



Features

- **Ultra Wideband (UWB) operation**
- **Easy to set up and operate**
- **Simple channel address selection**
- **Excellent audio quality**
- **Inherently secure transmission**
- **Configurable soft-touch mute button**
- **LED status indicators (power, low battery, link, mute)**
- **Operates on 2 AA batteries (NiMH or Alkaline)**
- **Immune to multipath interference**
- **Integral charging encryption contacts**
- **Heavy-duty robust construction**
- **Optional rechargeable batteries and charging/encryption station**

Description

The mtu101 is a boundary-style microphone transmitter unit designed to operate as part of a SpectraPulse® wireless microphone system utilizing ultra wideband (UWB) pulse technology operating in the 6 GHz band. Up to 14 Microphone Transmitter Units can be used in a SpectraPulse® system. Channel selection is accomplished by simply setting an address selector on each mtu101 to a different address without the need for frequency scanning, hunting or other frequency-coordination processes. The RF output signal from the mtu101 is time-based rather than frequency-based, making a SpectraPulse® system immune from multipath issues, dropouts and sputters. SpectraPulse® operates using a completely digital signal path with imperceptible latency and no compressors or compression, providing excellent audio quality.

A soft-touch button that can be globally configured for push On/Off, push-to-mute, or push-to-talk operation is provided on the mtu101. All muting is silent. LED indicators are provided to show mute status, power, low battery and link. The microphone capsule used in the mtu101 is a unidirectional condenser and incorporates Audio-Technica UniGuard® technology for immunity from RF interference.

Each mtu101 operates using 2 AA batteries. Standard alkaline or NiMH rechargeable batteries can be used. With NiMH batteries, up to nine hours of operation are possible using a fully charged set. Charging contacts on the base of the mtu101 allow it to be dropped into a charging/encryption interface. Recharge time for depleted batteries is typically six hours.

The mtu101's output signal is inherently secure in operation since the UWB data is transmitted in extremely short-duration pulses sent in a timed sequence over a very wide (500 MHz) frequency spectrum. To decode the pulse streams, the system must know exactly when, where and how to listen for them, providing a very low probability of detection (TRANSEC – Transmission Security). For applications requiring

additional levels of security, an optional encryption package that meets the AES 128-bit encryption standard developed by the U.S. government for securing sensitive material is available. (COMSEC – Communications Security)

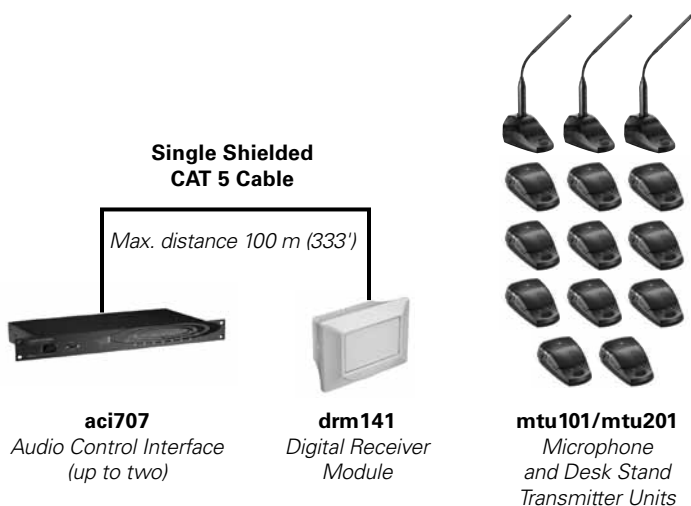
A SpectraPulse® system consists of a Digital Receiver Module (drm141), up to 14 Microphone Transmitter Units/Desk Stand Transmitters (mtu101 and/or mtu201) and up to two Audio Control Interfaces (aci707). The system will support up to 14 simultaneous audio channels. An optional seven space Charging Encryption Station (cei007) and NiMH batteries are available along with System Encryption Package (sep128) software for digitally encrypting the microphone output.

Architect's and Engineer's Specifications

The wireless boundary microphone transmitter shall operate in the 6 GHz band using Ultra Wideband timed pulse technology with pulse duration of 2 nanoseconds and a UWB rate of 8 mbps as part of a complete SpectraPulse® system. Transmitters using conventional carrier-based RF or spread-spectrum methods of transmission shall be unacceptable. Up to 14 microphone transmitters shall be able to be used simultaneously in a single system. The microphone transmitter shall incorporate a simple address/channel selector switch for address assignment, without the need for frequency coordination, scanning, or preset frequency groupings. Average RF power shall be 40 nanowatts. The microphone transmitter's audio output shall be entirely digital with no compression or compressors, and the overall system latency shall be less than 1.2 ms. Audio response shall be from 100 Hz to 12,000 Hz, with a sampling rate of 24 kHz and 16 bit AD/DA converters. The output signal from the microphone transmitter shall be inherently secure with a very low probability of transmission detection. For increased security, the transmitter can be encrypted with an AES level 3, 128 bit digital encryption key via a user-controlled software application. Each microphone transmitter shall be equipped with a configurable touch button. This button shall be capable of operating in one of the following modes: Push On/Off, Push to Mute, Push to Talk. It shall be possible to isolate the microphone's audio from the mute/closure function for use with AEC and other systems without rewiring. Mute functions shall be silent. Each microphone transmitter shall incorporate LED indicators for: power, low battery, link present and mute status (mic active). The microphone transmitter shall be a boundary configuration with an RF-shielded unidirectional microphone. It shall be capable of operating with standard AA alkaline or NiMH batteries. When using NiMH batteries, it shall be possible to operate the transmitter for 9 hours. Battery change-out shall not require any tools or special techniques. Contacts shall be provided on the base of the microphone transmitter allowing it to drop into a charging/encryption station. The construction of the microphone transmitter shall be cast metal with plastic trim. LED indicators on the microphone transmitter shall be blue. The base plate of the microphone transmitter shall be equipped with feet that will not mar or leave marks on tables or other surfaces. All components shall comply with RoHS standards.

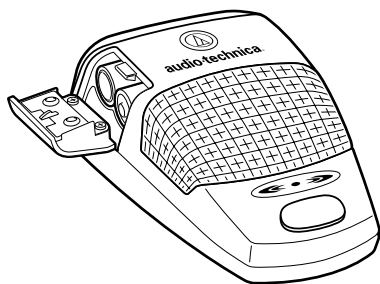
The microphone transmitter shall be an Audio-Technica mtu101 microphone transmitter unit or equivalent.

System Block Diagram

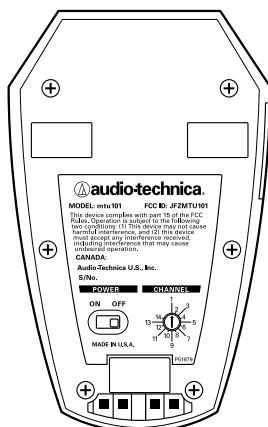


Each aci707 provides up to seven audio outputs.

Battery Compartment Detail



Bottom Detail



Specifications

	Overall system
Frequency range	6.100 GHz–6.600 GHz
Center frequency	6.350 GHz
AD/DA	16 bits
Clock	24.576 MHz
Sampling rate	24 kHz
Pulse duration	2 nanoseconds
Frame length	1 ms
Time slots per frame	15
UWB rate	8 mbps
Compression	None
Companding	None
Latency	1.1 ms
Average RF power	40 nanowatts
Sync/Re-acquisition time	<3 ms
Range	23 m (75')
Simultaneous channels	14
Mains (aci707)	100–240V, 50/60 Hz RoHS-compliant power supply
Transmitter unit	
Microphone element	Fixed-charge back plate, permanently polarized condenser
Polar pattern	Unidirectional
Battery life	Approximately 9 hours, depending on battery type and use pattern
Current consumption	135 mA
Frequency response	100–12,000 Hz
LED indicators	Power, Mute, Link Configurable button, Push On/Off, Push to Talk, Push to Mute
Switches	Power, address/channel, control button
Accessories included	Two AA Alkaline batteries for set up (per mtu)

Specifications are subject to change without notice.



audio-technica.

Audio-Technica U.S., Inc., 1221 Commerce Drive, Stow, Ohio 44224
Audio-Technica Limited, Old Lane, Leeds LS11 8AG England
©2010 Audio-Technica U.S., Inc. audio-technica.com

0001-0004-00