

Ensuring Environmental Reliability in a High-Density Data Center Expansion with the HTZ Smart HART Humidity and Temperature Transmitter

Customer:

Data Center Fabricator

Application:

High-Density Data Centers

Product Used:

HTZ Smart HART Humidity & Temperature Transmitter

**Overview**

A major data center fabricator and operator is expanding its facility footprint throughout the country, with the addition of 6 to 8 new high-density server buildings. With the rapid growth of cloud computing and AI processing demands, maintaining precise environmental conditions within the data center has become non-negotiable. As part of this expansion, the customer selected Moore Industries' HTZ Temperature and Humidity Transmitters to provide the critical real-time environmental data needed to safeguard sensitive IT infrastructure.

The Challenge

In high-performance data centers, environmental control is directly linked to uptime, efficiency, and equipment longevity. One of the most vital parameters to manage is relative humidity, which must be maintained within the optimal range of 40% to 60%:

- Too dry: Increases the risk of electrostatic discharge (ESD), potentially damaging sensitive electronics.
- Too humid: Leads to condensation and potential corrosion or short circuits within servers.

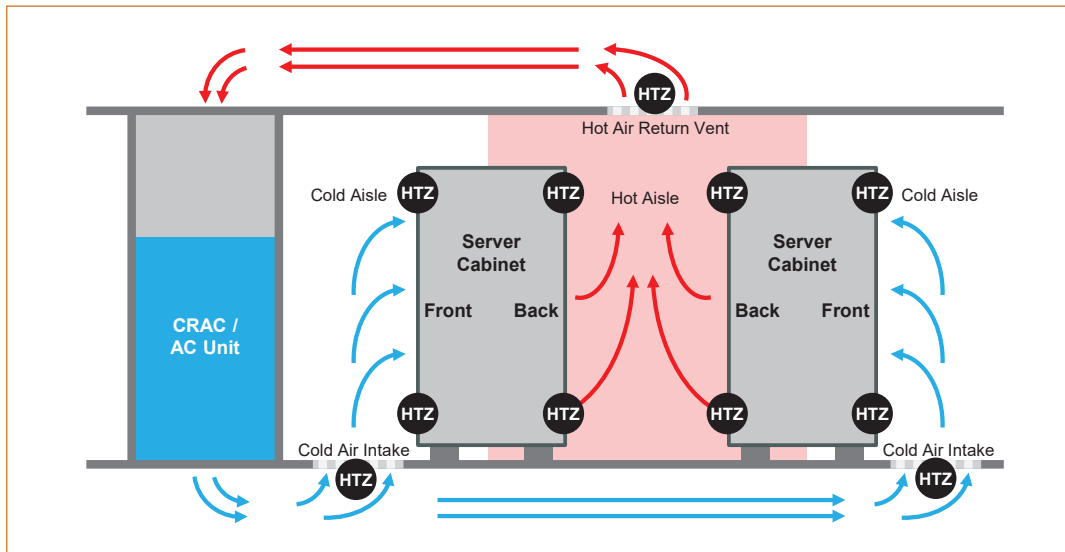
With servers running 24/7 and zero tolerance for equipment failure, the design team needed a robust and scalable humidity monitoring system. Redundancy, accuracy, and reliability were critical.

The Moore Industries Solution

To address these challenges, the customer deployed over 300 Moore Industries HTZ Temperature and Humidity Transmitters across two of the newly constructed data center buildings, with approximately 150 monitoring points per building.

Strategic Placement of Sensors:

- **Cold Aisles:** Monitoring cool air delivered to server inlets to ensure optimal intake conditions.
- **Hot Aisles:** Measuring air exiting server exhausts to validate thermal performance and manage heat.
- **Above/Below Server Racks:** Ensuring uniformity of conditions around critical hardware zones.
- **HVAC Supply and Return Ducts:** Verifying conditioned air quality and system performance in real time.



Application diagram of HTZ placements within a Data Center server room to monitor temperature and humidity

Results

- **Enhanced Reliability:** The HTZ's rugged industrial-grade design ensures continuous, high-accuracy measurements even in mission-critical 24/7 environments.
- **Improved Redundancy:** A high density of measurement points reduces risk by enabling quick detection of anomalies before they escalate into failures.
- **Environmental Compliance:** The data center now maintains tighter control of humidity levels, minimizing the risks of ESD and condensation-related failures.
- **Scalability:** The modular design of the HTZ makes it easy to replicate across the remaining buildings in the expansion project.

Why Moore Industries?

- **Precision and Stability:** The HTZ provides highly accurate temperature and humidity measurements with long-term stability—essential for data center reliability.
- **Industrial Strength:** Engineered for demanding environments, HTZ sensors deliver dependable operation without the need for frequent recalibration.
- **Flexible Configuration:** Supports analog and digital outputs for easy integration into building automation and monitoring systems.

Conclusion

The deployment of over 300 Moore Industries HTZ Temperature and Humidity Transmitters highlights the critical role of precise environmental monitoring in mission-critical data centers. Strategically placed in cold/hot aisles, server racks, and HVAC systems, the HTZ delivers reliable, real-time data to maintain ideal conditions and protect IT infrastructure.

As demand for always-on digital services grows, data centers must adopt technologies that ensure uptime and efficiency. The HTZ's proven performance makes it a trusted solution for strict environmental control and future data center expansions.

Resources

HTZ Smart HART Humidity and Temperature Transmitter

www.miinet.com/htz

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