



New generation 150 W, 300 W & 500 W FM Transmitters

- High efficiency 150 W, 300 W or 500 W with high ruggedness mosfets & multiple connectivity options
- Fast access to settings & all readings from front panel via menu display and via LAN or WEB
- Telemetry Readings & Remote Control via standard connections and via webpage
- User manual & tech documentation accessible via front USB port even when unit is not powered
- Instant user programmability (local or remote) allowing for ideal backup to multiple stations
- Proportional Auto-Foldback of output power in the event of excessive VSWR
- Adjustable, user settable output power level with soft-start control
- Automatic power control maintains the output power at any pre-set level
- Modular layout with plug-in, easily replaceable circuits and parts
- Includes low pass/harmonic filter and meets or exceeds all FCC and CCIR requirements
- Optional AES-EBU Digital Audio input
- Optional built-in, selectable, high separation internal Stereo Generator w/ Fast Audio Limiter

RF Specifications

Nominal RF Output Power: 150 W (XL 150), 300 W (XL 300) or 500 W (XL 500), adjustable from 10 W to full power in 10 W steps

Power control stability: Better than 0.1 dB

RF Output Impedance: 50 Ω unbalanced

RF connector: Type N female

Frequency range: 87.6 - 107.9 MHz, front panel programmable in 10 kHz steps, synthesized, microprocessor controlled

Reference: 10 MHz TCXO

Off-lock attenuation: > 80 dBc

Lock-in time: Typically 7 sec

Type of modulation: F3E / F8E direct FM at carrier frequency

Frequency deviation: Nominal ± 75 kHz, can be user set from ± 50 kHz to ± 100 kHz

Accuracy of deviation: < ± 2 dB from 87.6 to 107.9 MHz

Frequency drift: ≤ 1 kHz/year (due to internal TCXO aging). Can be user-calibrated

Short term stability: ± 1 ppm from -5 to +45 $^{\circ}$ C (100 Hz @ 100 MHz)

RF Harmonics: Exceeds EBU/CCIR/FCC requirements; < -76 dBc

RF Spurious: Exceeds EBU/CCIR/FCC requirements; < -90 dBc min @ ± 1 MHz

Audio General Specs

Preemphasis: Selectable Flat / 50 / 75 micros.

Preemphasis Precision: Better than ± 0.5 dB

Wideband Amplitude Response: ± 0.2 dB 30 Hz to 53 kHz; ± 0.2 dB 53 kHz to 100 kHz

Wideband AM Asynchronous: (FM = no modulation, Ref. = 100 % AM, Unweighted, RMS detector, BW 30-200 kHz) < -68dB, typ. -80dB

Wideband Distortion, THD: < 0.1% (typ. 0.05%)

WB Distortion, IMD: < 0.1% (typ. 0.05%)

WB Transient IMD: < 0.25% (square/sine wave)

Composite & Mono Specs

S/N: Typical Values referred to ± 75 kHz: Weighted (CCIR 468/2 - Peak CCIR detector) - 75 dB / 50 μ s - 69 dB / flat;

Weighted (CCIR 468/2 - RMS detector) - 79 dB / 50 μ s - 72 dB / flat;

Unweighted (RMS detector, meas. 20 Hz-23 kHz) - 86 dB / 50 μ s - 80 dB / flat (stereo);

Unweighted (RMS detector, meas. 20 Hz-23 kHz) - 92 dB / 50 μ s - 88 dB / flat (mono)

IMD: 70 Hz / 6 kHz 4:1 RATIO < 0.03% measured with 1 kHz and 1.3 kHz tones, 1:1 ratio @ 75 kHz deviation

Transient IM: < 0.03 % (square/sine)

Audio response: ± 0.15 dB 20 Hz to 15 kHz

AM Synchronous: (AM = 400 Hz, FM = 400 Hz ± 75 kHz Ref. = 100 % AM, RMS detector, meas. 20 Hz-23 kHz) < -69 dB

AM Asynchronous: FM = no modulation, Ref. = 100 % AM, Unweighted, RMS detector, meas. 20Hz-23kHz) < -70 dB (typ. -85 dB)

Common mode rejection: > 45 dB typical, 25 Hz to 15 kHz

Built-in Stereo Gen. Specs

Stereo System: EBU/CCIR/FCC standard "Pilot Tone System"

Pilot Tone Frequency: 19 kHz ± 1 Hz

Pilot Tone Deviation: ± 7 kHz nominal

38 kHz Suppression: > 70 dB (typ. 85 dB)

38 kHz Tone Generation: Internal Crystal

38 kHz Tone Precision: 38 kHz ± 2 Hz

Phase response: 19/38 kHz $0^{\circ} \pm 2^{\circ}$, internally adjustable

Stereo Separation: 30-80 Hz >53 dB, 80 Hz-15 kHz >60 dB

Crosstalk attn. (M / S): > 40 dB, 40 Hz to 15 kHz (typ. 55 dB, 100 Hz to 8 kHz)

Audio Spurious Products: > 53 kHz < 50 dB

THD on L & R channels: < 0.03%, 30 Hz-15 kHz

Audio Filter Attenuation: > 55 dB @ 19 kHz; >45 dB 19 to 50 kHz; > 50 dB to 100 kHz (typ.)

Audio Inputs (rear panel)

Composite/MPX Input: 1 BNC connector, unbalanced, 10 k Ω

Input level range for 75 kHz Deviation: -13 to +13 dBm, adjustable on rear panel

SCA / RDS / AUX Inputs: 2 BNC connectors, unbalanced, 10 k Ω . Input level range: -20 to +13 dBm for 7.5 kHz, adjustable on rear panel

L&R + Mono Input: 2 XLR connectors, balanced or unbalanced; switchable 50 Ω / 600 Ω . Input level range for 75 kHz Deviation: -13 to +13 dBm, adjustable on rear panel

AES-EBU input (optional): XLR connectors

Other Connectors (rear panel)

19 kHz Output: 1 BNC connector, unbalanced, 4.7k Ω . Pilot tone 1 Vpp 19 kHz Squarewave

DB9: six DB9 ports for Telemetry (includes analog readings of RF forward and reflected power, Remote Control with momentary contacts for on/standby & ext. interlock; RS485, RS232; Hyperterminal (optional); AUX.

RJ 45: four RJ45s for LAN/WEB connections

Other Connectors (front panel)

USB: Standard type USB port

RF Monitor (not suitable for measuring harmonics): -36 dBc ± 3 dB, 50 Ω BNC

Baseband Audio Monitor: 50 Ω BNC

Environmental

Storage temperature: -20 $^{\circ}$ C to + 60 $^{\circ}$ C

Operating temperature: -10 $^{\circ}$ C to + 45 $^{\circ}$ C

Relative humidity: 90% (non-condensing)

Max operating altitude: 3000 m.

Max ambient field strength: 3 V/m; 4 A/m

Cooling: Forced air (internal blower)

Physical & Electrical

Front panel: 483 mm (19") W x 88 mm (3 1/2") H (two standard rack spaces high)

Cabinet depth from front panel: 545 mm (21 1/2")

Tot depth incl. front handles: 585 mm (23")

Approx. Weight: 25 lbs (11 Kg)

Approx. Packed Weight: 37 lbs (17 Kg)

AC Power Requirement: 115 or 220 V [$\pm 15\%$] 50 / 60 Hz, single phase.

Approx. Power Consumption @ Full Pwr:

XL 150: 230 VA; XL 300: 440 W;

XL 500: 780 VA

LCD Display Readings:

Forward Power, Reflected Power, Frequency of Operation, Audio Presence, Deviation, Audio Input Selection, Preemphasis Status, Stereo Generator Enabled / Disabled, Audio Limiter Enabled / Disabled, L & R Channels Modulation Level, VPA, IPA, Temperature, Efficiency, Status of optional FSK ID Keyer, other misc. readings & functions

All features and specifications are subject to change without notice.