



Datasheet

FM TRANSMITTER HIGH POWER | ET5000D-IN

COMPOSITION

Exciter (Indium series)	n°1 Exciter Indium Series single drive configuration n°2 Exciter Indium Series dual drive configuration
Amplifier	n°2 Amplifier E5000 Indium Series HOT PLUGGABLE
Combiner/Control unit	n°1 2-way combiner IN 3500 - OUT 7000 with an internal load composed by 1 group of 6 resistance of 800 W 50 Ω
RF output connector	1+5/8"
Circuit breaker box	4U (on front or rear panel on demand)

GENERAL DATA

Output nominal maximum power	5000 W
Output power range	0 ÷ 5000 W
Operating band	87.5 ÷ 108 MHz
Dimensions: Rack units	min. 20U
Dimensions: W - H - D	56.5 - 106.9 - 71.5cm
Output impedance	50 Ohm
RF power stage technology	ICEFET & ECOSAVING
Automatic power RF control	Stabilized output power value on the set value
Overall output power RF stability	+/- 0.1 dB
Cooling system	Forced air-cooling
Air outlet	On the top or on the rear. Cooling flow 2200 /2400 m ³ /h (depending on environment)
RS232/RS485	Yes. Connector DB9 Female
Points of measure	RF Sample - MPX Monitor

AUDIO PERFORMANCE

MPX input level	+15/-10 dBu for 75 KHz standard deviation
MPX level adjustment	Soft adjust 0.1 dB steps from front panel
MPX input impedance	5 KΩ selectable
L/R input level	+15/-10 dBu for 75 KHz standard deviation
L/R level adjustment	Soft adjust 0.1 dBu steps from front panel
L/R Input Impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44.1,48,96 KHz Automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
AES/EBU-Analog input automatic changeover	Yes
PILOT Amplitude adjustment	Soft adjust 0.05% steps from front panel
PILOT Phase adjustment	Soft adjust 0.01 degree steps from front panel
PILOT tone frequency	19 KHz
PILOT tone deviation	Soft adjust +/- 7.5 KHz
PILOT tone frequency stability	+/- 1 Hz
THD+N (stereo/mono operation)	< 0.05% with 75 KHz frequency deviation < 0.05% with 100 KHz frequency deviation 30 Hz to 15 KHz
Pre-emphasis	0/25/50/75 microseconds, selectable
Pre-emphasis tolerance	+/- 0.1 dB
FM S/N (MPX operation)	82 dB 20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (stereo/mono operation)	> = 72 dB weighted > = 72 dB unweighted 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	> = 60 dB a 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> = 50 dB a 400 Hz, 75 us de-emphasis
Amplitude-response (stereo/mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.1 dB (with pre-emphasis) 20 Hz to 15 KHz, @ 400 Hz
Stereo Crosstalk (typical)	60 dB @ 400 Hz to 10 KHz
Linear crosstalk	>60 db 20 Hz to 15 KHz
Intermodulation distortion	<0.05% Measured with two of tones 1 KHz & 1.3 KHz, ratio 1:1 at 100% modulation

FM TRANSMITTER HIGH POWER | ET5000D-IN

Class of emission	F3
Stereo emission	According to ITU-R recommendation 450 (pilot tone)
EXCITER PERFORMANCE	
PLL lock time	<10 sec
Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	1 ppm
RF Frequency steps	10 KHz
Phase Response	+/- 0.1 degree from linear phase; 20 KHz to 100 KHz
INSTALLATION REQUIREMENTS	
Power supply	380 V or 400 V, Threephase + neutral wire 50-60 Hz* 210 V, Threephase (WYE without neutral)*
	* to be specified when placing the order
Power consumption	15 KW
Current consumption @230VAC/Threephase	42 A
Overall efficiency (typical from - 3 dB to Pman)	68%
Power factor	>0.95
Current consumption @380VAC/Threephase	24 A
ENVIRONMENT	
Temperature range (operating)	-5 ÷ +45 °C, 23 ÷ 113 °F
Temperature range (non operating)	-20 ÷ +55 °C, -4 ÷ 131 °F
Humidity range (operating)	95% @ 40 °C, 104 °F
Humidity range (non operating)	90% @ 55 °C, 131 °F
Altitude range (operating)	<3000 meters / <9840 Feet
Altitude range (non operating)	<15000 meters / < 49200 Feet
TELECONTROL & TELEMETRY	
Remote control	Yes
Remote Control at clean contacts	Yes
SNMP option	Yes (external)



Datasheet

GENERAL DATA

Output Nominal Power	20 W adjustable
Operating band	87.5 + 108 MHz
Direct to channel	Yes
RS232/RS485	Yes. Connector DB9 Female
Points of measure	RF Sample - MPX Monitor
Displayed Parameters	More than 50 parameters displayed on a wide graphic OLED
Adjustments	From the frontal panel through OLED/from PC
Number of L-DMOS in amplifier stage	1 Drive Board
RF power stage technology	ICEFET & ECOSAVING
Dimensions: Rack units	2U
Dimensions: W - H - D	48.5 - 8.5 - 58.5 cm / 19.11 - 3.35 - 23.05 inches
Weight	9.4 Kg / 20.72 lbs
Number of cooling fans	2

CONNECTORS

RF Output connector	N
MPX Connector	BNC Female balanced, unbalanced
LEFT & RIGHT Connectors (or Mono)	XLR Female
AES/EBU Connector	XLR Female/optical
AUX Connectors	BNC Female
RDS	BNC Female
SCA	BNC Female. 10 k Ohm - 600 Ohm
ETHERNET	RJ45
19 kHz monitor	BNC Female
MPX monitor	BNC Female
10 MHz IN/OUT	SMA/SMB
PPS IN/OUT	SMA/SMB
GPS ANTENNA	SMA

RF PERFORMANCE

Output impedance	50 Ω
Automatic power RF control	Stabilizes the output power value on the set value
Overall output power RF stability	+/- 0,1 dB
VSWR	2:1 at full power. Automatic power reduction beyond 1.7:1. Transmitter is protected from both open and short circuit conditions.
Harmonics	< -85 dBc
Out of band emission (spurious)	< -85 dBc

AUDIO PERFORMANCE

MPX input level	+15/-10 dBU for 75 KHz standard deviation
MPX input impedance	Selectable 5 K unbalanced, 600Ω balanced
L/R input level	+15/-10 dBU for 75 KHz standard deviation
L/R input impedance	Selectable 10 K - 600 Ω, balanced
AES/EBU	Electric and optical input
AES/EBU input resolution	24 bits
AES/EBU input sample rate	32,44,1,48,96,192 KHz automatically selected
AES/EBU input level	-20 dBFS - 0 dBFS
AES/EBU input impedance	110 Ω balanced
SCA/RDS input level	0 dBU @ 57 kHz- 99kHz
Pilot amplitude adjustment	Soft adjust 0.05% steps from front panel
Pilot phase adjustment	Soft adjust 0.01 degree steps from front panel
Pilot tone frequency	19 KHz
Pilot tone deviation	Soft adjust +/- 7.5 KHz
Pilot tone frequency stability	+/- 0.1 Hz
THD+N (Mpx operation)	< 0.01% or better with 75 KHz frequency deviation < 0.01% or better with 100 KHz frequency deviation 30 Hz to 15 KHz
THD+N (Stereo/Mono operation)	< 0.03% or better with 75 KHz frequency deviation < 0.03% or better with 100 KHz frequency deviation 30 Hz to 15 KHz

38 kHz Suppression	> 70 dB
Pre-emphasis	0/25/50/75 microseconds selectable
Pre-emphasis tolerance	+/- 0.1 dB
FM S/N (Mpx operation)	85 dB
	20 Hz to 23 KHz @ 53 KHz - detector RMS
FM S/N CCIR (Stereo/Mono operation)	> 80 dB weighted > 80 dB unweighted @ 400 Hz, 75 KHz frequency deviation, quasi-peak detector, 50 us de-emphasis
Asynchronous AM S/N unweighted	>= 60 dB @ 400 Hz, 75 us de-emphasis
Synchronous AM S/N	> 50 dB @ 400 Hz, 75 us de-emphasis
Amplitude Response (Mpx/SCA/ RDS operation)	+/- 0.1 dB (without pre-emphasis) 5 Hz to 100 KHz @ 400 Hz
Amplitude Response (Stereo/Mono operation)	+/- 0.1 dB (without pre-emphasis) +/- 0.2 dB (with pre-emphasis) 20 Hz to 15 KHz @ 400 Hz
Stereo separation	> 70 dB 20 Hz to 15 KHz
Linear crosstalk	> 70 dB 20 Hz to 15 KHz
Intermodulation distortion	< 0.05% Measured with two of tones 1 kHz @ 1.3 KHz, ratio 1:1 at 100% modulation
Class of emission	F3
Stereo emission	According to ITU-R recommendation 450 (pilot tone)

EXCITER PERFORMANCE

Frequency deviation	+/- 75 KHz 0.1 dB steps adjustable
Maximum frequency deviation	+/- 150 KHz
Frequency stability	+/- 0.1ppm with oven
RF frequency steps	1 Hz
Phase Response	+/- 0.1 degree from linear phase 20 Hz to 100 KHz
Internal sample rate	2.4 GHz
Oven 10 MHz	Yes internal, aging +/- 0.1ppm year
GPS	Yes internal
SFN	Yes, with delay from 0 to 1s, step 100ns

INSTALLATION REQUIREMENTS

Power supply	110, 230 Two-Singlephase Version 50-60 Hz VAC
Power consumption (typical)	< 70 W
Current drain (typical @230V)	0,3 A

COOLING/NOISE/DATA

Cooling system	Forced air-cooling
Acoustic noise	< 65 phn @ transmitter room, 2 m distance of the front of transmitter
Air outlet	240 m³/h

ENVIRONMENT

Temperature range (operating)	-5 + +45 °C, 23 + 113 °F
Temperature range (non operating)	-20 + +55 °C, -4 + 131 °F
Humidity range (operating)	95% @ 40 °C, 104 °F
Humidity range (non operating)	90% @ 55 °C, 131 °F
Altitude range (operating)	<3000 meters / <9840 Feet
Altitude range (non operating)	<15000 meters / < 49200 Feet

TELECONTROL & TELEMETRY

Remote control	Yes
Remote control, dry contacts	Yes
SNMP option	Yes (external)

