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## DIGITAL LOW POWER TRANSMITTERS



### PRINCIPALI CARATTERISTICHE:

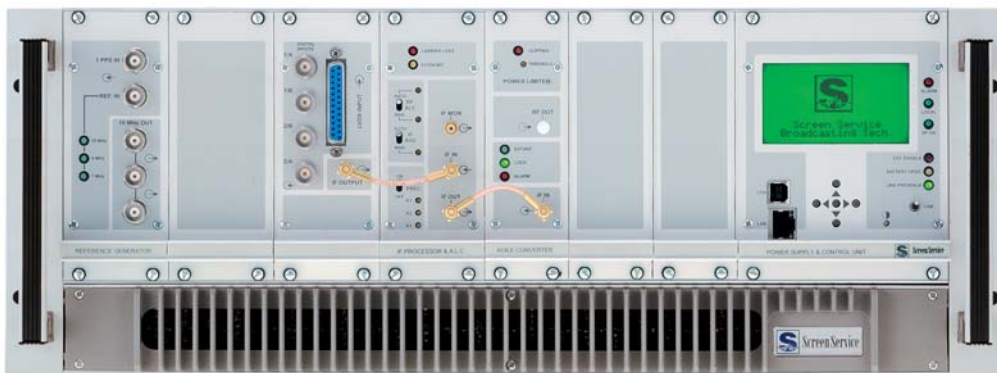
- > Rispondente alle specifiche ETS 300 744 (DVB) e A53 (ATSC).
- > Tutte le modalità DVB-T e DVB-H a 2k, 4k e 8k uniformi, gerarchiche e non.
- > Adattatore SFN integrato.
- > De-jitter sul segnale in ingresso prima della trasmissione.
- > Up-converter agile integrato.
- > Ingressi ASI e LVDS.
- > Compensazione automatica del ritardo di rete (SFN).
- > Aggancio a segnale di riferimento GPS.
- > Virtual Elastic Store.
- > Decodificatore MIP per configurazione automatica.
- > Offset di precisione automatico.
- > Eccellente apertura dell'occhio.
- > Intervallo di guardia fino a 1/32.
- > BER = 0.
- > Opzione "dual-mode" (PAL/DVB - NTSC/ATSC).
- > In modalità DVB-H:  
Modo native o in-depth interleaving.  
Time-slicing per High e Low priority stream.  
MPE FEC per High e Low priority stream.
- > Costruzione modulare.
- > Raffreddamento forzato.

### MAIN FEATURES:

- > Complies with ETS 300 744 (DVB) and A53 (ATSC) specifications.
- > All uniform, hierarchical and non-hierarchical 2k, 4k and 8k DVB-T and DVB-H modes.
- > Integrated SFN adapter.
- > De-jitter on input signal prior to transmission.
- > Agile integrated up-converter.
- > ASI and LVDS inputs.
- > Automatic network delay compensation (SFN).
- > GPS reference signal lock.
- > Virtual Elastic Store.
- > MIP decoder for automatic configuration.
- > Automatic precision offset.
- > Excellent eye aperture.
- > Guard interval up to 1/32.
- > BER = 0.
- > Dual mode option (PAL/DVB - NTSC/ATSC).
- > In DVB-H modes:  
Native or in-depth interleaving modes.  
Time-slicing for High and Low priority stream.  
MPE FEC for High and Low priority stream.
- > Modular construction.
- > Forced air cooling.

### CARACTERÍSTICAS PRINCIPALES:

- > Cumple con las normas ETS 300 744 (DVB) y A53 (ATSC).
- > Todos los modos DVB-T y DVB-H de 2k, 4k y 8k uniformes, jerárquicos o no.
- > Adaptador SFN integrado.
- > "De-jitter" en la señal de entrada antes de la transmisión.
- > Up-converter ágil integrado.
- > Entradas ASI y LVDS.
- > Compensación automática del retraso de red (SFN).
- > Enganche a la señal de referencia GPS.
- > "Virtual Elastic Store".
- > Decodificador MIP para configuración automática.
- > Offset de precisión automático.
- > Excelente apertura del ojo.
- > Intervalo de guardia hasta 1/32.
- > BER = 0.
- > Opción "dual-mode" (PAL/DVB - NTSC/ATSC).
- > En modo DVB-H:  
Modo native o in-depth interleaving.  
Time-slicing para High y Low priority stream.  
MPE FEC para High y Low priority stream.
- > Construcción modular.
- > Ventilación forzada.



DBT/DTT 201 UB-C UHF TRANSMITTER



DVB-S  
RECEIVER OPTION

DVB-T  
RECEIVER OPTION

AUDIO/VIDEO  
DIGITIZER OPTION

DEMODULATOR/  
DECODER OPTION



SCR 201 UB-C UHF TRANSPOSER (DIGITAL VERSION)



ECHO CANCELLER OPTION

Questa serie di prodotti è composta da trasmettitori digitali completamente a stato solido progettati per garantire la rispondenza agli standard DVB-T, DVB-H e ATSC.

Un'ampia gamma di versioni e configurazioni permette al cliente di scegliere il trasmettitore adeguato alle proprie esigenze. La serie comprende apparati da 10 a 200 W rms di potenza d'uscita nominale, per le bande VHF I, VHF III e UHF, da utilizzare come stadi pilota per amplificatori di potenza superiore o per alimentare direttamente sistemi d'antenna.

Gli eccitatori sono completamente modulari, con adattatore SFN integrato, ingressi duali (anche in modo gerarchico) e permettono la generazione e la trasmissione di segnali COFDM a 2k, 4k, 8k con modulazione QPSK, 16QAM e 64QAM o 8VSB (16VSB opzionale) in standard ATSC.

L'alta linearità degli amplificatori, i dispositivi di raffreddamento sovra-dimensionati ed una serie di circuiti

di controllo e protezione gestiti da microprocessore garantiscono un'elevata affidabilità nel tempo. Un display multifunzione permette di verificare tutti i parametri di funzionamento localmente mentre le interfacce di collegamento esterno consentono il controllo e la gestione degli apparati in modo remoto tramite il Web Server interno o tramite protocolli seriali o SNMP (opzionale).

**MODEL-SPECIFIC DATA**

Model	Output band	Output connector	Working class	Dimensions	Digital output power (rms) without filter (Shoulders -36 dB @ F <sub>0</sub> ± 4.3 MHz)		Nominal analog output power (p.s.) with dual mode option
					DVB-T	ATSC	
DBT, DTT*							
101FB-C	VHF I	N	AB	4 RU	40 W	60 W	150 W
101FB	VHF I	N	AB	3+3 RU	40 W	60 W	150 W
201FB-C	VHF I	N	AB	4 RU	80 W	100 W	300 W
201FB	VHF I	N	AB	3+4 RU	80 W	100 W	300 W
501FB	VHF I	7/16	AB	3+5 RU	160 W	200 W	650 W
500TB	VHF III	N	AB	3 RU	10 W	15 W	50 W
101TB-C	VHF III	N	AB	4 RU	40 W	60 W	150 W
101TB	VHF III	N	AB	3+3 RU	40 W	60 W	150 W
201TB-C	VHF III	N	AB	5 RU	80 W	100 W	300 W
201TB	VHF III	N	AB	3+4 RU	80 W	100 W	300 W
501TB	VHF III	7/16	AB	3+5 RU	160 W	200 W	650 W
500UB	UHF	N	AB	3 RU	10 W	15 W	50 W
500UA-C	UHF	N	A	4 RU	20 W	30 W	50 W
500UA	UHF	N	A	3+3 RU	20 W	30 W	50 W
101UB-C	UHF	N	AB	4 RU	40 W	60 W	150 W
101UB	UHF	N	AB	3+3 RU	40 W	60 W	150 W
201UB-C	UHF	N	AB	4 RU	65 W	100 W	250 W
201UB	UHF	N	AB	3+3 RU	65 W	100 W	250 W
501UB	UHF	7/16	AB	3+4 RU	125 W	200 W	500 W

\* DBT Series = Digital DVB-T transmitters  
 DTT Series = Digital ATSC transmitters

Specifications and characteristics are subject to change without notice.



**DBT/DTT 201UB  
UHF TRANSMITTER**



**DBT/DTT 501UB  
UHF TRANSMITTER**



**DBT/DTT 501TB  
VHF TRANSMITTER**

This series of products consists of completely solid-state digital TV transmitters designed to guarantee compliance with DVB-T, DVB-H and ATSC standards.

A broad array of versions and configurations allows the customer to choose the transmitter that suits his personal needs. The series includes equipment of 10 to 200 W rms nominal output power for VHF I, VHF III and UHF bands to be used as driver stages for amplifiers of greater power or to directly powering antenna systems.

The exciters are fully modular with integrated SFN adapter, with two inputs (also in hierarchical mode) and allow the generation and transmission of COFDM signals at 2k, 4k or 8k with QPSK, 16 QAM and 64QAM modulation or 8VSB (16VSB optional) modulation in ATSC standard.

The excellent linearity of the amplifiers, the oversized cooling units and a series of microprocessor operated control and protection circuits guarantee a high level of reliability over time.

A multifunction display makes it possible to locally verify all operating parameters while the external interfaces allow remote monitoring and operation of equipment through an internal Web server, through serial protocols or SNMP (optional).

Esta serie de productos está formada por transmisores digitales completamente en estado sólido diseñados para garantizar su conformidad con los estándares DVB-T, DVB-H y ATSC.

Una amplia gama de versiones y configuraciones permite que el cliente pueda elegir el transmisor que cumpla con sus propias exigencias. La serie incluye aparatos de 10 a 200 Vatios rms de potencia nominal en salida, para bandas VHF I, VHF III y UHF, a utilizar como etapas piloto para amplificadores de potencia superior o para alimentar directamente sistemas de antena.

Los excitadores son totalmente modulares, con adaptador SFN integrado, entradas duales (incluso en modo jerárquico) y permiten la generación y transmisión de señales COFDM de 2k, 4k, 8k con modulación QPSK, 16QAM y 64QAM u 8VSB (16VSB opcional) en estándar ATSC.

La alta linealidad de los amplificadores, los dispositivos de refrigeración sobredimensionados y una serie de circuitos de control y protección gestionados con microprocesador garantizan una elevada fiabilidad con el pasar del tiempo. Un display multifunción permite controlar todos los parámetros de funcionamiento localmente mientras que las interfaces de conexión externa permiten el control y la gestión de los aparatos en modo remoto mediante el Servidor Web interno o mediante protocolos serie o SNMP (opcional).



**DBT/DTT 201UB-C REAR VIEW**



**DBT/DTT 501UB REAR VIEW**

# DIGITAL LOW POWER TRANSMITTERS

DIGITAL

## TECHNICAL CHARACTERISTICS

### COFDM MODULATOR (DVB-T / DVB-H)

Serial data input	4 x BNC 75 Ω: 4 x ASI or 2 x ASI + 2 x SDI for dual mode option
Parallel data input	LVDS, Sub-D 25, 100 Ω
Input signal	MPEG2 transport stream
Input data rate	3.73 to 31.67 Mbits/s (according to selected BW and mode)
Modulation	QPSK, 16QAM, 64QAM
Bandwidth	5, 6, 7 or 8 MHz
Transport packet length	188 bytes - 204 bytes (SPI)
IFFT	2k, 4k and 8k
Guard intervals	1/4, 1/8, 1/16, 1/32
Code rates	1/2, 2/3, 3/4, 5/6, 7/8
Precision offset	Integrated (Exact 1 Hz steps @ all BW)
Frequency reference input	10 MHz, BNC 50 Ω
Time reference input	1 PPS, BNC 50 Ω
SFN function	Integrated
Network delay compensation	Manual or automatic
Hierarchical mode	All modes supported
BER	Zero over five hours period before RS decoding, typical
MER	> 47 dB typ.
Eye aperture on vector constellation w/o I.F. filter	> 32 dB
Virtual elastic store function to prevent data overflow	Integrated
Spectrum inversion	Supported
Test functions	Carrier packet removal, CW, PRBS
PCR restamping	Included
Del. Null Packet mode	Included

#### SOFTWARE-ADJUSTABLE PARAMETERS IN ANALOG MODE (DUAL MODE OPTION)

Video modulation level, sync level, video group delay, audio modulation levels, audio pre-emphasis, audio carriers level, sound modes (mono single carrier, mono dual carriers, stereo, dual sound)

### ATSC MODULATOR

Serial data input	4 x BNC 75 Ω: ASI, SMPTE-310M, SDI for dual mode option (according to customer's request)
Parallel data input	LVDS, Sub-D 25, 100 Ω
Input data rate	Up to 19.39 Mbits/s
Channel bandwidth	6 MHz
Modulation	8VSB (16VSB optional)
Trellis coding	2/3
Symbol rate	10.762 Msymbol/sec.
Bandwidth efficiency	3 Bits/symbol
Digital/analog converter	14 bits
Precision offset	Integrated, 1 Hz steps or 0.999000999 Hz for NTSC operation with dual mode option
Frequency reference input	10 MHz, BNC 50 Ω
Time reference input	1 PPS, BNC 50 Ω
Reed-Solomon encoder	207/187/10
SFN function	Included (proprietary)
Digital pre-correction	Included
Adaptive digital pre-correction	Optional
Test functions	PRBS, CW
PCR restamping	Included for ASI input
Del. Null Packet mode	Included for ASI input

#### SOFTWARE-ADJUSTABLE PARAMETERS IN ANALOG MODE (DUAL MODE OPTION)

Video white level, video pedestal level, video group delay, sync level, audio modulation level, audio pre-emphasis, audio carrier level.

### GENERAL

Integrated GPS receiver	Optional
Output impedence	50 Ω
Protections	Overpower Adjustable exciter power limiter VSWR Overvoltage Overcurrent Overtemperature RF fold-back on HI-VSWR (optional)
Frequency stability	1 ppm or locked to external reference
Harmonics (with output filter)	-60 dB or better
Spurious emissions (with output filter)	-60 dB or better
External control and monitoring interfaces	logic and analog signal outputs, enable input, RS 485 TCP/IP (optional) with web based Java Interface and Telnet access via Ethernet SNMP (optional)
Cooling	Forced air (according to the model)
Operating temperature	-10°C to +45°C
Maximum relative humidity	90%, non condensing
Maximum operating altitude	2500 m a.s.l. (> 2500 m on request)
Mains power supply	90-135 V AC or 185-264 V AC (according to the model)

Specifications and characteristics are subject to change without notice.



## Screen Service

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