

8012SDS01

OPERATING INSTRUCTIONS

Monitor® Transducer Software for the PC

March 2016



SOILMOISTURE EQUIPMENT CORP.

P.O. Box 30025, Santa Barbara, CA 93130 U.S.A.

Phone: (805) 964-3525 - Fax: (805) 683-2189 - Email: sales@soilmoisture.com

Website: <http://www.soilmoisture.com>



UNPACKING

The 5306 Series Monitor Transducer was thoroughly tested before shipment. When packed, it was in perfect working order. Unpack with care being sure to remove all packing material. Follow the instructions carefully in order to assure long, trouble-free service.

Any damage found upon receipt should be reported immediately to the transport carrier for claim. It is important to save the shipping container and all evidence to support your claim. Be sure to read all operating instructions thoroughly before operating the unit.

CAUTIONS & WARNINGS

In order to avoid damage to the device and injury, use only those tools included in the Model 0317. When completely full, the water container is relatively heavy and additional weight should be accounted for. In order to prevent damage to scale or other parts of the system, make sure that the table is placed on a suitable hard surface. Do not use larger volume water containers or replacement containers other than those supplied with your unit.

WARRANTY & LIABILITY

Soilmoisture Equipment Corp. (SEC) warrants all products manufactured by SEC to be free from defects in materials and workmanship under normal use and service for twelve (12) months from the date of invoice provided the section below has been met.

Soilmoisture Equipment Corp. (SEC) is not liable for any damages, actual or inferred, caused by misuse or improper handling of its products. SEC products are designed to be used solely as described in these product operating instructions by a prudent individual under normal operating conditions in applications intended for use by this product.



GENERAL SPECIFICATIONS

Monitor Versions:

Model 5306PV01: Pressure Transducer, One Connection Port, -1 to +1 psi

Model 5306PV05: Pressure Transducer, One Connection Port, -5 to +5 psi

Model 5306PV15: Pressure Transducer, One Connection Port, -15 to +15 psi

Model 5306D001: Pressure Transducer, Differential with Two Connection Ports, -1 to +1 psi

Model 5306D005: Pressure Transducer, Differential with Two Connection Ports, -5 to +5 psi

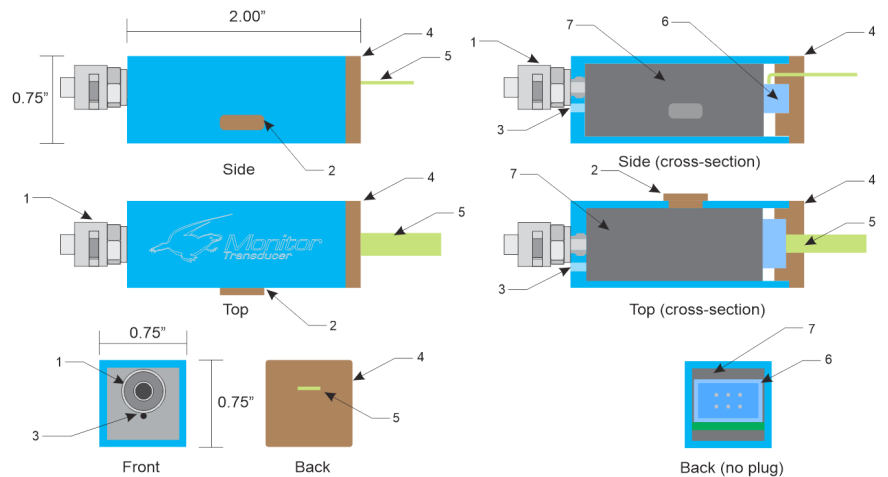
Model 5306D015: Pressure Transducer, Differential with Two Connection Ports, -15 to +15 psi

Model 5306D030: Pressure Transducer, Differential with Two Connection Ports, -30 to +30 psi

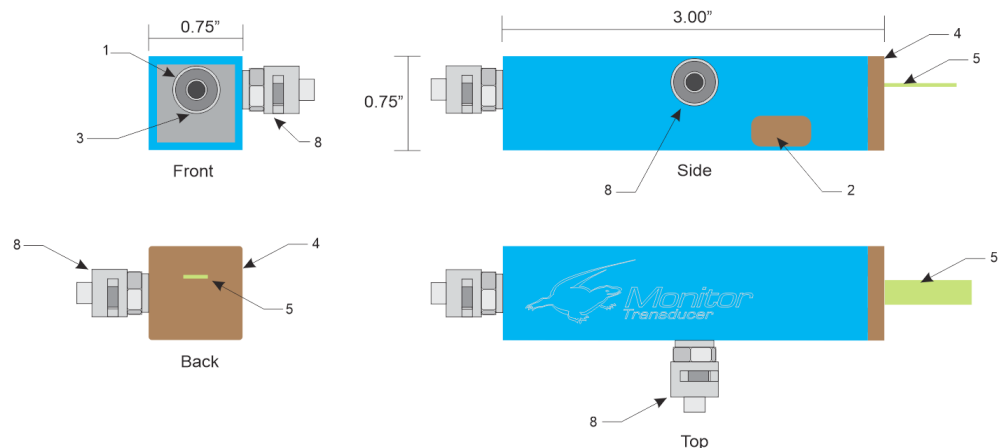
Model 5306D100: Pressure Transducer, Differential with Two Connection Ports, -100 to +100 psi

Monitor Dimensions:

1. Front Port (Luer Connection)
2. USB port plug
3. Sensor vent (end)
4. Analog port plug
5. Analog Out ribbon cable
6. Analog port heading
7. Potted resin
8. Back Port (Differential Port)



Monitor Transducer (One Port Model)



Monitor Transducer (Two Port Model)

SOILMOISTURE EQUIPMENT CORP.

P.O. Box 30025, Santa Barbara, CA 93130 U.S.A.

Phone: (805) 964-3525 - Fax: (805) 683-2189 - Email: sales@soilmoisture.com

Website: <http://www.soilmoisture.com>



Electronic Specs and Wiring Diagram (Analog Port):

Operating Temperature range: 0°C to 70°C

Storage Temperature range: -65°C to 125°C

Analog Input Vin: 5.5 to 18 VDC

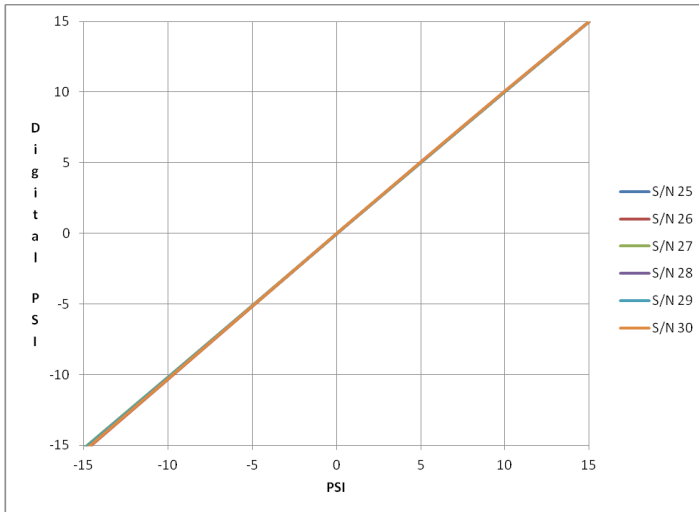
Analog Output Vout: 0 to 5.0VDC, 5 mA max.

Analog Output linearity: Deviation from linearity +/- .12 @ midpoints

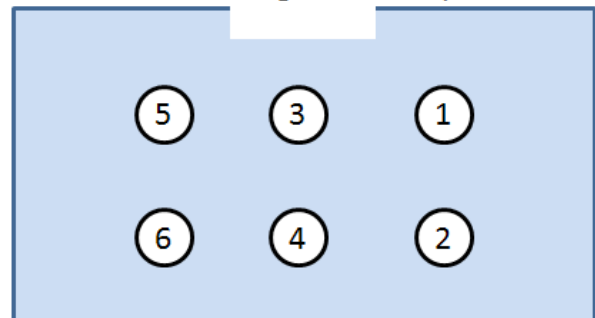
Analog Reference Voltage = 2.50 +/- .01

Software driven pressure: Deviation from linearity +/- .02 psi at any given pressure

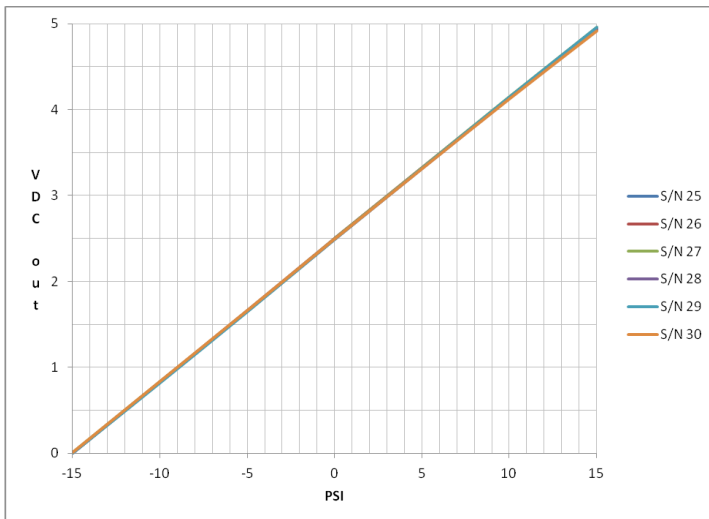
USB Speed: 2.0 compatible



Monitor Analog connector pinout



Pin	Ribbon cable wire	Description
1	Brown	Ground.
2	Red	Voltage Input (5.5-12 VDC maximum).
3	Orange	Analog Output (0 to 5 VDC) see table.
4	Yellow	Reference Voltage output. (~2.50 VDC).
5	Green	Ground.
6	Blue	Open Spare.



Typical ultra linear analog & digital output responses

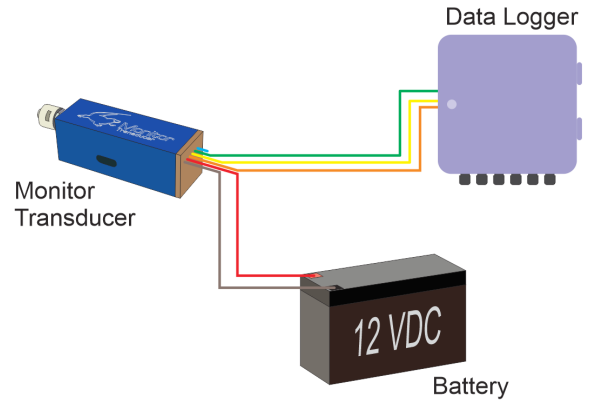
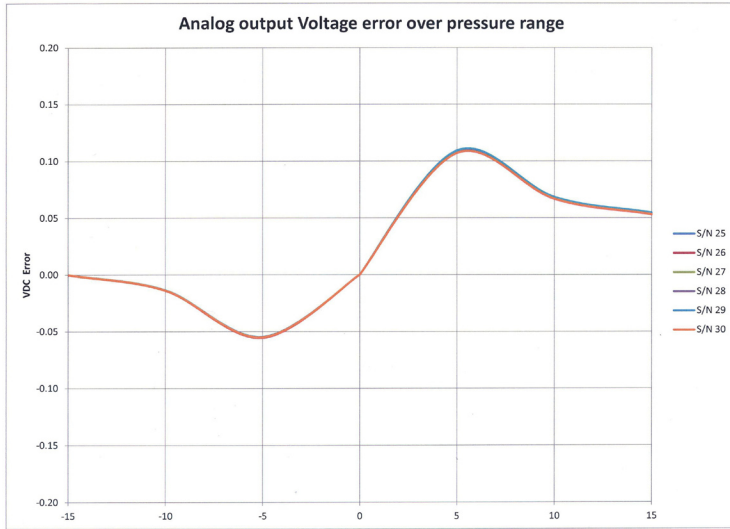
SOILMOISTURE EQUIPMENT CORP.

P.O. Box 30025, Santa Barbara, CA 93130 U.S.A.

Phone: (805) 964-3525 - Fax: (805) 683-2189 - Email: sales@soilmoisture.com

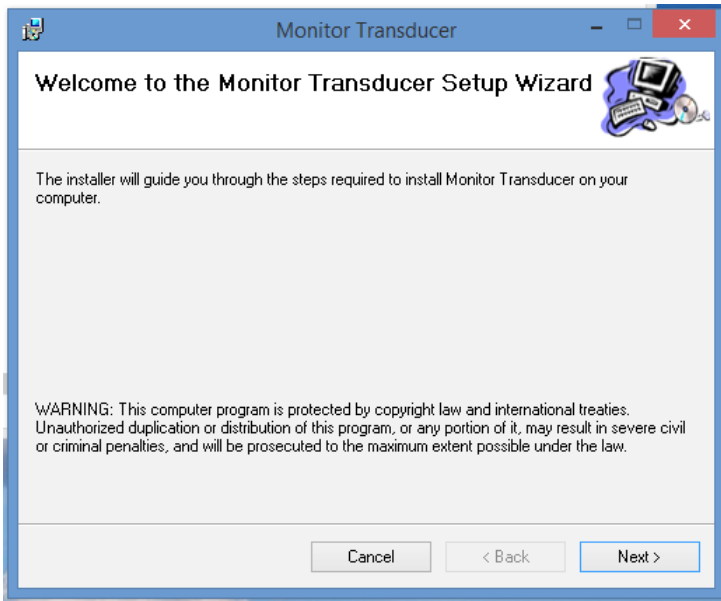
Website: <http://www.soilmoisture.com>



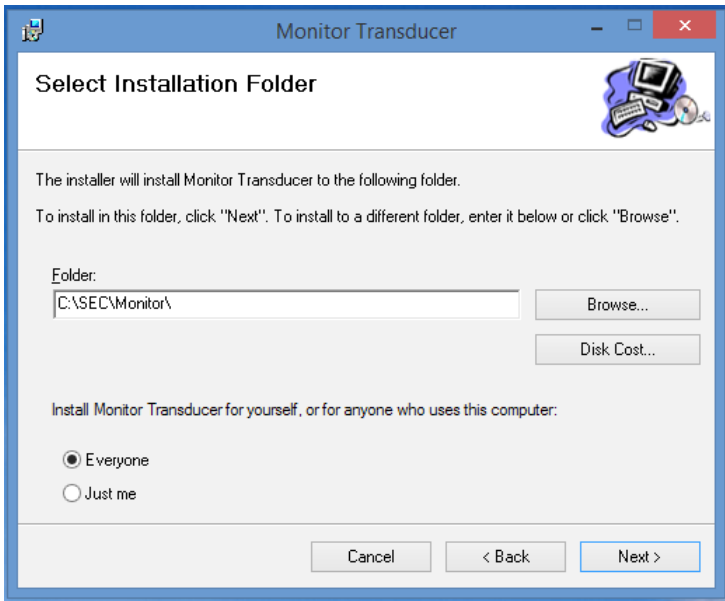


INSTALLING THE MONITOR SENSOR SOFTWARE

Your Monitor Transducer comes with software for the PC. It can be found on the enclosed Flash Drive. Insert the Flash Drive into a USB Port.

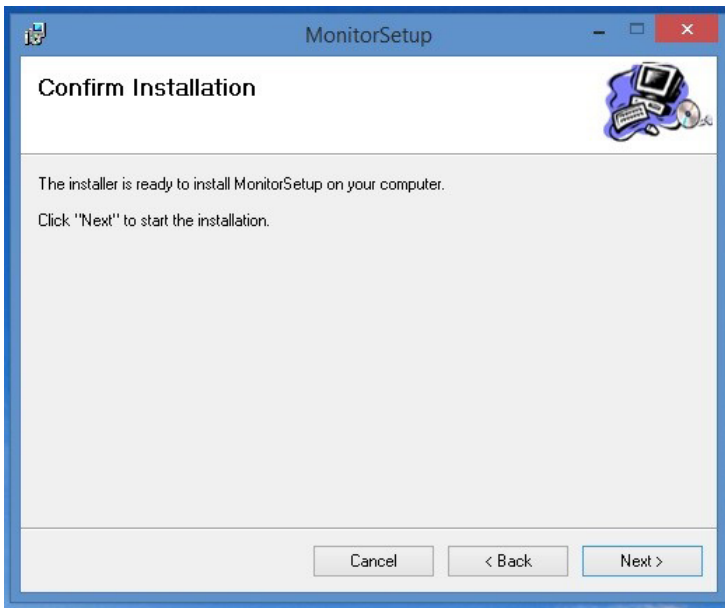


Run the Setup.exe file from the Soilmoisture USB Flash Drive provided. The Monitor Setup Window will open. Click “Next”.

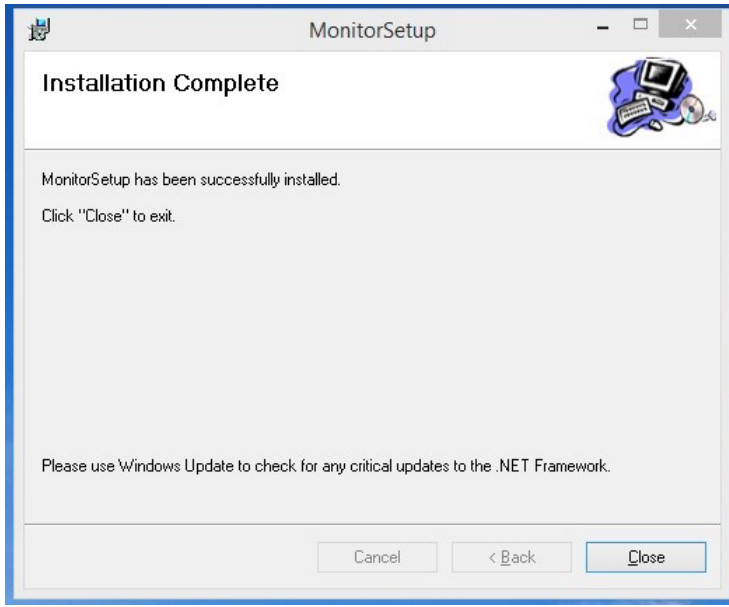


In the “Select Installation Folder” window, select the drive where you want to install the Monitor Program. The default folder is recommended.

You have the option to select “Everyone” if other users will need to access the program. Then click “Next”.



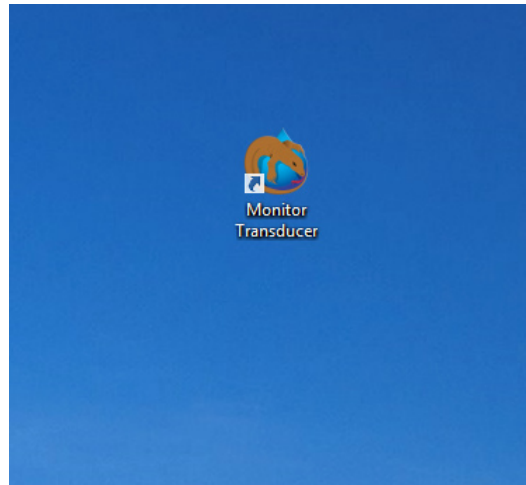
To continue with program installation, click “Next” to begin.



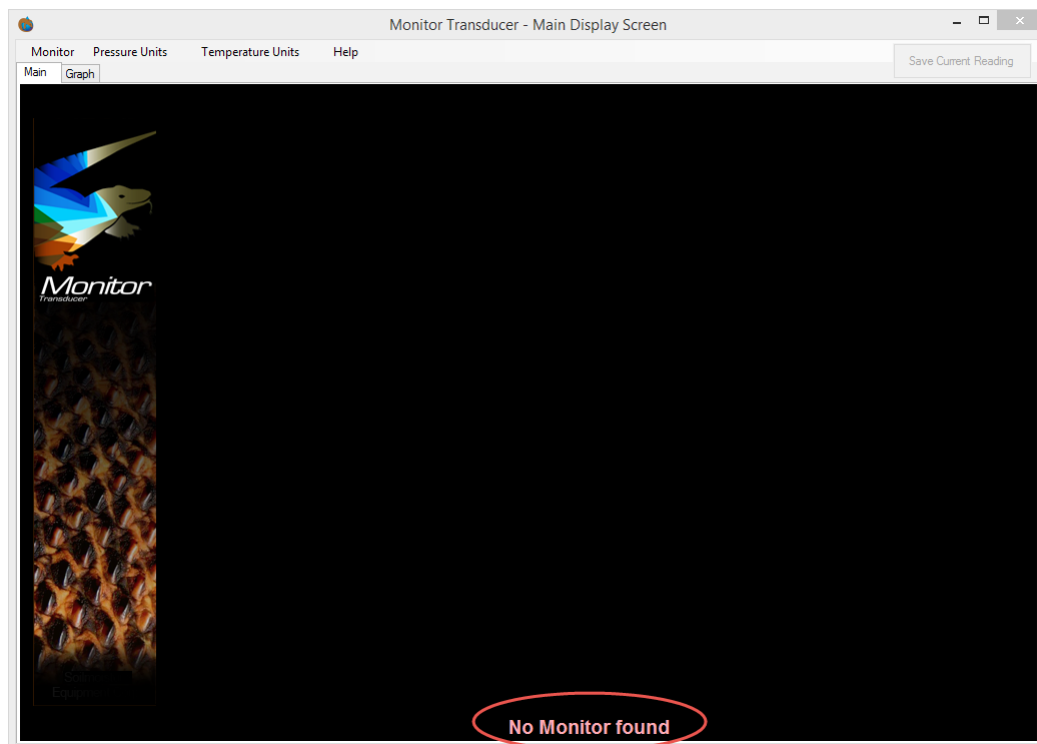
The installation process should take no more than 2-3 minutes. When complete, click "Close" in the "Installation Complete" window.

USING THE MONITOR TRANSDUCER SOFTWARE

The installation process will place a Monitor Transducer Icon on your desktop. Double-click to open the application.



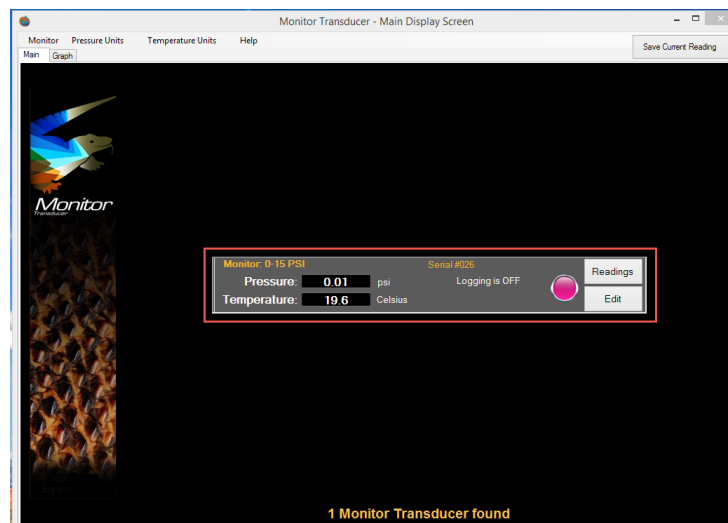
Upon opening, the Software Status Bar (bottom center of the page) may say “No Monitor Found”.



If you have not already connected the Monitor Transducer to your computer, you may connect it now with the provided USB cable.



Once the Monitor Transducer is connected, a Measurement Sensor Bar will appear on your PC screen (it may take a minute or two for the Sensor Bar to appear).



The upper left corner of the Sensor Bar will display the Sensor's name and the unit's corresponding unique serial number.

Real time values of pressure and temperature can be seen in the corresponding fields. The Logging is OFF Indicator Light will be red, indicating that the data logging feature is not active. There are two buttons, "Readings" and "Edit" at right side of sensor bar, which will be explained later in these instructions.

How To Zero The Monitor Transducer

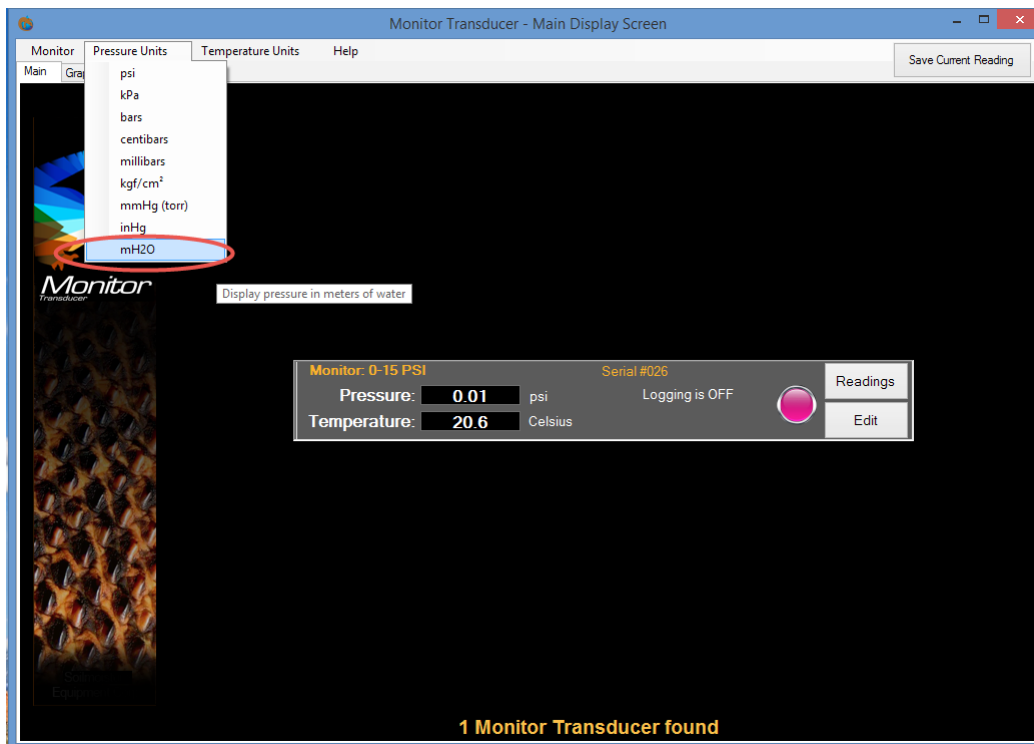
In order to get the most accurate results, you need to occasionally "zero" your Monitor Transducer. A "zeroed" sensor shows zero pressure when its port(s) are open to ambient air.

Open the Monitor port(s) to ambient air before zeroing.

From the Monitor Tab in the top Menu Bar, and then click Zero. All attached Monitors will have their pressure values calibrated on the assumption they are all currently set to 0 psi.

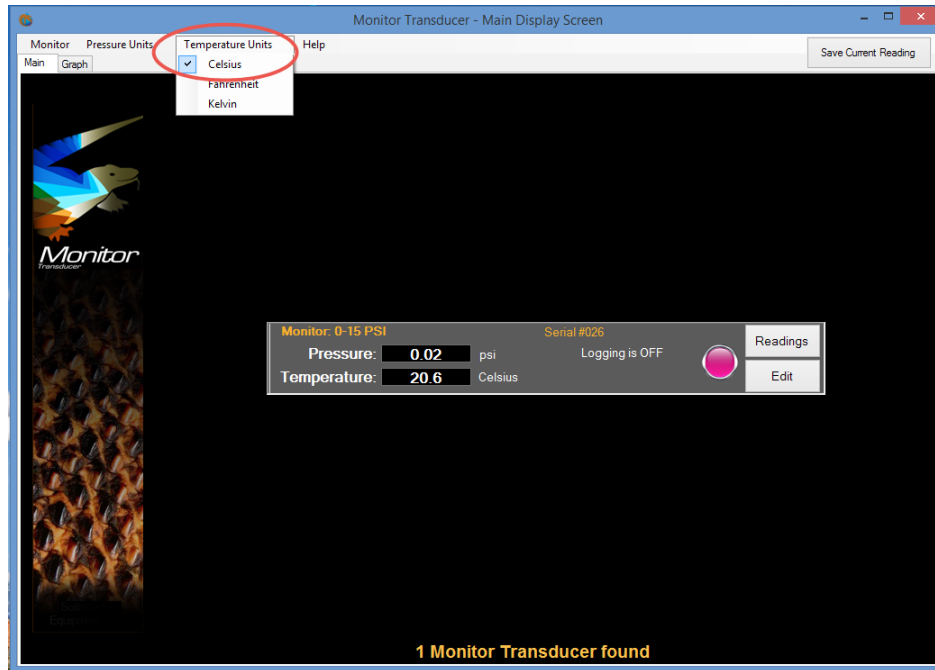
How to Change Pressure Units

To change the Pressure Units to be used while logging, click on the "Pressure Units" Tab in the Top Menu Bar and, from the Drop Down Menu, select the desired pressure unit to be used. In the example below, we have changed the Pressure Unit to mH2O (meters of water column).



How to Change the Temperature Units:

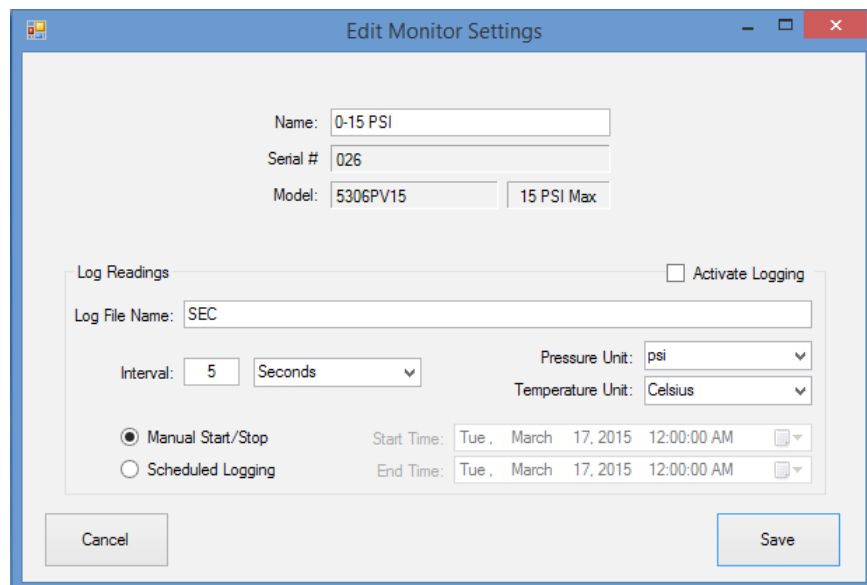
To change the Temperature Units to be used, click on the “Temperature Units” Tab in the Top Menu Bar and, from the Drop Down Menu, select the desired temperature unit. In the example shown below, we have changed the unit to Celsius (Centigrade).



How to Edit Monitor Settings

To edit the General Monitor Settings, click on the “Edit” button in the Sensor Bar. The “Edit Monitor Setting” window will open.

To change the name of the sensor, simply type in a new name in “Name:” field, then click the Save button.



LOGGING DATA

To Log data, check the “Activate Logging” box.

To store a Log File Name and address, in “Log File Name” box, simply enter the file name, and the file will be saved in the “C:\SEC\Monitor\” address (if you have chosen the default installation location upon installation). CAUTION: If several Monitors have been given the same Log File Names their readings will be saved in the same file.

The screenshot shows the 'Edit Monitor Settings' window. The 'Log Readings' section is highlighted with a red box. It contains the following fields and options:

- Name:** Sensor-1
- Serial #:** 140100018
- Model:** 5306PV15 | 15 PSI Max
- Log Readings:** Activate Logging
- Log File Name:** Log-File-S1
- Interval:** 5 | Seconds
- Pressure Unit:** psi
- Temperature Unit:** Celsius
- Manual Start/Stop | Start Time: Wed, November 19, 2014 12:00:00 AM
- Scheduled Logging | End Time: Fri, November 21, 2014 12:00:00 AM
- Buttons:** Cancel, Save

Set the desired Data logging interval and the desired pressure and temperature units. Readings will be stored with the units selected here. NOTE: This does not relate to either the “Pressure Units” or “Temperature Units” Menus. For example, you can save your Monitor readings in psi and still view them in kPa at the same time.

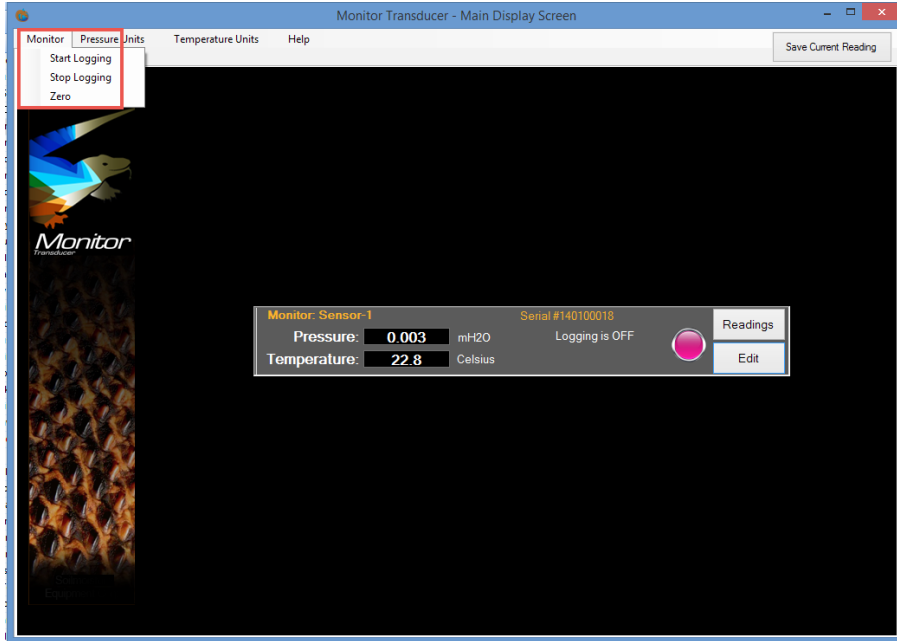
Data can be logged manually by selecting “Manual Start/Stop” option.

Data can also be logged automatically, by selecting “Scheduled Logging” and setting the desired “Start Time” and “End Time”.

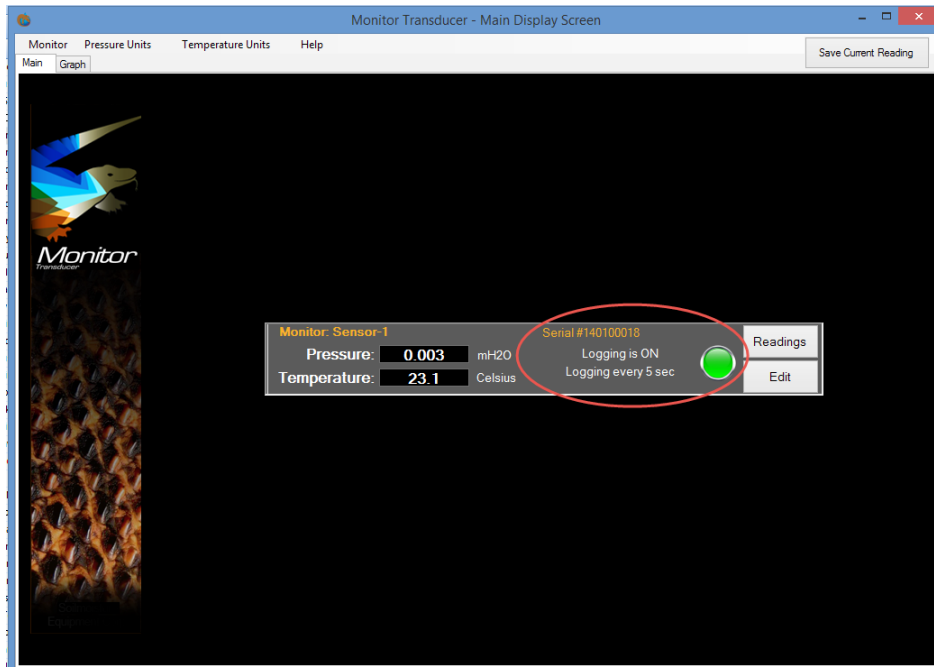
Click the “Save” button when you are done entering the desired settings.

START THE LOGGING PROCESS

To begin the data logging process, click on the “Monitor” Tab at the top of the screen and click “Start Logging”.

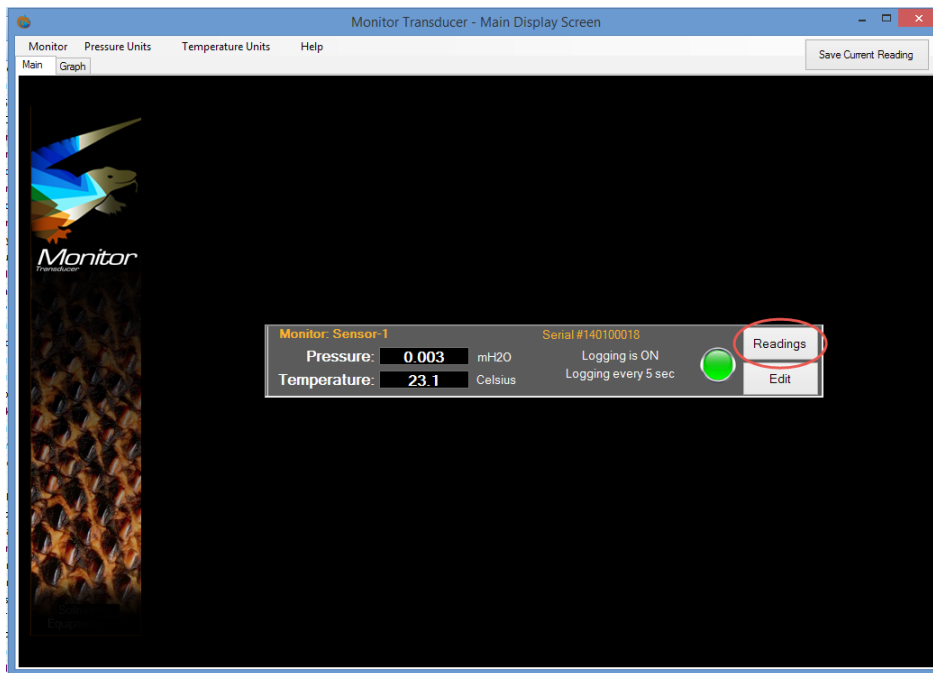


When the data logging feature is active, the Sensor Bar will show Logging is ON and the logging interval. The Indicator Light will turn green.



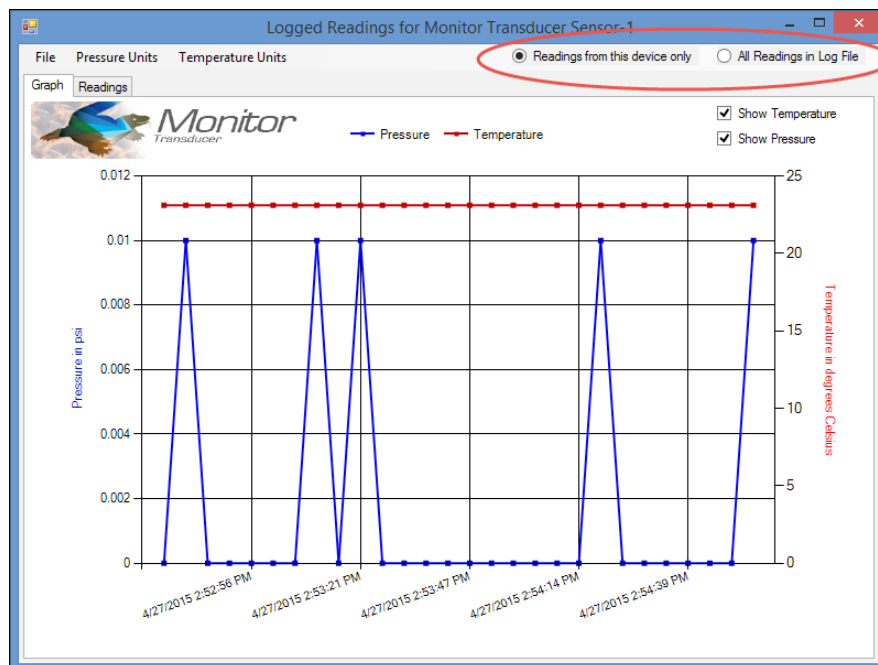
Accessing Logged Data

To access logged readings, click on the “Readings” button in the Sensor Bar.

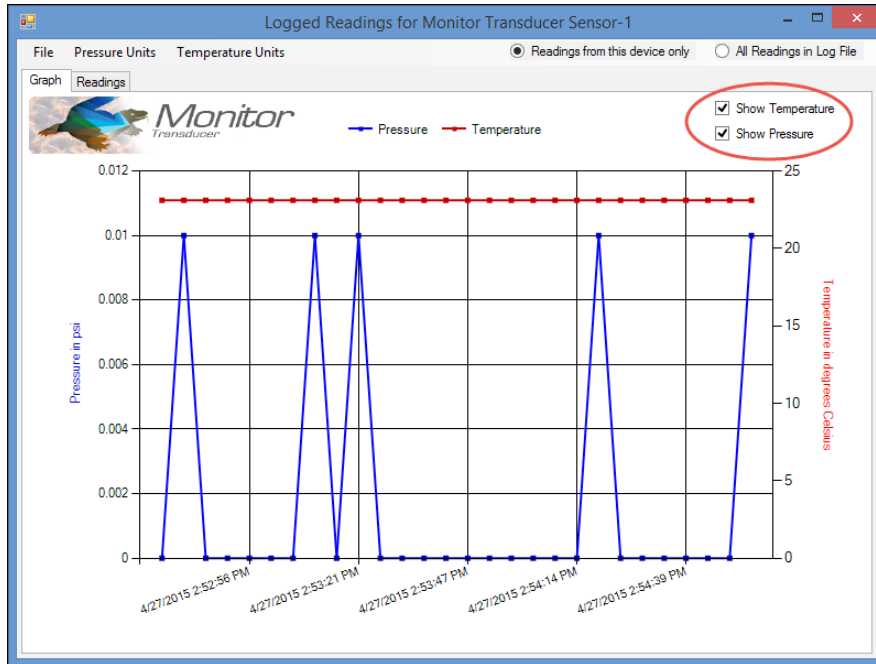


You have two options:

View “Readings from this device only” or “All readings in this log file”. Remember you can save several sensors readings in a single file. If only one sensor is saved in the log file, either options will display the exact same data. If data from several sensors were saved in the same file, then selecting between the two options will yield different results – you can either view the data from a single sensor, or by selecting All Readings in Log File, you will view logged data from all the sensors.



In the “Graph” tab, you have the option to “Show Temperature” and/or “Show Pressure”.

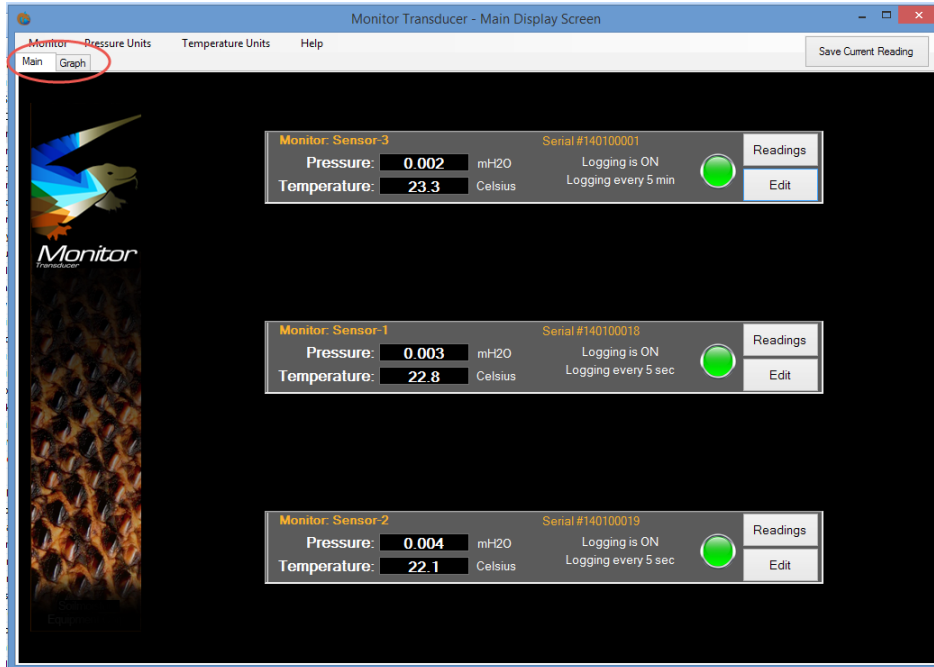


To view the logged data in a table format, click on the “Readings” tab. NOTE: that readings shown will not be updated in real-time on the screen.

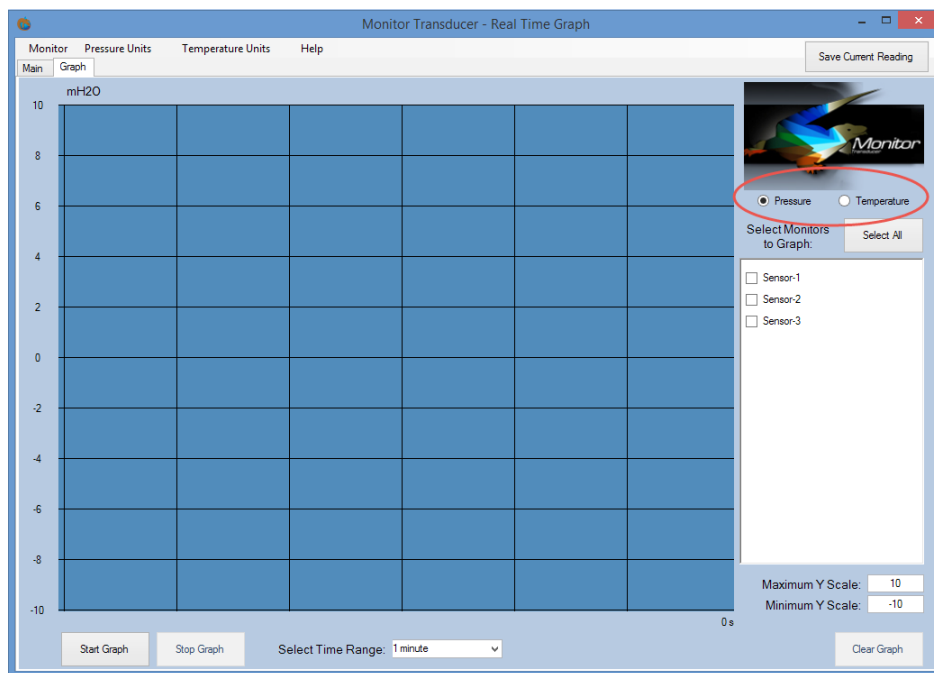
Monitor Name	Serial Number	Date	Time	Pressure	Units	Temperature	Units
Sensor-1	140100018	4/27/2015	3:13:44 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:13:49 PM	0.01	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:13:54 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:00 PM	0.01	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:05 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:10 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:15 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:20 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:25 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:30 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:35 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:40 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:45 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:50 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:14:55 PM	0.00	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:15:00 PM	0.01	psi	22.8	Celsius
Sensor-1	140100018	4/27/2015	3:15:05 PM	0.00	psi	22.9	Celsius
Sensor-1	140100018	4/27/2015	3:15:10 PM	0.00	psi	22.9	Celsius
Sensor-1	140100018	4/27/2015	3:15:15 PM	0.00	psi	22.9	Celsius
Sensor-1	140100018	4/27/2015	3:15:20 PM	0.00	psi	22.9	Celsius
Sensor-1	140100018	4/27/2015	3:15:25 PM	0.00	psi	22.9	Celsius
Sensor-1	140100018	4/27/2015	3:15:30 PM	0.00	psi	22.9	Celsius

Activating Real-Time Graphs

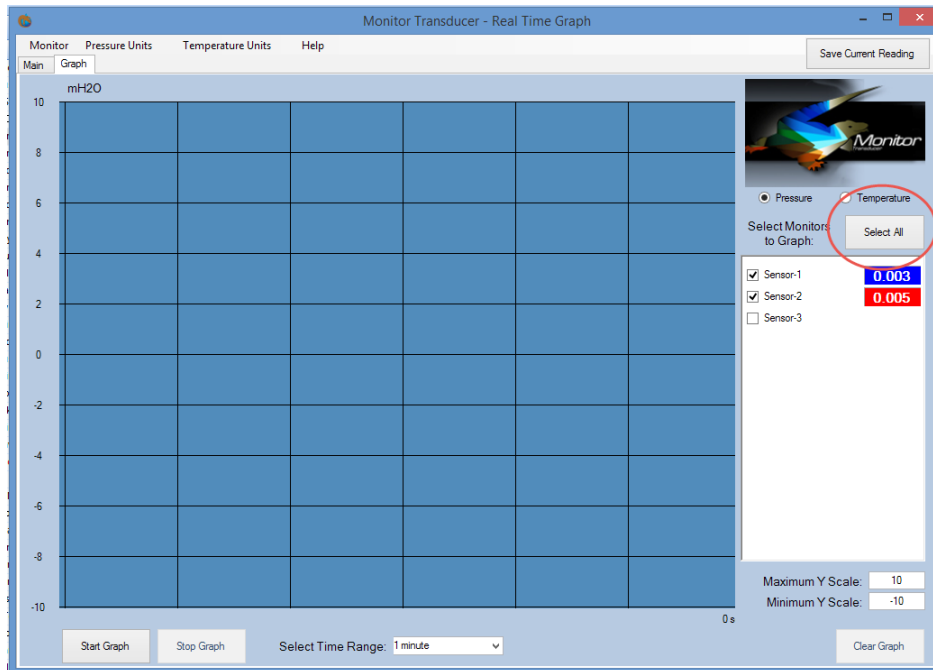
From the Main Screen, click on the “Graph” Tab.



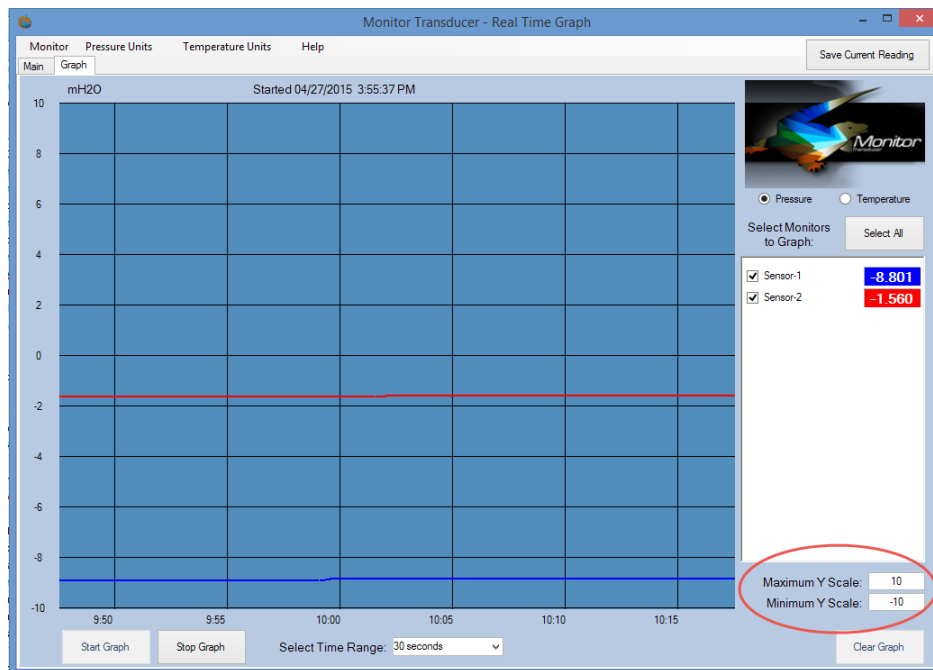
The “Real-Time Graph” Window will appear. In the top-right corner of the window, you can select either “Pressure” or “Temperature”. Both cannot be selected at the same time.



Select the sensors to be displayed on the graph by checking their corresponding boxes. Or select all sensors by clicking on the “Select All” button.



You can set the maximum and minimum values of the “Y Scale” in the boxes at the bottom-right corner of the screen. This allows you to “zoom in” and “zoom out” of the graph to see more (or fewer) details.



To display a Real-Time Graph, click on the “Start Graph” button (bottom left corner of screen). You can “freeze” the graph screen by clicking the “Stop Graph” button. To resume Real-Time Graphing, click the “Resume” button.

To set a time range select the desired time interval in the “Select Time Range” field (bottom center). It will define the time window (x-axis) to display. For example, if you select “2 minutes”, the graph time window would show the last 2 minutes of real-time graph.

Click “Clear Graph” to clear real-time graphing.

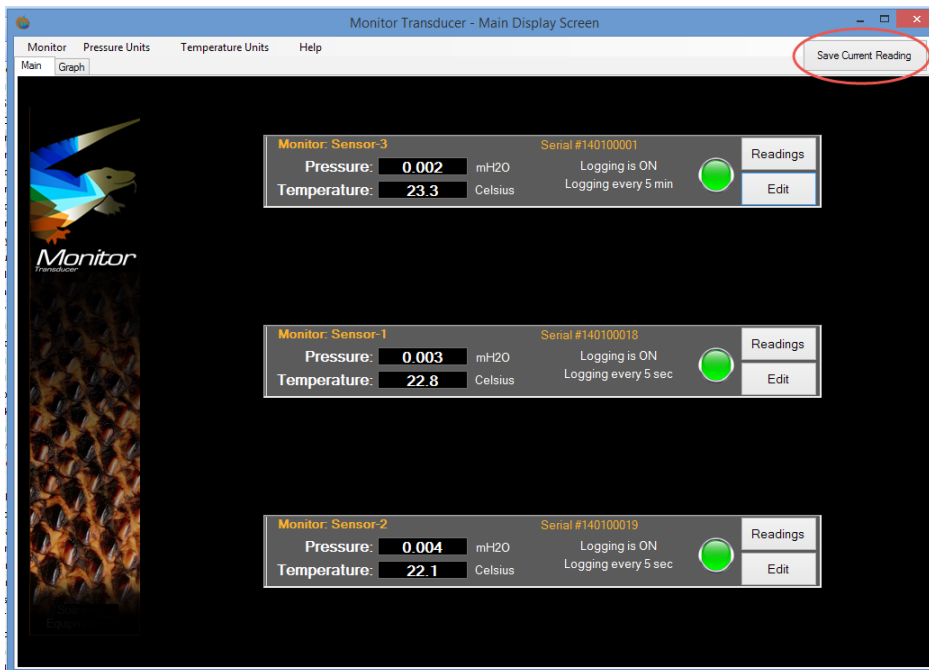
Saving Real-Time Readings

In some applications, you may need to save Monitor readings manually. To save the current reading, click the “Save Current Reading” button. All manually saved readings are saved in the “C:\SEC\Monitor\Monitor_Manual_Log_File.txt” file.

Viewing Saved Real-Time Readings

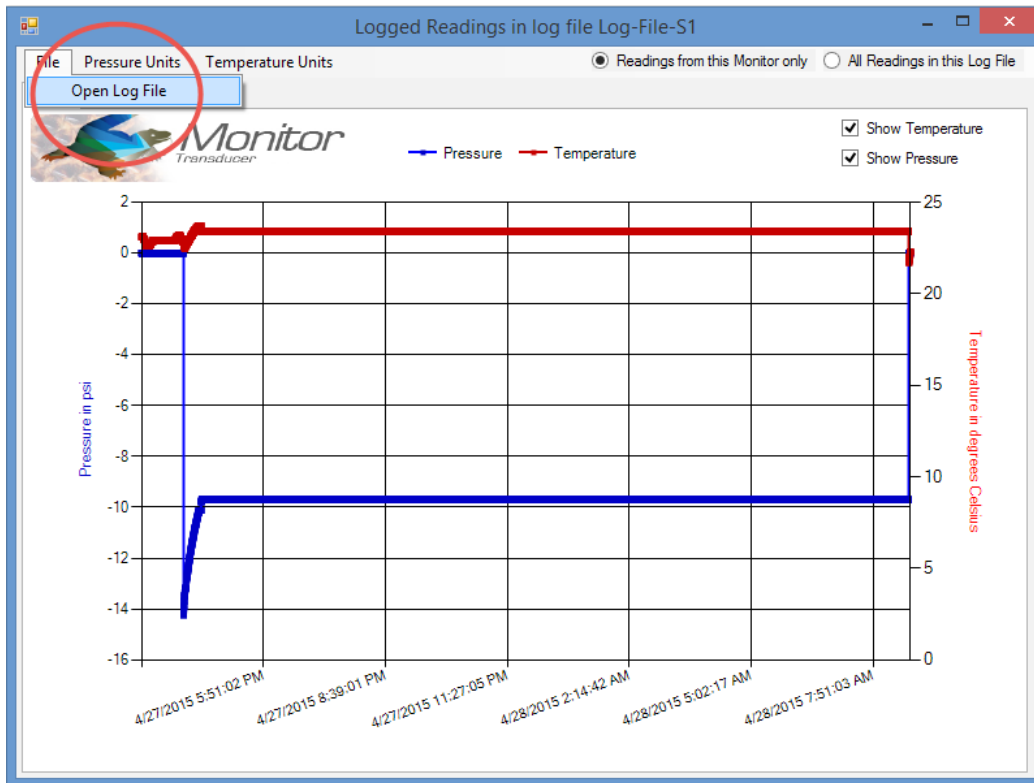
Click on the “Readings” Button in the Monitor Sensor Bar to view the saved readings for that particular sensor.

The Readings Graph will appear in the “Log Readings” window. Note that while the readings displayed



pertain to the Monitor Unit, we want to view the readings that a user has made manually, so we must open that file.

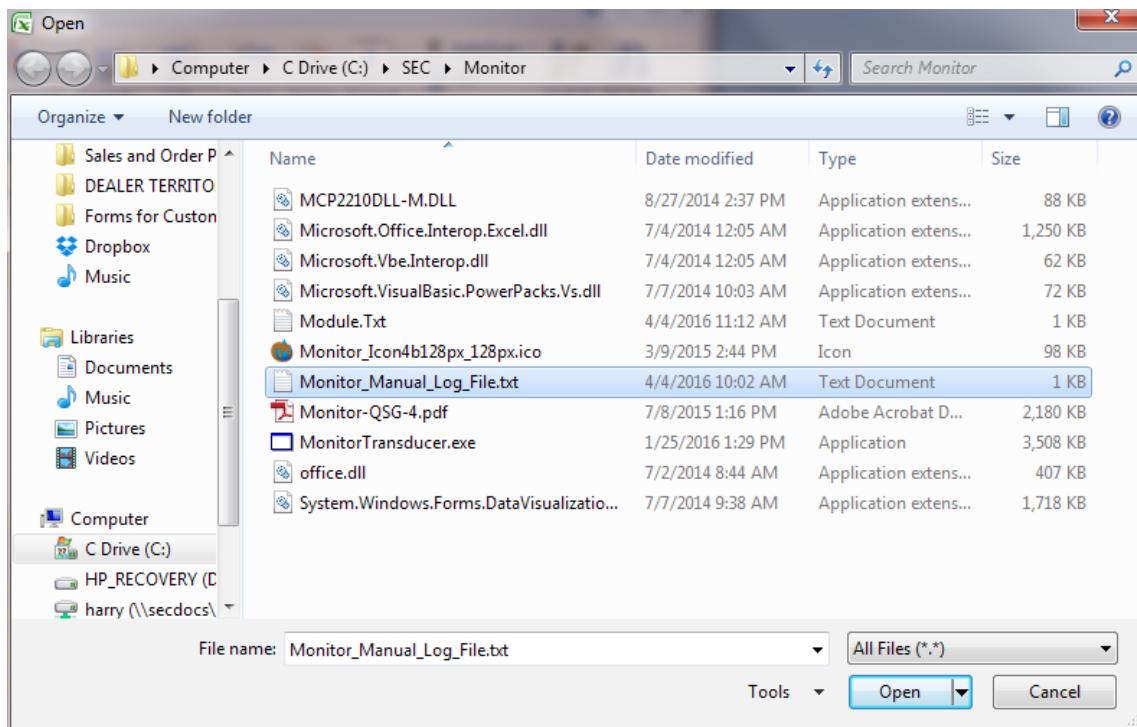
To open the file, select “Open Log File” from the File Tab.



Locate the Monitor folder. By default, it should be in “C:\SEC\Monitor\”

Viewing Readings in Excel

The Monitor Software saves files in ‘.txt’ format, so to open in Microsoft® Excel, be sure that the program is searching for all files, and not just Excel files.



SOILMOISTURE EQUIPMENT CORP.

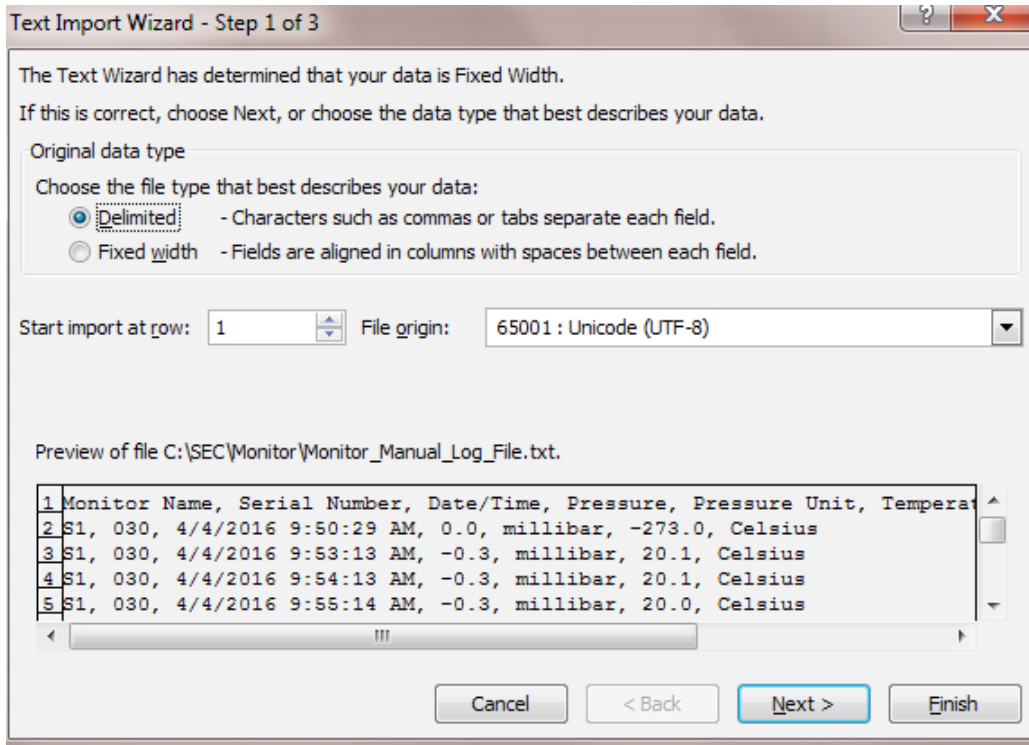
P.O. Box 30025, Santa Barbara, CA 93130 U.S.A.

Phone: (805) 964-3525 - Fax: (805) 683-2189 - Email: sales@soilmoisture.com

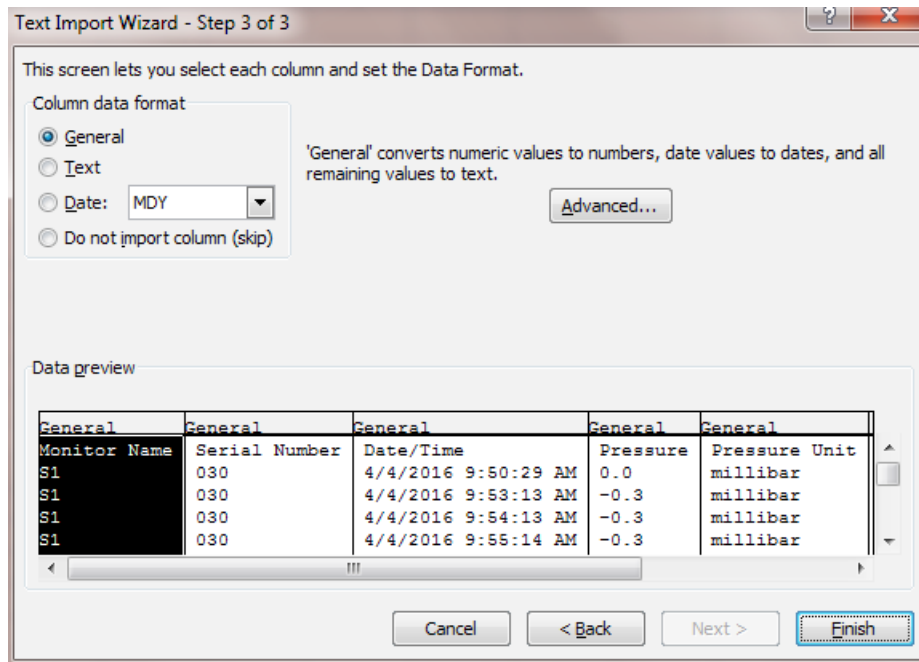
Website: <http://www.soilmoisture.com>



After opening the '.txt' file, Excel will ask a series of questions about how to view the file. Be sure to select 'Delimited' as the file type.



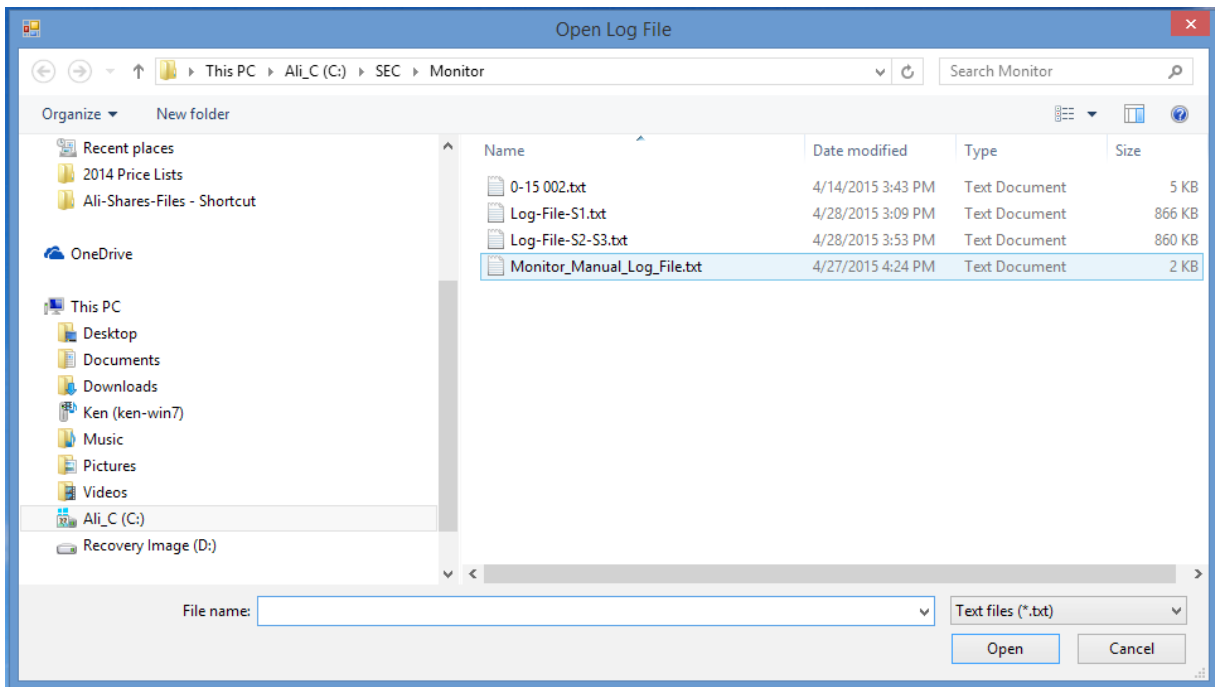
When Excel asks for what delimiters to use, select only 'Comma.'



For column data format, leave as “General,’ and click on the ‘Finish’ box to view the data.

The data then should be listed just like the ‘Data preview’ pictured above.

Open the “Monitor_Manual_Log_File.txt” file.



The screen should now display a graph of the manually logged readings.

