

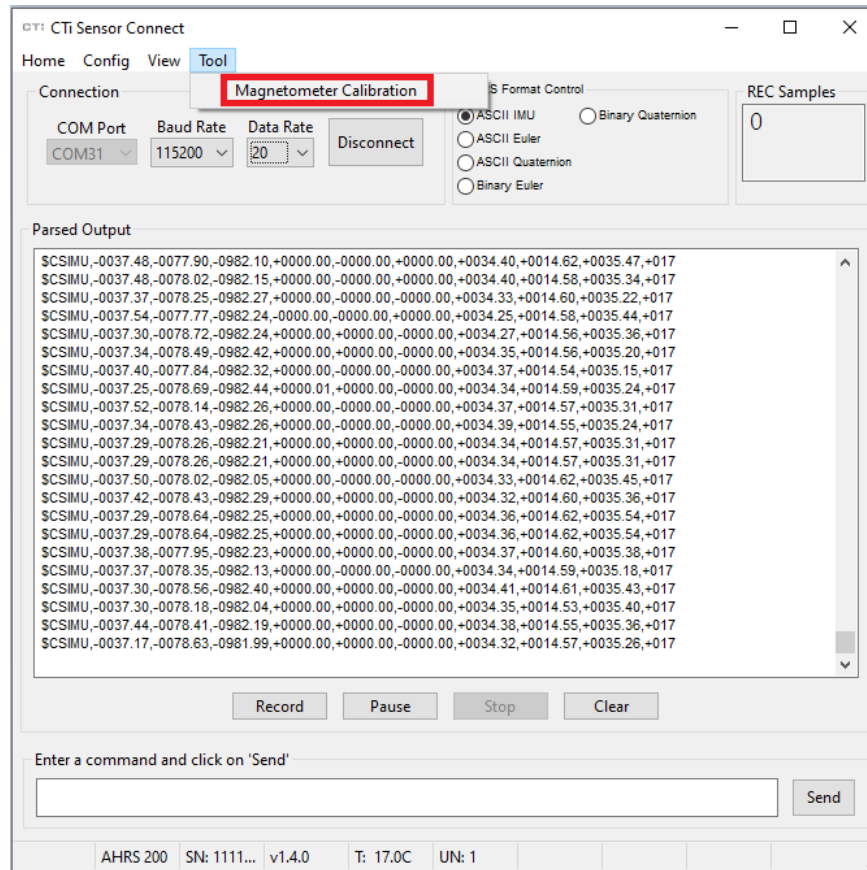
Magnetic Sensor Calibration Guide

Magnetometer calibration is a process to correct for the environmental impact on the magnetometer. This is important because the magnetometer is sensitive to magnetic fields, and even small changes in the environment can affect its readings.

Calibration procedure

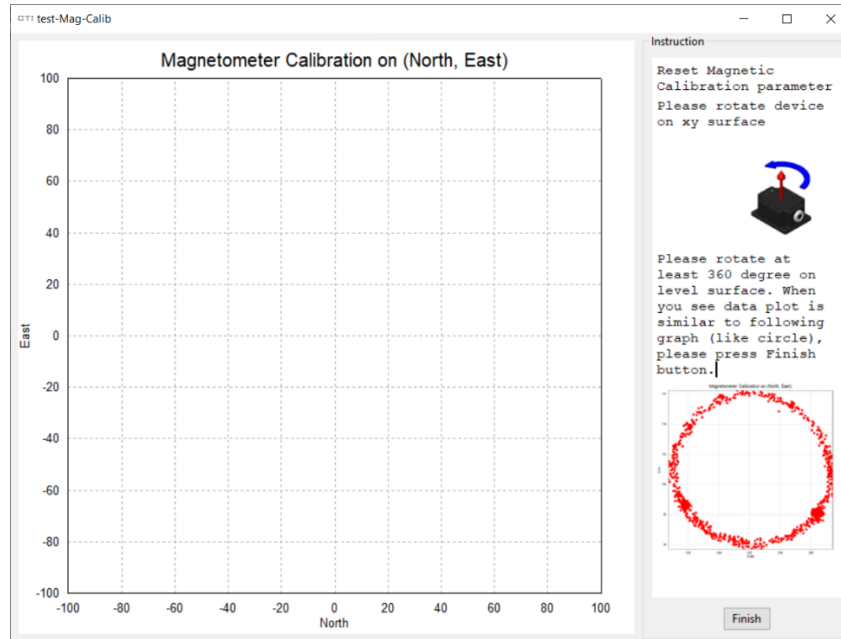
The calibration procedure for CTi Sensor devices, CS-100 and CS-200, is as follows:

1. Download the latest CTi-Sensor-Connect (CSC) software from the following link:
<https://ctisensors.com/Software/CTiSensorConnect-0.13.0-amd64.msi>
2. Install CSC.
3. Run CSC.
4. Select ASCII IMU data format and a data rate of 20 Hz.
5. Place the device and all associated parts/modules/systems in a magnetically clean area. (The system will need to be rotated in later steps.)
6. Select "Magnetometer Calibration" from the "Tool" menu bar.



7. Rotate the device on the following surfaces. For each surface, follow the instructions on the CSC screen to rotate the device until the plot shows a clear circle.
 - A. XY-surface (rotation around Z-axis)

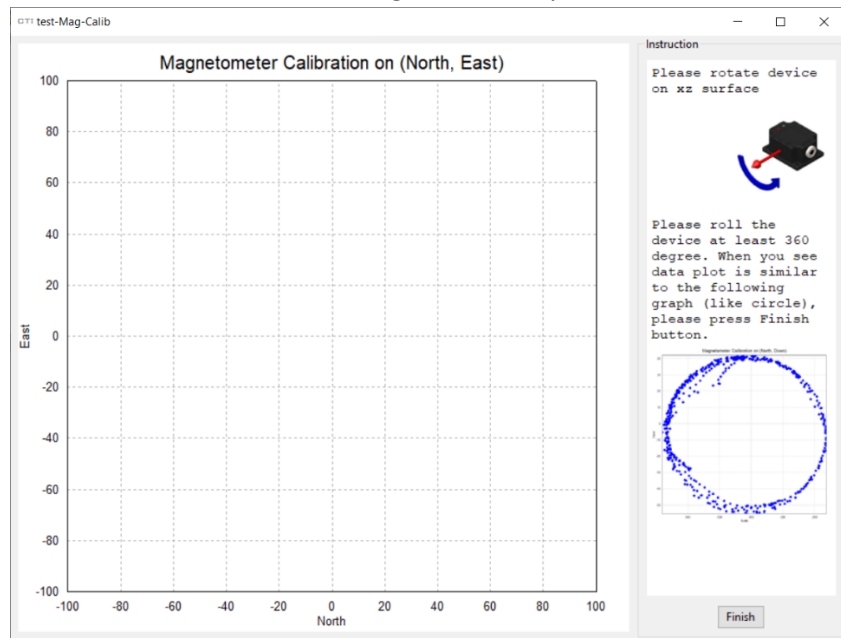
When you first open the calibration panel, it will show a blank screen. Follow the instructions on the right to rotate your module on the XY-surface.



Keep rotating your module on the XY-surface until the plot looks like the graph on the right. Once the plot has a similar red circle, you can press the "Finish" button.

B. XZ-surface (rotation around Y-axis)

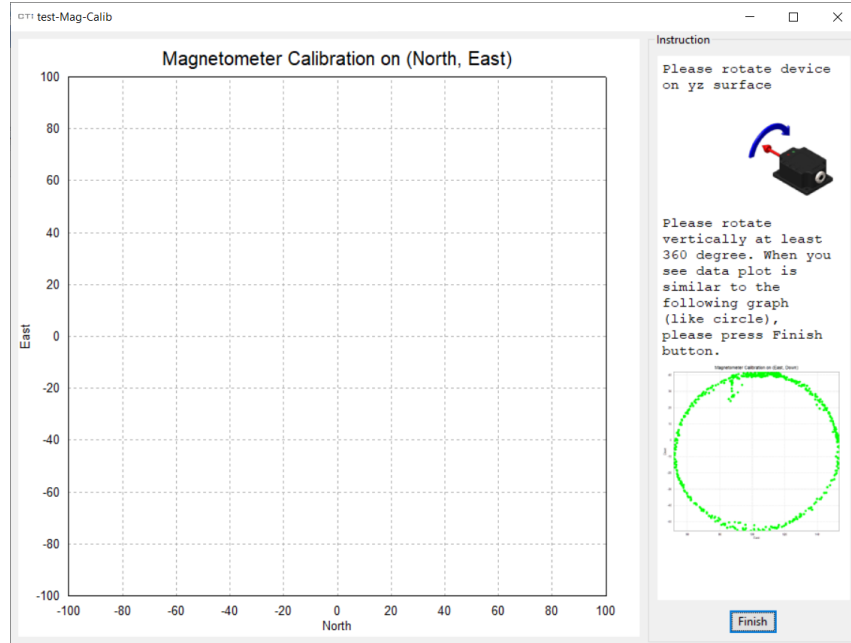
Follow the instructions on the right to rotate your module on the XZ-surface.



Keep rotating your module on the XZ-surface until the plot looks like the graph on the right. Once the plot has a similar blue circle, you can press the "Finish" button.

C. YZ-surface (rotation around X-axis)

Follow the instructions on the right to rotate your module on the YZ-surface.

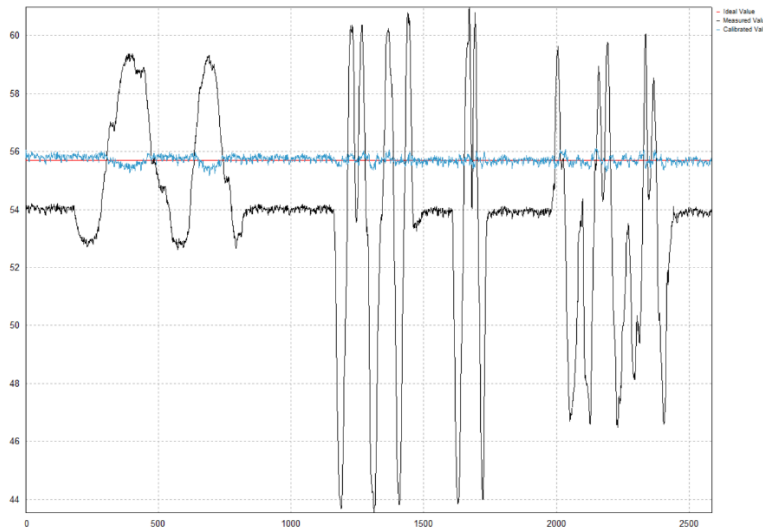


Keep rotating your module on the YZ -surface until the plot looks like the graph on the right. Once the plot has a similar green circle, you can press the "Finish" button.

8. After rotation, the CSC will display two plots:

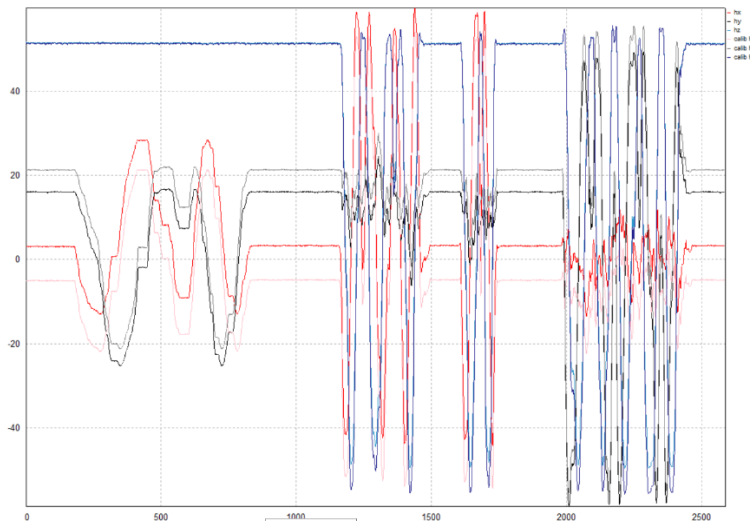
- A. A magnitudes comparison plot that shows the difference between the raw data and the calibrated data. Press "Next" to view the next plot.

Example:



- B. An all-data plot that shows all of the data, both raw and calibrated. The user can press "Next" to proceed to the next step of the calibration, and then press "Next" again to complete the entire calibration process.

Example:



Summary

Magnetometer calibration is an important process that can improve the accuracy of compass readings and the detection of nearby magnetic fields. If you are using a CTi Sensor device, it is important to calibrate the magnetometer regularly to ensure accurate readings.

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