

20000 W 20 kW FM TRANSMITTER



**FM TRANSMITTER
AIR COOLED**



Modular FM Line - High Power Air Cooled

Composed of a PCM FM exciter plus single or multiple air or liquid cooled amplifiers, with a central control unit. All amplifiers are intrinsically redundant with multiple RF pallets and nr.3 hot-pluggable power supplies in 2+1 configuration.

The cooling system has been designed with the aim to keep the active components temperature as low as possible extending their life and improving the transmitter overall reliability.

The control unit of each amplifier communicates with the central logical unit which controls the complete system, manageable by the touch screen display or remotely by SNMP or web GUI.

- ☐ DSP/DDS based modulator
- ☐ Fully frequency agile without need for any tuning or trimming.
- ☐ Hot plug in PSU
- ☐ FM Repeater and Transposer (optional)
- ☐ DVB-T/T2-S/S2 input with decoding function (optional)
- ☐ GPS receiver with extremely precise OCXO (optional)
- ☐ Built-in Dynamic RDS Encoder
- ☐ USB input to fast save/load configurations
- ☐ Built-in GPS for SFN application (optional)
- ☐ Remote control via SNMP, friendly web browser GUI, no need of plug-in or apps, dry contacts
- ☐ High efficiency up to 78% to minimize consumption and OPEX.

The most fully featured HD Sound FM transmitter ever, digital processing completely based on FPGA technology granting crystal clear and highly stable audio performances. Inputs: L&R, MPX, AES-EBU and MPX over IP audio inputs. On-board Dynamic RDS. 1 pps and 10 MHz. Single Frequency Network: An optional GPS receiver, an extremely precise built-in OCXO, backed by a proprietary SW sharpened by years of on-field tests, allows the realization of FM Single Frequency Networks, where the interference area can be totally managed.

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TECHNICAL FEATURES:

Working bandwidth:	76 ÷ 108 MHz (66÷73 MHz available)
Frequency stability:	< ± 1 Hz when 10 MHz ext. Reference absent (with No modulation). < ± 0,1 Hz in presence of 10 MHz ext. Reference (with No modulation). In absence of the 10MHz external reference the modulator automatically swap to the internal one
Output power:	20000 W adjustable
Output connector:	1 5/8" EIA, 50 Ohm
Harmonics Attenuation:	≥80dB
Frequency Deviation:	$\Delta F \pm 75$ KHz ... ± 100 KHz (max.).
MPX Input:	band 40 Hz ... 100 KHz impedance > 2K Ω o 600 Ω Input level adjustable from -12dBu up to +12dBu @ 0,1 dB steps (Sensitivity tunable by web pages)
MONO Input: (L input is the default input, it can be set by the web pages on L or R input)	40 Hz ... 15 KHz impedance > 2K Ω o 600 Ω pre-emphasis 0/50/75 μ s, input adjustable on the L or R input (locally or remotely). Level from -12dBu ... up to +12dBu @ 0,1 dB steps (Sensitivity tunable by web pages).
AUDIO AUX Input:	from 21 KHz ... up to 100 KHz with adjustable input -12 dB ... 3dB @ 0,1 dB steps for a $\Delta f \pm 10$ KHz (Sensitivity tunable by web pages).
L and R Inputs:	Built-in stereo encoder. impedance > 2K Ω o 600 Ω pre- emphasis 0/50/75 μ s (locally or remotely). Input level from -12dBu up to +12dBu @ 0,1 dB steps for $\Delta f \pm 75$ KHz. Clipper Δf : Clipper profile: OFF – normal – hard -ideal (remotely by the web pages).
Audio/ AUX over IP	GBE input / SFP connector on rear panel
AES3/EBU Input:	Impedance 110 ohm Sensitivity from 0dBFs up to – 24dBFs @ 0.1 dB steps
RDS Input:	Built-in dynamic RDS encoder
MONO/RDS:	Available
RF IN (repeater/transposer)	50 Ohm, connector N Female Type Dynamic range -80÷-20dBm
ASI IN (Decoding)	75 Ohm BNC Female Type
DVB IN (T7T2-S/S2)	50 Ohm F Female Type Dynamic range -80÷-20dBm decoding function supported descrambling function supported (with opt CAM slot)

INPUT FEATURES

Max. Deviation:	From 50 up to 100 kHz @ 1 KHz steps
Delay time:	Alarm activation in case of modulation signal missing From 10 up to 120 s @ 1 s steps
Threshold:	Alarm activation in case of modulation signal missing From – 20 up to -50 dBr @ 1 dB steps
Modulation signal missing alarm:	On all input signal
Static Delay:	Between input and output signals From 0 to 900 μ s @ 0.1 μ s steps

SV
Yes

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STEREO OUTPUT SPECIFICATIONS with L/R and MPX INPUT	
Amplitude/frequency:	<< 0.1 dB (40 Hz – 100 KHz)
	(Measured with $\Delta f \pm 75$ kHz)
Total Harmonic Distortion +Noise:	0.03% @ 400Hz
AM Noise: (MPX Input)	≤ -60 dB ref. amplitude modulation 100% of the carrier
Synchronous AM: (MPX Input)	With $f = 400$ Hz and $\Delta f \pm 75$ KHz ≤ -50 dB ref. amplitude modulation 100% of the carrier.
S/N:	Stereo/mono > 80 dB ($f=400$ Hz with $\Delta f \pm 75$ kHz)
Linear Crosstalk: (L/R Input)	< - 72 dB (40 Hz - 15 kHz) (Measured with $\Delta f \pm 75$ kHz)
SYNCHRONIZATION	
Sync receiver/Connector/Impedance	Internal / connector type "N" / 50 Ohm
Standard	GNSS Receiver (Optional)
Ext ref Input	1x 10 MHz (connector BNC 75 ohm) 1PPS (connector BNC 75 Ohm)
CONTROL AND MONITORING	
Local	Graphic display with push buttons
Remote	SNMP V2C / web pages/ RS232/ TLS-TLC GSM/UMTS/GPRS as option
GENERAL SPECIFICATIONS	
Mechanical dimensions	(19") Rack 36 Unit 800mm
Weight	240kg
Power Supply	Three phase 400Vac $\pm 15\%$
Efficiency	Up to 78%
ENVIRONMENTAL CONDITIONS	
Max Altitude	4000 m a.s.l.
Working temperature range	-10÷50°C
Max relative humidity	95% @ 35°C non condensing

Features and specifications subject to change without notice

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