

Field Calibration Procedure and Certificate M307, M308, M309

Calibration Recommendations:

In the absence of other calibration standards, methods, and recommendations for your application we recommend that the Temperature Guard unit be calibrated annually.

It is highly recommended that the unit be re-calibrated if, during installation, any lead wire to the temperature sensor is added or eliminated.

Required Equipment:

- 1. An NIST traceable temperature/humidity measurement standard such as a thermometer or other measuring device (referred as Standard)
- 2. Data Capture software running on a computer
- 3. Fully installed and functioning Temperature Guard system with sensors

Temperature calibration is a one point calibration and shall be performed with the temperature sensor in place.

Preparation

- 1. Open Data Capture, click on Setup -> Temperature Guard Units
- 2. Select the Temperature Guard to be calibrated by clicking on the name of the unit in the list.
- 3. Right click on the selected Temperature Guard and select Edit Sensors.
- 4. Data Capture will download and display all sensor parameters.
- 5. Click on the **Calibrate** button.
- 6. Click on the **Clear** button to set the correction factors to 0. Click **YES** in the pop-up box.

Calibration for the external sensors

- 1. Locate the Standard as close to the temperature sensor being calibrated as possible. If the sensor is in a vial, unscrew the top and insert the Standard.
- 2. Allow the Standard and the temperature displayed by the Temperature Guard unit to normalize. (approx. 10-15 minutes)
- 3. Enter the temperature obtained from the Standard. (see page 4 of procedure)
- 4. Click on the **Apply** button. Data Capture will upload the calibration factors and then refresh the sensor data. The current temperature reading will now match the Standard.
- 5. Record the calibration results in the table on page 3 of this procedure.
- 6. Repeat steps 1 to 6 for the other sensor if it is in use.

Calibration for the internal temperature and humidity sensor.

- 1. Locate the Standard as close to the unit as possible. The sensor is located to the bottom/left of the display screen behind the vents.
- 2. Allow the Standard and the temperature displayed by the Temperature Guard unit to normalize. (approx. 10-15 minutes)
- 3. Enter the temperature or relative humidity obtained from the Standard. (see page 4 of procedure)
- 4. Click on the **Apply** button. Data Capture will upload the calibration factors and then refresh the sensor data. The current temperature reading will now match the Standard.
- 5. Record the calibration results in the table on page 3 of this procedure.

Please note, the internal sensor has an accuracy of +/-0.4°C (+/- 0.72°F) and +/- 3.0% RH. It is recommended you not adjust it unless your Standard has a tighter accuracy specification.

Field Calibration Certificate

	Column 1	Column 2	Column 3	Column 4
Channel	NIST Traceable Temperature Measuring Standard	Actual Reading Temp/Humidity before calibration	Correction Factor	Corrected Reading
1				
2				
Int. Temp				
Int. Humidity				

Temperature Guard model number	
Temperature Guard serial number	
NIST traceable thermometer/hygrometer	
senai number (Note 2)	
Certified by (Signature)	
Printed Name	
Today's Date	
Due Date (one yr. from today's date)	

Calibration Screen

This screen is found in Data Capture. Setup/Temperature Guard Units and Right Click/Edit Sensors. Click the Calibrate button.



Screen shot after calibrating External Sensor #1.

ave Refresh Calibrate	Email/Notes Help				
Vaccine Type / Port VFC Refrigerator VFC Freezer Internal Temperature Sensor	Lower Limit Upper Li 34.0 4 -120.0 1 -100.0 10	nit Time (min) F 5.0 30 5.0 30 1.0 15	Current Ac Reading Re 36.1 -3.7 1000	tual eading 36.1 0.0 0.0	Apply Clear Done
Internal Humidity Sensor Door Inputs Freezer Door Refrigerator Door	Normally Closed Normally Closed	90 15	Closed Closed	0 area is used to c erature and hum on performing emperaturegua	alibrate the idity readings. For calibration go to rd.com/support
Enable / disable the alarm buzz Configure the alarm relay as: Alarm reminder time delay (min disable alarm reminder. Backup Battery Voltage (vdc) Main Power is	ter? Disabled Off utes). Enter a value from 2.8	to 255 minutes or 0 to	10	In this example the measured 36.1F. E actual value in the Temperature colum click the Apply but reading should cha Actual Temperatur	e standard Enter the Actual nn, and then tton. Current nge to the e.

notes

Note 1: An Ice bath procedure (see below) can be used instead of a calibrated NIST thermometer. 32.0°F or 0.0°C would be entered in Column 1.

Note 2: Please note the NIST certificate of the thermometer/hygrometer used to calibrate must not be expired. Please keep the thermometer's NIST certificate with this completed document.

Optional: Calibrating the external sensors using an Ice Bath Procedure

- 1) Create an ice bath by filling 600-mL beaker three-quarters full of crushed ice.
- 2) Add enough pre-cooled de-ionized water to cover the ice, but not so much water such that the ice
- floats.3) Thoroughly stir the ice/water mixture.
- 4) Suspend the bare temperature probe in the ice bath.
- 5) Allow the temperature shown on the M307 display to stabilize for at least 10 minutes.

Sample Chart on page 2

	Column 1	Column 2	Column 3	Column 4
Channel	NIST Traceable Temperature Measuring Standard	Temperature Reading	Correction	Corrected
1	36.1	35.3	+0.8	36.1
2		Λ		
Int. Temp				
Int. Humidity	This is w Temperat unit reads correction	hat the ure Guard s without h. Dat	s is the rection from the bration page in a Capture	Column 1 and 4 should be equal (or very close) once the "Apply" button is clicked.