EMERSON

Application Engineering | LUMITY

BULLETIN

**AE29-1468 R1** **February 2021**

# Lumity Wireless Data Logger

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## Safety Instructions

Lumity devices are manufactured according to the latest U.S. and European Safety Standards. Particular emphasis has been placed on the user's safety. Safety icons are explained below and safety instructions applicable to the products in this bulletin are grouped on Page 3. These instructions should be retained throughout the lifetime of the device. **You are strongly advised to follow these safety instructions.**

## Safety Icon Explanation


**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.


**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.


**CAUTION,** used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.


**NOTICE** is used to address practices not related to personal injury.


**CAUTION,** without the safety alert symbol, is used to address practices not related to personal injury.


**FLAMMABLE,** Fire hazard! Sparking in a potentially explosive atmosphere!

Explosion hazard!

## Instructions Pertaining to Risk of Electrical Shock, Fire, or Injury to Persons

| | |
|---|---|
| WARNING | **PLEASE READ BEFORE USING THIS MANUAL**<br>• This manual is part of the product and should be kept near the instrument for easy and quick reference.<br>• The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.<br>• Check the application limits before proceeding.<br>• Emerson reserves the right to change the composition of its products, even without notice, ensuring the same and unchanged functionality. |
| | |
| WARNING | **SAFETY PRECAUTIONS**<br>• Verify that the supply voltage is correct before connecting the instrument.<br>• Do not expose the gateway to water or moisture: use the devices only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation.<br>• Warning: disconnect all electrical connections before any kind of maintenance.<br>• Fit the transmitter where it is accessible by the End User for troubleshooting and replacement. The instrument must not be opened.<br>• In case of failure or faulty operation send the instrument back to the distributor or to “Emerson” (see address) with a detailed description of the fault. |

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## Introduction

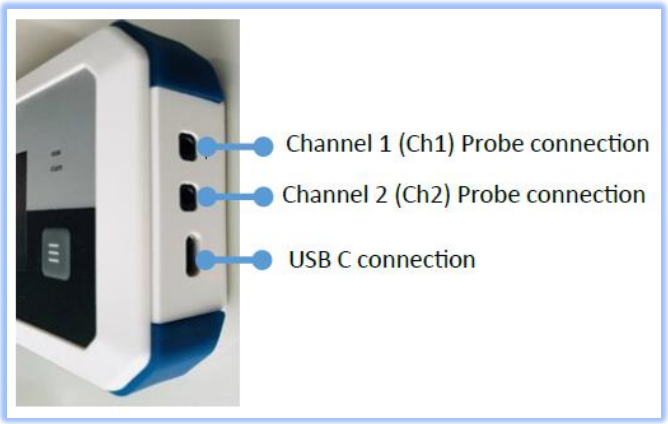
The Lumity wireless data loggers measure temperature. Designed to meet Centers for Disease Control and Prevention (CDC) guidelines, this logger is ideal for clinical applications, such as vaccines storage and other Healthcare monitoring solutions. This Bluetooth® Low Energy-enabled logger is designed for wireless communication with a mobile device. It also transmits over 900 MHz frequency to TempTrak Server. Using the Lumity Logger app, you can easily configure the device with one of two different probe types Standard Probe or Lab/Cryogenic probe for freezer or refrigerator monitoring. You can also quickly perform daily device checks, download reports, and monitor alarms. Use the built-in LCD screen on the device to check the current temperature, maximum or minimum temperatures, alarms, battery use, and more.

## Specifications

| | |
|---|---|
| **Lab/Cryogenic RTD Temperature Probe** | Model No. 10134 Comes with Product Simulator Sleeve (10184) |
| Temperature Range | -328°F to 311°F (-200°C to 155°C) |
| Accuracy | ±0.5°C at 25°C (±1.0°F at 77°F) |
| NIST Calibration | Traceability available |
| Cable Length | 10’ (3 m) |
| Probe Dimensions | Shaft diameter .25” (6 mm), Shaft length 3” (76mm) |
| Sleeve Dimensions | 2.0” x 1.5” dia. (51 mm x 38 mm dia.) |
| | |
| **Standard Temperature Sensor** | Model Number 10117 |
| Temperature Range | -25° to 180°F (-32° to 82°C) |
| Accuracy | ±0.5°C at 25°C (±1.0°F at 77°F) |
| | |
| **Data Logger** | |
| Radio Frequency | Radio 1: 900 MHz Radio 2: Bluetooth 4.1 |
| Transmission Range | 900MHz: 2500 feet (762 meters) (open field range) (To be validated)<br>Bluetooth 4.1: 100 feet (30.5 meters) (open field range) (To be validated) |
| Radio Power for Bluetooth 5.0 | 1 mW (0 dBm) |
| Temperature Accuracy | FX100 with Standard Probe:<br>±0.5°C from -50° to 150°C (±0.9°F from -58° to 302°F)<br>FX100 with Lab/Cryogenic RTD Probe:<br>±0.5°C from -200° to 180°C (±0.9°F from -328° to 356°F)<br>±1.0°C from 180° to 500°C (±1.8°F from 356° to 932°F) |
| Data Logger Operating Range | -10° to 50°C (14° to 122°F), 0 to 95% RH (non-condensing) |
| Logging Rate | 1, 5, 10, 15 or 20 Minute |
| Time Accuracy | ±1 minute per month at 25°C (77°F) |
| Battery Type | Two AA 1.5 V Lithium Batteries, user replaceable |
| Battery Life | 2 year, typical with logging interval of 5 minutes. Faster logging intervals, remaining connected with the Lumity Logger app, excessive report generation & numerous |

| | |
|---|---|
| | audible alarms all impact battery life. |
| Memory | 1 MB (32,000 measurements) |
| Full Memory Download Time | Approximately 15 Minutes; may take longer the farther the device is from the logger |
| Display | 2.7'' MIP Display |
| Dimensions | 8.8 x 14.6 x 2.5 cm (3.46 x 5.74 x 0.98 inches) |
| Weight | 242 g (8.53 oz) |
| Environmental Rating | IP67 |

## Components and Operations


- **Multi-function Button**
  - Press button once to reset Min/Max values and transmit data to TempTrak. Device will show the min/max temperatures from the time of reset. Time and date of last reset will be updated.
  - Press and hold the button for 2 to 4 seconds to enter configuration mode.
- **Ch1 & Ch2:** Insert probe jacks to measure temperatures via the probes. The logger will only show temperatures for connected probes.
- **Audible Alarm**: device beeps when an alarm is tripped.
- **Alarm LED**: LED blinks for 1 min when an alarm is tripped. Then bell on display blinks for 5 sec.
- **Display**: Screen shows the latest temperature reading, min/max temperature since last reset, and other status information.

## Display Icons

| Symbol | Description |
|---|---|
|  | An alarm has tripped because the temperature reading is outside the specified range. |
|  | This shows the approximate battery power remaining. |
|  | Indicates presence of Logger has Bluetooth radio for configuration / data retrieval purpose. |
|   | Indicates presence of Logger transmits on 900 MHz frequency radio |
| MIN | The lowest probe temperature read by the data logger since the last reset, |
| MAX | The highest probe temperature read by the data logger since the last reset. |

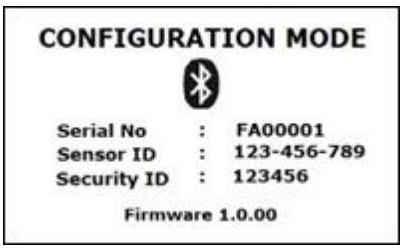
| | |
|---|---|
| 105.5 °F | Current Temperature reading from a probe from the sensor. |

## Getting Started

Using the Lumity Logger app, you can configure the device with your phone or tablet and then download reports, which are saved on the device.

Follow these steps to begin using the loggers with TempTrak and the Lumity Logger app.

1. Add Sensors in TempTrak server. Follow below instruction to register sensors in TempTrak.
   a) Login to TempTrak. Click on Configuration Tab.
   b) Go to Sensor Registration.
   c) Put Sensor ID and security ID from the sticker (side of unit) on the transmitter.
   d) Select Transmitter Type & Group. Click on Add button.
   e) e) Transmitter will default logging every 5 min.
2. Download the Lumity Logger app and log in.
   a) Download Lumity Logger App to a phone or tablet from the App Store® or Google Play™.
   b) Open the app and enable Bluetooth in the device settings if prompted.
   c) Use credentials provided by Emerson Sales Team to login to Mobile App
   d) When logged in for the first time, a pop message “Lumity Logger” Would like to Use Bluetooth will show up. Please Click “OK”
3. Set up the logger. Insert the external temperature probe.
4. Configure the logger
   a) Press and hold the ☰ button on transmitter for 2-4 seconds. When the screen goes blank, release the button to enter Configuration Mode.

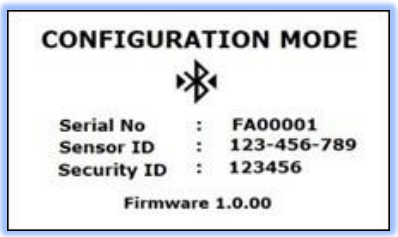



   b) In the mobile app, press **Scan** to initiate a search for the transmitter with Bluetooth® wireless technology.


   c) Scanners are named FAXXXX (where XXXX is the transmitter’s serial number). Connect to the desired device to pair with mobile device.


**NOTICE** If transmitter is not paired within 90 seconds, it will enter in to default Operational Mode. Repeat the process to resume the configuration.

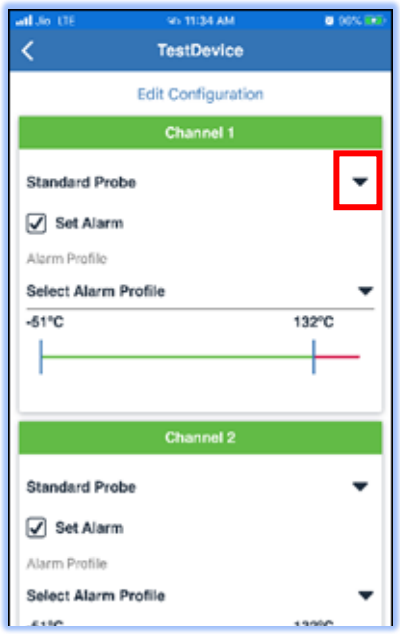
5. Configure the logger continued
   a. Once connected, the transmitter displays as shown. If the transmitter becomes disconnected repeat the process to re-connect it.



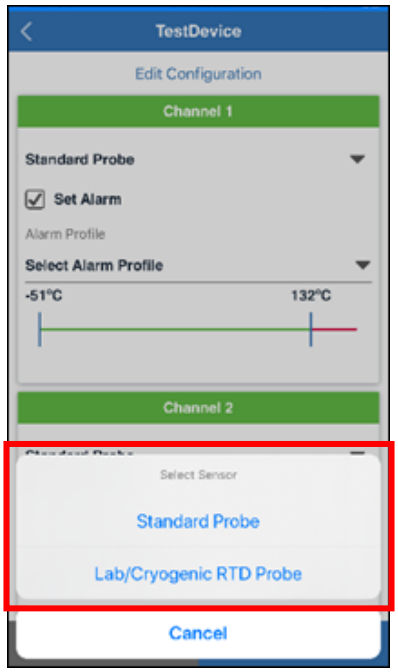

b. To edit transmitter settings, Click on the Edit symbol on the top right of the screen. When changes are completed, select Apply at the bottom of the screen to update the setting on the transmitter.


The following parameters can be edited and configured via the app:

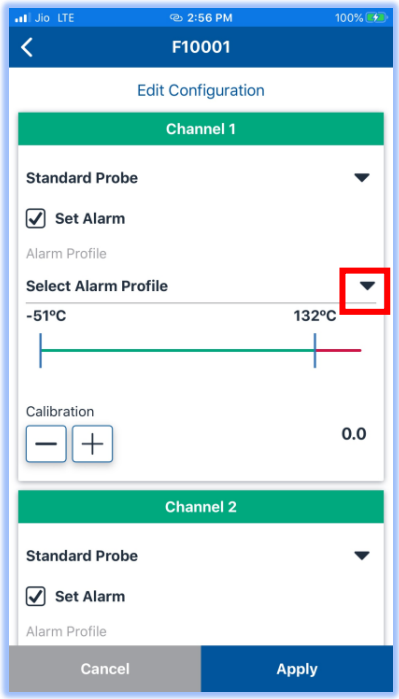
- Sensor type: Standard Probe or Lab or Cryogenic RTD for both the Channel 1 and Channel 2.
  1. Click dropdown to select probe type



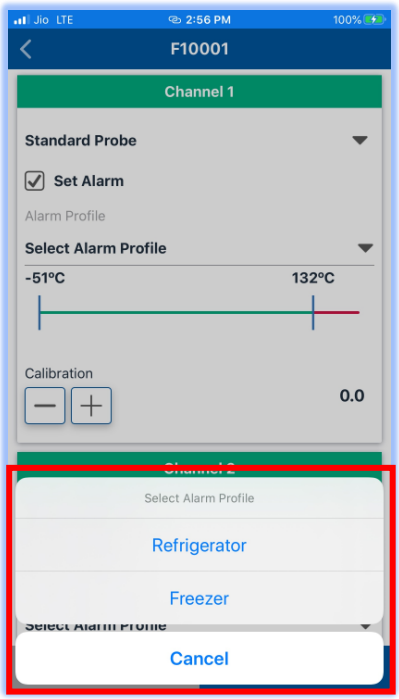

  2. Select probe type



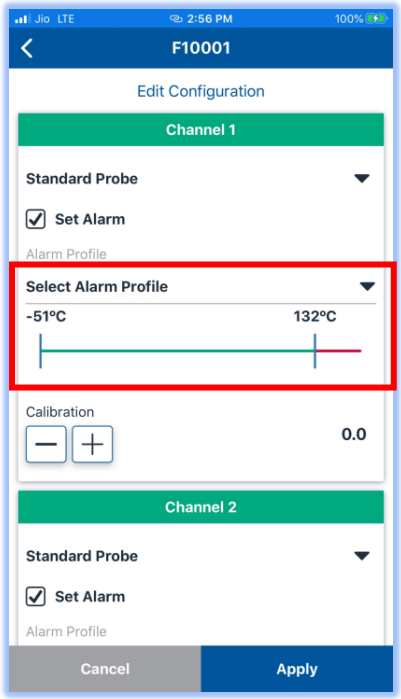

- Alarm Profile
  1. Select dropdown to change profile



2. Select equipment type to be monitored

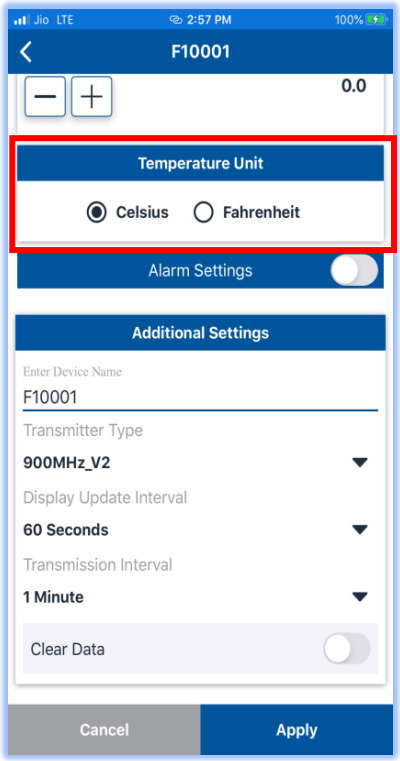



3. Use slider to adjust alarm set points



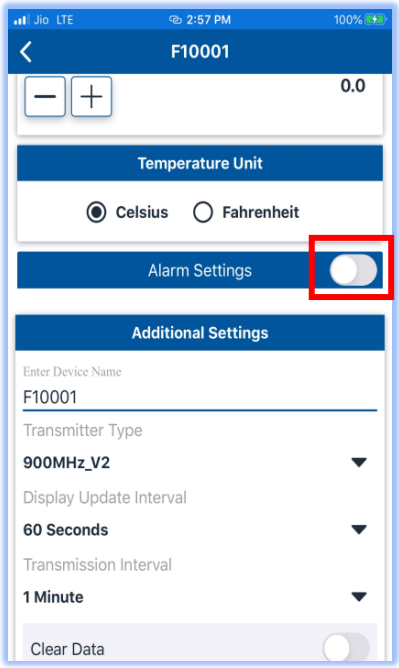

- Temperature units of measure °C or °F.

1. Scroll down to see menu

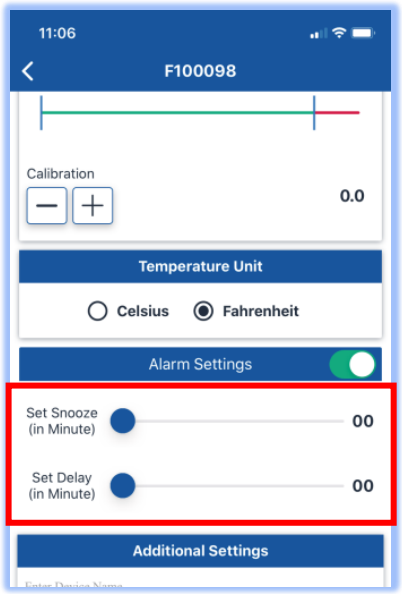



- Alarm Settings

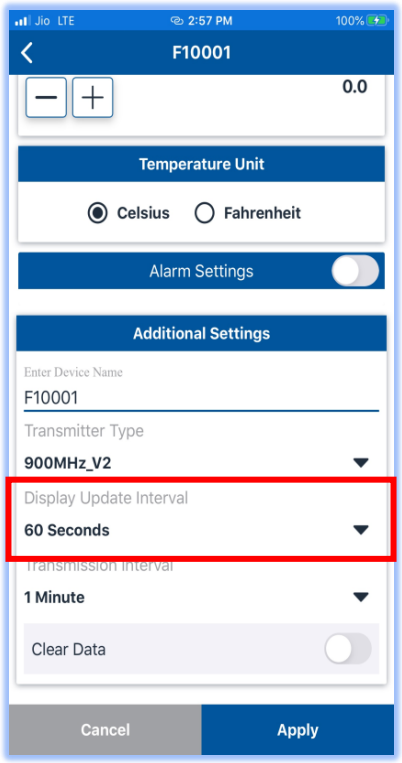
1. Turn alarm settings on/off



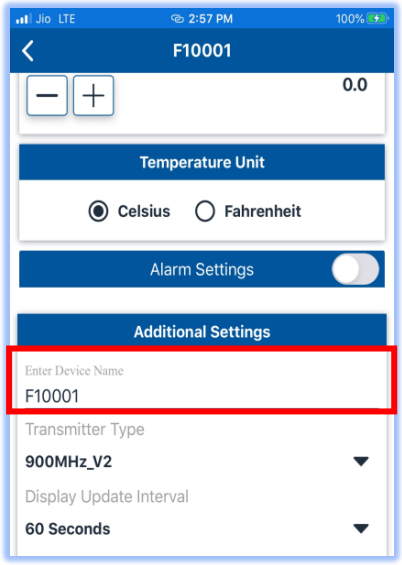
2. Use sliders to set delay and snooze times



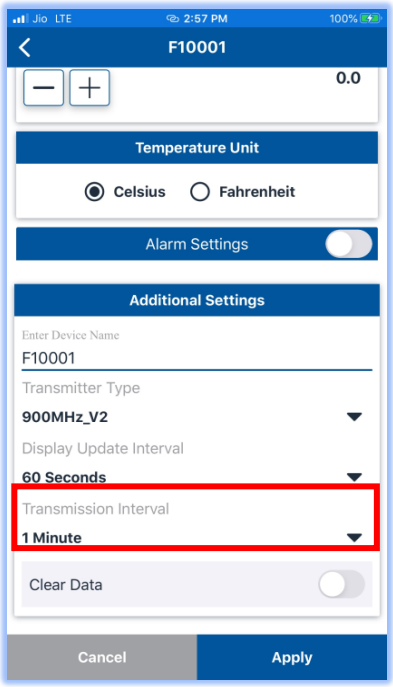

- Wireless data transmission Interval
  1. Can be set to 1, 5, 10, 15 or 20 minutes.




- Device name
  1. Edit device name by typing in the text box under “Enter Device Name”

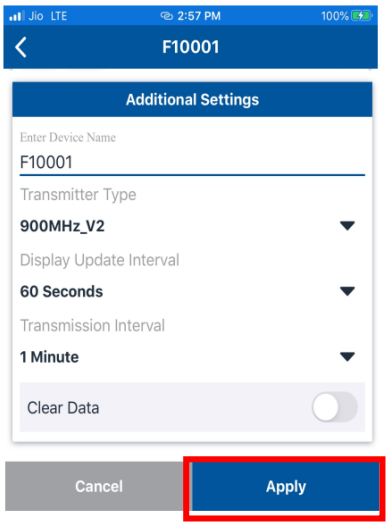



- Data transmission interval to the TempTrak system
  1. Select the dropdown to change how frequently data is sent to the TempTrak system

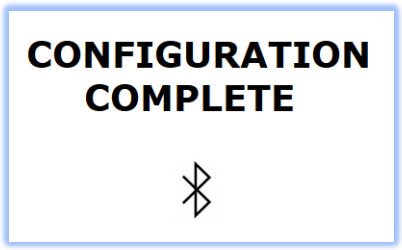


## Saving Changes

Select Apply for your changes to be sent to the data logger. Changes must be applied within 5 minutes of entering the configuration mode on the data logger as the data logger will disconnect after 5 minutes to conserve battery




Once changes are applied the data logger will display the following screen




## Logger Alarm(s)

Device alarm will be tripped when the temperature reading by any of the connected probe is outside the range specified in the logger configuration.

1. When a temperature alarm trips, the logger LED will blink for 1 min. Then every display update it will blink for 5 seconds until alarm is reset.
2. The alarm icon will appear on the display.
3. The logger will beep for 1 min then every display update it will beep for 5 seconds until alarm is reset.
4. An Alarm event is logged.

To mute an alarm, press the multipurpose button once. Once muted, alarm will only beep after snooze period if it has been set.

**NOTICE** *Device Alarms are local to the device and independent of TempTrak Software Alarms*

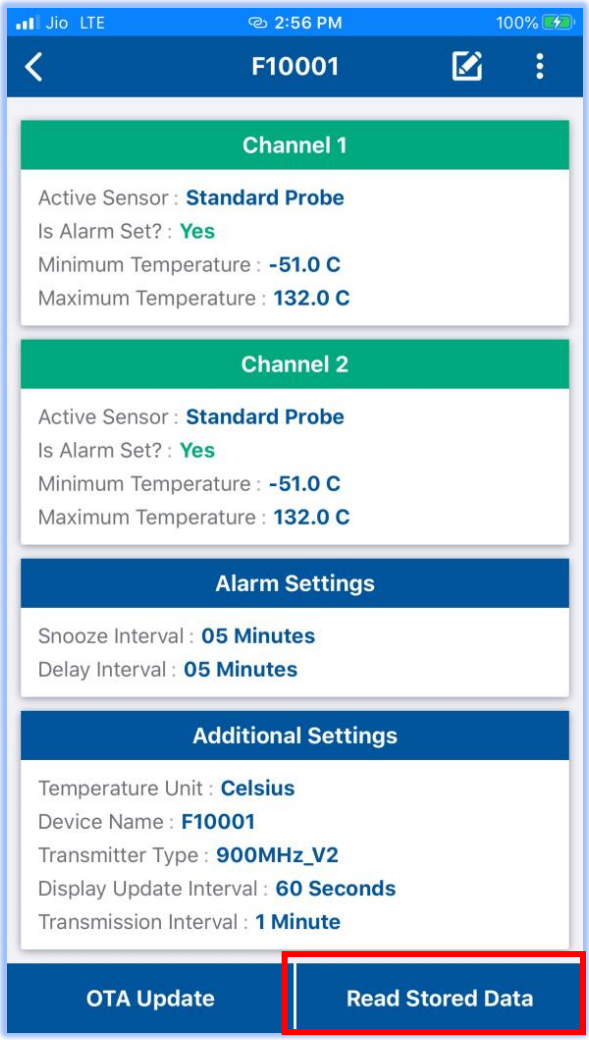
## Retrieving Data from the Logger

You can download the data from device to a phone or tablet and generate reports that include probe readings, events, alarm information, and more.

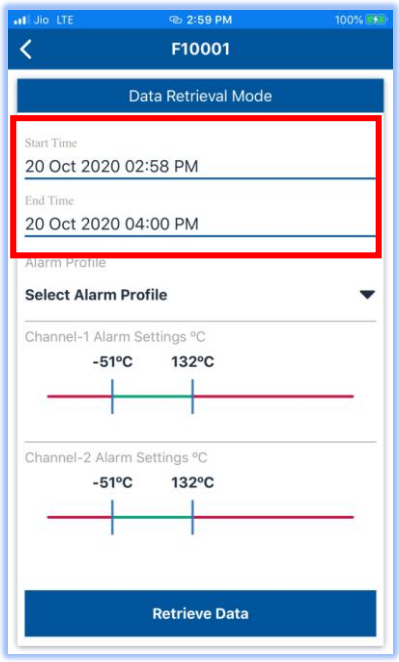
Reports can be shared immediately upon downloading in the App.

To download the data:

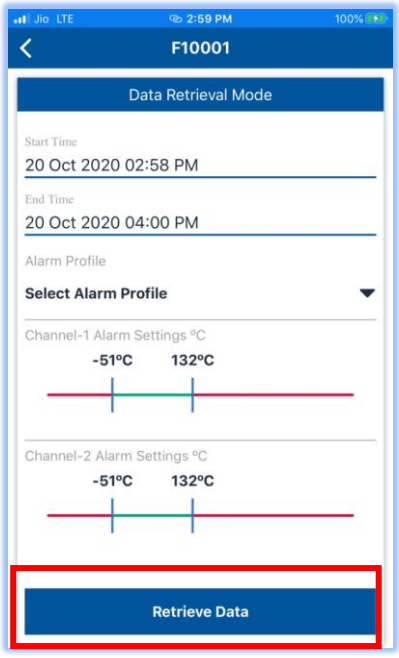
- Connect the Transmitter to Mobile App. Click on Read Stored Data.



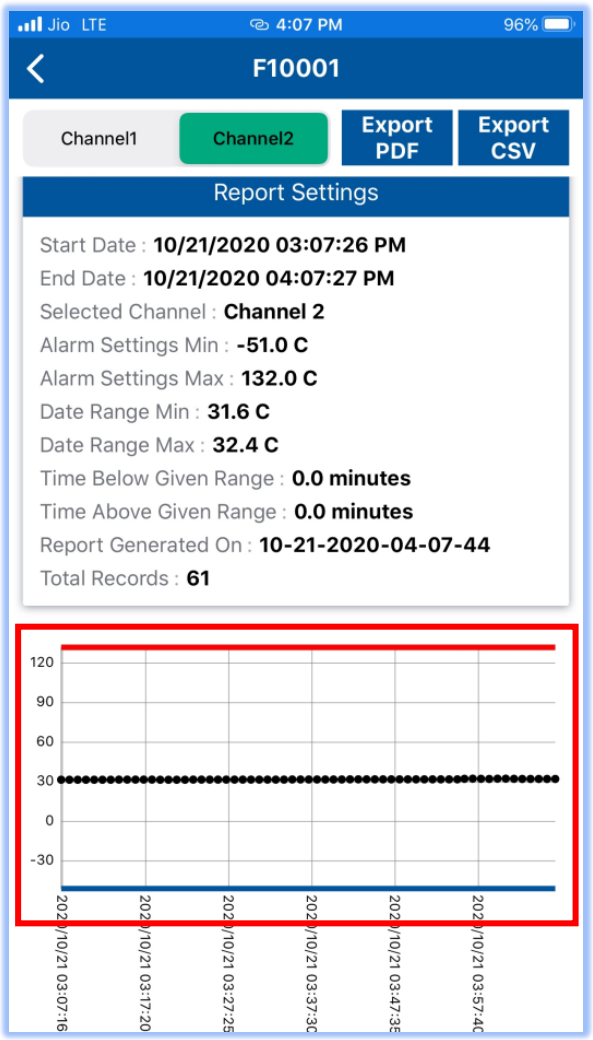

- Select Start Time and End Time, for which channel data needs to be retrieved and Alarm Profile.



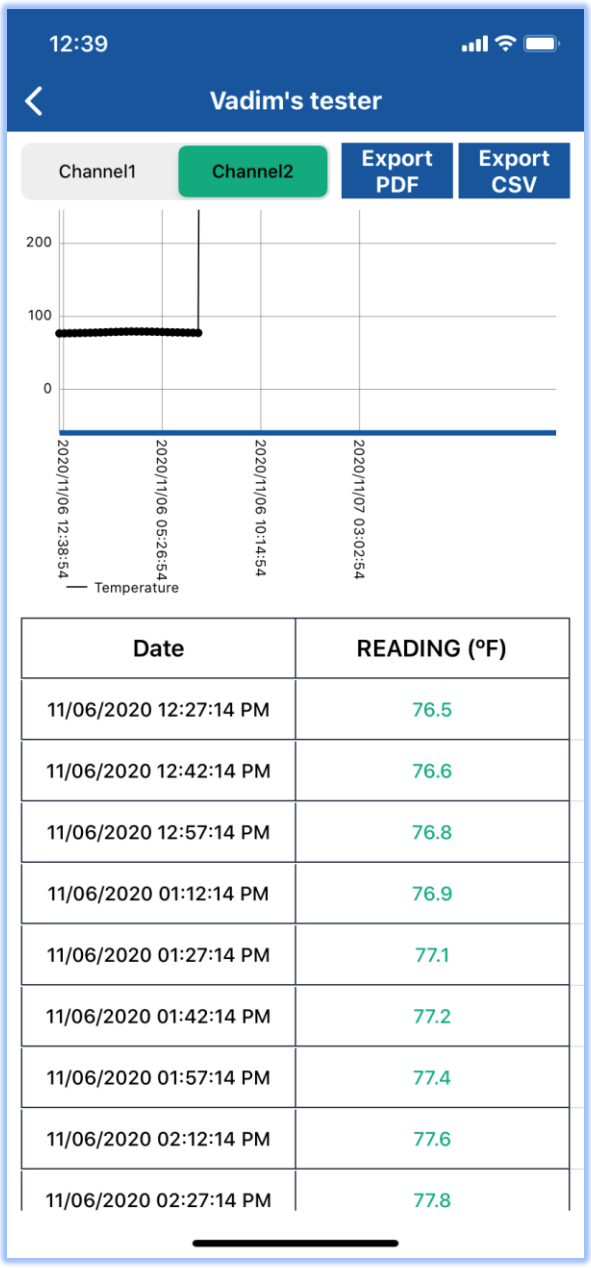

- Click on Retrieve Data.



- Temperature vs Time Graph will be plotted for each channel for given period.



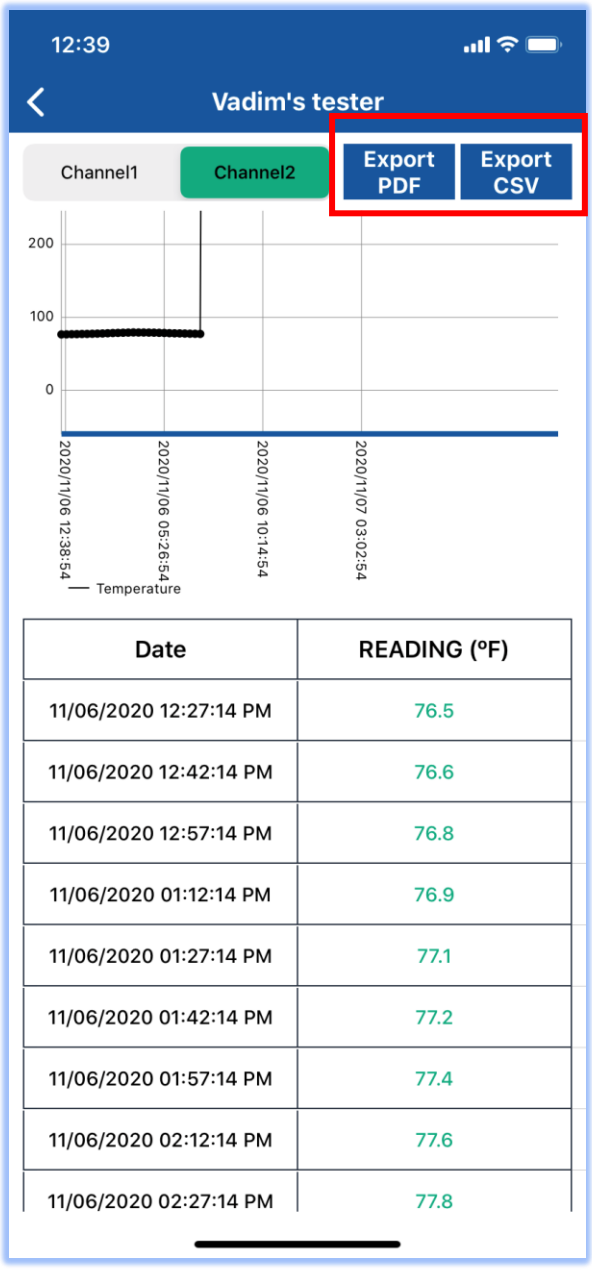

- Temperature reading will be listed with Date reference.




| Date | READING (°F) |
|---|---|
| 11/06/2020 12:27:14 PM | 76.5 |
| 11/06/2020 12:42:14 PM | 76.6 |
| 11/06/2020 12:57:14 PM | 76.8 |
| 11/06/2020 01:12:14 PM | 76.9 |
| 11/06/2020 01:27:14 PM | 77.1 |
| 11/06/2020 01:42:14 PM | 77.2 |
| 11/06/2020 01:57:14 PM | 77.4 |
| 11/06/2020 02:12:14 PM | 77.6 |
| 11/06/2020 02:27:14 PM | 77.8 |

## Exporting Reports

Select the desired report format to export the report. Use the options provided by your mobile device for export email, text, etc.




| Date | READING (ºF) |
|---|---|
| 11/06/2020 12:27:14 PM | 76.5 |
| 11/06/2020 12:42:14 PM | 76.6 |
| 11/06/2020 12:57:14 PM | 76.8 |
| 11/06/2020 01:12:14 PM | 76.9 |
| 11/06/2020 01:27:14 PM | 77.1 |
| 11/06/2020 01:42:14 PM | 77.2 |
| 11/06/2020 01:57:14 PM | 77.4 |
| 11/06/2020 02:12:14 PM | 77.6 |
| 11/06/2020 02:27:14 PM | 77.8 |

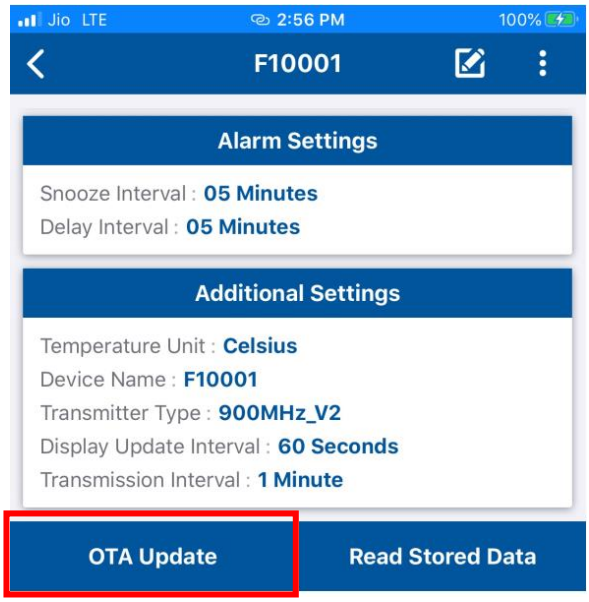
## Logged Events

The logger records the following events to track logger operation and status. These events are listed in reports downloaded from the logger.

| Event Name | Definition |
|---|---|
| Reset | The button has been pressed |
| Probe Alarm Tripped/Cleared | A probe temperature alarm has tripped or cleared because the reading was outside the alarm limits or back within range. |
| Date/Time | Date & Time will be logged. |
| Probe Disconnected/ Connected | If the external probe was disconnected, then no readings will be logged otherwise temperature readings will be logged. |
| Battery Voltage | The battery voltage will be logged. |

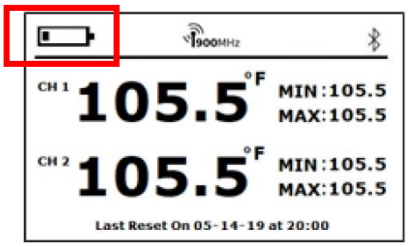
## Over the Air Firmware Updates

Connect the Transmitter with Data Logger Mobile App. Click on OTA Update button. If a new version of firmware is available, click on Update Now button. Transmitter firmware will be updated to latest version.



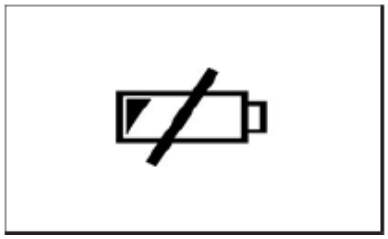
## Battery Power Indicator

When the battery power reaches 20% a buzzer will sound. An alert notification is also sent to the local TempTrak server. Buzzer will snooze at transmission interval for user notification until batteries are replaced.




**NOTICE** *Transmitter is required to be connected to Mobile Application to synchronize the Date & Time whenever batteries are removed or replaced.*

If batteries are not replaced, the transmitter will not function. A low battery symbol will be displayed on the screen.



## Battery Information:

The logger requires two user-replaceable AA 1.5 V lithium batteries for operation at the extreme ends of the logger operating range. Expected battery life varies based on the ambient temperature where the logger is deployed, the frequency of connecting to the phone or tablet and downloading reports, the duration of audible alarms, and battery performance. New batteries typically last 2 years with logging intervals greater than 5 minutes. Deployments in extremely cold or hot temperatures or a logging interval faster than 5 minutes can impact battery life. Estimates are not guaranteed due to uncertainty in initial battery conditions and operating environment.

## Protecting the Logger

The logger is designed for indoor use and can be permanently damaged by corrosion if it gets wet. Protect it from condensation. If the logger gets wet, remove the battery immediately and dry the circuit board.

**⚠CAUTION** *Static electricity may cause the logger to stop logging. The logger has been tested to 2 KV but avoid electrostatic discharge by grounding yourself to protect the logger.*

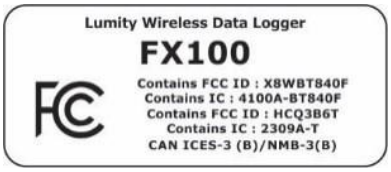
## Federal Communication Commission Interference Statement

FCC Caution

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver



# APPENDIX A

## Quick Setup Guide

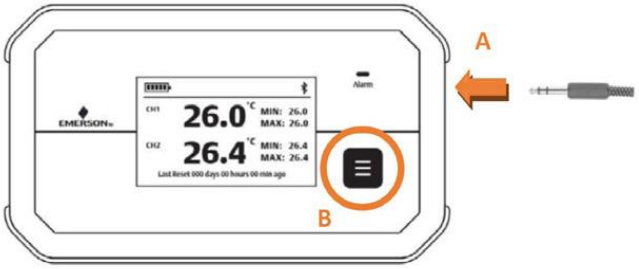
### 1. Install Lumity Logger App


a. Download the Lumity Logger App from the App Store® or Google Play™.

b. Open the app and enable Bluetooth® in the device settings if prompted.

c. Create username and password.

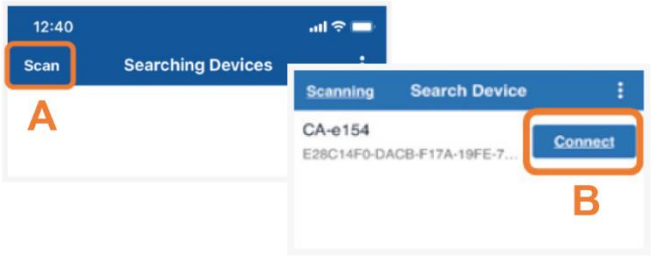
### 2. Set Up the Data Logger




a. Install the temperature probe in the equipment. Insert the end of the temperature probe into the jack on the side of the device.

b. Press and hold the button on the logger for 2-4 seconds. When the screen goes blank, release the button to enter Configuration Mode.

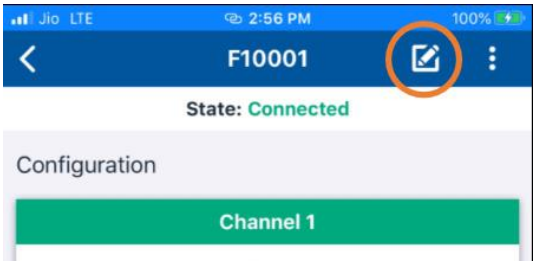
### 3. Pair Mobile Device




a. In the mobile app, press Scan to initiate a search for the data logger with Bluetooth® wireless technology.

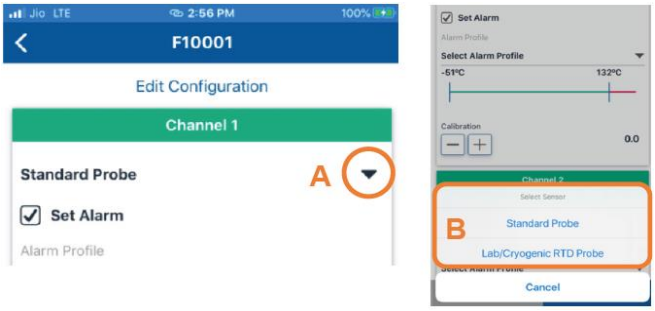
b. Connect to the desired device to pair with mobile device.

### 4. Edit Data Logger Settings




To edit logger settings, press the edit symbol on the top right of the screen.

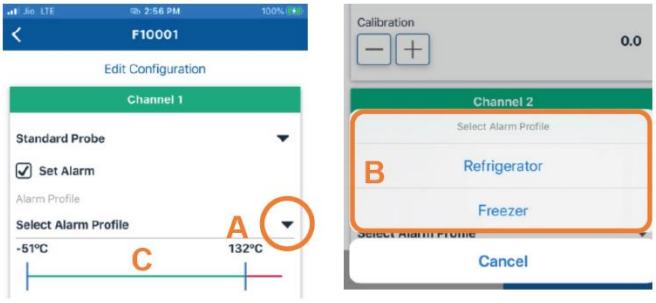
### 5. Select Probe Type




a. Click the dropdown to select probe type.

b. Select probe type.

## 6. Set Up Alarms

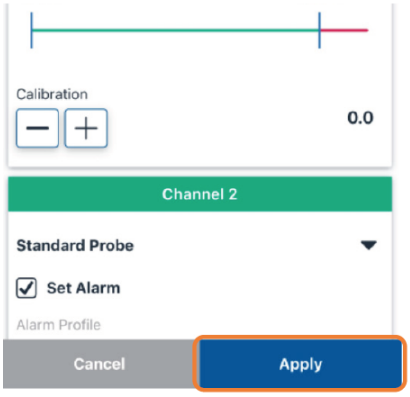



a. Select dropdown to change profile to match equipment.

b. Select equipment type to be monitored.

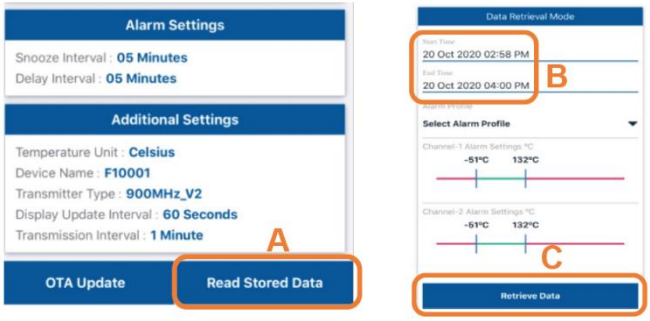
c. Use slider to adjust alarm setpoints if needed.

## 7. Apply Changes to the Data Logger




Select Apply for your changes to be sent to the data logger. Changes must be applied within 5 minutes of entering the configuration mode on the data logger as the data logger will disconnect after 5 minutes to conserve battery.

## 8. Retrieving Data from the Data Logger

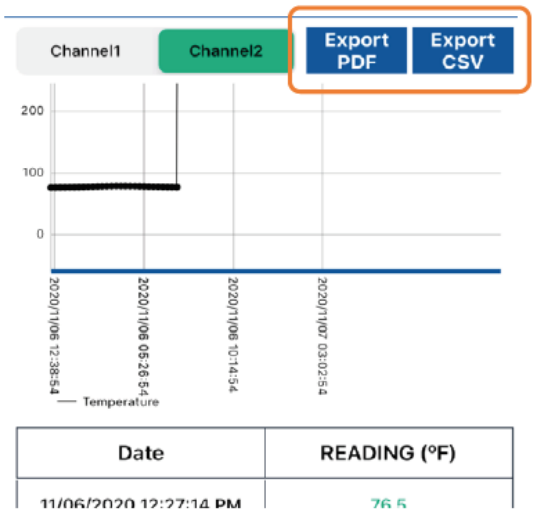



a. Connect the data logger to the mobile app. Click on “Read Stored Data.”

b. Select Start Time and End Time, for which channel data needs to be retrieved and Alarm Profile.

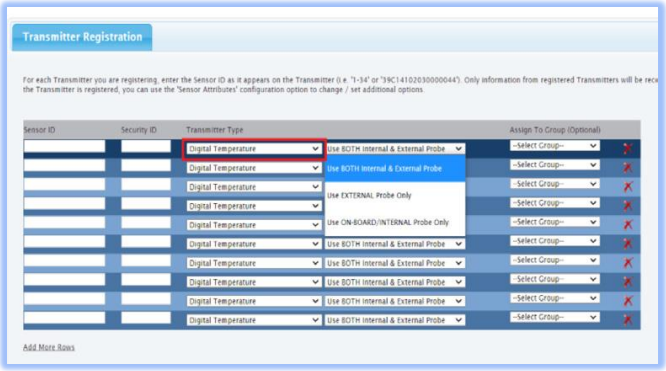
c. Click on “Retrieve Data.”

## 9. Export Reports




Select the desired report format to export the report. Use the options provided by your mobile device for export—email, text, and more.

## 10. Register in TempTrak 5.0



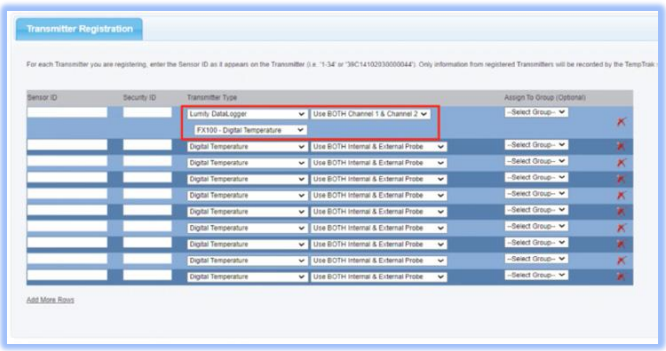

If you haven't upgraded to TempTrak 5.2 yet, you can register the Lumity Wireless Data Logger following the steps below:

a. Choose Digital Temperature as Transmitter type in Sensor Registration.

b. Choose "Internal" if you have a probe connected to Channel 1, "external" if you have a probe connected to Channel 2, "Both internal and external" if you have two probes.

c. Make sure you configure the consistent Alert Profile in TempTrak.

## 11. Register in TempTrak 5.2



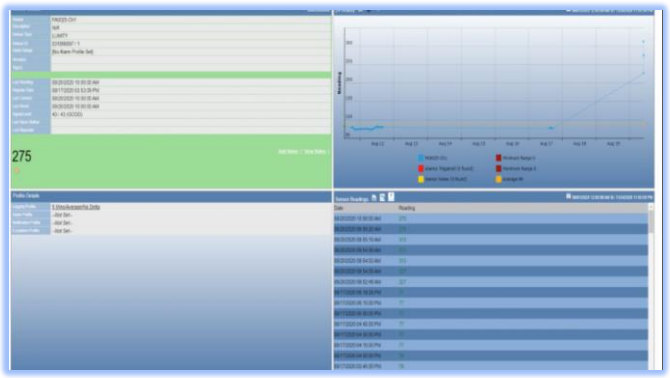

If you have upgraded to TempTrak 5.2, you can register the Lumity Wireless Data Logger following the steps below:

a. Choose Lumity Wireless Data Logger ->FX100 Digital Temperature as the Transmitter Type in Sensor Registration.

b. Choose Channel 1 or Channel 2 or both for your external probes.

c. Make sure you configure the consistent Alert Profile in TempTrak.

## 12. Review Lumity Sensor Detail

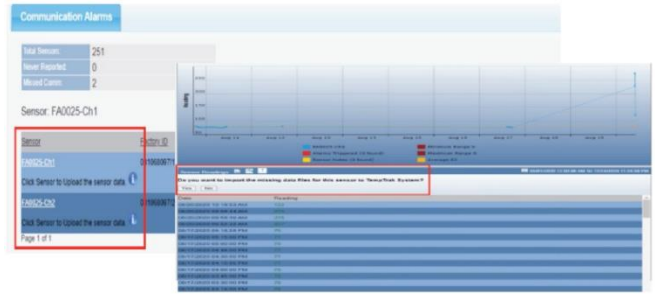



After registration, you can review Sensor Details. In the Sensor Reading section, there are two new utilities added:

a. Upload Utility, which is Lumity only, allows you to upload the missing data for the miscommunication period, which you can download from the Transmitter with the mobile app.

b. Vaccine Monitoring Report Utility, which applies to all temperature sensors, allows you to generate the VFC compliant Vaccine Storage Report.

## 13. Missing Data Workflow



The Lumity Wireless Data Logger can store up to 32K readings in memory. When miscommunication happens, users need to walk to the sensor and download missing data. This reminder will only display for the Lumity Data Logger.

After data is downloaded, users can use the upload utility in Sensor Reading to store the missing data to TempTrak. You must choose the same sensor to upload the missing data. Otherwise the system will remind you that the Sensor ID does not match.

# APPENDIX B

Part Numbers

| PN | Description |
|---|---|
| 16971-025 | Data logger with 1 solid simulator temperature probe |
| 16972-025 | Data Logger with 2 Solid simulator temperature probes |
| 16973-025 | Data Logger with 1 cryogenic temperature probe |
| 16974-025 | Data Logger with 2 cryogenic temperature probes |
| 10148 | Armored Lab / Cryogenic RTD Probe with Phono Plug |
| 10118 | Low Temp Solid Simulator Probe with Phono Plug |
| 10198 | NIST Traceable Non-Armored Low / Ultra-L with phono plug |
| 10194 | Slimline UL probe buffer sleeve |
| 16975-025 | Data logger, 1 slimline ultra-low probe with phono plug |
| 16976-025 | Data logger, 2 slimline ultra-low probes with phono plug |