



New generation 1000 W & 2000 W FM Transmitters

- Newest MOSFET technology totally unaffected by 100% reflected power or direct short on output
- High efficiency 1000 W or 2000 W in two rack spaces with webpage and multiple connectivity options
- Fast access to settings & all readings from front panel via menu display and via LAN, Web or USB
- User manual & tech documentation accessible from front USB port even when unit is powered down
- Built-in firmware allows easy management of main TX / spare TX duties or N + 1 duties
- Full Telemetry & Remote Control connections
- User adjustable power output from 0 W to full power with soft-start control
- Automatic power control maintains the output power at any pre-set level
- Connections for external power control loop to maintain pre-set power level of external amplifier
- Modular layout with plug-in, easily replaceable circuits and parts
- Includes low pass/harmonic filter and meets or exceeds all FCC and CCIR requirements
- Excellent audio specifications and optional AES-EBU Digital Audio input
- Optional built-in, selectable, very high separation internal Stereo Generator w/ Fast Audio Clipper
- Optional programmable FSK ID Keyer by software for auto-ID of translators
- Model XL 1000 can be powered by 120 V or 220 V

● RF Specifications

Nominal RF Output Power: 1 kW (XL 1000); 2 kW (XL 2000); adjustable from 0 W in 10 W steps (XL 1000) or 20 W steps (XL 2000).

Power Control Stability: Better than 0.1 dB
RF Output Impedance: 50 Ω unbalanced
RF Connector: Type 7-16 female (optional on request: 7/8" EIA flange)

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 °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) < -68 dB, typ. -80 dB

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 μs - 69 dB / flat;

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

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

Unweighted (RMS detector, meas. 20 Hz-23 kHz) - 92 dB / 50 μs - 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. 20 Hz-23 kHz) < -70 dB (typ. -85 dB)

Common Mode Rejection: > 45 dB typical, 25 Hz to 15 kHz

● Built-in Stereo Generator 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° ± 2°, internally adjustable

Stereo Separation: 30-80 Hz >53dB, 80 Hz-15 kHz >70 dB

Crosstalk Attenuation (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 kΩ

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

SCA / RDS / AUX Inputs: 2 BNC connectors, unbalanced, 10 kΩ. 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, 4.7 kΩ pilot tone 1 Vpp 19 kHz Squarewave

DB 25: Telemetry & remote control including momentary contacts for on/standby, external interlock, analog readings of fwd & ref power

DB 9 (multiple ports): for RS485, RS232, Hyperterminal (optional), N+1 function & AUX.

RJ 45: four RJ45s for LAN/Web connections

● Other Connectors (front panel)

USB: One standard + one mini USB port

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

Baseband Audio Monitor: 50 Ω BNC

● Environmental

Storage Temperature: -20°C to + 60 °C

Operating Temperature: -10°C to + 45°C

Relative Humidity: 90% (non-condensing)

Max Operating Altitude: 3000 m. (other on req.)

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 (3½") H (two standard rack spaces high)

Cabinet depth from front panel: 620 mm (24½")

Tot Depth incl. front handles: 650 mm (25½")

Approx. Weight: XL 1000, 31 lbs (14 Kg); XL 2000, 34½ lbs (15.7 Kg)

Approx. Packed Weight: XL 1000, 36½ lbs (16.5 Kg); XL 2000, 40 lbs (18 Kg)

AC Power Requirement: single phase, 50/60 Hz, XL 1000, 120 V [±10%] or 220 V [±15%]; XL 2000, 220 V [±15%].

Approx. Power Consumption @ Full Pwr: XL 1000: 1350 VA; XL 2000: 2600 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.