

100-200-500-1000W

VHF-UHF TV TRANSMITTER/TRANSPOSER COMPACT SERIES

The high quality, professional and cost-effective solution

TXC 100, 200, 500, 1000 TRANSMITTER
RPC 100, 200, 500, 1000 TRANSPOSER

DVB[®]
Digital Video
Broadcasting
a t s c



11001
01001
01010
10101
DIGITAL & DUALCAST
VERSIONS AVAILABLE
01010
10100

TXC housed in
Rack Cabinet



In 1979 ABE Elettronica introduced the solid state TV transmitter-translator line which was immediately successful, becoming well known for its reliability, performance, low power consumption, compact size, serviceability and low price.

Since then thousand of unit have been produced. From time to time, various improvements have been made, maintaining the state-of-the art image always enjoyed by this highly reliable product.



The Transmitters TXC 100-200-500-1000 and Translators (Transposers) versions RPC 100-200-500-1000 are fully solid state compact TV broadcasting units. They have very high efficiency obtained using MOS and/or LD-MOS devices duly corrected to improve the linearity. The units are air cooled, providing combined vision and sound amplification.

Featuring modulator construction – with easily removable modules having high RF internal isolation – this compact unit (all inside a single 19” rack drawer 5U high!) exploits the advantages of SMD technology to achieve high reliability and comprehensive system flexibility – all at reduced size. Maintenance as well as channel changing operations for input or output frequency are simple and easy to perform.

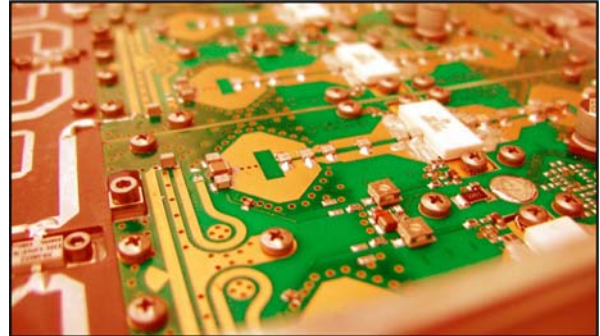
Careful product design brings high versatility, enhanced by the provision of specific options and giving compliance with major world terrestrial TV broadcasting standards. The transmitter version incorporates ABE’s IF modulator, a professional grade unit providing a combined IF signal with amplitude modulated vision and frequency modulated sound, covering the various CCIR standards.

Power amplifiers employ air-cooled MOS devices. They achieve very high efficiency (very low power consumption compared with the output level) through use of linearity pre-correction and switched-mode PSUs provided with PFC-Power Factor (cos.φ) Corrector in order to minimize reactive power consumption. With digital signals, the power stages are “backed-off” (derated) to an output power which is typically 6dB less their normal analogue combined TV signal rating, according to the level and type of pre-correction (analogue or digital) and the MER performance required.

The Transmitters and Transposers in the “TXC” and “RPC” series features comprehensive indication, control and protection circuits. Equipments can be supplied for various CCIR standards and comply with most international specifications.

GENERAL FEATURES AND OPTIONS:

- AGC features IF muting and RF output power amplifier switch off in absence of vision signal or absence of local oscillator locking.
- Transposer mutes in absence of input, avoiding transmission of noise.
- “Soft start” on appearance of transposer input, to avoid output power surges.
- Automatic RF Level Control (ALC) to stabilise the high power amplifiers RF output level over a limited range.
- Synthesised, programmable local oscillator with



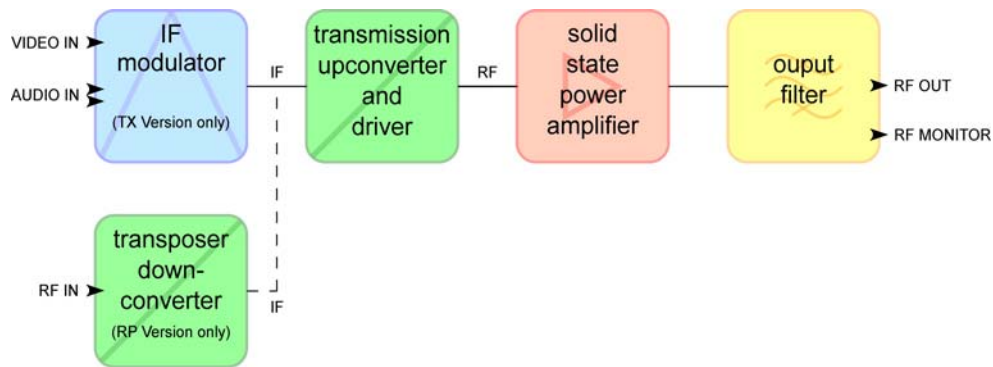
microprocessor control.

- High stability reference oscillator for line offset operation or for precision offset. This option can be supplied both for transmitters and transposers, also with the possibility to lock the internal reference oscillator to an external frequency standard (eg. GPS receiver).
- Frequency-agile converter option with output channel front panel selection
- SAW IF filters, specified with reference to the particular standard, are employed in the VSB modulator of the Transmitter or to define the channel pass-band in the IF stages of the Transposer.
- Video processor provide automatic video gain control, sync pulse shape restoration with amplitude stabilisation, digital black level clamping.
- Dual channel sound carrier + stereo encoders (IF modulators options).
- IF linearity precorrector to reduce in band intermodulation products and to correct distortions due to amplifiers non linearity.
- Input filter with low insertion loss and high selectivity for transposers (4 resonators).
- Output band-pass and notch filters.
- Alarm circuit for output power lower than a pre-set threshold (normally 3dB/half power).
- Telemetry to provide remote monitoring and control, using either digital (options: RS485; Ethernet 10/100 Base-T; SNMP and WEB Server Support) or analogue interfaces.

Digital capability

ABE Transmitters can be employed with various digital modulation standards. Few options are needed to comply with specific standard (i.e. specific IF Digital modulator and output filter). For additional reference, please visit ABE web site at www.abe.it, where you can also find the documentation of the digital and DUAL-CAST (Digital + Analog) versions.

Transmitter-Transposer block diagram



TXC/RPC100/200/500/1000 – STANDARD CONFIGURATION SPECIFICATIONS

Output Power (including output filter loss)	TXC/RPC 100: 100W p.s. (tol.+0/-1dB) TXC/RPC 200: 200W p.s. (tol.+0/-1dB) TXC/RPC 500: 500W p.s. (tol.+0/-1dB) TXC/RPC 1000: 1000W p.s. (tol.+0/-1dB)
Output Frequency range:	UHF (470 to 862MHz) or VHF BIII (175 to 230MHz)t
CCIR TV System:	B, G, D, I, K, K1, M or N
Output Impedance and connector:	50Ω type "N" Female (for 100-200W) and "7-16" Female (for 500-1000W)
In band intermodulation products (test V.C. -8dB; A.C. -10dB, C.S. -16dB):	≤ -60dB (typical; max: -56dB)
Spurious and Out of Channel Intermodulation products (with RF output filter option)	≤ -60dB
Amplitude/Frequency response (V.C. to C.S.):	Within ± 0,5 dB (typical; max ± 1dB)
Frequency stability (with high stability reference oscillator):	Line offset stability (ref. CCIR Rec. 655; ITU R.R. app.7) Aging: ≤ 100Hz / month (after 6 months operation) Option: higher stabilities, including GPS locked oscillators
Frequency adjustment possibility:	Continuous (synthesizer steps: 10KHz + ref. line tuning) (option: precision offset steps)
Group delay response (V.C. to C.S.):	Within ± 40nS (+ receiver group delay precorrection for TX version only)
Random noise (Weighted – typ):	≥ 60 dB
Differential Gain (modulated staircase 10 to 75%):	Within ± 2% (typical; max ±5%)
Differential phase:	±2° (typical; max. ±3°)
2T K RATING:	1.2% (typical; max 2%)
IF Frequency (vision carrier):	38.9 or 45.75 MHz (according to the standard)

IF MODULATOR SECTION (FOR TRANSMITTERS ONLY)

Video processor functions:	Automatic video gain control (excludible), white limiter, sync pulse shape Restoration with amplitude stabilization, digital black level clamping.
Video input level:	1Vpp (adjustable)
Video input impedance / connector:	75Ω BNC (f)
Video bandwidth:	According to the standard: from 5 to 6 MHz
Vision modulation:	C3F (negative AM with clamp and vestigial sideband)
Audio input level and impedance:	0 dBm (adjustable) 600Ω bal. / unbal.
Audio amplitude/frequency response (20Hz to 15 KHz):	±0.5dB (typical; max ±1dB)
Audio pre-emphasis:	50μS or 75μS or flat (according to the standard)
Audio harmonic distortion:	≤ 0.4 %
Sound modulation:	FM (F3E) ±50 Hz or ±25 KHz (adjustable)
Output sound carrier level (relative to vision carrier):	-10dB (adjustable)
Video audio intercarrier frequency:	According to the standard (4.5 to 6.5 MHz)
2nd AUDIO CARRIER:	Optional

RECEIVER SECTION (FOR TRANSLATOR ONLY)

Input frequency range:	UHF (470 to 860MHz), VHF BIII (175 to 230MHz) VHF BI (40 to 90 MHz)
Input impedance and connector:	50Ω – type “N” (f)
Noise figure:	≤ 9dB (typ.: 7dB)
Min. input signal:	46 dBμ V (200μV)
A.G.C. Dynamic range:	≥ 35dB

GENERAL CHARACTERISTICS

Remote control interface options:	RS485; RS232; Ethernet 10/100 Base-T (SNMP and web browser support)
Operating temperature range:	-5° to + 45°C
Power supply:	230 Vac. ±10% 50Hz (different power supplies and tolerances available on request)
Power consumption:	TXC/RPC 100: (≤ 600 VA); TXC/RPC 200: (≤ 900 VA); TXC/RPC 500: (≤ 2000 VA); TXC/RPC 1000: (≤ 3500 VA)
Housing:	19” rack drawer 5U high; basic drawer depth: 45 cm (100-200W); 70 cm (500-1000W) NOTE: for the model TXC 1000/V (VHF BIII) the output filter is not fitted inside the 5U rack drawer. OPTION: rack cabinet 12 or 15 U with slides, isolating transformer, wiring



All specifications contained in this document may be changed without prior notice.