

TX5000/U

5KW UHF TV TRANSMITTER

11001
01001
01010
10101
10110
01010
10100

DIGITAL & DUALCAST
VERSIONS AVAILABLE



System metering
Output filter

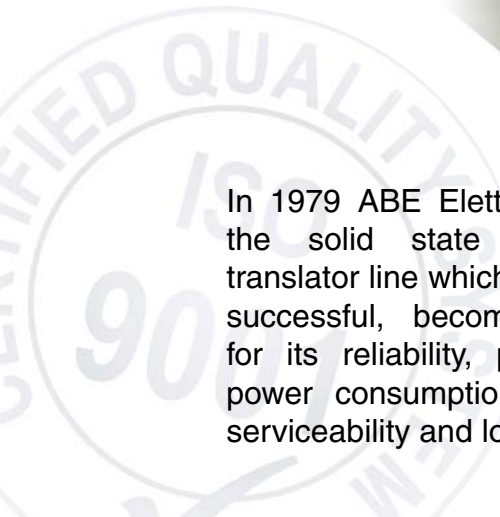
N°4 Power Amplifier
L1500 / TH

Automatic Changeover (option)
Transmitter Driver + Digital Modulator (Main Unit)
Transmitter Driver + Digital Modulator
(Stand-By Unit - Option)

Mains Switch + Isolating Transformer

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 thousands 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 Transmitter TX 5000/U, is a fully solid state unit. Power amplifiers have very high efficiency (very low power consumption compared with the output level) obtained using LDMOS devices duly corrected to improve the linearity. The unit is air cooled, providing combined vision and sound amplification.

The Solid-State 5KW output amplifier comprises four independent 1500 TH power amplifier chassis, each with its own power supplies.

Should a failure affect the output from one 1500 TH power amplifier, the other ones will continue to work normally at full power, transmission therefore continues at reduced power but, importantly, the station remains "on-air".

With the optional "Dual-Drive" configuration there is an Automatic Changeover Unit which, in the event of low RF power from the working Drive, immediately brings the stand-by optional Drive into operation and ensures that transmission will continue at full power.

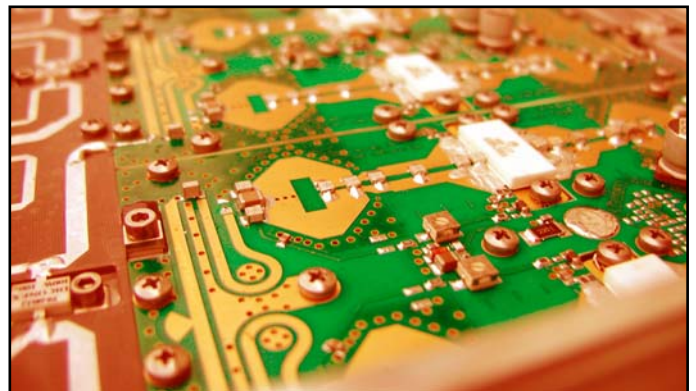
These two features together ensure a high degree of operational reliability. Essential maintenance is also facilitated.

GENERAL FEATURES AND OPTIONS:

- ◆ AGC features IF muting and RF output power amplifier switch off in absence of vision sync pulses or absence of local oscillator locking
- ◆ "Soft start" on appearance of vision sync pulses, to avoid output power surges.
- ◆ Automatic RF Level Control (ALC option) 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 with the possibility to lock the internal reference oscillator to an external frequency standard (e.g. GPS receiver).
- ◆ SAW IF filters, specified with reference to the particular standard, are employed in the VSB modulator of the Transmitter.
- ◆ Video processor (IF modulator option) provide automatic video gain control, sync pulse shape restoration with amplitude stabilisation, digital black level clamping.
- ◆ Dual channel sound carrier + stereo encoders (IF modulator options).

The transmitter 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.

Careful product design brings high versatility, enhanced by the provision of specific options and giving compliance with major international standards.



- ◆ IF linearity precorrector to reduce in band intermodulation products and to correct distortions due to amplifiers non linearity.
- ◆ Output band-pass and notch filters.
- ◆ Alarm circuit for output power lower than a pre-set threshold (normally 3dB/half power).
- ◆ Dual Drive option include a stand-by Drive unit (TX or RP) and the Automatic Changeover unit "SA2" which, in the event of low RF power from the working Drive, immediately brings the stand-by Drive into operation.
- ◆ Telemetry options to provide remote monitoring and control, using either digital (RS 485) or analogue interfaces (see Network Manager hardware/software documentation).

Transmitters have modular construction with plug-in modules (very compact in size through use of SMD technology) to facilitate maintenance.

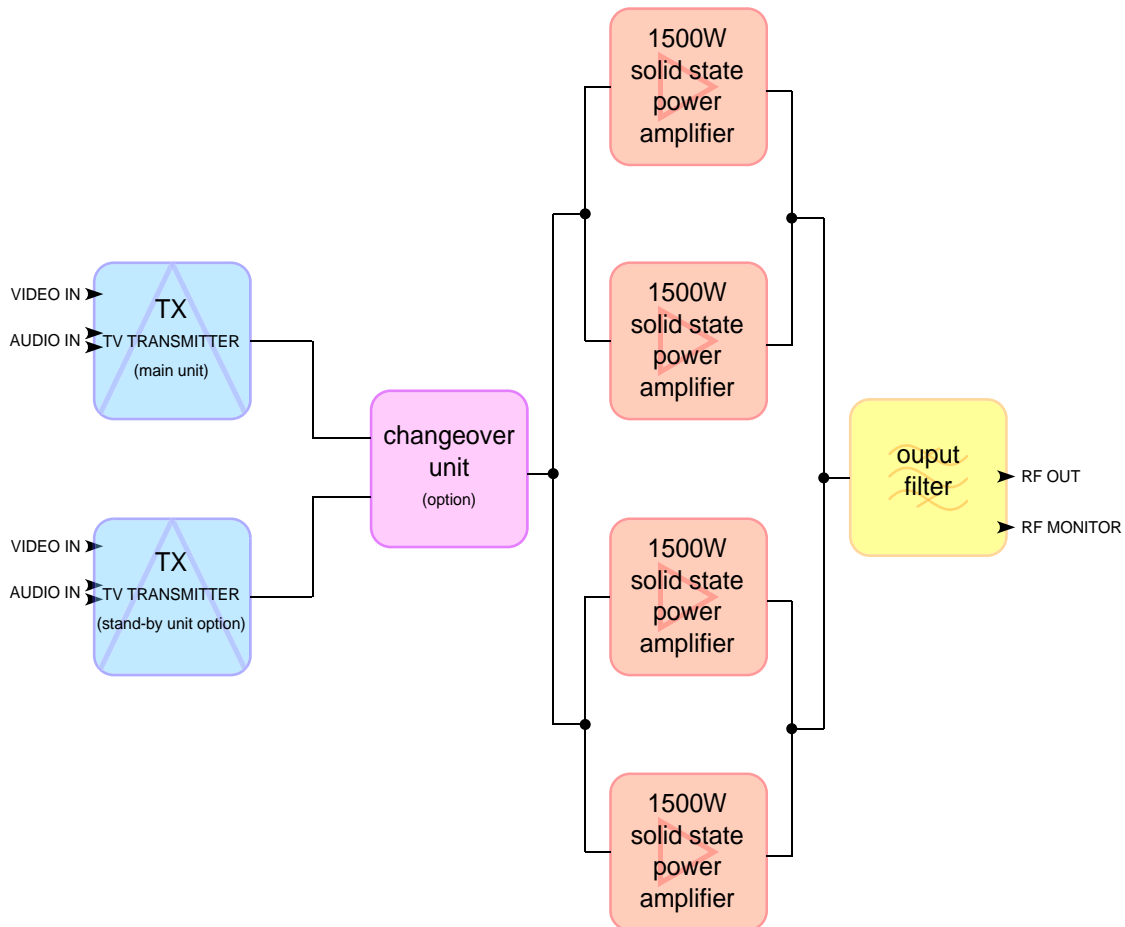
The Transmitters in the "TX" series features comprehensive indication, control and protection circuits. Channel changing operations are simple and easy to perform.

Equipments can be supplied for various CCIR standards and comply with most international specifications.

DIGITAL CAPABILITY

ABE Transmitters have been tested and can be employed with various digital modulation standards. Few options may be needed to comply with specific standard (i.e. specific IF modulator and output filter option). For additional reference, please read also the ABE “Digital TV Broadcasting Handbook” (with particular reference to the chapter “Digital TV Broadcasting Terrestrial Transmitters: advantages, specifications, measurements, differences and upgrading from analogue operation”) downloadable from www.abe.it web site, where you can also find the documentation of the digital and DUALCAST (Digital + Analog) versions.

TRANSMITTER STANDARD CONFIGURATION



TX 5000 UHF STANDARD CONFIGURATION SPECIFICATIONS:

OUTPUT POWER (including output filter loss):	5000W p.s. (tol. +0 /-1dB)
OUTPUT FREQUENCY RANGE:	UHF (470 to 862 MHz)
CCIR TV SYSTEM:	B,G,D,I,K,K1,M or N
OUTPUT IMPEDANCE AND OUTPUT CONNECTOR:	50 Ω type flange 1+5/8"
IN BAND INTERMODULATION PRODUCTS (test V.C. -8dB; S.C. -10dB; C.S. -16dB):	\leq -60dB (typical; max -56dB)
SPURIOUS AND OUT OF CHANNEL INTERMODULATION PRODUCTS (with output filters option - test V.C. -3dB; S.C. -10dB):	\leq -60dB
AMPLITUDE/FREQUENCY RESPONSE (V.C. to S.C.):	Within $\pm 0,5$ dB (typical; max ± 1 dB)
FREQUENCY STABILITY (with high stability reference oscillator):	Line offset stability (ref. CCIR Rec. 655; ITU R.R. app. 7) Aging: ≤ 100 Hz / month (after 6 months operation) Option: higher stabilities, including GPS locked oscillators

GROUP DELAY RESPONSE (V.C. to C.S.):	Within ± 40 nS (+ receiver group delay precorrection)
RANDOM NOISE (Weighted - typ.):	≥ 60 dB
DIFFERENTIAL GAIN (modulated staircase 10 to 75%):	Within $\pm 2\%$ (typical; max $\pm 5\%$)
DIFFERENTIAL PHASE (modulated staircase 10 to 75%):	Within $\pm 2^\circ$ (typical; max $\pm 3^\circ$)
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 INPUT LEVEL:	1Vpp (adjustable)
VIDEO INPUT IMPEDANCE / CONNECTOR:	75 Ω BNC (f)
VIDEO BANDWIDTH:	According to the standard
VISION MODULATION:	C3F (negative AM with clamp and vestigial sideband)
AUDIO INPUT LEVEL AND IMPEDANCE:	0 dBm (adjustable) 600 Ω bal / unbal
AUDIO AMPLITUDE / FREQUENCY RESPONSE (20Hz to 15KHz):	Within ± 1 dB
AUDIO PRE-EMPHASIS:	50 μ S or 75 μ S or flat (according to the standard)
AUDIO HARMONIC DISTORTION:	$\leq 0.4\%$
AUDIO MODULATION:	FM (F3E) ± 50 KHz or ± 25 KHz (adjustable)
AUDIO OUTPUT 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

GENERAL

OPERATING TEMPERATURE RANGE:	-10° to + 45° C.
POWER SUPPLY:	380 V a.c. $\pm 10\%$ 50Hz Three phase + neutral (different power supplies and tolerances available on request)
POWER CONSUMPTION:	≤ 19 KVA
HOUSING:	N° 1 Rack cabinet 19" 38U