



AXON Series

Analog High Efficiency
FM Stereo Transmitter
Output Power Ranges

30W, 50W, 100W, 150W, 300W, 600W, 1200W



AXON Series Exciter/Transmitter is a Family of FM stereo Exciters/Transmitters that guarantees a superior transmission quality and top performances.

Output power from 30 W to 1200W using High Efficiency last LDMOS technology is housed into an ultra-compact cabinet of only 2U height.

is available also in JPN and OIRT frequencies.

AXON can be used as ultra-compact stand alone station, as well as driver in complex high power transmitters and N+1 systems.

For any application AXON is the ultimate solution that meets most demanding customer' requirements and guarantees professional features at affordable price.

- HIGH EFFICIENCY LAST GENERATION LDMOS TECHNOLOGY UP TO 80%
- Very LOW SIGNAL TO NOISE MORE THAN 90 DB ν
- Very LOW DISTORTION and HIGH STEREO SEPARATION
- TOTAL SPECTRAL PURITY: > -100 DBC SPURIOUS, > - 84 DBC HARMONICS
- SEVEN SELECTABLE COMPLETE SET-UP: READY FOR USE IN 7+1 SYSTEM
- FULL- RANGE POWER SUPPLY: 90-260 VAC MAINS VOLTAGE
- COMPLIANT WITH ALL THE STANDARD: ETSI – CCIR - FCC.
- DIGITAL STEREO CODER: SUPERIOR STEREO QUALITY
- UP TO 75% LDMOS HIGH EFFICIENCY AMPLIFIERS
- EXTERNAL 10MHz and 1PPS SYNCHRONIZATION FOR USE ON SFN APPLICATIONS
- HIGHEST RF SIGNAL QUALITY
- PERFECT AUDIO FIDELITY
- REMOTE CONTROL BY TCP/IP: WEB + SNMP OF ALL SIGNAL PARAMETERS
- CLEAR CRISTAL AUDIO SOUND
- DYNAMIC RDS ENCODER with TMC Function

TECHNICAL CHARACTERISTICS

AXON EXCITER/TRANSMITTER 30W TO 1200W

Frequency Range: 87.5 ÷ 108.00 MHz, Programmable in 10 KHz steps
On request 66 ÷ 74 MHz (OIRT), 76 ÷ 90 MHz (JPN) Bands.
Frequency Stability: better than ± 150 Hz from -10 to +50°C
Max deviation: ± 150 kHz.
Frequency Control: Synthesizer μ processor control.
Power Output: 30W, 50W, 100W, 150W, 300W, 600W, 1200W. Adjustable from 0W to maximum power.
Output Impedance: 50 ohm.
Display: forward/reflection power and modulation indicator
Type of Modulation: Direct frequency modulation of carrier frequency, F3E Stereo with Subcarrier and Mono.
Lock in Time: Typ. 4 second.
Off Lock Attenuation: ≥ -80 dBc.
Modulation Capability: ± 150 KHz.
Modulation Mode: Mono, Stereo, Multiplex, SCA, RDS, Aux.
Preemphasis: Flat(0)/50/75 μ s selectable from front panel.
Asynchronous AM S/N Ratio: -60 dB below reference carrier with 100% AM modulation @ 400 Hz, without FM modulation.
Synchronous AM S/N Ratio: -60 dB below reference carrier with 100% AM modulation @ 400 Hz with FM modulation ± 75 KHz @ 400 Hz.
RF Harmonics: Exceeds ETSI/EBU/CCIR/FCC requirements. better than 84 dbc
RF Spurious: Exceeds ETSI/EBU/CCIR/FCC requirements. better than 84 dbc
Output Connectors: 30W to 600W N type connector, 1200W DIN 7/16 type connector
Output power on/off and adjustable from front panel and remotely.
Overall Efficiency up to 80%.
Monitor RF: -60 dBc, BNC connector
VSWR: 1.5:1 Maximum with automatic fold-back at higher VSWR

MONAURAL OPERATION

Audio Input Impedance: 600 ohm balanced, 15 Kohms unbalanced.
Audio Input Level: -6 to +12 dBm. (Other range on request)
Input Connector: XLR female.
Audio Frequency Response: ± 0.15 dB, 30 Hz to 15 KHz.
Total Harmonic Distortion + Noise: 0.03% @ 400 Hz
Intermodulation Distortion: 0.03%, 1 KHz/1.3 KHz, 1:1 ratio

Transient Intermodulation Distortion: 0.03%, 2.96 KHz square wave and 14 KHz sine wave.
FM S/N Ratio: -89 dB RMS detector, -85 dB below ± 75 KHz deviation, 50 μ s de-emphasis, weighted.

MULTIPLEX OPERATION

Composite Input Impedance: 5 Kohm unbalanced.
Composite Input Level: 3.5Vp-p for ± 75 KHz deviation.
Input Connector: BNC female.
Composite Amplitude Response: $\leq \pm 0.1$ dB, from 30 Hz to 53 kHz
Total Harmonic Distortion + Noise: 0.03% @ 400 Hz
Intermodulation Distortion: 0.03%, 1 KHz/1.3 KHz, 1:1 ratio
Transient Intermodulation Distortion: 0.03%, 2.96 KHz square wave and 14 KHz sine wave.
FM S/N Ratio: -89 dB RMS detector, -85 dB below ± 75 KHz deviation, 50 μ s de-emphasis, weighted.

STEREO OPERATION

Audio Input Impedance: 600 ohm balanced, 15 Kohm unbalanced.
Audio Input Level: -12 to +12 dBm.
Input Connector: XLR female.
Audio Frequency Response: ± 0.15 dB from 30 Hz to 15 KHz.
Total Harmonic Distortion + Noise: 0.03% @ 400 Hz
Intermodulation Distortion: 0.02%, 60 Hz / 7 kHz 4:1 ratio +4 dBu
Transient Intermodulation Distortion: 0.03%, 2.96 KHz square wave and 14 KHz sine wave.
FM S/N Ratio: -85 dB RMS detector, -82 dB below ± 75 KHz deviation, 50 μ s de-emphasis, weighted.
Stereo Separation: 30 ÷ 80 Hz ≥ -53 dB, 80 Hz ± 15 KHz ≥ -65 dB (Typ. 70 dB).

Crosstalk attenuation: Main to Sub -55 dB 30 Hz to 15 KHz
38 KHz Suppression: ≥ -70 dB (typ. -85 dB).
Pilot Frequency: 19 KHz ± 1 Hz
Phase Pilot: $\pm 2^\circ$ adjustable
Output Pilot: 1 Vpp., BNC female
Audio Filter Attenuation: ≥ -55 dB @ 19 KHz, > -45 dB 20 KHz to 100 KHz.
Modes: Stereo, Mono L+R, Mono L, Mono R.

AES/EBU OPERATION

Input Level: -10 dBfs to 0 dBfs
Input Connector: XLR female, optical TOS-LINK.
Input Impedance: 110 ohm.
Data Format: S/PDF, AES/EBU, IEC958, EIAJCP340/1201.
D/A Converter: 24 bit.
Sampling Frequency: from 32 to 96 KHz with automatic selection
Stereo separation (crosstalk): ≥ 50 dB, 100 Hz to 5 kHz
Amplitude response: $\leq \pm 0.1$ dB, from 30 Hz to 15 kHz
FM S/N Ratio: -85 dB below ± 75 KHz deviation, 50 μ s de-emphasis, weighted.

SCA, RDS, AUX OPERATION

Input Connector: BNC female

Input Impedance: 3 Kohm.

Input Level: -3 to +6 dBm.

Frequency Response: ± 0.2 dB, 40 KHz to 100 KHz.

Input Connector: BNC female. Most SCA, RDS, AUX, performance parameters are determined primarily by the generator used.

AUXILIARY CONNECTIONS

USB: connector Type B female front panel.

N°2 RS485: Serial Interface connector RJ45 back panel.

Telemetry Interface: connector DB25F back panel.

External Clock: connector SMA female (optional).

OPTIONS

External clock: for PLL synchronization purpose 1-2-2.5-5-10 MHz external reference oscillator with self selection of the incoming frequency.

DOUBLE EXCITER WITH AUTOMATIC CHANGEOVER SYSTEM

SNMP TELEMETRY INTERFACE

GSM AND PSTN TELEMETRY

TCP/IP TELEMETRY INTERFACE

SINCH-MODULE FOR SFN APPLICATION

OIRT & JPN VERSION

DIGITAL AUDIO INPUTS

LPFM CODE STATION: FCC IDENTIFICATION CODE

RDS CODER : EASY PROGRAMMABLE BY PC

SCA Encoder

Digital Composite 192kHz Input

ELECTRICAL (for 10kW to 40kW Transmitter)

AC Input Power: 230/400 VAC $\pm 15\%$, 50/60 HZ (± 3 HZ) single phase or 3-phase+N

Power factor > 0.99

Cooling: Forced air

MTBF > 20.000 Hours

ENVIRONMENTAL

Operating temperature: -10°C to +50°C.

Max Operating Altitude: 4000 mt.

Relative Humidity Range: 0 to 95% non condensing.

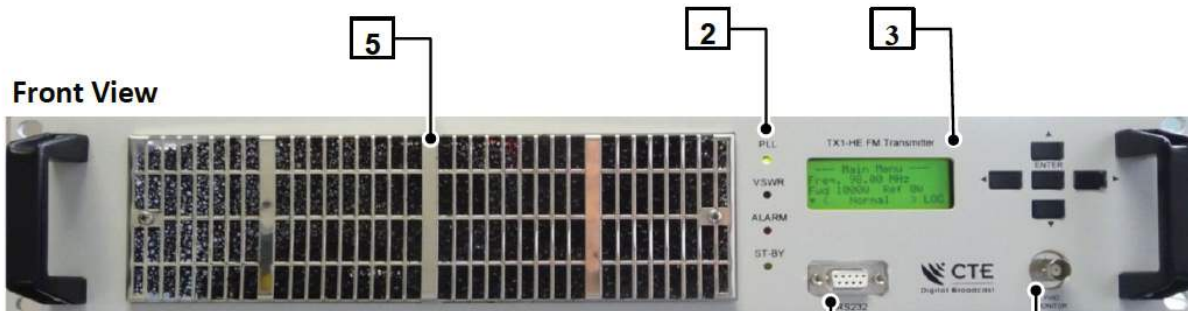
Protection against Lightning, Dust and Corrosion

PHYSICAL DIMENSIONS (For typical 10kW Transmitter)

Mounting: 2 unit cabinet

Size: 88mm. (H) x 484mm. (W) x 478mm. (D)

Weight: ~ 11 Kg.

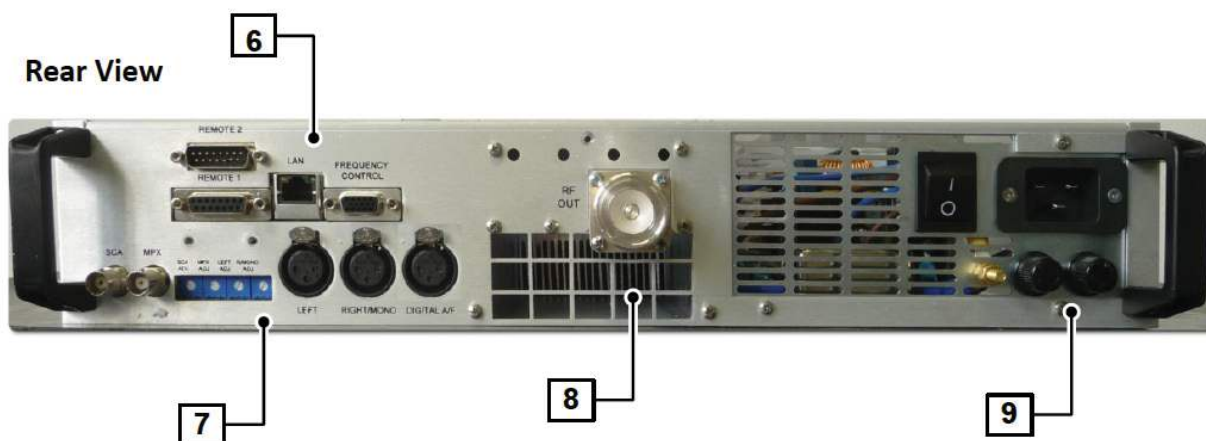


Front

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 INPUT: L&R, MPX, Mono, AES/EBU
8. OUTPUT CONNECTOR: 7/16 FEMALE
9. INPUT a.c. : FUSE, GND



Internal View

10. POWER SUPPLY
11. RF POWER MODULE
12. MOTHER BOARD

