

70

**ANALOG
AND DIGITAL
LOW COST AGILE TV
TRANSMITTERS
AND TRANSPOSERS**



PRINCIPALI CARATTERISTICHE:

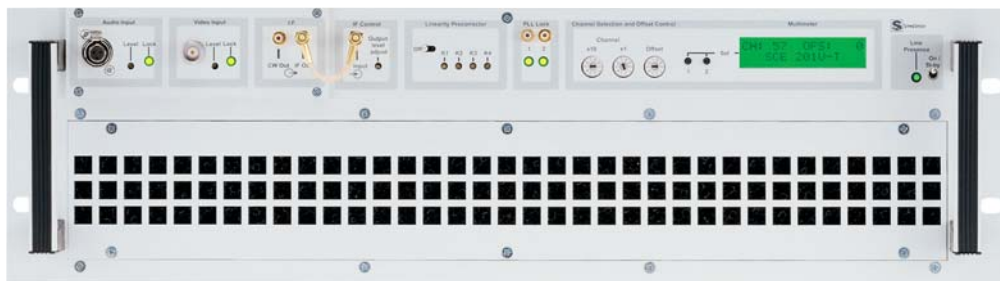
- > Raffreddamento convezionale o forzato.
- > Controlli A.G.C. e A.L.C.
- > Eccellente figura di rumore.
- > Moduli intercambiabili per configurazione veloce in versione trasmettitore o ripetitore.
- > Precorrezione di linearità.
- > Programmazione agile del canale dal pannello frontale.
- > Rispondente alle specifiche ETS 300 744 (DVB-T) e A53 (ATSC).
- > Tutte le modalità DVB-T e DVB-H a 2k, 4k e 8k uniformi, gerarchiche e non (DBE).
- > Adattatore SFN integrato (DBE).
- > Compensazione automatica del ritardo di rete (SFN).
- > Virtual Elastic Store.
- > Decodificatore MIP per configurazione automatica.
- > Offset di precisione automatico (DBE Series).
- > Eccellente apertura dell'occhio.
- > Intervallo di guardia fino a 1/32.
- > BER = 0.
- > Display digitale multifunzione.
- > Filtro vestigiale di tipo S.A.W.
- > Modulatore multi-standard (SCE Series).

MAIN FEATURES:

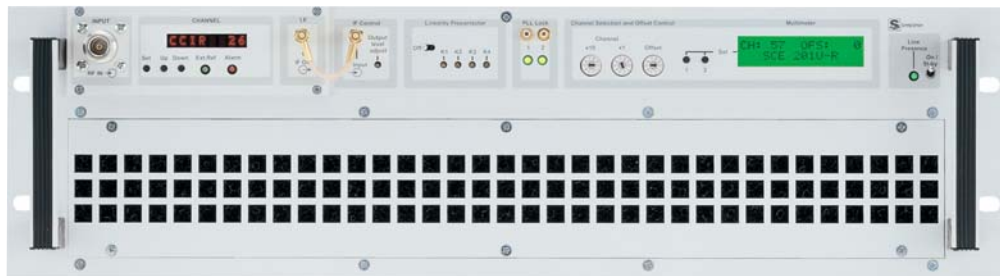
- > Convectional or forced air cooling.
- > AGC and ALC controls.
- > Excellent noise figure.
- > Interchangeable module for fast configuration in transmitter or transposer versions.
- > Linearity precorrection.
- > Agile programming of channel from front panel.
- > Compliant with ETS 300 744 (DVB-T) and A53 (ATSC) specifications.
- > All uniform, hierarchical and non-hierarchical 2k, 4k, and 8k DVB-T and DVB-H modes (DBE).
- > Integrated SFN adapter (DBE).
- > Automatic network delay compensation (SFN).
- > Virtual Elastic Store.
- > MIP decoder for automatic configuration.
- > Automatic precision offset (DBE series).
- > Excellent eye aperture.
- > Guard interval up to 1/32.
- > BER = 0.
- > Multifunction digital display.
- > SAW vestigial filter.
- > Multi-standard modulator (SCE series).

CARACTERÍSTICAS PRINCIPALES:

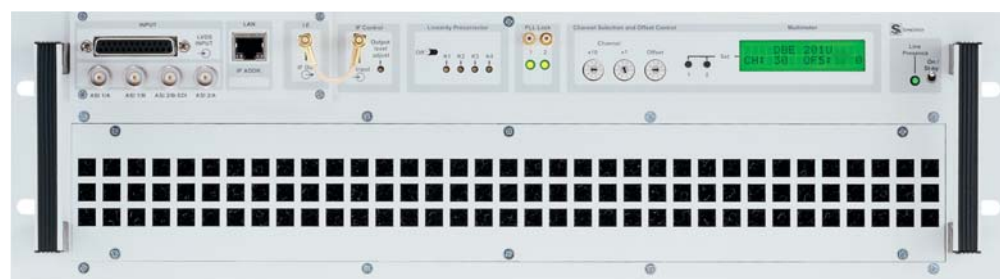
- > Ventilación forzada o enfriamiento por convección.
- > Controles A.G.C. y A.L.C.
- > Excelente figura de ruido.
- > Módulos intercambiables para configuración rápida en versión transmisor o repetidor.
- > Precorrección de linealidad.
- > Programación ágilizada del canal desde el tablero frontal.
- > Cumple con las normas ETS 300 744 (DVB-T) y A53 (ATSC).
- > Todos los modos DVB-T y DVB-H de 2k, 4k y 8k uniformes, jerárquicos o no (DBE).
- > Adaptador SFN integrado (DBE).
- > Compensación automática del retraso de red (SFN).
- > "Virtual Elastic Store".
- > Decodificador MIP para configuración automática.
- > Offset de precisión automático (DBE Series).
- > Excelente apertura del ojo.
- > Intervalo de guardia hasta 1/32.
- > BER = 0.
- > Display digital multifunciones.
- > Filtro vestigial de tipo S.A.W.
- > Modulador multiestándar (SCE Series).



SCE 201U-T 200W ANALOGUE TRANSMITTER



SCE 201U-R 200W TV TRANSPOSER



DBE 201U-T DIGITAL TRANSMITTER



DBE 201U-T DIGITAL TRANSMITTER WITH TX-ENCODER OPTION
(SINGLE CHANNEL MODULE WITH ANALOG INPUT AND DIGITAL OUTPUT)

I trasmettitori e ripetitori delle serie SCE e DBE si distinguono per le loro eccellenti performance e per l'ottimo rapporto qualità/prezzo che li caratterizza. Sono composti da un up-converter e dai successivi stadi di amplificazione cui si aggiungono una scheda modulatore (analogico o digitale) ed una down-converter tra loro intercambiabili in modo da trasformare un trasmettitore analogico in digitale o in ripetitore in brevissimo tempo. Gli apparati di questa serie sono completamente agili, questo significa che è possibile cambiare il canale di trasmissione o ricezione direttamente dal pannello frontale senza effettuare alcuna taratura. L'elevata dinamica dei circuiti di A.G.C. e A.L.C. garantisce un'alta stabilità del livello di uscita anche

in presenza di forti variazioni del segnale d'ingresso. I trasmettitori e ripetitori delle serie SCE e DBE sono molto leggeri e compatti e disponibili in versioni analogiche da 1 a 200 W p.s. di potenza d'uscita o con modulazione digitale ed uscite da 0.25 a 50 W. Nelle versioni digitali i modulatori sono dotati di ingressi multipli e commutatore automatico in modo da garantire la continuità del servizio anche in caso di avaria del segnale di ingresso primario. I parametri di funzionamento dell'apparato possono essere visualizzati sul pannello frontale, tramite un collegamento seriale interno o, nel caso di apparati digitali, tramite un'interfaccia TCP/IP ed un web server interno in tecnologia Java.

MODEL-SPECIFIC DATA (ANALOG VERSIONS)

Model	Output band	Working class	Dimensions	Nominal analog output power (p.s.)
SCE 020-T or -R	50/860 MHz	A	1 RU	2 W (VHF) 1 W (UHF)
SCE 50U-T or -R	UHF	A	1 RU	4W
SCE 100U-T or -R	UHF	AB	1 RU	10 W
SCE 201U-T or -R	UHF	AB	3 RU	200 W
SCE 201T-T or -R	VHF III	AB	3 RU	200 W
SCE 201F-T or -R	VHF I	AB	3 RU	200 W

MODEL-SPECIFIC DATA (DIGITAL VERSIONS)

Model	Output band	Working class	Dimensions	Digital output power (rms) without filter (Shoulders -36 dB @ $F_0 \pm 4.3$ MHz)
DBE 010-T	50/860 MHz	A	1 RU	0.5 W (VHF) 0.25 W (UHF)
DBE 050U-T	UHF	A	1 RU	1.5 W
DBE 100U-D	UHF	AB	1 RU	2.5 W
DBE 201U-D	UHF	AB	3 RU	50 W
DBE 201T-D	VHF III	AB	3 RU	50 W
DBE 201F-D	VHF I	AB	3 RU	50 W

Specifications and characteristics are subject to change without notice.



SCE 201U-T REAR VIEW

DBE 100U DIGITAL TRANSMITTER WITH TX-ENCODER OPTION (SINGLE CHANNEL MODULE WITH ANALOG INPUT AND DIGITAL OUTPUT)



SCE 020-T ANALOG TRANSMITTER

SCE 020-R TV TRANSPOSER

DBE 010-T DIGITAL TRANSMITTER

The distinguishing features of the transmitters and transposers in the SCE and DBE series are the excellent performance capability and the quality/price ratio that characterize them. They consist of an up-converter and the subsequent amplification stages to which are added a modulator board (analogue or digital) and a down-converter which are interchangeable so as to make it possible to transform an analogue or digital transmitter into a transposer in very little time.

The units in this series are fully agile, meaning that it is possible to change the transmission or reception channel directly from the front panel without the necessity of performing any sort of calibration operation. The substantial dynamic capability of the AGC and ALC circuits guarantees high output level stability even in the presence of considerable variations in the input signal.

The transmitters and transposers of the SCE and DBE series are very light and compact and are available in analogue versions from 1 to 200 W p.s. output power with or digital modulations and outputs from 0.25 to 50 W.

In the digital versions the modulators are equipped with multiple inputs and automatic switch-over so as to guarantee the continuity of service even in cases of primary input signal lack.

The unit's operating parameters are displayed on the front panel by means of an internal serial connection or in the case of digital units, by means of a TCP/IP interface and internal Web server in Java technology.

Los transmisores y repetidores de la serie SCE y DBE se caracterizan por sus excelentes prestaciones y por su óptima relación calidad/precio. Constan de un up-converter y de las sucesivas etapas de amplificación a las que se añaden una tarjeta modulador (analógico o digital) y una down-converter intercambiables entre sí para transformar un transmisor analógico en digital o en repetidor en poquísimo tiempo.

Los aparatos de esta serie son totalmente ágiles, lo que significa que se puede cambiar el canal de transmisión o recepción directamente desde el tablero frontal sin tener que efectuar ningún tipo de ajuste.

La alta dinámica de los circuitos de A.G.C. y A.L.C. garantiza gran estabilidad del nivel de salida,

inclusive en presencia de fuertes variaciones de la señal de entrada.

Los transmisores y repetidores de la serie SCE y DBE son muy ligeros y compactos y disponibles en versiones analógicas de 1 a 200 W p.s. de potencia de salida o con modulación digital y salidas de 0.25 a 50 W.

En las versiones digitales los moduladores cuentan con entradas múltiples y conmutador automático para garantizar la continuidad del servicio incluso en caso de avería de la señal de entrada primaria. Los parámetros de funcionamiento del aparato se pueden visualizar en el panel frontal, mediante una conexión serie interna o, en caso de aparatos digitales, mediante una interfaz TCP/IP y un servidor web interno con tecnología Java.

ANALOG AND DIGITAL LOW COST AGILE TV TRANSMITTERS AND TRANSPOSERS

ANALOG-DIGITAL

TECHNICAL CHARACTERISTICS

ANALOG TRANSMITTER VERSION VIDEO PARAMETERS

Input impedance	75 Ω
Input level	1 V p.p. ±3 dB
2T K factor	< 2%
Amplitude / frequency response	±0.8 dB (throughout the vision band)
Differential gain	< 5%
Differential phase	< 5°
Chroma / luma delay	±35 ns
Vestigial side-band filter	SAW for all standards
Sync pulse compression	< 3%
S/N ratio (weighted)	> 55 dB
ICPM	< 5°
Luminance non linearity	< 5%

AUDIO PARAMETERS

Input impedance (balanced)	600 Ω or > 5 kΩ, selectable
Input level	0 dBm ±6 dB
Carrier level	-10 dB (adjustable)
Modulation capability	±120 kHz
Frequency response (30 Hz to 15 kHz)	±0.5 dB
T.H.D. (30 Hz to 15 kHz)	< 0.5%
Pre-emphasis	50 μs or 75 μs or flat
S/N ratio (un-weighted)	> 60 dB

ANALOG TRANSPOSER VERSION

Input frequency bands	VHF I, VHF III, UHF (agile)
Input impedance	50 Ω
Input matching	> 20 dB
Input level amplitude	-30 to -75 dBm
Noise figure	< 8 dB

GENERAL

Available standards	B, D, G, H, I, K, M, N
Colour system	PAL, NTSC, SECAM
Output connector	N female
Output impedance	50 Ω
Protections (SCE 201 only)	Overpower VSWR Overvoltage Overcurrent Overtemperature
Frequency stability	1 ppm
External reference frequency input	5 MHz or 10 MHz
Offset steps	9 positions (stored at factory according to customer's request)
I.M.D. at rated output power	better than -55 dBc (-60 dBc typical)
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) SNMP (optional)
Cooling	Convectional or 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	SCE 020, SCE 050 and SCE 100: 90 to 264 V AC, 48 V DC SCE 201: 90-135 V AC or 185-264 V AC

DIGITAL TRANSMITTER VERSION COFDM MODULATOR (DVB-T / DVB-H)

Serial data input	4 x ASI, BNC 75 Ω
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

ATSC MODULATOR

Serial data input	4 x BNC 75 Ω: ASI, SMPTE-310M (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
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
Test functions	PRBS, CW
PCR restamping	Included for ASI input
Del. Null Packet mode	Included for ASI input

GENERAL

Output connector	N female
Output impedance	50 Ω
Protections (DBE 201 only)	Overpower VSWR Overvoltage Overcurrent Overtemperature
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	Convectional or 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	DBE 020, DBE 050 and DBE 100: 90 to 264 V AC, 48 V DC DBE 201: 90-135 V AC or 185-264 V AC



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