RFE

MAKING
BROADCAST
SMARTER

Low Power FM Transmitter

DS50 ~ DS1000

RFE MAKING BROADCAST SMARTER

PRODUCT DESCRIPTION
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The DS50 ~ DS1000 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 overal 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

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GENERAL	**Power Output**	50W, 100W, 300W, 500W, 1000W adjustable until to 110% of nominal power
	RF Output Impedance	50 ohm
	RF Output Connector	N (50-100-300W), 7/16" (500-1000W)
	Monitor RF	BNC connector.
	VSWR	max 1.8:1 (8% of nominal power)
	Frequency Range	87.5 ÷ 108.00 MHz, Programmable in 10 kHz steps. (Other frequencies on request)
	Frequency Stability	≤±1 ppm from -5 to 45°C Frequency accuracy best than± 50 Hz in short period ± 150 Hz max after one month
	Off Lock Attenuation	≤ -80 dBc
	Modulation Capability	max ±150 kHz (nominal ±75 kHz±5%).
	Power Good Detector	adjustable from 20÷90% of the power
	Audio Presence Detector	adjustable level and time
	Modulation Mode	Mono, Stereo, Multiplex, SCA, RDS
	Preemphasis	Flat/50/75µs selectable from front panel
	Residual AM Synchronous	≤ -50 dB
	Asynchronous AM S/N Ratio	≤-70 dB @100% AM without Modulation
	Synchronous AM S/N Ratio	≤-60 dB @100% AM with Modulation
	RF Harmonics	≥ 80dBc - Exceeds EBU/CCIR/FCC requirements.
	RF Spurious	≥ 80dBc - Exceeds EBU/CCIR/FCC requirements.
MONO OPERATION	**Audio Input Impedance**	600 ohm balanced - ≥10 kOhm.
	Audio Input Level	-6 to +12 dBm adjustable in 0.1 dB steps
	Input Connector	XLR female
	Audio Frequency Response	±0.15 dB, 30 Hz to 15 kHz
	Total HarmonicDistortion	≤0.1% with or without pre-emphasis (range ±75KHz)
	Total HarmonicDistortion + Noise	≤-0.15% with or without pre-emphasis (range ±75KHz)
	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	≤-75 dB below ±75 kHz deviation (unweighted). ≤-70 dB below ±75 kHz deviation (weighted)

STEREO OPERATION	**Audio Input Impedance**	600 ohm balanced -10 KOhm
	Audio Input Level	-6 to +12 dBm adjustable in 0.1 dB steps
	Input Connector	XLR female
	Audio Frequency Response	±0.1 dB, 30 Hz to 15 kHz
	Total HarmonicDistortion	≤0.1% with or without pre-emphasis (range ±75KHz)
	Total HarmonicDistortion + Noise	≤-0.15% with or without pre-emphasis (range ±75KHz)
	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	≤-70 dB below ±75 kHz deviation (unweighted). ≤-70 dB below ±75 kHz deviation (weighted)
	Stereo Separation	≥ 40dB from 30Hz to 15kHz (typ 60dB @ 1kHz)
	Crosstalk attenuation	Main to Sub ≤-60 dB 30 Hz to 15 kHz
	38 kHz Suppression	≤ -75 dBc
	Pilot Frequency	19 kHz ± 2 Hz
	Output Pilot	1 Vpp. (selectable), BNC female
MULTIPLEX OPERATION	**Composite Input Impedance:**	2 kOhm unbalanced
	Composite Input Level	-6 to +12 dBm
	Input Connector	BNC Female
	Composite Amplitude Response	±0.1dB, 30Hz to 100kHz.
	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	-75 dB below ±75 kHz deviation
AES/EBU OPERATION	**Input Connector**	XLR female.
	Input Impedance	110 ohm
	Input Level	-20 to -3 dBfs
	Data Format	24 bit (automatic)
	Sampling Frequency	from 32 to 96 kHz (automatic)
SCA, RDS OPERATION	**Input Impedance**	≥ 2 kOhm
	Input Level	-6 to +12 dBm adjustable in 0.1 dB steps
	Frequency Response	±0.1 dB, 50 kHz to 100 kHz
	Input Connector	BNC female.
INTERNAL RDS CODER	**Type**	Dynamic, Compliant to CENELEC Spec. (EN50067)
	Frequency	57 kHz ± 3 Hz
	Synchronization	19kHz ± 3 Hz Internal or External (Software selectable)
	Interface	RS232 Asynchronous (1200 to 19600 baud) LAN/IP using the RDS-IP-100 Optional Interface
	Services	PI, PS, TP, TA, PTY, M/S, DI, CT, RT, AF, IH.
	Memories	6 memory programs.
	Coding	Differential and Bi-phase
	Amplitude Modulation	Double band with Carrier Suppression
	Other Feature	In case of RDS coder fault the Transmitter keep broadcasting.
OTHER FEATURES	**Power Reduction**	permits the reduction of the output power. Time and power adjustable from the front panel.
	Audio Changeover	permits the automatic switching of the main audio source to a backup audio source in case of the main audio absence.

AUXILIARY CONNECTIONS	**RS485**	DB9 connector back panel.
	Telemetry Interface	connector DB25 back panel (I/O and Relay Contact)
	LAN	RJ45 connector back panel (Web Interface)
	MPX OUT	connector BNC back panel.
OPTIONS		SNMP v2c
		Audio Over IP
		DDS Direct Digital Synthesis
ELECTRICAL	**AC Input Power**	110÷260 VAC 50/60 Hz single phase
	AC Apparent Power Consumption	100VA @50W; 200VA @100W; 450VA @300W; 750VA @500W; 1340VA @1000W- 6.1 A max
	CosΦ	> 0.95
	Cooling	Forced air.
	Acoustic noise	< 56 dBa @ 1 meter max.
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 2 U rack
	Size	W x 483 mm. D x 520 mm. H x 88 mm
	Weight	~ 6 Kg (50-100W); 8 Kg (300-500-1000W)

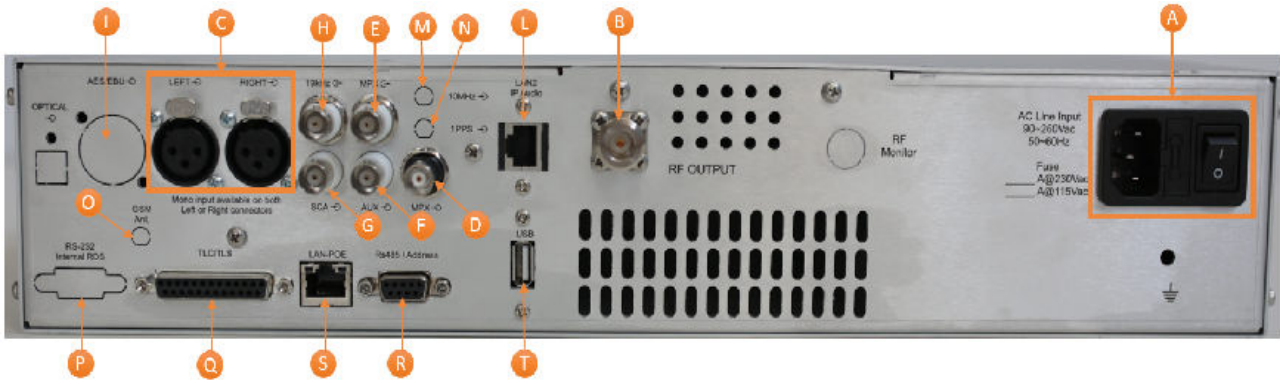
ORDERING INFORMATIONS

Description	Ordering Code
DS50 - 50W FM Transmitter	ATF00110-R
DS100 - 100W FM Transmitter	ATF00210-R
DS150 - 150W FM Transmitter	ATF00230-R
DS300 - 300W FM Transmitter	ATF00510-R
DS500 - 500W FM Transmitter	ATF00310-R
DS1000 - 1000W FM Transmitter	ATF00410-R
Internal Advanced RDS	ALV01210
Advanced Web Server & SNMPv2c	AT000440

SUGGESTED SPARE PARTS

Description	Ordering Code
DS50	
50W RF Module Complete	ASR00200
80x80x38 4 wire Fan	FAD80-24V-68-3W-A
Main Power Supply	PSA150-48-A
Aux Power Supply	PSA65-24-B
DS100	
100W RF Module Complete	ASR00200
80x80x38 4 wire Fan	FAD80-24V-68-3W-A
Main Power Supply	PSA300-48-A
Aux Power Supply	PSA65-24-B
DS150	
150W RF Module Complete	ASR00210
80x80x38 4 wire Fan	FAD80-24D
Main Power Supply	PSA300-48-A
Aux Power Supply	PSA65-24-B
DS300	
300W RF Pallet Amplifier	AMF00600
80x80x38 4 wire Fan	FAD80-24D
Main Power Supply	PSA750-48-A
Aux Power Supply	PSA65-24-B
DS500	
500W RF Pallet Amplifier	AMF00600
80x80x38 4 wire Fan	FAD80-24D
Main Power Supply	PSA1000-48-A
Aux Power Supply	PSA65-24-B
DS1000	
1100W RF Pallet Amplifier	AMF00400
80x80x38 4 wire Fan	FAD80-24D
Main Power Supply	PSA2000-48-A
Aux Power Supply	PSA65-24-B

Rear Panel Connectors



On the rear panel connectors are located as follows:

A	Input Mains with power switch	
B	RF out	N or 7/16 connector
C	L/R audio input	XLR connector
D	MPX audio input	BNC connector
E	MPX audio output	BNC connector
F	AUX input	BNC connector
G	SCA/RDS input	BNC connector
H	19kHz in/out	BNC connector
I	AES/EBU input	XLR/TOS-LINK connector (optional for DS Series)
L	AUDIO IP input	RJ45 connector
M	10MHz input	SMA connect or (optional only for DP Series)
N	1 PPS input	SMA connector (optional only for DP Series)
O	GSM Antenna	SMA connector (optional)
P	RDS/RS232	DB9 connector (optional)
Q	TLC/TLS	DB25 connector (refer to appendix X for the pin description)
R	RS485	DB9 connector (refer to appendix X for the pin description)
S	LAN	RJ45 connector
T	USB	USB connector