

ETG101 - ETG151 - ETG300DR - ETG500DR

100W, 150W, 300W, 500W ICEFET SOLID STATE FM TRANSMITTERS



ELENOS®

broadcast @xperience

DATA SHEET

ETG101 - ETG151 - ETG300 - ETG500 100W ÷ 500W ICEFET SOLID STATE FM TRANSMITTERS

They are the models that have led ELENOS to success on the world market for solid-state transmitters. ELENOS has shown the ability to integrate the modulator and power amplifier in devices of very small size without giving up any of highest quality performances that more refined customers demand.

They are used as driver for amplifiers power up to 30 kW, but can also be conveniently used directly "in antenna" to realize transmitting stations at low-cost and very small footprint. They are distinguished by reliability and unmatched feature.

Highlights

- **EASY USE**
Interface LCD allows ease reading and setting operations of parameters. Final user can password-protect its chosen configurations.
- **AUDIO QUALITY**
3 bars indicate frequency deviation (one for composite signal and two for left and right channels), with peak memory. A histogram on frequency and time axis allows precise monitoring of audio chain performances. An extremely wide and flat audio pass-band, without phase rotation, ensures that the MPX signal is transmitted at high quality without stereo degradation. A programmable ALC (Automatic Level Control) circuit acts on variations of the composite MPX signal, maintaining its level within the range defined by the user.
- **HIGH PERFORMANCE**
The RF amplifier is behind by a ROS meter, that in case of mismatch, gradually decreases the output power up to a safe value, the ETG exciter series might remain in this condition for an indefinite time without damage.
- **IPF (INTELLIGENT PROPORTIONAL FOLDBACK)**
IPF is an intelligent system that allows the transmitter to stay "ON AIR" into mismatched loads.
- **TELEMETRY**
It allows remote monitoring and adjustment of the unit's operating parameters. Just an additional standard or GSM modem and HyperTerminal software (© Microsoft Windows) are required.
- **MODULARITY**
Inside ETG exciter an expansion slot has been designed to place a Stereo Input and Stereo coder board (stereo filter, clipper and pre-emphasis).
- **PFC CIRCUIT**
It allows the first 40 current harmonics emission reduction below the limits imposed by European standards (EN61000-3-2), better functioning of electronic equipment connected to the network, waveform of the current very close than sinusoidal.
- **REGULATORY COMPLIANCE**
All ETG exciter meet the essential requirements of Directive 1999/5/EC.



ETG101 - ETG151 - ETG300 - ETG500

GENERAL DATA

Output Nominal Power	500W adjustable(ETG500) 300W adjustable(ETG300) 150W adjustable(ETG151) 100W adjustable(ETG101)
Maximum peak power	600W (ETG500DR) 350W (ETG300DR) 159W (ETG151) 140W (ETG101)
Operating band	87.5 - 108 MHz
Output Low-pass Filter	W.B. 87.5 MHz - 108 MHz
RS232/RS485	Yes
Points of measure	RF Sample-MPX Monitor
Displayed Parameters	More than 50 parameters displayed on a wide graphic LCD
Adjustments	From the frontal panel trough LCD /from PC
Microprocessor controlled	Yes
Number of MOSFETS	2 (ETG500) 1 (ETG300) 1 (ETG151) 1 (ETG101)
RF power stage technology	ICEFET & ECOSAVING
MOSFET type	BLF278 Philips (ETG500) BLF278 Philips (ETG300) BLF177 Philips (ETG151) BLF177 Philips (ETG101)
Number of power supplies	1 (ETG500) 1 (ETG300) 1 (ETG151) 1 (ETG101)
Dimensions: Rack units	3U
Dimensions: W - H - D	50 - 13 - 44 cm
Weight	18kg (ETG500) 18kg (ETG300) 15kg (ETG151) 15kg (ETG101)
Number of cooling fans in the amplifiers	2 (ETG500) 2 (ETG300) 1 (ETG151) 1 (ETG101)

CONNECTORS

RF Output connector	N
Input connectors LEFT & RIGHT	XLR female
MPX Input connector	BNC female
SCA Connector	BNC female
Remote control connector	DB25
RS485/232 Connector	DB9

RF

Automatic gain control	Stabilizes the output power value on the set value
Overall output power stability	+/-0,1 dB
Output impedance	50Ω
Harmonic suppression	> 70 dB
Spurious signal suppression	> 80 dB
V.S.W.R. protection	10% of forward power
Asynchronous residual AM (typical values)	60dB
Synchronous residual AM (typical values)	50dB
RF Efficiency	78%Typ

AUDIO

L/R Audio input level	+12/-12 dBm for 75KHz standard deviation
L/R level adjustment	Soft adjust 0,1dBm steps from front panel
L/R Input Impedance	Selectable 10K- 600Ω
MPX audio input level	+12/-12 dBm for 75KHz standard deviation
MPX level adjustment	Soft adjust 0,1 dBm steps from front panel
MPX Input impedance	5KΩ selectable
SCA/RDS audio input level	0 dBm for 75KHz standard deviation
SCA/RDS level adjustment	Yes
SCA/RDS Input Impedance	10KΩ
PILOT level adjustment	Yes
PILOT Phase adjustment	Yes
19KHz Output	Yes

PERFORMANCE EXCITER

PLL lock time	<20sec
Time for starting up	30 sec. from OFF/ON
Time for starting up	1 sec. From interlock closure
Intermodulation distortion	<0.05% Measured with two of tones 1KHz & 1.3KHz, ratio 1:1 at 100% modulation
Frequency deviation	+/- 75 KHz 0.1dB steps adjustable
Frequency steps	10 KHz
THD+N	<0.03% @ 1KHz
Pre-emphasis	50/75 microseconds +/-0,1dB
FM S/N MPX FCC	82 dB 20Hz - 23KHz - 50uS - ref @ 53KHz - RMS
FM S/N STEREO CCIR Weighted	72 dB Weight-ref@53KHz-Qpk
FM S/N STEREO CCIR Unweighted	72 dB Unweight-ref@53KHz-Qpk
Mono frequency response	+/-0.15 dB 30Hz - 15KHz
MPX frequency response	+/-0.1 dB 30Hz - 100KHz
Stereo frequency response	+/-0.15 dB 30Hz - 15KHz
SCA frequency response	+/-1 dB 20KHz - 100KHz
Type of modulation	F3 direct modulation FM on RF oscillator
Stereo Crosstalk	-72 dB @ 1KHz
Pilot tone frequency	19 KHz

PERFORMANCE EXCITER	
Pilot tone deviation	7,5 KHz Adjustable
Pilot tone frequency stability	+/-1 Hz
Attenuation at 19KHz	> 45 dB
Modulation Capability	+/-250 KHz
INSTALLATION REQUIREMENTS	
Power supply	110-240 VAC
Power consumption	0,9KW (ETG500) 0,5KW (ETG300) 0,3KW (ETG151) 0,24KW (ETG101)
Overall Efficiency	52%Typ (ETG500) 43%Typ (ETG300) 43%Typ (ETG151) 43%Typ (ETG101)
COOLING SYSTEM	
Cooling flow (m ³ /h)	250 m ³ /h (ETG500) 150 m ³ /h (ETG300) 150 m ³ /h (ETG151) 150 m ³ /h (ETG101)
Cooling system	Forced air-cooling
ENVIRONMENT	
Temperature range (operating)	0 - +45 °C
Temperature range (non operating)	-20 - +50 °C
Humidity range (operating)	95% a 40 °C
Humidity range (non operating)	90% a 65 °C
Altitude range (operating)	<4600 meters
Altitude range (non operating)	<15000 meters
TELECONTROL & TELEMETRY	
Remote control	Yes
Remote Control at clean contacts	Yes
SNMP option	Yes (external)
REGULATIONS CONFORMITY	
High frequency radiations from the enclosure	Below limit imposed by technical regulations.
Functioning type	h24 uninterrupted
Electromagnetic fields immunity	Higher than specified by laws on electromagnetic fields compatibility
CE Mark	Conform to 1999/5/CE European Directive
MANUFACTURING DATA	
Spares availability guaranteed for	10 years from the date of purchase
PRE- & POST- MAINTENANCE	
MTBF	10 Years
Programmed Maintenance	4 Years
Blower Replacement recurrence	4 - 6 Years (function of temperature)
Electrolitics Replacement Recurrence	8 Years
Lithium batteris replacement recurrence	10 Years
Batteries	Yes, only for alarm list storage
Time to realize the preventive maintenance every 4 years	1 Hour
Time to realize the preventive maintenance every 8 years	2 Hours
Level and number of technician for maintenance	1 technician
Electrical safety	EN60215
Average repair time (change of an RF module or power supply)	1 Hour
SET	
Installation manual Quick Start	Yes
User manual	Yes (On electronic format)
Maintenance manual	Yes (On electronic format)
Tests report	Yes
Troubleshooting manual	Yes (On electronic format)

All pictures are Elenos's property and they are only indicative.
The general specifications have an indicative value and are subject to change without notice.



Display

Elenos Broadcast Experience
Via G. Amendola, 9 // 44028 - Poggio Renatico, Ferrara (Italy)
Phone: +39 0532829965 // Fax: +39 0532829177
Website: www.elenos.com