



DIGITAL BROADCAST

TV

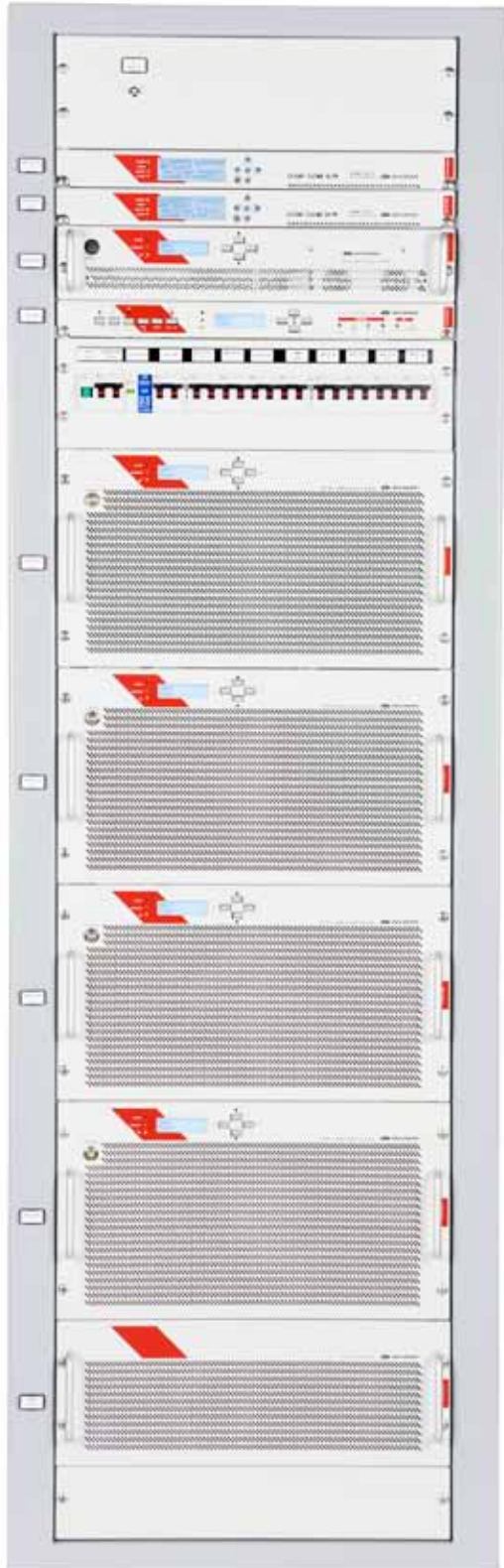
DBT Series



DBT Series

Ultra-linear transmitters for digital TV signals with the HI-ADC™ technology

DBT Series Specifications



The DBT Series is the latest evolution of the digital TV transmitters fully compatible with all digital TV international standards (DVB-T/H, DVB-T2, ISDB T/Tb, ATSC, DTMB) and suitable for SFN (Single Frequency Network) and MFN (Multi Frequency Network) applications in VHF band (DBTV) and UHF band (DBTU). The Transmitter is fully broadband. Available also in Dual Cast configuration with analog TV modulation included.

HI-ADC™ technology

The DBT Series is realized with the new HI-ADC technology. Using latest generation LDMOS RF devices with ultra-linear characteristics, higher performances have been obtained for digital television:

- ▶ Higher modulation quality.
- ▶ Higher RMS output power in digital operations compared to previous technologies.
- ▶ Extremely low heating due to increased efficiency.
- ▶ High safety devices from load mismatch.

High efficiency “Doherty” amplification

The DBT Series can be equipped with high efficiency Doherty amplification technology (DHT option) to increase overall efficiency over 40%.

High Quality Digital Performances

- ▶ Shoulder attenuation > 38 dB.
- ▶ M.E.R. > 35 dB.
- ▶ Output frequency response ± 0.5 dB.

Control logic unit

A powerful control logic unit allows a complete control of the transmitter through front panel LCD display. In case of remote control option, a complete control through WEB (including Web Server) and/or SNMP is available.

Measures and alarm indications on front panel

User friendly interface with LCD display and pushbuttons for an easy setup of all parameters are present on the transmitter front panel: all the main parameters and alarm indications are available. Forward and reflected power.

- ▶ Supply voltage and absorbed current of each single pallet.
- ▶ Internal heat-sink temperature.
- ▶ Alarm indication for VSWR, over-temperature, overdrive.

Trimmers available from the front panel to adjust the threshold of:

- ▶ Overdrive protection.
- ▶ VSWR protection.

Complete remote control system

DBT series has an extremely complete Web server, SNMP, GSM or SMS remote control system, available as option.

Air cooling

The DBT series oversized air cooling system widely extends transistor life. The amplifier modules are equipped with externally mounted redundant fans to allow easy and fast cleaning, or eventual replacement, without opening or removing any module and without interrupting the transmitter operation.

Liquid Cooling

An oversize heat exchanger, single or double (optional), suitable for outdoor or indoor installation, and equipped with single or double (optional) pump system for maximum redundancy, is the main component of the powerful liquid cooling system. DB liquid cooling system assures high reliability, cooling efficiency and easy installation, thanks to the special design of liquid cooled heat-sinks inside the amplifier and low pressure liquid distribution. This system is designed to successfully face every hard climate condition.

Advantages of DBT liquid cooling

Substantial advantages of our liquid cooling technology compared to air cooling are:

- ▶ Properly working even with hard climate conditions.
- ▶ Dramatically reduction of air conditioning needing.
- ▶ Correct functioning in dusty environment even with high humidity or salinity.
- ▶ Very low acoustic noise.
- ▶ Low heat radiation into the environment.
- ▶ Longer life for transistors and active elements due to colder continuous operation.

Reduced maintenance

Easy accessibility of all parts, externally serviceable cooling air filters, very high MTBF for RF and power supply modules, are only some of the characteristics that explain the very high reduction of maintenance costs obtained.

High Efficiency Power Supply

The High Efficiency Switch-Mode Power Supply with Power Factor Control meets all the international requirements for mains network disturbances.

Surge and Lightning Protections (optional)

Surge and lightning protections for the transmitters are available as option to improve the durability of the equipment. Moreover, an isolation transformer can be optionally installed to increase the protection of the unit from overvoltage or spikes coming from the mains distribution.

AAD Technology

Prevents corrosion from air moisture and increases reliability.

- ▶ Components are made in anticorrosional aluminum.
- ▶ Air is ducted to avoid contact with electronic parts.
- ▶ All electronic boards and cabling are tropicalized with a special resin to protect the circuits against salt air.

Meets or exceeds all international standards

For safety and electrical specifications.



Digital TV



DVB T / T2

ISDB-T

DTMB

Analog TV

NTSC

PAL

Secam

High Performance Modulator

The DBT Series is equipped with a high-performance digital modulator fully and easily configurable to meet all the requirements of DVB-T/T2, ATSC, ISDB-T, ISDB-Tb, DTMB standards.

Dual Cast option available for analog TV modulation.

Adaptive Digital Pre-corrector

A powerful digital linear and non-linear pre-corrector, combined with a very selective output band-pass filter, allows to obtain a perfectly clean spectrum in the adjacent channels and excellent modulation performances. The precorrector performance is widely increased thanks to the Auto-Adaptive version, available as option.

Superior Modulator Quality

High performance (MER>35 dB, Shoulders >38 dB) thanks to powerful pre-correctors, high linearity amplifiers and low noise oscillators.

Remote control facility using WEB and SNMP interface (optional)

With the WEB and SNMP interface, using the Ethernet connection on the control logic unit and/or on the exciter, it is possible to have a complete control and monitoring of the transmitter.

Firmware update

Remote TCP/ IP firmware update.

● Dual driver redundancy (optional)

High on-air reliability is assured by using optional dual driver configuration.

● Small dimensions

Very small dimensions and low weight to reduce transport costs and to simplify logistics.

● Hot-plug fans

5 minutes maintenance time, no need to open or switch off the unit. No service interruptions.

● 65:1

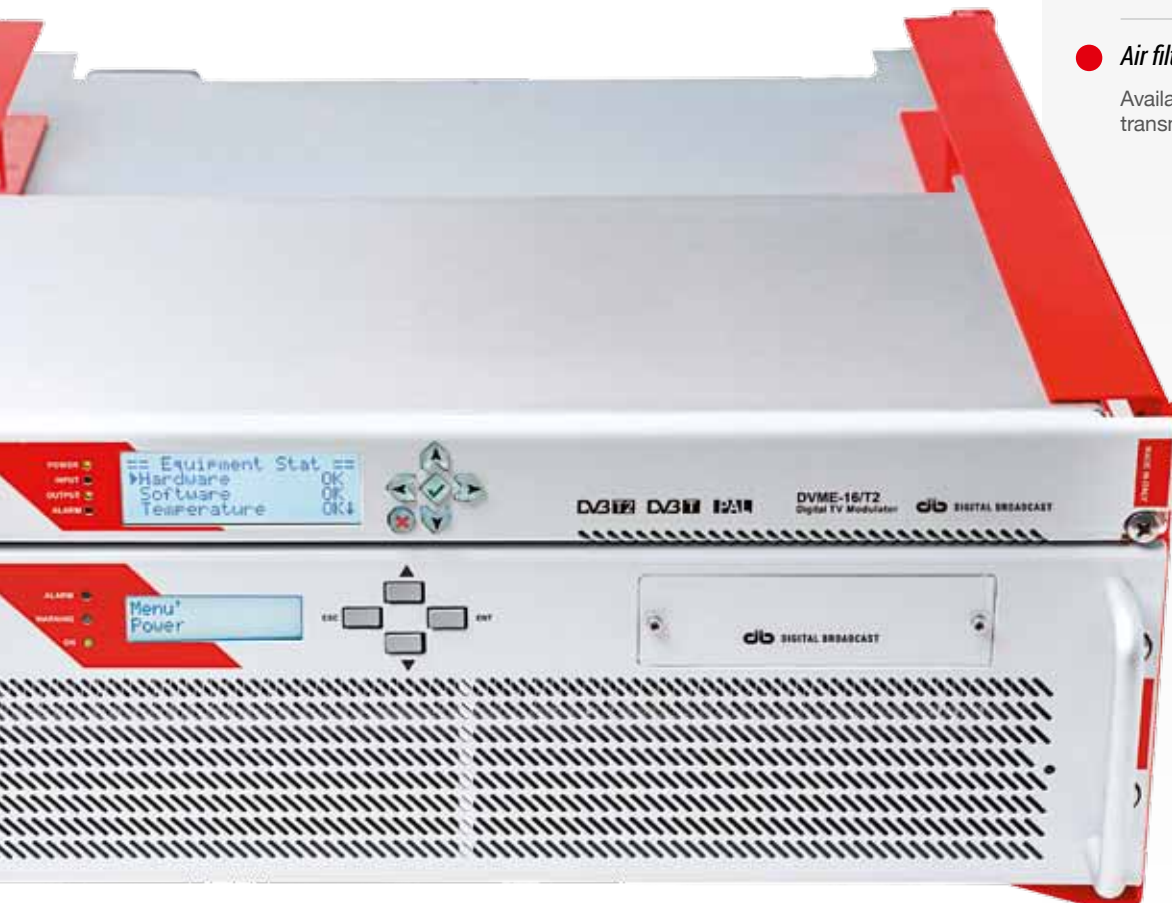
No more load mismatch failures thanks to VSWR 65:1 built-in protection.

● Protection against shocks

Mechanically designed to prevent damage to connectors, fans, and all the parts that typically may be damaged during transport or installation.

● Air filter

Available as an option on all transmitters.



TECNICAL SPECIFICATIONS

Frequency range	170 – 230 MHz (DBTV Series) 470 – 860 MHz (DBTU Series)
Output impedance	50 Ω
Shoulder attenuation	> 38 dB
M.E.R.	> 35 dB

GENERAL READINGS

Readings:	Output forward power Reflected power Frequency Alarms and Warnings (SWR, over-temperature, ...) Modulator output power DC Voltages and Currents of each RF final amplifier module Heat-sink temperature
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AC POWER REQUIREMENTS

AC supply voltage	115 / 230 VAC ± 15%, single-phase or 230/380 VAC ± 15%, three-phases
AC supply frequency	50 Hz or 60 Hz, ±5%
Power factor	> 0.9

ENVIRONMENT

Cooling	Forced air with built-in axial fans / Liquid cooling (optional)
Service	Continuous 24/24h
Operating temperature	-5°C to +45°C Derate 3°C per 500 m above 2000 mt asl
Relative humidity	Up to 95%

AVAILABLE OPTIONS

/NCM FILTER	Band-pass filter for digital non-critical mask operations
/CM FILTER	Band-pass filter for digital critical mask operations
/WB-SNMP	WEB/SNMP includes complete monitoring of all parameters and remote software upgrade via WEB
/DHT	Doherty amplification system for higher efficiency >40%
/SLP	Surge and lightning protection
/DD	Dual Driver with automatic change-over
/1+1	1+1 configuration with automatic or manual changeover
/N+1	N+1 configuration with automatic changeover

DBTV SERIES

MODEL	WORKING BAND	DIGITAL OUTPUT POWER	DIGITAL OUTPUT POWER	OUTPUT CONNECTOR
		DVB-T / DVB-T2 / ISDB / ISDB-Tb / T-DMB (Wrms)*	ATSC (Wrms)*	
DBTV 60	VHF	60	80	N
DBTV 110	VHF	110	130	N
DBTV 200	VHF	200	250	DIN 7/16
DBTV 350	VHF	350	500	DIN 7/16
DBTV 500	VHF	500	750	EIA 7/8"
DBTV 700	VHF	700	1000	EIA 7/8"
DBTV 1000	VHF	1000	1500	EIA 1+5/8"
DBTV 1400	VHF	1400	2000	EIA 1+5/8"
DBTV 2500	VHF	2500	3500	EIA 1+5/8"
DBTV 5000	VHF	5000	7000	EIA 3+1/8"
DBTV 10000	VHF	10000	14000	EIA 4+1/2"

* output power measure before filter

DBTU SERIES

MODEL	WORKING BAND	DIGITAL OUTPUT POWER	DIGITAL OUTPUT POWER	OUTPUT CONNECTOR
		DVB-T / DVB-T2 / ISDB / ISDB-Tb / T-DMB (Wrms)*	ATSC (Wrms)*	
DBTU 60	UHF	60	80	N
DBTU 110	UHF	110	130	N
DBTU 200	UHF	200	250	DIN 7/16
DBTU 350	UHF	350	500	DIN 7/16
DBTU 500	UHF	500	750	EIA 7/8"
DBTU 700	UHF	700	1000	EIA 1+5/8"
DBTU 1000	UHF	1000	1500	EIA 1+5/8"
DBTU 1400	UHF	1400	2000	EIA 1+5/8"
DBTU 2500	UHF	2500	3500	EIA 3+1/8"
DBTU 5000	UHF	5000	7000	EIA 3+1/8"
DBTU 10000	UHF	10000	14000	EIA 4+1/2"

* output power measure before filter

All specifications are subject to change without notice.

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