TV TRANSMITTER

ECUADRIVER 50U

The Ecuadriver 50U is a low power transmitter and Gap filler solution from Ecuadriver Line. In 1U rack module-19" std Ecuadriver 50U offers a digital power of 50-60Wrms (COFDM / ATSC), 100 Wps (Analog power).
(ATSC 3.0 READY, only software update needed)

Key facts:

- *Multistandard Transmitter: All digital / All analog in the same hardware*
- *Multimode platform: same hardware: System driver, low power transmitter, heterodyne transposer, regenerative transmitter, translator (integrated DVB-S2 receiver), Gap filler and Single Frequency Echo Canceller*
- *Compact solution AB class Transmitter*
- *Base inputs: 2x ASI Hitless switch (with BNC Connectors), 2x SAT (S2 with CAMSlot), 2x Ethernet Hitless switch*
- *Regenerative and SFN Gap filler functionality*
- *Freq. agile with static or adaptive pre-correction (Linear and non linear)*
- *BUILT in GPS receiver for SFN applications*
- *Easy to use: web graphic interface GUI response*

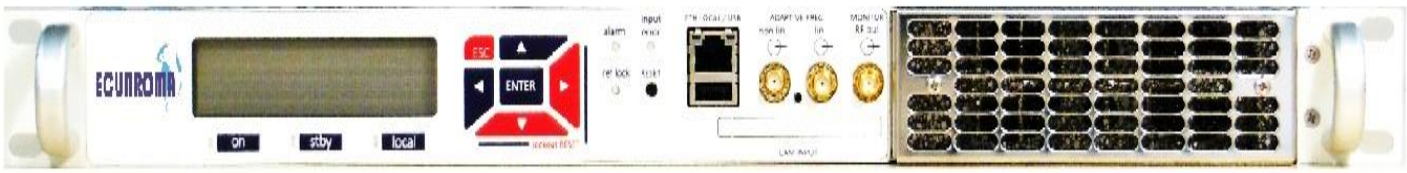
Ecuadriver line represents the state of the art of the RF transmitter technology. It's the unique investment exciter thanks to its capability to modulate in all Digital standard, TV and Radio as the TV analog too.
PCM platform allows the standard change via software, it's the perfect solution for broadcasters who are already in digital and need to take advantage of versatility in operation modes, configuration and performance, it's the perfect solution for broadcasters who are still working on the digital transition.
Ecuadriver can be an exciter, low power transmitter (UP to 200Wrms in 2RU), a regenerative transmitter, translator (integrated DVB-S2 receiver), Gap filler and Single Frequency Echo Canceller (perfect for Single Frequency Network), all in a single hardware.

Ecuadriver already implements DVB-T/T2, ATSC /MH, ISDB-T/Tb, DAB, DTMB and all Analog standards.
Ecuadriver always embeds linear and non-linear pre-correction to optimize the global system performance. Pre-correction can be static, i.e. based on pre-stored tables, or adaptive, with real-time evaluation and compensation of possible distortions in the amplification.

Ecuadriver can be configured as managed remotely, using a dry contact, via SNMP commands, via TCP/IP or graphic user interface designed by us using whatever of the common web browsers.
Ecuadriver allows a total remote control of itself and its functionality by serial protocols or TCP/IP ports. Our platform can easily monitored / configured and updated using a LAN connection or a USB Key.

DVB T2
DVB T
DTMB
ATSC
ISDB-T
PAL D/K
NTSC

IMAGES



Front view

Rear view

TECHNICAL FEATURES

RF frequency range (output)		UHF Band IV & V (470MHz-860MHz)	
RF	Output power	50 Wrms COFDM 60 Wrms ATSC	100 W p.s.
	Spurious / Harmonics	EN 302-296-2	
	MER	>35dB	n.a
	Shoulders	>40dB	n.a.
Mains	Voltage	90 to 264 VAC @ 47 to 63 Hz (single phase - autorange p.s.)	
	Power consumption	280W	180W.
	Electrical efficiency	36 – 38%	
Cooling system /Air flow rate m3/h		forced air / 90 m3/h	
Size	Width/Height/ Depth	482 mm / 44 mm / 450 mm	
Weight		6 kg	
Number of Tx / one rack 36U		More than 10	
DIGITAL MODULATION			
DVB-T	ref. standards	ETS 300 744 / EN 50083-9 / TR 101 190 / TR 101 891	
	RF channel width	6 MHz, 7 MHz, 8 MHz	
DVB-T2	ref. standards	EN 302 755, TS 102 831, T2-MI	
	Streams	Single stream (System A) or up to 8-PLPs (System B)	
	RF channel width	6 MHz, 7 MHz, 8 MHz	
ISDB-T SBTVD	ref. standards	ABNT NBR 15601 - ARIB STD B31	
	Multiple segment operation	total 13 segments, distributed over the existing layers (1seg supported)	
	RF channel width	6 MHz	
ATSC 8VSB	Standards	ATSC DOC.A/53	
	Modulation mode	8-VSB	
	Channel spacing	6 MHz	
DTMB	Standard	DTMB (GB20200/2006)	
	Symbol rate / Modulation	Symbol rate: 7.56Msps / TDS-OFDM	
	Channel bandwidth	8 MHz or 6 MHz	
Inputs		2xASI (BNC f, 75W) - seamless/hitless switching (SFN) / BTS / SMPTE / T2 MI / AA/VV	
IP input		2x GBE (ProMPEG Cop3) - Electrical + 1XSFP GBE - Opt./Elec.*	
ANALOGUE MODULATION			
TV System		PAL std. B/G, H, K, I, I1, M, N - NTSC std. M - SECAM D/K	

Ref. Standard		ITU-R BT.470-6	
Audio system		MONO/ IRT	
Video input	Level	1V $_{pp}$ (0.5 to 2 V)(DC component level in the range -5 to 5 V)	
	Ret. loss	better than -30 dB (0 to 6 MHz) (75 W)	
	Connector	1xBNC female, 75 W	
Audio input	Level	6 dBm ± 6 dB (Df= 25 to 50 kHz)	
	Ret. loss	better than -30 dB (40 Hz to 15 kHz) (600 W, bal.)	
	Connector	DB9 with patch cable for 2xXLR female, 600 W (IRT config. : 2 inputs)	
REPEATER		SFN gap-filler	MFN re-transmitter
F input	RFin frequency range	146 to 861 MHz	
	Input level	-10dBm to -60dBm	-20dBm to -70dBm (QEF reception)
	Input ret. loss	better than -16 dB	
	RF in connector	N female, 50 W ("N" / 50 ohms)	
Echo Canceller	residual echo suppression	up to more than 30 dB (30dB are obtained at 0dB input echo)	n.a.
Noise figure		max 10 dB	max 8 dB
immunity to other chan	N+1	OFDM/OFDM > 30 dB	
	others	OFDM/OFDM > 40 dB	
SATELLITE TRANSPOSER			
SatTV standard		DVB-S -- DVB-S2 - EN300421	
Frequency range		950 - 2150 MHz	
Signal level		-65 to -25 dBm	
Connector - Cond. Access		SMA f - CAM slot	
LNB control		available, through RF input PS, polarity / band selection: by standard 13/18VDC and 22kHz signalling	
MONITORING			
RF Monitoring Connectors		FWD/REF: SMA female , 50 W, 2x RJ-45 (1 in the back and 1 in the front panel)	
Local Control		front panel (keys/display/USB port) / standard web browser	
Remote Control	Netw. Mgmt.	web browser for TCP/IP/ SNMP agent - upgrade also through ASI TS (OTA)	
	Direct signalling	IEC 60864-1	
TIME & REFERENCE			
Built-in ref.	Frequency	10 MHz OCXO	
	Stability	time: max ±10^{-7} /year - temperature: max ±2.5 10^{-8} (-20° to 70°C)	
Ext. ref.	Frequency	10 MHz - 1pps	
	Level	1 V_{pp} (0.7 to 1.4 V)	
VCO tuning step		1 Hz	
ENVIRONMENTAL			
Operating temp. range		0° to 50°C*	
Max rel. air humidity		95% @ 30°C, no condensation	
Max altitude		4000 m a.s.l.	
Immunity	bursts		
	surges		
Safety		EN 60215 (IEC 215)	

BLOCKDIAGRAM