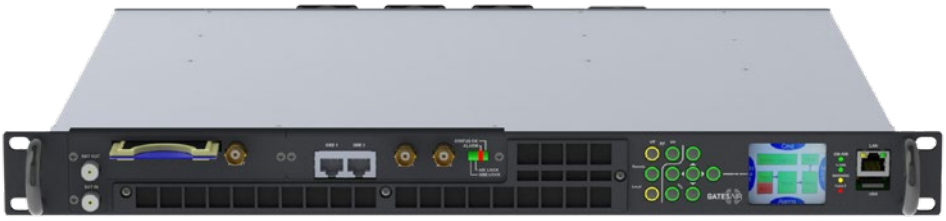
Maxiva™ UAXT Ultra-Compact and VAXT Ultra-Compact

Low Power UHF/VHF Transmitter / Transposer / Gap Filler



The new Maxiva™ UAXT & VAXT Ultra-Compact family of UHF 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. Now with Gen 2 infrastructure, this updated portfolio provides today's digital broadcaster with a suite of customizable, compatible products to accommodate any coverage application, along with unmatched performance, reliability and quality.

The Maxiva UAXT/VAXT Ultra-Compact family further extends the capabilities of the Maxiva series, providing a single family of transmission products suitable for all broadcast applications. The Maxiva Ultra-Compact provides pre-filter power levels up to 700W, in an exceptionally compact and space saving 1, 2 or 3 RU packages.

Designed for digital and analog broadcasting, the Maxiva UAXT/VAXT Ultra-Compact is a platform available in Transmitter, Transposer or SFN Gap Filler configurations for DVB-T, DVB-T2, ATSC, ISDB-Tb, DTMB, NTSC and PAL analog networks. The Maxiva Ultra-Compact Series provides an ideal solution for extending market coverage and filling in coverage gaps in challenging situations, including busy urban areas that require greater building penetration.

The Maxiva UAXT & VAXT Ultra-Compact family of Transmitters / Transposers / Translators provide efficient and reliable re-broadcast of the received signal in a space saving, reliable and robust package. The Gap Filler configuration adds a powerful echo cancellation feature to deliver exceptional on-channel performance. This combination of products enables broadcasters to address any network coverage requirement.

Product Features

Maxiva UAXT/VAXT Ultra-Compact Platform:

- High-efficiency broadband amplifier technology
- Power levels up to 700W (pre-filter average power)
- Frequency agile design
  - UHF Band IV/V, 470 to 810 MHz
  - VHF Band III, 170-240 MHz
  - VHF Band I, 54 to 88MHz
- Extremely compact, space-saving, 1, 2 or 3 RU 19" chassis
- Full local/remote control capability including:
  - Local front-panel display
  - Advanced web graphical user interface (GUI) with HTML5
  - SNMP
- Capable of SFN and MFN Operation
- Automatic Adaptive Pre-correction Circuitry

Transposer / Translator:

- Supports Analog, COFDM and ATSC standards
- Direct baseband conversion (zero IF)
- Regenerative option available for optimum performance

SFN Gap Filler:

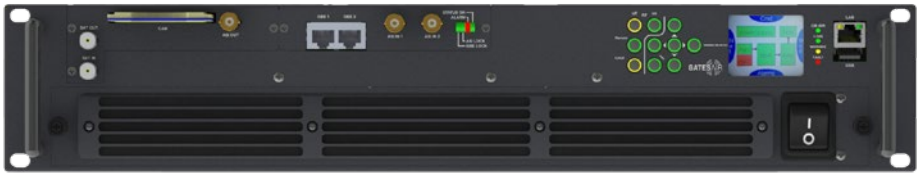
- Includes a powerful echo cancellation circuit, 15dB of Gain Margin
- Low processing delay, < 10 µS
- Cancellation window 20 µS
- Selective cancellation window range 1.6 µS to 820 µs
- MER degradation < 2dB

Available Options

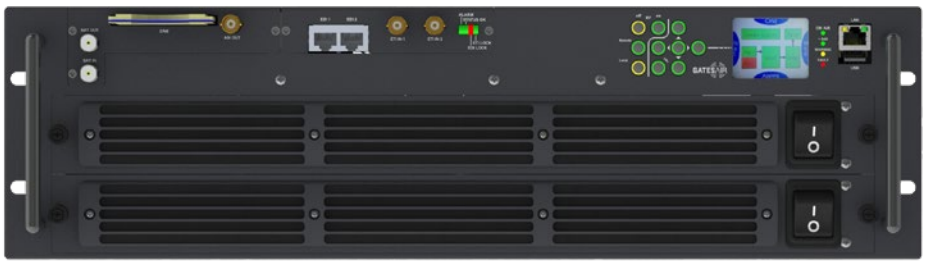
- Glonass/GPS Receiver for SFN Timing
- ASI over IP
- EDI/ETI inputs for DAB/DAB+

Maxiva™ UAXT/VAXT Ultra-Compact Front View (1RU)

Maxiva™ UAXT/VAXT Ultra-Compact Rear View (1RU)



Maxiva™ UAXT/VAXT Ultra-Compact Front View (2RU)



Maxiva™ UAXT/VAXT Ultra-Compact Front View (3RU)

Compact

Efficient

Broadband

Typical Input Configurations

4 x ASI + Analog

1x DVB-S/S2 Rx

1x DVB-S/S2 Rx + 4 x ASI + Analog

1x RF

2x Gbe + 2 x ASI

1x DVB-S/S2 Rx + 2 x ASI + 2 x Gbe

Maxiva™ UAXT/VAXT Ultra-Compact

Specifications

Specifications and designs are subject to change without notice

General	
RF Output Frequency Range	UAXT Ultra-Compact: UHF Band IV/V, 470 to 810 MHz; VAXT Ultra-Compact: VHF band III, 170-240 MHz
Transmission Standards	ATSC; DVB-T; DVB-T; DVB-T2; ISDB-Tb; DAB, DAB+, DTMB and DMB
RF Channel Bandwidth	TV: 6, 7, or 8 MHz; DAB/DAB+: 1.5MHz
Rated Output Power	Up to 700 Watts (before mask filter)
Output Power Reduction Range	0 to -10 dB
VSWR	Protected against open or short circuit, all phase angles. Capable of operation into infinite VSWR with user-adjustable fold back threshold. Factory pre-set to 4% of nominal nameplate power (VSWR = 1.5:1)
Intermodulation (shoulders)	>= 37 dB
External Inputs	
GPS Input	SMA female, 50 ohms, (+5 V DC @ 100 mA max output for active antenna)
1 PPS Input	BNC female, user selectable 50 ohms or high impedance termination
10 MHz Reference Frequency Input	BNC Female, 50 Ohms
Inputs/Outputs	
RF Input Connector	1 x Type N Female, 50 ohms, front access
RF Output Connector	1 x Type N Female, 50 ohms, rear access, 7-16 DIN for 2RU and 3RU models
Ethernet	1 front, RJ-45
Control/Monitoring	HMTL5 Web GUI, SNMP V. 2, GPIO
ASI/T2MI Inputs	2 or 4 Inputs BNC female 75 ohms according to EN 50083-9 (for DVB-H 2 main/2 hierarchical)
ASi over IP (optional)	2 inputs, 10/100/1000BaseT
AC Power	
AC Power Input	100 to 240 V AC, 50/60 Hz, IEC320 C14 Plug, 380 V 3 Phase, 4 Wire 1 RU Module Optional
Power Factor (cos Ø)	> 0.95
Environmental	
Operational Temperature Range	0° to 45° C (32° to 113° F)
Storage Temperature Range	-40 to +70° C
Relative Humidity	0 to 95%, 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)
Physical Dimensions (Height x Width x Depth)	19" rack (44 H x 482 W x 461 D mm) 2RU x 19" rack (87 H x 482 W x 461 D mm) 3RU x 19" rack (132 H x 482 W x 461 D mm)

Transposer and Gap Filler (OFDM-TV & ATSC) Performance	
Power Output Stability	±0.5 dB
RF Load Impedance	50 ohms
Operating Load VSWR	Up to 1.4:1 at full power
RF Input Frequency Range	Band III 168 to 242 MHz, or Band IV/V 470 to 862 MHz
RF Input	Type N-Female, 50 ohms, front access
RF Input Level	-80 dBm to -20 dBm (Standard Down Converter board)
	-80 dBm to 0 dBm (Regenerative Down Converter board)
Selectivity	> 60 dB @ ± 4.2 MHz
Noise Factor	< 6 dB
Adaptive Echo Cancellation	Standard (applies to Gap Filler only)
Gain Margin	> -15 dB typical

Specifications (continued)

Specifications and designs are subject to change without notice

Adjacent Channel Rejection	> 35 dB
Total Delay	< 10 µS
Echo Cancellation Window Size	20 µS
Selective Cancellation Window	1.6 µS (time shift from 2 to 820 µS)
Doppler Cancellation	Yes
MER	Up to 34 dB, dependent on input MER
MER Degradation	< 2 dB degradation referenced to input, at <34 dB input MER
Response Variation	0.2 dB, typical
Spurious Output	< -60 dBc (after mask filter)
Harmonics	< -60 dBc after mask filter, <-35 dB before mask filter
Compliance / Certifications	
RoHS 2011/65/EU	DVB-T: ETSI EN 300 744
Directive 2014/53/EU	DVB-T2: ETSI EN 302 755
Safety: EN 60215	DAB/DAB+/DMB: ETSI EN 300 401 & ETSI TR101 496-1
EMC: EN 301-489-1	CE Marked
Analogue Specifications	
Frequency Bands	UAXT-UC: UHF Band- 470-806 MHz VAXT-UC: VHF Band III- 170-240MHz VAXTE-L: VHF Band I- 54-88MHz
Analogue Standards	B, G, D, K, M, N, I
Color System	NTSC, PAL
Output Power	Power levels per table below
Sound Power	-10dB relative to vision peak sync
Vision Performance	
Inputs	Video: BNC (f), 75 Ohm Audio: Tini-Q6 “Mini XLR”, 6 Pin (m), 600 Ohm
Frequency Stability	2.3 x 10-7 / Month
Differential Gain	3%
Differential Phase	3°
LF Linearity	5%
ICPM	±3°
2T K factor	3% or less
Spurious Emissions	-60dB, or better, relative to peak vision power, measured after GatesAir supplied filter
Harmonics	-60dB, or better, relative to peak vision power, measured after GatesAir supplied filter
In-Channel Intermodulation Distortion	-57dB, or better
Sound Performance	
Audio Input Level	0 to +10dBm, 600 Ohms
Pre-emphasis	As required by system standard (50µS / 75µS)
Frequency Response	± 0.5dB, 40Hz to 15kHz
Harmonic Distortion	< 0.5%
FM Signal to Noise Ratio	> 60dB after de-emphasis
AM Synchronous Noise	-40dB r.m.s.at 400Hz, ±25kHz deviation
NICAM Sound	Integrated NICAM encoder available - specifications available on request

Maxiva™ UAXT/VAXT Ultra-Compact Models & Power Levels

Digital TV Model	OFDM Power Before Filter (W) Broadband[1]	OFDM Power Before Filter (W) Wideband[2]	ATSC Power Power Before Filter (W) Broadband[1]	ATSC Power Power Be-fore Filter (W) Wideband[2]	Analog TV Model	Analog Power Before Filter (W) Peak Sync	Size
UHF Models							
UAXT-15G2-UC	15		20		UAXT-A-50G2-UC	50	1 RU
UAXT-30G2-UC	30		40		UAXT-A-70G2-UC	70	1 RU
UAXT-50G2-UC	50		70		UAXT-A-125G2-UC	125	1 RU
UAXT-80G2-UC	80		130		UAXT-A-220G2-UC	220	1 RU
UAXT-130G2D-UC	130		130		-----	-----	1 RU
UAXT-150G2E-UC	150		150		UAXT-A-250G2-UC	250	1 RU
UAXT-200G2D-UC	200		300		UAXT-A-600G2D-UC	600	2 RU
UAXT-350G2D-UC-2U	350		400		-----	-----	2 RU
UAXT-350G2D-UC-3U	350		600		UAXT-A-1200G2D-UC	1200	3 RU
UAXT-600G2D-UC	600		750		-----	-----	2 RU
UAXT-250G2E-UC	250	300	350	400	-----	-----	2 RU
UAXT-400G2E-UC	400	400	400	400	UAXT-A-600G2E-UC	600	2 RU
UAXT-450G2E-UC	450	550	700	800	-----	-----	3 RU
UAXT-700G2E-UC	700	750	900	1000	UAXT-A-1200G2E-UC	1200	3 RU

Digital TV Model	OFDM Power Before Filter (W) Broadband[1]	DAB Power (MER≥33dB) (W)	ATSC Power Power Before Filter (W) Broadband[1]	ATSC Power Power Before Filter (W) Wideband[2]	Analog TV Model	Analog Power Before Filter (W) Peak Sync	Size
VHF Band III Models							
VAXT-15G2-UC	15	15	20	-----	VAXT-A-50G2-UC	50	1 RU
VAXT-30G2-UC	30	30	40	-----	VAXT-A-70G2-UC	70	1 RU
VAXT-80G2-UC	80	80	120	-----	VAXT-A-200G2-UC	200	1 RU
VAXT-150G2-UC	150	150	150	-----	VAXT-A-250G2-UC	250	1 RU
VAXT-250G2-UC	250	300	350	-----	VAXT-A-600G2-UC	600	2 RU
VAXT-450G2-UC	450	450	450	-----	-----	-----	2 RU
VAXT-500G2-UC	500	550	700	-----	VAXT-A-1200G2-UC	1200	3 RU
VAXT-700G2-UC	700	750	900	-----	VAXT-A-1500G2-UC	1500	3 RU

Digital TV Model	OFDM Power Before Filter (W) Broadband[1]	OFDM Power Before Filter (W) Wideband[2]	ATSC Power Power Before Filter (W) Broadband[1]	ATSC Power Power Before Filter (W) Wideband[2]	Analog TV Model	Analog Power Before Filter (W) Peak Sync	Size
VHF Band I Models							
VAXT-50LG2-UC	-----	50	-----	70	VAXT-A-125LG2	125	1 RU
VAXT-200LG2-UC	-----	200	-----	300	VAXT-A-600LG2	600	2 RU
VAXT-400LG2-UC-3U	-----	400	-----	400	VAXT-A-1200LG2	1200	3 RU

1 Broadband PA's cover the frequency band with one PA type
2 Wideband PA's cover the frequency band with two PA types

Maxiva™ UAXT/VAXT Ultra-Compact Models & Power Levels

DAB Transmitter Model	DAB Power Before Filter (W)	# Rack Units (RU)
VHF Band III		
VAXT-15G2-DA	15	1
VAXT-30G2-DA	30	1
VAXT-80G2-DA	80	1
VAXT-150G2-DA	150	1
VAXT-300G2-DA	300	2
VAXT-450G2-DA	450	2
VAXT-550G2-DA	550	3
VAXT-750G2-DA	750	3