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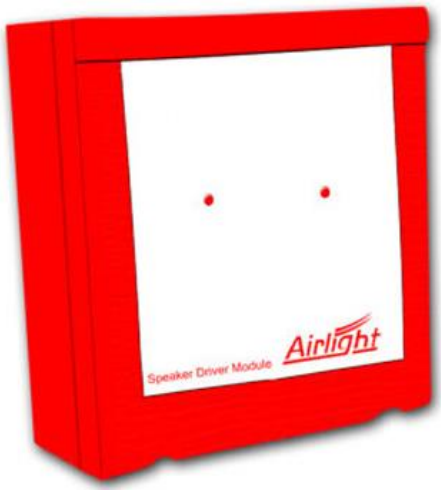
IoT-Enabled

Addressable

Speaker Driver Module

Model-**AA-IoT-SPD-104**



Universal Speaker Interface with IoT Intelligence

The Airlight AA-IoT-SPD-104 is an IoT-enabled addressable speaker driver module specifically designed to ensure seamless compatibility with third-party speakers chosen by customers to meet their specific audio requirements. This intelligent interface device transmits real-time operational status, audio broadcast events, and device health data to the fire alarm control panel which is seamlessly uploaded to the cloud via internet connectivity. Tailored for voice alarm and public address systems with strong emphasis on fire safety compliance and user-friendly operation, it features exclusive two-wire loop-powered technology that enables device monitoring, audio signal routing, and power transmission through the same wires. The addressable capability facilitates targeted announcements—users can manually select specific areas via control panel touchscreen for zone-based broadcasting, while the system automatically triggers voice alarms in fire detection events. Supporting both zone call and all call activation options, it ensures precise communication to desired locations. IoT connectivity enables remote monitoring of speaker performance, audio quality verification, broadcast event logging, and comprehensive system diagnostics, empowering facility managers to ensure voice communication readiness and manage third-party speaker integration from any location worldwide.

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Core Features

- IoT Connectivity
- Third-Party Compatible
- Public Address
- Device Health Monitoring
- Cloud Monitoring
- Addressable Control
- Zone & All Call
- Simplified Wiring
- NBC 2016 Compliant
- Voice Evacuation
- Two-wire Technology
- Remote Configuration

IoT & Smart Monitoring Capabilities

Real-Time Call Monitoring & Cloud Upload

Continuously monitors speaker driver operational status, audio signal quality, activation events, and connected speaker performance. All broadcast sessions, device health data, and electrical parameters automatically transmitted to control panel and uploaded to cloud.

Intelligent Event Alerts

Instant cloud-based notifications for speaker driver activation, audio output issues, connected speaker faults, electrical supervision failures, connectivity problems, and maintenance requirements. Multi-channel alerts ensure rapid awareness and response.

Remote Audio Testing

Conduct remote functional tests of speaker driver output and connected third-party speaker performance without physical site access. Verify audio signal routing, output levels, and speaker response from centralized monitoring center.

Remote Access & Management

Facility managers and system integrators can monitor speaker driver status, verify audio broadcast quality, track activation patterns, and access performance metrics through web-based platforms and mobile devices from any location worldwide.

Speaker Performance Analytics

Cloud-based analytics track speaker usage patterns, broadcast duration, zone activation frequency, and audio output performance. Historical data enables system optimization, predictive maintenance planning, and speaker replacement scheduling.

Proactive Device Health Monitoring

IoT-based continuous monitoring of driver electronics, output circuits, electrical supervision, and connected speaker impedance. Predictive maintenance alerts identify potential issues before they affect emergency voice communication capability.

Universal Third-Party Speaker Compatibility

Flexible Speaker Selection

Designed specifically to interface with third-party speakers chosen by customers based on their specific acoustic requirements, aesthetic preferences, brand standards, or existing infrastructure. Provides universal compatibility with standard passive speakers..

Impedance Matching

Driver module provides stable audio signal output compatible with various speaker impedances. Electrical supervision continuously monitors connected speaker load to ensure proper operation and detect wiring or speaker faults.

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Installation Flexibility

Speaker driver module can be mounted near connected speakers or centrally located based on installation requirements. Two-wire loop connection simplifies integration regardless of speaker location or brand.

Custom Audio Solutions

Enables customers to select speakers that match their unique needs—from high-power ceiling speakers for large spaces to compact wall-mount units for corridors, architectural speakers for aesthetic integration, or weatherproof units for outdoor areas.

Audio Signal Quality

High-quality audio driver circuit ensures clean signal delivery to connected speakers for clear, intelligible voice evacuation messages and public address announcements. Minimizes distortion and maintains audio fidelity.

Voice Alarm & Public Address Functions

Automated Voice Alarm Activation

System automatically triggers voice alarms through connected speakers in response to fire detection events. Control panel sends commands to specific driver modules for zone-based evacuation or building-wide all-call emergency messaging.

Addressable Targeted Control

Each driver module has unique addressable ID enabling precise control of individual connected speakers. Control panel can activate specific drivers for zone-based paging while leaving other areas undisturbed.

All Call Activation

Broadcast simultaneously to all connected speakers across entire facility for building-wide emergency evacuations. Ensures consistent, synchronized voice communication during critical situations requiring immediate facility-wide response.

Manual Zone Selection

Users can manually select specific areas to broadcast announcements using control panel touchscreen display. Intuitive interface enables quick selection of individual zones, zone groups, or entire facility for targeted communication.

Zone Call Activation

Target specific zones or areas for announcements, emergency instructions, or routine facility communications. Ideal for large facilities requiring localized messaging without disrupting entire building operations.

NBC 2016 Compliance

Designed to meet NBC 2016 Part 4, Clause 4.9 C regulations for voice alarm and public address systems, ensuring full regulatory compliance for fire safety voice evacuation installations across India.

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Operating Principle

Loop-Powered Two-Wire Operation: Driver module draws power and receives audio signals from 2-wire loop circuit while simultaneously transmitting status data to control panel

Addressable Communication: Digital two-way communication with control panel enables individual device identification, targeted activation, zone-based control, and continuous status monitoring

Audio Signal Routing: Upon activation command from control panel, driver module routes audio signal from loop to connected third-party speaker output terminals with proper impedance matching

Voice Alarm Mode: During fire detection, control panel sends zone call or all call commands to specific driver module IDs, triggering synchronized voice evacuation through connected speakers

Public Address Mode: For routine communications, control panel activates selected driver modules to broadcast live microphone audio or pre-recorded messages to designated zones

Cloud Data Transmission: All activation events, broadcast duration, audio performance metrics, and device health status automatically uploaded to cloud servers for remote monitoring

Speaker Supervision: Continuous monitoring of connected speaker impedance and circuit integrity verifies speaker connection and detects wiring faults or speaker failures

Selective Activation: When multiple drivers on same loop, addressable control ensures only targeted drivers activate, leaving other zones undisturbed for efficient communication management

Fault Detection: Driver electronics continuously monitor output circuits, speaker load, and electrical parameters with automatic fault reporting for proactive maintenance.

Exclusive Two-Wire Loop Technology

Loop-Powered Operation

Revolutionary design transmits power, audio signals, and bidirectional control data through single 2-wire loop circuit. Eliminates need for separate power and audio cables for dramatically simplified installation.

Undisturbed Parallel Operation

When multiple driver modules are connected in parallel on loop, only intended drivers are activated for audio broadcast. Other zones remain undisturbed, preventing unnecessary announcements in unaffected areas.

Electrical Supervision

Built-in electrical supervision monitors both loop circuits and connected speaker wiring. Detects open circuits, short circuits, speaker disconnection, and impedance anomalies with instant reporting to panel and cloud.

Simplified Wiring

Connects directly to same wiring infrastructure used for call points and detectors. No separate cable runs required for speaker system, reducing installation complexity by 60%+ and lowering material costs substantially.

Device Integrity Monitoring

Continuous monitoring of driver module health, connected speaker status, electrical circuits, and audio output quality through loop communication. Automatic fault reporting ensures system reliability.

Scalable Architecture

Add driver modules and speakers easily as facility expands. Two-wire topology enables straightforward system growth without complex wiring modifications or separate audio distribution infrastructure.

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Technical Specifications

Electrical Specifications

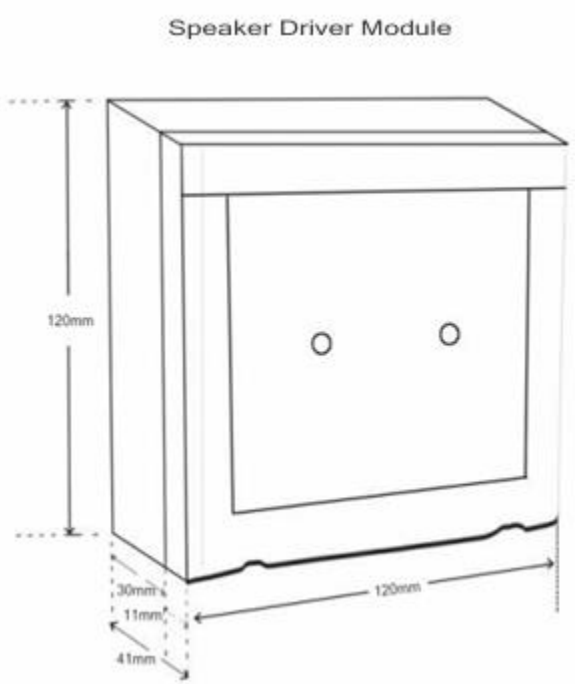
Parameter	Specification
Operating Voltage	18-24V
Quiescent current	200uA
Alarm current	60mA

Mechanical Specifications

Dimensions	Weight	
120x120x42mm	Without Base	144g
	With base	368g

General Specifications

Parameter	Specification
Operating temperature	-10ºC to 55ºC
Storage temperature	-10ºC to 60ºC
Humidity	0-95% RH (Non condensing)
Colour	Red
Housing	ABS



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Compliance &Standards

NBC 2016 Part 4

Clause 4.9 C

Voice Alarm System

The AA-IoT-SPD-104 Speaker Driver Module is designed to meet NBC 2016 (National Building Code) Part 4, Clause 4.9 C regulations for voice alarm and public address systems. Ensures full regulatory compliance for fire safety voice evacuation and communication installations using third-party speakers in commercial, residential, and industrial buildings across India.

Ideal Applications

- **Retrofit Projects:** Upgrade existing speaker systems to addressable control without replacing functioning third-party speakers
- **Brand-Specific Requirements:** Projects requiring specific speaker brands or models for aesthetic or performance standards
- **Custom Audio Solutions:** Facilities with unique acoustic requirements needing specialized third-party speaker selections
- **Multi-Zone Facilities:** Large buildings requiring targeted zone-based voice communication with flexible speaker choices
- **Architectural Integration:** Projects where speakers must match specific architectural or interior design requirements
- **Mixed Speaker Systems:** Facilities using different speaker types in various areas (ceiling, wall-mount, outdoor)
- **Budget-Conscious Projects:** Installations leveraging existing speaker infrastructure while adding addressable IoT control
- **Phased Implementations:** Gradual system upgrades where driver modules interface with existing speaker networks

Why Choose AD-IoT-2S103

Cloud-Connected Intelligence: IoT connectivity enables remote monitoring of speaker performance, broadcast verification, and comprehensive system diagnostics from any location

Universal Speaker Compatibility: Interfaces seamlessly with third-party speakers chosen by customers based on specific requirements, brands, or existing infrastructure

NBC 2016 Compliant: Meets National Building Code Clause 4.9 C for voice alarm and public address systems ensuring regulatory compliance

Exclusive Two-Wire Technology: Loop-powered design carries power, audio, and data on single cable, reducing installation complexity by 60%+

Flexible Audio Solutions: Enables custom speaker selection for optimal acoustics, aesthetics, or specific performance requirements in each zone

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Cost-Effective Retrofits: Leverage existing or preferred speaker investments while gaining addressable control and IoT monitoring capabilities

Zone & All Call Flexibility: Supports targeted zone communication and building-wide broadcasts for versatile emergency and operational messaging

Simplified Installation: Connects to same wiring as detectors and call points—no separate audio cable infrastructure required

Addressable Targeted Control: Individual driver activation prevents unnecessary broadcasts in unaffected zones during routine PA operations

Device Health Monitoring: Continuous speaker supervision and driver integrity monitoring ensure emergency communication readiness

Remote Testing Capability: Verify audio output and speaker performance remotely without on-site visits, reducing maintenance costs

Touchscreen Zone Selection: Intuitive control panel interface enables quick manual selection of broadcast zones for operational flexibility

Automated Fire Response: System automatically triggers voice alarms through connected speakers during fire detection for rapid evacuation

Scalable Architecture: Easily expand system by adding driver modules and speakers as facility grows without complex rewiring

Future-Ready Platform: IoT connectivity ensures compatibility with emerging smart

Contact Information

AIRLIGHT Naveen alarm systems

Web: www.airlight.in

Product Information

For detailed technical documentation, installation guides,IoT integration support and product support, Please visit our website or contact your local Airlight representative.