

# Field Calibration Procedure and Certificate

For models VM505E, VM605E, VM510E, and VM610E

## 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 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. (Note 2)
2. Select the Temperature Guard to be calibrated by left clicking on the name 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** menu option button.
6. Click on the Clear button to set the correction factors to 0.

## Calibration

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 3 of procedure)
4. Click on the **Apply** button. Data Capture will upload the correction 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 2 of this procedure.
6. Repeat steps 1 to 6 for all temperature sensors in the system.

## Field Calibration Certificate

|         | Column 1                                      | Column 2            | Column 3   | Column 4  |
|---------|---|---------------------|------------|-----------|
| Channel | NIST Traceable Temperature Measuring Standard | Temperature Reading | Correction | Corrected |
| 1       |   |                     |            |           |
| 2       |   |                     |            |           |
| 3       |   |                     |            |           |
| 4       |   |                     |            |           |
| 5       |   |                     |            |           |
| 6       |   |                     |            |           |
| 7       |   |                     |            |           |
| 8       |   |                     |            |           |

|  |  |
|--|--|
| Temperature Guard serial number                      |  |
| NIST traceable thermometer serial number<br>(Note 3) |  |
| Certified by (Signature)                             |  |
| Printed Name   |  |
| Today's Date   |  |
| Due Date (one yr. from today's date)                 |  |

Calibration Screen for models VM605E, VM610E, VM505E, and VM510E

This screen is found in Data Capture. Setup. Select your unit's name. Edit Sensors. Calibrate.

Program Sensor Limits for Providence

Save Refresh Calibrate Email/Notes Help

| Type / Port               | Lower Limit | Upper Limit | Time (min) | Current Reading | Actual Reading       | Correction Factor                |       |
|---------------------------|-------------|-------------|------------|-----------------|----------------------|----------------------------------|-------|
| Temperature Sensor Port 1 | 55.0        | 80.0        | 0          | 72.1            | <input type="text"/> | <input type="text" value="0.0"/> | Apply |
| VFC Room 2                | 55.0        | 75.0        | 0          | 73              | <input type="text"/> | <input type="text" value="0.0"/> | Clear |
| VFC Room 3                | 55.0        | 90.0        | 30         | 73.3            | <input type="text"/> | <input type="text" value="0.0"/> | Done  |
| Freezer 1                 | -200.0      | 30.0        | 30         | -9              | <input type="text"/> | <input type="text" value="0.0"/> |       |
| VFC Room 4                | 55.0        | 85.0        | 30         | 70.4            | <input type="text"/> | <input type="text" value="0.0"/> |       |
| Freezer 2                 | -200.0      | 30.0        | 30         | 25.4            | <input type="text"/> | <input type="text" value="0.0"/> |       |
| VFC Room 1                | 55.0        | 85.0        | 15         | 72              | <input type="text"/> | <input type="text" value="0.0"/> |       |
| Incubator 1               | 100.0       | 150.0       | 1          | 121.7           | <input type="text"/> | <input type="text" value="0.0"/> |       |

This area is used to calibrate the temperature and humidity readings. For details on performing calibration, visit [www.temperatures.com/support](http://www.temperatures.com/support).

**Step 2**  
7. Enter the temperature measurement from the standard in this column for each sensor.

**Step 1**  
Click Clear to clear all calibration factors.

**Step 3**  
Click Apply to store the correction factors to the unit.

Informational  
 Read current status  
 Read name of sensors 1 and 2  
 Read name of sensors 3 and 4  
 Read name of sensors 5 and 6  
 Read name of sensors 7 and 8  
 Read name of door inputs  
 Read limits and relay/buzzer configuration

VM605E, VM610E, VM505E, and VM510E screen shot after calibrating temperature sensor number 5

Program Sensor Limits for Providence

Save Refresh Calibrate Email/Notes Help

| Type / Port               | Lower Limit | Upper Limit | Time (min) | Current Reading | Actual Reading | Correction Factor |
|---------------------------|-------------|-------------|------------|-----------------|----------------|-------------------|
| Temperature Sensor Port 1 | 55.0        | 80.0        | 0          | 72              |                | 0.0               |
| VFC Room 2                | 55.0        | 75.0        | 0          | 72.8            |                | 0.0               |
| VFC Room 3                | 55.0        | 90.0        | 30         | 73.2            |                | 0.0               |
| Freezer 1                 | -200.0      | 30.0        | 30         | -9              |                | 0.0               |
| VFC Room 4                | 55.0        | 85.0        | 30         | 71              | 71.0           | 0.7               |
| Freezer 2                 | -200.0      | 30.0        | 30         | 25.4            |                | 0.0               |
| VFC Room 1                | 55.0        | 85.0        | 15         |                 |                | 0.0               |
| Incubator 1               | 100.0       | 150.0       | 1          | 121.7           |                | 0.0               |

This area is used to calibrate the temperature and humidity readings of a Computer Room Guard. For details on performing calibration go to [www.temperatureguard.com/support](http://www.temperatureguard.com/support)

Buttons: Apply, Clear, Done

**Informational**  
 Read current status  
 Read name of sensors 1 and 2  
 Read name of sensors 3 and 4  
 Read name of sensors 5 and 6  
 Read name of sensors 7 and 8  
 Read name of door inputs  
 Read limits and relay/buzzer configuration

In this example the standard measured 71.0 degrees. Enter the actual value in the Actual Reading column, and then click the Apply button. Current reading should change to the Actual Temperature.

**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: For all units temperature corrections can be made over the phone. See page 8 of the manuals for details.

VM505E [https://docs.wixstatic.com/ugd/390fef\\_fdcd1b108a1f424a81088e3a594678e3.pdf](https://docs.wixstatic.com/ugd/390fef_fdcd1b108a1f424a81088e3a594678e3.pdf)

VM605E [https://docs.wixstatic.com/ugd/390fef\\_fab82621be234f9dbe239fa12f60f57a.pdf](https://docs.wixstatic.com/ugd/390fef_fab82621be234f9dbe239fa12f60f57a.pdf)

Note 3: Please note the NIST certificate of the thermometer used to calibrate must not be expired. Please keep the thermometer's NIST certificate with this completed document.

**Optional: Calibrating 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 unit's display to stabilize for at least 10 minutes.

**Sample Chart on page 1**

| Channel | Column 1<br>NIST Traceable Temperature<br>Measuring Standard | Column 2<br>Temperature<br>Reading | Column 3<br>Correction | Column 4<br>Corrected |
|---------|--|------------------------------------|------------------------|-----------------------|
| 1       |  |                                    |                        |                       |
| 2       |  |                                    |                        |                       |
| 3       |  |                                    |                        |                       |
| 4       |  |                                    |                        |                       |
| 5       | 71.0   | 70.3                               | 0.7                    | 71.0                  |
| 6       |  |                                    |                        |                       |
| 7       |  |                                    |                        |                       |
| 8       |  |                                    |                        |                       |

This is the NIST traceable thermometers reading.

This is what the Temperature Guard unit reads without correction.

This is the correction from the calibration page in Data Capture

Column 1 and 4 should be equal (or very close) once the "Store Correction Factors" button is clicked.