

VTMS

Vaccine Temperature Monitoring System

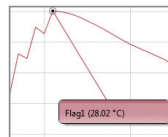
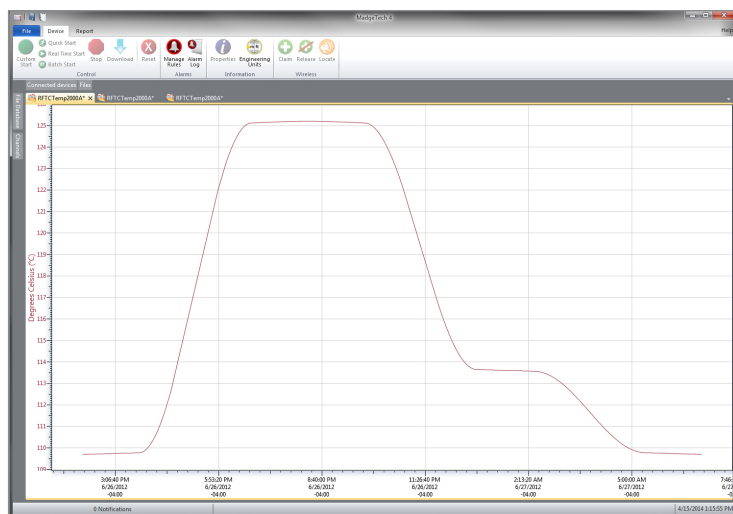
MadgeTech's Vaccine Temperature Monitoring System (VTMS) is ideal for the continuous measurement and data logging of temperature sensitive vaccines or pharmaceuticals in refrigerators, freezers, and coolers. The system includes an RFTCTemp2000A data logger with thermocouple Type K probe and optional Glycol bottle. Without the optional glycol bottle, the VTMS can measure and record temperatures as low as -100 °C (-148 °F). 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 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. 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.

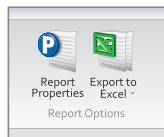
The VTMS can alert the user, or other personnel, via e-mail or text message if the refrigerator has failed, or if the temperature is outside of the nominal range. This allows users to take immediate actions to ensure vaccines and pharmaceuticals in storage are not destroyed. The VTMS is compatible with the latest MadgeTech 4 Software.



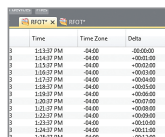
MadgeTech 4 Software Features



Cooling Flags



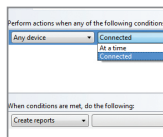
Export to Excel



This figure shows the 'Tabular Data View' feature. It displays a table with columns for 'Time', 'Time Zone', and 'Data'. The table contains multiple rows of data, including timestamps and temperature readings.

Time	Time Zone	Data
1:11:37 PM	-04:00	-00:00:01
1:11:37 PM	-04:00	+00:01:00
1:11:37 PM	-04:00	+00:02:00
1:11:37 PM	-04:00	+00:03:00
1:11:37 PM	-04:00	+00:04:00
1:11:37 PM	-04:00	+00:05:00
1:11:37 PM	-04:00	+00:06:00
1:11:37 PM	-04:00	+00:07:00
1:11:37 PM	-04:00	+00:08:00
1:11:37 PM	-04:00	+00:09:00
1:11:37 PM	-04:00	+00:10:00
1:11:37 PM	-04:00	+00:11:00
1:11:37 PM	-04:00	+00:12:00

Tabular Data View



Automation

- 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
- Summary view

FEATURES

- Wireless Two-Way Communication
- Type K Thermocouple Included
- Optional Glycol Bottle
- 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
- On Screen Min, Max & Average Statistics

APPLICATIONS

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

GENERAL	
Reading Rate	1 reading every second up to 1 reading every 24 hours
Memory	16,128 per channel
LED Functionality	Green LED blinks every 5 seconds to indicate unit is logging Blue LED blinks every 15 seconds to indicate unit is in wireless mode Red LED blinks every 1 second to indicate alarm condition
Wrap Around	Yes
Start Modes	Immediate and delay start
Calibration	Digital calibration through software
Calibration Date	Automatically recorded within device
Battery Type	9 V lithium or alkaline battery included; user replaceable with any 9 V battery
Battery Life	3 years typical at 1 minute reading rate
Data Format	For Display: °C or °F For Software: Date and time stamped °C, K, °F or °R
Time Accuracy	± 1 minute/month
Computer Interface	USB to mini USB, 250,000 baud for standalone operation or RFC1000 required for wireless operation
Operating System Compatibility	Windows XP SP3 or later
Software Compatibility	Standard Software version 4.1.0.0 or later Secure Software version 4.1.3.0 or later
Operating Environment	-20 °C to +60 °C (-4 °F to +140 °F), 0 %RH to 95 %RH non-condensing
Dimensions	3.0 in x 3.5 in x 0.95 in (76.2 mm x 88.9 mm x 24.1 mm) Data logger only
Material	ABS Plastic
Weight	4.5 oz (129 g)
Approvals	US (FCC), CA (IC), CE, South Korea (KCC), China (CMIIT), Japan (LCIE)
Alarm	User configurable high and low audible, on-screen, email and text (SMS) alarms. 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.
Audible Alarm Functionality	1 Beep per second for reading alarm above/below threshold

BATTERY WARNING: Battery 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

VTMS	PN 902310-00	Vaccine Temperature Monitoring System. Includes RFTCTemp2000A data logger with calibration certificate, 72 inch thermocouple probe, and 9 volt AC wall mounted adapter.
VTMS (30 ml glycol bottle)	PN 901858-00	Vaccine Temperature Monitoring System. Includes RFTCTemp2000A data logger with calibration certificate, 72 inch thermocouple probe, 30 ml glycol bottle and 9 volt AC wall mounted adapter.
VTMS (60 ml glycol bottle)	PN 901903-00	Vaccine Temperature Monitoring System. Includes RFTCTemp2000A data logger with calibration certificate, 72 inch thermocouple probe, 60 ml glycol bottle and 9 volt AC wall mounted adapter.
VTMS (250 ml glycol bottle)	PN 901861-00	Vaccine Temperature Monitoring System. Includes RFTCTemp2000A data logger with calibration certificate, 72 inch thermocouple probe, 250 ml glycol bottle and 9 volt AC wall mounted adapter.
RFC1000	PN 901383-00	Wireless RF receiver/repeater. USB to mini USB adapter & power supply included
RFC1000-CE	PN 901338-00	Wireless RF transceiver/repeater, CE approved for Europe. USB to mini USB adapter & power supply included
RFC1000-IP69K	PN 901389-00	Wireless RF transceiver/repeater, splash proof with an IP69K rating. USB to mini USB adapter included
RFC1000 Cloud Relay	PN 901900-00	MadgeTech Cloud Services Data Logging Hub
RFC1000-CE Cloud Relay	PN 901901-00	MadgeTech Cloud Services Data Logging Hub, CE approved for Europe
U9VL-J	PN 901804-00	Replacement battery for VTMS

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

REMOTE CHANNEL	
Thermocouple Connection	Female subminiature (SMP)
Cold Junction Compensation	Automatic, based on internal channel
Max. Thermocouple Resistance	100 Ω
Thermocouple K	Thermocouple Range: -100 °C to +80 °C (-148 °F to +176 °F) Glycol Bottle Range: -50 °C to +80 °C (-58 °F to +176 °F) Resolution: 0.1 °C Accuracy: ±0.5 °C
Response Time	τ = 2 minutes to 63% of change

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
Maximum Output Power	+0 dBm typical
Receiver Sensitivity (RFC1000)	-95 dBm typical
Transmission Distance (to data loggers)	RFC1000, RFC1000-CE & RFC1000-IP69K 2,000 ft max. outdoors - line of sight unobstructed 500 ft max. indoors - typical urban environment
Transmission Distance (To other RFC1000's)	RFC1000 4,000 ft max. outdoors - line of sight unobstructed 1,000 ft max. indoors - typical urban environment RFC1000-CE 2,500 ft max. outdoors - line of sight unobstructed 700 ft max. indoors - typical urban environment RFC1000-IP69K 4,000 ft max. outdoors - line of sight unobstructed 1,000 ft max. indoors - typical urban environment