

Field Calibration Procedure and Certificate

For model CM705E

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 recalibrated 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 2014 (rev 2.0.332.0) or higher 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.
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.
6. Click on the **Clear** button to set the correction factors to zero.

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. 5-15 minutes)
3. Enter the temperature obtained from the Standard. (see page 3 of procedure)
4. Click on the **Store Correction Factors** 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				
9				
10	%RH	%RH	%RH	%RH

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

Calibration Screen for model CM705E.

Type / Port	Lower Limit	Upper Limit	Time (min)	Current Reading	Actual Reading	Correction Factor
Telephone Closet	60.0	75.0	15	72.7		0.0
Vaccine Refrigerator	35.0	46.0	15	30.6		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temp	60.0	80.0	15	75.7		0.0
Humidity	20	85	15	26		0.0

This area is used to calibrate the temperature and humidity sensors of a CM705E. For details on performing calibration go to www.temperatureguard.com/support

Informational
Saving Limits
Uploaded temperature
Uploaded door limit
Uploaded sensor names
Uploaded sensor names
Uploaded sensor names
Uploaded sensor names
Uploaded door limit
Uploaded room names

Defaults

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

Step 1
Click Clear to reset all calibration factors.

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

Screen shot after calibrating temperature sensor number 2

Type / Port	Lower Limit	Upper Limit	Time (min)	Current Reading	Actual Reading	Correction Factor
Telephone Closet	60.0	75.0	15	72.7		0.0
Vaccine Refrigerator	35.0	46.0	15	37	37.0	6.4
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	-200.0	200.0	15	Not used		0.0
Temperature Sensor	60.0	85.0	15	75.8		0.0
Temperature Sensor	60.0	85.0	15	26		0.0

Defaults

Informational

- Saving Limits
- Uploaded temperature limits
- Uploaded door limits
- Uploaded sensor 1, 2 names
- Uploaded sensor 3, 4 names
- Uploaded sensor 5, 6 names
- Uploaded sensor 7, 8 names
- Uploaded door input names
- Uploaded room sensor names

This area is used to calibrate the temperature and humidity sensors of a CM705E. For details on performing calibration go to www.temperatureguard.com/support.

In this example, the standard measured 37.0 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 calibrating the internal temperature and humidity sensor (#9 and #10), locate the standard as close to the ventilated holes on the left side of the unit. That is where the actual sensor is located.

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.

	Column 1	Column 2	Column 3	Column 4
Channel	NIST Traceable Temperature Measuring Standard	Temperature Reading	Correction	Corrected
1				
2	37	30.6	6.4	37
3				
4				
5				
6				
9				
10	%RH	%RH	%RH	%RH

This is the NIST traceable thermometers reading.

This is what the CM705E 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 "Apply" button is clicked.