GEOKON | TRUSTED MEASUREMENTS®

Product Tutorial

Using Agent Software with Vibrating Wire Sensors

Before Continuing

⚠ Prior to viewing this tutorial, please watch the Using Agent Software with LC-2 Dataloggers tutorial and familiarize yourself with the basics of how to use the Agent program

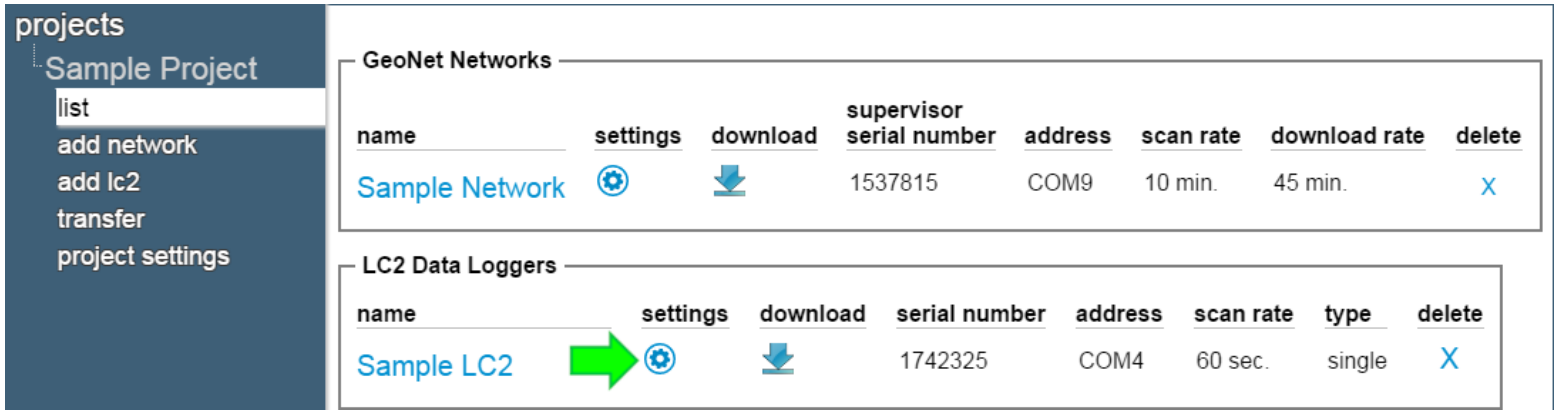
If you have not already done so, create a Project in the Agent program and add an LC-2 that is reading vibrating wire sensor(s), then perform a data download

Adding Sensors

Adding a Reading Sensor

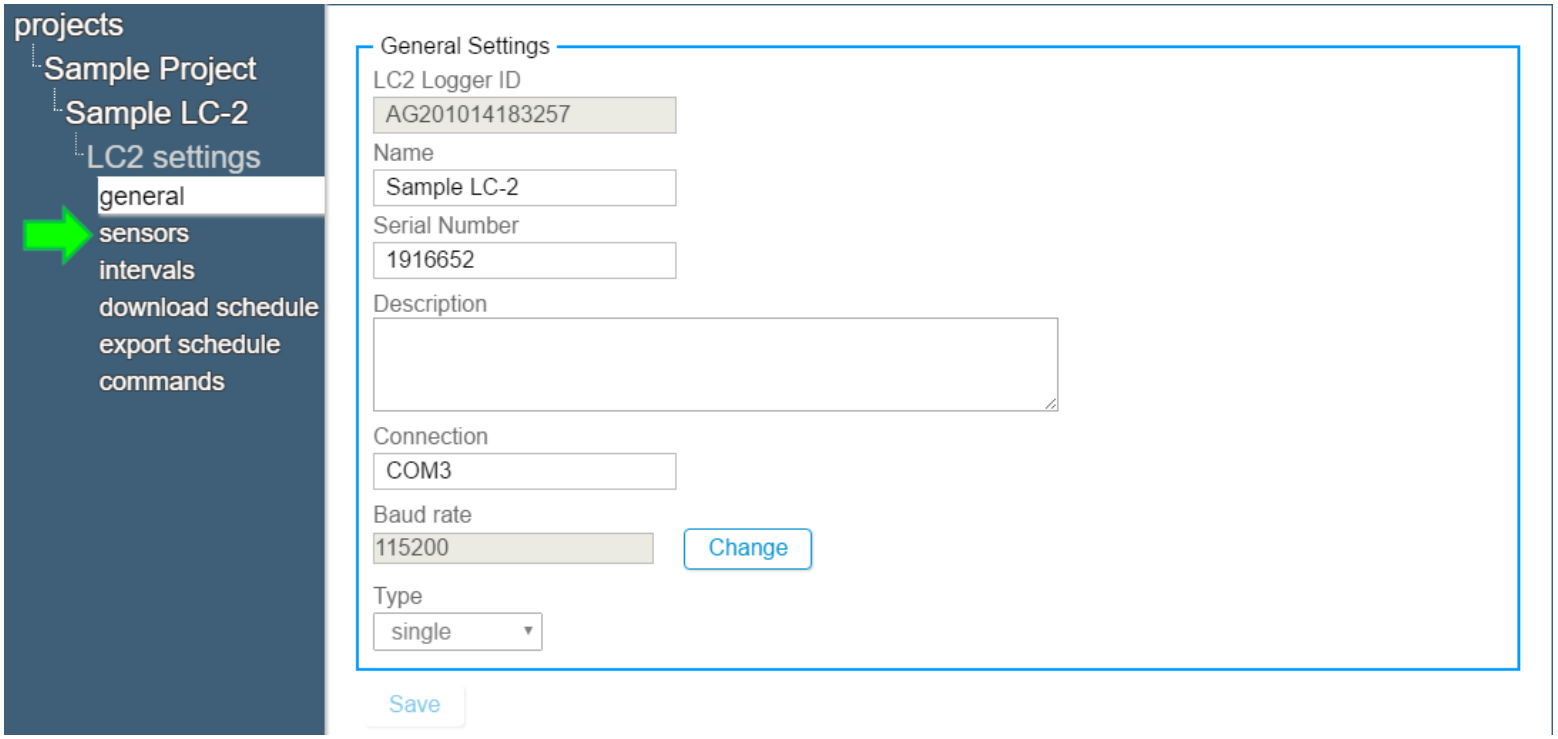
- To view the data collected from a vibrating wire sensor:

1. Select a Project, then click the ⚙ icon that corresponds with the desired LC-2



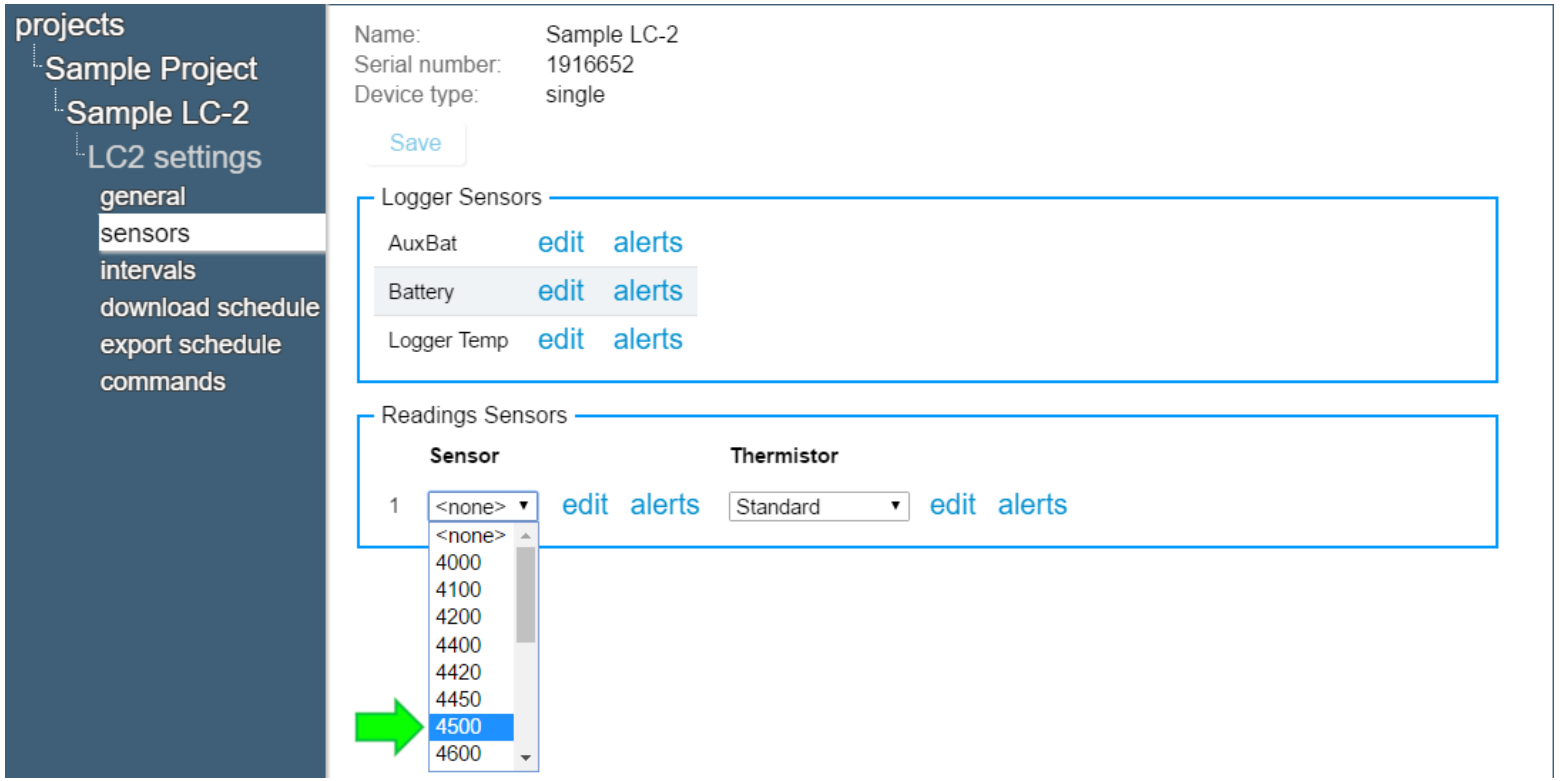
Adding a Reading Sensor (Continued)

2. Agent will navigate to the “general” LC-2 settings; click “sensors” on the left side of the screen



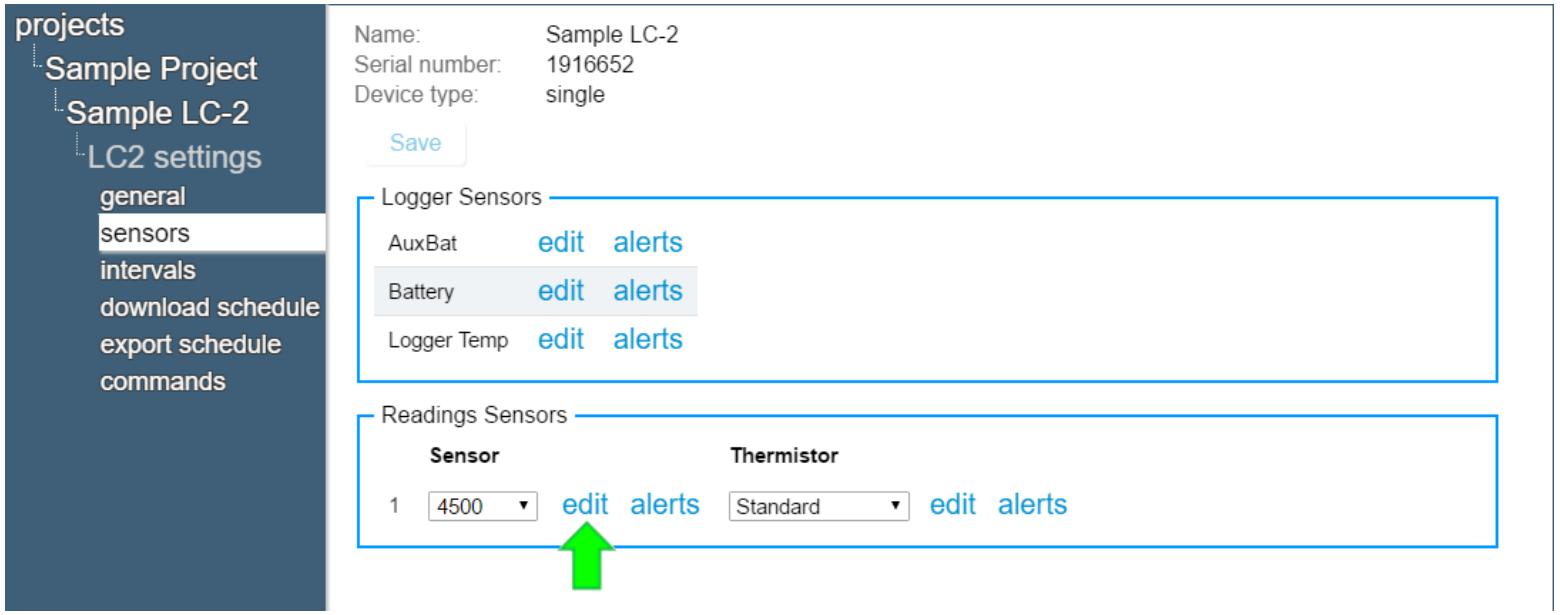
Adding a Reading Sensor (Continued)

3. Select the model of sensor being read from the drop-down list



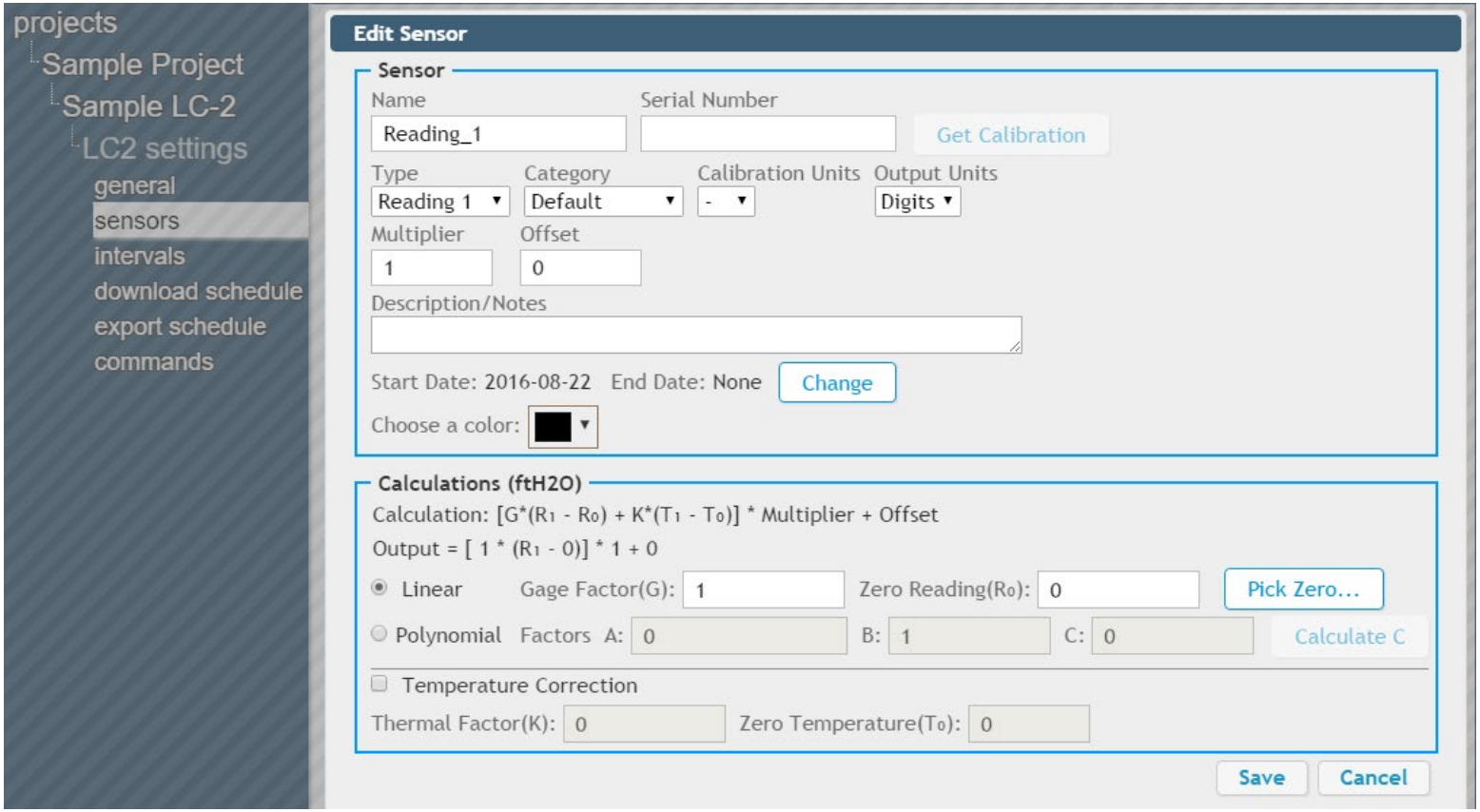
Adding a Reading Sensor (Continued)

4. Click “edit”



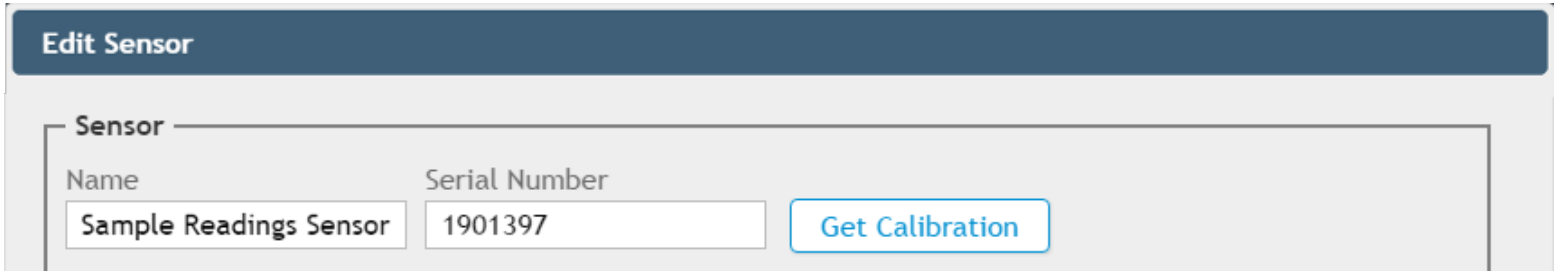
Adding a Reading Sensor (Continued)

5. The edit sensor dialog box will open



Adding a Reading Sensor (Continued)

6. Enter a descriptive name for the reading sensor, and the serial number of the VW sensor attached to the LC-2

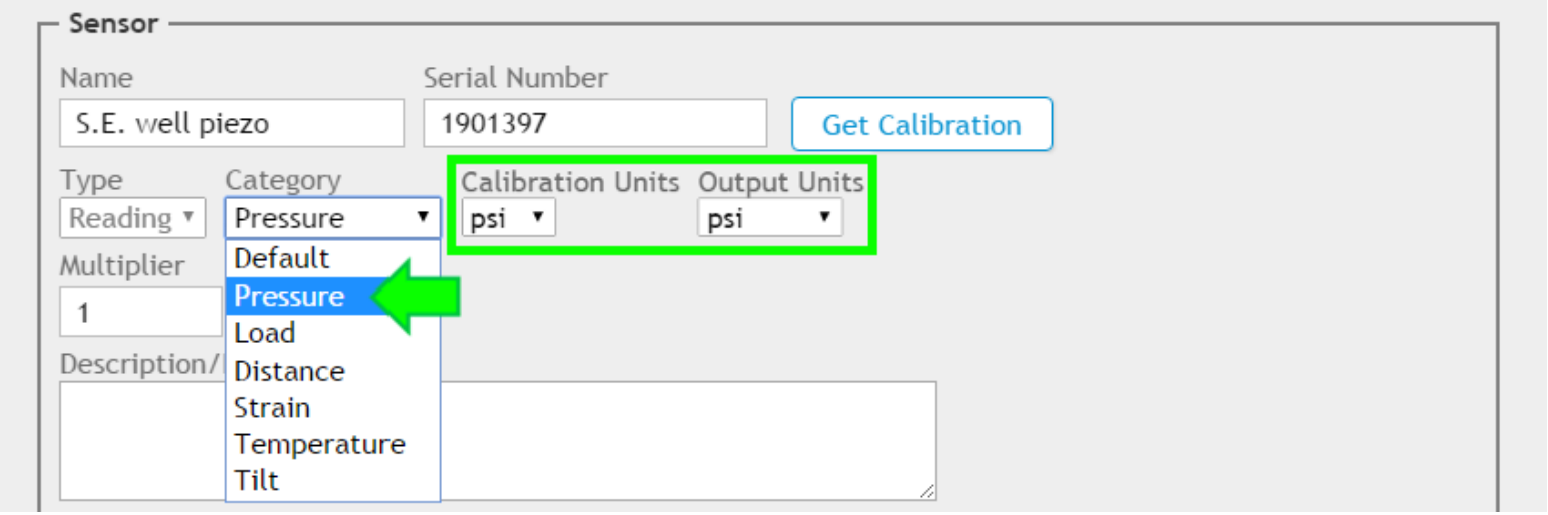


7. Clicking “Get Calibration” will retrieve the calibration factors for the specified serial number from the GEOKON calibration database and populate them into the Edit Sensor dialog (Only available for VW sensors manufactured after 2016)

Adding a Reading Sensor (Continued)

8. Select the “Category” that matches the type of VW sensor being read (Choose “Load” for load cells, “Strain” for strain gauges, “Pressure” for pressure transducers, etc.)

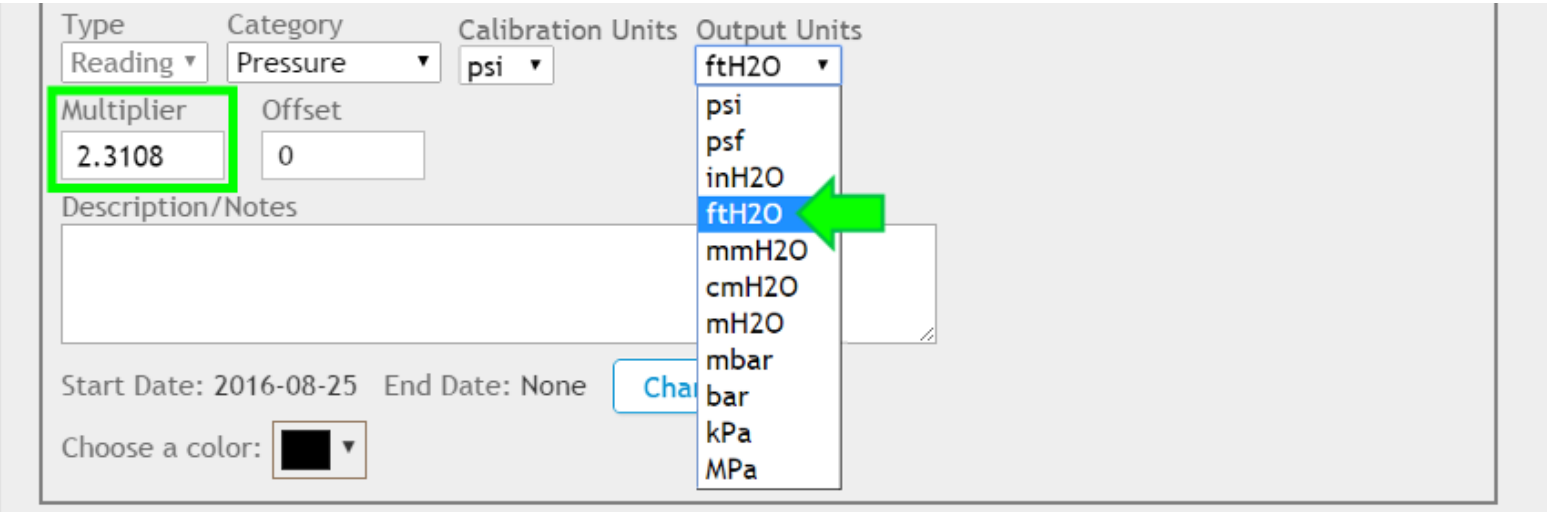
   The types of “Calibration Units” and “Output Units” available are determined by the category that is chosen



Adding a Reading Sensor (Continued)

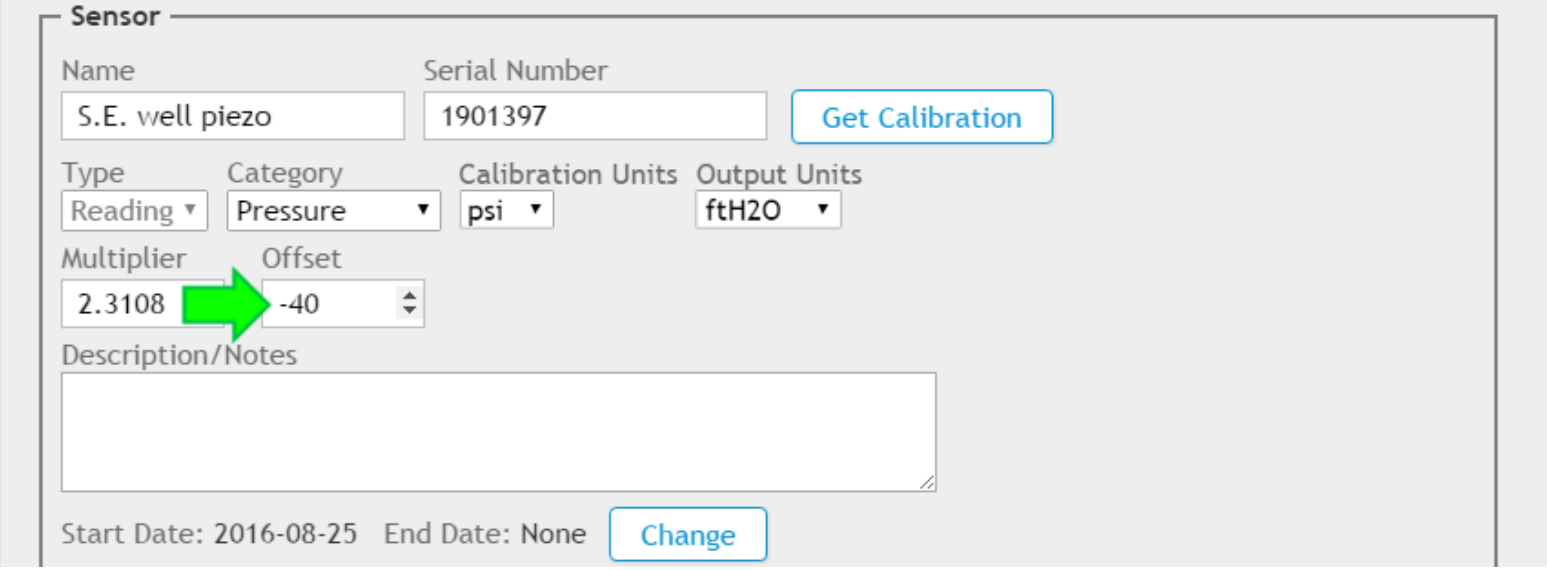
9. Click “Output Units” to select the type of engineering units the data from the VW sensor will be displayed in

   The “Multiplier” field will automatically be populated with the factor needed to convert the Calibration units to the selected Output units



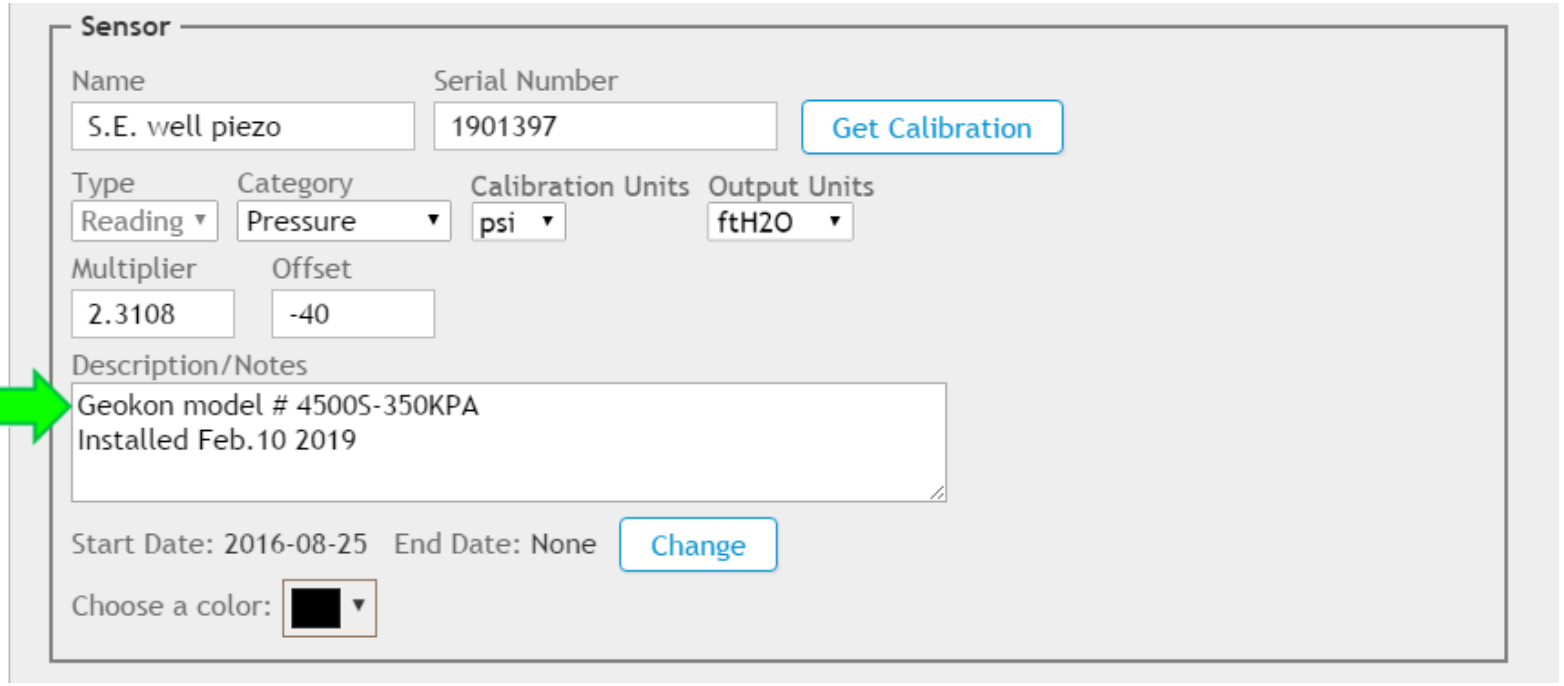
Adding a Reading Sensor (Continued)

10. “Offset” is an optional constant that can be added to the sensor output to adjust the data. For example: If a piezometer installed at a site elevation of -40 feet is reading +2 feet of water, entering an offset of -40 would adjust the reading to -38 feet, the actual water elevation of the sensor



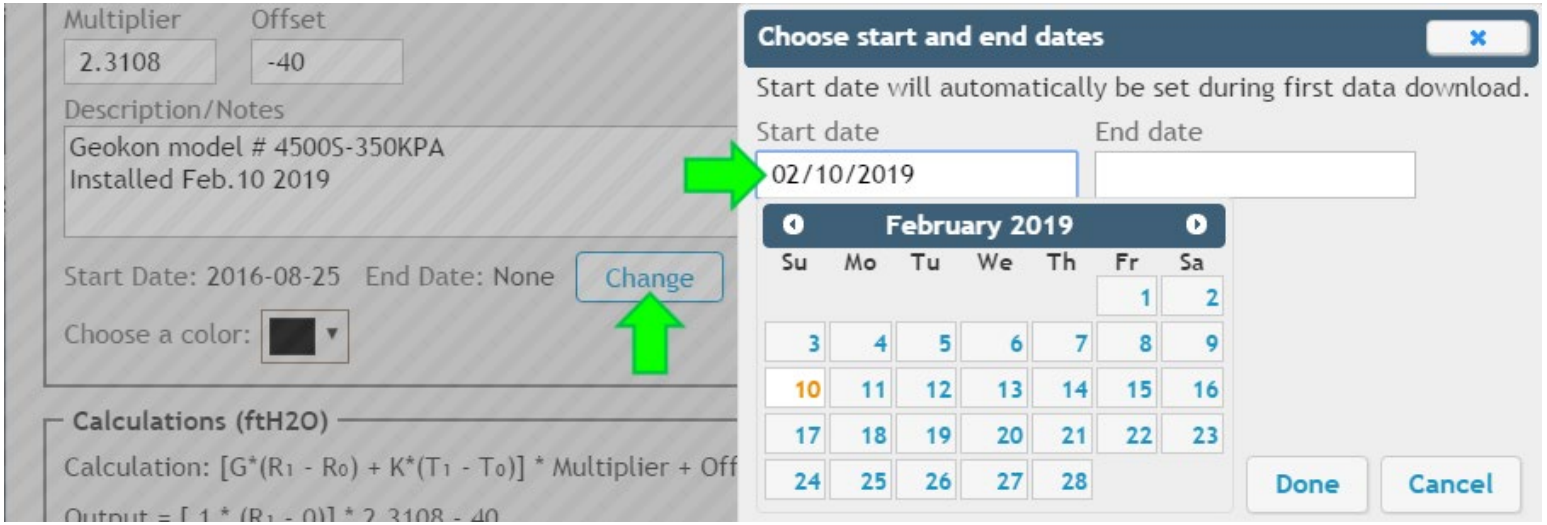
Adding a Reading Sensor (Continued)

11. The Description/Notes field is provided for the user to record any additional information about the VW sensor



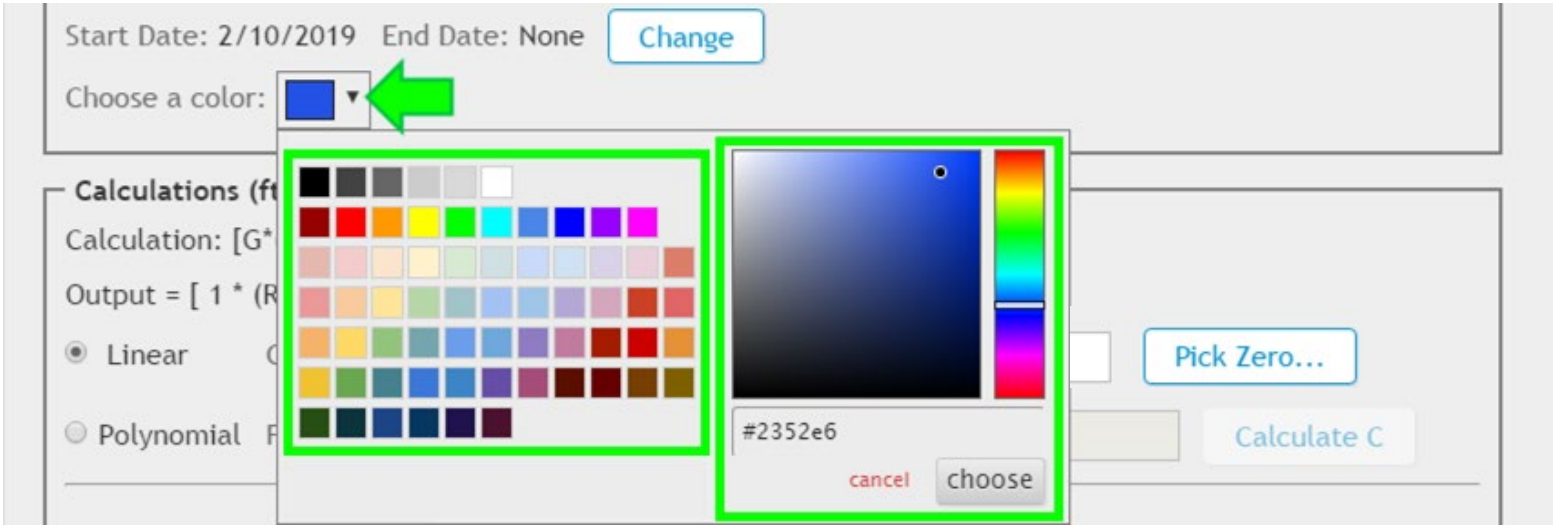
Adding a Reading Sensor (Continued)

12. The Start/End dates determine the range of data that will be displayed on charts. To change the dates, click, “Change” (The Start Date should be set to the day the VW sensor was installed. The End Date should only be entered if the VW sensor is removed from the LC-2)



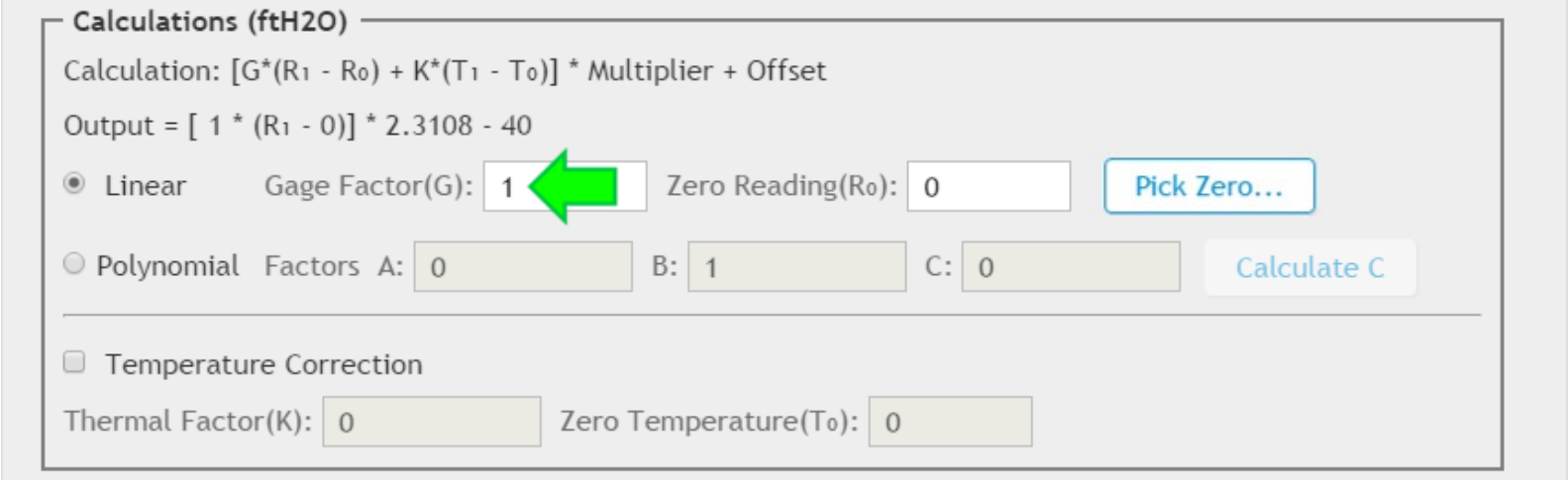
Adding a Reading Sensor (Continued)

13. Click “Choose Color” to select the color that will represent the VW sensor data on charts. Select a standard color from the left side of the menu, or use the color palette on the right to create a custom color



Adding a Reading Sensor (Continued)

14. The default gauge factor of 1 can be used to output the data from the vibrating wire sensor as digits. To output the data in other engineering units, the gauge factors found on the GEOKON Calibration Report provided with the vibrating wire sensor must be entered

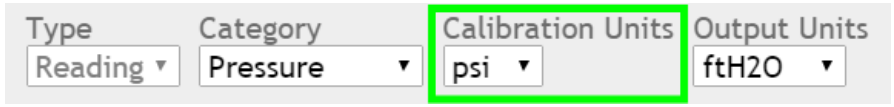


Adding a Reading Sensor: A Note on Gauge Factors

⚠ Most GEOKON calibration reports provide gauge factors in metric and imperial units. When entering gauge factors in Agent, make sure to use the factors that match the selected "Calibration Units"

Imperial Example

Agent:



Calibration Report: (psi) **Linear Gauge Factor (G): -0.01596 (psi/ digit)**

Polynomial Gauge Factors: A: -1.366E-08 B: -0.01577 C: _____

Metric Example

Agent:

Calibration Report: (kPa) **Linear Gauge Factor (G): -0.1100 (kPa/ digit)**

Polynomial Gauge factors: A: -9.418E-08 B: -0.1087 C: _____

Adding a Reading Sensor: Linear Calculations

15. Enter the Linear Gauge Factor from the calibration report

Imperial Example

Calibration Report: (psi) **Linear Gauge Factor (G):** -0.01596 (psi/ digit)

Agent: Linear Gage Factor(G): -0.01596 Zero Reading(R0): 0

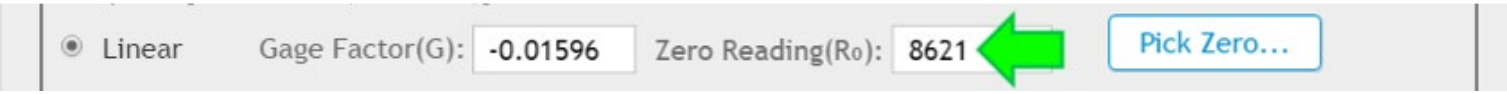
Metric Example

Calibration Report: (kPa) **Linear Gauge Factor (G):** -0.1100 (kPa/ digit)

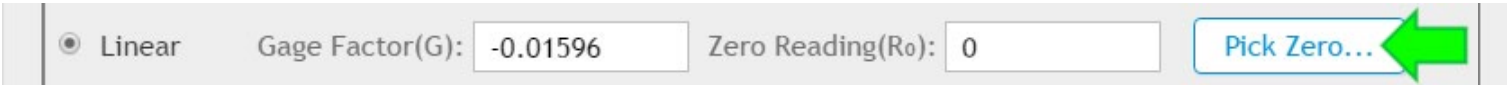
Agent: Linear Gage Factor(G): -0.1100 Zero Reading(R0): 0

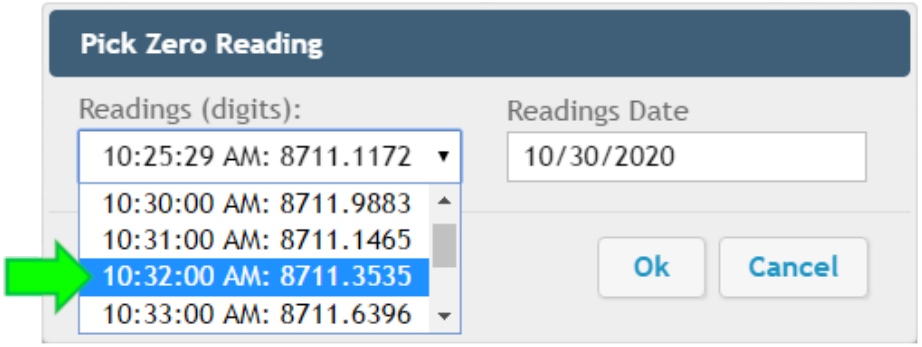
Adding a Reading Sensor: Linear Calculations (Continued)

16. Enter the initial zero reading taken onsite with the VW sensor



16a. If using the LC-2 to take the initial zero, click "Pick Zero…" then select the relevant reading



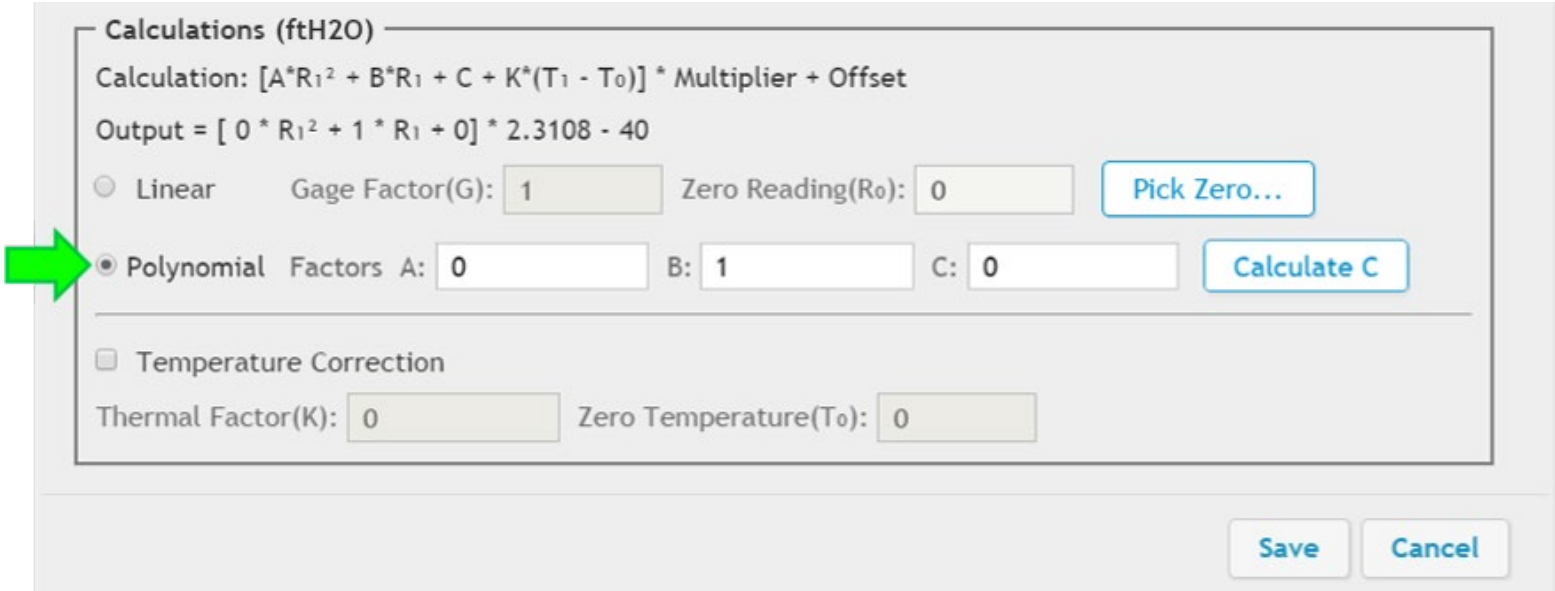


Important Notes on Initial Zero Readings

- It is essential that an accurate onsite zero reading is entered; it will be used for all subsequent data reduction
- Prior to taking the reading, make sure the sensor is prepared as described in the sensor manual
- Consult the sensor manual for more information

Adding a Reading Sensor:
Polynomial Calculations

17. The polynomial equation can be used for greater accuracy. To utilize the polynomial equation, click the corresponding button



Adding a Reading Sensor:
Polynomial Calculations (Continued)

18. Enter the polynomial gauge factors from the calibration report

Imperial Example

Calibration Report: (psi) **Linear Gauge Factor (G): -0.01596 (psi/ digit)**

Polynomial Gauge Factors: A: -1.366E-08 B: -0.01577 C: _____

Agent: Polynomial Factors A: -0.00000001366 B: -0.01577 C: 0 Calculate C

Metric Example

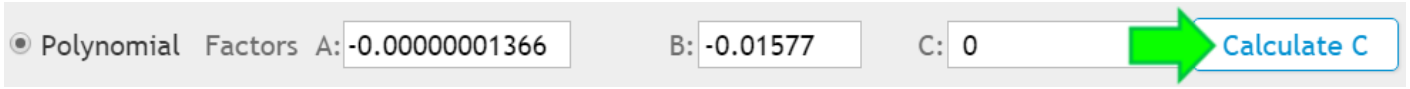
Calibration Report: (kPa) **Linear Gauge Factor (G): -0.1100 (kPa/ digit)**

Polynomial Gauge factors: A: -9.418E-08 B: -0.1087 C: _____

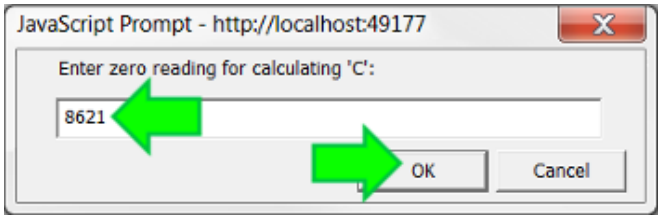
Agent: Polynomial Factors A: -0.000000019418 B: -0.1087 C: 0 Calculate C

Adding a Reading Sensor:
Polynomial Calculations (Continued)

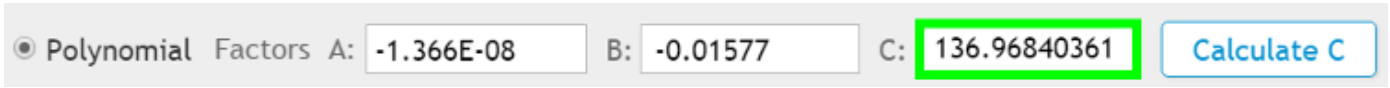
19. Click “Calculate C”



20. Enter the initial zero reading taken onsite with the VW sensor then click “OK”

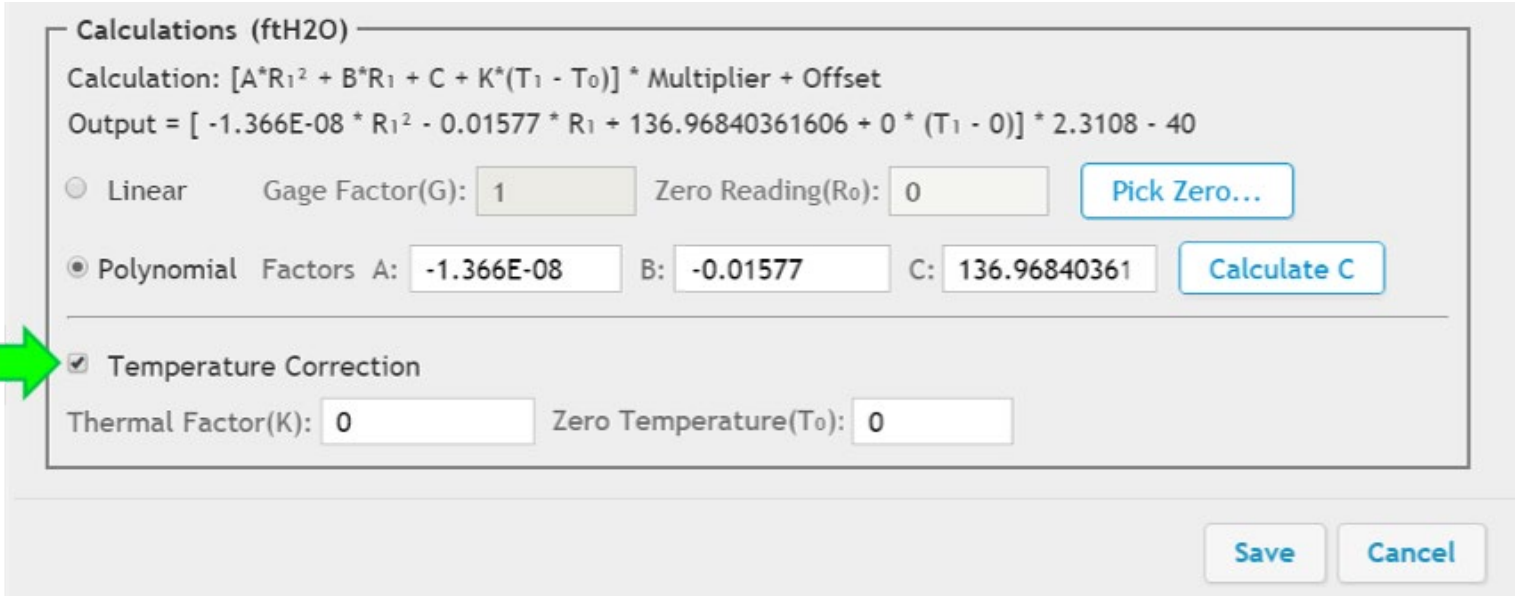


21. Agent will calculate and display the value of Factor “C” based on the information entered



Adding a Reading Sensor:
Temperature Correction

22. For optimum accuracy, or if ambient temperature changes are large, a temperature correction can be applied. To factor changes in temperature into the selected equation, check the “Temperature Correction” box



Adding a Reading Sensor:
Temperature Correction (Continued)

23. Enter the Thermal Factor from the calibration report

Imperial Example

Calibration Report: **Thermal Factor (K): -0.0004642 (psi/ °C)**

Agent:

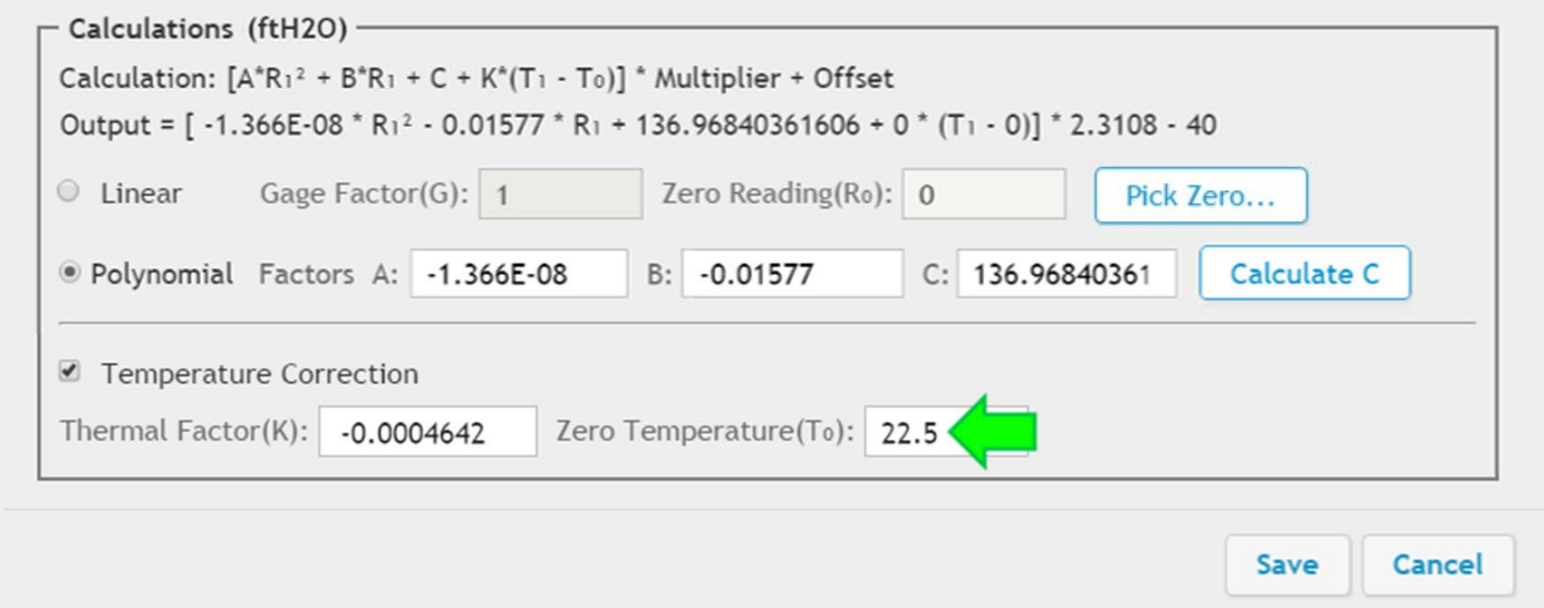
Metric Example

Calibration Report: **Thermal Factor (K): -0.003200 (kPa/ °C)**

Agent:

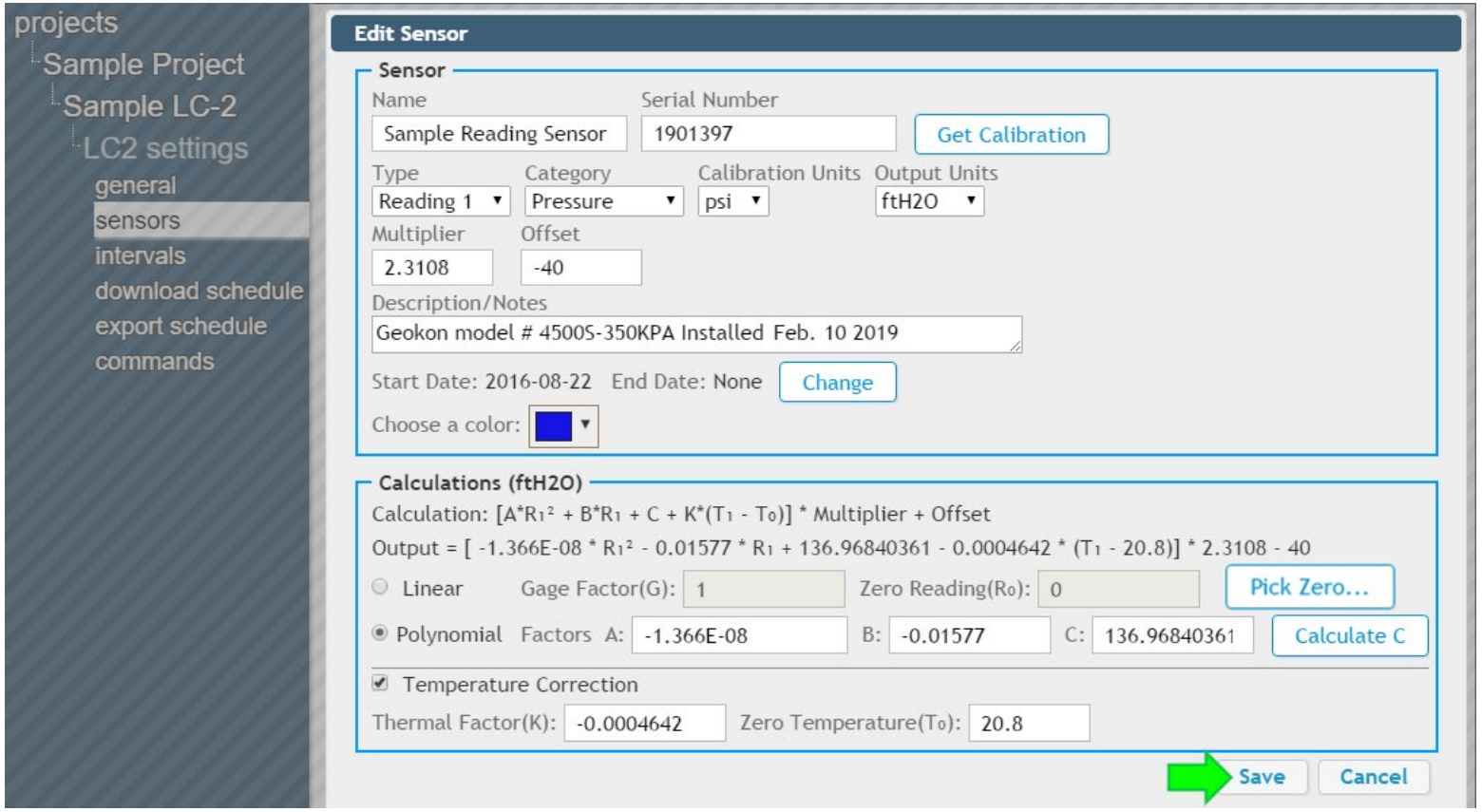
Adding a Reading Sensor:
Temperature Correction (Continued)

24. Enter the temperature recorded when the onsite zero reading was taken (must be entered as degrees Celsius)



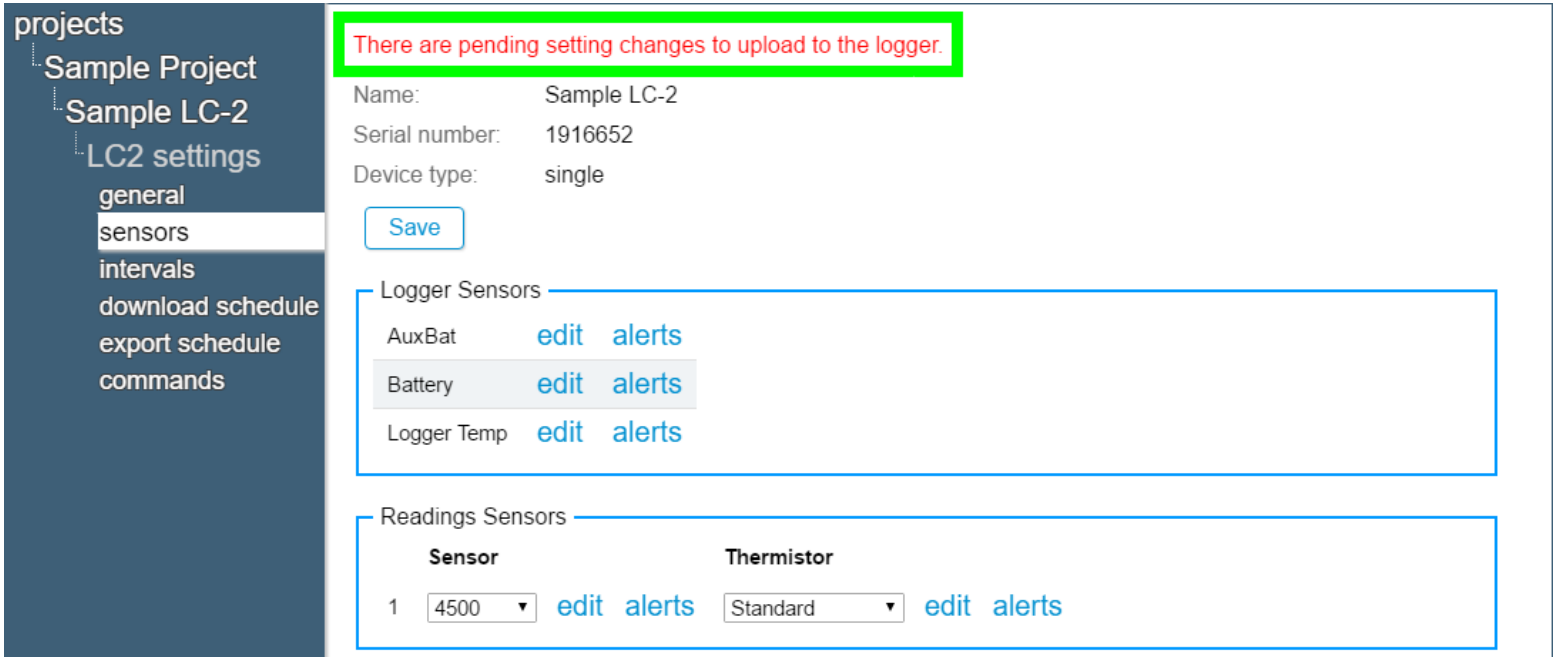
Adding a Reading Sensor: (Continued)

25. Once all pertinent information had been entered, click “Save”



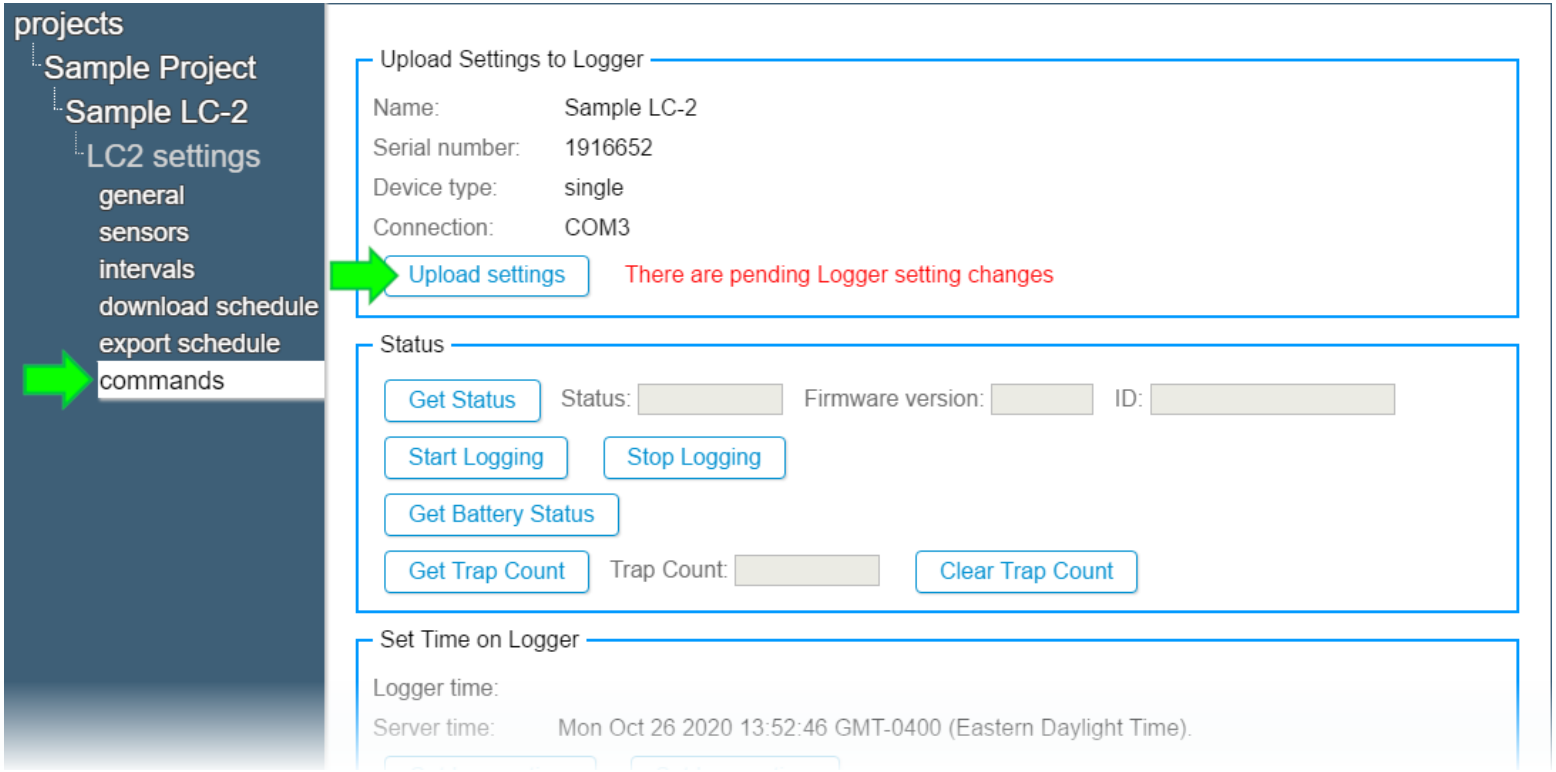
Adding a Reading Sensor (Continued)

26. The edit sensor dialog box will close, and a message will appear at the top of the screen. Changes made in the sensor screen will not take effect until they are uploaded to the LC-2



Uploading Sensor Settings

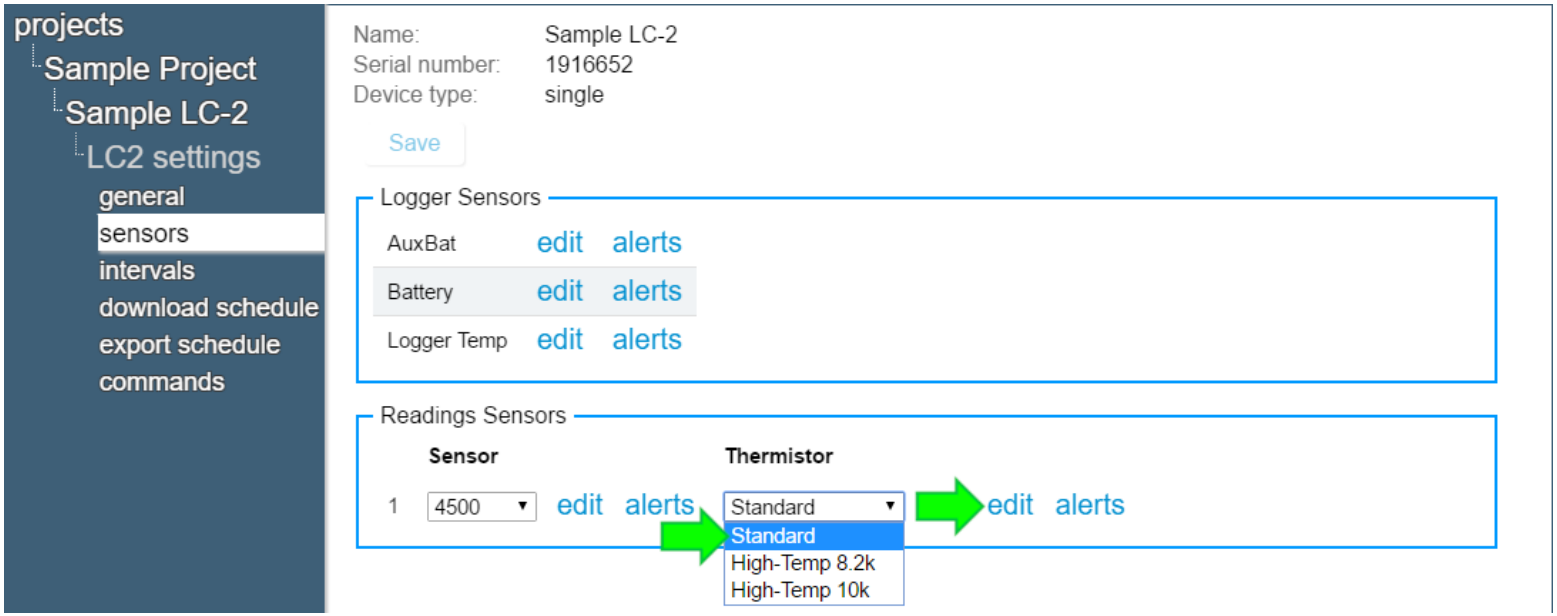
1. Click “commands” on the left side of the screen, then click “upload settings”



Adding a Thermistor Sensor

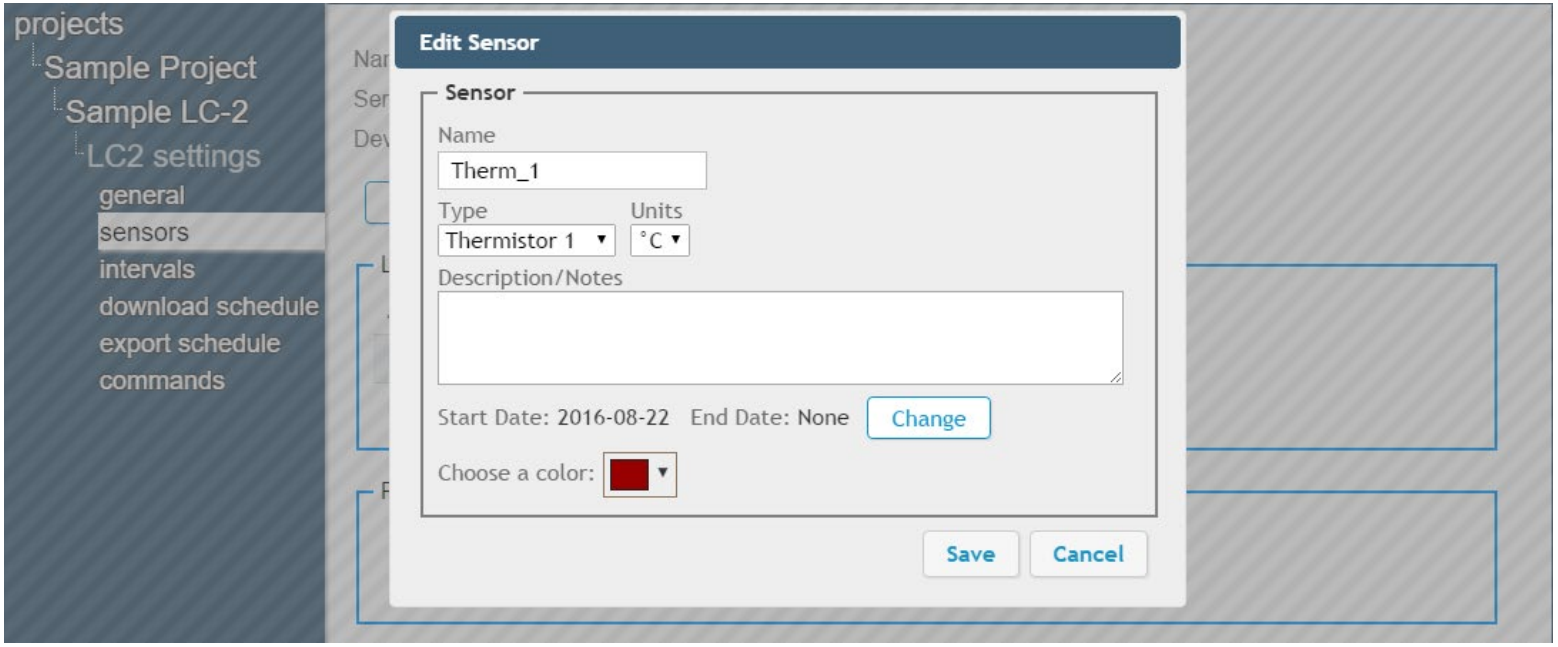
- Most GEOKON vibrating wire sensors include a built-in thermistor
- The thermistor settings can be edited in a similar manner to those of the VW sensor

1. Select a thermistor type, then click “edit”



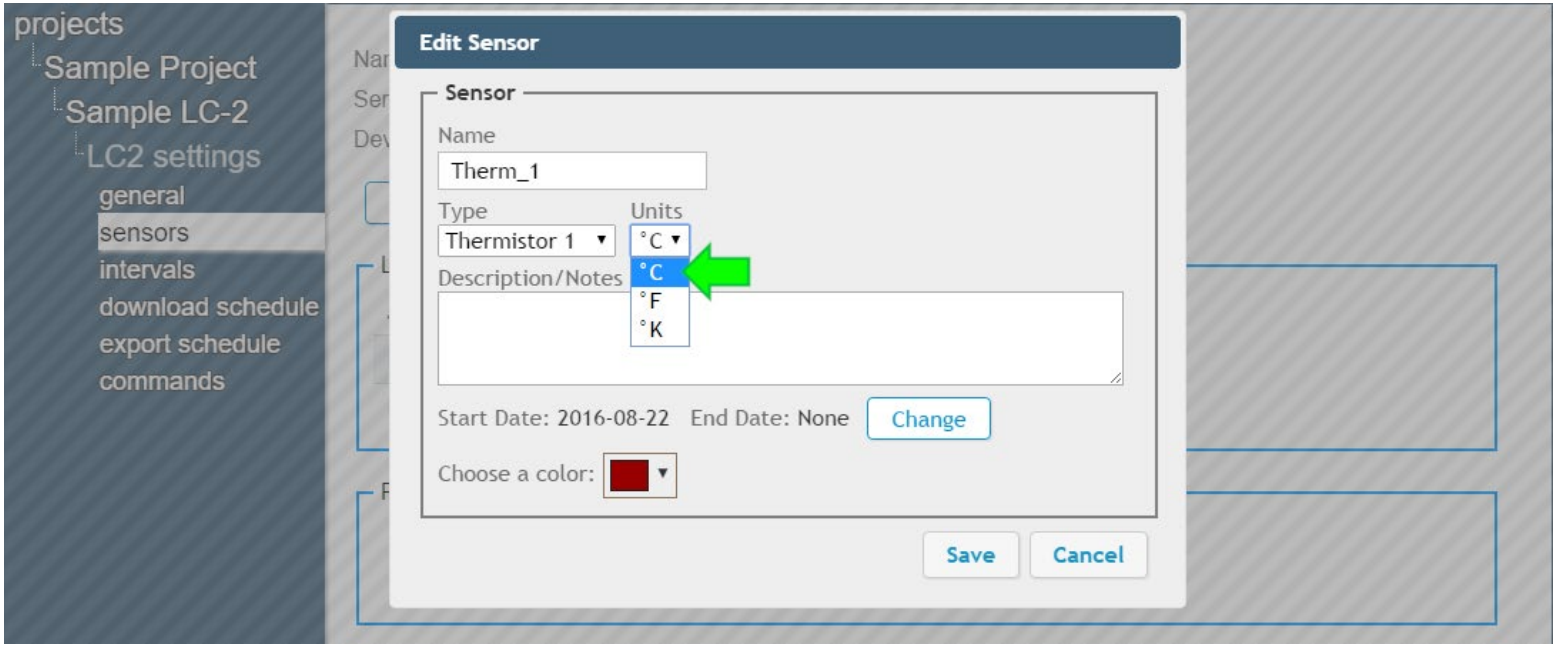
Adding a Thermistor Sensor (Continued)

2. The edit sensor dialog box will open



Adding a Thermistor Sensor (Continued)

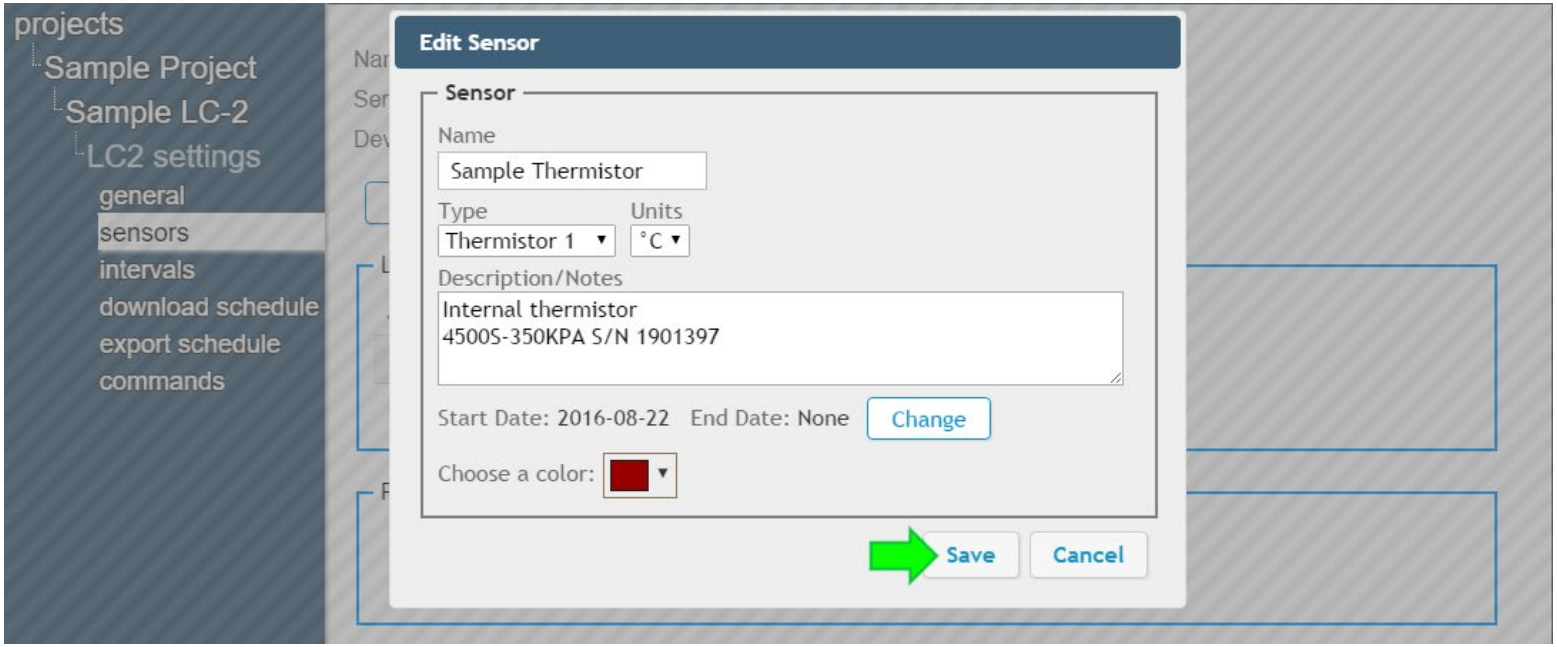
3. Click “Units” to determine the type of engineering units the thermistor data will be displayed in



Note: The Type field should not be changed; it is used to differentiate readings in thermistor strings

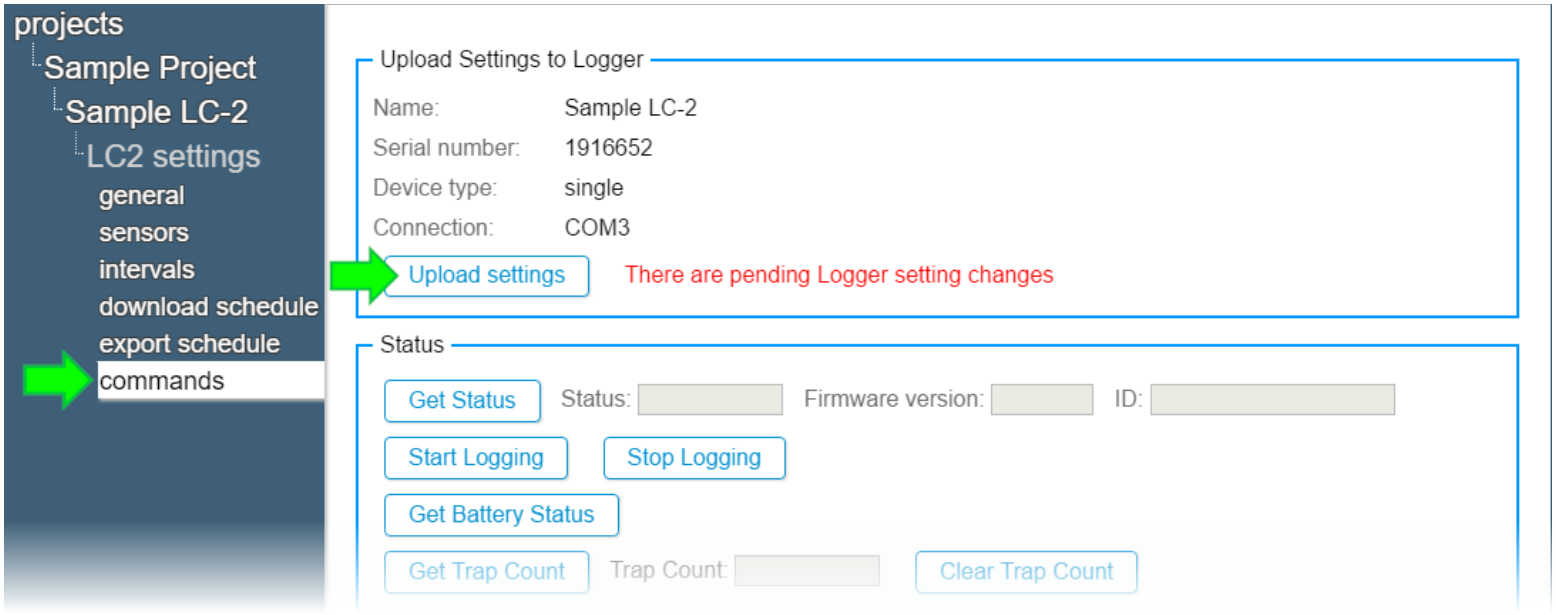
Adding a Thermistor Sensor (Continued)

4. The remainder of the fields function as previously described; edit them as desired. Once all pertinent information has been entered, click “Save”



Adding a Reading Sensor (Continued)

5. The edit sensor dialog box will close and the “Pending setting changes” message will appear at the top of the screen
6. Upload the settings to the LC-2 in the same manner as for the VW sensor



Charts

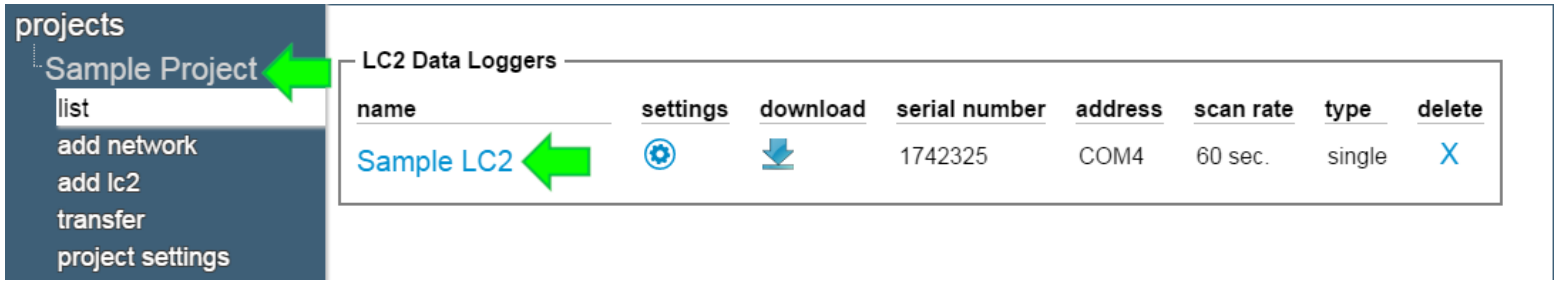

AGENT
projects
Sample Project
Sample LC-2
view charts
download
export
chart settings
summary
lc2 settings
sensor summary
Show tooltips on charts
Sample Chart
25.550 ftH2O
25.500 ftH2O
25.450 ftH2O
25.400 ftH2O
24.0 °C
21.0 °C
18.0 °C
15.0 °C
Click to hide
or display
Sample Reading Sensor
Sample Thermistor Sensor
Jun 3
Jun 4
Jun 5
Jun 6
Jun 7
Jul '19
Jan '20
Sample Chart 2
4.0 V
50.000 %
Click to hide
or display
Start: Jan 25, 2015 12:00 am
Stop: none
Jan 25, 2015 12:00 am
May 11, 2020 12:22 pm

Charts

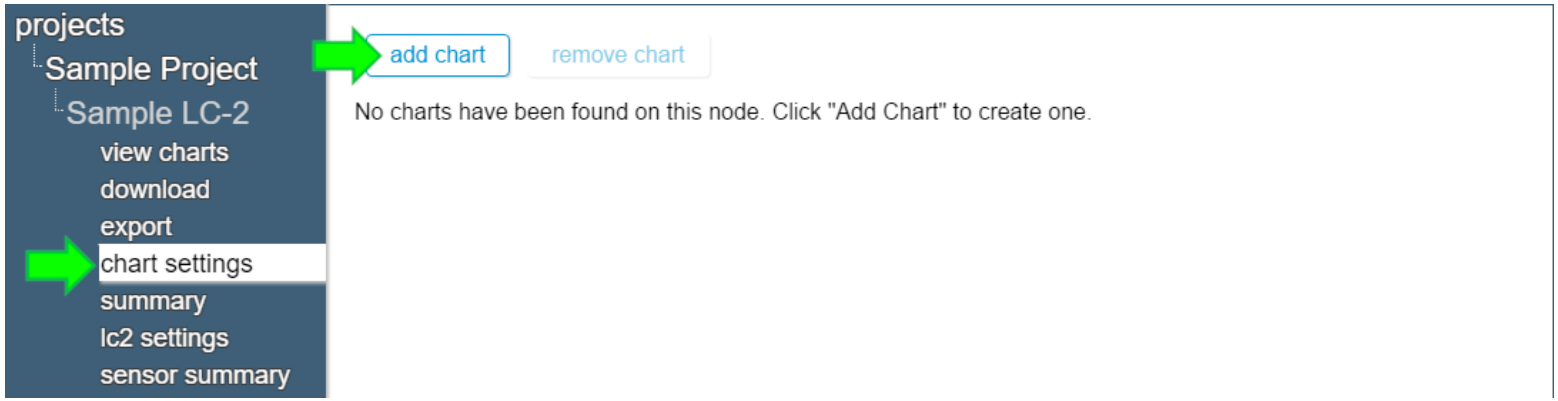
- Charts display data imported by sensors as a graph; therefore, sensors must be added to a chart before it will display any data
- Only data that has been downloaded from the LC-2 will be displayed (For information on how to download data, view the Using Agent Software with LC-2 Dataloggers or refer to the product manual)
- If automatic download is enabled, new data will be added to charts automatically each time data is downloaded from the datalogger
- If automatic download is disabled, charts will not update until a manual download is performed

Creating Charts

1. Select a project, and then the LC-2 the chart will be added to



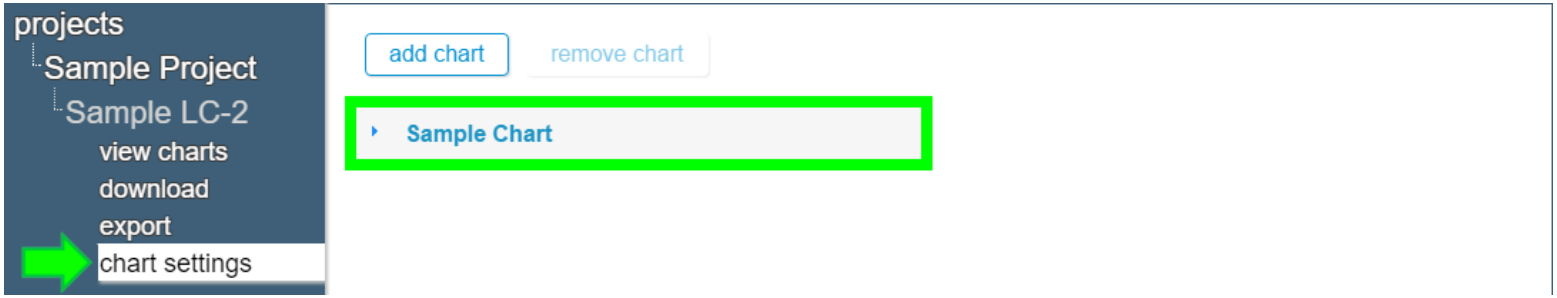
2. Click “chart settings” then “add chart”



Creating Charts (Continued)

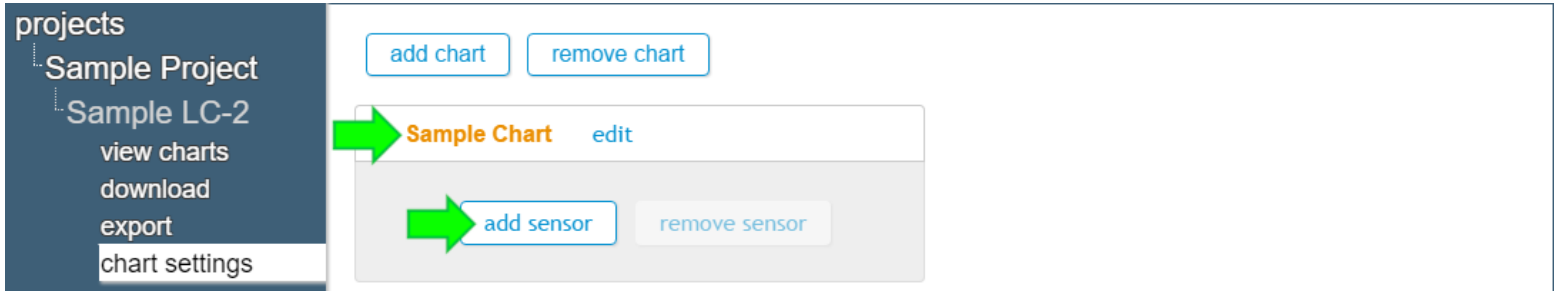
3. Give the chart a name, and then click “Ok”

4. Charts that have been added to the LC-2 will be shown in the “chart settings” screen

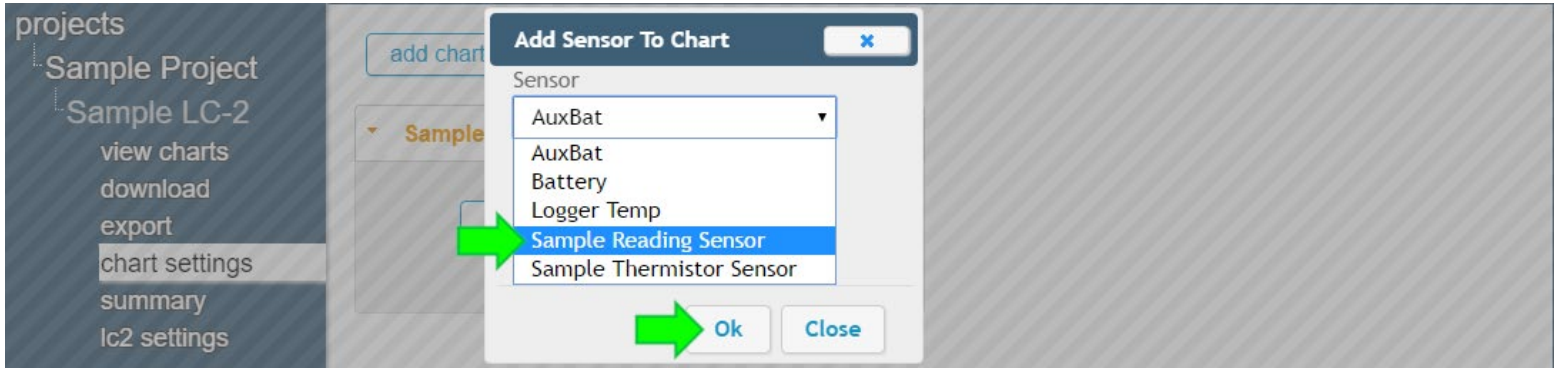


Adding Sensors to Charts

1. Click on a chart name, and then click “add sensor”

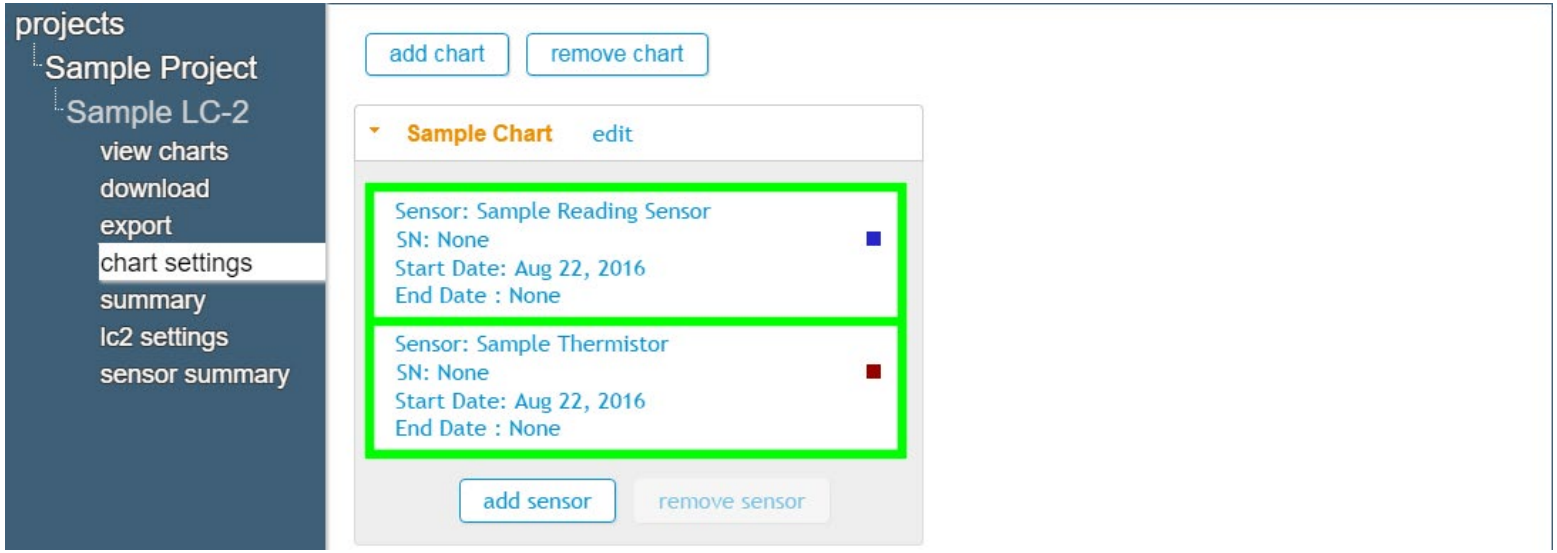


2. Select a sensor to add, and then click “Ok”



Adding Sensors to Charts (Continued)

3. Repeat steps one and two until all desired sensors have been added to the chart
4. Sensors that have been added to a chart will be shown below the chart name

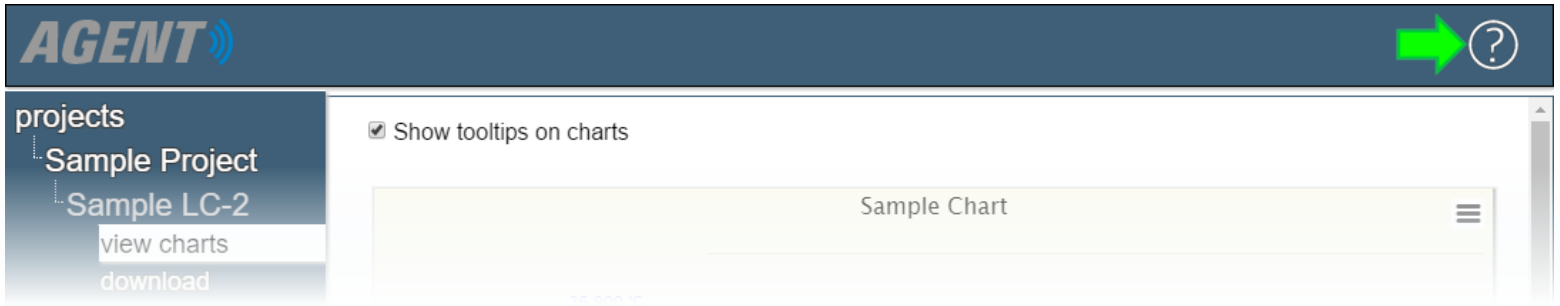


Viewing Charts

1. Click “view charts” to display all charts on the device

For more information…

- The LC-2 instruction manuals, which can be accessed at any time by clicking on the question mark at the top of the screen



- Instruction manuals are available for download at: www.geokon.com/Manuals
- Please visit https://www.geokon.com/Tutorials for more tutorials