

# **Saturn II 5205 DigiSizer**

## **Installation Instructions and Checklist**

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## Introduction

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This document describes how to install and verify operation of the Saturn DigiSizer II 5205. The Saturn DigiSizer 5205 software is available as either a Standard analysis system or a *confirm* analysis system. This document contains instructions for a typical Saturn DigiSizer 5205 standard or *confirm* installation. Follow the instructions applicable for the type of system the customer purchased.

An installation checklist is included following the instructions. Complete each item in the checklist and return the checklist to Micromeritics.

In addition to the steps described in this checklist, the Micromeritics Installation Qualification Package for the Saturn DigiSizer 5205 and the Micromeritics Operational Qualification Package for the Saturn DigiSizer 5205 may be completed during installation.

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## Conventions

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### Symbols

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This document uses the symbols shown below to identify notes of importance, cautions, and warnings.



**Notes contain important information pertinent to the subject matter.**



**Warnings contain information that helps you prevent actions that may cause personal injury.**



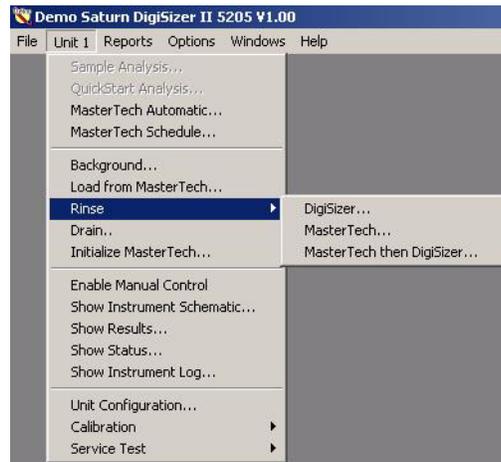
**Cautions contain information that helps you prevent actions that may damage the analyzer.**

## Commands

Menu commands are represented as shown in the following example:

Select **Unit1** > **Rinse** > **DigiSizer**.

Which means, select **Unit1**, then **Rinse**, then **DigiSizer** from the main menu.



Command buttons in dialog boxes are shown in bold type. For example: Click **OK** to close the dialog box.

## Part 1: Installation Instructions

### Preparing for Installation

Before you begin installation of the Saturn DigiSizer 5205, perform these steps:

- Thoroughly review the Preinstallation Checklist, which has been returned from the customer.

The Preinstallation Checklist and Instructions have been written to ensure that the customer site is ready for this installation. In addition, the customer has been notified that the installation will proceed smoothly if all of the items on the checklist are completed properly.

- The Preinstallation Checklist helps you perform the steps described in the Installation Instructions. If there are ANY discrepancies on the Preinstallation Checklist, contact the customer and explain how the installation will be affected.

For a successful installation, you will need the following:

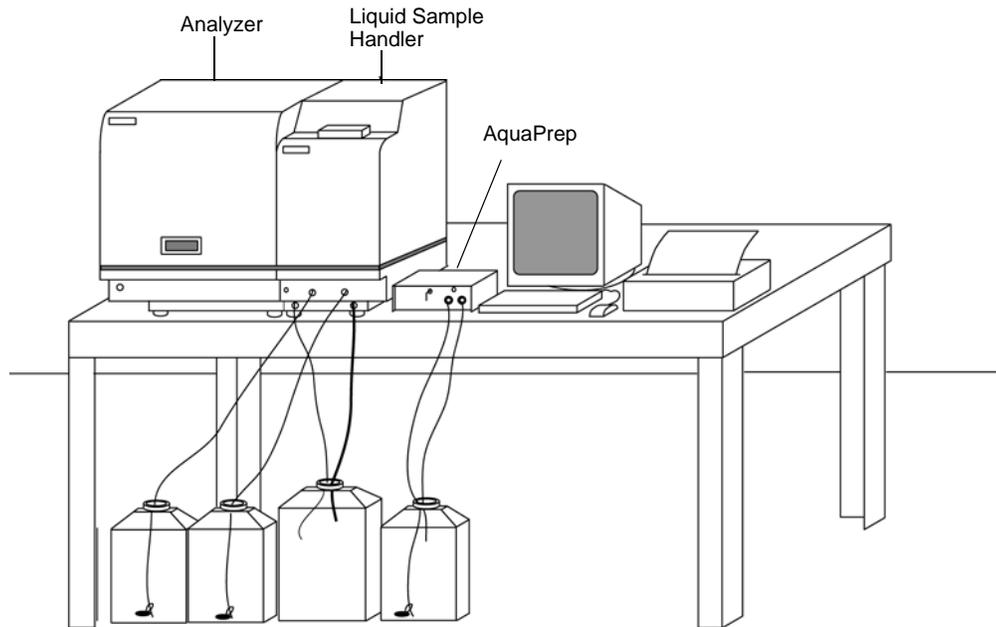
Item	Purpose	Location
Installation Instructions	To provide step-by-step instructions for each procedure.  Make sure you follow the procedures in the order in which they are presented to ensure a successful installation.  If the user has not purchased an option, for example, a MasterTech, skip the instructions for that component and proceed to the next step.	In this document.
Installation Checklist	To list the procedures required for the installation process and verify completion of each procedure.	In this document.
Standard Service Tool Kit, safety glasses, and protective gloves	To provide the tools required for a proper, safe installation.	Provided by the Service Representative.

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## Equipment Description

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The Saturn DigiSizer 5205 System consists of up to two particle size analyzers, each with a liquid sample handler, an AquaPrep, and one multifunction personal computer. Up to two MasterTech 052 Autosamplers can be installed, allowing automatic analysis of up to 18 samples each.

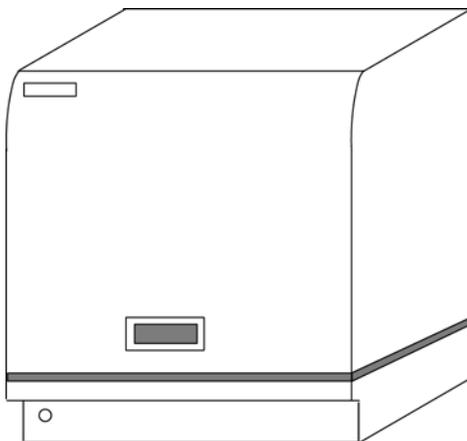


*Saturn DigiSizer 5205 Analysis System*

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## Analyzer

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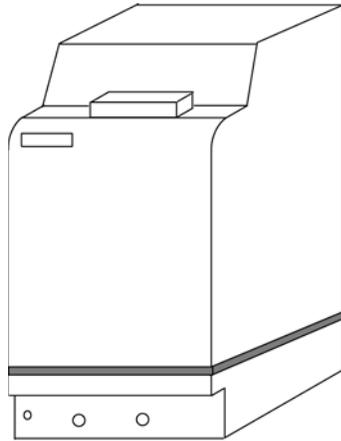


The Saturn DigiSizer uses a laser in conjunction with a CCD (charge-coupled device) containing over three million detector elements to measure particle size. These detectors are placed so that they can measure the intensity of light scattered by the particles at various angles. Light is scattered by particles in a pattern dependent on their size, shape, refractive index, and wave length of incident light. Based on the Mie theory, the particle size distribution is calculated from the angle distribution of the scattered light intensity collected by the detectors.

Both organic and inorganic particles can be analyzed and measured over a range of 0.06 to 2100 micrometers. The Saturn DigiSizer includes a complete system for circulating the dispersing liquid/sample mixture through the cell and reservoir, as well as to an external waste container.

## Liquid Sample Handler

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The Saturn DigiSizer requires the use of a liquid sample handler to transfer the sample to the analyzer for analysis. The sample handler also allows for connection of an ultrasonic probe to assist in sample dispersion.

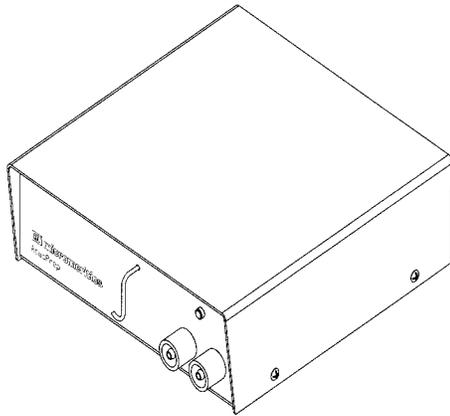
The sample handler enables automatic sample handling. All the user has to do is define analysis conditions (in the sample file), add the sample to the reservoir (containing the dispersing liquid), and start the analysis. The sample will be automatically monitored and diluted when necessary; and the system rinsed after each analysis (when specified in the sample file).

The Liquid Sample Handler is available in two configurations:

- **Standard unit:** includes a reservoir that holds 500 to 600 mL of dispersed sample. This model is best suited for samples containing coarse particles or for those of high density.
- **Low-Volume unit:** includes a reservoir that holds 100 to 120 mL of dispersed sample. This model is best suited for analyses where the sample quantity or dispersion liquid is limited, or where the dispersion liquid may be hazardous or difficult to dispose of.

You also can attach a MasterTech 052 which allows you to analyze up to 18 samples sequentially without further intervention. The MasterTech automatically transfers each sample to the liquid sample handler for analysis.

## AquaPrep



Tap water varies greatly in its dissolved air content and the presence of debris. This water must be deionized and well filtered before using with the AquaPrep.

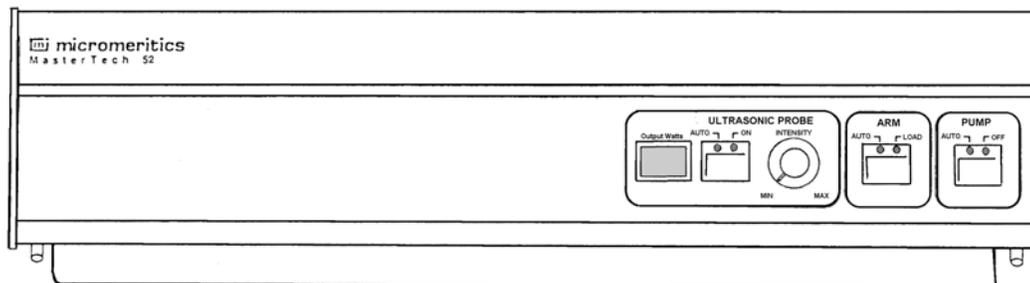
Filtering the water through (at least) a 1-micron filter will greatly extend the life of the hydrophobic capsule by means of which air is removed.

The AquaPrep recirculates water through a hydrophobic capsule consisting of capillaries. The result is a diffusion of dissolved air from the water through the capillary walls and into the ambient air.

The AquaPrep has water inlet and outlet connectors on its front panel. The switch for turning it on and off is located on the rear panel just left of the power cord entrance.

The air removed from the water is exhausted through a small tube also at the front of the instrument. Placing a small beaker of water around the tube so that its vent is submerged reveals by its bubbling the rate of air removal. This guides in assessing when sufficient air has been extracted from the water. Not all dissolved air has to be removed for satisfactory use with the DigiSizer.

## MasterTech 052



The MasterTech 052 is an optional automatic sampling device that operates in conjunction with the Saturn DigiSizer. The MasterTech allows you to queue as many as 18 predispersed samples to run consecutively and unattended. It allows samples to be redispersed either by stirring only or by stirring and disruption with an ultrasonic probe.

During operation, the beaker tray is loaded with beakers containing predispersed sample. When the Saturn DigiSizer is ready for a sample, the tray rotates until in the correct position for transfer. The sample is stirred for a user-specified length of time just before transfer to the Saturn DigiSizer for analysis. The ultrasonic probe can also be activated for a user-specified length of time to assist in redispersion if needed.

After redispersion, the sample is transferred to the reservoir of the analyzer. Then a small amount of analysis fluid is back-flushed to the MasterTech to rinse the stirrer, probe, and tubing. After rinsing is complete, the MasterTech prepares itself for the next sample.

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## Completing the Installation Checklist

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Section 2 of this document contains the Installation Checklist. For each operational verification procedure, fill in the values obtained in the test. When you complete the checklist, fill in the customer information, sign and date, and return the checklist to Micromeritics Service Center as described below.

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## Documenting Installation

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In order to provide consistent instrument service, Micromeritics retains records of installation, operational verification, and calibration data in its Service Support Center in Norcross, Georgia, USA. After completing the installation process, representatives of Micromeritics who install instruments are required to send the documents listed below to Micromeritics for inclusion in the customer's instrument history file.

For sample information files and calibration data, you may either save the files on CD and mail the CD to Micromeritics or send them as an email attachment.

The mailing address is:

Micromeritics Service Support Center  
4356 Communications Drive  
Norcross, GA 30093  
USA

The email address is:

**service-support@micromeritics.com**

The documents to be sent to the Micromeritics Service Support Center are:

- Saturn DigiSizer 5205 Installation Checklist, completed and signed
- Reference Material Analysis Sample File
- Laser Diagnostics Report
- Laser Stability Test Report
- Calibration files if instrument calibration data are changed during installation.\*

\*Generally, it is not necessary to change calibration data during installation. If however, you need to change calibration data, the calibration files must be saved and sent to Micromeritics for retention in the instrument history file.

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## Inspecting the Equipment

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Before you begin installing the Saturn DigiSizer 5205, check the packing list to ensure that all components and accessories are available.



**If the analyzer has not been unpacked, the customer must unpack the analyzer and place it on an appropriate work surface before you can proceed with the installation.**



**If the customer needs to declare equipment as damaged or lost, the customer must save the shipping cartons. The claims investigator must examine the cartons in order to complete the inspection report.**



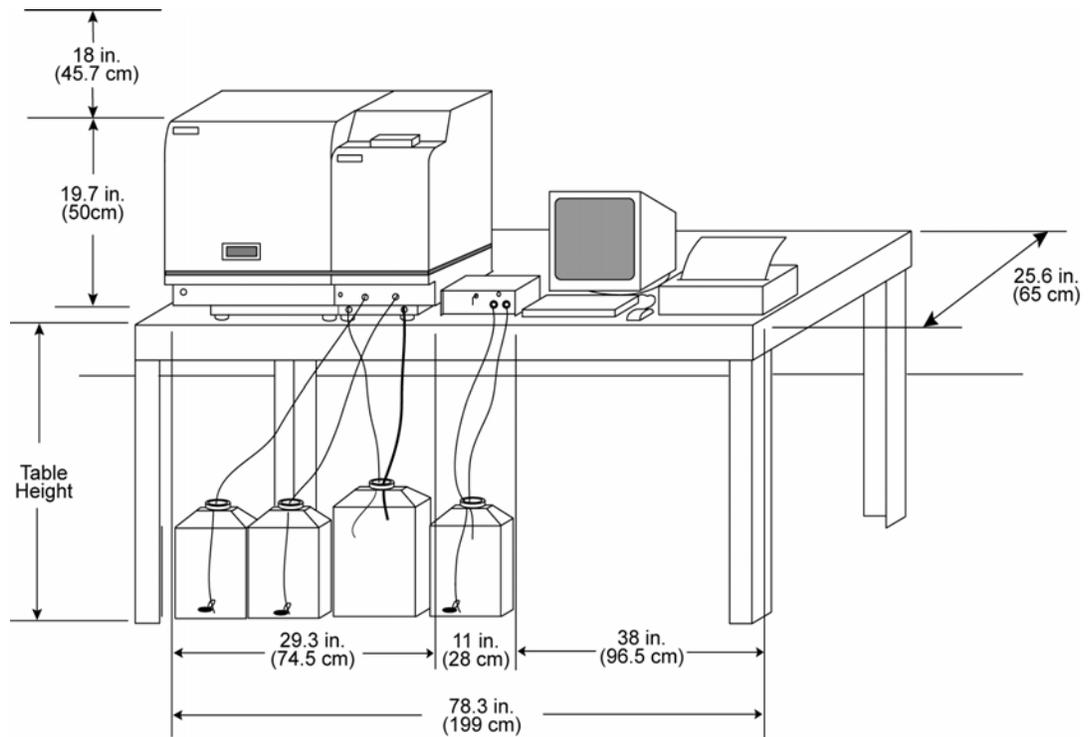
**The Saturn DigiSizer analyzer weighs 45 kg (99 lbs) and requires the use of two people to lift it from its shipping carton. One person should not attempt to lift the analyzer. With one person on each side of the analyzer, lift it upright from its shipping carton.**

## Setting up the DigiSizer System

### Installing the DigiSizer

#### Space Requirements

The Saturn DigiSizer System requires the work space shown below.



**You must have access to the front, side, and rear panels for installation of the instrument.**

#### Placing the DigiSizer on a Work Surface

Ensure that the DigiSizer is placed on the work surface with the back panel facing the front of the table in order to access the fuse block.

## Selecting the Voltage Setting and Installing the Fuses

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The Saturn DigiSizer leaves the factory set for 120 VAC and with the line fuses removed. The correct setting of the universal power entrance must be checked and the appropriate fuses installed before the analyzer can be operated.

The Saturn DigiSizer is designed to operate with 100, 120 or 220, 240 VAC from 47 to 63 Hz. Voltage selection and fusing are made at the power connector located on the rear panel of the analyzer. Appropriate fuses are included in the accessories kit:

- Two 5x20mm, SLO-BLO, 1.6A (100 - 120 VAC)
- Two 5x20mm, SLO-BLO, 1.25A (220 - 240 VAC)

1. Make sure the power cord is not connected.
2. Check the voltage setting at the power connector on the rear panel of the instrument.
  - If the voltage is correct:
    - a. Open the cover by prying the left side of the cover with a pointed object, such as a small flat-blade screwdriver.



- b. Remove the fuse block.
    - c. Proceed to Step 6.
  - If the voltage is incorrect, open the cover and remove the fuse block as described above, then proceed to Step 3.
3. Using a pointed object, pry the voltage selector card loose and remove it from the power connector housing.



- Orient the voltage selector card so that the desired voltage is shown on the side of the card facing you.



- Slide the voltage selector card into the power connector housing and press until it fits securely.



**The fuses used in the instrument must be identical in type and rating to that specified. Use of other fuses could result in electrical shock and/or damage to the instrument.**

- Insert the appropriate fuses into the fuse block. Refer to the chart below for the appropriate fuse rating.

<u>Power Source</u>	<u>Fuse</u>
100 - 120 VAC	Two 5x20mm, SLO-BLO, 1.6A
220 - 240 VAC	Two 5x20mm, SLO-BLO, 1.25A



- Slide the fuse block into the housing and press until it fits securely.

## Selecting the Computer Line Voltage

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The line voltage of the computer must be set to match the input power source (from the wall outlet). The computer operates with either 100-120 VAC or 200-240 VAC at 50 or 60 Hz. Refer to the instruction manual supplied with your computer for instructions on selecting power input.



**Do not connect the computer power cord to a power source until the proper voltage selection is made. Doing so could result in electrical shock and/or damage to the computer.**

## Connecting Cables

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### Ethernet Cable

The Ethernet cable has RJ45 connectors (similar to a phone jack). Either a straight-through patch cable or a crossover cable can be used. Install the cable as follows:

1. Insert one end of the Ethernet crossover cable into the connector labeled **Ethernet** on the rear panel of the analyzer.
2. Insert the other end of the cable into the RJ45 connector on the ethernet card (exposed on the rear panel of the computer).

### Power Cord

Connect the power cord to the connector on the rear panel of the DigiSizer and to an appropriate power source.

### Computer Cables

Follow the instructions provided below to connect the monitor, keyboard, printer, and mouse.



**Refer to the instruction manuals supplied with the computer, video monitor, and printer for voltage requirements for these units.**

1. Plug the keyboard cable, the monitor cable, and the mouse cable into their respective connectors on the rear panel of the computer.
2. Plug one end of the printer cable into the connector on the rear panel of the printer. Plug the other end of the printer cable into the appropriate connector on the rear panel of the computer.
3. Plug all power cords into an appropriate power source.

## Installing the Liquid Sample Handling Unit

A liquid sample handler is required to transfer the sample to the analyzer for analysis. The sample is transferred through the use of tubing. This tubing is installed on the left side of the sample handler and inserted through two ports on the right side of the analyzer. Precut tubing is provided for this purpose; if you are installing the:

- Standard unit, the tubing is 1.27-cm (1/2-in.) diameter (2 pieces)
- Low-volume unit, the tubing is 0.79-cm (5/16-in.) diameter (1 piece)

Perform the following steps to install the liquid sample handler.

1. Remove the two plugs from the ports on the side of the sample handler

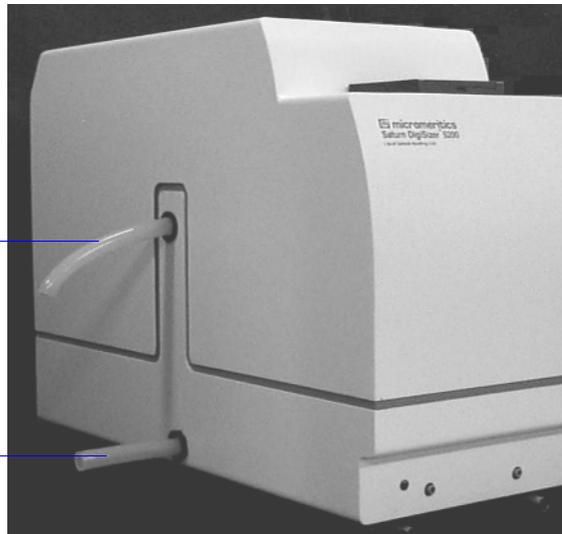
If you are installing the Low-volume unit, the tubing on the upper port is installed; remove the plug from the end of the tubing.

2. Install the tubing onto the connectors provided on the left side of the liquid sample handler. One piece of tubing is approximately 2 inches longer than the other; install this piece on the upper connector and the shorter one on the lower connector.
3. Install the tubing onto the connectors provided on the left side of the liquid sample handler. One piece of tubing is approximately 2 inches longer than the other; install this piece on the upper connector and the shorter one on the lower connector.

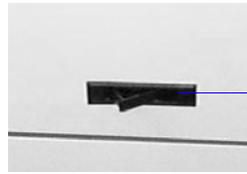
Longer piece on upper port.

This piece of tubing is already installed if you have the Low-volume unit.

Shorter piece on lower port.

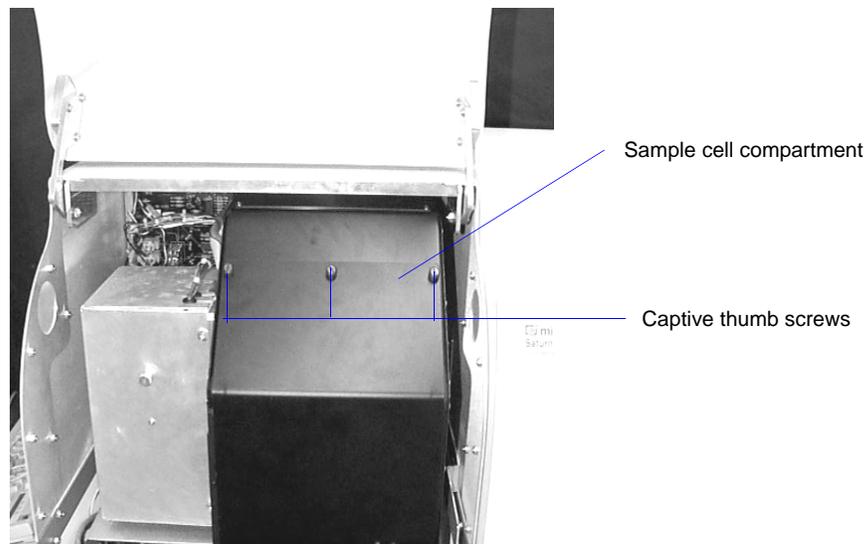


4. Open the front panel of the analyzer.
  - a. The front panel contains a retractable handle; press on the right side to protract the handle.



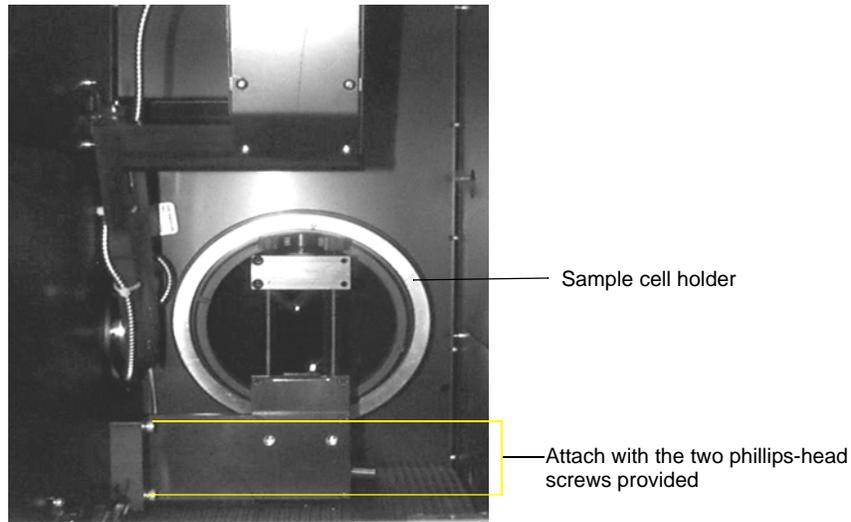
Press here to protract the handle.

- b. Grasp the handle and lift upward to open the front panel.
5. The cover of the sample cell compartment is held in place by three captive, thumb screws. Turn each screw counterclockwise and remove the cover.



- -
6. Remove the foam block supporting the rotation arm. The rotation arm should be elevated and out of the way of the sample cell holder location.

7. Unpack the sample cell holder and attach it with the two screws provided.

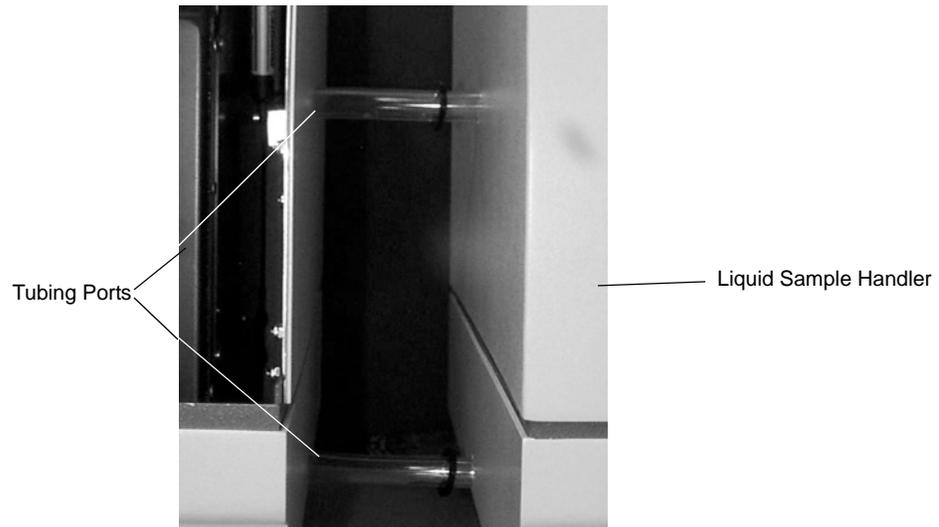


**If the rotation arm is blocking access to the sample cell holder location, do not attempt to move it. The arm is controlled through the DigiSizer software. Instructions are provided for moving the arm after the software is installed. (Refer to “Moving the Rotation Arm to the Specified Angle” on page 69.)**

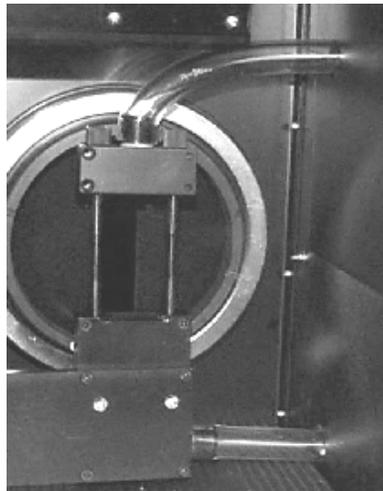
**If this is the case, do not install the sample cell holder until you have moved the rotation arm using the software.**

8. Remove the plugs from the ports on the inside, right side of the analyzer to allow installation of the sample transfer tubing.
9. Place the liquid sample handler to the right side of the analyzer.

10. Slide the liquid sample handler toward the analyzer, guiding the tubing through the ports on the right side of the analyzer.



11. Attach the sample transfer tubing to the sample cell holder as shown below.



**Avoid touching the lens when installing the tubing. Dirty, or smudged optics, will affect analysis results.**

12. Attach the RS232 communications cable as follows:
  - a. Connect one end of the cable to the port labeled **RS232 From Saturn Analyzer** on the rear panel of the liquid sample handling unit.
  - b. Connect the other end of the cable to the port labeled **Sample Handling Unit RS232** on the rear panel of the analyzer.

13. Plug the liquid sample handler's power cord into an appropriate power source. The liquid sample handler is equipped with universal power input; therefore, voltage selection is unnecessary.

## Installing the Sample Cell

The sample cell should always be kept clean to ensure collection of accurate data. Observe the following precautions when handling the sample cell:

- Avoid touching the smooth surfaces of the sample cell; always hold the cell by the edges.
- Never place the sample cell on anything other than a lens paper (a supply of lens papers is provided in the accessories kit).
- Handle the sample cell carefully to avoid replacement costs.



**If the rotation arm is blocking access to the sample cell holder, do not install the sample cell at this time. The arm is controlled through the DigiSizer software. Instructions are provided for moving the arm after the software is installed. (“[Moving the Rotation Arm to the Specified Angle](#)” on page 69.)**

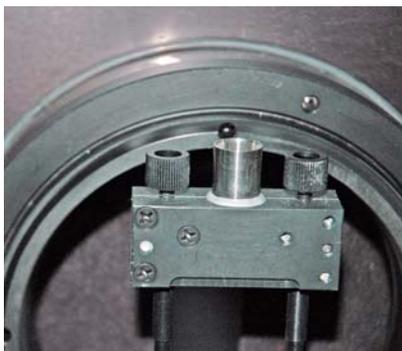
**After installing the software and moving the arm, return to these instructions to install the sample cell.**



**The sample cell is coated with an anti-reflective substance. Be careful not to scratch this coating. Also avoid touching the front and back surfaces of the sample cell to prevent fingerprints.**

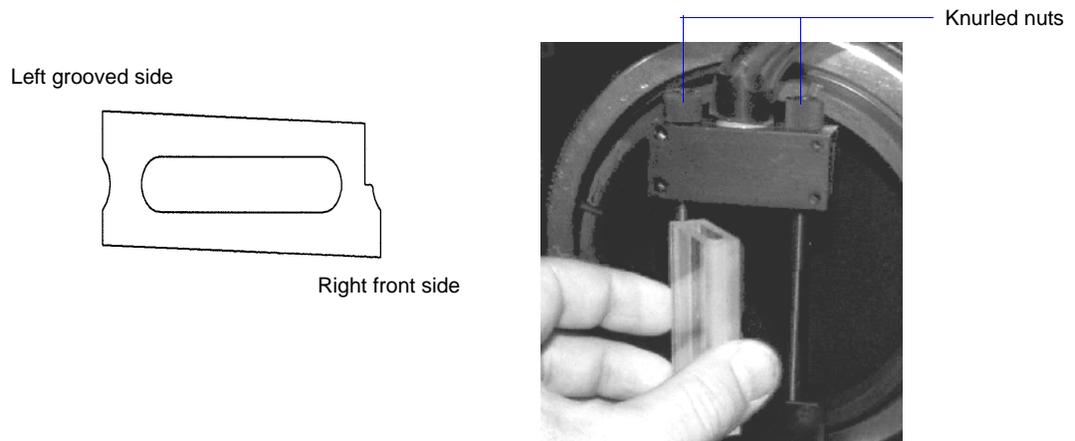
Follow the instructions provided below to install the sample cell into the sample cell holder.

1. Loosen the two knurled nuts on the top bracket of the sample cell holder. Then pull up on the bracket to allow placement of the sample cell.



2. Remove the sample cell from its container.

- The sample cell is grooved on the left side and angled slightly on the right, front side. Holding the sample cell by the edges, slide the grooved (left) side of the cell onto the left vertical bar.



- Swing the sample cell into place (against the right vertical bar).
- Slide the top bracket of the sample cell holder down.
- Tighten the knurled nuts.

## Installing the Liquid Sample Handler Tubing

The following items for installing the tubing are provided in the accessories kit:

- Appropriate plastic containers for the analysis, rinse, overflow, and waste (drain) liquids
- Precut pieces of Tygon tubing for the analysis, rinse, overflow, and drain function



**The Low-volume unit uses the same liquid for analysis and rinsing. Therefore, it does not require attachment of rinse tubing, rinse pump, or a separate rinse container. Ignore all references to the rinse tubing and container in this procedure if you have the Low-volume unit.**

- Prepare the containers and connect the tubing as follows:
- Prepare the containers:
  - Place the rinse and analysis liquid containers on the floor in front of the liquid sample handler; remove the caps.
  - Pour approximately 10 liters of deionized water with 0.0005% sodium metaphosphate (W/W) into the analysis liquid container.

If your rinse and analysis liquids are the same or if you are installing the Low-volume unit, skip step c. Be sure to access the Unit configuration dialog and specify that the rinse and analysis liquids are the same.

- c. Pour approximately 10 liters of water into the rinse container. It may be necessary to add a small amount of surfactant for difficult-to-rinse materials. For example, you may wish to use 0.0005% sodium metaphosphate (W/W) in deionized water.
  - d. Place the waste container on the floor beside the rinse and analysis containers. If you plan to use a MasterTech with the standard sample handler, replace the 5-gallon container with one that will hold at least 10 gallons. If available, a direct-drain system would be more desirable when using the MasterTech.
  - e. Label the containers appropriately.
3. Remove the plugs from the tubing ports on the front panel of the liquid sample handler.
  4. Install the tubing onto the ports of the liquid sample handler as described below.

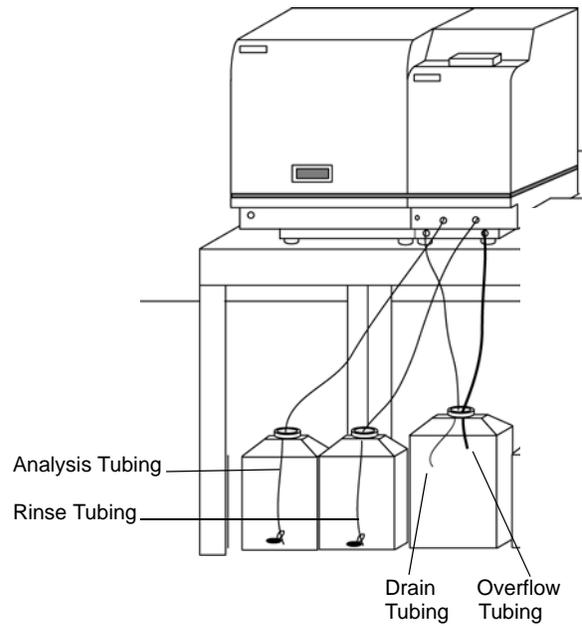
The two pieces of 0.64-cm (1/4-in.) diameter tubing are installed on the two upper ports (analysis and rinse).

The 0.79-cm (5/16-in.) diameter tubing (drain) is installed on the lower left port and the 1.27-cm (1/2-in.) diameter tubing (overflow) is installed on the lower right port.



5. Insert the other ends of the drain tubing and the overflow tubing just inside the waste container. Use a clamp or similar device to ensure that the tubing is kept above the liquid level or cut the tubing so that the ends are just inside the container. If the tubing is allowed to become immersed in liquid, timeout errors will occur.
6. Insert the other ends of the rinse and analysis tubing into the cap(s) of their respective containers, then install a weight onto the end of each tubing.

7. Place the cap(s) on the container and tighten; ensure that the tubing is resting on the bottom of the rinse and analysis liquid container(s).

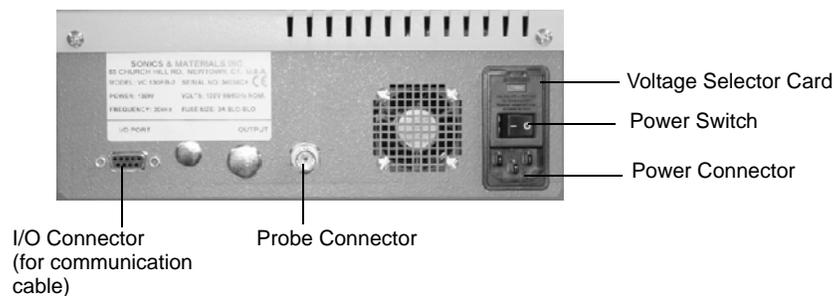


Do not allow any of the tubing to form a loop so that flow is restricted; cut the tubing if required.

## Connecting the Ultrasonic Controller Unit

Connect the ultrasonic controller unit to the probe as follows:

1. Place the ultrasonic controller unit on top of the liquid sample handler.
2. Connect one end of the 9-pin RS232 M/F straight communication cable to the I/O connector on the rear of the controller unit.
3. Insert one end of the ultrasonic probe BNC cable into the probe connector.



4. Insert appropriate fuse(s) for the input power source. Refer to the following chart for the appropriate fuse rating.



**The fuses used in the ultrasonic controller unit must be identical in type and rating to that specified. Use of other fuses could result in electrical shock and/or damage to the unit**

<u>Power Source</u>	<u>Fuse</u>
100-120 VAC	3AG, 3.0 Amp Slow-Blow
200-240 VAC	5x20 mm, 1.6 Amp Slow-Blow (Type T)

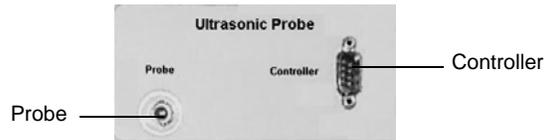
5. Ensure that the line voltage is set to match that of the input power source. Refer to the manufacturer's User's Guide shipped with the ultrasonic probe for instructions on setting the line voltage.



**Do not connect the ultrasonic power cord to a power source until the proper voltage selection is made. Doing so could result in electrical shock and/or damage to the ultrasonic unit.**

6. Connect the power cord to the power connector and plug into an appropriate power source.
7. On the rear panel of the liquid sample handler in the area labeled **Ultrasonic Probe**:
  - a. Connect the other end of the communication cable (from the ultrasonic controller) to the connector labeled **Controller**.

- b. Insert the other end of the ultrasonic probe cable into the connector labeled **Probe**.

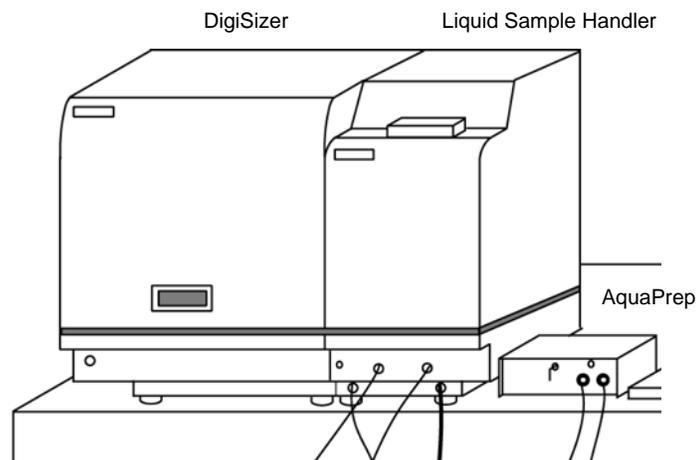


8. Place the control unit power switch in the ON position.

The operation of the ultrasonic probe is controlled through the analysis software.

## Installing the AquaPrep

Ideally the AquaPrep should be placed next to the liquid sample handling module of the DigiSizer. This allows for easy transfer of the container of deaerated water from the AquaPrep to the sample handling module.



## Selecting the Input Power

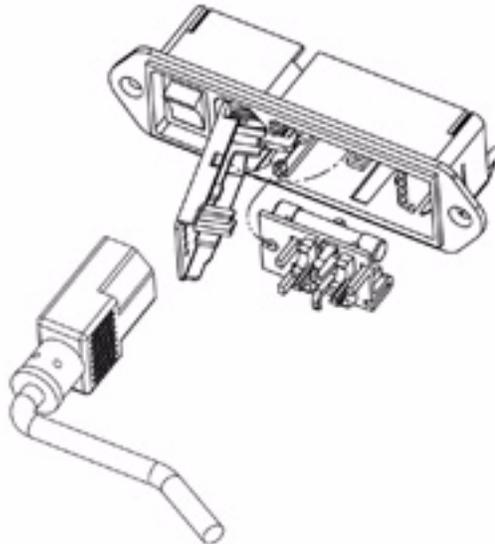
The AquaPrep leaves the factory set for 120 VAC and with the line fuse removed. The correct setting of the universal power entrance must be checked and the appropriate fuse installed before the AquaPrep can be operated. The AquaPrep is designed to operate with either 100, 120, 220 or 240 VAC at 50 or 60 Hz. Voltage selection and fusing are made at the power connector which is located on the rear panel of the unit.

Spare fuses are also included.



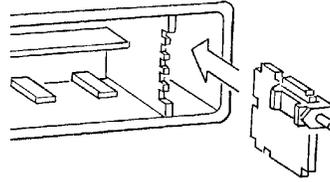
**On some instruments, the input power connector has a removable cover instead of the hinged cover described below. If the unit you are installing has a removable cover, refer to the instructions in Appendix C rather than those below.**

1. Make sure the power cord is not connected. The cover of the input power connector cannot be opened with the power cord installed.
2. Check the voltage setting on the rear panel of the instrument.
  - If the voltage is correct:
    - a. Open the cover by prying the right or left side of the cover open with a pointed object, then swinging the cover to the left.
    - b. Remove the fuse block.

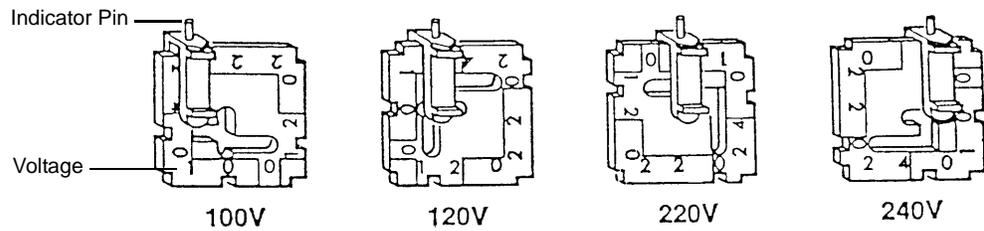


- b. Proceed to Step 6.
  - If the voltage is incorrect, open the cover and remove the fuse block as described above, then proceed to Step 3.

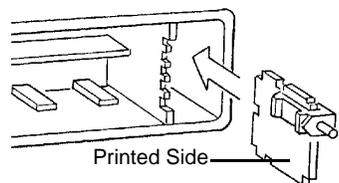
3. Pull the voltage selector card straight out of the power connector housing.



4. Orient the voltage selector card so that the desired voltage is indicated at the bottom. Orient the indicator pin so that it points upward as shown in the following illustration.



5. Insert the voltage selector card into the power connector housing with the edge containing the desired voltage first and with the printed side to the left.



6. Fuse the input power line according to local safety practices. The input power connector can be used with either a single-fuse arrangement or a double-fuse arrangement.
  - a. If the single-fuse arrangement is desired, position the fuse block so that the side with the single-fuse slot and the jumper bar is away from the cover.

If the double-fuse arrangement is desired, position the fuse block so that the side with the double-fuse slots is away from the cover.

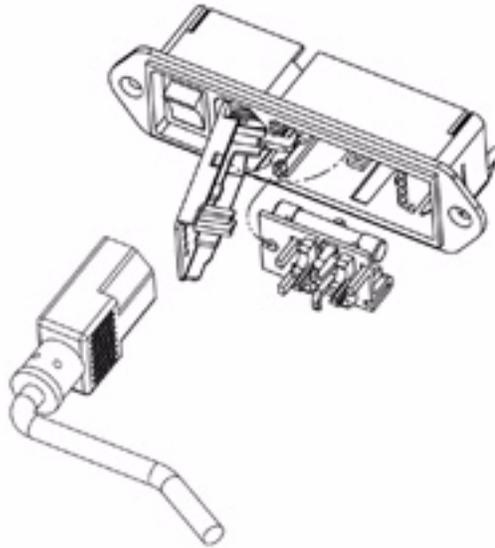


**The fuses used in the equipment must be identical in type and rating to that specified. Use of other fuses could result in electrical shock and/or damage to the equipment.**

- b. Insert appropriate fuse(s) for the input power source. Refer to the chart below for the appropriate fuse rating.

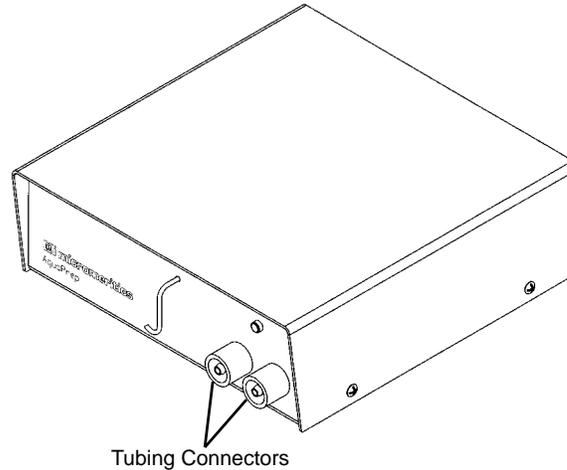
<u>Power Source</u>	<u>Fuse</u>
100-120 VAC	2.0 Amp (slow-blow)
200-240 VAC	1.0 Amp (slow-blow)

7. Insert fuse block into the input power connector (as shown in the following illustration) and snap it into place, then close the cover. Once the fuse block and cover are in place, the position of the indicator pin shows the input power selected.



## Installing the AquaPrep Tubing

The AquaPrep has inlet and outlet connectors onto which tubing is installed for circulating the water through the AquaPrep for degassing.



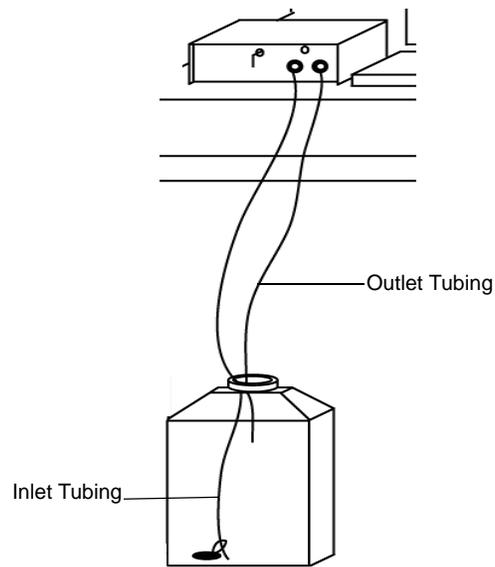
1. Install the two pieces of tubing (supplied in the accessories kit) into the connectors located on the right side of the front panel.
2. Fill a 10-liter, plastic container with deionized water which has been filtered with a 1-micron filter. Place the container on the floor directly below the AquaPrep.



**The AquaPrep works only with water; do not use any other liquid. Do not use water that contains a detergent or wetting solution.**

3. Insert the other ends of the tubing into the water. Orient the tubing as follows:
  - The end of the inlet tubing (supply) should be close to the bottom of the container.
  - The end of the outlet tubing (return) should be just below (approximately 5 cm, or 2 in.) the surface of the water so that splashing does not re-introduce air into the liquid.

It is important that the tubing is arranged at different levels. This promotes circulation and ensures that all the liquid is exposed during the deaeration process.



## Connecting the Power Cord

Insert one end of the power cord into the input power connector on the rear panel of the AquaPrep and the other end into an appropriate power source.

Do not turn on the power switch until you are ready to begin operation.



**Do not turn on the AquaPrep until the water is prepared and ready for deaeration. Failure to have water circulating while the unit is turned on may damage the unit.**

## Installing the MasterTech (Optional)

---

The MasterTech is an optional device. Skip these instructions if the customer did not purchase a Master Tech.

### Removing Packing Material From the Unit

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After removing the MasterTech from the shipping carton, remove all foam packing material from the unit before proceeding with installation.

### Selecting the Voltage

---

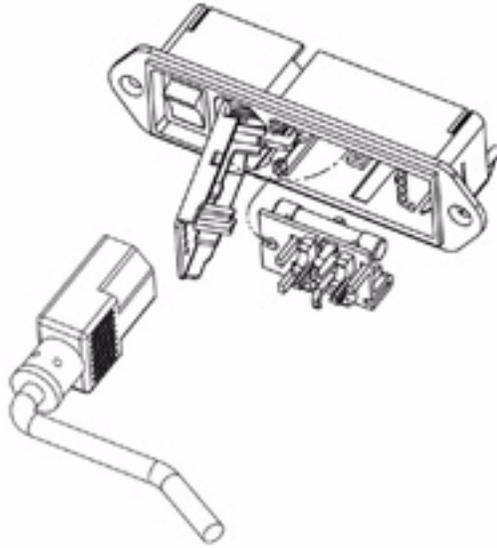
The MasterTech 052 leaves the factory set for 120 VAC and with the line fuse removed. The correct setting of the universal power entrance must be checked and the appropriate fuse installed before the MasterTech can be operated. The MasterTech is designed to operate with either 100, 120, 220 or 240 VAC at 50 or 60 Hz. Voltage selection and fusing are made at the power connector, which is located on the rear panel of the unit



**On some instruments, the input power connector has a removable cover instead of the hinged cover described below. If the unit you are installing has a removable cover, refer to the instructions in Appendix C rather than those below.**

1. Make sure the power cord is not connected. The cover of the input power connector cannot be opened with the power cord installed.
2. Check the voltage setting on the rear panel of the instrument.
  - If the voltage is correct:
    - a. Open the cover by prying the right or left side of the cover open with a pointed object, then swinging the cover to the left.

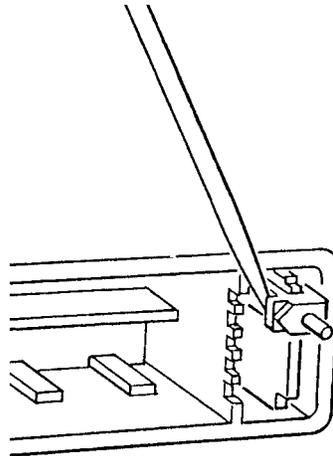
b. Remove the fuse block.



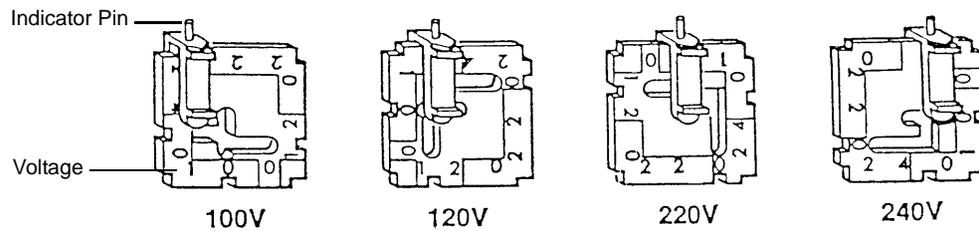
b. Proceed to Step 6.

- If the voltage is incorrect, open the cover and remove the fuse block as described in steps a and b above, then proceed to Step 3.

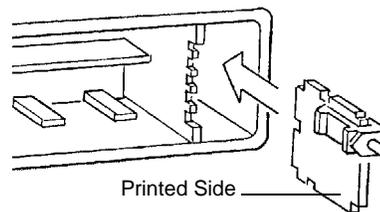
3. Pull the voltage selector card straight out of the power connector housing.



4. Orient the voltage selector card so that the desired voltage is indicated at the bottom. Orient the indicator pin so that it points upward as shown in the following illustration.



5. Insert the voltage selector card into the power connector housing with the edge containing the desired voltage first and with the printed side to the left.



6. Fuse the input power line according to local safety practices. The input power connector can be used with either a single-fuse arrangement or a double-fuse arrangement.
- If the single-fuse arrangement is desired, position the fuse block so that the side with the single-fuse slot and the jumper bar is away from the cover.
- If the double-fuse arrangement is desired, position the fuse block so that the side with the double-fuse slots is away from the cover.

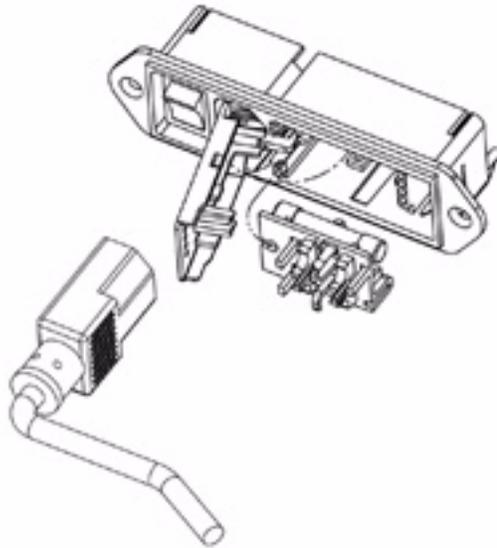


**The fuses used in the instrument must be identical in type and rating to that specified. Use of other fuses could result in electrical shock and/or damage to the instrument.**

- Insert appropriate fuse(s) for the input power source. Refer to the chart below for the appropriate fuse rating.

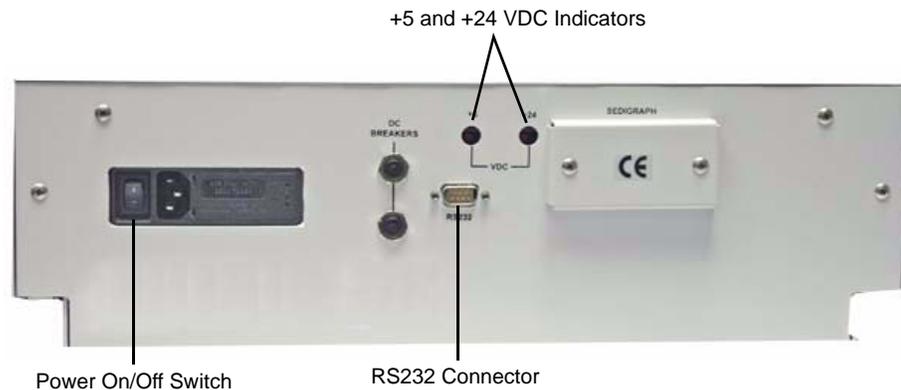
<b>Power Source</b>	<b>Fuse</b>
100-120 VAC	3AG, 2.00 Amp Slow-Blow
200-240 VAC	5x20 mm, 1.00 Amp Slow-Blow (Type T)

7. Insert fuse block into the input power connector (as shown in the following illustration) and snap it into place, then close the cover. Once the fuse block and cover are in place, the position of the indicator pin shows the input power selected.

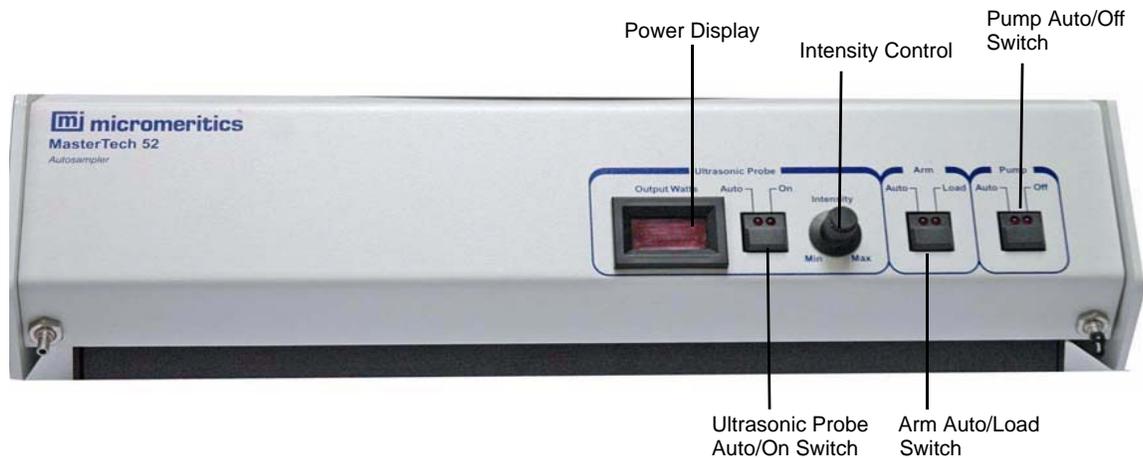


## Turning on the MasterTech (If Used)

1. Make sure the proper operating voltage and fuse are selected and in place.
2. Insert the power cord into the connector on the rear panel of the MasterTech and into an appropriate power source.
3. Place the POWER ON/OFF switch, located on the MasterTech rear panel, in the ON ( | ) position. The +5 and +24 LEDs on the rear panel and some of the LEDs in the front panel switches should illuminate.



**The ultrasonic probe should not be turned on at this point. Observe the indicator on the ULTRASONIC PROBE AUTO/ON switch on the front panel of the MasterTech (shown in the following illustration). If the indicator below ON is illuminated, press the switch to turn off the probe. The indicator below AUTO should illuminate.**



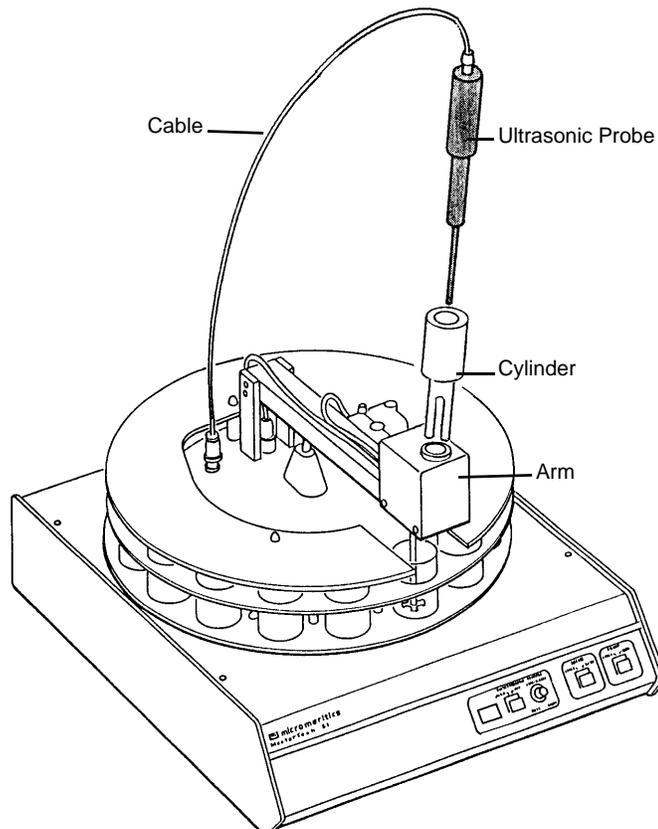
4. Press the ARM AUTO/LOAD switch on the front panel of the MasterTech. The arm should rise to the Load position, which is used for removal and replacement of the tray.

## Installing the Ultrasonic Probe



**Make sure that no power is supplied to the unit before starting this procedure.**

1. Make sure that the power ON/OFF switch on the rear panel of the MasterTech is in the OFF (O) position.
2. Attach the probe cable to the connector labeled **Ultrasonic Probe**.



3. Ensure that the probe tip is attached to the probe; if not, attach it. A 1/4-in. probe tip is supplied with the MasterTech 052. A 1/8-in. tip is also available.
4. Insert the cylinder into the arm, positioning it so that the longer slots slide over the protrusions inside the arm.

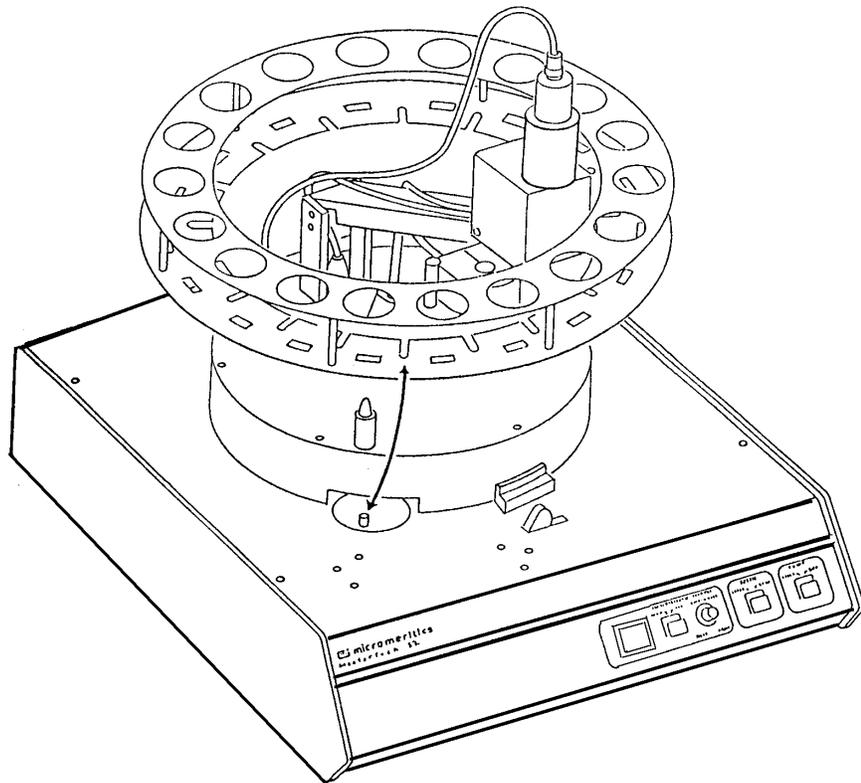


**Position the shorter slots of the cylinder over the protrusions if you are using the 1/8-in. probe.**

5. Insert the probe into the cylinder.

## Installing the Beaker Tray

1. Place the POWER switch in the ON position.
2. Make sure the arm of the MasterTech is in the LOAD (uppermost) position; the LOAD LED will be illuminated. If the LED is not illuminated, press the ARM AUTO/LOAD switch.
3. Hold the tray firmly by the outside edge. Notice that the bottom of the tray has small slots positioned radially outward from the inside edge. Place the tray on the MasterTech so that the arm passes through the center opening of the tray.
4. Make sure the drive pin is lined up into a radial slot on the bottom of the tray. The position of the tray does not matter at this point.

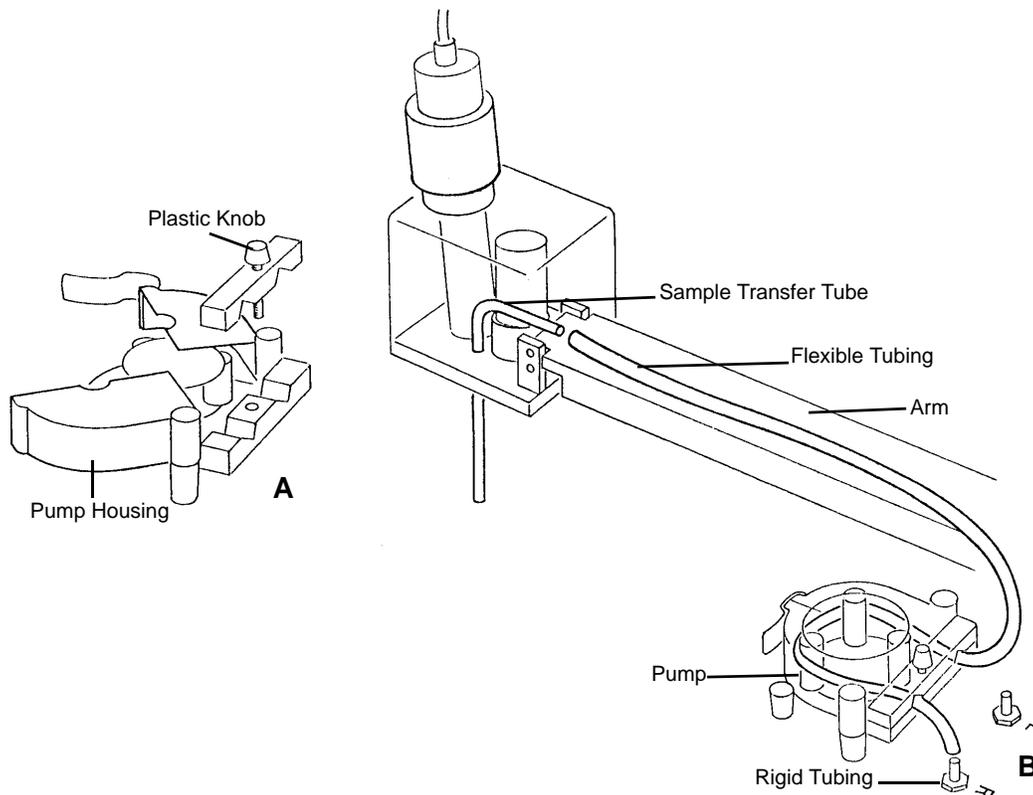


## Installing Sample Transfer Tubing

The MasterTech accessories kit contains two pieces of flexible tubing. One piece of tubing is for installation inside the MasterTech arm. The other piece of tubing is installed inside the liquid sample handler, allowing for connection to the MasterTech.

### MasterTech Installation

1. Ensure that the MasterTech POWER switch is in the ON position.
2. Make sure the arm is in the LOAD (uppermost) position; the LOAD LED is illuminated. If the LED is not illuminated, press the ARM AUTO/LOAD switch.
3. Press the end of one segment of flexible tubing over the sample transfer tube until there is at least 1/2-in. overlap.

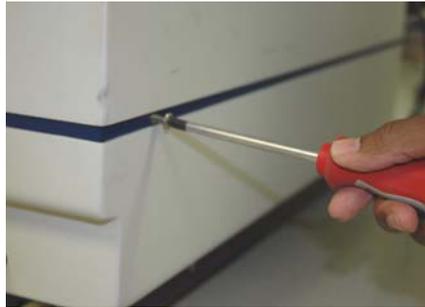


4. Unlatch the pump housing and unscrew the plastic knob on the rear of the pump.
5. Thread the tubing through the pump as shown above and attach it to the rigid tubing labeled **L** (left) or **R** (right). Choose the rigid tubing labeled with the side of the MasterTech from which you want the fluid to be discharged.
6. Close and latch the housing. Tighten the plastic knob on the rear of the pump sufficiently to prevent tubing slippage but not enough to restrict flow through the tubing.

## Liquid Sample Handler Installation

The following steps are common to both liquid sample handlers.

1. Place the MasterTech to the right of the liquid sample handler.
2. If the liquid sample handler contains liquid:
  - a. Select **Unit[n] > Drain > DigiSizer**.
  - b. Turn off the liquid sampler and the analyzer.
3. Remove the retaining screws on the right side of the liquid sample handler.



4. Loosen the captive thumb screw on the rear panel.



5. Lift off the cover and set aside.



## Liquid Sample Handler Installation

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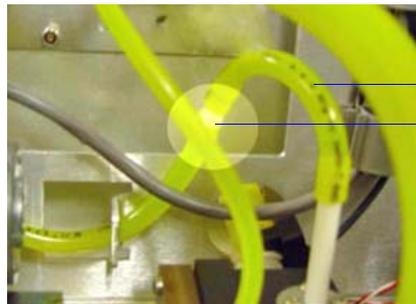
The following steps are common to both liquid sample handlers. After performing these steps, advance to the section applicable to the liquid sample handler you have connected to your analyzer.

1. Select **Unit [n] > Drain > DigiSizer** to remove any liquid that may be in the liquid sample handler.
2. Turn off the liquid sampler and the analyzer.
3. Remove the retaining screws on the right side of the liquid sample handler, then loosen the captive thumb screw on the rear panel.
4. Lift off the cover and set aside.

### Standard Liquid Sample Handler

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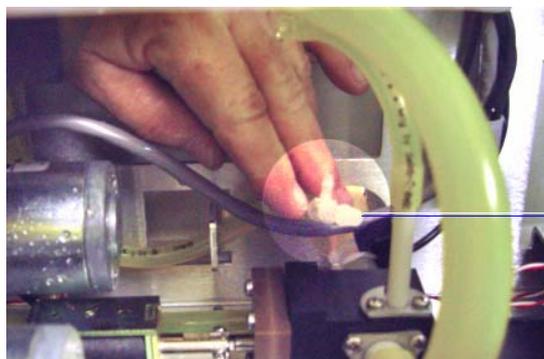
1. Locate the analysis liquid inlet tubing on the inside of the liquid sample handler.
2. The analysis tubing has a connector approximately two inches from the inlet fitting; remove this connector.



Analysis Liquid tubing

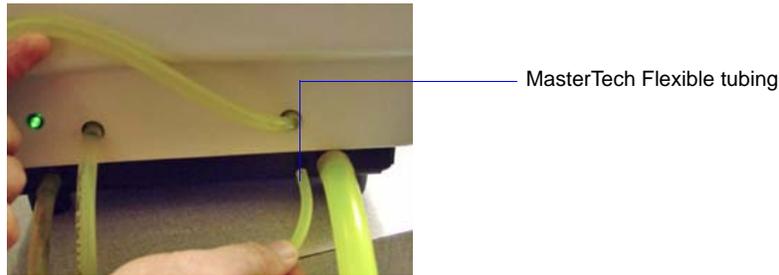
Remove this connector

3. Using the T-connector supplied in the MasterTech accessories kit, reconnect the tubing using the two larger ends of the T-connector.

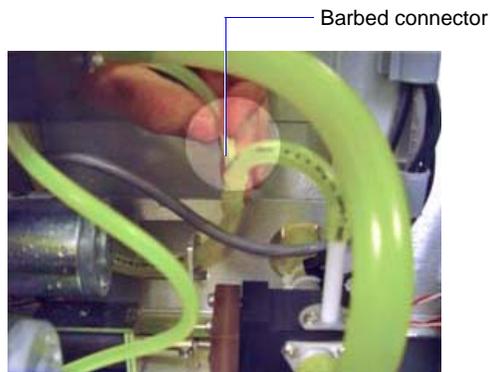


T-connector

4. Insert the remaining piece of flexible tubing through the hole provided on the base of the sample handler.



5. Guide the tubing through the hole in the front chassis (just below the rinse pump) and connect it to the remaining barbed fitting of the T-connector.



6. Install the other end of the flexible tubing onto the sample transfer tubing connector on the side chosen in **Step 5** of [“Installing Sample Transfer Tubing” on page 36](#).

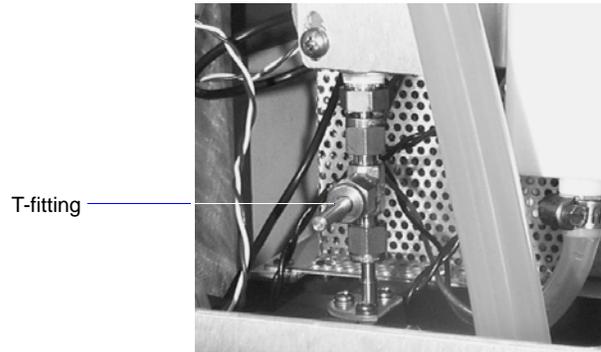


**Make sure the side to which you connect the flexible tubing coincides with the one chosen in the arm of the MasterTech.**

7. Replace the cover of the liquid sample handler. Replace the retaining screws on the right side of the unit and retighten the thumb screw on the rear panel.

## Low-Volume Liquid Sample Handler

1. Locate the T-fitting of the stainless steel tubing of the drain manifold.



2. Use the 7/16- and the 1/2-in. wrenches provided in the accessories kit for this step. Hold the T-fitting secure with the 7/16-in. wrench, then use the 1/2-in. wrench to loosen and remove the topmost nut.



3. Remove the stainless steel plug from the nut. Be sure to store the plug in a secure location. If the MasterTech is disconnected, this plug will need to be reinstalled in the liquid sample handler.
4. Insert the stainless steel connector into the nut (the barbed end should be on the outside).
5. Reattach the nut to the T-fitting; tighten finger-tight. Then, using the two wrenches as shown above, tighten the nut 1/4 turn.
6. Insert one end of the flexible tubing (provided in the accessories kit) through the hole provided on the base of the sample handler.

7. Guide the tubing through the hole in the front chassis and connect it to the barbed fitting of the T-connector.

Tubing connected to fitting



8. Install the other end of the flexible tubing onto the sample transfer tubing connector on the side chosen in **Step 5** of [“Installing Sample Transfer Tubing” on page 36](#).



**Make sure the side to which you connect the flexible tubing coincides with the one chosen in the arm of the MasterTech.**

9. Replace the cover of the liquid sample handler. Replace the retaining screws on the right side of the unit and retighten the thumb screw on the rear panel.

## Connecting Cables

---

1. Make sure the power switches on the rear panels of the analyzer, liquid sample holder, and MasterTech are in the OFF positions.
2. Insert one end of the serial cable (M/F 9-pin null) into the connector labeled **RS-232 Spare** on the Liquid Sample Handling Unit.
3. Insert the other end of the cable into the connector labeled **RS232** on the back of the MasterTech.

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## Installing the Analysis Program

---

This section includes instructions for configuring the ethernet connection, configuring the firewall setting, and installing either the Saturn DigiSizer 5205 Standard analysis software or the Saturn DigiSizer 5205 *confirm* analysis software. Follow the software installation instructions for the type of system purchased by the customer.



**All programs should be closed before beginning installation of the Saturn DigiSizer software.**

---

## Entering Ethernet Settings

---

The computer and analyzer communicate by means of an ethernet connection. Before installing the Micromeritics software, you must check the ethernet settings in the Microsoft operating software and correct if necessary. The ethernet settings are as follows:

**IP address field: 192.168.77.100**

**Subnet mask field: 255.255.255.0**

If you need detailed instructions for performing this procedure, refer to **Technical Bulletin Gen034**.

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## Configuring the Firewall Setting

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An ethernet firewall typically is enabled by default for the Windows XP and Windows Vista operating systems. Windows operating systems prior to these versions did not have firewalls. To prevent an initialization failure when running the Micromeritics software, you must turn off the firewall option between the computer and the analyzer. (Refer to **Technical Bulletin Gen034** for details.) You must also do this for any third-party firewalls that may have been installed (refer to the firewall software manual or contact the system administrator for instructions).

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## Installing the Software

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Be sure you have completed the following tasks before installing the software for the first time.

- Configure the ethernet port the analyzer will use.
- Disable the firewall setting for the connection between your computer and analyzer.

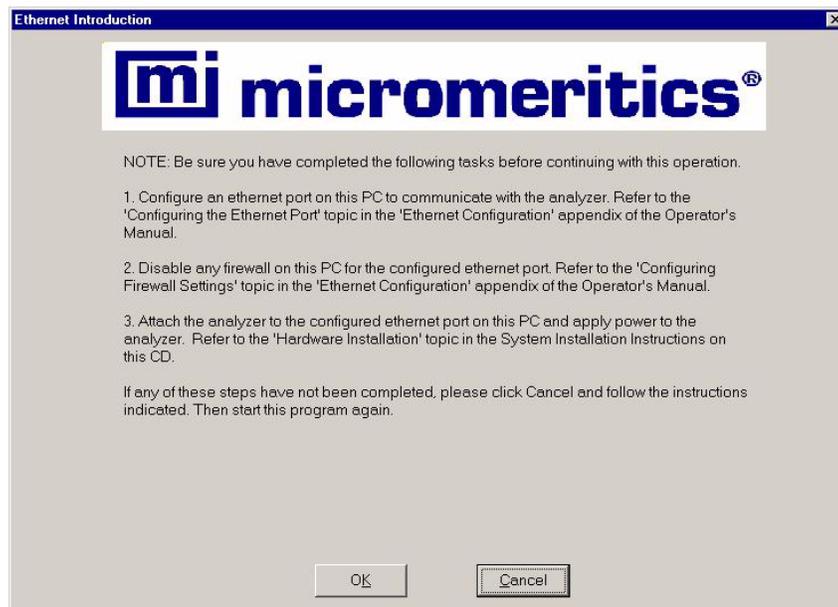
- Connect the analyzer to the configured port and turn the analyzer on.

Install the program as follows:

1. Turn on the analyzer and the liquid sample handler.
2. Insert the Saturn DigiSizer CD into the CD-ROM drive.
3. Select **Start > Run** from the Windows menu bar.
4. Enter the drive designator for the CD-ROM, followed by **setup**. For example: **e:setup**

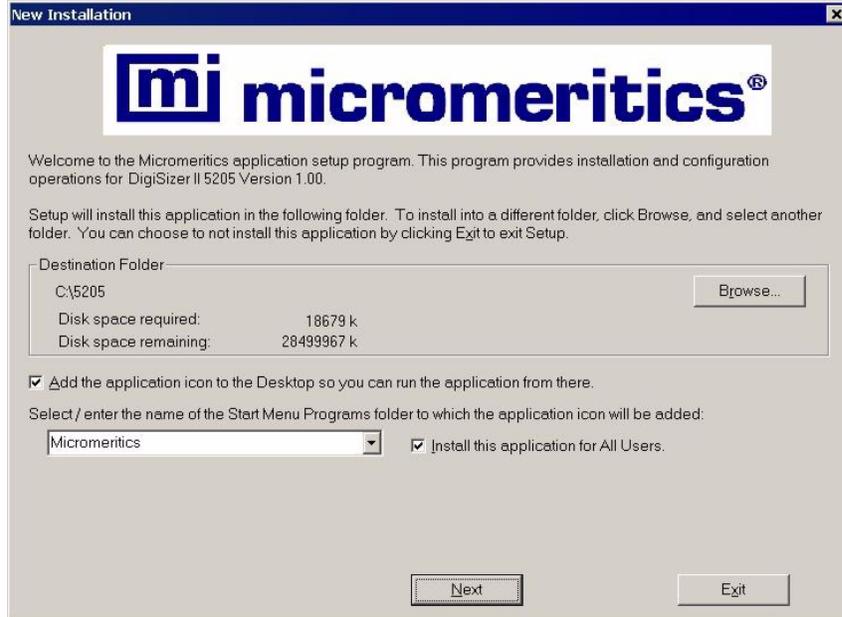
Alternatively, you can click **Browse**, navigate to your CD-ROM drive, and select **setup.exe**.

5. Click **OK**; the Ethernet Introduction dialog is displayed. This screen outlines the steps that should be completed before installing the software.



If all of the steps have not been completed, click **Cancel** and perform the steps; then restart the installation program. Do not proceed with installation until these tasks have been completed.

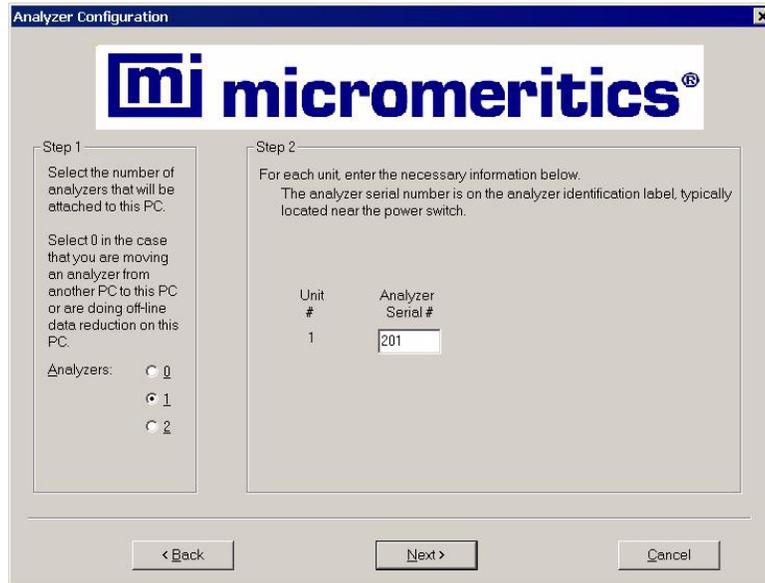
6. Click **OK**; the New Installation dialog is displayed.



The **Destination** Folder group box displays the amount of current disk space required for the analysis program, and the directory into which the application will be installed. If you prefer a different directory for installation, click **Browse** to select the desired directory.

7. Select the check box just below the **Destination Folder** group box to add an icon to your desktop; this enables quick access to the analysis program.
8. The DigiSizer icon is added to the Micromeritics folder by default. If you prefer a different folder, enter or select one from the drop-down list.
9. The **Install this application for All Users** check box enables you to allow or prohibit users other than the installer to access the application.
  - Select the check box to allow access for all users logged onto Windows.
  - Deselect the check box to allow access for only the user installing the application.

10. Click **Next**; the Analyzer Configuration dialog is displayed.

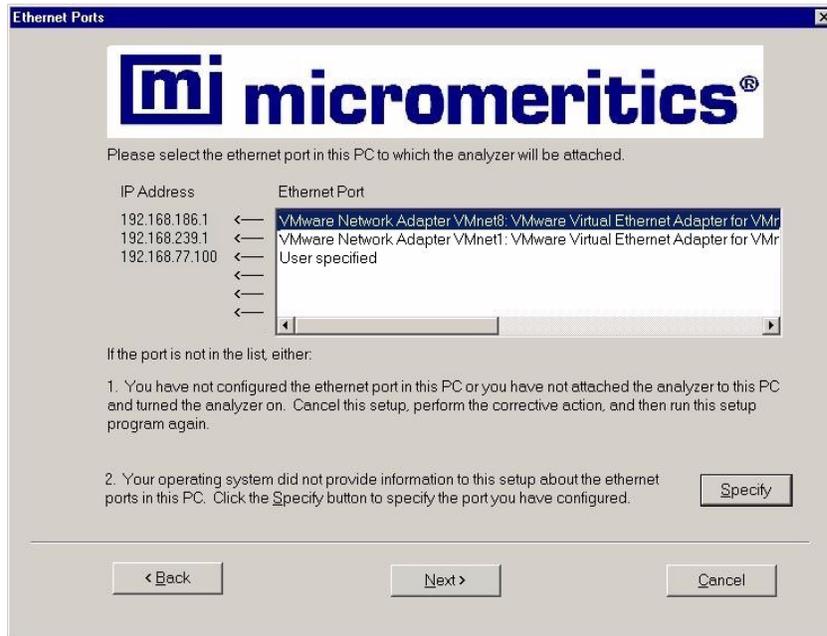


- a. In the **Step 1** group box:

If...	Then...
you are installing the analysis program at initial installation:	select the number of analyzers you are installing.
you plan to use the analysis program for offline data reduction:	select <b>0</b>
you are moving an analyzer from another computer to this one:	select <b>0</b>

- b. In the **Step 2** group box, enter the serial number(s) for the analyzer(s) you are attaching to this computer.

11. Click **Next**; the Ethernet Ports dialog is displayed.



12. Choose one of the following:

If ....	Then ....
the port you configured is listed:	select the port and proceed to the next step.
the port you plan to use has been configured but is not listed:	Click <b>Specify</b> , the Specify Ethernet Port dialog is displayed. Enter the remaining portion of the IP address in the enabled fields, then proceed to the next step.

13. Click **Next**; the calibration files are installed.



**If you selected 0 as the number of instruments to install, calibration files are not installed.**

If you are installing two analyzers, the Calibration File Installation dialog instructing you how to proceed with installation of calibration files for the second analyzer is displayed. Read the instructions carefully; they are restated here.

- a. Remove this setup CD.
- b. Insert the CD containing the files for the analyzer serial number requested.

**IMPORTANT:** To prevent the CD from AutoPlay, hold down the **Shift** key before you close the CD door. Do not release the **Shift** key until the CD light stops blinking.

- c. When the CD lights ceases to blink, click **Next**. After the calibration files are installed, you will be prompted to reinsert the original setup CD.
14. Click **Next**; the Install Complete dialog containing the Readme file is displayed.
15. Click **Finish** to close the dialog.
16. Remove the program CD and store in a safe place.



**The original program CD contains the calibration files specific to your instrument. Upgrade CDs do not contain calibration files. Therefore, it is important that you maintain your original program CD in a secure location in the event calibration files need to be reinstalled.**

17. Display the Unit Configuration dialog as follows, and record the date and analyzer statistics on the Saturn DigiSizer Configuration form located in Appendix B.
  - a. Select **Start > Programs > WIN5205** to start the analysis program.
  - b. Select **Unit [n] > Unit Configuration**.
  - c. Record the unit number (located in the title bar of the dialog).
  - d. Record the serial number and the IP address (displayed in the configuration group box).
  - e. Click **Change** and record the subnet mask (the series of numbers on the third line of the IP Setup dialog). Then click **Cancel** to close the dialog.
  - f. Click **OK** to close the Unit Configuration dialog.
18. Proceed to [“Verifying Operation” on page 66](#).

## Saturn DigiSizer 5205 *confirm* Systems

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These instructions apply to **confirm systems only**.



### "Microsoft Windows and Network Administrator"

**The customer must provide one or more persons qualified to perform several complicated tasks using the skills of a Microsoft Windows Administrator and Network Administrator -- not just someone with Windows Administrator rights.**

**This person must be on-site during installation.**

The following procedures (numbered 1 through 9, with the exception of Step 3. Installing the Analysis Program) are to be performed by the customer's network, Windows, or **confirm** application administrator. (Complete instructions are contained in the *Administrator Utility User's Guide for the Saturn DigiSizer 5205 confirm System*.)

The instructions are included here to enable you to assist the customer's administrator if necessary.

### Preparing the Network

---

If the computer is to be connected to a network, have the customer's Network Administrator install the computer on the network and set the network rights and permissions.

### Determining File Locations

---

When the Micromeritics software is installed, it creates a default directory on the C drive and loads the files into this directory unless you select another location. If the customer wishes to install the files in a different directory, record the location below.

\_\_\_ Install application in the default directory on C drive.

\_\_\_ Install application in this directory: \_\_\_\_\_

Password folder path: \_\_\_\_\_

Repository folder path: \_\_\_\_\_

Import path: \_\_\_\_\_

Export path: \_\_\_\_\_

## Installing the *confirm* Analysis Program

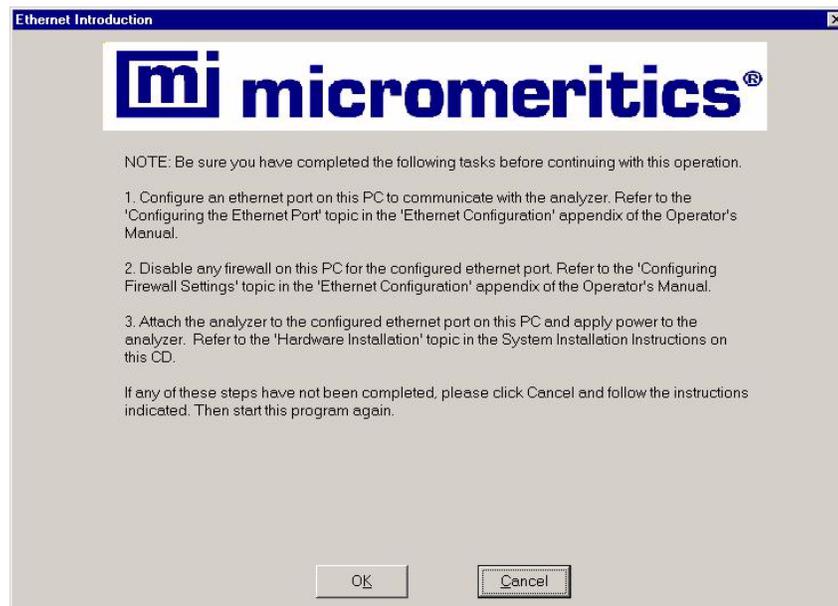
The installation CD shipped with the analyzer contains the Micromeritics software, which includes both the Micromeritics application and the Administrator Utility software.



**The person who installs the software must have Windows Administrator rights.**

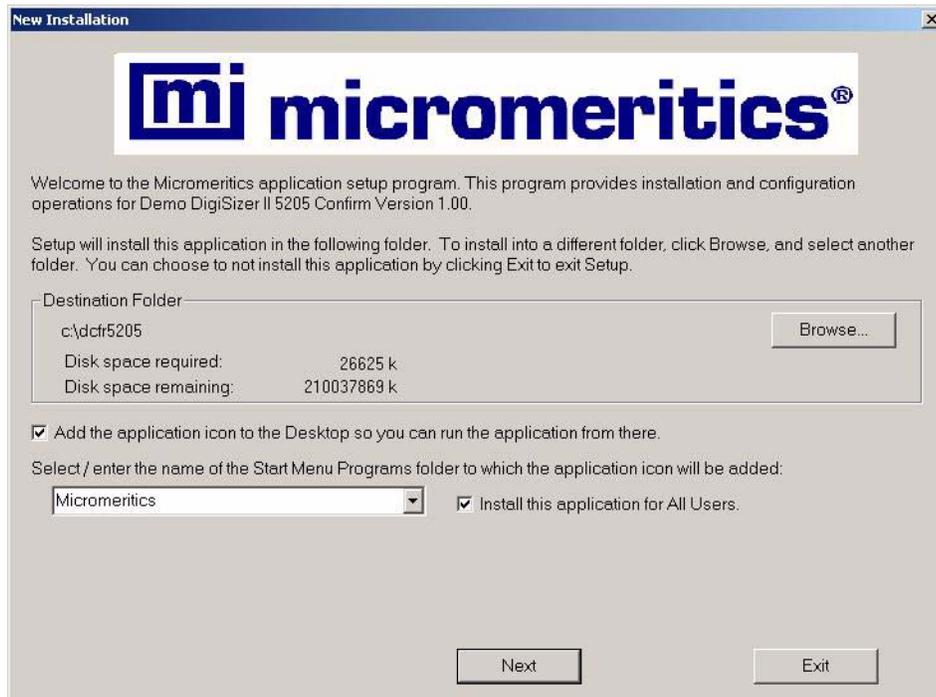
To install the software:

1. Turn on the computer.
2. Ensure that the Microsoft Vista Business or Ultimate, or XP Professional operating system is running.
3. Print a test page to ensure that the proper printer drivers are installed.
4. Insert the program CD into the CD-ROM drive.
5. Select **Start** from the Status bar, then **Run** from the Start menu.
6. Enter the name of the drive designator, followed by **setup**. For example: **e:setup**. Alternatively, you can click **Browse**, navigate to your CD-ROM drive, and select **setup.exe**.
7. Click **OK**; the Ethernet Introduction dialog is displayed. This screen outlines the steps that should be completed before installing the software.



8. If all of the steps have not been completed, click **Cancel** and perform the steps; then restart the installation program. Do not proceed with installation until these tasks have been completed.

9. Click **OK**; a New Installation dialog, similar to the one shown below, is displayed.



**You may cancel the installation at any time by selecting **Exit**. If you do so, you must start the installation program from the beginning to install the Micromeritics software.**

The **Destination Folder** group box displays the amount of current disk space, the amount of disk space required for the Micromeritics software, and the directory into which the application will be installed. If the location is not the default directory, click **Browse** to choose the directory.

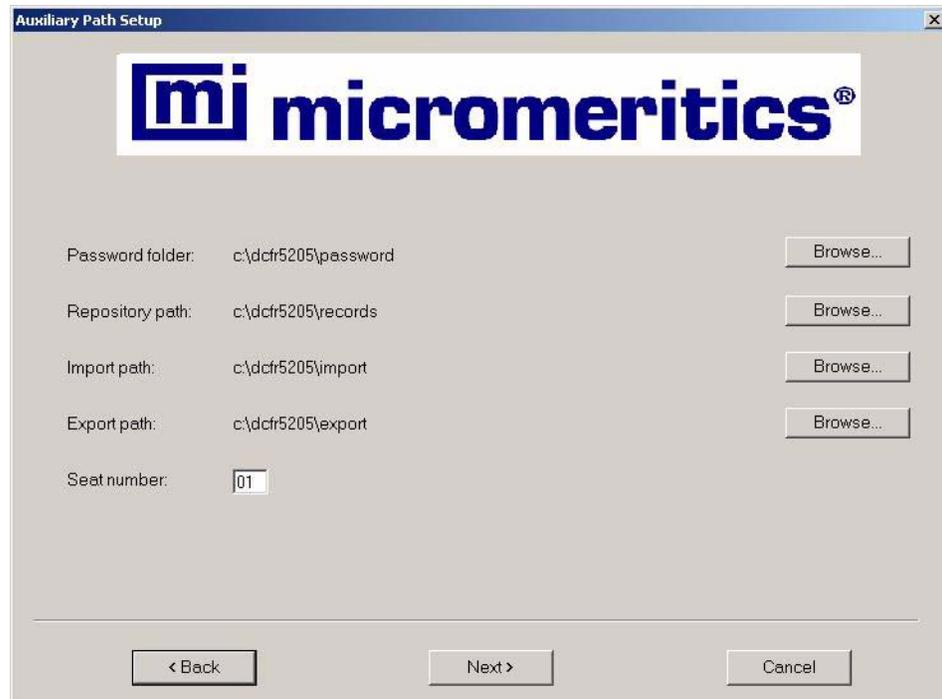
10. If you want to run the Micromeritics software from the desktop, select the checkbox just below the Destination Folder group box to add an icon to the desktop.



**If the box labeled *Install this application for All Users* is checked (see Step 11 below), an icon is added to the desktop for all users**

11. The Micromeritics software icon is added to the Micromeritics folder by default. If you prefer a different folder, enter or select one from the drop-down list.

12. The application can be accessed by all Windows users or only by the user who was logged in when the application was installed.
  - To allow access to all Windows users, check the **Install this application for All Users** box.
  - To allow access only to the user who was logged into Windows during installation, do not check the **Install this application for All Users** box.
13. Click **Next**; the Auxiliary Path Setup dialog is displayed.



The default locations of the application files shown in the screen above are displayed. Refer to “Determining File Locations” on page 50 for the location to be specified.

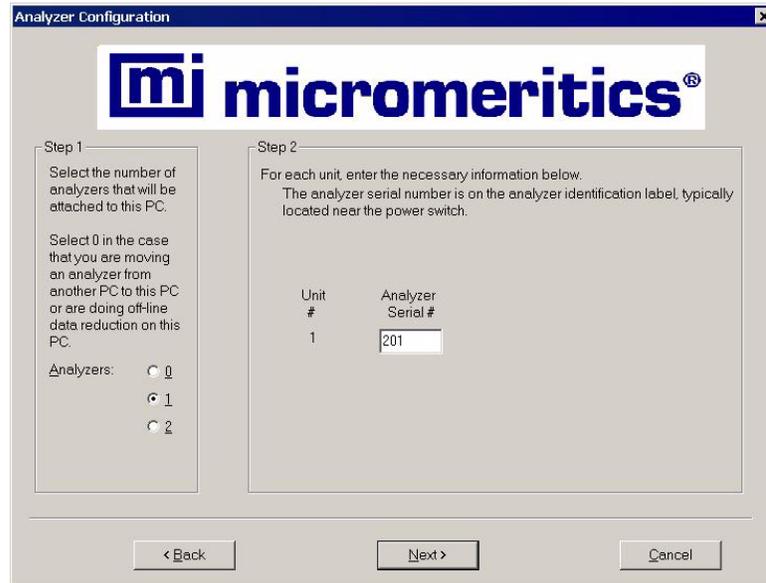
If a location is not the default location, use the **Browse** button to select another location.

14. Typically, the **Seat number** should remain as 01.

The only time the Seat number should be changed is when the Micromeritics software is installed on multiple computers that share a common repository (directory) for files, perhaps on a network drive. The software uses this number to generate separate logs for each analyzer/computer combination.

Review the Micromeritics Program license for the restrictions on the use of additional copies.

- Click **Next**; the Analyzer Configuration dialog is displayed.



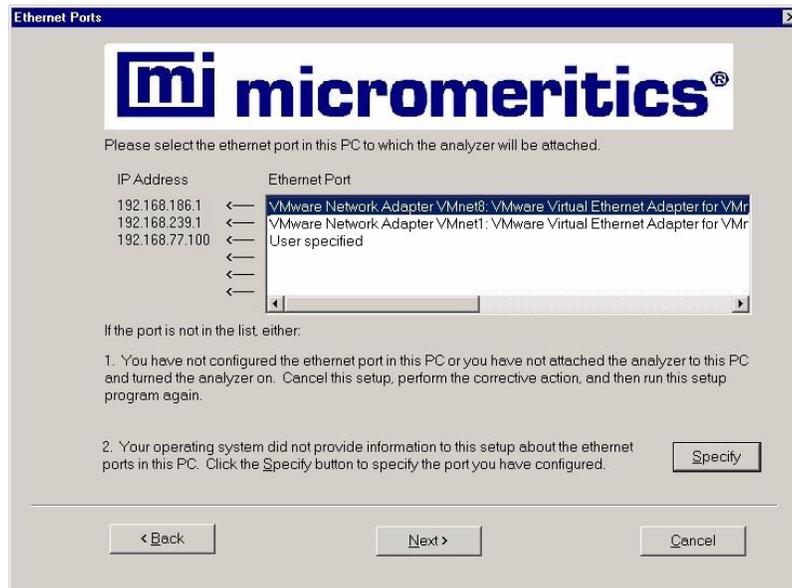
- In the Step 1 group box, click the radio button for the number of analyzers to be attached to this computer. In the Step 2 group box, enter the serial number(s) for the analyzer(s) you are attaching to this computer.

If...	Then...
you are installing the analysis program at initial installation:	select 1 for the number of analyzers, even when installing two analyzers. (After installation of the first analyzer, refer to Appendix A for installing the second one.)
you are reinstalling the analysis program on a new computer:	select the actual number of analyzers to be operated with this computer. (Refer to Appendix A for instructions on completing installation of two analyzers.)
you plan to use the analysis program for offline data reduction:	select <b>0</b>
you are moving an analyzer from another computer to this one:	select <b>0</b>



**Additional hardware is required if you plan to attach two DigiSizers to one computer. Refer to Appendix A for information on attaching two analyzers.**

17. Click **Next**; the Ethernet Ports dialog is displayed.



18. Choose one of the following:

If...	Then....
the port you plan to use is listed:	select the port and proceed to the next step.
the port you plan to use has been configured but is not listed:	Click <b>Specify</b> , the Specify Ethernet Port dialog is displayed.
	Enter the remaining portion of the IP address in the enabled fields, then proceed to the next step.

19. Click **Next**; the calibration files are installed.



**If you selected zero (0) as the number of instruments to install, the Calibration dialog is not displayed.**



**The calibration files may be on another disk. In this case, you will be prompted to insert the disk containing the calibration files into the CD drive.**

20. Click **Next**. The Installation Complete dialog box containing the Readme file is displayed. Use the scroll bar if you wish to read the contents of the file, then click **Finish** to close the dialog.

21. Remove the Setup CD and store in a safe place. The original Setup CD contains the calibration files specific to your instrument. Upgrade CDs do not contain calibration files. Therefore, it is important that you maintain your original Setup CD in a secure location in the event calibration files need to be reinstalled.

22. You may be prompted to restart your computer after installation. If so, restart your computer before running the Micromeritics application.
23. Display the Unit Configuration dialog as follows, and record the date and analyzer statistics on the Saturn DigiSizer Configuration form located in Appendix B.
  - a. Select **Start > Programs > WIN5205** to start the analysis program.
  - b. Select **Unit [n] > Unit Configuration**.
  - c. Record the unit number (located in the title bar of the dialog).
  - d. Record the serial number and the IP address (displayed in the configuration group box).
  - e. Click **Change** and record the subnet mask (the series of numbers on the third line of the IP Setup dialog). Then click **Cancel** to close the dialog.
  - f. Click **OK** to close the Unit Configuration dialog.

## **Entering Windows User Accounts**

---

The Windows Administrator for the local computer must create user accounts in Microsoft Windows for all persons who will use the Micromeritics application software. If you need detailed instructions for performing this procedure, refer to **Technical Bulletin Gen034**.

## Adding Users to Windows User Groups

---

Once the software has been installed, the Windows administrator must add the Micromeritics application users to the four user groups created by the Micromeritics software during software installation.

- CfrAdministrator
- MicDevelopers
- MicAnalysts
- MicService

If you need detailed instructions for performing this procedure, refer to **Technical Bulletin Gen034**.

These user groups correspond to the four user profiles that can be assigned in the Administrator Utility as follows:

- The **CfrAdministrator** user group contains the profile for the application **Administrator**.



**It is recommended that at least two people are assigned to the group CfrAdministrator.**

- The **MicDevelopers** user group is created to contain users who will be assigned the **Developer** profile in the Administrator Utility. The Developer profile enables users to develop and enter analysis methods. A Developer has access to all functions of the Micromeritics application.
- The **MicAnalysts** user group is created to contain users who will be assigned the **Analyst** profile in the Administrator Utility. The Analysts profile enables users to perform analyses using pre-defined analysis methods. An Analyst has access to a limited set of the Micromeritics application features.
- The **MicService** user group is created for Micromeritics Service Personnel. These users will be assigned the **Developer** profile in the Administrator Utility and have full access to the functions of the Micromeritics application. Although Service Personnel have the same access rights as Developers, a separate user group is created for them because Service Personnel have different directory and file access permissions.

In addition to creating user groups, the Micromeritics software also sets the Windows directory and file access permissions for each of these user groups. The default file permissions are included in **Appendix A** of the Administrator Utility User's Guide. You may modify these settings if desired.

## Recording User Information

---

As described previously, Micromeritics application users are to be assigned to one of the Windows user groups and to one of the two Micromeritics user profiles. The table below lists the Micromeritics application functions that can be performed by users with each profile.

Function	Developer	Analyst
Create sample records from templates	✓	✓
Analyze samples	✓	✓
Generate reports	✓	✓
List and print sample records and templates	✓	✓
Perform routine maintenance	✓	✓
Enable manual control when the instrument is idle (if applicable)	✓	✓
Change limited analysis conditions before performing an analysis	✓	✓
Change report options after an analysis	✓	✓
Create templates (analysis methods) for analyst use	✓	
Perform all other Micromeritics application functions	✓	

## User Information Worksheet

---

In order to have the information necessary when adding users and setting up profiles, enter the names of the users to be assigned to each of the user groups and to the corresponding Administrator Utility profiles in the table below. (This table was also included in the **Preinstallation Checklist and Instructions** and may have already been completed.)

\***User Name** is the person's Windows User ID.

\*\* **Service** users should be added to the MicService Windows user group and assigned a **Developer** user profile in the Administrator Utility.

Application User	Developer	Analyst	Service**
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			

Application User	Developer	Analyst	Service**
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			
<b>User Name*</b> _____ <b>Full Name</b> _____			

## Setting Up User Profiles in the Administrator Utility

### Starting the Administrator Utility

1. Select **Start > Programs > Micromeritics > AdminUtil for DigiSizer 5205**.
2. Enter "**cfradministrator**" in the **User name** field.
3. Enter "**password**" in the **Password** field, then click **OK**.

The following message displays: **Your password has expired. You will not be able to login without changing your password.**

4. Click **OK**; the Set Password dialog displays.



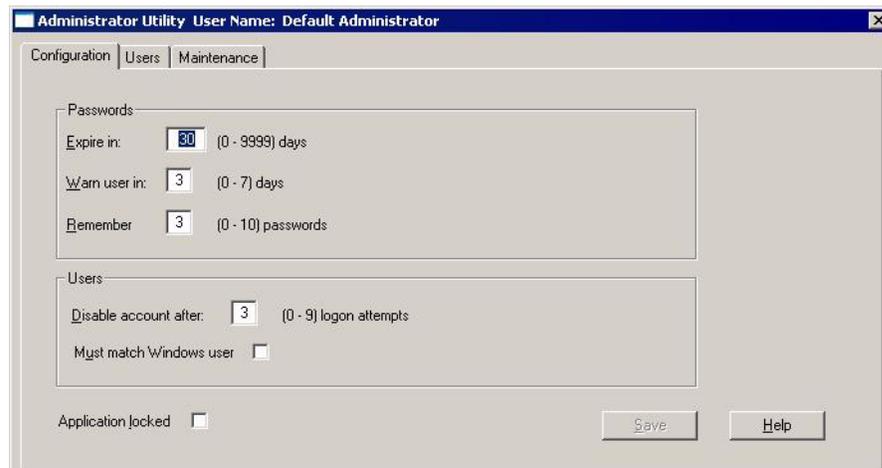
The image shows a 'Set Password' dialog box with a title bar containing a close button. It has two text input fields: 'New password:' and 'Confirm new password:'. Below the fields are two buttons: 'OK' and 'Cancel'.

5. Enter a new password in the **New password** field. The password must contain a minimum of six alphanumeric characters.



**This is the password that you will use to log onto the Administrator Utility and the Micromeritics software. When you enter a new password here, your Windows password is not changed.**

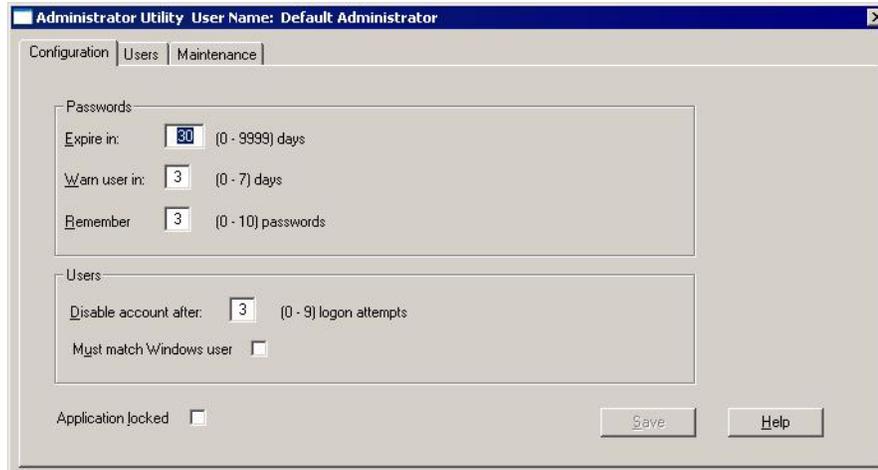
6. Enter the password again in the **Confirm new password** field.
7. Click **OK**; the Administrator Utility screen displays.



The image shows the 'Administrator Utility' window with the 'Configuration' tab selected. The title bar reads 'Administrator Utility User Name: Default Administrator'. The 'Configuration' tab has sub-tabs for 'Users' and 'Maintenance'. Under 'Passwords', there are three settings: 'Expire in:' set to 80 (0 - 9999) days, 'Warn user in:' set to 3 (0 - 7) days, and 'Remember' set to 3 (0 - 10) passwords. Under 'Users', there is a setting 'Disable account after:' set to 3 (0 - 9) logon attempts, and a checkbox for 'Must match Windows user' which is unchecked. At the bottom, there is a checkbox for 'Application locked' which is unchecked, and two buttons: 'Save' and 'Help'.

## Entering Password Configuration Parameters

1. Click the **Configuration** tab to display the Configuration dialog.



2. The Password parameters you enter in this dialog will apply for all Micromeritics software users.

Enter the number of days in which a user's password will expire in the **Expire in** field. This number of days goes into effect any time a user changes his password.

If you enter zero (0) in this field, users' passwords will not expire.

3. Enter the number of days prior to expiration that a user will be notified and asked whether he wants to change his password in the **Warn user in** field.

A zero (0) in this field means this function is not used.

4. The **Remember** field specifies the number of previous passwords to be stored in the password history file for each user. This file is checked when a user enters a new password to ensure that the password is unique.

Enter the number of passwords to be stored in the history file in the **Remember** field.

A zero (0) in this field means this function is not used.

5. Enter the number of times a user will be allowed to enter an invalid password when attempting to log into the application before the application is locked in the **Disable account after** field.

A zero (0) in this field means this function is not used.

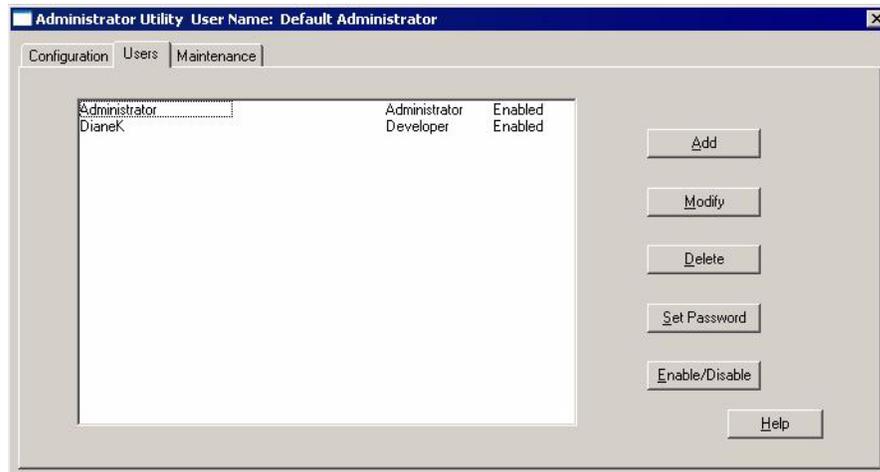
6. You may specify that the **User ID** must match the user's **Windows ID** and the user must be logged into the Windows application. This ensures that only the current Windows user can operate the Micromeritics application. Otherwise, any user with the same access level (Developer or Analyst) can log into the application.

To specify the matching requirement, click the **Must match Windows user** box to enter a check mark.

7. The **Application locked** box is checked anytime the application is locked. Click the box to lock or unlock the application. The application locks automatically when the specified number of failed logon attempts is reached.
8. When you have completed the Configuration dialog, click **Save** to save the information you entered.

## Entering Application User Profiles

1. Click the **Users** tab to display the User dialog.



2. Click **Add** to display the Add User dialog.

User Name:   
 Full Name:   
 Password:   
 Access level:  
 Developer     Analyst     Administrator  
 Password change date:   
 Change password on next logon

3. Enter the user's Windows **User ID** in the **User Name** field.
4. Enter the name that will display in the application, stored in the system log, and used for a signature for this user in the **Full Name** field.



**Full Name is used by the system log as the user's electronic signature and must be unique.**

- Designate "**password**" as a temporary password that the user can enter to access the application in the **Password** field for all users. This password is not saved in the password history file. When the user enters this password, he will be prompted to change it. The password to which he changes it will then be stored in the password history file.

The password must contain a minimum of six alphanumeric characters.



**When you enter a password here, the user's Windows password is not changed.**

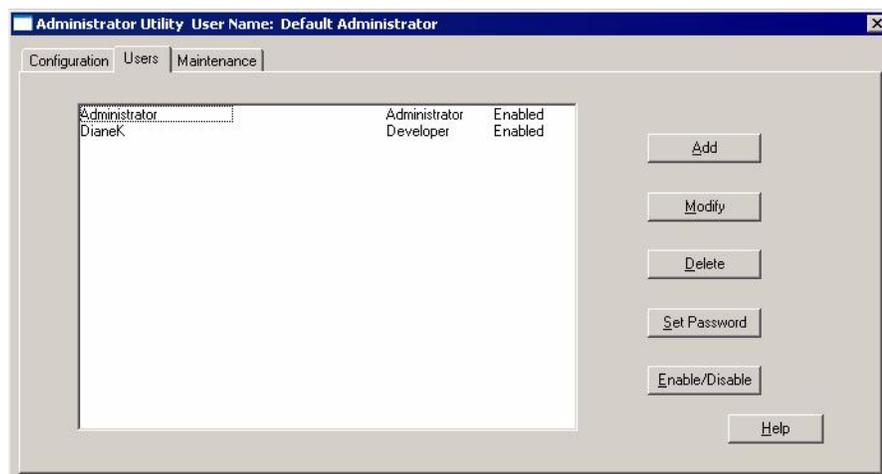
- Select the user's application access level by clicking the appropriate button. The user access level can be one of the following:
  - Administrator and Developer
  - Developer only
  - Analyst only
- The **Password change date** field is blank and disabled because this is a new user.
- The **Change password on next logon** box is checked because the user's assigned password is temporary and must be changed when the user logs onto the application.
- Click **OK** to save the user information and close the **Add User** dialog.

### Setting Up a Service User Account

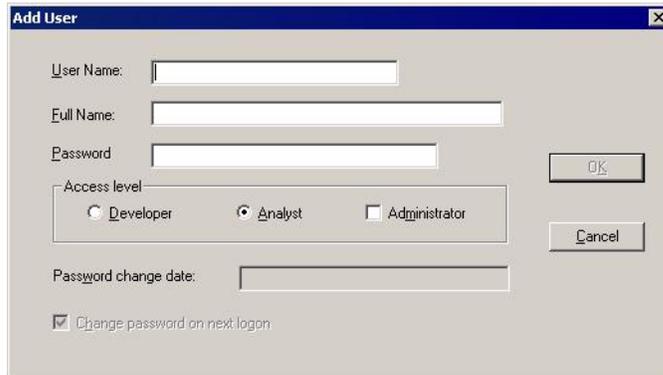
A user account should be set up during installation to provide Micromeritics service personnel access to system functions if a service call is required.

To set up a service account:

- Click the **Users** tab to display the User dialog.



2. Click **Add** to display the Add User dialog.



3. Enter a Windows **User ID** to be used by service personnel in the **User Name** field.
4. Enter **Service** in the **Full Name** field.
5. Enter a temporary password a service representative can enter to access the application in the **Password** field. When a service representative enters this password, he will be prompted to change it.

The password must contain a minimum of six alphanumeric characters.

6. Click **Developer** for Access level.
7. Click **OK** to save the user information and close the **Add User** dialog.

---

## Verifying Operation

---

Installation of the Saturn DigiSizer system is now complete. It is important to perform a series of checkout procedures to verify proper operation. These procedures are designed to assist you in verifying that all installation procedures were performed properly and that the Saturn DigiSizer and its peripheral equipment are working properly. If two analyzers are installed, perform the procedures in their entirety on each one. These procedures should be performed following installation, and may be performed following any subsequent equipment repairs, replacements, or relocation.

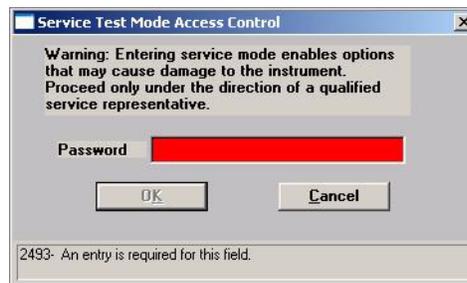
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## Entering Service Test Mode

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The Saturn DigiSizer 5205 Analysis Program must be run in Service Test Mode to perform some of the verification procedures. To enter Service Test Mode:

1. Select **Options > Service Test Mode** to display the password dialog.



2. Enter the service password, then click **OK**.



**Service Test Mode remains enabled until you exit it or until the application is closed.**

---

## Exiting Service Test Mode

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Perform all operational verification tests in Service Test Mode. When you have finished operational verification, select **Options > Service Test Mode** to remove the checkmark and exit Service Test Mode

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## Saturn DigiSizer

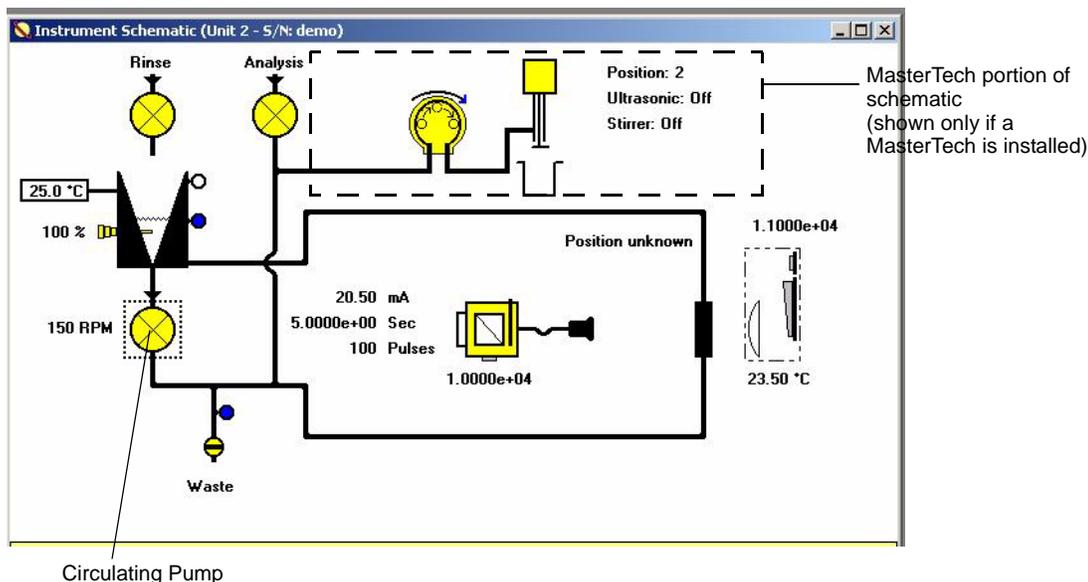
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### Performing a Leak-Check Procedure

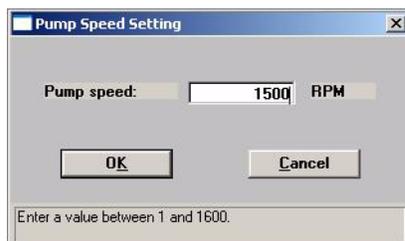
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1. Turn on the equipment in this order:
  - a. ultrasonic controller unit
  - b. MasterTech (if installed) - wait until the MasterTech has finished initialization and stopped moving before proceeding to Step 2.
  - c. liquid sample handler
  - d. analyzer
2. Rinse the system with water to ensure that all tubing and sample cell are installed properly.
3. Open the front panel of the analyzer and remove the cover of the sample cell compartment.
4. Select **Unit > Rinse > DigiSizer** from the main menu.
5. Choose the **Rinses** option; specify 1, then click **Start**.
6. Observe all tubing connections, as well as the sample cell.
  - If leaks occur, click **Cancel** to stop the rinsing function. Close the front panel and select **Drain** on the Unit menu to drain the sample cell. Correct the problem, and repeat steps 4, 5 and 6.
  - If leaks do not occur, the DigiSizer is ready to perform analyses.
7. Replace the sample cell compartment cover and close the front panel.

8. Select **Show instrument schematic**, then **Enable manual control** from the Unit menu.



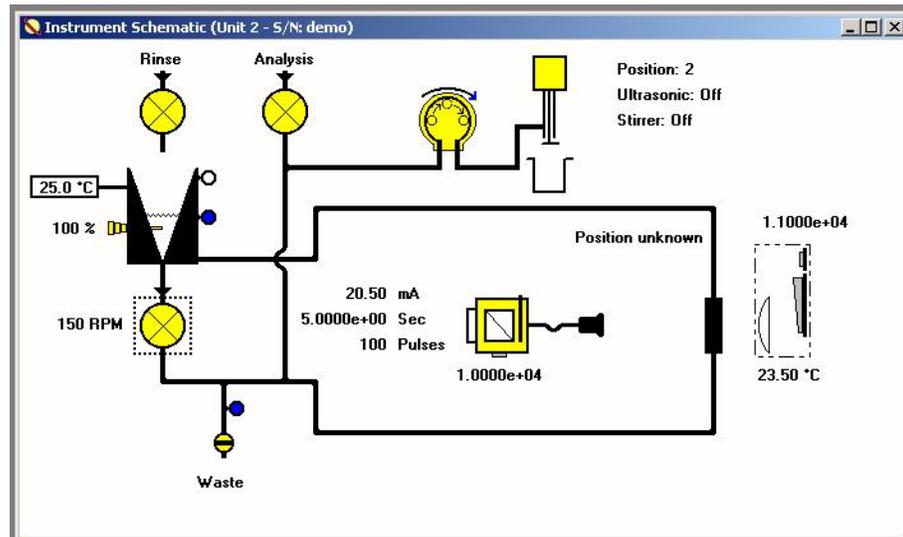
9. Right-click on the circulating pump; choose **Set speed**. Enter **1500** if you have the standard liquid sampler installed, or **4000** if you have the Low-volume liquid sampler installed, then click **OK**.



10. Right-click again and turn on the circulating pump while observing the sample cell.
- If leaks occur, turn off the pump and open the drain valve immediately. Dry the sample cell area, correct the problem, and repeat the steps again.
  - If leaks do not occur after approximately 10-15 seconds, turn off the pump and open the drain valve to drain the liquid from the system.
11. Turn the pump back on for 3 to 5 seconds to expel any additional liquid that may have remained in the pump, then turn it off.
12. Close the drain valve.

## Moving the Rotation Arm to the Specified Angle

1. If the Instrument Schematic is not shown on the computer screen, select **Unit[n] > Show instrument schematic**.
2. Select **Unit[n] > Enable manual control**.

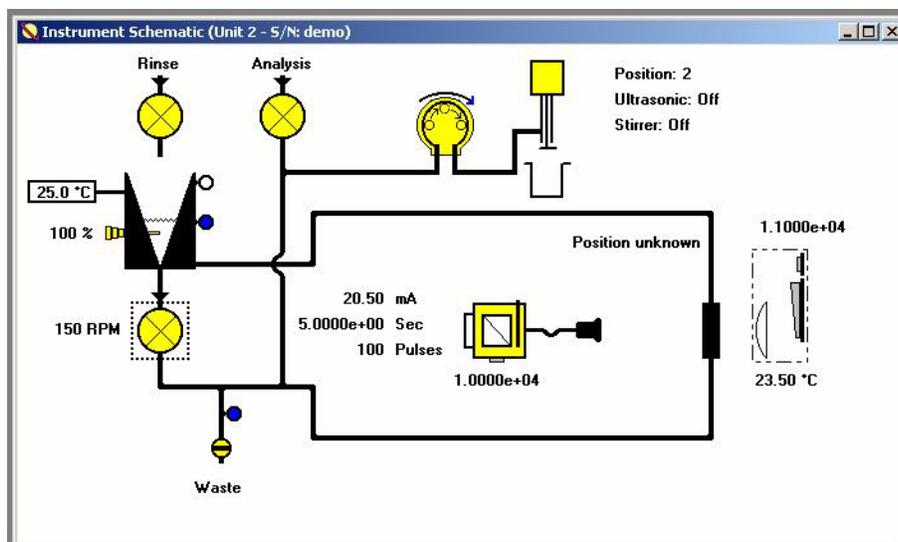


3. Right-click on the rotation arm symbol and select **Move**.
4. Select **Angle** and type **65** in the **degrees** field.
5. Click **OK**; the rotation arm will start to move.
6. After the arm stops moving, 65.000 will display to the upper right of the rotation arm on the schematic.

## Fire the Laser

This procedure can be performed with or without the analysis cell in place; no water is required.

1. If the Instrument Schematic is not shown on the computer screen, select **Unit[n] > Show instrument schematic**.
2. Select **Unit[n] > Enable manual control**.



3. Right-click on the Laser-beam Splitter Box.
4. Click **Laser On**.
5. Observe for ANY response from the Detector.
6. Click **Laser Off**.

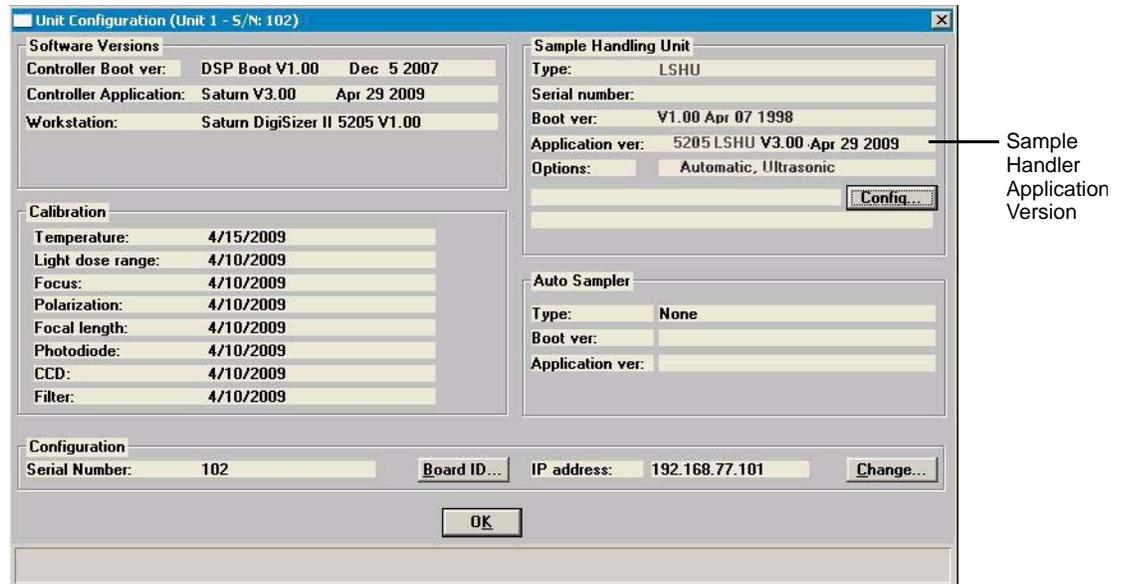
## Checking the Temperature

Observe the temperature reading on the schematic. The temperature should come within band in 15 minutes or less.

## Liquid Sample Handling Unit

### Recording Application Version

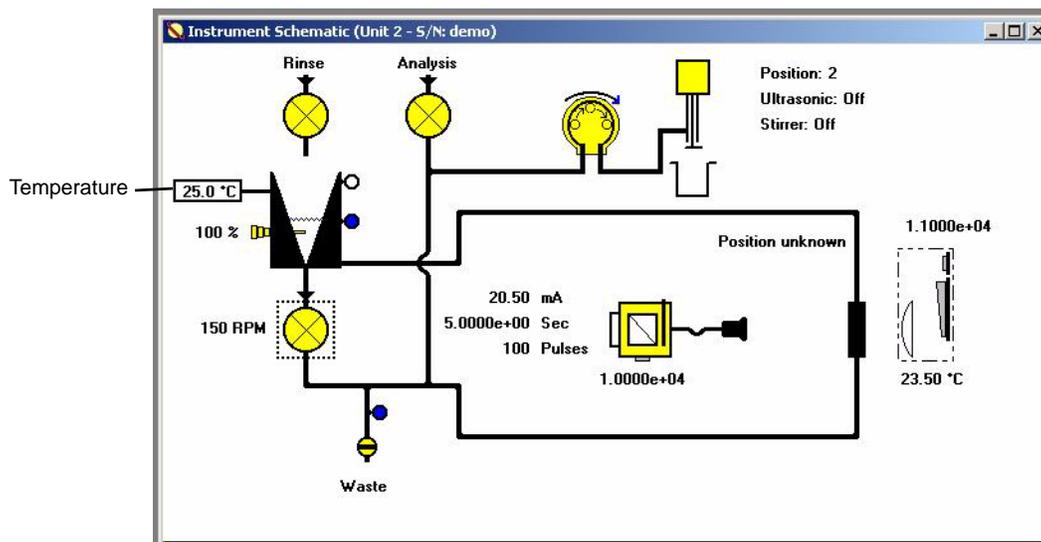
1. Select **Unit[n] > Unit Configuration** to display the Unit Configuration dialog.



2. Record the liquid sample handler application version number in the checklist.

## Checking Temperature of Fluid

1. If the Instrument Schematic is not shown on the computer screen, select **Unit[n] > Show instrument schematic**.
2. Select **Unit[n] > Enable manual control**.

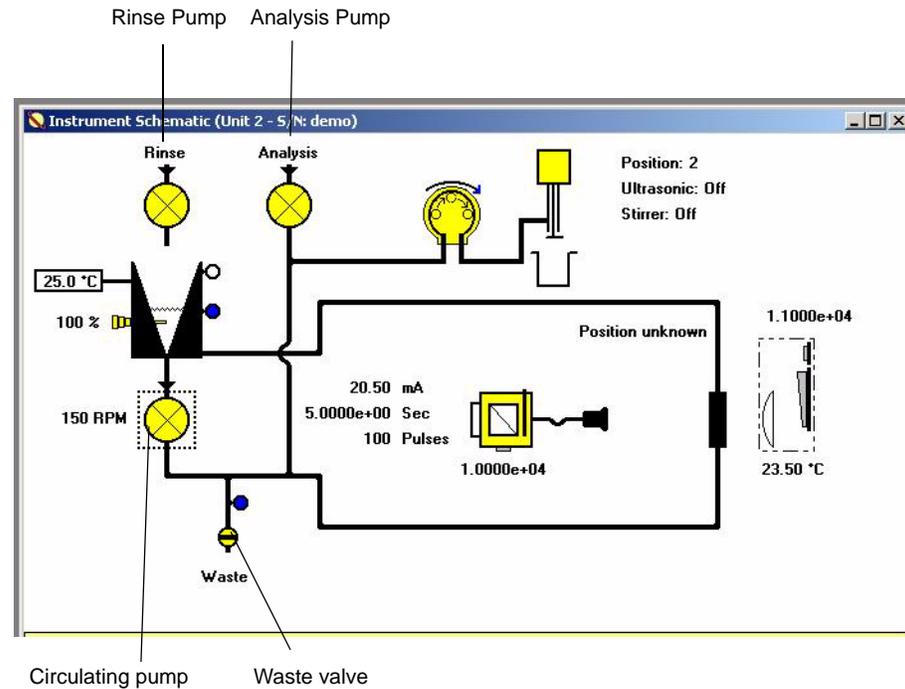


3. Circulate cold water through the system.
4. Observe the temperature reading on the screen.
5. Pour hot water into the reservoir and observe the temperature change.

## Checking the Pumps and Valve

While performing the steps below, observe the symbols in the instrument schematic. A component's symbol will change when the state of the component changes.

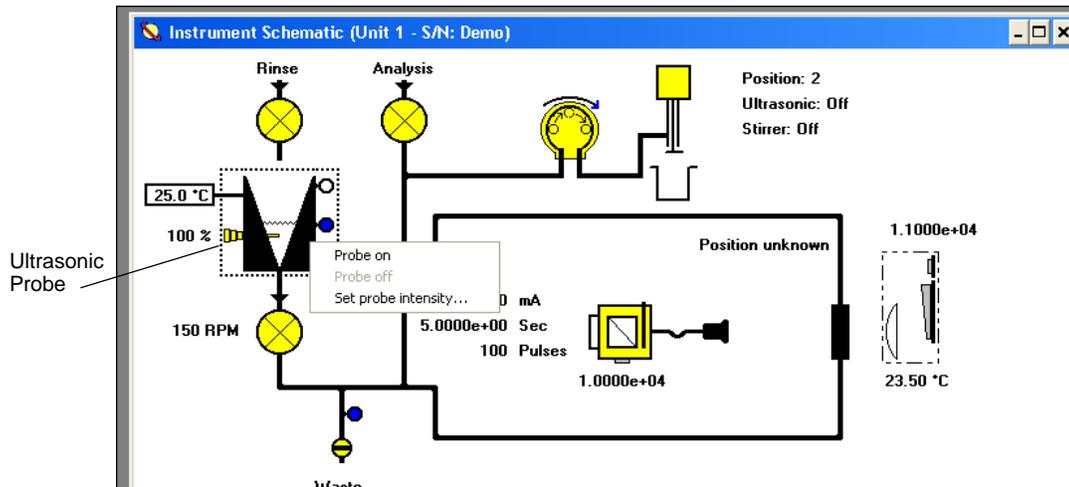
1. With the instrument schematic displayed, select **Unit[n] > Enable manual control.**



2. Check the Analysis liquid pump:
  - a. Right-click on the Analysis liquid pump symbol, then select **High**.
  - b. Right-click on the Analysis liquid pump symbol, then select **Low**.
  - c. Right-click on the Analysis liquid pump symbol, then select **Off**.
3. Check the Rinse pump:
  - a. Right-click on the Rinse pump symbol, then select **On**.
  - b. Right-click on the Rinse pump symbol, then select **Off**.
4. Check the Circulating pump:
  - a. Right-click on the Circulating pump symbol, then select **On**.
  - b. Right-click on the Circulating pump symbol, then select **Off**.
  - c. Right-click on the Circulating pump symbol, then select **Set speed**.
  - d. The Pump Speed Setting dialog is displayed. This dialog shows the current setting in RPMs. If it necessary to specify a different speed, enter the speed in the Pump speed field.

## Ultrasonic Probe

1. With manual control enabled, right-click the Ultrasonic Probe symbol on the instrument schematic screen, then select **Probe on**.



2. Right-click the Ultrasonic Probe symbol, then select **Probe off**.
3. Right-click on the Ultrasonic Probe symbol, then select **Set probe intensity**.
4. The Ultrasonic Intensity Setting dialog is displayed.
  - a. Enter 40 in the **Ultrasonic Intensity field**, then repeat steps 1-3.
  - b. Enter 60 in the **Ultrasonic Intensity field**, then repeat steps 1-3.
  - c. Enter 80 in the **Ultrasonic Intensity field**, then repeat steps 1-3.
  - d. Enter 100 in the **Ultrasonic Intensity field**, then repeat steps 1-3.
5. Check the Waste valve:
  - a. Right-click on the Waste valve displayed in the instrument schematic, then select **Open**.
  - b. Right-click on the Waste valve displayed in the instrument schematic, then select **Close**.

## AquaPrep

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### Performing a Leak Test

---



**The AquaPrep works only with water; do not use any other liquid. Do not use water that contains a detergent or wetting solution.**

1. Make sure the AquaPrep tubing is properly installed in a plastic container of deionized water. (Refer to “Installing the AquaPrep Tubing” on page 27.)
2. Remove the top panel.
3. Turn the AquaPrep power switch to the ON position.
4. The pumps will run; observe the internal plumbing for leaks.

**If you see a leak, TURN OFF THE UNIT IMMEDIATELY.**

Water must not flow out of the vent tube on the front panel.

5. Verify that the front panel neon indicator is on.
6. Observe the fan on the vacuum pump. It will be turning if the pump is running.
7. Identify the outlet tubing on the front panel. It is the right tubing.
8. Pull the outlet tubing out of the water. Verify that the water is discharging from this tubing.
9. Turn the power switch OFF.

### Checking the Flow Rate

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**A stopwatch is required for this procedure.**

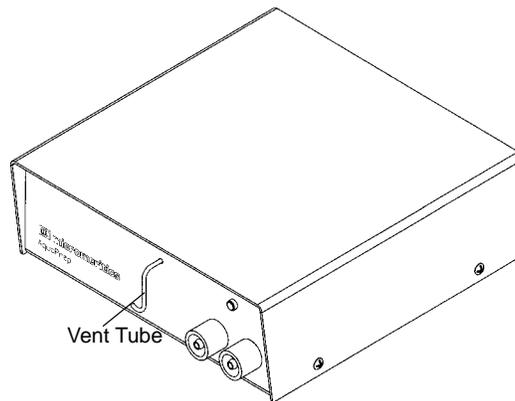
1. Place an empty container on the floor beneath the AquaPrep. The vessel must have markings to indicate quantity of liquid, at least at the 1-liter level.
2. Place the outlet hose into the empty container. (The inlet hose must remain in the container of deionized water.)
3. Be ready to start timing the flow of water.
4. Turn on the AquaPrep.
5. When the discharge of water begins, start the timer.

6. When the level reaches 1 liter, stop the timer and turn off the unit.
7. The elapsed time must be within 20 to 60 seconds.

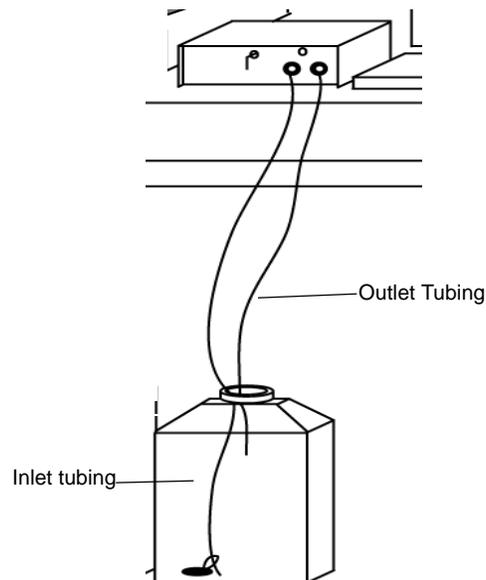
## Performing a Bubble Test

---

1. Fill the small beaker supplied with the unit with water.
2. Place the beaker under the vent tube on the front of the unit. The end of the tube must be under the surface of the water.



3. Place the inlet tubing and the outlet tubing in the same container of deionized water.



4. Turn on the unit. You should see a stream of bubbles, which tapers off to a slow stream in a few seconds.

5. Turn off the unit. You may hear the solenoid valve click as it opens to vent air back into the filter cartridge.
6. Turn the unit back on. You should again see a fast stream of bubbles, which tapers off after a few seconds.

## Verifying MasterTech Operation



**Perform these steps only if the customer purchased a MasterTech.**

To verify operation, manually move each subsystem using the manual control option of the Saturn DigiSizer analysis program.

1. Turn on the MasterTech.
2. Fill a beaker with approximately 80 mL of water.
3. Place the beaker in the number **1** position of the MasterTech tray.
4. To test the ultrasonic probe, remove it from the holder and insert the tip of the probe well into the water.



**NEVER operate the ultrasonic probe without having the tip immersed into a liquid. Doing so may harm the probe and/or the driving electronics. DO NOT let the tip of the probe come in contact with a glass beaker. Doing so may shatter the beaker.**

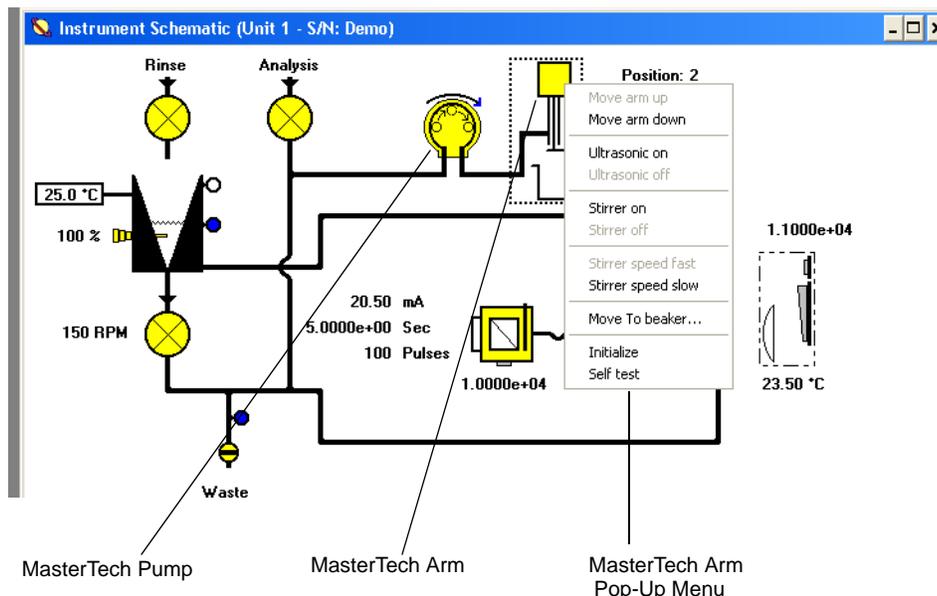
5. While holding the probe tip underwater, press the ultrasonic probe AUTO/ON switch. You will hear a high-pitched sound, indicating that the probe is working properly.



**DO NOT press the ultrasonic probe AUTO/ON switch unless the probe and its cable are properly connected to the MasterTech. Doing so may harm the driving electronics.**

6. Press the ultrasonic probe AUTO/ON switch again to turn off the probe.
7. Place the probe back into the holder.

8. Select **Unit [n] > Enable manual control**. If the instrument schematic is not displayed, select **Show instrument schematic**.



9. Ensure that the Arm AUTO/LOAD switch on the front panel of the MasterTech is in the AUTO position.
10. Select **Unit [n] menu > Initialize MasterTech**.

A message is displayed indicating that initialization is in progress. The tray on the MasterTech rotates in a counterclockwise direction for one beaker position; the arm lowers to the Rinse position and returns.

The tray then continues to rotate until position 1 is reached. The beaker inserted in the tray in Step 3 should now be directly under the arm of the MasterTech. Make sure the beaker contains approximately 80 mL of water.

11. On the instrument schematic, select the symbol representing the MasterTech arm.

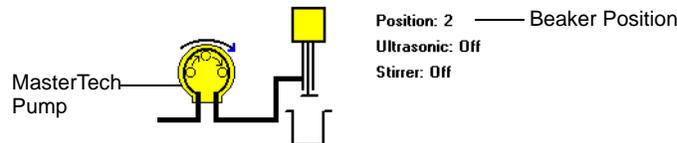


**When manual mode is enabled, components on the instrument schematic have pop-up menus displaying the options available for that component. Select the component, then click the right mouse button to access its pop-up menu.**

In each instruction for this step, first access the pop-up menu:

- Select **Move Arm Down** two times.
- Select **Ultrasonic On**; you will hear a high-pitched sound, indicating that the probe is operational.
- Select **Ultrasonic Off** to turn off the probe.
- Select **Stirrer On**; the stirrer begins to operate.

- e. Select **Stirrer Speed Fast**.
- f. Select **Stirrer Off**.
- g. Select **Move Arm Up**.
- h. Select **Move To Beaker** and enter the beaker position; note that the display is updated to reflect the position of the beaker tray. The picture on the screen will reflect whether or not a beaker is present.



12. Place the MasterTech pump switch on the front panel in the **AUTO** position, then select the MasterTech pump on the schematic. In each instruction in this step, first access the pop-up menu:
  - a. Select **On**; the MasterTech pump should begin operating (you will hear a whirring sound and the pump will begin to operate).
  - b. Check the direction of the flow of the MasterTech pump:
 

Select **Flow Direction Load**; allows suspension to flow from the MasterTech to the Saturn DigiSizer system for analysis.

Select **Flow Direction Rinse**; allows suspension to move from the Saturn DigiSizer system to the MasterTech. This direction is used to rinse the sample from the stirrer and transfer tube on the MasterTech.
  - c. Select **Off** to turn the pump off.
13. Rinse and prime the tubing of the MasterTech:
  - a. Place an empty beaker in position 2 of the MasterTech tray.
  - b. Select **Unit [n] > Rinse > MasterTech Rinse then DigiSizer**.
  - c. Specify **2** as the beaker position, then click **OK**.

This concludes verification of operation of the MasterTech. If everything performed as described above, the system should be fully operational. If you encountered any problems, refer to Chapter 9 of the Saturn DigiSizer 5205 Operator's Manual for troubleshooting procedures.

## Preparing the Analysis Liquid

Water that has been freed of dissolved air (degassed water) is recommended for use as the analysis liquid. Water is easily and most efficiently degassed by using the AquaPrep degasser as described below.



**If the DigiSizer is equipped with the standard sample handler and the rinse liquid is different from the analysis liquid, you do not have to use degassed water as the rinse liquid. Deionized water can be used for rinsing.**

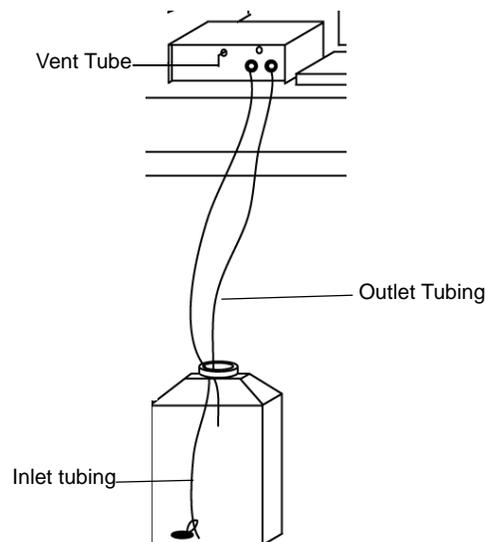
1. Fill the container with deionized water that has been filtered with a 1-micron filter.



**The AquaPrep works only with water; do not use any other liquid. Do not use water that contains a detergent or wetting solution.**

The AquaPrep can aspirate water as high as 1-1/2 meters (5 feet); however the floor position is recommended.

2. Insert the ends of the inlet tubing into the water. Orient the tubing as follows:
  - The end of the inlet tubing (supply) should be close to the bottom of the container.
  - The end of the outlet tubing (return) should be just below, approximately 5 cm (2 in.), the surface of the water so that splashing does not reintroduce air into the liquid.



It is important that the tubing is arranged at different levels. This promotes circulation and ensures that all the liquid is exposed during the deaeration process.

3. Fill the beaker (supplied in the accessories kit) with deionized water and place it under the vent tube. Ensure that the end of the vent tube is submerged in the water approximately 0.32 to 0.64 cm (1/8 to 1/4 in.).

4. Place the **On/Off** switch (on the rear panel) in the **ON** position (O); the power indicator should illuminate.



**Be sure to turn off the AquaPrep when water is not being deaerated. Failure to have water circulating may damage the unit.**

5. Allow the water to deaerate for two hours.



**Be sure circulation of the liquid being degassed is promoted.**

Water varies enormously in its dissolved air content depending on source, temperature, and time of year. Typically, the AquaPrep adequately reduces the content of dissolved air from 10 liters of filtered and deionized water in two hours or less.

6. Remove the tubes from the container of water.

You may wish to observe and record the bubble rate per minute before removing the tubes. This value could be useful as a guide for the adequacy of deaeration. For example, you may observe 20 bubbles per minute. If the background measurement you will perform next shows adequate deaeration, you can watch for approximately 20 bubbles per minute when deaerating a fresh supply of water.

7. Move the container close to the liquid sample handler. Then insert the analysis tubing from the liquid sample handler into the container.

## Rinsing the Sample Cell

---

1. Select **Unit > Rinse > DigiSizer**; the DigiSizer Rinse dialog is displayed.
2. Select **Rinses** and enter 3; this should be sufficient since the cell contains no sample material.
3. Click **Start**; a dialog indicating that rinsing is in progress is displayed. When rinsing is complete, the dialog closes automatically.

## Performing a Background Measurement

---

1. Select **Unit > Background**; the Background Measurement dialog is displayed.
2. Select **Water** from the Analysis liquid group box.
3. Click **Next**.
4. Set the flow rate to 6.

5. Select **Report after measurement** and choose **Screen** as the destination.
6. Click **Next**; a progress dialog is displayed, then the background measurement is displayed.



**If this background is unsatisfactory, you can measure another one by clicking Repeat. Refer to Appendix I of the Saturn DigiSizer 5205 Operator's Manual for guidelines on determining an appropriate background.**

7. Click **Done**; a report is generated to the screen. You can print the report from this window if desired.

## Creating a Sample Information File

---

For the analysis test included in this document you will need to create a sample information file, then start an analysis using the conditions specified in the file. Instructions are included for standard and *confirm* systems. Follow the instructions for the type of system purchased by the customer.



**Different lots of reference material may require editing data in these examples.**

## Standard Systems

---

### Copying the Reference Material File into The Service Directory

A file containing analysis conditions for the reference material test is included on the Saturn DigiSizer 5205 CD. Using the data in this file will save you time by eliminating the need for entering analysis conditions individually.

In order to use the provided sample information file, you should first create a **Service** subdirectory on the customer's hard drive, then copy the file into the directory as described below:

1. Create a subdirectory in the C:\5205 directory named **Service**.
2. Copy this file from the CD into the C:\5205\Service directory:

MRMXXXX.SMP

where XXXX = the serial number of the unit.

- When the file is copied in the Service directory, it is **Read-Only**. To remove the Read-Only attribute, select the file from the Microsoft Explorer, right click to display the shortcut menu, select **Properties**, and click the Read-Only box to remove the check mark and the attribute.

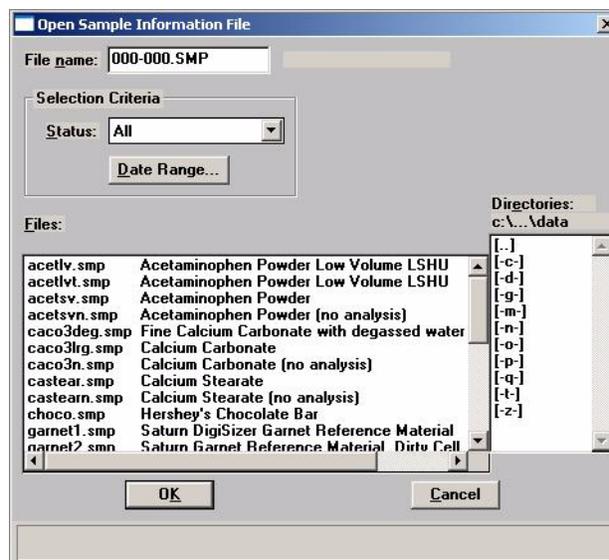
### Creating a Sample File for Standard Systems



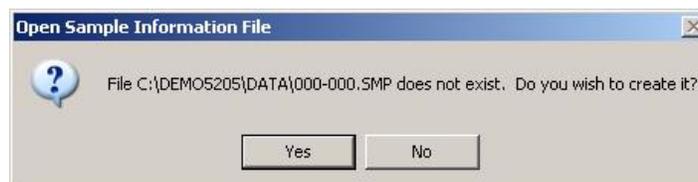
These instructions are for Standard systems only.

When instructed to create a sample information file, follow these steps:

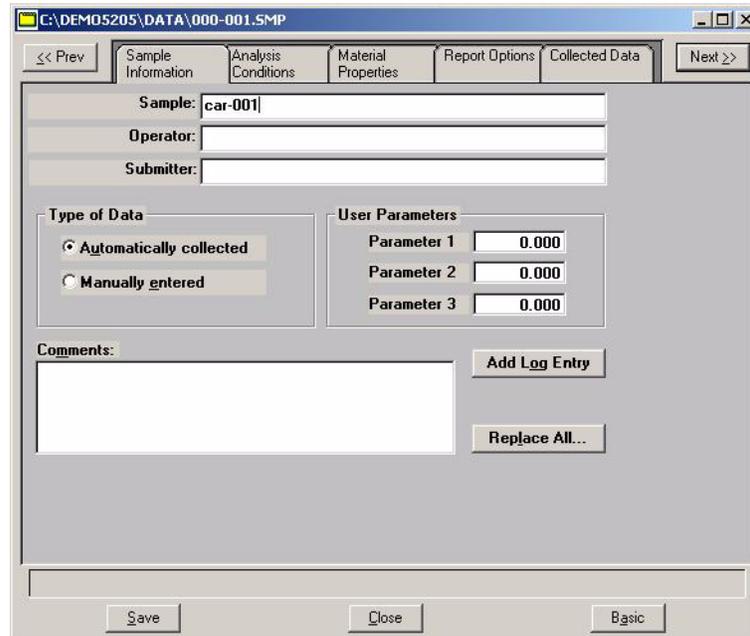
- Select **File > Open > Sample Information File**.



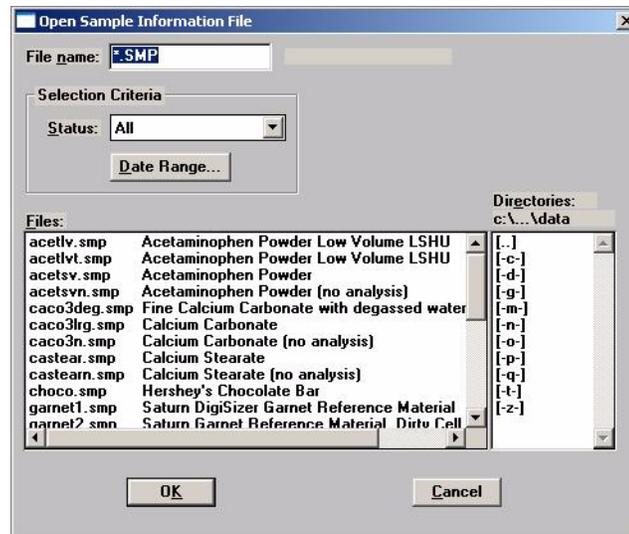
- Enter a sample file name in the **File name** field and in the Installation Checklist. Sample file names can contain up to 8 characters and the extension.SMP.
- Select **OK**. A confirmation dialog is displayed.



4. Select **Yes** to create the file. The Sample Information File dialog is displayed, with the name of the file you created in the **Sample** field.



5. Select **Replace All**. The Open Sample Information dialog displays.



6. Select the C:\5205\Service directory from the Directories list.

7. Select MRMXXXX.SMP (where XXXX = the serial number of the unit) from the **Files** list, then click **OK**.



This copies the analysis conditions from the file in the C:\5205\Service directory into your sample file so you do not have to enter the analysis conditions individually.

8. The Sample Information dialog is displayed

The screenshot shows the 'Sample Information' dialog box for the file 'C:\DEMOS205\DATA\000-001.SMP'. The dialog has several tabs: '<< Prev', 'Sample Information', 'Analysis Conditions', 'Material Properties', 'Report Options', 'Collected Data', and 'Next >>'. The 'Sample Information' tab is selected. The 'Sample' field contains 'Saturn DigiSizer Reference Material'. The 'Operator' field contains 'AWT' and the 'Submitter' field contains 'Micromeritics'. Under 'Type of Data', the 'Automatically collected' radio button is selected. Under 'User Parameters', three parameters are listed, each with a value of 0.000. There is a 'Comments' text area with 'Add Log Entry' and 'Replace All...' buttons. At the bottom, there are 'Save', 'Close', and 'Basic' buttons.

9. Enter your name in the **Operator** field.
10. Enter the instrument serial number in the **Submitter** field.
11. Select **Close**. A confirmation message is displayed. Select **Yes** to save the file and close the dialog.

## Confirm Systems

---

### Creating a Service Directory

To create a subdirectory:

1. Select **Options > Add Archive Location**.
2. Select MICService in the Category field.
3. Enter **Service <current date>** in the Sub-category field.
4. Click **OK**.

### Creating a Sample File for *confirm* systems



These instructions are for *confirm* systems only. For Standard systems, refer to “Creating a Sample File for Standard Systems” on page 83



A Developer user profile is required to create a sample information file.

When instructed to create a sample information file, follow these steps:

1. Select **File > New > Sample Information**; the Create a Sample Information File dialog containing the available templates is displayed.
2. Select the C:\5205\Service directory from the Directories list.
3. Choose the **Saturn DigiSizer Garnet Reference Material** template.

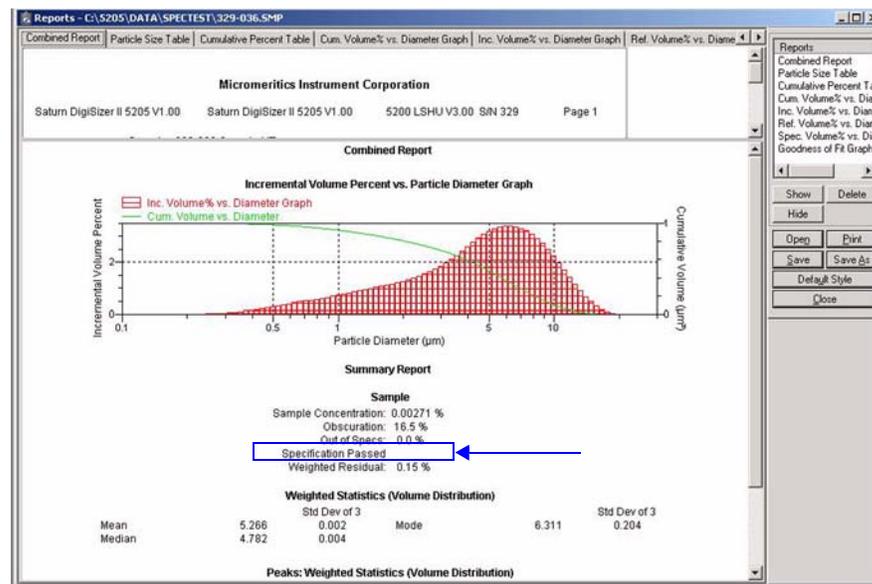


This copies the analysis conditions from the template in the C:\5205\Service directory into your sample file so you do not have to enter the analysis conditions individually.

4. Click **Create**; the Sample Information dialog is displayed.
5. Enter a sample file identifier in the **Sample** field.  
Sample file identifiers can contain up to 42 characters.
6. Enter your name in the **Operator** field.
7. Enter the instrument serial number in the **Submitter** field.
8. Click **Save**: the Save As Sample Information dialog is displayed.
9. Save the sample file in the **Service <current date>** directory, then click **Save**.
10. Select **Close**. A confirmation message is displayed. Select **Yes** to save the file and close the dialog.

## Performing a Reference Material Test

1. Select **Unit > Sample Analysis** from the main menu; the Sample Analysis dialog is displayed with the Open Sample Information dialog positioned on top.
2. Navigate to the sample file you just created. Select the file, then **OK**; the Sample Analysis dialog is displayed again.
3. Click **Report after analysis** and choose **Printer** as the destination.
4. Click **Next**; a second view of the Sample Analysis dialog is displayed.
5. Slowly add sample to the reservoir; add enough to provide a beam obscuration of 13 to 15%. If the beam obscuration exceeds 15%, the DigiSizer will adjust the concentration automatically.
6. When the beam obscuration is in the appropriate range, click **Next** to begin analysis and data collection.
7. When the analysis has finished and reports are printed, remove the reports from the printer. The Combined Report will state whether the analysis passed (results were within specifications) or failed (results were not within specification).



8. Include the printed results in the installation documentation sent to Micromeritics.

## Part 2: Installation Checklist

### Checklist Description

The tables in the checklist contain the columns described below

Column	Description/Action
<b>Procedure</b>	Perform the procedure described in this column.
<b>Evaluation Code</b>	<p>Circle an evaluation code for each procedure according to the following criteria:</p> <p><b>P = Pass</b> Indicates that this procedure has been successfully completed without error.</p> <p><b>F = Fail</b> Indicates that this procedure has been unsuccessful and prevents the instrument from being installed for use.</p> <p><b>N/A = Not Applicable</b> Indicates that this procedure does not apply to your system.</p>
<b>Initial/Date</b>	<p>Enter your initials and the date.</p> <p>If the procedure was completed by another person, that person should enter his or her initials and the date.</p>

## Preparing for Installation

Procedure	Evaluation Code	Initial/Date
Review the Preinstallation Instructions and Checklist and ensure that the laboratory is prepared for installation.	P F N/A	
Ensure that the required personnel are available.	P F N/A	
Ensure that all equipment has been unpacked and verified using the packing list.	P F N/A	

## Setting Up the DigiSizer System

Procedure	Evaluation Code	Initial/Date
Place the DigiSizer on a work surface with the back panel facing the front	P F N/A	
Select the DigiSizer line voltage.	P F N/A	
Install the fuse(s).	P F N/A	
Select the computer line voltage.	P F N/A	
Connect ethernet cable.	P F N/A	
Connect power cord.	P F N/A	
Connect computer cables.	P F N/A	
Install the Liquid Sample Handler.	P F N/A	
Install the sample cell.	P F N/A	
Install the liquid sample tubing.	P F N/A	
Connect the Ultrasonic Controller Unit.	P F N/A	
Install the AquaPrep.	P F N/A	

---

**Installing the MasterTech (if used)**


---

<b>Procedure</b>	<b>Evaluation Code (circle one)</b>	<b>Initial /Date</b>
Remove packing material.	<b>P N F N/A</b>	
Select voltage.	<b>P N F N/A</b>	
Insert fuse(s).	<b>P N F N/A</b>	
Turn on the MasterTech.	<b>P N F N/A</b>	
Install the ultrasonic probe.	<b>P N F N/A</b>	
Install beaker tray.	<b>P N F N/A</b>	
Install sample transfer tubing.	<b>P N F N/A</b>	
Connect RS232 cable from MasterTech to Liquid Sample Handler.	<b>P N F N/A</b>	

---

**Installing the Analysis Program (Standard Software Only)**


---

<b>Procedure</b>	<b>Evaluation Code (circle one)</b>	<b>Initial /Date</b>
Install the 5205 standard software	<b>P N F N/A</b>	

## Installing the Analysis Program (Confirm Software Only)

Procedure	Evaluation Code (circle one)	Initial /Date
Determine file locations.	<b>P N F N/A</b>	
Install the 5205 <i>confirm</i> software	<b>P N F N/A</b>	
Add application users to Windows user groups.	<b>P N F N/A</b>	
Start the Administrator Utility program and enter the Administrator user profile.	<b>P N F N/A</b>	
Enter password configuration parameters in the Administrator Utility program and record:  Expire_____ Warn_____ Remember_____ Disable_____ Must match Windows user_____	<b>P N F N/A</b>	
Enter application user profiles.	<b>P N F N/A</b>	
Enter service profile.	<b>P N F N/A</b>	

## Verifying DigiSizer System Components

Procedure	Evaluation Code (circle one)	Initial /Date
Enter service test mode.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Leak check the DigiSizer.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Move rotation arm to the specified angle.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Fire laser.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Ensure that temperature is within band.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Record the application version of the sample handler: _____	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Check temperature of fluid.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Test analysis liquid pump. Add warm water and ensure that the temperature reading on the screen changed.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Test rinse pump.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Test circulating pump.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Test waste valve.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Test ultrasonic probe.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Leak check the AquaPrep.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	
Test the AquaPrep flow rate. Elapsed time should be within 20 to 60 seconds.	<b>P</b> <b>N</b> <b>F</b> <b>N/A</b>	

---

## Verifying the MasterTech (if used)

---

Procedure	Evaluation Code (circle one)	Initial /Date
Test ultrasonic probe AUTO/ON switch.	<b>P N F N/A</b>	
Initialize MasterTech. Ensure that the tray rotates until beaker position one is reached.	<b>P N F N/A</b>	
Test arm movement.	<b>P N F N/A</b>	
Test stirrer.	<b>P N F N/A</b>	
Test ultrasonic probe.	<b>P N F N/A</b>	
Test pump.	<b>P N F N/A</b>	
Rinse and prime tubing.	<b>P N F N/A</b>	

---

## Preparing the System for Operational Tests

---

Procedure	Evaluation Code (circle one)	Initial /Date
Prepare analysis liquid.	<b>P N F N/A</b>	
Rinse sample cell.	<b>P N F N/A</b>	
Perform a background measurement.	<b>P N F N/A</b>	
Create a sample information file.	<b>P N F N/A</b>	

## Performing Reference Material Test

Procedure	Evaluation Code (circle one)	Initial /Date
Record reference material lot number: _____	<b>P N F N/A</b>	
Perform a reference material analysis.	<b>P N F N/A</b>	
<p><b>Record expected results of the reference material analysis</b> (listed in the reference material instructions booklet):</p> <p>Volumetric arithmetic mean equivalent spherical diameter = _____</p> <p>Volume median equivalent spherical diameter = _____</p> <p>90 Cumulative volume % finer than _____</p> <p>10 Cumulative volume % finer than _____ <math>\pm</math> _____ <math>\mu\text{m}</math></p> <p>Record the tolerance level for all the following values _____</p> <p>Cumulative volume % finer at 10.0 <math>\mu\text{m}</math> = _____</p> <p>Cumulative volume % finer at 8.0 <math>\mu\text{m}</math> = _____</p> <p>Cumulative volume % finer at 6.7 <math>\mu\text{m}</math> = _____</p> <p>Cumulative volume % finer at 5.7 <math>\mu\text{m}</math> = _____</p> <p>Cumulative volume % finer at 4.8 <math>\mu\text{m}</math> = _____</p> <p>Cumulative volume % finer at 3.9 <math>\mu\text{m}</math> = _____</p> <p>Cumulative volume % finer at 3.0 <math>\mu\text{m}</math> = _____</p> <p>Cumulative volume % finer at 2.1 <math>\mu\text{m}</math> = _____</p> <p>Cumulative volume % finer at 1.2 <math>\mu\text{m}</math> = _____</p>	<b>P N F N/A</b>	

Procedure	Evaluation Code (circle one)	Initial /Date
<b>Record the actual results of the analysis:</b>		
Volumetric arithmetic mean equivalent spherical diameter = _____	<b>P N F N/A</b>	
Volume median equivalent spherical diameter = _____	<b>P N F N/A</b>	
90 Cumulative volume % finer than _____	<b>P N F N/A</b>	
10 Cumulative volume % finer than _____ $\pm$ _____ $\mu\text{m}$	<b>P N F N/A</b>	
Cumulative volume % finer at 10.0 $\mu\text{m}$ = _____	<b>P N F N/A</b>	
Cumulative volume % finer at 8.0 $\mu\text{m}$ = _____	<b>P N F N/A</b>	
Cumulative volume % finer at 6.7 $\mu\text{m}$ = _____	<b>P N F N/A</b>	
Cumulative volume % finer at 5.7 $\mu\text{m}$ = _____	<b>P N F N/A</b>	
Cumulative volume % finer at 4.8 $\mu\text{m}$ = _____	<b>P N F N/A</b>	
Cumulative volume % finer at 3.9 $\mu\text{m}$ = _____	<b>P N F N/A</b>	
Cumulative volume % finer at 3.0 $\mu\text{m}$ = _____	<b>P N F N/A</b>	
Cumulative volume % finer at 2.1 $\mu\text{m}$ = _____	<b>P N F N/A</b>	
Cumulative volume % finer at 1.2 $\mu\text{m}$ = _____	<b>P N F N/A</b>	

## Exceptions

Procedures categorized as **Fail** should be explained below.

Procedure	Comments	Initial/ Date

---

**Signatures**

---

---

**Installer**

---

Name: (please print)	Signed:
Position:	Date:
Company:	Field Service Report (FSR Number):

---

**Customer Representative**

---

Name: (please print)	Signed:
Position:	Date:
Company:	Field Service Report (FSR Number):

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## Final Documentation

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In order to provide consistent instrument service, Micromeritics retains records of installation, operational verification, and calibration data in its Service Support Center in Norcross, Georgia, USA. After completing the installation process, representatives of Micromeritics who install instruments are required to send the documents listed below to Micromeritics for inclusion in the customer's instrument history.

The documents to be sent to the Micromeritics Service Support Center are:

- Completed Field Service Report
- Completed and signed, DigiSizer 5205 Installation Checklist:
- Reference Material Analysis Sample Files.
- Calibration files if calibration data were changed during installation.

---

## **Appendix A: Attaching Multiple Analyzers to One Computer**

---

You can install up to two Saturn DigiSizer analyzers to one computer, allowing for high sample throughput. Each analyzer can also have a MasterTech autosampler attached. The MasterTech allows you to queue up to 18 samples for analysis. Each sample is transferred to the Saturn DigiSizer automatically, requiring no further operator intervention until the queued analyses are complete.

The following items are required for installing two analyzers:

- One Ethernet switch
- One straight Ethernet cable for each Saturn DigiSizer to be attached
- One straight Ethernet cable for connecting the computer and the Ethernet switch

When attaching two analyzers to one computer, installation and configuration depends on whether you are:

- installing two analyzers from the factory, each with a default configuration, to a single computer
- installing two existing, configured analyzers on a new computer, requiring a new install of the analysis program
- moving an existing, configured analyzer from one computer to another one that already has a Saturn DigiSizer installed

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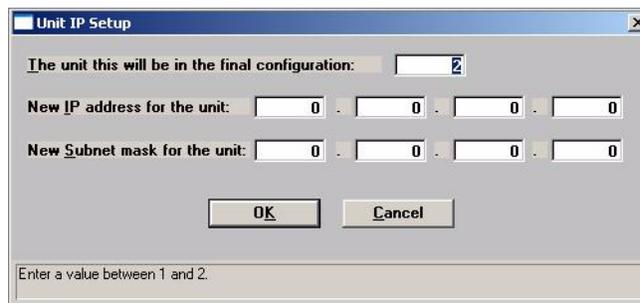
## Installing Analyzers with Default Configurations

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These instructions are for installing a second analyzer with a default configuration to a computer that already has an analyzer (Unit #1) installed.

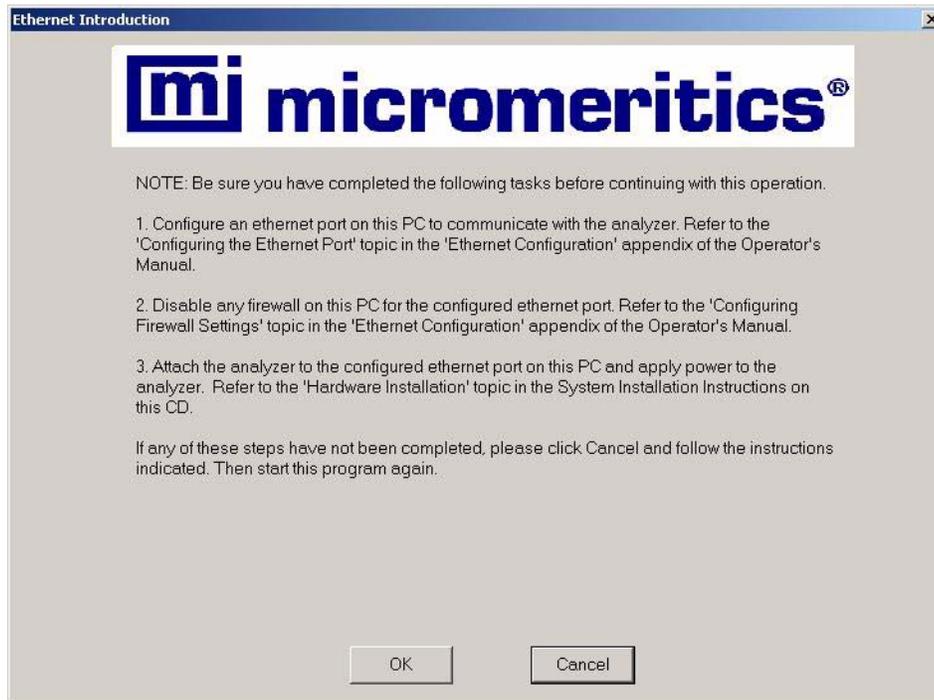
1. Connect the ethernet switch (refer to the manufacturer's manual for instructions).
2. Exit the analysis program (if operating) and turn the installed analyzer (Unit #1) off.
3. Disconnect the Ethernet crossover cable that is currently connected to the analyzer and computer, and store in a safe place.
4. Connect one end of a straight Ethernet cable to the Ethernet card (exposed on the back side of the computer) and the other end to a port on the Ethernet switch.
5. Connect one end of a straight Ethernet cable to the connector labeled **Ethernet** on the rear panel of Unit #1 and the other end to a port on the Ethernet switch.
6. Turn the analyzer on.
7. Start the analysis program. This step is simply to ensure that all cable connections are secure. If the program fails to initialize the communications link, check cable connections.
8. Exit the analysis program.
9. Disconnect the Ethernet cable for Unit #1 from the Ethernet *switch*; do not disconnect the cable from the analyzer.
10. Connect one end of another straight Ethernet cable to the connector labeled **Ethernet** on the rear panel of Unit #2 and the other end to a port on the Ethernet switch.
11. Turn Unit #2 on.
12. Start the analysis program. The analysis program does not know that a second unit has been attached at this time; therefore, all unit references still display as Unit #1. Because of this, you may receive Error Message 6133; simply click to clear the message.
13. Click **OK** to acknowledge and close the calibration message.
14. Select **Unit configuration** from the **Unit 1** menu; the Unit Configuration dialog is displayed.
15. Click **Change**; the Unit IP Setup dialog is displayed.

16. Enter **2** for the final configuration of this unit (first line)

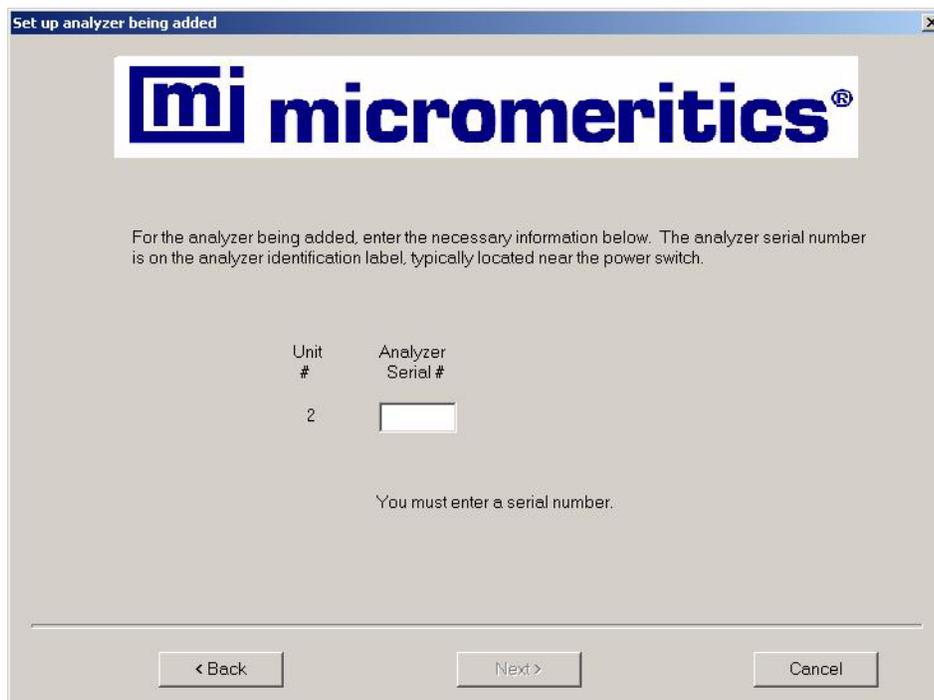


17. Enter **102** as the new IP address for Unit #2 (fourth field of second line).
18. Record the IP address and subnet mask on the Saturn DigiSizer Configuration form (the last page of this appendix).
19. Click **OK** to close the **Unit IP Setup** dialog,
20. Record the Unit number and serial number on the Saturn DigiSizer Configuration form. Also record the date, then click **OK** to close the Unit Configuration dialog.
21. Exit the analysis program.
22. Turn Unit #2 off.
23. Reconnect the Ethernet cable of Unit #1 to the Ethernet switch.
24. Insert the analysis program CD into the CD-ROM drive.
25. Select **Start** from the Task bar, and **Run** from the Start menu.
26. Enter the drive designator of the CDROM drive, followed by SETUP; for example, **e:setup**.
27. Click **OK**; the Setup Welcome dialog is displayed.

- 28. Select **Add an analyzer** and click **Next**; the Ethernet Introduction dialog is displayed. This screen outlines the steps that should be completed before installing the software.



- 29. Make sure the steps are completed, then click **OK**. The Set up analyzer being added dialog is displayed.



- 30. Enter the serial number of the analyzer you are adding.

31. Click **Next**; the Calibration File installation dialog is displayed.
32. Ensure that the CD-ROM drive is shown as the source location; if not, click **Browse** to select the correct drive.
33. Click **Finish** to install the calibration files; follow the instructions displayed in the dialogs.
34. Turn both units on and start the analysis program.

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## Installing Existing Configured Analyzers to a New Computer

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Use the instructions in this section to install two existing configured, analyzers on a different computer (perhaps a newly purchased one) that does not have the analysis program installed.

1. Install the analysis program on the new computer. When prompted for the number of analyzers you plan to install, specify the **actual** number you are installing.
2. Use Windows Explorer to edit the application file (either **WIN5205.ini** for standard software or **cfr5205.ini** for *confirm* software):
  - a. Right-click on the **Start** button and select **Explore**.
  - b. Open the directory where the analysis program is installed (the default is either **C:\5205** for standard software or **C:\cfr5205** for *confirm* software).
  - c. Double-click on **cfr5205.ini** or **WIN5205.ini**. This opens Notepad, displaying the **ini** file.
  - d. Navigate (or page-down) to the section titled **[Unit 1]**.
  - e. Confirm that there is a **TCPAddr=** entry and that it matches the address recorded on the Saturn DigiSizer Configuration form for this unit. If the entry is not there, add it in the following format:

**TCPAddr=[nnn.nnn.nnn.nnn]**

where n's are replaced with the IP address recorded on the Saturn DigiSizer Configuration form.

If the **TCPAddr=** entry is different from the one recorded on the Saturn DigiSizer Configuration form, enter the correct one.

- f. Navigate to the section titled **[Unit 2]** and repeat Step e.
  - g. Select **File, Save** to save the changes and close Notepad.
3. Disconnect the ethernet cable from the old computer and connect it to the new one.
4. Turn on installed analyzers and start the analysis program.

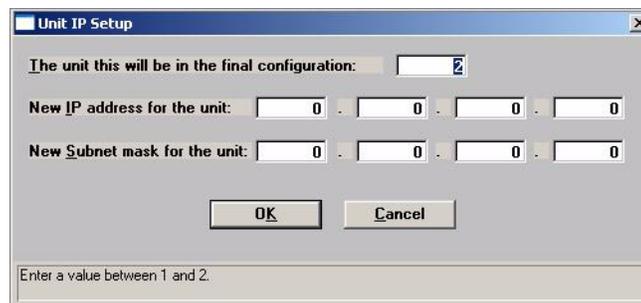
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## Moving an Existing Configured Analyzer to Another Computer

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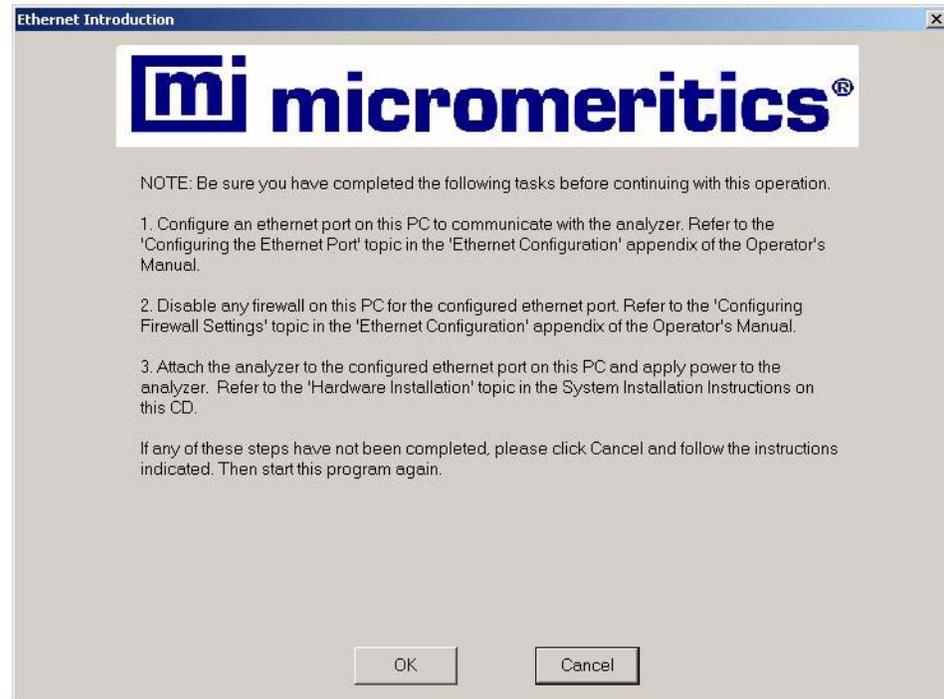
Use the instructions in this section if you have a configured analyzer that you wish to move to a different computer that already has an analyzer and the analysis program installed.

1. Review the Saturn DigiSizer Configuration forms for both the current and destination computers. If there are duplicate IP addresses for analyzers (in most cases, there will be), it is best to change the IP address using the current computer before moving the analyzer.
  - a. Turn on installed analyzers and start the analysis program.
  - b. Select **Unit configuration** from the Unit [n] menu and click **Change**; the Unit IP Setup dialog is displayed.

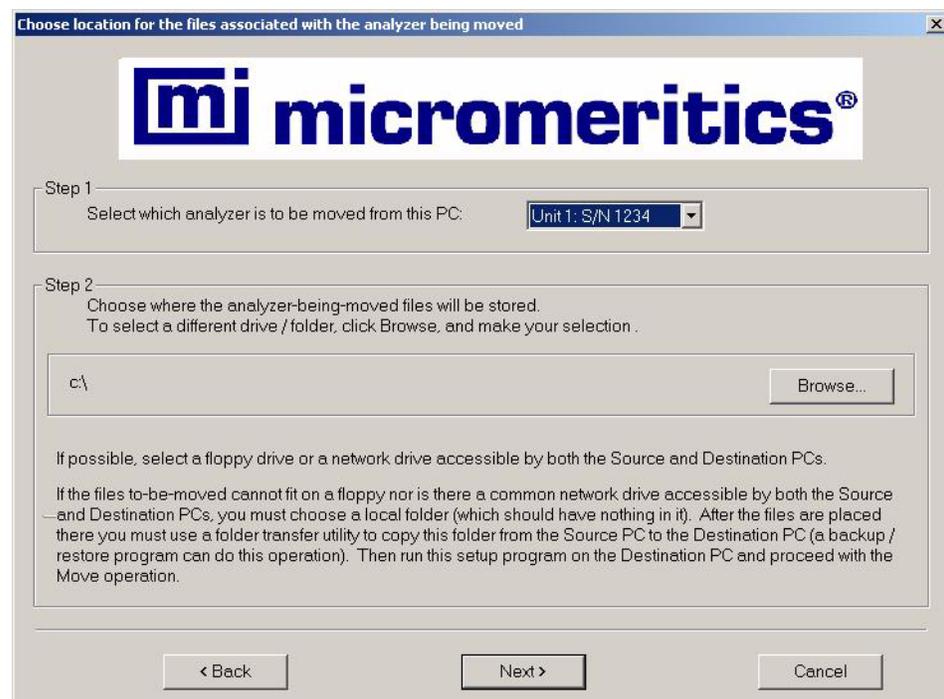


- c. Enter a new address for the analyzer you are uninstalling and record it on the Saturn DigiSizer Configuration form for the destination computer. For example, the current analyzer is nnn.nnn.nnn.101 and you have an analyzer already installed on the destination computer with the same IP address. Specify the address for the analyzer you are uninstalling as nnn.nnn.nnn.102.
    - d. Click **OK** to close the Unit IP Setup dialog, then again to close the Unit Configuration dialog.
  2. Exit the analysis program and turn off all analyzers.
  3. Disconnect the Ethernet cable of the analyzer from the current computer (or Ethernet switch) and reconnect to the Ethernet switch for the destination computer.]
  4. On the current (source) computer, select **Start** from the Task bar, and **Run** from the Start menu.
  5. Enter the drive designator of the CDROM drive, followed by SETUP; for example, **e:setup**.
  6. Click **OK**; the Setup Welcome dialog is displayed

7. Select **Move an analyzer from one PC to another PC** and click **Next**; the Ethernet Introduction dialog is displayed. This screen outlines the steps that should be completed before installing the software



8. Make sure the steps are completed, then click **OK**.
9. Select **Source PC**, then click **Next**; the following dialog is displayed.



10. From the drop-down list in the Step 1 group box, select the analyzer that is to be moved from this computer.
11. Click **Browse** in the Step 2 group box to select a location for storing the calibration and status files associated with the source computer. If possible, the location should be a shared network drive. If this is not possible, select a local folder and then use a transfer utility to copy its contents from the Source PC to the Destination PC.



**Sample and parameter files are not copied and moved with the analyzer. Use a file management program such as Explorer to move these files, then the Import function to import them into the application.**

12. Click **Finish**; the files are copied to the specified location and the setup Welcome screen is displayed.
13. Click **Exit** to close the dialog, then remove the CD-ROM from the source computer.
14. Insert the CD-ROM in to the CD-ROM drive of the destination computer, then start the Setup program.
15. Select Move an analyzer from one PC to another PC; the Move analyzer operation dialog is displayed.
16. Select **Destination PC**, then click **Next**; the Move analyzer information to the PC dialog is displayed. In the Step 1 group box, enter the serial number of the unit you are adding.

17. Enter the location of the files that were stored previously.
18. Click **Finish**; the files are transferred and the setup Welcome screen is again displayed.

19. Click **Exit** to close the dialog.
20. Remove the CD-ROM from the computer and store in a safe place.
21. Use Windows Explorer to edit the application file (either **WIN5205.ini** for standard software or **cfr5205.ini** for *confirm* software):
  - a. Right-click on the **Start** button and select **Explore**.
  - b. Open the directory where the analysis program is installed (the default is either **C:\5205** for standard software or **C:\cfr5205** for *confirm* software).
  - c. Double-click on **cfr5205.ini** or **WIN5205.ini**. This opens Notepad, displaying the **ini** file.
    - d. Navigate (or page-down) to the section titled **[Unit 1]**.
  - e. Confirm that there is a **TCPAddr=** entry and that it matches the address recorded on the Saturn DigiSizer Configuration form for this unit. If the entry is not there, add it in the following format:

**TCPAddr=[nnn.nnn.nnn.nnn]**

where n's are replaced with the IP address recorded on the Saturn DigiSizer Configuration form.

If the **TCPAddr=** entry is different from the one recorded on the Saturn DigiSizer Configuration form, enter the correct one.
  - f. Select **File, Save** to save the changes and close Notepad.
22. Turn on both analyzers and start the analysis program.







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## Appendix C: Selecting the Voltage and Installing Fuses with Other Input Power Configuration

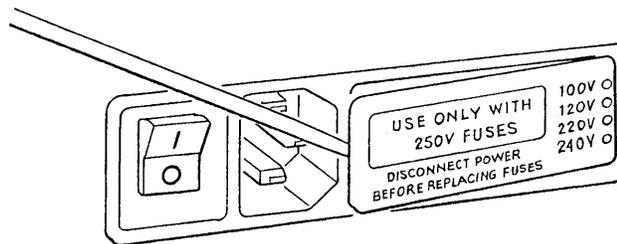
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On some instruments, the input power connector has a removable cover instead of the hinged cover described in this document. If this type of configuration is used on the instrument being installed, follow the instructions below.



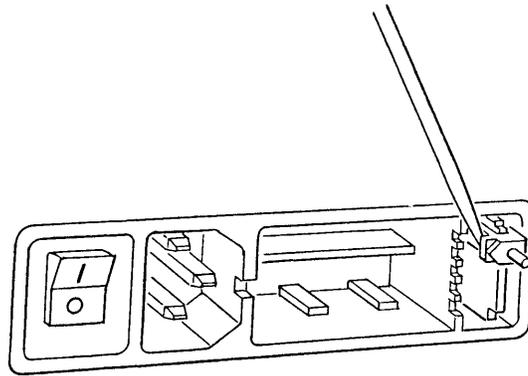
**The power cord must be disconnected from the instrument before removing the cover from the input power connector. Failure to disconnect the power cord could result in electrical shock.**

1. Make sure the power cord is not connected to the instrument.
2. Check the voltage setting on the rear panel of the instrument.
  - If the voltage is correct:
    - a. Using a pointed object, remove the fuse block and cover assembly from the power connector at the rear of the instrument. (The illustrations below represent a typical instrument.)

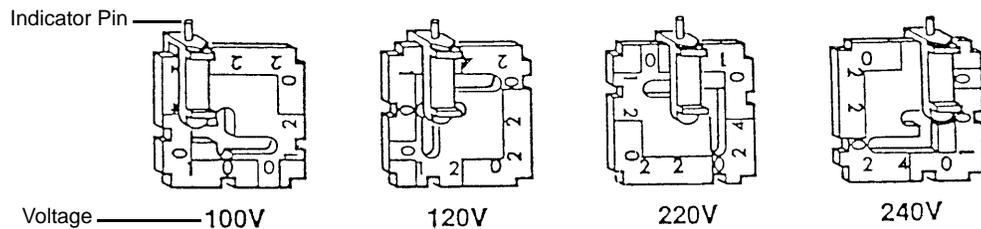


- b. Proceed to Step 6.
- If the voltage is incorrect, remove the fuse block cover as described above, then proceed to Step 3.

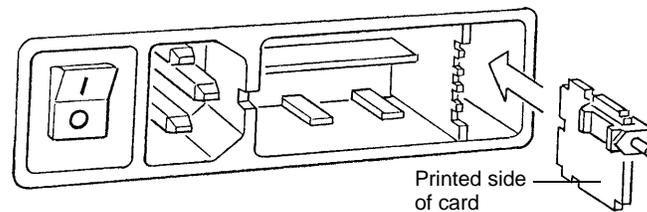
- Pull the voltage selector card straight out of the power connector housing.



- Orient the voltage selector card so that the desired voltage is indicated at the bottom. Orient the indicator pin so that it points upward as shown in the following illustration.

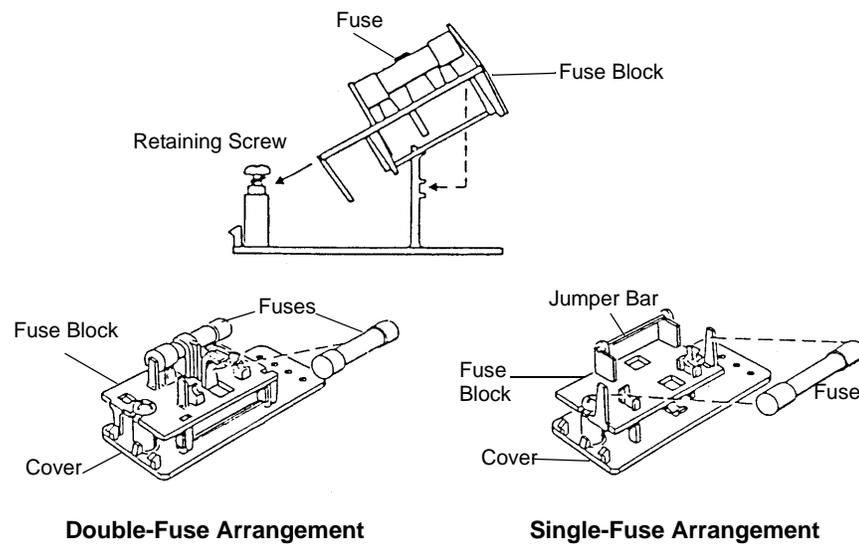


- Insert the voltage selector card into the power connector housing with the edge containing the desired voltage first and with the printed side to the left.



**The power cord must be disconnected from the instrument when installing or replacing fuses. Failure to disconnect the power cord could result in electrical shock.**

6. Fuse the input power line according to local safety practices. The input power connector can be used with either a single-fuse arrangement or a double-fuse arrangement, as shown in the following illustration.



- a. Observe the position of the fuse block, using the previous figure for reference. If the single-fuse arrangement is desired, position the fuse block so that the side with the single-fuse slot and the jumper bar is away from the cover.

If the double-fuse arrangement is desired, position the fuse block so that the side with the double-fuse slots is away from the cover.

- b. If the fuse block is positioned properly for the fusing desired, proceed to Step c.

If the fuse block is not positioned properly for the fusing desired:

- 1) Remove the fuse block retaining screw.
- 2) Lift the fuse block from the cover.
- 3) Rotate the fuse block.
- 4) Mount the fuse block to the cover.
- 5) Replace the retaining screw.



**The fuses used in the instrument must be identical in type and rating to that specified. Use of other fuses could result in electrical shock and/or damage to the instrument.**

- c. Insert the appropriate fuse(s) for the input power source. Refer to the chart below for the appropriate fuse ratings for the DigiSizer, AquaPrep and MasterTech.

Instrument	Power Source	Fuse
Saturn DigiSizer 5205	100-115 VAC	3 AG, 1.5 Amp Slow-Blow
	200-240 VAC	5 x 20 mm, 1.25 Amp Slow-Blow
AquaPrep	100-120 VAC	2.0 Amp Slow-Blow
	200-240 VAC	1.0 Amp Slow-Blow
MasterTech	100-120 VAC	3 AG, 2.0 Amp Slow-Blow
	200-240 VAC	5 x 20 mm 1.0 Amp Slow-Blow

7. Insert fuse block and cover assembly into the input power connector (as shown in the following illustration) and snap it into place. Once the fuse block and cover assembly are in place, the position of the indicator pin shows the input power selected.

