

# VTMS VACCINE TEMPERATURE MONITORING SYSTEM



## Features

- Wireless Two-Way Communication
- Thermocouple and Glycol Bottle Included
- Ambient and Thermocouple Temperature Monitoring
- View Data in Real time
- 3 Year Battery Life
- Battery Life Indicator
- Field Upgradeable
- Audible and LED Alarm Indicators
- Cumulative Alarm Display

## Applications

- Laboratories and Hospitals
- Vaccine Temperature Monitoring
  - Refrigerators
  - Freezers
- Medical & Pharmaceutical Monitoring
- Process Verification and Validation

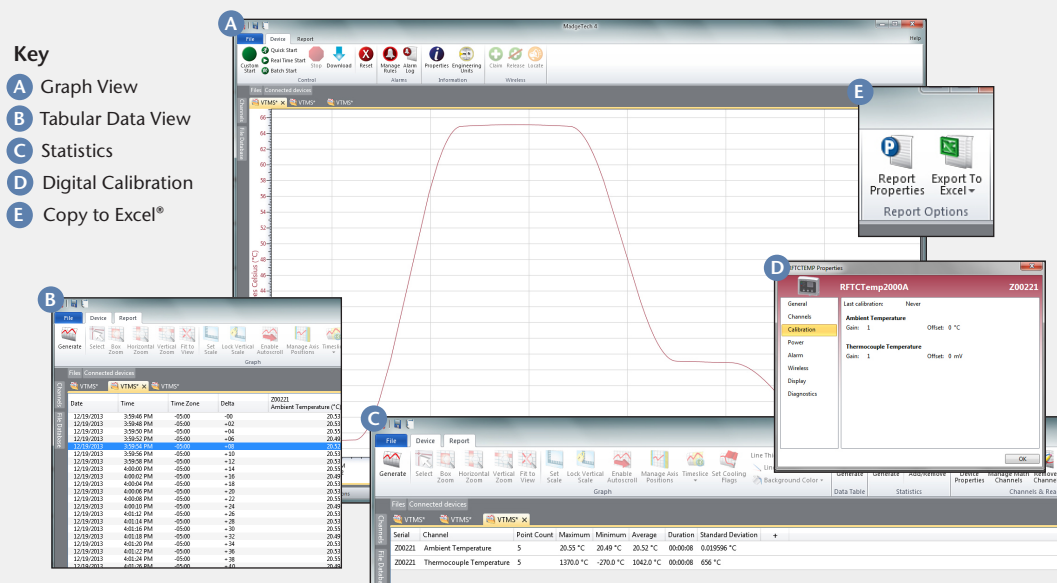
MadgeTech's Vaccine Temperature Monitoring System (VTMS) is ideal for the continuous measurement and data logging of temperature sensitive vaccines or pharmaceuticals in refrigerators, freezers, and coolers. The system includes an RFTCTemp2000A data logger with thermocouple and Glycol bottle. Additionally, the RFTCTemp2000A data logger in the VTMS system has a convenient LCD to ensure temperature parameters are met, in real time. Starting, stopping and downloading from the device are all performed wirelessly using the RFC1000 wireless transceiver. The current reading, minimum, maximum and average statistics can all be obtained through the display.



The convenient digital display provides the current reading for the thermocouple channel. Minimum, maximum and average statistics are also provided for a convenient snap shot of the logged data. For instant, out of range notification, an audible buzzer as well as LED alarm indicator notifies users when the temperature is above or below the user specified alarm.

The VTMS can alert the user, or other personnel, via e-mail or text message if the refrigerator has failed, or if the temperature is outside of the nominal range. This allows users to take immediate actions to ensure vaccines and pharmaceuticals in storage are not destroyed. To prevent false alarms, the RFTCTemp2000A is connected to a Glycol bottle which provides temperature buffered readings. The VTMS utilizes the new MadgeTech 4.0 Software. Data can be viewed in graphical or tabular formats and summary and statistics views are available for further analysis. The software features export to Excel®, data annotation, digital calibration and more.

## MADGETECH DATA LOGGER SOFTWARE



- Software Features:**
- Multiple graph overlay
  - Statistics
  - Digital calibration
  - Zoom in/ zoom out
  - Lethality equations (F0, PU)
  - Mean Kinetic Temperature
  - Full time zone support
  - Data annotation
  - Min./Max./Average lines
  - Data table view
  - Automatic report generation
  - Summary view
  - Multilingual

# VTMS SPECIFICATIONS\*

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

## Temperature

|  |   |
|--|---|
| <b>Internal Channel Temperature Range:</b> | -20 °C to +60 °C<br>(-4 °F to +140 °F)                |
| <b>Temperature Resolution:</b>             | 0.1 °C (0.18 °F)                                      |
| <b>Calibrated Accuracy:</b>                | ±0.5 °C/± 0.18 °F<br>(0 °C to +55 °C/32 °F to 131 °F) |
| <b>Response Time:</b>                      | 10 minutes free air                                   |

## Remote Channel

|                                      |  |
|--------------------------------------|--|
| <b>Thermocouple Connection:</b>      | Female subminiature (SMP) (MP model)<br>Pluggable screw terminal (TB model)                  |
| <b>Cold Junction Compensation:</b>   | Automatic based on internal channel  |
| <b>Max. Thermocouple Resistance:</b> | 100 Ω  |
| <b>Thermocouple K:</b>               | <b>Range (°C):</b> -65 °C to +40 °C<br><b>Resolution:</b> 0.1 °C<br><b>Accuracy:</b> ±0.5 °C |
| <b>Response Time:</b>                | τ = 2 minutes to 63% of change   |

## Wireless

|   |   |
|---|---|
| <b>RF Frequency:</b>                              | 2.45 GHz IEEE 802.15.4 ultra-low power wireless transceiver with fully bi-directional communication   |
| <b>Band:</b>                                      | ISM band 2.405-2.48 GHz   |
| <b>Maximum Output Power:</b>                      | +0 dBm typical  |
| <b>Receiver Sensitivity (RFC1000):</b>            | -95 dBm typical   |
| <b>Transmission Distance (to data loggers)</b>    | <ul style="list-style-type: none"> <li>• <b>RFC1000, RFC1000-CE &amp; RFC1000-IP69K</b><br/>2,000 ft max. outdoors - line of sight unobstructed<br/>500 ft max. indoors - typical urban environment</li> </ul>  |
| <b>Transmission Distance (to other RFC1000's)</b> | <ul style="list-style-type: none"> <li>• <b>RFC1000</b><br/>4,000 ft max. outdoors - line of sight unobstructed<br/>1,000 ft max. indoors - typical urban environment</li> <li>• <b>RFC1000-CE</b><br/>2,500 ft max. outdoors - line of sight unobstructed<br/>700 ft max. indoors - typical urban environment</li> <li>• <b>RFC1000-IP69K</b><br/>4,000 ft max. outdoors - line of sight unobstructed<br/>1,000 ft max. indoors - typical urban environment</li> </ul> |

## General

|                           |  |
|---------------------------|--|
| <b>Reading Rate:</b>      | 1 reading every second up to 1 reading every 24 hours  |
| <b>Memory:</b>            | 16,128 per channel   |
| <b>LED Functionality:</b> | <ul style="list-style-type: none"> <li>• Green LED blinks every 5 seconds to indicate unit is logging</li> <li>• Blue LED blinks every 15 seconds to indicate unit is in wireless mode</li> <li>• Red LED blinks every 1 second to indicate alarm condition</li> </ul> |
| <b>Wrap Around:</b>       | Yes  |
| <b>Start Modes:</b>       | Immediate Start  |

## General

|                                     |  |
|-------------------------------------|--|
| <b>Calibration:</b>                 | Digital calibration through software   |
| <b>Calibration Date:</b>            | Automatically recorded within device   |
| <b>Battery Type:</b>                | 9V lithium battery included;<br><b>user replaceable</b>  |
| <b>Battery Life:</b>                | 3 years typical at 1 minute reading rate   |
| <b>Data Format:</b>                 | <ul style="list-style-type: none"> <li>• For Display: °C or °F</li> <li>• For Software: Date and time stamped °C, K, °F, or °R</li> </ul>  |
| <b>Time Accuracy:</b>               | ± 1 minute/month   |
| <b>Computer Interface:</b>          | USB to mini USB, 250,000 baud for standalone operation or RFC1000 required for wireless operation  |
| <b>Software:</b>                    | XP SP3/Vista/Windows 7/Windows 8 (MadgeTech 4 only)  |
| <b>Operating Environment:</b>       | -20 °C to +60 °C (-4 °F to +140 °F)<br>0 %RH to 95 %RH non-condensing  |
| <b>Dimensions:</b>                  | 3.0 in x 3.5 in x 0.95 in<br>(76.2 mm x 88.9 mm x 24.1 mm)<br>Data logger only   |
| <b>Enclosure Material:</b>          | ABS Plastic  |
| <b>Alarm:</b>                       | <p>Programmable high and low limits; alarm is activated when temperature reaches or exceeds sets limits.</p> <p>Alarm Delay: A cumulative alarm delay may be set in which the device will activate the alarm (via LED) only when the device has recorded a user specified time duration of data.</p> |
| <b>Audible Alarm Functionality:</b> | 1 Beep per second for reading alarm above/below threshold  |
| <b>Approvals:</b>                   | US (FCC), CA (IC), CE, South Korea (KCC), China (CMIIT), Japan (LCIE)  |

**BATTERY WARNING:** May leak, flame or explode if disassembled, shorted, charged, connected together, mixed with used or other batteries, exposed to fire or high temperature. Discard used battery promptly. Keep out of reach of children.

## ORDERING INFORMATION

| MODEL         | DESCRIPTION   |
|---------------|---|
| VTMS          | Vaccine Temperature Monitoring System. Includes data logger with calibration certificate, thermocouple probe, glycol bottle and 9 volt AC wall mounted adapter. |
| RFC1000       | Wireless RF receiver/repeater. USB to mini USB adapter & power supply included.   |
| RFC1000-CE    | Wireless RF transceiver/repeater, CE approved for Europe. USB to mini USB adapter & power supply included.  |
| RFC1000-IP69K | Wireless RF transceiver/repeater, splash proof with an IP69K rating. USB to mini USB adapter included.  |
| U9VL-J        | Replacement battery for RFTCTemp2000A.  |

For Quantity Discounts call (603) 456-2011 or email [sales@madgetech.com](mailto:sales@madgetech.com)

### Countries approved for use, purchase and distribution of the VTMS:

Australia, Austria, Belgium, Bulgaria, Canada, Chile, China, Colombia, 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