

# FLEXIVA™ HIGH POWER

Air-Cooled FM Transmitter for  
Analog and Digital Standards





GatesAir efficiently leverages wireless 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 nearly 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. All research, development and innovation is driven from the company's facilities in Mason, Ohio and supported by the long-standing manufacturing center in Quincy, Illinois.

GatesAir's turnkey solutions are built on three pillars: Content Transport, TV Transmission, and Radio Transmission. 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 transmitter 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.

GatesAir's unrivalled legacy in over-the-air radio reaches new heights with the Flexiva™ transmitter family. The Flexiva range symbolizes decades of broadcast innovation and engineering experience, offering the industry's most complete and reliable solutions to suit all over-the-air power and coverage requirements in FM, AM, and digital radio. Truly groundbreaking strides in operational efficiency make high-quality broadcasting and low total cost of ownership a reality in equal measure.

## 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



## Contact Information

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### Americas

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### Asia Pacific

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### Europe, Middle East, and Africa

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### Carribbean and Latin America

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*For more information, please visit [gatesair.com](http://gatesair.com)*

» FLEXIVA™ HIGH POWER: 5 KW TO 88 KW

# WE DID IT... AGAIN.

GatesAir is once again shattering the expectations of what is possible with high-power, solid-state transmitters from a cost versus performance ratio.



Main/Alt 10kW transmitter

The most efficient and compact solid-state FM transmitter on the market

Lighter power amplifier (PA) module - 1/3 of the weight of other products currently available

Simpler spares handling, easy one-person task

Separate, hot-swappable, compact power supply for each PA

Optimized Real-Time Adaptive Correction (RTAC) - fastest on market

More service calls means higher expenses. Higher operating expenses challenge the bottom line. Flexiva High Power transmitters with PowerSmart® technology drive down total cost of ownership while allowing broadcasters to get the most out of their spectrum. Broadband designs that increase bandwidth while simplifying maintenance. Superior power density that maximizes radio coverage while reducing transmitter size and weight. Unparalleled performance that enhances audio quality while lowering utility bills. GatesAir is once again shattering the expectations of what is possible with high-power, solid-state transmitters from a cost versus performance ratio.

## » PRODUCT OVERVIEW

The Flexiva™ FAX air-cooled FM solid-state transmitter family provides today's broadcaster with a single transmission platform capable of analog and digital operation. Incorporating field-proven GatesAir technology, Flexiva transmitters deliver world-class performance, reliability and quality. Featuring PowerSmart® technology, the Flexiva line offers unmatched efficiency that makes it ideal for all FM applications.

Flexiva is designed for low- and high-power requirements, up to 88 kW, while utilizing the most compact design on the market today. Flexiva continues the legacy of the highly successful line of GatesAir FM transmitters and combines innovative, new quadmode RF amplification and software-defined exciter technology to take FM transmission to the next level.

Featuring PowerSmart® technology, the Flexiva line offers unmatched efficiency that makes it ideal for all FM applications. The 50-volt LDMOS device technology delivers a dramatic increase in power density, lower operating costs and reduced cost of ownership over the life of the transmitter. As the digital transmission leader, GatesAir has developed a solid core competency backed by years of experience in the complex technical areas that are essential for maximum transmitter performance.



**Not only can customers count on GatesAir for implementation, the company offers a range of support options:**



STANDARD 24/7 TELEPHONE TECHNICAL ASSISTANCE



PARTS TO INSTALLATIONS



TRAINING



FULL SYSTEM DESIGN



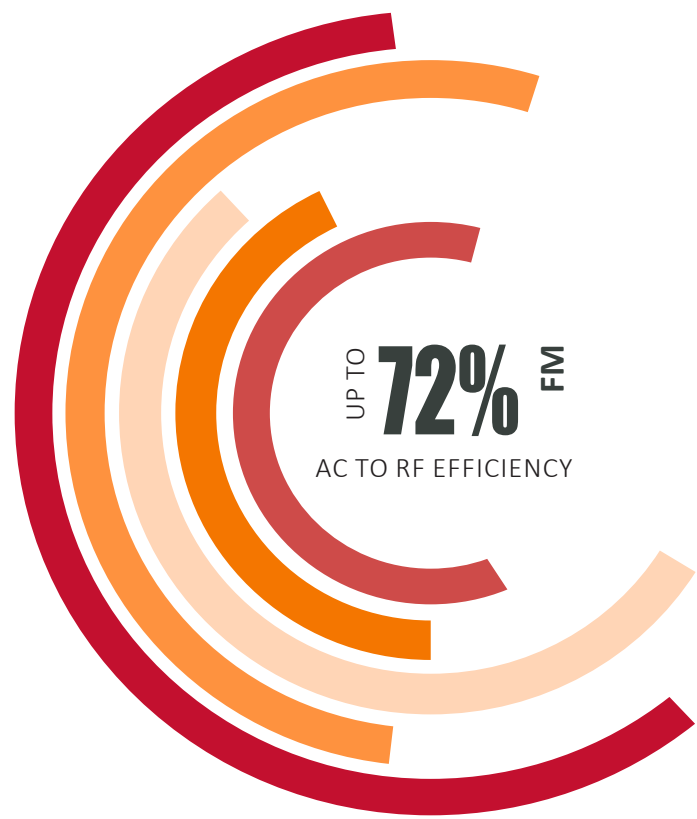
FIELD MAINTENANCE CONTRACTS



# » SAVINGS

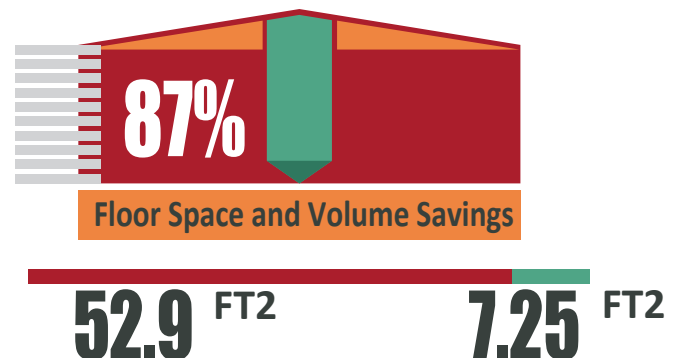
## Savings You Can Count On!

The Flexiva FAX is the highest efficiency 100% broadband FM transmitter on the market. This all-new design includes energy saving components.



## PowerSmart® amplifier architecture for FM yields a best-in-class combination of power efficiency and broadband operation

- 100% broadband – no tuning or optimization required across FM radio band = less spares
- New high-efficiency, hot-swappable compact DC power supplies
- Hot-swappable light-weight PA modules
- Incorporates field-proven Flexiva™ Compact Class software defined exciter technology for best-in-class performance
- RoHS compliant / CE compliant
- Support for all worldwide digital modulation standards
- Modular & upgradeable architecture
- All-digital nonlinear pre-correction: Real-Time Adaptive Correction (RTAC)
- Rugged, reliable design and construction
- Ideal for N+1 configurations since all transmitters are identical and use the same PA's, minimizing spares requirements



## ADDITIONAL OPTIONS

Options	Standard	Available
Robust Backup controller	•	
Automatic backup audio switching	•	
Two SCA subcarrier inputs	•	
Integrated RDS Generator	•	
Professional Spectrum Analyzer*	•	
Digital MPX over AES	•	
Fast acting non-linear Real Time Adaptive Correction (RTAC), for optimum performance at all times*	•	
Advanced second generation Hybrid Crest Factor reduction to enable highest HD Radio powers*	•	
IP enabled web remote interface with SNMP	•	
Parallel Remote Control	•	
Dual exciters and switcher (requires a second exciter)	•	
Supports external UPS on Exciters	•	
Internal GPS/GLONASS receiver for SFN timing		•
Local touch-screen GUI		•
N+1 systems and multi-transmitters per rack		•
Extended warranties and Service Level Agreements (SLA) to suit any requirement		•
Exciter Internal 4th Generation Engine digital modulator for HD Radio		•

\*For digital radio applications only



## Flexiva™ Compact — Low Power - 50 W to 3.5 kW

The Flexiva Compact FM solid-state transmitter family provides today's broadcaster with a single transmission platform capable of analog and digital operation. Incorporating field proven GatesAir technology, Flexiva transmitters deliver worldclass performance, reliability and quality.

Flexiva is designed for low- and high-power requirements, up to 88 kW, while utilizing the most compact design on the market today. Flexiva continues the legacy of the highly successful line of GatesAir FM transmitters and combines innovative, new quad-mode RF amplification and software-defined exciter technology to take FM transmission to the next level.

### Real-Time Adaptive Correction\*

GatesAir's exclusive Real-Time Adaptive Correction (RTAC) technology, standard in Flexiva transmitters, keeps your station within compliance while maximizing coverage. Featuring nonlinear adaptive pre-correction, RTAC interoperates with the Flexiva Compact exciter to continuously monitor transmitter output and performance while automatically adapting for system nonlinearities — delivering the optimal level of correction for your digital over-the-air signal.



### Advanced Global Monitoring and Control

In addition to local control, the Flexiva FAX transmitter can be controlled from anywhere in the world with an intuitive, browser-based graphical user interface (GUI) over TCP/IP via a telecom or network connection with password protection. A rear RJ-45 jack is provided for LAN/WAN connection.

\* Only available with the Engine card

Full Simple Network Management Protocol (SNMP) facilities are provided for network management of the entire transmission system using industry-standard MIB protocols.



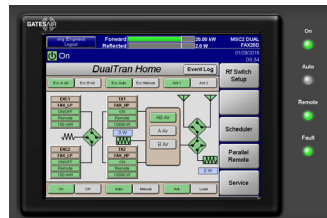
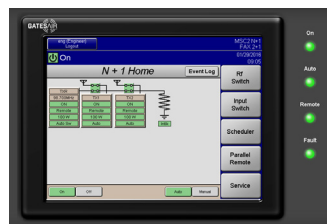
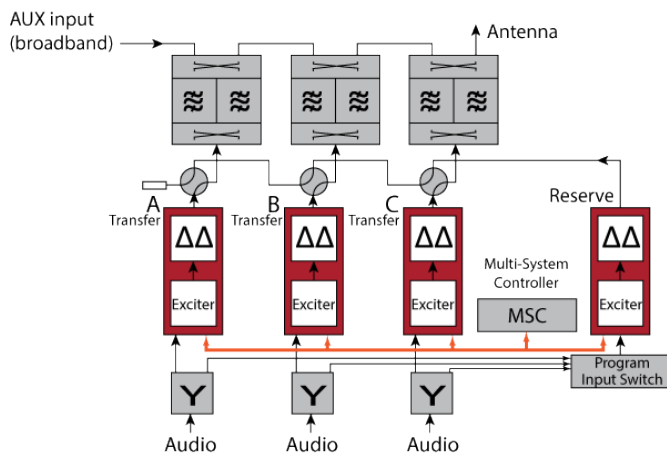
## Remote Communication

The following remote interfaces are available:

- GUI
- Ethernet network connection RJ-45 (10/100Base-T) with TCP/IP protocol
- Automated remote alarms in the event of a fault, which are sent via SNMP or e-mail with the connection to a network
- Simple, parallel interface to panels and legacy remote control systems

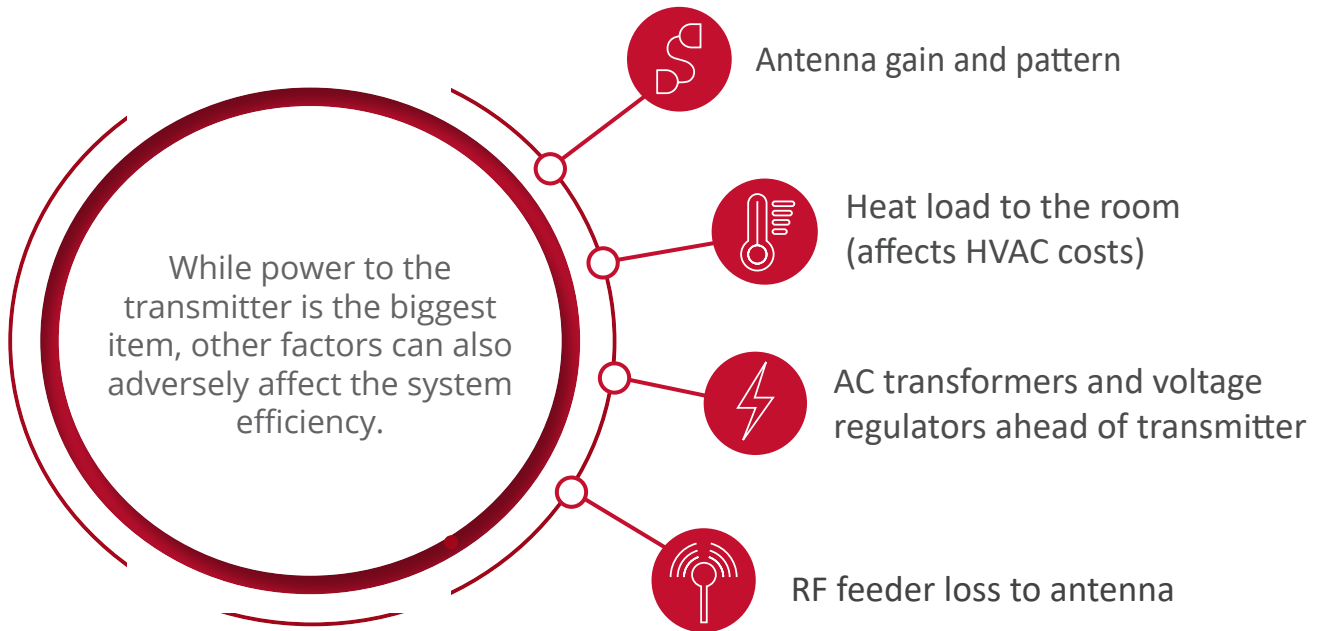
## Multi-System Controller (MSC)

To support greater redundancy, the Multi-System Controller (MSC2) supports a range of backup options, including 1+1, full N+1 and dual-transmitter installations. The MSC2 monitors and controls the transmitter systems and controls RF switching.

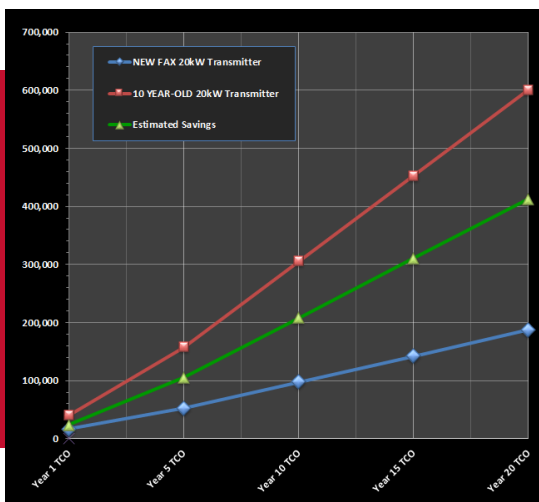


## What is Total Cost of Ownership (TCO)?

TCO is the total cost to own and operate the transmitter system over time. This includes the initial equipment cost, installation/commissioning cost, routine and unscheduled maintenance costs, and ongoing repair and operational costs — and don't forget, rising energy costs. In fact, the lifetime operational expense of a transmitter is estimated at greater than five times the initial product cost.



Flexiva FM transmitters now incorporate GatesAir PowerSmart 3D technology to help broadcasters save money and reduce carbon footprints. PowerSmart 3D technology delivers superior operational efficiency through fully broadband, single-amplifier designs that simplify installation, improve performance, and streamline ongoing operation – including maintenance. This comes courtesy of a modular design that eliminates tuning, reduces weight, enhances redundancy through separate power supplies, and minimizes overall labor.



PowerSmart 3D technology also lowers monthly bills through sharp power efficiency increases (up to 50 percent), and slashes rack space requirements (exceeding 50 percent) through a dramatic increase in power density. These industry-leading strides in performance and physical size reduction combine to deliver the best possible total cost of ownership over the life of the transmitter – and return money to the pockets of our customers.



# PowerSmart<sup>®</sup> 3D

## **Broadband Amplification**

PowerSmart 3D incorporates broadband amplifier designs into Flexiva FAX transmitters, consolidating spare parts, eliminating tuning and adjustments to further simplify maintenance and ongoing operation.

## **Reduced Service Costs**

Hot-pluggable, redundant power amplifier (PA) and universal power supply (PS) modules make on-air servicing easy and eliminate costly service interruptions. Light-weight universal PA pallets and modules facilitate overnight/same-day shipping for simple, cost-effective spares management. With lightweight subassemblies, the Flexiva FAX eliminates two-person lift requirements for routine maintenance and troubleshooting.

## **Compact Footprint**

As the most compact, air-cooled FM transmitter, the Flexiva FAX is ideal for crowded, shared transmitter sites. The Flexiva FAX transmitter reduces facility space requirements, simplifies installation, lowers shipping costs and streamlines maintenance.

## **Highest Power Density**

The Flexiva FAX provides the highest power density per rack in a FM transmitter. Fewer amplifier racks are required for all power levels and modulations, 5 kW, 7.5 kW, or 10 kW power blocks in only 16 rack units.

## **Global Monitoring and Control**

The Flexiva FAX transmitter can be controlled from anywhere in the world with an intuitive, browser-based GUI or SNMP over TCP/ IP via a telecom or network connection with password protection.



# SPECIFICATIONS

Specifications and designs are subject to change without notice

General							
Transmitter Type	Solid State VHF Power Amplifier for FM, HD Radio, DRM+, and China Digital radio						
Exciter	Requires external FM Exciter						
Frequency Range	87.5 to 108.0 Mhz, 10 kHz steps						
Operating Modes	FM, FM+HD, HD Only, DRM+ and China Digital Radio						
Frequency Stability	Free Running, long term: $\pm 150$ Hz. With internal GPS or external 1pps reference: $\pm 1$ Hz						
Power Stability	$\leq \pm 0.25$ dB						
Asynchronous AM SNR	>60 dB						
Synchronous AM SNR	>50 dB						
RF Harmonic and Spurious Suppression	Meets or exceeds ETSI requirements.						
VSWR	Up to 1.5:1 at full power. Up to 5:1 with proportional foldback. Protected against open or short circuit, all phase angles.						
Compliance	RoHs 2011/65/EU, FCC, CE, IC, Directive 2014/53/EU compliant						
Output Power - Max Watts	FAX5K	FAX7.5K	FAX10K	FAX15K	FAX20K	FAX30K	FAX40K
Nominal Power	5,000	7,500	10,000	15,000	20,000	30,000	40,000
FM Analog Power Range	500-5,500	750-8,250	1,000-11,000	1,500-16,500	2,000-22,000	3,000-33,000	4,000-44,000
FM+HD -20 dBc	5,050	8,000	10,100	15,200	20,200	30,300	40,400
FM+HD -14 dBc	4,679	7,050	9,358	13,400	18,250	27,375	36,500
FM+HD -10 dBc	3,630	5,445	7,260	10,350	14,132	21,000	28,000
HD Only -20 dBc	2,000	3,500	4,000	6,650	8,000	12,000	16,000
HD Only -14 dBc	1,850	3,300	3,700	6,270	7,400	11,000	14,800
HD Only -10 dBc	1,550	3,000	3,700	5,700	6,200	9,300	12,400
50 ohms RF Output Connector Un-Flanged * Optional Adapter	1-5/8" EIA	1-5/8" EIA	1-5/8" EIA	3-1/8" EIA	3-1/8" EIA	3-1/8" EIA	4-1/16" EIA 3 1/8" EIA*
Electrical	FAX5K	FAX7.5K	FAX10K	FAX15K	FAX20K	FAX30K	FAX40K
AC Input Voltage, (47-63Hz) Single Phase & 3-Phase: 3-Phase (4-Wire):	190-264VAC 330-460VAC						
Power Consumption MAX Watts	8,127	12,190	16,254	23,007	32,507	49,500	66,000
AC-RF Analog FM Efficiency at Nominal Power Typical:	72%		71%		72%		
Power Factor	0.99%						
Mechanical	FAX5K	FAX7.5K	FAX10K	FAX15K	FAX20K	FAX30K	FAX40K
Number of Power Amplifiers	4	5	7	10	14	21	28
Number of Power Supplies	4	5	7	10	14	21	28
Number of Fans	3	4	4	8	8	12	16
Air Flow max CFM ft <sup>3</sup> /min: m <sup>3</sup> /min:	500 21.2	1000 28	1,000 28	2,000 56.3	2,000 56.3	3,000 85	4,000 113
Width	19 in. (48 cm)	19 in. (48 cm)	19 in. (48 cm)	22 in. (59 cm)	22 in. (59 cm)	47 in. (120 cm)	47 in. (120 cm)
Depth	29 in. (74 cm)	29 in. (74 cm)	29 in. (74 cm)	45 in. (114.3 cm)	37.5 in. (95.3 cm)	37.5 in. (95.3 cm)	37.5 in. (95.3 cm)
Height	16RU 28 in. (71 cm)	16RU 28 in. (71 cm)	16RU 28 in. (71 cm)	44RU 83 in. (211 cm)	44RU 83 in. (211 cm)	44RU 83 in. (211 cm)	44RU 83 in. (211 cm)
Weight (approx w/ modules installed)	205 lbs 93 kg	220 lbs 100 kg	276 lbs 125 kg	874 lbs 396 kg	1,002 lbs 455 kg	1,700 lbs 771 kg	1,850 lbs 839 kg

<b>Environmental</b>	
Altitude	15,000 ft 3,000 (4,572 m) AMSL
Ambient Temperature Range	0 to +45° C inlet air temperature must not exceed 45° centigrade at sea level. Derate at 2° C per 1000 ft (300 m) AMSL
Humidity	95%, noncondensing
<b>Audio Performance with Flexiva Exciter</b>	
FM Modulation Capability	±150 kHz deviation, 200% modulation
Stereo Amplitude Response	±0.05 dB
Wideband Amplitude Response	≤ +/- 0.04 dB, 20 Hz to 53 kHz
Stereo Separation	≥70 dB
Crosstalk	≥70 dB
Total Harmonic Distortion	≤0.05%
Intermodulation Distortion	≤0.05%
Stereo FM SNR	≥83 dB 75 μs deemphasis "A" weighting
Composite/Mono FM SNR	≥90 dB
Pre-emphasis	0, 25, 50, or 75 microseconds
<b>Program Inputs with Flexiva Exciter</b>	
Audio Inputs	2 AES3 audio or Composite/MPX over AES192. XLR 110 ohms balanced, -2.8 dBfs nominal; 0 dBfs to -15 dBfs, Up to 196 kb/s, 16, 24, 32 bits 1 Analog L/R, XLR, 10K/600 ohms balanced, Nominal +10 dBu +15 dBu maximum
Analog MPX/Composite	2 BNC Analog floating-unbalanced 10 K/50 ohms Range -6 dBu to +17 dBu max
AES192 Digital MPX/Composite	2 AES3 XLR (shared with AES audio) 110 ohms balanced Range -15 dBfs to 0 dBfs, 196 kb/s composite/MPX on L or R channels
External SCA/RDS	2 BNC, unbalanced 10K ohms, 1.5 V nominal 4 V maximum
Internal RDS Generator	Static RDS/RBDS generator supports: TP, PL, PS, PTY, RT, and 6 AF Optional Dynamic RDS Supports SPY and UECP protocols TP, PL, PS, PTY, RT, and 25 AF
<b>Reference I/O with Flexiva Exciter</b>	
External 10 MHz Clock Input	BNC female, unbalanced, 50 ohms, -10 dBm to +10 dBm
External 1 PPS Clock Input	BNC female, unbalanced, 50 ohms, TTL level
GPS Antenna Input w/ Internal GPS Option	Optional GPS with supplied antenna +5v 30ma. +5v 30ma
10 MHz Clock Output w/ Internal GPS Option	BNC female, unbalanced, 50 ohms, 0dBm
1 PPS Clock Output w/ Internal GPS Option	BNC female, unbalanced, 50 ohms, TTL level
19 kHz Pilot Sync Output	BNC female, unbalanced, 50 ohms resistive, sinewave, phase adjustable, AC coupled, 4.5 V pk-pk nominal, unterminated
<b>Remote Control I/O</b>	
Ethernet Ports	2 RJ-45 100 Mb Ethernet/IP ports 1 front panel with DHCP server and fixed IP address for maintenance access 1 rear panel with static or dynamic IP address for LAN/WAN access to Web GUI and SNMP
Parallel GPI/O	DB25 female standard remote control GPI/O Active-low, 5v 100ma
Exciter Interface	2 DB15 female direct interface control for dual exciters



## Ordering Information

Our GatesAir experts will help you determine the most efficient solution to meet your requirements. Visit [www.gatesair.com/](http://www.gatesair.com/) contact to find your representative.



## Connecting What's Next

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