

## EXACT-DVB

### DVB Digital TV Exciter

The EXACT-DVB is the next generation, compact and powerful exciter platform that delivers a DVB 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-DVB Digital TV Exciter was developed for the DVB broadcast market. It uses the compact 1RU exciter hardware platform in conjunction with DVB compatible firmware and software. The EXACT-DVB 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-DVB exciter's core modulation and correction functions are processed by firmware that resides on internal Field Programmable Gate Array (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-DVB.

#### DAP Technology Streamlines Performance

The EXACT-DVB 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 MER performance.

#### Advanced Monitoring & Control

The EXACT-DVB 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

- ▶ Fully compliant with DVB standards, optional PAL output
- ▶ DVB-T, DVB-T2, DVB-T2 Lite
- ▶ Compact 1RU platform, integrated or stand-alone operation
- ▶ Built-in test modes; PRBS, Sinus, Spectrum-Gap, and Null Symbols
- ▶ *Industry Leading* Digital Adaptive Precorrection (DAP)
- ▶ Dual TS inputs (DVB-ASI), provides seamless A/B input redundancy
- ▶ Optional transport stream over IP (TSolP) with GigE
- ▶ User friendly but advanced WEB GUI local or remote control
- ▶ Embedded forward and reflected RF power measurements
- ▶ Optional SNMP client, activated via software license

The EXACT-DVB 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 MER, lower and upper RF shoulder measurements, user configuration, and alarms.

**DVB Now and the Future**

The EXACT-DVB is fully compliant with the DVB-T & T2 DTV standards. The EXACT-DVB can also be optionally licensed to support DVB-T2-Lite. The exciter allows simultaneous transmission of DVB-T2-Lite with DVB-T2 Base on the same RF channel, facilitating mobile services.

**Seamless TS Input Switching**

The EXACT-DVB 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-DVB 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**

**DVB-T2 Signal Processing:**

- DVB-T: EN-300-744
- DVB-T2: EN-302-755
- DVB-T2 Lite v1.3.1 Appendix I
- 5, 6, 7, or 8MHz RF channel
- Mono or Multi-PLP (≤8)
- QPSK, 16, 64, or 256 QAM
- Normal or Rotated Constellation
- 2MFN, SFN-SISO, SFN-MISO

**T2-MI / MPEG-2 TS Inputs:**

- 2 x DVB-ASI inputs, BNC (f) connector, 75Ω
- TSolP IP Gigabit, RJ-45
- TS encapsulation and FEC decoding (SMPT-2022)
- Automatic switching between common TS inputs

**RF Output:**

- UHF B4&5 (470-862 MHz)
- -20 to +0dBm output (rms)
- 0dBm ±20dBm output (optional)
- N (f), 50Ω output connector
- ±0.1dB/10°C power stability
- > 40dB MER, >44dB typical
- < -50dB RF shoulders & out-of-band spurious products

**Ancillary Inputs:**

- External 1PPS, BNC (f) 50Ω
- Internal/External 10MHz, BNC (f) 50Ω
- ALE / NLC RF correction inputs:
  - -15 to -5dBm input level
  - SMA female, 50Ω
- FWD Power / AGC input, SMA (f)
- RFL Power input, SMA (f)

**Monitor/Control:**

- Web: Ethernet via RJ-45
- LCD/LED front panel user interface
- GPIO Alarm, DB-9
- TS output monitoring ; BNC (f), 75Ω
- Rear panel RF monitor; SMA (f) @ -20dB below RF output level
- Onboard GPS Receiver

**Environmental & Safety:**

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

**General Electrical & Mechanical:**

- 19" W x 1.75" H x 9.8" D
- 90 ~ 240 VAC, 50/60 Hz
- 70 watts consumption
- 4.5 kg / 9.9 lbs (net)



EXACT-DVB2 Rear Panel

**ORDERING INFORMATION / OPTIONS**

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-PAL → Optional PAL Modulation
- OPT-NICA → Optional NICAM 728 for PAL
- OPT-LITE → Optional T2-Lite License
- OPT-20DB → +20dBm Output
- OPT-TSIP → Optional TSolP License
- OPT-SNMP → Optional SNMP License

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