DHS
Dry Heat Sterilization Data Logging System

The DHS Data Logging System for Dry Heat Sterilization is an all-in-one depyrogenation solution that comes equipped with:

- HiTemp140-M12, High Temperature Data Logger
- 36 inch Glass Braided RTD depyrogenation probe with M12 connector and flat probe tip
- ThermoVault Max, Extreme Temperature Thermal Barrier

This system is capable of withstanding and measuring temperatures up to 400 °C, allowing it to record throughout the entire depyrogenation process. The HiTemp140-M12 data logger features the popular rugged steel body design of the HiTemp140 data logger series with the flexibility to utilize dozens of RTD probe options with M12 connection compatibility.

The MadgeTech software allows for fast and easy data logger configuration. Simply insert the data logger into the IFC400 or IFC406 docking station (sold separately), choose either immediate or delay start and the desired reading rate. Insert the data logger onto the ThermoVault Max enclosure and screw the cap back on securely. The device is ready to be deployed.

Features

- 316 Stainless Steel Enclosure
- Small 1.75 inch Diameter
- Withstands temperatures up to +400 °C for 60 minutes continuously

Applications

- Extreme Temperature Monitoring
- Depyrogenation
- Dry Heat Sterilization
- Autoclave Validation

SPECIFICATIONS

Specifications are subject to change without notice. Specific warranty remedy limitations apply. Call (603) 456-2011 or go to **madgetech.com** for details.

TEMPERATURE	
Temperature Sensor	36 inch Glass Braided RTD depyrogenation probe
Temperature Resolution	0.0001 Ω, 0.01 °C (0.02 °F)
Temperature Accuracy	±1.2 °C (-200 °C to +400 °C)

GENERAL	
Memory	43,690 readings
Reading Rate	4 readings per second up to 1 reading every 24 hours
Computer Interface	IFC400 OR IFC406 USB docking station required; 125,000 baud
Typical Battery Life	1 year typical (1 minute reading rate at +25 °C/+77 °F)
Operating Environment	Refer to the Time vs. Temperature Chart on next page
Barrier Material	316 Stainless Steel, PTFE, Silicone
Barrier Weight	3.0 lb (1350 g)
IP Rating	This device is not IP rated and is for use in dry applications only
Approvals	CE

TIME VS. TEMPERATURE CHART

Ambient Temperature	Exposure Time in Air
-200 °C (-328 °F)	128 minutes
-180 °C (-292 °F)	137 minutes
-160 °C (-256 °F)	148 minutes
-140 °C (-220 °F)	163 minutes
-120 °C (-184 °F)	183 minutes
-100 °C (-148 °F)	213 minutes
-80 °C (-112 °F)	263 minutes
-60 °C (-76 °F)	368 minutes
-40 °C to +140 °C (-40 °F to +284 °F)	Indefinitely
150 °C (302 °F)	601 minutes
160 °C (320 °F)	468 minutes
170 °C (338 °F)	396 minutes
180 °C (356 °F)	348 minutes
190 °C (374 °F)	313 minutes
200 °C (392 °F)	286 minutes
210 °C (410 °F)	265 minutes
220 °C (428 °F)	247 minutes
230 °C (446 °F)	233 minutes
240 °C (464 °F)	220 minutes
250 °C (482 °F)	209 minutes
260 °C (500 °F)	200 minutes
270 °C (518 °F)	192 minutes
280 °C (536 °F)	184 minutes
290 °C (554 °F)	178 minutes
300 °C (572 °F)	172 minutes
310 °C (590 °F)	166 minutes
320 °C (608 °F)	161 minutes
330 °C (626 °F)	157 minutes
340 °C (644 °F)	153 minutes
350 °C to 400 °C (662 °F to 752 °F)	60 minutes

Disclaimer & Terms of Use

Listed specifications can be used to determine maximum allowable exposure times for the HiTemp140 with ThermoVault Max. The barrier extends the operating temperature of the logger up to, but not exceeding, the measurement range. Please consult the measurement range of the probe for temperatures above 250 °C (482 °F).

Both the data logger and ThermoVault Max must be at ambient temperature, approximately 25 °C (77 °F) before being placed in the extreme temperature environment. Immediately following exposure to high temperature, the data logger should be removed from the ThermoVault Max, using appropriate precautions, as it could be VERY hot. Failing to remove the data logger may allow heat trapped in the ThermoVault Max to continue to heat the data logger to potentially unsafe levels.

The ThermoVault Max may take hours to fully cool down. Even if the exterior of the ThermoVault Max is cool to the touch, the interior of the barrier and its contents may still be VERY hot.

The ThermoVault Max is primarily intended for use in dry air environments, but with the addition of the TMAX Wet Seal Kit, the ThermoVault Max may also be used in liquids and steam environments.

If your application involves a ramp up to a temperature above 150 °C (302 °F) and/or any complex temperature profile that isn't a constant process, please contact MadgeTech to determine whether the HiTemp140 with ThermoVault Max is suitable for the application.

To determine if the HiTemp140 with ThermoVault Max is suitable for the application, please provide MadgeTech with a detailed description of your process, including temperatures, durations, ramp times and process media such as air, steam, oil or water. If MadgeTech is unable to definitively calculate the suitability of our product for your application, a test unit outfitted with a high temperature indicator can be provided.

Ordering Information

DHS Data Logging System	PN 900002-00	HiTemp140-M12 data logger, a 36 inch flexible fiberglass insulated RTD probe, and the ThermoVault Max extreme temperature thermal barrier

For Quantity Discounts call (603) 456-2011 or email **sales@madgetech.com**

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PRODUCT
USER GUIDE

To view the full MadgeTech product line,
visit our website at **madgetech.com**.

CE

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WE BUILD DATA LOGGERS

PRODUCT USER GUIDE

Product Overview

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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) — Connect the device into a USB port with the interface cable. The drivers will install automatically.

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

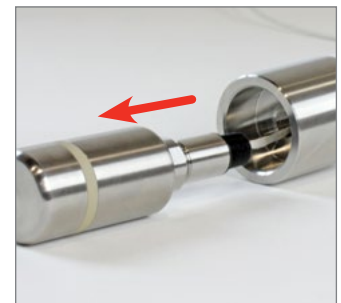## Removing the Data Logger from the Thermal Barrier

1. Unscrew the lid of the thermal barrier.

2. Slide out the data logger and lid from the barrier body.

3. Unscrew the HiTemp140-M12 data logger, from the lid of the thermal barrier.

4. Slide the probe of the data logger out from the lid of the thermal barrier.

PRODUCT USER GUIDE

Device Operation

Connecting and Starting the Data Logger

1. Once the software is installed and running, plug the interface cable into the docking station.

2. Connect the USB end of the interface cable into an open 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 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.)*

6. The status of the device will change to **Running**, **Waiting to Start** or **Waiting to Manual 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 Device**s 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

The device can be programmed to only record based off user configured trigger settings.

1. In the **Connected devices** panel, select the intended device to change the settings.

2. On the **Device** tab, in the **Information** group, click **Properties**. Users can also right-click on the device and select **Properties** in the context menu.

3. Click **Trigger** and configure the Trigger settings. Trigger formats are available in Window and Two Point (bi-level) mode. Window mode allows for one range of temperature monitoring and two point mode allows for two ranges.

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**.

NEED HELP?

Device Maintenance

O-Rings

O-ring maintenance is a key factor when properly caring for the HiTemp140-M12. 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 towards the probe. Failure to do so could result in product inoperability or potential explosion if exposed to high temperatures.

3. Screw the cover back onto the logger.

Recalibration

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

Product Support & Troubleshooting
- Visit our Resource Library 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**.
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