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IoT-Enabled

Addressable

Short Circuit Isolator

Model-**AA-IoT-104SCI**

Intelligent Loop Protection with IoT Intelligence

The Airlight AA-IoT-104SCI is an IoT-enabled addressable short circuit isolator designed to detect overcurrent and short circuit conditions, automatically isolating affected loop sections while maintaining system integrity. This intelligent protection device continuously monitors electrical parameters and transmits real-time status data to the fire alarm control panel which is seamlessly uploaded to the cloud via internet connectivity. When a short circuit occurs, the device instantly disconnects power supply to consecutive devices connected downstream of the isolator module, minimizing system damage while keeping unaffected devices fully operational. Strategically placed between groups of devices throughout the fire alarm loop, these isolators provide critical fault protection and system resilience. The automatic reset feature restores circuit operation once the short circuit condition is corrected, eliminating manual intervention. With addressable capability, device IDs can be remotely configured from the control panel for flexible system management. IoT connectivity enables remote monitoring of isolation events, fault location tracking, reset operations, and comprehensive diagnostics, empowering facility managers to maintain loop integrity and respond to electrical faults from any location worldwide.

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Core Features

- IoT Connectivity
- Auto Isolation
- Electrical Supervision
- Addressable Control
- Cloud Monitoring
- Auto Reset
- Remote Configuration
- Relay Contact Output
- Overcurrent Detection
- Fault Location Tracking
- Event Logging
- LED Status Indicators

IoT & Smart Monitoring Capabilities

Real-Time Call Monitoring & Cloud Upload

Continuously monitors loop current, overcurrent conditions, and isolation events. All short circuit detections, isolation activations, auto-reset operations, and electrical parameters are automatically transmitted to control panel and uploaded to cloud for remote monitoring.

Intelligent Event Alerts

Instant cloud-based notifications for short circuit detection, isolation activation, affected device identification, auto-reset completion, and persistent fault conditions. Multi-channel alerts enable rapid response and targeted troubleshooting by maintenance teams.

Isolation Event Analytics

Cloud-based analytics track isolation frequency, fault patterns, reset success rates, and affected device groups. Historical data enables predictive maintenance, identifies recurring problem areas, and supports system reliability improvement initiatives.

Remote Access & Management

Facility managers and maintenance teams can monitor isolator status, track fault locations, verify isolation events, access historical fault records, and receive instant alerts through web-based platforms and mobile devices from any location worldwide.

Fault Location Tracking

IoT-enabled location identification displays exact isolator position and affected loop section on control panel and cloud dashboard. Maintenance staff can instantly identify fault location and navigate to precise area for rapid repair

Proactive Device Health Monitoring

Continuous monitoring of relay functionality, contact ratings, electrical supervision circuits, and device connectivity. Predictive maintenance alerts identify potential isolator issues before they affect loop protection capability during actual short circuit events.

System Integration & Benefits

Minimized System Downtime: Isolation of only affected loop sections ensures maximum system availability during fault conditions. Unaffected devices continue normal fire detection and alarm operation, maintaining critical life safety protection throughout facility.

Enhanced System Reliability: Continuous monitoring of device health, electrical circuits, speaker functionality, microphone performance, and connectivity status through loop communication ensures system reliability with automatic fault reporting.

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Reduced Troubleshooting Time: Precise fault location identification via IoT connectivity dramatically reduces diagnostic time. Maintenance teams can quickly navigate to exact isolator location and affected devices for targeted repair without extensive testing.

Enhanced System Reliability: Strategic placement of isolators throughout loop provides multi-layer protection. Single short circuit cannot disable entire fire alarm system, ensuring continuous protection and regulatory compliance even during fault conditions.

Remote Configuration: Device IDs can be remotely configured from control panel without physical access. Flexible addressing enables easy system reconfiguration, expansion, or device replacement without on-site programming visits.

Operating Principle

Continuous Current Monitoring: Device continuously monitors loop current flowing through input circuit, comparing against normal operating range and overcurrent threshold parameters

Fault Detection Algorithm: When loop current exceeds safe operating limits or short circuit condition is detected (leakage current 3.6mA threshold), protection algorithm activates instantly

Isolation Activation: Upon fault detection, internal relay immediately opens to disconnect output circuit from input, isolating all downstream devices and preventing damage propagation

Long-Range Audio Capture: Advanced audio sensor with 6-foot detection range captures clear voice signals even when callers are not directly at device, ensuring effective communication.

Upstream Protection: Input side remains connected to control panel and upstream devices, ensuring unaffected loop sections continue normal fire detection and alarm operation

Cloud Data Transmission: Isolation event details including location, timestamp, affected devices, and electrical parameters are automatically transmitted to control panel and uploaded to cloud servers

Addressable Communication: Digital two-way communication with control panel enables device identification, remote configuration, status reporting, and electrical supervision throughout operation

Auto-Reset Monitoring: While isolated, device continuously monitors output circuit electrical parameters for fault clearance. Tests circuit periodically to verify safe conditions for reconnection.

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Technical Specifications

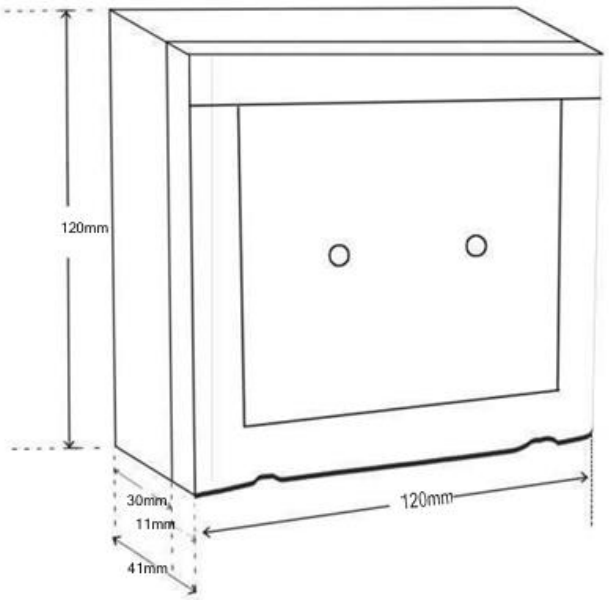
Electrical Specifications

Parameter	Specification
Operating Voltage	18-24V
Quiescent current	200uA
Voice current	30mA
Watts	5w

Mechanical Specifications

Dimensions	Weight	
120x120x45mm	Without Base	144g
	With base	372g

Short Circuit Isolator



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 D	Voice Alarm System

The AD-IoT-2S103 Talkback Speaker is designed to meet NBC 2016 (National Building Code) Part 4 Clause 4.9-D regulations for voice alarm systems. Ensures full regulatory compliance for emergency communication and fire safety voice evacuation installations in commercial, residential, and industrial buildings across India.

Ideal Applications

- **High-Rise Buildings:** Residential and commercial towers requiring integrated fire detection and voice evacuation
- **Hospitals:** Healthcare facilities needing zone-specific paging and emergency evacuation
- **Hotels:** Hospitality properties requiring PA, evacuation, and fire detection in one unit.
- **Shopping Malls:** Retail complexes needing targeted announcements and comprehensive fire protection
- **Educational Institutions:** Schools and universities requiring PA and fire safety integration
- **Corporate Offices:** Business buildings needing efficient communication and fire detection
- **Transportation Hubs:** Airports, metro stations requiring multi-zone voice control
- **Industrial Facilities:** Manufacturing plants needing integrated safety communication

Advanced Talkback Communication

Two-Way Communication Capability

Enables real-time bidirectional audio communication between occupants and control panel operators. Occupants can speak directly with emergency response staff for assistance, guidance, or emergency reporting during critical situations.

One-Touch Call Button

Integrated call button triggers instant alert to control panel with precise caller location. Simple press-to-talk operation ensures anyone can quickly request assistance without complex procedures during emergencies.

Long-Range Audio Pickup

Advanced audio sensor with 6-foot voice detection range captures clear audio even when callers are not directly at device. Facilitates communication in crowded areas or when mobility is restricted during emergencies.

Clear Audio Quality

5W speaker output with optimized audio clarity ensures intelligible communication in both

directions. Advanced noise filtering enables effective conversation even in challenging acoustic environments.

Instant Location Identification

Upon talkback button activation, control panel immediately displays caller's exact location with device ID and zone information. Support staff can quickly navigate to assistance location without delays.

Continuous Communication Session

While talkback button is pressed, microphone remains active for speaking to control panel. When button is released, speaker activates for receiving instructions from emergency response staff.

Why Choose AD-IoT-2S103

Cloud-Connected Intelligence: IoT connectivity enables remote fault monitoring, isolation event tracking, auto-reset verification, and comprehensive loop health analytics from any location

Maximum System Availability: Isolates only affected loop sections during faults, ensuring unaffected devices continue normal operation for continuous life safety protection

Automatic Fault Recovery: Auto-reset functionality automatically restores service once fault is cleared, eliminating manual intervention and reducing system downtime

Instant Fault Location: IoT-based location tracking identifies exact isolator and affected loop section immediately, dramatically reducing diagnostic and repair time

Enhanced System Resilience: Strategic placement throughout loop provides multi-layer protection preventing single point failures from disabling entire fire alarm system

Reduced Maintenance Costs: Precise fault location identification and automatic recovery reduce on-site visits, troubleshooting time, and labor costs for maintenance operations

Comprehensive Event Logging: Cloud-based isolation event history provides complete audit trail for compliance verification, insurance requirements, and system performance analysis

Remote Configuration: Device IDs changeable from control panel enables flexible system modifications without physical access for efficient system management

Predictive Maintenance: Historical fault pattern analysis identifies recurring problem areas enabling proactive repairs before critical failures occur

International Compliance: UL 864 and EN 54-17 certifications ensure global standards compliance for fire alarm system protection across diverse markets

Electrical Supervision: Continuous monitoring of input/output circuits ensures isolator readiness and identifies wiring issues before they affect protection capability

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BMS Integration: Relay contact output enables coordination with building management systems for comprehensive facility-wide fault response and monitoring

Proven Reliability: Ultra-low quiescent current (200µA) ensures minimal power consumption while maintaining continuous protection readiness throughout device lifespan

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.