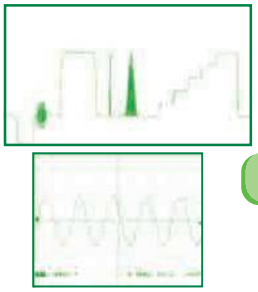
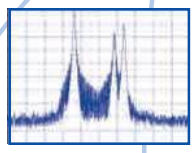
ANALOG AND DIGITAL TERRESTRIAL DVB-T

ANALOG TELEVISION TRANSMITTER SERIES 310



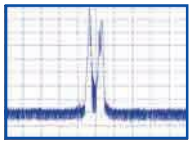
Video and Audio input



On air channel spectrum

ANALOG TELEVISION TRANSPOSER SERIES 290

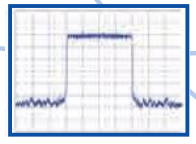
On air channel spectrum



On air channel spectrum

DIGITAL TERRESTRIAL TELEVISION TRANSMITTER SERIES 1380

ASI input



On air channel spectrum

TELEVISION TRANSMITTER AND TR

ANALOG TRANSMITTER TECHNICAL SPECIFICATIONS

Transmission Quality

Differential Gain error:	<3%
Differential Phase error:	<3%
Luminance non-linearity:	<5%
ICPM:	<3°
Video Amplitude/freq.response:	< ± 0.5 dB within the vision band
Group Delay tolerance:	< ± 30 ns
Audio Distortion:	< ± 0.5% at 1kHz
Audio Amplitude freq. response:	< ± 0.5 dB, 40Hz to 15KHz

Output Parameters

Output frequency range:	BANDS IV-V: 470-860 MHz BAND III: 174-250 MHz BAND I: 47-90 MHz
Output impedance:	50 ohm, unbalanced
Video S/N unified weighted:	>62 dB
Audio S/N ratio:	>60 dB @ 50 KHz deviation
Permissible VSWR:	<1.5
In-band intermodulation Products:	<60 dBc (-8,-10,-16 dB) @rated output
Spurious suppression:	>60 dB
Harmonic suppression:	>60 DB
Long term output frequency stability:	<0.5 PPM/6 months

Video Input Parameters

Number of inputs:	2 with automatic switch
Cross talk attenuation between inputs:	>56 dB to 5 MHz
Input signal level:	1 V p.p.
Input manual gain adjustment:	± 3 DB
Input impedance:	75 Ω, unbalanced
Input return loss:	>30 dB
Video clamping:	Sync tip or back porch selectable
White clipping set at:	95% of modulation depth

Audio Input Parameters

Number of inputs:	2 with automatic switch
Input signal level:	+8 dBU at ± 50 KHz pk. dev.
Input manual gain adjust:	+10/-3 dB
Input impedance:	600 Ω or > 3kΩ
Test tone nominal frequency:	400 Hz

ANALOG TRANSPOSER TECHNICAL SPECIFICATIONS

Re-Transmission Quality

Weighted Vision S/N ratio:	>59 dB @ 2mV input
Sound S/N ratio:	>60 dB @ 50 KHz deviation
Sync pulse compression:	<3%
Differential Gain error:	<3%
Differential Phase error:	<3%
Amplitude-frequency response:	± 0.5 dB within the vision band
Group Delay tolerance.	± 30 ns

Output Parameters

Output frequency range:	BAND IV-V: 470-860 MHz BAND III: 174-250 MHz BAND I: 47-90 MHz
Output impedance:	50 ohm, unbalanced
Video S/N unified weighted:	>62 dB
Audio S/N ratio:	>60 dB @ 50 KHz deviation
Permissible VSWR:	<1.5
In-band Intermodulation Products:	<60 dBc (-8,-10,-16 dB) @ rated output
Spurius suppression:	>60 dB
Harmonic suppression:	>60 DB
Long term output frequency stabily:	<0.5 PPM/6 months

Input Parameters

Input frequency range:	BANDS IV-V: 470-860 MHz BAND III: 174-250 MHz BAND I: 47-90 MHz
Input impedance:	50 ohm, unbalanced
Input return loss:	>20 dB
Input level range:	100 µV to 10 mV
Noise Figure:	<8 dB UHF, @ 1 mV input level

I.F. paremeters

Vision Intermediate Frequency:	38.9 MHz, 45.75 MHz or as per Standard specified
I.F. filter:	SAW acustic device

DVB-T TRANSMITTER TECHNICAL SPECIFICATIONS

Supported modes

IFFt mode:	2K, 4K, 8K
Guard inervals:	1/4, 1/8, 1/16, 1/32
Code rates:	1/2, 2/3, 3/4, 5/6, 7/8
Modulation mode:	QPSK, 16-QAM, 64-QAM
Hierarchical mode:	alpha1-2-4 16-QAM, 64-QAM
Network mode:	SFN and MFN
Bandwidth:	8MHz, 7MHz, 6MHz and 5MHz

Input parameters

MPEG-2 ASI Data inputs impedance:	75 Ω
Ext. Ref. Frequancy:	5 MHz or 10Mhz
Ext. Ref. Impedance:	50W
Time re. Input Frequancy:	1 PPS
Time ref. Input Impedance:	50 Ω

Output parameters

Output frequency range	BANDS IV-V:470-860 MHz BANDS III:174-250 MHz
Spurious suppression:	>60 dB
Harmonic suppression:	>60 dB
Impedance:	50 Ω
Tuning resolution:	1Hz
Long term output frequency stability:	<0.5 PPM/6 months
MER:	36dB
Shoulders :	39dB

Pre-correction

Manual digital pre-correction with easy adjustment, option automatic digital **adaptive pre-correction**:
In Band Group Delay and Amplitude real time correction Digital non-linear Pre-correction:
Broad band non-linear Phase and Amplitude real time cubic correction.
In manual mode up to 4 Phase and Amplitude curve storable in EPROM memory.

ANSPOSER

ANALOG TRANSMITTERS

Output freq. band	RF output W	Model
UHF, Band IV-	4	0310TAS-TX
UHF, Band IV-V	10	0310TCS-TX
UHF, Band IV-V	50*	0310THS-TX
VHF, Band III	10	0310TFS-TX
VHF, Band III	50*	0310TGS-TX
VHF, Band I	10	0310TRS-TX
VHF, Band I	50*	0310TQS-TX

*AB class

ANALOG TRANSPOSER

Output freq. band	RF output W	Model
UHF, Band IV-V	4	0290TAS-TP
UHF, Band IV-V	10	0290TCS-TP
UHF, Band IV-V	50*	0290THS-TP
VHF, Band III	10	0290TFS-TP
VHF, Band III	50*	0290TGS-TP
VHF, Band I	10	0290TRS-TP
VHF, Band I	50*	0290TQS-TP

*AB class

DVB-T TRANSMITTERS

Output freq. band	RF output W	Model
UHF, Band IV-V	1	1380TAL-TX
UHF, Band IV-V	2	1380TAS-TX
UHF, Band IV-V	5	1380TCS-TX
UHF, Band IV-V	10*	1380THL-TX
UHF, Band IV-V	20*	1380THS-TX
VHF, Band III	1	1380TFP-TX
VHF, Band III	2	1380TFL-TX
VHF, Band III	5	1380TFS-TX
VHF, Band III	10*	1380TGL-TX
VHF, Band III	20*	1380TGS-TX

*AB class

GENERAL COMMON TECHNICAL SPECIFICATIONS

General

Primary power	230/240/127/110 V a.c ±15%, 47 to 60 Hz
Power options	+24 V d.c. +20%, -10% +48 V d.c. ±20%
Power consumption	100W max. full power, 40W max., st-by *(4W analog and 2W digital RF output power models)* 200W max. full power, 40W max., st-by *(10W analog and 4W digital RF output power models)* 250W max. full power, 40W max., st-by *(50W analog and 20W digital RF output power models)*
Operating temperature range	0 °C to + 45 °C
Storage temperature range	-10 °C to + 70 °C
Protections & alarms (depending on model)	Over voltage *(crowbar)*, over-current, hight HS Temperature, excessive reflected power, low output power.

Dimensions and Weights

Analog transmitter and transposer dimensions	Std. 19" frame, 482 W x 510 D x 135 H, mm.
DVB-T transmitter dimensions	Std. 19" frame, 482 W x 510 D x 180 H, mm.
Weight for 2-4 W output models	12 Kg. approx.
Weight for higher power output models	15 Kg. approx.

0120TB INTERMEDIATE FREQUENCY (I.F.)
STEREO DUAL SOUND MODULATOR

0600TA AUTOMATIC CHANGEOVER UNIT

0340TA SYNCHRONIZED ANALOG VIDEO
TERRESTRIAL REFERENCE FREQUENCY SOURCE

DVB-T and DVB-H MODULATOR
1100 DVB

MAIN FEATURES

- DVB-T and DVB-H standards support
- Capable of MFN and SFN operation
- Excellent MER value: 47dB
- Program Clock Reference restamping
- Netkork Information Table Insertion
- Hight SFN system reliability due to output fine bit rate adapting
- 2K, 4K or 8K selectable IFFT mode
- 5-6-7-8 MHz selectable channel BW
- Full hierarchical mode
- Automatic digital adaptive pre-correction switch able or manual with easy adjustment
- DVB-H signalling on TPS
- DVB-H 2K and 4K in depth interleavers
- GPS receiver option
- GPS receiving antenna option

High quality
low power
TV transmitter
from 4W to 50W

NICAM and stereo
dual sound supported

High quality
low power
TV transposer
from 4W to 50W

High performance
low power
DVB-T transmitter
from 1W to 20W

SFN supported

Full support standards and frequency bands
Full digital terrestrial television DVB-T and
DVB-H modes support; SFN system integrated.
Supported Analog TV standards are B/G, I, D/K, M, N
Supported Frequency bands are BI 47-90MHz,
BIII 174-250MHz and BIV-V 470-860MHz.

Broad Band R.F. Amplifiers based on LDMOS Technology
The R.F. output stages are implemented by two LDMOS transistors combined with 3dB 90° hybrid coupler, this is aplied to all R.F. amplifiers working in BI, BIII and BIV-V

All frequencies locked to a single reference
The internal Over Controlled Xtal Oscillator reference locks the I.F. Vision carrier, the I.F. Sound carrier, the Up converter L.O. and in Transposer the down converter L.O.
External reference input is provided for higher frequency stability.

Plug-in modules for versatitly and on-site easy maintenance
Series ETL0310 TV Transmitter is composed by several plung-in modules mounted on a standard 3 U, 19" rack cabinet. To transform a transmitter into a transposer it's enough to replace just the first three plung-in modules (IF modulator) with two plung-in modules (the transposer front-end)

High reliability and ruggedness
The mains transformer provides safety isolated low voltage to high reliability switch mode power supplies, the R.F. power amplifiers flanged devices are directly mounted on the convection cooled rear heat sink. RF-overdrive, high VSWR, high HS temperature, Crow-Bar are standard protections.

All transmitters, high or low power, are capable to easily and automatically operate in Dual mode, Analog TV and Digital DVB-T/H
The A.G.C.-A.L.C. Controller plug-in module includes the switch from analog to digital IF spectrum, automatically the IF analog precorrection is by-passed to do not interfere with the digital precorrection located into the digital modulator. E-link interlock between exciter and amplifier, automatically provides the changing of the detector and measure from pick sink for the analog to the average one for the digital.

Excellent spectral purity of synthesized L.O., allowing precision offset broadcasting.
The very high spectral purity of the Local Oscillator allows broadcasting in precision offset mode, 1 Hz frequency resolution can accomodate the appropriate offset frequency according to all standards

Metering and telecontrols
Monitoring and alarm functions are available on the metering digital display, parameters and telecontrols are provided on the RS 232 serial port. SNMP and WEB remote control available.