

RHTEMP1000EX

Intrinsically Safe Temperature and Humidity Data Logger with Stainless Steel Enclosure



PRODUCT USER GUIDE

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



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Product Notes

The **RHTemp1000Ex** carries hazardous location, intrinsically safe certification in accordance with the latest issue of:

IECEX 60079-0, IECEX 60079-11
 Directive 2014/34/EU (known as ATEX)
 FM3600, FM3610

Certified Intrinsically Safe for:

- Electrical Protection Concepts: ISO/IEC: 60079-11 Ex ia – Ex ic, Intrinsic Safety Zones 0-2
- Equipment Protection Level: Ga – Gc, Zones 0-2
- Gas Groups: IIA – IIC
- Temperature Class: T4

Operational Warnings

- When used in hazardous locations, the RHTemp1000Ex is to be **installed prior** to the location becoming hazardous and removed only after the area is no longer hazardous.
- The maximum allowed ambient temperature for the RHTemp1000Ex (under any circumstances) is 80 °C. The minimum rated operating temperature is -40 °C.
- The RHTemp1000Ex is approved for use only with the Tadiran TL-2150 battery. Replacement with any other battery will void the safety rating.
- Batteries are user replaceable, but are to be removed or replaced only in locations known to be non-hazardous.
- Tampering or replacement of non-factory components may adversely affect the safe use of the product, and prohibited. Except for replacement of the battery, the user may not service the RHTemp1000Ex. MadgeTech, Inc. or an authorized representative must perform all other service to the product.

Ordering Information

- 902154-00 — RHTemp1000Ex
- 900319-00 — IFC400
- 900325-00 — IFC406

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 Interface Cable

IFC400 or IFC406 — 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.

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, unless user selectable memory wrap is enabled. At this point the device cannot be restarted until it has been re-armed by the computer.

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Device Operation (cont'd)

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 Maintenance

Battery Replacement

Materials: Replacement Battery (Tadiran TL-2150/S)

1. Observe Operational Warnings when removing and replacing the battery.
2. Unscrew the bottom of the data logger and remove the battery.
3. Place the new battery into the logger. **Caution:** *Observe correct battery polarity when installing.*
4. Screw the cover onto the data logger.

O-Rings

O-ring maintenance is a key factor when properly caring for the RHTemp1000Ex. 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.

Recalibration

Recalibration is recommended annually. To send devices back for calibration, visit madgetech.com.

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 madgetech.com.

To send devices to MadgeTech for calibration, service or repair, please use the MadgeTech RMA Process by visiting madgetech.com.

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Description	RHTemp1000Ex
Temperature Sensor	Resistance Temperature Detector (RTD)
Temperature Range	-40 °C to +80 °C (-40 °F to +176 °F)
Temperature Resolution	0.01 °C (0.018 °F)
Calibrated Accuracy	±0.5 °C (0 °C to ±50 °C), ±0.9 °F (32 °F to 122 °F)
Humidity Sensor	Capacitive Polymer
Humidity Range	0 %RH to 100 %RH (non-condensing)
Humidity Resolution	0.1 %RH
Calibrated Accuracy	±3 %RH maximum
Specified Accuracy Range	25 %RH to 75 %RH, +20 °C to +40 °C Hysteresis Error 1 % Typical, 3% Maximum
Memory	32,767 Readings
Start Modes	Software programmable immediate or delay start, up to 2 years in advance
Real Time Recording	May be used with PC to monitor and record data in real time (PC interface not IS rated)
Reading Rate	1 reading every 2 seconds up to 1 reading every 12 hours
Lethality Equations	Sterilization Units and Pasteurization Units are available within software with a click of a button
Calibration	Digital calibration through software
Calibration Date	Automatically recorded within device and displayed in software
Battery Type	3.6V lithium battery included, user replaceable
Battery Life	2 years typical at 15 minute reading rate
Data Format	Date and time stamped °C, °F, K, °R
Time Accuracy	10 seconds/month (at 0 °C to 50 °C)
Required Interface Package	IFC400 or IFC406
Operating System Compatibility	Windows XP SP3 or later
MadgeTech Software Compatibility	Standard Software version 4.2.16.0 or later Secure Software version 4.2.15.0 or later
Operating Environment	-40 °C to +80 °C, 0 %RH to 95 %RH (case properly sealed)
Dimensions	1.7 in x 0.97 in x 0.97 in (42 mm x 24.6 mm x 24.6 mm)
Weight	2.3 oz (65 g)
Materials	316 Stainless Steel/Radel
IP Rating	Not Rated - Caution: Do not submerge this product to retain IS rating
Approvals	CE ATEX Certificate #: 19ATEX0126 IECEX Certificate #: BAS 19.0109 FM3610 approval by SGS North America, Inc.

Battery 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 madgetech.com.



Declaration of Conformity

(According to ISO/IEC 17050-1)

Reference No. DC-201901

Manufacturer: MadgeTech, Inc.

Manufacturer's Address: 6 Warner Road
Warner, NH 03278 USA

Declares under sole responsibility that the product or service as originally delivered:

Product Name(s): RHTemp1000EX, Temp1000EX-1, Temp1000EX-2, Temp1000EX-5.25, Temp1000EX-7

Model Number(s): 902154-00, 902153-00, 902155-00, 902156-00, 902157-00

Brand Name: MadgeTech

Product Option(s): Length of probe as indicated by suffix on Temp1000EX

Complies with the essential requirements of the following;

IECeX60079-0 Ed. 7.0 Limits or exceptions taken;
Use only with Tadiran Battery P/N TL-2150

IECeX60079-11 Ed. 6.0 Limits or exceptions taken;
Use only with Tadiran Battery P/N TL-2150

FM3610 Issue Jan. 2010 Limits or exceptions taken;
Use only with Tadiran Battery P/N TL-2150

Tested and Approved SGS North America Inc.

IECeX Certificate No.: BAS 19.0109

ATEX Certificate No.: 19ATEX0126

Declared on behalf of MadgeTech, Inc.

Dianne Moulton
Quality Manager
2019/10/22