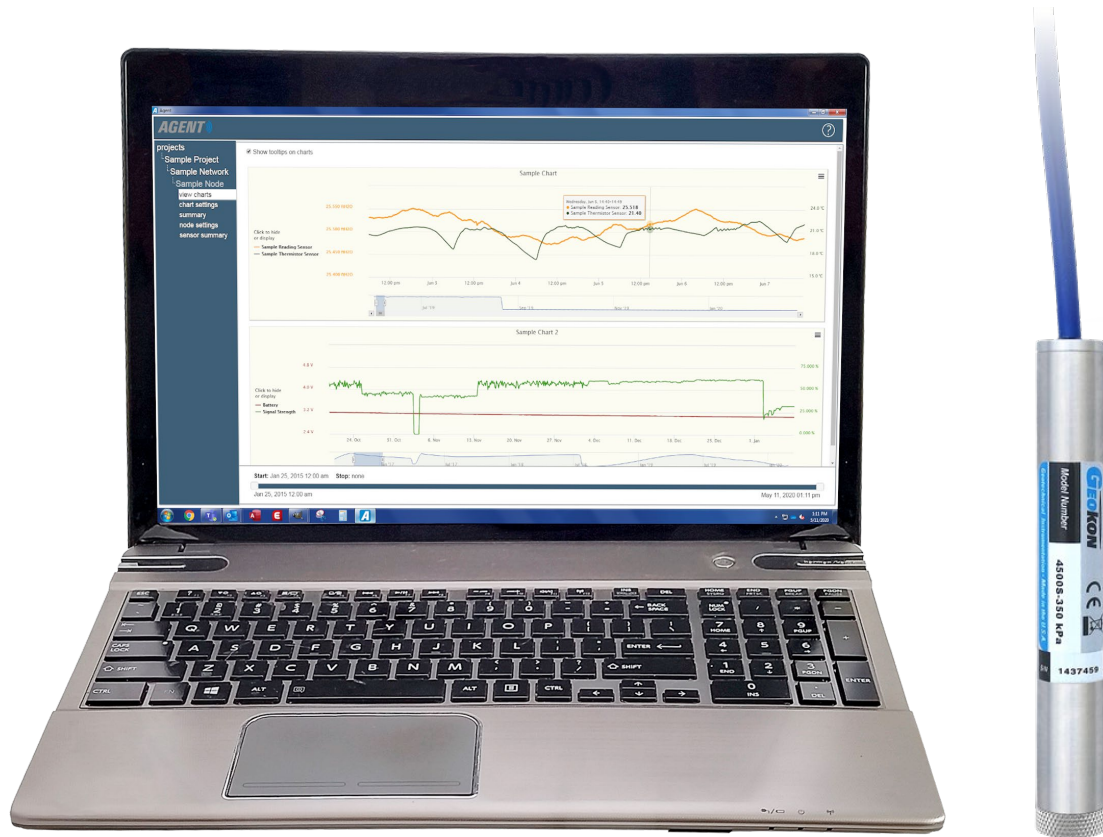# GEOKON | TRUSTED MEASUREMENTS®

Product Tutorial

Using Agent to Collect Data from Vibrating Wire Sensors

Before Continuing

⚠️ Prior to viewing this tutorial, please read the [Using Agent Software with GeoNet Wireless Data Hosting Systems](#) tutorial and familiarize yourself with the basics of how to use the Agent program

If you have not already done so, create a Project and a Network inside the Agent program for the GeoNet Network that is reading vibrating wire sensor(s), then perform a data download
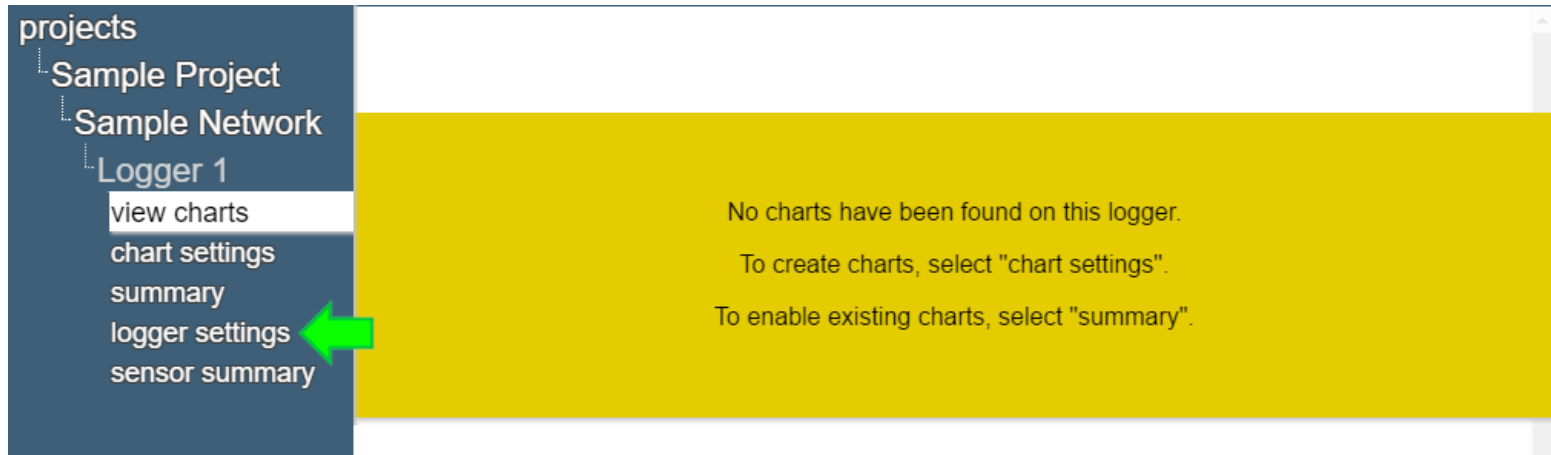
Adding Sensors

Adding a Reading Sensor

- To view the data collected from a vibrating wire sensor, a "reading sensor" must be added in Agent

1. Select the Project and Network which contains the desired logger, then click the name of a Logger that has a vibrating wire sensor attached

Adding a Reading Sensor
(Continued)

2. Agent will navigate to the "view charts" screen, click "logger settings" on the left side of the screen

Adding a Reading Sensor (Continued)

3. Click "Add reading sensor"

Adding a Reading Sensor (Continued)

4. The edit sensor dialog box will open

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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 Logger

7. Clicking "Get Calibration" will retrieve the calibration factors for the specified serial number from GEOKON's calibration database and automatically populate them into the Edit Sensor dialog (Only available for certain vibrating wire 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.)

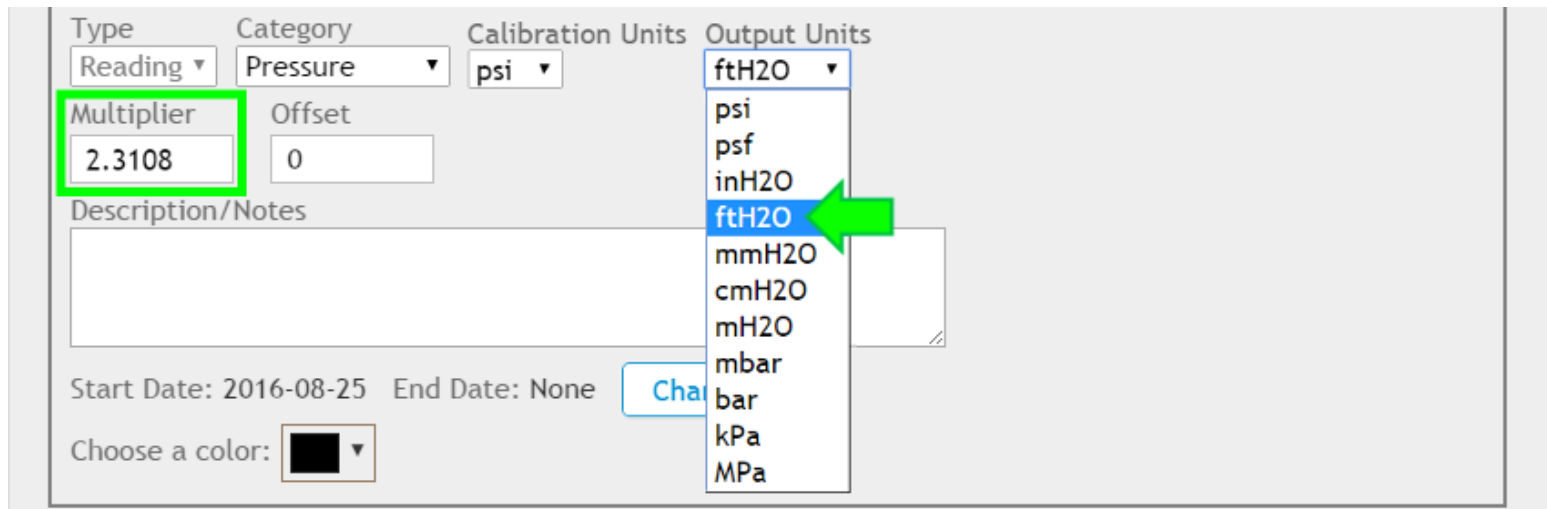The types of "Calibration Units" and "Output Units" available are determined by the category that is chosen

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 populate with the factor needed to convert the Calibration units to the Output units
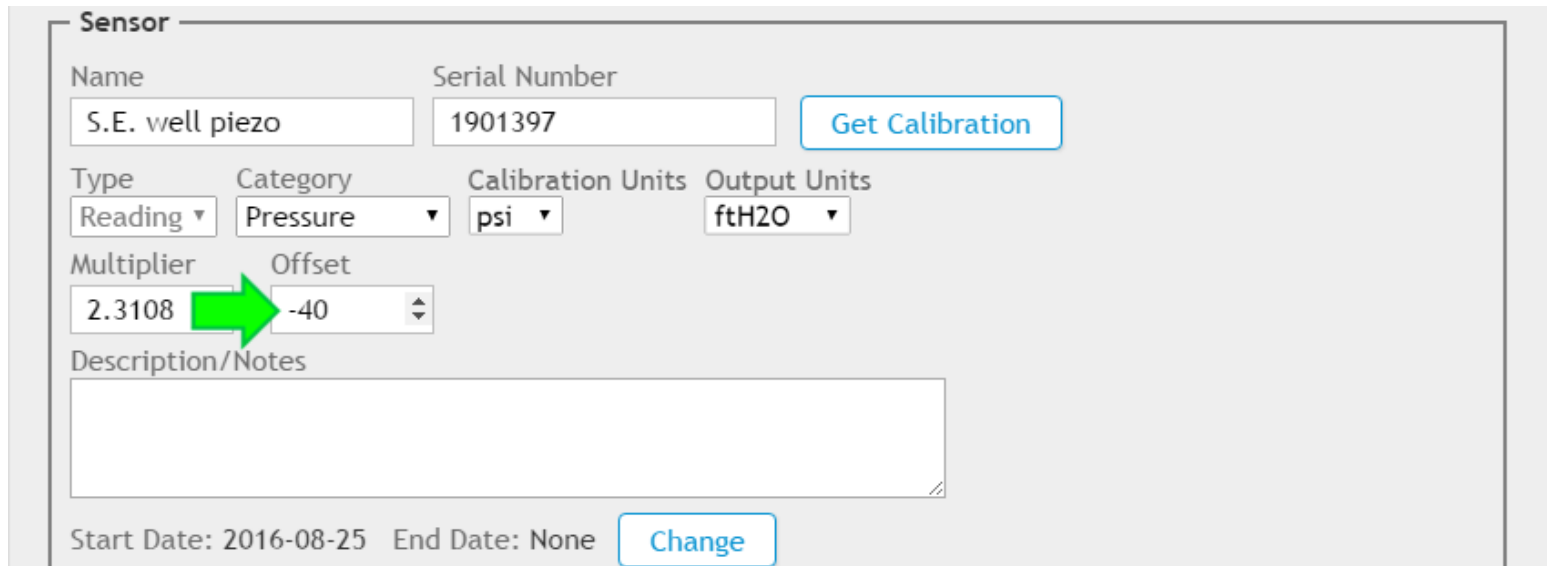
Adding a Reading Sensor (Continued)

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
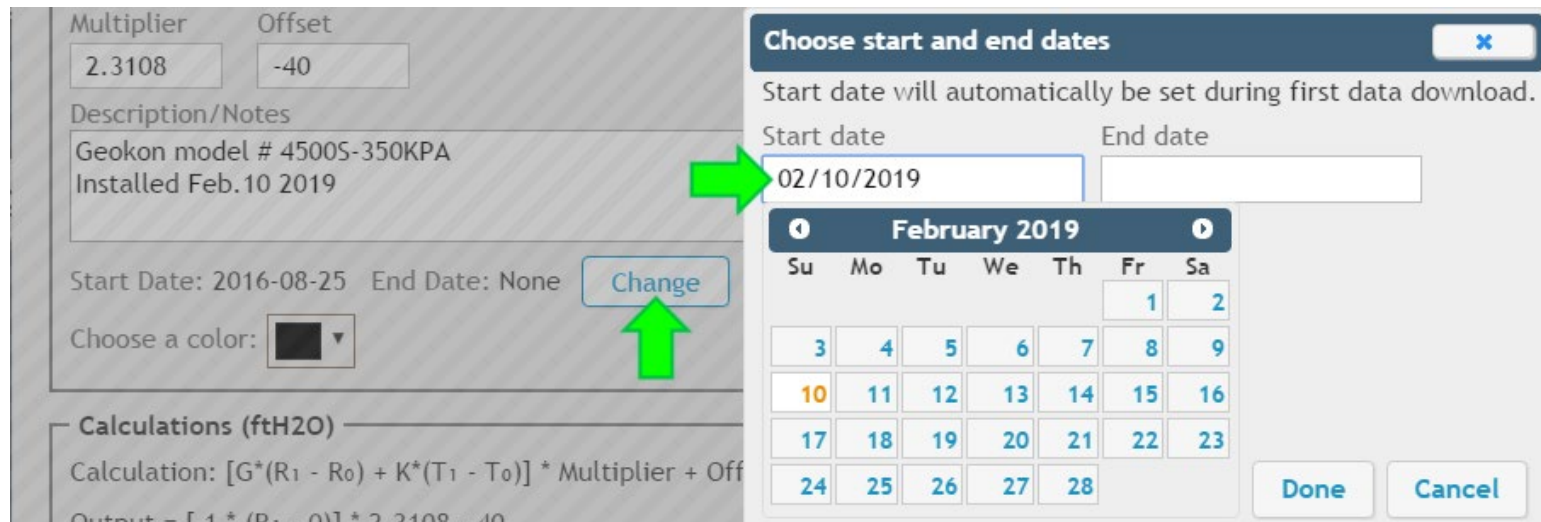
Adding a Reading Sensor
(Continued)

12. The Start and End dates determine the date 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 Logger)

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
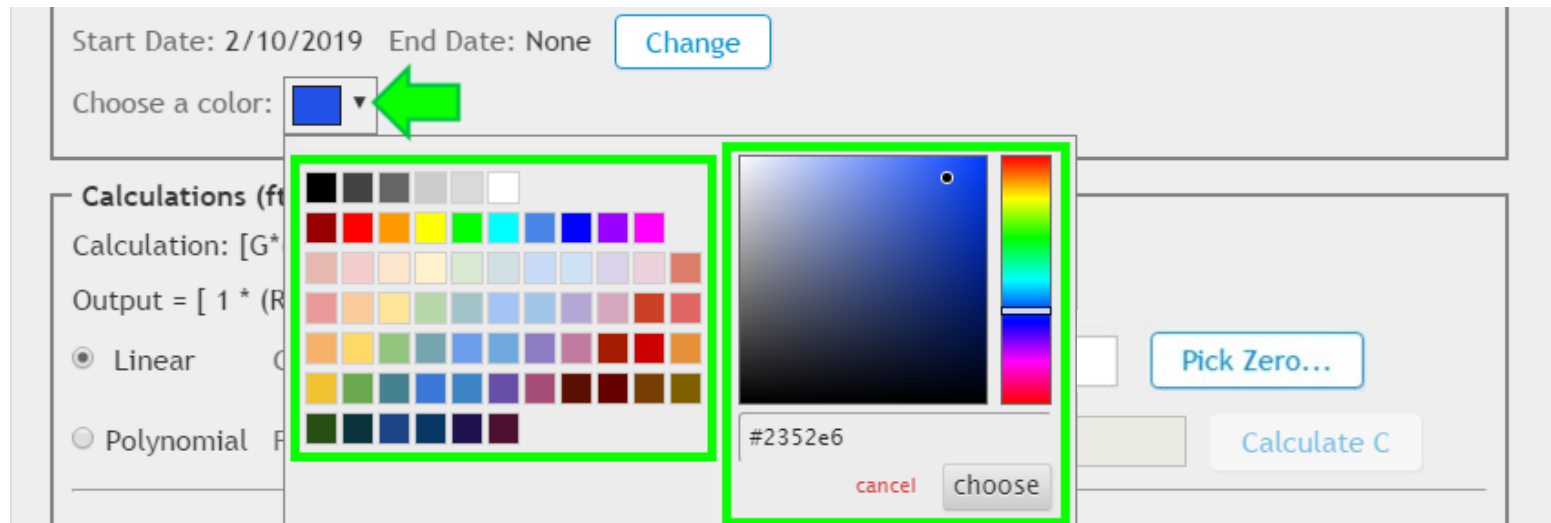
Adding a Reading Sensor
(Continued)

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:

Type	Category	Calibration Units	Output Units
Reading ▾	Pressure ▾	psi ▾	ftH2O ▾

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:

Type	Category	Calibration Units	Output Units
Reading ▾	Pressure ▾	kPa ▾	ftH2O ▾

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)

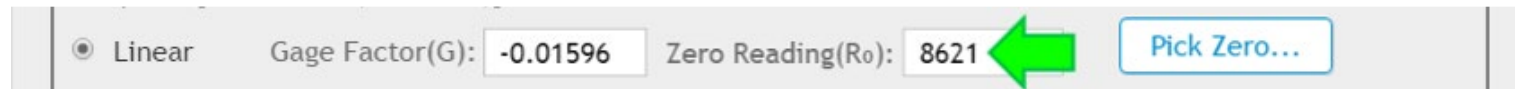Agent: ◉ Linear   Gage Factor(G): -0.01596   Zero Reading(R₀): 0

Metric Example

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

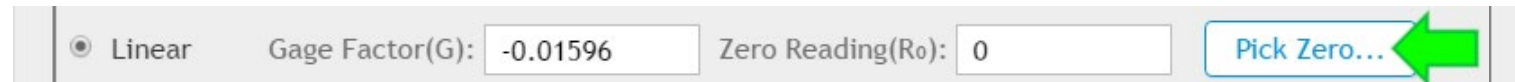Agent: ◉ Linear   Gage Factor(G): -0.1100   Zero Reading(R₀): 0

Adding a Reading Sensor: Linear Calculations (Continued)

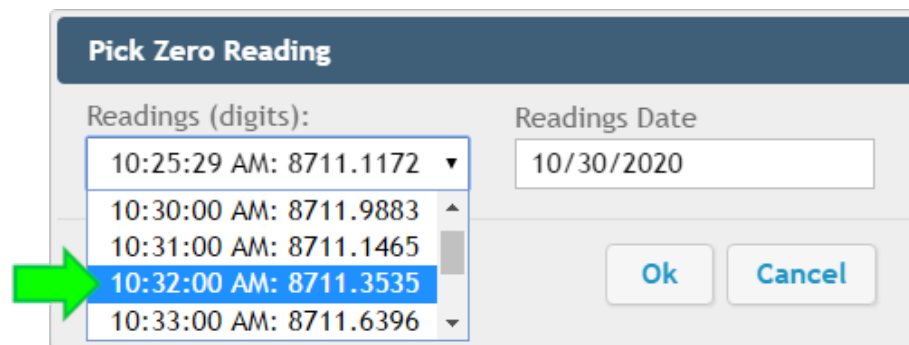16. Enter the initial zero reading taken onsite with the VW sensor

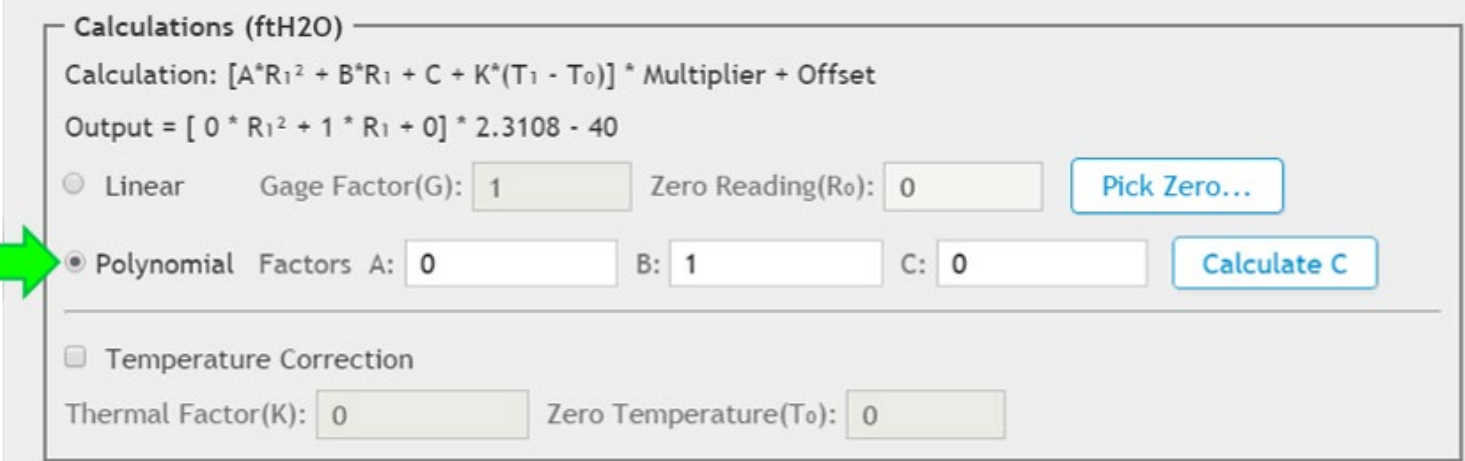16a. If using the Logger to take the initial zero, click "Pick Zero…" then select the relevant reading

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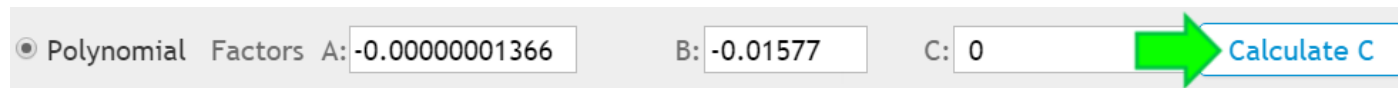
Polynomial Gauge factors: A: -9.418E-08   B: -0.1087   C: _____

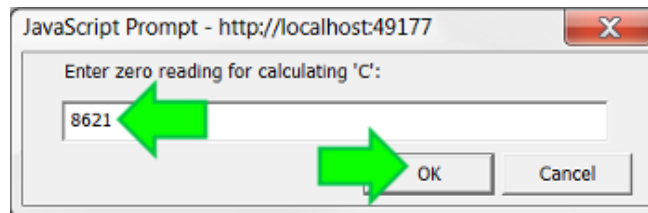Agent: ⊙ Polynomial Factors A: -0.000000019418   B: -0.1087   C: 0   Calculate C

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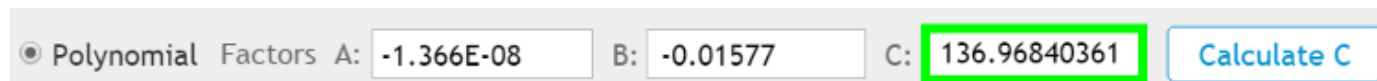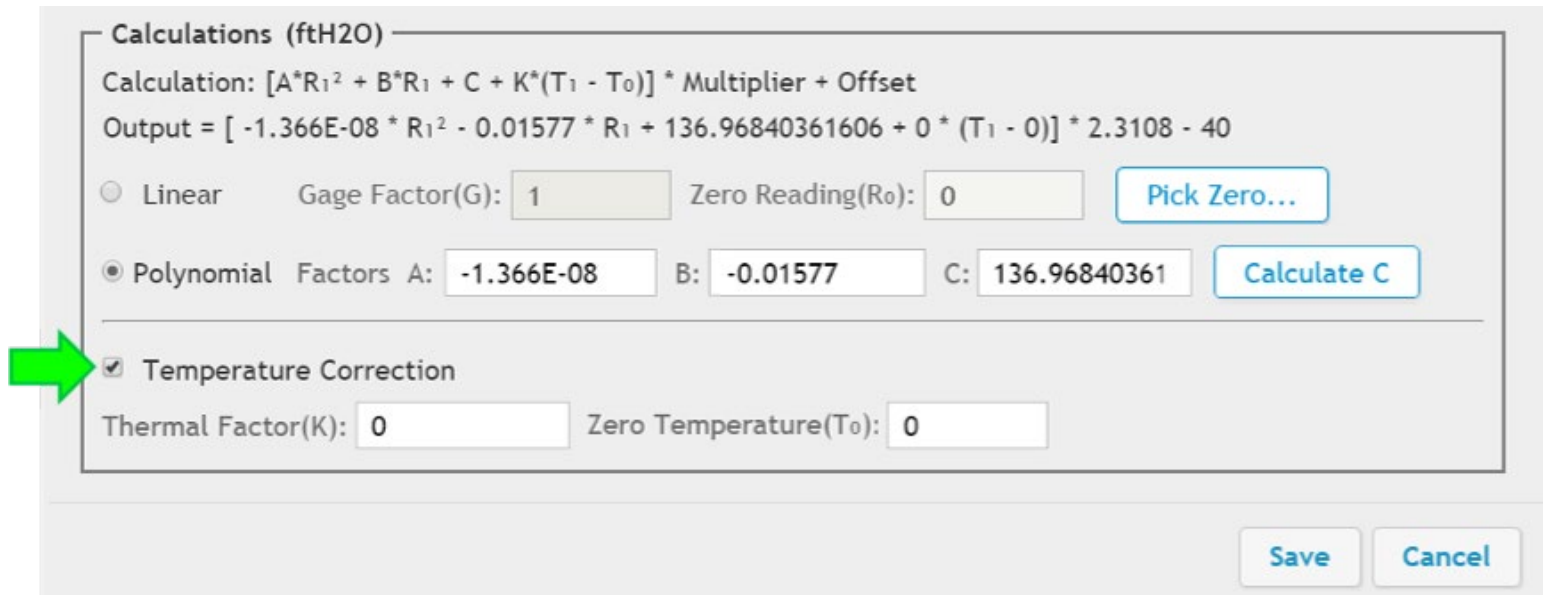
21. Agent will calculate and display the value of Factor "C" based on the information entered

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:

☑ Temperature Correction
Thermal Factor(K): -0.0004642   Zero Temperature(T_0): 0

Metric Example

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

Agent:

☑ Temperature Correction
Thermal Factor(K): -0.003200   Zero Temperature(T_0): 0

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 the reading sensor will be added to the list of sensors on the logger settings screen (Sensor settings can be edited at any time by clicking on the name of the sensor)
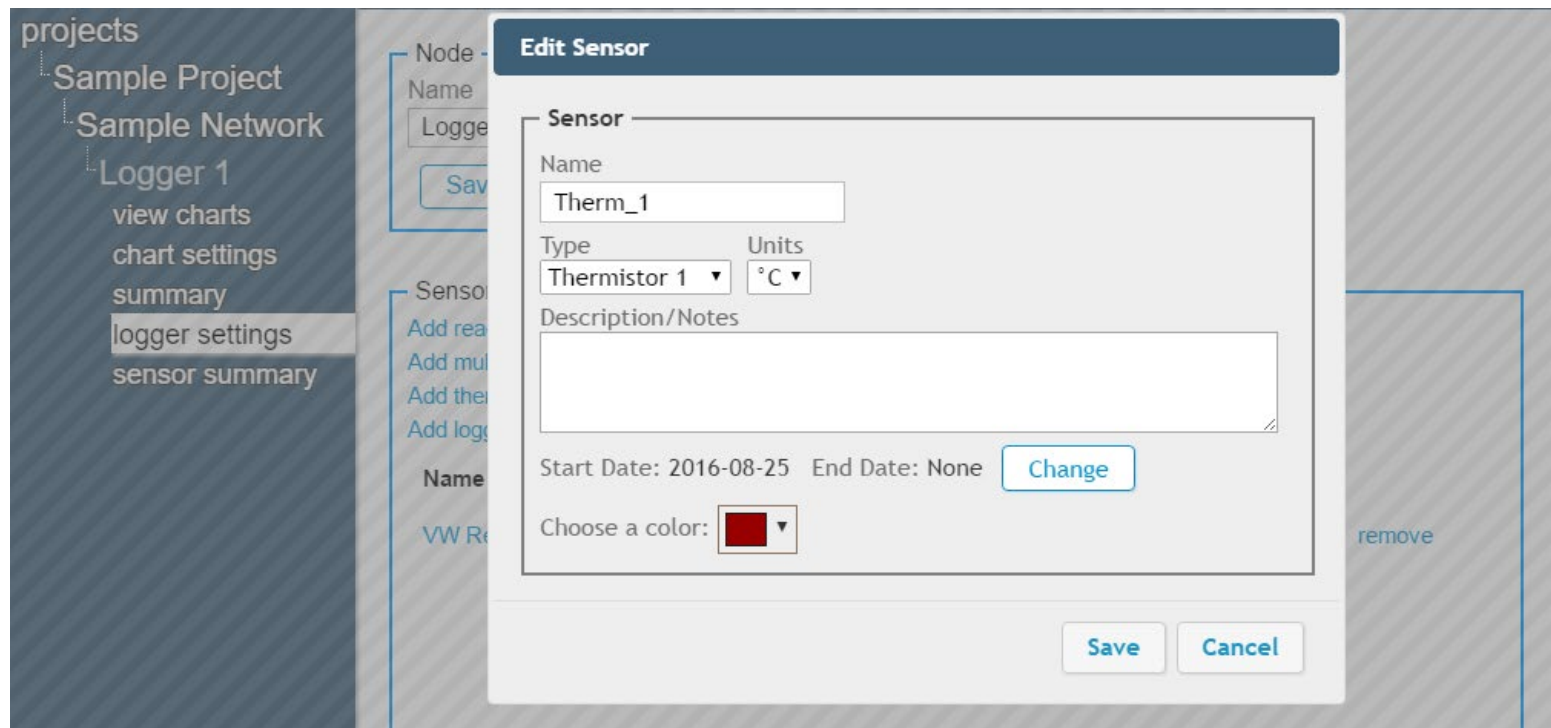
Adding a Thermistor Sensor

- Most GEOKON vibrating wire sensors include a built-in thermistor. To view the temperature data collected by the thermistor, a "thermistor sensor" must be added in Agent

1. To add a thermistor sensor, click "Add thermistor sensor"

Adding a Thermistor Sensor (Continued)

2. The edit sensor dialog box will open

Adding a Thermistor Sensor (Continued)

3. The "Units" field determines the type of temperature units the thermistor data will be displayed in

Adding a Thermistor Sensor (Continued)

4. The remaining fields function as previously described; edit them as desired and then click "save" (The "Type" should not be changed; it is used to differentiate addressable thermistors)
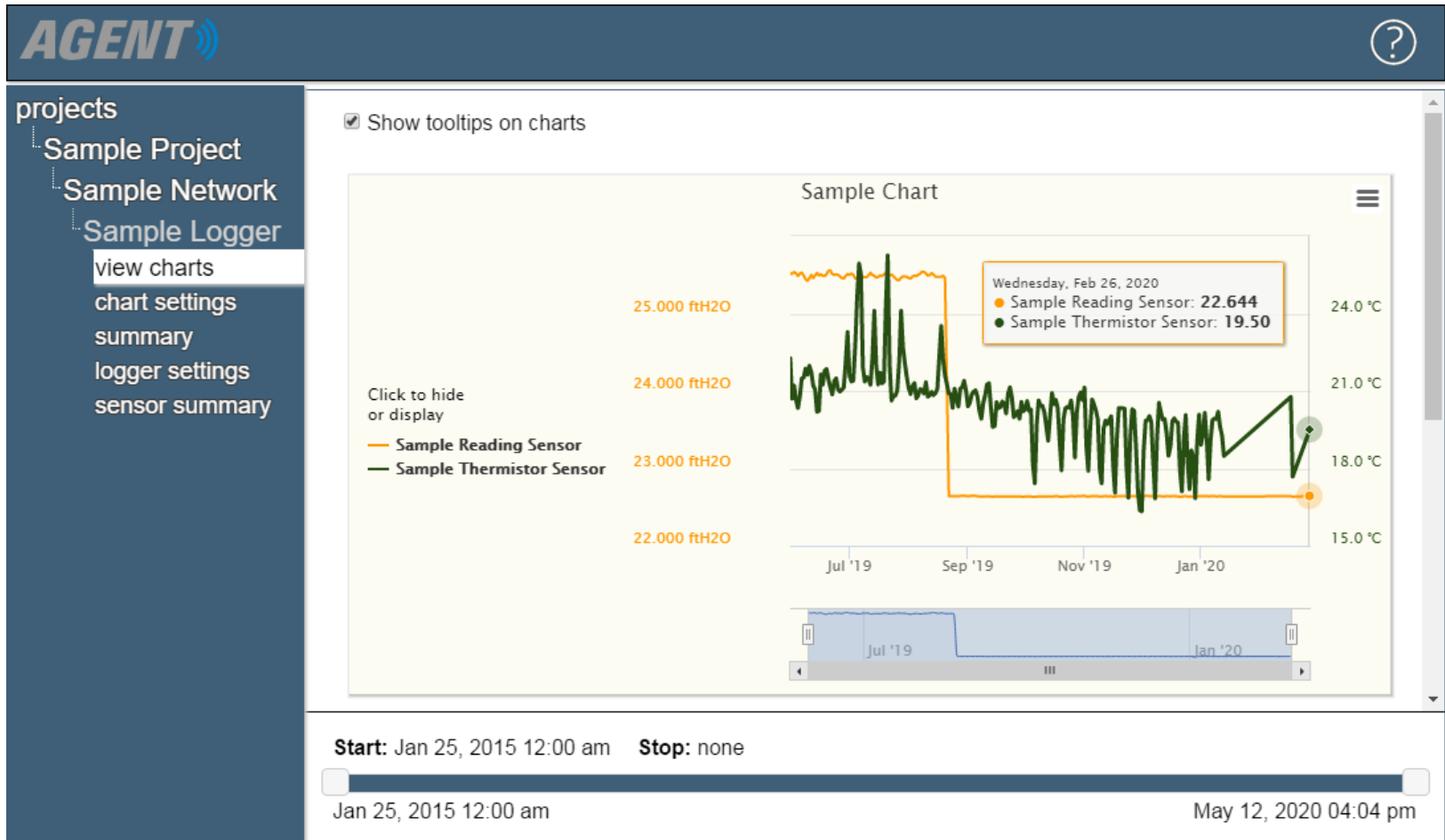
Adding a Thermistor Sensor (Continued)

5. The edit sensor dialog box will close, and the thermistor sensor will be added to the list of sensors on the logger settings screen (Sensor settings can be edited at any time by clicking on the name of the sensor)

Charts

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 Network will be displayed (For information on how to download data, read the [Using Agent Software with GeoNet Wireless Data Hosting Systems](#) tutorial or refer to the [GeoNet manual](#))

- If automatic download is enabled, new data will be added to charts automatically each time data is downloaded from the Network

- If automatic download is disabled, charts will not update until a manual download is performed

Creating Charts

1. Select the Project and Network which contains the desired logger, then click on the name of the Logger
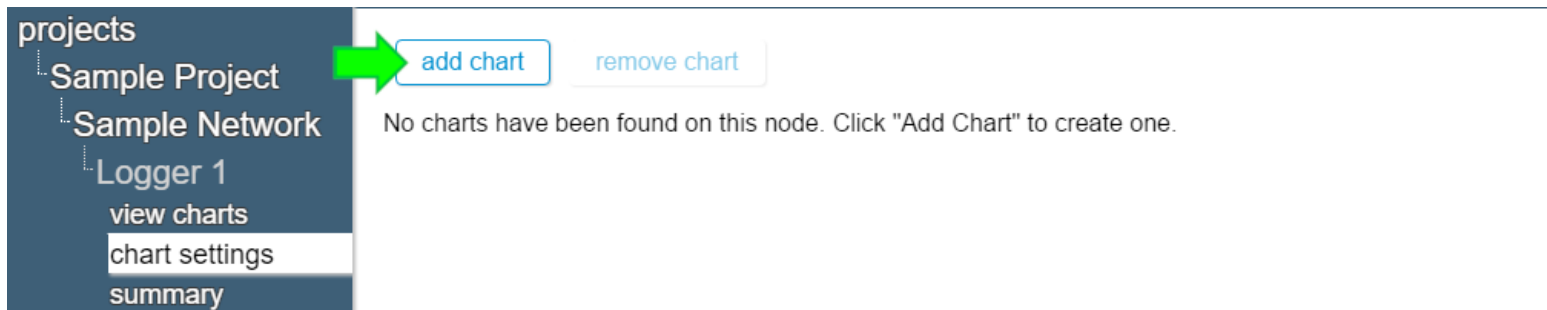

2. Agent will navigate to the "view charts" screen, click "chart" settings" on the left side of the screen

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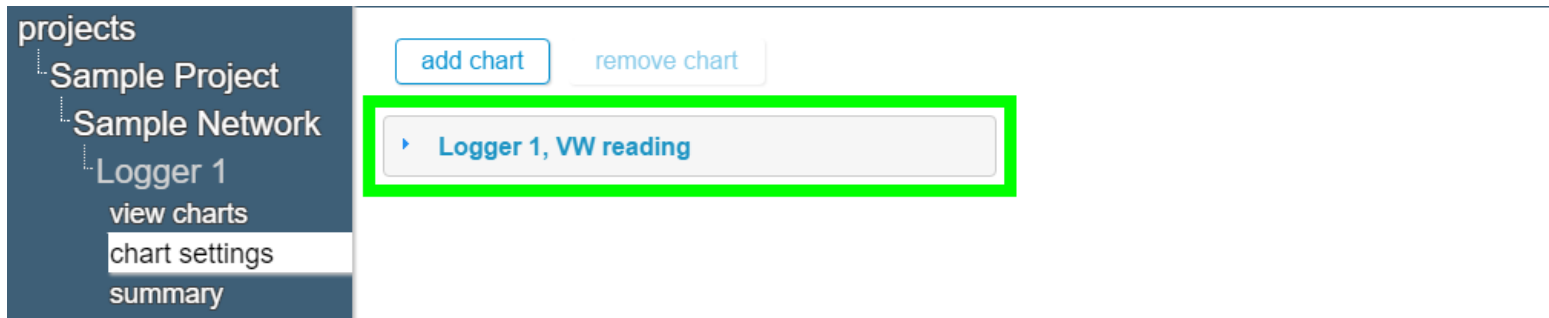
Creating Charts

1. Click "add chart"

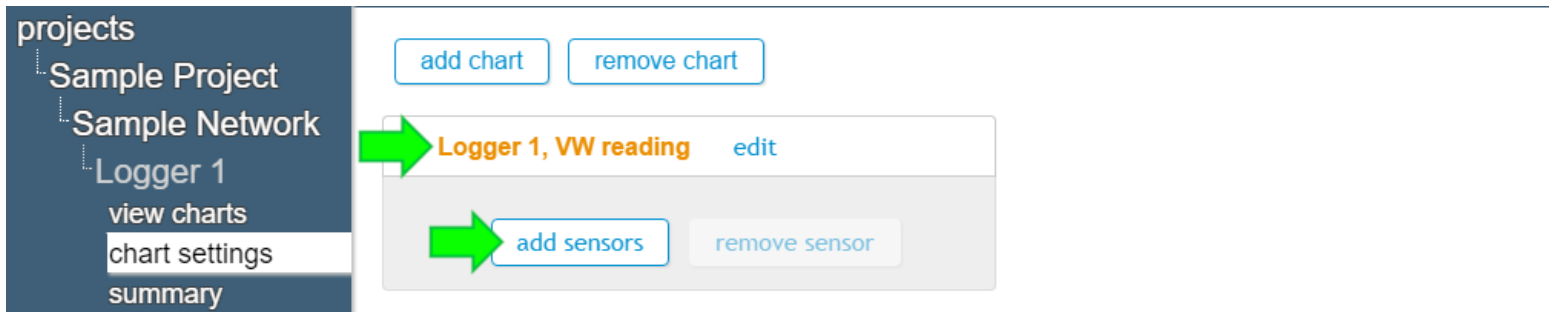3. Give the chart a name, and then click "Ok"

Creating Charts (Continued)

4. Charts that have been added to a device will be shown in the "chart settings" screen
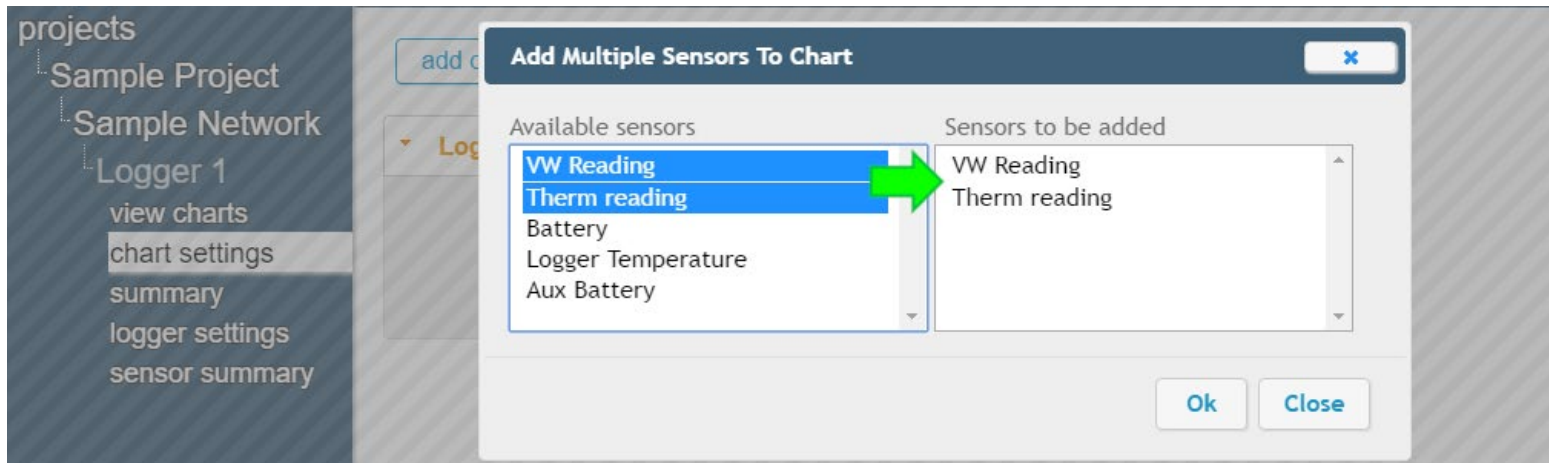

5. Click on a chart name, and then click "add sensor"

Creating Charts (Continued)

6. Select sensors to move them from the "Available sensors" column to the "Sensors to be added" column
(Only sensors that were previously added to the device will be shown as "Available Sensors")

7. When all desired sensors have been added, click "Ok"

Creating Charts (Continued)

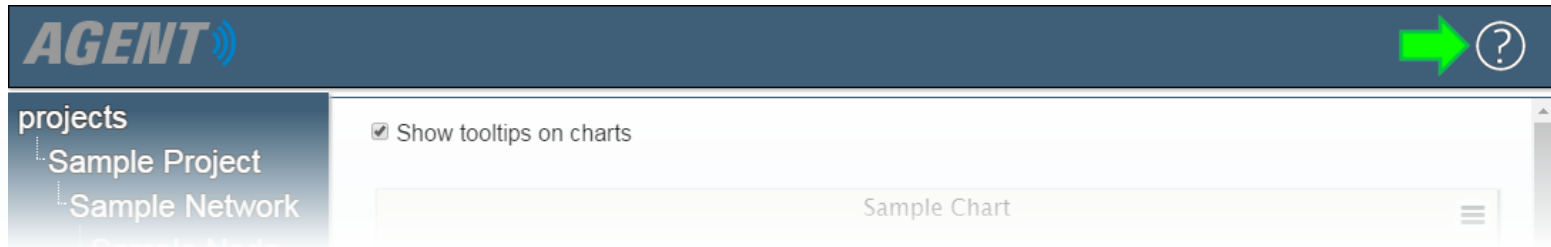8. Sensors added to the chart will be shown below the chart name

Viewing Charts

- Click "view charts" to display all charts on the device

For more information…

- Consult the Agent instruction manual, which can be accessed 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 www.geokon.com/Tutorials for more tutorials

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