

# MHX-3000

## High-end Digital Modulator

- Latest state-of-the art Digital Adaptive Pre-correction
- Scalable Multi-standard platform
- Software up-gradable modulation core
- Highly reliable OEM solution
- Superior RF performances



### Key features:

- Multi-Standard modulation solution
- Native Digital Adaptive Precorrection circuits
- Multi stream inputs (Satellite, Transport Stream, IP, etc.)
- Redundancy management (stream and synchronization)
- MFN and SFN operating
- Very high modulation performance
- Very stable and low noise oscillator (OCXO)

### Description

MHX-3000 is a new generation of TeamCast modulators, addressing the need from transmitter manufacturers to integrate high-end digital modulation technology with native Digital Adaptive Precorrection circuits. The MHX-3000 product range consists of several hardware configurations to address a large scale of network implementations and operating frequency band use cases. In its basic configuration, MHX-3000 features two ASI stream inputs, one primary and one secondary used for redundancy purpose, and two IP ports dedicated to control management and streaming.

#### Latest state-of-the-art Digital Adaptive Precorrection

MHX-3000 has been especially designed to meet transmitter manufacturer's expectations to provide optimized and easy to maintain transmission solutions. Easy to use Linear and Nonlinear Adaptive Digital Pre-correction circuits are incorporated to compensate automatically and transparently for power amplifier and output filter characteristics.

#### Upgrade your transmitter to IP!

As a standard feature, MHX-3000 implements the latest-state-of-the-art IP streaming interface that supports the relevant IP transport protocols such as IP, UDP, RTP, VLAN, IGMP for Multicast as well as the FEC decoding. In parallel, a Fast Ethernet control port is available and brings the opportunity to upgrade classical transmitter using RS232 remote control into a fully IP controlled solution!

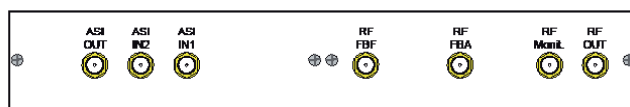
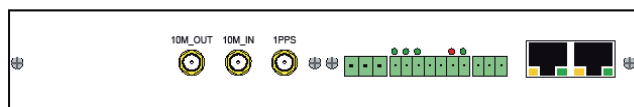
#### High performance Multi-Standard modulation core

MHX-3000 integrates the very last generation of TeamCast modulator core technology. Depending on the commercial options, the user can configure MHX-3000 to run one of the desired Digital TV, Digital Radio and Mobile TV standards without any need for hardware modification. Finally, MHX-3000 includes a very high-technology up-converter that brings best of class signal performances, such as very high MER, low shoulder levels and high spurious rejection.

# MHX-3000

## High-end Digital Modulator

### Connectors (MHX0-30x0)



### Specifications

#### Standard portofolio

- o DVB-T/H, DTMB, ATSC, DAB/DMB, ISDB-T/Tb, DVB-SH, FLO™, CMMB

#### ASI Inputs/Ouputs

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

#### SMPTE Inputs (Option)

- o 2x ASI connectors - SMA 75 Ω
- o 188 Bytes - 19.39Mbps - Packet/Burst mode

#### ETI Inputs (Option)

- o 2x G703 connectors - SMA 75 Ω
- o NI(G703), NA5376(G704) or NA5592(G704)
- o 2 048 Kbits/s ±50 ppm

#### Satellite Inputs (Option)

- o 1x input (from 950 MHz to 2150 MHz) - SMA 75 Ω
- o Sensitivity from -62 dBm to -25 dBm
- o Standards: DVB-S and DVB-S2

#### Gigabit Ethernet stream input

- o 1x 10/100/1000 base-T - RJ-45
- 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 Ouputs

- o UHF model: from 470 MHz to 900 MHz
- o S-Band model: from 2000 MHz to 2700 MHz
- o VHF model: from 170 MHz to 240 MHz

- o Bandwidth: 1.7, 5, 6, 7 or 8 MHz

- o 1x RF output: 0 dBm - SMA connector 50 Ω
- o Low level (-20 dB) output available for monitoring - SMA connector 50 Ω
- o 2xRF feedback inputs: -15 dBm to 0dBm -SMA connector 50 Ω

#### Clock and Synchronization

- o High quality internal clock
- o 10 MHz, 1 PPS and TOD inputs
- o Clock and time source redundancy management
- o Onboard GPS (option)

#### Digital Adaptive Pre-correction circuits (DAP)

- o Dynamic 9 dB
- o Linear DAP: Amplitude ±3dB, Delay 0 to 3μs
- o Non Linear DAP: Phase 180°
- o Flexible operating modes: Single DAP, Survey DAP, or Continuous DAP
- o Monitoring: right and left signal shoulder and DAP status
- o Crest Factor Reduction (CFR) and Protection hard clipping

#### Control&Monitoring

- o 1 x 10/100 base-T Ethernet port
- o GPI/O port (3 dry relay contacts, 1 control input)
- o 1x RS232/485 serial control port
- o 1x RS232/485 serial interface port

#### Physical

- o Single supply voltage (12 VDC)
- o Power Consumption: 38 W maxi
- o 220 x 220 x 35 mm (size A)
- o Temperature: 0°C to 50°C

### Ordering Information

xTTM-MHX0-3020	DVB-T, ISDB-T/TB modulator - DAP UHF output
xTTM-MHX0-3030	DVB-T, ISDB-T/TB modulator - DAP VHF output
xTTM-MHX0-3220	8-VSB modulator - DAP UHF output
xTTM-MHX0-3230	8-VSB modulator - DAP VHF output

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