



Therm-A-lert-RH

Wireless Humidity and Temperature Data Logger

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Quick Start Steps

1. Install the MadgeTech 4 Software and USB Drivers onto a Windows PC.
2. Connect the RFC1000 wireless transceiver (sold separately) to the Windows PC with the provided USB cable.
3. To activate the wireless mode, flip the black switch on the back of the Therm•A•lert-RH to the 'On' position. (0 is 'Off', 1 is 'On').
4. Launch the MadgeTech 4 Software. All active MadgeTech data loggers that are within range will automatically appear in the Connected Devices window.
5. Select the data logger within the Connected Devices window and click the **Claim** icon.
6. Select the start method, reading rate and any other parameters appropriate for the desired data logging application. Once configured, deploy the data logger by clicking **Start**.
7. To download data, select the device in the list, click the **Stop** icon, and then click the **Download** icon. A graph will automatically display the data.

Product Overview

The Therm•A•lert-RH is a precision wireless data logger with alarm capabilities designed specifically for laboratories, warehouses and other environments where continuous humidity and temperature monitoring is critical. The system can be used to monitor a single location, or expanded to monitor hundreds of locations over a broad area (additional MadgeTech wireless loggers and transceivers may be required).



Mounting Instructions

The Therm•A•lert-RH comes with 3M™ Dual Lock™ Recloseable Fasteners on the back of the device to allow for quick and easy device mounting on any surface. For best performance, the Therm•A•lert-RH should always be mounted in an upright position. This will allow for the best path for the wireless signal.

Transmission Distance

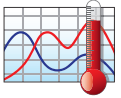
Typical transmission distance from an RFC1000 to a Therm•A•lert-RH:

- » Unobstructed line of sight (outdoors): 2,000 feet max
- » Typical urban environment (indoors): 500 feet max

Obstacles

Obstacles will decrease the line-of-sight from an RFC1000 to another RFC1000 as well as from an RFC1000 to a Therm•A•lert-RH. Obstacles that interfere with or decrease the wireless signal could include but are not limited to building structures such as walls and metal beams. Additional RFC1000's can be placed near obstacles to lengthen and strengthen the wireless signal.

Software Installation



MadgeTech 4 Software

The MadgeTech 4 Software makes the process of downloading and reviewing data quick and easy, and is free to download from the MadgeTech website.

Installing the MadgeTech 4 Software

1. Download the MadgeTech 4 Software on a Windows PC by going to:
www.madgetech.com/software-download.
2. Locate and unzip the downloaded file (typically you can do this by right clicking on the file and selecting **Extract**).
3. Open the **MTInstaller.exe** file.
4. You will be prompted to select a language, then follow the instructions provided in the MadgeTech 4 Setup Wizard to finish the MadgeTech 4 Software installation.

Installing the USB Interface Driver

USB Interface Drivers can easily be installed on a Windows PC, if they are not already available and running.

1. Download the USB Interface Driver on a Windows PC by going to:
www.madgetech.com/software-download.
2. Locate and unzip the downloaded file (typically you can do this by right clicking on the file and selecting **Extract**).
3. Open the **PreInstaller.exe** file.
4. Select **Install** on the dialog box.

For more detailed information, download the MadgeTech Software Manual at:
www.madgetech.com/mt4-software-manual.pdf



MadgeTech Cloud Services

MadgeTech Cloud Services allows users to remotely monitor and manage groups of data loggers throughout a large facility or multiple locations, from any internet enabled device. Transmit real-time data to the MadgeTech Cloud Services platform via the MadgeTech Data Logger Software running on a central PC or transmit directly to the MadgeTech Cloud without a PC using the MadgeTech RFC1000 Cloud Relay (sold separately). Sign up for a MadgeTech Cloud Services account at www.madgetech.com/cloud.

For more detailed information, download the MadgeTech Cloud Services Manual at:
www.madgetech.com/mt-cloud-manual.pdf

Activating & Deploying the Data Logger

1. Connect the RFC1000 wireless transceiver (sold separately) to the Windows PC with the provided USB cable.
2. Additional RFC1000's can be used as repeaters to transmit over greater distances. If transmitting over a distance greater than 500 feet indoors, 2,000 feet outdoors or there are walls, obstacles or corners that need to be maneuvered around, set up additional RFC1000's as needed. Plug each one into an electrical outlet in the desired locations.
3. To activate the wireless mode, flip the black switch on the back of the Therm•Alert-RH to the 'On' position. (0 is 'Off', 1 is 'On').
4. On the Windows PC, launch the MadgeTech 4 Software.
5. All active data loggers will be listed in the Device tab within the Connected Devices panel, showing that the data loggers are recognized.
6. To claim a data logger, select the desired data logger in the list and click the **Claim** icon.
7. Once the data logger has been claimed, select a start method in the Device tab.

For steps to claim the data logger and view data using MadgeTech Cloud Services, refer to the MadgeTech Cloud Services Software Manual at: www.madgetech.com/mt-cloud-manual.pdf

Alarm Settings/Rules in the MadgeTech 4 Software

1. To create an alarm rule, select **Manage Rules** in the device tab of the software.
2. Select **New** and enter a Rule name. Enter alarm parameters using the drop down menus and selection circles.
3. Select **OK** and choose the alarm to enable. The alarm bell is green when enabled and red when disabled.

Channel Programming

Different wireless channels may be used to create multiple networks in one area, or to avoid wireless interference from other devices. Any MadgeTech data logger or RFC1000 wireless transceiver that is on the same network is required to use the same channel. If all of the devices are not on the same channel, the devices will not communicate with one another. MadgeTech wireless data loggers and RFC1000 wireless transceivers are programmed by default on channel 25.

CHANNEL NOTE: MadgeTech wireless data loggers and wireless transceivers purchased prior to **April 15, 2016** are programmed by default to channel 11. Please refer to the Product User Guide provided with these devices for instructions to change the channel selection if needed.

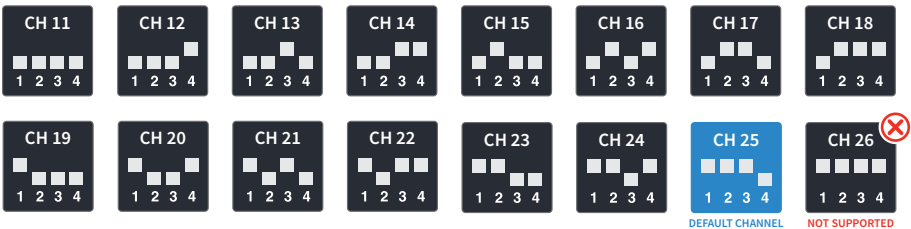
Changing the channel settings of the Therm•A•lert-RH

1. Switch the wireless mode to **OFF** using the switch on the back of the device (0 is 'Off', 1 is 'On').
2. Find the DIP switches located on the back of the device.
3. Change the DIP switches to match the desired channel.
4. Return the device wireless mode to **ON**.



Channel DIP Switch Orientation

The images below show the orientations available of the switches for each channel.



To configuring the channel settings of the RFC1000 wireless transceiver (sold separately), please refer to the RFC1000 Product User Guide that shipped with the product or download it from the MadgeTech website at www.madgetech.com.

Product Maintenance

Battery Replacement

Materials: TL-5104 Replacement Battery

1. Using a Phillips head screwdriver, unscrew the back enclosure of the data logger.
2. Remove the battery from the compartment.
3. Install the new battery, taking note of the polarity, verify that it is secure.
4. Close the device and secure the screws back into place. Be sure not to overtighten the screws or strip the threads.

Recalibration

Standard recalibration for the Therm•Alert-RH is one point at 25 °C for the temperature channel, and two points at 25 %RH and 75 %RH for the humidity channel.

Recalibration is recommended annually for any MadgeTech data logger. A reminder is automatically displayed in the MadgeTech 4 Software when the device is due.

RMA Instructions

To send a device back in to MadgeTech for calibration, service or repair, follow the instructions below to create an RMA (Return Merchandise Authorization) on the MadgeTech website:

1. Go to www.madgetech.com/rma.
2. Sign into your account. For new customers, select **Create an Account**.
3. Once signed in, click on the **Make New RMA** button.
4. Complete the applicable fields on the form including customer Billing and Shipping information, even if they are the same. Please see the field explanation below for a more detailed description about questions asked in the Device Information section.
5. When all of the fields are complete, click **Generate RMA**.
6. Print out the confirmation page that follows containing the RMA number and MadgeTech's address for shipping. **A Return Merchandise Authorization must be accompanied by a copy of the RMA paperwork and shipping is prepaid by the customer.** The RMA number should be clearly marked on the outside of the package.
7. Ship the package via UPS, FedEx, TNT, or DHL to the address listed on the confirmation page. **USPS will not ship MadgeTech data loggers.**
8. A notification email will be automatically sent when MadgeTech has received the RMA.

Troubleshooting

Why is the wireless data logger not appearing in the software?

If the data logger doesn't appear in the **Connected Devices** panel, or an error message is received while using the data logger, try the following:

- » Check that the RFC1000 is properly connected. For more information, see *Troubleshooting wireless transceiver 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 to a new battery.
- » Ensure that the **MadgeTech 4 Software** is being used, and that no other MadgeTech Software (such as **MadgeTech 2**, or **MadgeNET**) is open and running in the background. **MadgeTech 2** and **MadgeNET** are not compatible with the RFRHTemp2000A.
- » 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.
- » Ensure that the data logger and RFC1000 are on the same wireless channel. If the devices are not on the same channel, the devices will not communicate with one another. Please refer to the Channel Programming section for information on changing the device channel.

Troubleshooting wireless transceiver problems

Check that the software properly recognizes the connected RFC1000 wireless transceiver.

If the wireless data logger is not appearing in the **Connected Devices** list, it may be that the RFC1000 is not properly connected.

1. In the MadgeTech 4 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 RFC1000 is listed here, then the software has correctly recognized and is ready to use it.

Check that Windows recognizes the connected RFC1000 wireless transceiver.

If the software does not recognize the RFC1000, there may be a problem with Windows or the USB drivers.

1. In Windows, click **Start**, right-click **Computer** and choose **Properties**.
2. Select **Device Manager** in the left hand column.
3. Double-click on **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 RFC1000.
6. If the entry is not present, or has an exclamation point icon next to it, the USB drivers may need to be installed. USB drivers can be downloaded from the MadgeTech website.

Ensure that the USB end of the RFC1000 is securely connected to the computer.

1. If the cable is connected to the PC, unplug it and wait ten seconds.
2. Reconnect the cable to the PC.
3. Check to make sure that the red LED is lit, indicating a successful connection.

Compliance Information

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended. The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Countries approved for use, purchase and distribution:

Australia, Austria, Belgium, Bulgaria, Canada, Chile, China, Columbia, Croatia, Cyprus, Czech Republic, Denmark, Ecuador, Estonia, Finland, France, Germany, Greece, Honduras, Hungary, Iceland, Ireland, Israel, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malaysia, Malta, Mexico, New Zealand, Norway, Peru, Poland, Portugal, Romania, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Thailand, The Netherlands, Turkey, United Kingdom, United States, Venezuela, Vietnam

BATTERY WARNING: DISCARD USED BATTERY PROMPTLY. KEEP OUT OF REACH OF CHILDREN. DO NOT DISPOSE OF IN FIRE, RECHARGE, PUT IN BACKWARDS, DISASSEMBLE, OR MIX WITH OTHER BATTERY TYPES. MAY EXPLODE, FLAME, OR LEAK AND CAUSE PERSONAL INJURY.

Temperature

Range	-20 °C to +80 °C (-4 °F to +176 °F)
Resolution	0.01 °C (0.018 °F)
Calibrated Accuracy	±0.5 °C at 0 °C to +50 °C (±0.9 °F at +32 °F to +122 °F)

Humidity

Range	0 %RH to 95 %RH non-condensing
Resolution	0.1 %RH
Calibrated Accuracy	±3 %RH (±2 %RH typical at 25 °C)

Wireless

RF Frequency	2.45 GHz IEEE 802.15.4 ultra-low power wireless transceiver with fully bi-directional communication
Band	ISM band 2.405-2.475 GHz. Operation (channels 11 through 25) @ 250 kbps
Maximum Output Power	+0 dBm typical
Wireless Interface	RFC1000, RFC1000-CE, RFC1000-IP69K or RFC1000 Cloud Relay
Transmission Distance	Unobstructed line of sight (outdoors): 2,000 feet max Typical urban environment (indoors): 500 feet max

General Specifications

Reading Rate	1 reading every 2 seconds up to 1 reading every 24 hours
Memory	15,000 readings per channel; software configurable memory wrap
Memory Wrap Around	Yes
Start Modes	Immediate Start & Delayed Start
Calibration	Digital calibration through MadgeTech 4 Software
Calibration Date	Automatically recorded within device
Battery Type	3.6V lithium battery included; user replaceable
Battery Life	2 years typical
Data Format	Date and time stamped °C, °F, K, °R
Time Accuracy	±1 minute/month (at 25 °C)
PC Compatibility	MadgeTech 4: Windows 10, 8, 7, Vista, Window XP with SP3
MadgeTech Cloud Services Compatible	Yes
Operating Environment	-20 °C to +80 °C (-4 °F to +176 °F) 0 %RH to 95 %RH non-condensing
Dimensions	2.2 in x 5.25 in x 1.3 in (55 mm x 133 mm x 33 mm)
Weight	3.56 oz (101 g)
Enclosure Material	ABS Plastic
Approvals	US (FCC), CA (IC), CE

Need Help?

Product Support & Troubleshooting:

- » Refer to the Troubleshooting section of this document.
- » Visit our Knowledge Base online at www.madgetech.com/kbase.
- » 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:
www.madgetech.com/mt4-software-manual.pdf

MadgeTech Cloud Services Support:

- » Download the MadgeTech Cloud Services Software Manual at:
www.madgetech.com/mt-cloud-manual.pdf



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