DVB-T/H UHF Low Power Transmitters

TE9010/TE9050/TE9100/TE9200/TE9500/TE9101/TE9201

MAIN FEATURES

- Extremly compact design:19”-1+4U (210 W), 19”-1+2U (25 a 110 W) y 19”-1U+9.5”-2U (1.25 a 12 W).
- Output power: 1.25, 6.5, 12, 25, 60, 110 and 210 W.
- LDMOS balanced power amplifier.
- OFDM Modulation according to DVB-T EN 300744 and DVB-H EN 302304 Standards.
- Output continuous frequency tunning between 470 and 862MHz without readjustments.
- IF/RF Converter double conversion for high spectral purity.
- Linear and non-linear digital precorrection.
- Highly stable internal frequency reference. GPS synchronization.
- Local delay setting for performance in SFN networks.
- Monitoring of maximum delay and network delay.
- Seamless switching between ASI inputs.
- Input bitrate adaptation in MFN networks.
- Local operation via front panel and/or friendly PC Graphical User Interface (USB connector) and/or Web browser.
- Software updating via remote control.
- N+1 redundancy ready.
- Adaptive digital precorrection (opt.).
- Configuration data stored in extractable memory card, in order to facilitate maintenance tasks.
- Reception option that enables regenerative retransmission or measurement of parameters of the transmitted signal.
- Remote interfaces: dry contacts and SNMP/Web Server.

High power transmitter TE9000 incorporates an DVB-T/H COFDM modulator which can operate in both MFN and SFN networks, providing output power from 1.25 to 210W, depending on model. It is a very small size transmitter series and is equipped with state of the art broadcast technology.

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TECHNICAL CHARACTERISTICS

UHF EXCITER (TE9000E5)

ASI inputs

Packet Size:	188 or 204 bytes.
Input:	2xASI BNC (F) 75 ohm.
ASI input switching:	Man. / Autom. (seamless).
Bit Rates:	5Mb/s a 31.67Mb/s.

Modulation

Standard:	EN 300744, EN 302304.
Modulation Parameters:	
- FFT Size:	2K, 4K, 8K.
- Code Rate:	1/2, 2/3, 3/4, 5/6, 7/8.
- Guard interval:	1/4, 1/8, 1/16, 1/32.
- Constellation:	QPSK, 16QAM, 64QAM.
Channel bandwidth:	6, 7, 8MHz.
TPS signaling:	DVB-T, DVB-H.
SFN delay configuration:	±500ms.

Clock and synchronization

Internal clock:	10MHz.
Stability (typ.):	1ppm (< 0.01 opt.).
External reference:	10MHz BNC (F).
Impedance:	50 ohm / High.
Level:	-5 a +10dBm.
1pps external reference:	BNC (F).
- Impedance:	50 ohm / High.
- Minimum pulse width:	1µS.
SFN syncr. resolution:	±100ns.

RF Output

Level:	-10...+10dBm.
Spectrum:	Normal / inverted.
I/Q unbalanced amplitude:	< 0.05%
I/Q quadrature error:	< 0.05º
MER (digital measurem.):	> 45dB.
Shoulders:	> 52dB.
Spurious:	< -60dBc.

General

Operating temperature:	-5ºC...45ºC
Supply voltage:	90 - 264 VAC.
Consumption:	40W.
Dimensions:	19" - 1U.
Weight:	5Kg aprox.

OPTIONS

Dry contacts remote interface.
SNMP remote interface.
WEB Server remote interface.
Adaptative precorrection.
Regenerative retransmitter.

UHF AMPLIFIER

RF Input

Connector:	SMA (F) 50 ohm.

RF Output

Frequency:	470...862MHz.
Output power (before filter):	1.25 W (ADE9010) 6.5 W (ADE9050) 12 W (ADE9100) 25W (ADE9200) 60W (ADE9500) 110W (ADE9101) 210W (ADE9101)
Output power stability:	< ±0.2dB.
Intermodulation (shoulders):	> 38dB.
MER:	> 34dB.
Connector:	N or 7/16" (F) 50 ohm depending on model.
Return losses:	> 18dB.
Harmonics after filter:	< -85dBc (up to 1GHz).
Spurious after filter:	< -60 dBc (up to 1.7GHz).

GENERAL (exciter + amplifier)

Operating temperature:	0ºC...45ºC
Relative Humidity:	95% max.
Supply voltage:	90 - 264 VAC.
Consumption:	80 W (TE9010) 140 W (TE9050) 170 W (TE9100) 300W (TE9200). 450W (TE9500). 630W (TE9101) 1200 W.(TE9201).
Cooling:	Forced air.
Dimensions:	19"-1U+4U (210W) 19"-1U+2U (25 to 110W) 19"-1U+9.5"-2U (1.25 a 12W).
Weight:	10 to 31 Kg aprox.

PARAMETERS/SETTINGS VIA FRONT KEYPAD/DISPLAY/PC

- Configuration of DVB-T/H modulation parameters.
- Selection and configuration of input signals.
- Selection of MFN/SFN synchronization.
- Bitrate adaptation in MFN mode.
- Digital precorrection enable/disable.
- RF output configuration (Level, Frequency, spectrum).
- Output frequency setting.
- Direct and reflected power.
- Remote interface parameters configuration.
- SFN delay.
- Warnings/alarms management.

SAMPLE CONFIGURATION OF 25, 60, 110 AND 210W TRANSMITTERS: 1+1 CONFIGURATION

TE9200 = 2 x TE9000E5 + 2 x ADE9200 + CCU9000
TE9500 = 2 x TE9000E5 + 2 x ADE9500 + CCU9000
TE9101 = 2 x TE9000E5 + 2 x ADE9101 + CCU9000
TE9201 = 2 x TE9000E5 + 4 x ADE9101 + CCU9000

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