



TSI® AEROTRAK®+ REMOTE PARTICLE COUNTER WITH PUMP (6000 SERIES) HOW TO SETUP

TECHNICAL BULLETIN TCC-166 (US)
(9/6/2019) Rev C

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Description

This procedure explains how to setup the AeroTrak®+ Remote Particle Counter with Pump (6000 Series) prior to FMS 5.5 configuration.

Prerequisites

Prior to starting setup of the AeroTrak+ Remote Particle Counter with Pump, install the TSI Remote Application and the FTDI driver. Install Adobe® Reader® software if you want to use Adobe® Reader® software to read report PDF files generated by the application.

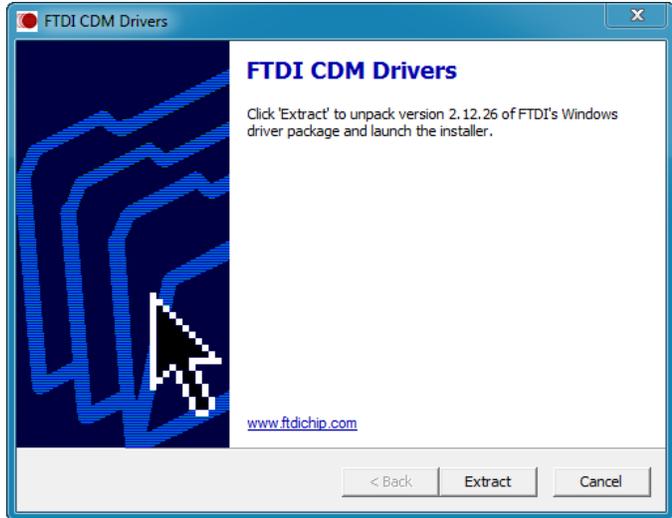
To setup the AeroTrak+ Remote Particle Counter with Pump, a USB-A to USB-C cable will be required.

When the AeroTrak+ Remote Particle Counter is powered through a USB-C cable, the pump will not run after exiting **Tech page** due to power consumption of the pump. To run the pump when the setup is finished, it is required to have the AeroTrak+ Remote Particle Counter with Pump connected to a PoE+ switch or auxiliary power. The AeroTrak+ Remote Particle Counter with Pump will automatically switch the power supply from USB-C to the PoE+.

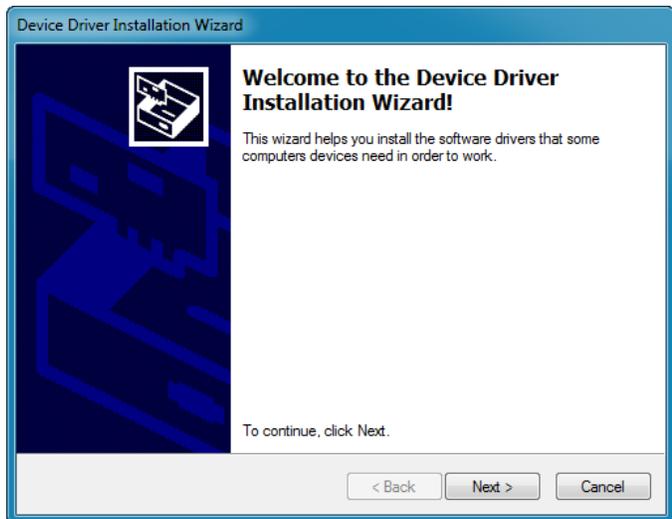


TSI Remote APP Installation

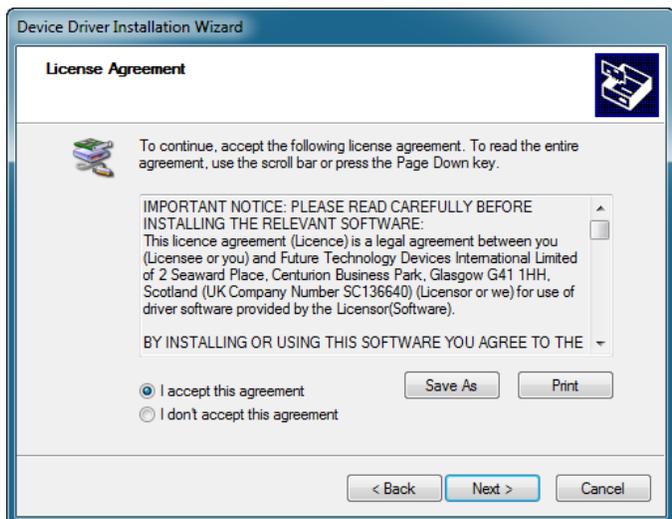
1. Install the FTDI driver by running **CDM21226_Setup.exe**. Follow the on-screen instructions.
2. Click **Extract**.



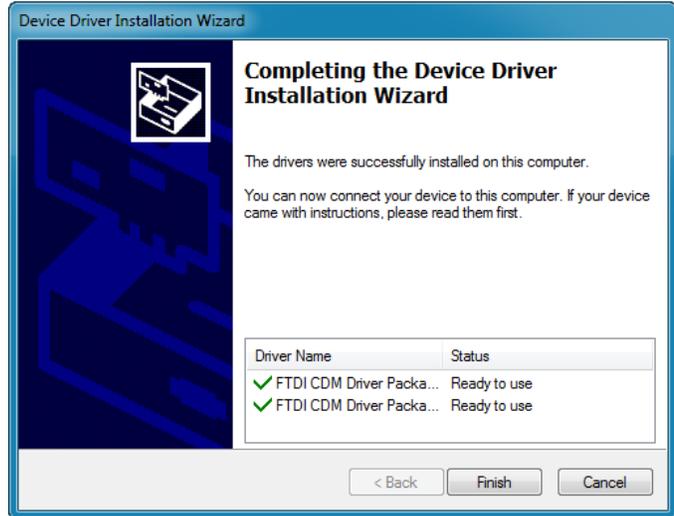
3. Click **Next**.



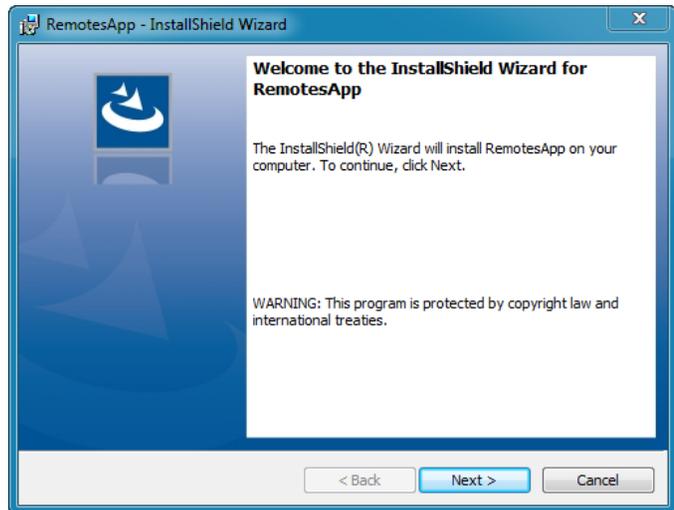
4. Accept the License terms.
5. Click **Next**.



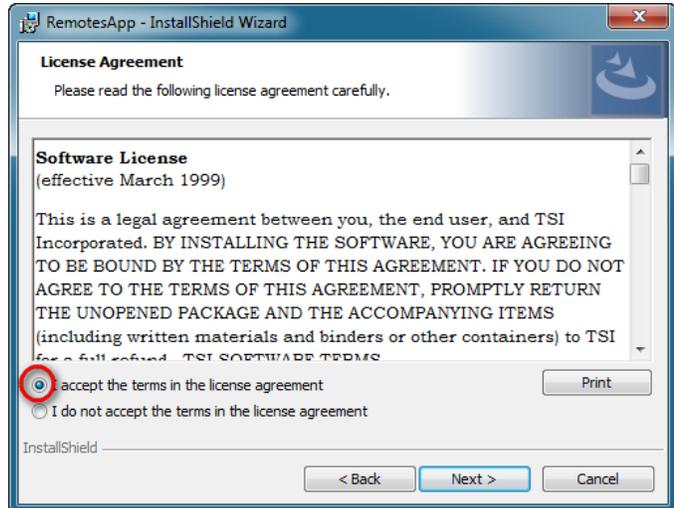
6. When installation is finished, click **Finish**.



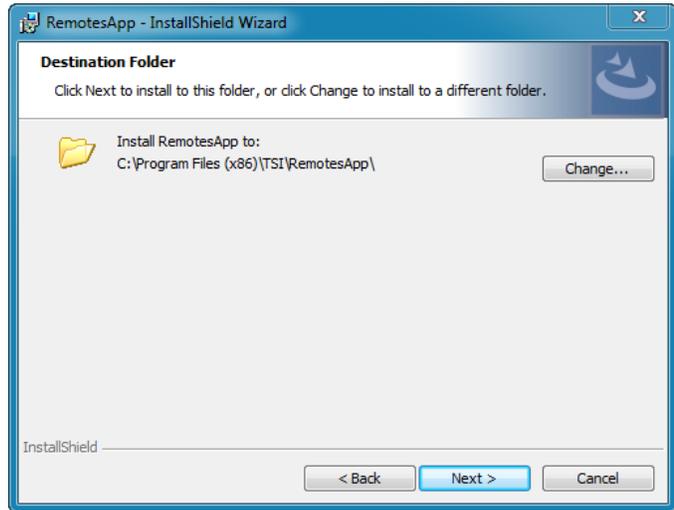
7. To install TSI AeroTrak+ Remote Particle Counter Setup APP, run the installer **RemotesAppInstaller_64-bit.exe**.



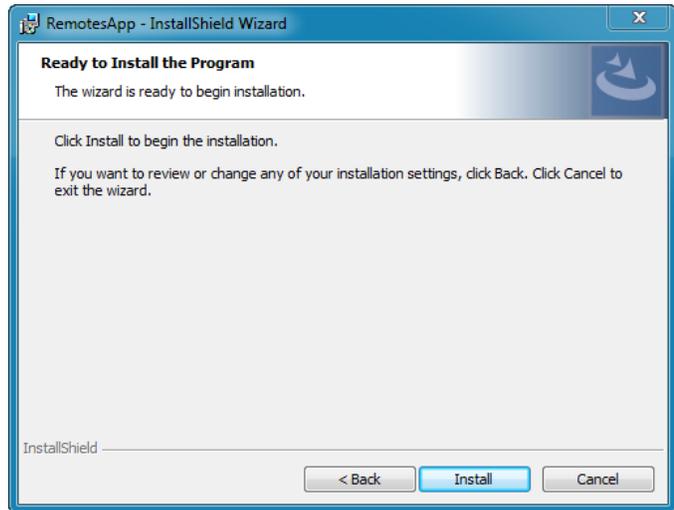
8. Click **Next**.
9. Accept the License terms.
10. Click **Next**.



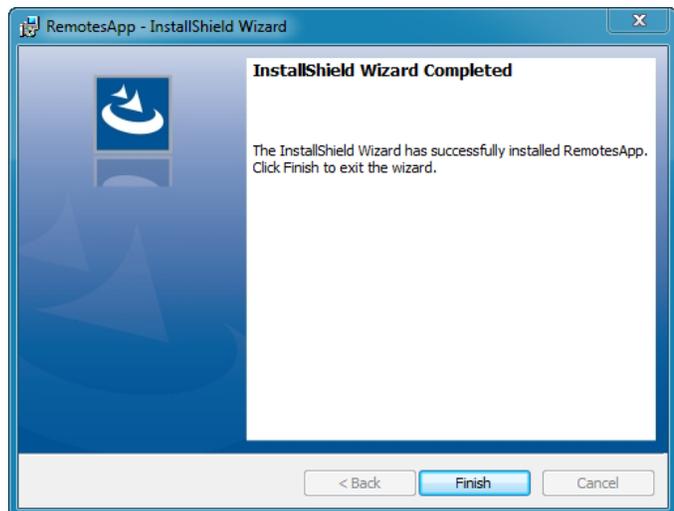
11. Select Installation folder.
12. Click **Next**.



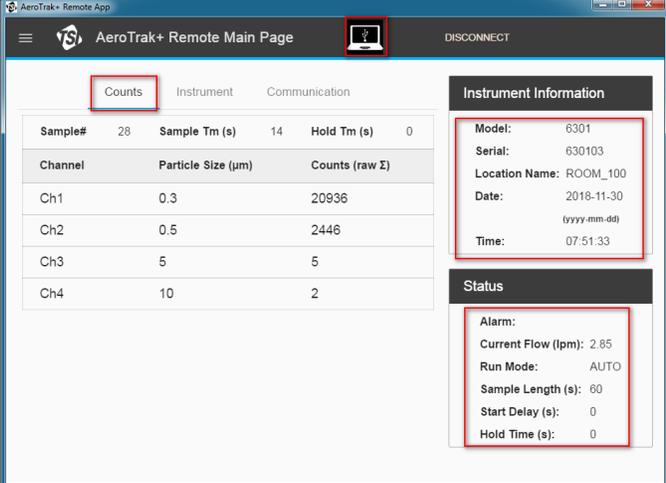
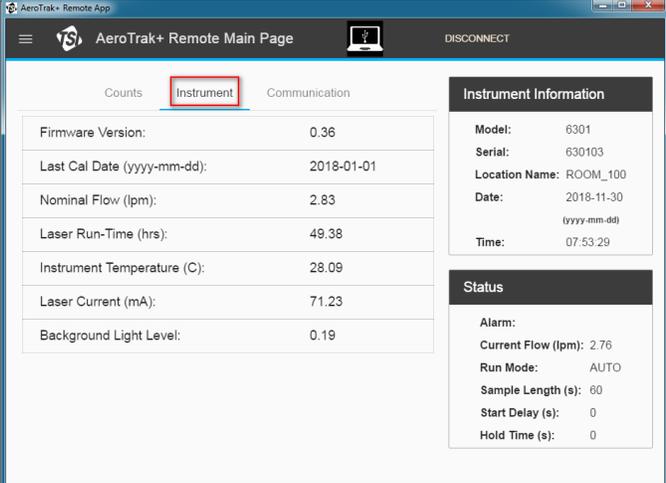
13. Click **Install** to start installation.



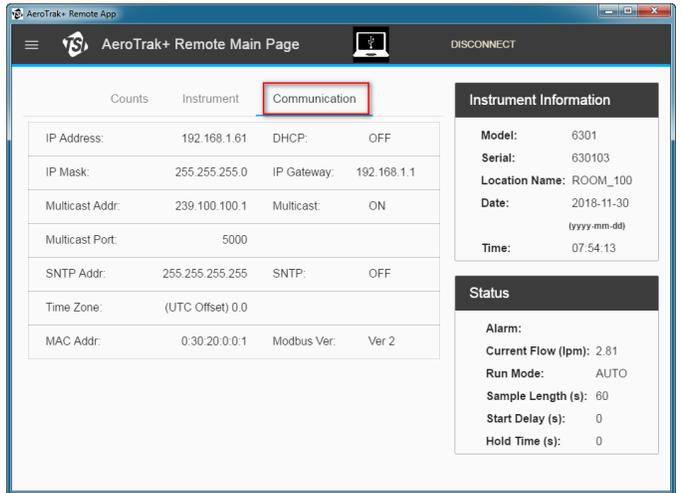
14. When installation is finished, click **Finish**.



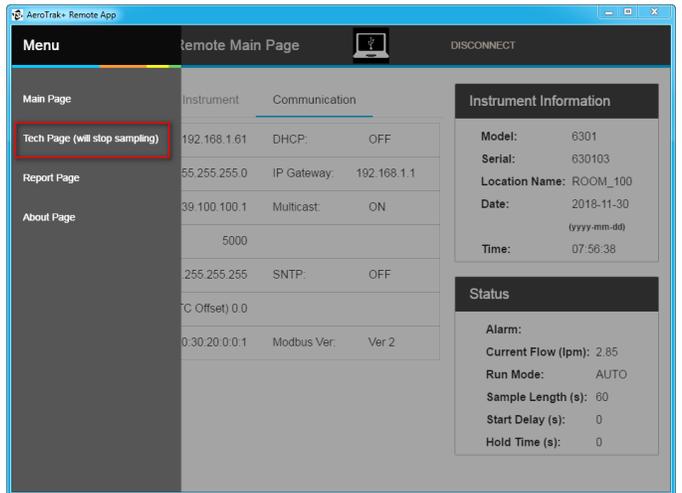
Instrument Setup

<ol style="list-style-type: none"> 1. Connect AeroTrak+ Remote Particle Counter with Pump to a computer with a USB-A to USB-C cable, the instrument will then initialize. 2. Start the TSI Remote Application by double-clicking the RemotesApp shortcut on the desktop. 	<table border="1"> <thead> <tr> <th>Icon</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td>TSI Setup Application connected to the AeroTrak+ Device.</td> </tr> <tr> <td></td> <td>Export AeroTrak+ Remote Particle Counter configuration to an XML file for further use.</td> </tr> <tr> <td></td> <td>Import an XML Template file with configuration settings.</td> </tr> <tr> <td></td> <td>When Instrument is only powered through USB-C cable the Alarm bell icon is shown to warn for a Flow Error.</td> </tr> </tbody> </table>	Icon	Description		TSI Setup Application connected to the AeroTrak+ Device.		Export AeroTrak+ Remote Particle Counter configuration to an XML file for further use.		Import an XML Template file with configuration settings.		When Instrument is only powered through USB-C cable the Alarm bell icon is shown to warn for a Flow Error.
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	TSI Setup Application connected to the AeroTrak+ Device.										
	Export AeroTrak+ Remote Particle Counter configuration to an XML file for further use.										
	Import an XML Template file with configuration settings.										
	When Instrument is only powered through USB-C cable the Alarm bell icon is shown to warn for a Flow Error.										
<ol style="list-style-type: none"> 3. When the TSI Remote Application starts, it will download the settings saved in the instrument as shown. 											
<ol style="list-style-type: none"> 4. Go to the Instrument tab to check the instrument settings already set. 											

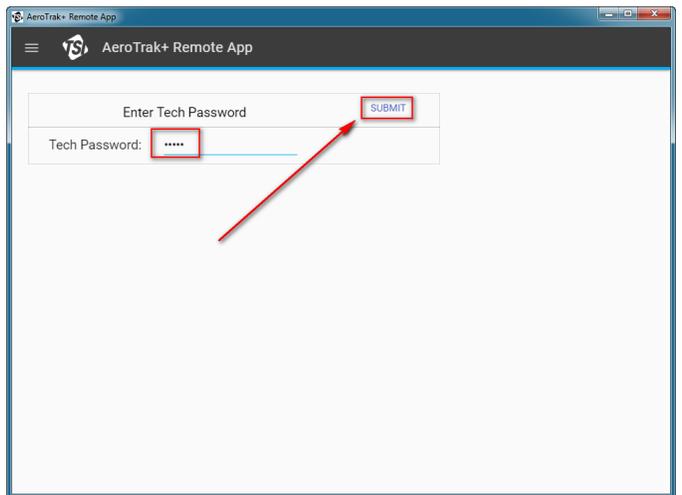
- Go to the **Communication** tab to check the instrument communications settings already set.



- To make any changes to the instrument settings, go to **Menu**.
- Select **Tech Page**.

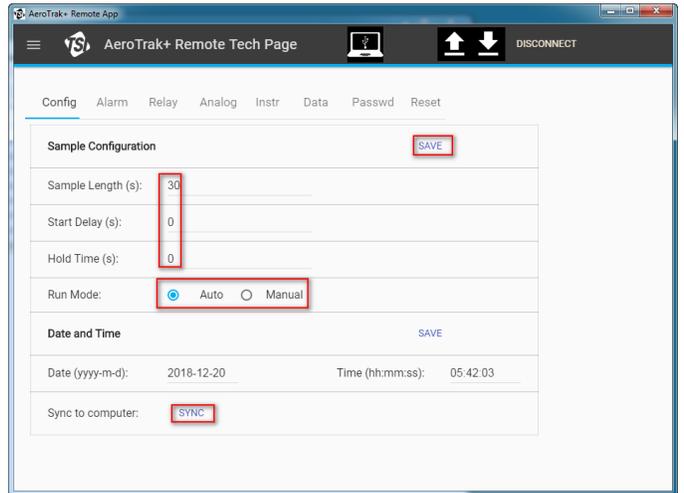


- When requested, enter **Tech Password** (**admin** by default, must be all lower-case).
- Click **Submit**.

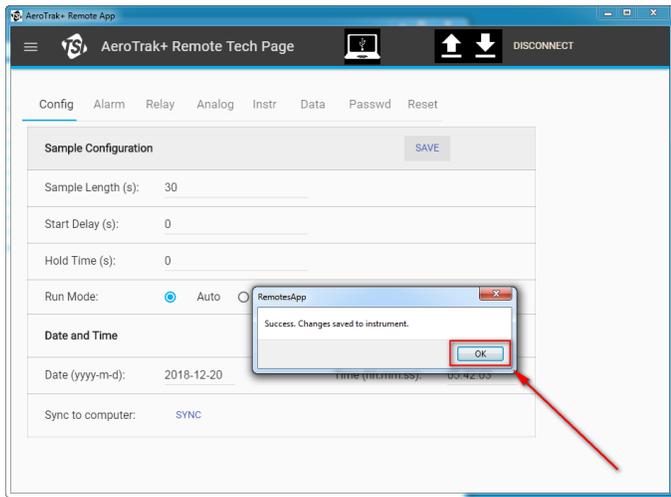
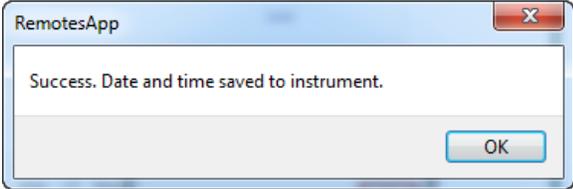
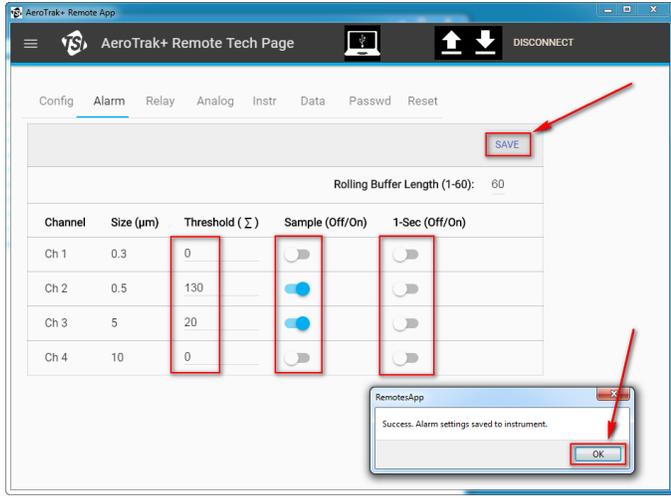


10. **Config** screen where the sample settings can be set now displays.

NOTE: If a template has been previously saved to quickly configure an instrument, it can be loaded from this point by clicking  icon.

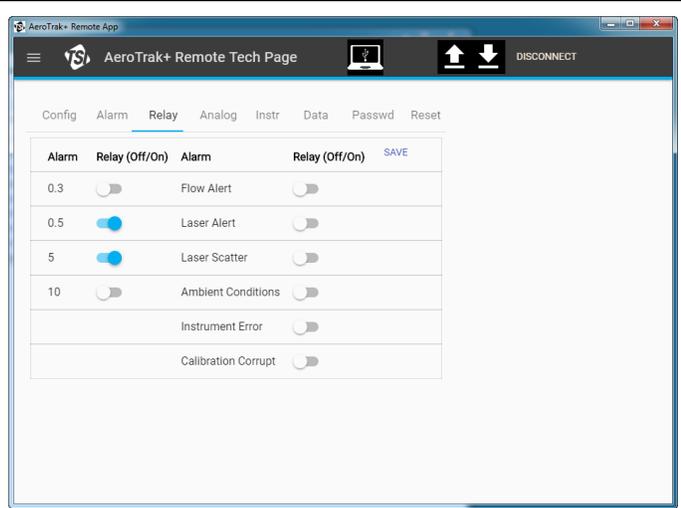


SAMPLE CONFIGURATION	
Sample Interval (s)	Time the counter actually counts particles (1 to 65535 seconds)
Start Delay (s)	Delay before a sample start (1 to 65535 seconds)
Hold Time (s)	Time between samples (1 to 65535 seconds)
Run Mode	Auto When instrument is set to Auto , the AeroTrak+ Remote Particle Counter with Pump will start sampling automatically after power up. This mode is used by FMS to control the AeroTrak+ Remote Particle Counter with Pump.
	Manual Manual mode is used with software other than FMS.
DATE AND TIME	
Date	Sets counter date.
Time	Sets counter time.
Sync to Computer	Synchronize AeroTrak+ Remote Particle Counter with Pump date and time with the computer used to setup the instrument. Click SYNC to synchronize with computer.

<p>11. Change Sample Configuration as required.</p> <p>12. Click SAVE.</p> <p>13. Click OK.</p>																										
<p>14. Set date and time.</p> <p>15. Click SAVE.</p>																										
<p>16. Click OK.</p> <p>17. Go to Alarm tab.</p> <p>18. To save the instruments alarm settings, click SAVE.</p> <p>19. When Alarm Settings are saved, click OK.</p>	 <table border="1" data-bbox="769 1066 1284 1234"> <thead> <tr> <th>Channel</th> <th>Size (µm)</th> <th>Threshold (Σ)</th> <th>Sample (Off/On)</th> <th>1-Sec (Off/On)</th> </tr> </thead> <tbody> <tr> <td>Ch 1</td> <td>0.3</td> <td>0</td> <td>Off</td> <td>Off</td> </tr> <tr> <td>Ch 2</td> <td>0.5</td> <td>130</td> <td>On</td> <td>Off</td> </tr> <tr> <td>Ch 3</td> <td>5</td> <td>20</td> <td>On</td> <td>Off</td> </tr> <tr> <td>Ch 4</td> <td>10</td> <td>0</td> <td>Off</td> <td>Off</td> </tr> </tbody> </table>	Channel	Size (µm)	Threshold (Σ)	Sample (Off/On)	1-Sec (Off/On)	Ch 1	0.3	0	Off	Off	Ch 2	0.5	130	On	Off	Ch 3	5	20	On	Off	Ch 4	10	0	Off	Off
Channel	Size (µm)	Threshold (Σ)	Sample (Off/On)	1-Sec (Off/On)																						
Ch 1	0.3	0	Off	Off																						
Ch 2	0.5	130	On	Off																						
Ch 3	5	20	On	Off																						
Ch 4	10	0	Off	Off																						

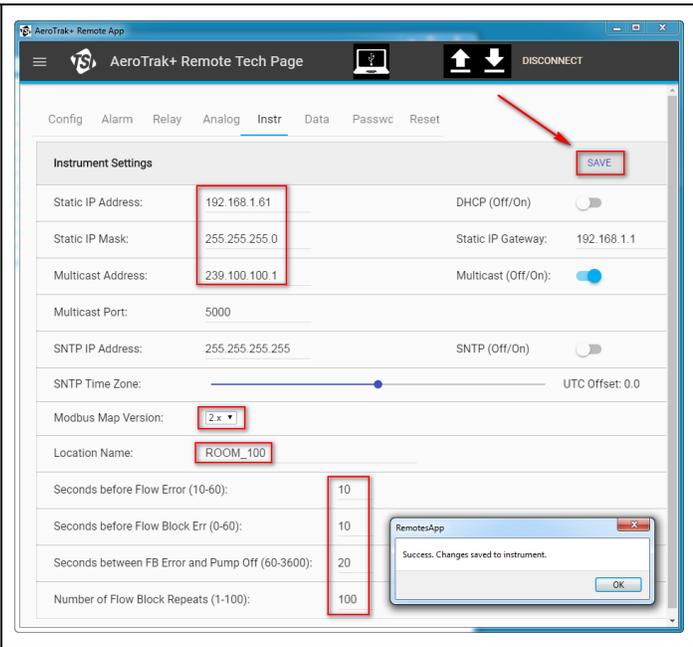
ALARM CONFIGURATION	
Rolling Buffer Length (1-60)	Number of 1 sec samples for the Rolling Buffer Cubic Feet. Default Value: 60 (Refer to Instant Alarm Setup.)
Size (µm)	AeroTrak+ Remote Particle Counter with Pump size channel.
Threshold (Σ)	Particle counts alarm level. These fields can be overwritten by FMS 5.5 if Upper Alarm settings in FMS are set to Enabled .
Sample (Off/On)	Turned ON will trigger an internal relay for regular sample alarm.
1-sec (Off/On)	Turned ON will trigger an internal relay for 1 second sample alarm. (Refer to Instant Alarm Setup.)

20. Click **Relay** tab.
21. To save the instruments relay settings, click **SAVE**.
22. When **Relay Settings** are saved, click **OK**.



RELAY CONFIGURATION	
Flow Alert	Isokinetic probe may be capped or blower is unable to deliver the required flow (0.1 cfm).
Laser Scatter	Too much light scatter in the chamber caused by contamination in the optics chamber or excessive exposure to cleaning fluids or vaporized hydrogen peroxide.
Ambient Condition	Device temperature is exceeded.
Calibration Corrupt	Calibration data corrupted.
Laser Alert	Laser diode defect (i.e., laser current drastically increased).
Instrument Error	Triggered if one of the above conditions happens.
Alarm Size Chan 1	Select which size channel triggers the internal relay.
Alarm Size Chan 2	Select which size channel triggers the internal relay.
Alarm Size Chan 3	Select which size channel triggers the internal relay.
Alarm Size Chan 4	Select which size channel triggers the internal relay.
Alarm Size Chan 5	Select which size channel triggers the internal relay.
Alarm Size Chan 6	Select which size channel triggers the internal relay.

23. Go to **Instrument** tab.
24. To save the instrument settings, click **SAVE**.
25. When **Instrument Settings** are saved, click **OK**.



INSTRUMENT SETTINGS	
DHCP (Off/On)	When DHCP (Dynamic Host Configuration Protocol) is turned ON , AeroTrak+ Remote Particle Counter with Pump will receive network configuration from a DHCP Server. In such case, Static IP Fields will be grayed out.
Static IP Address	Device TCP/IP address.
Static IP Mask	Subnet mask.
Static IP Gateway	Default gateway for the subnet mask.
Multicast Address	IP Address used by FMS to search for AeroTrak+ Remote Particle Counter with Pump. Default: 239.100.100.1
Multicast Port	TCP port used by the multicast address. Default: 5000
Multicast (Off/On)	Enabled/disabled use of multicast address on the network.
SNTP (Off/On)	SNTP (Simple Network Time Protocol) when turned ON , will allow AeroTrak+ Remote Particle Counter with Pump to automatically synchronize internal date and time against a Domain NTP Server.
SNTP IP Address	IP Address of SNTP Server. Example: time.windows.com at 52.168.138.145
SNTP Time Zone	SNTP Protocol is using UTC time. When SNTP is turned ON , an offset, against GMT time, has to be set related to the time zone where the instrument is installed.
Modbus Map Version	TSI Modbus® Register Map version used. Select Version 2.5 with use of FMS 5.5 or above. Select Version 1.0 with use of FMS prior to FMS 5.5.
Location Name	Location where the AeroTrak+ Remote Particle Counter with Pump is installed. Spaces are not allowed.
Seconds Before Flow Error	Time (in seconds) until instrument goes into a flow error. Value: 10 to 60 sec

INSTRUMENT SETTINGS

Seconds Before Flow Block Error	Time (in seconds) after a flow error until flow block error occurs. Value: 0 to 60 sec
Seconds Between Flow Block Error and Pump Off	Time (in seconds) after a flow block error until instrument turns off pump and a flow block error occurs. Value: 60 to 3600 sec
Number of Flow Block Repeats	Number of cycles to try to restart the pump. Value: 1 to 100

26. To Review stored **Sample Data**, click **Data** tab.

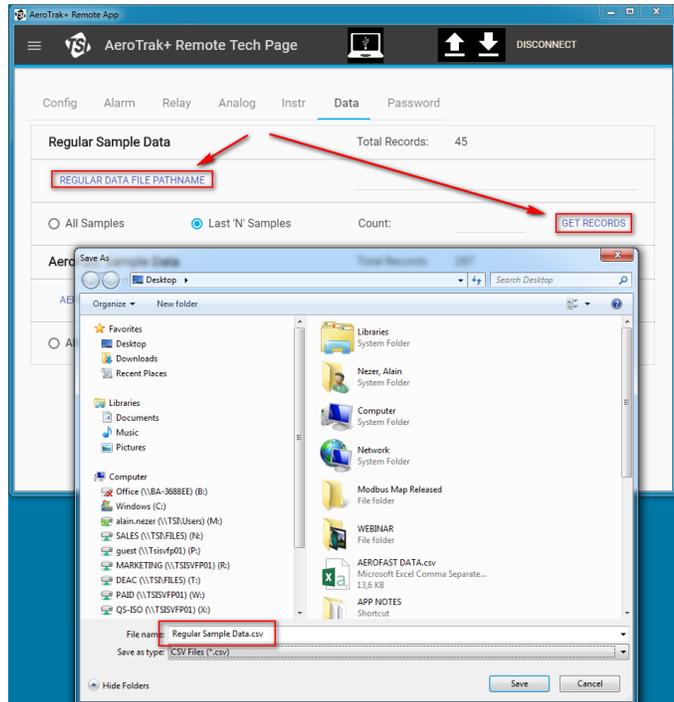
27. **Regular Sample Data** can be exported for review.

First, a CSV file has to be created prior to viewing **Regular Sample data**.

- Click **REGULAR DATA FILE PATHNAME**.
- Select a folder where the CSV file will be located and enter a **File Name**.
- Click **Save**.

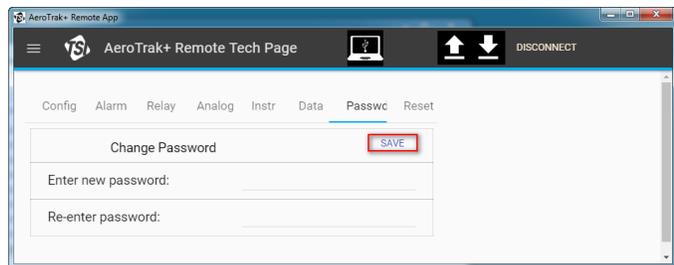
28. Select **All Samples** to export all sample data stored in the AeroTrak+ Remote Particle Counter with Pump or select **Last 'N' Samples** to export the last 'N' Samples stored in the instrument (in this case the number of samples you want to export must be entered in **Count**).

29. Click **GET RECORDS**. Selected **Regular Sample Data** records will be saved in the CSV file.



30. If required to change Tech password, click **Password** tab.

31. Change Tech **Password** and click **SAVE**.



IMPORTANT NOTE

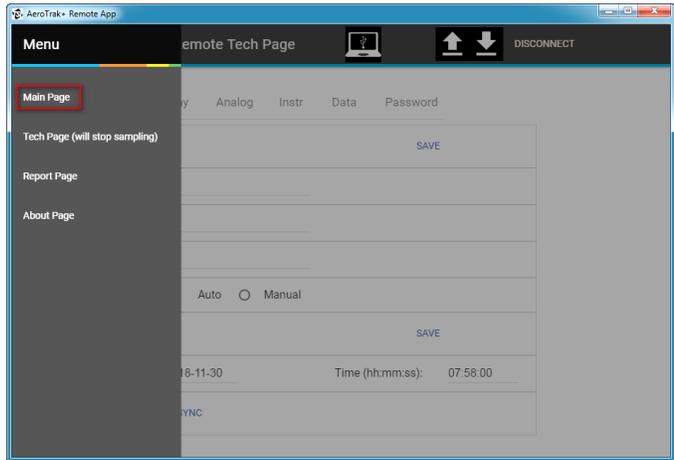
FMS Software prior to version 5.5 uses the password **admin**. Changing the password can affect FMS functionality or other system using Modbus® Map version 1.5.

32. Before quitting the AeroTrak+ Remote Particle Counter with Pump **Tech Page**, you can **Export ALL** the settings of the instrument for further use (i.e., to quickly configure another instrument).

33. To do so, click  icon to select a location to store the configuration and enter a file name.

34. When instrument setup is finished, return to **Main Page**.

- a. Go to **Menu**.
- b. Click **Main Page**.

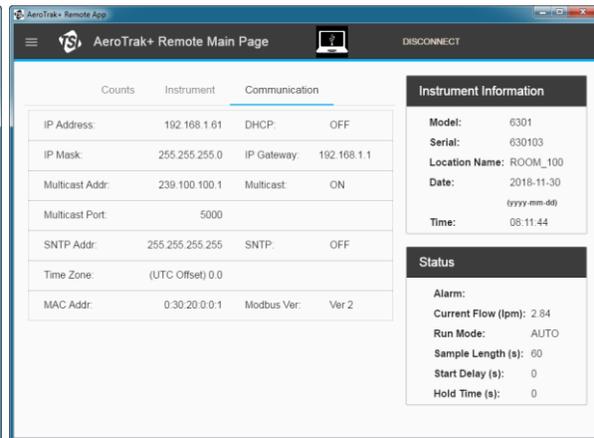
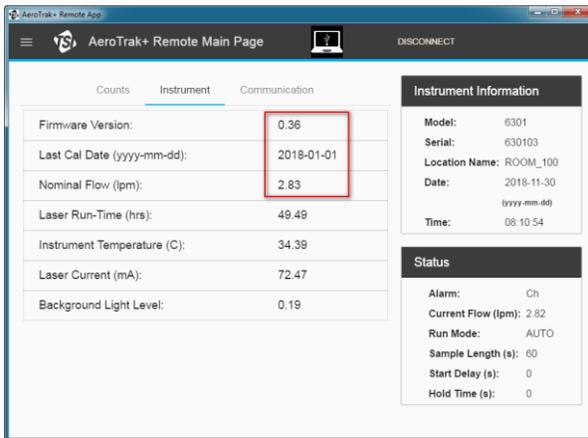
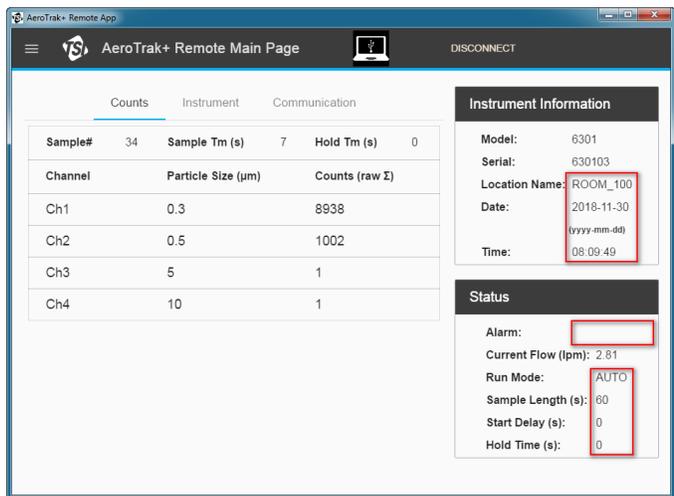


35. **Main Page** will show the new settings of the instrument.

36. If the AeroTrak+ Remote Particle Counter with Pump is powered up only through the USB-C cable, a red bell will be shown on top of the window because the pump cannot be started.

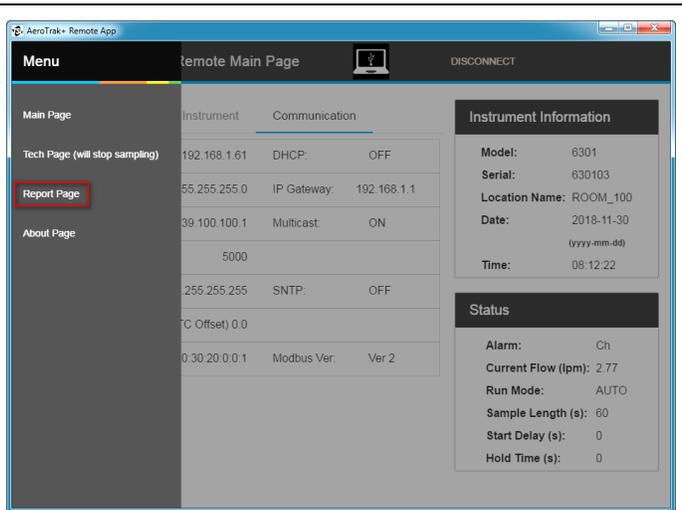
37. If the instrument is connected to a PoE+ switch, the pump will start.

38. Verify **ALL** your settings.

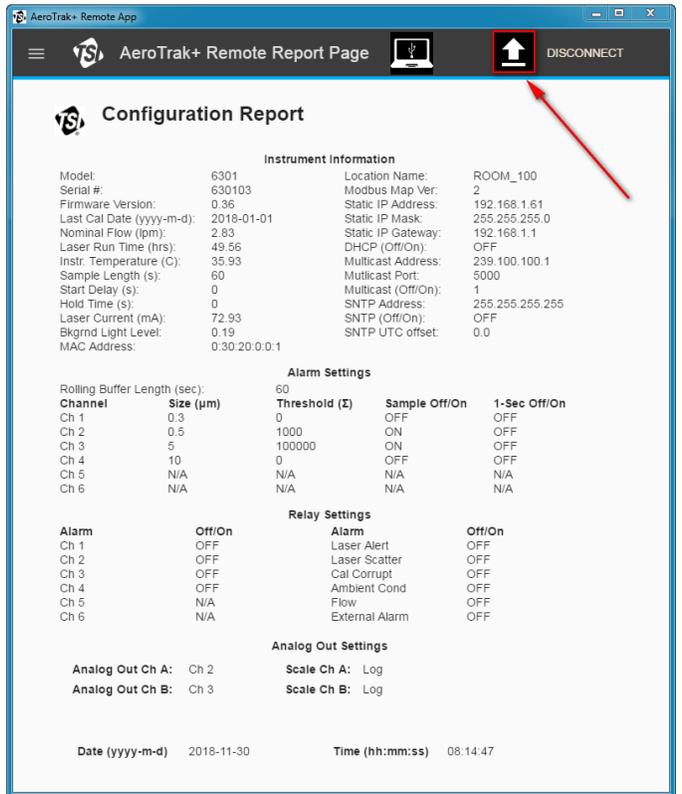


39. If required, you can generate a PDF file report with **ALL** the AeroTrak+ Remote Particle Counter with Pump settings.

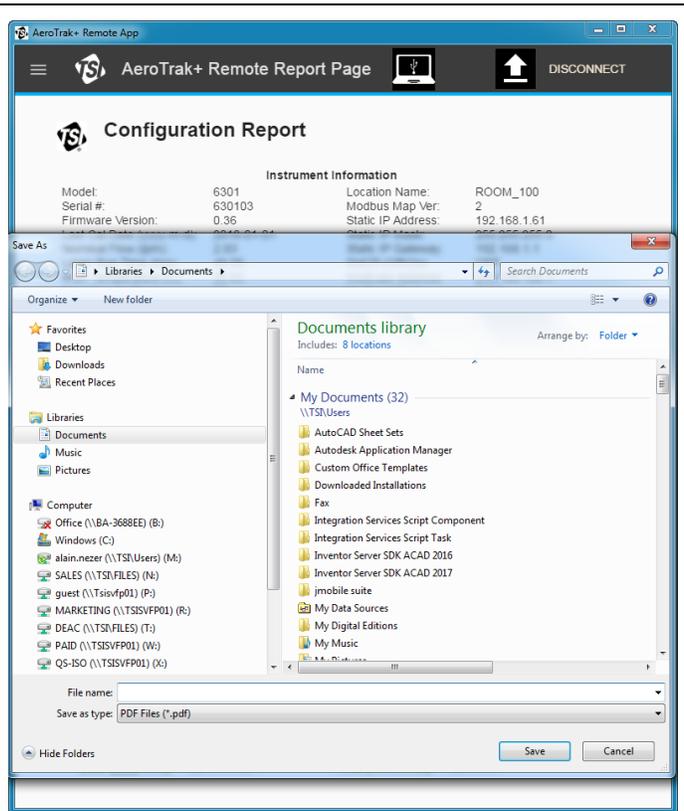
- a. Go to **Menu**.
- b. Click **Report**.



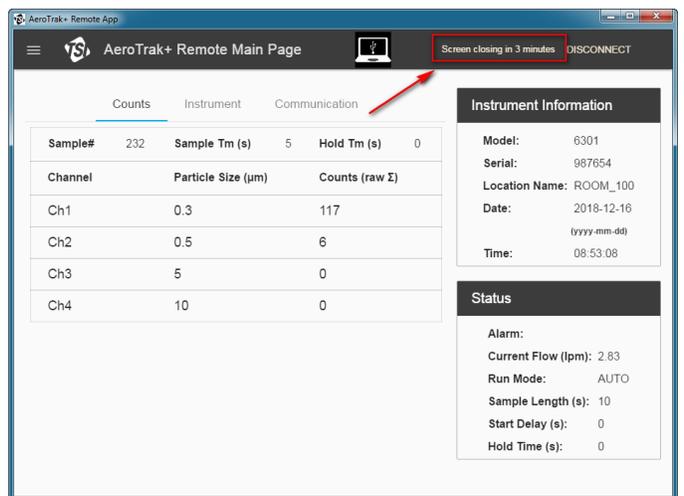
40. Complete **Configuration Report** will be shown. This report can also be saved as a PDF file by clicking  icon.



41. Select a location to store the PDF file and enter a file name.

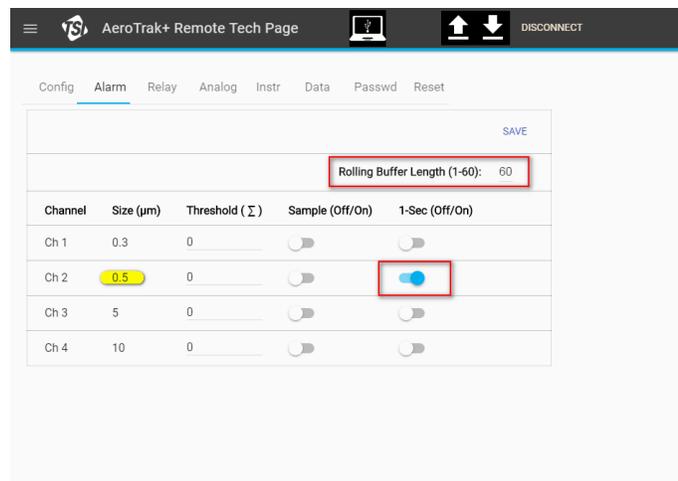


42. When the TSI Remote APP does not detect any activity after 5 minutes, it will automatically close. Before the APP closes, a count-down message will show in the upper right corner after 2 minutes of inactivity.

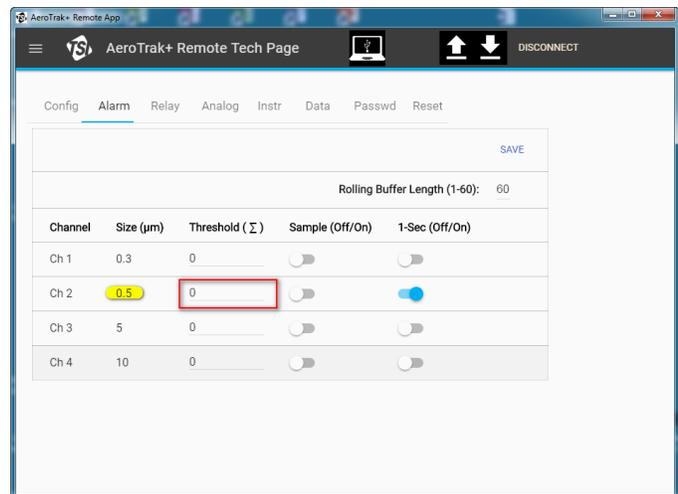


Instant Alarm Setup

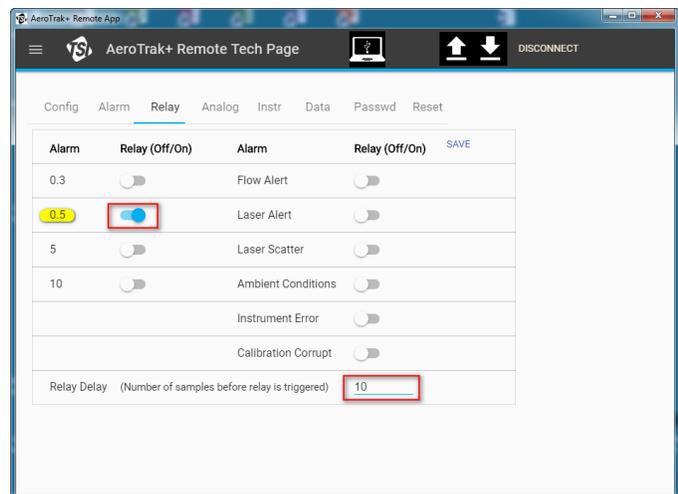
1. Go to **Alarm** tab.
2. Enter value for **Rolling Buffer Length**, default Value is **60** sample of 1 second.
3. Turn **On** the **1-Sec** for the requested Size Channel.
4. Click **SAVE** button.



5. **DO NOT** enter a value for **Threshold (Σ)** if you want to use **Instant Alarm** from FMS as this value will be overwritten.
NOTE: If **1-Sec** is not turned **On** for a selected Size Channel no **Instant Alarm** will be broadcast to FMS.



6. Go to **Relay** tab.
7. For the previous selected Size Channel turn **On** the **Relay (On/Off)**.
8. Enter in **Relay Delay** the number of consecutive 1 Second Sample to trigger the Relay.
9. Click **SAVE** button.



IMPORTANT NOTE

Instant Alarm can only be setup along with FMS 5.5.1 or above.

Instrument Setup with 4-20 mA Output Option

1. Before setting the 4-20 mA outputs, **ALL** other settings as described in this section should be done.
2. To configure the 4-20 mA output when option is installed, go to **Analog** tab.
3. To save the instruments analog settings, click **SAVE**.
4. When **Analog Settings** are saved, click **OK**
5. Continue AeroTrak+ Remote Particle Counter with Pump setup from [Instrument](#) page.

The screenshot shows the 'Analog Out Settings' page in the AeroTrak+ Remote App. The 'Analog' tab is highlighted. The page includes a 'SAVE' button and two columns of settings: 'Ch A bin channel' and 'Ch B bin channel'. For 'Ch A bin channel', the '0.5' option is selected. For 'Ch B bin channel', the '5' option is selected. Below these are 'Ch A Scale' and 'Ch B Scale' sections, each with radio buttons for 'Linear Scale' and 'Log Scale'. The 'Log Scale' options are selected for both channels.

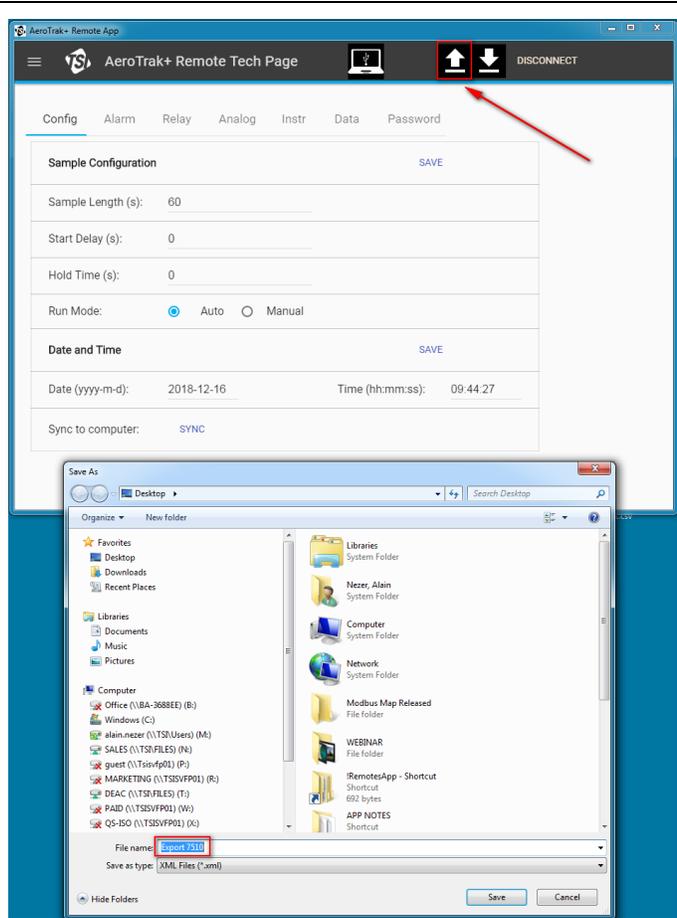
ANALOG OUT SETTINGS	
Ch A bin Channel	Select which size channel will output on Analog 1.
Ch B bin Channel	Select which size channel will output on Analog 2.
Ch A Scale	Select a Linear Scale or Log Scale for Size Channel A.
Ch B Scale	Select a Linear Scale or Log Scale for Size Channel B.

Saving Configuration Settings as a Template

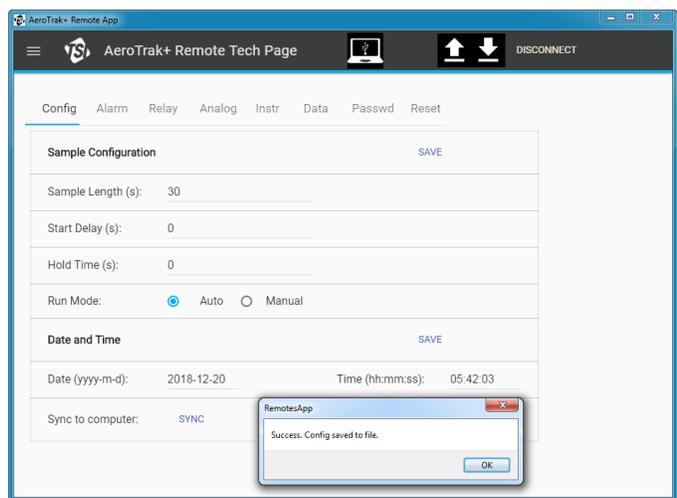
1. When AeroTrak+ Remote Particle Counter with Pump is setup, **ALL** the settings stored in the instrument can be exported to an XML file to be used later for a quick configuration.

NOTE: Be aware that the XML file will store the TCP/IP address of the AeroTrak+ Remote Particle Counter with Pump. When importing from such template, it will be **REQUIRED** to change the IP address for the new AeroTrak+ Remote Particle Counter with Pump, otherwise duplicate TCP/IP addresses will be generated on the network.

2. To save the settings in a template, while you are on the **Config** page, click **Up Arrow** icon.



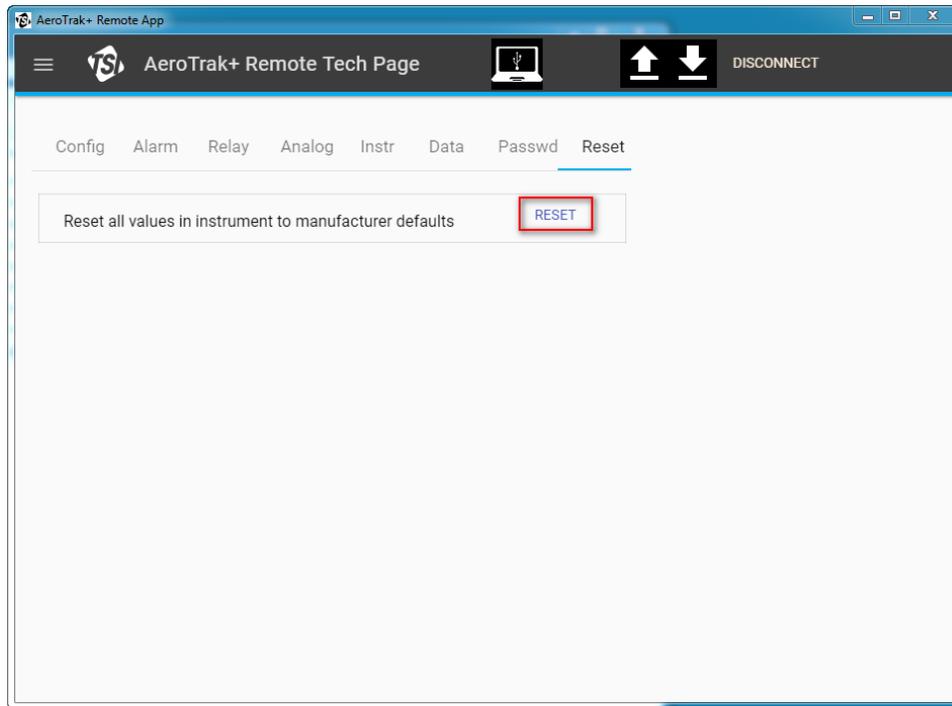
3. Click **Save**.
4. When exporting configuration is finished, click **OK**.



Resetting the Instrument

If required to reset the AeroTrak+ Remote Particle Counter with Pump values to the default values follow the process below.

1. To reset the instrument to manufacturing defaults values, click **Reset**.



2. Default manufacturing values are as follows.

Description	Default Value
IP Address	192.168.200.90
IP Mask	255.255.255.0
Gateway address	192.168.200.1
Location	LOCATION
Sample Length	60
Sample Start Delay	0
Sample Hold Time	0
Run Mode	AUTO
Rolling Buffer Length	60
Channel 1 to 6 Threshold (Σ)	0
Channel 1 to 6 Sample	OFF
Channel 1 to 6 1-second Alarm	OFF
Channel 1 to 6 Relay	OFF
Flow Alert Alarm Relay	OFF
Laser Alert Alarm Relay	OFF
Laser Scatter Alert Relay	OFF
Ambient Conditions Relay	OFF
Instrument Error Relay	OFF
Calibration Corrupt Relay	OFF

(continued on next page)

Description	Default Value
Analog Out ChA Selection	1 (Size Channel 1)
Analog Out ChB Selection	2 (Size Channel 2)
ChA Scale Selection	0 (log scale)
ChB Scale Selection	0 (log scale)
DHCP	OFF
Multicast IP Address	239.100.100.1
Multicast Port	5000
Multicast Enabled	ON
SNTP IP Address	10.1.0.249
SNTP Enabled	OFF
SNTP Time Zone	0
Modbus® Map Version	2.x
Seconds Before Flow Error (10–60)	1
Seconds Before Flow Block Error (0–60)	30
Seconds Between Flow Block Error and Pump Off (60–3600)	600
Number of Flow Block Repeats (1–100)	10

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