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MADGETECH HiTemp140-FR High Temperature Data Logger User Guide

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MADGETECH HiTemp140-FR High-Temperature Data Logger

HiTemp140-FR
High Temperature Data Logger with 2-inch Fast Response Probe

Product Overview
The HiTemp140-FR is a high-temperature data logger that comes with a 2-inch fast response probe. It features trigger settings that allow users to configure high and low-temperature thresholds for automatic data recording. The data logger has a nonvolatile solid-state memory that can store up to 32,256 date and time-stamped readings, even if the battery becomes discharged. The HiTemp140-FR is rated IP68, making it fully submersible and suitable for use in environments up to 230 ft (70 m) of water.

Installation Guide
Installing the Software

1. Download the software from the MadgeTech website at **madgetech.com**.
2. Follow the instructions provided in the Installation Wizard.

Installing the Docking Station

1. If you have the IFC400 or IFC406 docking station (sold separately), follow the instructions provided in the Installation Wizard to install the USB Interface Drivers.
2. Alternatively, you can download the drivers from the MadgeTech website at **madgetech.com**.

Device Operation
Connecting and Starting the Data Logger

1. Ensure that the software is installed and running.
2. Plug the interface cable into the docking station.
3. Connect the USB end of the interface cable to an open USB port on the computer.
4. Place the data logger into the docking station.

5. The data logger will automatically appear under "Connected Devices" within the software.

6. Select "Custom Start" from the menu bar and choose the desired start method, reading rate, and other parameters appropriate for the data logging application.

7. Click "Start". Alternatively, you can choose "Quick Start" or "Batch Start" depending on your requirements.

8. The status of the device will change to "Running" or "Waiting to Start".

9. 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 when the device is manually stopped. To restart the device, it needs to be re-armed by connecting it to the computer.

Downloading Data from a Data Logger

1. Place the logger into the docking station.

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". You will be prompted to name your report.

4. Downloading will offload and save all the recorded data to the PC.

Trigger Settings

1. In the "Connected Devices" panel, click on the desired device.

2. On the "Device" tab, in the "Information" group, click "Properties". Alternatively, you can right-click the device and select "Properties" from the context menu.

Product Overview

MadgeTech has designed the HiTemp140-FR, a high-temperature data logger with an ultra-fast response time, to record temperature during rapidly changing thermal processes. This high-temperature data logger features a 2 in x 0.0625 in diameter probe and is capable of recording up to 4 Hz, which is 4 times faster than other data loggers in this class. This allows the temperature sensor to quickly adapt and accurately record temperature variations in changing environments. Applications include oven profiling, steam sterilization, chamber mapping, seafood processing, flash freezing, and more.

MadgeTech's entire HiTemp140 data logger series is designed with food-grade stainless steel. The device can be placed in environments up to 140 °C (284 °F) and the probe is capable of measuring from -200 °C to 260 °C (-328 °F to 500 °F). The HiTemp140-FR is also available with an optional thermal shield enclosure to extend the operating range of the data logger from -200 °C to 250 °C (-328 °F to 482 °F). The Trigger Settings feature of the HiTemp140-FR allows users to configure high and low-temperature thresholds that when met or exceeded, will automatically start or stop recording data to memory. This data logger is capable of storing up to 32,256 date and time-stamped readings and features a nonvolatile solid-state memory that retains data even if the battery becomes discharged.

Water Resistance

The HiTemp140-FR is rated IP68 and is fully submersible. It can be placed in environments up to 230 ft (70 m) of water.

Installation Guide

Installing the Software
The Software can be downloaded from the MadgeTech website at **madgetech.com**. Follow the instructions provided in the Installation Wizard.

Installing the Docking Station
IFC400 or IFC406 (sold separately) — Follow the instructions provided in the Installation Wizard to install the USB Interface Drivers. Drivers can also be downloaded from the MadgeTech website at **madgetech.com**.

Ordering Information

- 900221-00 — HITEMP140-FR
- 900319-00 — IFC400
- 900325-00 — IFC406
- 900097-00 — ER14250MR-145

Device Operation
Connecting and Starting the Data Logger

1. Once the software is installed and running, plug in the interface cable into the docking station.
2. Connect the USB end of the interface cable to Open the USB port on the computer.
3. Place the data logger into the docking station.
4. The data logger will automatically appear under Connected Devices within the software.
5. For most applications, select Custom Start from the menu bar 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 The start is used for managing multiple loggers at once, and Real-Time Start stores the dataset as it records while connected to the logger.)
6. The status of the device will change to Running or Waiting to Start, depending upon your start method.
7. 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

1. Place the logger into the docking station.
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. You will be prompted to name your report.
4. Downloading will offload and save all the recorded data to the PC.

Device Operation (contd)
Trigger Settings
The device can be programmed to only record based on user-configured trigger settings.

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. Select Trigger in the Properties window.

4. Trigger formats are available in Windows or Two Point Mode. Window mode allows a high and/or low trigger set point, and a trigger sample count or "window" of time recorded when set points are exceeded to be defined. Two points allows for different Start and Stop setpoints

5. Refer to the Trigger Settings – MadgeTech 4 Data Logger Software video on madgetech.com for instructions on how to configure Trigger Settings.

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

O-Rings

O-ring maintenance is a key factor when properly caring for the HiTemp140-FR. 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 at madgetech.com, for information on how to prevent O-ring failure.

Battery Replacement

Materials: ER14250MR-145 Battery

1. Unscrew the bottom of the logger and remove the battery.

2. Place the new battery into the logger. Note the polarity of the battery. It is important to insert the battery with positive polarity pointing upward toward the probe.

3. Failure to do so could result in product inoperability or potential explosion if exposed to high temperatures.

4. Screw the cover back onto the logger.

Recalibration

MadgeTech recommends annual recalibration. To send devices back for calibration, visit madgetech.com.

Note: This product is rated for use up to 140 °C (284 ºF). Please heed the battery warning. The product will explode if exposed to temperatures above 140 °C (284 ºF).

Disclaimer & Terms of Use

Published specifications can be used to determine maximum allowable exposure times for the HiTemp140 with Thermal Shield at different temperatures beyond the normal operating range of the logger. Both the data logger and Thermal Shield must be at ambient temperature (approximately 25 °C) before being placed in the extreme temperature environment. Immediately following exposure to high temperature, the data logger should be removed from the thermal shield (using appropriate precautions, as it could be VERY hot) OR the data logger and shield should be placed in a water bath (approximately 25 °C) for at least 15 minutes to allow it to cool. Failing to do this may allow heat trapped in the Thermal Shield to continue to heat the data logger to potentially unsafe levels.

If your application involves a ramp-up to a temperature above 140 °C and/or any complex temperature profile that isn't simply a constant temperature, please contact MadgeTech to determine whether the HiTemp140 with Thermal Shield is suitable. Please provide MadgeTech with a detailed description of your temperature profile, including temperatures, durations, ramp times, and process media (air, steam, oil, water, etc….) If MadgeTech is unable to definitively calculate the suitability of our product for your application, we can provide a test unit outfitted with a high-temperature indicator sticker. This sticker has an indicator dot which will turn black if exposed to temperatures above 143 °C. Apply the sticker to the bottom of the data logger itself (not the thermal shield), remove the battery for safety, place the data logger into the thermal shield, and run the assembly through the proposed temperature program. The first indicator dot on the sticker will turn black at 143 °C. If that happens, the HiTemp140 with a thermal shield is not appropriate for the application and we will work to find a solution that is.

Product Support & Troubleshooting

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

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