VFC2000
VFC Temperature Data Logger

PRODUCT USER GUIDE

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Product Overview

The VFC2000 is a simple solution for vaccine temperature monitoring compliance. Designed to satisfy all CDC and VFC requirements, the VFC2000 provides precise, continuous temperature monitoring and validation for temperatures as low as -100 °C (-148 °F). Featuring a convenient LCD screen, the VFC2000 displays current readings, minimum and maximum statistics as well as a battery level indicator. User-programmable alarms trigger an audible and visual alert. Optional glycol bottle monitors for temperatures as low as -50 °C (-58 °F) and AC power source allows battery to be a back up if there is a power loss.

VFC Requirements

- Detachable, buffered temperature probe
- Out-of-range audible and visual alarms
- Low battery indicator with external power and battery backup
- Current, minimum, and maximum temperature display
- Accuracy of ±0.5°C (±1.0°F)
- Programmable logging interval (1 reading per second to 1 reading per day)
- Daily check reminder warning
- Suitable for vaccine transportation
- Also monitors ambient room temperature

Device Operation

1. Install the MadgeTech 4 Software onto a Windows PC.
2. Connect the data logger to the Windows PC with the provided USB cable.
3. Launch the MadgeTech 4 Software. The VFC2000 will appear in the Connected Devices window indicating the device has been recognized.
4. Select the start method, reading interval and any other parameters appropriate for the desired data logging application. Once configured, deploy the data logger by clicking the Start icon.
5. 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.

Selection Buttons

The VFC2000 is designed with three selection buttons:

Scroll: Allows user to scroll through current readings, average stats, daily minimum and maximum temperatures and device status information displayed on the LCD screen.

Units: Allows users to change displayed units of measurement to either Celsius or Fahrenheit.

Start/Stop: To activate Manual Start, arm the device through the MadgeTech 4 Software. Hold the button for 3 seconds. There will be two beeps confirming the device is started. Reading will be displayed on the screen and status in software will change from **Waiting to Start** to **Running**. To pause logging while running, hold button for 3 seconds.

LED Indicators

Status: Green LED blinks every 5 seconds to indicate the device is logging.

Check: Blue LED blinks every 30 seconds to indicate daily statistic check has gone past 24 hours. Hold Scroll button for 3 seconds to reset reminder.

Alarm: Red LED blinks every 1 second to indicate an alarm condition is set.

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Device Maintenance

Battery Replacement

Materials: U9VL-J Battery or any 9 V Battery (lithium recommended)

1. On the bottom of the data logger, open the battery compartment by pulling in on the cover tab.

2. Remove the battery by pulling it from the compartment.

3. Install the new battery, taking note of the polarity.

4. Push the cover closed until it clicks.

Recalibration

Recalibration is recommended annually or bi-annually for any data logger; a reminder is automatically displayed in the software when the device is due. To send devices back for calibration, visit **madgetech.com**.

Product Support & Troubleshooting:

- Refer to the Troubleshooting section of this document.
- Visit our Knowledge Base online at **madgetech.com/resources**.
- 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 **madgetech.com**.
- Contact our friendly Customer Support Team at (603) 456-2011 or **support@madgetech.com**.

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Specifications

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

TEMPERATURE	
Temperature Range	-20 °C to +60 °C (-4 °F to +140 °F)
Resolution	0.01 °C (0.018 °F)
Calibrated Accuracy	±0.50 °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) (MP model) Pluggable screw terminal (TB model)
Cold Junction Compensation	Automatic, based on internal channel
Max. Thermocouple Resistance	100 Ω
Thermocouple K	**Included Probe 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

GENERAL	
Reading Rate	1 reading every second up to 1 reading every 24 hours
Memory	16,128 readings
LED Functionality	3 status LEDs
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 battery included; user replaceable with any 9 V battery (lithium recommended)
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
Operating System Compatibility	Windows XP SP3 or later
Software Compatibility	Standard Software version 4.2.21.0 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
Glycol Bottle	30 mL
Probe Length	72 in
Material	ABS Plastic
Weight	4.5 oz (129 g)
Approvals	CE
Alarm	User configurable high and low audible and on-screen 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

VFC2000	PN 902311-00	VFC Temperature data logger with thermocouple probe and USB to mini USB cable
VFC2000-GB	PN 902238-00	VFC Temperature data logger with thermocouple probe, glycol bottle and USB to mini USB cable
Power Adapter	PN 901839-00	Replacement USB universal power adapter
U9VL-J	PN 901804-00	Replacement battery for VFC2000