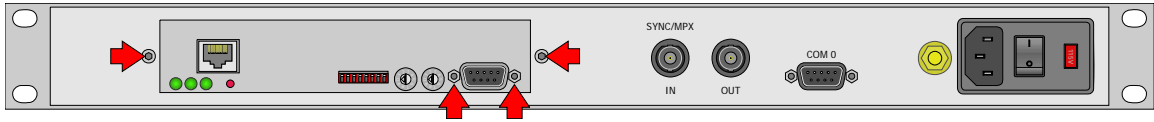
Install the RDS Accelerator printed circuit board into the encoder chassis. There are three status LEDs, a reset pushbutton, a RJ45 connector, and a D connector on this circuit board that protrude through the IO back plate. Angle the circuit board into the chassis and align these components with the holes in the IO back plate as the circuit board is fit into the chassis. Fasten the corners of the circuit board in place using the four (4) M3 machine screws provided as indicated by the red arrows in the above diagram. Start with the screws slightly loose and press the circuit board toward the back of the chassis to insure that the face of the D connector is in good contact with the back plate. Tighten the four mounting screws.

Attach the RDS Accelerator printed circuit board to the FMB10 printed circuit board using the 26 position flat ribbon cable provided. Note the orientation of pin one as indicated by the red stripe on the cable and the red arrow in the above diagram.



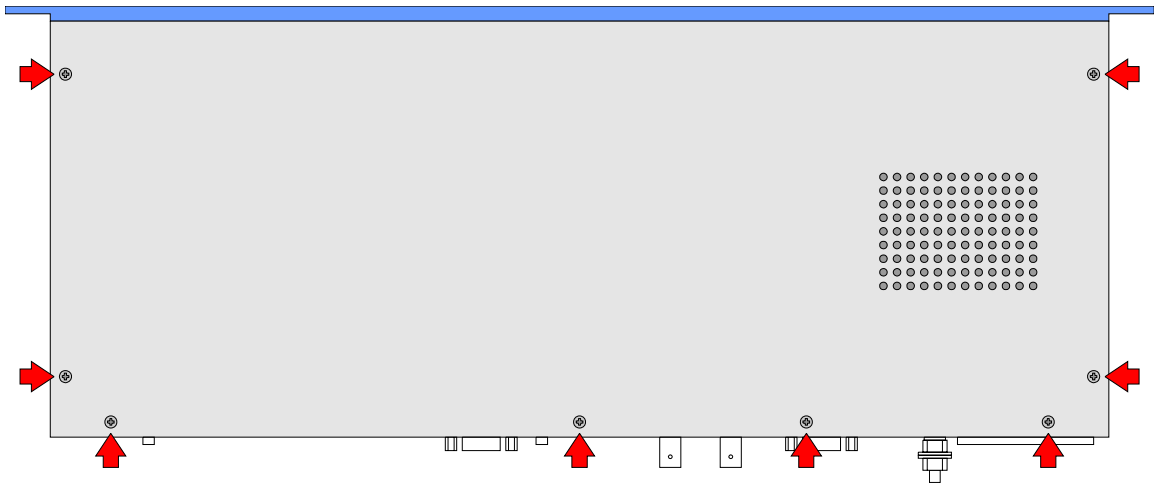
Important: Move the jumper shunts J4 and J5 on the FMB10 circuit board (indicated by the red arrow in the above diagram) to the left position, also indicated in red. The FMB10 user manual refers to this configuration as "operation as FMB40" and is opposite of the factory configuration. (From the factory these jumper shunts are in the right position or "operation as FMB10")

Use any play in the IO back plate to achieve best alignment to the connectors and switches of the RDS Accelerator printed circuit board. Tighten the two M3 socket cap screws that fasten the back plate.



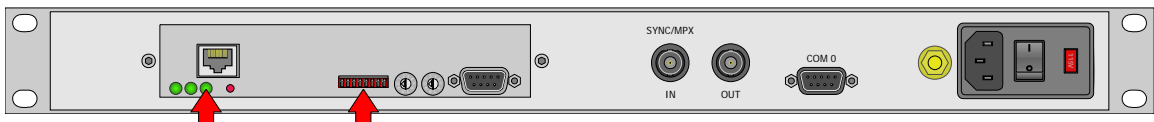
Using a 3/16" nut driver install the two (2) 4-40 "jack screws" (provided) to fasten the D connector to the IO back plate as indicated by the red arrows in the above diagram.

1.3 Replace RDS encoder chassis lid



Fit the chassis lid back into place and replace the eight (8) M3 machine screws removed in step 1.2. Remember that the front edge of the lid must be fit into the slot on the backside of the front face!

1.4 RDS Accelerator configuration



Use DIP switch 1 and 2 (the two leftmost switches) to configure the RDS Accelerator data input "baud rate" to match the source equipment. (The available data rates are 9600, 4800, 2400 and 1200 baud. The switch positions to match these rates are indicated in the diagram screened onto the IO back panel.) If the RDS encoder is installed at the transmitter the source equipment is typically an auxiliary data port from the STL. If the RDS encoder is installed at the studio the source equipment is typically a COM port on the computer running the "now playing" software. For existing installations using multiplexed communications the source equipment is typically the DDP.

The above configuration assumes an 8 bit, no parity, 1 stop bit communication circuit. It is possible to configure the RDS Accelerator for "less common" communication circuits (such as 7 bit, odd or even parity, or 2 stop bits) using the "page 2" configuration mechanism. Setting of page 2 parameters requires that AC power is applied to the RDS encoder and that it is switched on. (The RDS encoder does not need to be fully cabled for page 2 setup, only electrical power is required.) To set the page 2 parameters place switch 6 in the active or "down" position and place switch 1 through 4 in the desired configuration. (See the diagram screened onto the IO back panel.) Switch 5, 7, and 8 must be in the inactive or "up" position. Press the red reset button adjacent to the status LED. After a few seconds the status LED should flash green twice. This indicates that the page 2 settings have been read and stored into non-volatile memory. Move all of the switches back to the normal (page 1 / baud rate) positions and press the reset button a second time. The RDS Accelerator is now fully configured.

On normal startup (not page 2) the status LED will go green then red then back to green. There may be several of these red to green transitions as the RDS Accelerator attempts to discover the communication port settings of the FMB10 RDS encoder. If the RDS Accelerator is unable to successfully communicate with the FMB10 encoder an error code is indicated by the status LED (5 red flashes) and the red/green startup process will repeat. In normal operation the status LED is green with brief flashes to red indicating reception of new data on the communication port.

1.5 Place the RDS encoder back into service

Place the RDS encoder back into the equipment rack and reattach the power, data, and signal (composite) cables. Note that the cables are connected exactly as they were prior to installation of the RDS accelerator expansion. (Specifically of note is that the data cable remains connected to the "COM 0" port of the RDS encoder and NOT the "COM 1"



port of the RDS Accelerator! The "COM 1" port of the RDS Accelerator is used for "daisy chaining" RDS encoders as well as for firmware upgrades of the RDS Accelerator.)

If B&B adapters are currently in use for attachment of an RS422 data circuit to the RDS encoder, the RDS Accelerator should NOT be configured for RS422 mode! If the RDS Accelerator is switched into RS422 mode the B&B adapters can be eliminated but please consult us for additional information as to pin out and cabling issues if you wish to use the built in RS422 mode of the Accelerator.

Power on the RDS encoder and verify the presence of an RDS subcarrier using an RDS radio or modulation metering equipment. The physical installation and configuration is now complete.

By default the output of the RDS Accelerator is disabled and the RDS encoder will operate essentially as if the RDS Accelerator were not installed. The RDS Accelerator output is enabled through the reception of an appropriate command string on the data circuit. You will be provided an updated configuration file for your "now playing" software that sends the appropriate strings to enable the RDS Accelerator.

