

HARRIS[®]



DexStar[®]
AM-HD Radio[™] Exciter



The Ultimate Experience in Digital Transmission

Harris® DexStar® AM in-band on-channel (IBOC) exciter deliver superior performance, functionality and simplicity. For use during and after the transition from analog to IBOC digital radio, the DexStar exciter offers improved audio I/O, RF I/O, re-engineered digital upconverter, and all-new controller and user interfaces.

DexStar is available with Harris ePAL®, which performs three key functions to maximize configuration flexibility:

- Synchronization and sample rate conversion to the STL signal
- Delayed audio bypass switching
- Digital audio distribution

The ePAL also allows for the addition of a second DexStar exciter for full redundancy.

Harris is the leader in digital transmission—the trusted name behind more HD Radio systems than all competitors combined and provider of AM and FM HD Radio transmission equipment for every major IBOC field test.

HD Radio is a trademark of iBiquity Digital Corp.





DexStar Features

- Re-engineered to out-perform the iBiquity reference exciter: new audio I/O, RF I/O, digital upconverter, and controller and monitoring system
- Internal GPS receiver, providing stable and accurate time reference for all subassemblies and synchronization with external systems
- Internal AES 44.1 kHz clock to ensure synchronization of audio processors and optional ePAL
- Easy operation, locally or remotely, with Harris graphical user interface (GUI)
- Extensive diagnostics with automatic fault-logging for troubleshooting
- Standard 19-in. rack-mountable slide-out chassis for easy maintenance
- Ready access to subassemblies by removing top cover of chassis
- All audio, RF and control connections via back panel
- Backed by 24/7 service and parts support

Details

DexStar includes five major subassemblies:

1. Digital upconverter
2. Audio cards
3. RF I/O
4. Audio I/O
5. Controller with graphical user interface

The exciter is housed in a chassis 19 in. wide x 7 in. high x 22 in. deep that slides into a standard EIA 19 inch rack. Subassemblies are accessible by removing a top cover. All audio, RF and control connections are on the rear panel.

Digital Upconverter

The digital upconverter plugs into a peripheral component interconnect (PCI) slot in the motherboard, receiving power and grounding from the PCI connector and using the PCI bus for configuration, control and baseband data transfer. The digital upconverter receives complex I and Q data and baseband magnitude data from the PCI bus. The I and Q signals are converted to magnitude and phase component signals. The phase signal is upconverted to the assigned AM carrier frequency. The resulting on-channel phase signal is filtered and fed to the RF I/O, where it is buffered and amplified, and then outputted to a rear-panel BNC connector. A balanced phase signal is also available on an XLR jack on the rear panel. The magnitude signal passes through the Audio I/O and is available on the XLR connector for the AM transmitter's analog audio input.



1 GPS Antenna Input and 1 PPS & 10 MHz Out

2 AM Phase Amplitude Adjust, AM Phase, AM IF and FM Carrier Output

3 AM Phase and Magnitude Balanced Outputs

4 AM/FM AES3 Audio Input and Delayed Output (delayed for FM only)

5 44 kHz Sync. Output

6 DAB AES3 Input and Monitor Output

7 USB, RS-232 and Ethernet Ports, Keyboard, Mouse Inputs and CD ROM Drive

8 Remote I/O, Z-IBOC TX Interface, and ePAL Interface Connectors

Audio Cards

Each DexStar exciter includes two professional-grade audio cards with 20-bit resolution. One card handles analog AM audio and the other, IBOC audio. The cards are connected to the Audio I/O on the rear panel. Audio cards are synchronized to the DexStar exciter's 44.1 kHz sample rate, which is derived from a clock in the digital upconverter.

IBOC digital audio is delivered directly to the motherboard for processing and modulation.

In the AM version, analog audio is passed through a delay circuit, and converted to baseband I (in phase) and Q (quadrature) signals, before being sent on to the digital upconverter.

RF I/O

This assembly provides all RF and GPS outputs via BNC connectors on the rear panel. Two 1 PPS outputs and two 10 MHz outputs from the internal GPS receiver are provided.

The RF I/O also provides the AM Phase output. The AM Phase output is amplified and is adjustable from 3-10 Vp via a potentiometer on the RF I/O board. A sample of the AM Phase signal is fed to the exciter controller for frequency verification. If carrier frequency has deviated +/-5% from its selected value, the exciter controller mutes the digital upconverter's phase output, preventing the damage to the AM transmitter that can result from an incorrect carrier frequency input.

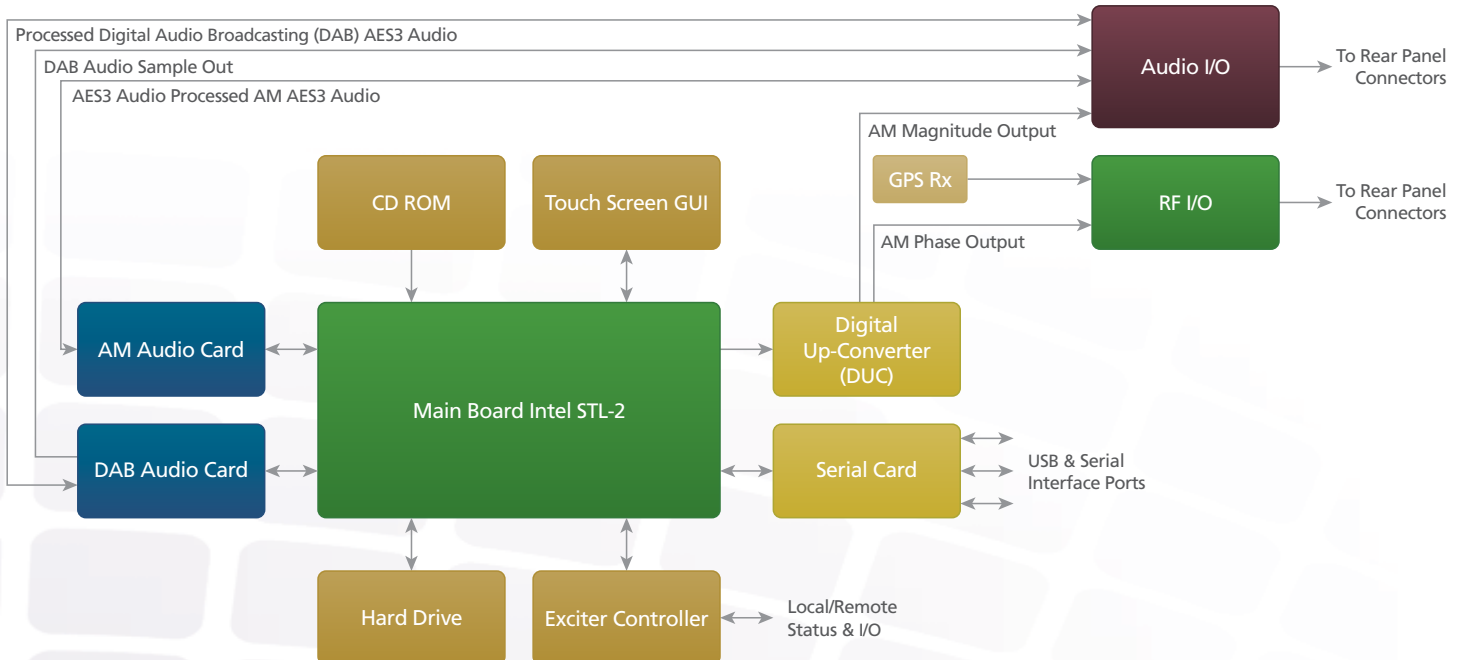
Audio I/O

This assembly provides inputs and outputs for all audio via XLR inputs on the DexStar rear panel. Inputs are provided for IBOC digital and analog AM audio. Outputs are provided for IBOC digital monitoring, AM Magnitude and AM Phase (balanced) from the digital upconverter. The Audio I/O also samples the AM Magnitude signal and delivers this information to the DexStar controller.

All signals are EMI-filtered and synchronized to the 44.1 kHz sample rate. The synchronized signal can be used for synchronizing audio processors or with the ePAL option.

Controller with Graphical User Interface (GUI)

The controller monitors the status lines of the motherboard and the main power supply voltages, and communicates status information to the GUI. The controller monitors faults, generating alarms and communicating status to ePAL, and also controls status LEDs on the exciter's front panel. Fault outputs are provided on the user I/O DB25 connector for connection to remote control systems or to trigger external backup sequencing.



ONE Company for Workflow Solutions Throughout the Media Chain

Harris is the ONE company delivering interoperable workflow solutions across the entire media delivery chain — providing today's broadcaster with a single, integrated approach to capitalize on the benefits of IT and mobile applications. By providing unparalleled interoperability across our product portfolio, Harris is able to offer customers integrated solutions that improve workflows, save money, enable new revenue streams and provide a migration path to emerging media business models. To meet the evolving needs of broadcast, distribution, government agencies and entertainment businesses, Harris is the ONE answer for change.

Service And Support

At Harris, we are committed to customer service excellence. It is our goal to provide the highest level of support by applying a simple rule: We take ownership of helping our customers succeed. Our support teams consist of innovative technical experts who support all situations regarding product performance, integration and operational processing. We are adept at providing proven solutions, making workflows better and ensuring reliability of the product and system. At Harris, our experienced and dedicated teams stand ready to help you meet your goals for premium product performance, 100% up-time and reduced maintenance investment.

Warranty

Because we want to assure you that Harris stands beside its products and system solutions, our products carry a standard set of warranty services, which are competitive with — and in some cases outperform — others in the industry.

Service Packages

We offer value-add services that allow you to customize the level of services you need in meeting mission-critical performance levels. Our service package options offer many ways to upgrade your standard warranty by choosing the All-Inclusive OnePak, or by selecting individual services from our extensive portfolio. Our service and support advisors can assist in the selection of the individual services that best suit your requirements.

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For more information, please visit broadcast.harris.com/Radio.

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