

# WTSD-MIX31

**3x1 Mic/Line/BT/AUX Mixer with Optional Dante® Audio Network Interface**



## Features

- Indoor or Outdoor Use
- XLR Balanced Mic or Line Input with Level Control
- 3.5mm Stereo Actively Summed Input with Level Control
- Commercial Grade Bluetooth Input with Level Control
- Wall Plate Mounted, Fits Into Most 2 Gang Boxes
- Uses Industry Standard Cat5/6 Wire
- DC Bus with Peak Indicator
- High Gain Balanced Line Output for Long Distance Applications up to 400ft
- 125Hz /12dB Low Cut Filter for Mic / Line
- Local Mute or VOX Mute
- Remote Trigger Output for Remote Amplifier Turn On
- System Priority Mute Function
- Input Signal & Peak Indicators
- Energy Saving Auto Sleep Mode
- Pairing Connect / Disconnect Switch
- WTSD-COVER Water Resistant Stainless Locking Cover (Optional)
- WTSD-PWHUB Receiver with Limiter and Isolated Relays & Emergency Mute (Optional)
- TSD-DAC2i Analog to Dante® Digital Audio Transmitter (Optional)

## Applications

- Indoor / Outdoor Sports Complexes
- Schools - Gymnasiums, Rally Areas
- Hotels - Ballrooms
- Community Multi-use Facilities
- Industrial Facilities

## General Description

The AtlasIED WTSD (Wall Mount Time Saving Devices) family is a series of analog line level mixers that can be used for indoor or outdoor applications. The WTSD-MIX31 can be converted into Dante® digital audio when used with the optional AtlasIED TSD-DAC2i converter. The WTSDs are uniquely designed to fit into most two gang electrical boxes and utilize industry standard Cat5/6 cable for power, control, and audio. The WTSDs deliver high quality audio hundreds of feet by the use of a low noise / high gain preamp design and balanced audio bus. The proprietary low voltage bus is designed so that up to 3 WTSD mixers can be daisy chained on the same bus cable run while allowing for independent mixer operation. Each WTSD incorporates separate level controls for each input, a Local Mute, System Priority override and an Auto Sleep function.

A basic WTSD system consists of four elements, a WTSD-Mixer, Cat5/6 cable, in-line 24V DC Power Supply and an end point break out board / hub. All four are included with a purchase of a WTSD mixer except for the Cat5/6 cable. A two gang box is all that is needed to complete an installation. There are two versions of the WTSD end points offered. The WTSD-PWBOB comes with each unit and features a balanced audio output with signal, mute, system priority and power LEDs and 12V DC logic output for remote system muting or power sequencing. The WTSD-PWHUB is sold separately and features level control at the system head end, input limiting, isolated relay outputs to trigger system priority muting or system power activation, and an Emergency Mute port. The WTSD features an energy saving Auto Sleep function that can shut off the audio system when not in use after approximately 1 hour. As soon as the WTSD mixer senses an audio signal, the WTSD sends a command down the bus to wake the system up.

The optional WTSD-COVER stainless-steel weather resistant locking security cover with gaskets is available for tamper proof indoor or outdoor applications. The PCBs are weather treated to reduce corrosion in damp environments. With the PCB treatment and the WTSD-COVER accessory, the installation will have protection against the environment and tamper protection for years of continuous operation.

Model WTSD-MIX31 is a 3x1 Mic / Line / Aux / Bluetooth Analog Mixer that features a Balanced Microphone / Line Input and an Auxiliary 3.5mm and Bluetooth summed input with a Balanced Line Output. The WTSD-MIX31 utilizes commercial grade Bluetooth technology featuring ultra low noise levels, long range connectivity, no auto connect and quick disconnect bump feature. Selection between mic or line level for the XLR input is done via front panel switch, accessed thru a pinhole. The high gain Mic inputs incorporate user enabled Phantom Power for condenser microphones and a 125Hz low cut filter to eliminate unwanted low frequency interferences. A Local Mute button mutes output to the bus and a System Priority button can mute building wide BGM systems to isolate the room. An adjustable VOX feature allows for AUX input background audio to be muted when announcing is present. The AUX input is a stereo 3.5mm jack and is electronically summed to achieve the best audio performance. Separate level controls for each input provide control for the audio mix needed.

System	
Type	3x1 Mic / Line, AUX, Bluetooth, Wall Plate Audio Mixer
Inputs	
Input Type	Unbalanced, Qty 1
Music Input	3.5mm Stereo Summed, Front Panel
Impedance	10K $\Omega$
Input Level	316mV (-10dBV) = 2V (+6dBV) Balanced Output, Maximum Input 1.6V (4.1dBV)
Input Type	Unbalanced, Qty 1
Music Input	Bluetooth 4.1 Commercial Grade (Unique Features: Ultra Low Noise, Long Range Connectivity, No Auto Connect and Quick Disconnect Bump Feature)
Impedance	10K $\Omega$
Input Level	1V (0dBV) = 2V (+6dBV) Balanced Output, Maximum Input 1.6V (4.1dBV)
Input Type	Balanced Mic or Line, Selectable via Flush Mount Panel Switch, Qty 1
Connection	XLR Female Socket
Location	Front Panel
Impedance	1.2K $\Omega$ Balanced, 600 $\Omega$ Unbalanced
Phantom	24VDC Defeatable Rear Panel DIP Switch
Low Cut Filter	125Hz / 12dB Defeatable Rear Panel DIP Switch
Line Input Level	500mV (-6dBV) Balanced = 2V (+6dBV) Balanced Output
Maximum Input	4V (+12dBV)
Mic Input Level	1. No Pad Applied = 5mV (-46dB) = 2V (+6dBV) Balanced Output 2. 10dB Pad Applied = 15mV (-36dB) = 2V (+6dBV) Balanced Output 3. Maximum Input 40mV (-27dBV) 4. Mic On Indicator Front Panel, Green
Input Type	Input - WTSD BUS
Connection	RJ45
Location	Rear Panel
Outputs	
Output Type	Output - WTSD BUS
Connection	RJ45
Audio	Analog Balanced Line (Part of BUS)
Logic	Auto Sleep, System Mute, System Priority
Location	Rear Panel
Controls	
Music Level Control	Controls the Levels of Bluetooth & 3.5mm Input, Front Panel, Qty 1 Knob
Mic / Line Level Control	Mixes the Levels of Mic Input or Line, Front Panel, Qty 1 Knob
Mic / Line Switch	Flush Mount Latching Push Switch, Front Panel
System Priority Switch	Latching Push Switch, Front Panel
Local Mute Switch	Latching Push Switch, Front Panel
BT Connect / Disconnect	Used as a Bluetooth Pairing and Override Disconnect
VOX Mute Sens	Trim Adjust for Mic Line Sensitivity, Rear Panel
DIP Switch	4 Position, Phantom, Mic PAD, 125Hz HPF, Auto Sleep Disable, Rear Panel
Indicators	
Mic / Line	Green LED When Line Mode, Front Panel
Phantom	Red LED When in Mic Mode, Front Panel
Sleep	Yellow LED When in Auto Sleep Mode
Power	Blue LED When the DC Bus is Active
Bluetooth	Blue LED When BT is Active

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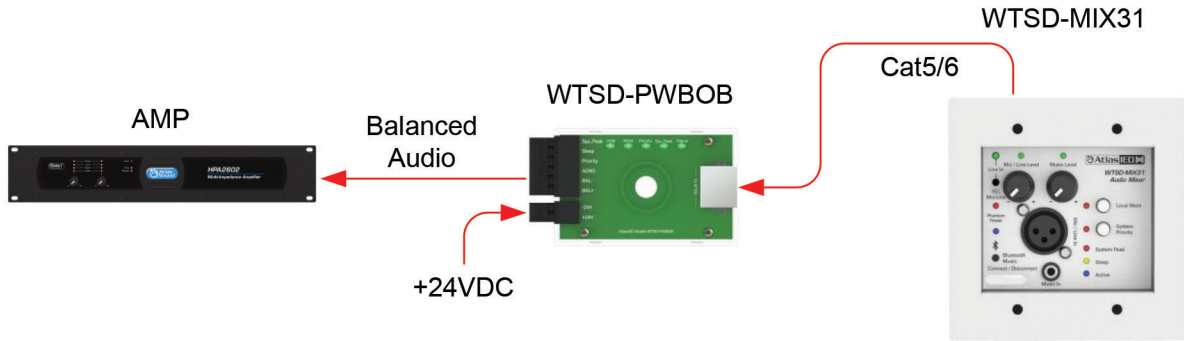
Technical Data	
Frequency Response	20Hz - 20KHz ±1dB
THD	0.06% @ 1KHz
Audio Output	Balanced Line, Max Output 6V (+15dBV)
Logic Output	12V DC
DCV BUS	24V DC
Signal To Noise	Line Input: 81dB @ 100ft Cat5/6 Cable, 77dB @ 400ft Mic Input: 75dB @ 100ft Cat5/6 Cable, 72dB @ 400ft Music Input: 77dB @ 100ft Cat5/6 Cable, 74dB @ 400ft <b>Note:</b> Signal Unit Measurement, Levels Set to Max. Noise Referenced to a 1V / 0dBv Output. Noise Will Vary with Cat5/6 Length.
Cable Distance	Maximum Cable Length is 400ft
Cable Type	Suggested Cable is Cat5/6
Bluetooth	Version 4.1
Mounting	
Wall Controller	Two Gang Electrical Box (Fits Most Standard, See Approved List and Dimensions)
WTSD-PWBOB	Screw (Center 1/4"), Adhesive 3M® Tape
Power Requirements	
Voltage	24V DC
DC Current Draw	110mA (Note 1)
AC Power Supply Consumption Current	52mA (Note 1)
AC Power Supply Consumption Watts	2.5W (Note 1)
BTU	8.5 BTU (Note 1)
Mechanical	
Chassis Finish	White
Chassis Material	Steel
Product Dimensions (HxWxD)	4.37" x 4.34" x 2.5" (111mm x 110mm x 64mm)
Shipping Dimensions (HxWxD)	3.34" x 8.2" x 5.4" (85mm x 209mm x 138mm)
Unit Weight	0.53 lbs. (0.24kg)
Shipping Weight	1.3 lbs. (0.61kg)
Electrical Box Required	2 Gang, Deep Box Required, 2.6" Minimum Depth (Note 2)
Safety & Certifications	
Safety Listing (External Power Supply)	cUL, CE, RoHS, TUV
WTSD-MIX31 Bluetooth	FCC, IC (Canada), Bluetooth Certified
Optional Accessories	
WTSD-COVER	Locking, All Weather Stainless Steel
WTSD-PWHUB	Audio / Power Interface with Level Control, Limiter, Emergency Mute Override, Auto Sleep, System Priority GPIO Ports
TSD-DAC2i	Analog to Dante® Digital Audio Transmitter

**Note 1:** Current draw, watts and BTU is based on 1 WTSD. For each additional WTSD added in series, add the additional draw.  
Example: 2 WTSD = 104mA, 3 WTSD's = 156mA of DC Current draw.

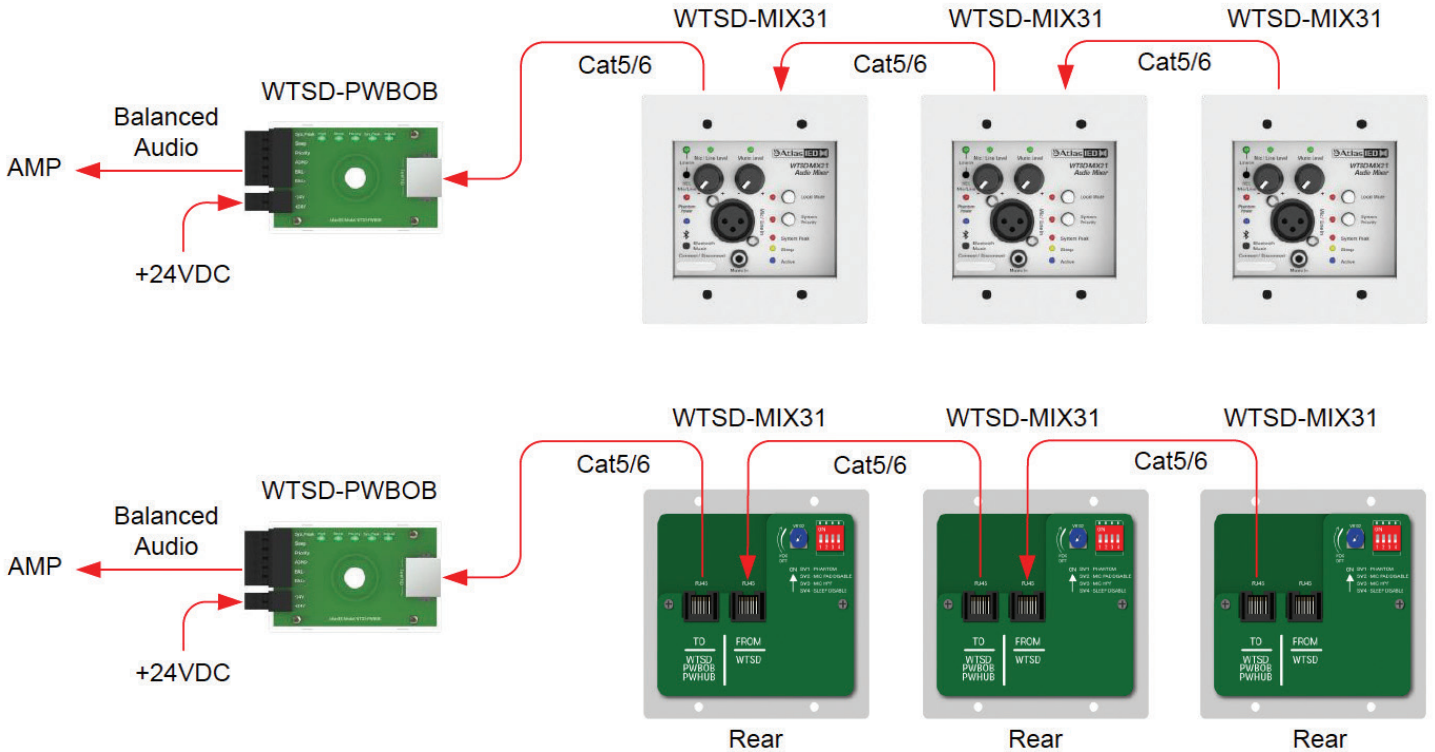
**Note 2:** Electrical box requirements - For additional information refer to manual for recommended box types.

## WTSD-MIX31 Cat5/6 Interface with a PWBOB

**Note:** 400ft max cable distance from WTSD-PWBOB to WTSD-MIX31.

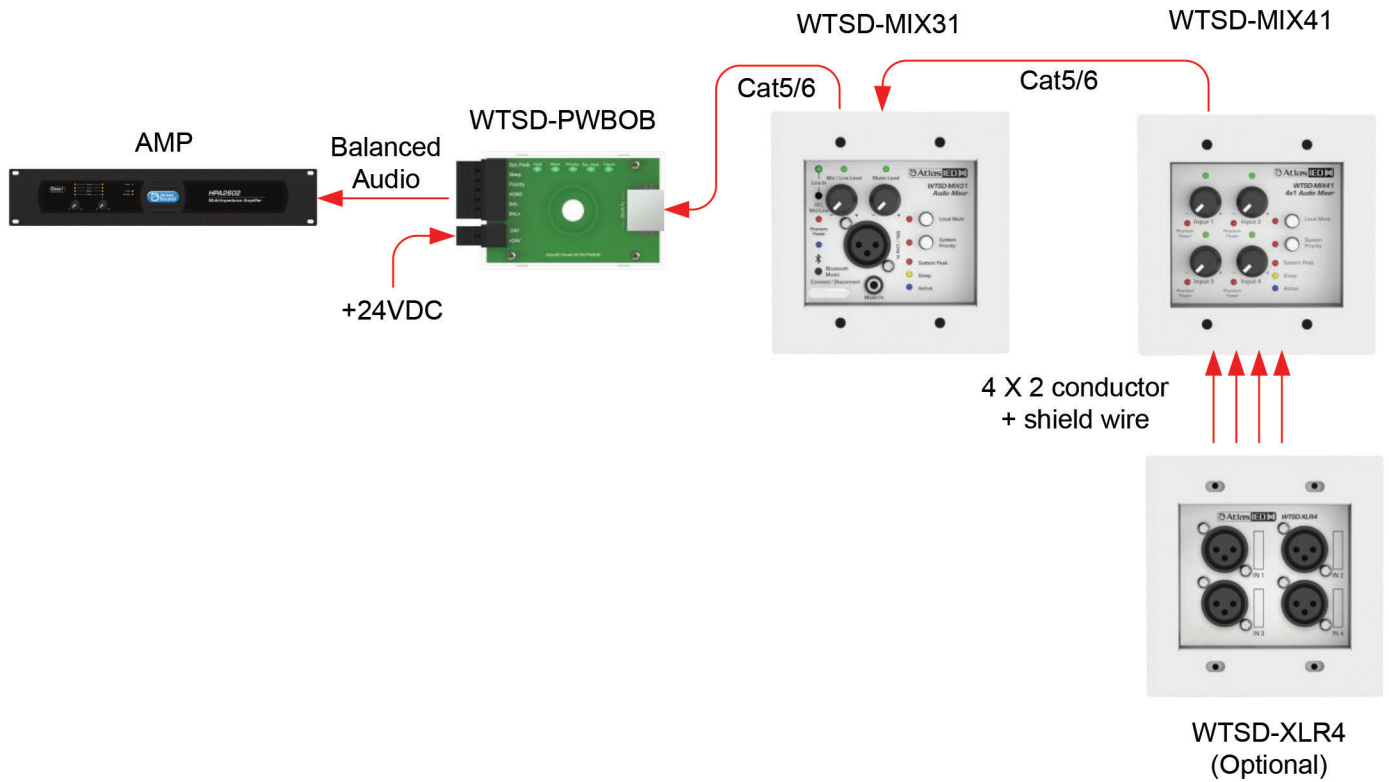


**Note:** Up to three WTSD mixers can be on the same PWBOB bus.

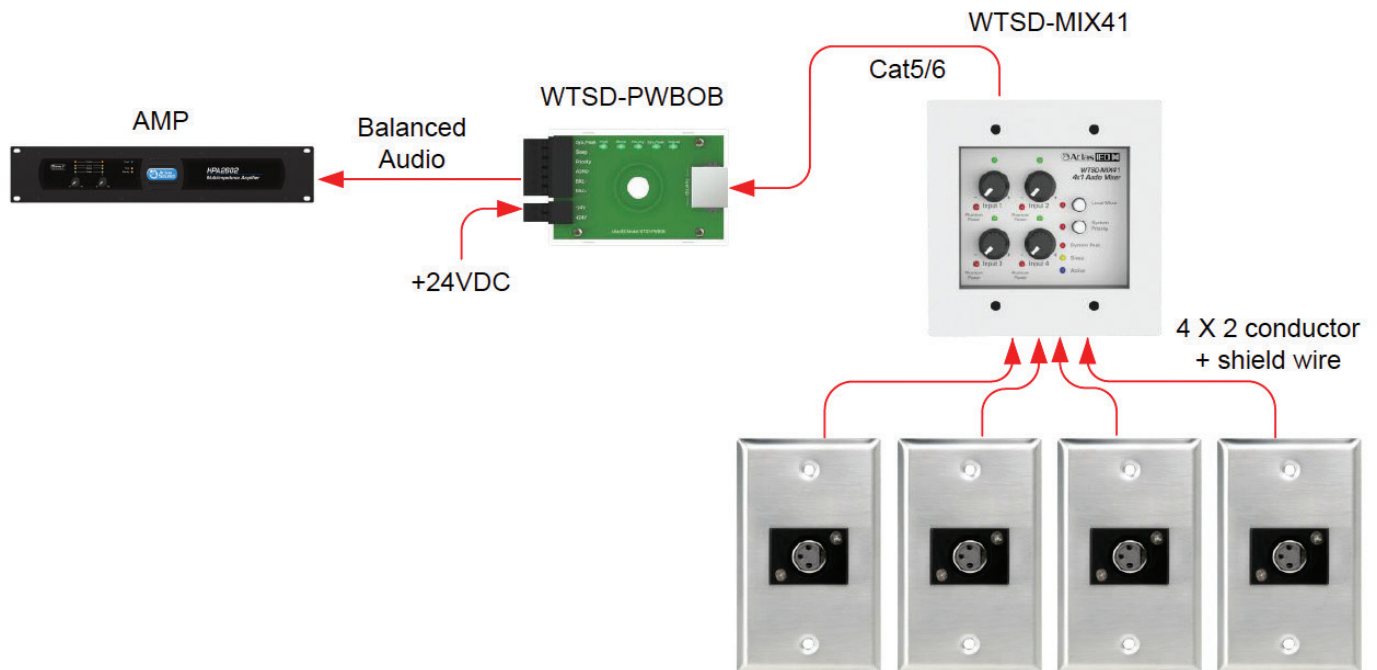


## WTSD-MIX31 In Series with a WTSD-MIX41 on the Same Cat5/6 Bus

**Note:** The WTSD-MIX31 & WTSD-MIX41 can be combined onto the same bus. Maximum bus combine length is 400 ft.



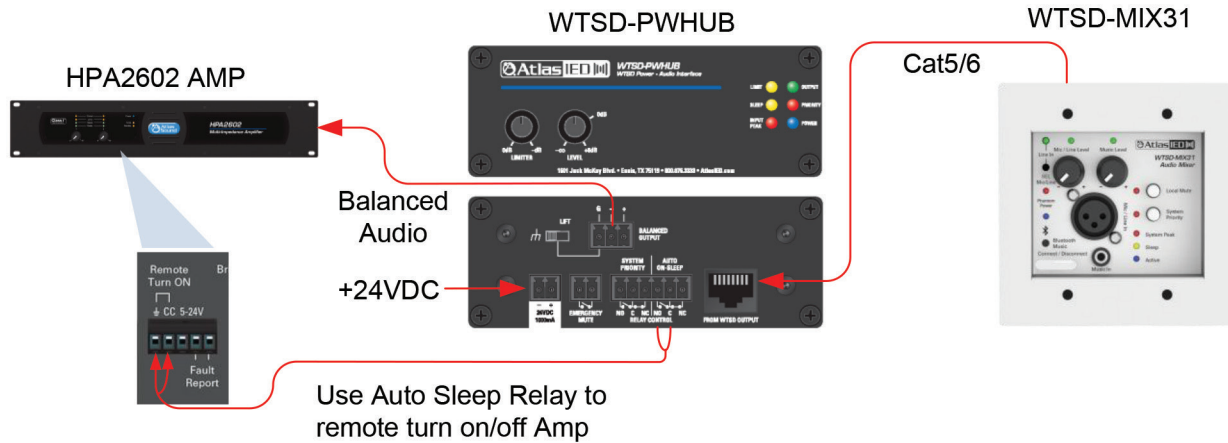
**Note:** The WTSD-MIX41 can use standard XLR plates for separate input locations.



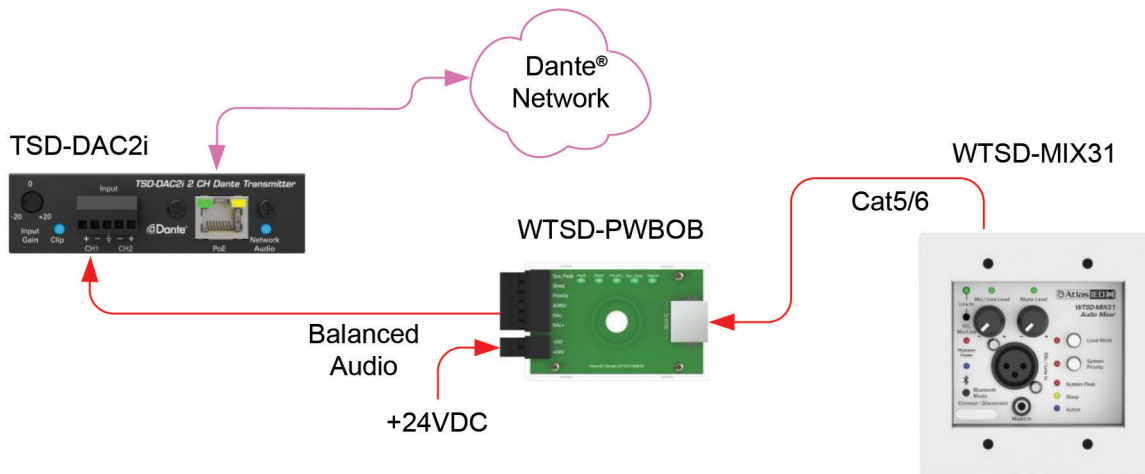


## WTSD-MIX31 with a WTSD-PWHUB

WTSD-PWHUB Auto Sleep Relay controlling power amp turn ON / OFF. **Note:** The advantage using a WTSD-PWHUB over a WTSD-PWBOB is that the WTSD-PWHUB has a variable gain control at the rack, a variable hard limiter, Auto Sleep & System Priority override relay contacts instead of voltage triggers. An Emergency override GPIO Port to interface with fire / evacuation system.

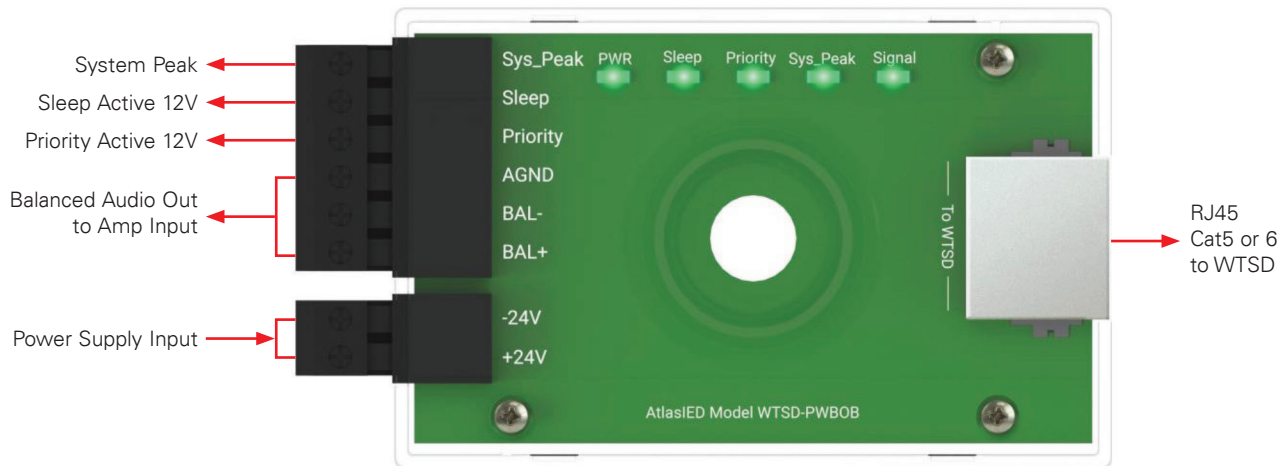


## WTSD-MIX31 With Optional TSD-DAC2i Dante® Network Audio Interface



## WTSD-PWBOB Features - DC Power Injector / Trigger Control / Audio Interface

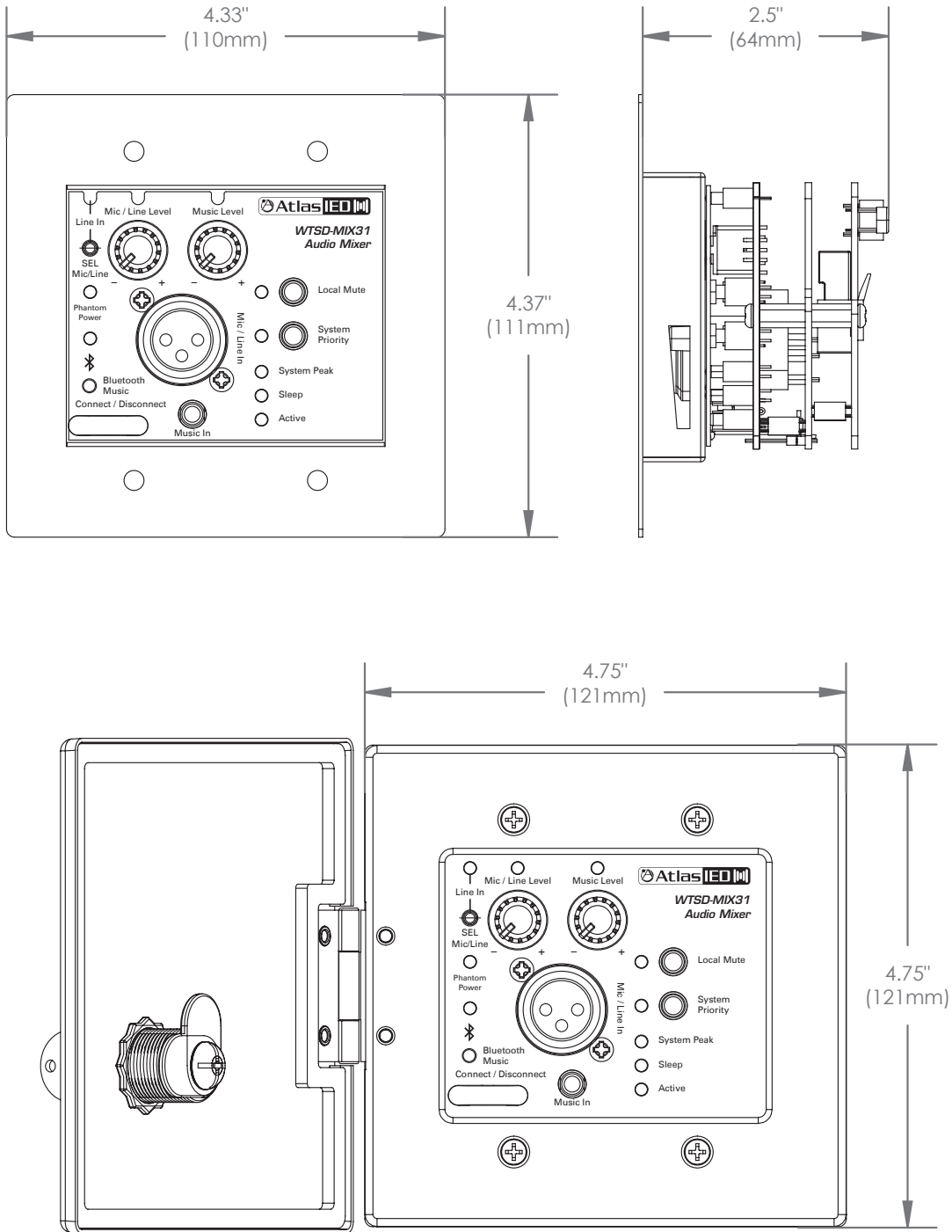
This module is the interface between WTSD mixers and supplies DC power to the WTSD bus.



### Features

- Balanced Audio Output
- Power Supply 24VDC Injector
- System Peak GPIO
- Sleep Mode GPIO
- Priority GPIO
- RJ45 - Cat5 or Cat6 Interconnect
- On Indicator
- LED Indicators for Sleep Mode, Priority, System Peak, Signal Indicator
- Din-rail Mounting

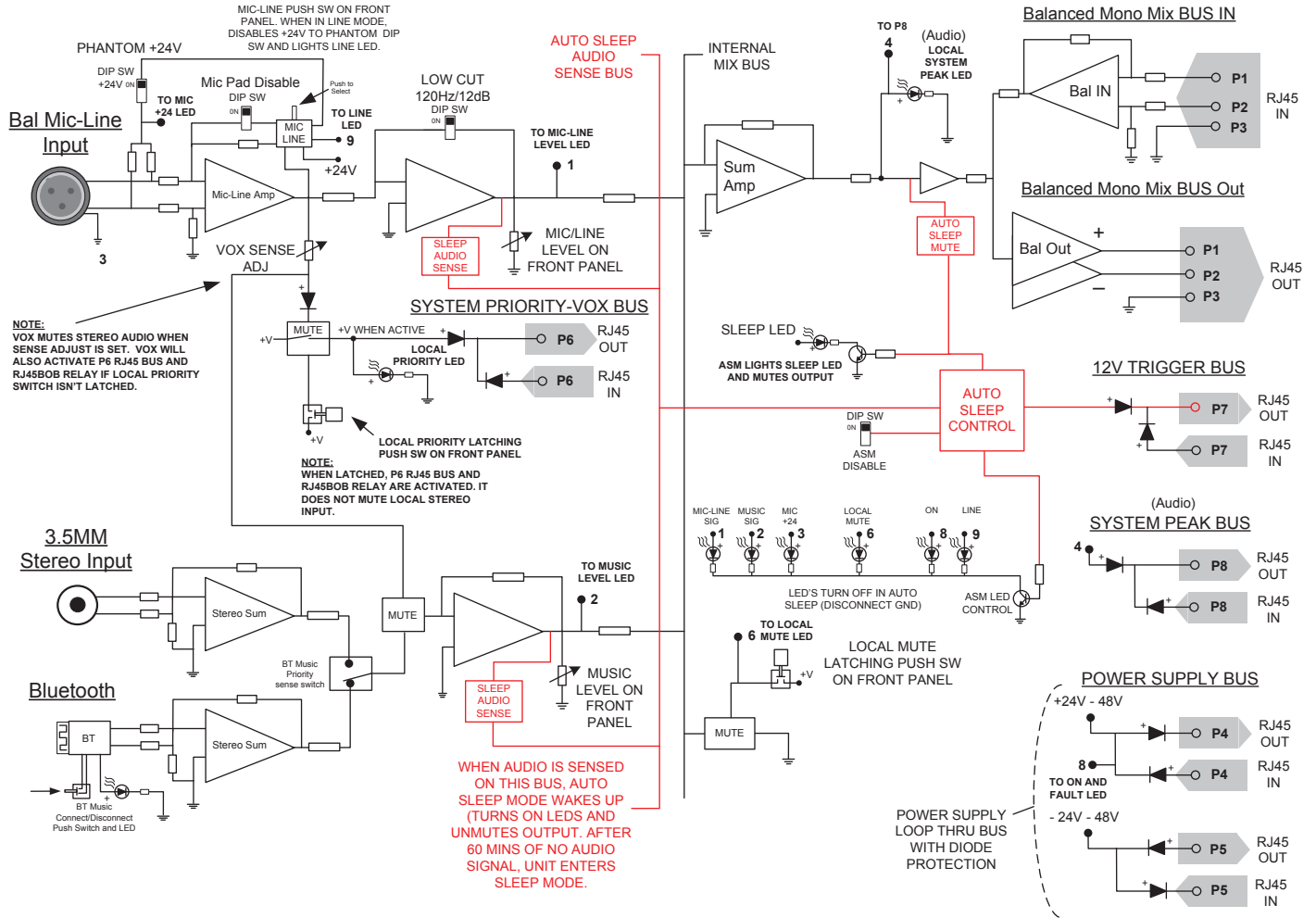
## Dimensional Drawings



Dimensions with Optional WTSD-COVER



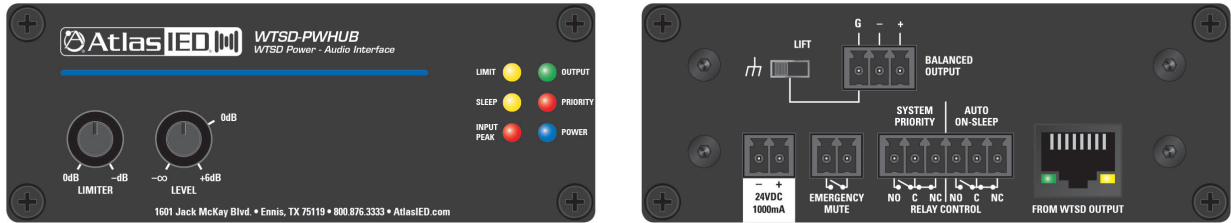
# Block Diagram



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## Accessories

### WTSD-PWHUB - DC Power Injector / Audio Interface / Emergency Override



## Features

- Gain Adjust
- Peak Limiter Adjust
- Bus LED Indicators
- Balanced Audio Out with Ground Lift
- Emergency Override CC Mute
- System Priority Relay
- Auto Sleep Relay
- RJ45 Bus Cat5/6

### TSD-DAC2i – Balanced Analog Audio to Dante® Digital Audio Converter



## Features

- Converts Balanced Analog Audio into Dante® Digital Audio
- Two Balanced Analog Audio Inputs (Can be Used to Connect Two Separate WTSD Zones)
- Input Gain Adjustment -20dB to +20dB
- Input Clip Indicator
- PoE Powered
- Network Audio Indicator

Accessories

WTSD-COVER - Lockable Weather Resistant Stainless Steel Cover



*Audio Control Panel*

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## Architect and Engineer Specifications

The wall mount mixer shall control and mix three input signals and deliver an audio balanced line output to an RJ45 terminated Cat5 or Cat6 cable up to 400 feet to feed a remote head end amplifier.

The wall mount mixer shall have separate level controls, Mic / Line and Aux, with signal LEDs for each input to control the audio mix needed. The wall mount mixer shall have a front panel selectable XLR Balanced Microphone or Line Input control and a 3.5mm Auxiliary stereo summed input that shall overtake the Bluetooth signal when terminated. The Auxiliary input shall have a commercial grade Bluetooth input with a stereo summed input. The Bluetooth shall be connected and disconnected by front panel Pairing button with indication. The Mic input shall have a DIP switch selectable Phantom Power with indication and 125Hz low cut (HPF) filter. The Mic input shall have an adjustable VOX feature to allow for AUX input background music muting when announcing is present. The wall mount mixer shall have a Frequency Response of 20Hz - 20KHz +/- 1dB; THD .06% @1KHz; Signal to Noise: Line to Line -85dBV; Mic to Line -70dBV.

The wall mount mixer shall be capable of being combined with up to three WTSD mixers using the RJ45 Cat5 or Cat6 proprietary bus loop-thru connectors. The output bus shall have a System Peak LED to indicate when the total system mix headroom is exceeded. The wall mount mixer shall have a front panel latching local output Mute with indicator. The wall mount mixer shall have a DIP switch defeatable automatic Sleep function with Active or Sleep front panel indication. The Sleep function shall engage when an audio signal is not present on any local input for approximately one hour.

The wall mount mixer shall include one 24VDC-1A power supply along with one RJ45 break out box (WTSD-PWB0B) that interfaces the power supply and proprietary Cat5 or Cat6 bus to Phoenix balanced audio output. The break out box shall include +12VDC signal outputs with LED indicators for Priority Active, Sleep Active, and System Peak, to use for external device control.

The wall mount mixer shall have dimensions (HxWxD) shall be 4.37" x 4.34" x 2.5" (111mm x 110mm x 64mm) and fit a standard 2 gang wall plate fastener pattern. The wall mount mixer shall have an optional stainless steel all weather locking security cover (WTSD-COVER).

The wall mount mixer shall be the AtlasIED Model WTSD-MIX31.