

# BE-TV-FA-U/VH/VL

## Genesis Elite Series Transmitters

### Key Features & Benefits



The BE-TV™ GENESIS ELITE series transmitter line is specifically designed to meet the needs of the MPTV stations, providing an output power up to 600Wrms with OFDM modulations and up to 5500Wrms with 8VSB modulations, in all broadcast bands.

It employs the latest components and technology, the result is an extremely reliable, easy to configure and maintain, transmitter/ transposer/gap-filler.

Two different modulation standards can be loaded and switchable both locally and by remote, allowing to reconfigure the unit according to the actual or future needs.

Highest efficiency provided by the latest LDMOS amplifier design.  
It can be improved by using Doherty option.

- Extremely easy installation and maintenance
- Fully broadband on UHF or VHF bands
- Hot-pluggable amplifier modules
- High efficiency Doherty configuration on power amplifier *(option)*
- All digital and analog modulation standards
- GPS/GLONASS internal receiver *(hardware option)*
- High stability local oscillator *(hardware option)*
- Both SFN and MFN network mode
- Advanced modulator with automatic/adaptive precorrection *(linear and nonlinear)*
- ATSC and ATSC 3.0 operation without hardware change
- Satellite receiver with or without CAM *(hardware option)*
- Transposer or SFN gap-filler *(hardware option)* with echo cancellation
- Latest LDMOS technology for RF stages
- Display & keyboard, web browser and SNMP for remote operation
- Seamless switching between ASI/SMPTE and/or IP *(with priority)* when in SFN network mode
- Remote software/firmware upgrade
- Band-pass filter inside transmitter rack *(option)*

Made in Europe, Designed in Italy, supported from the USA

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## Genesis Elite Series

### GENERAL

Frequency Range	UHF band IV/V: 470 to 862 MHz; VHF band III: 170-254 MHz; 1Hz steps
Analog Modulation Standards	B/G/D/K/K1/M/N, color system PAL, NTSC, SECAM
Digital Modulation Standards	ATSC 1.0; ATSC 3.0; DVB-T/T2; ISDB-Tb; DAB, DAB+
Channel Bandwidth	TV: 6, 7, or 8 MHz; DAB/DAB+: 1.5MHz
VSWR	Protection against open or short circuit, all phase angles.
Local oscillator accuracy	$\pm 1 \times 10^{-8}$ (0 to 70°C), $\pm 5 \times 10^{-10}$ /day (after 30 days), $\pm 1 \times 10^{-7}$ /year
Network mode	SFN and MFN; multiple PLP

### RF INPUTS

GPS antenna	SMA female, 50 Ohms, (+5 V DC @ 100 mA max output for active antenna)
1 pps pulse	BNC female, 50 Ohms
10 MHz reference frequency	BNC female, 50 Ohms
F female, 75 Ohms	F female, 75 Ohms
Satellite receiver (with CAM)	F female, 75 Ohms

### RF OUTPUT

RF Output connector	0k6; 7-16 DIN, 50 Ohm, 1k2, 1k8, 2k4 and 3k0, 3k6; 1 5/8" EIA 50 Ohm
RF power setting	-10 to +0.5dB with reference to nominal power
RF Output power stability	< +/- 0.25dB
Amplitude flatness	< +/- 0.25dB
Harmonic Emission	< -60dBc
Spurious Emission	< -60dBc
10 MHz reference frequency	SMA female, 50 Ohms, 1Vpp +/- 0.2Vpp, rise-time 3-10ns

### DIGITAL MODULATION INPUTS

TS over IP/EDI	2 x RJ45 10/100/1000BaseT
ASI/SMPTE-310/T2MI/ETI	2 x BNC female, 75 Ohms (DVB-H: 1 main/1 hierarchical), continuous and burst mode
Maximum bit rate	50 Mbps

### ANALOG MODULATION INPUTS

Video	2 x BNC fem., 75 Ohms, 1Vpp +/- 6dB, AGC on ITS line, DC rest., sync rest., white limiter
Sound	2 x XLR31 mini, 600 Ohms or 5 kOhms, balanced or unbalanced, 0dBm -6/+21dB
Aux audio input	MPX (bw 120kHz): 1 x BNC female 50 Ohms or 5 kOhms; SCA: 1 x BNC female 50 Ohms
NICAM audio interface	2 x XLR 31 mini, 600 Ohms or 5 kOhms, balanced or unbalanced, 0dBm +/- 10dB
NICAM data interface	1 x BNC female, TTL 728kb/s external data, 1 x BNC female, TTL 728kb/s external clock

### USER INTERFACE/ REMOTE CONTROL

Control/Monitoring	LCD and keyboard, Web GUI, SNMP
Ethernet	2x GbE

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### AC POWER

AC Input	100 to 240 Vac, single or two phases, 380Vac three-phases four wires
Power Factor	> 0.95
Frequency	50 or 60 Hz

### ENVIRONMENTAL

Operational Temperature Range	0° to 45°C (32° to 113°F)
Storage Temperature Range	-40 to +70°C
Relative Humidity	0% to 90%, non-condensing @ 45°C
Altitude	Up to 2,500 m (8,202 ft) above sea level
Cooling	Forced air-cooled
Acoustic Noise	≤65 dBA (front 1 m)
Dimensions (H x W x D)	24RU x 19"rack (dimensions: 1200 H x 600 W x 1100 D [mm]) 42RU x 19"rack (dimensions: 2000 H x 600 W x 1100 D [mm])

## Genesis BE-TV

Liquid Cooled Transmitters & Power Amplifiers



# HPA	1	2	3	4	5	6	8
KW ATSC	0.8	1.6	2.4	3.2	4.0	4.8	6.4
KW OFDM	0.6	1.2	1.8	2.4	3.0	3.6	4.8

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UHF BAND IV-V RF OUTPOWER (before filter) [W]	Q.TY PA	OFDM MODULATION (DVB-T/T2, ATSC 3.0, ISDB-T)	8VSB MODULATION (ATSC 1.0)	VSB MODULATION (ATV) @ IMD TYP. -62DB
BE-TV-0k6-FA-U	1	600Wrms (MER=33dB)	800Wrms (MER=35dB)	1600Wps
BE-TV-1k2-FA-U	2	1200Wrms (MER=33dB)	1600Wrms (MER=35dB)	3200Wps
BE-TV-1k8-FA-U	3	1800Wrms (MER=33dB)	2400Wrms (MER=35dB)	4800Wps
BE-TV-2k4-FA-U	4	2400Wrms (MER=33dB)	3000Wrms (MER=35dB)	6000Wps
BE-TV-3k0-FA-U	5	3000Wrms (MER=33dB)	3600Wrms (MER=35dB)	7200Wps
BE-TV-3k6-FA-U	6	3600Wrms (MER=33dB)	4400Wrms (MER=35dB)	8800Wps
BE-TV-3k0-FA-U	8	4800Wrms (MER=33dB)	6000Wrms (MER=35dB)	12000Wps

VHF BAND III RF OUTPOWER (before filter) [W]	Q.TY PA	OFDM MODULATION (DVB-T/T2, ATSC 3.0, ISDB-T)	8VSB MODULATION (ATSC 1.0)	VSB MODULATION (ATV) @ IMD TYP. -62DB
BE-TV-0k7-FA-VH	1	750Wrms (MER=35dB)	950Wrms (MER=35dB)	1400Wps
BE-TV-1k5-FA-VH	2	1500Wrms (MER=35dB)	1850Wrms (MER=35dB)	2800Wps
BE-TV-2k2-FA-VH	3	2250Wrms (MER=35dB)	2800Wrms (MER=35dB)	4200Wps
BE-TV-3k0-FA-VH	4	3000Wrms (MER=35dB)	3750Wrms (MER=35dB)	5500Wps
BE-TV-3k7-FA- VH	5	3750Wrms (MER=35dB)	4700Wrms (MER=35dB)	7000Wps
BE-TV-4k4-FA-VH	6	4400Wrms (MER=35dB)	5500Wrms (MER=35dB)	8200Wps

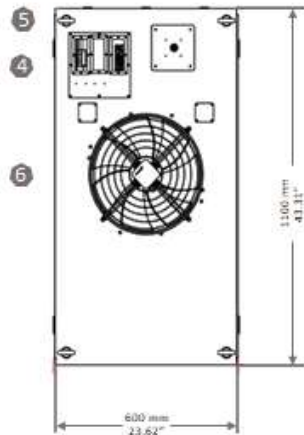
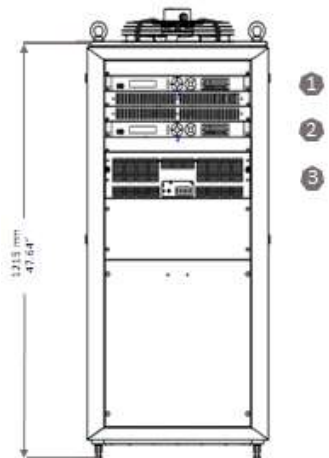
VHF BAND III RF OUTPOWER (before filter) [W]	Q.TY PA	OFDM MODULATION (DAB, DAB+)
BE-DA-1k0-FA- VH	1	1000Wrms (MER=32dB)
BE-DA-2k0-FA-VH	2	2000Wrms (MER=32dB)
BE-DA-3k0-FA-VH	3	3000Wrms (MER=32dB)



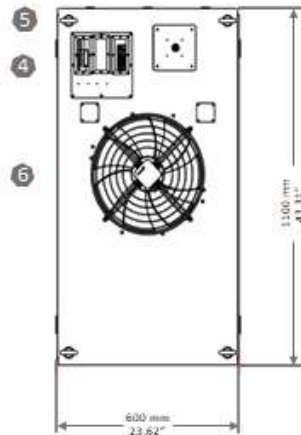
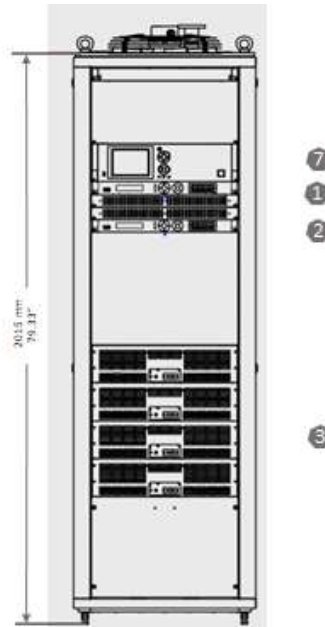
## Architecture

1. Mod Ex II Digital Exciter (Multi-standard)
2. Standby Mod-Ex II Digital Exciter (optional)
3. Hot-Pluggable Amplifier Module(s) 1 – 8.
4. Input/output distribution panel
5. Lifting Hooks
6. Cabinet Air Extract Fan
7. Central Control Unit (CCU) available on 2-8 amplifier models

Dimensions of 1 and 2 amplifier transmitter systems

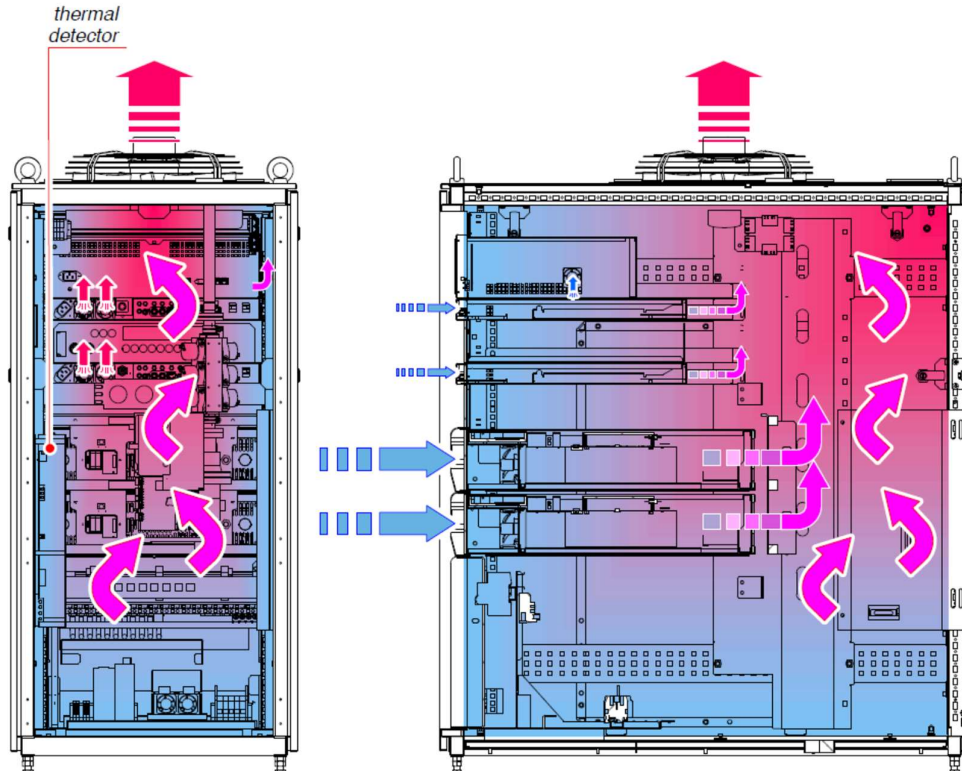


Dimensions of 3, 4, 5, 6 and 8 amplifier transmitter systems



## Features

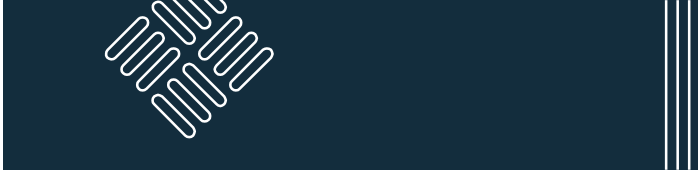
- State-of-the-art multi-standard Mod-Ex II exciter
- Adaptive precorrection for maximum optimization of transmitter (via Mod-Ex II exciter)
- Drag and Drop easy to use GUI
- Multi-Standard operation (DVB-T/H/T2, ATSC, ISDB-T/Tb, Analog)
- Dual-Cast operation
- VHF and UHF
- Fully broadband on UHF frequencies
- HIGH EFFICENCY RF UP TO 47%
- Latest LDMOS technology for power amplifiers **Modular Hot Plug modules**
- FULL REDUNDANCY RF and PS STAGE
- High efficiency air cooling system
- Low power consumption - Doherty technology (available in non-Doherty for ATV operation)
- Compact design
- Easy installation and maintenance
- Modular design
- 2 ASI (4 for DVB), GbE available inputs
- SNMP / Web Server remote control
- CAN-bus internal communication
- Internal GPS for SFN operation • Remote software/firmware upgrade
- 1 USB port for each control unit
- I.CCU optional management with intermediate Power Amplifier (IPA)
- Efficient and ergonomic air flow design for optimum cooling and reliability



Cooling system shown of dual (2) amplifier system

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BE manufactures complete RF systems for radio and TV. Our products encompass program generation, audio and data management, interfacility transport and analog and digital (*HD Radio and DRM transmission*).

They are used daily in more than 40,000 installations in nearly 100 countries. For over sixty years, BE pioneering developments have set industry standards for innovation and reliability, while providing broadcasters with new options for operational productivity and income generation. BE is headquartered in Quincy, Illinois, USA, and is represented worldwide by a network of local representatives.

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