

- ✓ Compact design: All-in-one 1U 19" enclosure
- ✓ High power density delivering up to 1000 W
- ✓ Flexible amplification: 4 duty amplifier channels, 1 standby, with power partitioning up to 500 W
- ✓ Energy efficiency with minimal power consumption
- ✓ Integrated supervision with built-in system monitoring with redundancy for enhanced reliability.
- ✓ Superior audio quality for exceptional clarity
- ✓ IP-enabled with seamless Audio and System Control



VAIA-AC

4 Channel PA **Amplifier and Controller**

The VAIA-AC is engineered to meet the highest standards, integrating amplification, digital signal processing, a universal AC power supply, and comprehensive control into a compact 1U package. This design provides a cost-effective solution for delivering flexible zoned live and automated paging, as well as background music, for small, centralised installations.

With built-in IP networking capabilities, the VAIA makes it easy to create distributed systems that scale to meet complex requirements. Its state-of-the-art low-distortion Class D amplifiers, integrated redundancy, and voice alarm-style monitoring ensure superior performance. This makes the VAIA an ideal choice for installations where redundancy, audio quality, and maximum efficiency are critical.

Compact Package

This compact 1U design maximizes the use of available space in any installation cabinet. Additionally, the all-in-one approach significantly simplifies installation by minimising the need for complex interconnecting cable looms, making delivery, setup, and testing faster and more efficient.

Enhanced Audio Performance

The patented next-generation amplifier topology, combined with advanced 32-bit internal processing, delivers a high signal-to-noise ratio, minimal distortion, and a full 20 Hz to 20 kHz frequency response. This ensures exceptional audio quality, enhancing intelligibility and creating an improved listening experience across all applications.

Versatile Power

Utilizing a compact and patented architecture to deliver a total of 1000 W across four independent amplifier channels, with each channel capable of providing up to 500 W. An innovative auto-sleep feature enhances energy efficiency by reducing quiescent power consumption, meeting the demands of modern systems without compromising reliability or audio performance.

Typical Applications

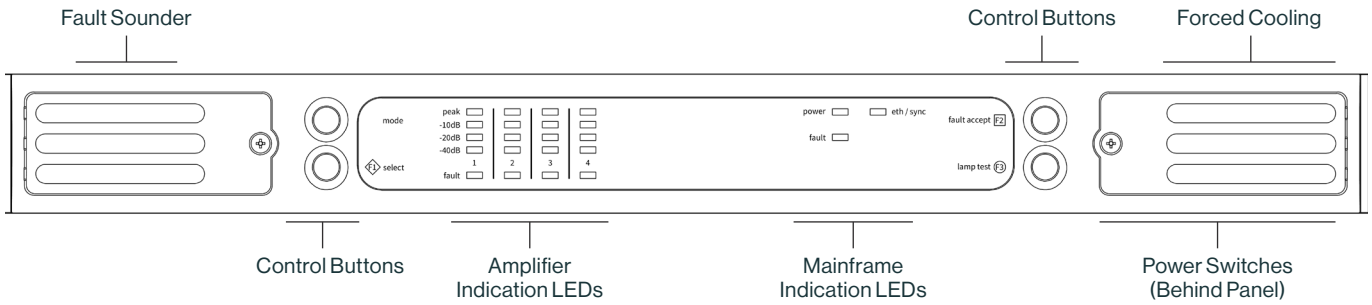
Built to bridge the gap between IP speaker systems and large-scale VA solutions, VAIA ensures that you receive robust, reliable performance without the complexities and cost of larger setups.

Typical Applications:

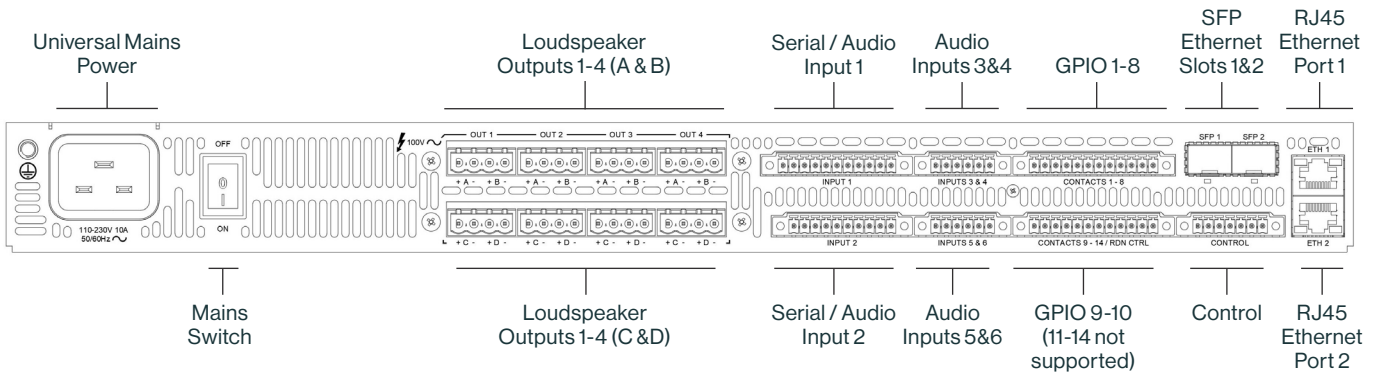
- Metro & Rail Stations
- Tram and Bus Stops
- Legacy IPAM System Upgrades

MECHANICAL

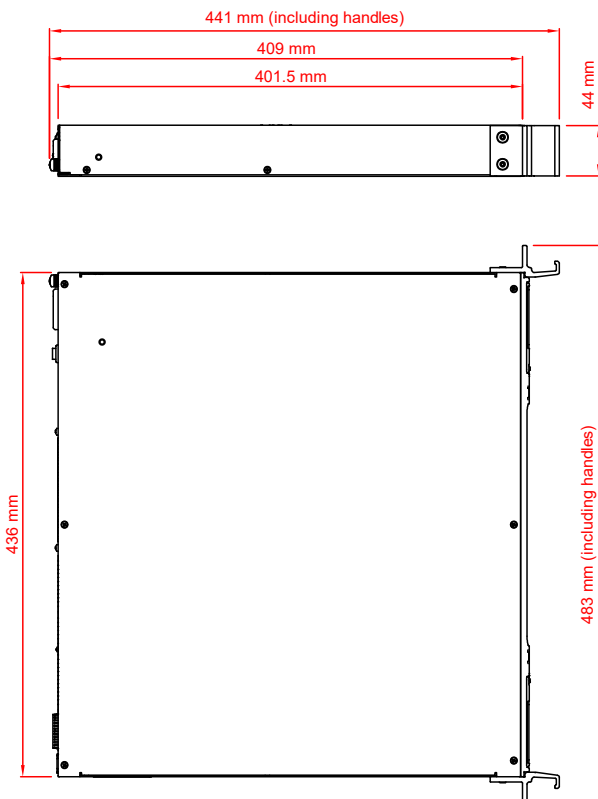
Front Panel



Rear Panel



Dimensions



SCALABLE AND VERSATILE ARCHITECTURE

The VAIA is an ideal solution for smaller fixed Public Address installations, such as metro/rail stations, restaurants, retail shops, offices, or bars (see Figure 1). Despite its compact size, the VAIA is built for scalability. For larger single-site applications, multiple VAIA units can be networked together either peer-to-peer or through dedicated IP switches using standard Cat 5/6 cables or multi-mode/single-mode fiber (see Figure 2).

For extensive multi-site applications or operations requiring remote control, the VAIA integrates seamlessly with Zenitel's VIPA Audio Platform. This platform delivers uncompressed, low-bandwidth, multi-channel high-quality audio and control over IP. Operators can simultaneously address, monitor, and control multiple sites from a centralized location. Utilizing a standard Layer 2/3 IP network, the system connects sites via existing infrastructure, providing exceptional flexibility and cost efficiency (see Figure 3).

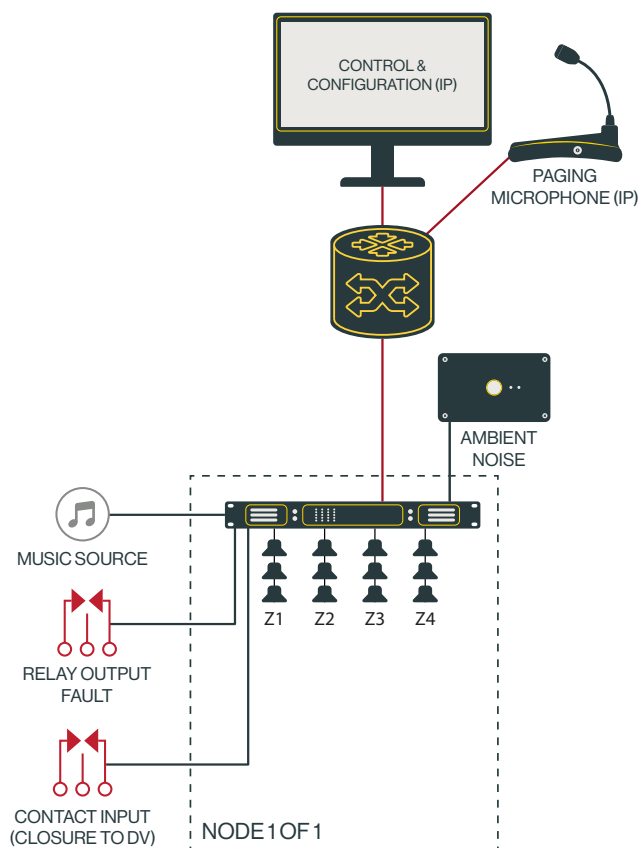


Figure 1

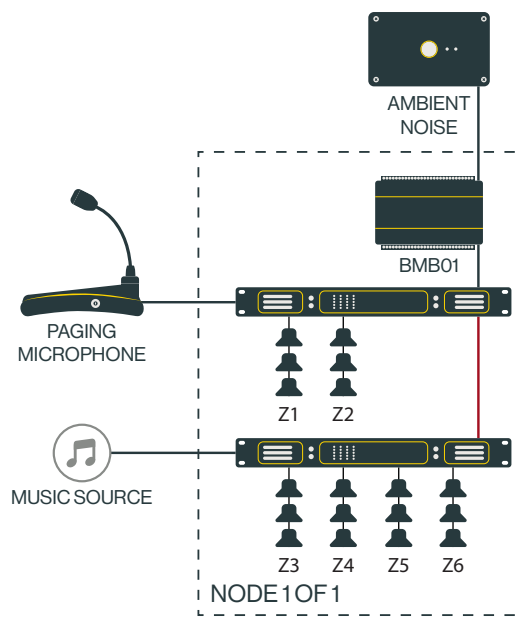


Figure 2

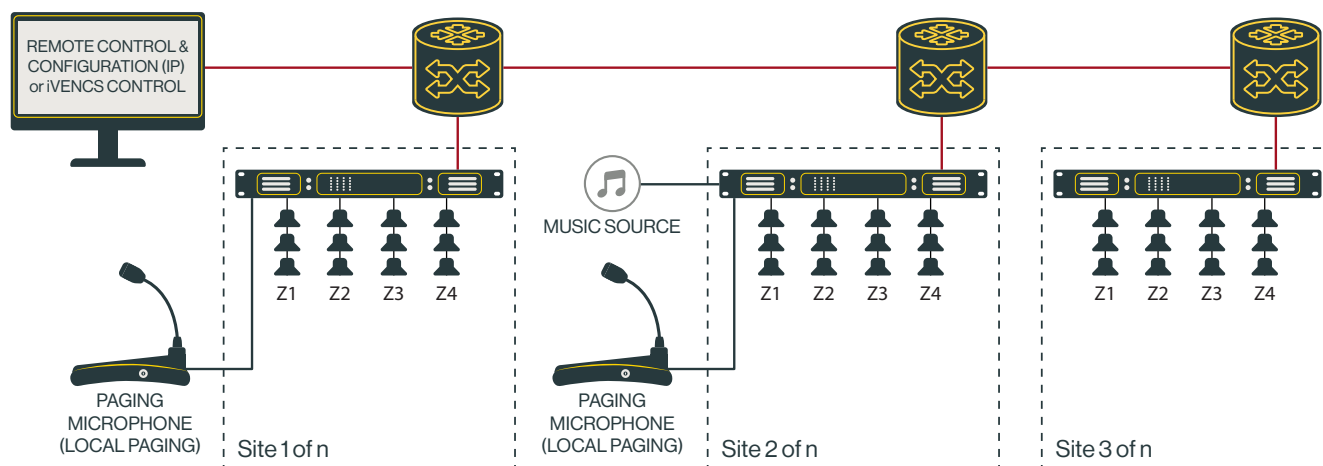
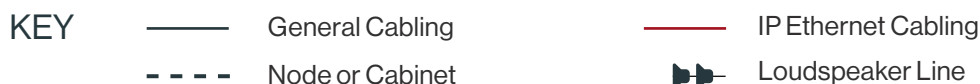


Figure 3



SPECIFICATIONS

| Amplification | |
|---|---|
| Amplifiers | Built in - High Efficiency Class D |
| Amplifier Efficiency | >91% @ 100 V |
| Duty Amplifiers | 4 |
| Standby Amplifiers | 1 Automatic Fail-over |
| Maximum Power per VAIA | 1000 W @ 100 V (Sine Signal) |
| Maximum Power per Amplifier | 500 W RMS @ 100 V (Sine Signal) |
| Amplifier Power Partitioning | Software Controlled |
| Monitored Speaker Circuits per Duty Amplifier | 4 (A / B / C / D) |
| Speaker Circuit Monitoring | DC End of Line or Impedance |
| Load Capacitance | 220 nF |
| Load Resistance | 20 Ω @ 500 W |
| Speaker Circuit Isolation | Pseudo-floating Outputs |
| Audio Performance | |
| Input Resolution | 24-bit |
| Processing Resolution | 32-bit @ 48 kHz |
| Bandwidth (Monitoring Disabled) | 20 Hz to 20 Hz+0/-3 dB |
| Bandwidth (Monitoring Enabled) | 70 Hz to 20 Hz+0/-3 dB |
| Total Harmonic Distortion (THD) | <0.15% at 1 kHz (End to End) |
| Crosstalk Between Channels | Better than -75 dB @1kHz |
| Amplifier Signal to Noise Ration (SNR) 100 V | >100 dB (A weighted) |
| Router Signal to Noise Ration (SNR) | >80 dB (A weighted) |
| Residual Noise 100 V | >95 dB |
| Audio Outputs | |
| Level Control | +20 dB, mute-60 dBu (1 dB steps) |
| EQ | 3 Band Parametric |
| Delay | 1 ms to 1 sec (1 ms Steps) |
| Signal Processing | Sample & Hold and Dynamic Ambient Noise Control / Night Time Volume |
| Surveillance Tone Generation | 30 Hz |
| Audio Inputs | |
| Zenitel IP Microphones | 4 |
| Zenitel Serial Microphones | 2 |
| Mic / Line Level Inputs | 4 |
| EQ | 3 Band Parametric |
| Surveillance Tone Detection | 20 Hz |
| Filters | High Pass (Filter out monitoring tones) |
| Digital Voice Announcements (DVA) | |
| On-board Storage Capacity | 1 GB (Approx. 173 mins of Messages) |
| Simultaneous Message Players | 4 |
| File Format | 48 kHz, 16 bit, WAV |
| General Connectivity | |
| General Purpose Contacts | 10 Inputs (Contact Closure to 0 V) |
| General Purpose Fault Relay | 1 A @ 30 V DC |
| IO Expansion Options | Connect up to 9x BMB01 |
| Tools and Management | |
| Configuration Tools | IP based Windows PC Application |
| System Overview | Web-server |

| IP Connectivity | |
|--|--|
| Number of units in a system | ≤4 |
| Audio and Control Protocol | PMC (48 kHz, 16 bit) & VIPA |
| Protocols for Audio Data | UDP IP / Layer 2 / Multicast |
| Protocols for Control Data | UDP IP / Layer 2 / Unicast |
| Ethernet Ports 100/1000 Mbps | 2x Copper + 2x SFP Slots |
| NTP | External Source |
| Third Party Control Options | VIPA-API / SIP via Connect-Pro |
| Power Supplies | |
| Main Input | 88 to 288 V AC @ 50-60 Hz |
| Power Consumption (Sleep Mode with Monitoring) | 250mA @ 230V AC |
| Power Consumption (Rated Power) | 51A @ 230V AC |
| Power Supply Efficiency | <93% @ 100 V |
| Heat (4 active amplifiers in use) | |
| Heat Generation (Sleep Mode with Monitoring) | 22 W (75 BTU) AC |
| Heat Generation (Rated Power) | 198 W (676 BTU) AC |
| Mechanical | |
| Dimensions | 44 mm (h) x 436 mm (w) 412 mm (d) |
| Weight | 8 kg |
| Ingress Protection | IP30 |
| Mounting Options | Standard 19" Rack |
| Air Flow | Intelligent forced cooling front to rear |
| Environmental | |
| Temperature (Operational) | -10° C to +50° C |
| Temperature (Operational / Sine Signal) | -10° C to +40° C |
| Temperature (Storage) | -20° C to +40° C |
| Humidity (Operational & Storage) | 0 % to 95 % non-condensing |
| Reliability | |
| MTBF MIL-HDBK-217F | >200,000 h |
| Percentage Availability MIL-HDBK-217F | 99.99 (Based on 4 hour MTTR) |
| Approval and Standard Compliance | |
| Railway Applications | EN 50121-4 |
| Low Voltage Directive (Safety) | EN / IEC / UL 62368-1 |
| Electromagnetic Compatibility (Immunity) | EN 55035 / EN 55130-4 / EN 61000-6-1 / EN 61000-6-2 |
| Electromagnetic Compatibility (Emissions) | EN 55032 (Class B) / EN 61000-6-3 EN 61000-6-4 / FCC Part 15 Subpart B Class A |
| Environmental | RoHS / REACH |
| Conformity Europe | CE / CPR / UKCA |
| Part Code | |
| VAIA-AC | 4 Channel PA Amplifier and Controller |
| Compatible Products | |
| VAIA-48V / VAIA | 4 Channel Amplifier and Controllers |
| ANS04-ES / DANS01 | Noise Sensors |
| BMB01 / BMB02 | GPIO Expanders |
| MPS / EMS / SAP03 / VRMS Ranges | Microphones |
| EOL10K / EOLZ01 | Loudspeaker End of Line Monitoring |
| SFP-MM1GC / SFP-SM1G | Networking SFP Modules |
| iVENCs / VIPA-WS | Control and Monitoring Software |
| ICX-510 | Connect-Pro Server |