NEXT GENERATION RADIO TRANSMISSION
CONNECTING WHAT’S NEXT
NEW PRODUCTS
IPL-100e

• FAX OPTION
  • IPL-100e
  • Integrated IP Link
    • Reliable transport streams
    • Full duplex audio
    • 3 independent IP interfaces
    • Prioritized backup stream sources for redundancy
    • Time Diversity to prevent packet losses
SUPPORTS DYNAMIC STREAM SPlicing

- Identical streams sent with network diversity
- FEC and Time Diversity setting for each stream
- “Hitless” operation
- Fall back to USB play-list or local audio source
FLEXIVA (FAX) 15kW

• FAX 15kW Analog or Digital
  • FAX15KFAX300 – Analog version
  • FAX15KFAX300HD – Digital version

• Efficiency
  • Highest Efficiency
  • 72% AC to RF Efficiency in FM
  • > 60% AC to RF Efficiency in FM+HD at -14dBc
  • 54% AC to RF Efficiency in FM+HD at -10dBc

• Redundancy
  • Hot Pluggable Power Amplifier
  • Hot Pluggable Power Supplies
  • Backup Hardware Controller Standard
  • One to One PS to PA Ratio
  • Redundant Variable Speed Fans
• Redundancy
  • Hot Pluggable Power Amplifiers
  • Hot Pluggable Power Supplies
    • One to one PS to PA Ratio
  • Backup Controller
    • Maintains Full Power
    • Maintains Drive Redundancy
  • Redundant Variable Speed Fans
  • Dual Drive - Option
Synchronization software enhancements

ALFN Frame Alignment for synchronizing

Target Delay Setting

Additional SFN Diagnostics
  - E2X to ALFN timing
  - ALFN to IQ Start
  - E2X to Interrupt Timing
FLEXIVA COMPACT SERIES

50 watts to 3.5kW
FLEXIVA COMPACT: 50W TO 3,850W

70% AC to RF Efficiency 500W through 3.5kW Analog FM
- High Efficiency (>80% DC-RF) LDMOS PA Technology
- High Efficiency (96% AC/DC) Power Supplies
- Highly efficient variable speed cooling system

FAX 50 / FAX150
55W/ 165W
2RU x 13” (31cm) Depth

FAX 300 / FAX 500 / FAX 1K
330W / 550W / 1,100W
3RU x 20.5” (52cm) Depth

FAX 2K / 3K / 3.5K
2,200W / 3,300W / 3,850W
4RU x 24.5” (62cm) Depth

Flexiva Compact (50W – 3.5kW)
FLEXIVA (FAX) – LOW POWER 300W – 3.5KW

• Front Panel Access
  • Air filter change on-air with no interruption to service
  • Hot Pluggable Power Supplies (300W through 3.5kW Models)
FLEXIVA (FAX) – LOW POWER 3KW – 3.5KW

- Front Panel Access
  - Air filter change on-air with no interruption to service
  - Hot Pluggable Power Supplies
  - Redundant Power Supplies (2kW – 3.5kW)
**FLEXIVA (FAX) – LOW POWER 50W – 3.5KW**

- **FAX Low Power**
  - Internal Orban 5500 Processor
  - Internal GPS Receiver
    - SFN Applications
  - Digital Options
    - HD Radio Engine Card
    - DRM+
    - CDR – China Digital Radio
FLEXIVA™ MODULATOR: INPUTS

Multiple Program Inputs

- Automatic Failover Switching
  - (2) AES digital audio
  - (1) Analog L/R
  - (2) Analog MPX/Composite
  - (2) Digital MPX/Composite over AES192
  - (2) SCA / RDS Baseband

Aux AES  | Main AES  | Left  | Right  | Aux Comp | Main Comp
---------|----------|-------|--------|----------|----------
MPX/AES192 |          |       |        |          |          

Input Mux Setup

| Primary Source | Main AES Audio |
| Source Selection | Primary |
| Stereo Mode | Stereo |
| Auto Switching Primary to Back | Disabled |
| Auto Switch Back | Disabled |
| SCA 1 Auto Disconnect | Disabled |
| SCA 2 Auto Disconnect | Disabled |

Audio Monitoring

<table>
<thead>
<tr>
<th>Analog Audio</th>
<th>Main AES Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>AES192 Input</td>
<td>Main AES Input</td>
</tr>
<tr>
<td>Aux AES Input</td>
<td>Aux AES Input</td>
</tr>
</tbody>
</table>

Audio Thresholds

<table>
<thead>
<tr>
<th>Monitor Threshold</th>
<th>Undercut Delay T1</th>
<th>Return Delay T2</th>
<th>Log Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog -40 dBu</td>
<td>30 s</td>
<td>30 s</td>
<td>Warning</td>
</tr>
<tr>
<td>Main AES -65 dBFS</td>
<td>30 s</td>
<td>30 s</td>
<td>None</td>
</tr>
<tr>
<td>Aux AES -65 dBFS</td>
<td>30 s</td>
<td>30 s</td>
<td>None</td>
</tr>
<tr>
<td>Main Comp -40 dBu</td>
<td>30 s</td>
<td>30 s</td>
<td>None</td>
</tr>
<tr>
<td>Aux Comp -40 dBu</td>
<td>30 s</td>
<td>30 s</td>
<td>None</td>
</tr>
<tr>
<td>SCA 1 -40 dBu</td>
<td>30 s</td>
<td>30 s</td>
<td>None</td>
</tr>
<tr>
<td>SCA 2 -40 dBu</td>
<td>30 s</td>
<td>30 s</td>
<td>None</td>
</tr>
</tbody>
</table>
WEB GUI – HOME SCREEN

- User Log-In
- User Text
- Fwd/Ref Power Meters
- Remote Enable/Disable
- Power Raise/Lower
- Summary Status/Faults

- Main & Backup Audio Sources
- Modulation Source Setup
- Total Modulation Meter
- Transmitter ON/OFF
- Modulator Setup
LX LOW POWER TRANSMITTERS

100 watts to 1000 watts
FLEXIVA LX SERIES: 100W TO 1KW

LX 100
1W to 110W

LX 300 / LX 600
30W to 660W

LX 1000
100W to 1050W

Flexiva LX Series (100W – 1kW)
• Hot Pluggable Power Supplies
  • Redundant in LX 1000
  • Optional Redundant Supply in LX100, LX300, LX600

• Integrated Digital Multi-band Audio Processor
  • Stereo Encoder
  • Composite Clipper

• Dynamic RDS Generator
  • Implemented in software release 2.0

• Digital MPX/Composite input over AES192

• Direct-to-Carrier digital modulator

• SNMP, Email Notification, Web GUI

• GPIO, 4 in 4 out
WEB GUI – HOME SCREEN
FLEXIVA (FAX) HIGH POWER

Air Cooled FM and Digital Transmitters 5kW-80kW
FLEXIVA (FAX) – PRODUCT OFFERING

- **FAX 5k, 7.5k & 10k (16RU)**
- **or in rack**

- **FAX 15k & 20k (44RU)**

- **FAX 30k & 40k (44RU)**

- **FAX 60k & 80k (44RU)**

**FAX High Power (5kW – 80kW)**
EFFICIENCY
• 72% - 75% AC to RF Efficiency in FM
• > 60% AC to RF Efficiency in Digital at -14dBc

SIZE
• Smallest footprint
• Smallest volume

REDUNDANCY
• Hot Pluggable Power Amplifier
• Hot Pluggable Power Supplies
• Redundant IPA Standard on all power levels 10k and higher
• IPA and PA Modules are identical
• Backup Hardware Controller Standard
• One to One PS to PA Ratio
• Redundant Variable Speed Fans
FLEXIVA 7.5KW – RECENT ADDITION

- FAX7.5kW Analog or Digital
  - FAX7.5KFA150 – Analog version
  - FAX7.5KFA150HD – Digital version

- Efficiency
  - Highest Efficiency
  - 72% AC to RF Efficiency in FM
  - > 60% AC to RF Efficiency in FM+HD at -14dBc
  - 54% AC to RF Efficiency in FM+HD at -10dBc

- Redundancy
  - Hot Pluggable Power Amplifier
  - Hot Pluggable Power Supplies
  - Backup Hardware Controller Standard
  - One to One PS to PA Ratio
  - Redundant Variable Speed Fans
FLEXIVA™ CONTROL INTERFACE

IP Connectivity
Intuitive Web GUI
& SNMP

Convenience
Ease of Maintenance
24 x 7 access

Easily viewed GUI using any standard WEB browser
- PC, Smartphone or Tablet
FLEXIVA (FLX)

Liquid Cooled
FM and Digital Transmitters
10kW-80kW
• Redundancy
  • Hot Pluggable Power Amplifiers
  • Redundant IPA Standard
    • Two sides for redundancy
    • Same as PA
  • Hot Pluggable Power Supplies
    • One to one PS to PA Ratio
  • Backup Controller
    • Maintains Full Power
    • Maintains Drive Redundancy
FLEXIVA (FLX) – HIGH POWER 10KW – 40KW

Self – Sealing Fluid Connectors
• GatesAir design and manufacture
• 3rd generation – Optimized for High Efficiency
• Small physical size
• Dual Pumps, with auto/manual changeover
  • Low-noise, high efficiency pumps
  • Replace a pump during on-air operation!
• Low maintenance, closed-loop pressurized system
• Quiet – Designed for indoor installation
• Pump speed adjustable to optimize flow rate and efficiency
GATESAIR® HIGH EFFICIENCY HEAT EXCHANGER

- GatesAir manufacture
- Dual fans - on-air replacement
- Low noise, high-efficiency fan blades
- Speed controlled for maximum efficiency

- Vertical or horizontal airflow (mounting can be adapted on site for either configuration)
- Two sizes available 20kW & 50kW heat dissipation
MAXIVA VAXT DAB ULTRA COMPACT SERIES

80 watts to 750 watts
DAB ULTRA-COMPACT VHF MODELS / POWER LEVELS

1RU Models
- 80 W
- 150 W

2RU Models
- 300 W
- 450 W

3RU Models
- 550 W
- 750 W
FRONT AND REAR OF 1RU ULTRA-COMPACT

Input Slot #1
Input Slot #2

Touch screen LCD
Control Ethernet Port
USB Port

GPS Receiver (opt.)
Power Supply
RF Power Amplifier

10 MHz In/Out
GPS In
RF Monitoring
RF Out
Feedback for Pre-correction

1 PPS In/Out
AC Power
Cooling Fans (4)
KEY FEATURES

- High-efficiency Doherty PA’s
  - VHF BIII is a single broadband design 170-240MHz
- ETI and EDI inputs
  - Additional input board options
  - 2 – EDI plus 2-ETI
  - 4 – ETI inputs
- Adaptive pre-correction circuits with MER $\geq$ 33dB
- Modular design, PA and Power Supply plug-in and can be replaced in a few minutes.
• Same 1RU exciter/driver and same input option cards as Ultra-Compact
• Available with single-drive or dual-drive (option)
• Multiple PA systems include a 36RU rack (single PA systems - rack optional)
• GPS/GLONASS option

Maxiva Air-Cooled VAX-OP VHF Series

2+1 RU / 3+1 RU

- 300W to 1.2kW

3.5+1 RU

- 1.5kW – 1.9kW

3kW – 13.6kW

2, 3, 4, 6 and 8 PA Systems in 36RU Rack
Maxiva DAB Liquid-Cooled VLX-OP Series

**Key Features**

- High Efficiency (Broadband PA’s)
- Low consumption Pump and Heat Exchanger (pump + heat exchanger + external fans = 535W)
- Dual Redundant Pumps standard
- Coolant reserve tank (8 liters) for automatic liquid refilling, reduces on-site maintenance
- Liquid Cooled Control Unit: level (liquid + refilling), pressure, temperature, pump status, etc.
- Very small external heat exchanger with 24V power, 2 fans or 4 fans
- Heat Exchanger automatic reverse fan rotation feature to remove debris (user settable timing)
Maxiva Liquid-Cooled VLX-OP VHF Series

Single Rack Systems

- **15.2 kW** 8 PA’s
- **11.4 kWz** 6 PA’s
- **9.5 kW** 5 PA’s
- **7.6 kW** 4 PA’s
- **5.7 kW** 3 PA’s
- **3.8 kW** 2 PA’s

VLX-OP (6 PA’s)
MULTICARRIER DAB+ 240W TOTAL POWER

- Touch screen LCD
- Control Ethernet Port
- USB Port
- ETI In #1
- ETI In #2
- ETI In #3

MULTICARRIER DAB+ 240W TOTAL POWER

- Touch screen LCD
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MULTICARRIER DAB+ 240W TOTAL POWER

- Touch screen LCD
- Control Ethernet Port
- USB Port
- ETI In #1
- ETI In #2
- ETI In #3
MultiCarrier DAB Transmitter:

- Allows up to 3 DAB+ Carriers to be generated or re-transmitted through a single amplifier
- Advanced pre-correction and linear broadband amplification
- Unique solution ONLY available from GatesAir
- More economic than standard solutions
- More compact
- Less expensive to operate, lower power consumption
Compact 1U rack 19 "chassis.
Output power up to 240W rms total
Common RF amplification.
Wide Band VHF BIII Doherty Amplifier technology with high efficiency.
Supported Modulations: DAB / DAB + / T-DMB.
Multi-carrier modulation (3 channels), for adjacent and non-adjacent frequencies.
Adaptive pre-correction circuits.
Built-in high-stability GPS / GLONASS receiver (Optional).
Hot swappable amplifier and power supply.
Input interface: 3 ETI inputs.
SNMP, Web interface and Touch Screen display.
USB service interface for up-grade / download.
FLEXIVA FMXI 4G
HD Embedded Exporter
Importer
Export

- Encodes Main audio program channel – MPS.
- Creates UDP/IP stream for the Exgine card, E2X.
- Hardware Linux OS, and Embedded Linux Processor

Importer

- Encodes supplemental audio channels, HD2, HD3, HD4.
- Aggregates Program Associated Data, Artist/Title/Album Art
- Traditionally Windows OS, Win XP, Win 7
- Only Gen 4, Supports Embedded Processor
Gen 4 Supports Combining Exporter and Importer into a single hardware platform
FMXI 4G REAR PANEL

- Integrated FM Tuner
- DTAC™ – Dynamic Time and Audio Correction

- Timing I/O
- GPS
- TNC
- 3x LAN/WAN
- Audio Inputs/Outputs
- StudioHub®
- Primary and Backup Power
BUILT-IN TUNER

DTAC™ – Dynamic Time and Audio Correction
- Automatically resolves Analog / HD Diversity Delay.
- Resolves audio level and phase correction.

#2 - Confidence monitoring for HD primary and secondary Audio signals, and PSD (data)
GATESAIR FMXI 4G – HD RADIO EXPORTER/IMPORTER

Using the FMXi-4g to Enhance your listeners experience with properly aligned audio

Combination Importer and Exporter

Importer Only

Exporter Only
FMXI 4G GUI
FMXI 4G HD RECEIVER SETTINGS

Receiver Setup

Received Signal Status

Receiver Split Mode for correlation measurements

Audio Status

External Clock Inputs

Cooling

Customizable Signal Loss Alarms

Online help and Histogram
REAL TIME MONITORING

Realtime monitoring FM Signal and HD Carrier to Noise ratio
FMXI 4G DTAC™ SETTINGS

Current Diversity Delay Status

Automatic or Manual Modes

Supports Delay in Analog or Digital Path
FMXI 4G DTAC™ REALTIME LOGGING

Realtime monitoring and logging of DTAC corrections and levels
FMXI 4G – AUDIO AND PSD STATUS

On-Air PSD Data Captured From Tuner

Incoming PSD From Automation

Support for local and remote capture clients
Easily return to previous software versions.
- Embedded Exporter / Importer
  - Non-Windows based operating system
    - Fast boot up time
    - Do not need to maintain or keep drivers up to date
    - No operating system to maintain
  - Combined or Separate Unit
    - Export/Importer Combo, Exporter Only, Importer Only
    - 1RU chassis
  - Integrated FM/HD Radio Tuner
    - DTAC™ - Dynamic Time and Audio Correction
    - Confidence Monitoring
FMXI 4G – HD RADIO EXPORTER / IMPORTER

• Enhances Listeners Experience
  • Automatic Time Level and Phase Alignment
    • Eliminates blending artifacts
  • Supports Artist Experience
    • Integrated MSAC and FTP capabilities

• Enhanced Engineering Experience
  • Simplifies HD installation setup and monitoring
  • Web browser for local and remote access, SNMP, Email notification.
  • Confidence monitoring of primary and secondary audio channels
  • Confidence monitoring of Program Associated Data
  • Support for HD booster and SFN applications