

# LNDS

Liquid Nitrogen  
Data Logging System



## PRODUCT USER GUIDE

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# PRODUCT USER GUIDE

## Product Overview

The LNDS is a liquid nitrogen monitoring and data logging system. The thermocouple can be placed into the liquid nitrogen tank with the lid closed upon it. Verify the lid gasket is sealed around the thermocouple probe.

A Type E thermocouple probe is supplied with the system and is recommended for use with the LNDS.

The convenient LCD provides access to the current temperature, as well as minimum, maximum and average statistics.

### Components

- TCTemp2000 Data Logger
- Type E Thermocouple Probe (36 inch lead wire and 6 inch sheath)
- 9 Volt AC Power Adapter

## Installation Guide

### Installing the Software and Drivers

The Software can be downloaded from the MadgeTech website at [madgetech.com](http://madgetech.com). Follow the instructions provided in the Installation Wizard.

### Connecting the Docking Station

**IFC200 (sold separately)** — Connect the device into a USB port with the interface cable. The drivers will install automatically.

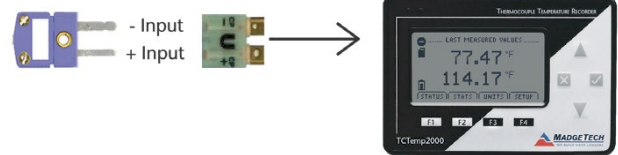
### Ordering Information

- 902168-00 — LNDS
- 900298-00 — IFC200
- 901804-00 — U9VL-J Replacement Battery

## Wiring the Data Logger

The diagram below shows how to connect the thermocouple.

### Connector for interface cable:



**Warning:** Note the polarity instructions. Do not attach wires to the wrong terminals.

## Device Operation

### Connecting and Starting the Data Logger

1. Once the software is installed and running, plug the interface cable into the data logger.
2. Connect the USB end of the interface cable into an open USB port on the computer.
3. The data logger will automatically appear under **Connected Devices** within the software.
4. For most applications, select **Custom Start** from the menu bar and choose the desired start method, reading rate and other parameters appropriate for the data logging application and click **Start**. (**Quick Start** applies the most recent custom start options, **Batch Start** is used for managing multiple loggers at once, **Real Time Start** stores the dataset as it records while connected to the logger.)
5. The status of the device will change to **Running** or **Waiting to Start** depending upon your start method.
6. Disconnect the data logger from the interface cable and place it in the environment to measure.

**Note:** The device will stop recording data when the end of memory is reached or the device is stopped. At this point the device cannot be restarted until it has been re-armed by the computer.

# PRODUCT USER GUIDE

## Device Operation (cont'd)

### Downloading Data from the Data Logger

1. Connect the logger to the interface cable..
2. Highlight the data logger in the Connected Devices list. Click **Stop** on the menu bar.
3. Once the data logger is stopped, with the logger highlighted, click **Download**.
4. Downloading will offload and save data to the PC.

### Selecting Thermocouple Type

To change the thermocouple type in the MadgeTech software:

1. In the **Connected Devices** panel, click the device desired.
2. On the **Device** tab, in the **Information** group, click **Properties**. Or, right-click the device and select **Properties** in the context menu.
3. On the **General** tab, change the Thermocouple type in the drop down menu.
4. **Apply** these changes, there will be a prompt to reset the device, select **Yes**.

### Set Password

To password protect the device so that others cannot start, stop or reset the device:

1. In the **Connected Devices** panel, click the device desired.
2. On the **Device** tab, in the **Information** group, click **Properties**. Or, right-click the device and select **Properties** in the context menu.
3. On the **General** tab, click **Set Password**.
4. Enter and confirm the password in the box that appears, then select **OK**.

## Device Maintenance

### Battery Replacement

**Materials:**  $\frac{3}{32}$  inch HEX Driver (Allen Key), Replacement Battery (U9VL-J)

1. Remove the back cover from the device by unscrewing the four screws.
2. Remove the battery from its compartment and unsnap it from the connector.
3. Snap the new battery into the terminals and verify it is secure.
4. Replace the cover taking care not to pinch the wires. Screw the enclosure back together securely.

**Note:** *Be sure not to over tighten the screws or strip the threads.*

### Recalibration

MadgeTech recommends annual recalibration. To send devices back for calibration, visit [madgetech.com](http://madgetech.com).

# NEED HELP?



## Product Support & Troubleshooting

- Visit our Resources online at [madgetech.com/resources](https://madgetech.com/resources).
- Contact our friendly Customer Support Team at (603) 456-2011 or [support@madgetech.com](mailto:support@madgetech.com).



## MadgeTech 4 Software Support

- Refer to the built-in help section of the MadgeTech 4 Software.
- Download the MadgeTech 4 Software Manual at [madgetech.com](https://madgetech.com).
- Contact our friendly Customer Support Team at (603) 456-2011 or [support@madgetech.com](mailto:support@madgetech.com).



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