

Passion

for **FM** & **TV**

Broadcasting

MOZART Series
Green RF technology High Efficiency
120W to 5000W
Compact and Modular FM Transmitters



TV **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 FCC-CCIR-others (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, 50 Ω or 10 k Ω unbalanced
	Audio Input Level	wide range front panel settable from -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 SPECIFICATIONS	Audio Input Impedance	600 Ω balanced, 50 Ω or 10 k Ω unbalanced
	Audio Input Level	wide range front panel settable from -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	> 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	STEREO 256KF3E	
MULTIPLEX SPECIFICATION MPX INPUT	Composite Input Impedance	10 k Ω unbalanced
	Composite Input Level	wide range front panel settable from -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 (Range tolerance better than 10%)
	AC input power	90 ÷ 260 VAC 50/60 Hz Three-phase plus Neutral (Range tolerance better than 15%)
	Cooling	Forced air with internal fan
	Operating temperature	- 10°C to +50 °C
	Relative humidity	Up to 95%
OVERAL CHARACTERISTICS	RF Amplifier Technology	New generation of MOSFET type transistors-High Efficiency 65:1 LDMOS
	Control Technology	Microprocessor
	Front Pannel Control	Display LCD
	Telemetry	RS232 or WEB server via IP

Model	Maximum output power	Maximum Reflected Power	Output Connector	Power Consumption (Aprox)
Mozart100	120W	15W	N	200VA
Mozart300	330W	45W	N	500VA
Mozart500	600W	75W	N or 7/16 or 7/8	760VA
Mozart1000	1150W	150W	7/8	1600VA
Mozart2000	2200W	300W	7/8	2850VA
Mozart3000	3300W	450W	7/8	4300VA

MAIN CHARACTERISTICS

- Output power 30-50-120-150-300-500-1000-2000-3000-5000W.
- 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 Allarm, On Air, Warning, Allarm, Interlock, Audio Allarm, 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 propri etary 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 adjust ment.
- 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

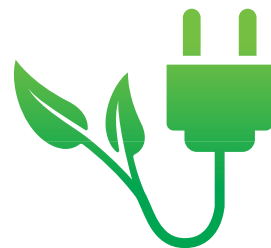
65:1 Technology provides:

- 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 screenshot displays the web interface for an FM transmitter. At the top, there are status indicators for On, Local, Alarm, Fault, IntLock, Mono, Stereo, AES/EBU, MPX, MEM 1, MEM 4, Warning, Audio, On Air, LOCK, Pre-Emph, Limiter, RDS Int, RDS Ext, MEM 2, MEM 5, MEM 3, and MEM 6. Below this is the 'Settings Page' for the 'FM TRANSMITTER'. The page shows the current date and time (13:05:30 July 2013) and the login status (Admin). A navigation menu on the left includes links for Main, Login, Settings, Presettings, Log, Administration, Modulator Upgrade, and Web Server Upgrade. The main settings area includes fields for Frequency (95 MHz) and Power (0 W), and a list of adjustable parameters such as Impedance, Limiter, Preemphasis, Mode, AES ratio, AES interface, AES enable, RDS external, Active memory, L&R-Sensitivity, L-Sensitivity, R-Sensitivity, MPX-Sensitivity, AUX 1-Sensitivity, RDS-Sensitivity, SCA Sensitivity, LR-AES Deviation Ref., MPX Deviation Ref., and AUX Deviation Ref. At the bottom, there are buttons for 'Apply', 'Save', 'Delete', and 'Download to PC', along with a 'Settings ID' field and an 'ADD NEW ONE' button.