MTX

High-power series

MULTISTANDARD DIGITAL & ANALOG
TV TRANSMITTER LINE

DVB-T/H

DVB-T2

ISDB-T/Tb

ATSC 1.0/3.0

DTMB

ANALOG
MULTISTANDARD

The high quality, professional and cost-effective solution

High reliability
and compact size

Low power
consumption

Doherty Broadband
Power Amplifiers

Low cost
of ownership

abe®

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The **MTX Series** of **High Power TV Transmitters** is the ultimate in technology, quality and performance in the Broadcast industry; it is designed to take advantage of the excellence of the digital modulation systems to generate **both Analog and Digital emissions** (DVB-T2, DVB-T/H, ISDB-T/Tb, ATSC and other standards).

The MTX Series brings together the **highly efficient** and reliable ABE LD-MOS broadband **Power Amplifiers** with state-of-the-art technological solutions.

Featuring **modular construction** – with easily removable modules/boards having RF internal isolation – the MTX series exploits the advantages of **state of the art technological solutions** to achieve **high reliability** and comprehensive system flexibility – all at reduced size.

Maintenance as well as channel changing operations are simple and easy to perform.
Careful product design brings **high versatility**, enhanced by the provision of specific options and giving compliance with

major world **digital and analog** terrestrial **TV broadcasting standards**.

The high-power amplifiers normally comprise more independent power amplifiers chassis, each with its own hot swappable power supply modules. Power amplifiers are available both in **AB class or Doherty broadband configurations** featuring **very high efficiency**.
Should a failure affect the output from one power amplifier chassis, the other ones will **continue working** at full power, transmission therefore continues at reduced power but the emission remains "on-air".

With the optional **Dual-Drive** configuration, an Automatic Changeover Unit immediately brings the stand-by Exciter into operation in case of low RF power from the working Exciter, ensuring transmission at full power.
Alternatively it is possible to provide a complete automatic passive stand-by system that can operate in **redundant configurations** (1+1 or n+1).

SEVERAL **INTERFACE TYPES** ARE AVAILABLE FOR **DIFFERENT CONFIGURATIONS**

ADC
Analog to Digital Converter
Video/Audio analog inputs for analog modulation standards

ASI
Asynchronous Serial Interface

SAT/DTT
Satellite and Terrestrial receiver
Available standards: DVB-S/S2, DVB-T/T2, ISDB-T/Tb

CAM
Conditional Access Module
able to decrypt encoded Transport Streams

DVB-S/S2
Multistream Satellite receiver
Up to 32APSK modulation scheme

Ethernet
T.S. over IP
able to receive MPEG Transport Streams (encapsulation ProMpeg COP#3 rel.2)

GNSS
GPS-GLONASS receiver
for SFN applications

APD
Adaptive Linear and Non-Linear Pre-corrector

PRODUCT SKILLS

- Comprehensive monitoring, alarm and protection circuits, including a Power Amplifier **fold-back** function to reduce output power before tripping off, due to high VSWR, heat-sink over-temperature or overdrive

- **Warm-up** & **Soft-start** to avoid output power surges

- **ALC** (Automatic Level Control) to stabilize the Power Amplifier's RF output level over a limited range

- Power Amplifier Modules with gain and phase adjustment to obtain **perfect matching** when coupling more units

- Efficient air cooling system with long life blowers and ducted air outlet; option for ducted air inlet

- **Output filters** to comply with the emission mask specification requested

- MTX Multistandard Multimode modulator allow **dualcast operation** (analog and digital multistandard) and can be supplied with various options and in several configurations to satisfy Customer's need (wide choice of input interfaces, **linear and non-linear precorrection** with option for adaptive)

- **Dual-Drive** option include a stand-by Drive unit and the Au-tomatic Changeover unit which, in the event of fail of the working Drive, immediately brings the stand-by Drive into operation

- **Hot-pluggable Power Supply Units** and easy plug fans

- User Friendly **local and remote control** includes "on-board" display, WEB server, SNMP

- Remote or USB **software upgrade** available

SUSTAINABILITY
We design and build high performance and environmentally friendly equipment

MADE IN ITALY
Design and manpower are 100% Italian to guarantee quality and assistance

SOLIDITY
Being in the broadcast industry for nearly forty years is the most obvious proof of our seriousness

TECHNOLOGY
We believe it is essential to increase our technological know-how every day to provide excellent products

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TECHNICAL SPECIFICATIONS

Output frequency range	VHF BI, BIII or UHF, according to the model
Output impedance	50Ω
Spurious, harmonics and out of channel IMD products	≤ -60dB (with RF output filter)
Frequency stability (-5 to +45°C)	≥ ±250Hz; option: GNSS locked reference for better than 1Hz stability
DIGITAL OPERATION SPECIFICATIONS	
Output power (before output filter)	up to 10kWavg (tol.+0/-0.5dB) according to the model
Transmission standard	DVB-T/H; DVB-T2; ISDB-T/Tb; ATSC; other on request
Intermodulation products (shoulders before output filter)	According to the model and output power typ. ≤38dB with reference to emission channel centre power density
MER – Modulation Error Ratio	According to the model and output power (typ. 36dB)
Input interface options	**ASI** - MPEG/DVB and BTS Transport Stream - 75Ω BNC Female **Ethernet** - MPEG TS over IP (as per Pro-MPEG CoP#3 release 2) **DVB-S/S2 receiver** - 950-2150MHz, all modulation schemes, code rates and roll-off factors, Multistream, PL scrambling decoding with gold code (CAM option) **DVB-T/T2, ISDB-T/Tb receiver** - VHF and UHF (CAM option)
Input switching	Automatic near-seamless switching between first and second priority. Option for seamless switching
ANALOG OPERATION SPECIFICATIONS	
Output power (after output filter)	up to 20kWp.s. (tol.+0/-0.5dB) according to the model
Transmission standard	B, G, D, H, I, K, K1, M or N - PAL, Secam and NTSC
In band intermodulation products	≤-56dB (typ. ≤-60dB – Test: V.C. -8dB; S.C. -10dB; C.S. -16dB)
Video input	1Vpp (75Ω BNC-f) – video processing include ALC and signal reconstruction
Transmitted Video quality parameters	Differential gain: within ≤±5% (typ. ≤±2%); Differential phase: ±3° (typ. ≤±1.5°) 2T K rating: ≤2% (typ. ≤1%); Random noise (weighted typical): ≤-60dB; Group delay response (V.C. to C.S.): Within ±40nS (typ. ≤±20nS) Amplitude / frequency response: (V.C. to C.S.): Within ±1dB (typ. ≤±0.2dB)
Audio input	0dBm (adjustable) 600 Ω bal. / unbal.
Audio options	Stereo / dual sound IRT; BTSC and other on request
Transmitted Audio quality parameters	Amplitude / frequency response: ±1dB (typ. ±0.5dB); Harmonic distortion: ≤0.4%
GENERAL SPECIFICATIONS	
Power supply	According to the model: 176-264 Vac single phase or 207-415 Vac three phase
Remote control interface options	RS485; Ethernet 10/100 Base-T (SNMP - web server) Remote firmware upgrade: supported
Housing	Rack cabinet 19"
Operating temperature range	-5 to +45°C
Maximum operative humidity	90% non condensing

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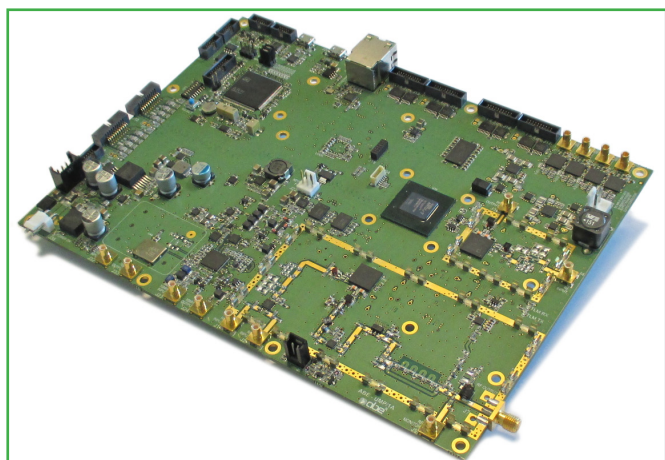
PRODUCT GALLERY

On-board tablet option

Hot-swappable power supply units

Multistandard Universal Modulator board
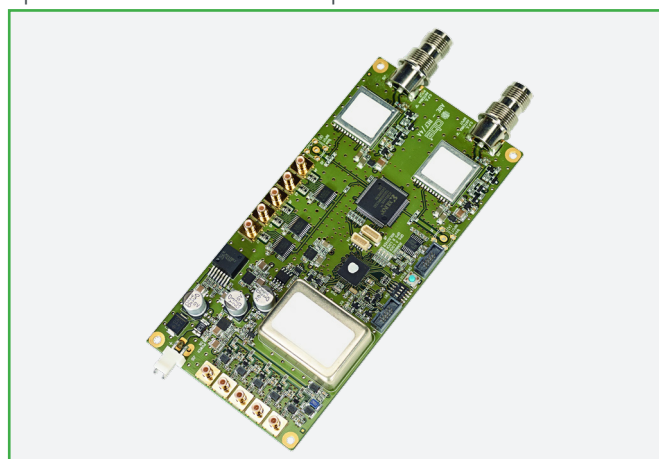

High efficiency Broadband Doherty power amplifier boards

38U and 25U rack cabinets

Optional GNSS board for SFN operation

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