AccuPyc II® 1345

Gas Displacement Pycnometer

Installation Instructions and Checklist

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(Rev -)

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1. Certain products sold by MICROMERITICS are the products of reputable manufacturers, sold under their respective brand names or trade names. We, therefore, make no express or implied warranty as to such products. We shall use our best efforts to obtain from the manufacturer, in accordance with his customary practice, the repair or replacement of such of his products that may prove defective in workmanship or materials. Service charges made by such manufacturer are the responsibility of the ultimate purchaser. This states our entire liability in respect to such products, except as an authorized person of MICROMERITICS may otherwise agree to in writing.
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Micromeritics Instrument Corporation is a leading global provider of solutions for material characterization with best-in-class instrumentation and application expertise in five core areas: density; surface area and porosity; particle size and shape; powder characterization; and catalyst characterization and process development. Founded in 1962, the company is headquartered in Norcross, Georgia, USA and has more than 400 employees worldwide. With a fully integrated operation that extends from a world class scientific knowledge base through to in-house manufacture, Micromeritics delivers an extensive range of high-performance products for academic research and industrial problem-solving. The implementation of tactical partnerships to incubate and deliver valuable new technologies exemplifies the company's holistic, customer-centric approach which extends to a cost-efficient contract testing laboratory – the Particle Testing Authority (PTA). The strategic acquisitions of Freeman Technology Ltd and Process Integral Development S.L. (PID Eng & Tech) reflect an ongoing commitment to optimized, integrated solutions in the industrially vital areas of powders and catalysis.

Freeman Technology (Tewkesbury, UK) brings market-leading powder characterization technology to Micromeritics' existing portfolio of particle characterization techniques. The result is a suite of products that directly supports efforts to understand and engineer particle properties to meet powder performance targets. With over 15 years of experience in powder testing, Freeman Technology specializes in systems for measuring the flow properties of powders. In combination with detailed application know-how these systems deliver unrivalled insight into powder behavior supporting development, formulation, scale-up, processing and manufacture across a wide range of industrial sectors.

PID Eng & Tech (Madrid, Spain) complements Micromeritics' renowned offering for catalyst characterization with technology for the measurement and optimization of catalytic activity, with a product range that extends to both standard and bespoke pilot scale equipment. Launched in 2003, PID Eng & Tech is a leading provider of automated, modular microreactor systems for the detailed investigation of reaction kinetics and yield. These products are supported by a highly skilled multidisciplinary team of engineers with in-depth expertise in the design, construction and operation of laboratory units and process scale-up.

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Micromeritics has a strong global network with offices across the Americas, Asia, and Europe complemented by a dedicated team of distributors in additional locations. This ensures that local, knowledgeable support is available for every customer, in academia or industry. Micromeritics works across a truly diverse range of industries from oil processing, petrochemicals and catalysts, to food and pharmaceuticals, and at the forefront of characterization technology for next generation materials such as graphene, metal-organic-frameworks, nanocatalysts, and zeolites. Engineering solutions that work optimally for every user is a defining characteristic of the company.

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ABOUT THIS MANUAL

This manual contains instructions for installations in standard and 21CFR11 environments. For instructions on installing the software in a 21CFR11 environment, see the Confirm Administrator Guide [*part number 004-42821-01*].

The following symbols indicate safety precautions and supplemental information and may appear in this manual:

NOTE — Notes contain important information applicable to the topic.

CAUTION — Cautions contain information to help prevent actions that may damage the analyzer or components.

WARNING — Warnings contain information to help prevent actions that may cause personal injury.

KEYPAD FUNCTION — The keypad icon indicates the section is applicable only when using the keypad.

CFR Note

NOTE — Notes that apply to 21CFR11 environments only (Confirm applications).

Table of Contents

Warranty ____ *iii*

Corporate Profile ____ *iv*

Contact Us ____ *v*

About this Manual ____ *vi*

1 Installation Overview ____ *1 - 1*

Prepare for Installation ..... *1 - 1*

Handling System Components ..... *1 - 2*

Gas Requirements ..... *1 - 3*

Specifications for AccuPyc II ..... *1 - 4*

2 Equipment Installation ____ *2 - 1*

Pycnometer Installation ..... *2 - 1*

Single Module ..... *2 - 1*

Control Module and Analysis Module ..... *2 - 1*

TEC Module ..... *2 - 2*

Set Up Procedure ..... *2 - 3*

TEC Module ..... *2 - 4*

Temperature-Controlled Module ..... *2 - 8*

Gas Connection ..... *2 - 9*

Connect Keyboard ..... *2 - 11*

Connect and Apply Power ..... *2 - 11*

Connect Ethernet Cable ..... *2 - 12*

Brightness Control ..... *2 - 13*

Configure the Pycnometer using the Keypad ..... *2 - 14*

3 Software Installation ____ *3 - 1*

Start the Application ..... *3 - 7*

Unit Selections ..... *3 - 8*

Analytical Balance ..... 3 - 9
Install Analyzer Application Upgrade using a Media Device ..... 3 - 10
Reinstall or Modify the Software ..... 3 - 11
Software Uninstall ..... 3 - 12
Uninstall Software in 21CFR11 Environments ..... 3 - 12

4 Transmitted Data ..... 4 - 1

5 Checklists, Exceptions, and Signatures ..... 5 - 1
Installation Checklists ..... 5 - 1
Exceptions ..... 5 - 6
Signatures ..... 5 - 7
Final Documentation ..... 5 - 7

1 Installation Overview

Use these installation instructions and checklists to ensure that installation procedures are completed properly.

It is recommended that installation procedures be performed in the order presented in this document.

If installing in a CFR21 environment, use this installation instruction manual in conjunction with the Confirm Administrator Guide [*part number 004-42821-01*].

Prepare for Installation

Before installation, ensure the operator has reviewed thoroughly the analyzer *Pre-installation Instructions and Checklist*. Ensure all required equipment and supplies are unpacked and the required personnel are available.

When the equipment is received, unpack and inspect the contents of the shipping container(s). Use the packing list to verify that all products, accessories, software (if applicable), and documentation are received intact and in the correct quantity. The shipping container(s) and contents should be inspected within a few days of receipt in the event damage or loss has occurred. Sort through all packing material before declaring missing equipment or parts.

Micromeritics recommends saving all shipping containers until installation of the equipment is complete. All shipping containers where equipment is to be declared as damaged or lost must be examined by the claims investigator prior to completion of the inspection report.

HANDLING SYSTEM COMPONENTS

CALIBRATION STANDARD

- Wear latex or nitrile, powder-free gloves to prevent transfer of oil from hands.
- Do not drop the standard into the sample cup. Roll the standard into the cup to prevent damage.
- Always return the standards to the case. Standards are unit specific.

SAMPLE CHAMBER CAP

- Wear latex or nitrile, powder-free gloves to prevent transfer of oil from hands.
- Keep the cap on the sample chamber except when inserting or removing the sample cup .

When left uncapped, the sample chamber temperature may become unstable and/or water vapor will adsorb on the inner surface of the chamber. Either of these conditions can affect analysis results.

- Avoid laying the chamber cap on a work surface. Debris may collect on the greased surface of the O-ring which can also affect analysis results.
- When multiple analysis modules are connected, never interchange sample chamber caps. Caps are unit specific.

GAS REQUIREMENTS

The pycnometer uses helium or nitrogen (99.995% pure or better) to provide rapid, accurate analyses. The cylinder containing helium must be fitted with a gas regulator set for 19-23 psig (131-159 kPag). The pressure input to the pycnometer should never be greater than 25 psig (172 kPag). Excessive pressures waste gas due to a protection device contained in the pycnometer that vents the pycnometer to atmospheric pressure if pressure exceeds 35 psig (241 kPag). This protection device is not installed on 2000 cm^3 or high pressure units.

Tank pressure should be at least 200 psi above regulator pressure.
The High Pressure sample chamber configuration inlet pressure should never be greater than 520 psig (3580 kPag); there is no pressure relief.

Other inert, dry gases can also be used and may be more applicable for some applications.

SPECIFICATIONS FOR ACCUPYC II

Characteristic	Specification
Analysis	
Precision	Reproducibility typically to within 0.01% of the nominal full scale cell chamber volume. Reproducibility guaranteed to within 0.02% of the nominal full scale volume on clean, dry, thermally equilibrated samples using helium in the 15 °C to 35 °C range (15°C to 50 °C for temperature-controlled models). **High Pressure Units.** Reproducibility typically within 0.05% of the nominal full-scale chamber volume. Reproducibility guaranteed to within 0.1%.
Accuracy	Accurate to within 0.03% of reading, plus 0.03% of sample capacity. **High Pressure Units.** Accurate to within 0.1% of reading, plus 0.1% of sample capacity.
Electrical	
Voltage	90 to 264 VAC
Power	30 VA
Frequency	50 to 60 Hz
Environment	
Non-temperature Controlled	**Operating Environment Temperature.** Stable between 15 C° and 35 °C (59 °F to 96 °F). **Operating Humidity Range.** 20 to 80% relative, non-condensing.
Temperature-Controlled With Circulator	Stable between 15 °C and 35 °C (59 °F to 96 °F). **Operating Environment Temperature.** Stability is dependent upon specifications of the installed circulator. Recommended range: 15 °C to 50 °C (59 °F to 122 °F). **Operating Humidity Range** 20 to 80% relative, non-condensing.
Temperature Controlled With TEC	**Controlled temperature range**. 15 °C to 36 °C, ±0.1 °C, in an operating range of 10 °C to 30 °C with a 20% to 40% humidity level.
Gases	
Research grade helium or nitrogen is recommended. If unavailable, use helium with a dew point of -67 °C (-88 °F) or lower. Carbon dioxide, dry air, or argon can also be used for different applications. A multigas option is available for connection of multiple gases.	

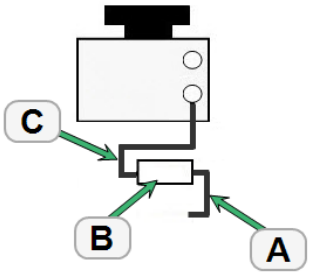
Characteristic	Specification
	Physical
Analysis Module (1, 10, 100 cm^3)	Height. 17.9 cm (7.0 in.) Width. 22.2 cm (8.7 in.) Depth. 36.2 cm (14.3 in.) Weight. 7.9 kg (17.4 lbs) Standard unit Weight 8.2 kg (18.1 lbs) High Pressure unit.
Analysis Module (350 cm^3)	Height. 25.9 cm (10.2 in.) Width. 22.2 cm (8.7 in.) Depth. 36.2 cm (14.3 in.) Weight. 10.5 kg (23.2 lbs)
Analysis Module (2000 cm^3)	Height. 43 cm (17 in.) Width. 27 cm (10.6 in.) Depth. 36.2 cm (14.3 in.) Weight. 26 kg (57 lbs)
Control Module	Height. 17.9 cm (7.0 in.) Width. 27.3 cm (10.7 in.) Depth. 36.2 cm (14.3 in.) Weight. 3.6 kg (8.0 lbs)
Control Analysis Module	Height. 17.9 cm (7.0 in.) Width. 27.3 cm (10.7 in.) Depth. 36.2 cm (14.3 in.) Weight. 9.3 kg (20.5 lbs)
TEC Module	Height. 27.3 cm (10.7 in.) Width. 28.7 cm (11.3 in.) Depth. 36.1 cm (14.2 in.) Weight. 13.8 kg (30.5 lbs.)
500 PSI Module (100 cm^3)	Height. 20.5 cm (8.1 in.) Width. 22 cm (8.7 in.) Depth. 38 cm (15 in.) Weight. 14.5 kg (32 lbs.)

Characteristic	Specification
Sample Cup	
1 cm^3 chamber	ID: 1.15 cm (0.45 in.) Depth: 1.1 cm (0.44 in)
10 cm^3 chamber	ID: 1.8 cm (0.71 in.) Depth: 3.93 cm (1.55 in)
100 cm^3 chamber	ID: 4.62 cm (1.82 in.) Depth: 6.17 cm (2.43 in)
350 cm^3 chamber	ID: 5.84 cm (2.3 in.) Depth: 13.94 cm (5.49 in)
2000 cm^3 chamber	ID: 9.7 cm (3.8 in.) Depth: 26 cm (10.2 in)
Computer Requirements *(when using a computer)*	
Printers - *Contact Customer Service for information on supported printers* • **Operating System.** Windows 10 Professional or higher operating system is recommended for the best user experience. • **Desktop Installation Required.** The application should not be installed on a network drive with shared access. Multiple users cannot operate the application at the same time. • **10 Base T or 100 Base T Ethernet Port.** If the computer is to be connected to a network, two Ethernet ports are required. If more than one Ethernet based unit is connected to the same computer, an Ethernet switch will also be required. • **Read / Write Permissions.** All users of the application will need Read/Write permission to all directories and subdirectories where the application is installed. • **Drives.** USB port.	
In keeping with a policy of ongoing product improvement, specifications are subject to change without notice.	

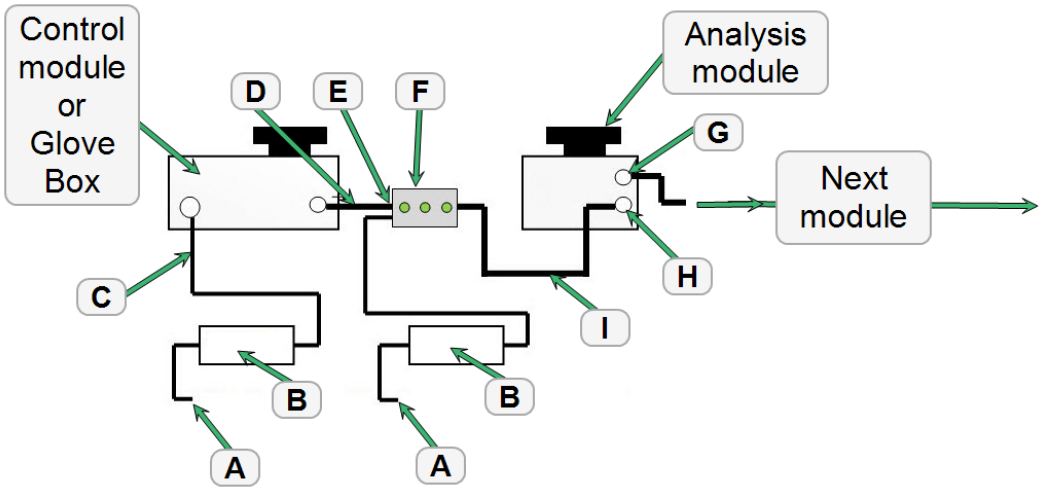
2 Equipment Installation

Pycnometer Installation

Single Module



Control Module and Analysis Module



TEC MODULE

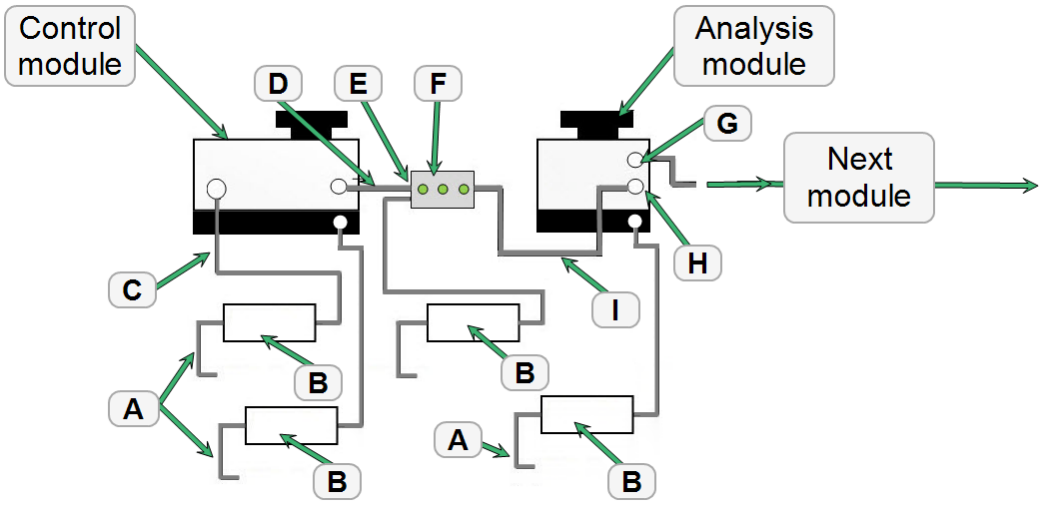


Diagram Components

Component	Description
A	Separate power cord for external power supply. Connect cable to wall outlet.
B	External power supply.
C	Hardwired 8 pin mini-DIN power cable for external power supply.
D	8 pin mini DIN cable.
E	Power adapter DIN port.
F	Power adapter.
G	Module Connection - 8 pin mini-DIN OUT port to connect next analysis module.
H	Module Connection - 8 pin mini-DIN IN port to connect the control module or previously connected analysis module (not shown).
I	Hardwired power mini DIN cable for power adapter.

SET UP PROCEDURE

1. Unpack and inventory all boxed parts. Contact your Micromeritics Service Representative if parts are missing or broken.
2. Place module(s) on work surface.
3. Connect separate power cable(s) to external power supply(s).
4. Connect external power supply(s) to power outlet on the module(s).
5. Connect power cable to wall outlet.
6. Toggle the module power switch to the ON position.
7. Check the power indicator on the front panel of the analyzer. The indicator light will blink green to indicate that power is applied to the analyzer. Once the application is running, the indicator will stop blinking and remain illuminated.
8. On the keypad, press **Alt + CHOICE + 2**. *Unit [n]* appears in the upper left corner of the display.

```
Unit[n]      SN 1234        10 cm3
             X  -  X  -  X
Reload
P = (current pressure)
```

9. Adjust the display brightness control using the **Brightness Control** button on the rear of the analyzer.

TEC MODULE

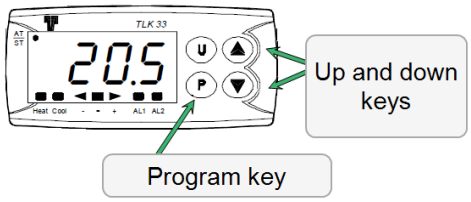
This AccuPyc system has been modified to provide temperature control from 15 to 36 °C. The system uses a thermoelectric control (TEC) system to heat or cool the AccuPyc. The temperature is controlled using a digital temperature controller and a separate power system from the AccuPyc.

It is suggested that the TEC system be installed first, to allow time for temperature to stabilize at the desired temperature, while the AccuPyc is being installed.

Set the TEC Temperature

1. Power on the TEC module. The power switch is located near the power inlet.

   The digital display of the temperature controller will show a test message while it starts up. When the test message stops flashing, the current temperature displays. If the current temperature and a message such as *ErAt* displays, press the **P** (Program) key on the front panel of the controller. The *ErAt* message should stop and only the current temperature will display.



2. Press **P**. *SP 1* displays followed by the current setpoint (*SP 1*). Use the **Up** or **Down** key to set the temperature.
3. Press **P** to accept the temperature. The controller will now start heating or cooling to achieve the setpoint

The TEC module uses a fan to remove heat. The fan is located on the underside of the instrument. The fan pulls air into the instrument and the air is exhausted through ventilation slots on the rear panel. The exhaust slots must remain unobstructed.

Do not allow papers or other debris to be pulled across the fan as this will stop the necessary air flow. The TEC system will be unable to control temperature, and may become damaged.

Operate the TEC Module

When the TEC controller shows the correct temperature, there may be a small difference between the temperature on the TEC unit and the AccuPyc display because two different sensors are being used. The AccuPyc sensor and electronics are calibrated together to compensate for any component differences between the sensor and the circuit board components. Micromeritics considers the AccuPyc temperature display to be a more accurate reflection of the sample temperature than the reading from the controller. The controller and the sensor used with the controller cannot be calibrated.

The TEC controller may be adjusted to compensate for the small difference. If the AccuPyc temperature is a little high, then reduce the setpoint of the TEC controller by the difference. Wait for stabilization. Re-adjustment may need to be repeated until the correct AccuPyc temperature is achieved.

The AccuPyc volume must be calibrated at the analysis temperature. Perform the volume calibration in the normal way until it is time to insert the reference volume (sphere or spheres). After installing the reference volume, wait at least 20 minutes to allow the reference volume to achieve the same temperature as the AccuPyc. Then continue as normal.

When it is necessary to perform AccuPyc tests at a different temperature, re-calibrate the system volume at the new temperature.

Volume Change with Temperature for the 10 cm^3 AccuPyc

The reference spheres supplied with the 10 cm^3 AccuPyc are made from tungsten carbide. They were measured at 20 °C. The spheres will change volume with temperature. The change is very small and is shown in the following table. Every sphere is a slightly different size, and so the table provides the factor to be used if the value used during calibration needs to be adjusted. Multiply the volume provided with the reference spheres by the value in the right column.

Temperature (°C)	Typical Volume (cm^3), two balls	Factor
15	6.37125	0.99991
20	6.37182	1.00000
25	6.37238	1.00009
30	6.37295	1.00018
35	6.37351	1.00027

For example, if the ball is 6.37182 cm^3 at 20 °C but run at 50 °C, multiply the Volume × the factor in the table.

6.37182 cm^3 x 1.00053 = 6.37520 cm^3

Volume Change with Temperature for the 100 cm^3 AccuPyc

The stainless steel calibration standard (ball) supplied with the 100 cm^3 AccuPyc is made from 440 grade stainless steel. It was measured at 20 °C. Its volume will be higher when heated above 20 °C. The following table uses the coefficient of thermal expansion of 440 grade stainless steel (0.0000101 m/m/degree C change) to provide the volume of the sphere at various temperatures.

Every ball is a slightly different size therefore the table provides the factor to be used if the value used during calibration needs to be adjusted. Multiply the volume provided with the reference sphere by the value in the right column.

Temperature (°C)	Typical Volume (cm^3)	Factor
15	51.089712	0.99995
20	51.092292	1.000000
25	51.094872	1.000051
30	51.097452	1.000101
35	51.100032	1.000152

For example, if the ball is 51.092292 cm^3 at 20 °C but run at 50 °C, multiply the Volume × the Factor in the table.

51.092292 × 1.000303 = 51.107773

Asphalt Density Measurement

Samples can be analyzed in disposable cups. Any difference in the mass of the cups used for calibration and analysis will be corrected for in the reported quantities. Performing an asphalt density measurement requires disposable sample cups.

Steps 1-9 do not need to be repeated for subsequent analyses.

1. Set the instrument temperature and allow 12 hours for equilibration.
2. Go to ***Options > Option Presentation***. Select *Show Cup Properties*. Verify that a check-mark displays to the left.
3. Label each disposable cup with a permanent marker and record its mass.
4. Place a disposable cup in the 3.3 cm^3 insert and position the insert in the sample chamber.
5. Go to ***Unit [n] > Calibration > Calibrate Volume***.
    a. Enter the mass of the cup in the *Cup mass* field.
    b. Enter the volume of the reference sphere in the *Volume of calibration standard* field.
    c. Select the correct chamber insert.
    d. Select *Measured*.
    e. Click **Start**.
6. Insert the reference sphere when prompted and resume the calibration.
7. When the calibration is complete, remove the cup and reference sphere.
8. Prepare a sample in a different disposable cup and place it in the sample chamber.
9. Create a sample file for the analysis.
10. Go to ***Unit [n] > Sample Analysis*** and select the sample file created in the previous step.
11. Enter the mass of the cup in the *Cup mass* field.
12. Select the chamber insert that was used for calibration.
13. Click **Start**.

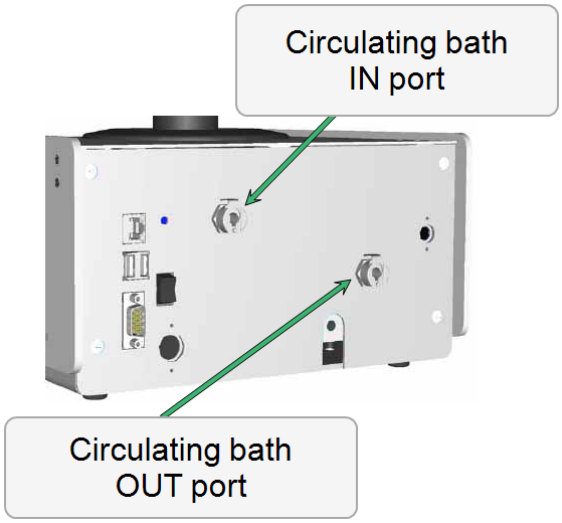
TEMPERATURE-CONTROLLED MODULE

See *Pycnometer Installation on page 2 - 1* for setup instructions. When complete, connect the circulating bath.

Attach a Circulating Bath

The rear panel of the temperature-controlled AccuPyc contains connections for a circulating bath. Provided in the accessory kit are two hose fittings and a four foot length of tubing.

1. Power off the controlling unit.
2. Remove the plugs from the **In** port and the **Out** port.

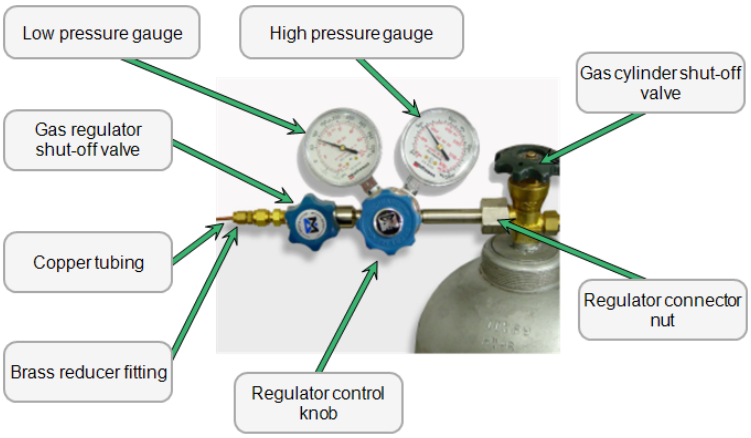


3. Insert the provided hose fittings into each connector.
4. Cut the piece of 4 ft. tubing into two equal pieces of 2 feet each.
5. Install the tubing on the **In** and **Out** connectors.
6. Install the other end of the **Out** tubing to the **Inlet** connection of the bath circulator.
7. Install the other end of the **In** tubing to the **Outlet** connection of the bath circulator.
8. Set the temperature using the appropriate controls on the bath circulator.

GAS CONNECTION

These instructions are for connecting inert gases only. Follow the safety procedures used by your laboratory for connecting hazardous gases.

Review *Gas Requirements on page 1 - 3* prior to installing gas.



1. Attach an appropriate regulator to the gas cylinder or gas line, then tighten with a wrench. Leave the gas bottle shutoff valve closed until instructed otherwise.
2. Attach the gas inlet line to the regulator, reducer fitting, or regulator expansion.

CAUTION

It is important to use the inlet tubing supplied with the analyzer. Gas lines made of materials other than copper or stainless steel can cause operational problems as well as inaccurate data.

If Regulator has...	Then...
1/4 in. outlet	Attach the reducer fitting to the outlet of the regulator shutoff / isolation valve.
	Tighten the nut finger tight, then 1-1/4 turns with a wrench.
	Continue with the steps given for the 1/8 in. outlet.
1/8 in. outlet	Insert the gas tubing into the fitting.
	Enure the tubing is seated fully inside the fitting.
	Tighten the nut finger tight.
	While holding the fitting body steady, tighten the nut with a wrench 3/4 turn.

CAUTION

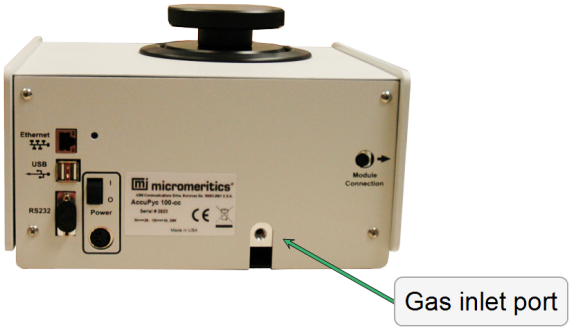
Do not overtighten the fittings. Doing so can collapse the brass fitting and cause a leak.

3. Purge the regulator and inlet tubing to prevent contamination of the analysis gas.
   a. Turn the regular shutoff valve clockwise to close.
   b. Turn the pressure regulator control knob counter-clockwise to open.
   c. Slowly turn the gas cylinder shutoff valve counter-clockwise to open, then quickly close it.
   d. Observe the high pressure gauge.

   If the pressure decreases, tighten the nut connecting the regulator to the gas cylinder. If the pressure is stable, proceed to the next step.

Ensure the gas supply equipment is adequately vented before performing the next step.

   e. Turn the pressure regulator control knob clockwise until the low pressure gauge indicates 19.500 psig (134.445 kPag).
   f. Turn the regulator shutoff valve counter-clockwise to open.
   g. Turn the gas cylinder shutoff valve counter-clockwise to open. Flow gas for 10 to 30 seconds, then close the valve.
   h. Turn the gas regulator shutoff valve clockwise to close
   i. Attach the other end of the copper tubing to the gas inlet on the rear panel of the pycnometer. Remove the inlet plug that shipped with the pycnometer.



4. Turn the nut on the tubing clockwise until it is finger tight. Then use a 7/16 in.(1 mm) wrench to tighten the nut an additional 1/4 turn.
5. Open the gas cylinder and regulator shutoff valves.
6. Turn the regulator control knob until the low pressure gauge indicates 21.5 psig (148 kPag). For a high pressure sample chamber configuration, set regulator pressure 20 psi above cycle and fill pressure.

CONNECT KEYBOARD

An optional USB keyboard can be connected to a USB port on the rear panel of the analysis module. The keyboard is not provided by Micromeritics.

CONNECT AND APPLY POWER

5-pin (full size) DIN
for analyzers and Control Modules

4-pin Mini-din for TEC module

Insert the plug adapter into the power port on the back of the analyzer. Insert one end of the power cord into the adapter and the other into a wall outlet.

Use of a power cord or power supply not provided with the instrument could cause personal injury or damage to the equipment. Do not use a power cord or power supply other than what was supplied with the instrument. If a replacement is needed, contact your Micromeritics Service Representative.

Connect Ethernet Cable

If using the analyzer with the keypad or keyboard only, skip this section.

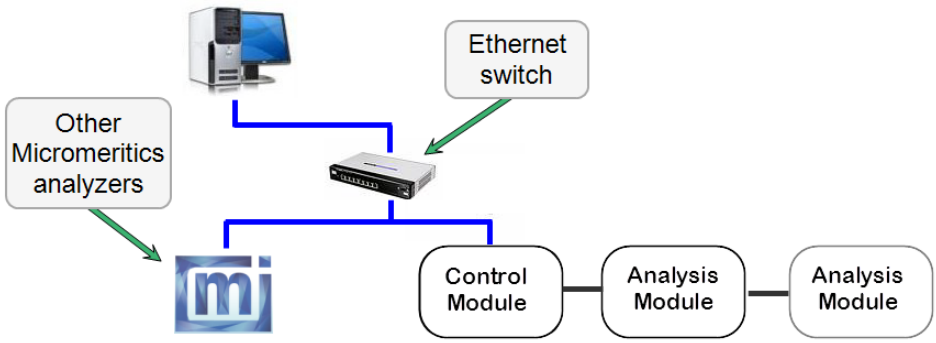
An Ethernet switch is required if connecting a different type of analyzer to the same computer as the AccuPyc. If configuring multiple AccuPyc modules, they are connected together with only the Control Module connected to the Ethernet switch.

1. Plug one end of the Ethernet cable into the Ethernet port on the analyzer.
2. Plug the other end of the Ethernet cable into the computer Ethernet port.

Connect Multiple Analyzers with an Ethernet Switch

An Ethernet switch is required to connect:

- Multiple analyzers
- One or more analyzers and one computer



Do not use the uplink port when using an Ethernet switch.

Brightness Control

To adjust the display brightness:

1. Insert a small flat head screwdriver into the opening.
2. Rotate the screwdriver until it engages in the slot, then turn clockwise to darken and counterclockwise to lighten.

CONFIGURE THE PYCNOMETER USING THE KEYPAD

Use these instructions for keypad installations only. If a computer will be attached to the module, skip this section. All setup functions will be done in the analysis software application.

SYSTEM SETUP

Press **Alt + 2** to access the set-up function.

Display	Description
Unit[n] SN1234 10 cm3 Setup Type? Analysis Parameters	**Setup**. Choose or enter parameters for analysis, calibration, reporting, and data transmission. ***Choices:*** *Analysis Parameters, Report Options, Calibration Data, Communications, Unit Types*. Press **CHOICE** to display the set up type, then press **ENTER**. The parameters for each set up type are stored and used to control the pycnometer until new ones are specified.

At the completion of each set up, the display returns to the *Setup type?* prompt.

- Press **SAVE** to save the information and return to the *Reload* prompt.
- Choose another set up type. Do not press **SAVE** until all parameters have been entered. The display will return to the *Reload* prompt.
- Press **Alt + CLEAR** to discard the information entered and return to the *Reload* prompt.

PRINTER SETUP

Printers are connected to the AccuPyc II via a USB port. See ***Specifications for AccuPyc II on page 1 - 4*** for a list of supported printers. Using the keypad:

1. On the display, select *Setup* > *Report Options*.
2. Press **ENTER** until the *Printer?* prompt is displayed.
3. Press **CHOICE** until the appropriate printer driver is displayed.

COMMUNICATIONS

Communications enables specification of communications criteria, such as baud rate, parity, etc.

Display Text	Description
Setup Type? Communications	Press **CHOICE** until Communications is displayed.
Communications IP Address? [choice]	Enables selection of the manner in which the IP address is assigned. With an IP address, analysis results can be access via a web browser. Typically, after an analysis (or calibration) is started, results from the previous operation cannot be reviewed. However, results from five analyses are stored in the controller. A web browser enables review of these results. An IP address must exist for this operation. An IP address can be detected and assigned automatically, or one can be specified. Ensure the Ethernet cable is plugged into the Ethernet port on the analyzer and to the network. Choose *DHCP* to have an IP address assigned automatically, or *Specify* to specify an address. Press **CHOICE** until the option is displayed. If using *DHCP*, an IP Address should be assigned within a minute.
Communications Requesting Address * [ENTER] to continue	Displays the first-time selection of *DHCP*. Press **ENTER**. The system automatically attempts to assign an IP address. If the system is able to determine an address, the assigned address is displayed. **Unit[n] SN1234 10 cm3** **Communications** **Assigned Address:** **(assigned address)**

Display Text	Description
Communications Requesting Address [ESCAPE] to cancel	If an address cannot be determined, this prompt is displayed: Unit[n] SN1234 10 cm3 Communications Requesting Address [ESCAPE] to cancel Press **Alt + CLEAR** to cancel the operation and return to the *Reload* prompt. Contact your IT department, or choose the *Specify* option and enter the appropriate information.
Communications IP Address * (user entered)	Displays when the *Specify* option is selected. Enables entry of an appropriate IP address. This is a numerical field in the following format: *nnn.nnn.nnn.nnn*. Enter the address.
Communications Subnet Mask * (user entered)	Enables entry of the subnet mask number. Enter the subnet mask number.
Communications Gateway * (user entered)	The Gateway address is used for communicating outside the local network. The Gateway address is often the same as the IP address, with a “1” after the last dot instead of the last three characters (*nnn.nnn.nnn.1*). Contact your IT department with any questions.
Communications E-mail Address:	When connected to a network, analysis or calibration results can be e-mailed automatically upon their completion. This prompt enables entry of the e-mail address where results are to be sent. If not using *DHCP* and the e-mail address is outside the local network, specify a gateway address (see previous prompt). A keyboard is required to type in the e-mail address.
Communications E-mail Server:	Enables entry of the numerical address of the SMTP server. If this address is unknown, contact your IT department.

Display Text	Description
IT may need to configure the server to accept email from the AccuPyc. The following information may be required: • **IP address for the AccuPyc** • **Sender line**	IT may need to configure the server to accept e-mail from the AccuPyc. The following information may be required: • IP address for the AccuPyc • Sender line: 1345@micromeritics
Communications Baud Rate?	Press **CHOICE** to select proper baud rate.
Communications Data Bits?	Press **CHOICE** to select **8** or **7**.
Communications Stop Bits?	Press **CHOICE** to select **1** or **2**.
Communications Parity?	Press **CHOICE** until the required option (*None, Even*, or *Odd*) is displayed.
Communications Xon / Xoff Protocol?	Transmits data through the *Xon/Xoff protocol*. Press **CHOICE** to select *Disabled* or *Enabled*.
*** Does not display for DHCP.**	

UNIT TYPES

These keypad prompts enable selection or entry of:

- units of measurement
- operating language
- current date and time

Display Text	Description
Set-up Type? **Unit Types**	Press **CHOICE** until *Unit Types* is displayed, then press **ENTER**.
Unit Types **Pressure units?**	Enables selection of unit type for reports. Press **CHOICE** to select the desired unit. Options are: • psig (pounds per square inch gauge) • kPag (kilopascal gauge)
Unit Types **Language?**	Enables selection of operating language. Pressing **SAVE** is not required. Error messages that may be in the message queue will remain in English (or the current selected language). Error messages that occur after selecting the language will display in that language. Keypad overlays containing translations for the alternate functions are available for each language. Choose the language.
Unit Types **Date (DD/MM/YY)?**	The date is entered in a two digit format for the day, month, and year. For example; to set the date for September 1, 2014, enter 01/09/14 (day/month/year). Use the . (decimal) key to enter a slash (/).
Unit Types **Time (HH:MM:SS)?**	The time (in 24 hour format) at which an analysis begins and ends is shown on all reports. The time shown on the display may not match the current time. The time is entered in a two digit format for the hour, minutes, and seconds. For example; to set the time to 1:05 pm, enter 13:05:00 (hour:minutes:seconds). Use the . (decimal) key to enter a colon (:).

SET DATE, TIME , AND LANGUAGE

1. On the keypad, press **Alt + 2** to enter *Setup* mode.
2. Press **Choice** until *Date* displays, then press **Enter** and enter the current date.
3. Press **Choice** until *Time* displays, then press **Enter** and enter the current time.
4. Press **Choice** until *Language* displays, then press **Enter** and select the correct language.

SETUP REPORTS

The *Report Options* command enables the report mode (density or volume for analysis) and specification of the report destination. After analysis or calibration, the display returns to the *Reload* prompt. An asterisk (*) in the third line of the display indicates an error message exists.

```
Unit[n]      SN1234      10 cm3
             X  -  X  -  X
Reload                      *
P = (current pressure)
```

A report is generated automatically to the destination selected at the *Setup* > *Report Options* as follows:

- **Printer**. Report is automatically sent to the printer.
- **Transmission line**. Report is automatically sent through the serial line to an attached device for this purpose.
- **E-mail**. Report is e-mailed to the address specified (when connected to a network).

Field or Button	Description
Setup Type? **Report Options**	Press **CHOICE** until *Report Options* is displayed.
Report Options **Anls Display Mode?** **Density**	Press **CHOICE** to select *Density*, *Volume* or *Specific Gravity*, the mode in which the analysis report will be displayed. When *Density* is selected, a *Sample Mass?* prompt displays during the *Analysis* function. Enter a value for the sample mass. For accurate data, the sample mass must be entered when choosing *Density*.

Field or Button	Description
Report Options Request Sample ID?	A sample ID (identification) is a unique identifier of the sample. Using sample IDs can help keep track of data from multiple analyses and can be used as a date and time stamp. A *Sample ID* prompt displays during the analysis operation, allowing entry of the identification when after selecting **Yes** to this prompt. Press **CHOICE** to select *Yes* or *No.*
Report Options Request Description?	Provides entry of additional descriptive information. This prompt typically is used when a computer keyboard is attached. All system commands can be executed on the keyboard. Press **CHOICE** to select *Yes* or *No*.
Report Options Print Report?	Provides automatic generating of a report after an analysis or calibration. The type of printer is selected at the *Printer?* prompt. Press **CHOICE** to select *Yes* or *No*.
Report Options Transmit Report?	Provides transmission of analysis or calibration data automatically after the operation. Press **CHOICE** to select *Yes* or *No*. See ***Transmitted Data on page 4 - 1***.
Report Options E-mail Report?	Select *Yes* at this prompt to automatically send an e-mail at the conclusion of an analysis or calibration operation. An e-mail address and server must be specified in order to select *Yes*. Press **CHOICE** to select *Yes* or *No*.
Report Options Printer? [printer name]	Provides selection of the report printer. This is a system option and does not have to be specified for each analysis (or calibration). It also applies for all units when multiple analysis modules are attached. Press **CHOICE** to select the appropriate printer. See ***Printer Setup on page 2 - 14***.
Report Options Transmission Format?	Select the format of data to be used when transmitting reports. Press **CHOICE** to select either the *Single Column* format or the *Spreadsheet* format. See ***Transmitted Data on page 4 - 1***.
Report Options Request Insert?	Prompts for a MultiVolume insert during analysis or calibration operations. An insert is a device that can be placed in a sample chamber, allowing use of a smaller sample cup for analysis of smaller sample quantities. Inserts are available in MultiVolume Kits for the 1.0, 10, and 100 cm^3 pycnometers. Press **CHOICE** to select *Yes* or *No*. If MultiVolume inserts are not used, select *No*.

Field or Button	Description
Report Options Request Cup Mass?	If *Yes* is selected, prompts user to enter the mass of the sample cup at start of analysis.

Request Cup Mass? **is only necessary if different size cups are used for calibration and analysis.**

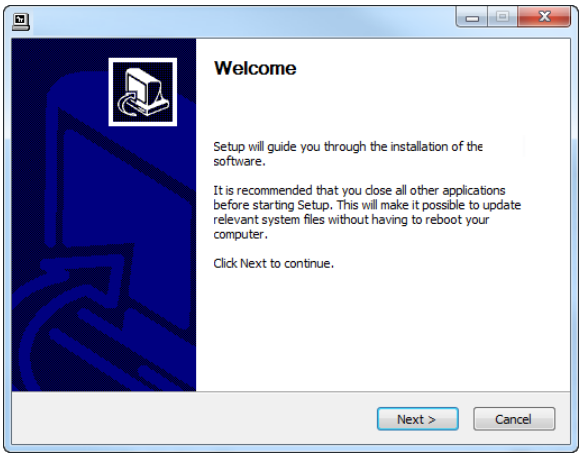
3 Software Installation

CFR Note	If installing in a CFR21 environment, follow the software installation instructions in the Confirm Administrator Guide [*part number 004-42821-01*].

The following prerequisites must be completed prior to installing the software:

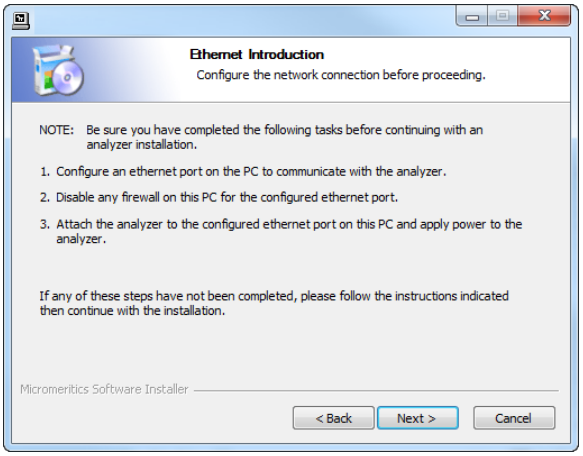
- **Operating System.** Windows 10 Professional or higher operating system is recommended for the best user experience.
- **Desktop Installation Required.** The application should not be installed on a network drive with shared access. Multiple users cannot operate the application at the same time.
- **10 Base T or 100 Base T Ethernet Port.** If the computer is to be connected to a network, two Ethernet ports are required. If more than one Ethernet based unit is connected to the same computer, an Ethernet switch will also be required.
- **Read / Write Permissions.** All users of the application will need Read/Write permission to all directories and subdirectories where the application is installed.
- **Drives.** USB port.

1. Configure an Ethernet port on the computer to communicate with the analyzer. The IP address must be 192.168.77.100. Refer to the computer operator manual for instructions on changing the IP address.
2. Insert the installation media into the media drive. The program automatically starts the installation. If the installation does not immediately start, navigate to the media drive, then locate and double click the *setup.exe* file.
3. Click **Next** on the *Welcome* window.



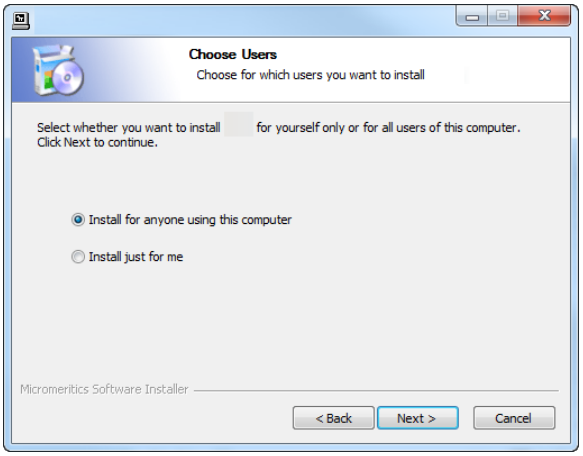
4. On the *Ethernet Introduction* window, verify that all prerequisites have been met.

   a. If not, click **Cancel** and complete the steps, then restart the installation program. Do not proceed with installation until these tasks have been completed.
   b. If the prerequisites have been met, click **Next**.

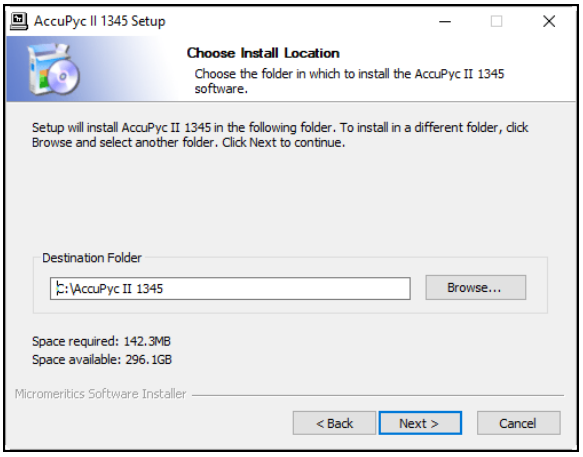


5. On the *Choose Users* window, select either of the following, then click **Next**:

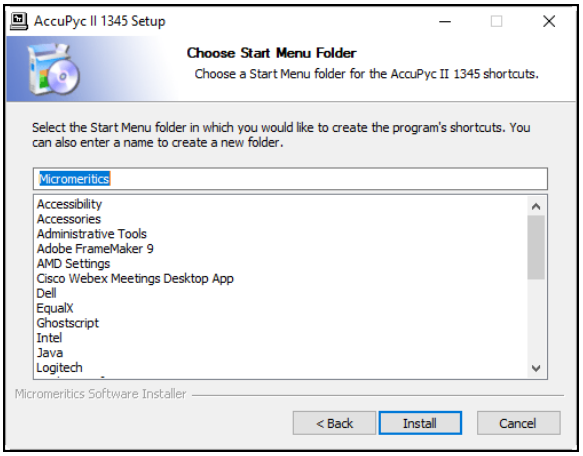
   - **Install for anyone using this computer**. Anyone who logs on to this computer will have access to the analyzer program. This is the recommended selection.
   - **Install just for me**. Only the person logged on to the computer at the time of installation will have access to the analyzer program.



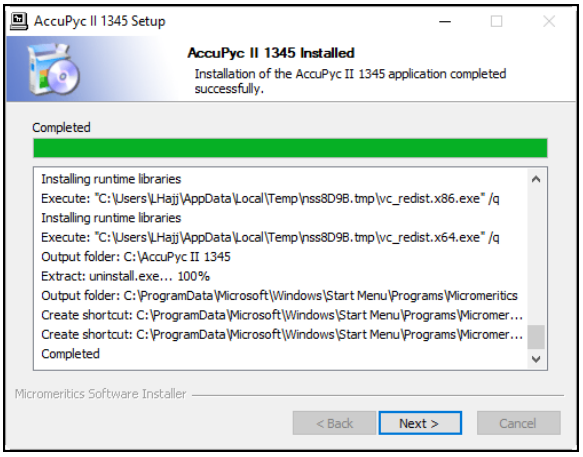
6. On the *Choose Install Location* window, verify that sufficient disk space is available to continue the installation. If not, click **Cancel** and free up the minimum required disk space. If the disk space is OK, click **Next** to accept the default installation directory, or click **Browse** to change the installation location, then click **Next**.



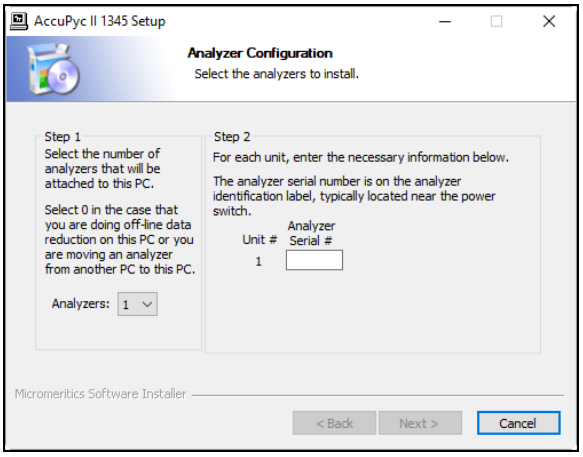
7. On the *Choose Start Menu Folder* window, select a folder for the program shortcut:
   - click **Install** to accept the default location, or
   - select another folder from the list, then click **Install**, or
   - enter a new folder name in the text box, then click **Install**



8. When installation completes, the *Installed* window displays. Click **Next**.



9. The *Analyzer Configuration* window is used to configure the system for each analyzer and serial number to be installed.



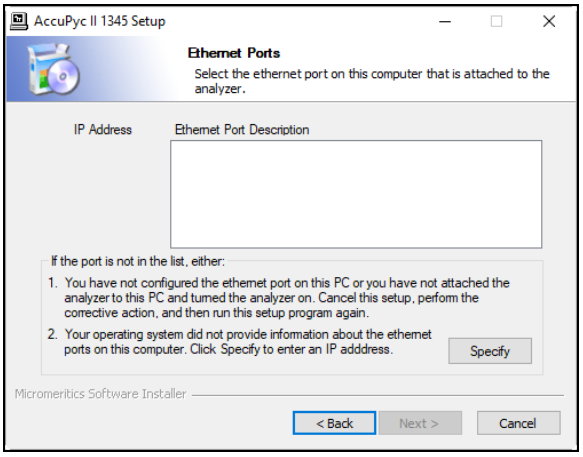
a. In the *Step 1* group box:

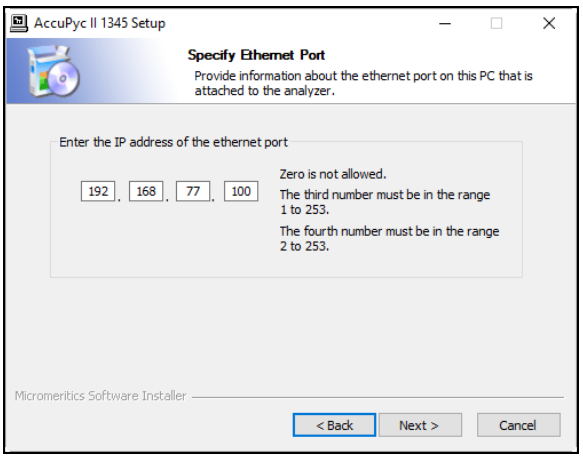
If...	Then...
installing the analysis program during initial installation	Select the number of analyzers to be installed.
using the analysis program for off-line data reduction	Select **0**.
moving an analyzer from another computer to this computer	Select **0**.

b. In the *Step 2* group box, enter the serial number for each analyzer to be attached to this computer. The serial number label is located either near the incoming power supply or near the **ON/OFF** switch.

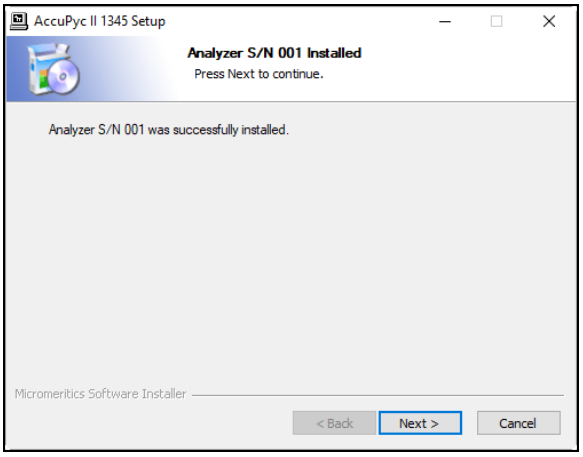
c. Click **Next**.

10. On the *Ethernet Ports* window, select one option from the following table:

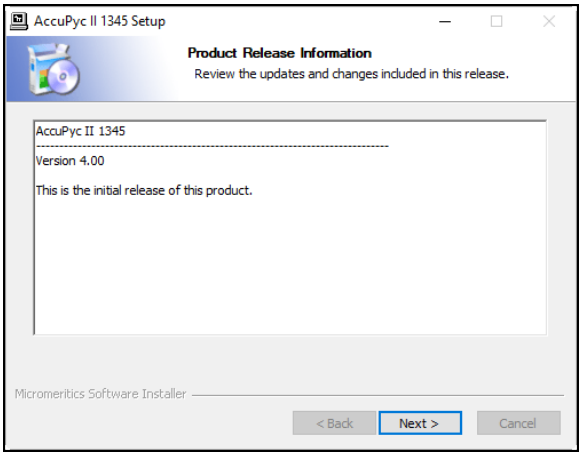


If...	Then...
the configured port is listed	Select the port, then click **Next**.
the configured port is not listed	Click **Specify** and enter the remaining portion of the IP Address, then click **Next**. The IP Address must be 192.168.77.100. 

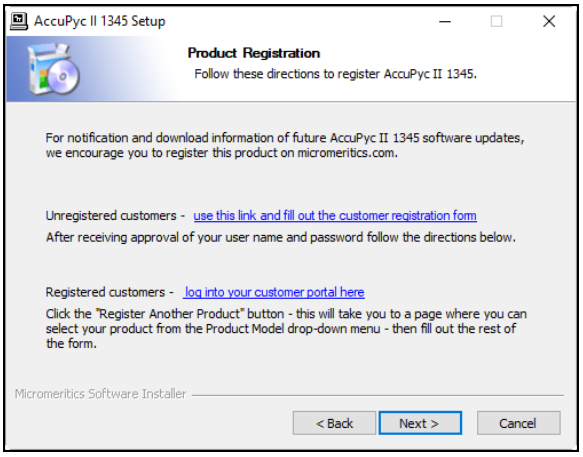
11. On the *Analyzer S/N [n] Installed* window, click **Next**. A window displays for each unit installed.



12. The *Product Release Information* window contains information about updates and changes included in the release. Click **Next**.

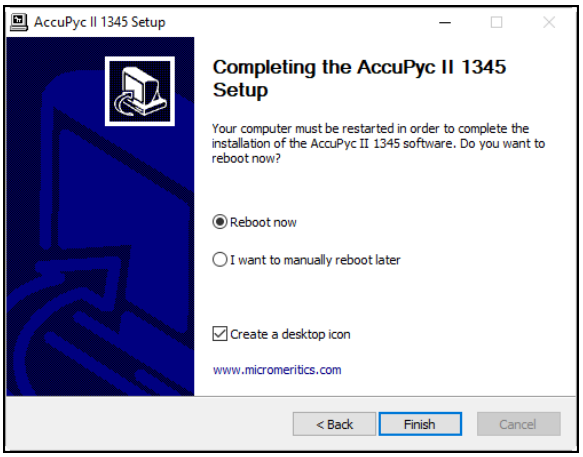


13. The *Product Registration* window is available to register the analyzer and to receive future notifications of software updates.
    a. Click the appropriate link to register the product or to log in to the customer portal. After registration, click **Next**.
    b. To register later, click **Next.**



14. On the *Completing the Setup* window, select either:
    - Reboot now
    - I want to manually reboot later

    To create a desktop shortcut, select the *Create a desktop icon* checkbox. Click **Finish** to close the setup program.



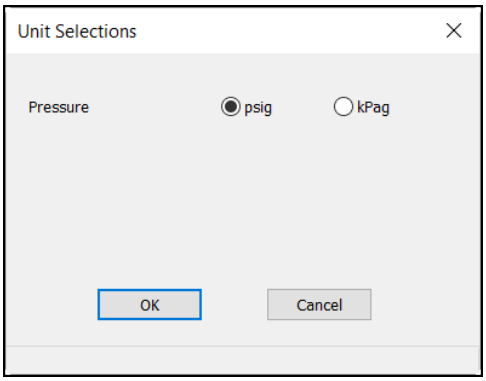
START THE APPLICATION

To start the application, click the application shortcut on the desktop or select the application from the Windows program list.

UNIT SELECTIONS

Options > Units

Use to specify how data should appear on the application windows and reports. This menu option is not available if using *Restricted* option presentation in a standard installation environment.

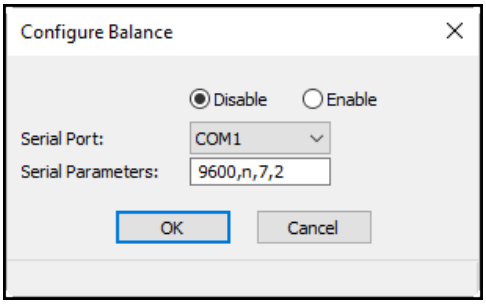


Analytical Balance

The analytical balance tested by Micromeritics is Scientec model #ZSA120.

An analytical balance can be connected to a serial port on the computer and used to transfer the sample's mass directly to the AccuPyc II application.

1. Connect the analytical balance to the RS232 port on the rear panel of the analyzer.
2. Go to ***Options > Configure Balance*** to connect and set up an RS232 balance to the analyzer.



Configure Balance

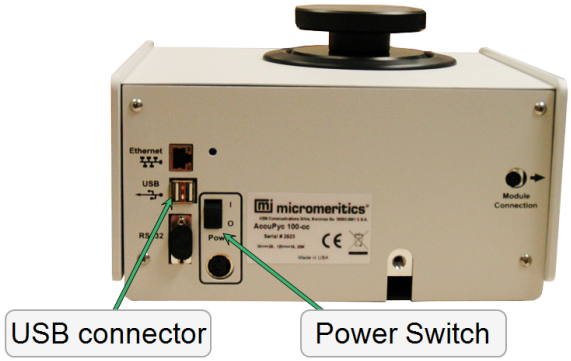
Field or Button	Description
Enable / Disable	Select to enable or disable the attached balance.
Serial Parameter	Used to set the baud rate, parity, data bits, and stop bits. This field should not require modification from the default values.
Serial Port	Select which serial port is used to connect the balance to the analyzer.

INSTALL ANALYZER APPLICATION UPGRADE USING A MEDIA DEVICE

Use these instructions for keypad installations only. If a computer will be attached to the module, skip this section. All setup functions will be done in the analysis software application.

To install software upgrade on the AccuPyc II module:

1. Turn the **ON/OFF switch** on the rear panel in the *Off* (O) position.



2. Insert the USB stick containing the software update into one of the USB connectors on the rear panel.
3. Place the **Power switch** in the *On* (|) position.
4. After approximately 10 seconds of initialization, the software starts to load. The following prompt is displayed:

Updating Application
from USB Media

5. Once the software is successfully installed, the display will read:

Update Successful
Remove USB Media

6. Remove the USB stick and store in a secure location.

Reinstall or Modify the Software

If the computer is to be connected to a network, a second Ethernet port on the computer must be used for that purpose.

The *Setup* program is located on the installation media. After initial software installation, if changes need to be made to the analyzer setup, reinsert the *Setup* media and follow the prompts.

- Reinstall the software version [*n*]
- Add an analyzer
- Move an analyzer
- Remove an analyzer
- Change analyzer setup
- Reinstall calibration files for an analyzer
- Uninstall
- Reset security to default

To access the *Setup* program:

1. Insert the *Setup* media into the media drive.
2. Locate and double click the *Setup.EXE* file.

If the IP address needs to be changed on the computer connected to the analyzer, refer to the computer's operating system manual or the internet for instructions. The IP address for the computer and the IP address specified in the setup program must match. The IP address must be 192.168.77.100.

SOFTWARE UNINSTALL

CFR Note	If uninstalling in a 21CFR11 environment, see *Uninstall Software in 21CFR11 Environments below*.

UNINSTALL THE SOFTWARE USING THE COMPUTER

When the software is uninstalled using *uninstall.exe*, only the files required to run the application are removed. Parameter files, sample files, reports, calibration files, and data files are not removed.

To uninstall the software, double click the *uninstall.exe* file located in the software installation directory, then follow the prompts.

UNINSTALL THE SOFTWARE USING THE KEYPAD

1. Insert the *Setup* media into the media drive.
2. Select the *Uninstall* option.
3. Follow the prompts.

UNINSTALL SOFTWARE IN 21CFR11 ENVIRONMENTS

CFR Note	In a 21CFR11 environment, upon uninstalling the Confirm application, the system administrator should go into Windows Users and Groups to remove the Confirm users and groups. See the Confirm Administrator Guide [*part number 004-42821-01*].

Depending on the network, Windows may not allow the uninstall.exe program to run. If this happens. follow these steps:

1. In Windows Users and Groups, verify that the current user is not a member of the analyst group or developer group. If so, remove the user from the group(s). Log OFF, then log back ON to the computer.
2. In Windows Explorer, in the Confirm installation directory, double-click the *uninstall.exe* file to run the uninstall program.

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4 Transmitted Data

Use these instructions for keypad installations only. If a computer will be attached to the module, skip this section. All setup functions will be done in the analysis software application.

Analysis and calibration data can be transmitted in a single column or spreadsheet with data in ASCII delimited format. Units are displayed as:

Data Units

Type	Measurement
Date	DD/MM/YY
Time	HH:MM:SS
Pressure	psig
Temperature	°C
Elapsed Time	seconds

Analysis Report

Analysis Report - Spreadsheet

Record Number	Description	Form
1	Version Number	20 characters
2	Serial Number	1 integer
3	Report type = analysis	8 characters
4	Start (reported on one line as ASCII comma delimited data) • 4a. Date • 4b. Time	8 characters (each)
5	Stop (reported on one line as ASCII comma delimited data) • 5a. Date • 5b. Time	8 characters (each)
6	Temperature	1 floating point
7	Description line 1	20 characters

Analysis Report - Spreadsheet (continued)

Record Number	Description	Form
8	Description line 2	20 characters
9	Sample IDs	20 characters
10	Sample mass	1 floating point
11	Number of purges	1 integer
12	Equilibration rate	1 floating point
13	Chamber Insert: • 0 = None • 1 = 10 cm^3 (100 cm^3 unit) 1 cm^3 (10 cm^3 unit) 0.1 cm^3 (1 cm^3 unit) • 2 = 35 cm^3 (100 cm^3 unit) 3.5 cm^3 (10 cm^3 unit)	1 integer
14	Cell volume	1 floating point
15	Expansion volume	1 floating point
16	Average volume	1 floating point
17	Volume standard deviation	1 floating point
18	Average density	1 floating point
19	Density standard deviation	1 floating point
20	Number of runs	1 integer
21	Run precision • 0 = Disabled • 1 = Enabled	1 floating point
22	Percent full scale	1 floating point
23	Carriage return / Line feed	
24	Carriage return / Line feed	
25	Carriage return / Line feed	
26	Run number and pressure (reported on one line as ASCII	

Analysis Report - Spreadsheet (continued)

Record Number	Description	Form
	comma delimited data)	
26a	Run number	1 integer
26b	P1	1 floating point
26c	P2	1 floating point
26d	Include in average calculation • 0 = Excluded • 1 = Included	1 integer
26e	Elapsed time	1 unsigned integer
26f	Volume	1 floating point
26g	Volume deviation	1 floating point
26h	Density	1 floating point
26i	Density deviation	1 floating point
27	Temperature (all temperature data)	1 floating point

CALIBRATION REPORT

Calibration Report - Single Column

Record Number	Description	Form
1	Version Number	20 characters
2	Serial Number	1 integer
3	Report type = calibration	11 characters
4	Start (reported on one line as ASCII comma delimited data) • 4a. Date • 4b. Time	8 characters (each)
5	Stop (reported on one line as ASCII comma delimited data) • 5a. Date • 5b. Time	8 characters (each)
6	Temperature	1 floating point
7	Calibration standard size	1 floating point
8	Number of purges	1 integer
9	Equilibration rates	1 floating point
10	Chamber Insert: • 0 = None • 1 = 10 cm^3 (100 cm^3 unit) 1 cm^3 (10 cm^3 unit) 0.1 cm^3 (1 cm^3 unit) • 2 = 35 cm^3 (100 cm^3 unit) 3.5 cm^3 (10 cm^3 unit)	1 integer
11	Average cell volume	1 floating point
12	Cell volume standard deviation	1 floating point
13	Average expansion volume	1 floating point

Calibration Report - Single Column (continued)

Record Number	Description	Form
14	Expansion volume standard deviation	1 floating point
15	Number of runs	1 integer
16	P1 (all P1 data)	1 floating point
17	P2 (all P2 data)	1 floating point
18	P1* (all P1* data)	1 floating point
19	P2* (all P2* data)	1 floating point
20	Include in average calculation • 0 = Excluded • 1 = Included	1 integer

Calibration Report - Spreadsheet

Record Number	Description	Form
1	Version Number	20 characters
2	Serial Number	1 integer
3	Report type = calibration	11 characters
4	Start (reported on one line as ASCII comma delimited data) • 4a. Date • 4b. Time	8 characters (each)
5	Stop (reported on one line as ASCII comma delimited data) • 5a. Date • 5b. Time	8 characters (each)
6	Temperature	1 floating point
7	Calibration standard size	1 floating point
8	Number of purges	1 integer
9	Equilibration rates	1 floating point
10	Chamber Insert: • 0 = None • 1 = 10 cm^3 (100 cm^3 unit) 1 cm^3 (10 cm^3 unit) 0.1 cm^3 (1 cm^3 unit) • 2 = 35 cm^3 (100 cm^3 unit) 3.5 cm^3 (10 cm^3 unit)	1 integer
11	Average cell volume	1 floating point
12	Cell volume standard deviation	1 floating point
13	Average expansion volume	1 floating point
14	Expansion volume standard deviation	1 floating point
15	Number of runs	1 integer

Calibration Report - Spreadsheet (continued)

Record Number	Description	Form
16	Carriage return / Line feed	
17	Carriage return / Line feed	
18	Carriage return / Line feed	
19	Run number and pressure (reported on one line as ASCII comma delimited data)	
19a	Run number	1 integer
19b	P1	1 floating point
19c	P2	1 floating point
19d	P1*	1 floating point
19e	P2*	1 floating point
19f	Include in average calculation • 0 = Excluded • 1 = Included	1 integer
19g	Cell volume	1 floating point
19h	Cell volume deviation	1 floating point
19i	Expansion volume	1 floating point
19j	Expansion volume deviation	1 floating point

Blank Page

5 Checklists, Exceptions, and Signatures

Installation Checklists

Use these codes to complete the tables in this section, then initial and date each section. If the table has an *Initial / Date* column, the person completing the procedure should enter their initials and the date.

P	**Pass**. Indicates the procedure has been successfully completed without error.
F	**Fail**. Indicates the procedure has been unsuccessful and prevents the analyzer from being installed for use.
Y	**Yes**. Indicates the procedure has been performed.
N	**No**. Indicates the procedure has not been performed.
N/A	**Not Applicable**. Indicates the procedure does not apply to your system.

Prepare for Installation

Procedure	Evaluation Code
Review the *Pre-installation Instructions and Checklist* document 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**
Ensure that all equipment has been checked for shipping damage. If damage occurred during shipment, has it been reported to the carrier?	**P F N/A** **P F N/A**
Analyzer is located in a suitable environment	**P F N/A**
Line voltage has been verified to be within tolerances and changed if required.	**P F N/A**

Setup Computer

Procedure	Evaluation Code		
The analyzer has been connected to a power source?	**P**	**F**	**N/A**
Configure the Ethernet port.	**P**	**F**	**N/A**
Connect computer to analyzer.	**P**	**F**	**N/A**
Connect the Ethernet switch, if applicable. • If one Ethernet based analyzer was purchased, connect the Ethernet cable to the analyzer and the computer, or • If more than one Ethernet based analyzer was purchased, connect an Ethernet cable from the computer to the Ethernet switch. Then connect the Ethernet based analyzers to the Ethernet switch.	**P**	**F**	**N/A**

Computer Information

Device	Description
Computer (make / model / SN)	
Computer **Operating System**	
Printer (make / model / SN)	
Was the computer supplied by Micromeritics?	**Y** **N**

Computer Installed By:

Name: _____

Date: _____

Comments: _____

_____

_____

_____

_____

_____

_____

_____

_____

Hardware Installation

Procedure	Evaluation Code
Analyzer connected per the instructions listed in *Pycnometer Installation on page 2 - 1*?	P F N/A
TEC Module setup (if applicable) per the instructions listed in *TEC Module on page 2 - 4*?	P F N/A
Temperature Controlled Module installed (if applicable) per the instructions listed in *Temperature-Controlled Module on page 2 - 8*?	P F N/A
• Was the circulating bath installed?	P F N/A
Keyboard connected (if applicable)?	P F N/A

Connect Cables

Procedure	Evaluation Code
Connect the power cord to the analyzer and power source.	P F N/A
If one Ethernet based analyzer was purchased, connect the Ethernet cable to the analyzer and the computer, or if more than one Ethernet based analyzer was purchased, connect an Ethernet cable from the computer to the Ethernet switch. Then connect the Ethernet based analyzers to the Ethernet switch.	P F N/A

Connect Gas

Procedure	Evaluation Code
Verify that the gas supply location is standard - meaning that the gas supply cylinders are located within 6 ft. (2 m) of the gas port.	P F N/A
Regulator attached to gas cylinders?	P F N/A
Gas line attached to the instrument?	P F N/A
Gas line tested for leaks?	P F N/A

Install the Software (if applicable)

Confirm Application Only	Evaluation Code	Initial / Date
Required personnel are available (including Windows Administrator).	P F N/A	
Install the Micromeritics software.	P F N/A	
Network hardware is local.	P F N/A	
Network prepared by network administrator, if applicable.	P F N/A	
Personnel with all network access rights is available.	P F N/A	
All Developer and Analyst users added to Windows user groups.	P F N/A	
Password configuration parameters entered. Expire: _____ Warn: _____ Remember: _____ Disable: _____ Must match Windows user: _____	P F N/A	
Micromeritics application started.	P F N/A	
Logins tested for Administrator, Developer, and Analyst users.	P F N/A	
Standard Installations Only		
Install the Micromeritics software.	P F N/A	
Start the application.	P F N/A	

Software Configuration

Procedure	Evaluation Code
Analytical balance installed (if applicable) and configured?	P F N/A
Unit Selections configured?	P F N/A

System Verification

Procedure	Evaluation Code
Analyzer calibrated?	P F N/A
Volume scale calibrated using the Calibration Standards Kit?	P F N/A
Was the reference analysis performed?	P F N/A

EXCEPTIONS

Explain the procedures that were categorized as **Fail** or **No**.

Procedure	Comment	Initial / Date

SIGNATURES

INSTALLER

Name: _____ Date: _____
Position: _____
Company: _____
Signed: _____

Service Request Order (or FSR#) : _____

CUSTOMER REPRESENTATIVE

Name: _____ Date: _____
Position: _____
Company: _____
Signed: _____

FINAL DOCUMENTATION

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

- Completed Service Request Order or Field Service Report
- Completed and signed Installation Checklist

RETURN THE COMPLETED CHECKLIST AND FORMS TO:

Micromeritics Instrument Corporation
ATTN: Service Operations Manager
4356 Communications Drive
Norcross, GA / USA / 30093-2901

Email: Service.Helpdesk@Micromeritics.com
Fax: 1-770-662-3604