



CTE High Efficiency DSP Based FM Transmitters

The new TX-HD family are the first CTE FM Transmitters based on DSP technology and “direct to channel” modulation, and are also based on the last generation of RF Devices that greatly increases the total equipment efficiency, reliability and reducing dimension and weight. DSP Technology allows new features as: built-in dynamic RDS encoder; external 10MHz and 1PPS reference locking; local delay setting; Mpeg-2 audio decoding from a DVB-T ASI input; Frequency Domain Limiter; additional redundant audio Inputs; 1Hz frequency resolution; 0.1dB audio level resolution.



Main Specification

ITEM	TX1-HD	TX05-HD	TX300-HD	TX100-HD
R.F. Output Power	1200 W	500 W	300W	100W
Protection against load mismatch	65/1			
Output Connector, Impedance	7/16 female, 50 Ohm		N female, 50 Ohm	
Dimensions HxWxD mm	88x484x478			
Rack	2U			
Weight	11 Kg		9Kg	
Power Supply	230 Vac ± 15%, single phase			
Power Factor	0,99			
Operation Temperature	0-45°C			
Number of fans	1 fan (variable speed) for RF module 1 fan for power supply			
Noise	50-60dB(A)			
Total Efficiency	>70%			
RF Efficiency	>80%			
Remote Control	WEB, SNMP, Parallel AI/O, Parallel Frequency Set, RS 232 – PC connection			
Compliances	CE 99/05 R&TTE requirements			



Technical Data

FREQUENCY	
Operating frequency range	FM 87.5 to 108 MHz
Setting	10kHz or 1Hz steps
Generation	Direct to Channel
Output frequency stability	± 1ppm/ year max
Reference (internal)	VCTCXO 10 MHz
Reference (external)	10MHz and 1pps , BNC
Nominal deviation	± 75 KHz
Harmonics suppression	< - 85 dBc
Spurious Emission	< - 80 dBc
S/N RATIO (weighted)	> 86 dB
THD	<0,10%
VSWR	Less then 1,5:1
RF Monitor	BNC connector R.F. - 70 dBc

Mono MXP Operation	
Mono/MPX Impedance	600 Ohm or 10 KOhm XLR female Connector
Mono Level	-6 dBm + 18 dBm 0.1dB steps
MPX Level	- 6 dBm +18 dBm 0.1dB steps
Audio Filter Response	> 50 dB (19 KHz to 100 KHz)
THD	< 0,2%
RDS and SCA Impedance	10 KOhm unbal., BNC

Stereo Operation	
Left, and Right Impedance	600 Ohm bal. or 10 KOhm balanced XLR female
Left, Right Level	- 6 to + 18 dBm 0.1dB steps
Stereo separation	> 50 dB
THD on Encoded channels	< 0,2 %
Suppression of 38 KHz	> 50 dB
Spurious outside band	According to ETSI 300-384
Pilot Frequency	19 KHz ± 1 Hz

RDS Coder	
Type	FPGA based, static and dynamic. UECP standard

Digital Input	
AES/EBU	XLR female connector
ASI In & Out	75Ohm BNC connector
Design Data	
Type	Solid state. DSP
Pre -emphasis	Flat or 75 or 50 µs
Audio frequency response	± 0,2 dB (from 40 Hz to 15 KHz) (stereo); ± 0,4 dB (from 40 Hz to 100 KHz) (MPX)
Separation	> 49 dB
Modulation Type	Meets CE 99/05 + R&TTE

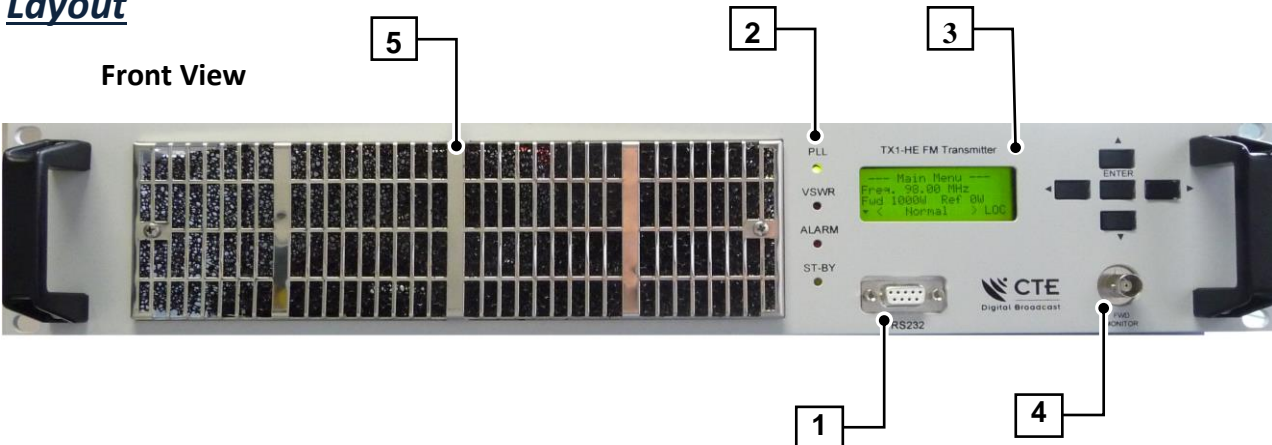
Standard Compliance	
Radio spectrum	ETSI 300-384; ETS 302-018
EMC	ETSI 447; ETS 301-489
Safety	EN 60950 - EN 60215

Temperature	
Operating range	0° to 45°C
Storage range	- 10° to 55°C
Maximum relative Humidity	90% non condensing
Max Operating Altitude	2500 mt. a.s.l.

Option		
	Dual L&R	Secondary L&R input board
	MPEG-2 Decoder	ASI Input and Optical AES/SPDIF Input board
0000170073	TX-GSM	Modem TX GSM-TC35, Antenna, Power Supply, 2 mt. cable DB9
0000170605	RX GSM	Modem PC GSM-TC35, Antenna, Power Supply, 2 mt. cable DB9



Layout



Front

- 1. **RS232:** PC CONNECTION
- 2. **STATUS LEDs:** PLL, VSWR, ALARM, STAND-BY
- 3. **CONTROL PANEL**
- 4. **FWD MONITOR**
- 5. **FRONT VENTILATION AIR GRID**

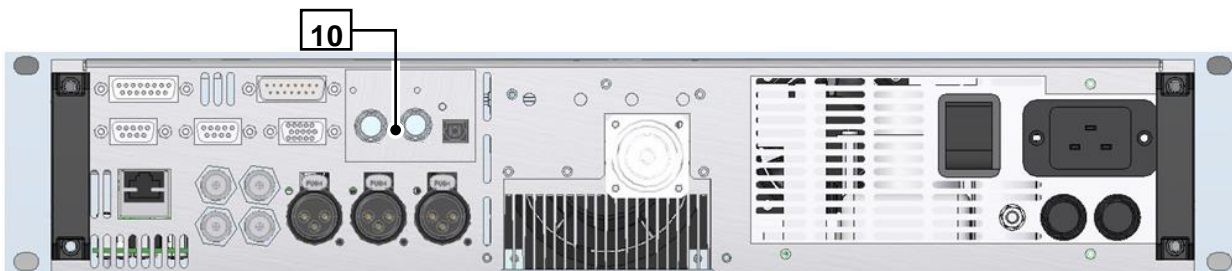
Rear

- 6. **REMOTE CONTROL:** WEB/SNMP, PARALLEL AI/O
- 7. **AUDIO INPUTS:** L&R, MPX, AES/EBU
- 8. **OUTPUT CONNECTOR:** 7/16 FEMALE
- 9. **INPUT a.c. :** FUSE, GND
- 10. **ASI IN & OUT and Optical AES/SPDIF (optional)**
- 11. **Dynamic RDS Input :** RS232 DB9
- 12. **10MHz and 1PPS input:** BNC
- 13. **Secondary L&R inputs: (optional)**

Rear View (with secondary L&R input option)



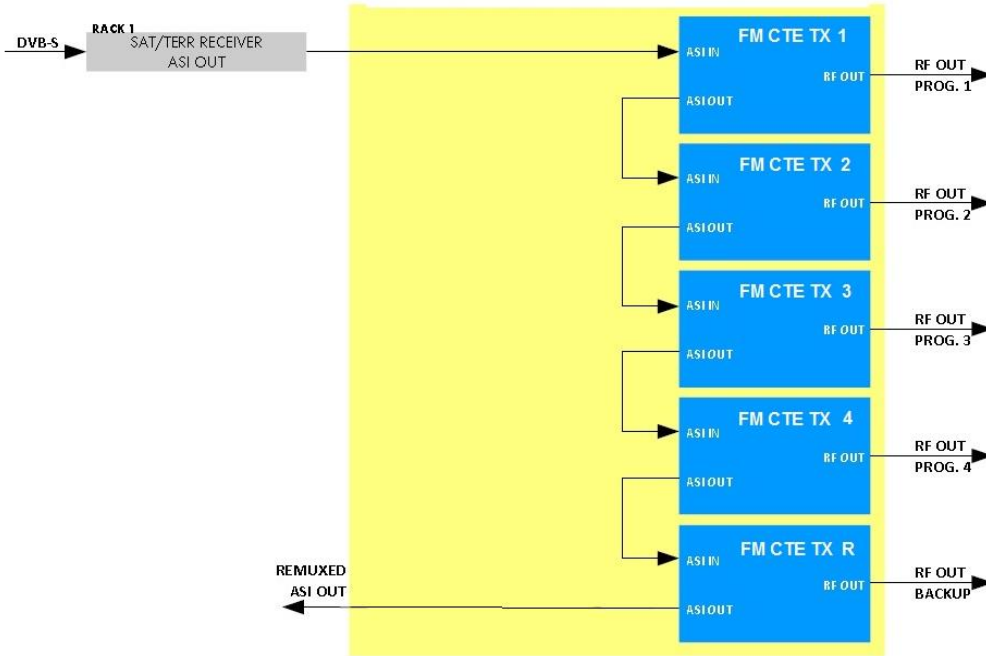
Rear View (with ASI in & out and Optical EAS-EBU/SPDIF option)





Simplified audio distribution over ASI

Chained configuration



High redundancy configuration using MUX & ASI MATRIX

