

For Aqua4Plus 1.9.7 and later or Aqua4Plus Lite 2.1.1 or later.

(For earlier versions or if using a PT2X with firmware lower than 1.5, see Application Note 9C0152)

Introduction

Purpose of this document is to provide a simple description for configuring a PT2X, LevelSCOUT, or CT2X Smart Sensor to read depth-to-water, groundwater elevation, or staff gauge measurements using the Aqua4Plus or Aqua4Plus Lite Control Software.

In normal configuration, these return a pressure measurement relative to the water above the sensor. This can be expressed in psi, feet of water, inches of mercury, or a number of other units - however, it is always relative to the water above the sensor.

Often an engineer will need to know the depth-to-water, the elevation of the water, or a staff gauge measurement. Using Aqua4Plus/Aqua4Plus Lite settings, these sensors can be configured to display these.

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Preparation

What You Will Need

- A water level indicator or other measuring device to determine the current depth to the water.
- PT2X, LevelSCOUT, or CT2X installed in well.
- Aqua4Plus version 1.9.7 or later or Aqua4Plus Lite 2.1.1 or later running on your computer and connected to the sensor.
- If your sensor is an absolute sensor, you will also need a barometer or other device to obtain the current barometric pressure. (If using a cableless sensor or if you want to enter a depth-to-water offset after data collection on an absolute sensor, see the *Barometric Compensation Utility Application Note (LT-14304)* for further information.)
- If setting for groundwater elevation, you will need to know the elevation at the top of your well casing.
- If setting for staff gauge measurements, you will need to know the current staff gauge reading.

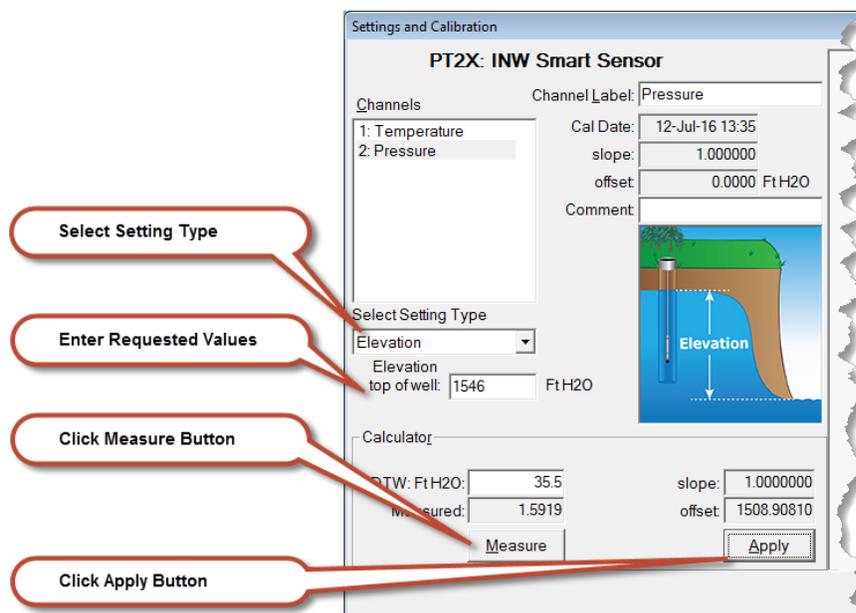
Technical Bulletin

Configuring Smart Sensors for Depth-to-Water, Elevation, or Staff Gauge

Getting Started

- To configure a PT2X, LevelSCOUT, or a CT2X to read depth-to-water, groundwater elevation, or staff gauge measurement, you will need to adjust settings in the Settings and Calibration window.
- Run Aqua4Plus Lite or Aqua4Plus and scan for sensors.
- On the Sensor Map, click the sensor you want to adjust.
- From Aqua4Plus Lite:
 - Select the units you want to use for measurements, i.e., psi, feet of water, inches of mercury, etc. Set this from the Configure Menu | Program Configuration | Set Computer Display Units.
 - Open the Settings and Calibration window by clicking on the Settings button .
- From Aqua4Plus:
 - Select the units you want to use for measurements, i.e., psi, feet of water, inches of mercury, etc. Set this from the Options Menu | Display Units.
 - Open the Settings and Calibration window from the Configure Menu | Settings and Calibration.
- Settings can only be done when there are no sessions stored on the sensor. If there are any sessions on your sensor, upload any data you want to keep and then erase the session before continuing.

Brief Overview

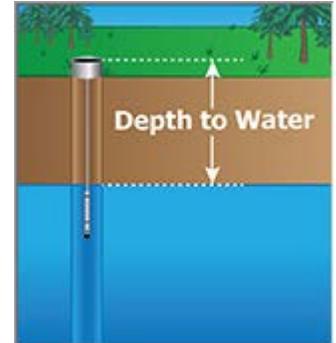


Configuring for Depth-to-Water

When using the Depth-to-Water setting, you may want to change the channel label at the top of the Settings window to read "Depth" or "Depth-to-Water".

NOTE: Be sure to use the same units for all measurements in this calculation. For example, if you have the program set to display in Ft H₂O then be sure to enter the barometric pressure and depth-to-water readings in Ft H₂O.

If using a cableless PT2X or LevelSCOUT, see the **Barometric Compensation Utility Application Note (LT-14304)** for further information.



-- Computing Offset --

- From the Select Setting Type dropdown box, select Depth-to-Water.

- If using an absolute sensor, enter the current barometric pressure in the **Barometric** box.
- Place the sensor in the well.
- Using a water level indicator or other measuring device, determine the depth-to-water from the top of the well (or other reference point).
- Enter this value in the **DTW** box.
- Click the **Measure** button.
- When readings have stabilized, click the Accept button in the pop-up box.

-- Applying the Slope and Offset --

- Click the **Apply** button to apply the calculated values.
- The calculated slope and offset will be transferred to the fields near the top of the window.
- Click OK to save the values to the sensor!!!**

-- Verifying Settings --

- Using the Real Time Monitor, take a few readings to verify it is reading as expected.

IMPORTANT NOTE:

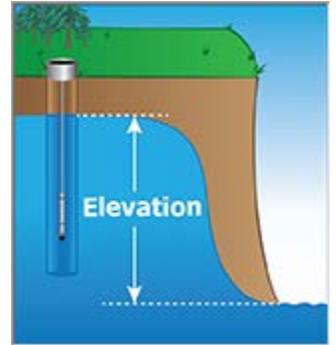
When taking readings on an **absolute** sensor you will need to **ADD** the current barometric pressure to the sensor reading to get depth-to-water. If you are using a PT2X or LevelSCOUT, see the application note "INW Absolute Smart Sensors: Barometric Compensation with Optional DTW Setting" (LT-14304) for information on how the Barometric Utility can help automate this process.

Configuring for Groundwater Elevation

(Elevation Above Sea Level)

When using the Elevation setting, you may want to change the channel label at the top of the Settings window to read "Elevation".

NOTE: Be sure to use the same units for all measurements on this page. For example, if you have the program set to display in Ft H₂O then be sure to enter the elevation, barometric pressure, and depth-to-water in Ft H₂O.



-- Computing Offset --

- From the Select Setting Type dropdown box, select Elevation.

- Enter the elevation of the top of the well (or other reference point).
- If using an absolute sensor, enter the current barometric pressure in the **Barometric** box.
- Place the sensor in the well.
- Using a water level indicator or other measuring device, determine the depth-to-water from the top of the well (or other reference point).
- Enter this value in the **DTW** box.
- Click the **Measure** button.
- When readings have stabilized, click the Accept button in the pop-up box.

-- Applying Offset --

- Click the **Apply** button to apply the calculated offset.
- The calculated offset will be transferred to the offset field near the top of the window.
- **Click OK to save the values to the sensor!!!**

-- Verifying Settings --

- Using the Real Time Monitor, take a few readings to verify it is reading as expected.

IMPORTANT NOTE:

When taking readings on an **absolute** sensor, you will need **SUBTRACT** the current barometric pressure from the sensor readings to get the elevation. If you are using a PT2X or LevelSCOUT, see the application note "INW Absolute Smart Sensors: Barometric Compensation with Optional DTW Setting" (LT-14304) for information on how the Barometric Utility can help automate this process.

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Configuring Smart Sensors for Depth-to-Water, Elevation, or Staff Gauge

Configuring for Staff Gauge Measurements

When using the Staff Gauge setting, you may want to change the channel label at the top of the Settings window to read "Staff Gauge".

NOTE: Be sure to use the same units for all measurements on this page. For example, if you have the program set to display in Ft H2O then be sure to enter the barometric pressure and staff gauge readings in Ft H2O.



-- Computing Offset --

- From the Select Setting Type dropdown box, select Staff Gauge.

- If using an absolute sensor, enter the current barometric pressure in the **Barometric** box.
- Place the sensor in the well.
- Note the current level on your staff gauge.
- Enter this value in the **Staff** box.
- Click the **Measure** button.
- When readings have stabilized, click the **Accept** button in the pop-up box.

-- Applying Offset --

- Click the **Apply** button to apply the calculated offset.
- The calculated offset will be transferred to the offset field near the top of the window.
- **Click OK to save the values to the sensor!!!**

-- Verifying Settings --

- Using the Real Time Monitor, take a few readings to verify it is reading as expected.

IMPORTANT NOTE:

When taking readings on an **absolute** sensor, you will need **SUBTRACT** the current barometric pressure from the sensor readings to get the staff gauge readings. If you are using a PT2X or LevelSCOUT, see the application note "INW Absolute Smart Sensors: Barometric Compensation with Optional DTW Setting" (LT-14304) for information on how the Barometric Utility can help automate this process.