R151Tethered Temperature Sensor

RFCODE Sensors

The R151 Tethered Temperature Sensor, with its tethered digital thermometer, is particularly well-suited for monitoring temperatures in target specific monitoring locations.

Features & Benefits

- Accurate temperature monitoring within 2° F from 14° F to 185° F
- Continues reporting temperature down to-67° F and up to 212° F (+/- 4° F typical)
- Can be installed inside a metal enclosure
- Removable and re-attachable sensor cable (tether)
- Tether (sensor and cable) design suitable for challenging spaces
- Industrial-strength adhesive mounting and flexible mounting options
- Replaceable Battery with Long Life Five (5) Years
- Encoded Radio Transmissions at 433 MHz
- Works with all RF Code fixed and mobile readers

The R151 Tethered Temperature Sensor is a battery-powered RF transmitter that monitors and reports the temperature observed by a digital thermometer that is embedded at the end of a 6-foot wire (tether). This modular design provides physical separation between the RF transmitter (sensor) and the sealed temperature thermometer itself; this allows the tethered sensor to be installed in target specific monitoring locations (particularly in applications where use of a monolithic Temperature Sensor is not practical, such as potentially wet conditions or inside freezers).

The RF transmitter will periodically report its own unique ID, along with the ambient temperature observed by the sensor (updated every 20 seconds). The R151 sensor is designed for use in a variety of challenging environmental monitoring applications. This form factor is particularly well- suited for environments where the RF transmitter (sensor) module is mounted in open space while the thermometer is installed inside RF-blocking enclosures such as a metal ductwork or refrigerators. Mounting is easy and flexible; the tethered sensor can be routed into difficult to reach places, such as above a suspended ceiling or inside HVAC air ducts.

The RF transmitter (sensor) is housed in an ABS enclosure with a strong industrial adhesive on the back of the enclosure. It can be securely mounted using adhesive, mechanical fasteners (screws) or zip ties. The digital thermometer is sealed at the end of a cable that can be detached from the RF transmitter (sensor) during the installation process and then re-attached via screw-terminal block.

The R151's modular design ensures clear RF signal transmissions in high density deployments, such as within racks and data centers. The RF sensor operates with a very low duty cycle that translates to long battery life (typically 5 years). Featuring a low-battery alert, the sensor will continue to monitor and report temperature for at least two months following the initial low battery condition. After that, the sensor will continue to broadcast its unique ID and a low battery indication with each beacon but will not report temperature until the batteries are replaced.

The R151 Tethered Temperature Sensor's digital thermometer is embedded at the end of a 6-foot tether, which provides physical separation between the RF transmitter (sensor) and the sealed thermometer and permits the tethered sensor to be installed in target specific monitoring locations.

RF Code R151 Tethered Temperature Sensor Specifications

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

ENCLOSURE	
Case Length	2.53 in (64.3 mm); 3.50 in (88.9 mm) including mounting wings
Case Width	2.53 in (64.3 mm)
Case Height	1.03 in (26.2 mm)
Case Weight (with sensor)	2.61 oz (74 g)
Construction	ABS
Durability	Tough, impact resistant and temperature stable
Mounting Options	Mechanical screws (2 places) or adhesive pads

DIGITAL THERMOMETER SENSOR TETHER	
Sensor Width	0.38 in (9.7 mm)
Depth	0.84 in (21.3 mm)
Height	0.30 in (7.6 mm)
Tether Construction (R151-0010-003)	0.15 in (3.8 mm) diameter non-plenum-rated cable
Tether Construction (R151-0010-004)	0.15 in (3.8 mm) diameter plenum-rated cable
Tether Length	72 in (1829 mm) = 6 ft (1.83 m)

ENVIRONMENTAL: RF TRANSMITTER (SENSOR)	
Operating Temperature	-20° C to +70° C
Storage Temperature	-40° C to +80°C

ENVIRONMENTAL: DIGITAL TEMPERATURE TETHER	
Operating Temperature Range (+/- 4° F typical)	-55° C to +100° C (-67° F to +212° F)
Accurate Temperature Range (+/- 2° F)	-10° C to +85° C (14° F to +185° F)
Liquid Durability	Suitable for condensing environments

POWER	
Battery	Three (3) Lithium CR2032 replaceable coin cells
Battery Life	5 years
Smart Sensor Feature	Low battery indication

REGULATORY	
FCC Compliance	FCC Title 47 CFR Part 15; FCC ID: P6FX
CE Compliance	RED 2014/53/EU Article 3.1(a): Health and Safety RED 2014/53/EU Article 3.1(b): Electromagnetic Compatibility RED 2014/53/EU Article 3.2: Radio Spectrum CE Marked

RFCODE

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