GTX Series

Ultra-Wideband (UWB) Wireless Microphone System

alteros

An Audio-Technica Company

alteros
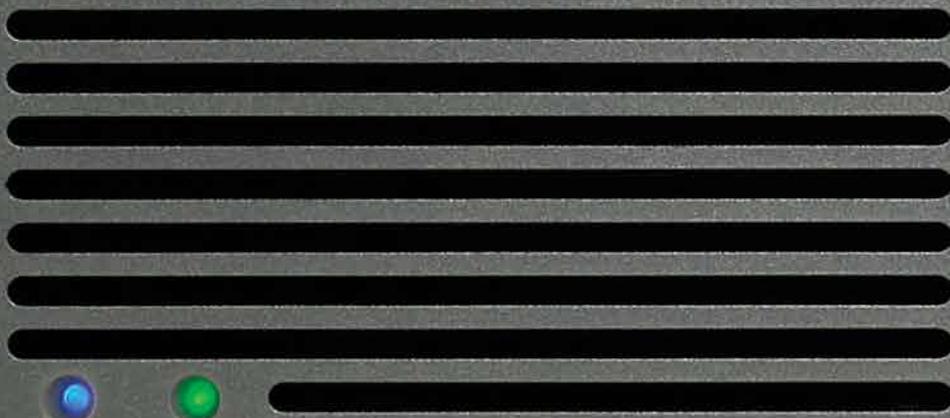
GTX Series

SETTINGS

DHCP? No

IP Address? 192.168.002.001
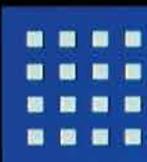
RP Display? On

Battery Warning Level? 60

System ID? 1

SYSTEM INFO

MCU Version ID - 3827.02.24.0

Black Burst Ext Clock - No

Clock Match Value - 1 ppm

Dante/BB Match Value - 0.0 ppm

Professional Freedom

GTX Series Ultra-Wideband (UWB) Wireless Microphone System

After seven years of dedicated research and development, Alteros, an Audio-Technica company, presents the GTX Series Ultra-Wideband (UWB) Wireless Microphone System, a professional broadcast system for the studio and beyond. Operating in the 6–10 GHz range, well beyond the volatile TV bands, the feature-rich GTX Series offers reliable, interference-free performance, with up to 24 simultaneous channels, that you can depend on today and in the future.

The GTX Series provides professional-quality wireless without the need to coordinate frequencies and without causing interference or creating intermodulation products. The completely digital UWB pulse technology allows you to operate without a license, database registration or STAs in a portion of the RF spectrum that's not subject to overcrowding or FCC repacking. And since the GTX Series emits less intentional radiation than the typical PC, you don't have to worry about it interfering with surrounding signals, making it ideal for studio-to-studio operation.

Freedom from coordination, freedom from spectrum grabs, freedom from licensing, fees and registration — and the freedom to operate 24 simultaneous, interference-free channels. That's GTX Series freedom. That's professional freedom.

Why GTX Series?

The Alteros GTX Series immediately solves the urgent problem of how to operate wirelessly in an ever-shrinking spectrum, but that's far from its only technical achievement.

The system is equipped with a slew of features that make it easy to set up and use, including several industry firsts in its user interface and control functions — features that make it superior to any wireless microphone system currently available on the market.
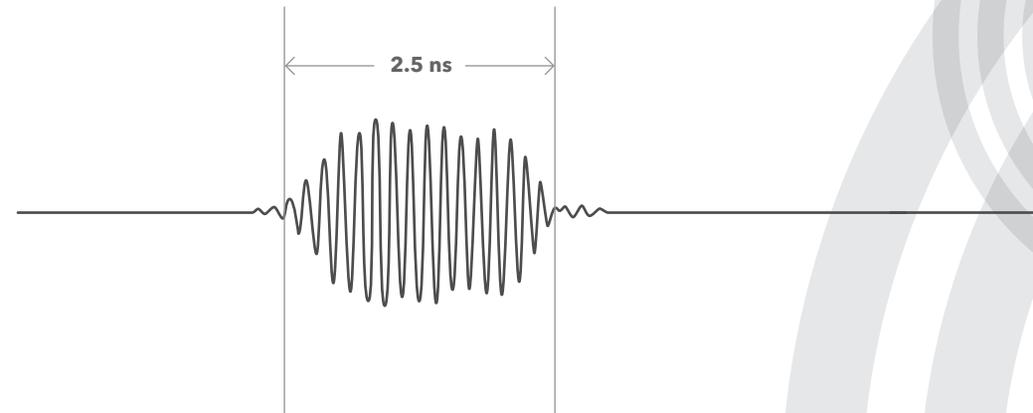
GTX32

GTX24

GTX3224

Features

- Low, "real-time" latency (< 3 ms) suitable for demanding professional environments

- 24-channel simultaneous operation

- 24-bit/48 kHz professional audio performance, with no analog companding during transmission and full-frequency response (20–20,000 Hz) for excellent sound quality

- Excellent dynamic range

- A real-time battery gauge on the GTX3224 control unit's GUI displays the operational time left for each transmitter and allows user to set custom "battery level alerts"

- Optional microphone with in-line talkback switch eliminates the need for a separate wired talkback box, allowing talent to easily speak to production people or use the talkback function as a momentary "cough switch"

- Transmitter gain can be set via GUI controls on the GTX3224 or by the user on the GTX24 body-pack transmitter (settings are automatically updated and displayed on each)

- Each system can be set to operate on a unique system ID. This prevents accidental reception and audio output between systems set up in two different locations/studios

- GTX3224's headphone output with volume control allows you to monitor any channel

- Two entirely separate, fully redundant AC power supplies (with corresponding indicator LEDs) ensure the GTX3224's continued operation even if one of the power supplies is lost

- A video sync input on the GTX3224 allows black burst and word clock to work with a patented clock sync method to synchronize the GTX Series directly to the house clock. The system maintains a perfect match throughout the facility for the entire audio chain, including over-the-air sync from every GTX24 transmitter. The system also has an accurate internal clock which automatically takes over and syncs the system should the house clock be lost

- MADI, Dante™ and AES67 outputs are available for easy connection to any standard MADI and network audio used in studio, remote or install/theater settings for multiplatform operation. The outputs can be used simultaneously – the user does not have to choose which format to install or use

- The system features a fiber output for long-distance fiber runs

- The GTX3224 includes a 7" touchscreen GUI for easy access to system settings, monitoring tools, performance reports, and other controls

- The GTX3224 is equipped with an Ethernet port for remote monitor and control functions (available upon future rerelease of the GTX Series; unique, powerful monitor and control functions are currently available via RS232 port)

- The powerful remote control/logger tool operates on a PC or computer network, providing remote monitoring and control of the system, including a timestamped event logger that can track and record the performance of every GTX32 and GTX24 for up to one month

2.5 ns

The Advantages of UWB

The GTX Series transmits true-digital, no-carrier UWB pulses. The system doesn't generate traditional waves, so there's no chance of constructive or destructive interference, and no frequency coordination is required.

The Pulse Is the Signal – No Other Information Is Embedded in the Pulse

The system is controlled via a custom TDMA scheme and patented clock sync and cable compensation technology through multiple GTX32 transceivers. The GTX32 transceivers coordinate system timing, give permission to GTX24 transmitters to transmit, and perform several layers of data validation and error correction. Each GTX32 transceiver can coordinate, receive and process signals from up to 24 simultaneous GTX24 transmitters. Signal reception is not dependent on phase or wave shape. The system only needs to see a "pulse" at the appropriate time in the TDMA scheme for the signal to be linked and captured.

Each pulse is extremely short, lasting only 2.5 ns. This is an important point because it means that the system is almost always "off." The system is on (i.e., transmitting a signal) only 1.2% of the time, and off the remaining 98.8% of the time. As a result of this very short duty cycle, the GTX24 body-pack transmitter stays cool, while its signal remains effectively invisible to surrounding equipment. The timed sequence of short-duration pulses also makes the system inherently secure, since a receiver must know exactly when, where and how to "look" for the pulse in order to decode it.
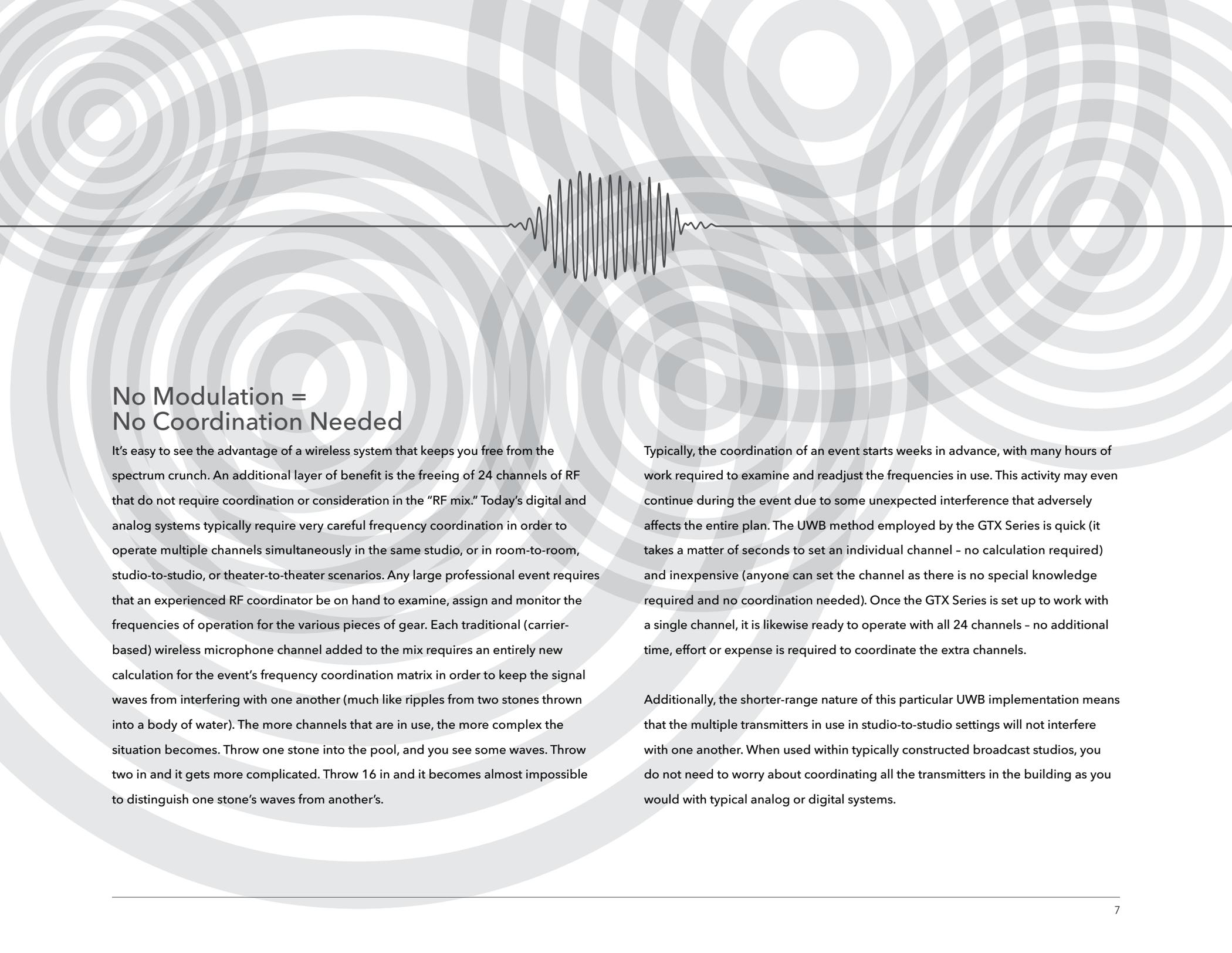
No Modulation =
No Coordination Needed

It's easy to see the advantage of a wireless system that keeps you free from the spectrum crunch. An additional layer of benefit is the freeing of 24 channels of RF that do not require coordination or consideration in the "RF mix." Today's digital and analog systems typically require very careful frequency coordination in order to operate multiple channels simultaneously in the same studio, or in room-to-room, studio-to-studio, or theater-to-theater scenarios. Any large professional event requires that an experienced RF coordinator be on hand to examine, assign and monitor the frequencies of operation for the various pieces of gear. Each traditional (carrier-based) wireless microphone channel added to the mix requires an entirely new calculation for the event's frequency coordination matrix in order to keep the signal waves from interfering with one another (much like ripples from two stones thrown into a body of water). The more channels that are in use, the more complex the situation becomes. Throw one stone into the pool, and you see some waves. Throw two in and it gets more complicated. Throw 16 in and it becomes almost impossible to distinguish one stone's waves from another's.

Typically, the coordination of an event starts weeks in advance, with many hours of work required to examine and readjust the frequencies in use. This activity may even continue during the event due to some unexpected interference that adversely affects the entire plan. The UWB method employed by the GTX Series is quick (it takes a matter of seconds to set an individual channel – no calculation required) and inexpensive (anyone can set the channel as there is no special knowledge required and no coordination needed). Once the GTX Series is set up to work with a single channel, it is likewise ready to operate with all 24 channels – no additional time, effort or expense is required to coordinate the extra channels.

Additionally, the shorter-range nature of this particular UWB implementation means that the multiple transmitters in use in studio-to-studio settings will not interfere with one another. When used within typically constructed broadcast studios, you do not need to worry about coordinating all the transmitters in the building as you would with typical analog or digital systems.
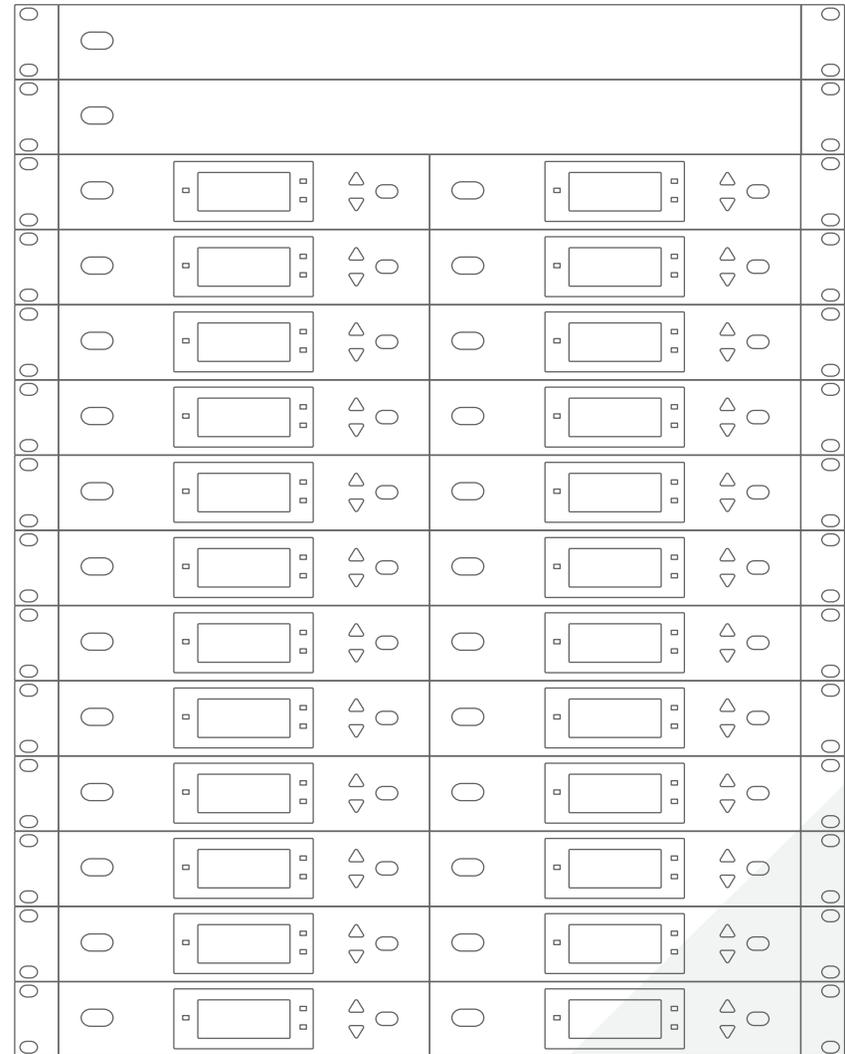
Traditional RF Equipment vs. GTX

Unlike traditional RF systems, the GTX Series sets up easily, doesn't hog rack space, and doesn't require expensive microphone cables or extra equipment in order to operate.

GTX Series rack space equipment
for 24 simultaneous channels
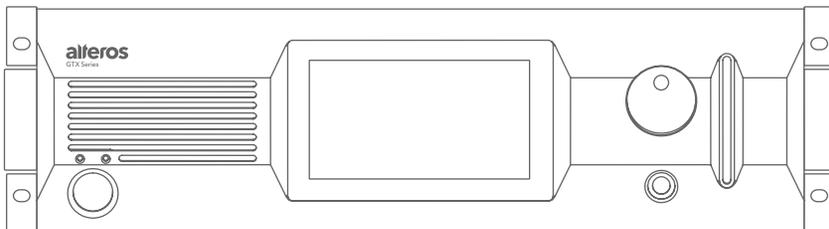
Traditional RF wireless rack space equipment
for 24 simultaneous channels

No Extra Filters or Antennas Required

The GTX Series eliminates the need for extra support equipment. The use of custom cavity filters and additional filtered/tuned antennas has become standard practice for high-profile professional events and installations. These "extras" are expensive to purchase (or lease), expensive and time-consuming to set up, and require specialized experts and significant time to deploy. The GTX Series requires none of these extra filters and antennas in order to operate, saving you considerable time and money.

Space Saver

Takes up only 3U rack space for 24 channels of on-air audio, plus another 24 channels of talkback audio and 8 "group assignment channels." Traditional analog and digital wireless systems generally require 1U of rack space for every one or two audio channels. In a control room where cabling, space, power and heat are all important considerations, the GTX Series represents a dramatic improvement over any system on the market.

Works with Standard Cat 5 Cable

Use up to 1,000 feet of standard Cat 5 cable. The GTX32 transceivers connect to the GTX3224 control unit via standard shielded Cat 5 cable. This cable is readily available, and indeed is already used throughout most facilities, broadcast or not. The GTX Series system can utilize runs of up to 1,000 feet with Cat 5 cable, compared to the 300 or 500 feet that is typical with the microphone cable currently used in most systems. Plus, traditional microphone cable is expensive and much more difficult to use than Cat 5.

Quick and Easy Setup

The GTX Series gives you the ability to set up and confirm operation of 32 transceivers and 24 transmitters in a few hours. The importance of this cannot be overstated. With most wireless systems currently on the market, designing for their use in a broadcast studio starts months – or even a year – in advance. Careful consideration must be given to frequency coordination, use of accessory antennas and distribution

boxes, connection of custom or expensive filters (and the very expensive cables used for connection), building and running of expensive microphone cables, allocation of space and power to large racks of receivers, antenna distribution gear, and breakouts for digital output devices (such as MADI or Dante™) if interfacing with a network/protocol system. Such a system takes months to install, debug and qualify. With the GTX Series, it is possible to completely place, connect, debug and perform 100% coverage "commissioning" in a few hours . That means 24 channels of high-fidelity, reliable wireless in hours rather than months.

Powerful, Easy-To-Use and Affordable

This new technology product delivers buying power and future-proof cost savings. The cost per channel price is comparable to other professional wireless systems that are currently on the market. Additional cost savings are found in the quick setup, low-cost Cat 5, and elimination of expensive frequency coordination plans. Of course, there is also a significant cost savings in purchasing a product that operates in spectrum immune to the risk of future spectrum policy shifts and shrinkage.

The GTX Series components are sold separately so that a system can be tailored to the specific needs and considerations of each implementation. Purchase a single, full-featured GTX3224 control unit, up to 32 GTX32 transceivers, as needed, to cover the specific configuration of the space, and up to 24 GTX24 transmitters for use in the space. That is all! (Note – the GTX24 uses a LEMO connector. Audio-Technica microphones are available to purchase to operate with the GTX24, if desired.)

YOU DON'T NEED TO PURCHASE ANYTHING ELSE TO OPERATE

No custom cables.   No cavity filters.   No output modules.

Specifications*

Core System Operating Characteristics

Operating Method	UWB OOK
Center frequency	6.500 GHz
Simultaneous Receive Points	32
Simultaneous Transmitters	24
Audio Dynamic Range	24 bits
Frequency Response	20 Hz – 20 kHz
Latency	<3 ms
Audio Interface	MADI/Dante™/AES 67
External Control Interface	USB/Ethernet
User Interface	Touchscreen GUI
Range (single RP line of sight)	90 feet

Overall System

Dynamic Range	>109 dB (A-weighted, typical)
Total Harmonic Distortion	<0.06% (-40 dBV input level)

GTX24 (inherent to body-pack)

Self Noise @ 0 dB gain	-111 dBA
Self Noise @ 20 dB gain	-106 dBA
Sensitivity @ 0 dB gain	-44 dBV
Sensitivity @ 20 dB gain	-23 dBV
Dynamic Range	111 dB (A-weighted, typical)
SNR @ 0 dB gain	67 dBA
SNR @ 20 dB gain	82 dBA
Maximum Input Level (5% THD)	4.8 dBV
Total Harmonic Distortion	<0.06% (-40 dBV input level)
Operating Frequency Range	6250 MHz – 6750 MHz
Tx Output Power	2 nW average
Modulation	none
Emissions Designator	500 MN1W
Battery	Two 1.5V AA (not included)
Battery Life	6 hours (alkaline) *Depending on battery type and use pattern*

GTX24 w/AT899cL4 or AT899cL4SW mic

Self-Noise @ 0 dB gain	-109 dBA
Self-Noise @ 20 dB gain	-93 dBA
Sensitivity @ 0 dB gain	-48 dBV
Sensitivity @ 20 dB gain	-28 dBV
Dynamic Range	109 dB (A-weighted, typical)
SNR @ 0 dB gain	61 dBA
SNR @ 20 dB gain	65 dBA
Frequency Response	20 Hz – 20 KHz
Impedance	250 ohms
DC current	1.7 mA
Battery	Two 1.5V AA (not included)
Battery Life	6 hours (alkaline) *Depending on battery type and use pattern*

GTX3224

Frequency Response	20 Hz – 20 KHz
Input/Output Connections	
MADI	75 ohm BNC to coax (x2), singlemode fiber (x2)
Dante™	RJ45 (x2)
Receivers	12 V, RJ45 (x32)
Black Burst (HD/SD, bi-level/tri-level)	BNC
Word Clock	BNC
Headphone/Monitor Out (@ 33 ohm load)	
Total Harmonic Distortion	<0.1%
Noise	-90 dBV
Maximum Output Power	200 mW
Power (Redundant AC Supply)	110-240 V AC, 50-50 Hz, 250 W max (x2)
Cable	IEC (x2)

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