

# LoRaWAN<sup>®</sup> Wireless Temperature Sensors



Radio Bridge LoRaWAN<sup>®</sup> Wireless Temperature Sensors are designed to accurately detect ambient air temperature and use air flow to measure levels. LoRaWAN<sup>®</sup> sensors for air temperatures are available for both indoor and outdoor/industrial use.

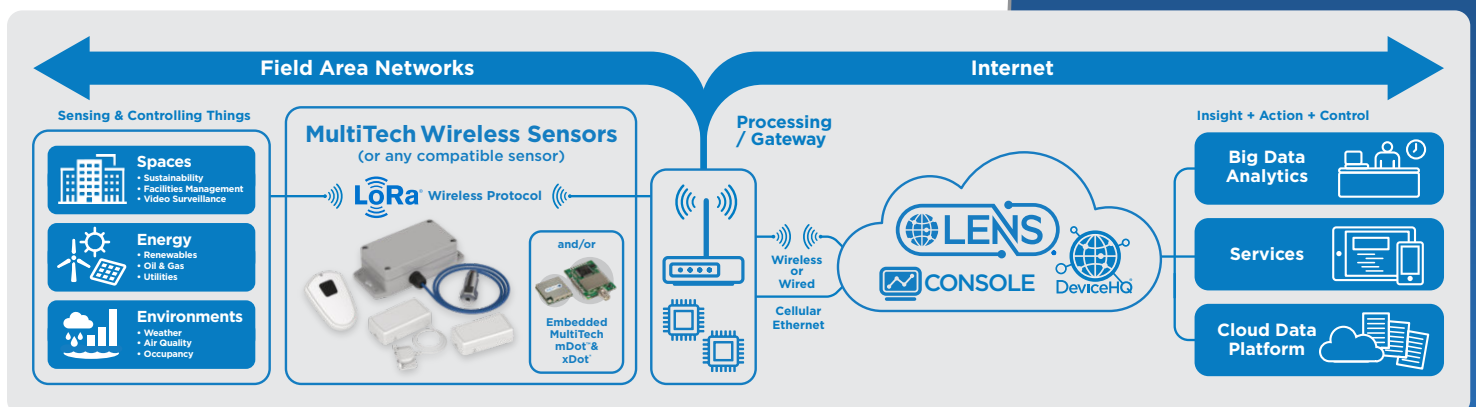
LoRaWAN wireless sensors make it easy to connect sensor data to your applications. Best in class RF performance enables sensors to work in environments where others fail. Advanced power management provides maximum battery life. Sensors can be configured over the air, enabling them to be optimized, before and after installation, for the most optimum reporting intervals or thresholds to provide the data that is important to your application, when you need it.

## BENEFITS

- Open architecture for flexible integration
- Optional web-based console for provisioning, monitoring, and configuration of sensors in the field
- Seamlessly integrate with MultiTech portfolio of LoRaWAN gateways

## FEATURES

- Based on LoRaWAN wireless technology
- Very long range, up to several miles
- Excellent wireless penetration through structures such as walls and floors
- Enclosure tamper detection
- Automatic error reporting through supervisory messages
- Over the air configuration



# LoRaWAN® Wireless IoT Sensors

## Long-range wireless sensors for the Internet of Things (IoT)

Radio Bridge LoRaWAN® wireless sensors, utilize the LoRaWAN wireless standard and are all engineered for long-range, low cost, and extended battery life applications. These sensors deliver critical asset information so you understand what's going on and can react quickly when needed.

| Sensor / Item                                                                                                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Applications                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RBS301-TEMP-EXT-US &amp; RBS3010EU05BN00</b><br> | <b>LoRaWAN Temperature Sensor with External Probe for Indoor Use</b><br><p>This sensor uses an external probe to measure temperatures. Ideal for food service, cold chain monitoring, restaurants, laboratory monitoring, server rooms and warehouses. If the temperature rises above or falls below the configured threshold, an alert is sent to the wireless network.</p>                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>• Food Service</li> <li>• Cold Chain Monitoring</li> <li>• Buildings, Retail, Restaurants</li> <li>• Laboratory Monitoring</li> <li>• Server Room Monitoring</li> <li>• Warehouse Monitoring</li> </ul> |
| <b>RBS3010EU19BN00</b><br>                          | <b>LoRaWAN Probeless Temperature Sensor for Indoor Use</b><br><p>This sensor measures the temperature of the air surrounding the sensor without any external probes such as a thermocouple or thermistor. Ideal for smart building applications, it can be used for detecting freezing temperatures to protect plumbing and other infrastructure, detect heat failure in second homes or remote buildings, restaurant food safety, detecting cooling system failures, industrial temperature monitoring and general low precision ambient temperatures.</p>                             |                                                                                                                                                                                                                                                |
| <b>RBS3010EU0EBN00</b><br>                        | <b>LoRaWAN Probeless Temperature &amp; Humidity Sensor for Indoor Use</b><br><p>The wireless temperature and humidity sensor uses air flow to measure temperature and humidity levels with accuracies of +/- 0.1°C and +/- 1.5 %RH respectively.</p>                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                |
| <b>RBS306-ATH-EXT-US</b><br>                      | <b>LoRaWAN Air Temperature and Humidity Sensor with External Probe for Outdoor/Industrial Use</b><br><p>This sensor uses air flow through a sintered porous stainless steel filter to allow for temperature and humidity measurements in outdoor and industrial environments. The sintered porous filter is IP54 rated to protect against dust and debris. This sensor can also be used for detecting freezing temperatures to protect plumbing, detect heat failure in second homes or remote buildings, detecting cooling system failures, and industrial temperature monitoring.</p> |                                                                                                                                                                                                                                                |
| <b>RBS306-TEMP-EXT-US</b><br>                     | <b>LoRaWAN Temperature Sensor for Outdoor/Industrial Use</b><br><p>This sensor uses an external probe to measure temperatures. Ideal for food service, cold chain monitoring, restaurants, laboratory monitoring, server rooms and warehouses. If the temperature rises above or falls below the configured threshold, an alert is sent to the wireless network.</p>                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                |
| <b>RBS306-TEMP-TC-US</b><br>                      | <b>LoRaWAN Thermocouple Temperature Sensor for Outdoor/Industrial Use</b><br><p>This sensor measures temperature using an external K-type thermocouple. Other thermocouples may be used and can be configured via downlink messages. Multiple thermocouple types supported: B, E, J, K, N, R, S and T. The enclosure is suitable for outdoor and industrial use. Applications include gas turbine exhaust, diesel engines, industrial processes, flame sensor, petroleum refineries, appliance heating, and food processing and production.</p>                                         |                                                                                                                                                                                                                                                |

## Radio Bridge Console

The Radio Bridge Console is an optional web-based fully integrated solution that provides sensor configuration, LoRaWAN Network Server management, configurable alerts and notifications and sensor visualization that enables you to deploy and validate your sensor-to-cloud solution immediately, without spending weeks or months on system integration efforts.

**LEARN MORE:** [radiobridge.com/software/device-management-console](https://radiobridge.com/software/device-management-console)



## SENSOR SPECIFICATIONS OVERVIEW

| Item / Type                 | Description                                                                                                                                                                                                                    |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------|
| Sensor Type                 | LoRaWAN External Probe Temperature (Indoor Use)                                                                                                                                                                                | LoRaWAN External-Probe Temperature (Indoor Use) | LoRaWAN Probeless Temperature (Indoor Use) | LoRaWAN Probeless Air Temperature & Humidity (Indoor Use) | LoRaWAN External-Probe Air Temperature & Humidity (Outdoor/Industrial Use) | LoRaWAN External-Probe Temperature (Outdoor/Industrial Use) | LoRaWAN Thermocouple Temperature (Outdoor/Industrial Use) |
| Part Number                 | RBS301-TEMP-EXT-US                                                                                                                                                                                                             | RBS3010EU05BN00                                 | RBS3010EU19BN00                            | RBS3010EU0EBN00                                           | RBS306-ATH-EXT-US                                                          | RBS306-TEMP-EXT-US                                          | RBS306-TEMP-TC-US                                         |
|                             |                                                                                                                                                                                                                                |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Frequency Band (MHz)        | 902-928                                                                                                                                                                                                                        | 863-870                                         |                                            |                                                           | 902-928                                                                    |                                                             |                                                           |
| Channel Plan                | US915                                                                                                                                                                                                                          | EU868                                           |                                            |                                                           | US915                                                                      |                                                             |                                                           |
| Protocol                    | LoRaWAN compliant                                                                                                                                                                                                              |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Antenna                     | Internal                                                                                                                                                                                                                       |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Power                       |                                                                                                                                                                                                                                |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Battery Powered             | Yes                                                                                                                                                                                                                            |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Battery Type                | 1 X CR123A                                                                                                                                                                                                                     |                                                 |                                            |                                                           | 2 X CR123A                                                                 |                                                             |                                                           |
| User Replaceable            | Yes                                                                                                                                                                                                                            |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Battery Life                | 200,000+ transmissions, up to 10 years depending on configuration<br>( <a href="https://radiobridge.com/documents/Sensor%20Battery%20Estimator.xlsx">https://radiobridge.com/documents/Sensor%20Battery%20Estimator.xlsx</a> ) |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Physical Description        |                                                                                                                                                                                                                                |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Physical Dimensions (LxWxH) | 2.81" x 1.46" x 0.75"<br>(71.37mm x 37.08mm x 19.05mm)                                                                                                                                                                         |                                                 |                                            |                                                           | 5.12" x 2.56" x 1.58"<br>(130.05mm x 65.02mm x 40.13mm)                    |                                                             |                                                           |
| Physical Weight             | 111g (base weight without probe: 40g)                                                                                                                                                                                          |                                                 |                                            |                                                           | 227g (base weight without probe: 175g)                                     |                                                             |                                                           |
| Enclosure Type              | ABS Plastic, indoor rated                                                                                                                                                                                                      |                                                 |                                            |                                                           | ABS Plastic, outdoor rated                                                 |                                                             |                                                           |
| Mounting                    | Screw or Adhesive                                                                                                                                                                                                              |                                                 |                                            |                                                           | Screw                                                                      |                                                             |                                                           |
| Environmental               |                                                                                                                                                                                                                                |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Operating Temperature       | -30 to +60°C                                                                                                                                                                                                                   |                                                 |                                            |                                                           | -40 to +70°C                                                               |                                                             |                                                           |
| Operating Humidity          | 10 - 90% (non-condensing)                                                                                                                                                                                                      |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Storage Temperature         | -40° to +45°C*                                                                                                                                                                                                                 |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Certifications              |                                                                                                                                                                                                                                |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |
| Compliance                  | FCC/IC                                                                                                                                                                                                                         | CE, RED, UKCA                                   |                                            |                                                           | FCC/IC                                                                     |                                                             |                                                           |
| Warranty                    | 2-Years / <a href="http://www.multitech.com/legal/warranty">www.multitech.com/legal/warranty</a>                                                                                                                               |                                                 |                                            |                                                           |                                                                            |                                                             |                                                           |

\*The device may be stored at higher temperatures, but degradation of the battery life will occur. See user guide for more information.

## ORDERING INFORMATION

### MultiTech Sensors

| Model              | Description                                                                           | Region        |
|--------------------|---------------------------------------------------------------------------------------|---------------|
| RBS301-TEMP-EXT-US | LoRaWAN External Probe Temperature Sensor for Indoor Use (1 Pk)                       | North America |
| RBS3010EU05BN00    | LoRaWAN External Probe Temperature Sensor for Indoor Use (1 Pk)                       | EU & UK       |
| RBS3010EU19BN00    | LoRaWAN Probeless Temperature Sensor for Indoor Use (1 Pk)                            | EU & UK       |
| RBS3010EU0EBN00    | LoRaWAN Probeless Temperature and Humidity Sensor for Indoor Use (1 Pk)               | EU & UK       |
| RBS306-ATH-EXT-US  | LoRaWAN External Probe Air Temp and Humidity Sensor for Outdoor/Industrial Use (1 Pk) | North America |
| RBS306-TEMP-EXT-US | LoRaWAN External-Probe Temperature Sensor for Outdoor/Industrial Use (1 Pk)           | North America |
| RBS306-TEMP-TC-US  | LoRaWAN Thermocouple Temperature Sensor for Outdoor/Industrial Use (1 Pk)             | North America |

## Services & Warranty

MultiTech's comprehensive Support Services programs offer a full array of options to suit your specific needs. These services are aimed at protecting your investment, extending the life of your solution or product, and reducing total cost of ownership. Our seasoned technical experts, with an average tenure of more than 10 years, can walk you through smooth installations, troubleshoot issues and help you with configurations.

## Technical Support Services

At MultiTech, we're committed to providing you personalized attention and quality service while providing you a quick response to your product support needs. We have several options of support for you to choose from.

For additional information on Support Services as well as other service offerings, please contact your MultiTech representative or visit [www.multitech.com/support.go](http://www.multitech.com/support.go)

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