WTSD-MIX41K
4x1 Mic / Line Mixer
with Optional Dante® Audio
Network Interface

WTSD-MIX41K

Owner's Manual

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Introduction

Model WTSD-MIX41K is a 4x1 mic / line analog mixer that features 4-balanced microphone / line inputs and a balanced line output. Selection between mic or line level is done via DIP switch on the rear panel. The high gain mic inputs incorporate user enabled phantom power for condenser microphones and a 120Hz 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. Separate level controls for each input provide control for the audio mix needed. Input peak and signal indicators give visual reference needed to set the gain structure for maximum performance. Mic / line inputs are via a Phoenix type connector on the rear of the WTSD. The WTSD-MIX41K is designed to be used in conjunction with the AtlasIED WTSD-XLR4 input plate or with other XLR wall plates.

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 the 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 one 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.

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Key Features

- Indoor or Outdoor Use
- XLR Balanced Mic or Line Input with Individual Level Controls
- Wall Plate Mounted, Fits Into Most 2-Gang Boxes
- Uses Industry Standard Cat5/6 Wire
- Linkable with Other WTSD Units on the Same Bus
- High Gain Balanced Line Output for Long Distance Applications up to 400ft
- 120Hz / 12dB Low Cut Filter for Mic / Line
- Local Mute Switch
- Remote Trigger Output for Remote Amplifier Turn On
- System Priority Mute Function
- Input Signal & Peak Indicators
- Energy Saving Auto Sleep Mode
- WTSD-XLR4 XLR Input Plate (Optional)
- 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
- Hotel Ballrooms
- Community Multi-use Facilities
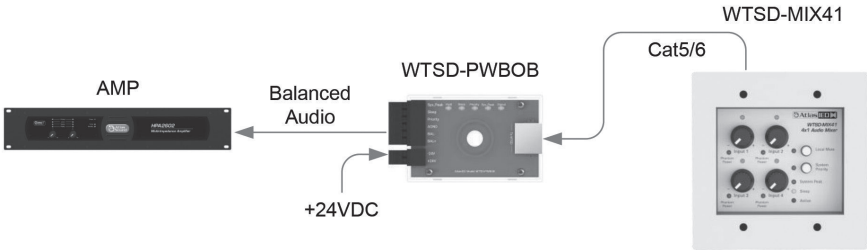- Industrial Facilities

Package Contents

- WTSD-MIX41K, Qty 1
- WTSD-PWBOB, Qty 1
- Inline Power Supply 24VDC 1A, Qty 1
- 6/32 x 1" Pan Head Screws, Qty 4
- RJ45 Shims, Qty 4
- Manual, Qty 1

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WTSD-MIX41K Component Interface
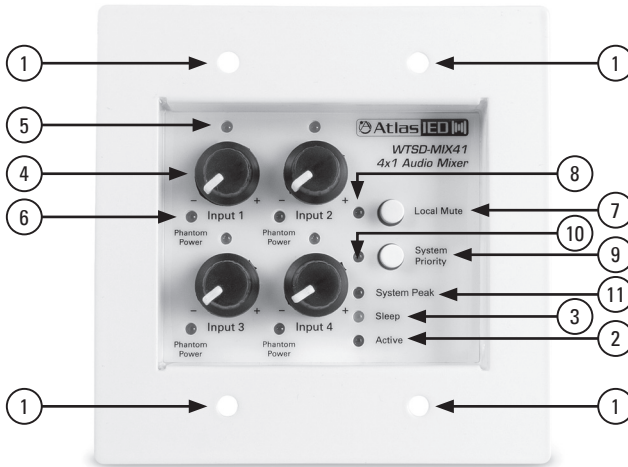
The WTSD-MIX41K connects to the WTSD-PWBOB via Cat5/6 cable. The 24VDC 1A power supply connects to the WTSD-PWBOB. The WTSD-PWBOB connects to the amplifier. **Note:** The max cable distance from WTSD-PWBOB to WTSD-MIX41K is 400ft. The Cat5/6 cable is not included.

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Front Panel

1. Mounting Holes

Fits a 2-gang NEMA electrical box.

2. Active / Power Indicator

Illuminates blue when 24VDC is present.

3. Sleep Indicator

Illuminates yellow when no audio signal is sensed at the WTSD after 1 hour. **Note:** Each WTSD sleep indicator operates independently. Refer to Sleep Mode Feature section for details.

4. Mic / Line Inputs 1-4

Each input has independent controls. Turn the potentiometer clockwise to increase the mic / line input signal and counter-clockwise to decrease it.

5. Mic / Line Signal Indicators Inputs 1-4

Each input has an independent signal indicator that illuminates green when the input signal strength reaches 25mV to verify a signal path. **Note:** The LED will not illuminate if the input level is turned Off or fully counter clockwise.

6. Phantom Power Indicators Inputs 1-4

Each input has an independent phantom power indicator that illuminates red when DIP Switch 1 on the input's control switch is in the Up position. This switch is located on the rear panel.

7. Local Mute Switch

When the local mute switch is pressed, all local input signals will be muted and the local mute indicator will illuminate red.

8. Local Mute Indicator

Illuminates red when the local mute switch is pressed. All local inputs signals will be muted.

9. System Priority Switch

When the system priority switch is pressed, the system priority circuit is activated and sends a command to the WTSD-PWBOB. The system priority port on the WTSD-PWBOB will have 10V DC present to trigger a command on an external product such as muting or turning an amplifier or power strip On or Off. **Note:** A relay is activated when using the WTSD-PWHUB instead of the WTSD-PWBOB. Refer to the WTSD-PWHUB features for more details.

10. System Priority Indicator

Illuminates red when the system priority switch is pressed.

11. System Peak Indicator

Illuminates red when the input signal reaches 3dBV below when signal clipping will occur. Occasional flashing is normal but if this indicator is continuously illuminated, reduce the input level using the input level control on the front panel.

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Rear Panel
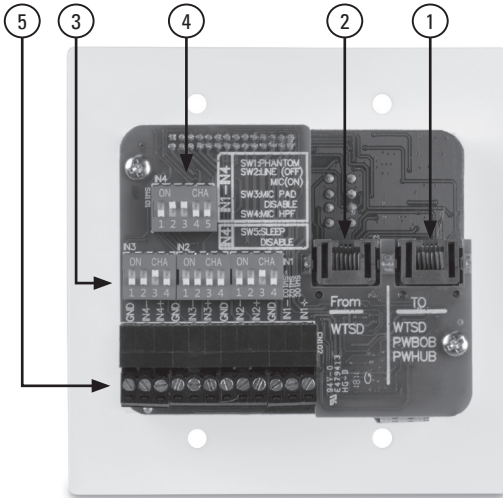
1. RJ45 Input

"To WTSD, PWBOB, PWHUB" – Connect the Cat5/6 cable between the WTSD being installed and a WTSD-PWBOB or WTSD-PWHUB. If there is more than one WTSD in the same BUS loop, this port connects to the second WTSD "From" RJ45 port.

2. RJ45 Output

"From WTSD" – This port should only be connected to a second WTSD port label "To WTSD".

3. Configuration Switches Inputs 1-3

There are 3 separate control switches for inputs 1, 2 and 3. They all have the same functions but are specific to each corresponding input.

• DIP Switch 1 - Phantom - Phantom power is used for condenser mic operation. When in the Up position the phantom power 22VDC is active.

• DIP Switch 2 - Mic / Line Mode Switch - Place the switch in the Down position for line input gain. Place the switch in the Up position for mic input gain.

• DIP Switch 3 - Mic PAD Disable - When in the Up position the mic gain setting will be the most sensitive. When the switch is in the Down position, the 10dB pad is engaged.

• DIP Switch 4 - Mic HPF - Low Cut filter engages at 125Hz with a roll off rate of 12dB per octave on the mic / line input. This filter operates either in the line or mic mode and is available on input 1. Ideal for vocal microphones to reduce low frequency energy and to increase intelligibility. Up position is On.

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4. Input 4 Configuration Switch

• DIP Switch 1 - Phantom - Phantom power is used for condenser mic operation. When in the Up position the phantom power 22VDC is active.

• DIP Switch 2 - Mic / Line Mode Switch - Place the switch in the Down position for line input gain. Place the switch in the Up position for mic input gain.

• DIP Switch 3 - Mic PAD Disable - When in the Up position the mic gain setting will be the most sensitive. When the switch is in the Down position, the 10dB pad is engaged.

• DIP Switch 4 - Mic HPF - Low Cut filter engages at 125Hz with a roll off rate of 12dB per octave on the mic / line input. This filter operates either in the line or mic mode and is available on input 1. Ideal for vocal microphones to reduce low frequency energy and to increase intelligibility. Up position is On.

• DIP Switch 5 - Sleep Disable - When in the Up position the sleep mode will not be engaged. When in the Down position sleep mode will be activated. Refer to the sleep mode section for more detail.
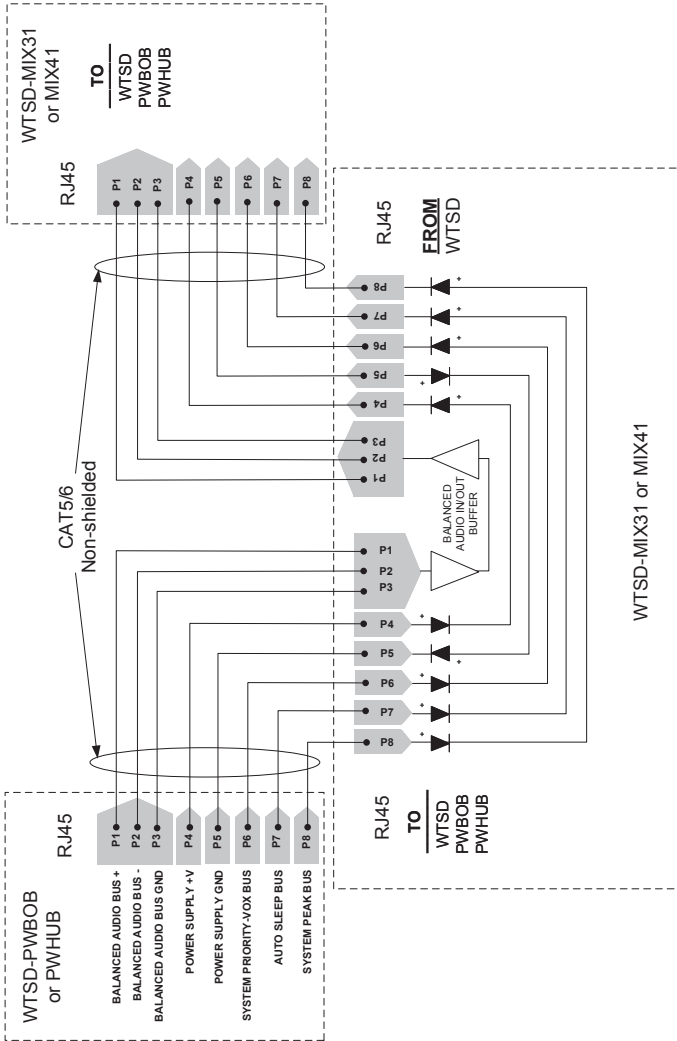
5. Balanced Inputs 1-4

Each input has its own balanced input. Each balanced input utilizes 3 pins of the Phoenix type connector. The PCB labeling will reflect the input it is associated with, ie. IN1+ / IN1– is referenced to input 1, IN2+ / IN2– is referenced to input 2 etc. For mic or line input gain selection refer to the inputs associated DIP switch reference above. **Note:** Unbalanced line inputs can be inserted with proper wire configuration by connecting the Pin 1 (G) and Pin 3 (–) terminals together. See Section connecting unbalanced signals to the WTSD-MIX41K input.

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WTSD BUS Structure

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WTSD-PWBOB Features

The power break out box (PWBOB) is a DC power injector / trigger control / audio interface module. Each WTSD kit comes with a WTSD-PWBOB. This module can be placed in an equipment rack and connected to a WTSD via Cat5/6 cable. The PWBOB serves as the DC power injector to power WTSDs. The PWBOB is also the audio interface between a power amplifier, DSP or mixer. The indicators on the PWBOB are a useful visual guide to see the status of a WTSD that may be located several hundred feet away from the PWBOB in the equipment rack.
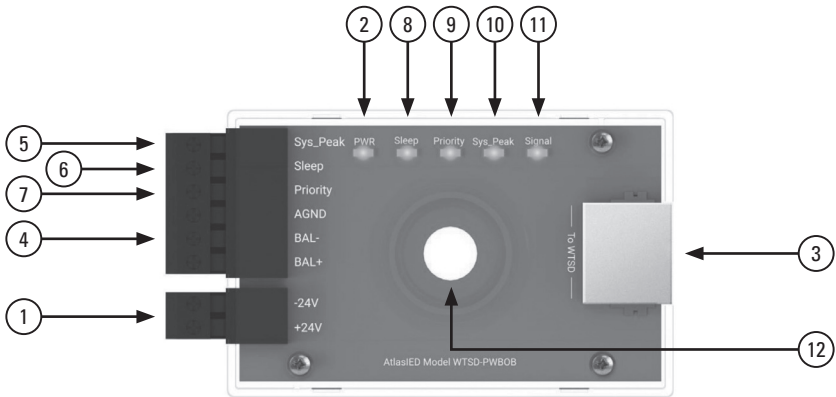
1. Power Supply Input

Connect 24V DC Input. **Note:** Pay attention to supply + & – polarity. The 24VDC 1A power supply that comes with the kit will have the 2-position connector installed on the wires.

2. PWR Indicator

This power indicator will illuminate green when 24V DC power is present at the Power Supply input.

3. RJ45 to WTSD Interface

Connect a Cat5/6 cable to a WTSD RJ45 input marked "TO WTSD – PWBOB, PWHUB"

4. Balanced Audio Output

This 3-position port provides a balanced audio output to connect to an audio mixer or amplifier input. Follow the wiring information for system interface. For unbalanced signals connect the (GND) and the (–) terminals together. A removable 3-position 3.5mm pitch Euro / Phoenix connector is supplied.

5. SYS Peak Logic Port

This logic port will provide a minimum of +1VDC when any of the WTSD audio input signals are too high and the system peak LED is illuminated. Connect this port to an external VCA limiter for additional system protection.

6. Sleep Mode Logic Port

When the WTSD does not sense audio after 60 minutes, the WTSD panel and WTSD-PWBOB sleep LED illuminate and this port logic voltage goes from 0V to +22VDC (use power supply -24VDC (GND). This can be used to power On / Off an amplifier that is equipped with remote turn such as AtlasIED HPA amplifiers or to trigger an AC Mains power strip / sequencer On / Off like the AtlasIED AP-S20RT, AP-ECS3 or AP-ECS204. The +22VDC low current logic voltage allows the sleep mode feature to interface with a wider range of products that have remote turn on capability. This output current is limited to 2mA, protecting any equipment remote turn on interface. If the logic voltage is too high, AtlasIED recommends using the WTSD-PWHUB. **Note:** Most products list a minimum threshold voltage and current required to turn the product On / Off.

7. Priority Logic Port

When a WTSD system priority switch is pressed On, the system priority circuit is activated and sends a command to the system priority logic port on the PWBOB. A 12V DC logic will be present to trigger an external product action item such as muting an audio background system or to turn an amplifier or AC mains power strip On / Off.

8. Sleep Mode Indicator

Illuminates green when no audio signal is sensed at the WTSD after 1 hour. **Note:** Refer to the sleep mode feature section for feature details.

9. Priority Indicator

When a WTSD system priority switch is pressed On, the system priority circuit is activated and sends a command to the WTSD-PWBOB to the LED to illuminate green.

10. SYS Peak Indicator

This indicator illuminates red when WTSD audio input signals are too high triggering the system peak LED.

11. Signal Indicator

This indicator illuminates green when a WTSD input has audio present.

12. Mounting Hole

This mounting hole accepts a $1/4$" bolt to mount to an equipment rack DIN rail.

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Sleep Mode Feature

The WTSD family features an energy saving green mode of operation called Sleep Mode. Sleep mode is activated when a WTSD does not sense any audio present after 60 minutes. After 60 minutes of no audio present the following happens:

1. One WTSD with a WTSD-PWBOB

   A. The WTSD panel sleep LED illuminates yellow.

   B. WTSD audio output is muted, not the BUS.

   C. The PWBOB sleep LED illuminates green.

   D. The PWBOB sleep port logic goes from 0V – 22V. This can be used to power amplifiers On / Off that are equipped with remote turn such as AtlasIED HPA amplifiers or to trigger an AC Mains power strip / sequencer On / Off like the AtlasIED AP-S20RT, AP-ECS3 or AP-ECS204. The 22VDC low current logic voltage allows for the sleep mode feature to interface with a wider range of products that have remote turn on capability. This output current is limited to 2mA, protecting any equipment remote turn on interface. If the logic voltage is too high, AtlasIED recommends using the WTSD-PWHUB. **Note:** Most products list a minimum threshold voltage and current required to turn the product On / Off.

2. Two or three WTSDs with a WTSD-PWBOB and one WTSD receives audio and wakes up.

   A. All WTSD panel sleep indicators illuminate yellow.

   B. One of the WTSDs receives audio and wakes up from sleep mode and the sleep indicator turns Off. The other WSTD sleep indicator(s) remains yellow.

   C. The woke WTSD audio output is unmuted passing audio onto the BUS. The other WTSD(s) remains locally muted.

   D. The WTSD-PWBOB sleep LED is not illuminated.

   E. The WTSD-PWBOB sleep port logic goes from 22V – 0V. This voltage can be used to unmute an audio system or to turn On any equipment such as amplifiers or power strips.

3. One WTSD with a WTSD-PWHUB

   A. The WTSD panel sleep LED illuminates yellow.

   B. WTSD audio output is muted, not the BUS.

   C. The WTSD-PWHUB sleep LED illuminates yellow.

   D. The PWHUB auto sleep port relay is engaged and goes from Normally Closed (NC) to Normally Open (NO) contact position. This contact closure can be used to mute an audio system or to turn Off any equipment such as amplifiers or power strips to help conserve energy.

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4. Two or Three WTSDs with a WTSD-PWHUB and one WTSD receives audio and wakes up.
   A. All WTSD panel sleep indicators illuminate yellow.
   B. One of the WTSDs receives audio and wakes up from sleep mode and the sleep indicator turns Off. The other WSTD Sleep indicator(s) remains yellow.
   C. The woke WTSD audio output is unmuted passing audio onto the BUS. The other WTSD(s) remains locally muted.
   D. The WTSD-PWHUB sleep LED is not illuminated.
   E. The WTSD-PWHUB auto sleep port relay goes from Normally Open (NO) to Normally Close (NC) contact position. This voltage can be used to unmute an audio system or to turn On any equipment such as amplifiers or power strips.

Things to Consider Before Installation

1. Select the correct mounting method. It is critical to fit the WTSD and the wires in the box without causing damage to the WTSD. Refer to the section "Choosing a WTSD Wall Mounting Method" for details on selecting the correct mounting method for the application.
2. Check for local electrical codes for low voltage installation requirements.
3. Do not use shielded Cat5/6 cable. The RJ45 connectors on the WTSD do not have a ground connection for the shield, so it is not necessary. The STP Cat6 can also be less flexible when installing in a back-box.
4. If using a WTSD outdoors, make sure the optional WTSD-COVER is used and do not expose directly to rain or snow. At minimum, place under an eve.

Things to Be Careful of During Installation

1. If using a shallow electrical back-box do not stuff the cables if there is no room. This can damage the WTSD.
2. When running the Cat5/6 cable use standard IT wiring practices. If not, noise interference can happen.
3. Avoid AC mains power. Never run the WTSD BUS cable parallel next to AC 120V – 240V electrical runs and stay clear of AC outlets, or unwanted noise pick up can occur.
4. Using low grade / cost RJ45 connectors can cause an intermittent connection and popping in the audio system may occur.

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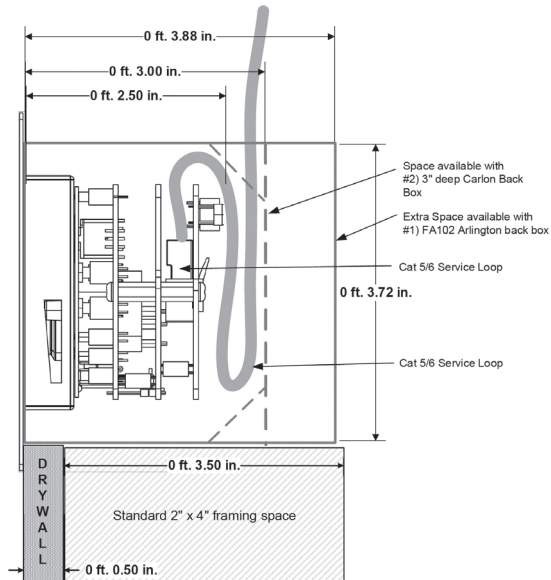## Choosing a WTSD Wall Mounting Method

When selecting the correct installation method of a WTSD it is important to know the state / city electrical codes. The WTSD should not be required to be mounted a in a UL certified electrical box. This is because the WTSD family meet lows voltage electrical codes. AtlasIED suggests following IT wiring practices. Check for local electrical codes and requirements before starting installation. **Note:** It is not advisable to bundle IT-Data infrastructure wiring runs with the WTSD-BUS long runs.

All WTSDs are designed to mount using standard 2-gang (NEMA) size hole spacing and fasteners. Fasteners are included with the WTSDs along with a WTSD-PWBOB and a 24VDC-PSU. If only one WTSD-MIX31K or WTSD-MIX41K is used in a system, then only one Cat5 or 6-RJ45 to RJ45 (T568 non-crossover cable), will be needed to connect the WTSD to the WTSD-PWBOB at the head-end. If other WTSDs are needed in the same system, then a loop thru or 2 x Cat5 or 6 (one IN and one OUT) will be the max amount of wiring inside of a back-box.

The overall depth of the WTSDs are approximately 2.5". The RJ45 connectors plug in vertically on the rear inside of the 2.5" depth (see diagram below). It is always a good practice to include a service loop length of cable to allow removing the wall plate without pulling cable and possibly damaging the WTSD. The diagram shows that 3" depth is the minimum space required to allow for the cable to be looped.

WTSD mounting options are:

1. Electrical 2-gang box
2. Wall mount 2-gang retro fit ring
3. Direct surface mount (this requires a 3.25" W x 2.70" H hole)

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Electrical 2-Gang Box Mounting

When planning to install the WTSD-MIX41K back-box types and depth clearances need to be considered. This document in no way includes all options available that will work for the WTSDs. It is simply a guide to help save time when determining and planning materials for a project.

1. 2-Gang Low Voltage Retro-Fit Back-Box

Where a retro-fit full back-box is required, most deep (3" min or 34 in^3) low voltage retro-fit 2-gang back-boxes will work. Figure 1 is a Carlon 2-gang low voltage retro-fit 3-$^5/_8$" deep box. Figure 2 is a Legrand Pass & Seymour 2-gang low voltage retro-fit 32 in^3, 3" deep back-box.
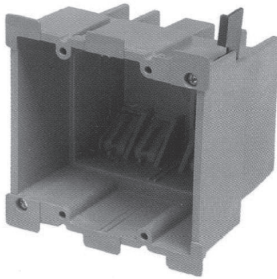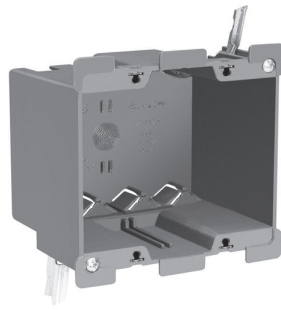

Figure 1

Figure 2

2. 2-Gang Low Voltage New Construction Box

Where Class 2 low voltage wiring is acceptable but new construction prewiring is required, most deep (3" or 34 in^3) low voltage new-work 2-gang back-boxes will work. Figure 3 is an Arlington FA102GC 2-gang adjustable 43.5 in^3, which provides the most space for wiring found by AtlasIED. Figure 4 is a Carlon B234ADJ, 2-gang, 3" depth adjustable back-box. It has a little less space than the Arlington. **Note:** This back-box is easier to use after breaking out the Romax clamp tabs.
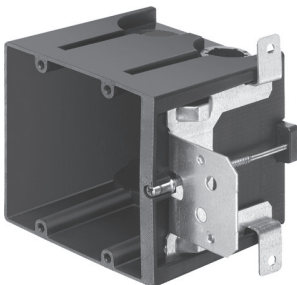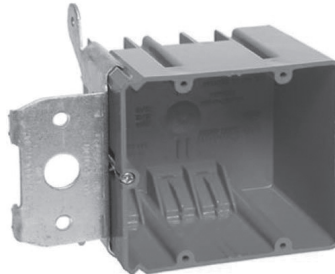

Figure 3

Figure 4

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3. 2-Gang Outdoor Box

Figure 5 is a BELL-5389, 36 in^3 metallic 2-gang box coupled with Figure 6, a Bell-5407-0B 1-$^1/_{32}$" deep weatherproof extension ring that fits on the front and comes with a gasket. Use these when outdoor all-weather protection is required. In this application use a WTSD-COVER over the WTSD to seal the assembly.
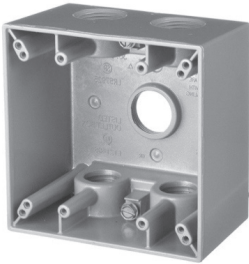

Figure 5

Figure 6

4. 2-Gang Low Voltage New Construction Rings

Where Class 2 low voltage wiring is acceptable but new construction prewiring is required, most low voltage new construction rings will work. Figure 7 is a Thomas & Betts CARSC200ADJ 2-gang box. Figure 8 is a Thomas & Betts CARSC200A box with Smurf Tube mounts. Smurf Tube couplers can be problematic with the WTSDs. If the couplers are used they need to be kept almost flush to the inside of the ring in order to clear WTSDs.
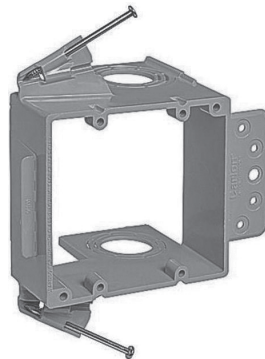

Figure 7

Figure 8

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5. 2-Gang Low Voltage Retro-Fit Ring

Where Class 2 low voltage wiring is acceptable and cut-in retro-fit install is required, most low voltage rings will work. Figure 9 is an Arlington LV2.
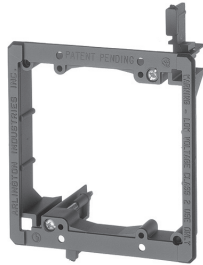

Figure 9

Installing the 24VDC Power Supply

Powering the WTSD BUS requires use of the included external power supply. A UL Certified external 24VDC 1A power supply is supplied to power the WTSD-MIX41K. It is suggested to place the WTSD within 10ft of a 120V AC outlet. If this is not possible, the power supply wire for the 24VDC output can be extended up to 50ft. **Note:** This does not void the warranty as it is the low voltage wire that is being extended. Pay attention to the DCV polarity when reconnecting the removable Phoenix connector. Only use the included approved power supply or failure may occur. Must be installed by a qualified technician. Local electrical codes will apply.

Installing the WTSD Indoors

It is recommended before installing the WTSD to review the local codes for placement of the device. Installing a WTSD does not require using the WTSD-COVER but it is recommended to use the WTSD-COVER for security reasons. Refer to the WTSD-COVER section for more details. For most indoor applications, a low voltage electrical ring is all that is required to mount the WTSD. Using an electrical ring with a WTSD allows for an easy spacious installation.

Installing the WTSD Outdoors

If using a WTSD outdoors, it is recommended to use the optional stainless-steel locking WTSD-COVER. The WTSD needs to be mounted in a location that is under a building overhang or a under weather deflection shield. **Note:** Do not place directly in rain or snow. Using a quality outdoor electrical box is critical to obtaining a weather sealed fit.
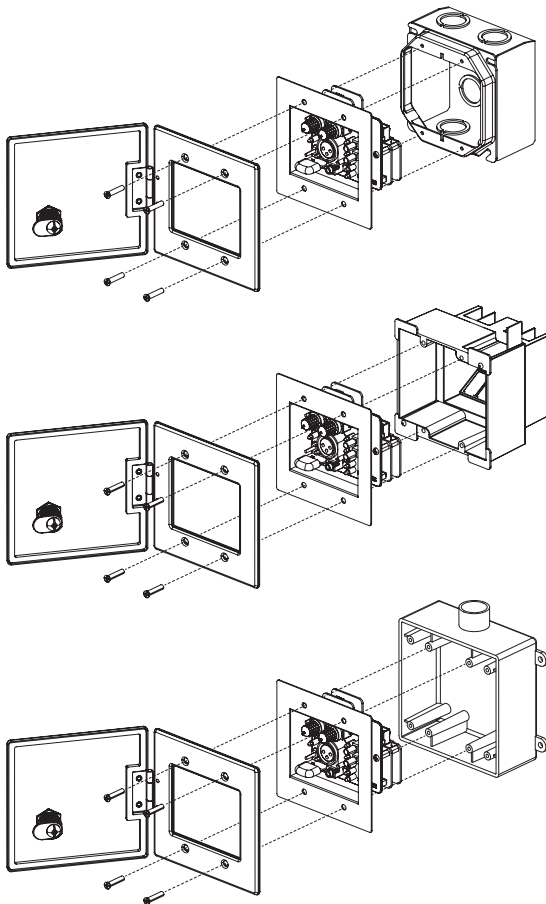
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Using the Optional Weather Resistant WTSD-COVER

The WTSD-COVER optional stainless-steel locking cover can be used in indoor or outdoor applications. It works with most 2-gang electrical outlet boxes. It comes with factory mounted gaskets to seal the cover to the WTSD and electrical box. **Note:** If using outdoors it is recommended to locate the WTSD and WTSD-COVER under a building overhang. Do not place directly in rain or snow.

The WTSD-COVER is supplied with stainless-steel screws and a locking set of keys (2). The gaskets are factory mounted; one on the ring to seal against the WTSD wall-plate, and one on the inside of the door to seal the door when it is closed.
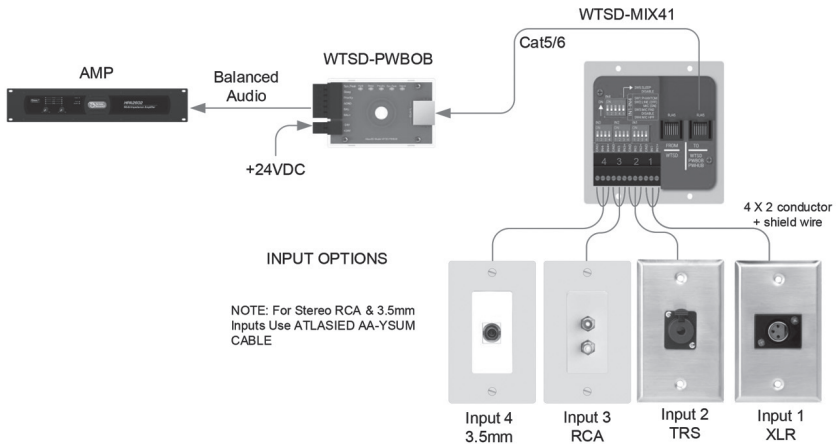
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Using the WTSD-MIX41K with Input Source Wall Plates

The WTSD-MIX41K can support four input sources. The WTSD-MIX41K features a balanced input and does not require the balanced input wall plate or source to be close to the WTSD-MIX41K. A balanced signal can be run several feet away from the mixer. For unbalanced connections or sources, it is good practice to keep unbalanced signals close to the mixer to prevent noise pick up in the cable. **Note:** It important to use small gauge wire sleeving to interface with the WTSD-MIX41K and the mounting box. It is suggested to use flexible 22-gauge shielded wire that is no more than 3mm diameter with the sleeve. If using a mounting ring, wire diameter is not as important.
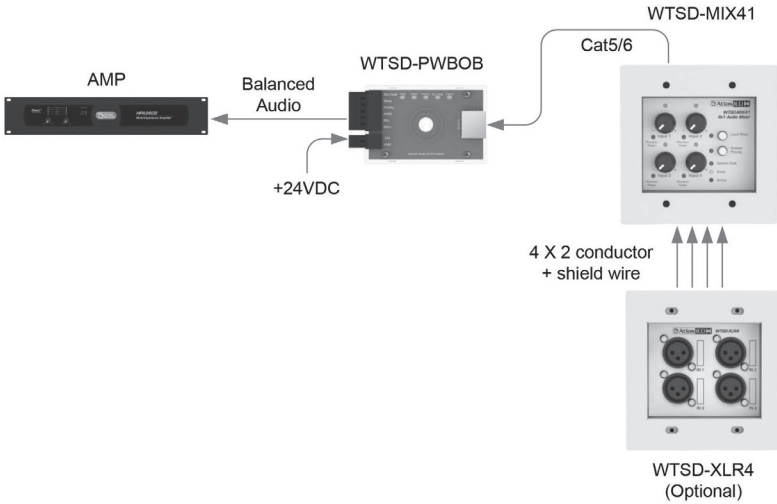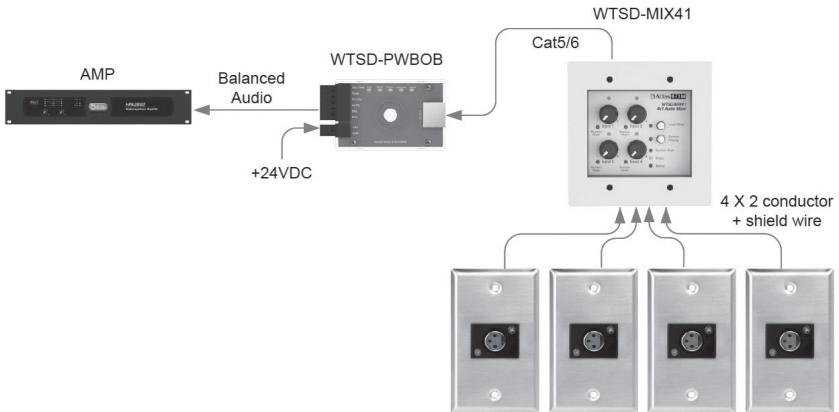
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Connecting a Balanced XLR Wall Plates to the WTSD-MIX41K

The WTSD-XLR4 interface wall plate is designed to mate with the WTSD-MIX41K. The WTSD-XLR4 looks similar to the WTSD-MIX41K and comes with 25ft of wire. This enables all four XLR inputs to be located in the same location. The optional WTSD-COVER can be used to secure the XLR connections when not in use.

The WTSD-MIX41K can also be used with separate XLR wall plates. If the installation requires the source inputs to be located in different locations, the AtlasIED model SG-XLR-F1 wall plate can be used.

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WTSD-MIX41K

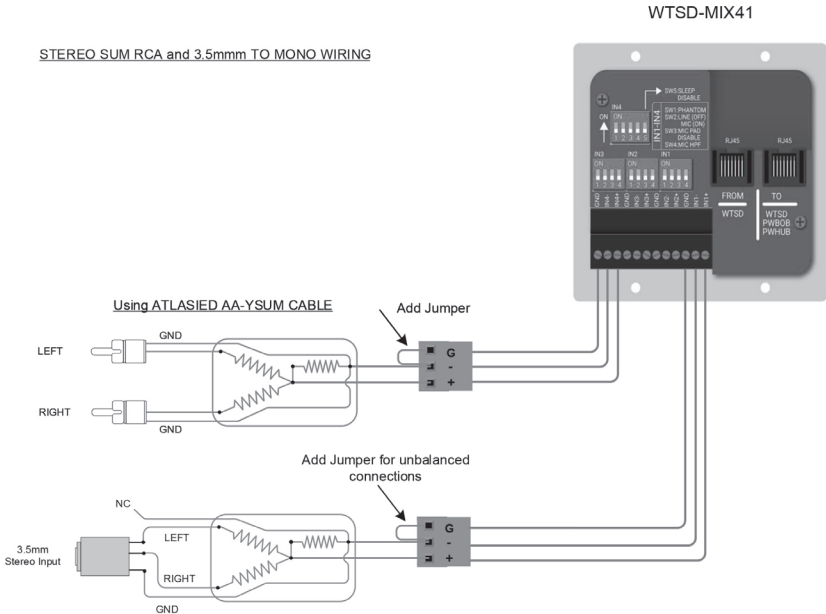### Owner's Manual

Unbalanced Signals With the WTSD-MIX41K

The WTSD-MIX41K has four balanced inputs than can be for either a mic or line level signal. Follow these steps to use an input for an unbalanced music stereo source.

1. Configure the input channel to line mode.
2. Connect the unbalanced signal ground / negative wires to the input with the (–) terminals and the positive signal to the (+) input terminal. Connect the WTSD-MIX41K balanced ground (G) and negative (–) wire together.

Summing Unbalanced Stereo Signals

There are a few ways to use stereo left & right unbalanced sources with the WTSD-MIX41K. The left signal can be applied to an input and the right signal to another input, and the WTSD will sum the signals using the input controls as a left / right mix to the bus. Another way to do this is:

1. Use an aftermarket summing device.
2. Use the AtlasIED AA-YSUM interface cable. Below are illustrations on how to use the AA-YSUM cable with the WTSD-MIX41K.
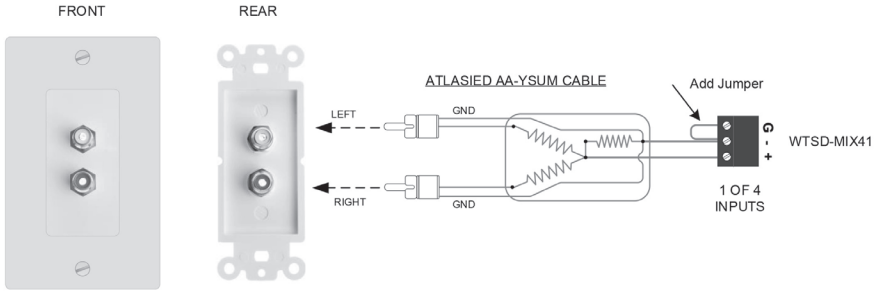

Note: It is ok to modify the AA-YSUM cable end points to meet you wall plate hardware.

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Connecting the AA-YSUM Cable to an RCA Wall Plate

DUAL RCA DECORA WP WITH PASS THRU CONNECTORS

FRONT   REAR

ATLASIED AA-YSUM CABLE   Add Jumper

LEFT   GND   WTSD-MIX41

RIGHT   GND   1 OF 4 INPUTS

Connecting the AA-YSUM Cable to a Stereo 3.5mm Wall Plate

+   +

ADAPTER TO FIT YSUM CABLE

SINGLE KEYSTONE 3.5MM AND DECORA FRAME

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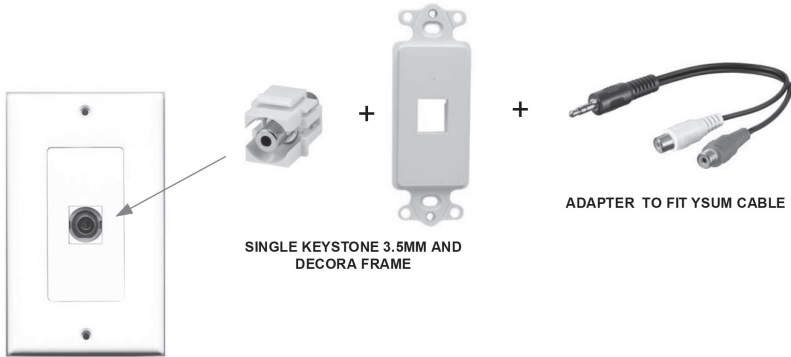
WTSD-MIX41K

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Installing Multiple WTSD Mixers On the Same BUS

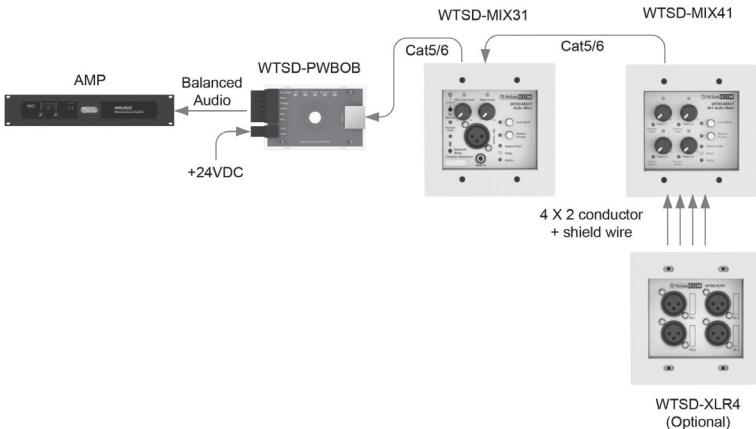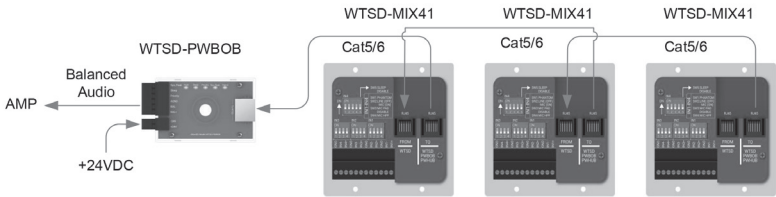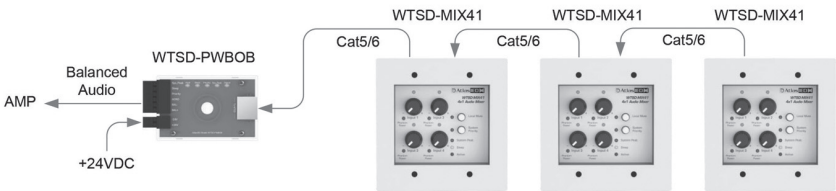The proprietary WTSD low voltage bus is designed so that up to 3 WTSD mixers can be daisy chained on the same bus cable run while allowing for independent mixer operation. Even when daisy chained each WTSD incorporates separate level controls for each input, a local mute, system priority override and an auto sleep function. All WTSD models are interchangeable within the WTSD BUS.

The furthest distance between the sound system front end (WTSD-PWBOB or WTSD-PWHUB) and the furthest WTSD wall mixer is 400ft to remain within the noise level specifications. Pay attention to the daisy chain wire looping. Refer to the diagrams below.
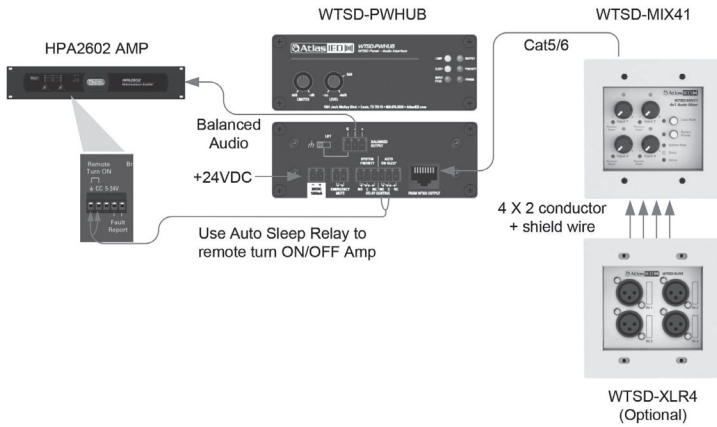
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Using the WTSD-PWHUB (Accessory)

In some applications, the WTSD-PWHUB can be used in place of a WTSD-PWBOB. The advantage of 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 and system priority override relay contacts instead of voltage triggers. It also provides an emergency override GPIO port to interface with fire / evacuation systems. In this example, the WTSD-PWHUB uses the auto sleep relay to turn the main room amplifier On / Off.

Connecting a WTSD to Dante Network

The WTSD analog audio BUS can easily be converted to an Audinate Dante® digital signal by interfacing a WTSD-PWBOB or WTSD-PWHUB with the optional AtlasIED TSD-DAC2i. The PoE powered TSD-DAC2i transceiver has two channels of network audio and will support two separate WTSD systems.
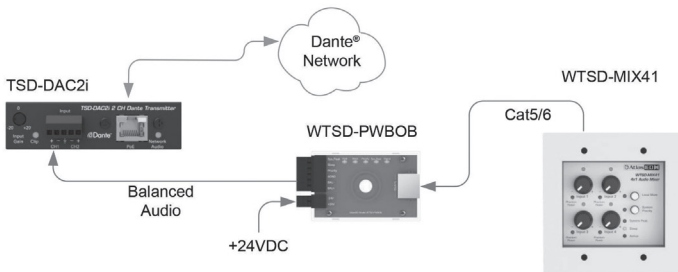
WTSD-MIX41K

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WTSD Product Family

WTSD-MIX31K

WTSD-MIX41K

WTSD-XLR4

WTSD-COVER

WTSD-PWBOB
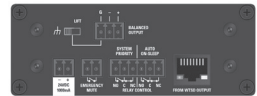
WTSD-PWHUB

Optional Accessories

WTSD-COVER - Lockable Weather Resistant Stainless Steel Cover

RJ45 Shims - There are many manufactures of RJ45 connectors and Ethernet cables that vary in size tolerance. These slight size variations can cause intermittent connectivity issues. This does not happen often, but if encountered, these issues can be easily resolved by using the RJ45 shims to fill the small gap between the RJ45 male connector and the RJ45 PCB mating receptacle. With the RJ45 inserted into the receptacle, slide a shim between the male connector and the PCB mounted receptacle. This is shown in the illustration below. **Note:** All 4 shims are not required to be used.

Insert Shim
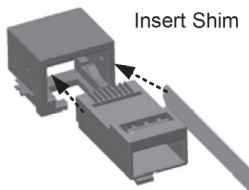
WTSD-MIX41K

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System	
Type	4x1 Mic / Line, Wall Plate Audio Mixer
Inputs	
Input Type	Balanced, Qty 4
Connection	3 Way Phoenix
Location	Rear Panel
Impedance	1.2KΩ Balanced, 600Ω 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 6V (6dBV)
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	Interfaced with the WTSD-PWBOB or WTSD-PWHUB
Connection	RJ45
Audio	Analog Balanced Line (Part of BUS)
Logic	Auto Sleep, System Mute, System Priority
Location	Rear Panel
Controls	
Mic / Line Level Control	Mixes the Levels of Mic Input or Line, Front Panel, Qty 4 Knobs
Mic / Line Switch	DIP Switch, Rear Panel
System Priority Switch	Latching Push Switch, Front Panel
Local Mute Switch	Latching Push Switch, Front Panel
DIP Switch	4 Position, Mic / Line, Phantom, 125Hz HPF, Mic PAD, Rear Panel
Indicators	
Mic / Line	Green LED When Line Mode, Front Panel, Qty 4
Phantom	Red LED When in Mic Mode, Front Panel, Qty 4
Sleep	Yellow LED When in Auto Sleep Mode, Qty 1
Power	Blue LED When the DC Bus is Active, Qty 1

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WTSD-MIX41K

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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 to Line: 85dBV Mic to Line: 70dBV
Cable Distance	Maximum Cable Length is 400ft
Cable Type	Suggested Cable is Cat5/6
Sleep Mode	After 1 Hour with No Audio Activity, Audio BUS is Muted, Sleep BUS 22V Logic is Activated, WTSD Wake Up Voltage Threshold 3mV
VOX Threshold Range	Off to 500mV
Mic / Line Signal Indicator On Threshold	Input Voltage, Mic 300uV No PAD, Mic 2mV with 10dB PAD, Line 30mV
Music Signal Indicator On Threshold	10mV
System Peak Indicator On Threshold	Input Voltage, Mic 20mV No PAD, Mic 110mV with 10dB PAD, Line 2V, Music 3.5mm / Bluetooth 1V
Mic / Line Hi-Pass Filter	12dB per Octave, Butterworth
Ambient Operating Conditions	
Maximum Temperature	104°F / 40°C
Minimum Operating Temperature	14°F / -10°C
Maximum Humidity	90%
Mounting	
Wall Controller	2-Gang Electrical Box (If Mounting in an Electrical Box, a Deep Box with a Minimum of 3" is Required. See Manual for Suggested Mounting Options)
WTSD-PWBOB	Screw (Center $1/4$"), Adhesive 3M® Tape
Power Requirements	
Voltage	24V DC
DC Current Draw	100mA (Note 1)
AC Power Supply Consumption Current	50mA (Note 1)
AC Power Supply Consumption Watts	2.4W (Note 1)
BTU	8.1 BTU (Note 1)

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WTSD-MIX41K

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Ambient Operating Conditions	
Maximum Temperature	104°F / 40°C
Minimum Operating Temperature	14°F / -10°C
Maximum Humidity	90%
Mechanical	
Chassis Finish	White
Chassis Material	Steel
Product Dimensions (HxWxD)	4.37" x 4.34" x 2.31" (111mm x 110mm x 59mm)
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, 3" Minimum Depth (Note 2)
WTSD-PWBOB (Included with WTSD-MIX41K)	
Type	WTSD Interface Module
Input Connection	RJ45 From WTSD BUSS
Input Connection	2 Position Phoenix 3.5mm Pitch, DC Input 24V
Output Connection	6 Position Phoenix 3.5mm Pitch, Balanced Audio Output, System Priority Logic 12VDC, 2mA Sleep Mode Logic 22VDC, 2mA System Peak Logic 1VDC, 2mA
Indicators	Power, Green LED Sleep Mode, Green LED System Priority, Green LED System Peak, Green LED Signal, Green LED
Safety & Certifications	
Safety Listing (External Power Supply)	cUL, CE, RoHS, TUV
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.
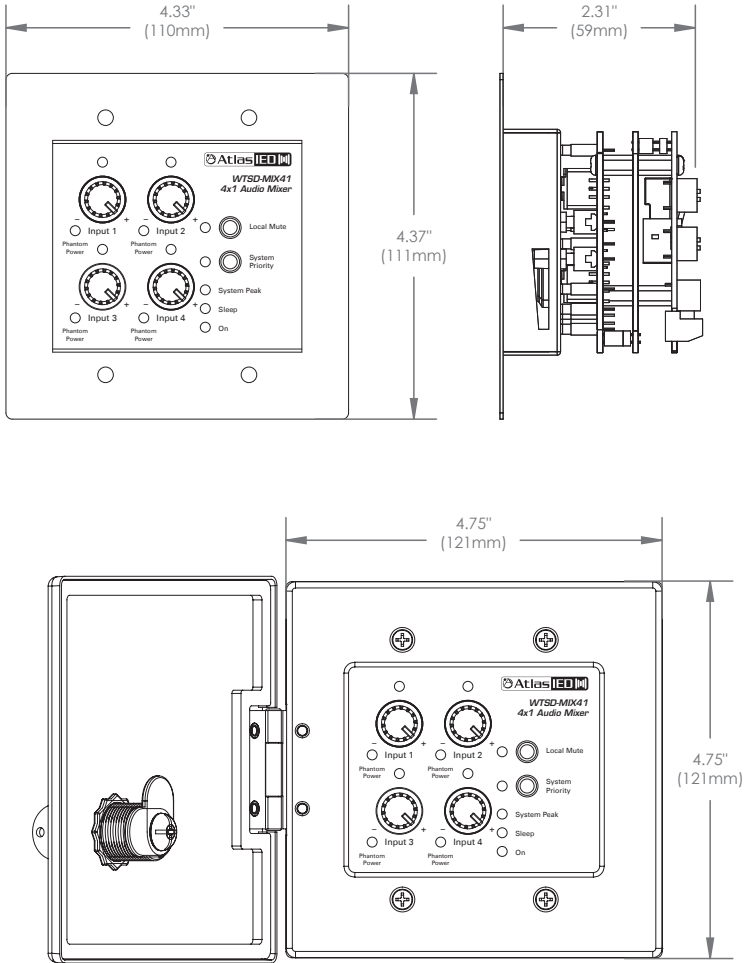Example: 2 WTSD = 104mA, 3 WTSD's = 156mA of DC Current draw.

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

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Block Diagram

WTSD-MIX41K

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Dimensional Drawings

Dimensions with Optional WTSD-COVER

Limited Warranty

All products manufactured by AtlasIED are warranted to the original dealer/installer, industrial or commercial purchaser to be free from defects in material and workmanship and to be in compliance with our published specifications, if any. This warranty shall extend from the date of purchase for a period of three years on all AtlasIED products, including SOUNDOLIER brand, and ATLAS SOUND brand products except as follows: one year on electronics and control systems; one year on replacement parts; and one year on Musician Series stands and related accessories. Additionally, fuses and lamps carry no warranty. AtlasIED will solely at its discretion, replace at no charge or repair free of charge defective parts or products when the product has been applied and used in accordance with our published operation and installation instructions. We will not be responsible for defects caused by improper storage, misuse (including failure to provide reasonable and necessary maintenance), accident, abnormal atmospheres, water immersion, lightning discharge, or malfunctions when products have been modified or operated in excess of rated power, altered, serviced or installed in other than a workman like manner. The original sales invoice should be retained as evidence of purchase under the terms of this warranty. All warranty returns must comply with our returns policy set forth below. When products returned to AtlasIED do not qualify for repair or replacement under our warranty, repairs may be performed at prevailing costs for material and labor unless there is included with the returned product(s) a written request for an estimate of repair costs before any nonwarranty work is performed. In the event of replacement or upon completion of repairs, return shipment will be made with the transportation charges collect.

EXCEPT TO THE EXTENT THAT APPLICABLE LAW PREVENTS THE LIMITATION OF CONSEQUENTIAL DAMAGES FOR PERSONAL INJURY, ATLASIED SHALL NOT BE LIABLE IN TORT OR CONTRACT FOR ANY DIRECT, CONSEQUENTIAL OR INCIDENTAL LOSS OR DAMAGE ARISING OUT OF THE INSTALLATION, USE OR INABILITY TO USE THE PRODUCTS. THE ABOVE WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

AtlasIED does not assume, or does it authorize any other person to assume or extend on its behalf, any other warranty, obligation, or liability. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

Service

Should your WTSD-MIX41K require service, please contact the AtlasIED warranty department at 1-800-876-3333 or atlaswarranty@atlasied.com to obtain an RA number.

AtlasIED Tech Support can be reached at 1-800-876-3333 or www.atlasied.com/support.

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