

## Thermometer Guide for Prevention Partnership Providers

All prevention partnership providers are required to use a calibrated thermometer with certificate of traceability and calibration testing. In addition to this requirement, the Centers for Disease Control and Prevention recommends the use of a digital thermometer with detachable probe that best reflects vaccine temperature (e.g., a probe buffered with glycol, glass beads, sand or Teflon®). The glycol encased probe is preferred as it measures a liquid temperature which approximates the vaccine temperature in the refrigerator/freezer. Other recommendations for thermometers include the following specifications:

- Alarm system for out-of-range temperatures
- Current, minimum and maximum temperature records
- Low battery indicator
- A thermometer which can provide continuous data monitoring information with user programmable recording interval at least every 30 minutes
- A thermometer display which can be placed outside the refrigerator/freezer to ease reading
- The calibration report of a thermometer tells the level of accuracy of the thermometer against reference standard. A thermometer with levels of accuracy of +/- 1°F/+/- .5°C is recommended.

### Certificates of calibration should fulfill either of the following four criteria:

- **Criteria 1:** The certificate must identify an ILAC/MRA signatory body accredited laboratory (A2LA, L-A-B, ACLASS, IAS, and PJLA) and has a model number, a serial number, date of calibration, and measurement results indicate unit passed test and documented uncertainty is within suitable limits (recommended uncertainty = +/- 1°F or .5°C). OR
- **Criteria 2:** The certificate must have a statement that the calibration testing conforms to International Organization for Standardization (ISO) 17025, has a date of calibration, serial number and model number and measurement results indicate unit passed test and documented uncertainty is within suitable limits (recommended uncertainty = +/- 1°F or .5°C). OR
- **Criteria 3:** Meets specifications and testing requirements for the American Society for Testing and Materials (ASTM) Standard E2877 Tolerance Class F (< +/- .5° C or < +/- 1° F) and has a model number, a serial number, date of calibration, and measurement results indicate unit passed test and documented uncertainty is within suitable limits (recommended uncertainty = +/- 1°F or .5°C). OR
- **Criteria 4:** Traceable to the standards maintained by the National Institute of Standards and Technology (NIST) and has a model number, a serial number, date of calibration, and measurement results indicate unit passed test and documented uncertainty is within suitable limits (recommended uncertainty = +/- 1°F or .5°C).

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**Notice:** The following table provides list of thermometers that can be considered as options when providers plan to buy a thermometer. The information in the table, including the price and the specifications, may change over time. Providers may purchase thermometers not manufactured by companies on this list, but that also have certificates of calibration that meet program requirements.

## **Abbreviations:**

MRA - Mutual Recognition Arrangements

A2LA - American Association for Laboratory Accreditation

IAS - International Accreditation Service Inc.

ACLASS - ANSI-ASQ National Accreditation Board

ILAC- International Laboratory Accreditation Cooperation

PJLA - Perry Jonson Laboratory Accreditation Service Inc.

Thermometer	Model	Price	Frequency of calibration	Recalibration Price	Manufacturer or distributor	Software	Certificate of Calibration	Min/Max recording	Alarm	Low Battery Indicator	Accuracy	Remark	Website
VFC-5000 TP data logger	VFC-5000 LCD TP	\$185	Every year	\$49	Control Solutions, Inc. (Distributor)	Needs software	√	√	√	√	±1°F (±0.5°C)	Recommended for vaccine transport	<a href="https://www.vfcdataloggers.com/product/vfc-5000-tp-vaccine-monitoring-data-logger-kit/">https://www.vfcdataloggers.com/product/vfc-5000-tp-vaccine-monitoring-data-logger-kit/</a>
Fridge Tag®	Fridge Tag2L®	\$159	Needs to be changed after 2 years (no calibration)		Berlinger	Does not need software	√	√	√	√	±1°F (±0.5°C)	Factory set alarms	<a href="https://microdaq.com/catalogsearch/result/?q=fridgetag">https://microdaq.com/catalogsearch/result/?q=fridgetag</a>
Fridge Tag®	Fridge Tag2L®	\$169	Needs to be changed after 2 years (no calibration)		Berlinger	Does not need software	√	√	√	√	±1°F (±0.5°C)	Programmable alarms	<a href="https://microdaq.com/catalogsearch/result/?q=fridgetag">https://microdaq.com/catalogsearch/result/?q=fridgetag</a>
Fridge Tag®	Fridge Tag2L® Ultra Cold	\$249	Needs to be changed after 2 years (no calibration)		Berlinger	Does not need software	√	√	√	√	±1.5°F (±3.2°C)		<a href="https://microdaq.com/catalogsearch/result/?q=fridgetag">https://microdaq.com/catalogsearch/result/?q=fridgetag</a>
VFC 400	VFC 400	\$155	Every 2 years	\$49	Control Solutions	Needs software	√	√	√	√	±0.3°C		<a href="http://www.vfcdataloggers.com/vfc400">http://www.vfcdataloggers.com/vfc400</a>
VFC 400 WiFi	VFC400 WiFi	\$279	Every 2 years	\$49	Control Solutions	Needs software	√	√	√	√	±0.3°C	Yearly subscription to the Vaccine Monitoring Cloud can be purchased	<a href="https://www.vfcdataloggers.com/products/data-loggers/">https://www.vfcdataloggers.com/products/data-loggers/</a>
Traceable® Memory-Card Refrigerator/ Freezer Thermometer	6430	\$164	Every one to two years	Contact INNOCAL for quote	Control Company	Does not need software	√	√	√	√	±0.25°C	Requires a USB flash drive to transfer data	<a href="https://traceable.com/6430.html">https://traceable.com/6430.html</a>
Touchscreen - WiFi/		\$830	Every year	\$99-269	Dickson One (manufacturer)	Software needed	√	√	√	√	±0.9°F from -58 to 68°F		<a href="https://dicksondata.com/product/dicksonone-touchscreen">https://dicksondata.com/product/dicksonone-touchscreen</a>
Easy Log	EL-USB-1-LCD	\$86.49	Every 2 year	\$40	Lascar Electronics (manufacturer)	Software needed	√	√	√	√	±0.5°C	Recommended for vaccine transport	<a href="https://www.lascarelectronics.com/easylog-data-logger-el-usb-tp-lcd-probe-g/">https://www.lascarelectronics.com/easylog-data-logger-el-usb-tp-lcd-probe-g/</a>

Thermometer	Model	Price	Frequency of calibration	Recalibration Price	Manufacturer or distributor	Software	Certificate of Calibration	Min/Max recording	Alarm	Low Battery Indicator	Accuracy	Remark	Website
WiFi Temperature Data Logging Sensor	EL-WIFI-T	\$126.49	Every 2 year	\$40	Lasca Electronics (manufacturer)	Software needed	√	√	√	√	±0.3°C		<a href="https://www.lascarelectronics.com/easylog-data-logger-el-wifi-t/">https://www.lascarelectronics.com/easylog-data-logger-el-wifi-t/</a>
Temperature and Relative Humidity Data Logger with Graphic LCD Screen	EL-GFX-2	\$189.49	Every 2 year	\$90	Lasca Electronics (manufacturer)	Software needed	√	√	√	√	±0.35°C		<a href="https://www.lascarelectronics.com/easylog-data-logger-el-gfx-2/">https://www.lascarelectronics.com/easylog-data-logger-el-gfx-2/</a>
Temperature Data Logger with Graphic LCD Screen	EL-GFX-1	\$171.49	Every 2 year	\$40	Lasca Electronics (manufacturer)	Software needed	√	√	√	√	±0.2°C		<a href="https://www.lascarelectronics.com/easylog-data-logger-el-gfx-1/">https://www.lascarelectronics.com/easylog-data-logger-el-gfx-1/</a>
Dual Channel Temperature Probe Data Logger with Graphic Screen	EL-GFX-DTP	\$234.49	Every 2 year	\$40	Lasca Electronics (manufacturer)	Software needed	√	√	√	√	±0.1°C		<a href="https://www.lascarelectronics.com/easylog-data-logger-el-gfx-dtp/">https://www.lascarelectronics.com/easylog-data-logger-el-gfx-dtp/</a>
InTemp VFC Temperature Data logger	CX402-VFC	\$169	3 year calibration (one time) for a total of six year life	\$75	ONSET	Software needed	√	√	√	√	±0.5°C	InTemp app and cloud data storage no charge	<a href="http://www.onsetcomp.com/intemp/products/data-loggers/cx402-vfcxxx">http://www.onsetcomp.com/intemp/products/data-loggers/cx402-vfcxxx</a>
ThermCo Dual Probe	ACCRT 8017	Contact Vendor	2 years	\$99	Thermco		√	√	√	√	±0.5°C		<a href="http://www.thermcoproducts.com/ACCRT8017-Vaccine-Temperature-Alert-Data-Logger.html">http://www.thermcoproducts.com/ACCRT8017-Vaccine-Temperature-Alert-Data-Logger.html</a>
Flashlink Certified USB PDF Data Logger	40527	\$119	1 year	Contact vendor	Delta Trak		√	√	√	√	±0.5°C		<a href="https://www.deltatrak.com/certified-vaccine-usb-pdf-data-loggers">https://www.deltatrak.com/certified-vaccine-usb-pdf-data-loggers</a>
Rees Scientific		Contact Vendor	2 years	Contact Vendor	Rees Scientific		√	√	√	√	±0.5°C	Cloud based service available as well as notification system	<a href="https://www.reesscientific.com/">https://www.reesscientific.com/</a>
AccuVax		Contact Vendor	2 years	Contact Vendor	TruMed		Certificate of service	√	√	√	±0.5°C	Cloud based service as well as notification system	<a href="https://truMEDsystems.com/products/accuvax/">https://truMEDsystems.com/products/accuvax/</a>

Thermometer	Model	Price	Frequency of calibration	Recalibration Price	Manufacturer or distributor	Software	Certificate of Calibration	Min/Max recording	Alarm	Low Battery Indicator	Accuracy	Remark	Website
OneVue Sense		Contact Vendor	2 years after the data logger was first used to record or 5 years after the certification date if the probe is not plugged in	Contact Vendor	Primex		√	√	√	√	±0.5°C	Cloud based service available as well as notification system	<a href="https://www.primexinc.com/">https://www.primexinc.com/</a>
Lascar Better Accuracy WIFI	EL-WIFI-VACX	\$343.49	1 year calibration		Lascar		√	√	√	√	±0.2°C	Cloud based service available and required for SMS service	<a href="https://microdaq.com/lascar-wifi-vaccine-monitoring-kit.php">https://microdaq.com/lascar-wifi-vaccine-monitoring-kit.php</a>
LogTag UTREL30	VAC-UTREL30-WIFI	\$195	1 year		LogTag		√	√	√	√	±0.5°C to ±1.8°C	Ultra cold monitoring, software needed	<a href="https://microdaq.com/ogtag-utrel30-single-sensor-wifi-vaccine-monitoring-kit.php">https://microdaq.com/ogtag-utrel30-single-sensor-wifi-vaccine-monitoring-kit.php</a>
TempLink		\$50-\$100	2 year calibration	Contact vendor	TempLink Monitoring Solutions		√	√	√	√	±0.8°C		<a href="https://templink.co/">https://templink.co/</a>

Manufacturers of equipment who wish to add or edit the information above can contact the Immunization Unit with the email provided.

Please contact the ND HHS Immunization Unit at [vaccine@nd.gov](mailto:vaccine@nd.gov) with any questions.