

## EXACT-ATSC

### DualCast ATSC 1.0 / 3.0 Digital TV Exciter

The EXACT-ATSC is the next generation, compact and powerful exciter platform that delivers an ATSC compliant, on-channel output as well as performs adaptive RF precorrection for the best possible broadcast signal.



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 next generation EXACT-ATSC Digital TV Exciter was developed for the ATSC broadcast market. It uses the compact 1RU exciter hardware platform in conjunction with ATSC compatible firmware and software. The EXACT-ATSC exciter is designed to work either in a stand-alone mode with OEM DTV transmitters or fully integrated in Hitachi-Comark digital TV transmitters.

#### Flexibility by Design

The EXACT-ATSC exciter's core modulation and correction functions are processed by 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 microcontroller for user interface to the monitor and control functions. Custom software running in the exciter provides user access through various Man-Machine Interfaces (MMI) provided from the EXACT-ATSC.

#### DAP Technology Streamlines Performance

The EXACT-ATSC exciter integrates 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.

#### Advanced Monitoring & Control

The EXACT-ATSC 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.

### KEY FEATURES

- ▶ Unique *DualCast* ATSC 1.0 to 3.0 upgradeable, protects investment\*
- ▶ Compact 1RU platform, integrated or stand-alone operation
- ▶ User friendly but advanced WEB GUI local or remote control
- ▶ *Industry Leading* Digital Adaptive Precorrection (DAP)
- ▶ Dual TS inputs (SMPTE-310M or ASI), provides seamless A/B input redundancy
- ▶ Optional transport stream over IP (TSoIP) with GigE
- ▶ Embedded forward and reflected RF power measurements
- ▶ SNR, shoulders, and FWD / RFL power monitoring via front panel
- ▶ Optional SNMP client, activated via software license

The EXACT-ATSC exciter can also be remotely controlled using the Web GUI interface with nothing more than a PC running a standard web browser. The Web GUI allows users to retrieve information such as SNR, lower and upper RF shoulder measurements, user configuration, and alarms.

**ATSC Now and the Future**

The EXACT-ATSC 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 EXACT-ATSC 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.



**Monitor/Control:**

- ✓ The EXACT-ATSC 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:**

- VHF Band 3; 174-216MHz
- UHF Bands 4 & 5; 470-862 MHz

**Modulation / Standard:**

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

**TS Inputs/Outputs:**

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

**RF Output:**

- 0dBm output power (rms), Optional +20dBm output (rms)
- N female connector, 50Ω
- Low level rear panel RF monitor port, SMA 50Ω @ -20dBm
- 6 MHz RF channel bandwidth
- > 37dB global MER

**Clock and Synchronization:**

- 1PPS in/out, BNC female 50Ω,
- 10MHz in/out, BNC female 50Ω

**Ancillary Inputs:**

- ALE / NLC RF correction inputs, -15 to -5dBm level, SMA female
- FWD/RFL power monitoring inputs, 5dBm max level, SMA

**Monitor/Control:**

- Web: Ethernet via RJ-45
- General Purpose IO, DB-9
- GPS input, BNC 50Ω (external antenna optional)

**Environmental & Safety:**

- 0° to 50° C Temp range
- ≤ 95% non-condensing relative humidity

**General Electrical & Mechanical:**

- 19" W x 1.75" H x 10" D
- 90 ~ 240 VAC, 50/60 Hz
- < 1.5A current draw
- 4.5 kg (net) / 10 lbs
- > 0.9 power factor
- Air cooled, right to left air flow



EXACT-ATSC Rear Panel

\* Depending on standard final approval

**ORDERING INFORMATION**

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

- OPT-TSIP → Optional TS/IP License
- OPT-SNMP → Optional SNMP License
- OPT-20DB → Optional +20dBm Output

Hitachi Kokusai Electric Comark LLC. All rights reserved. Hitachi-Comark strives to present accurate product data but reserves the right to change specifications without prior notice. The ATSC product line specifications in this brochure are current as of the publication date listed below. Please verify product specifications by contacting our office. COMARK™ products, features and technology may be covered by one or more U.S. or foreign patents.