AeroTrak™+
Remote Active Air Sampler
Model 7010

Operation Manual

P/N 6014704 Revision C
June 2023

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AeroTrak™+
Remote Active Air Sampler
Model 7010

Operation Manual

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Manual History

The following is a manual history of the AeroTrak™+ Active Air Sampler Model 7010 Operation Manual (P/N 6014704).

Revision	Date
A	July 2020
B	April 2023
C	June 2023

Warranty

Part Number 6014704 / Revision C / June 2023

Address TSI Incorporated / 500 Cardigan Road / Shoreview, MN 55126 / USA

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Limitation Of Warranty And Liability (effective April 2014)

(For country-specific terms and conditions outside of the USA, please visit www.tsi.com.)

Seller warrants the goods, excluding software, sold hereunder, under normal use and service as described in the operator's manual, to be free from defects in workmanship and material for 24 **months**, from the date of shipment to the customer. This warranty period is inclusive of any statutory warranty. This limited warranty is subject to the following exclusions and exceptions:

a. Hot-wire or hot-film sensors used with research anemometers, and certain other components when indicated in specifications, are warranted for 90 days from the date of shipment;

b. Pumps are warranted for hours of operation as set forth in product or operator's manuals;

c. Parts repaired or replaced as a result of repair services are warranted to be free from defects in workmanship and material, under normal use, for 90 days from the date of shipment;

d. Seller does not provide any warranty on finished goods manufactured by others or on any fuses, batteries or other consumable materials. Only the original manufacturer's warranty applies;

e. This warranty does not cover calibration requirements, and seller warrants only that the instrument or product is properly calibrated at the time of its manufacture. Instruments returned for calibration are not covered by this warranty;

f. This warranty is **VOID** if the instrument is opened by anyone other than a factory authorized service center with the one exception where requirements set forth in the manual allow an operator to replace consumables or perform recommended cleaning;

g. This warranty is **VOID** if the product has been misused, neglected, subjected to accidental or intentional damage, or is not properly installed, maintained, or cleaned according to the requirements of the manual. Unless specifically authorized in a separate writing by Seller, Seller makes no warranty with respect to, and shall have no liability in connection with, goods which are incorporated into other products or equipment, or which are modified by any person other than Seller.

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Buyer and all users are deemed to have accepted this LIMITATION OF WARRANTY AND LIABILITY, which contains the complete and exclusive limited warranty of Seller. This LIMITATION OF WARRANTY AND LIABILITY may not be amended, modified or its terms waived, except by writing signed by an Officer of Seller.

Service Policy

Knowing that inoperative or defective instruments are as detrimental to TSI as they are to our customers, our service policy is designed to give prompt attention to any problems. If any malfunction is discovered, please contact your nearest sales office or representative, or call TSI's Customer Service department at 1-800-680-1220 (USA) or +001 (651) 490-2860 (International).

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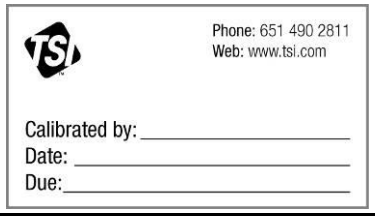
Safety

This section provides instructions to promote safe and proper handling of the AeroTrak™+ Remote Active Air Sampler Model 7010.

IMPORTANT NOTICE
There are no user-serviceable parts inside the instrument. Refer all repair and maintenance to a qualified factory-authorized technician. All maintenance and repair information in this manual is included for use by a qualified factory-authorized technician.

Labels

Advisory labels and identification labels are attached to the outside of the control box housing.

1. Serial number label (left-side panel)	
2. Serial number label (back)	
3. Calibration label (right-side panel)	
4. European symbol for non-disposable item. Item must be recycled.	

Description of Caution/Warning Symbols

Appropriate caution/warning statements are used throughout this manual and on the instrument. They require you to take cautionary measures when working with the instrument.

Caution

CAUTION
CAUTION means ***be careful***. Not following the procedures prescribed in this manual may result in irreparable equipment damage. Caution also indicates important information about the operation and maintenance of this instrument is included.

Warning

WARNING
WARNING means unsafe use of the instrument could result in serious injury or cause irrevocable damage to the instrument. Follow the procedures prescribed in this manual to use the instrument safely.

Caution or Warning Symbols

The following symbols may accompany cautions and warnings to indicate the nature and consequences of hazards:

	Warns that uninsulated voltage within the instrument may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to come into contact with any part inside the instrument.
	Warns that the instrument is susceptible to electro-static dissipation (ESD) and ESD protection procedures should be followed to avoid damage.
	Indicates the connector is connected to earth ground and cabinet ground.

Reusing and Recycling

	As part of TSI® Incorporated's effort to have a minimal negative impact on the communities in which its products are manufactured and used: • **DO NOT** dispose of used batteries in the trash. • Follow local environmental requirements for battery recycling. • If instrument becomes obsolete, return to TSI® for disassembly and recycling.

Getting Help

To obtain assistance with this product or to submit suggestions, please contact Customer Service:

TSI Incorporated
500 Cardigan Road
Shoreview, MN 55126 U.S.A.
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International: 001 651 490-2860
E-mail Address: technical.services@tsi.com
Web site: www.tsi.com

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CHAPTER 1

Introduction and Unpacking

The AeroTrak™+ Active Air Sampler is appropriate for use in monitoring airborne biocontamination in critical environments. The sampler is a sieve impactor that draws a specified volume of air through the perforations in a cap and around a plate of nutrient media. Viable particles with sufficient mass contained in the drawn in air fall out of the air stream and impact on the surface of the media. The media is then incubated for a specified time under appropriate conditions to allow for the growth of visible colonies.

The sampler is comprised of two parts, a sample head and a control box. The sample head includes the perforated cap and holds a standard size (90 mm) agar plate. The control box contains the electronic components and a critical orifice. When connected to an appropriate vacuum source, the critical orifice controls the flow at 1.0 cfm (28.3 L/min).

Sampling is controlled by TSI® Incorporated's Facility Monitoring System Software. Communication with the software is via integrated Ethernet (TCP/IP) and serial Modbus® RTU.

The following table shows the active air sampler models covered by this manual.

Part Number	Flow Rate	Plate Size (mm)	No. of Heads
7010-090-1	28.3 L/min (1 cfm)	90 mm	1

Unpacking the AeroTrak™+ Remote Active Air Sampler

Carefully unpack the AeroTrak™+ Remote Active Air Sampler from the shipping container and check the contents of the shipment against the tables below. If any parts are missing or broken, notify TSI® immediately. Keep the shipping container for returning the device for service.

Qty.	Item Description	Part/Model	Reference Picture
1	AeroTrak™+ Remote Active Air Sampler Control Box	ARS-010-1	
1	AeroTrak™+ Remote Active Air Sampler Sample Head Base	ARS-B010-090-V	
1	AeroTrak™+ Remote Active Air Sampler Sample Head Cap	ARS-C010-090-V	
1	Calibration Certificate	N/A	
1	12-24 VDC / Relay Connector	6003398	

Optional Accessories

The following table lists optional accessories. If you ordered optional accessories, make certain they have been received and are in working order.

Item Description	Part/Model	Reference Picture
Power Supply	PSU-ARWP	

Item Description	Part/Model	Reference Picture
USB-C Cable	700360	
AeroTrak™+ Calibration Accessory	700220	
Tri-clamp with Gasket	700211	
Wall Mounting Bracket	700008-1	
Sanitary Inlet Adapter	700212	
Sanitary to 1/2” barb adapter	700213	
Tubing, Superthane, 1/2” ID x 5/8“ OD, 100 ft	700108	
Attachable agar plate / sample head cap holder*	700210	

*The Attachable agar plate / sample head cap holder is a purpose-built accessory that securely holds one agar plate and its lid (together or separately), or one sample head cap when removed from the sample head base. One or more holders can be attached to the sample head base to simplify settle plate deployment and/or store the sample cap during the agar plate change process.

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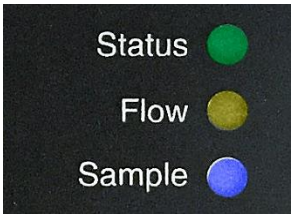
CHAPTER 2

Installation and Getting Started

This chapter describes the features, connections, and installation of the AeroTrak™+ Remote Active Air Sampler.

Indicator LEDs

The three LEDs on the front of the air sampler provides an indication of the air sampler's operation as described in the table below.



Indicator	Status	Function
Status	Green	No errors are detected
	Blinking Red	Power loss occurred during sampling
	Red	Device is in a service alert from 1 or more of the following conditions: • Volume error • Flow error • Calibration error • Ambient condition error
Flow	Yellow—solid	Device flow is good
	Yellow—flashing	Device has a flow error
	Off	No flow detected
Sample	Blue—solid	Device is sampling
	Blue—off	Device is not sampling

Electrical Connections

The state-of-the art AeroTrak™+ Remote Active Air Sampler supports multiple communications and connectivity options. A brief description of each of the connections is listed below.

Device Connections

- 12-24 VDC/Relay Connector
- Ethernet Connector
- USB-C Connector

12-24 VDC / Relay Connector

This connector can be used as either a 12–24 VDC power connection when Power-Over-Ethernet (PoE) is not available and as a relay connection.

If used as a power connector, only a TSI®-supplied 12 VDC power supply (such as TSI® model PSU-ARWP) should be used.

Terminal	Direction
1	GND
2	12–24 VDC
3	RELAY1 – Contact 1 for internal relay
4	RELAY2 – Contact 2 for internal relay

If used as a relay, the alarm contact is used to indicate an alarm condition. The alarm contact closure is normally open. The contact is controlled by FMS. The relay contact is rated for a 2A @ 30 VDC load. This relay can be controlled by external software (i.e. FMS) and is configured on the Configuration Utility.

Ethernet Connector

The air sampler should be connected to a 10/100 Mbps network that supports Power-Over-Ethernet (802.3af PoE). The green LED indicates that the network is connected. The yellow LED indicates activity on the network cable.

The Ethernet LAN connector is a standard 10/100 Mbps 8-Position 8-Contact (8P8C, often called RJ45) modular plug connection that supports Power-Over-Ethernet (802.3af PoE) devices.

USB-C Connector

This connection is used to communicate with the air sampler via a USB-C cable connected to a Windows® operation system computer running the Configuration Utility. The air sampler can be powered by USB-C for configuration. The air sampler cannot be powered by USB-C for sampling.

Installation

Installation of the AeroTrak™+ Remote Particle Counter consists of:

- Determine the Installation Location
- Mounting the Control Box
- Supplying Power to the Air Sampler
- Connecting the Air Sampler to a Computer
- Vacuum Tubing Installation

Determine the Installation Location

Determine the installation location according to your monitoring needs. The remote active air sample head should be located close to a critical location as determined by risk analysis. The control box should be located such that the tube length to the sample head is kept to a minimum (see Warning on page 2-7) and it does not pose a risk to the process. It is generally convenient to mount the control box to a vertical flat surface such as a wall, but it can also be mounted below the critical work area or a convenient location close to the point of sampling. Access to the control box for calibration should be considered.

Mounting the Control Box

The AeroTrak™+ Remote Active Air Sampler can be mounted using a variety of mounting brackets and schemes.

TSI® provides an optional mounting bracket (TSI® P/N 700008-1) that allows the control box to be easily mounted and removed on a surface (see figures).

Mounting Bracket (optional)

To install the mounting bracket:

1. The bracket is provided with two 0.169-inch (4.30 mm) diameter holes, suitable for a #6 or M4 screw. Screw the bracket to the mounting surface using appropriate screws.
2. Slide the particle counter onto the mounting tabs at the top of the bracket and snap it into the locking tab (circled in figure).

Remote Active Air Sampler Mounted on Optional Bracket

To remove the AeroTrak™+ Active Air Sampler from the mounting bracket:

1. Press the locking tab at the top of the bracket.
2. Lift the particle counter off the mounting tabs.

Supplying Power to the Air Sampler

The AeroTrak™+ Remote Active Air Sampler may be powered in one of two ways. For easy installation, the air sampler is designed to work primarily with Power-Over-Ethernet (802.3af PoE). Alternatively, the air sampler can be powered by the optional TSI Model PSU-ARWP power supply or with a user supplied 12–24-volt supply. The air sampler can operate with both PoE and AUX connected at the same time for redundancy and backup continuous monitoring.

WARNING

If the AeroTrak™+ Remote Active Air Sampler is powered by a network, it should be connected only to a standard 10/100 Mbps Ethernet network that supports Power-Over-Ethernet according to the IEEE 802.3af PoE or IEEE 802.3at PoE+ standard. Use of power supplied over a network that does not comply with this standard could seriously damage your air sampler.

Using Power-Over-Ethernet (PoE)

To supply power using a PoE device:

1. Make sure the Ethernet hub or router supplies power over the Ethernet cable (check with the equipment supplier or your computer services or Information Technology department). If the device is not capable of providing power, you will have to use an auxiliary AC power supply (see "Using DC Power" below).
2. Connect the Ethernet cable to the Ethernet connector.
3. Connect the other end of the Ethernet cable to the Ethernet port on the air sampler. The Status LED on the air sampler should illuminate green.

WARNING

For proper operation, please use TSI® model PSU-ARWP power supply or a 12–24 VDC power supply with a minimum 30W output power. Using another power supply could seriously damage your air sampler.

Using DC Power

To supply DC power to the air sampler:

1. Connect the TSI® model PSU-ARWP power supply or a 12–24 VDC power supply with a minimum of 30 watts output to the instrument at the power connector as shown in the figure below.

NOTICE

If the voltage is too low (9V) or too high (26V), the unit will not turn on. If the power capability of the external power supply is too low, the unit could reboot when it starts to sample.

2. Plug the power supply into a suitable AC outlet. The Status LED on the air sampler will illuminate green if properly connected.

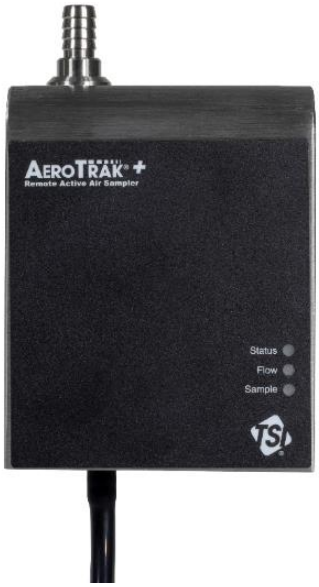
Remote Active Air Sampler Using DC Power

Connecting the Air Sampler to a Computer

You can communicate with the air sampler using Modbus® TCP over Ethernet. Connect the Ethernet cable to the Ethernet connector. If you used PoE to provide power, you have already made the necessary communications connection to the air sampler.

Vacuum Tubing Installation

The AeroTrak™+ Remote Active Air Sampler uses a critical or sonic orifice to maintain a steady flow of air and particles into the sample head. This requires a vacuum source from a central vacuum system or an external vacuum pump capable of delivering at least 15 inches of Mercury (15 inHg or 0.5 bar) at the outlet of the air sampler. The vacuum should be confirmed using an external vacuum gauge measured directly at the outlet of the air sampler.



Connecting Vacuum Tubing to Remote Active Air Sampler

Connect the vacuum tubing to the air sampler outlet shown in the figure. This requires tubing as specified in the optional accessories table in Chapter 1 or PVC thick-walled tubing.

Connecting the Sample Head to the Control Box

The control box comes standard with a barbed fitting on the inlet. Connect tubing to the control box inlet shown in the figure. This requires tubing as specified in the optional accessories table in Chapter 1 or PVC thick-walled tubing. Connect the other end of the tubing to the barbed end of a barb to 1” sanitary fitting. The sanitary fitting can then be connected to the sample head base using a gasket and tri-clamp.

Connecting Sample Tubing to Remote Active Air Sampler

Alternatively, if using the optional sanitary fitting for the inlet the control box can be directly connected to the control box using a gasket and tri-clamp.

WARNING

Excess tube length between the Sample Head and Control Box may result in flow errors. It is; therefore, recommended that the tube length does not exceed 20 m.

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CHAPTER 3

Communications and Configurations

Generally, the Air Sampler will be set up as one of many sensors in a network. In this case the operation of the network is controlled through Facility Monitoring System Software (TSI® FMS Software) running on a computer. FMS Software can be configured to communicate with the particle counter through Modbus® TCP over Ethernet. Consult the FMS Software manual for more information.

NOTICE

Technical documentation for integrating the TSI® AeroTrak™+ Remote Active Air Sampler into custom applications, including details of the Modbus® implementation, is available upon request. Contact TSI® Customer Service (see “Contacting Customer Service”).

Setting the IP Address of the Air Sampler

By default, each Air Sampler is shipped with a static Ethernet address of 192.168.200.90. Since the IP address is fixed, before the Air Sampler can communicate with your computer system, you must assign an IP address to it that is compatible with your network. An example is shown below using the configuration utility.

NOTICE

In a typical application, Air Samplers are configured using static IP addresses so that remote hosts and software can be configured to query each specific counter at known addresses. It is also possible to configure the Air Sampler using DHCP (Dynamic Host Configuration Protocol), but this should be done with care to ensure that the IP address of each device is known and always the same for each device. Further details of TCP/IP networking are beyond the scope of this document.

Viewing Device Information

Your device information can be viewed using the Configuration Utility on a Windows® operating system computer. To connect your Air Sampler with the Configuration Utility, you will need the following:

- A Windows® operating system computer (PC) or laptop with a USB port
- A USB-C cable
- Air Sampler to be configured

Connect the AeroTrak™+ Remote Active Air Sampler to the Windows® operating system PC using the USB-C cable. The USB-C cable will power the air sampler. Launch the AeroTrak™+ Active Air Sampler App and you will arrive at the Main Page.

NOTICE
USB-C power is designed for instrument configuration viewing and setup, not for operation.

Title Bar

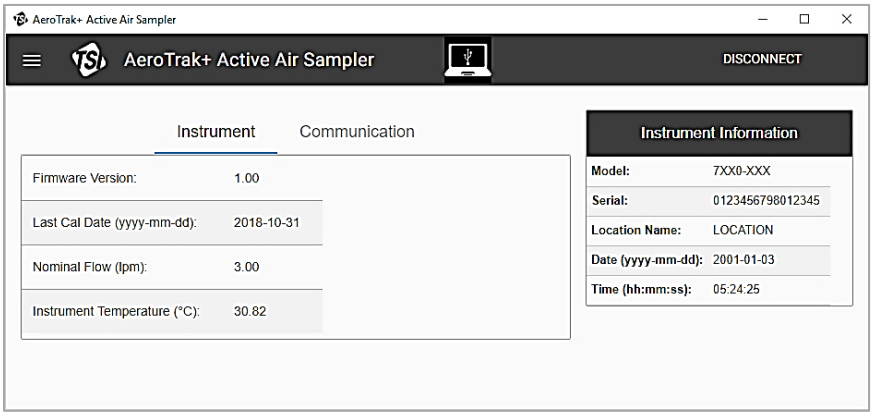
The title bar has the following functionality:

Main Menu	Access to Main Menu.
AeroTrak+ Active Air Sampler	App name.
Alarm Icon	This icon will be displayed in main menu if the instrument has an instrument alarm.
USB Connection	This icon is shown when USB connection has been established.
DISCONNECT Connect/Disconnect	Allows you to connect and disconnect from instrument.

Main Page—Instrument Tab

The Instrument tab shows device information as described in the table below:

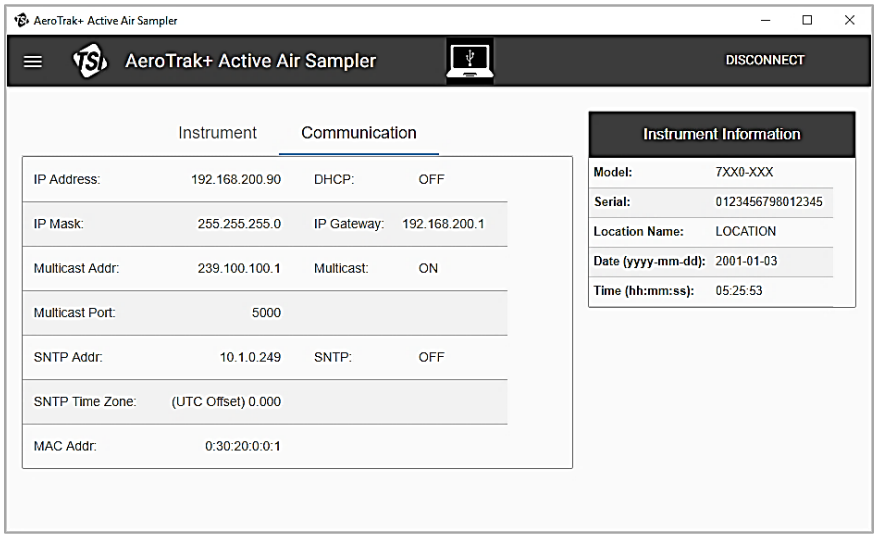
Label	Function
Firmware version	Current firmware version programmed on the device
Last Cal Date (yyyy-mm-dd)	Last date the device was calibrated
Nominal Flow (lpm)	Nominal flow rate of the device
Instrument Temperature (C)	Device temperature measured inside the enclosure



Main Page—Communication Tab

The Communication tab shows device information for communication purposes as described in the table below:

Label	Function
IP Address/Mask/Gateway	Device IP address/mask/gateway
DHCP	DHCP enabled or disabled
Multicast Address and Port	IP address used for multicast broadcasts. This feature enables auto-discovery in FMS.
SNTP Address and Time Zone	IP address of Network Time Protocol that will be used to automatically reset time / date at 3:00AM if unit's time is off by 6 seconds. The time is based on the time zone selected.
MAC Address	Device MAC address



Configuring the Air Sampler

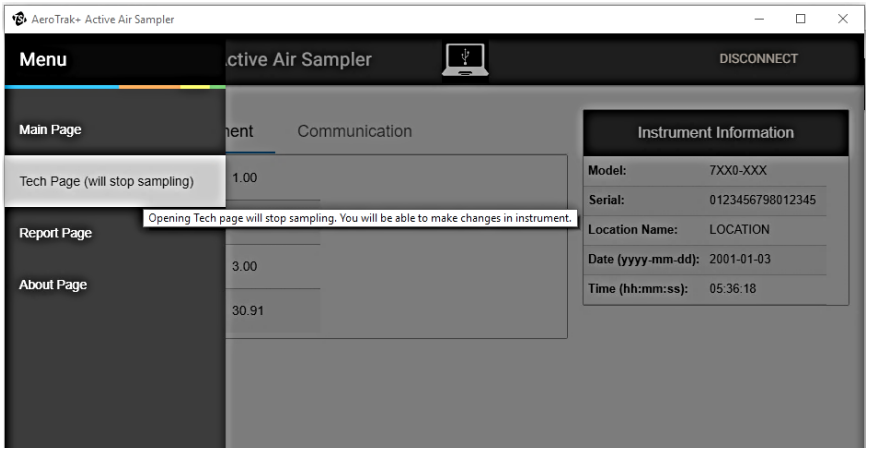
Your device settings can be configured using the Configuration Utility on a Windows® operating system computer. To connect your Air Sampler with the Configuration Utility, you will need the following:

- A Windows® operating system computer or laptop with a USB port
- A USB-C cable
- Air Sampler to be configured

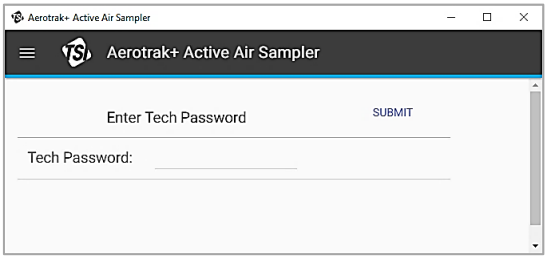
Connect the Air Sampler to the Windows® operating system computer using the USB-C cable. The USB-C cable will power the air sampler.

NOTICE
USB-C power is designed for instrument configuration viewing and setup, not for operation.

Launch the AeroTrak™+ Active Air Sampler App and you will arrive at the Main Page. Open the menu at the upper left-hand corner and click on **Tech Page**.



To enter the Tech Page, you will need to enter the Tech Password. The default password is **admin**.



The Tech Page allows you to configure all device settings under three tabs:

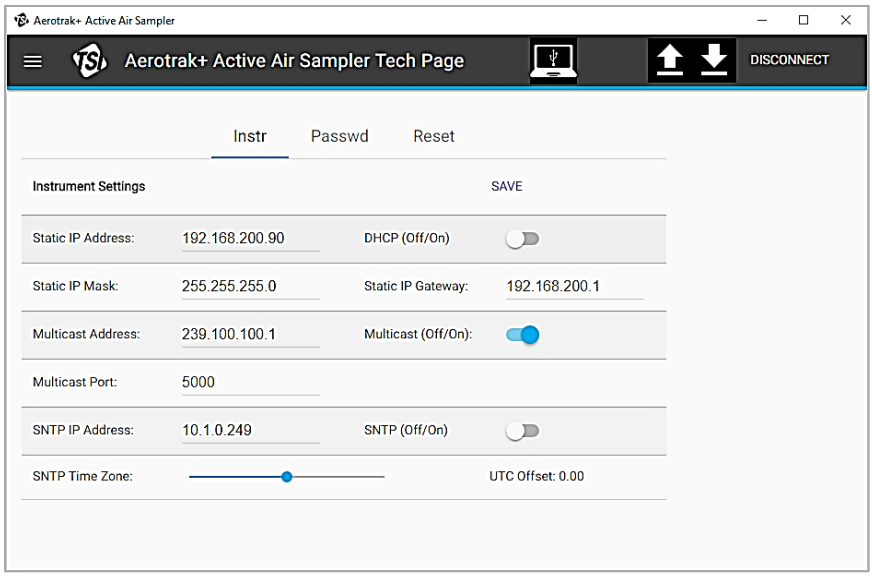
- Instr
- Passwd
- Reset

(continued on next page)

Tech Page—Instrument (Instr) Tab

The Instrument tab is used to configure the device communication settings as described in the table below.

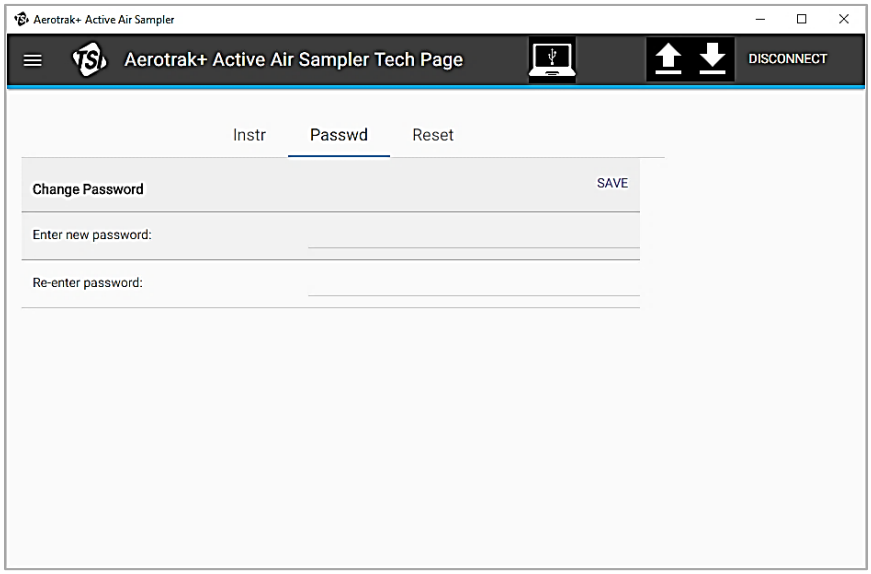
Label	Function
Static IP Address / Mask / Gateway	Sets the IP address, mask, and gateway. This can only be configured if DHCP is disabled.
DHCP (Off/On)	Enable or disable DHCP.
Multicast Address / Port	Sets the IP address used for multicast broadcasts. This feature enables auto-discovery in FMS.
SNTP	Configure use of network time protocol. Set IP address of the network time server, turn on and off and offset time zones from UTC.



Tech Page—Password (Passwd) Tab

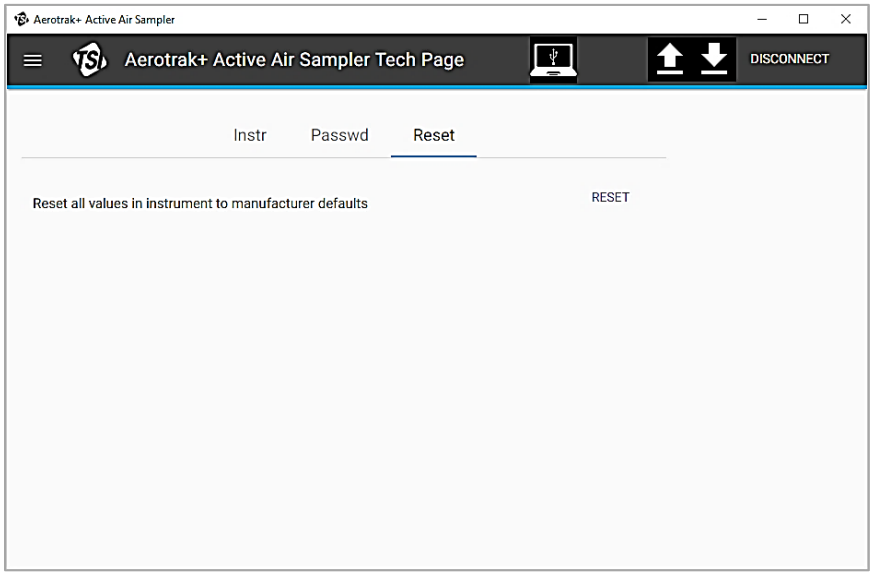
The Password tab is used to change the Tech Page password. The default password is admin.

Save must be pressed for the configurations to be saved to the instrument.



Tech Page—Reset Tab

This will reset the instrument to its original factory settings.



Loading or Saving a Configuration

The Configuration Utility allows you to easily save and load the device configuration. This is useful when configuring multiple devices with the same configuration. Use the **Up** button at the top of the page to load a configuration or use the **Down** button to save a configuration.

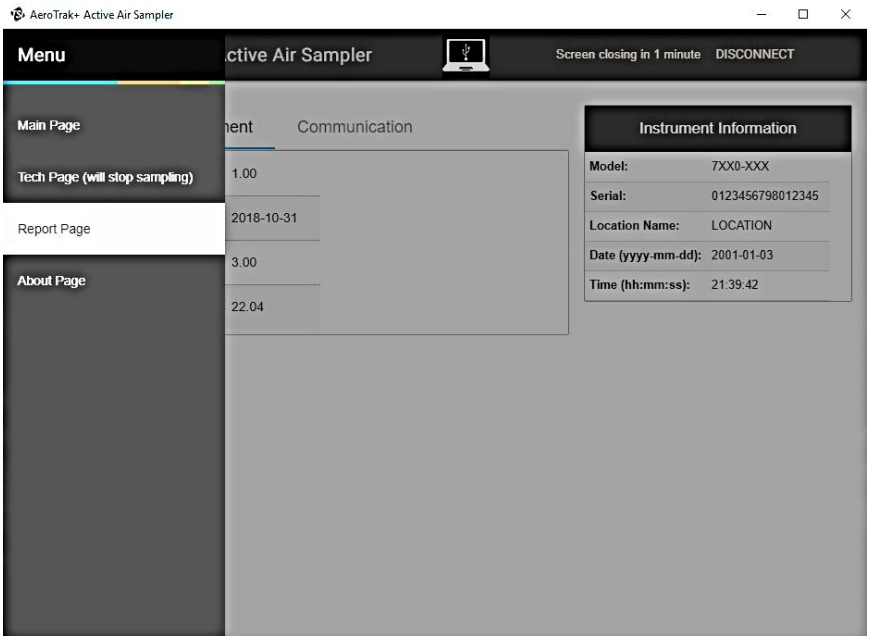
The configuration is saved in an XML file format.

The parameters set in the previous tabs will be stored to the XML file for easy transfer. This file is compatible with FMS and can be used to import sensor configurations into TSI's FMS monitoring software.

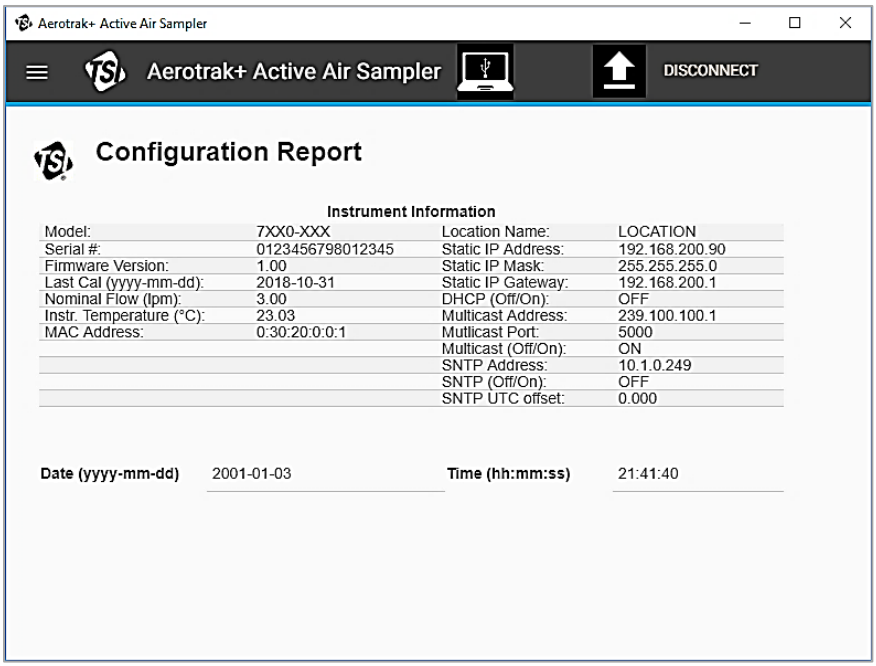
Air Sampler Report Page

All critical parameters on the instrument can be seen grouped in the configuration report.

To enter the report page, open the menu at the upper left-hand corner and click on **Report Page**.



The report page will show a configuration report on all the instruments configurable parameters.

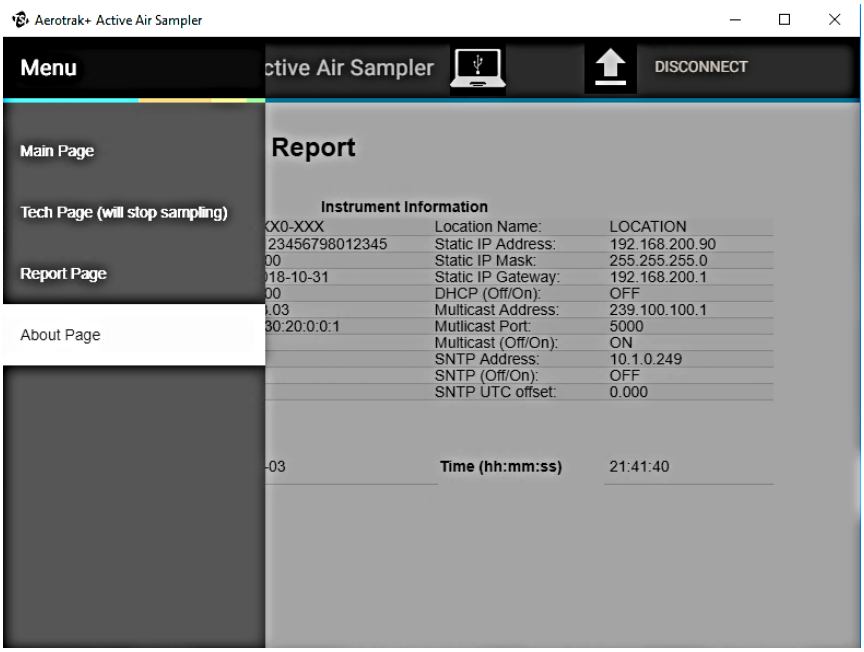


Saving a Configuration Report

The configuration report can be saved to a PDF file by pressing the up arrow at the top of the report and selecting a name and location for the file.

About Page

The About Page is accessed by the menu in the upper left hand of the application.



The about page shows the current version of the software application.

CHAPTER 4

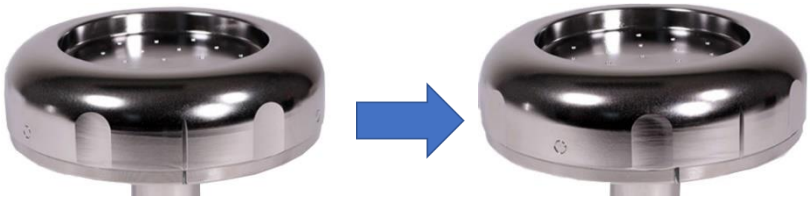
Operation

This chapter describes the loading and unloading of plated media when sampling with the AeroTrak™+ Remote Active Air Sampler and the processing of the media post sampling to obtain an estimate of airborne biocontamination. Control of the air sampler during sampling is provided by TSI® Incorporated's Facility Monitoring System Software. Proper aseptic technique should be used throughout to prevent contamination of the test media.

NOTICE
The stated efficiency of the AeroTrak™+ Active Air Sampler has been established using 27 mL deep fill 90 mm plates. The efficiency of the air sampler when sampling with plates of a different fill volume has not been established.

Load Plate for Sampling

- If installed, remove sample cap from the base by turning approximately 1/2 inch (12 mm) to the right and lifting.



- Place a plate of media on the base and remove the lid.
- Reinstall the sample cap or replace with a new sample cap that has been cleaned/sanitized/sterilized. Turn the sample cap to the left until it clicks into place and the indicator line on the cap and base is aligned.

Unload Plate and Obtain Results

- Once sampling is complete, remove sample cap from the base by turning approximately 1/2 inch (12 mm) to the right and lifting.
- Replace lid onto the plate of media and remove from the base.
- Invert and incubate the plate.
- After incubation, enumerate the number of colony forming units (CFU) present on the plate.

- Correct for the probability that multiple particles passed through the same hole in the cap by applying a Feller correction to the CFU count.

  This will determine the most probable number (MPN) of viable particles present in the sample.

- To calculate the concentration of the viable particles in the sample, divide the corrected MPN by the sample volume.

Feller Corrections:

CFU	MPN	CFU	MPN	CFU	MPN	CFU	MPN
1	1.0	6	7.0	11	15.8	16	32.6
2	2.1	7	8.4	12	18.1	17	38.9
3	3.2	8	10.0	13	20.9	18	48.4
4	4.4	9	11.8	14	24.0	19	67.4
5	5.6	10	13.7	15	27.8		

CHAPTER 5

Maintenance

The following maintenance may be performed to assure performance and reduce the risk of contamination.

Cleaning and Disinfection

The sample head, base and cap, as well as the exterior of the control box can be cleaned and disinfected using common cleanroom cleaning agents and disinfectants. Assure the holes of the sample cap are not blocked. Any residues should be removed, especially if using an oxidative disinfectant to avoid pitting of the stainless steel surfaces.

Sanitization and Sterilization

The sample head, base and cap, can be sanitized in place through exposure to vaporized hydrogen peroxide or UV light or sterilized in a steam or ethylene oxide sterilizer.

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CHAPTER 6

Troubleshooting

This chapter contains information for troubleshooting common issues with the AeroTrak™+ Remote Active Air Sampler.

Symptom	Possible Cause	Corrective Action
Instrument does not power up - Status LED is off (should be green or red)	Ethernet is plugged in but is not a Power-Over-Ethernet device (802.3at PoE).	Plug cable into a PoE socket or device
	External DC power is not plugged in.	Use a TSI® supplied DC power supply.
Flow LED is flashing or off, indicating a flow error (7010)	Vacuum line may be disconnected, blocked, or kinked.	Check vacuum line to make sure it is connected, unblocked and not kinked.
	Inlet may be restricted.	Remove any obstructions from inlet.
	Vacuum level may be below minimum requirements for flow.	Use a vacuum gauge to make sure vacuum at outlet of air sampler is at least 15 inHg.
	Critical orifice may be blocked.	Contact service.
Status LED is **red** indicating a service error or alarm threshold being met.	Instrument may require routine service due to a Volume error.	Check for leakage, kinked tube and any other blockage. Contact service.
	Internal instrument error.	Contact service.
	A set alarm threshold is met.	
Sample LED is off	This is normal if not sampling.	

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CHAPTER 7

Contacting Customer Service

This chapter gives directions for contacting people at TSI® Incorporated for technical information and directions for returning the AeroTrak™+ Remote Active Air Sampler for service.

Technical Contacts

- If you have any difficulty setting up or operating the AeroTrak™+ Remote Active Air Sampler, or if you have technical or application questions about this system, contact an applications engineer at TSI® Incorporated, 1-800-680-1220 (USA) or (651) 490-2860 or e-mail technical.services@tsi.com.
- If the AeroTrak™+ Remote Active Air Sampler, does not operate properly, or if you are returning the instrument for service, visit our website at tsi.com/service, or contact TSI® Customer Service at 1-800-680-1220 (USA) or (651) 490-2860.

International Contacts

Service

TSI Instruments Singapore Pte Ltd
150 Kampong Ampat
#05-05 KA Centre
Singapore 368324

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Fax: +65 6595-6399
E-mail: tsi-singapore@tsi.com

TSI Instrument (Beijing) Co., Ltd.
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E-mail: tsiuk@tsi.com

Technical Support

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TSI GmbH Neuköllner Strasse 4 52068 Aachen GERMANY **Telephone**: +49 241-52303-0 **E-mail**: tsigmbh@tsi.com	**TSI Instruments Ltd.** Stirling Road Cressex Business Park High Wycombe, Buckinghamshire HP12 3ST UNITED KINGDOM **Telephone**: +44 (0) 149 4 459200 **E-mail**: tsiuk@tsi.com
TSI France Inc. Hotel technologique BP 100 Technopôle de Château-Gombert 13382 Marseille cedex 13 France **Telephone**: +33 (0) 1 41 19 21 99 **E-mail**: tsifrance@tsi.com	

Returning for Service

Visit our website at tsi.com/service and complete the on-line “Service Request” form or call TSI® at 1-800-680-1220 (USA), (651) 490-2860, or 001 651 490-2860 (International) for specific return instructions.

Customer Service will need the following information:

- The instrument model number
- The instrument serial number
- A purchase order number (unless under warranty)
- A billing address
- A shipping address

Use the original packing material to return the instrument to TSI®. If you no longer have the original packing material, remove the cyclone, cap or seal the inlet orifice, and cover all connector ports to prevent debris from entering the instrument. Package instrument for shipment ensuring the front display and the inlet orifice inlet are protected.

APPENDIX A

Specifications

All specifications are subject to change without notice.

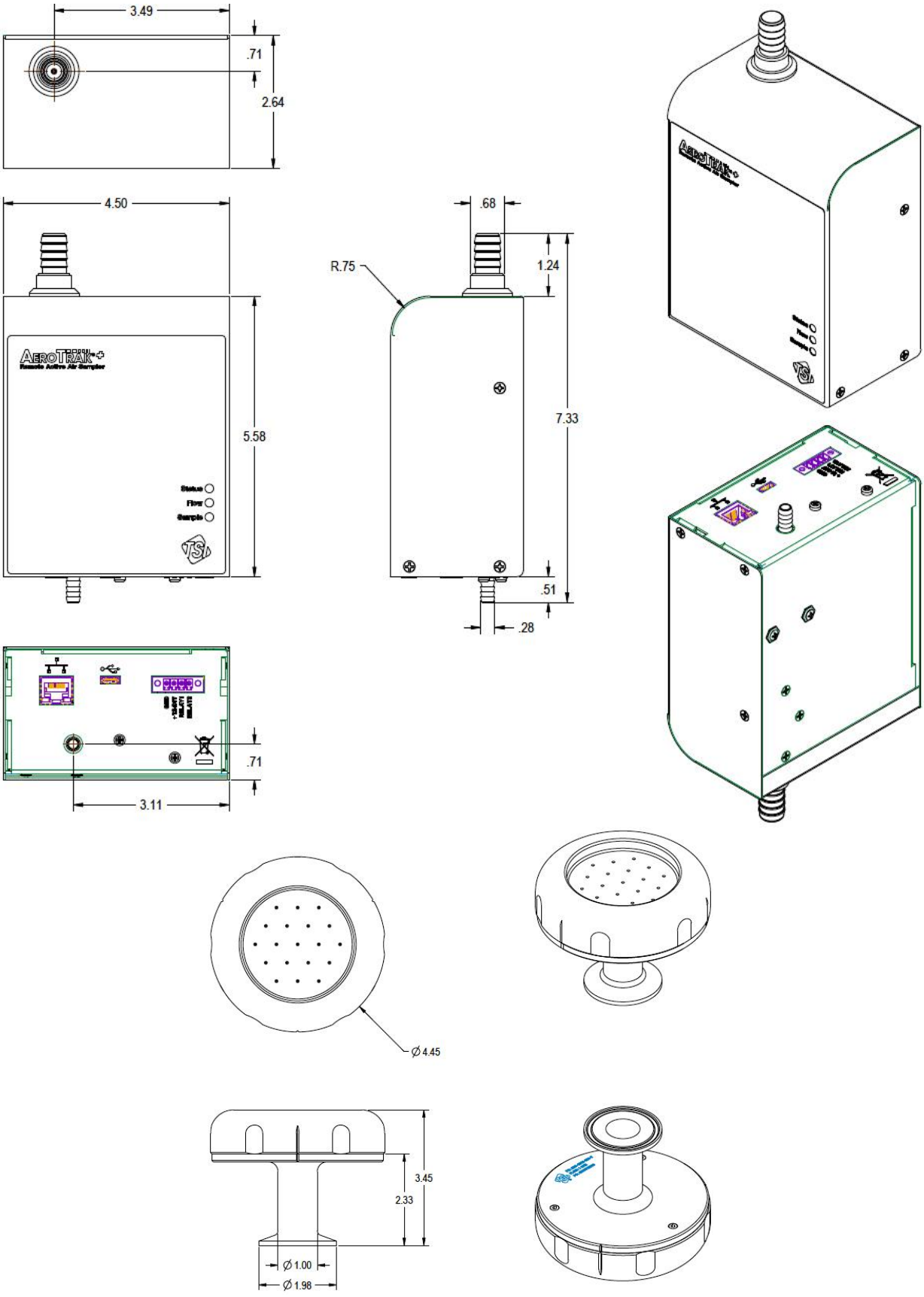
Valve Warranty.....	Five Years
Instrument Warranty	Two Years
Calibration Frequency.....	One Year
Flow Rate	28.3 L/min (1.0 CFM) with ±5% accuracy
Sampling Method.....	Sieve Impaction
Sampling	Continuous or intermittent
Vacuum Source	External vacuum > 15 in. (38.1 cm) of Hg
Control Box Enclosure.....	Stainless Steel
Sample Head (Base and Cap)	316L SS
Recommended Tubing (Between Sample Head and Control Box)	1/2 in ID x 5/8 in OD 20- meter maximum length
Agar Plate Recommended Dimensions	90-mm Agar Plate, Deep Fill (27 ml)
Standards.....	CE, ISO 14698
Operating Environment.....	Indoor Use Only Temperature: 50° to 104°F (10° to 40°C) Relative Humidity: 20% to 95% noncondensing Altitude: <10,000 ft. (3,050 m) Pollution Degree: 1
Communication	Ethernet (TCP/IP) Modbus® RTU
Status Indicator	Power, Flow, Sample and Ethernet
Data Storage	256,000 Sample Records,
Dimensions (H x W x D).....	Sample Head: 4.5 in. (dia), Height: 3.4 in. (h) [11.4 cm (dia) x 8.6 cm (h)] Control Box: 5.6 in. x 4.5 in. x 2.6 in. (14.2 cm x 11.4 cm x 6.7 cm)
Weight	Sample Head: 1.3 lb. (0.59 kg) Control Box: 2.3 lb. (1.05 kg)
Power.....	Power-over-Ethernet (PoE compliant with IEEE 802.3at) or 12-24 VDC @ 30W Relay Load: 0.5 A at 125 VAC; 2 A at 30 VDC Overvoltage Category: II
Storage Range	14° to 122°F (-10° to 50°C) / Up to 98% noncondensing

Included Accessories.....	Power connector, 90 mm plate standoffs, manual available on tsi.com
Optional Accessories.....	Sample cap, power supply, plate holder, exhaust filter, sanitary fitting inlet, tri-clamp fittings, alarm cable, sample tubing, vacuum tubing and mounting bracket

Compliance

Regulatory Compliance Testing Standards	European Standard EN 61326-1: 2013 European Standard EN 55011: 2009 + A1: 2010 European Standard EN 61326-1: 2013 Korean Standard KN 11 with RRA Public Notification 2017-19 and RRA Announce 2017-71 Korean Standard KN 61000-6-1 with RRA Public Notification 2017-19 and RRA Announce 2017-71 FCC Part 15 Subpart B
RoHS Marking	Yes

Dimensional Diagram - Model 7010



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Knowledge Beyond Measure.

TSI Incorporated – Visit our website **www.tsi.com** for more information.

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