

MAXIVA™ UATK-OP / VATK-OP

High-Efficiency UHF & VHF Air-Cooled
Digital TV Transmitters



GATESAIR Connecting
What's Next

MAXIVA™ UATK-OP / VATK-OP

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GatesAir's new ATSC 1.0, ATSC 3.0 and ISDBTb high-power, solid-state transmitters using a state-of-the-art Kintex modulator maximizing efficiency, power density, and performance.



Power levels from up to 7kW UHF / 12.8kW VHF
Band III / 10.8kW VHF Band I

High-efficiency broadband Doherty power
amplifiers for all bands (VHF and UHF)

New Kintex modulator, Software defined exciter
for future modulation 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 air-cooling system
with Variable speed fans

**Power supply redundancy per PA module



Main Features

- High power density, compact dimensions
- Power levels per rack up to 6kW UHF, 9.6kW Band III, 10.8kW Band I (pre-filter, COFDM)
- Multi-rack systems available
- ASI & TSoIP inputs standard
- High-efficiency broadband Doherty PA design
- Dual drive option
- Enhanced power supply redundancy
- Digital modulations: ATSC, ATSC 3.0 & ISDBT/Tb
- S/W Upgradeable architecture
- Adaptive pre-correction included
- High-stability GPS/GLONASS receiver standard
- Control system with GPIO and Web GUI
- Efficient air-cooling system with variable-speed fans



UATK-OPE-700 with Dual



UATK-OPE-1750 with Dual Drive



UATK-OP-4P7E-R36 with Dual

Maxiva™ UATK-OP / VATK-OP Specifications

System	
UHF digital output power	200W to 7kW rms @ MER 38dB typ. (DVB-T/T2, ISDB-T)
VHF digital output	250W to 9.6kW (COFDM) rms VHF-Band III 900W to 10.8kW (COFDM) rms VHF-Band I
Configurations	Single or dual driver
RF output connector	7/8" (f) or 1 5/8" (f) or 3 1/8" (f) or 4 1/8" (f), EIA, 50 Ohm (according to output power and frequency band)
Frequency agility	UHF Band IV and V or VHF Band III or VHF Band I
Frequency resolution	1 Hz
Precorrection	Real Time Adaptive Correction
Exciter	UATK/VATK UC series exciter/driver
Integrated matrix circuits	ASI/BTS/Video (dual), audio and RF
BTS/ASI/Video matrix connectors	BNC (f), 75 Ohm
Cooling	Forced-air cooling, multiple fans per PA
Inputs	2x ASI BNC (f), 75 Ohm and 2 x RJ45 TSolP 10/100/1000 Seamless switch between any input
Control	HTML5 Web GUI, SNMP, & GPIO
Mechanical	
Rack	Model < 2,000W, rack is optional Model > 2,000W, rack is included
Rack Width	600 mm (23.6 in)
Rack Height	36 RU rack models: 1800 mm (70.9 in) Refer to Key Features table for models which include rack
Depth	1000mm (39.4 in) Refer to Key Features table for models which include rack, See Model Technical engineering data sheets for additional information.

Modulator	
ATSC 3.0	
Standard	A/300:2021, ATSC 3.0 System / A/322 / A/324 and related standards
Power Output Stability	+/- 0.2dB typical
RF Load Impedance	50 Ohms
MER	≥ 36 dB Typical
Shoulder Level	≤ -38 dB
Group delay	2nS, Typical
Constellation	QPSK, 16QAM, 64QAM, 256QAM & 1024QAM (4096QAM with expansion board)
Code Rate	2/15 to 13/15
Guard Interval	GI1_192 to GI12_4864 (Supports SNF applications)
FFT Size	8, 16 & 32
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)
ISDB-Tb	
Standard	ABNT NBR 15601, ABNT NBR 15603
Inputs	2x ASI TS/BTS BNC (f), 75 Ohm and 2x RJ45 TS/BTSolP 10/100/1000 Seamless switch between any input
FFT	Mode 1 (2K), Mode (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 Modulations	Up to 3 layers
Constellation	QPSK, 16QAM, 64QAM
Time Interleaver	Fully Supported
Partial Reception	Always 37dB
See Technical engineering data sheets for additional information	

Environmental	
Operating Temperature Range	-5oC ÷ 45oC
Max. Relative Humidity	95% non-condensing
Max. Operating Altitude	2500 m. a.s.l. (>2500 m. optional)
Electrical	
Power Supply	< 2,000W models: Exciter: Single phase 100-240 V AC, 50/60 Hz, Amplifier: Single phase 185-264 V AC, 50/60 Hz >2,000W models: 208-240 V 3-Phase 50/60 Hz, or 380-415V 3-Phase, 50/60 Hz
Efficiency	Up to 45% efficiency in digital (VHF & UHF models)
Specifications are subject to change without notice. See Technical engineering data sheets for additional information	
NOTES	
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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 RF output.	

ATSC 1.0	
Standard	A/53, A/110
Inputs	2 ASI/SMPTE-310M BNC (f), 75 Ohm and 2x RJ45 TSoIP 10/100/1000 Seamless switch between any input
Modulation	8-VSB
Input Bit Rate	19.39 Mbit/s
Bandwidth	6 MHz
Max Processing Delay	Up to 1 second (programmable)
GNSS (GPS/GLONASS) (Standard)	
Input Connector	N (f), 50 Ohm
Input/Monitor; Output 10 MHz	BNC (f), 75 Ohm
Input/Monitor Output 1 PPS	BNC (f), 75 Ohm
Phase Noise	-140 dBc/Hz @10 KHz -150 dBc/Hz @ 100 kHz
Stability	1e-12 / 24 hours with disciplined OCXO
Hold-over Stability	5 µs after 5 hours (optional 1 us after 24 hours)

Satellite Receiver (Option)	
Standard	ETSI EN 300 421 (QPSK) (DVB-S), ETSI EN 302 307 (QPSK, 8 PSK, 16APSK) (DVB-S2) ETSI EN 50083-9 (ASI), ETSI EN 50221 (Common Interface)
DVB-S2	VCM, CCM, Multi Stream and Single Stream, Normal and Short FEC frames
Symbol Rate	1 - 45 Msym/s (DVB-S) 2 - 45 Msym/s (DVB-S2)
Constellation	QPSK, 8PSK, 16APSK
FEC	Automatic, all modalities available according to the standard Block short or Normal DVB-S: Reed-Solomon (204, 188) DVB-S2: BCH, LDPC
Roll-Off	0.2, 0.25, 0.35
Input Connector	F(f), 75 Ohm
Frequency	L-band 930 ÷ 2250 MHz
LNB Control Voltage	Off, +13/18 Vdc, 22kHz, 0.25 A (overload protection)
RF Input Level	40 ÷ 100 db/uV (with attenuator)
Output Connector	ENC(f), 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, Cryp- toworks, Nagravision with standard consumer CAM (descrambling of up to 4 services)

Key Features

Air-Cooled Digital UHF/VHF Models

Mid- to High-Power 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 # of PAs	Configuration / Rack Style	# of Tx Racks
UHF Band IV & V							
UATK-OPE-250	250	300	350	400	1	2+1 RU	Option
UATK-OPE-450	450	550	700	800	1	3+1 RU	Option
UATK-OPE-550	550	600	600	700	1	3+1 RU	Option
UATK-OPE-700	700	750	900	1,000	1	3+1 RU	Option
UATK-OPE-1000	1,000	1,100	1,300	1,400	1	3.5+1 RU	Option
UATK-OPE-1300	1,300	1,500	2,000	2,000	1	3.5+1 RU	Option
UATK-OPE-1750	1,750	2,000	2,000	2,000	1	3.5+1 RU	Option
Racked Systems							
UATK-OP-2P6E-R36	2,600	3,000	4,000	4,000	2	36 RU	1
UATK-OP-2P7E-R36	3,000	3,500	4,000	4,000	2	36 RU	1
UATK-OP-3P6E-R36	3,900	4,500	6,000	6,000	3	36 RU	1
UATK-OP-3P7E-R36	4,500	5,250	6,000	6,000	3	36 RU	1
UATK-OP-4P6E-R36	5,200	6,000	8,000	8,000	4	36 RU	1
UATK-OP-4P7E-R36	6,000	7,000	8,000	8,000	4	36 RU	1

Air-Cooled Digital UHF/VHF Models (continued)

Mid- to High-Power Digital TV Transmitter Model	COFDM Broadband Power Before Filter (r.m.s. W)	8VSB Broadband Power Before Filter (r.m.s. W)	Total # of PAs	Configuration / Rack Style	# of Tx Racks
VHF Band III TV Models					
VATK-OP-250	250	350	1	2+1 RU	Option
VATK-OP-450	450	450	1	2+1 RU	Option
VATK-OP-500	500	700	1	3+1 RU	Option
VATK-OP-700	700	900	1	3+1 RU	Option
VATK-OP-1100	1,100	1,400	1	3.5+1 RU	Option
VATK-OP-1400	1,400	1,800	1	3.5+1 RU	Option
VATK-OP-1800	1,800	2,400	1	3.5+1 RU	Option
Racked Systems					
VATK-OP-2P6-R36	2,800	3,600	2	36 RU	1
VATK-OP-3P6-R36	4,200	5,400	3	36 RU	1
VATK-OP-4P6-R36	5,600	7,200	4	36 RU	1
VATK-OP-2P7-R36	3,200	4,100	2	36 RU	1
VATK-OP-3P7-R36	4,800	6,150	3	36 RU	1
VATK-OP-4P7-R36	6,400	8,200	4	36 RU	1
VATK-OP-6P7-R36	9,600	12,300	6	36 RU	2
VHF Band I Models	<i>Power COFDM (Wideband I L&H)</i>	<i>Power ATSC (Wideband I L&H)</i>			
VATK-50L-UC	900	1200	1	3.5+1RU	Option
VATK-50L-DD	1,200	1,600	1	3.5+1 RU	Option
VATK-200L-UC	1,350	1,750	1	3.5+1 RU	Option
VATK-400L-UC-3U	1,500	2,000	1	3.5+1 RU	Option
Racked Systems					
VAX-OP-2P7L-R36	2,700	3,500	2	36 RU	1
VAX-OP-4P7L-R36	5,400	7,000	4	36 RU	1
VAX-OP-6P7L-R42	8,100	10,500	6	42 RU	1
VAX-OP-8P7L-R42	10,800	14,000	8	42 RU	1



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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Ordering Information

Our GatesAir experts will help you determine the most efficient solution to meet your requirements.
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