

Description	TCTemp1000
Internal Channel Temperature Sensor	Semiconductor
Internal Channel Temperature Resolution	0.1 °C (0.18 °F)
Internal Channel Calibrated Accuracy	±0.5 °C (±0.9 °F)
Remote Channel Temperature Sensor Range, Resolution & Accuracy	*See Table for Details
Cold Jct. Compensation	Automatic
Memory	16,383/channel
Reading Rate	1 reading every 2 seconds up to 1 reading every 12 hours
LED Indicator	None
Channels	1 Internal & 1 Remote
Required Interface	IFC110 or IFC200
Baud Rate	2,400
Typical Battery Life	1 year
Operating Environment	-40 °C to +80 °C (-40 °F to +176 °F), 0 %RH to 100 %RH
Material	303 stainless steel
Dimensions	7.4 in x 1.2 in x dia. (188 mm x 31 mm dia.)
Weight	13 oz (0.8125 lb)

\* Remote Channel Range, Resolution & Accuracy

Thermocouple	Range (°C)	Resolution	Accuracy
J	-210 to +760	0.1 °C	±0.5 °C
K	-270 to +1370	0.1 °C	±0.5 °C
T	-270 to +400	0.1 °C	±0.5 °C
E	-270 to +980	0.1 °C	±0.5 °C
R	-50 to +1760	0.5 °C	±2.0 °C
S	-50 to +1760	0.5 °C	±2.0 °C
B	+50 to +1820	0.5 °C	±2.0 °C
N	-270 to +1300	0.1 °C	±0.5 °C

### Battery Warning

**WARNING: FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT SHORT CIRCUIT, CHARGE, FORCE OVER DISCHARGE, DISASSEMBLE, CRUSH, PENETRATE OR INCINERATE. BATTERY MAY LEAK OR EXPLODE IF HEATED ABOVE 80 °C (176 °F).**

*Specifications subject to change.*

See MadgeTech's terms and conditions at [www.madgetech.com](http://www.madgetech.com)

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## TCTemp1000



### TCTemp1000

Rugged Thermocouple Based Temperature Data Logger

## Product Notes

### Getting Started

To access the COM Port for the interface cable, unscrew the key-ring end cap. Screw the end cap onto the data logger until the o-ring cannot be seen, before deploying it.

### Submergibility

The TCTemp1000 is fully submergible and is rated IP68. It can be placed in environments with up to 140 feet (42 m) of water.

### O-Rings

O-ring maintenance is a key factor when properly caring for the TCTemp1000. The o-rings ensure a tight seal and prevent liquid from entering the inside of the device.

Please refer to the application note "O-Rings 101: Protecting Your Data", found on the MadgeTech website, for information on how to prevent O-ring failure.

### Thermocouple Type

To change the thermocouple type in the MadgeTech software:

- Select the **Device Menu**, then **Identify Device** and **Read Status**.
- Select the **Device Detail** tab, then **Thermocouple Type**.
- Click on the **Change** button in the Thermocouple Type window.
- Select the correct thermocouple type from the drop down list.
- Click on the **Save** button to store the thermocouple type in the device then click **OK**.

### Changing the Thermocouple

- Loosen the dome nut on the cable gland
- Unscrew the large diameter end cover
- Unplug the thermocouple and pull it through the cable gland
- Plug in the new thermocouple and screw the cover back onto the device
- Tighten the dome nut on the cable gland to ensure the device is secure.

## Installation Guide

### Installing the Interface cable

- IFC200: Insert the device into a USB port. The drivers will install automatically.
- IFC110: Plug the serial cable into the port and verify it is secure.

### Installing the software

Software can also be downloaded from the MadgeTech website at the following link: [www.madgetech.com/software-download](http://www.madgetech.com/software-download). Double click the zipped download file and follow the steps to finish downloading

## Device Operation

### Connecting and Starting the data logger

- Once the software is installed and running, plug the interface cable into the data logger.
- Connect the USB end of the interface cable into an open USB port on the computer.
- The device will appear in the Connected Devices list, highlight the desired data logger.
- 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.)

- The status of the device will change to "**Running**", "**Waiting to Start**" or "**Waiting to Manual Start**", depending upon your start method.
- 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.*

### Downloading data from a data logger

- Highlight the data logger in the Connected Devices list. Click "**Stop**" on the menu bar.
- Once the data logger is stopped, with the logger highlighted, click "**Download**". You will be prompted to name your report.
- Downloading will offload and save all the recorded data to the PC.

## Device Maintenance

### Battery Replacement

Materials:

Small Needle Nose Pliers

Replacement Battery (TLH-5902)

- Carefully unscrew the sensor end cap and pull the electronics out.
- The battery is the purple cylinder on the circuit board. Gently pull out the old battery.
- Insert the new battery one lead at a time, using pliers to fully push the leads into the sockets. *Note: The battery should be flat against the circuit board, and the positive lead should be closest to the communications jack.*
- Ensure the circuit board is inserted into the white plastic bushing. The sensor cable should not be twisted, or kinked. From the connection to the circuit board, it should run up towards the battery, then down to the sensor.
- Insert the electronics back into the tube and carefully screw the cap on.

### Recalibration

The TCTemp1000 standard calibration is one point at 25 °C for the internal channel and 0 mV for the thermocouple channel.

### Additional Services:

Custom calibration and verification point options available, please call for pricing.

*Call for custom calibration options to accommodate specific application needs.*

*Prices and specifications subject to change. See MadgeTech's terms and conditions at [www.madgetech.com](http://www.madgetech.com)*

*To send devices to MadgeTech for calibration, service or repair, please use the MadgeTech RMA Process by visiting [www.madgetech.com](http://www.madgetech.com), then under the services tab, select RMA Process.*