

TX02-303FL
TX02-403FL
TX02-503FL



30kW VHF FM TRANSMITTER
40kW VHF FM TRANSMITTER
50kW VHF FM TRANSMITTER
Liquid Line

General information

The series belongs to the Very High Power VHF product family of FM Radio Transmitters fully solid state technology liquid cooled.

The **TX02** high power family is operating in the Band II or Band I (OIRT) for FM stereo sound broadcasting, with 30 to 50kW output power capability.

The equipment is fully compliant with the personnel safety requirements as specified in EC 215.

The transmitters have been designed to offer to the customer high performances, high reliability and great simplicity in their operation and maintenance procedures.



Compact design technology allows 6kW output power contained in each amplifier module, with up to 8 modules in the same rack

Key Features (referred to 30kW output)

- **BROADBAND** frequency synthesizer, without any other tuning or alignment.
- **MONOPHONIC & STEREPHONIC** according to the CCIR rec. 450-2 standard.
- **RDS & SCA** subcarriers input capability
- **HI-FI quality** modulated signal, with low residual noise and distortion.
- **AES-EBU digital interface** (Option)
- **RDS encoder** (Option)
- **RF Signal** free from spurious and harmonic signals
- **LD-MOS** devices in order to have wide band, reliability and high efficiency ($\geq 73\%$).
- **Redundant 6x1,2kW** RF power blocks in each amplifier
- **Redundant 3x3,5kW** independent AC/DC Power Supplies for each amplifier (3kW still available with one PS failure and 1,5kW available with two PS failures)
- **Dual Drive , 1+1 and N+1** redundancy configuration capability
- **High Tolerance** mains voltage ($\pm 15\%$) is accepted by the transmitter
- **Mains Protection System** by means of Surge Arrester System (option)
- **Remote Operation** compliant to IEC 864-1 rule (all option are available)
- **Control System** with full micro controlled adjustment, including fault finding
- **Advanced Logic** with relevant 7" touch screen display and integrated web gui.
- **Protection and Control System**
 - Block against emission on spurious frequencies
 - Reflected power
 - Modulation limiter
- **High Capacity Liquid cooling system** with redundant pumps.

Technical Specifications

GENERAL

• Frequency range	87.5 to 108 MHz
• Class of emission	F3E (Monophonic) ; F8E (Stereophonic)
• Stereo system	According to C.C.I.R. rec.450-2
• Frequency deviation	±75 kHz nominal
• Frequency control	Built-in Frequency Synthesiser
• Resolution	10 kHz step programmable
• Frequency stability	± 500 Hz / 6 months
• Output power	30, 40, or 50 kW dependent of version
• Harmonic emission	≤ 70 dBc
• Spurious emission	≤ 90 dBc
• Residual AM noise level	≤ 60 dB
• Synchronous AM	≤ 50 dB
• RF output impedance	50 Ω (4-1/2" EIA connector)

ENVIRONMENTAL

• Operating temperature	0°C to +45°C (others on request)
• Relative humidity	20% to 90% non-condensing
• Altitude	up to 2500 m.

PROGRAM INPUT

• Mono/Stereo	L & R program input
• Connector	XLR type
• Impedance	600Ω balanced (others selectable)
• Level	-4 to +12dBm
• Preemphasis	50 or 75µs selectable
• Audio frequency response	40 to 15000 ±0.3dB
• 19 kHz suppression	≥ 50 dB
• RDS and AUX	Subcarrier program input
• Connector	BNC
• Impedance	≥ 2 kΩ unbalanced
• Frequency range	67 to 100 kHz
• Nominal input level	-10dBm (±7.5 kHz deviation)

TRANSMISSION CHARACTERISTICS

Mono operation ±75 kHz deviation

• Total harmonic distortion	≤ 0.1%
• Intermodulation	≤ 60 dB
• Signal to noise unweighted	≥ 80 dB
• Signal to noise weighted (CCIR 468-3)	≥ 78 dB

Stereo operation ±75 kHz deviation

• Total harmonic distortion	≤ 0.1%
• Intermodulation	≤ 60 dB
• Signal to noise unweighted	≥ 75 dB
• Signal to noise weighted (CCIR 468-3)	≥ 72 dB
• Crosstalk L & R (40 to 15000 Hz)	≥ 50 dB
• 38 kHz subcarrier suppression	≥ 50 dB
• Attenuation above 53 kHz	≥ 50 dB

METERING

The following parameters can be read on front display

- Forward power (FWD)
- Reflected power (REF)
- DC Supply voltage
- Frequency (active channel)
- Frequency (stored channels 1 to 6)
- Mono and stereo sensitivity (0,25 dB step)
- Programmed output power
- MPX peak modulation
- L & R peak level
- RDS, SCA, Aux, MPX external modulation
- Programmed audio parameters (+L or -L, +R or -R, L on/off, R on/off, Pre-emphasis lin. 50, 75 μ sec, Limiter on/off, Input Impedance $Z=10k\Omega / 600\Omega$)
- Alarm status
- Memory status
- Internal voltage
- Serial Number

REMOTE CONTROL

Parallel interface: start, stop, standby, alarms, status, interlock, recall memory
WEB interface: TCP/IP Telemetry and SNMP

GENERAL

Voltage power supply: 3 x 380 VAC $\pm 15\%$; 3 x 400 VAC $\pm 15\%$ (others on request)
Frequency: 50-60Hz $\pm 5\%$
Power consumption: up to 75 kW (cooling system included)
Power factor: ≥ 0.9
Cooling: Liquid cooling
Dimensions: 600 x 1000 x 2250H mm ; 600 x 600 x 1600H cooling rack
Weight: 500 kg. (50 kW model) ; 180 kg. Cooling rack

OPTION

Digital audio Input: AES-EBU facilities XLR balanced (S/PDIF)
RDS: RDS simple coder programmable via PC
OIRT Version: band of frequency 65.80 to 74.00 MHz

How to Order (others version on request):

TX02-303F – 30kW FM Transmitter

TX02-403F – 40kW FM Transmitter

TX02-503F – 50kW FM Transmitter

any of the above with the following option:

-01 – Single Drive, Analog Exciter **-02** – Dual Drive, Analog Exciter

-03 – Single Drive, Digital Exciter **-04** – Dual Drive, Digital Exciter

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