

Innovator HX

High Power Solid State Transmitter





The Innovator HX offers a modern design with a high level of versatility, allowing broadcasters to choose the configuration that best meets their individual needs. The advanced technology, along with Axcera's proven, industry-leading record of product support, ensures the highest level of service throughout the life of the product.

The Innovator HX is available in analog and digital versions and all digital and analog power amplifier modules are interchangeable. For analog VHF operation, both internally diplexed and externally diplexed configurations are available

With a focus on the future, the Innovator HX uses an in-circuit programmable control system designed by Axcera, avoiding the obsolescence issues associated with proprietary third-party control systems.

With its parallel amplifier design, every Innovator HX is perfect for long-term unattended operation. A dual exciter system with automatic switchover is available to suit the highest redundancy requirements. Available precise frequency control, which is especially critical in adjacent channel applications, allows the exciter to be locked to any precision 10MHz standard for precise frequency stability.

SNMP

DIGITAL READY

ISO9001:2008

a t s c

ATSC MOBILE DTV
R E A D Y

DVB

Innovator[®] HX Solid State Transmitter

Supports Worldwide Analog & Digital Standards

The Innovator HX is designed to operate with most any digital or analog television standard including ATSC, DVB-T/T2/H/SH, CMMB (STiMi), ISDB-T/Tb, DAB, T-DMB and more.

Axciter™ ATSC Exciter-Modulator

100% Digital Signal Processing



For ATSC operation, Innovator HX transmitters include Axcera's digital television modulator, the most advanced ATSC exciter available today. This unit offers adaptive digital linear and non-linear precorrection.

Other available options include ATSC Mobile DTV, Distributed Transmission and Bandwidth Enhancement Technology (BET).

DVB-T/T2/H/SH Exciter-Modulator

Fully DVB Compliant

For DVB-T/T2/H/SH applications, the Innovator HX is available with Axcera's DVB-compliant DVB1B-R COFDM modulator. This unit offers digital linear and non-linear precorrection for a high quality output signal. Adaptive correction is also available as an option. Other available features include an SFN mode, hierarchical modulation and more.

Analog Exciter-Modulator

Unequaled Performance

For analog broadcasting, Axcera's modular, frequency agile exciter/modulator provides unequaled stability, performance and signal correction capability.

Differential phase and gain correction is achieved in the modulator stage while the IF processor module provides

the necessary signal precorrection for linearity, ICPM and frequency response distortions.



Externally duplexed systems include separate visual and aural upconverter modules. For internally duplexed operation, the visual and aural signals are combined at IF, and precorrection is applied to ensure excellent intermodulation performance.

Stability is enhanced with an automatic level control (ALC) loop to the output of the IF connectors, maintaining consistent performance over environmental variations.

Parallel Broadband Amplifier Modules

No Tuning Required



Every Innovator HX transmitter is comprised of highly reliable broadband amplifier modules operating in a parallel configuration. Each module uses the latest LDMOS UHF or MOSFET VHF transistors, providing very efficient and linear operation and ensuring future support. For convenience, each amplifier module operates independently, allowing easy removal and replacement while the transmitter is on the air, and all digital and analog power amplifier modules are interchangeable.

The extensive correction capability of Axcera's digital and analog exciters allows all stages of the final amplifiers to operate in the very efficient class AB mode, minimizing system power consumption.

The broadband amplifier design allows all modules to operate over the entire operating band without any retuning, helping to minimize spare parts stock for multiple station operators. This also provides for simplified channel changes, requiring only replacement of channelized filters.

The amplifier outputs are combined using a broadband modified-hybrid type combiner that also covers the entire operating band and minimizes the number of cables and connectors for excellent reliability.

Internal or External Diplexing

Flexible, Forward-Thinking Configurations

For analog VHF operation, the Innovator HX is available in both internally and externally diplexed configurations. Choosing an externally diplexed configuration provides maximum efficiency and highest output power per cabinet.

Selecting an internally diplexed configuration, coupled with a digital mask filter that is tuned for analog rejection, can simplify a future digital conversion, requiring only the addition of a digital modulator.

High Efficiency Air-Cooling

Quiet, Efficient & Straight-Forward Cooling System Design

The Innovator HX uses a hollow-fin heat sink design that minimizes the power amplifier module size without compromising cooling efficiency, resulting in a very small overall transmitter footprint. This unique low-pressure system provides higher efficiency and less blower noise than other designs. Choose the "Hush Mode" blower option and operation is nearly silent. By providing low junction temperatures for the transistor devices, this cooling system ensures that high reliability and optimal device life are easily achieved.

The special design and construction techniques employed in the amplifier cabinet and the use of conservatively sized ducting ensures a uniform distribution of cooling air over the heat sinks. This provides uniform operating temperature levels for all power transistors, again improving system reliability.

For convenience and versatility, the cooling system is available with various blower configurations, allowing air to be ducted to the outdoors, directly into the transmitter room, or a combination of both. This provides the flexibility to choose the configuration that best fits the site without the need for additional construction, all with the use of simple air ducts.

Protection Circuitry

Protects Against Adverse Conditions for Reliable Operation

Realizing that television transmitters may be operating in very challenging environmental conditions, Axcera has built a high degree of protection into all Innovator HX transmitters. From high RF environments to lightning prone installations, these products are designed to withstand adverse conditions and keep you on the air.

More than just VSWR cutback, Axcera's Intelligent VSWR Protection (IVP) actually recognizes the cause of VSWR and reacts appropriately in order to protect the entire transmission system while ensuring minimal loss of signal coverage. This unique feature determines whether the high VSWR is caused by a catastrophic problem like a transmission line arc, or if it is a temporary problem such as antenna icing. In the catastrophic case, a typical transmitter may continue to produce power, resulting in expensive antenna, transmission line or RF system repairs. But with Axcera's IVP, the system will quickly remove drive to the final amplifier, avoiding further damage to the system components. For a temporary VSWR condition like antenna icing, the system will remain on the air at a reduced power level until the VSWR returns to a normal level, ensuring minimal coverage loss during the VSWR condition.

The Innovator HX also includes amplifier over-temperature protection which ensures that the amplifiers will survive even when exposed to extreme heat conditions. For an extra measure of protection, all amplifier circuits include over-voltage and over-current protection, minimizing the potential of a transistor failure while improving the long-term reliability of our products.

RF shielded circuit enclosures allow these products to operate free of interference, even in high RF environments. These transmitters also utilize bandpass, trap and/or harmonic filtering to minimize out-of-band products that could interfere with other broadcasters, while simultaneously bringing an extra measure of lightning protection to the transmitter output devices.

By designing our standard products to operate under these conditions, we can better assure excellent performance at your location.

Control & Monitoring

In-Circuit Programmable Controller Ensures Future Support

All control and monitoring functions of the transmitter are brought together in the in-circuit programmable control unit and can be accessed both through the full color touch screen graphical user interface (GUI) and the LCD menu located on the front panel of the controller. Both the GUI and the LCD provide a window into all levels of the transmitter system including test values, status information, presets, fault indication and diagnostics to the component level. Additionally, the GUI provides fault logging including fault description and time and date of occurrence.

The control system is an Axcera in-circuit programmable design using standard, off-the-shelf components. This avoids dependency on proprietary third-party controller designs and the associated obsolescence issues, further solidifying future product support.

For remote interface, the system can be accessed through an Ethernet connection (SNMP optional) or

through a standard telephone line (POTS), offering all of the functionality of the local GUI. Remote access is also available through a traditional interface compatible with all major brands of broadcast remote control systems.

Features & Benefits

Broadband Capability

Exciters, power amplifiers and combiners cover the entire operating band, minimizing spare parts stock and simplifying channel changes.

Versatile PA Design

Power amplifiers are identical for visual, aural, and digital operation, and are designed to accept high power transistors from multiple manufacturers, minimizing spare parts stock and ensuring future support.

Axcera-Designed In-Circuit Programmable Control System

Ensures the greatest possible longevity through the digital transition and beyond, avoiding dependency on proprietary third party designs and the associated obsolescence issues.

Flexible, Forward-Thinking Configurations

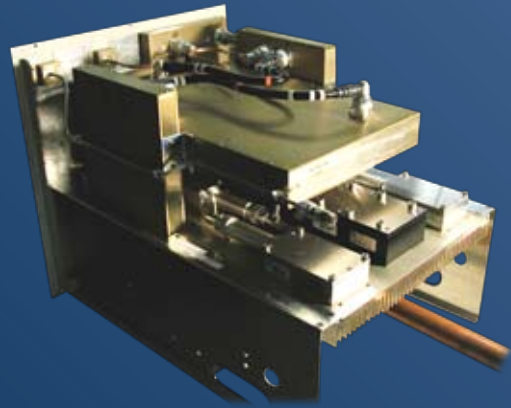
Internally diplexed configurations can be coupled with analog-tuned digital mask filters to simplify a future digital conversion.



Driver Cabinet



Amplifier Cabinet



Combiner



Amplifier Module

Innovator HX Installations





Manufacturing & Support

The Innovator HX transmitter is completely designed, built and factory tested in the USA by Axcera under strict ISO 9001:2008 control. This ensures the highest quality manufacturing practices and provides parts and service availability in a very timely fashion, keeping you on the air.

Axcera is serious about our commitment to "Total Customer Happiness." When you choose our products and systems, you will also receive our relentless commitment to your overall satisfaction. Our extensive RF capabilities and experience enable us to provide design and integration services and ongoing customer service and support that are unparalleled in the broadcast industry.

Axcera offers complete RF coverage analysis, system design and integration, installation, project management and support services directly and through our global network of integration and support partners. Our knowledgeable account managers and systems engineers will work with you to ensure that you are provided with a solution that is optimal for your needs. Our world class integration, installation and support team is well recognized in the industry for its exceptional customization capabilities and installation craftsmanship.

Our industry-leading Customer Support Group is a team of experienced field service technicians available 24/7. Our team is also available to travel to your site to quickly resolve any service issues. They are also available for routine maintenance, equipment installation, proof of performance testing and product training.

**Our professional support is available by phone 1-800-215-2614 (North America only)
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At Axcera, we look forward to the opportunity to demonstrate our commitment to your total happiness with our products and services.



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