

# *Calibrating the Heat View System*



<u>Date</u>	<u>Revision</u>	<u>Details</u>	<u>Initials</u>
June 2, 2022	1.0	Initial draft	JB
Feb 24, 2023	1.1	Added in limits and also updated document to reflect latest code	JB

## Introduction

This document covers the steps to calibrate a Heat View unit. It is assumed that you are familiar with the Heat View system already and can connect to a unit through the computer application.

You will require the Heat View computer application to perform these tasks.

In every Heat View unit there are Thermocouple boards that are used to measure the readings of the type K thermocouples connected to the unit. Each board will have 8 channels on it. So, as system with 24 channels will have 3 TC boards in it, with channels 1-8 being the first board, 9-16 the second and the rest of the channels the last board.

## Heat View Calibration specs

It is recommended to calibrate your Heat View unit every year.

Depending on the requirements of your company you can either calibrate 1 channel per board, or every channel in the system. This is up to you and both methods are available to you. Calibrating every channel will make sure each channel is accurate, but it takes much longer to calibrate the system this way.

When calibrating, you will need to measure the offsets along at least 4 points of the full-scale range of the system. This document works in degrees Fahrenheit, but you can easily perform the same calibration with the unit in degrees Celsius.

For the Heat View system we calibrate at 0 F, 500 F, 1000 F, 1500 F, 2000 F. How to calibrate is reviewed in more detail in the next section.

**System accuracy** - The Heat View system will calibrate a channel to within the following values:

+ - 3 deg Celsius.

+ - 4 deg Fahrenheit.

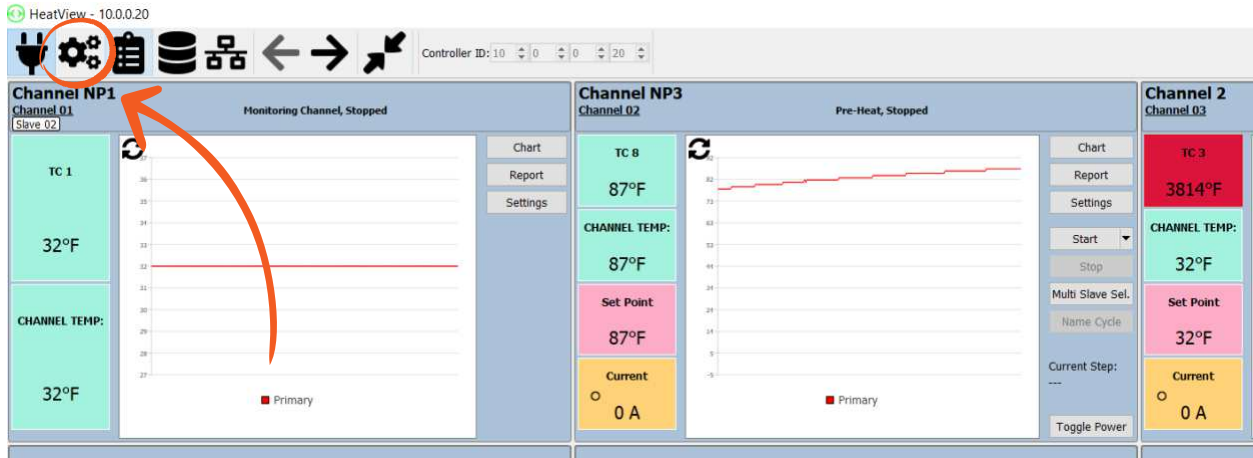


PLEASE NOTE: If you start the calibration process and you see that your channel readings are not out beyond the range listed above then **YOU DO NOT NEED TO EDIT THE CALIBRATION VALUES.**

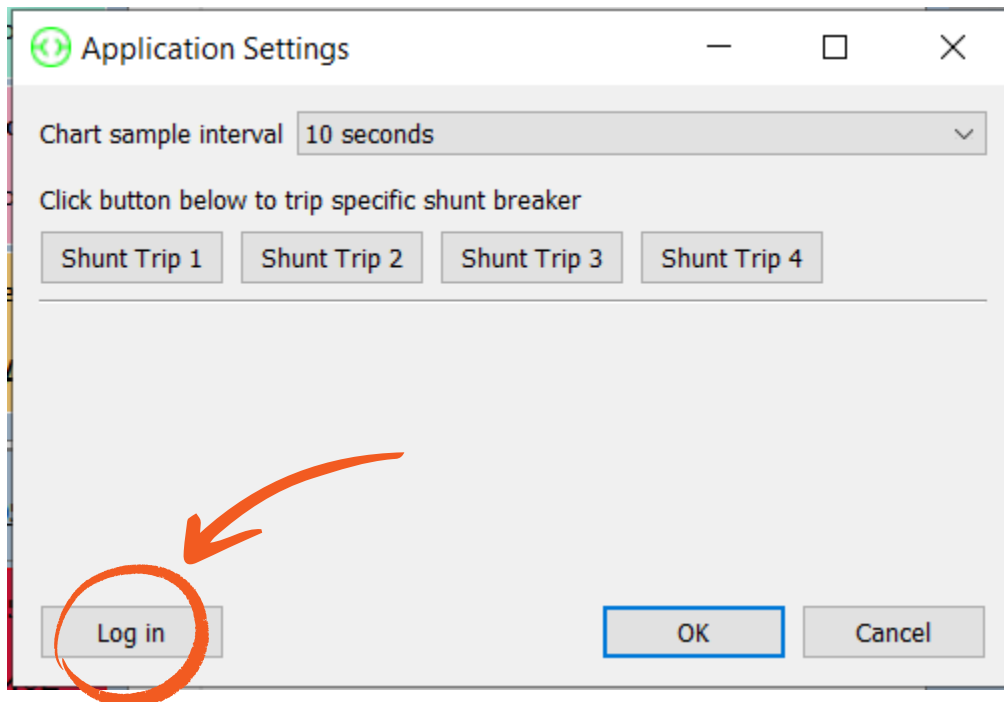
## Calibration procedure

Follow these steps to calibrate the Heat View unit

1. Power on the Heat View unit
2. Connect to it using the computer application
3. Once connected open the application settings by clicking the gear icon in the top left corner as shown by the image below



4. Next, login to the application by clicking on the Login button as shown below



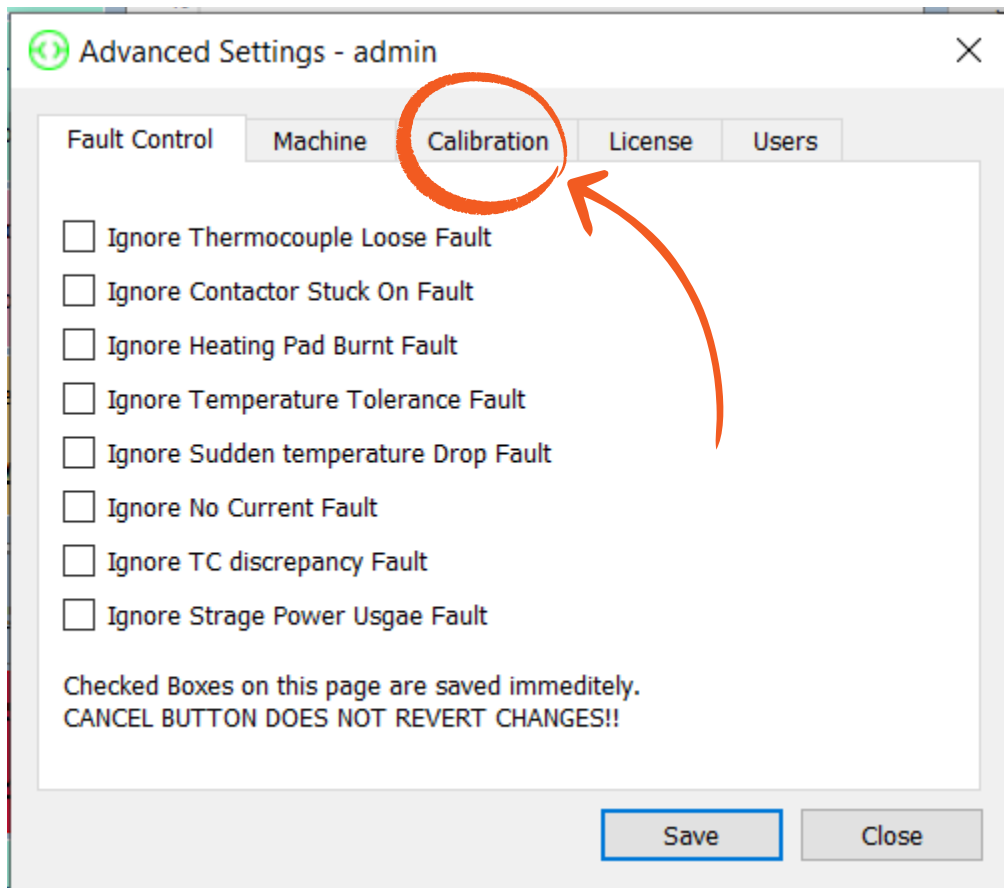
5. Then enter a supervisor password and click "Log In" button

If you have not setup a supervisor password, the default one is (these are BOTH case sensitive):

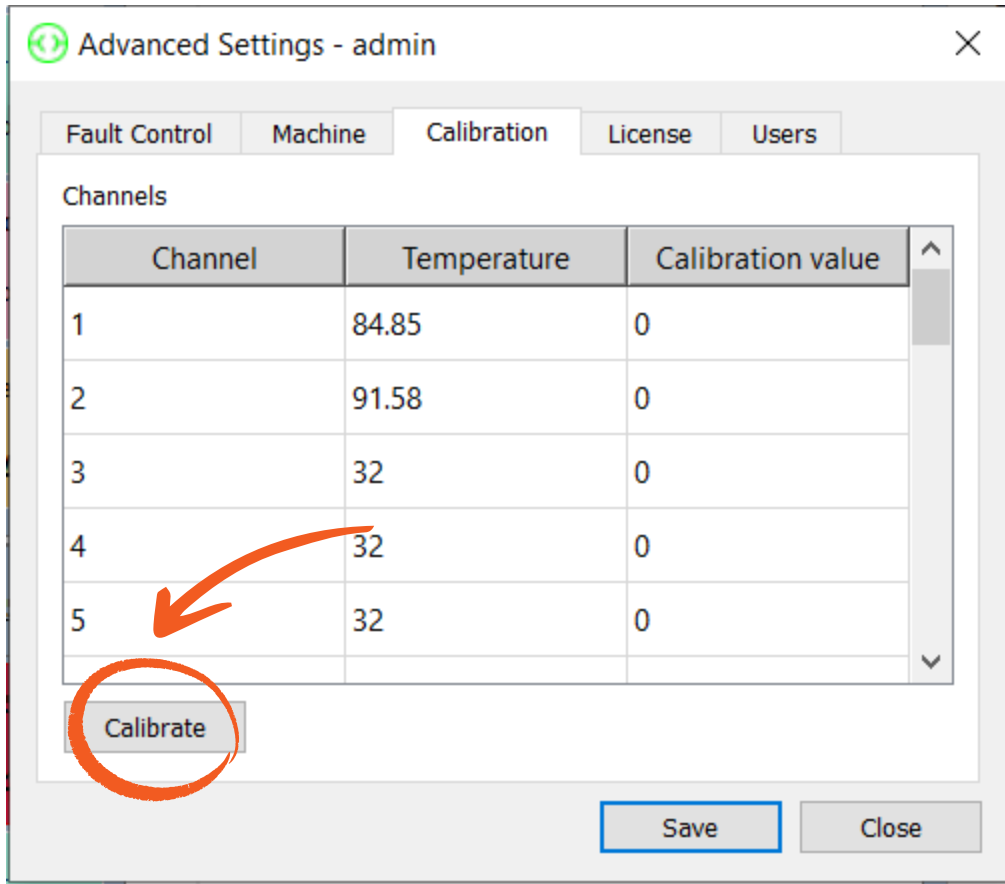
Username: admin

Password: GrandC

6. This will bring up a new pop-up window. Simply select the “Calibration” tab as shown below:



7. This will bring up the current calibration summary. Click on the “Calibrate” button as highlighted below to calibrate the unit.



8. Make sure the "Beckhoff Calibration" tab is selected as shown in the image below:



9. Select the channel you are going to calibrate on the left-hand side:



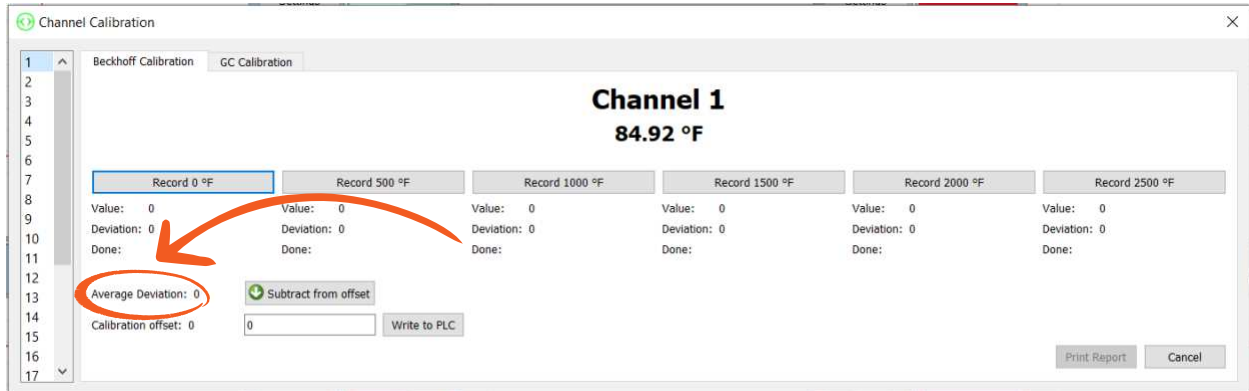
10. Next plug your calibrator into that channel and set it to 0 deg F, then wait for 5 seconds and press on “Record 0 deg F” as shown in the image below. This will run for a few seconds while it averages the readings and will give you a deviation from true value.



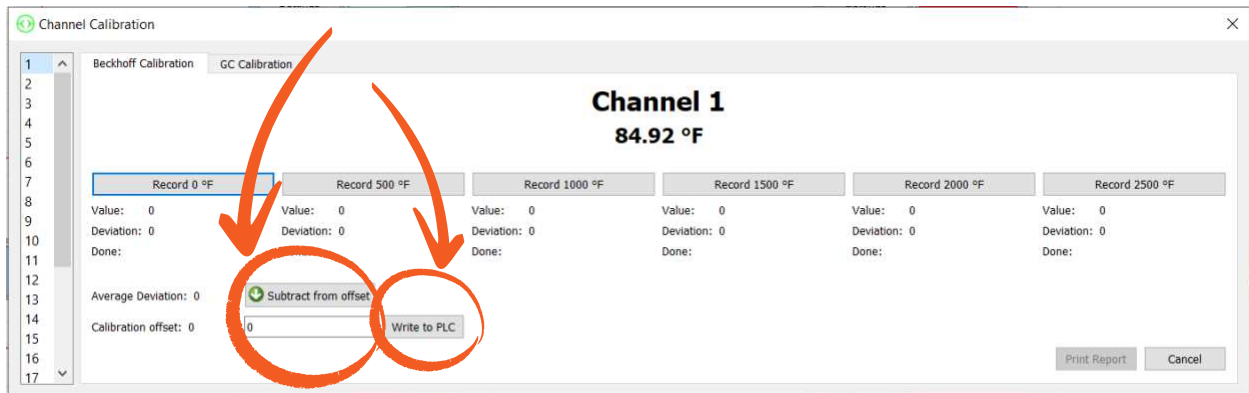
11. Repeat Step 10 for 500, 1000, 1500 and 2000 degrees.



12. You will now notice that the system has calculated the average deviation for the channel using all 5 points of measure. This value is given in the image below next to the text “Average Deviation:”. **IF THE AVERAGE DEVIATION IS LESS THAN THE ACCURACY STATED IN THE SECTION “Heat View calibration specs” ABOVE, THEN YOU DO NOT NEED TO EDIT THE CALIBRATION VALUE AND YOU CAN MOVE ON TO THE NEXT CHANNEL OR BOARD.**

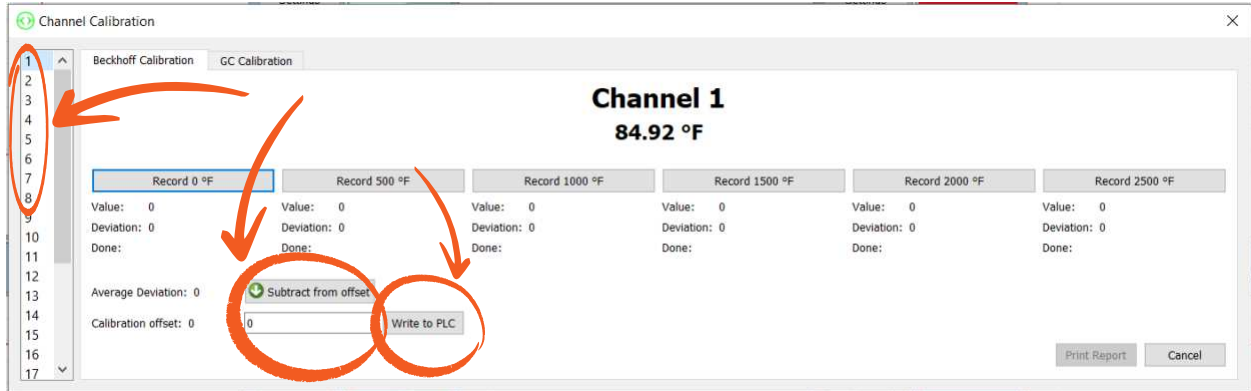


13. You can now click the button Subtract from offset and then click on the write to PLC button. You can also manually type in the amount you want to offset the readings by and then click on the “write to PLC” button to apply them.



14. It is recommended to check the channel measurements again after the calibration was applied to the channel to make sure it worked correctly. Simply set your calibrator to the 5 different temperature readings and make sure the channel temperature is within tolerance.
15. The channel is now calibrated. If you are only doing one channel per board AND YOU HAD TO CHANGE THE CALIBRATION VALUE, you can click on the all the other channel numbers and manually enter the same calibration value you entered in step 13 to all of them. The image below shows where to click if you had calibrated channel 1 and wanted to apply to channels 2-8.

If you are performing the calibration on every channel, then you need to repeat steps 9-14 for every channel on the system.



That is all. Once you have clicked on the button “Write to PLC” all the data is stored on the controller and applied immediately.