

MAXIVA™ VLXTE-OP

High-Efficiency VHF Liquid-Cooled Digital TV Transmitters



GATESAIR Connecting
What's Next

WE DID IT... AGAIN.

GatesAir has once again shattered the expectations of what is possible with high-power, solid-state transmitters in terms of efficiency, power density, and performance.



Power levels from up to 43kW VHF Band III / 36kW VHF Band I

High-efficiency broadband power amplifiers for VHF Band I and Band III

Software-defined modulation for future upgradeability

Doherty amplification for highest efficiency and maximum energy savings

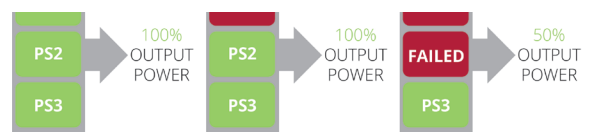
Hot-swappable power amplifiers

Separate hot-swappable compact power supplies, 3 per PA; for 2 of 3 full power redundancy**

Optimized for best performance using Real Time Adaptive Correction

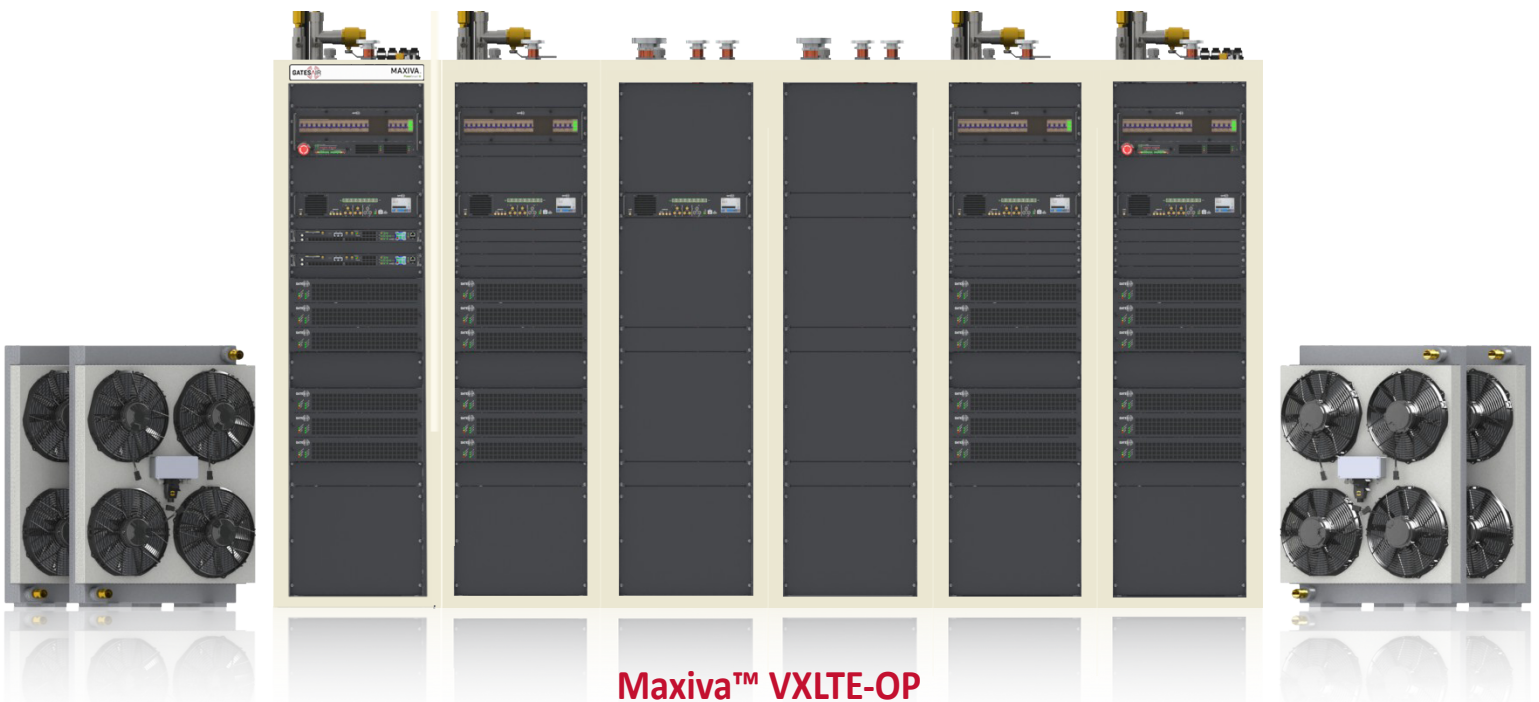
Innovative, High-efficiency liquid-cooling system

**Power supply redundancy per PA module



Main Features

- High power density, compact dimensions
- Power levels up to 43kW Band III, 36kW Band I (pre-filter power)
- High-efficiency broadband PA design
- Dual drive option
- Enhanced power supply redundancy
- Digital modulations: ATSC 1.0, ATSC 3.0, DVB-T, DVB-T2, ISDB-T/Tb, & DTMB
- S/W Upgradeable architecture
- Adaptive pre-correction included
- Optional high-stability GPS/GLONASS receiver
- Control system with GPIO and Web GUI
- Parallel, dual redundant pumps for each rack
- Multiple DC fans on heat exchanger – variable speed for efficiency optimization
- Automatic daily Heat Exchanger airflow reversal to eliminate debris
- Automatic coolant refill reservoir to reduce maintenance



**Maxiva™ VLXTE-OP
Liquid-Cooled DTV Transmitter System**

Maxiva™ VLXTE-OP Specifications

General	
Frequency Range	VHF TV Band
Transmission Standards	ATSC 1.0, ATSC 3.0, DVB-T/H, DVB-T2, DVB-T2 Lite, ISDB-Tb
Channel Bandwidth.....	6, 7 or 8 MHz (system dependent)
Rated Power Output	See chart on previous page
Output Power Reduction Range.....	0 to -10 dB
RF Load Impedance	50 ohms
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 2.8% of nominal nameplate power (VSWR = 1.4:1)
RF Output Connector.....	1-5/8", 3-1/8" or 4-1/16" EIA (dependent upon power level)
Transmitter Dimensions.....	See chart on previous page
Transmitter Weight	See chart on previous page

AC Mains	
AC Line Voltage	3 phase: 380 to 415 V, or 208 to 240 V, 47-63Hz- specify voltage when ordering
AC Line Variation.....	±15%, between 208 to 230 V or 380 to 400 V
Power Factor.....	>0.95

Environmental	
Altitude.....	Up to 3,000 m (9,843 ft) elevation above mean sea level
Ambient Temperature.....	0° to 45° C (32° to 113° F) at sea level (upper limit derated 2° C (3.6°F) per 300 m (984 ft) elevation AMSL)
Storage Temperature	-10° to 65°C (14° to 149° F)
Humidity.....	95%, non-condensing
Cooling Method	Liquid-cooled, using 50/50 mix of ethylene or propylene glycol and water
Acoustic Noise.....	<65 dBA (measured 1 m (3.3 ft) in front of cabinet)
Frequency Stability	Without precision frequency control/GPS: ±150 Hz/month (2.3 x 10 ⁻⁷ ppm)

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

Monitoring Outputs	
RF monitor (exciter).....	SMA female
1 PPS.....	BNC female
10MHz.....	BNC female

ATSC 1.0 Specification	
Power Output (average)	Power levels available for all applications [see table]
Standards	ATSC A-53, 8-VSB DTV standard, ATSC Mobile DTV
Data Input	19.39 Mb/s, configurable as SMPTE-310M or ASI (user selectable)
Impedance	75 ohms, unbalanced
Input Connector.....	2 inputs, BNC female
Signal to Noise (EVM)	>27 dB (EVM <4%), Typical >32 dB (EVM <2.5%)
Phase Noise.....	<104 dBc/Hz @ 20 kHz offset (ATSC A/64)
Harmonic Radiation & Spurious	Meets mask requirements specified in FCC 5th and 6th report and order
Sideband Performance	Compliant with FCC radiation mask, when measured at the output of GatesAir-supplied output filter

ATSC 3.0, DVB-T/H, DVB-T2, DVB-T2 Lite, ISDB-Tb Specification	
Power Output (average)	Power levels available for all applications [see table]
Standards	ATSC 3.0: A/321:2016, A/322:2017, A/330:2016 DVB-T/H: standard EN 300 744 DVB-T2, DVB-T2 Lite: standards EN 302755 v1.4.1, TS 102 831 v1.2.1, TS 102 773 v1.3.1 ISDB-Tb: Brazil ANATEL standard
ASI/T2MI Inputs	2 inputs BNC female; 75 ohms according to EN 50083-9 Supports seamless switching between ASI/T2MI inputs for DVB-T2 (for DVB-H: 1 main / 1 hierarchical)
IP Transport Inputs.....	2 inputs, 1000Base-T, RJ-45
Crest Factor	13 dB maximum
Shoulder Level.....	<-37 dB (before mask filter)
END	<0.5 dB
MER.....	≥34 dB (typically >36 dB)
Harmonics (before filter)	<-60dB, or FCC 5th and 6th report and order, measured after Low Pass filter
Central Carrier Suppression.....	>75 dB
Spurious Emissions	<-60dB, measured after Low Pass and Mask Filters
DVB-T2 Modes	Supports multiple PLP's, MISO, extended bandwidth mode, PAPR reduction, DVB-T2 Lite
SFN Delay	Static and Dynamic, 0 to 1 second per ETSI TS 101 191 V1.4.1 (2004-06)

Remote Control	
Parallel Remote	Sub-D connector
Ethernet/SNMP.....	RJ-45, twisted pair

Compliance.....	RoHS 2011/65/EU Directive 2014/53/EU Safety: EN 60215 EMC: EN 301-489-1 Manufacturing: ISO 9001: 2008
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Maxiva™ VLXTE-OP Specifications

Mechanical	
Rack	Refer to Key Features table below for models (other configurations are available on request)
Width	600 mm
Rack Height	36 RU rack models: 1800 mm 42 RU rack models: 2070 mm 44 RU rack models: 2180 mm Refer to Key Features table for details
Depth	36 RU rack: 1000mm 42 RU rack: 1200 mm 44 RU rack: 1200 mm Refer to Key Features table for details
Control	
Web GUI; SNMP; GPIO	
Environmental	
Operating Temperature Range	0°C to +45°C

Max. Relative Humidity	90% non-condensing
Max. Operating Altitude	2500 m. a.s.l. (>2500 m. optional)
Electrical	
Power Supply	Energy distribution system with different options: - Line 380-400 V3N~, 50/60Hz - Line 220 V3N~, 50/60 Hz - Line 220- 240V~, 50/60 Hz
Efficiency	Up to 40% efficiency in digital
NOTES	
To comply with the applicable standards and limit values for the suppression of out-of-band emissions (and in the case of digital standards, also for maintaining the required shoulder distance), the transmitter may only be operated with suitable filters at the RF output.	
Specifications are subject to change without notice.	

Key Features

Liquid-Cooled Digital VHF TV Models

Digital TV Transmitter Model	COFDM Broadband Power Before Filter (r.m.s. W)	COFDM Wideband (120MHz)Power Before Filter (r.m.s. W)	8VSB Broadband Power Before Filter (r.m.s. W)	8VSB Wideband (120MHz)Power Before Filter (r.m.s. W)	Total Number of PAs	Number of Tx Racks	Number of Pump Sets	Number of Heat Exchangers	Rack Style
VHF Band III TV Models									
VLXTE-OP-1P8-R36	1800		2300		1	1	1	1	36 RU
VLXTE-OP-2P8-R36	3600		4600		2	1	1	1	36 RU
VLXTE-OP-3P8-R36	5400		6900		3	1	1	1	36 RU
VLXTE-OP-4P8-R36	7200		9200		4	1	1	1	36 RU
VLXTE-OP-5P8-R42	10800		13800		6	1	1	1	42 RU
VLXTE-OP-6P8-R42	14400		18400		8	1	1	2	42 RU
VLXTE-OP-8P8-R42	21600		27600		12	2	1	2	42 RU
VLXTE-OP-10P8-R42	28800		36800		16	2	1	2	42 RU
VLXTE-OP-12P8-R42	43200		55200		24	4	2	4	42 RU
VHF Band I Models									
VLXTE-OP-1P8L-R36	1500		2000		1	1	1	1	36 RU
VLXTE-OP-2P8L-R36	3000		4000		2	1	1	1	36 RU
VLXTE-OP-3P8L-R36	4500		6000		3	1	1	1	36 RU
VLXTE-OP-4P8L-R36	6000		8000		4	1	1	1	36 RU
VLXTE-OP-6P8L-R44	9000		12000		6	1	1	1	44 RU
VLXTE-OP-8P8L-R44	12000		16000		8	1	1	1	44 RU
VLXTE-OP-12P8L-R44	18000		24000		12	2	1	2	44 RU
VLXTE-OP-16P8L-R44	24000		32000		16	2	1	2	44 RU
VLXTE-OP-24P8L-R44	36000		48000		24	4	2	4	44 RU

GatesAir efficiently leverages broadcast spectrum to maximize performance for multichannel TV and radio services, offering the industry's broadest portfolio to help broadcasters wirelessly deliver and monetize content. With 100 years in broadcasting, GatesAir's exclusive focus on the over-the-air market helps broadcasters optimize services today and prepare for future revenue-generating business opportunities. Until 2019, research, development and innovation has been driven from the company's facilities in Mason, Ohio and supported by the long-standing manufacturing center in Quincy, Illinois. In May 2019, the company acquired an Italian company operating as GatesAir S.r.l. which provides an additional research, development and service location within the EU.

GatesAir's turnkey solutions are built on two pillars: Transport and Transmit. The company is best known for powering over-the-air analog and digital radio/TV stations and networks worldwide with the industry's most operationally efficient transmitters. Groundbreaking innovations in low, medium and high-power transmitters reduce footprint, energy use and more to establish the industry's lowest total cost of ownership. Support for all digital standards and convergence with mobile networks ensure futureproof systems.

In television, GatesAir supplies proven, trusted wireless UHF and VHF solutions across all power requirements to support single-station over-the-air broadcasters on up to large national networks. The industry's most reliable software-definable exciters ensure broadcasters can optimize analog networks and quickly transition to digital TV in the field, with support for all major global DTV standards. GatesAir also supplies a wide array of over-the-air accessories to maximize transmitter control, network redundancy and signal compliance – along with installation, commissioning and ongoing support services – to deliver the industry's strongest turnkey approach for customers worldwide.



Award Winning Service

From experienced installation and field service engineers to responsive factory experts, GatesAir provides the strongest service team in the broadcast transmission industry. Couple that team with reliable products, responsible service parts inventories and a demonstrated commitment to the industry, and you have a service offering that's perfectly matched to your equipment and your operations.

Global Service Locations



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