

RFE

MAKING
BROADCAST
SMARTER

HP DS12kW FM Transmitter

FM TRANSMITTERS - DS SERIES 2019



TECHNICAL SHEET - UPDATED FEBRUARY 2019



HP DS12kW FM Transmitter

PRODUCT DESCRIPTION

Available with RF nominal power of 11500W

The High Power 10 kW FM Transmitter, available also at 12 kW power level, combines a very compact size [28" RU] with RFE most innovative technologies in terms of efficiency, costs and maintenance. A reliable solution, performing ease of use, high reliability and simple control.

The standard configuration includes various features, while others are available on request.



Also available in a redundant hot plug and liquid cooled version

MAIN FEATURES

- Highest overall efficiency $\geq 72\%$
- Nominal RF power up to 11500W
- Front Panel Hot-Swap power supplies
- UAQ Ultimate Audio Quality
- High stereo performance typ. 60 dB
- Remote Control through mobile APP
- Web TCP/IP
- 6th LD-MOS generation VSWR 65:1
- Large LCD color display with touch panel
- CCIR & FCC compliant

OPTIONS

- DDS Direct Digital Synthesis
- AES/EBU Audio Input
- RDS/RBDS coder
- SNMP V2-V3 remote control
- OIRT and JPN version
- Audio Over IP
- Liquid cooled
- Hot Plug RF Amplifier
- GPS Telemetry
- SFN Reference
- Deep Tropicalization



PRODUCT INNOVATION

The High Power 10 kW FM Transmitter is provided with the best available technologies developed by RFE Laboratories. Our innovative solutions are carefully designed in order to always guarantee efficiency, reliability and ease of use.

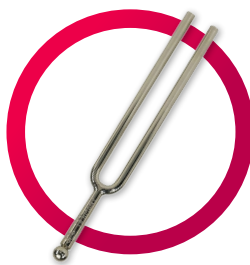
Maximized Efficiency System

MES is an intelligent system of automatic regulation of the power devices working point: efficiencies RF/AC up to 85% and reduction of air and electricity consumption.



Ultimate Audio Quality

UAQ is a sophisticated system that allows to obtain audio quality levels higher than industry standards and the current characteristics of digital modulations.



Intelligent Air Cooling System

ICS is a smart innovation that regulates the amount of cooling air according to the environmental conditions and the needs of the transmitter, reducing energy waste.



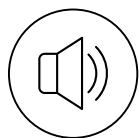
Evolution Touch

Quick and intuitive control of the Transmitter thanks to the full colour touch screen, an easy-to-use LCD display installed on the device front panel.



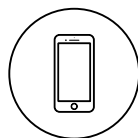
Software Energy Saving

Energy and time saving through RFE smart software, directly installed on the Transmitter: the innovative firmware ensuring easy control and high performance.



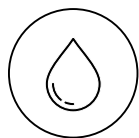
Full Audio Interface

All the basic audio features included in RFE Transmitters: L+R board, MPX audio and Stereo coder in order to obtain almost digital audio quality.



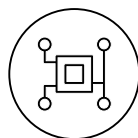
Mobile Remote Control

Complete and remote control of the Transmitter via mobile, web or GSM, monitoring every function in total comfort.



Liquid Cooling System AVAILABLE ON REQUEST

RFE innovative solution designed to improve the action of cooling the Transmitter by using liquids such as water, instead of the usual air system.



Direct Digital Synthesis AVAILABLE ON REQUEST

The innovation of the digital audio modulator, a smart technology able to further improve audio quality by producing digital sound.



GENERAL

Power Output	10000W [typ. 11500W] adjustable from front panel
RF Output Impedance	50 ohm
RF Output Connector	1+5/8" type
Monitor RF	BNC connector
VSWR	1,5:1 WITH AUTOMATIC FOLDBACK
Frequency Range	87.5 ÷ 108.00 MHz, on request 66 ÷ 74 MHz (OIRT) 76 ÷ 90 MHz (JPN) Programmable in 10kHz steps
Frequency Stability	±1 ppm from -5 to 45°C
Type of Modulation	Analog
Off Lock Attenuation	≥ -80 dBc
Modulation Capability	±150 KHz
Limiter built in	
Power Good Detector	adjustable from 20÷90% of the power
Audio Presence Detector	adjustable time from front panel
External AGC	Automatic, with fine ADJ back panel
Modulation Mode	Mono, Stereo, Multiplex, SCA, RDS, Aux
Preemphasis	Flat/50/75µs selectable from front panel
Asynchronous AM S/N Ratio	-70 dB
Synchronous AM S/N Ratio	-60 dB
RF Harmonics	Exceeds EBU/CCIR/FCC requirements
RF Spurious	Exceeds EBU/CCIR/FCC requirements

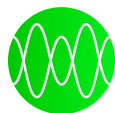
MONO
OPERATION

Audio Input Impedance	600 ohm - 10 Kohm balanced
Audio Input Level	-6 to +12 dBm
Input Connector	XLR female
Audio Frequency Response	±0.1 dB, 20 Hz to 15 KHz
Total Harmonic Distortion + Noise	0.1% @ 400 Hz
Intermodulation Distortion	0.1%, 1 KHz/1.3 KHz, 1:1 ratio
Transient Intermodulation Distortion	0.1% 2.96KHz square wave and 14 KHz sine wave
Distortion	0.1% 2.96KHz square wave and 14 KHz sine wave
FM S/N Ratio	-80 dB ±75 KHz dev.

STEREO
OPERATION

Audio Input Impedance	600 ohm - 10 Kohm balanced
Audio Input Level	-6 to +12 dBm
Input Connector	XLR female
Audio Frequency Response	±0.1 dB, 20 Hz to 15 KHz
Total Harmonic Distortion + Noise	0.1% @ 400 Hz
Intermodulation Distortion	0.1%, 1 KHz/1.3 KHz, 1:1 ratio
Transient Intermodulation Distortion	0.1% 2.96KHz square wave and 14 KHz sine wave
FM S/N Ratio	-80 dB below ±75 KHz dev.
Stereo Separation	@1kHz ≥ -60dB
Crosstalk attenuation	Main to Sub -70 dB 30 Hz to 15 KHz
38 KHz Suppression	≥ -85 dB
Pilot Frequency	19 KHz ± 1 Hz
Output Pilot	1 Vpp., BNC female





MULTIPLEX OPERATION	Composite Input Impedance	2 Kohm unbalanced
	Composite Input Level	-6 to +12 dBm
	Input Connector	BNC female
	Composite Amplitude Response	±0.1 dB, 30 Hz to 100 KHz
	Total Harmonic Distortion + Noise	0.1% @ 400 Hz
	Intermodulation Distortion	0.1%, 1 KHz/1.3 KHz, 1:1 ratio
	Transient Intermodulation Distortion	0.1% 2.96KHz square wave and 14 KHz sine wave
	FM S/N Ratio	-80 dB below ±75 KHz dev.
AES/EBU OPERATION	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
SCA, RDS, AUX OPERATION	Input Impedance	≥ 2 Kohm
	Input Level	-6 to +12 dBm
	Frequency Response	±0.1 dB, 50 KHz to 100 KHz
	Input Connector	BNC female
AUXILIARY CONNECTIONS	RS485	DB9 connector back panel
	Telemetry Interface	connector DB25 back panel
	LAN	RJ45 connector back panel
	MPX OUT	connector BNC back panel
OPTIONS		AES/EBU -SPDIF
		RDS/RBDS Programmable Coder via PC
		OIRT or JPN version
		SNMP v2-v3
		Audio Over IP
		DDS Direct Digital Synthesis
		SFN Reference
ELECTRICAL	AC Input Power	200-400 VAC 50/60 HZ 3phase+N
	AC Apparent Power Consumption	13500VA @ 10000W
	Cos Ø	> 0.98
	Cooling	Forced air or Liquid Cooling [optional]
	Acoustic noise	< -56 dBa @ 1 meter
ENVIRONMENTAL	Operating temperature	-10°C to +50°C
	Max Operating Altitude	4500 mt
	Relative Humidity Range	0 to 90%
PHYSICAL DIMENSION	Mounting	Standard 19" chassis 24 U rack
	Size	W x 580mm D x 1050mm H x 1513mm
	Weight	~ 250 Kg

