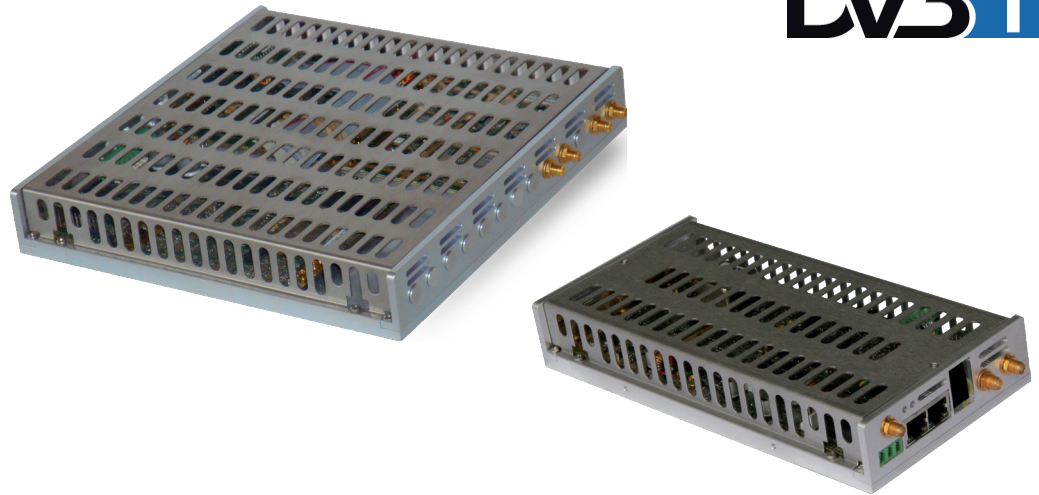


# MT2-2000/3000

## OEM DVB-T/T2 Modulator



### Key features:

- Dual DVB-T and DVB-T2 modulation
- Native redundant IP streaming inputs
- Advanced DVB-T2 features: MFN/SFN, Multi-PLP, SISO/MISO
- Onboard GPS or GPS/ Glonass (Option)
- Digital Adaptive Precorrection (Option)
- Proven technology on commercial networks
- Cost-effective, reliable and compact design

### Description

The MT2 product family is targeted to meet transmitter manufacturers' requirements for high quality DVB-T2 equipment for different applications. The product family addresses complementary network needs found in practice:

- to integrate a high-end DVB-T2 modulator with superior Digital Adaptive Pre-correction,
  - to provide a cost effective and compact DVB-T2 modulator for Low Power transmitting products.
- In this way, TeamCast continues to support its fundamental strategy to serve its customers with a comprehensive offering of different modulator types for applications worldwide.

### Proven DVB-T2 technology

With this second generation of DVB-T2 modulator, TeamCast confirms its technological leadership within this emergent and promising market. The MT2 design is the fruit of TeamCast's unique experience gained in participating in the DVB-T2 standard development, and TeamCast's extensive experience gained from the first commercial DVB-T2 network roll-outs. In particular, MT2 integrates all the mechanisms required to feed transmitter sites with ASI and/or IP streams in highly secure formats. MT2 modules include all the latest state-of-the-art technological features, and Broadcasters are able now to take full advantage of this second generation Terrestrial Digital TV technology, and deploy techniques such as SISO/MISO and Multi-PLP layered modulation.

### MT2-2000 model for Low Power Transmitters

The MT2-2000 models come as very compact and easy to integrate DVB-T2 modulator units, featuring manual Digital Linear and Non Linear Pre-correction circuits and providing best of class RF signal performance. The MT2-2000 design has been specially designed to meet transmitter manufacturers' requirements to integrate reduced form factor and cost effective OEM DVB-T2 modulator solutions within their optimised Low Power transmitter designs.

### MT2-3000 with Digital Adaptive Precorrection circuits

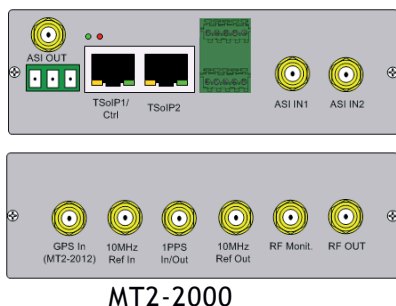
The MT2-3000 product line is targeted to be integrated within medium and high power Broadcast Transmitters. The MT2-3000 consists of high-end digital OEM DVB-T2 modulator functions that feature the latest state-of-the-art Digital Adaptive Pre-correction (DAP) circuits.

The innovative DAP algorithm, developed by TeamCast, enables clients to run DVB-T2 Digital Transmitters close to their saturation region, by adapting in real-time the power amplifiers' inherent non-linearities, as well as minimising the often ignored "Memory Effects" of the amplifier circuitry.

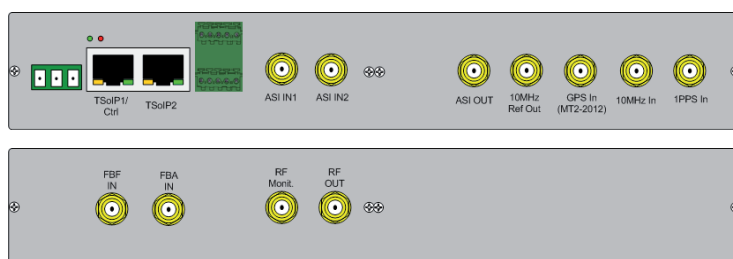
# MT2-2000/3000

## OEM DVB-T/T2 Modulator

### Connectors



MT2-2000



MT2-3000

### Specifications<sup>1</sup>

#### Standards

- o DVB-T2: EN 302 755, TS 102 831, TS 102 773 (T2-MI)
- o DVB-T: EN 300 744, TS 101 191

#### ASI Stream Interfaces

- o 2 x ASI input SMA connectors - 75  $\Omega$
- o 1 x ASI output SMA connector - 75  $\Omega$
- o 188/204 Bytes - 80 Mbps maxi. Packet/burst mode

#### Gigabit streaming inputs

- o 2 x 10/100/1000 base-T - RJ45
- o Protocols: IP, RTP, UDP, IGMP (V2 & V3)
- o VLAN ID (1 to 4094) - IEEE 802.1q
- o TS encapsulation and FEC decoding: SMPTE-2022

#### RF Inputs and Outputs

- o RF output from 30 MHz up to 900 MHz, 0 dBm - SMA connector 50  $\Omega$
- o Bandwidths : 5 MHz, 6 MHz, 7 MHz and 8 MHz
- o Low level (-20 dB) output available for monitoring - SMA connector 50  $\Omega$
- o 2 x RF feedback inputs for DAP: -15 dBm to 0 dBm - SMA connector 50  $\Omega$  - (MT2-3000)

#### Clock and Synchronization

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

#### Stream process and modulation

- o Stream input redundancy management (primary & secondary)

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

#### Digital Adaptive Precorrection circuits (DAP) - MT2-3000

- o Dynamic 9 dB
- o Linear DAP: Amplitude  $\pm 3$  dB, Delay 0 to 3 $\mu$ s
- o Non Linear DAP: Phase 180°
- o Monitoring: right and left signal shoulder and DAP status
- o Crest Factor Reduction (CFR) and Protection hard clipping

#### Digital Pre-correction - MT2-2000

- o Linear and Non-Linear pre-correction
- o Signal Clipping (PAPR)

#### Control & Monitoring

- o 1 x 10/100/1000 base-T Ethernet port
- o 1 x RS232 + 1 x RS485 serial control ports

#### Physical

- o Single supply voltage (12 VDC)
- o Power Consumption: MT2-2000 < 28 W, MT2-3000 < 45 W
- o 240 x 220 x 35 mm (Size A) or 240 x 110 x 35 mm (Size C)
- o Temperature: 0° C to 50° C

### Ordering Information

xTTM-MT20-2010	DVB-T modulator - DVB-T2 ready - with RF output (UHF/VHF)
xTTM-MT20-2012	DVB-T modulator - DVB-T2 ready - with RF output (UHF/VHF) and onboard GPS
xTTM-MT20-2013	DVB-T modulator - DVB-T2 ready - with RF output (UHF/VHF) and onboard GPS/Glo-
xTTM-MT20-3010	DVB-T modulator - DVB-T2 ready - with RF output (UHF/VHF) and DAP - Size A
xTTO-MT24-3000	DVB-T2 software licence for MT2
xTTO-MT25-3000	TSolP Inputs licence for MT2
xTTO-MT26-3000	Advanced Feature licence for MT2 (Null FEF, T2-Lite...)
xTTO-MT27-3000	SNMP licence for MT2

<sup>1</sup> Specifications are not contractual and are subject to revision without notice.

TeamCast Technology  
Centre Alphas  
Espace Performance  
35769 Saint-Grégoire Cedex - France  
Tel: +33 (0) 2 23 25 26 80  
Fax: +33 (0) 2 23 25 26 85

TeamCast Inc.  
The Burnham Center, Suite 1865  
111 West Washington Street  
Chicago, IL 60602 - USA  
Tel: +1 312 263 0033  
Fax: +1 312 263 1133

 **TeamCast**

www.teamcast.com  
Contact: info@teamcast.com