R155 Humidity-Temperature Sensor

RFCODE Sensors

The R155 Humidity-Temperature Sensor monitors the ambient temperature and relative humidity inside of your datacenter racks, enabling easy mapping of data center temperature profiles and air flowoptimization.

Features & Benefits

- Accurate temperature monitoring within 2°F
- Accurate humidity monitoring within 5% relative humidity (RH)
- Encoded radio transmissions at 433 MHz
- Ideal for monitoring rack installed assets and sensitive equipment
- Industrial-strength adhesive mounting and flexible mounting options
- Works with all RF Code fixed and mobile readers
- Real-time temperature and humidity monitoring for safe protection of racked assets
- Enhances customers' existing Active RFID infrastructure
- Ideal for high density environments

RF Code's R155 Humidity-Temperature Sensor monitors and reports the relative humidity and ambient temperature in its immediate environment. It is designed for use in environmentally-sensitive areas, such as IT data centers. Periodically reporting its unique ID along with the data observed by the sensor, the R155 is designed for use in combination with all RF Code fixed and mobile readers. This single use, affordable sensor is mounted in an impact resistant polycarbonate enclosure with strong adhesive on the back of the case. The sensor has an accuracy of +/- 2°F and +/- 5% RH (typical).

The sensor is designed for years of reliable performance in an operating range from -20°C to +70°C (-4°F to +158°F) and 0% to 95% RH. The battery life for the Humidity-Temperature sensor will exceed 5 years in most deployment environments. The sensor operates with a very low duty cycle and a 10-second beacon rate. The R155's form factor ensures clear signal transmission in high-density deployments. Featuring a low-battery alert, the sensor will continue to monitor humidity and temperature for at least three months following this alerting. After that, the sensor will continue to broadcast its unique ID and a low battery indication with each beacon, but will not report temperature and humidity until the battery is replaced.

Note: Humidity sensors are not designed for use in harsh chemical environments; prolonged exposure to chemical vapors in high concentrations may diminish the accuracy of the sensor readings.

The R155 wireless environmental monitoring solution for data centers gives you a real-time pulse on the temperature and humidity conditions inside your data center. As assets move or change, as cooling and heating fluctuates, as humidity levels rise and fall, you can adjust the environmental conditions quickly.

RF Code R155 Rack Humidity-Temperature Sensor Specifications

OPERATION	
Operating Frequency	433.92 MHz
Unique Sensor ID Codes	> 540,000 unique IDs per Group Code
Typical Transmission Range	> 30 ft in the data center; up to 300 ft open field
Radiated Emissions	71.8 dBuV/m at 3 meters (maximum)
Modulation	ASK
Stability	Saw stabilized

ENCLOSURE	
Width	1.84 in (46.7 mm)
Depth	1.35 in (34.3 mm)
Height	0.46 in (11.9 mm)
Case Weight (with sensor)	1.20 oz (34.16 g)
Construction	Lexan polycarbonate enclosure with sensor cutout *
Durability	Tough, impact resistant and temperature stable
Mounting Options	3M 200 MP adhesive, zip-tie loop lanyard *

ENVIRONMENTAL	
Operating Temperature	-20° C to +70° C (-4° F to +158° F) **
Storage Temperature	-40° C to +80° C (-40° F to +176° F) **
Temperature Sensor Accuracy	+/- 2° F (typical) ***
Humidity Sensor Accuracy	+/- 5% RH (typical) ***

POWER	
Battery Type	Lithium CR2032 replaceable coin cell
Smart Sensor Features	Low battery indication
Battery Life	> 5 years*

* Dust, debris, and other contaminants can cause errors in humidity sensor readings. To prevent contamination of the humidity sensor the R155 should always be mounted top-down, or in a vertical orientation.

** Battery life is optimized at >5 years for normal use in temperature-controlled environments between 50° F and 130° F. The R155 will operate properly in the Operating Temperature range, and can withstand periods of time subjected to the Storage Temperature limits without damage. However, long-term exposure to conditions outside of the operating range may decrease the battery life.

*** The accuracy of the R155's temperature and humidity sensor decreases in extreme environments. When exposed to relative humidity levels below 10% and above 90% the accuracy of the humidity sensor may decrease. Extended use in very humid conditions (>80% RH) may temporarily offset the RH signal (up to additional +3% RH after 60 hours). Once returned to less humid conditions, the sensor will gradually return to a normal calibration state. Condensation can cause the sensor to become unreliable. The product is not designed for outdoor use. Exposure to liquids may cause the product to malfunction, or permanently damage the circuitry, and voids the product warranty.

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