BIOTRAK®
REAL-TIME VIABLE
PARTICLE COUNTER
MODELS 9510-BD & 9510-BD-P

QUICK START GUIDE

P/N 6005482, REVISION F
FEBRUARY 2016

Thank you for purchasing a TSI BioTrak® Real-Time Viable Particle Counter. This guide will help you quickly begin using your particle counter.

More detailed information is in the Operation Manual *located on the included TrakPro™ Lite Secure Software CD*. Please refer to the manual if you have questions on the operation of your new particle counter.

Safety

This section gives instructions to promote safe and proper handling of the BioTrak Real-Time Viable Particle Counter.

IMPORTANT

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.

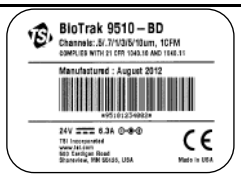
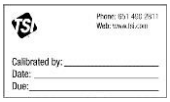
LASER SAFETY

The BioTrak Real-Time Viable Particle Counter is a Class I laser-based instrument. During normal operation, you will not be exposed to laser radiation. However, precaution should be taken to avoid exposure to hazardous radiation in the form of intense, focused, visible light. Exposure to this light may cause blindness. **DO NOT** remove any parts from the particle counter unless you are specifically told to do so in this manual. **DO NOT** remove the housing or covers. There are no user-serviceable components inside the housing.

The use of controls, adjustments, or procedures other than those specified in this manual may result in exposure to hazardous optical radiation.

Labels

Advisory labels and identification labels are attached to the outside of the particle counter housing and to the optics housing on the inside of the instrument.

Serial number label (back panel)	
Laser radiation label (internal)	**DANGER!** VISIBLE LASER RADIATION WHEN OPEN. AVOID DIRECT EXPOSURE TO BEAM WARNING: NO USER SERVICABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL
Electrical shock caution and no user serviceable parts (*back panel*)	**CAUTION** No user serviceable parts inside. Refer service to qualified personnel. To avoid electrical shock, the power cord protective grounding conductor must be connected to earth ground
Laser instrument compliance label (*back panel*)	**Class 1 Laser Product** Complies with 21 CFR 1040, 10 and 1040, 11 Except for deviations Pursuant to Laser notice No. 50 Dated June 24th, 2007
Calibration Label (*back panel*)	
Laser radiation symbol label (back panel and internal)	
European symbol for non-disposable item. Item must be recycled.	

Unpacking

1. Carefully unpack the particle counter from the shipping container and verify that all the items listed in the following table are present.
2. Contact TSI immediately if items are missing or broken.
3. Additional items may be included if you ordered accessories or spare parts.

Qty.	Item Description	Part/Model	Reference Picture
1	BioTrak Real-Time Viable Particle Detector	9510-BD	
1	Power Supply 24 VDC 6.24A (Power cord included is country dependent)	700125	
1	Country-Specific Power Cord	700057 (US) 700058 (UK) 700059 (Euro)	
3 m (10 ft)	Sample Tubing	3/8 ID x 1/2 OD	
1	Isokinetic probe	700068	
1	Computer cable (2 m) USB A to B	1110007 700033	
2	Stylus	N/A	
1	HEPA zero filter assembly	700119 (Filters and metal adapter)	
10	Printer paper rolls	700027	

Qty.	Item Description	Part/Model	Reference Picture
1	TrakPro™ Lite Secure software CD for 21 CFR Part 11 compliant data downloading *(includes manuals)*	7001901	
1	Operation Manual	6005481	*Included on TrakPro™ Lite Secure software CD*
1	Quick Start Guide	6005482	
1	Alarm Accessories	One Clamp on and One 2-pin connector	
1 Box (Qty 50)	Particle Collection Filter	700124	
10	Cleaning swabs	700127	
1	Filter Holder	700123	
1	Calibration certificate	N/A	

Power

1. Connect the bayonet connector from the power supply to the BioTrak Detector. Then insert the power cord to the power supply and connect to the wall outlet.

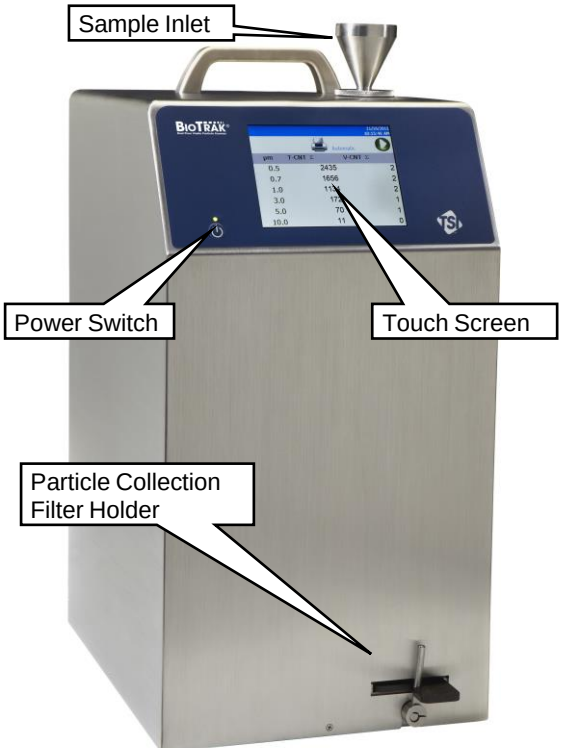
WARNING

The power plug is “live” when the power supply is connected to an AC outlet. The power connection should be made to the BioTrak Detector before plugging it into the AC power supply module.

The instrument turns on automatically when the AC power supply is plugged in. Once the instrument is powered on, use the power switch to turn the power off and on.

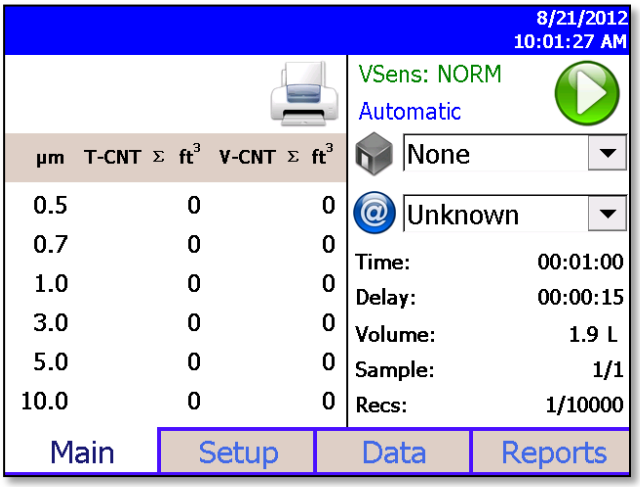
Running the Particle Counter

1. The portable particle counters are controlled using a touch screen display. Use the plastic stylus or your finger tip. **DO NOT** use sharp objects (such as a pen point) that may damage the screen overlay.
2. Press the **on/off** button . After a splash screen displays the TSI logo, a brief start-up sequence begins as the Windows® CE operating system boots up.



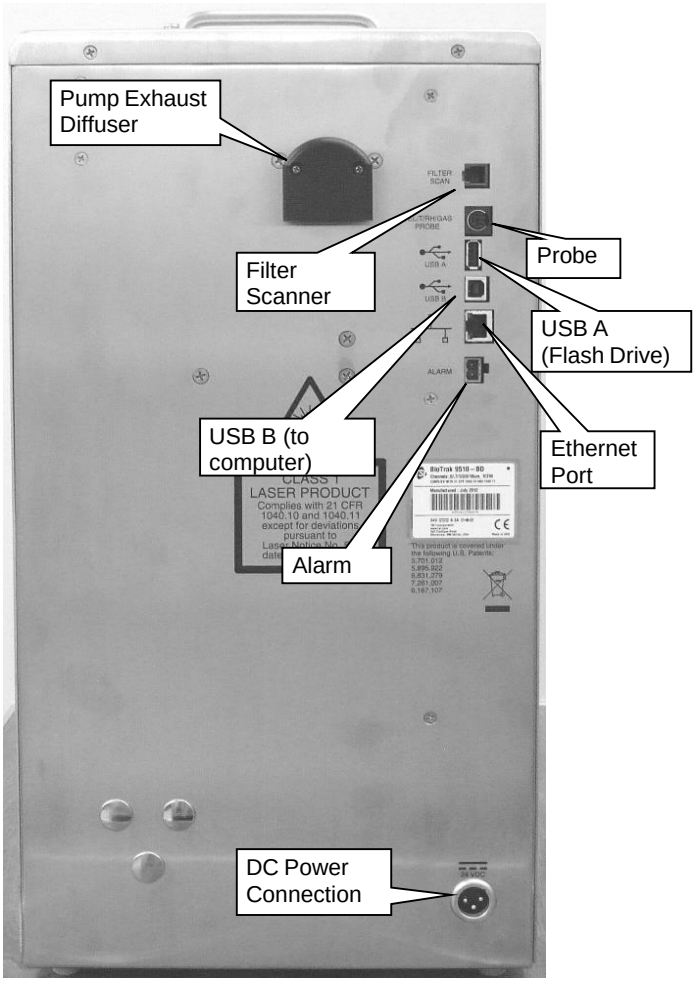
N O T E

The particle collection filter holder must be installed and latched in the closed position to operate. A filter does not need to be installed. A flow error will result if the filter holder is not installed and latched.



3. The instrument is ready for operation when the main screen appears.
4. To turn the power off, press the **On/Off** button and select the **Turn Off** icon. This confirmation step prevents accidentally turning off the instrument and ensures that the instrument settings are all saved before shutdown. An option to charge batteries will also be presented if AC is plugged in and a battery is present.

DO NOT SHUTDOWN THE INSTRUMENT BY DISCONNECTING THE POWER CORD OR LOSS OF DATA MAY RESULT!



5. There are four screens accessible using the tabs at the bottom: Main, Setup, Data, and Reports. Some screens require you to enter information. To enter information, tap on the screen and an on-screen keyboard appears.
   - The Main screen is the default. It shows the current status of the particle counter and the latest sample values.
   - Use the Setup screen to set up parameters for the particle counter (including setup for Zones, Recipes, Environmental measurements, System and Device settings).

- Use the Data screen to review data that has been collected.
- Use the Reports screen to select various standard reports for viewing and printing.

The screens and their options are explained in detail in the Operation Manual.

Using the Onscreen Keyboard

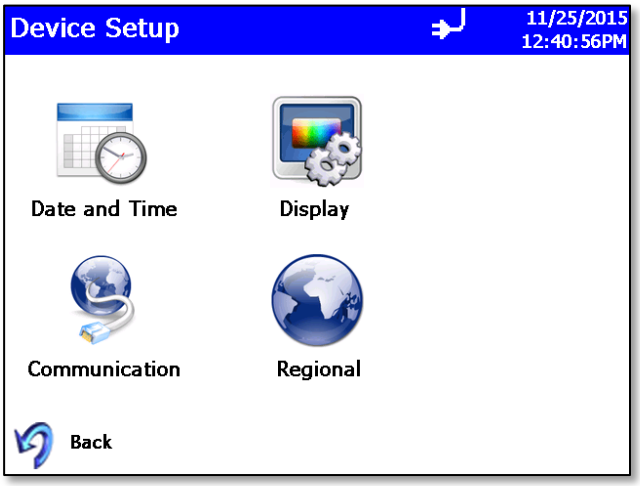
1. Throughout the setup screens, a keyboard will appear on the screen. Data may be entered using this keyboard.
2. When the entry is complete, press either the ↵ (**Enter**) or **Esc** key. The keyboard will then be hidden until another text entry box is selected.

   NOTE: An external USB keyboard can also be used for ease of entering information.

3. When numeric input is needed, a numeric keypad will appear on the screen.

Select Language

1. From the Main tab, select **Setup** | **Device** | **Regional**.



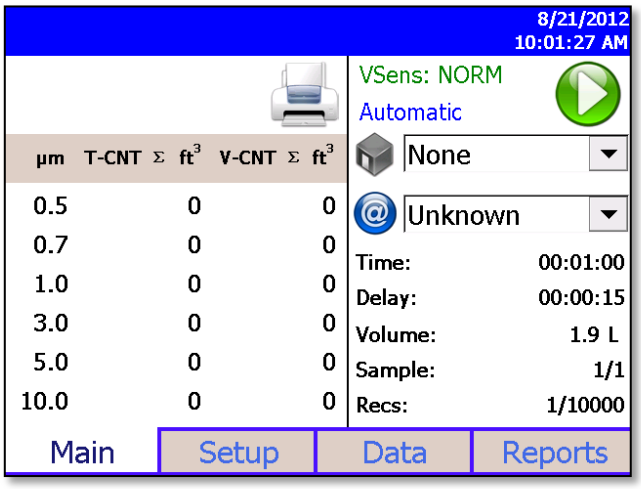
2. Language is selected from the Language list.
3. Date and number format (decimal separator) are selected from the *Formats* list.
4. Select **OK** to save the selection. The instrument will switch to using the selected Language and Formats.

Set up Time/Date and Language

1. Select the **Setup** | **Device Setup** | **Date** and **Time**.
2. Use this screen to set the current date and time. Press **OK** when finished. Use the arrows or tap on the screen to use the on-screen keypad to select options.

Collecting Samples

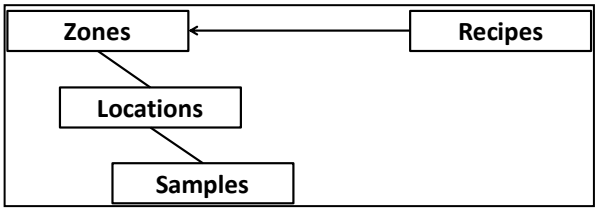
1. Sample collection is initiated from the Main screen:



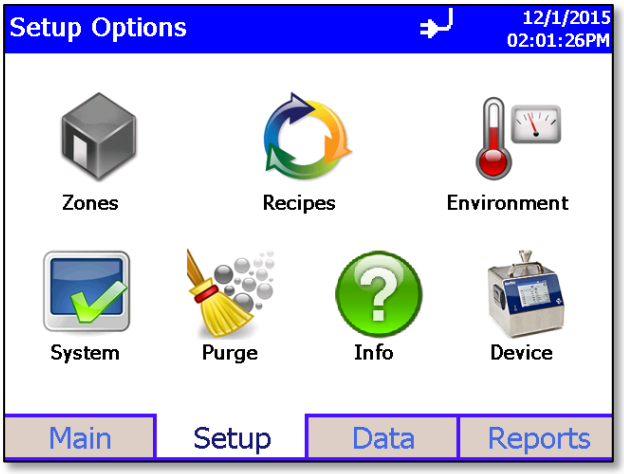
2. Press  to start a sample.
3. The Main tab is updated as samples are collected.
4. When the Zone selection is set to “None” from the Main screen, the “Default” Recipe will be used for sampling. The initial settings for the Default Recipe are 1, 60 second sample, but this Recipe can be edited as needed using the Recipe editor.
5. The Main tab is updated as samples are collected.

Zones, Locations, and Recipes

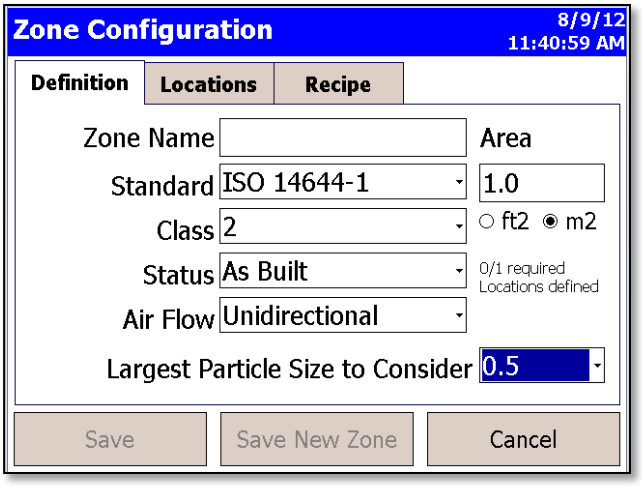
1. The BioTrak Detector has two main modes of operation: Total Particulate Room Classification and total and viable particulate sampling. Instrument configuration is optimized for these two modes of operation. Data is organized by Zones and Locations within Zones. A Recipe consists of the sample timing and Recipes are associated with Zones. The data structure is shown schematically below:



2. When conducting classifications, the type of classification can be selected and guidance is provided in terms of the sampling strategy required to meet the regulatory requirements in terms of number of Locations and length of sample.
3. When conducting sampling, no guidance is given as the sampling strategy and data organization is up to the user. Common Recipes can be configured for various sampling strategies in terms of length of individual samples and the number of samples per data collection period (time resolution is determined by sample time) and the length of data collection is determined by number of cycles.

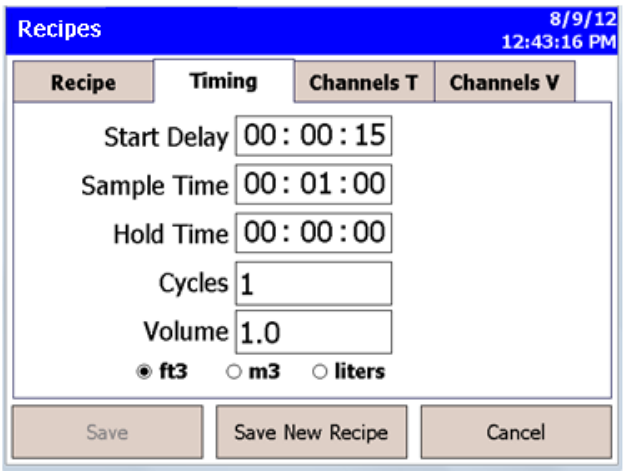


4. Selecting Zones brings up the set up screen where existing Zones can be edited, deleted or new Zones added. Zone naming is left up to the user but associating Zones with physical locations within the facility is recommended.
5. The Zone configuration screen enables naming of Zones, Locations within the Zone, and configuration of the sampling strategy known as Recipes.



6. Zone Definition allows selected classification standards to be chosen and sampling strategy guidance will be provided based on the selected standard. If non-classification sampling is desired, the Zone allows for grouping of data physical areas and also specific locations within the areas (Zones:Locations).
7. The Recipe selection allows the sampling strategy to be configured. The individual sample length as well as the number of samples for each data collection period is chosen. *Channels T* allows for total particulate channels to enabled/disabled and alarm levels to be chosen. *Channels V* allows for viable particulate channels to be enabled/disabled and alarm levels to be chosen.

   NOTE: If room certification is being conducted, guidance will be provided in terms of required sampling time and alarm limits.



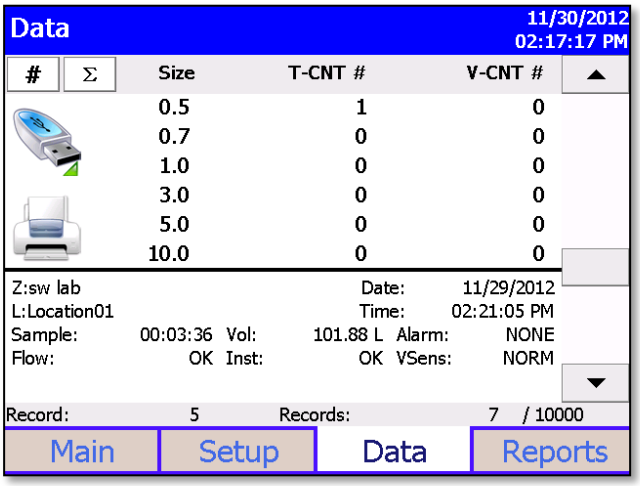
8. Timing field details are provided below:

Field	Description
Start Delay	Start Delay indicates how long it will be before the first sample is taken. **NOTE**: It is recommended that a minimum start delay of at least 15 seconds be chosen allowing the flow to be stabilized prior to the first sample being initiated.
Sample Time	Duration of sample. If a specific volume is desired, the sample time will automatically be calculated.
Hold Time	Hold Time indicates how long the instrument pauses between samples.
Cycles	Cycles is the total number of samples per collection. In Automatic mode, a cycle value of ∞ causes the instrument to count continuously using the settings for Delay, Time, and Hold until the Start/Stop button is pressed again.
Volume	Volume sets the volume of air that will pass through the instrument for each sample. Select ft^3, m^3 or liters and enter the desired volume for each sample.

9. Press ***Save New Recipe*** when finished which returns to the *Zone Configuration* screen.

Reviewing Data

1. Use the Data screen to review data that has been collected. Use the scroll bar control on the right to scroll though the records.
2. The record number is displayed near the bottom of the screen. As each record displays, its data and relevant parameters are displayed.
3. Descriptions of each section of the data display screen are described in the following table.



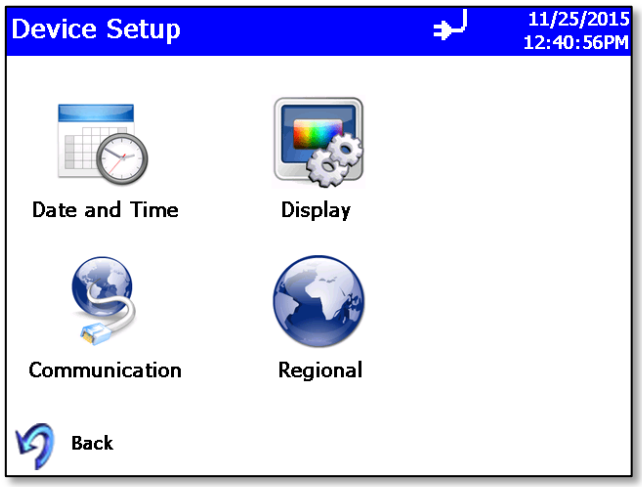
Data Screen Labels and Controls	
Field	**Description**
#, ft^3, m^3	Button used to change between counts and concentration displays.
Δ, Σ	Button used to change between differential (Δ) and cumulative (Σ) values for T-CNT and V-CNT.
Size	Channel size.
	Export the data to a flash drive.
	Print data to the optional printer.
Zone (Z)	Zone in which the data was collected.
Location (L)	Location within the Zone.
Date	Date on which the data was collected.
Time	Time at which data collection was initiated.
Sample	Duration of the sampling period.
Vol	Volume of air that was sampled.
Alarm	Alarm threshold was triggered (YES) or not (NONE).
Flow	Status of the flow. Indications are **OK** or **ALRM**. OK indicates the flow rate is good; ALRM indicates flow rate is below the defined setting and the sample is invalid.

Data Screen Labels and Controls	
Field	**Description**
Inst	Operational Status of the instrument. Indications are **OK** or **SRVC**. SRVC indicates that there is a problem with the laser or another element of the system and that the instrument requires Service.
Temp	Temperature at the end of the time the data was collected (if optional probe was connected during sampling).
RH	Humidity level at the end of the time the data was collected (if option probe was connected during sampling).
Vel	Velocity of the ambient air at the sampling location as measured by a connected TSI Velocity probe (optional).
Record	The record number of the sample being displayed.
Records	Total number of records.

Instrument Configuration

On the Setup tab page tap the Device button to display the Device Setup screen. This screen allows you to navigate to other screens where you can set date and time, calibrate the touchscreen, set up communications, and make regional selections.

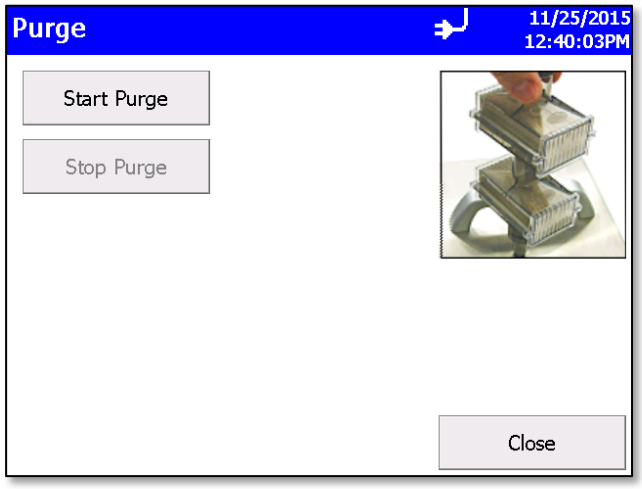
The BioTrak detector incorporates algorithms which are utilized to determine if a particle is viable in nature or not. To view the version of the algorithm installed on the unit tap the Info button on the Setup page. The Information Screen also displays firmware version, model, serial number, USB IP Address, and other information.



You can adjust the sensitivity of the viability algorithm by tapping the System button on the Setup tab page and then tapping the Configuration button on the System screen. Consult the user manual for detailed information.

Purge

Tap the Purge button on the Setup tab page to display the Purge Screen. Use this screen to clear residual particles from the flow path of the instrument. Place a zero count filter on the inlet before starting the purge.



Software

1. The TrakPro™ Lite Secure Data Transfer utility and user manuals come on a CD that was packaged with your particle counter.
2. To install the communications software and drivers, insert the CD into your computer drive and follow the on-screen instructions.
3. See the *TrakPro™ Lite Secure Software User's Guide* on CD (P/N 7001901) for installation instructions.

UNDERSTANDING, ACCELERATED

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