Safeguarding Server Rooms:
Comprehensive Monitoring with LoRaWAN® Sensors

Powered by MultiTech

MULTITECH®

Challenge

Server rooms serve as the nerve center of modern businesses, housing critical infrastructure and sensitive data. Maintaining optimal conditions within these environments is critical to ensure uninterrupted operations and data integrity. Equipment needs to be kept at proper environmental conditions and potential water damage needs to be identified quickly and communicated without using the current IT infrastructure to send the status of the server room —The separate LoRaWAN communications network keeps the monitoring and reporting data on a separate network so even if the main server has a communication malfunction, the LoRaWAN network will continue communicating statuses.
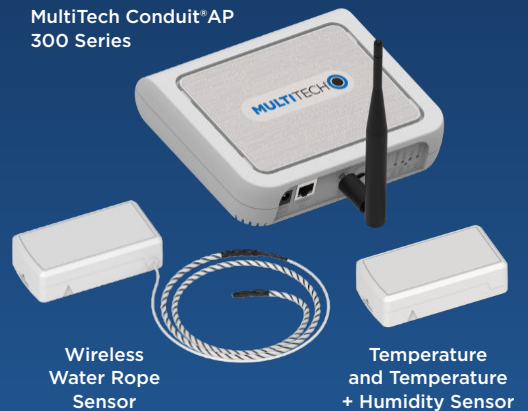
LoRaWAN® Wireless Solution

Employing a suite of wireless LoRaWAN sensors—temperature, humidity, water leak, and door access—provides a proactive approach to mitigate risks, enhance security, and preserve the reliability of these vital spaces. LoRaWAN has the advantage of long distance, low power consumption and low cost. Its transmission distance can reach up to 5 kilometers in urban areas and its low-power consumption extends the service life of the battery. The unlicensed frequency band, infrastructure and the low cost of the node/terminal all reduce the communication costs.

Temperature and Humidity Sensors

• Equipment Reliability: Fluctuations in temperature and humidity can compromise the performance and longevity of server hardware. Monitoring these parameters ensures an environment conducive to optimal equipment operation, reducing the risk of overheating and hardware failures.

• Preventing Downtime: Early detection of temperature spikes or excessive humidity levels allows for preemptive measures, averting potential system failures. This proactive approach minimizes downtime and prevents data loss or service interruptions.
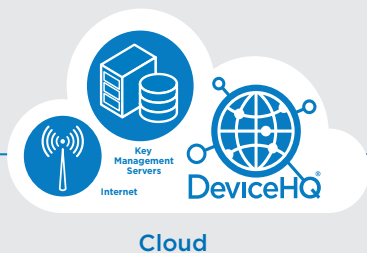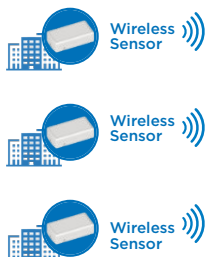
Wireless Solution Components

MultiTech Conduit® AP 300 Series

Wireless Water Rope Sensor

Temperature and Temperature + Humidity Sensor

MultiTech Sensors

Wireless Sensor

Wireless Sensor

Wireless Sensor

MultiTech Conduit® AP 300 Series

Key Management Servers

Internet

DeviceHQ®

Cloud

Cloud Data Management

Water Leak Sensors

- Mitigating Water Damage: Water leaks pose a significant threat to server rooms, potentially causing irreparable damage to equipment and data loss. Placing water leak sensors in vulnerable areas helps in immediate detection and swift response, minimizing damage and ensuring business continuity.
- Risk Mitigation: Rapid identification of leaks prevents the escalation of minor incidents into major crises, safeguarding against costly repairs and disruptions in operations.

Door Access Sensors

- Enhancing Security: Unauthorized access to server rooms compromises data security. Door access sensors provide real-time monitoring, triggering alerts upon unauthorized entry attempts, bolstering physical security measures.
- Compliance and Accountability: Tracking access logs through these sensors ensures compliance with security protocols and aids in identifying potential security breaches or internal policy violations.

Integrated Approach and Benefits

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Best Practices and Implementation

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Results

Monitoring server rooms using temperature, humidity, water leak, and door access sensors is indispensable for maintaining optimal conditions, safeguarding against potential risks, and fortifying security measures. This proactive approach not only preserves the integrity of critical infrastructure but also ensures uninterrupted operations, contributing to the resilience and efficiency of businesses in an increasingly digital landscape.

Benefits

Increasing uptime and reliability

An environmental monitoring system allows IT administrators to monitor the working status and operating parameters of the server room in real-time, which provides an effective guarantee for the server room monitoring management and safe operation, thus enhancing the security and reliability of the server room.

Minimizing response time

Through the real-time detection of temperature, humidity, water leakage, and door access in the server room, IT administrators can not only remotely monitor the environmental parameters of the server room, but also can find the causes of the server room failure in a short period of time when abnormal situations occur, thus shortening the response and maintenance time.

Extending equipment lifespan

The server room equipment run all day, every day, consuming huge energy and processing performance, which affects the life expectancy of the equipment. The monitoring of temperature and humidity helps to maintain the service life of the equipment and extend its service life. Temperature and humidity sensors help to prevent temperature deviation and reduce the possibility of the equipment being exposed to unnecessary heat.

Reducing costs

Server room equipment is costly. The LoRa-enabled server room monitoring solution reduces the management cost of the computer room, and creates a desired operating condition for the equipment, thus saving the operation and maintenance cost of the equipment and creating direct and indirect economic benefits.

**Strengthening compliance to industry standards**

Compared to traditional manual periodic inspections, server room monitoring makes it easier for IT management teams to adopt industry standards and regulations. It also simplifies compliance audits for server room facility management by keeping the temperature and humidity to the appropriate temperature in accordance with the ASHRAE standard range.

Reduced greenhouse gas emissions

Data center annual greenhouse gas emissions were reduced by **542 metric tons** of carbon dioxide per year.

LoRaWAN® Sensor Networks Summary of Advantages

REDUCE OPERATING EXPENSES	REDUCE CAPITAL EXPENSES	INCREASE CAPACITY	REDUCE FAILURES
Granular temperature measurements allow optimized operations without compromising server reliability.	Reduced deployment cost – no wires for signals and power.	Extract hidden capacity by truly understanding where cooling is required.	Server inlet temperature measurement provides visibility of cooling system malfunctions.
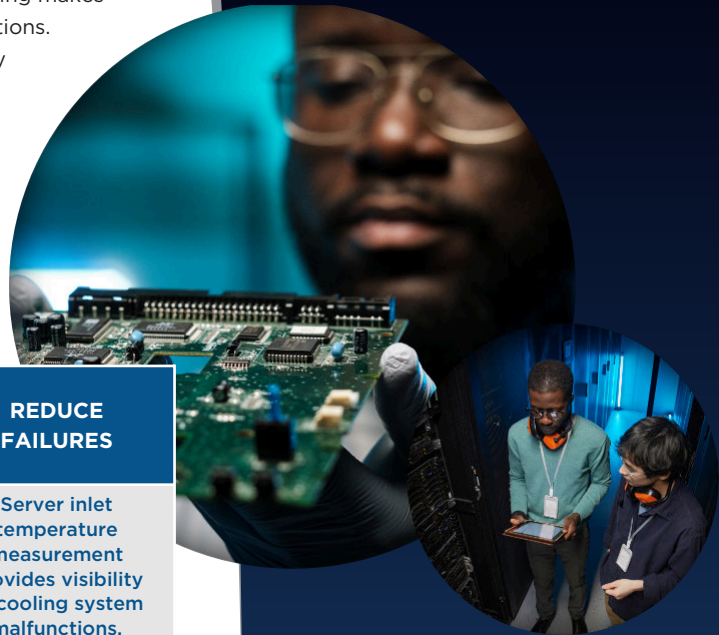
Risk Mitigation

Leveraging a separate LoRaWAN® network can help mitigate risks, provide peace of mind, and allow for additional security options.

• Server room downtime costs an average of **$9,000 per minute**

• If your system was down for just one hour, the downtime cost would be over $500,000.

• Tracking entry and exit with door sensor into the server room using the same LoRaWAN network would provide additional oversight into room access.

Wireless Solution Components

Wireless Probeless Temperature and Temperature + Humidity Sensor

LoRaWAN | **RBS3010EU19BN00** | **RBS3010EU0EBN00** These EU/UK sensors measures the temperature of the air surrounding the sensor without any external probes such as a thermocouple or thermistor.

Wireless Leak Detection Sensors

Wireless Water Rope Sensor in 1M and 10M lengths

LoRaWAN | **RBS301-WR1M-US** | **RBS3010EU0ABN08** The water rope sensor uses a water rope to detect the presence of water or other liquids. When the presence of water or another liquid is detected, an alert is sent to the wireless network.

Wireless Water Leak Sensor

LoRaWAN | **RBS301-WAT-US** | **RBS3010EU0ABN00** The water leak sensor uses a water/liquid sensor probe to detect the presence of water or other liquids. When the presence of water or another liquid is detected, an alert is sent to the wireless network.

Wireless Door & Window Sensor

LoRaWAN | **RBS301-DWS-US** | **RBS3010EU01BN00** The door/window sensor uses a magnet to detect open/close events for doors, windows, or other applications that use a magnet to detect close proximity.

MultiTech Conduit® AP 300 Series

Indoor LoRaWAN 8 Channel Gateway providing superior in-building wireless penetration with optional cellular 4G LTE Backhaul. Seamlessly connect thousands of sensors wirelessly within smart buildings to meet the demands of Retail Operations, Quick Serve Restaurants, C-Stores, Grocery, Expo, Higher Education, and Commercial Real Estate.

For additional information, contact: sales@multitech.com

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