OM-CP-HITEMP140 SERIES
High Temperature Data Logger

INSTRUCTION SHEET

MQS5081/1216

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Product Overview

The OM-CP-HITEMP140 is a rugged, high precision, temperature data logger that is built for use with autoclaves and harsh environments. This stainless steel device is submersible, can withstand temperatures up to 140 °C (284 °F) and has an accuracy of +/-0.1 °C (0.18 °F).

The OM-CP-HITEMP140 can store up to 32,700 readings, and features a rigid external probe capable of measuring extended temperatures, up to 260 °C (500 °F). Custom probe lengths up to 7" are available. The device records date and time stamped readings, and has non-volatile solid state memory that will retain data even if the battery becomes discharged.

The OM-CP-HITEMP140-PT is a submersible, temperature data logger that can operate up to 140 °C (284 °F) and has an accuracy of +/-0.1 °C (0.18 °F). The device features a 24" flexible stainless steel probe for measuring extended temperatures up to 260 °C (500 °F). The probe is durable and can be spiraled, bent or angled in any direction, making it easy to log temperatures within bottles, vials or other hard to reach places.

The OM-CP-HITEMP140-PT records date and time stamped readings, and has non-volatile solid state memory that will retain data even if the battery becomes discharged.

Submergibility

The OM-CP-HITEMP140 and OM-CP-HITEMP140-PT are fully submersible and are rated IP68. They can be placed in environments with up to 230 feet (70 m) of water.

Bend Radius

The flexible probe on the OM-CP-HITEMP140-PT can be bent to a 1/4" bend radius. The probe should not be bent within 1" of either weld joint.

O-Rings
Port Information

O-ring maintenance is a key factor when properly caring for the OM-CP-HITEMP140 and OM-CP-HITEMP140-PT. The O-rings ensure a tight seal and prevent liquid from entering the inside of the device.

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

(OM-CP-IFC400 Sold Separately) *(OM-CP-IFC406 Sold Separately)*

Installation Guide

Installing the Interface cable
- OM-CP-IFC400 or OM-CP-IFC406
  Refer to the "Quick Start Guide" included in the package.

Installing the software
Insert the Omega Software Flash Drive in an open USB port. If the autorun does not appear, locate the drive on the computer and double click on **Autorun.exe**. Follow the instructions provided in the Installation Wizard.

Device Operation

Connecting and Starting the data logger
- Once the software is installed and running, plug the interface cable into the docking station.
- Connect the USB end of the interface cable into an open USB port on the computer.
- Place the data logger into the docking station.
- The data logger will automatically appear under **Connected Devices** within the software.
- 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 docking station 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
- Connect the logger to the docking station.
- 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.

Product Maintenance

Battery Replacement
Materials: OM-CP-BAT110
- Unscrew the bottom of the logger and remove the battery.
- Place the new battery into the logger. Note the polarity of the battery.
- Screw the cover back onto the logger.

Recalibration
The OM-CP-HITEMP140 and OM-CP-HITEMP140-PT standard calibrations are two points at 30 °C and 140 °C.

Recalibration is recommended annually for any Omega data logger; a reminder is automatically displayed in the software when the device is due.

BATTERY WARNING: WARNING: FIRE, EXPLOSION, AND SEVERE BURN HAZARD. DO NOT SHORT CIRCUIT, CHARGE, FORCE OVER DISCHARGE, CRUSH, PENETRATE, OR INCINERATE. BATTERY MAY LEAK OR EXPLODE IF HEATED ABOVE 150°C (302°F).

Troubleshooting Tips

Why is the data logger not appearing in the software?

If the OM-CP-HITEMP140 or the OM-CP-HITEMP140-PT doesn't appear in the Connected Devices panel, or an error message is received while using either, try the following:

- Check that the OM-CP-IFC400 is properly connected. For more information, see Troubleshooting Interface Cable problems (below).
- Ensure that the battery is not discharged. For best voltage accuracy, use a voltage meter connected to the battery of the device. If possible, try switching the battery with a new OM-CP-BAT110.
- Ensure that no other Omega software is running in the background.
- Ensure that **Omega Software** is being used.
- Ensure that the **Connected Devices** panel is large enough to display devices. This can be verified by positioning the cursor on the edge of the Connected Devices panel until the resize cursor appears, then dragging the edge of the panel to resize it. The screen layout may also be reset in the options menu by selecting **File**, **Options**, and scrolling to the bottom.

Troubleshooting Interface Cable problems

Check that the software properly recognizes the connected OM-CP-IFC400 interface cable.

If the data logger is not appearing in the **Connected Devices** list, it may be that the OM-CP-IFC400 is not properly connected.

1. In the software, click the **File** button, then click **Options**.
2. In the **Options** window, click **Communications**.
3. The **Detected Interfaces** box will list all of the available communication interfaces. If the OM-CP-IFC400 is listed here, then the software has correctly recognized and is ready to use it.

Check that Windows recognizes the connected OM-CP-IFC400 interface cable.

If the software does not recognize the OM-CP-IFC400, there may be a problem with Windows or the USB drivers.

1. In Windows, click **Start**, right-click **Computer** and choose **Properties** or press **Windows+Break** as a keyboard shortcut.
2. Click **Device Manager** in the left hand column.
3. Double click **Universal Serial Bus Controllers**.
4. Look for an entry for **Data logger Interface**.
5. If the entry is present, and there are no warning messages or icons, then windows has correctly recognized the connected OM-CP-IFC400.
6. If the entry is not present, or has an exclamation point icon next to it, the USB drivers may need to be installed. These are available on the software flash drive included with the OM-CP-IFC400.

Ensure that the USB end of the OM-CP-IFC400 is securely connected to the computer.

1. Locate the USB-A plug of the OM-CP-IFC400.
2. If the interface cable is connected to the PC, unplug it. Wait ten seconds.
3. Reconnect the cable to the PC.
4. Check to make sure that the red LED is lit, indicating a successful connection.

General Specifications

Description	OM-CP-HITEMP140	OM-CP-HITEMP140-PT
Temperature Sensor	100Ω platinum RTD	
Probe Range	–200 °C to +260 °C	
Temperature Resolution	0.01 °C	
Temperature Accuracy	±0.1 °C/±0.18 °F (20 °C to +140 °C/68 °F to +284 °F) ±0.3 °C/±0.54 °F (-20 °C to +19.99 °C/-4 °F to +67.98 °F) ±0.4 °C/±0.72 °F (-40 °C to -20.01 °C/-40 °F to -4.02 °F)	
Memory	32,700	
Reading Rate	1 second up to 24 hours	
Required Interface Package	OM-CP-IFC400 or OM-CP-IFC406	
Baud Rate	125,000	
Typical Battery Life	1 year (1 minute reading rate at 25 °C/77 °F)	
Operating Environment	–40 °C to +140 °C, 0 to 100%RH	
Material	316 Stainless Steel	
Dimensions (Body: OM-CP-HITEMP140-1)	1.6″ x 0.970″ dia. (40 mm x 24.6 mm dia.)	
Dimensions (Body: OM-CP-HITEMP140, OM-CP-HITEMP140-5.25, OM-CP-HITEMP140-7, PT's)	1.9″ x 0.970″ dia. (48 mm x 24.6 mm dia.)	
Weight	4.2 oz (120 g)	
Submersible	Yes	
Approvals	CE	

Model Number	Dimensions (Probe)
OM-CP-HITEMP140-1	1.1″ x 0.125″ dia. (0.188″ transitional diameter) 27 mm x 3.2 mm dia. (4.8 mm transitional diameter)
OM-CP-HITEMP140	2.0″ x 0.188″ dia. (51 mm x 4.8 mm dia.)
OM-CP-HITEMP140-5.25	5.25″ x 0.188″ dia. (133 mm x 4.8 mm dia.)
OM-CP-HITEMP140-7	7.0″ x 0.188″ dia. (178 mm x 4.8 mm dia.)
OM-CP-HITEMP140-PT-1	• Probe Tip: 1.7″ x 0.125″ dia. (42 mm x 3.2 mm dia.) • Flexible Portion: 22″ x 0.062″ dia. (559 mm x 1.6 mm dia.)
OM-CP-HITEMP140-PT-5	• Probe Tip: 4.8″ x 0.125″ dia. with 1″ x 0.188 dia. handle (121 mm x 3.2 mm dia. with 25 mm x 4.8 mm dia. handle) • Flexible Portion: 22″ x 0.062″ dia. (559 mm x 1.6 mm dia.)

OM-CP-HITEMP140 & OM-CP-HITEMP140-PT

Maximum Exposure Time Chart	OM-CP-HiTemp140 TSK (*flush*)		OM-CP-HiTemp140 TSK (*vented*)	
Ambient Temperature	Exposure Time in Air	Exposure Time in Air	Exposure Time in Air	Exposure Time in Air
-200 °C (-328 °F)	12 minutes	N/A	14 minutes	N/A
-180 °C (-292 °F)	13 minutes	N/A	15 minutes	N/A
-160 °C (-256 °F)	15 minutes	N/A	16 minutes	N/A
-140 °C (-220 °F)	17 minutes	N/A	18 minutes	N/A
-120 °C (-184 °F)	19 minutes	N/A	21 minutes	N/A
-100 °C (-148 °F)	22 minutes	N/A	24 minutes	N/A
-80 °C (-112 °F)	27 minutes	N/A	30 minutes	N/A
-60 °C (-76 °F)	37 minutes	22 minutes	42 minutes	25 minutes
-40 °C to +140 °C (-40 °F to +284 °F)	Indefinitely	Indefinitely	Indefinitely	Indefinitely
150 °C (302 °F)	59 minutes	34 minutes	66 minutes	40 minutes
160 °C (320 °F)	51 minutes	29 minutes	57 minutes	34 minutes
170 °C (338 °F)	43 minutes	25 minutes	48 minutes	29 minutes
180 °C (356 °F)	37 minutes	23 minutes	42 minutes	26 minutes
190 °C (374 °F)	34 minutes	20 minutes	38 minutes	23 minutes
200 °C (392 °F)	31 minutes	18 minutes	34 minutes	21 minutes
210 °C (410 °F)	29 minutes	17 minutes	32 minutes	19 minutes
220 °C (428 °F)	27 minutes	16 minutes	30 minutes	18 minutes
230 °C (446 °F)	25 minutes	15 minutes	27 minutes	17 minutes
240 °C (464 °F)	23 minutes	14 minutes	26 minutes	16 minutes
250 °C (482 °F)	22 minutes	13 minutes	24 minutes	15 minutes

Disclaimer and Terms of Use

Listed 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 thermal shield is not appropriate for the application and we will work to find a solution that is.

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Operating Environment:	-200 °C to +250 °C (-328 °F to +482 °F) (*Time limited*) 0 %RH to 100 %RH
Dimensions:	• **Flush Top:** 2.75 in x 2.0 in dia. (69.85 mm x 51 mm dia.) • **Vented Top:** 4.3 in x 2.0 in dia. (109.2 mm x 50.8 mm dia.)
Material:	Enclosure: PTFE
Weight:	• **Flush:** 6.7 oz (190 g) (not including data logger) • **Vented:** 9.5 oz (270 g) (not including data logger)

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If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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RETURN REQUESTS / INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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