



## NetMod for HDc

DVB-T/T2 standalone modulator/exciter

**NETMOD IS THE ENENSYS VERSATILE AND STAND-ALONE EXCITER TO BROADCAST DIGITAL TV SERVICES OVER DVB-T OR DVB-T2 NETWORKS FOR MFN OR SFN OPERATION.**

**NetMod** is a broadcast modulator designed to provide a cost effective and high quality solution for broadcast network operators, system integrators and transmitter manufacturers aiming to deploy digital TV services over DVB-T or DVB-T2 networks in MFN or SFN environments.

### HIGH GRADE DVB-T/T2 EXCITER

The **NetMod** offers high grade broadcast RF output level with MER over 42 dB in the whole band. It includes linear and automatic non-linear Digital Pre-Correction (DPC) to optimize the transmission efficiency. A built-in GPS receiver can be included to ease broadcast operation.

### DVB-T2 BASE AND T2-LITE SUPPORT

The **NetMod** is DVB-T2 base and DVB-T2 lite standard compliant. It supports the broadcasting in single PLP and multiple PLP modes. It provides T2-Modulator Interface (T2-MI) input over ASI and IP to receive configuration and synchronization information from the DVB-T2 Gateway. It also supports MISO transmission to improve SFN broadcasting.

### EASY INTEGRATION INTO TRANSMITTER

The **NetMod** is fully adapted to upgrade existing DVB-T transmitters to the DVB-T2 technology by substituting the DVB-T exciter with the **NetMod**. It includes Automatic Adaptive Digital Pre-Correction (ADPC) to provide a straight-forward integration with the amplifier and to maximize the signal quality level. Associated with PAPR reduction, the **NetMod** provides the best solution to efficiently broadcast digital TV services over DVB-T2.



## APPLICATIONS

- DVB-T2 digital TV broadcasting
  - SFN/MISO transmission
  - Single and Multi-PLP broadcasting
- DVB-T digital TV broadcasting
- DTT transmitters integration
- MFN/SFN synchronized transmissions

## BENEFITS

- Running in High Density chassis (HDc):
  - to allow up to 3xNetMod in 1U
  - to combine with T2EdgeDTH, ASIIPGuard, ...
  - to enable future-proof technology
- High grade output quality
- Full in-house solution
- First DVB-T2 exciter commercially rolled-out
- Versatile product: start in DVB-T, broadcast over DVB-T2 later
- Straight forward integration into DTT transmitters
- Integrated with major transmitter manufacturers
- Upgrade DVB-T transmitters to support DVB-T2 broadcasting

## CHARACTERISTICS

- DVB-T2 modulation
  - MPEG-2 TS input
  - T2-MI input (ASI/IP)
  - T2-base and T2-lite broadcasting
  - Mono-PLP / Multi-PLP
  - SFN / MISO
  - PAPR reduction
- DVB-T and DVB-H modulation
- High quality RF or optional IF output
- Automatic Digital Pre Correction capabilities with Power Amplifier Forward and Reflected inputs
- Internal GPS/Glonas receiver (Option)
- Control/commands available through SNMP
- Test modes (Single tone, PRBS generator,...)
- Full SNMP support



## INPUTS

Control	1x Gigabit Ethernet (RJ45) for GUI/SNMP
MPEG-2 TS / T2-MI	2x ASI inputs (BNC) 1x Gigabit Ethernet (RJ45 or SFP) for T2-MI over IP input stream

## TRANSMITTER INTEGRATION

Digital Pre-Corrections	Automatic Non Linear DPC Easy-to-Tune Manual Linear DPC
ADPC Inputs	1x Forward Power (SMA 50 Ω) 1x Reflected Power (SMA 50 Ω)
ADPC Output	1x Forward Test Power (SMA 50 Ω)
System Control	SNMP control/commands Customizable GUI (colors, logo)

## DVB-T2 FEATURING

DVB-T2 standard	V1.1.1, V1.2.1, V1.3.1 support
PLP Management	From 1 to 8 PLP QPSK, 16QAM, 64QAM, 256QAM Normal and Rotated constellation Short (16k) and Normal (64k) FEC
Bandwidth	5, 6, 7 or 8 MHz
Guard Interval	1/128, 1/32, 1/16, 19/256, 1/8, 19/128, 1/4
FFT mode	1k, 2k, 4k 8k, 16k, 32k (normal and extended)
Code rate	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 2/5, 1/3
Pilot pattern	from PP1 to PP8
SFN	SISO/MISO Relative/absolute timestamp 1PPS or Built-int GPS based
PAPR Reduction	Tone Reservation

## DVB-T FEATURING

Constellations	QPSK, 16QAM and 64QAM
Bandwidth	5, 6, 7 and 8 MHz
Guard Interval	Native or In-Depth 1/4, 1/8, 1/16 and 1/32
FFT mode	2k, 4k and 8k
Code rate	1/2, 2/3, 3/4, 5/6 and 7/8

## OUTPUTS

RF	1x Main RF output (SMA 50 Ω) Freq. range: 174-858 MHz (step 1 Hz) Power range: +2 to -10 dBm (step 0,1 dB) MER over 42 dB Shoulders Over 55 dB
IF	1x IF output instead of RF output (SMA 50 Ω) Frequency spectrum: 36 - 80 MHz (step 1 Hz)

## SYNCHRONIZATION

Inputs	1x PPS and 1x 10 Mhz (BNC 50 Ω) 1x RF internal GPS/Glonass (TNC 50 Ω)
Internal clock	OCXO (Oven Controlled Oscillator) 0.5ppb accuracy (over one day)

## PHYSICAL

Height	43 mm / 1.69 in.
Width	443,7 mm / 17.46 in.
Depth	322,8 mm / 12.70 in.
Format	1 RU, width 19"
Front Panel	LCD Display and controls - Option
Power supply	100-240V 50/60Hz - 48V DC (option)



## ORDERING CODES

<b>HDc-Multi-220V</b>	High Density chassis with 220V input
<b>HDc-Multi-48V</b>	High Density chassis with 48V input

### Chassis Options

<b>HDcMulti-In220VRedundant</b>	110V/220V redundant power supply
<b>HDcMulti-In48VRedundant</b>	48V DC redundant power supply

<b>HDm-NetMod</b>	DVB-T/T2 standalone modulator
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### Module Options

<b>NetMod-MPLP-2</b>	Management of 2 PLP
<b>NetMod-MPLP-8</b>	Management of 8 PLP
<b>NetMod-ADPC</b>	Automatic Adaptive DPC
<b>NetMod-IFoutput</b>	Enabling IF output
<b>NetMod-GPS</b>	Internal GPS/Glonass receiver

