

BM6600 Orion DVB-T/T2 Modulator

2 Form Factors: 1RU stand-alone system or integrated in 1 RU Encoder

The Orion BM6600 is a state-of-the-art modulator designed for terrestrial operations in full compliance with the DVB-T/T2 standards. It provides operators with a quality, high performance design providing best-in-class RF signal performance, superior Digital Adaptive Pre-correction circuitry, and integrating all the mechanisms required to feed transmitter sites with ASI and/or IP streams in highly secure formats. Its state-of-the-art technology lets broadcasters take full advantage of second-generation DVB-T2 technology, deploying techniques such as SISO/MISO and Multi-PLP layered modulation. Using the Orion 6600, operators can run their DVB-T/T2 digital transmitters close to their saturation region, with real-time adaptation to the non-linear behavior of power amplifiers and minimal “memory effects” from the amplifier circuitry.

Features and Options

Models (see Ordering Information on back of sheet)

- **BMs6600 stand-alone 1RU unit**
- **BMi6600 embedded unit integrated into Telairity 1RU encoder models**
 - Either DVB-T/T2 or ISDB-T/T_B available with either unit

Standards

- DVB-T: EN 300 744, TS 101 191
- DVB-T2: EN 302 755, TS 102 831, TS 102 773 (T2-MI)
- T2-Lite: DVB-T2 specification, 1.3.1 Annex 1

Inputs

- 2 x ASI input SMA connector – 75Ω
 - 188/204 Bytes, 80Mbps maximum – Packet/burst mode
- 2 x 10/100/1000 Base-T – RJ-45 connector
 - Protocols: IP, RTP, UDP, IGMP (V2 & V3)
 - VLAN ID (1 to 4094) – IEE 802.1q
 - TS encapsulation and FEC decoding: SMPTE-2022
- Satellite Tuner (DVB-S/S2)
 - SMA connector – 50Ω
 - BIS frequency band: from 950-2150 MHz
 - LNB power supply and control
 - Sensitivity from -62 dBm to -25 dBm
- RF Feedback for DAP
 - 2 x SMA connector – 50Ω (MT2-3000)
 - -15 dBm to 0 dBm

Outputs

- RF from 30-900 MHz, 0 dbm
 - SMA connector – 50Ω
 - Bandwidth: 5, 6, 7, 8 MHz
 - Low level (-20 dBm) output available for monitoring
 - SMA connector – 50Ω
- 1 x ASI output SMA connector – 75Ω
 - 188/204 Bytes, 80Mbps maximum – Packet/burst mode

BM/BE6600 Orion Terrestrial Modulator

Applications

The Telairity 6600 Orion terrestrial modulator offers a cost-effective and flexible solution for generating high-quality RF signals meeting all DVB-T/T2 standards. Available in either a stand-alone 1RU unit or integrated into Telairity 1RU encoders, Orion is the most integrated and cost-effective solution for DVB terrestrial applications, including:

- Terrestrial contribution
- Terrestrial distribution
- LOS/NLOS digital data transmission
- Test systems

Benefits

Available as a compact 1RU standalone system or embedded in any 1RU Telairity encoder

Seamless integration with Telairity IRDs

Dual DVB-T/T2 modulation with best-in-class RF signal performance

Advanced DVB-T2 features: MFN/SFN, Multi-PLP, SISO/MISO, T2-Lite

Onboard GPS or GPS/Glonass

Native redundant IP streaming inputs

Dual ASI inputs

DVB-S/S2 Satellite input

High quality 10 MHz internal clock

Digital Adaptive Pre-correction

Primary and secondary stream input redundancy management

RF and ASI outputs

Flexible Transmission and Modulation modes

Multiple test modes: PRBS, Sinus, Spectrum-Gap, Null Symbol Insertion

Access control via 2 serial communication ports (RS-232 / RS-485) or via IP over Ethernet

Ordering Information

Part Numbers:

IRU Standalone Unit
BM6600

Embedded Unit (in 1RU Telairity encoder)
BEi6600

Contents with 1RU Standalone Unit

- BM6000-series Modulator
- Power Cable: IEC to USA plug; optional Euro plug
- USB flash drive with backup copy of modulator firmware and manual

Requirements

- ASI, IP, or RF input
- Cables (input/output)
 - 75 Ohm coaxial with BNC connector for ASI inputs/outputs
 - Cat5/6 Ethernet with RJ-45 connector for IP inputs
 - 50 Ohm RF & monitor cables

About Telairity

Telairity, based in Santa Clara, California designs, manufactures and markets H.264/AVC and other advanced encoding and transcoding solutions for broadcast and professional video applications. Telairity's breakthrough video architecture (Telairity-1™) is the foundation for all its real time encoding products, which combine outstanding video quality with state-of-the-art, video compression based on the AVC (H.264 / MPEG-4.10) standard to achieve the lowest possible bitrates.

Telairity

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Clock & Synchronization

- High quality internal clock
- 10 MHz & 1 PPS input/output
- Clock and time source redundancy management
- Optional Onboard GPS or GPS/Glonass

Stream Process and Modulation

- Stream input redundancy management (primary & secondary)
- Transmission Modes: MFN, SFN-SISO, SFN-MISO
- Modulation Modes: System A, System B, Multi-PLP
- Constellation: QPSK, 16 QAM, 64 QAM, 256 QAM (normal or rotated)
- FFT: 1k, 2k, 4k, 8k, 16k, 32k and extended modes
- Guard Intervals: 1/128, 1/32, 1/16, 19/256, 1/8, 19/128, 1/4
- FEC: 1/2, 3/5, 2/3, 3/4, 4/5, 5/6
- Adjustable Time Interleaving
- Test Modes: PRBS, Sinus, Spectrum-Gap, Null Symbol Insertion

Pre-correction

- Digital Pre-correction
 - Linear and Non-Linear
 - Signal Clipping (PAPR)
- Digital Adaptive Pre-correction
 - Dynamic 9 dB
 - Linear DAP: Amplitude ± 3 dB, Delay 0 to 3 μ s
 - Non Linear DAP: Phase 180°
 - Monitoring: right and left signal shoulder and DAP status
 - Crest Factor Reduction (CFR) and Protective hard clipping

Control & Monitoring

- 1 x 10/100/1000 Base-T Ethernet port
- 1 x RS-232 serial control port
- 1 x RS-485 serial control port

System (1RU unit)

- Single supply voltage (12 VDC)
- Power Consumption: < 45W
- Temperature: 0°C to 50°C