

Passion

for **FM & TV**

Broadcasting

MOZART Series
Green RF technology High Efficiency
300W to 5000W
Compact and Modular FM Transmitters



DB
Digital Broadcast
ITALY

MSE
MAGNETIC
SOUND
ENHANCER



65:1
VSWR
40:1

**COLD
FET™**

ARC
ALUMINUM RUGGED
CONSTRUCTION

TECHNICAL CHARACTERISTICS

RF SPECIFICATIONS	Operating frequency range	87.5 ÷ 108 MHz (10kHz, 100kHz or 1MHz steps front panel programmable)		
	RF Output Impedance	50 Ω		
	VSWR	1.5:1 Maximum with automatic fold-back at higher VSWR		
	Frequency stability	± 1 ppm from -5°C to 45°C		
	Modulation Mode	Mono, Stereo, Multiplex, SCA, RDS, AUX		
	Frequency Deviation	± 75 kHz = 100 %, ± 250 kHz capability		
	Preemphasis	Flat/50/75 μ s front panel selectable		
	Asynchronous AM S/N Ratio	- 68 dB below reference carrier with 100% AM modulation @ 400 Hz, without FM modulation		
	Synchronous AM S/N Ratio	- 65 dB below reference carrier with 100% AM modulation @ 400 Hz with FM modulation ± 75 kHz @ 400 Hz		
	RF Harmonics Attenuation	>80 dBc		
	RF Spurious Attenuation	>80 dBc		
	Low Pass Filter	Included		
MONO SPECIFICATIONS	Audio Input Impedance	600 Ω balanced, 10 k Ω unbalanced		
	Audio Input Level	-3 to +18 dBm		
	Input Connector	XLR female		
	Audio Frequency Response	± 0.15 dB, 30 Hz to 15 kHz		
	Harmonic Distorsion	$\leq 0.02\%$, from 40 Hz to 15 kHz		
	S/N ratio	>82 dB RMS detector		
		FM 75KHz MONO 180KF3E STEREO 256KF3E		
	Audio Input Impedance	600 Ω balanced, 10 k Ω unbalanced		
	Audio Input Level	-3 to +18 dBm		
	3300W	450W	7/8	
Input Connector	XLR female			
Audio Frequency Response	± 0.15 dB, 30 Hz to 15 kHz			
Harmonic Distorsion	$\leq 0.02\%$, from 40 Hz to 15 kHz			
S/N ratio	> 80 dB RMS detector			
Stereo separation	30÷80 Hz ≤ -53 dB, 80Hz÷15kHz ≤ -65 dB (typ.70 dB)			
Crosstalk attenuation	Main to Sub -40 dB 30 Hz to 15 kHz (typ. -55 dB 100 Hz to 8 kHz)			
Pilot frequency	19 kHz ± 1 Hz			
Modes	Stereo, Mono L+R, Mono L, Mono R			
Type of Modulación	FM 75KHz MONO 180KF3E STEREO 256KF3E			
MULTIPLEX SPECIFICATION MPX INPUT	Composite Input Impedance	1.2 k Ω unbalanced		
	Composite Input Level	-3 to +18 dBm		
	Input Connector	BNC female		
	Composite Amplitude Response	± 0.2 dB, 30 Hz to 100 kHz		
	S/N ratio	>82 dB RMS detector 50us De-emphasis		
Type of Modulación	FM 75KHz MONO 180KF3E STEREO 256KF3E			
SCA, RDS, AUX SPECIFICATIONS	Input Impedance	3 k Ω		
	Input Level	-20 to 0 dBm		
	Input Connector	BNC female		
Frequency Response	± 0.2 dB 40 Hz to 15 kHz			
AES/EBU MODE (OPTION)	Input connector	XLR female, optical TOS-LINK		
	Data format	S/PDF, AES/EBU, IEC958, EIAJCP340/1201		
	D/A converter	24 bit		
	Sampling frequency	from 32 to 96 kHz		
ELECTRICAL AND OPERATING CHARACTERISTICS	AC input power	90 ÷ 260 VAC 50/60 Hz single phase (tpically europe) o bi-phase typically America)		
	Cooling	Forced air with internal fan		
	Operating temperature	- 5°C to +45 °C		
	Relative humidity	Up to 90%		

Features and specifications subject to change without notice.

MAIN CHARACTERISTICS

- Output power 30-50-100-150-300-500-1000-2000-3000-5000-10.000-20.000 and 40.000W.
- All the models of the series shares the same human interface with know push button and ESC Key and LCD Display.
- Direct commands pushbuttons ON/OFF, Local/Remote, Reset Alarms with leds simplify the user interface.
- Control of the transmission and modulation parameters from the frontal panel display.
- All the main working parameters are displayed by leds to indicate the transmitter status at the first glance. On/Off, Local Remote, Trip-lock Out Alarm, On Air, Warning, Alarm, Interlock, Audio Alarm, Stereo Mode, Mpx Mode, RDS On/Off, SCA On/Off, Mono Mode, Pre-emphasis On/Off, Limiter On/Off
- The microprocessor is protected against short main interruption with external Watch Dog and dedicated Power Supply Supervisory.
- Input sensitivity and output deviation are adjustable with high precision of 0,05dB trough display interface or remotely by WEB.
- TCP/IP Remote control WEB Server SNMP (v2 and v3), with INFORMS, DHCP, FTP, TELNET for full remote control system.
- The IP and all the network parameters can be easily read and set on the front panel.
- Firmware remotely upgradable by TCP/IP, an easy procedure is on the WEB interface without the needing to use proprietary tools; the received software is controlled with a check-sum; after new release has been installed it's possible to return to the previous firmware release installed; from WEB / SNMP it's possible to select which release (the new or the old one) will run on air.
- Every alarm event is displayed on the frontal panel, 200 events can be memorized in the transmitter memory and 64000 in the web board.
- The log can be saved in the PC in common text format.
- The log keeps track of commands given to the transmitter and of all the alarms happened, to rebuild accurately the all history of the transmitter.
- Memory and recall of 10.000 working parameters pre-settings. The parameters of each station on the network can be memorized like: name, frequency, audio settings, alarms settings, etc.
- Modulation monitor generate alarms or warnings with programmable level thresholds and time for any audio and auxiliary inputs.
- Overall Electrical Efficiency up to 75%
- STEREO GENERATOR: High performance built-in digital stereo coder with stereo separation >65dB and signal/noise ratio >85dB assures the highest audio quality.
- AES/EBU digital interface (optional). Standard AES/EBU digital stereo audio interface available as option.
- Limiter keeps the maximum frequency deviation within international requirements to avoid over-modulation and adjacent channels invasion.
- The transmitter has two software levels of VSWR alarms: a Warning and a Failure Level.
- N+1 facility (optional).N+1 facility control available to modify remotely the frequency and power output for redundant systems.
- Switch-mode power supply with power factor control.
 - Highly efficient and widely over-rated power supply modules insure low heating
 - Low AC power consumption and superior reliability.
 - The power factor control circuitry meets all the international requirements for mains network disturbances.
- Over-dimensioned cooling system limits the heat-sink temperature rise to only 10°C above ambient temperature to properly operate even in high ambient temperature sites with hard climate conditions.
- Very small dimensions and low weight, reduce transport costs and simplifying the logistic.
- High frequency stability. In short and long terms is assured by Digital Phase Locked Loop circuit with low drift quartz.
- High frequency stability, in short and long terms, is assured by Digital Phase Locked Loop circuit with low drift VTCXO
- External reference oscillator: 10 MHz input SMA 0 dBm.
- Frequency Agile Broadband programmability from the front LCD panel with 10 KHz steps without any tuning or adjustment.
- Meets or exceeds all the international standards for safety and electrical specifications.

The new MOZART Collection is the latest audio excellence in the FM Broadcasting industry with with the revolutionary GREEN RF™ High Efficiency technology.

GREEN RF™ technology combined with new **65:1** devices is the latest evolution of the world wide famous patented **COLD FET™** and provides:

- Lowest weight and dimensions in the industry
- **LOWEST 2 YEARS COSTS:** transmitter price + 2 years AC power consumption costs + 3 years maintenance fees is the lowest total amount in the market.
- This advantage increases years by years.
- **3 YEARS OF ENERGY SAVING** are enough to repay the transmitter purchase cost (for powers > 2 kW)
- Ultra High RF efficiency (>80 % typ.) software optimized for each power level.
- Lower AC power consumption
- Lower device heating
- Lower room heating
- Lower space occupied
- Lower maintenance needed

65:1 Technology provides:

- Rugged VSWR capacity 65:1
- Higher devices safety
- Higher reliability
- Protects the transmitter against any level of VSWR.
- The robustness is total.
- The electronic protections present on the transmitter have the mission to protect connectors, cable and antenna!

Highlights Characteristics:

- **AIR FILTER:** available as an option on all Mozart transmitters
- **WEB-Server:** SNMP 2C version
- **HOT-PLUG POWER SUPPLY:** Maintenance time 1 Minute!
- **HOT-PLUG FANS:** Maintenance time 5 Minutes!
- Ultra-light weight RACK
- Expandable from 1 Minute! 1 to 3 kW
- **ONLY 4 rack units** for 3 kW transmitter
- Protection against shocks: Mechanically studied to prevent damage to connectors, fans, and all the parts that typically may be damaged during transport or installation.
- **AAD Technology:**
- The construction is totally in aluminum.
- The air is ducted to reduce the electronic boards' contact.
- The electronic boards are tropicalized with a special resin to protect the circuits against salt air.
- All this prevents the corrosion produced by the air and increases the reliability.
- Soft protections provide uninterrupted service, an intelligent protection circuit reduces the output power without any on-air interruption, keeping the RF devices, the cable and the antenna always within the safe operating parameters in the event of:
 - Load mismatching
 - Environmental over-temperature
 - Cooling failure
 - Failure in one or more amplification modules
 - Failure in power supply modules
- Fast Hardware protections prevent hardware failures in case of very fast events that can damage the transmitter.
- Modular design. The modular internal construction of the MOZART transmitters/exciters widely simplifies the maintenance with easy identification of the modules and reduced number of interconnections among them.
- Compact size and reduced weight. The series is characterized by very small dimensions and very low weight, reducing transportation costs and simplifying the logistic.
- Reduced maintenance. Easy accessibility of all parts, external 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.

Mozart 100/150/300/500/1000 Compact



Mozart 1000 Modular



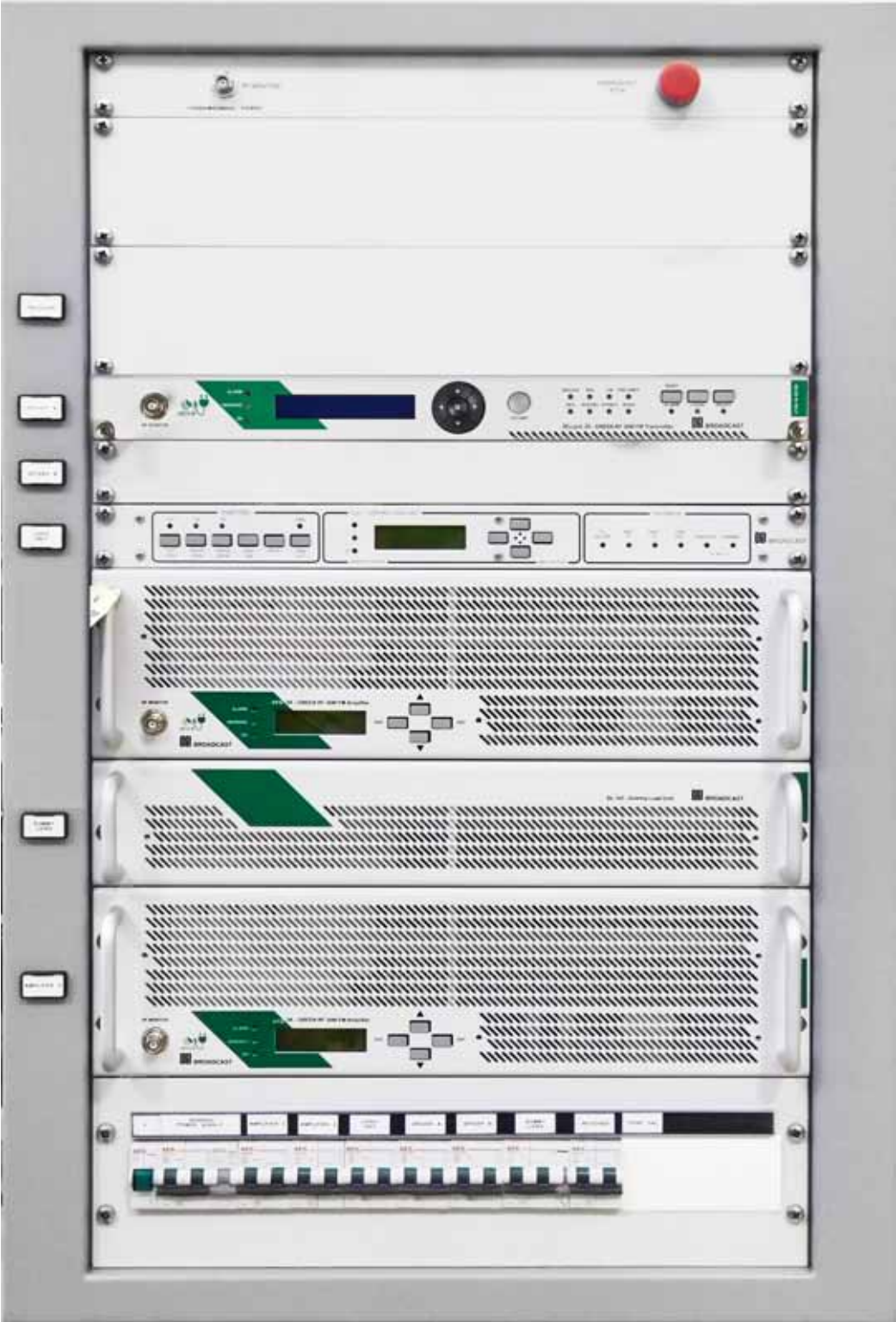
Mozart 2000/3000 Compact



Mozart 2000/3000 Modular



Mozart 5000 Modular



WEB Page and SNMP

The image displays the web interface for an EBS TF-250 FM Exciter. At the top, there is a header with the EBS logo and the text "european broadcast systems". Below this, a status bar shows various parameters: Freq. 98 MHz, Set Fwd 251.2 W (with V pa 4.07 V and I pa 0 A), Fwd 251.2 W (with RF Temp. 0 °C and Etw. Temp. 25 °C), Rfl 0 W, and Mod 0 KHz. A control panel below the status bar includes buttons for On Air, MEM 1-6, LOCK, Mono, Stereo, AES/EBU, MPX, Warning, Fault, InitLock, Pre-Emph, Limiter, RDS Int, and RDS Ext, along with On/Off and Reset buttons.

The main content area is divided into two sections. On the left, a "TF-250 FM EXCITER" status page shows the date "15:00 23 March 2012" and "LOGIN STATUS: Admin". On the right, a "Login Page" prompts for "USER ID" and "PASSWORD" with "Login" and "Logout" buttons.

Below the login page, a "Log" section displays a list of system events. The log entries are as follows:

Time	Event
00992	15:07 23/03/2012 OFF button (20)
00991	15:07 23/03/2012 ON button (19)
00990	14:51 23/03/2012 Remote mode (16)
00989	14:51 23/03/2012 RDS OK (35)
00988	14:50 23/03/2012 NO RDS (34)
00987	14:50 23/03/2012 RDS OK (35)
00986	14:48 23/03/2012 END PCD (27)
00985	14:48 23/03/2012 END PCD (27)
00984	14:48 23/03/2012 Local mode (15)
00983	14:47 23/03/2012 Remote mode (16)
00982	14:47 23/03/2012 PLL LOCK (23)
00981	14:46 23/03/2012 PLL UNLOCK (23)
00980	14:46 23/03/2012 Frequency change (14)
00979	14:46 23/03/2012 Local mode (15)
00978	12:46 23/03/2012 Remote mode (16)
00977	12:43 23/02/2012 Local mode (15)
00976	12:42 23/02/2012 Remote mode (16)
00975	12:41 23/02/2012 Local mode (15)
00974	12:37 23/02/2012 Remote mode (16)
00973	12:36 23/02/2012 Local mode (15)
00972	12:29 23/02/2012 Remote mode (16)

At the bottom of the log section, there are buttons for "Download log" and "Reset current log".