

TSI® AEROTRAK®+ REMOTE PARTICLE COUNTER (7000 SERIES) HOW TO SETUP

TECHNICAL BULLETIN TCC-167 (US) (9/6/2019) Rev C

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Description

This procedure explains how to setup an AeroTrak®+ Remote Particle Counter (7000 Series) prior to FMS 5.5 Configuration.

Prerequisites

Prior to starting to setup the AeroTrak+ Remote Particle Counter, 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, a USB-A to USB-C cable is required.

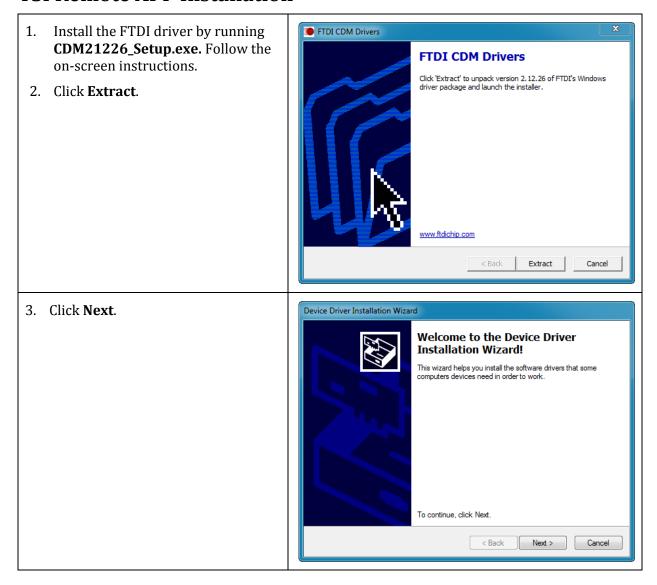
When the AeroTrak+ Remote Particle Counter is powered through a USB-C cable, the instrument will not be able to sample when **Auto** start is checked. This is due to the power consumption (about 0.8A when sampling) of the AeroTrak+ Remote Particle Counter. This power level can be supplied by most new computers, but many older computers or USB hubs are limited to 0.5A range.

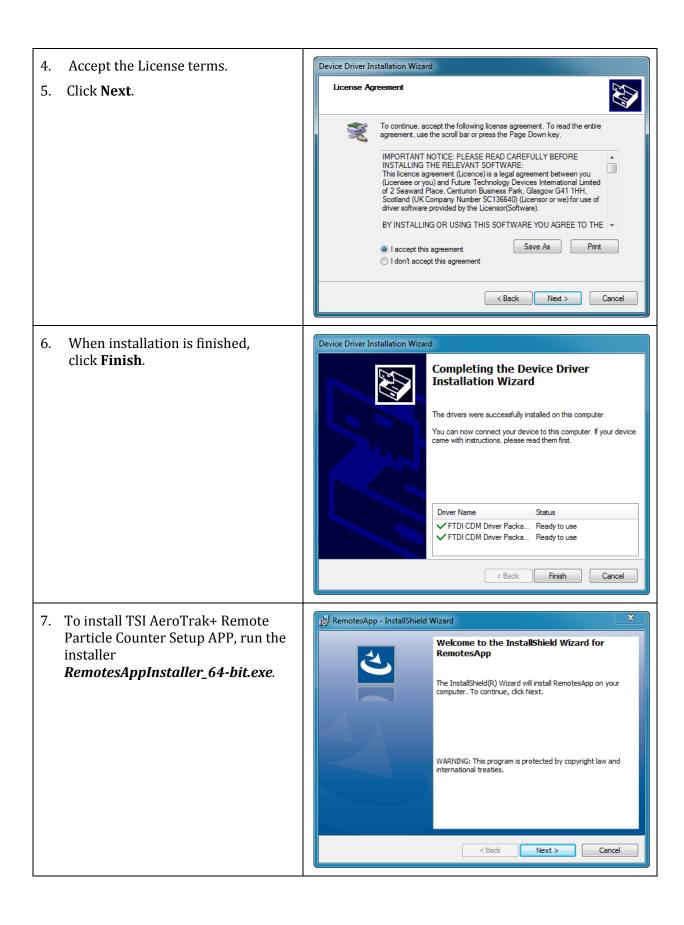


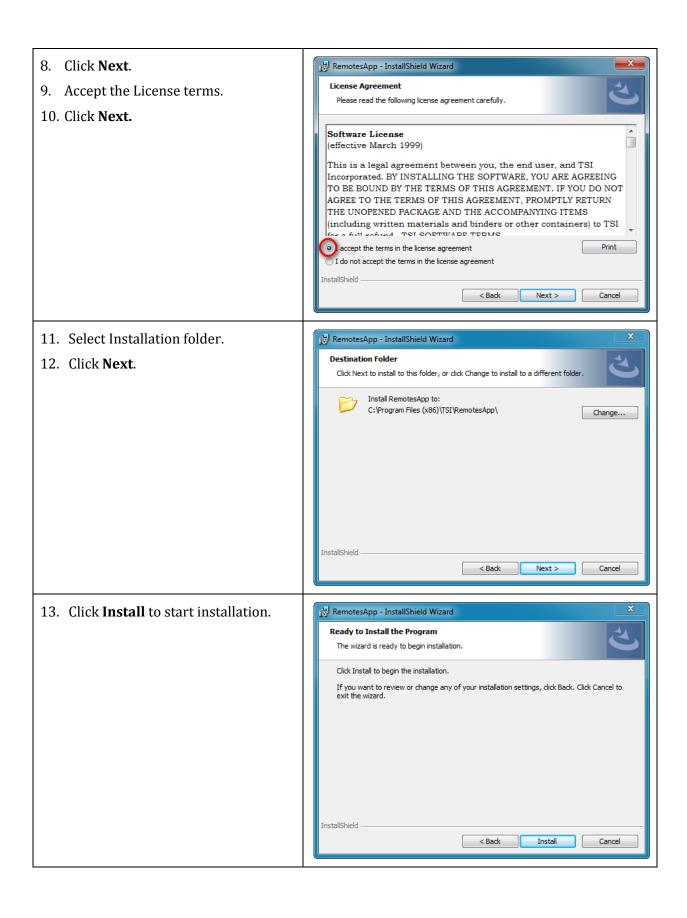
The AeroTrak+ Remote Particle Counter uses less than 0.5A when turned ON, but not sampling, so they should work with all USB ports. If an AeroTrak+ Remote Particle Counter is attached to a USB-A port that cannot supply the needed power, it will go through repeated reboot cycles.

To avoid the reboot cycle, the AeroTrak+ Remote Particle Counter Firmware does not allow for sampling when not supplied PoE or Aux power. This keeps the weak USB-A ports from causing reboots, but also keeps end users from sampling. It is advised to connect the instrument to a USB hub which can deliver a minimum of 0.8A.

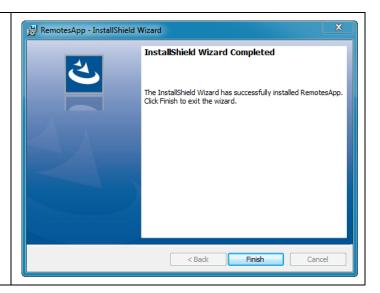
TSI Remote APP Installation







14. When Installation is finished, click Finish.



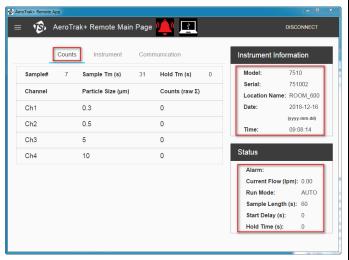
Instrument Setup

- Connect AeroTrak+ Remote Particle Counter to a computer with a USB-A to USB-C cable, the device will then initialize.
- 2. Start the TSI Remote Application by double-clicking the RemotesApp shortcut on the desktop.
- 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 no vacuum is connected to the remote instrument, the alarm bell icon will show up.

Description

Icon

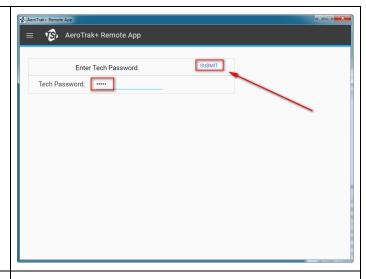
3. When the AeroTrak+ Remote Particle Counter Application starts, it will download the settings saved in the instrument as shown.



4. Go to the **Instrument** tab to check ≡ 😘 AeroTrak+ Remote Main Page 🙌 🕎 the Instrument Settings already set. Counts Instrument Communication Model: Firmware Version: 0.38 2000-01-01 Last Cal Date (yyyy-mm-dd): Location Name: ROOM 600 2018-12-16 Nominal Flow (lpm): 28.30 Date: Laser Run-Time (hrs): 1.16 09:09:39 Instrument Temperature (C): 26.89 Status 0.00 Laser Current (mA): Background Light Level: 0.00 Current Flow (Ipm): 0.00 Run Mode: Sample Length (s): 60 Start Delay (s): 0 Hold Time (s): 5. Go to the **Communication** tab to AeroTrak+ Remote Main Page check the Instrument Communications Settings already set. Communication IP Address: 192.168.1.60 DHCP: OFF Serial: 751002 IP Mask: 255.255.255.0 IP Gateway: 192.168.1.1 Location Name: ROOM 600 239.100.100.1 Date: 2018-12-16 Multicast Port: 5000 09:10:26 SNTP Addr: 255.255.255.255 SNTP: OFF Status Time Zone: MAC Addr: 0:30:20:0:0:14 Modbus Ver: Ver 2 Current Flow (Ipm): 0.00 Sample Length (s): 60 Start Delay (s): 0 Hold Time (s): 6. To make any changes to the Menu Remote Main Page instruments settings, go to Menu and select Tech Page. Instrument Information 7510 Tech Page (will stop sampling) Model: 192.168.1.60 DHCP: 751002 Serial: 55,255,255.0 IP Gateway: 192,168,1,1 Location Name: ROOM 600 2018-12-16 39.100.100.1 Multicast: 09:11:10 255.255.255 SNTP: 30:20:0:0:14 Modbus Ver: Current Flow (Ipm): 0.00 Run Mode: AUTO Sample Length (s): 60 Start Delay (s): 0

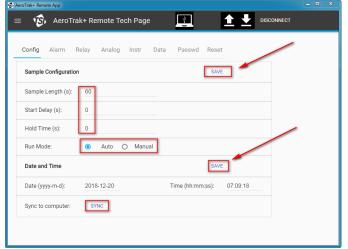
7. When requested, enter **Tech Password** (**admin** by default, must be all lower-case).

8. Click Submit.

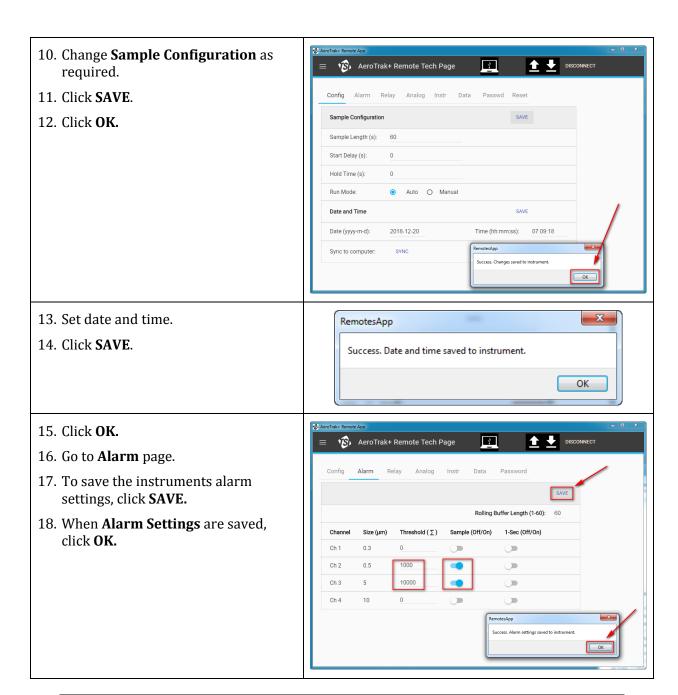


9. **Config** screen where the sample settings can be set now displays.

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

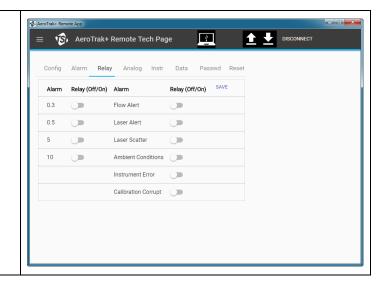


SAMPLE CONFIGURATION		
Sample Interval (s)	Time the counter actually counts particles (1 to 65535 seconds).	
Start Delay (s)	Delay before a sample start (1 to 65535 seconds).	
Hold Time (s)	Time between samples (1 to 65535 seconds).	
Run Mode	Auto:	AeroTrak+ Remote Particle Counter will start sampling automatically after power up. This mode is used by FMS to control the AeroTrak+ Remote Particle Counter. 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 date and time with the computer used to setup the device. Click SYNC to synchronize with computer.	



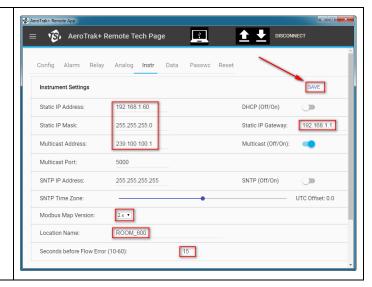
ALARM CONFIGURATION		
Rolling Buffer Length (1-60)	Number of 1 sec samples for the Rolling Buffer Cubic Feet.	
	Default Value : 60	
	(Refer to "Instant Alarm Setup.")	
Size (μm)	AeroTrak+ Remote Particle Counter size channel.	
Threshold (Σ)	Particle counts alarm level. These fields can be overwritten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

- 19. Click **Relay** tab.
- 20. To save the instruments relay settings, click **SAVE**.
- 21. 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	Instrument error is 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.	

- 22. Go to **Instrument** page.
- 23. To save instrument settings, click **SAVE**.
- 24. When **Instrument Settings** are saved, click **OK**.

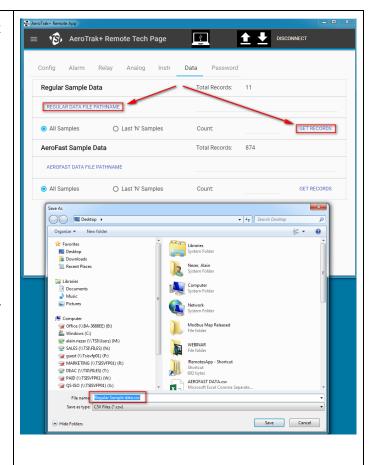


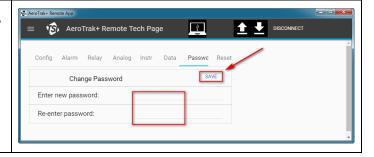
INSTRUMENT SETTINGS		
DHCP (Off/On)	When DHCP (Dynamic Host Configuration Protocol) is turned ON,	
	AeroTrak+ Remote Particle Counter will receive network configuration from a DHCP Server.	
	In such case, Static IP fields will be grayed out.	
Static IP Address	Device TCP/IP address.	
Static IP Mask	Subnet mask.	
Static IP Gateway	Default gateway for the subnet mask.	
Multicast Address	IP address used by FMS to search for AeroTrak+ Remote Particle	
Multicast Address	Counter.	
	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)	Turned ON, SNTP (Simple Network Time Protocol) will allow	
	AeroTrak+ Remote Particle Counter 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	
	device 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 is installed.	
	Spaces are not allowed.	
Seconds Before Flow	Time (in seconds) until instrument goes into a flow error.	
Error	Value: 10 to 60 sec	

- 25. To review stored **Sample Data**, click **Data** tab.
- 26. **Regular Sample Data** can be exported for review.

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

- a. Click **REGULAR DATA FILE PATHNAME**.
- Select a folder where the CSV file will be located and enter a File Name.
- c. Click Save.
- 27. Select **All Samples** to export All Sample data stored in the AeroTrak+ Remote Particle Counter, 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)**.
- 28. Click **GET RECORDS**. Selected **Regular Sample Data** records will be saved in the CSV file.
- 29. Click **GET RECORDS** to export your selection.
- 30. If required to change Tech password, click **Password** tab.
- 31. Change Tech **Password** and click **SAVE**.

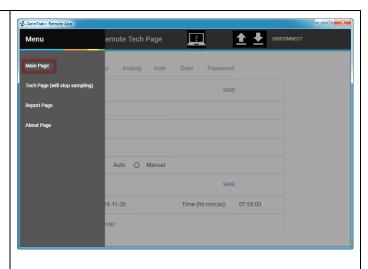


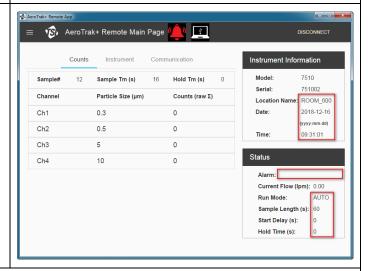


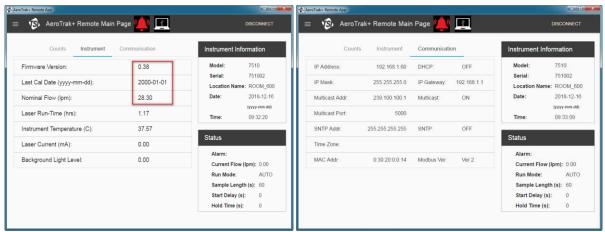
IMPORTANT NOTE

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.

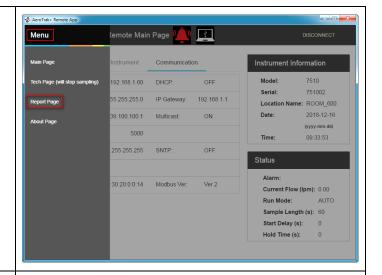
- 32. Before quitting the AeroTrak+
 Remote Particle Counter **Tech Page**,
 you can **Export** ALL the settings of
 the instrument for further use (i.e., to
 quickly configure another
 instrument.
- 33. To do so click icon to select a location to store the configuration and enter a file name.
- 34. 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 is powered up through the USB-C cable and vacuum source is not connected, a red bell will be shown on top of the window to indicate flow error.
- 37. Verify **ALL** your settings.



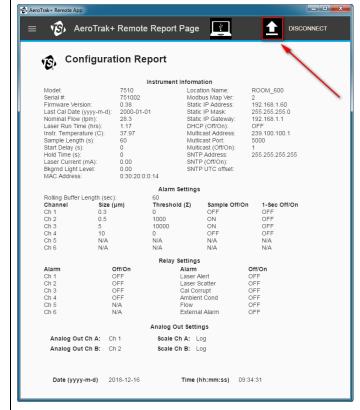




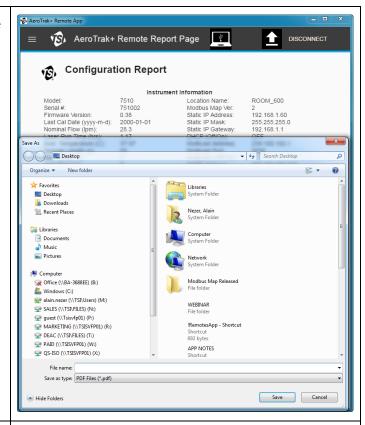
- 38. If required you can generate a PDF file report with **ALL** the AeroTrak+ Remote Particle Counter settings.
 - a. Go to Menu.
 - b. Click Report.



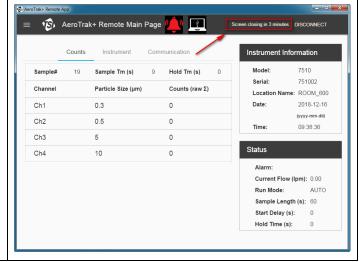
39. A complete **Configuration Report** will be shown. To save as a PDF file, click **1** icon.



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

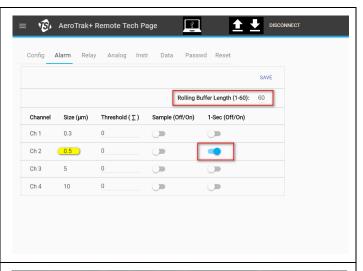


41. When the **TSI Remote APP** does not detect any activity after 5 minutes, it will automatically close. Before the APP closes, a count-down message will show in the upper right corner after 2 minutes of inactivity.



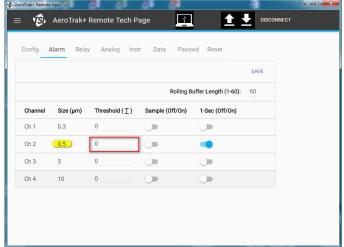
Instant Alarm Setup

- 1. Go to **Alarm** tab.
- 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.

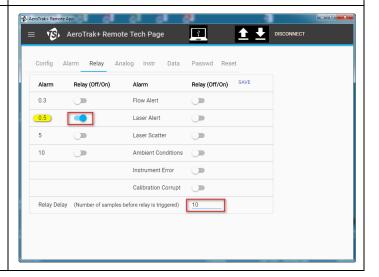


 DO NOT enter a value for Threshold (Σ) if you want to use Instant Alarm from FMS as this value will be overwritten.

> 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.

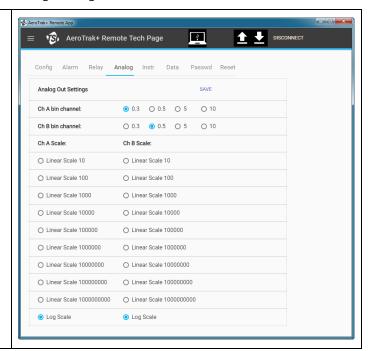


IMPORTANT NOTE

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, click **Analog** tab.
- 3. To save the instruments analog settings, click **SAVE**.
- 4. After **Analog Settings** are saved, click **OK**.
- 5. Continue AeroTrak+ Remote Particle Counter setup from <u>Instrument</u> page.



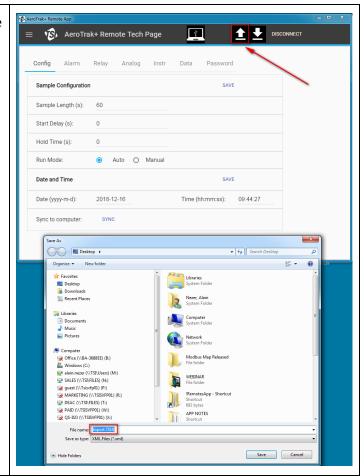
ANALOG OUT SETTINGS		
Ch A bin Channel	Select which size channel will output on Analog 1.	
Ch B bin Channel	Select which size channel will output on Analog 2.	
Ch A Scale	Select a Linear Scale or Log Scale for Size Channel A.	
Ch B Scale	Select a Linear Scale or Log Scale for Size Channel B.	

Saving Configuration Settings as a Template

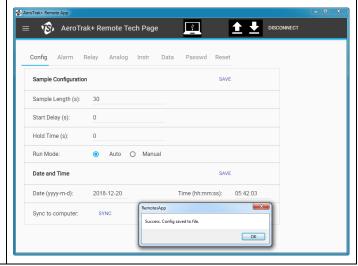
1. When the AeroTrak+ Remote Particle Counter is setup, **ALL** the settings stored in the instrument can be exported to an XML file to be used later for a quick configuration.

NOTE: Be aware that the XML file will store the TCP/IP address of the AeroTrak+ Remote Particle Counter. When importing from such template, it will be REQUIRED to change the IP address for the new AeroTrak+ Remote Particle Counter, 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.



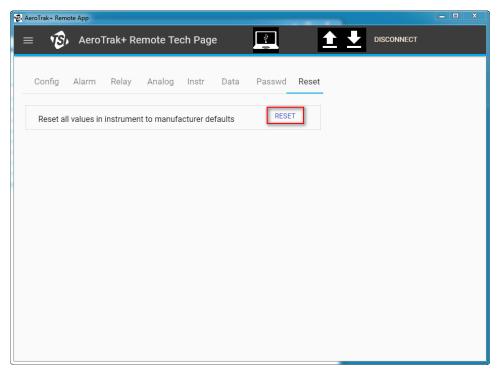
- 3. Click Save.
- 4. When exporting configuration is finished, click **OK**.



Resetting the Instrument

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

1. Click **Reset** to reset the instrument to manufactured default value.



2. Default manufacturing values are listed below.

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

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