



## Maxiva™ UHF

A Family of Compact Liquid-Cooled and Air-Cooled UHF Television Transmitters for Worldwide Analog and Digital Standards

# Maxiva™

## Uniting Technologies

The Harris® Maxiva™ series of UHF, solid-state, multimedia TV transmitters for analog and digital TV provides today's broadcaster with one family of transmitters capable of supporting a complete range of power levels, modulations and applications.

Available in three versions — ULX (liquid-cooled), UAX (air-cooled) and UAX Compact Class — Maxiva transmitters were developed to leverage modern technologies from the Harris Apex M2X™ multimedia exciter and the Harris PowerSmart® design initiative for RF amplification. This powerful blend provides best-in-class performance with respect to power efficiency, signal quality and transmitter size.

The Maxiva modular design concept allows for a simpler installation, easier maintenance and reduced total cost of ownership over the life of the transmitters. Offering very low-power to high-power solutions, the Maxiva range is suitable for the most demanding television broadcast applications.

All Maxiva transmitters are designed with future broadcasting needs in mind and provide the flexibility to upgrade to new features and future modulation standards as they develop. Available modulations for Maxiva are analog, ATSC, ATSC MDTV, DVB-T/H, DVB-T2, ISDB-Tb, CMMB and CTTB.



## Features

- PowerSmart technology, for best-in-class power efficiency and lowest operating costs
- Rugged, reliable design and construction
- Transmitters include Real-Time Adaptive Correction (RTAC) — no manual adjustments required
- Fully broadband power amplifier (PA) modules with no adjustment — 470 to 862 MHz
- Easy-to-operate control system for straightforward monitoring and in-depth diagnostics
- Harris Web-enabled HTML remote GUI interface and SNMP available standard
- Power levels from 5 watts to 44 kW (ATSC), 28 kW (COFDM), 75 kW (Analog)

Maxiva™ UAX

Maxiva™ ULX

# Maxiva Transmitter Offerings

## Maxiva ULX

The first transmitter in the Maxiva series, the ULX raised the industry baseline for performance and power density in liquid-cooled UHF transmitters. The introduction of PowerSmart technology enabled a dramatic increase in power efficiency levels, while the modular Maxiva architecture reduced cost of ownership for broadcasters around the world.

The ULX is available with digital pre-filter power levels up to 15.4 kW ATSC and 9.7 kW COFDM in a single cabinet. Post-filter analog power can reach up to 25 kW in a single cabinet. Multi-cabinet configurations are also available.

## Maxiva UAX

The UAX series provides an excellent balance of power and size in an air-cooled transmitter, with digital pre-filter power levels up to 2.5 kW COFDM/ATSC and analog levels up to 3.75 kW. Providing broadcasters with a full range of power options in a very compact, feature-rich platform, the UAX has enjoyed worldwide adoption by broadcasters for all modulations.

## Maxiva UAX Compact Class

The Maxiva UAX Compact Class family of transmitters, transposers/translators and gap fillers builds on the proven foundation of Harris low-power systems and PowerSmart technology. Delivering unmatched performance, quality and reliability, the Compact Class extends the capabilities of the Maxiva series, providing today's digital broadcaster with a suite of compatible products to suit any coverage application.



Maxiva™ UAX Compact Class

Compact Class transmitters, transposers/translators and gap fillers are available for digital modulations, with a pre-filter power range from 5 W to 50 W.

## Benefits

### Easy Migration from Analog to Digital

The Apex M2X exciter and common amplifier platform support a range of analog, digital and mobile standards and allow for a smooth conversion from analog to digital transmission. This flexibility extends the working life of the transmitter and reduces future upgrade costs.

### Maximum Efficiency for Cost-Effective Operation

Leveraging PowerSmart technology, Maxiva offers market-leading power efficiency, lower operating costs and reduced cost of ownership over the life of the transmitter.

### Compact Footprint

Well-suited for crowded, shared transmitter sites, Maxiva reduces facility space requirements and simplifies installation.

### High Power Density

In both liquid-cooled and air-cooled models, Maxiva achieves high power levels to save both space and cost.

### Powerful, Straightforward Monitoring and Control

An advanced transmitter control system delivers the necessary information to the operator for informative and reliable control. The TCU color touch-screen provides an overview of all operational parameters for maintenance procedures and performance checks. Additional monitoring and control via front-panel interfaces, Web GUI, SNMP and parallel control allows operators to confidently manage their systems in any situation.

### Improved Uptime and Reduced Service Costs

The redundant and hot-pluggable power amplifier and universal power supply modules make on-air servicing easy and eliminate costly interruptions. Lightweight amplifier pallets and modules facilitate overnight/same-day shipping for simple, cost-effective spares holding. Maxiva also supports replacement of pre-tuned amplifier pallets in the field, eliminating the need for complex tuning after amplifier replacement.

### Enhanced Redundancy

The core modular architecture of the Maxiva transmitters allows only a minimum drop in RF output power when there is a failure of an amplifier or power supply. This standard feature provides a robust system for maximum on-air time. In addition, Maxiva supports a range of system redundancy options. In dual-drive systems, the integrated control system monitors exciters and switches control and RF feeds quickly and efficiently. The control system also supports options for 1+1 and N+1 configurations — monitoring and controlling each transmitter system, input stream and RF pathways.

## Harris Apex M2X Exciter — The Heart of the Transmitter

The Apex M2X exciter technology included in all Maxiva transmitters takes digital and mobile TV to the next level. With a record of proven performance and reliability, the Apex M2X has logged millions of hours on air.

The Apex M2X exciter delivers a flawless signal with complete technical and regulatory compliance for tube and solid-state digital transmitters and provides excellent support for a complete range of global digital and analog TV standards, including NTSC and PAL.



Apex M2X™

## Real-Time Adaptive Correction

The exclusive Real-Time Adaptive Correction (RTAC) technology, standard in Maxiva transmitters, enables the exciter to more fully utilize the transmitter power amplifier, yet maintain spectral mask compliance of the digital signal. Featuring simultaneous linear and nonlinear, adaptive, memoryful precorrection, RTAC technology provides the highest level of correction to all types of RF amplifiers.

With RTAC, the Apex M2X exciter continuously monitors transmitter output and performance, while automatically adapting for system nonlinearities — keeping your station well within compliance and maximizing your coverage.

## Harris PowerSmart Technology Inside

Featuring Harris PowerSmart technology in its transmitter architecture, Maxiva transmitters offer superior power efficiency to reduce broadcasters' cost of ownership and improve operating conditions. Proven, rugged 50-volt LDMOS device technology delivers a dramatic increase in power density.

**PowerSmart®** 

## Global Monitoring and Control

All Maxiva transmitters come standard with a number of interfaces to allow both local and remote monitoring and control of the transmitter. IP ports on the transmitter allow the operator to access the built-in Web-enabled HTML graphical user interface (GUI). In addition, Maxiva transmitters offer standard SNMP support for users with network monitoring needs. This combination of features allows the user to monitor and access the transmitter functions and perform software updates from the transmitter site and any network-connected PC.

Additional remote control is available via the parallel port on either the Transmitter Control Unit (TCU) or the UAX and UAX Compact Class.

For local control, a display and push-buttons are present on the transmitter for quick access to needed functions and review of operating conditions.

For additional transmitter control redundancy, a second TCU module provides life-support functions to ensure continuity of operation should there be a failure in the primary control module of the TCU.



Maxiva™ Transmitter Control Unit

# Make a Safe Investment

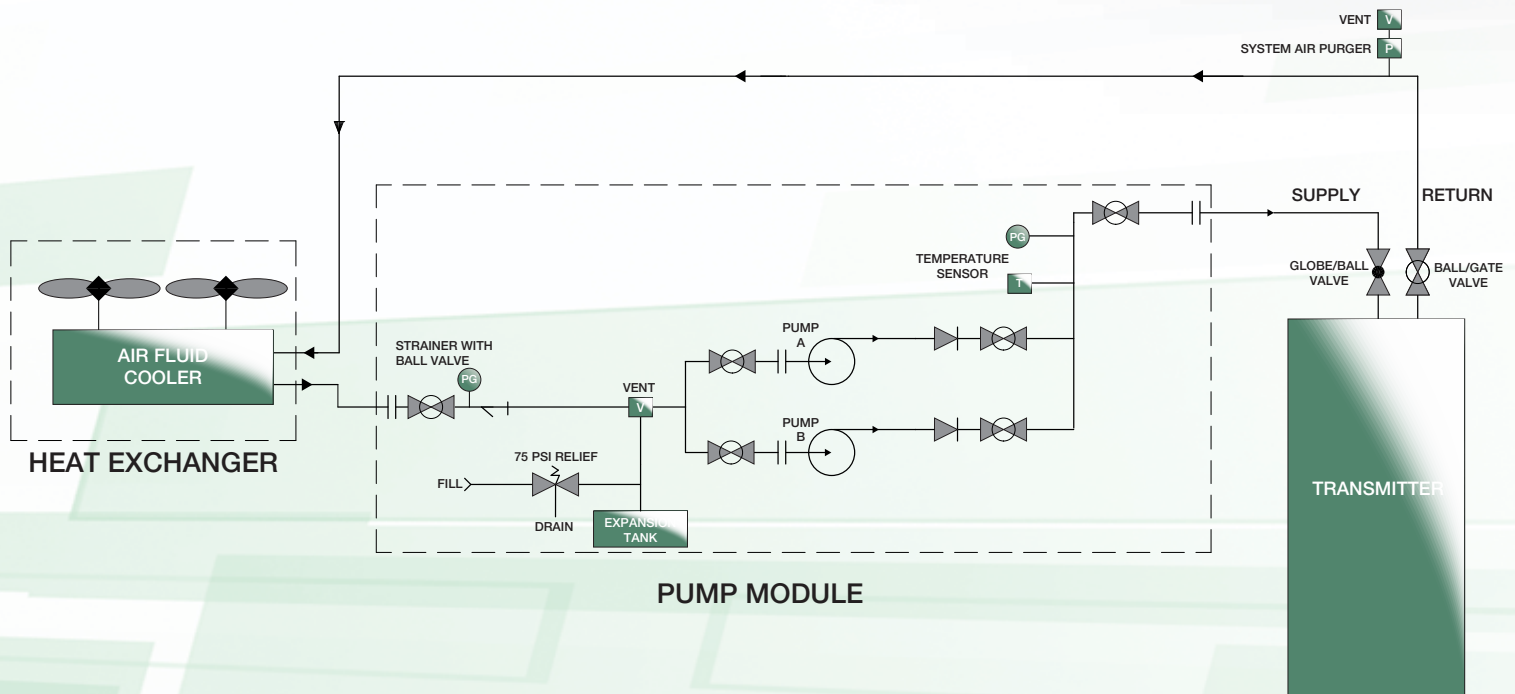
Launching a new analog or digital service often requires a significant investment in new and unfamiliar technology, so finding a technology partner with technical expertise and service support resources is critical. Harris is uniquely positioned to provide both.

Harris has developed an extensive core-competency in broadcast solutions backed by years of experience in maximizing broadcast performance. Harris has leveraged this expertise to provide transmission solutions for major digital transmission network rollouts and trials around the world. As a digital transmission leader, Harris offers field-proven systems and a range of support options — from standard 24/7 telephone technical assistance and parts, to installations, training, full system design and field maintenance contracts.

## Harris High-Efficiency Liquid-Cooling System

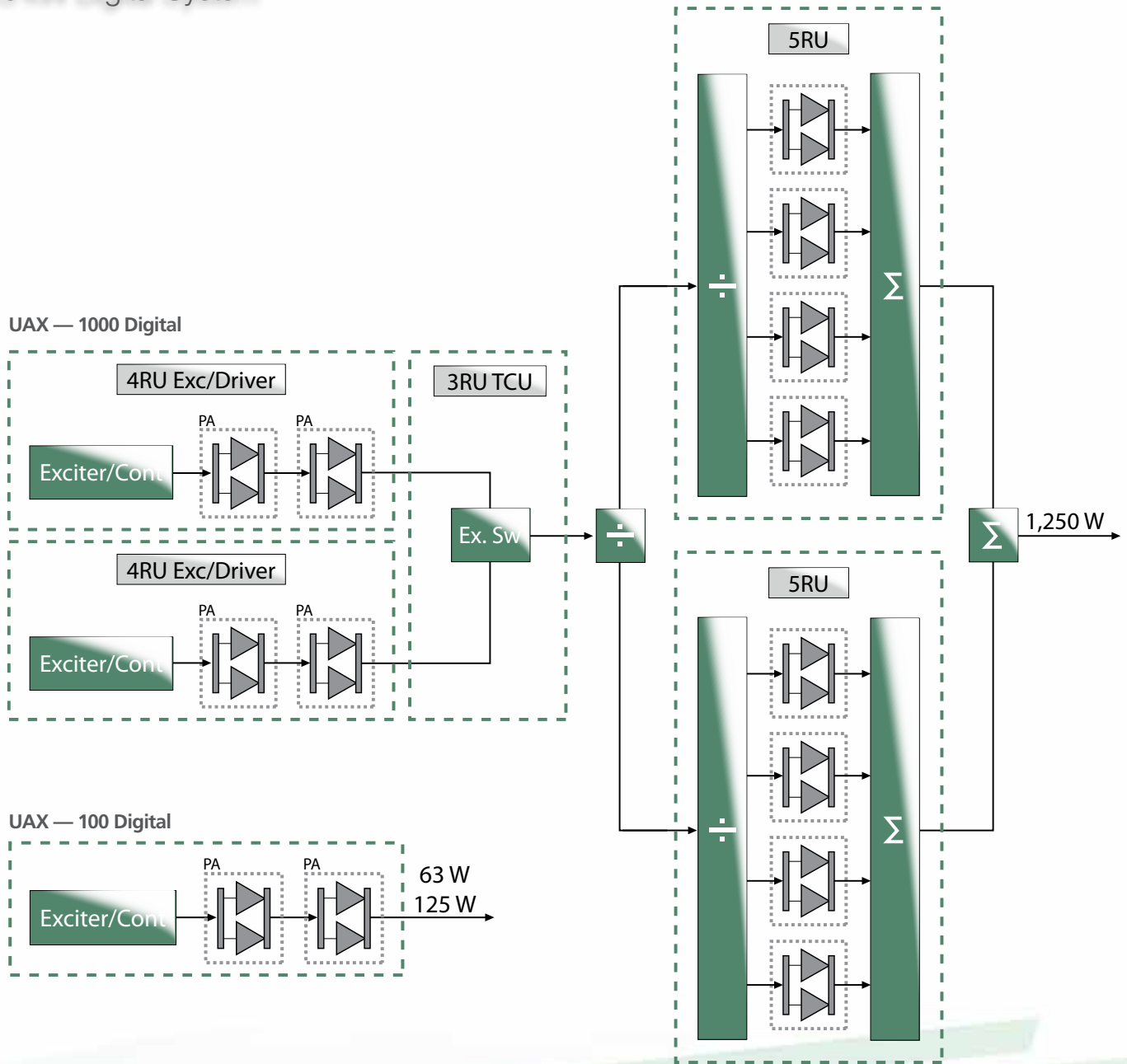
All Maxiva ULX systems feature a high-efficiency liquid-cooling system that has been carefully engineered for maximum efficiency over a wide range of ambient conditions and operating power levels.

The closed-loop liquid-cooling system utilizes a pump module with fully redundant cooling pumps and auto-changeover capability. The liquid-to-air outdoor heat exchanger also includes dual fans for maximum redundancy. The pump motor speed is controlled based on coolant flow requirements, and the heat exchanger fan motors are also speed controlled to provide the optimum cooling performance over a wide range of ambient weather conditions. These design features translate to maximum reliability at the lowest energy consumption in a small footprint.



# Maxiva UAX Block Diagrams

1.25 kW Digital System



## Maxiva UAX Power Levels (Pre-Filter)

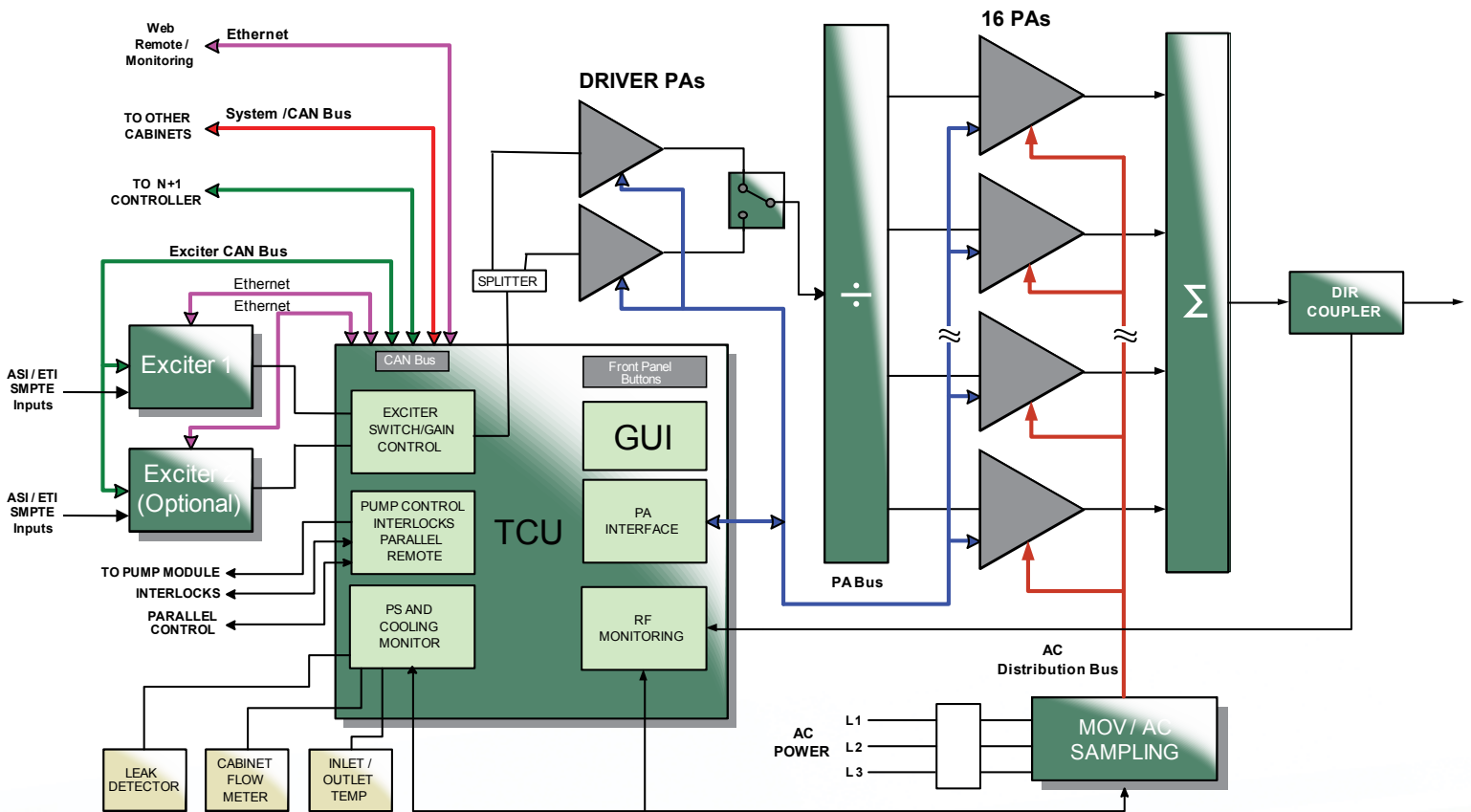
Modulation	1 PA (LPU)	2 PA	4 PA	8 PA	16 PA
Digital	125 W	313 W	635 W	1.25 kW	2.5 kW
Analog	188 W	470 W	938 W	1.88 kW	3.75 kW

## Maxiva UAX Compact Class Power Levels (Pre-Filter)

Modulation	1 PA (LPU)			
Digital	5 W	10 W	25 W	50 W

# Maxiva ULX Block Diagram

16 PA System



## Maxiva ULX Power Levels (Pre-Filter)\*

Modulation	2 PA	3 PA	4 PA	6 PA	8 PA	10 PA	12 PA	16 PA
ATSC (kW)	1.7 - 2	2.6 - 3	3.4 - 4	5.2 - 6	6.9 - 8	8.3 - 9.6	10 - 11.5	13.3 - 15.4
COFDM (kW)	1.1 - 1.2	1.7 - 1.9	2.3 - 2.5	3.4 - 3.8	4.4 - 5	5.5 - 6.1	6.5 - 7.3	8.7 - 9.7
Analog (kW)	3.6	5.2	7.1	10.5	13.8	17	20.9	26.2

\*Note: Single cabinet system; higher power levels available with multiple cabinet systems

## 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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