

AccuTrac™

Multi-Point Data Acquisition Software User Guide



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Introduction

Thank you for purchasing a subscription to our Windows-based AccuTrac™ software package. AccuTrac™ is specifically designed to transform your PC into a powerful airflow test and analysis center. Paired with the °C Port family of data acquisition instruments, our AccuTrac™ software collects up to 180 simultaneous air velocity, air temperature, surface temperature, and humidity data in real-time, all automatically compensated for barometric pressure. With flexible user preferences, AccuTrac™ displays, logs, graphs, and saves without the need to export to another program.

AccuTrac™ increases airflow measurement visibility, reduces testing time, and can measure complex multi-point scenarios. Users are able to generate planar flow distribution plots in both Cartesian (x-y) and circular areas, or produce line graphs of multiple sensors, simultaneously.

Note: AccuTrac™ is a licensed tool, with annual renewal fee for 5 or more channels. Licenses and renewals are available for purchase online. The license can be transferred to new PCs at any time and allows the user unlimited downloads of AccuTrac™ to ensure the software is always current.

Setup and Operation Overview

The steps to begin real-time data collection with your AccuTrac™ software are:

- Install AccuTrac™ software
- Configure settings for your test(s)
- Run test(s)
- Save test data and/or graphs

Features

- Real-time air velocity, temperature, humidity and pressure data logging
- Real-time air velocity compensation for changing humidity and barometric pressure
- Save/Export data in universal file formats (.xlsx, .csv, .png)
- Automatically inserts sensor data into spreadsheets (sensor name, type, calibration date and range)
- Customize start and stop times for tests
- Create customized labels for sensors as well as °C Port instruments
- Two easy-to-use graphing tools with instant snapshot capabilities for logging velocity and temperature via gradient-style (ideal for studying planar flow) and/or linear-style

- Designed for use with our laboratory-grade USB air velocity, temperature, and humidity sensors, our °C SPAR sensor pole array, and our data acquisition instruments, the °C Port1200 (12 channels) and the °C Port3600 (36 channels).

Minimum System Requirements

Operating system: Windows OS® 10.

CPU: 1.0 GHz Processor

RAM: 2GB

Hard disk space: 20MB

Downloading AccuTrac™ Software

When AccuTrac™ is purchased, a download link is sent to the buyer to install AccuTrac™ onto their computer. To purchase/unlock more channels, go to our website:

<https://www.degrec.com/products/airflow-tools-instruments/airflow-measurement-instrumentation/accutrac-software/>. When Degree Controls releases newer versions of AccuTrac™, a new download link is sent to active subscribers, or a user can download the software package at any time from the [AccuTrac™ product page](#).

Software Installation

Once you have purchased AccuTrac™ from our online store, you will be provided with a link to download the latest installation file. Once saved to your system, double click on the setup file to run the installation wizard.

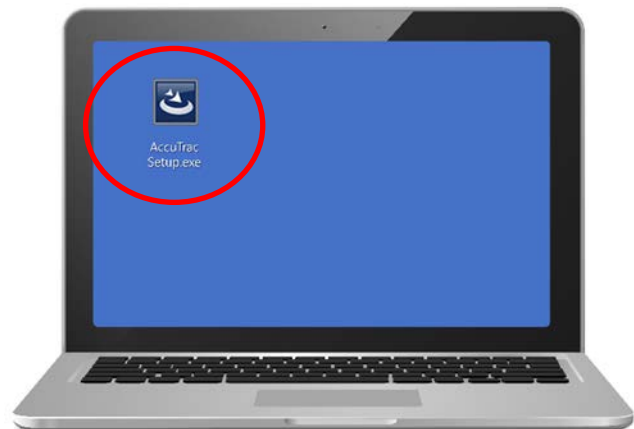


Figure 1 AccuTrac™ Setup File

Click "Next" on the Welcome screen, and follow the on-screen prompts to install AccuTrac™. You will also be prompted to install the °C Port Series Sensor Driver and device drivers near the end of the installation wizard.

Once the installation wizard completes, AccuTrac™ will start up automatically and display the Main screen if the startup checkbox is ticked.

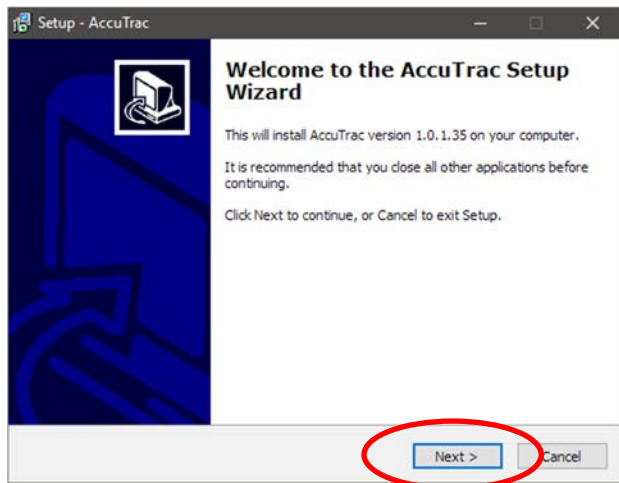


Figure 2 AccuTrac™ Installation Wizard

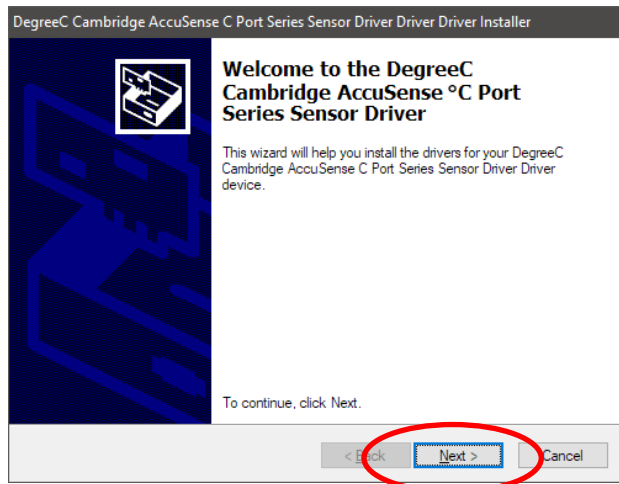


Figure 3 °C Port Series Sensor Driver

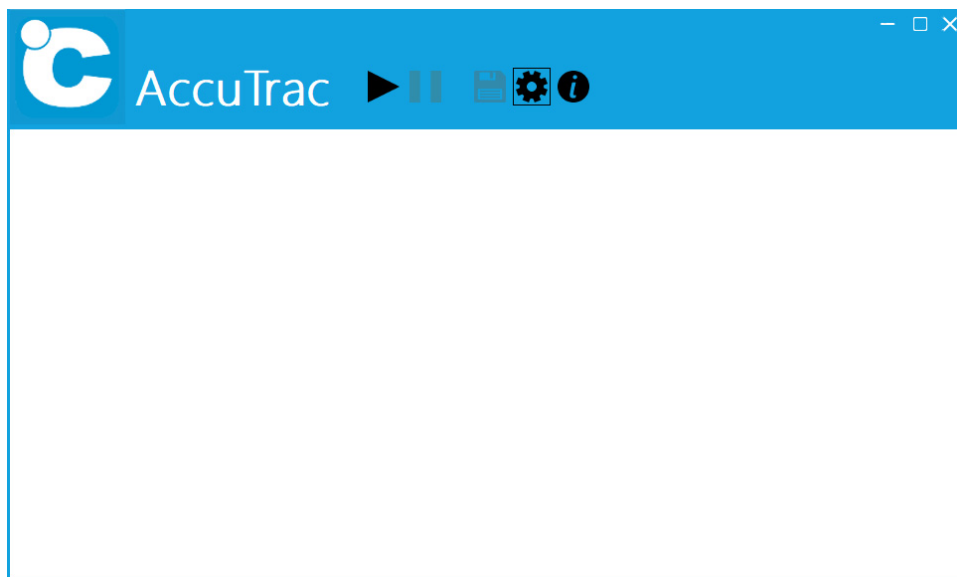


Figure 4 Main Screen

Note: It is not necessary to uninstall your existing version of AccuTrac™ before installing the new version. If you do uninstall the AccuTrac™ application, be sure to keep license and graph experiment settings for a future installation.

Licensing

AccuTrac™ software is a subscription-based tool, with the initial purchase price based on channel (sensor) quantity support, and an annual renewal fee. Users can upgrade from lower channel count subscriptions, to a higher channel count at any time by contacting DegreeC. AccuTrac™ subscriptions for 1-4 channel support have no renewal fees.

Note: AccuTrac™ may be activated up to five (5) times using the same license key before a lock-out occurs. This allows a user to move the license onto a new PC. Should a lock-out occur, the system will automatically restore the license in 15 days, or the license can be manually restored by DegreeC at any time.

Clicking on the information button (i) will display the current AccuTrac™ version and licensing information. Degree Controls recommends visiting our website regularly in order to ensure the latest version is installed on your PC. Installing a later version of AccuTrac™ will not impact or change your license.



Figure 5 AccuTrac™ Version and Licensing Information

Upon launching AccuTrac™ for the first time, the user must enter the Activation Code received from the email acknowledgment (see image below) of the license purchase. Upon entering the Activation Code, users are encouraged to enter their email and password on the "myportal" website in order to perform maintenance on their licenses, or retrieve their activation code.

Welcome to AccuTrac: Data Acquisition Software

You have activated a copy of AccuTrac: Data Acquisition Software with the License Activation Code :

1234567890ABCDEF

For your convenience, your License information has been saved on the myLicense Portal. You can retrieve and manage your License Activation Code, the password and email you assigned at activation for this license using the myLicense portal at this location :

www.softworkz.com/mylicense

For any questions with regards to your software license, please contact us at www.degrec.com .

Thank you

Settings

Overview

The Settings screen (accessed by clicking on the settings button ) allows the user to edit Network Settings, Environmental Compensation (Barometric Pressure and Humidity), individual Sensor Settings, °C Port Settings, as well as various Preferences such as how information is displayed, which units are to be used, how Auto Saving will function, and the Polling Interval. Additionally, there are two different graphing functions available: linear and gradient.

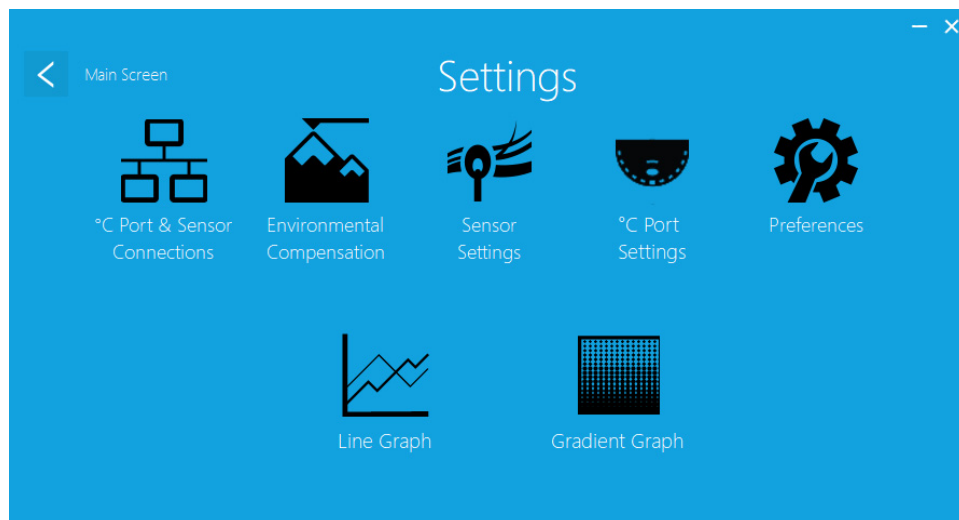


Figure 6 Settings Screen

Sensor Connections – Via °C Port or USB

The sensor connection screen allows the user to select which sensors will be used during a test: sensors connected to a °C Port instrument, or sensors connected directly to the PC. The sensor connection screen asks how sensors are connected.

Via °C Port – used if connecting sensors directly to a °C Port instrument

Via USB Port - used if connecting sensors directly to the PC that is running AccuTrac™

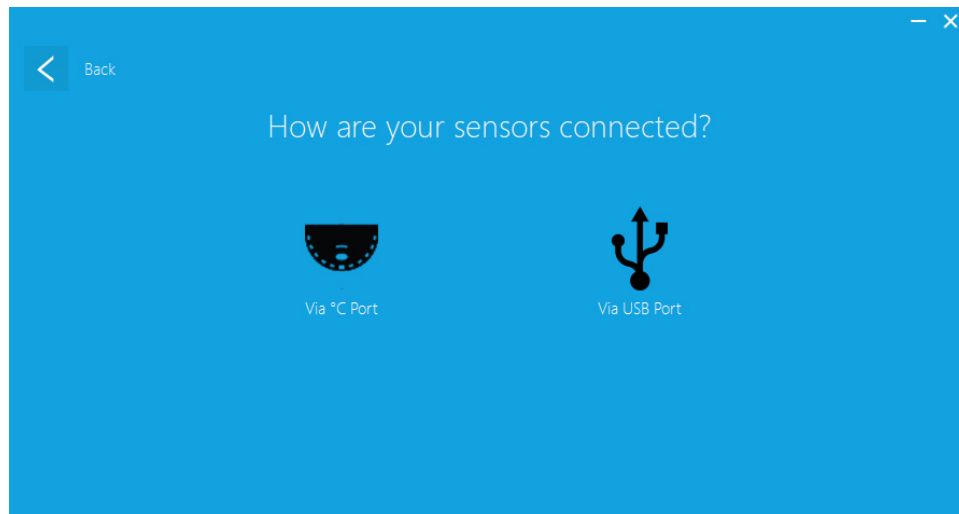


Figure 7 Sensor Connection

°C Port

Overview of °C Port Connection Types

The °C Port may be purchased as an Ethernet only device, or with added Wi-Fi capability. If you have purchased a °C Port with added Wi-Fi capability, you can choose whether the °C Port will use a wireless connection or a wired Ethernet connection.

For wireless, you can choose between a Wi-Fi network connection or the built-in direct Wi-Fi which the °C Port broadcasts. This direct Wi-Fi allows the user to connect a PC directly to the °C Port's own broadcasted Wi-Fi network. To establish a typical local Wi-Fi network connection, you must know the network name (SSID) and password. For a direct Wi-Fi connection/direct Wi-Fi mode, one PC at a time can connect to the Wi-Fi network broadcast by the °C Port, and this process will reassign an IP address to the PC.

For a wired Ethernet connection, you can choose whether the °C Port will use a static IP address or allow your network DHCP to assign one dynamically. To summarize, °C Port instruments support the following connection types:

WIRELESS (APPLIES TO °C PORT WITH ADDED WI-FI CAPABILITY)

- **Wi-Fi Network**, requires network name (SSID) and password
- **Direct Wi-Fi**, the °C Port broadcasts its own Wi-Fi network

The default wireless connection type is Direct Wi-Fi.

WIRED

- **°C Port to Network (LAN) with dynamic IP** addressing
- **°C Port direct to PC with static IP** addressing

The default °C Port hardware setting for IP addressing is dynamic.

OTHER CONNECTION TYPE FOR SPECIALTY APPLICATIONS

- The °C Port accommodates a wired °C Port to Network connection, with static IP addressing, for specialty applications such as port forwarding. Contact Degree Controls if you need support in establishing a network connection with static IP addressing.

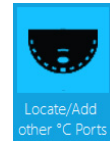
Steps for the most common °C Port connection types are described in the sections below. Reference the °C Port manual for an overview of °C Port hardware and additional information about wireless and wired connection types.

Note: For legacy °C Ports (°C Ports without the capacity to broadcast Wi-Fi), use this path: **Settings> °C Port & Sensor Connections> Via °C Port> Locate/Add other °C Ports> Legacy °C Port** to establish a °C Port connection.

Wi-Fi Network Connection

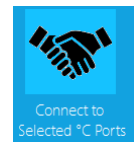
Steps to make a **Wi-Fi Network** connection to a °C Port with Wi-Fi capability:

1. Select the *Via °C Port* icon from the sensor connection screen.
2. Select *Locate/Add other °C Ports*, and after a quick search, your °C Port will appear in the list of wireless °C Ports. Ensure the radio button to the left of the °C Port is selected, and choose *Next*. Checking the radio button next to a °C Port that is found indicates to AccuTrac™ that its sensors should be used for measurement.
3. Choose *Yes* to connect your PC to the °C Port's Wi-Fi. This is a temporary connection in order to configure the °C Port for a **Wi-Fi Network** connection to your wireless network.



4. Choose *Wireless*,  and then choose the *Wi-Fi Network*  connection type.

5. Select the Wi-Fi network you wish to connect to, and choose *Next*.
6. Enter your Wi-Fi network password, and choose *Next*.
7. The °C Port is now configured for a **Wi-Fi Network** connection type. Select *Finish* to complete your **Wi-Fi Network** connection to the °C Port.
8. Once the °C Port's network services have restarted, check the box next to the °C Port's IP address, and choose *Connect to Selected °C Ports*.



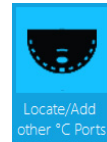
You have successfully made a **Wi-Fi Network** connection to the °C Port, and your °C Port is ready for operation. Choose Main screen, and then select the Play button to begin collecting airflow data.

Direct Wi-Fi Connection

Steps to make a **Direct Wi-Fi** connection to your °C Port:

1. Select the *Via °C Port* icon from the sensor connection screen.

2. Select *Locate/Add other °C Ports*, and after a quick search, your °C Port will appear in the list of wireless °C Ports. Ensure the radio button to the left of the °C Port is selected, and choose *Next*. Checking the radio button next to a °C Port that is found indicates to AccuTrac™ that its sensors should be used for measurement.
3. Choose *Yes* to connect your PC to the °C Port's Wi-Fi.



4. Choose *Wireless*,  and then choose the *Direct Wi-Fi*  connection

5. The °C Port is now configured for a **Direct Wi-Fi** connection type. Select *Finish* to complete your **Direct Wi-Fi** connection to the °C Port.

You have successfully made a **Direct Wi-Fi** connection to the °C Port, and your °C Port is ready for operation. Choose Main screen, and then select the Play button to begin collecting airflow data.

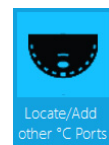
Ethernet - °C Port to Network with Dynamic IP Addressing



*Figure 8 Ethernet - °C Port to Network with Dynamic IP Addressing
Direct Router Connection*

Steps to make a **°C Port to Network (LAN)** connection with dynamic IP addressing:

1. Ensure that the network switch on the back of the °C Port is set to the correct position for dynamic IP addressing and that your PC with AccuTrac™ software is configured to obtain its IP address dynamically.
2. Select the *Via °C Port* icon from the sensor connection screen.
3. Select *Locate/Add other °C Ports*, and after a quick search, your °C Port will appear in the list of wireless °C Ports. Ensure the radio button to the left of the °C Port is selected, and choose *Next*. Checking the radio button next to a °C Port that is found indicates to AccuTrac™ that its sensors should be used for measurement.



- Choose *Yes* to connect your PC to the °C Port's Wi-Fi. This is a temporary connection in order to configure the °C Port for a **°C Port to Network (LAN)** connection.

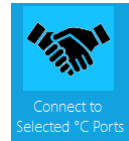
- Choose *Wired*, connection



- and then choose the °C Port to Network LAN type.



- Connect one end of the Ethernet cable to the °C Port and the other end to the LAN, and choose *Next*.
- Ensure the °C Port's network switch is set for dynamic IP addressing, and choose *Next*.
- The °C Port is now configured for a **°C Port to Network (LAN)** connection type. Select *Finish* to complete your **°C Port to Network (LAN)** connection to the °C Port.
- Once the °C Port's network services have restarted, check the box next to the °C Port's IP address, and choose *Connect to Selected °C Ports*.



You have successfully made a **°C Port to Network (LAN)** connection to the °C Port, and your °C Port is ready for operation. Choose Main screen, and then select the Play button to begin collecting airflow data.

Ethernet - °C Port Direct to PC with Static IP Addressing

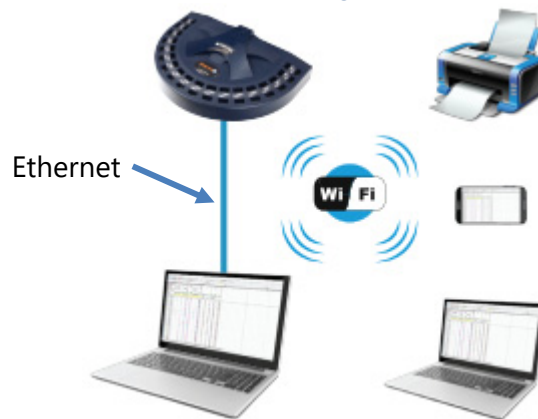
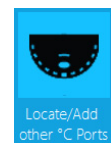


*Figure 9 Ethernet - Direct to PC with Static IP Addressing
Dedicated PC Connection*

Steps to make a **°C Port direct to your PC** connection with static IP addressing:

- Ensure that the network switch on the back of the °C Port is set to the correct position for static IP addressing and that your PC with AccuTrac™ software is configured to use static IP address 192.168.9.100.
- Select the *Via °C Port* icon from the sensor connection screen.
- Select *Locate/Add other °C Ports*, and after a quick search, your °C Port will appear in the list of wireless °C Ports. Ensure the radio button to the left of the °C Port is selected, and choose *Next*. Clicking the radio button next to a °C Port that is found indicates to AccuTrac™ that its sensors should be used for measurement.

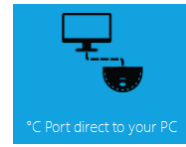


- Choose *Yes* to connect your PC to the °C Port's Wi-Fi. This is a temporary connection in order to configure the °C Port for a **°C Port direct to your PC** connection.

- Choose *Wired*, connection



and then choose the *°C Port direct to your PC* type.



- Connect one end of the Ethernet cable to the °C Port and the other end to your PC, and choose *Next*.
- If the IP address settings for your PC match the required IP address data, choose *Next*, otherwise, update your PC's IP address data, click on the Refresh List icon, and then choose *Next*.

- Ensure the °C Port's network switch is set for static IP addressing, and choose *Next*.
- The °C Port is now configured for a **°C Port direct to your PC** connection type. Select *Finish* to complete your **°C Port direct to your PC** connection to the °C Port and restart the °C Port's network services.

You have successfully made a **°C Port direct to your PC** connection to the °C Port, and your °C Port is ready for operation. Choose Main screen, and then select the Play button to begin collecting airflow data.

Troubleshooting Your °C Port Connection

Configuring the °C Port with AccuTrac™ software is designed to be quick and easy. If you are having trouble establishing a connection between your PC with AccuTrac™ software and °C Port, verify your setup as well as your PC's configuration. Checks to make include:

- Ensure that you've configured your computer:
 - to obtain its IP address dynamically for a **°C Port to Network (LAN)** connection, or
 - with static IP address data for a **°C Port direct to your PC** connection,

so that it can communicate with the °C Port. This is done by opening the Network and Sharing Center to configure LAN settings, and needs to be done only once for each PC that will communicate to the °C Port.

2. For a **°C Port to Network (LAN)** connection with dynamic IP addressing, verify that the switch you are using is DHCP capable.
3. Is your °C Port connected to a masked subnet? You must be able to ping the °C Port from your PC. If you cannot, the IP and the subnet on the °C Port should be modified so that it is visible from the PC.

Notes:

AccuTrac™ checks the position of the °C Port's network switch (for dynamic or static IP addressing) as part of the connection process. If the position of the network switch is changed outside of the connection process, the °C Port's display will update only after power cycling the unit.

Once AccuTrac™ is communicating with the °C Port, the °C Port's IP address can be changed from the AccuTrac™ software, if desired. Use *Settings > °C Port Settings > Setup Static IP*.

°C Port Display

For your convenience, the display on the back of the °C Port shows the type of connection and associated IP address:

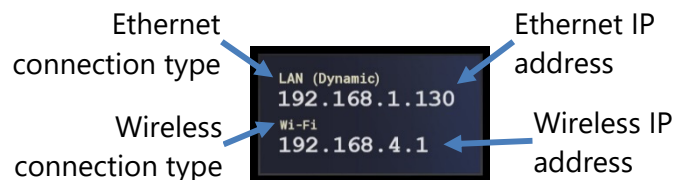


Figure 10 °C Port Display

Enter °C Port IP Manually

Users have the option to enter the IP address of a °C Port manually. This may be useful to connect to a °C Port on a different subnet than the PC with AccuTrac™ software and can be used when connecting through Wi-Fi or Ethernet.

Note: If a °C Port's IP address is entered incorrectly, in the wrong format, an error dialog window will appear:

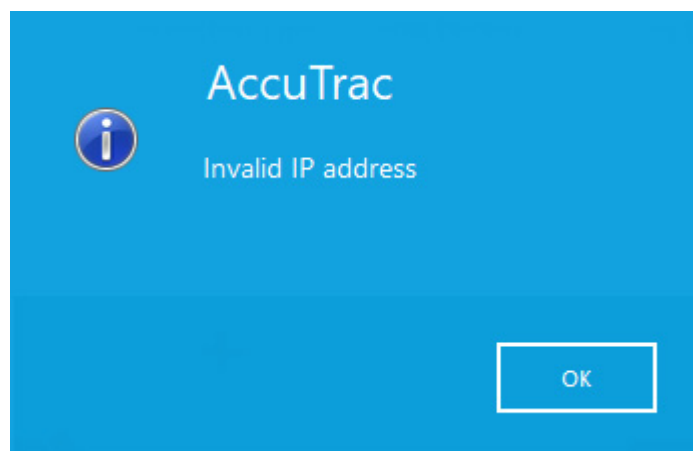


Figure 11 Error Dialog for Invalid IP Address

AccuTrac™ will display a failed connection attempt error message if an invalid IP address has been entered (correct IP address format but invalid IP address). Should this occur, verify your entry and try again, or use *Settings > °C Port & Sensor Connections > Via °C Port > Locate/Add other °C Ports* to establish a connection.

Change °C Port Connection Type

If you're currently connected to a °C Port, and you want to change the connection type (example: change from a wireless connection to wired connection), use:

Settings > °C Port & Sensor Connections > Via °C Port > Locate/Add other °C Ports, and then continue on to make your choice of connection type to the °C Port.

Update °C Port Firmware

AccuTrac™ allows you to update °C Port instrument firmware over the network. If a connected °C Port's firmware is not up to date, an update notification will pop up from the Finding °C Ports screen. AccuTrac™ also shows the firmware version of connected °C Ports in hover text for your convenience. Steps to upgrade °C Port Instrument firmware using AccuTrac™ are outlined below. AccuTrac™ version 1.6.0.1 or higher is required.

Launch AccuTrac™, and select *Via °C Port* as you normally do to begin your experiment.

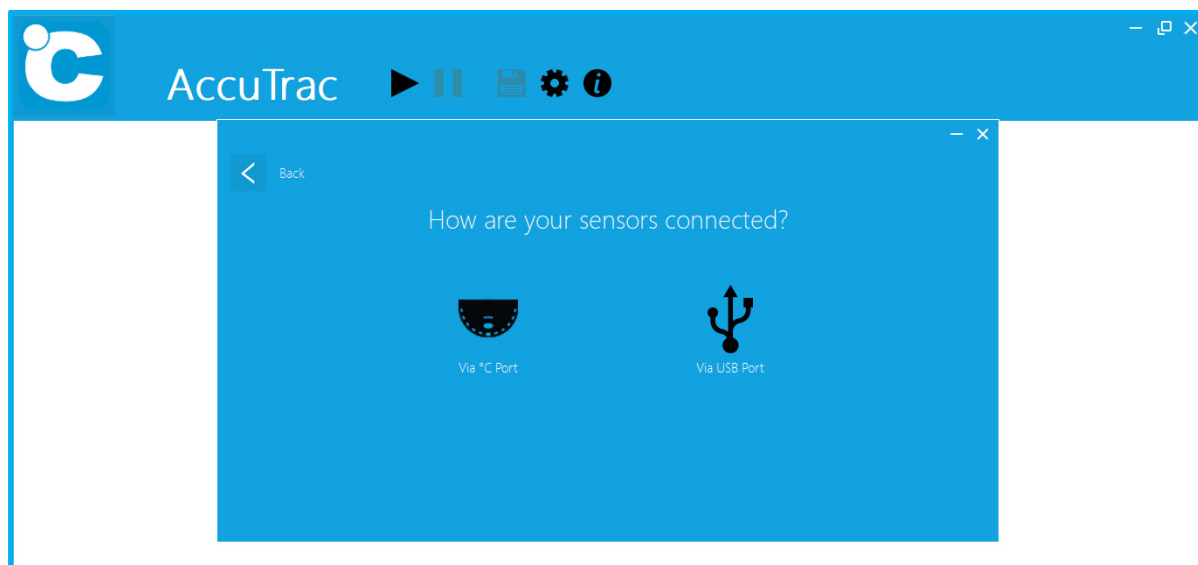


Figure 12 Sensor Connection Screen

AccuTrac™ searches for °C Ports on your network and notifies you if there is a firmware update available for your °C Port. Select *Install* to proceed with the update and then select *Finish*.

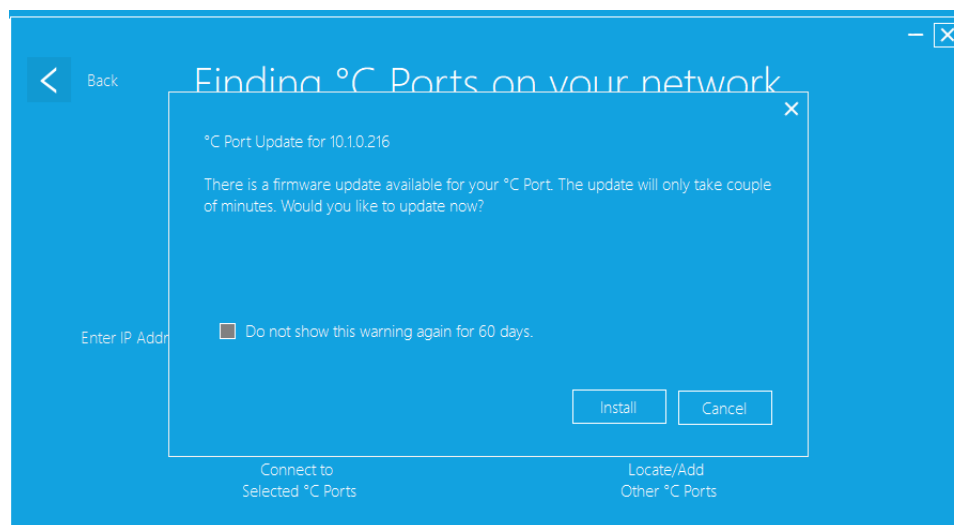


Figure 13 Update Notification

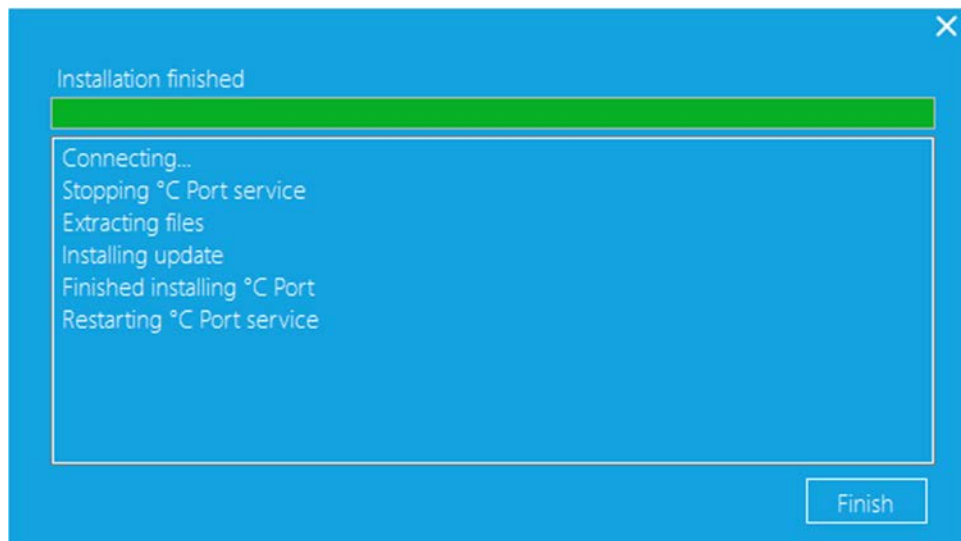


Figure 14 °C Port Firmware Update

AccuTrac™ will step you through the same sequence to update firmware for any other °C Ports on your network.

Alternatively, you may **right click** on any °C Port listed in the Finding °C Ports screen (these are °C Ports found on your network) and then select *Update Firmware* to initiate a firmware update manually. Navigate to the list of °C Ports on your network by following this path:

Main>Settings>°C Port & Sensor Connections

If there is no update available, *Update Firmware* will be grayed out.

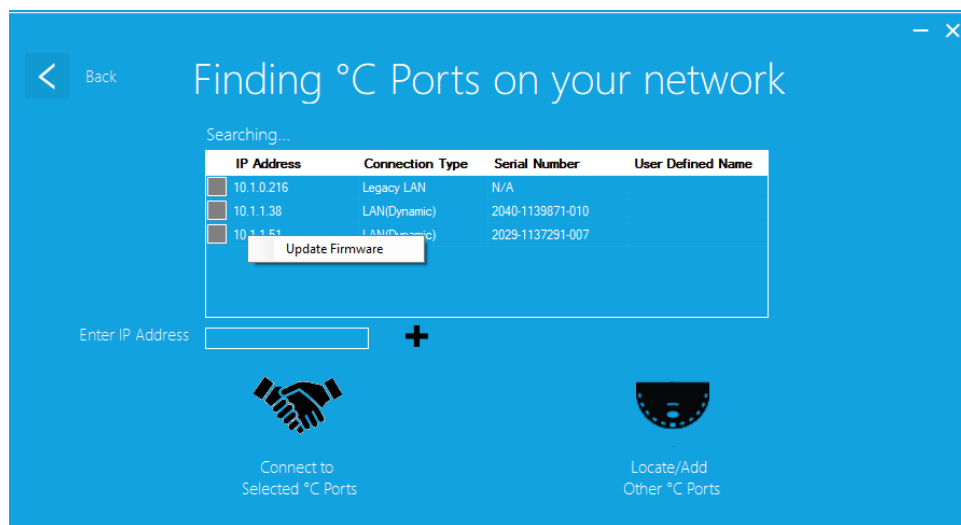


Figure 15 Initiate Firmware Update

Hover text shows the firmware version for each °C Port found on your network.

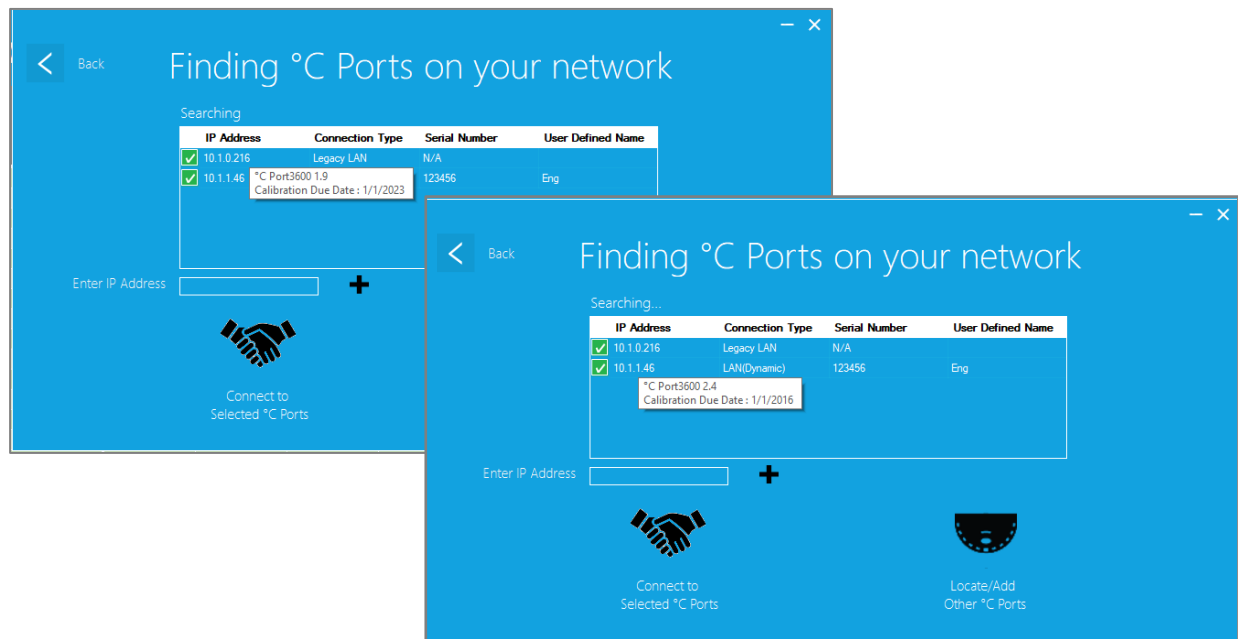


Figure 16 °C Port Hover Text

Note: For °C Ports with an LCD display, the firmware version shows in the lower right-hand corner of the display during °C Port startup.

USB Port

Select *Via USB Port* from the sensor connection screen to select sensors that are connected directly to the PC that is running AccuTrac™. A listing of all connected USB-based sensors that are detected will display on the finding sensors screen. Choose *Next* to complete USB configuration.

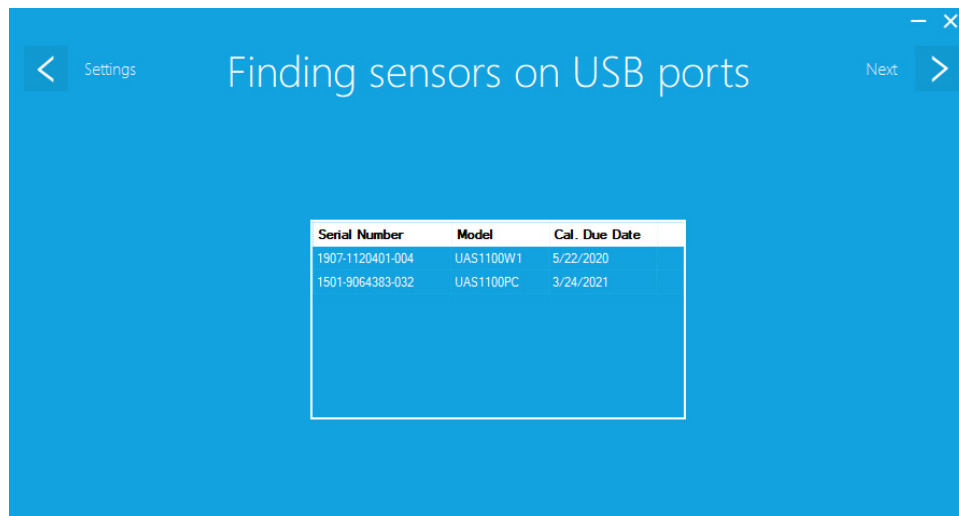


Figure 17 List of Connected and Detected USB Based Sensors

You have successfully completed the USB configuration. Choose Main Screen, and then select the Play button to begin collecting airflow data.

Note: If no sensors are connected, "No Sensors connected" will appear to the left of the information box

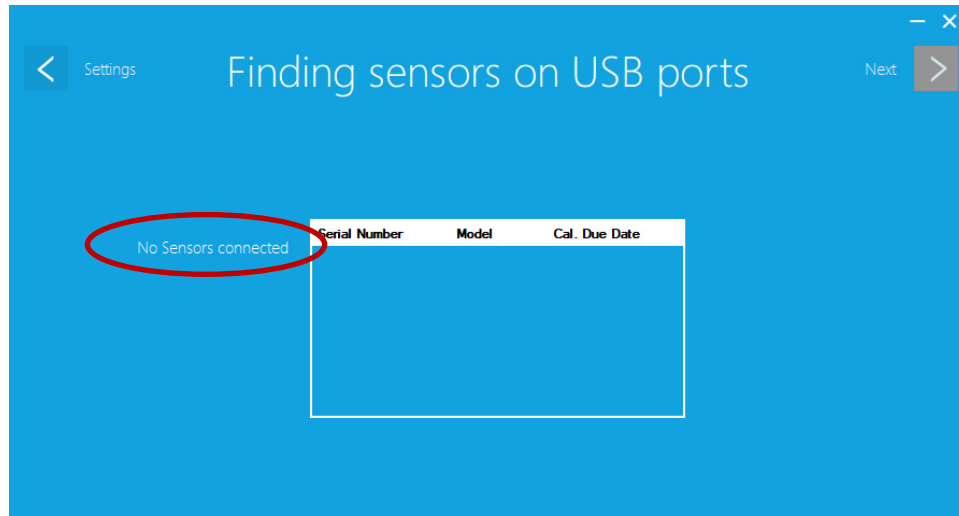


Figure 18 No Sensors Connected

Environmental Compensation

Within the Environmental Compensation settings screen, users can choose various options relating to how sensor readings are compensated for environmental conditions.

Note: The UAS Sensor's accuracy can be directly affected by the density of the air around it. Barometric pressure and relative humidity (RH) affect the air's density. Therefore, to obtain the most accurate readings, compensation must be used to account for the difference in densities between when the sensor was calibrated, and when a measurement is taken during a test by the user.

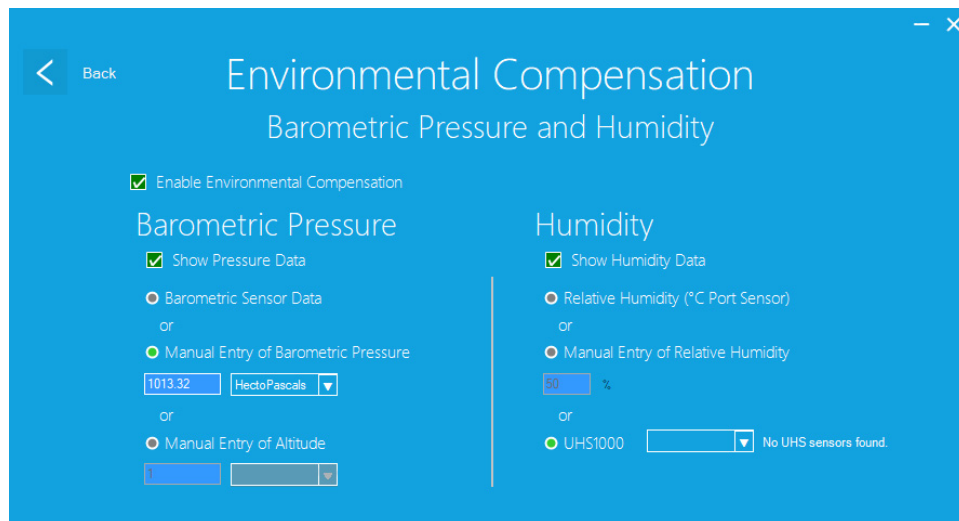


Figure 19 Environmental Compensation Settings

Enable Environmental Compensation – Enables (or disables) environmental compensation

Note: If the user decides not to use Environmental Compensation (or consequently disables the

option), an error dialog window will appear requiring acknowledgment to continue. Failure to enter any data will consequently result in inaccurate sensor readings.

Barometric Pressure

Barometric pressure compensation settings allow the use of the °C Port's barometric pressure sensor, manual entry of barometric pressure, or manual entry of altitude. (Options are grayed out if no °C Ports are currently connected.)

Show Pressure Data – Displays any pressure data (if available) during the test

Barometric Sensor Data – Utilize the °C Port's built-in barometric sensor. Pressure data is displayed in the units selected for Manual Entry of Barometric Pressure for this option.

Manual Entry of Barometric Pressure – Enter barometric pressure data manually (**ensure the correct units are selected**)

The default value for barometric pressure is 1013.32 hectoPascals. Pressure data is displayed in the units selected for this option.

Manual Entry of Altitude – Enter altitude manually

Note: The average barometric pressure for the specified altitude will be used in compensation for air density.

Humidity

Humidity compensation settings allow the use of the °C Port's built-in humidity sensor (if a *legacy* °C Port is connected), manual entry of relative humidity, or an available UHS sensor. For the best compensation, use a UHS1000 humidity sensor to provide dynamic humidity input for real time compensation of the measured air velocity.

Show Humidity Data – Displays any humidity data (if available) during the test

Relative Humidity (°C Port Sensor) – Utilize the °C Port's built-in humidity sensor

Note: This option applies to legacy °C Ports only. The manual entry for relative humidity will be used for compensation if the option to use the °C Port's built-in humidity sensor is selected for a °C Port Wi-Fi instrument without a built-in humidity sensor.

Manual Entry of Relative Humidity – Enter humidity data manually

The default value for RH is 50%.

UHS1000 – Utilize a UHS1000 sensor (if available); option is grayed out if no UHS1000 sensor is detected (indicated with a message to the right of the option)

Compensation when connected to multiple °C Ports: AccuTrac™ averages humidity and pressure from all connected °C Port instruments and uses the average values for compensation.

Sensor Settings

Within Sensor Settings, port details, serial number, model, and calibration due date of each sensor can be found. Users may also assign a "User Defined Name" to each sensor, which can be displayed during testing by enabling Custom Name under display information preferences. UAS, UTS, and UHS sensors are separated via categories (tabs at top). Additionally, out of calibration sensors will be highlighted.

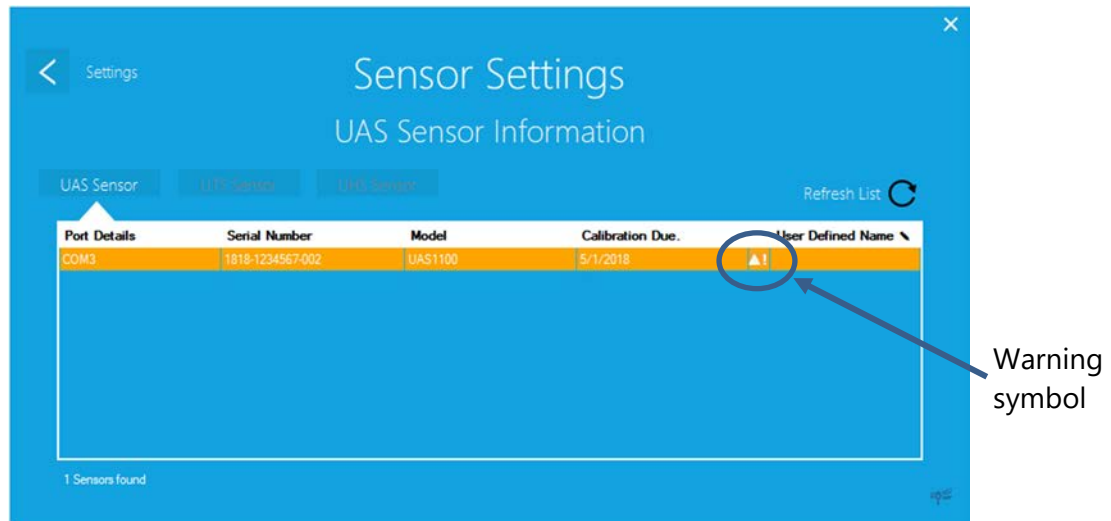


Figure 20 Sensor Settings

Note: For any sensors out of calibration, a warning is displayed when the user clicks on the sensor's calibration warning symbol on the Sensor Settings page. The warning will contain contact information for recalibrating the sensors:

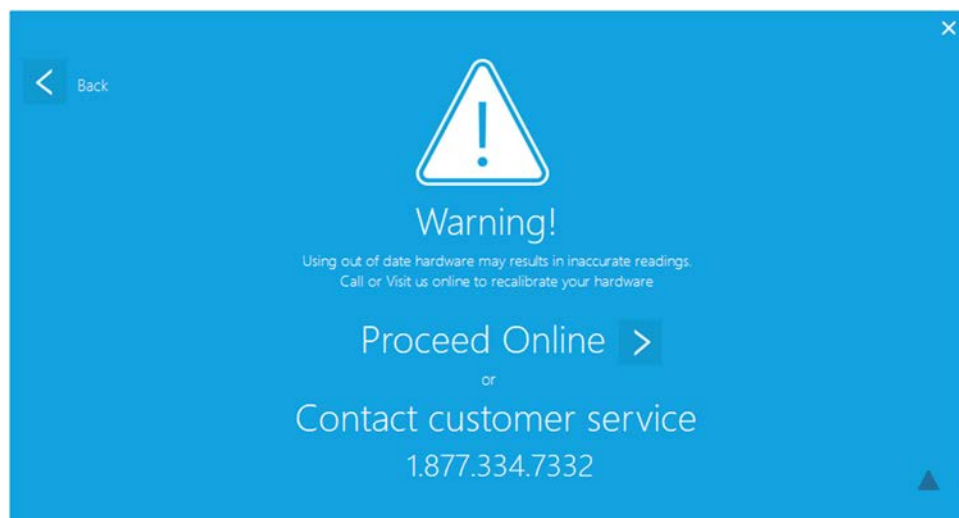
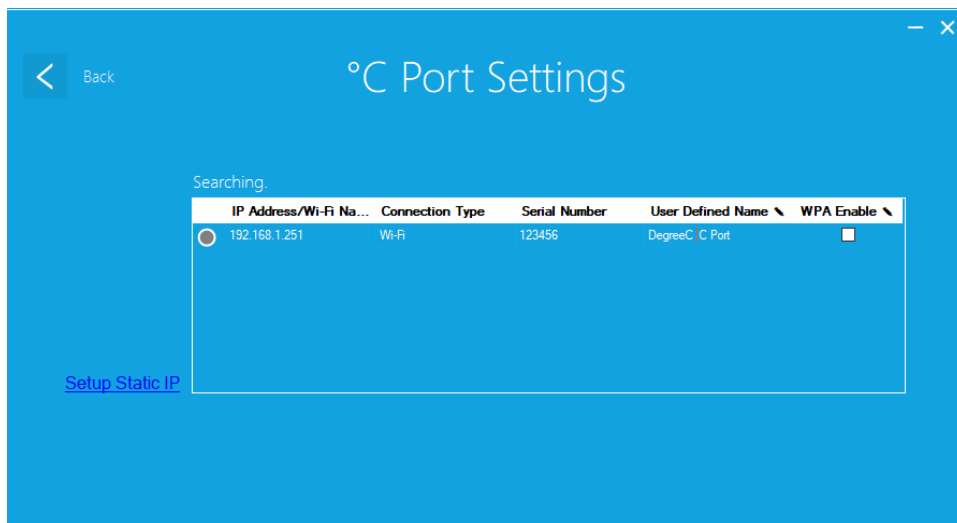


Figure 21 Warning - Sensors Out of Calibration

°C Port Settings

The °C Port Settings screen includes IP address/Wi-Fi name, connection type, and serial number for each °C Port you have connected to. Users may also assign a "User Defined Name" to each °C Port which is displayed during test. Users can also optionally enable WPA (Wi-Fi Protected Access) for °C Port Wi-Fi instruments. If WPA is enabled, connection to the °C Port must be reestablished once the °C Port's network services have restarted.



Preferences

The Preferences page allows for customization of how sensor information is displayed, measurement unit selection, and configuration of auto-saving, polling interval, and statistical averaging.

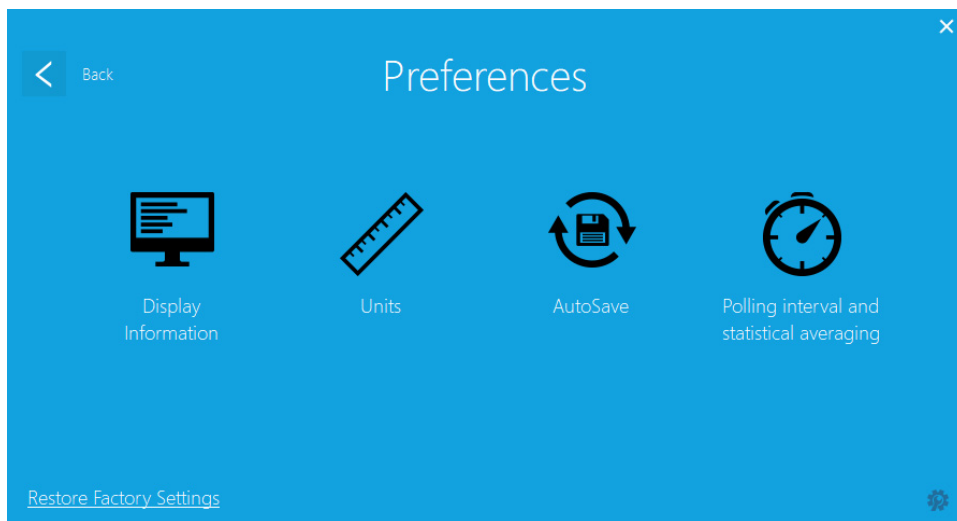


Figure 22 Preferences

Display Information

The Display Information screen allows the user to enable or disable whether certain information about the sensors and sensor statistics is displayed and recorded during testing. Display Information also allows the user to enable or disable warnings. Please see further detail regarding “Warnings” below.

Sensor Information & Sensor Statistics

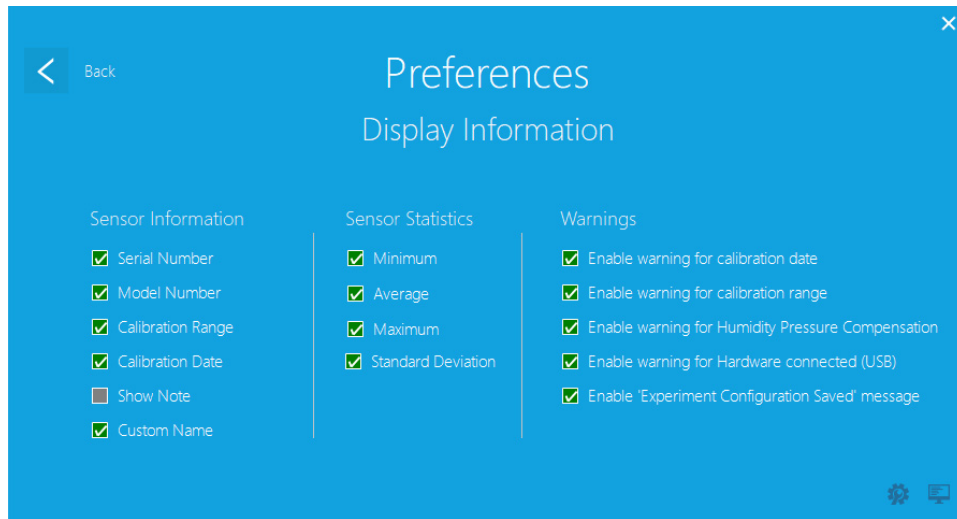


Figure 23 Preferences Display Information

Custom Name		1538-9066475-001		1907-1120401-004		1501-9064383-002	
Serial Number		1538-9066475-001		1907-1120401-004		1501-9064383-002	
Model Name		UAS1100PC		UAS1100W1		UAS1100PC	
°C Port		(Eng) Port 14		(Eng) Port 15		(Eng) Port 16	
Calibration Due Date		1/25/2017		5/22/2020		3/24/2021	
Calibration Range		0.15 - 1.00		0.00 - 70.00		0.15 - 1.00	
Velocity - m/s	Temp - °C	Velocity - m/s	Temp - °C	Velocity - m/s	Temp - °C	Velocity - m/s	Temp - °C
0.06	23.37	0.06	22.77	0.08	23.20		
Minimum	0.06	23.44	0.06	22.83	0.09	23.25	
Moving Average	0.06	23.42	0.06	22.82	0.09	23.24	
Standard Deviation	0.00	0.03	0.00	0.02	0.00	0.02	
Time Start 09:23 AM	Pressure - hPa	Humidity - %RH	Velocity - m/s	Temp - °C	Velocity - m/s	Temp - °C	Velocity - m/s
09:24:00 AM	1013.32	50	0.06	23.37	0.06	22.83	0.09
09:24:02 AM	1013.32	50	0.06	23.42	0.06	22.77	0.09
09:24:11 AM	1013.32	50	0.06	23.44	0.06	22.83	0.09

Figure 24 Display During Run - Enabled Sensor Information & Sensor Statistics

Warnings

Enable warning for calibration date/range – displays the reading in yellow when sensors are past their calibration date, or when readings are outside of the sensor’s calibrated range(s).

Custom Name		1538-9066475-001	
Serial Number		1538-9066475-001	
Model Name		UAS1100PC	
°C Port		(Eng) Port 14	
Time Start 09:31 AM	Velocity - m/s	Temp - °C	
09:31:35 AM	0.06	23.37	
09:31:42 AM	0.06	23.38	
09:31:44 AM	0.06	23.46	
09:31:52 AM	0.06	23.47	

Enable warning for Humidity Pressure Compensation – displays a warning message when the “Enable Environmental Compensation” option in “Environmental Compensation” settings is unchecked.

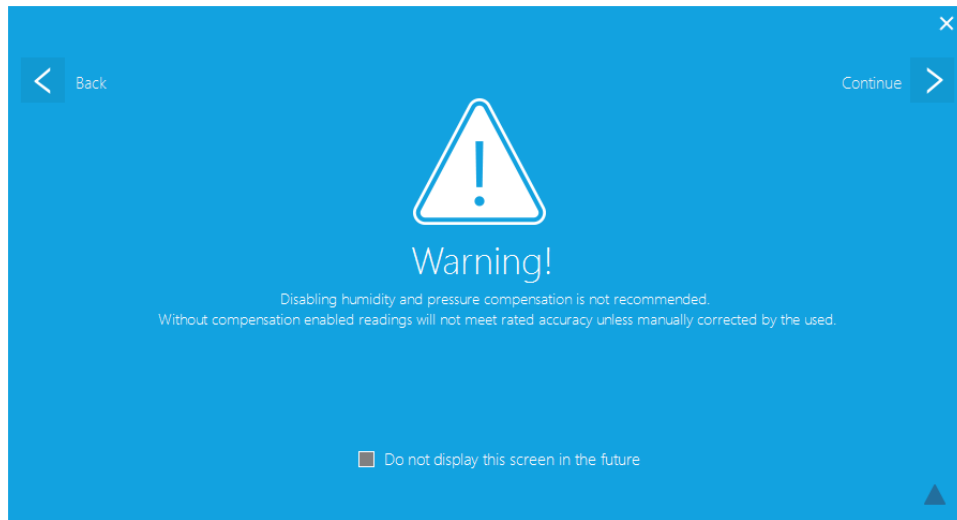


Figure 25 Warning, Environmental Compensation is Disabled

Enable warning for Hardware connected (USB) – displays a message after hardware is connected to AccuTrac™ via the sensor connections options.

Enable “Experiment Configuration Saved” message – displays a message after settings are saved for a new experiment within Line Graph or Gradient Graph settings (see **Line Graph and Gradient Graph sections of manual**).

Units

Allows the selection of units for test data. Temperature options include Celsius, Fahrenheit and Kelvin, and airflow options include Meters Per Second and Feet Per Minute.

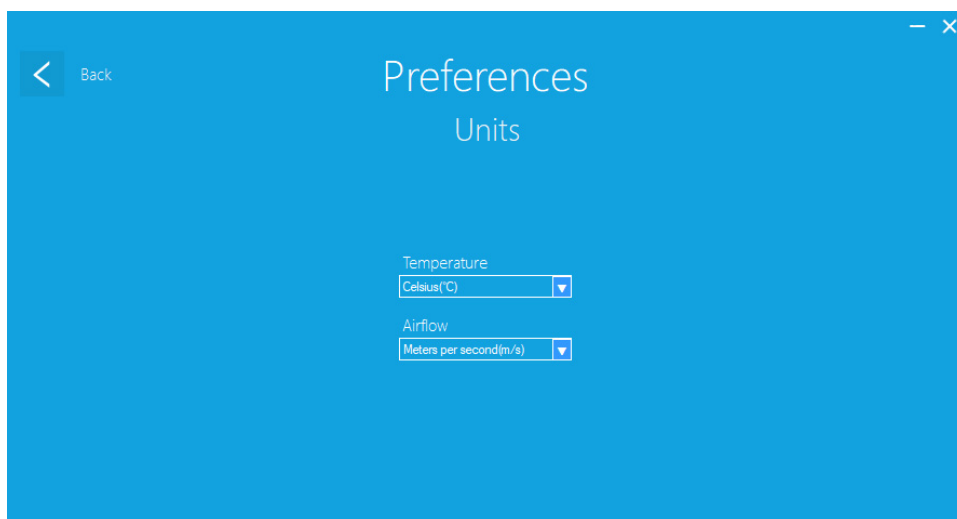


Figure 26 Unit of Measurement Selection

Auto Save

Allows the enabling and disabling of the Auto Save feature. Intervals in minutes are selectable from a drop-down. The Auto Save Path allows the user to choose where to save testing data.

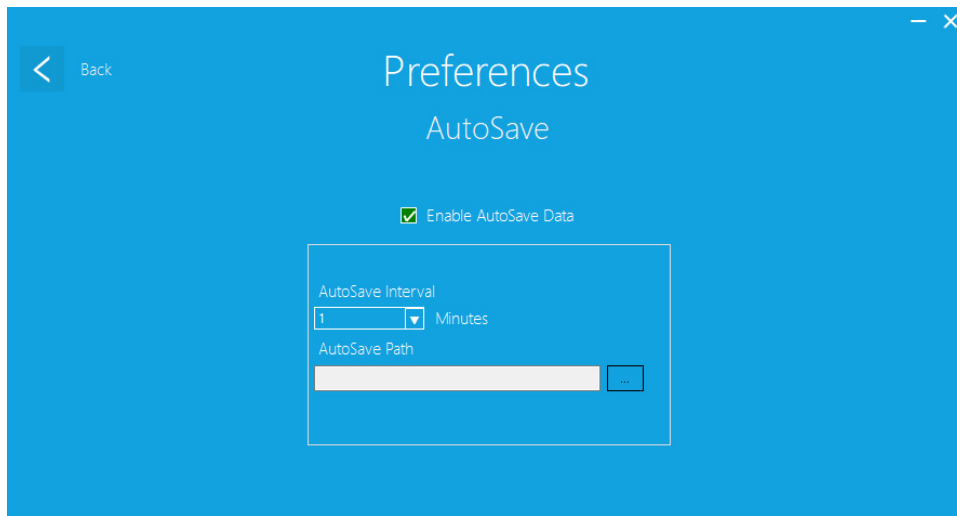


Figure 27 Data Auto Save Interval and Destination

Polling Interval and Statistical Averaging

Allows the user to customize polling interval and the statistical averaging method.

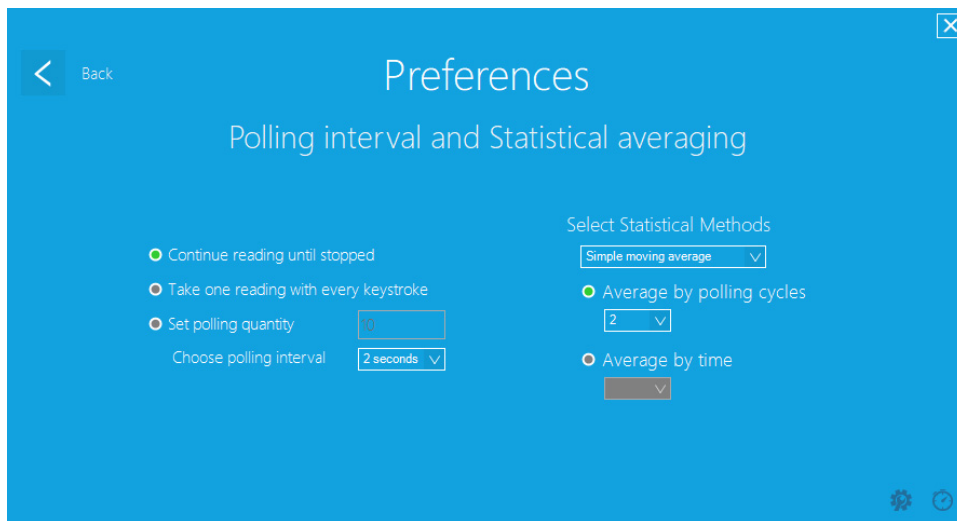


Figure 28 Polling and Statistical Averaging Preferences

Continue reading until stopped – continues the test until the stop button is clicked

Take one reading with every keystroke – polls and takes the readings of all connected sensors once the spacebar is pressed; the user is then able to keep pressing spacebar until all necessary readings are taken, or until the stop/save buttons are clicked.

Set polling quantity – takes the readings of all connected sensors as per polling quantity; if polling quantity is 5, then 5 sets of readings will be taken

Choose polling interval – set the time between readings taken, in minutes or seconds

Select Statistical Methods – statistical averaging method of:

- Simple moving average,
- Cumulative averaging or
- Median averaging

is selectable from a drop-down.

Average by polling cycles – enable to average sensor reading by polling cycles

If enabled, the number of polling cycles to use for averaging is selectable from a drop-down.

Average by time – enable to average sensor reading by time

If enabled, the time interval to use for averaging is selectable from a drop-down.

Line Graph

The Line Graph option enables AccuTrac™ to display plugged in sensor values via line graphs. Each sensor is displayed as its own line and in a unique color, and all lines update with every reading taken.

The first screen features a select/edit option for previously created experiments. If no experiment exists, a new one will need to be created by clicking on “New Experiment” in the top right-hand corner. The user can create and save multiple experiments.

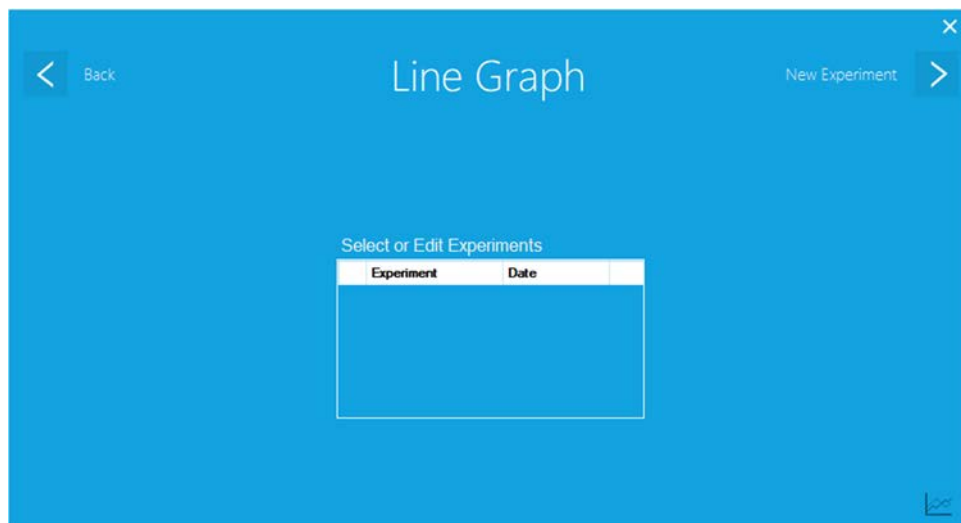


Figure 29 Line Graph - New Experiment or Edit Experiment

Line Graph Properties

Within the Properties screen, users must set a name for the experiment, and may set duration of experiments and various scaling options. Once options are adjusted, click on “Continue” in the top right-hand corner.

Figure 30 Line Graph Properties

Time Scale

Entire Experiment – display all readings taken in the experiment

Fixed Duration – display only the last “X Min” of the experiment (1 minute is the minimum allowed)

Measurement Scale

Auto Scale – scales the Y-axis automatically as the experiment is running

Absolute Scale – allows setting of absolute limits for the minimum and maximum velocity and temperature

Line Graph - Select Sensors to Graph

On the following screen, a list of connected sensors will be displayed on the right. Choose the sensors you would like to use for your experiment, and drag them to the graph area. Next, enable the sensor information to be graphed in the bottom right-hand side of the screen. Once all selections have been made, click “Finish” in the top right-hand corner.

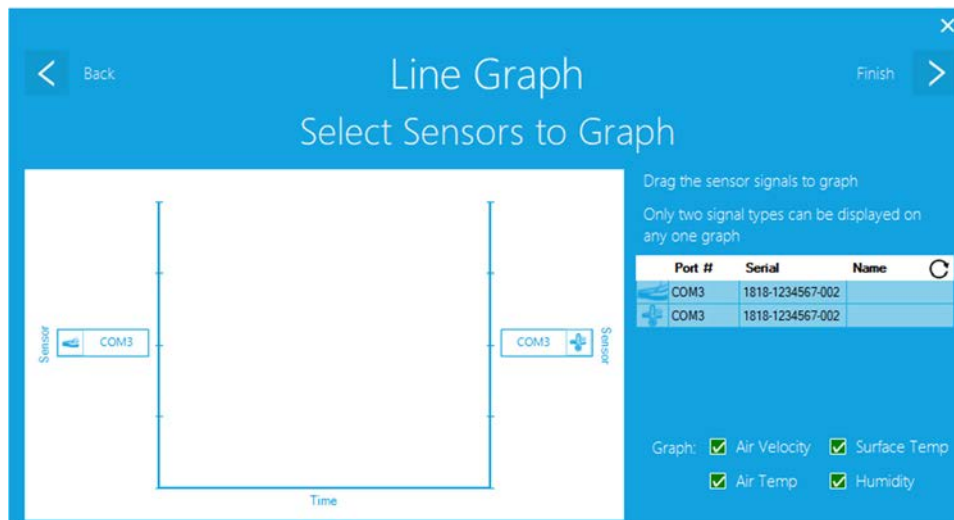


Figure 31 Select Sensors & Select Data to Graph

The “Experiment Configuration Saved” screen will be displayed to acknowledge that settings were changed, and the line graph will be generated when you run the experiment.

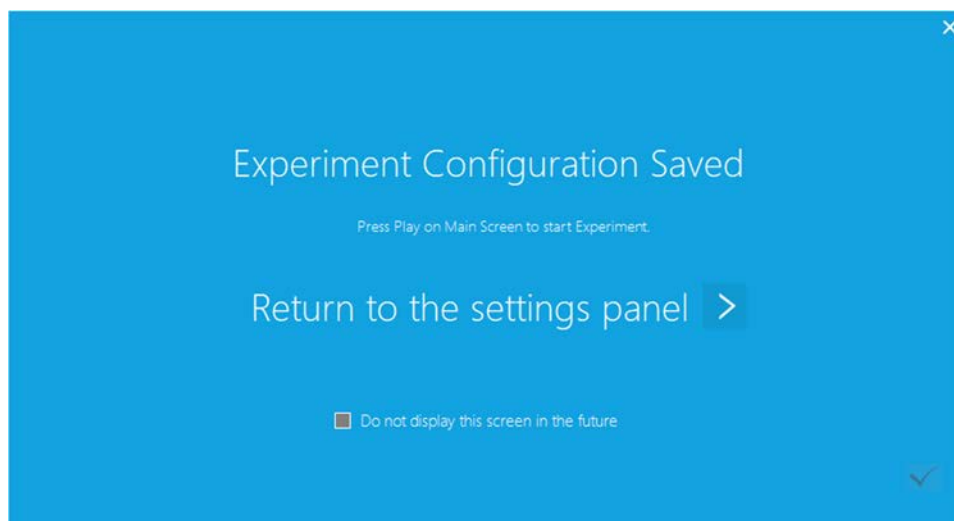


Figure 32 Experiment Configuration Saved

Note: If no sensors were connected prior to going through the Line Graph setup, a warning message will appear. The option to not display this error is available via tick box at the bottom of the message:

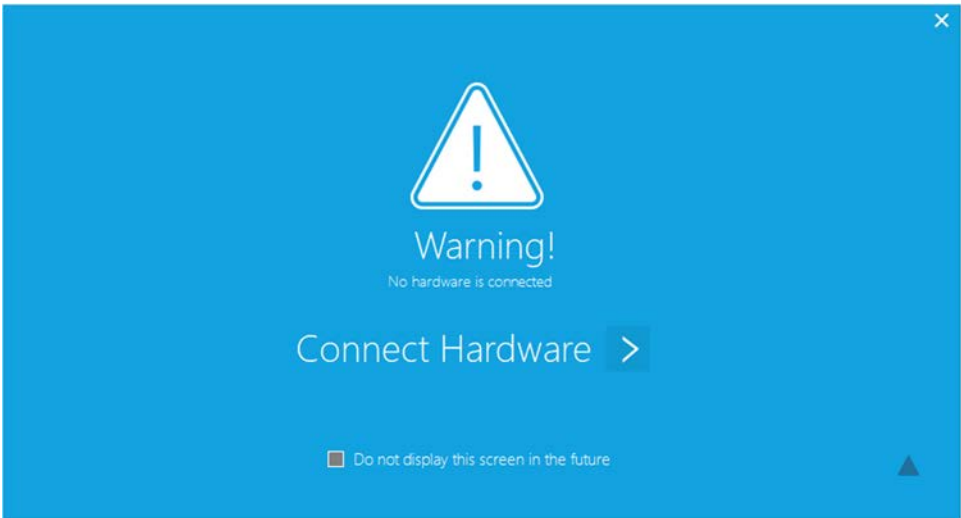


Figure 33 Warning - No Hardware Connected

Line Graph – Run Experiment

A line graph will appear in a separate window, for each line graph experiment selected, when you run your experiment.

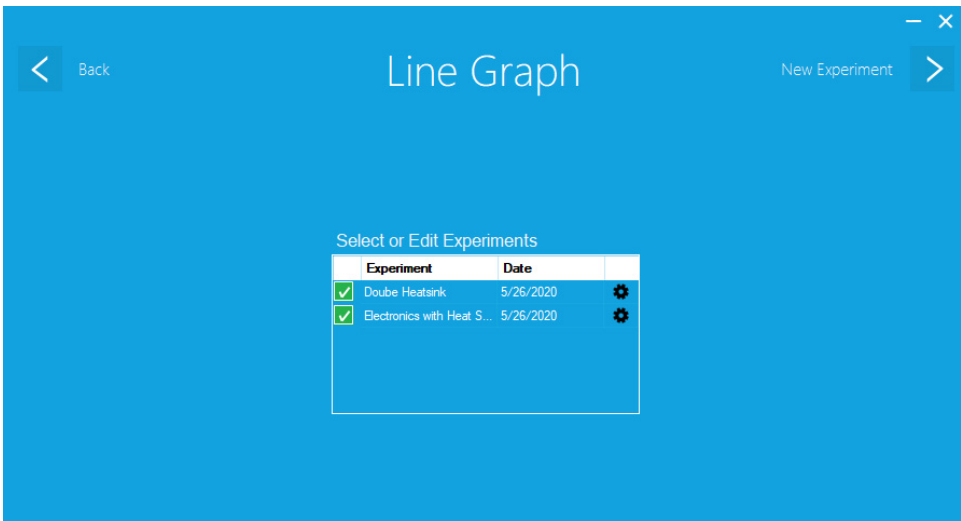


Figure 34 Line Graph Selections

Information can be saved in standard .xlsx, .csv or .png formats.

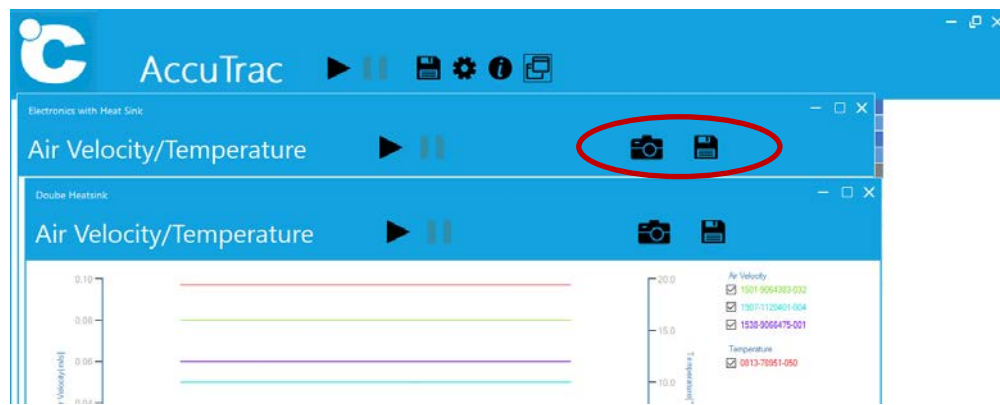


Figure 35 Options to Save Line Graph Information

Gradient Graph

The Gradient Graph option enables AccuTrac™ to display plugged in sensor values via a “Heat Map” style mapping of airflow over a given area. The shape of the area being tested can be altered to be a round or rectangular shape, and the location of where each individual sensor is mapped to in space can be altered as well.

The first screen features a select/edit option for previously created experiments. If no experiment exists, a new one will need to be created by clicking on “New Experiment” in the top right-hand corner.

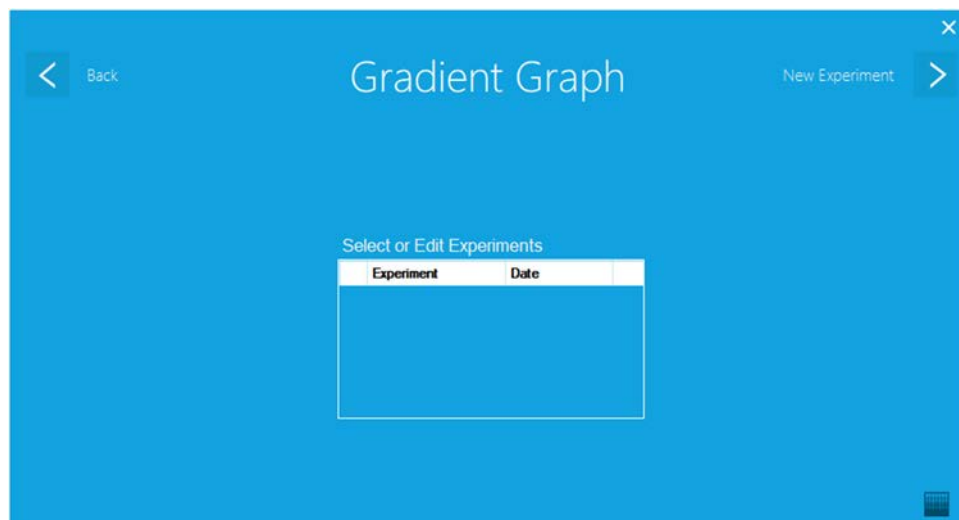


Figure 36 Gradient Graph - New Experiment or Edit Experiment

Gradient Graph Properties

Within the Properties screen, users must set a name for the experiment, and may set up the shape of the area being tested (round or rectangular), spokes and positions for sensors (if round is chosen), rows and columns for sensors (if rectangular is chosen), scaling options, and optionally enable a rolling average. Once options are adjusted, click on “Assign sensor positions” in the top right-hand corner.

Figure 37 Gradient Graph Properties

Round Shape

Allows setting of the diameter of the area being tested, as well as the number of spokes (radial lines of sensors) and the number of sensor positions per spoke.

Rectangular Shape

Allows setting of the overall size of the rectangular area being tested, as well as the number of rows and columns of sensors.

Scaling

Auto Scale – scales the Y-axis automatically as the experiment is running

Absolute Scale – allows setting of absolute limits for the minimum and maximum velocity and temperature

Enable Rolling Average

Takes the rolling average of the last 10 readings.

Gradient Graph - Set Sensor Positions

A list of connected sensors will be displayed on the right. Choose the sensors you would like to use for your experiment, and drag them to the appropriate location in the graph area. Next, enable the sensor information to be graphed in the bottom right-hand side of the screen. Once all selections have been made, click "Finish" in the top right-hand corner. See Figures below for round and rectangular test areas.

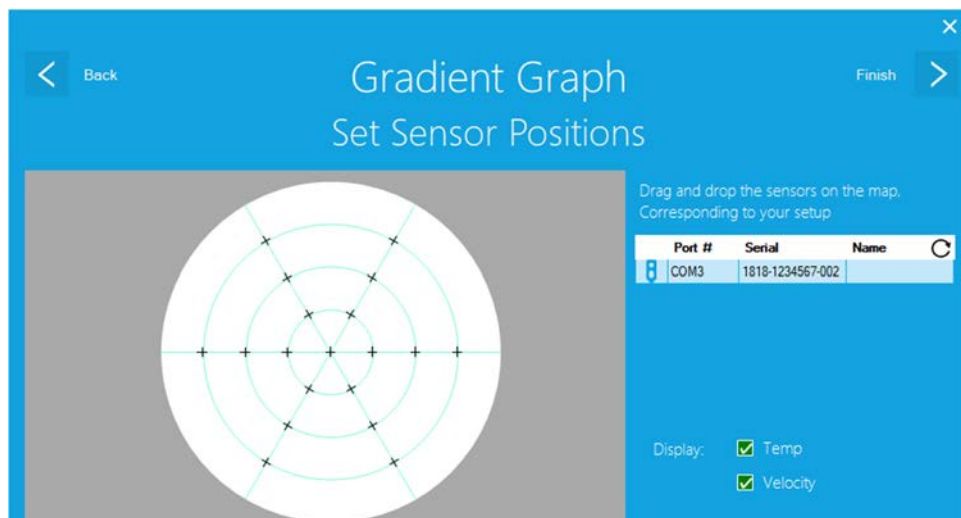


Figure 38 Round Test Area - Select Sensors & Select Data to Graph

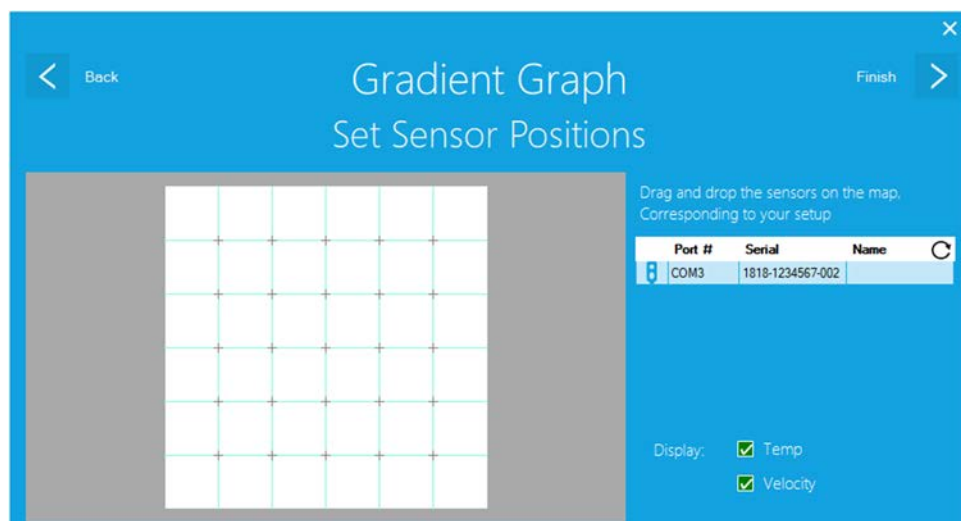


Figure 39 Rectangular Test Area - Select Sensors & Select Data to Graph

The "Experiment Configuration Saved" screen will be displayed to acknowledge that settings were changed, and the gradient graph will be generated when you run the experiment

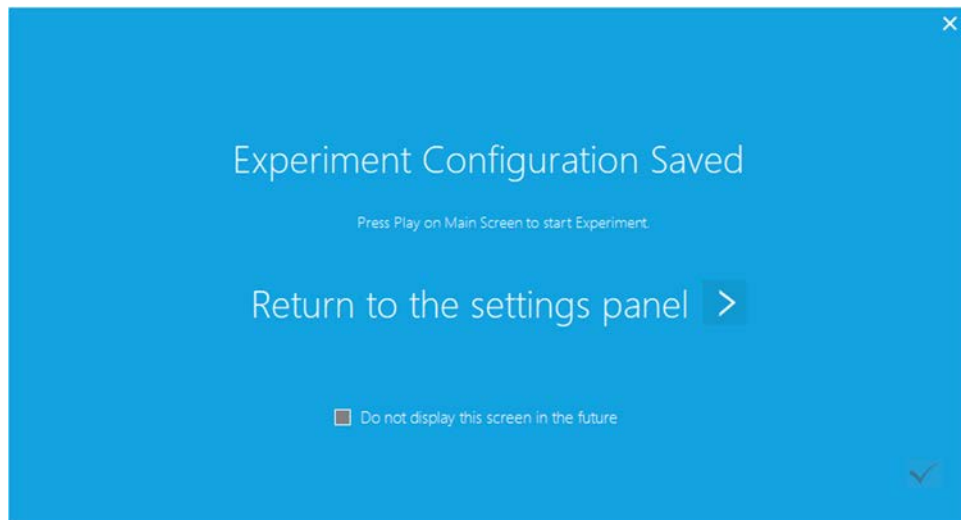


Figure 40 Experiment Configuration Saved

Note: If no sensors were connected prior to going through the Gradient Graph setup, a warning message will appear. The option to not display this error is available via tick box at the bottom of the message:

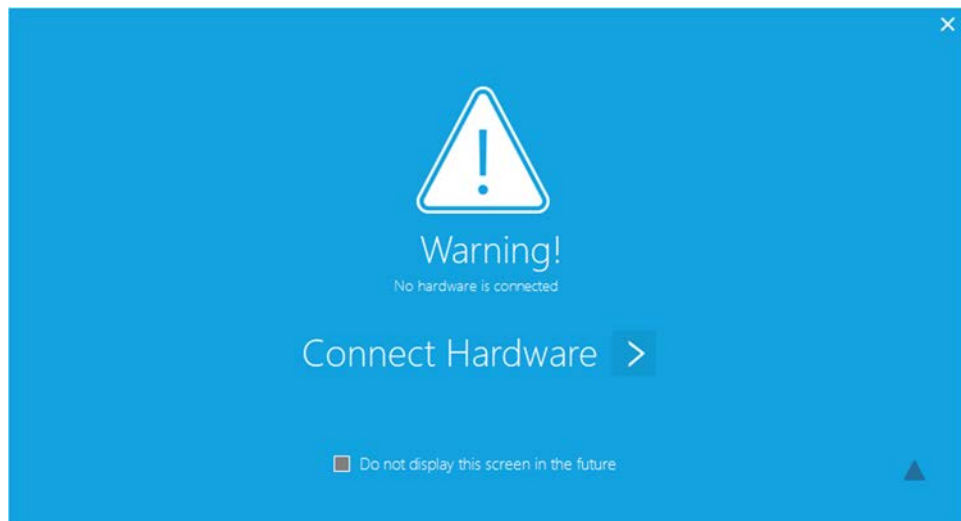
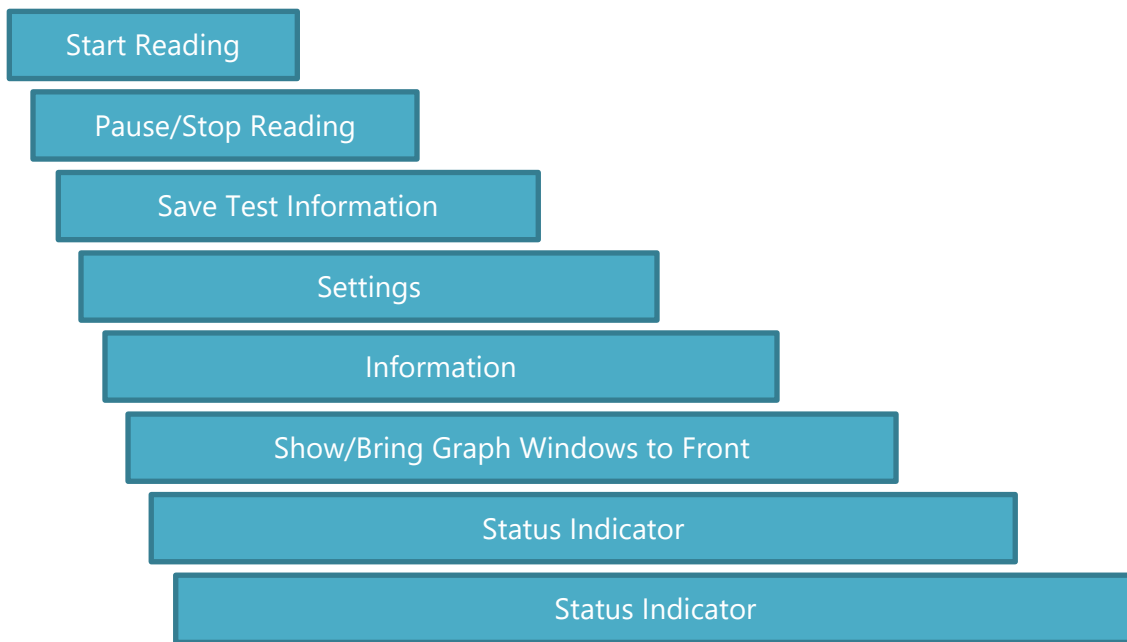


Figure 41 Warning - No Hardware Connected

Gradient Graph – Run Experiment

Similar to the line graph, a gradient graph will appear in a separate window for the gradient graph experiment selected, when you run your experiment. AccuTrac™ displays one gradient graph at a time. Just as with the line graph, information can be saved in standard .xlsx, .csv or .png formats.

Tool Bar – Main Screen



Start Reading: Starts the gathering of data, and displays the results in the application window.

Pause/Stop Reading: Pauses or Stops the data collection for display in the application window.

Save Test Information: The sensor readings will be automatically saved to the location chosen in **Settings > Preferences > Auto Save**, when the data collection has been stopped. The Save button allows the user to store the sensor data in a specific location, once the sensor data collection comes to a complete stop.

Settings: Opens the Settings screen which houses Network Settings, Environmental Compensation, Sensor Settings, as well as miscellaneous Preferences (Display Information, Units, Auto Save, and Polling Interval and Statistical Averaging).

Information: Displays software information.

Status Indicator: Indicates the current status (Reading, Paused, etc.) of the software.

Connections Indicator: Indicates the current sensor connections (connected via USB or connected to °C Port(s)) for the software, see example below.

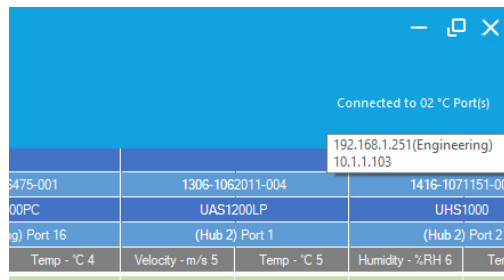


Figure 42 Connection Indicator Shows Connection to Two °C Ports, Hover Text Shows Associated IP Addresses and Names

Running Tests

Starting, Pausing, Stopping

Once all settings have been configured, you can start a test by clicking on the play button (▶), located in the tool bar of the Main screen.

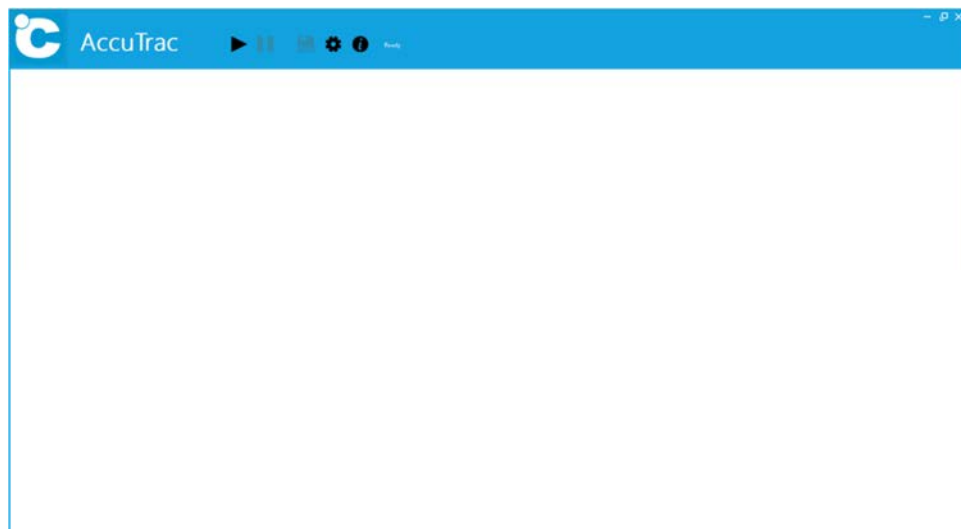


Figure 43 Play - Run Test From Main Screen Toolbar

Once all sensors are detected, AccuTrac™ will begin to display data (velocity, temperature, and if available/set up, barometric pressure, altitude, and humidity). All the sensor information you have chosen to display, such as Sensor Name, Serial Number, etc., will be displayed at the top of the screen (in blue).

Note: If you have graphing enabled, the line and/or gradient graphs will also immediately open.

To pause or stop the test, click on the pause button (⏸) or stop button (■), respectively.



Figure 44 Test Data

If the test is paused or stopped, you can save acquired data by clicking on the save button (📁). A dialog will prompt you to name the test data and to choose a location to save to manually. Graphs can also be saved in .png format.

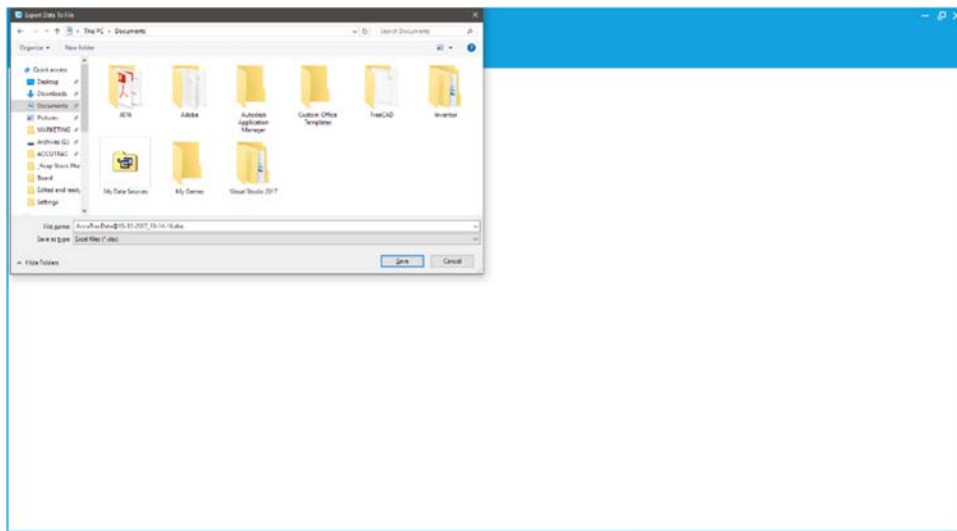


Figure 45 Save Data

AccuTrac™ Main Screen Shortcut Keys

AccuTrac™ software includes keyboard shortcuts as an alternate means to invoke commands that are otherwise available from menu selections. AccuTrac™ keyboard shortcuts are only available from the Main screen. They are:

- Spacebar - If an experiment is not currently running, pressing the spacebar will force AccuTrac™ to take one sample from all sensors
- Alt + N - Starts a new experiment if one is not currently running or paused
- Alt + F - Stops data collection if an experiment is currently running
- Alt + P - Pauses data collection if an experiment is currently running

Note: If you have graphing enabled, click on the Main screen to make it active.

Software Information

Clicking on the information button () will display current AccuTrac™ version information, Degree Controls website link, subscription information (activation code, number of licensed channels, and license expiration date), as well as a link to change the current license.

Warranty

For a period of one (1) year following the date of delivery, and subject to the other provisions of this Warranty Section, DegreeC warrants that all new products that are both (a) manufactured by DegreeC and (b) purchased directly from DegreeC (or an authorized distributor of DegreeC) shall be free of material defects in materials and workmanship. Buyer's sole and exclusive remedy, and DegreeC's sole and exclusive obligation, in the event of any product defect shall be for DegreeC to, at its option, repair or replace such products free of charge. In no event shall DegreeC be liable for ordinary wear and tear. In order to get the benefit of the foregoing warranty, Buyer must examine the delivered products immediately upon receipt thereof and report to DegreeC, in writing, any visible defects within ten (10) working days of such receipt. Buyer's failure to report defects within the foregoing time period will be deemed an unqualified waiver of any and all of Buyer's rights to warranty claims. DegreeC does not provide any warranty for third party parts, components, or products that are not manufactured by DegreeC. Such parts, components, or products may be warranted by third parties on a "pass through" basis. The foregoing remedies shall not apply to any product failure caused in whole or in part by (i) Buyer's failure to operate, maintain, or service the products in accordance with DegreeC's documentation, (ii) any alteration, modification, or repair made to the products other than by DegreeC, or (iii) use of the products for a purpose other than that for which it is intended. THE FOREGOING EXPRESS WARRANTY extends only to the original customer of DegreeC or DegreeC's authorized distributor, as the case may be. THE CORRECTION OF ANY DEFECT IN, OR FAILURE OF, PRODUCTS BY REPAIR OR REPLACEMENT IN ACCORDANCE WITH DEGREEC'S POLICIES DESCRIBED HEREIN SHALL BE DEGREEC'S SOLE AND EXCLUSIVE OBLIGATION AND THE SOLE AND EXCLUSIVE REMEDY OF BUYER FOR ANY AND ALL LOSSES, DELAYS OR DAMAGES RESULTING FROM THE PURCHASE OR USE OF DEGREEC'S PRODUCTS. OTHER THAN THE LIMITED WARRANTY SPECIFICALLY STATED HEREIN, DEGREEC SPECIFICALLY DISCLAIMS ANY AND ALL OTHER WARRANTIES WITH RESPECT TO DEGREEC'S PRODUCTS, INCLUDING THE PERFORMANCE THEREOF AND ANY SERVICES PROVIDED TO BUYER, EITHER EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY ARISING FROM A COURSE OF DEALING OR USAGE OF TRADE, NON-INFRINGEMENT AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE OR USE.

