

Fm Broadcasting Exciter

TX 50-S TX 100-S "PLUS SERIES"

50 W – 100 W

- › Remote and local control RS232/RS485
- › High spectral purity and top performance
- › Audio modulation controlled compliance with CEPT/ERC 5401 E
- › Top value stereo separation
- › Management and modulation measurement software
- › External DC voltage
- › N+1 Software logic control unit

GENERAL DESCRIPTION

Main Features

One of the principal characteristics of the TX Plus series is the optimum frequency modulation and the high signal-noise ratio. Besides, the modulation results constant within 0.1 dB on all the FM band (88-108 MHz).

An accurate peak detector allows both traditional (usual "bar-graph" with peak) and modulation measurements, and also power modulations measurement with a long observation period (also many hours a day) to be performed. These measurements are in compliance with the latest international norms, which limit the peak and the power modulation (CEPT 54-01).

The AGC audio circuit controls the audio level with dynamic output power of ± 6 dB respect to the nominal value.

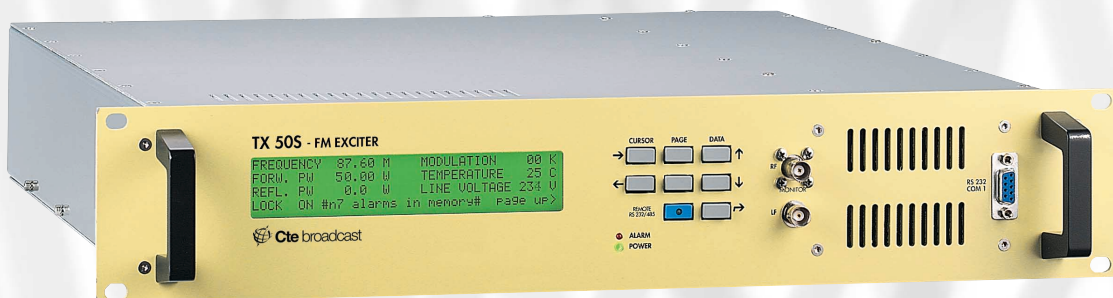
This can be useful when the signal varies its standard levels during regular programming, and also when the signal has fluctuations (usually slight) caused by thermal shift, incorrect maintenance of the unit, or possible faults on the broadcasting transmission system.

An appropriate micro-controller system constantly checks the modulation value, and corrects, with studied algorithm memorised in memory stage, the value of the gain modulator.

This allows the modulation to be kept near to the maximum value allowed.

The board does not perform the audio Limiter compressor functions, but only balances the possible incorrect setting of the equipment before the FM exciter.

When the optional AGC circuit automatic control gain is inserted no phase distortion or amplitude distortion is introduced in the modulation. It is also possible to insert an alarm that switches off the power in case of absence of modulation.



CE0523D

F628	TX 50 S	PLUS 50W Mono/MPX Exciter
F628.01	TX 50 S	PLUS 50W Exciter Stereo
F631	TX 100 S	PLUS 100W Mono/MPX Exciter
F631.01	TX 100 S	PLUS 100W Exciter Stereo

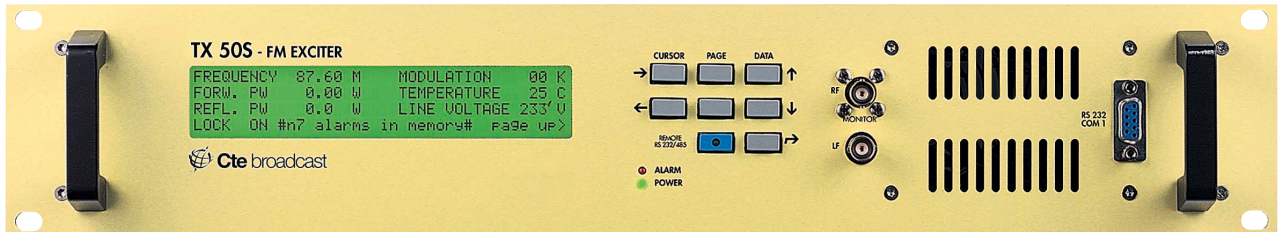
Technical data TX 50-S TX100-S PLUS SERIES

FREQUENCY	
Range	87,6 ÷ 107,9 MHz
Internal Setting mode	100 KHz steps by keys (or 10 KHz steps Option available)
External Setting mode	100 KHz steps by remote control RS232-RS485 (or 10 KHz steps Option available)
Generation	PLL synthesizer
Stability	± 1000 Hz / year
Nominal deviation	± 75 KHz
Deviation linearity	± 0,2 dB (in all the frequency range)
Peak detector precision	< 0,1 dB
RF POWER	
RF Connectors	Type N for RF output
Impedance	50 Ω output power
Output power	TX50-S PLUS - From 0 to 50 W TX100-S PLUS - From 0 to 100 W
Power control limit setting	TX50-S PLUS - From 1 to 50 W TX100-S PLUS - From 1 to 100 W
Power resolution setting	0,1 W
Power control stability	< 0,1 dB
RF OUTPUT SPECIFICATIONS	
Harmonics suppression	< - 80 dBc
Spurious Emission	< - 95 dBc
Carrier reduction power	< 60 dBc (carrier enable off)
Reverse output power control limit	1 to 9,9 W
Reverse output power steps control	0,1 W
INPUT DATA	
Left, and Right Impedance	600 Ω bal. or 10 KΩ unbal., XLR female Connector (by internal stereo coder with 30 Hz to 53 KHz Filter)
Mono/MPX Impedance	600 Ω bal. or 10 KΩ unbal., (Left or Right XLR female Connector, with 30 Hz to 15 KHz Filter)
Left, Right and Mono/MPX Level	From - 6 to + 12 dBm
SCA 1 and SCA 2 Impedance	10 KΩ unbal., BNC Connector (with 30 Hz to 100 KHz Filter)
S/N RATIO	Mono: > 85 dB (referred to ± 75 KHz) Internal Stereo Coder: > 80 dB (referred to ± 75 KHz)
STEREO SPECIFICATIONS	
Crosstalk	> 50 dB (between left and right channel)
Distortion	< 0,03 % (at frequency deviation of 75 KHz) < 0,03 % (at frequency deviation of 100 KHz)
Suppression of 38 KHz	> 80 Db
Spurious suppression outside band	According to ETSI 300-384
Pilot reference for RDS encoder	1 Vpp (at frequency 19 KHz out)
DESIGN DATA	
Type	Solid state direct FM frequency
Pre-emphasis	75 or 50 μs
Audio frequency response	< 0,15 dB (from 30 Hz to 15 KHz) < - 40 dB (from 19 KHz to 100 KHz)
Unbalance rejection	> 40 dB
Modulation	Type: Direct VCO frequency modulation Capability: Meets or exceeds all CE 99/ 05 R&TTE requirements Distortion: < 0,03 %
REMOTE CONTROL	
Connector	COM 1 (front panel) RS 232 COM 2 (rear panel) RS 232 COM 3 (rear panel) RS 485
Personal computer software	National Institute LAB-WIEW
Transmission protocol	AES-EBU SP 490
STANDARDS SATISFIED	
Electrical characteristics	ETSI 300-384
EMC characteristics	ETSI 447
Safety characteristic	EN 60950 - EN 60215
TEMPERATURE	
Nominal range	- 5° to 45° C
Operating range	- 10° to 50° C
Storage range	- 40° to 50° C
AC POWER REQUIREMENT	115 or 230 Vac ± 10% , single phase; Power line < 150 VA
DIMENSIONS AND WEIGHT	
Rack	(2 U) - 9 H x 44,8 W x 50 D cm. Weight: 13 Kg
Packaging	Wooden Crate: 17 H x 68 W x 60 D cm.
Total weight of the equipment	16 Kg. (packing included)

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PARAMETERS AND MEASURES

All the parameters (frequency, levels, mono-stereo- pre-emphasis, power) are adjustable through the keypad and are stored in the memory also in absence of mains. Many events can be stored; every alarm has a start alarm date and end alarm date.

The principal measurements are: value of modulation, radiator temperature, mains line voltage, voltage and current of the RF final stage, fault of the principal oscillator.

The transmitter can be controlled by the keypad and also in remote mode.

A personal computer can be connected as monitor use on the front panel. By simply installing an appropriate program on the PC it is possible to set and see all the parameters.



SOFTWARE

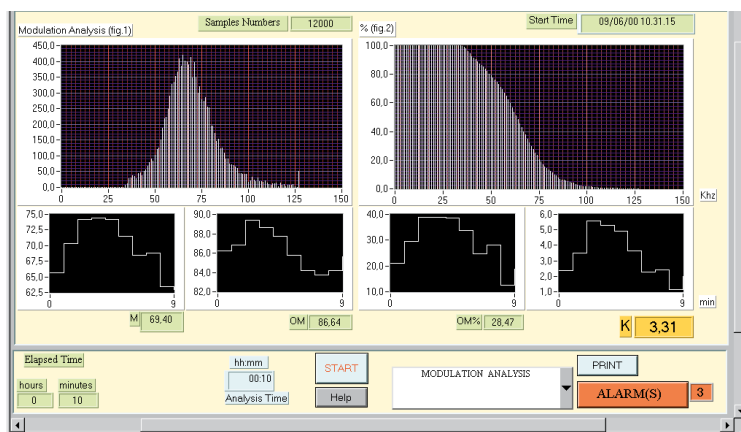
Furthermore it is also possible to carry out all the modulation analysis as for CEPT 54-01, and create graphs of the modulation filing the data on the PC.

A second RS232 port located on the rear of the exciter can be connected with the power amplifier, allowing the visualisation of power amplifier data on the same PC connected to the RS232 located on the front panel.

A third RS485 port also located on the rear can be connected to a modem, which is linked up to a telephone line, allowing the remote control of the transceiver.

The same RS485 port can be connected to 1 or more FM equipment (up to 32 if CTE equipment is used), obtaining a N+1 system. In this case the reserve equipment, which is on stand-by, can substitute the faulty unit and maintain the parameters.

Both the standard and the reserve exciters are equipped with an output port (IN/OUT) that drives the multiplexer for the antenna cable, and the multiplexer for the input switching audio signals.



Options available:

- A. Stereo Coder
- B. AGC: plug-in board that allows the frequency modulation to be checked and modified according to the CEPT 54-01 norm
- C. Remote control by PC connection: dedicated software for measurement and setting parameters (include software for PLUS Amplifier series)
- D. N+1 system: software to realise the N+1 system
- E. Remote control by modem connection: dedicated software for measurement and setting parameters (include software for PLUS Amplifier series)