

Maxiva™ UAXT Multi-Compact / VAXT Multi-Compact

UHF/VHF Low Power Multi-Transmitter / Transposer / Gap Filler

The new Maxiva™ UAXT/VAXT Multi-Compact family of UHF & VHF solid-state Transmitters, Transposers (Translators) and on-channel Gap Fillers expands upon the proven foundation of GatesAir low-power systems and PowerSmart® high-efficiency technology.

Today's broadcasters and network operators are continually searching for more efficient and economical approaches for providing reliable over-the-air transmission. When several DTV channels can be consolidated into one common transmission site, the cost and space requirements for individual equipment per channel can often be very significant. The innovative Multi-Compact architecture allows the possibility of many configurations, with up to 8 independent low power transmitters, transposers or gap fillers, to be configured into a single space-saving chassis. The Maxiva Multi-Compact provides pre-filter power levels up to 15W per module, in a compact and convenient 4RU 19" rack mount package.

Designed for digital or analog broadcasting, the Maxiva Multi-Compact is a platform available in Transmitter, Transposer or SFN Gap Filler configurations for DVB-T/H, DVB-T2, ATSC, ATSC-MDTV, ISDB-Tb and analog networks. The Maxiva Multi-Compact can be configured for up to 8 independent systems, or as N+1, N+2 or N+1/M+1 configurations.

Instead of investing into several separate transmitter units, as well as complex and costly redundancy management systems, broadcasters or network operators can now simply invest into a single 4RU Multi-Compact transmitter and operate up to 7 channels with +1 redundancy in a single compact unit.



Product Features

Maxiva Multi-Compact Platform:

- Up to 15 Watts average power per module
- High efficiency broadband amplifier technology
- Extremely compact 4RU 19" rack mount chassis
- Single chassis configurable for up to 7+1, or 6+2 redundancy configurations
- Several Input interfaces for each transmitter module:
 - 1 x ASI input (TS, BTS, T2MI, SMPTE-310M)
 - 1 x GbE input (TS over IP)
 - Optional: 1 x DVB-S/S2 Satellite Receiver input per slot (including CAM interface and multi-stream capabilities)
 - Optional: 1 x RF receiver input for repeater/gap-filler configuration
- DVB-T/H/T2, ISDB-T/Tb, DAB/DAB+/T-DMB, ATSC and analog modulations fully supported
- Embedded ASI and RF Matrix for redundancy management of each transmitter module
- Embedded Re-Multiplexer/Layer Combiner/TS to BTS (188 to 204 byte) converter for ISDB-Tb
- Adaptive pre-correction circuits
- 2 x hot swappable high stability GPS / GLONASS receivers with battery
- 2 x hot swappable power supplies
- SNMP, Web Interface and Touch Screen display

System Configurations

Some examples of Maxiva UAXT / VAXT Multi-Compact configurations:



Multi-Compact Transmitter with ASI input & 1 GPS Receiver



Multi-Compact Transmitter with ASI input & 2 GPS Receivers



Multi-Compact Repeater with 1 GPS Receiver



Multi-Compact Repeater with 2 GPS Receivers



Multi-Compact Transmitter with Sat Rx and 1 GPS Receiver



Multi-Compact Transmitter with Sat Rx and 2 GPS Receivers

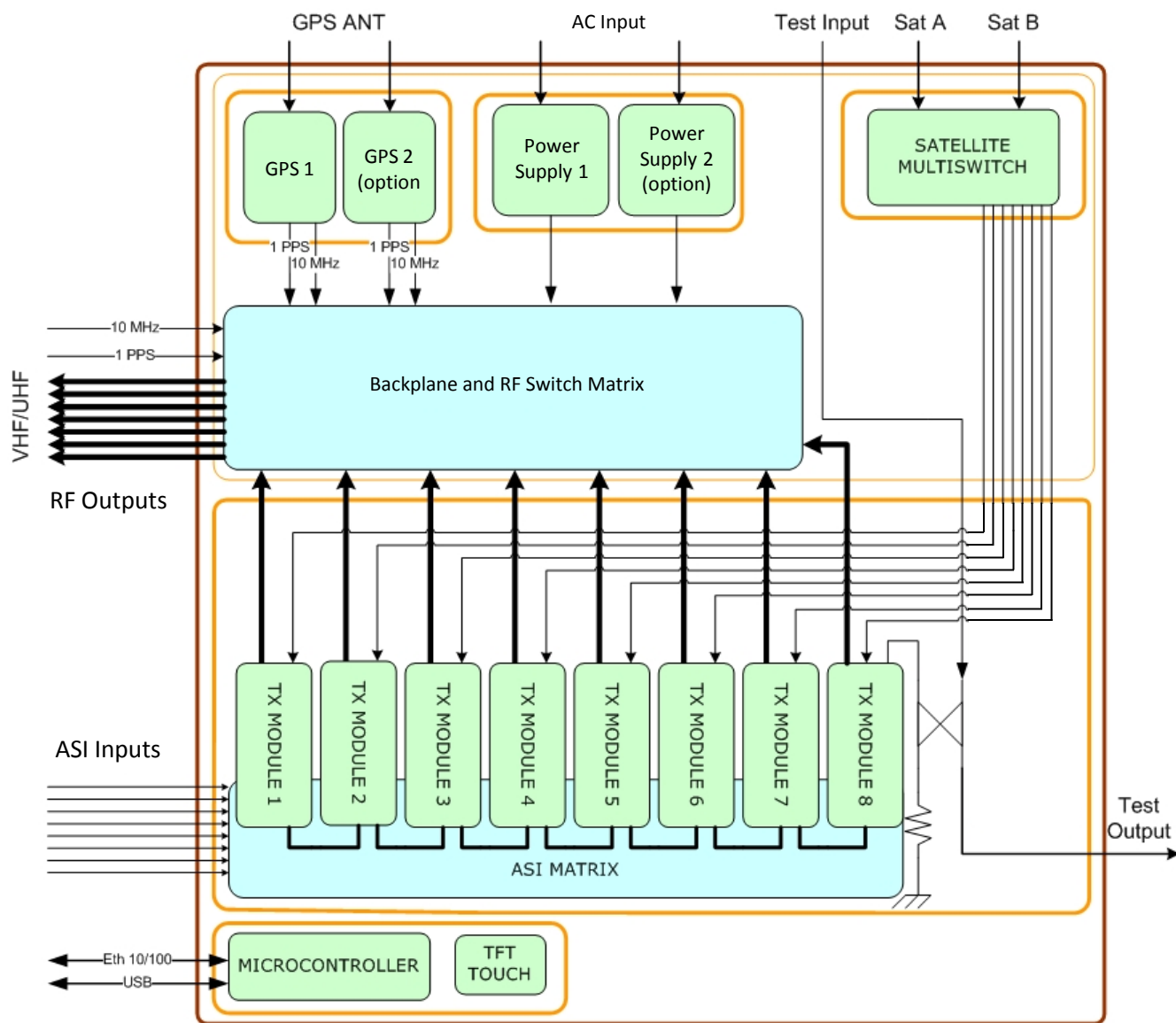
UAXT / VAXT Multi-Compact - Primary Components

- Multi-Compact Chassis, 4RU, with 8 slots, to be fitted with plug-in transmitters/transposer/gap filler modules for N+1 or N+2 configurations. Includes 1 power supply, 1 GPS / GLONASS receiver and RF output matrix.
- 15 W UHF Digital TV transmitter plug-in module., with 1x ASI, 1x GbE inputs and ASI matrix (up to 8 per chassis)
- 15 W UHF Digital TV transposer/gap-filler plug-in with echo cancellation

Standard Options & Accessories

- Redundant power supply option (Hot-swappable unit)
- Redundant GPS / GLONASS receiver option (Plug-in board)
- 26 dB LNA GPS / GLONASS antenna. includes mounting kit and 25 meters coaxial cable
- DVB-S/S2 integrated receiver board per slot, single and multi-stream, with CAM slot
- RF integrated receiver board for transposer/gap-filler operation
- DVB-S/S2 integrated input matrix for N+1 or N+2 configuration
- RF integrated input matrix for N+1 or N+2 configuration
- Software option for ISDB-Tb Remux/Layer combiner/ TS to BTS (188 to 204 byte) converter
- Dual-cast software option, adds DVB-T modulation
- Dual-cast software option, adds DVB-T2 modulation
- Dual-cast software option, adds ISDB-T modulation
- Dual-cast software option, adds ATSC modulation

Diagrams / Images



Block Diagram – Multi-Compact Chassis

Specifications

Specifications and designs are subject to change without notice.

General

RF Output Frequency Range	UAXT Multi-Compact: UHF Band IV/V, 470 to 862 MHz VAXT Multi-Compact: VHF Band III, 170 to 242 MHz
Transmission Standards	ATSC; DVB-T/H; DVB-T; DVB-T2; ISDB-Tb; CTTB
RF Channel Bandwidth	6, 7, or 8 MHz
Rated Output Power	15 W average per channel @ 38 dB MER
Output Power Reduction Range	0 to -10 dB

AC Power

AC Power Input	100 to 240 V AC, 50/60 Hz, IEC320 C14 Plug
Power Factor ($\cos \phi$)	> 0.95

Configuration

Number of TX Slots	8 (Hot-swappable modules)
Protection/Redundancy	N+1 (up to 7+1) N+2 (up to 6+2), N+1+M+1
Frequency Agility	UHF Band IV and V, or VHF Band III (specify band when ordering)
Frequency Resolution	1 Hz
Pre-correction	Adaptive
RF Output Connector	N Female, 50 Ohm

Modulation Specific Specifications

DVB-T/H, DVB-T2:

Standard	EN300744, EN302304, EN302755, TS101191, TS102773 (T2-MI), TS102034
Inputs	ASI BNC (f), 75 Ohm RJ45 TSolP 10/100/1000. Hierarchical and non-hierarchical (DVB-T, using TSolP input)
FFT	1K (DVB-T2), 2K, 4K, 8K, 8K ext. (DVB-T2), 16K & 16K ext. (DVB-T2), 32K & 32K ext. (DVB-T2)
Code Rate	All modes available according to the standard Block Short or Normal (DVB-T2) DVB-T: Reed-Solomon (204, 188) DVB-T2: BCH, LDPC
Guard Interval	1/32, 1/16, 1/8, 1/4, 19/256 (DVB-T2), 19/128 (DVB-T2), 1/128 (DVB-T2)
Constellation:	QPSK, 16QAM, 64QAM, 256QAM (DVB-T2). Rotated and non-rotated (DVB-T2)
MISO Processing:	Supported

ATSC:

Standard:	A/53, A/110
Inputs:	ASI / SMPTE-310M BNC (f), 75 Ohm and RJ45 TSolP 10/100/1000
Modulation:	8-VSBInput bit rate: 19.39 Mbit/s
Bandwidth:	6 MHz
Maximum Processing Delay:	Up to 1 second (programmable)

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ISDB-Tb

Standard	ABNT NBR 15601, ABNT NBR 15603
Inputs	ASI TS/BTS BNC Female, 75 Ohm and RJ45 TS/BTSoIP 10/100/1000
FFT	Mode 1 (2K), Mode 2 (4K), Mode 3 (8K)
Code Rate	1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval	1/4, 1/8, 1/16, 1/32
Hierarchical Modulation	Up to 3 layers
Constellation	QPSK, 16QAM, 64QAM
Time Interleaving	Fully supported
Partial Reception	Supported

DAB/DAB+/T-DMB

Standard	EN 300401, ETS 300 799
Inputs	ETI (NI[G703], NA5376[G704] or NA5592[G704]) BNC (f), 75 Ohm
Transmission Modes	Mode I, II, III, IV (Automatically detected from the ETI stream, or user selectable)
Operation	MFN or SFN operations

Analog

Standards	Systems B, G, D, K, M, N, I
Inputs	Video: BNC Female, 75 Ohm Audio: Tini-QG (Mini XLR), 6 Pin Male, 600 Ohm
Color System	PAL, NTSC

Satellite Receiver

Standard	ETSI EN 300 421 (QPSK) (DVB-S) ETSI EN 302 307 (QPSK, 8PSK, 16APSK) (DVB-S2) ETSI EN 50083-9 (ASI) ETSI EN 50221 (Common Interface)
DVB-S2	VCM, CCM, Multi Stream and Single Stream, Normal & Short FEC frames
Symbol rate	1 - 45 Ms/S (DVB-S), 2 - 45 Ms/S (DVB-S2)
Constellation	QPSK, 8PSK, 16APSK
FEC	Automatic, all modes available according to the std., Block Short or Normal DVB-S: Reed-Solomon (204,188) DVB-S2: BCH, LDPC
Roll-Off	0.1, 0.2, 0.25
Input Connector	F (f), 75 Ohm
Frequency	L-band: 930MHz to 2,250 MHz
LNB Control Voltage	Off, +13/18 Vdc, 22 kHz, 0.25 A (overload protected)
RF Input Level	40 - 100 dB/μV (with attenuator)
Output Connector	BNC Female, 75 Ohm
Modality	188 bytes
Max Input bit rate	80 Mbps (CAM limit: 72 Mbps)
CAM Interface	PCMCIA DVB-CI Common Interface CA mode (Conditional Access): Multicrypt, Simulcrypt
CAS Support	Mediaguard, Viaccess, Irdeto, Conax, BISS with Professional Multiprogram CAM (descrambling of up to 24 Elementary Streams) Betacrypt, Cryptoworks, Nagravision with standard consumer CAM (descrambling of up to 4 services.)

Specifications

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Transposer (Translator) / Gap Filler

RF Input

Signal Type	One DTV channel (DVB-T/H/T2, ISDB-T/Tb, ATSC)
Frequency Range	170 - 242 MHz or 470 - 862 MHz
RF Input Level	-80 dBm to -20 dBm
Selectivity	> 60 dB @ ± 4.2 MHz
Noise Factor	< 6 dB
Conversion type	Direct Baseband Conversion (Zero IF)
Return loss	> 15 dB
Connector	N Female, 50 Ohm

Echo Canceller

Cancellation level	40 dB, typical
Cancellation window	20 µs
Selective cancellation window	1.6 µs (time shift from 2 to 820 µs)
Doppler cancellation	Yes
Maximum echo/signal ratio	+15 dB (over the main signal), typical
Total delay	< 10 µs

GPS / GLONASS Receiver

Input connector	N Female, 50 Ohm
Input/Monitor output 10 MHz	BNC Female, 75 Ohm
Input/Monitor output 1 PPS	BNC Female, 75 Ohm
Phase noise	-140 dBc/Hz @ 10 kHz -150 dBc/Hz @ 100 kHz
Stability	1 x e ⁻¹² / 24 H with disciplined OCXO
Hold-over stability	5 µs after 5 hours (optional 1 µs after 24 hours)

Size & Weight

Chassis	4U rack 19"
Width	482 mm (18.97")
Height	177 mm (6.97")
Depth	420 mm (16.54"), without fans
Weight	25 kg (55.1 lb.)

Environmental

Operational Temperature Range	0° to 45° C (32° to 113° F)
Storage Temperature Range	-40 to +70° C
Relative Humidity	0 to 90%, non-condensing
Altitude	Up to 2,500 m (8,202 ft..) above sea level, derate 2° C (3.6° F) per 300 m (984 ft.) of elevation. (Altitude > 2,500 m on request)
Cooling Method	Forced air-cooled, internal fans, airflow front to rear
Acoustic Noise	≤65 dBA (front 1 m)

Local /Remote Control & Monitoring

TFT touchscreen, Web GUI (RJ-45), SNMP, GPIO