



# RFE

MAKING  
BROADCAST  
SMARTER

## DS6000

High Power FM Transmitter





# High Power FM Transmitter



## PRODUCT DESCRIPTION

The DS6000 FM Transmitter features very compact dimensions associated with RFE most innovative technological characteristics. A reliable device, easy to be used and controlled, including the best performances in a small size.

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

## MAIN FEATURES

- Highest overall efficiency > 73% with Software Energy Saving
- Large LCD color display with touch panel
- Nominal Output Power 50W ~ 1000W
- UDAQ Ultimate Digital Audio Quality
- High stereo performance typ. 60 dB
- 6th LD-MOS generation VSWR 65:1
- CCIR & FCC Compliant

## OPTIONS

- DDS Direct Digital Synthesis
- RDS/RBDS coder
- SNMP v2 remote control
- OIRT and JPN version
- Audio Over IP
- GSM Telemetry
- SFN Reference
- Deep Tropicalization





**GENERAL**

<b>Power Output</b>	6000W adjustable until to 110% of nominal power
<b>RF Output Impedance</b>	50 ohm
<b>RF Output Connector</b>	7/8"
<b>Monitor RF</b>	BNC connector.
<b>VSWR</b>	max 1.8:1 (8% of nominal power)
<b>Frequency Range</b>	87.5 ÷ 108.00 MHz, Programmable in 10 kHz steps. (Other frequencies on request)
<b>Frequency Stability</b>	≤±1 ppm from -5 to 45°C Frequency accuracy best than± 50 Hz in short period ± 150 Hz max after one month
<b>Off Lock Attenuation</b>	≤ -80 dBc
<b>Modulation Capability</b>	max ±150 kHz (nominal ±75 kHz±5%).
<b>Power Good Detector</b>	adjustable from 20÷90% of the power
<b>Audio Presence Detector</b>	adjustable level and time
<b>Modulation Mode</b>	Mono, Stereo, Multiplex, SCA, RDS
<b>Preemphasis</b>	Flat/50/75µs selectable from front panel
<b>Residual AM Synchronous</b>	≤ -50 dB
<b>Asynchronous AM S/N Ratio</b>	≤-70 dB @100% AM without Modulation
<b>Synchronous AM S/N Ratio</b>	≤-60 dB @100% AM with Modulation
<b>RF Harmonics</b>	≥ 80dBc - Exceeds EBU/CCIR/FCC requirements.
<b>RF Spurious</b>	≥ 80dBc - Exceeds EBU/CCIR/FCC requirements.

**MONO  
OPERATION**

<b>Audio Input Impedance</b>	600 ohm balanced - ≥10 kOhm.
<b>Audio Input Level</b>	-6 to +12 dBm adjustable in 0.1 dB steps
<b>Input Connector</b>	XLR female
<b>Audio Frequency Response</b>	±0.15 dB, 30 Hz to 15 kHz
<b>Total HarmonicDistortion</b>	≤0.1% with or without pre-emphasis (range ±75KHz)
<b>Total HarmonicDistortion + Noise</b>	≤-0.15% with or without pre-emphasis (range ±75KHz)
<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>	≤-75 dB below ±75 kHz deviation (unweighted). ≤-70 dB below ±75 kHz deviation (weighted)





**STEREO  
OPERATION**

<b>Audio Input Impedance</b>	600 ohm balanced -10 KOhm
<b>Audio Input Level</b>	-6 to +12 dBm adjustable in 0.1 dB steps
<b>Input Connector</b>	XLR female
<b>Audio Frequency Response</b>	±0.1 dB, 30 Hz to 15 kHz
<b>Total HarmonicDistortion</b>	≤0.1% with or without pre-emphasis [range ±75KHz]
<b>Total HarmonicDistortion + Noise</b>	≤-0.15% with or without pre-emphasis [range ±75KHz]
<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>	≤-70 dB below ±75 kHz deviation (unweighted). ≤-70 dB below ±75 kHz deviation (weighted)
<b>Stereo Separation</b>	≥ 40dB from 30Hz to 15kHz (typ 60dB @ 1kHz)
<b>Crosstalk attenuation</b>	Main to Sub ≤-60 dB 30 Hz to 15 kHz
<b>38 kHz Suppression</b>	≤ -75 dBc
<b>Pilot Frequency</b>	19 kHz ± 2 Hz
<b>Output Pilot</b>	1 Vpp. [selectable], BNC female

**MULTIPLEX  
OPERATION**

<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>	±0.1dB, 30Hz to 100kHz.
<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>	-75 dB below ±75 kHz deviation

**AES/EBU  
OPERATION**

<b>Input Connector</b>	XLR female.
<b>Input Impedance</b>	110 ohm
<b>Input Level</b>	-20 to -3 dBfs
<b>Data Format</b>	24 bit [automatic]
<b>Sampling Frequency</b>	from 32 to 96 kHz [automatic]

**SCA, RDS  
OPERATION**

<b>Input Impedance</b>	≥ 2 kOhm
<b>Input Level</b>	-6 to +12 dBm adjustable in 0.1 dB steps
<b>Frequency Response</b>	±0.1 dB, 50 kHz to 100 kHz
<b>Input Connector</b>	BNC female.

**INTERNAL RDS  
CODER**

<b>Type</b>	Dynamic, Compliant to CENELEC Spec. [EN50067]
<b>Frequency</b>	57 kHz ± 3 Hz
<b>Synchronization</b>	19kHz ± 3 Hz Internal or External [Software selectable]
<b>Interface</b>	RS232 Asynchronous [1200 to 19600 baud] LAN/IP using the RDS-IP-100 Optional Interface
<b>Services</b>	PI, PS, TP, TA, PTY, M/S, DI, CT, RT, AF, IH.
<b>Memories</b>	6 memory programs.
<b>Coding</b>	Differential and Bi-phase
<b>Amplitude Modulation</b>	Double band with Carrier Suppression
<b>Other Feature</b>	In case of RDS coder fault the Transmitter keep broadcasting.

**OTHER FEATURES**

<b>Power Reduction</b>	permits the reduction of the output power. Time and power adjustable from the front panel.
<b>Audio Changeover</b>	permits the automatic switching of the main audio source to a backup audio source in case of the main audio absence.





**AUXILIARY  
CONNECTIONS**

<b>RS485</b>	DB9 connector back panel.
<b>Telemetry Interface</b>	connector DB25 back panel (I/O and Relay Contact)
<b>LAN</b>	RJ45 connector back panel (Web Interface)
<b>MPX OUT</b>	connector BNC back panel.

**OPTIONS**

	SNMP v2c
	Audio Over IP
	DDS Direct Digital Synthesis

**ELECTRICAL**

<b>AC Input Power</b>	Half Power: 3 x 115 VAC 50/60 Hz single phase Full Power: 3 x 230 VAC 50/60 Hz single phase
<b>AC Apparent Power Consumption</b>	7500 VA;
<b>Cos<math>\Phi</math></b>	> 0.95
<b>Cooling</b>	Forced air.

**ENVIRONMENTAL**

<b>Acoustic noise</b>	< 56 dBa @ 1 meter max.
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<b>Operating temperature</b>	-10°C to +50°C
<b>Max Operating Altitude</b>	4500 mt.
<b>Relative Humidity Range</b>	0 to 90%

**PHYSICAL  
DIMENSION**

<b>Mounting</b>	Standard 19" chassis 2 U rack
<b>Size</b>	W x 483 mm. D x 600 mm. H x 176 mm
<b>Weight</b>	~ 30 Kg

**ORDERING  
INFORMATION**

<b>Description</b>	<b>Ordering Code</b>
DS6000 - 6kW FM Transmitter	ATF00610-R
Internal Advanced RDS	ALV01210
Advanced Web Server & SNMPv2c	AT000440

**SUGGESTED  
SPARE PARTS**

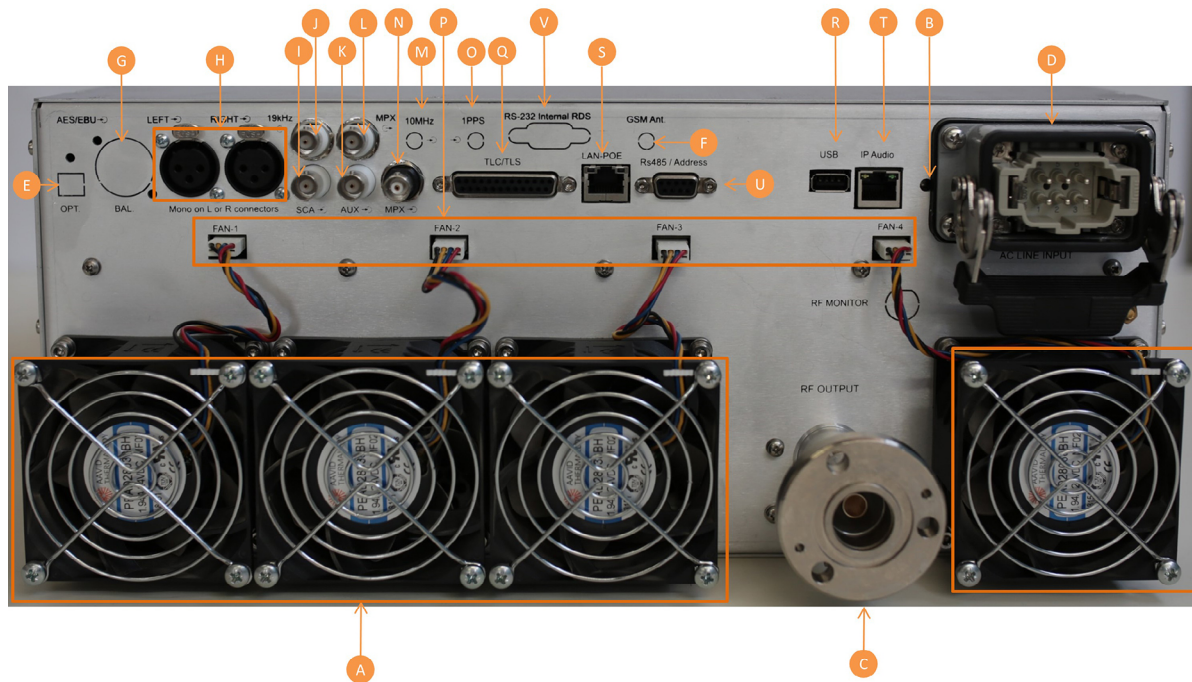
<b>Description</b>	<b>Ordering Code</b>
1100W Pallet Amplifier	AMF00400
80x80x38 4 wire Fan	FAD80-24D
Main Power Supply	PSA3500-48-A
Aux Power Supply	PSA65-24-B







## Rear Panel Connectors



On the rear panel connectors are located as follows:

<b>A</b>	Fans	
<b>B</b>	Reset for SNMPV2 Server [opt.]	
<b>C</b>	RF Output	7/8 connector
<b>D</b>	AC Mains	6-poles AC connector
<b>E</b>	AES/EBU input	TOS-LINK Optical [optional]
<b>F</b>	GSM Ant.	Optional
<b>G</b>	AES/EBU electrical input	XLR/TOS-LINK connector [optional]
<b>H</b>	L/R audio input	XLR connector
<b>I</b>	SCA/RDS input	BNC connector
<b>J</b>	19kHz IN/OUT	BNC connector
<b>K</b>	AUX input	BNC connector
<b>L</b>	MPX audio output	BNC connector
<b>M</b>	10 MHz input	SMA connector [optional only for DP Series]
<b>N</b>	MPX audio input	BNC connector
<b>O</b>	1 PPS input	SMA connector [optional only for DP Series]
<b>P</b>	Fan connector	
<b>Q</b>	TLC/TLS	D25 connector [refer to appendix A for the pin description]
<b>R</b>	USB for SNMPV2 Upgrade [opt.]	USB connector
<b>S</b>	LAN POE	RJ45 connector
<b>T</b>	LAN for SNMPV2 Server [opt.]	RJ45 connector
<b>U</b>	RS485	DB99 connector [refer to appendix A for the pin description]
<b>V</b>	RDS/RS232	DB99 connector [refer to appendix A for the pin description]

