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## DIGITAL TERRESTRIAL MODULATORS



### 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.
- > Ingressi ASI e LVDS.
- > Commutazione automatica "near-seamless" tra gli ingressi.
- > 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.

### MAIN FEATURES:

- > Compliant with ETS 300 744 (DVB) e A53 (ATSC).
- > All uniform, hierarchical and non-hierarchical 2k, 4k and 8k DVB-T and DVB-H modes.
- > Integrated SFN adapter.
- > De-jitter upon input signal prior to transmission.
- > ASI and LVDS inputs.
- > Automatic "near-seamless" switch between 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 mode.  
Time-slicing for High and Low priority stream. MPE FEC for High and Low priority stream.

### 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.
- > Entradas ASI y LVDS.
- > Conmutación automática "near-seamless" entre las entradas.
- > 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.



**DBT 991 DIGITAL DVB-T/H COFDM MODULATOR**



**DTT 991 DIGITAL ATSC 8VSB MODULATOR**

Screen Service è orgogliosa di presentare la terza generazione di modulatori digitali per la trasmissione televisiva terrestre. Prodotti in migliaia di pezzi questi apparati hanno dimostrato sul campo la loro versatilità e rispondenza alle necessità dei moderni broadcaster.

I modelli in standard DVB consentono la generazione di segnali COFDM a 2 e 8k (4k nella versione DVB-H) con modulazione QPSK, 16QAM e 64QAM supportando tutte le modalità uniformi, gerarchiche e non gerarchiche, mentre i modelli in standard ATSC sono disponibili per modulazione 8VSB (16VSB opzionale).

L'adattatore SFN integrato permette di operare in iso-frequenza (SFN), l'aggancio in frequenza ad un segnale di riferimento (ricevitore GPS opzionale) e la compensazione del ritardo di rete.

Tutti i modelli dispongono di ingressi multipli con commutatore automatico per garantire la continuità del servizio anche in assenza del segnale primario. La purezza degli oscillatori locali e la linearità dei circuiti RF garantiscono un eccezionale livello di MER in uscita.

Grazie all'esclusiva opzione DUAL-MODE questi apparati sono inoltre in grado di generare, utilizzando lo stesso hardware, anche portanti e modulazioni analogiche permettendo di trasmettere con lo stesso impianto segnali DVB-T o PAL e ATSC o NTSC offrendo così ai nostri clienti una impareggiabile efficacia dell'investimento.

Tutti i parametri di funzionamento sono visualizzabili e configurabili dal pannello di controllo locale e tramite un collegamento LAN grazie all'interfaccia utente in tecnologia Java visualizzabile con un comune browser web.

Screen Service is proud to present the third generation of digital modulators for terrestrial television transmission. Thousands have been produced thus far, demonstrating the versatility and compliance of these units with demands of modern broadcasters.

The DVB standard-compliant model allows the generation of 2 and 8k COFDM signals (4k in the DVB-H version) with QPSK, 16QAM and 64QAM modulations supporting all uniform, hierarchical and non-hierarchical modes, while the models for ATSC standards are available for 8VSB modulation (16VSB optional).

The integrated SFN adapter makes it possible to operate in isofrequency (SFN), as well as to lock to a frequency reference signal (GPS receiver optional) and network delay compensation.

All models carry multiple inputs with automatic switch-over to guarantee continuous service even in the case of main signal lack.

The purity of local oscillators and the linearity of RF circuits guarantee excellent MER levels at the output.

Thanks to the exclusive DUAL-MODE option, these units are able, among other things, to generate with the same hardware analogue carriers and modulations, allowing the same equipment to transmit DVB-T or PAL and ATSC or NTSC signals, thereby offering our clients matchless investment efficiency.

All operating parameters may be viewed and configured through a local control panel and through LAN connection, thanks to Java technology user interface displayed through a common Web browser.



**DBT 990 Digital DVB-T/H  
COFDM MODULATOR (PLUG-IN VERSION)**



**DTT 990 Digital ATSC  
8VSB MODULATOR (PLUG-IN VERSION)**



Screen Service tiene el placer de presentar la tercera generación de moduladores digitales para la transmisión televisiva terrestre. Fabricados en millares de ejemplares estos aparatos han demostrado en su sector versatilidad y conformidad a las necesidades de los modernos broadcasters. Los modelos con standard DVB permiten la generación de señales COFDM de 2 y 8k (4k en la versión DVB-H) con modulación QPSK, 16QAM y 64QAM en todos los modos uniformes, jerárquicos y no jerárquicos, mientras que los modelos con estándar ATSC están disponibles para modulación 8VSB (16VSB opcional). El adaptador SFN integrado permite operar en iso-frecuencia (SFN), de enganche en frecuencia a una señal de referencia (receptor GPS opcional) y la compensación del retraso de red. Todos los modelos disponen de entradas múltiples con conmutador automático para garantizar la continuidad del servicio incluso en ausencia de la señal primaria. La pureza de los osciladores locales y la linealidad de los circuitos RF garantizan un excepcional nivel de MER en salida.

Gracias a la exclusiva opción DUAL-MODE estos aparatos también son capaces de generar, utilizando el mismo hardware, hasta portadoras y modulaciones analógicas permitiendo transmitir con el mismo equipo señales DVB-T o PAL y ATSC o NTSC ofreciendo así a nuestros clientes una inigualable eficacia de la inversión.

Todos los parámetros de funcionamiento se pueden visualizar y configurar desde el panel de control local y mediante una conexión LAN gracias a la interfaz usuario con tecnología Java que se puede visualizar con un normal navegador web.

# DIGITAL TERRESTRIAL MODULATORS

DIGITAL

## TECHNICAL CHARACTERISTICS

### COFDM MODULATOR (DVB-T/DVB\_H)

Serial data input	4 x BNC 75 $\Omega$ : 4 x ASI or 2 x ASI + 2 x SDI for dual mode option
Parallel data input	LVDS, Sub-D 25, 100 $\Omega$
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
Output level	-13 dBm rms (others on request)
Center frequency output	Any frequency from 4.5 MHz to 44 MHz and from 92 MHz to 140 MHz in 1 Hz steps
Precision offset	Integrated (Exact 1 Hz steps @ all BW)
Frequency stability	1 ppm or locked to external reference
Frequency reference input	10 MHz, BNC 50 $\Omega$
Time reference input	1 PPS, BNC 50 $\Omega$
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
Reference output	TS clock signal
Integrated GPS receiver	Optional
Local control and monitoring	Extensive front panel control Local terminal on RS-232
Remote control and monitoring	Web based Java interface Telnet access via Ethernet
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 to 264 V AC, 12 V DC
Dimensions	1 RU (19" rack)

### 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 $\Omega$ : ASI, SMPTE-310M, SDI for dual mode option (according to customer's request)
Parallel data input	LVDS, Sub-D 25, 100 $\Omega$
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
Output level	-14 dBm rms (others on request)
Center frequency output	Any frequency from 10 MHz to 50 MHz and from 72 MHz to 110 MHz in 1 Hz steps
Precision offset	Integrated, 1 Hz steps or 0.999000999 Hz for NTSC operation with dual mode option
Frequency stability	1 ppm or locked to external reference
Frequency reference input	10 MHz, BNC 50 $\Omega$
Time reference input	1 PPS, BNC 50 $\Omega$
Reed-Solomon encoder	207/187/10
SFN function	Included (proprietary)
Test functions	PRBS, CW
PCR restamping	Included for ASI input
Del. Null Packet mode	Included for ASI input
Digital pre-correction	Included
Adaptive digital pre-correction	Optional
Integrated GPS receiver	Optional
Local control and monitoring	Extensive front panel control Local terminal on RS-232
Remote control and monitoring	Web based Java interface Telnet access via Ethernet
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 to 264 V AC, 12 V DC
Dimensions	1 RU (19" rack)

### 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.



## Screen Service

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and characteristics  
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change  
without notice.*