

## LPTV-8000

### ATSC Low Power DTV Transmitter

The LPTV-8000 LPTV transmitter is a compact and rugged platform designed from the ground up specifically for the low power digital TV market place.

Hitachi-Comark provides high performance and award winning television transmitters that are backed by more than 40 years of leadership in both inductive output tube (IOT) and solid-state broadcast technologies.

The LPTV-8000 is targeted for the low power digital TV market place. It's design is simple, rugged, and reliable for the demands of LPTV. Nominal output power levels include 250W, 500W, 1kW, 1.5kW, and 2kW in UHF. The air-cooled transmitter features rugged and reliable 50 VDC LDMOS devices for the highest performance. The LPTV-8000 incorporates the latest 1RU ATSC DTV advanced exciter for precise modulation and RF correction.

#### DTV Exciter

The DTV exciter's core modulation and correction functions are handled by custom firmware that resides on internal Field Programmable Gate Arrays (FPGA).

This architecture provides flexibility so as digital TV standards evolve and change, the processing can be upgraded and adapted to meet these new requirements, simply by loading new firmware. Beyond the FPGA technology, the exciter platform incorporates a micro-controller for user interface to the monitor and control functions. A dual drive exciter is also available.

#### DAP Technology Streamlines Performance

The LPTV-8000 transmitter utilizes industry leading Digital Adaptive Precorrection (DAP) technology, which provides superior performance that is unattainable using any other correction technique.

This technology allows for simple and easy setup and maintenance of a high performance transmitter system. DAP technology provides unsurpassed digital correction of all distortions created by a DTV transmitter system.



These distortions include nonlinear distortions created by active amplifier devices, such as amplitude and phase distortions along with correction for memory effect. Additionally DAP corrects linear distortions created by the transmitter's high-power passive RF system, such as group delay and frequency response distortions maximizing the SNR performance.

#### Ultra Reliable Amplifier

The heart of the LPTV-8000 transmitter is the power amplifier. The basic building block is a 6RU amplifier chassis that can be configured as either 250W or 500W. The amplifier chassis uses an over-sized extruded aluminum heat sink core to which the amplifier pallets are mounted. This core is cooled with forced air using dual fans and works in the harshest environmental conditions.

The amplifier pallets utilize the latest 50VDC LDMOS devices for optimal power capability and linearity. Each amplifier chassis uses a single OEM power supply.

### KEY FEATURES

- ▶ 250W through 2kW models, air cooled ~ UHF
- ▶ Uses EXACT-ATSC DTV 8-VSB Exciter with FPGA architecture
- ▶ Unique *DualCast* ATSC 1.0 to 3.0 upgradeable, protects investment\*
- ▶ Digital Adaptive Precorrection (DAP)
- ▶ Dual TS inputs (auto sensing), provides seamless A/B input redundancy
- ▶ Built-in web GUI for remote access
- ▶ Optional SNMP client, activated via software license
- ▶ User monitoring / control via front panel MMI
- ▶ Software upgradeable (remote or local)

The amplifier chassis is user friendly with front panel AC circuit breaker for the power switch. Each amplifier is designed for mounting in a standard EIA 19" equipment rack.

**Advanced Monitoring & Control**

The exciter incorporates local control and monitoring using an enhanced user interface front panel with backlit LCD display, LED's, and menu driven push buttons. Local access includes menus for initial setup, configuration status, and control functions. The front panel displays the forward & reflected power levels, output RF

shoulders as well as the SNR performance.

**ATSC Now and the Future**

The LPTV-8000 is fully compliant with the ATSC 1.0 A/53 DTV standard. And because the same hardware platform is used across several digital modulation standards, the EXACT-ATSC can also be field upgraded\* with new firmware / software to support ATSC 3.0, preserving your investment.

**Seamless TS Input Switching**

The LPTV-8000 features two independent sets of dual (A & B) transport stream (TS) inputs. The

dual TS inputs allow signal path diversity (i.e. one ASI TS feed via a fiber link and a second ASI TS feed via a STL microwave). The A & B TS switching can be set for automatic or manual depending on the user's preference. Dual drive exciters are also available as an option on 500W through 2kW transmitter models.

**Web Based Monitor/Control**

The LPTV-8000 includes a built-in Web based user monitor and control interface. Pertinent information is displayed in a user friendly and very intuitive layout. The exciter can be setup in minutes with dedicated menus for operation and control.

**SPECIFICATIONS**

**Operating Frequency:**

- UHF B4&5 (470-862 MHz)
- 6 MHz RF channel bandwidth

**RF Output:**

- 250W, 500W, 1kW, 1.5kW, or 2kW available
- 7/16 DIN connector, ≤ 1kW
- 1-5/8" EIA connector, 1.5-2kW
- 50Ω impedance
- < ±0.1dB output power stability
- Meets FCC mask requirements for harmonics / spurious / sidebands

**Modulation / Standard:**

- ATSC 1.0 8VSB ~ ATSC A/53
- ATSC 3.0 ready (assumes OFDM based waveform)\*

**ATSC In-Band SNR:**

- Better than 30dB

**Frequency Stability:**

- < 0.5 x 10<sup>-7</sup> (with internal 10MHz)
- Higher stability with built-in GPS or user supplied 1PPS

**TS Inputs:**

- 1 input, TS over IP via GigE RJ-45
- 2 inputs, MPEG 2 transport stream DVB-ASI or SMPTE-310M
- Automatic or manual switching between common TS inputs
- ASI = BNC female connector, 75Ω
- 19.39Mbps max data rate

**Electrical:**

- 180 ~ 264 VAC, 50/60 Hz
- > 0.9 power factor
- Efficiency: up to 25%

**Monitor/Control:**

- Web: Ethernet via RJ-45
- RS-232/RS-485 via DB-9

**Environmental & Safety:**

- -10° to 45° C Temp range
- ≤ 95% non-condensing relative humidity
- Air cooled, front to back air flow

**Mechanical:**

- 19" W x 30" D
- 17.5" H (10RU) for 250-500W
- 28.0" H (16RU) for 1kW
- 38.5" H (22RU) for 1.5kW
- 49.0" H (28RU) for 2kW
- 100 lbs / 45.5 kg (250-500W)
- 164 lbs / 74.4 kg (1kW)
- 228 lbs / 103.4 kg (1.5kW)
- 292 lbs / 132.5 kg (2kW)
- Excludes rack dimensions / weight
- Excludes dual-exciter option, available on 500W - 2kW models

\* Depending on standard final approval

**ORDERING INFORMATION**

Please contact your authorized Hitachi-Comark representative.  
 US Sales 1-800-288-8364 or 413-998-1100  
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 104 Feeding Hills Road  
 Southwick, MA 01077

|                 |                             |                 |                               |
|-----------------|-----------------------------|-----------------|-------------------------------|
| LPTV-8000-250U  | → 250 LPTV Transmitter, UHF | LPTV-8000-1500U | → 1.5kW LPTV Transmitter, UHF |
| LPTV-8000-500U  | → 500 LPTV Transmitter, UHF | LPTV-8000-2000U | → 2kW LPTV Transmitter, UHF   |
| LPTV-8000-1000U | → 1kW LPTV Transmitter, UHF | OPT-LPTV-DD     | → Option for Dual Drive       |

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