RFCODE

# R156 Temperature-Humidity Sensor

Monitors the ambient temperature and relative humidity inside of your data center racks, enabling easy mapping of data center temperature profiles and air flow optimization.

- **Accurate temperature monitoring —** within +/- 2*F
- **Accurate humidity monitoring —** within +/- 4% RH
- **Real-time monitoring** of temperature and humidity for protecting asset environment
- **Works with** all RF Code fixed readers
- **Ideal for monitoring** rack installed assets and sensitive equipment
- **Ideal for** high density environments
- **Flexible** mounting options

RF Code's R156 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 R156 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 +/- 4% RH (typical).

The sensor is designed for years of reliable performance in an operating range from 0°C to +70°C (32°F to +158°F) and 10% to 90% 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 20-second beacon rate. The R156'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.

# R156 Temperature-Humidity Sensor Specifications

## Operation

| | |
|---|---|
| Operating Frequency | 433.92 Mhz |
| Group Code & Sensor ID Codes | > 540,00 unique IDs per Group Code |
| Typical Transmission Range | > 30 ft. in the data center; up to 300 ft. open field |
| Emitted Radiated Power | 0.0039 mW at 3 meters (maximum) |
| Modulation | OOK |
| Stability | SAW stabilized |

## Enclosure

| | |
|---|---|
| Case Length | 1.83 in (46.4 mm) |
| Case Width | 1.34 in (34.0 mm) |
| Case Height | 0.45 in (11.4 mm) |
| Case Weight (with sensor) | 0.45 oz (12.76 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 |
| Storage Temperature | -40° C to +80°C |
| Temperature Sensor Accuracy | +/- 2° F (typical) *** |
| Humidity Sensor Accuracy | +/- 4% RH (typical) *** |

## Power

| | |
|---|---|
| Battery Type | Lithium CR2032 replaceable coin cell |
| Smart Sensor Feature | Low battery indication |
| Battery Life | > 5 years (typical) |

# R156 Temperature-Humidity Sensor Specifications (continued)

**IR Compatibility**

| | |
|---|---|
| Rack Locators | |
| Room Locators | RF Code A740 with Series 2 Protocol |
| | RF Code A750 with Series 2 Protocol |

**Regulatory**

| | |
|---|---|
| FCC Compliance | FCC Title 47 CFR Part 15; FCC ID: P6FZ |
| CE Compliance | RED Health and Safety 2014/53/EU Article 3.1(a) |
| | RED 2014/53/EU Article 3.1(b) |
| | RED Radio Spectrum 2014/53/EU Article 3.2 |
| | EN 60950-1 |
| | EN 62479: 2010CE Marked |
| WEEE Compliant | |

* Dust, debris, and other contaminants can cause errors in humidity sensor readings. To prevent contamination of the humidity sensor the R156 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 32° F and 158° F. The R156 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 R156's temperature and humidity sensor decrease 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.

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.

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