

# Z2-B & Z4-B

*High Definition Acoustical Systems for Speech Privacy, Paging, and BGM*



## Features

- Amplified Masking Controller
- 2 Speech Privacy Zones (Model Z2-B)
- 4 Speech Privacy Zones (Model Z4-B)
- 30W Output per Distributed Audio Zone
- Out of Box Operational, Featuring AtlasIED Custom Presets
- Enhanced Privacy Mode with Wired and Wireless Signs Available
- Fire Panel Interface for Priority Mute Override
- Seamless Integration with AtlasIED SHS-3T2 Using CAT5e/6 Cabling
- Selectable Mic / Line Input for Paging or Recorded Messaging
- 3.5mm Stereo Summed Auxiliary Input for Background Music
- Bluetooth® Streaming for Background Music
- PC Software to Create and Save Custom Project Files
- System Commissioning Ramp on Each Zone
- iOS® and Android® App for System Tuning and Control
- GPIO Ports for Optional Wireless Speech Enhancement Activation Switch and Sign

## Applications

The Z Series includes a multitude of features enabling it to conform to most design requirements but remains intuitive enough for simple operation and quick installation. The Z Series is designed to be aesthetically pleasing for office or conference room applications seamlessly blending in to a variety of decors. Z Series placement is flexible allowing for mounting on a surface, in the wall, or in an equipment rack.

The Z2-B model delivers quality audio and speech privacy in spaces up to 7000 sq ft with two-zones of control flexibility. The Z4-B model features four-zones of audio with total potential sound masking coverage of up to 14,000 sq ft. This compact integrated solution features out of the box selectable system configuration presets that are accessible through the front panel display and navigation keys. The combination of these features makes for a simple but effective speech privacy and audio control solution.

## General Description

The Z Series is a multi-zone speech privacy system that also supports background music and paging applications. Model Z2-B is a two-zone speech privacy system providing 60-watts of total amplification and model Z4-B is four-zone speech privacy system delivering up to 120-watts of amplification.

The Z Series is an all-in-one solution that not only supplies high quality speech privacy, but also can deliver high quality background music and paging. Mic / line and music inputs each have a five-band equalizer and Hi and Lo pass filters to assure maximum performance. Music inputs incorporate either analog stereo summed inputs or Bluetooth® streaming. For paging applications, the Z Series incorporates a unique hi-Q feedback filter specifically tailored to the vocal frequency range. Output limiters are in the audio chain to protect against system overdrive.

Advanced features of the Z Series include separate analog masking generators per zone, 14-day system commissioning ramp per zone, and PC project design software allows system custom project files to meet installation needs.

The Z Series amplifier output can be wired to any 70v speaker using traditional 2-conductor wiring practices. The Z Series also incorporates a unique speaker wiring interface that mates with the AtlasIED SHS-3T2 speaker using industry standard CAT5e/6 cable. This wiring method makes installation fast and a cost effective for the installer reducing valuable installation time.

For conference room applications where secure speech privacy is required, the Z Series features a Speech Privacy Enhancement mode that can be engaged while a meeting is in progress. Speech Privacy Enhancement mode applies additional acoustical energy to the surrounding environment, increasing the privacy levels for the conference room occupants. These unique secured speech filters have been approved and implemented in many installations around the world including military and government facilities. Activation of the Speech Privacy Enhancement feature is accomplished via hardwired switch, an iOS® or Android® application, or using an optional wireless desktop / wall mount switch. An optional wired or wireless sign is available for a visual aid to notify attendees when Speech Privacy Enhancement is active.

System	Z2-B	Z4-B
Type	60-Watt 2-Zone High Definition Acoustical System	120-Watt 4-Zone High Definition Acoustical System
Power Supply Type	24VDC (2.5A) External Power Supply	24VDC (5A) External Power Supply
Independent Analog Noise Generators	2	4
Independent Zones for Indirect Field Masking, Paging or Background Audio	2	4
Independent Zones for Direct Field Masking	1	2
<b>Output Power (Note 1)</b>		
Total Power & Per Zone Power	Z2 = 60W Total Power, Z4 = 120W Total Power, 30W per Distributed Audio Zone, (Cannot be Bypassed for 8Ω Operation)	
<b>Factory Default Settings (As Shipped)</b>		
Amplifier Configuration	2 Zone (Indirect Field Masking)	4 Zone (Indirect Field Masking)
Level Controls Assignment	Masking Level, Mic / Line, AUX & Bluetooth® Adjustable via Front Panel Navigation	
I/O Matrix	Mic / Line, AUX, Bluetooth® Routed to Zone 1-2 or 1-4	
Level Settings	Master Levels Set to -10dB Masking Set to -20dB Mic / Line Set to Mic -10dBu Aux 3.5mm & Bluetooth® Sensitivity Set to .775mV, Level -10dB TBD, Muted	
Masking Zone DSP Settings	Zones 1-4 Configured the Same, Masking EQ – Set to Preset #1 Factory Default File 1.xx Open Ceiling Curve, Level -20dB, Privacy Level +6dB	
Music Input DSP Settings	Input Sensitivity HPF 120Hz, LPF 15kHz, EQ 5 Bands = 0dB, Limiter = 0dB, Zone Levels -10dB, Paging Mute Receive OFF	
Paging Input DSP Settings	Mic Mode, Phantom Off, VOX Music AUX / BT Mute Setting Off, Paging Feedback Filter Off, HPF 120Hz, LPF 15kHz, EQ 5 Bands = 0dB, Limiter = 0dB, Zone Levels -10	
GPIO Control Ports (Rear Panel)	Enhanced Speech Privacy Engage, Privacy Sign Output, Fault	
<b>Inputs</b>		
Input Quantity	Speech Privacy Engage, Privacy Sign Output, Fault	
Input Type (Line Balanced or Unbalanced)	Mic / Balanced Line selectable, 3 Position PHX 3.5mm pitch. AUX 3.5mm L & R Summed Unbalanced, Bluetooth® (Note: Bluetooth® and AUX 3.5mm Share the same Level control & EQ)	
Input Impedance	40kΩ	
Input Sensitivity	Mic 10mV Line 1V Music (Bluetooth® & AUX 3.5mm) Selectable, 1V, 775mv, 500mV, 316mV	
Maximum Input Level Vrms	Mic 50mV, Line 2V, AUX 2V	
Input Connectors Type	Mic / Line 3.5mm Euro Block, AUX 3.5mm TRS, Bluetooth®	
<b>Level Control</b>		
Front Panel Navigation Keys	Masking Zones 1-4, Paging (Mic / Line), Music, Master Zones 1-4	
App Control	Masking Zones 1-4, Paging (Mic / Line), Music, Master Zones 1-4	
<b>Status Indicators</b>		
Power	Front Panel Display	
Input Signal	No	
Output Signal	No	
Output Fault	Front Panel Display	
Bluetooth® Music	Front Panel LED (Blue)	
<b>Front Panel Features</b>		
Power Switch	Navigation Enter Button (Press and hold for 3 seconds)	
Display	2x 24 Segment, Blue Illumination	
USB	USB Standard	

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Internal Panel Features	
Power Input	24V DC, Z4 = 5A , Z2 = 2.5A, 2 Position, 5.08mm Euro Block, (Phoenix)
AUX Input	3.5mm TRS Jack
Paging (Mic / Line)	3 Position, 3.5mm Euro Block, (Phoenix)
Fault GPIO	Contact Closure (NC), Opens Upon power failure or fault, 2 position Euro block, 3.5mm
Privacy Engage	3 Position, 3.5mm Euro Block, (Phoenix), 10VDC Out, GND, Activation Ports
Amplifier Outputs (Direct Field Masking)	Z2 - Qty 2 RJ45, Z4 - Qty 4 RJ45, Interfaces with SHS-3T2 Speaker
Amplifier Outputs (Indirect Field Masking)	Z2 - Qty 2, Z4 - Qty 4, 2 Position, 5.08mm Euro Block, (Phoenix)
DSP Features and Elements	
Level Control	Paging (Mic / Line), Music (AUX & Bluetooth®), Masking Zone 1,2,3,4, Master Level Zone 1,2,3,4 Enhanced Privacy Level Masking Zone 1,2,3,4
System Commissioning Ramp	Separate Commissioning Ramps for Each Masking Zone Output, Duration Settings 1 -14 Day Selection Made in Preset Software, Front Panel On / Off Selection per Zone, 7 Day Battery Clock Back Up
Masking Noise	Pink and White Noise Analog Generators
Presets	10 Total, Factory Presets <b>Note:</b> Subject to change. Custom Presets can be Created in Z Series Software and Uploaded via USB Port
Hi and Low Pass Filters	Paging (Mic / Line), Music (AUX / BT), Masking Zone 1,2,3,4, 12db Butterworth, Variable Frequency, Enable / Disable Button
EQ	Music (AUX / BT) - 5 Filters (Q1.4, 1.0 BW) +/-12dB, SHS Filter Paging (Mic / Line) - 5 Filters (Q3.25, 0.44 BW), Feedback Filter (Frequency Range 200Hz - 6kHz, Q14,0.10 BW) -20dB Masking Per Zone - 20 Filters (Q4.3, 0.33 BW, 1/3 Octave)
Delay	N/A
Limiter	Music (AUX / BT), Paging (Mic / Line), Threshold 0db to -15dB
DSP Type	24-Bit
Interface Control Ports	
USB	USB for Fat32 Formatted USB Drive
Wireless Sign Connectivity	915MHz with BLE® Control (Defeatable)
Bluetooth®	Bluetooth® Version 4.1 (Defeatable)
GPIO Ports	
Location	Internal
GPIO Ports	Qty 3 Functions
Fault Reporting	Euro Block PHX Type 3.5mm, 2 Pins, Contacts Open with Fault or Power Loss
Speech Privacy or Fire Panel Priority Mute Override Programmable	Euro Block PHX Type 3.5mm, 3 Pins, Ground, Engage, +10VDC Output After C1 is Engaged
Functions	1. Speech Privacy Engage & Privacy Sign Output 2. Fault Reporting
Amplifier Zone Output Terminals (Direct Field Masking)	
Output Connectors Type	RJ45
Number of Terminals	Qty 4 RJ45 (32 Pins)
Output Connectors Fixed or Removable	Fixed
Wire Type Required	CATe 5,6
Amplifier Zone Output Terminals (Indirect Field Masking)	
Output Connectors Type	5.08mm Euro Block, (Phoenix)
Number of Terminals	Z2-B: 4 (2 Amplifier Channels), Z4-B: 8 (4 Amplifier Channels)
Output Connectors Fixed or Removable	Removable
Wire Size	14 AWG
Terminal Spacing	5.08mm
Current Rating	12A per Terminal
Wire Class Required	Class 2
Cooling	
Convection	Yes

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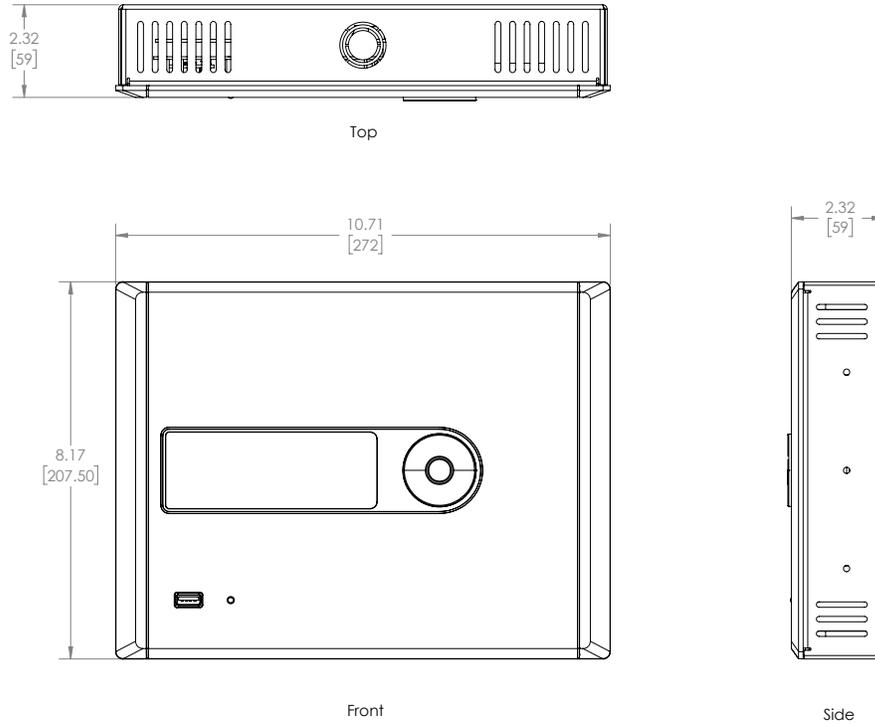
Electrical Specifications (General)			
Masking Generator	One Per Amplifier Channel		
Total Harmonic Distortion 1kHz and 1dB Below Rated Power	Typical, 0.2%		
Frequency Response	50Hz - 15kHz (DSP Filters Set to Flat)		
Signal to Noise Ratio	>90dB Below Rated Output (A-weighted)		
Damping Factor (20Hz to 400Hz)	N/A		
Slew Rate	N/A		
Crosstalk	69dB @ 1kHz		
Protection	Hi / Low Input Voltage, Thermal, Short, Over Current		
Max Output Peak Voltage	100V (Meets Class 2 Low Voltage Wire Codes)		
File Storage	Recall or Save to Device, Recall or Save to USB Drive		
AC Power Requirements			
Operating Voltage	External Supply 110V-230V, 50/60Hz		
Mains Interface	IEC C7 Receptacle to Inline Power Supply, To Amp - 24V DC Output 2 Position, 5.08mm Euro Block, (Phoenix)		
Power Cord (Included)	1.2m, NEMA 1-15P Standard USA 2 Pin Plug to IEC C7 Receptacle with 18/2 SPT-2 Black Rated up to 7A 125V to 240V		
Minimum Power-Up Voltage	100V		
Maximum Operating Voltage	240V		
Recommended AC Mains Current Requirements	Z2 = 3A, Z4 = 6A		
Power Consumption and Current Draw (Note 4)	Amps Z2/Z4	Watts Z2/Z4	BTU Z2/Z4
Standby / APD Mode	N/A	N/A	N/A
Idle Active / On	120mA / 160mA	6.7W / 10.2W	22.6 BTU / 34.8 BTU
Average Power, All Channels Driven (Note 2)	510mA / 940mA	32W / 65W	109 BTU / 221 BTU
Max Power, All Channels Driven (Note 3)	2.4A / 4.8A	238W / 433W	812 BTU / 1477 BTU
Dimensions and Weight			
Rack Mount Requirements	5RU, 19" ZSERIES-RMK		
Dimensions - Unit (without Dress Ring)	W 10.7" x H 8.17" x D 2.32" (272mm x 208mm x 59mm)		
Dimensions - Shipping	W 14" x H 13.5" x D 5" (356mm x 343mm x 127mm)		
Weight - Unit	Z2 - 7.7lb (2.8kg), Z4 - 10lb (3.77kg)		
Weight - Shipping	Z2 - 10.7lb (4.2kg), Z4 - 13lb (5.17kg) (Preliminary)		
Agency Approvals			
North America Agency	UL, TUV, GMA (Power Supply)		
FCC Class A (Conducted & Radiated Emissions)	Part 15 of the FCC Rules		
RoHS / WEEE Compliant	Yes		
CE	Yes, Power Supply		
Optional Accessories			
ASP-MG2240S	Wired Enhanced Speech Privacy Sign		
Z-SIGN	Wireless Enhanced Speech Privacy Sign		
ZSERIES-RMK	5RU Rack Mount Kit		

**NOTES:**

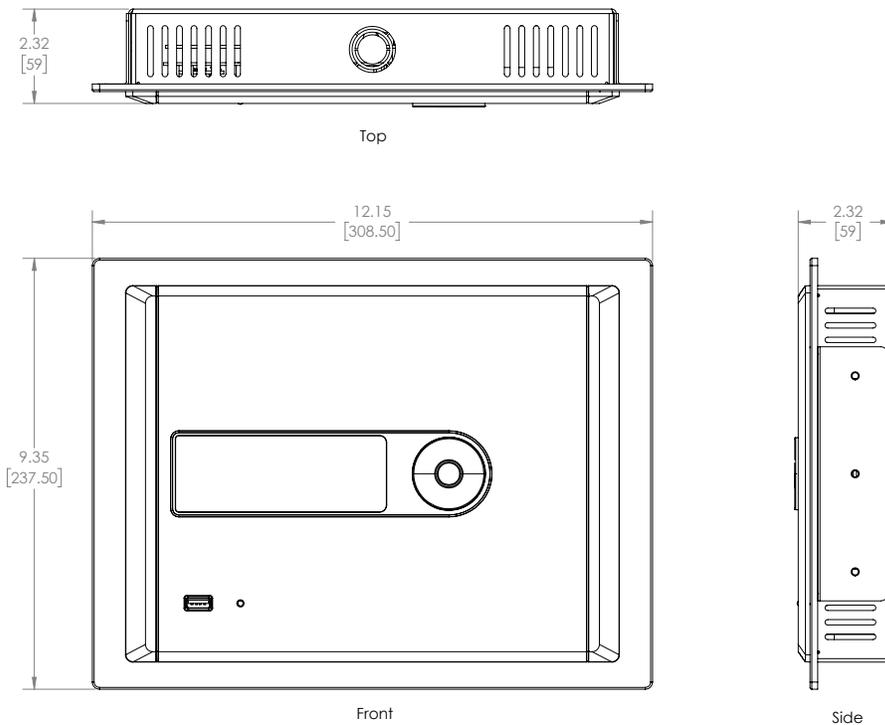
- Power level is measured as 1Hz Sine wave signal burst of 20 cycles (20mS) at 1% THD+N, followed by 480 cycles of a 1kHz sine wave at 10% of the max power, 30W per zone @ 140Ω load. Other power measurements are available upon requests.
- Average Power is defined as Pink Noise input signal applied to achieve 1/4 of the power rating.
- Max Power is defined as 1 KHz input signal applied to achieve the maximum power output before clipping into a specified load.
- BTU is calculated by the AC Mains Power consumed minus the total power output measured at the specified load and condition, multiplied by 3.412.  
Example: 785 Watts from the AC Source - 600 Watts Total Output power = 185 x 3.412 = 631 BTU

## Dimensional Drawings

### Surface Mount Configuration

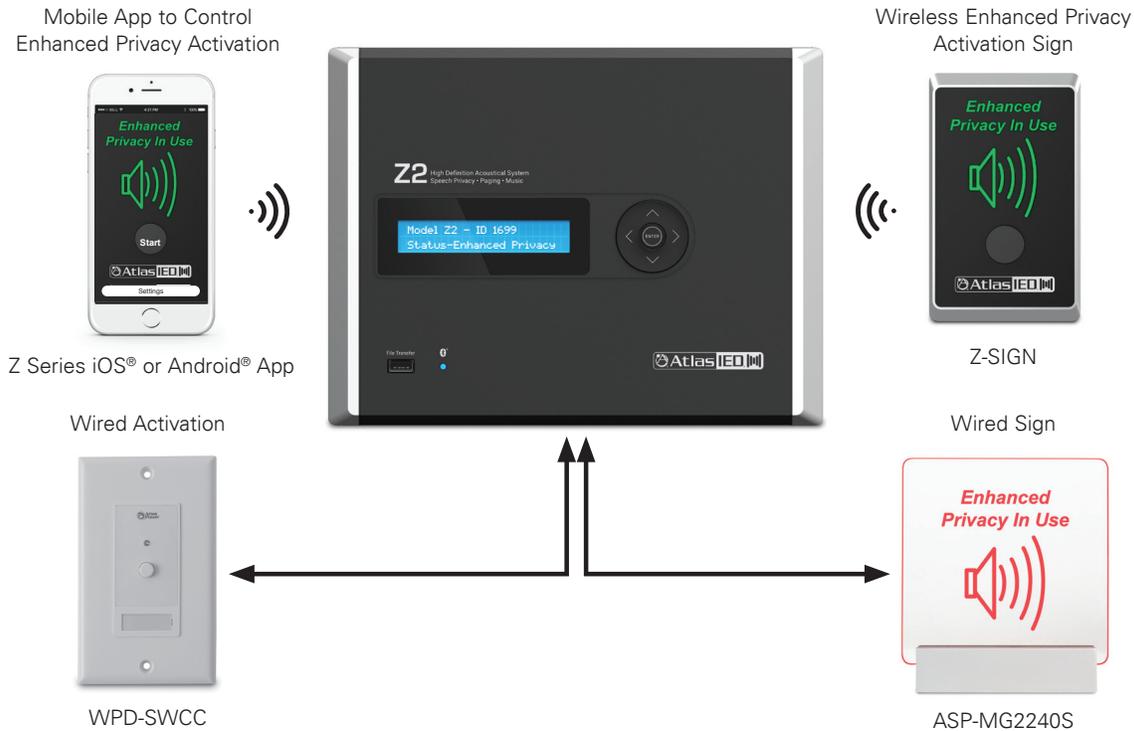


### Flush Mount Configuration



## Optional Accessories

**Note:** All series accessories can be used together.



- A. **ASP-MG2240S** - The Enhanced Privacy In Use wired sign is used to inform the public that a sound masking system is in use for their security while having a private conversation. This wired privacy sign is designed to be integrated with the Z Series. The ASP-MG2240S is a 10V DC voltage powered acrylic LED diffusion type sign featuring a multi-functional mount with a polished aluminum finish. The ASP-MG2240S can be mounted to a wall or to a single gang electrical box. The mounting hardware is included to support most installation requirements.
- B. **WPD-SWCC** - A décora style wall plate featuring a push button switch that activates/deactivates a hard latch contact closure. This product is designed to be used with compatible AtlasIED products that are designed to be remotely activated. The unit is constructed of durable ABS material and includes a red LED system status indicator as well as a removable label guard for easy and clean designation of switch function. The unit has a four-conductor interface connection designed to work with the included Phoenix style connector. This unit can function in remote activation scenarios up to 200 feet from the controlled unit using 22-gauge wire.
- C. **Z-SIGN** - The AtlasIED Z-SIGN Enhanced Privacy sign is used to inform the public that a sound masking system is in use for their security while having a private conversation. This wireless privacy sign is designed to be integrated with the AtlasIED Z Series high definition acoustical systems. The Z Series sign works in conjunction with models Z2-B & Z4-B base units. The Z-SIGN is a wireless transceiver that can be used to activate the System's Enhanced Speech Privacy Mode and illuminate indicating the room is secure. The Z-SIGN utilizes 915MHz wireless technology for communication to the Z2 & Z4 base units. This technology assures communication from the sign to the base unit through walls and up to 100ft apart. The Z-SIGN also utilizes BLE® technology for the Z-SIGN to communicate to a phone or tablet via iOS or Android App. This App allows for the customer to engage speech privacy enhancement, plus it allows for the installer to adjust the zone levels remotely during system setup. If using an App, the Z Series features an Enhanced Speech Privacy switch to allow for the sign to set on a desk. The Z Series utilizes high quality rechargeable batteries to assure maximum usage between charges. The Z-SIGN can also be powered utilizing the included power supply. Refer to the Z-SIGN data sheet for more information.
- D. **Z Series App for iOS® or Android®** - The Z Series App can be used to engage the Z2 or Z4 into the Enhanced Speech Privacy Mode. It can also be used to remotely adjust music, paging and masking levels per zone. Each input can be tuned to meet each zone's acoustical requirements.
- The App uses the smartphone Bluetooth® BLE® technology to connect to the Z2 / Z4 Base unit. The distance of the Bluetooth® transmission is around 100 ft line of site. To avoid dropouts, it is recommended to be in the same room as the Z2 / Z4 base units and stay within 50ft.
  - If longer distance is required a Z-SIGN can be used to act as a relay-bridge between the phone App and the Z2 / Z4 base units. The phone connects to the Z-SIGN via Bluetooth® BLE® and the Z-SIGN transmits the commands to and from the Z2 / Z4 Base units via UHF frequency. The UHF allows for much greater transmission distances compared to Bluetooth®. It is common to get command transmission distances over 100 ft but will vary depending on the building construction and number of walls it has to go through.

## Recommend Speakers

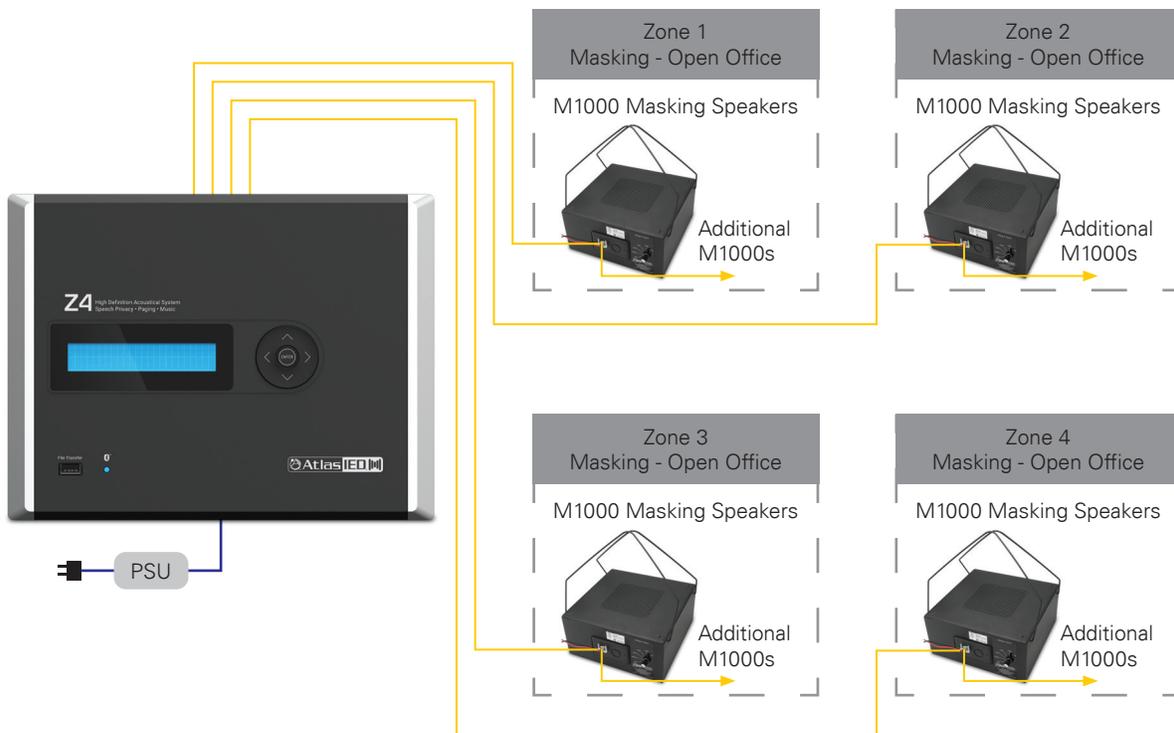
### Near Field Masking: SHS-3T2

The AtlasIED SHS-3T2 is ideally suited for the Z2 or Z4 for applications that require down firing speaker placement. Speaker wiring from a Z Series amplifier to a SHS-3T2 utilizes industry standard CAT5e/6 cable and RJ45 connectors. The SHS-3T2 features an input and output daisy chaining wiring system that makes a system installation fast, accurate, and simplified. When using the Direct Field Masking method, the Z2 provides 1 zone and the Z4 provides 2 independent zones.



### Indirect Field Masking: M1000

The AtlasIED M1000 is ideally suited for applications that are open ceiling or require above ceiling grid speaker placement. The M1000 pairs well with a Z Series amplifier. The M1000 is a 70V speaker utilizing traditional 2 conductor wiring connecting to the Z Series Euro block amplifier terminals. When using the Indirect Field Masking method, the Z2 provides 2 independent zones and the Z4 provides 4 zones.



## Architect and Engineer Specifications

The AtlasIED Model Z2-B & Z4-B shall be an amplified multi zone Speech Privacy Sound Masking, paging BGM system. The Z Series shall provide one balanced Mic / Line, AUX L & R Summed Unbalanced inputs and Bluetooth® streaming input. The Z Series shall incorporate BLE® and 900MHz wireless technology for remote indication and control. The Z2-B shall provide two independent analog noise generators with separate assignable system commission ramps for Speech Privacy. The Z2-B shall deliver 60-Watts of power into a 70V system. The Z4-B shall provide four independent analog noise generators with separate assignable system commission ramps for Speech Privacy. The Z4-B shall deliver 120-Watts of power into a 70V system.

The Z Series shall incorporate a front panel digital display with password protected navigational keys to access and adjust factory preset project files. Project files included shall be for speech privacy masking applications for Open Ceiling, Above Ceiling, Below Floor, Direct Field, Indirect Field and Enhanced Speech Privacy. The Z Series shall have PC Based software to create custom project files to upload via USB drive.

The Z Series shall include an "Enhanced Privacy" system for high security applications. Enhanced Privacy activation shall be done remotely via hardwired contact closure, iOS® / Android® App or via the optional AtlasIED wireless Z-SIGN. The Z Series shall transmit when Speech Privacy is engaged via hard wired 10VDC output to power an optional Enhanced Privacy sign or wirelessly transmit to the optional Z-SIGN. Enhanced Privacy configuration settings shall be adjustable via the front panel navigation keys.

The Z Series shall support paging, message playback or BGM audio. The Z Series Mic / Line input shall be Euro / Phoenix type connector. The AUX input on rear panel shall be a 3.5mm stereo (summed) jack. The Bluetooth® streaming protocol shall be of the 4.1 standard. The audio input sensitivity shall be Mic 5mV, Line 500mV, and AUX / Bluetooth® variable 316mV – 1V. Each of the Mic / Line and AUX / Bluetooth® inputs shall have independent input level control accessed via the front panel navigation keys. DSP Equalization shall be fixed per Project File Preset. The Z Series shall have PC Based software to create project files with custom EQ, routing, mixing and level adjustments.

The Z Series shall incorporate two types of speaker connectivity, Euro block / Phoenix 5.08mm pitch connectors to support two conductor wire and RJ45 jacks to support a multiple multi conductor cable. The Z Series shall meet low voltage Class-2 wiring electrical code requirements, eliminating the need to run the wire in expensive conduit.

Frequency Response shall be 50Hz-15kHz (with DSP set to Flat). Dynamic Range shall be greater than 90dB below rated output (A-Weighted). Power Consumption shall be less than 20W average under normal use for the Z2-B and 40W for the Z4-B. Dimensions shall be W 10.7" x H 8.17" x D 2.32" (272mm x 208mm x 59mm). Weight shall be 7.7 lbs (2.8 kg) for the Z2-B and 10 lbs (3.77 kg) for the Z4-B. Warranty coverage shall be 3-year. The unit shall be CE marked, RoHS/WEEE, TUV, GMA (power Supply) compliant and UL certified. The Z2 & Z4 shall meet low voltage wiring standards. The High Definition Acoustical Systems for Speech Privacy, Paging, and BGM Amplifier shall be an AtlasIED Z2-B & Z4-B.