

RFE

MAKING  
BROADCAST  
SMARTER

# DS Series Medium Power 2kW-3kW FM Transmitter

FM TRANSMITTERS - DS SERIES 2019



TECHNICAL SHEET - UPDATED FEBRUARY 2019



# DS Series Medium Power 2kW-3kW FM Transmitter



## PRODUCT DESCRIPTION

Available with RF nominal power of 1500W, 2000W, 3000W

The Medium Power 2.2 kW and 3.3 kW FM Transmitters combine a very compact size (only 3RU) 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 version starting from 2019

## MAIN FEATURES

- Highest overall efficiency  $\geq 73\%$
- Nominal RF power up to 1500W, 2000W, 3000W
- UAQ Ultimate Audio Quality
- High stereo performance typ. 60 dB
- Remote Control through mobile APP
- Web TCP/IP
- 6<sup>th</sup> LD-MOS generation VSWR 65:1
- Large LCD color display with touch panel
- Ac mains 90-260 VAC extend range with PFC
- 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
- GPS Telemetry
- SFN Reference
- Deep Tropicalization



## PRODUCT INNOVATION

The Low Power Series of 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.

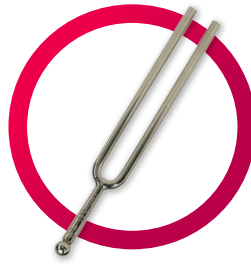
### Maximized Efficiency System

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.



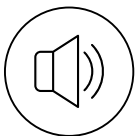
### Evolution Touch

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.



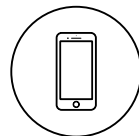
### Software Energy Saving

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



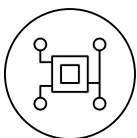
### Full Audio Interface

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.



### 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**

<b>Power Output</b>	1500W, 2000W, 3000W adjustable from front panel
<b>RF Output Impedance</b>	50 ohm
<b>RF Output Connector</b>	7/8" (1500-2000-3000W)
<b>Monitor RF</b>	BNC connector
<b>VSWR</b>	1,5:1 WITH AUTOMATIC FOLDBACK
<b>Frequency Range</b>	87.5 ÷ 108.00 MHz, on request 66 ÷ 74 MHz [ OIRT] 76 ÷ 90 MHz [JPN] Programmable in 10kHz steps
<b>Frequency Stability</b>	±1 ppm from -5 to 45°C
<b>Type of Modulation</b>	Analog
<b>Off Lock Attenuation</b>	≥ -80 dBc
<b>Modulation Capability</b>	±150 KHz
<b>Limiter built in</b>	
<b>Power Good Detector</b>	adjustable from 20÷90% of the power
<b>Audio Presence Detector</b>	adjustable time from front panel
<b>External AGC</b>	Automatic, with fine ADJ back panel
<b>Modulation Mode</b>	Mono, Stereo, Multiplex, SCA, RDS, Aux
<b>Preemphasis</b>	Flat/50/75µs selectable from front panel
<b>Asynchronous AM S/N Ratio</b>	-70 dB
<b>Synchronous AM S/N Ratio</b>	-65 dB
<b>RF Harmonics</b>	Exceeds EBU/CCIR/FCC requirements
<b>RF Spurious</b>	Exceeds EBU/CCIR/FCC requirements

**MONO  
OPERATION**

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

**STEREO  
OPERATION**

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





<b>MULTIPLEX OPERATION</b>	<b>Composite Input Impedance</b>	2 Kohm unbalanced
	<b>Composite Input Level</b>	-6 to +12 dBm
	<b>Input Connector</b>	BNC female
	<b>Composite Amplitude Response</b>	±0.1 dB, 30 Hz to 100 KHz
	<b>Total Harmonic Distortion + Noise</b>	0.1% @ 400 Hz
	<b>Intermodulation Distortion</b>	0.1%, 1 KHz/1.3 KHz, 1:1 ratio
	<b>Transient Intermodulation Distortion</b>	0.1% 2.96KHz square wave and 14 KHz sine wave
	<b>FM S/N Ratio</b>	-80 dB below ±75 KHz dev.
<b>AES/EBU OPERATION</b>	<b>Input Connector</b>	XLR female, optical TOS-LINK
	<b>Input Impedance</b>	110 ohm
	<b>Input Level</b>	-20 to +0 dBfs
	<b>Data Format</b>	S/PDF, AES/EBU, IEC958, EIAJCP340/1201
	<b>Sampling Frequency</b>	from 32 to 96 KHz
<b>SCA, RDS, AUX OPERATION</b>	<b>Input Impedance</b>	≥ 2 Kohm
	<b>Input Level</b>	-6 to +12 dBm
	<b>Frequency Response</b>	±0.1 dB, 50 KHz to 100 KHz
	<b>Input Connector</b>	BNC female
<b>AUXILIARY CONNECTIONS</b>	<b>RS485</b>	DB9 connector back panel
	<b>Telemetry Interface</b>	connector DB25 back panel
	<b>LAN</b>	RJ45 connector back panel
	<b>MPX OUT</b>	connector BNC back panel
<b>OPTIONS</b>		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
<b>ELECTRICAL</b>	<b>AC Input Power</b>	90÷260 VAC 1phase, 180÷400 VAC 50/60 HZ 3phase
	<b>AC Apparent Power Consumption</b>	2100VA @ 1500W, 2800VA @ 2000W, 4200VA @ 3000W
	<b>Cos Ø</b>	> 0.98
	<b>Cooling</b>	Forced air
<b>ENVIRONMENTAL</b>	<b>Operating temperature</b>	-10°C to +50°C
	<b>Max Operating Altitude</b>	4500 mt
	<b>Relative Humidity Range</b>	0 to 90%
<b>PHYSICAL DIMENSION</b>	<b>Mounting</b>	Standard 19" chassis 3 U rack
	<b>Size</b>	W x 570 mm. D x 450 mm. H x 132 mm
	<b>Weight</b>	~ 22 Kg

