thermo scientific

iQ Series 111 Instruction Manual

Zero Air Supply

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ThermoFisher SCIENTIFIC

Specifications, terms and pricing are subject to change. Not all products are available in all countries. Please consult your local sales representative for details.

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Chapter 1
Introduction

The Thermo Scientific™ 111iQ Zero Air Supply uses an external compressor; the pressure regulators, chemical scrubbers, reactor and temperature controller are all contained in a single convenient case.

Designed for any application where pollutant free levels of NO, NO_2, O_3, SO_2, CO and hydrocarbons are required, with flows up to 20 liters per minute at pressure of 30 PSI.

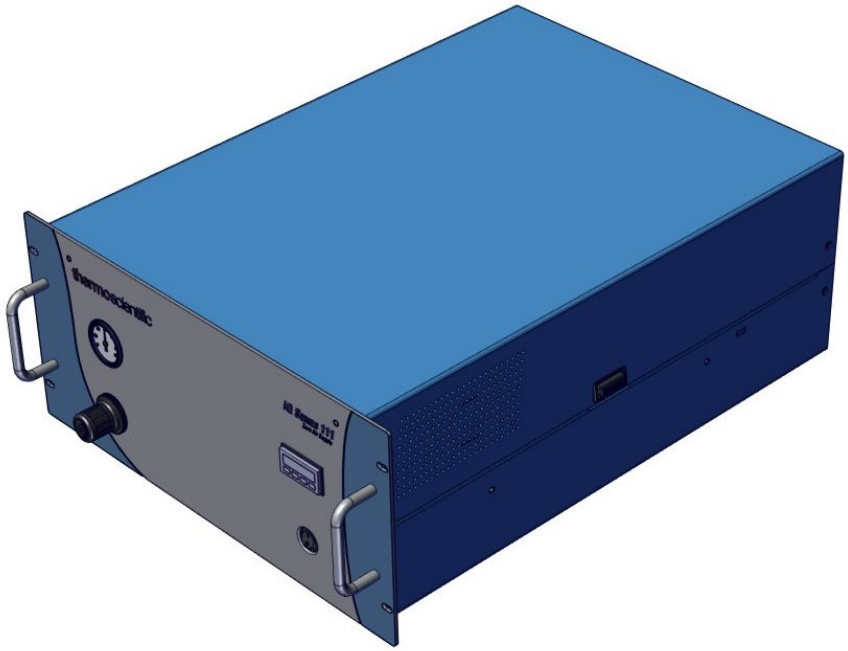


Figure 1–1. iQ Series 111

Theory of Operation

This section explains the gas scrubbing and the electronics of the 111iQ.

Gas Scrubbing

The purpose of the 111iQ is to supply pollutant-free air (zero air) from the ambient air to allow for proper zeroing, and to provide clean diluent air for spanning ambient air analyzers. The components to be removed are NO, NO_2, O_3, SO_2, CO, and hydrocarbons. There is no consensus as to what extent zero air should have water vapor removed. Since many analyzers have longer response times if super dry air (dew point less than -30 °C) is used for zero and span, and since water vapor is not a pollutant, the 111iQ does not have a drying system. However, the dew point is reduced as a result of compression of the ambient air.

Figure 1–2 is the gas flow schematic for the 111iQ. Room air enters the compressor, where it is raised to a pressure of approximately 80 to 90 psi (4560 mmHg). At 25 °C the saturation water vapor pressure is approximately 24 mmHg. Therefore, most of the water condenses out, and falls to the bottom of the tank. Out of the 4560 mmHg of pressure in the tank, only 24 mmHg is due to water vapor. When this air is later expanded to atmospheric pressure (760 mmHg) the water vapor pressure is reduced to approximately 4 mmHg. This corresponds to a dew point of slightly less than 0 °C.

To keep any condensation from occurring in the tubing between the compressor and the 111iQ, the output of the compressor contains coalescing filter and a pressure regulator where the pressure is reduced to 70 psig.

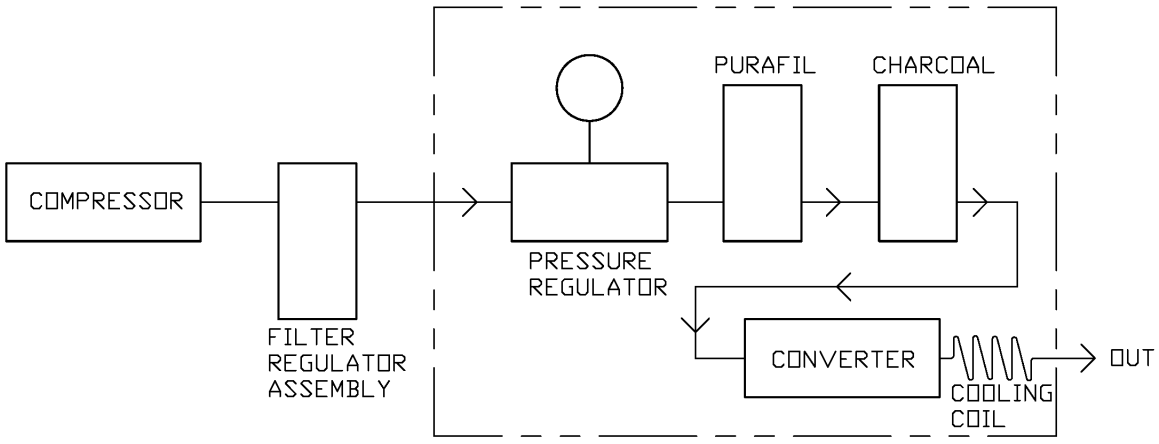


Figure 1–2. 111iQ Flow Schematic

Inside the main case of the 111iQ, the compressed air is further reduced to the final desired pressure (10 to 30 psi). The air then passes into a column of Purafil (potassium permanganate on alumina), which oxidizes NO to NO_2. The air then passes through a column of iodated charcoal, which removes NO_2, and SO_2. Finally, the air goes into the converter where it is heated to 350 °C over a catalytic surface, which oxidizes CO to CO_2, and hydrocarbons including methane, to CO_2 and water. Figure 1–3 shows the layout of these components.

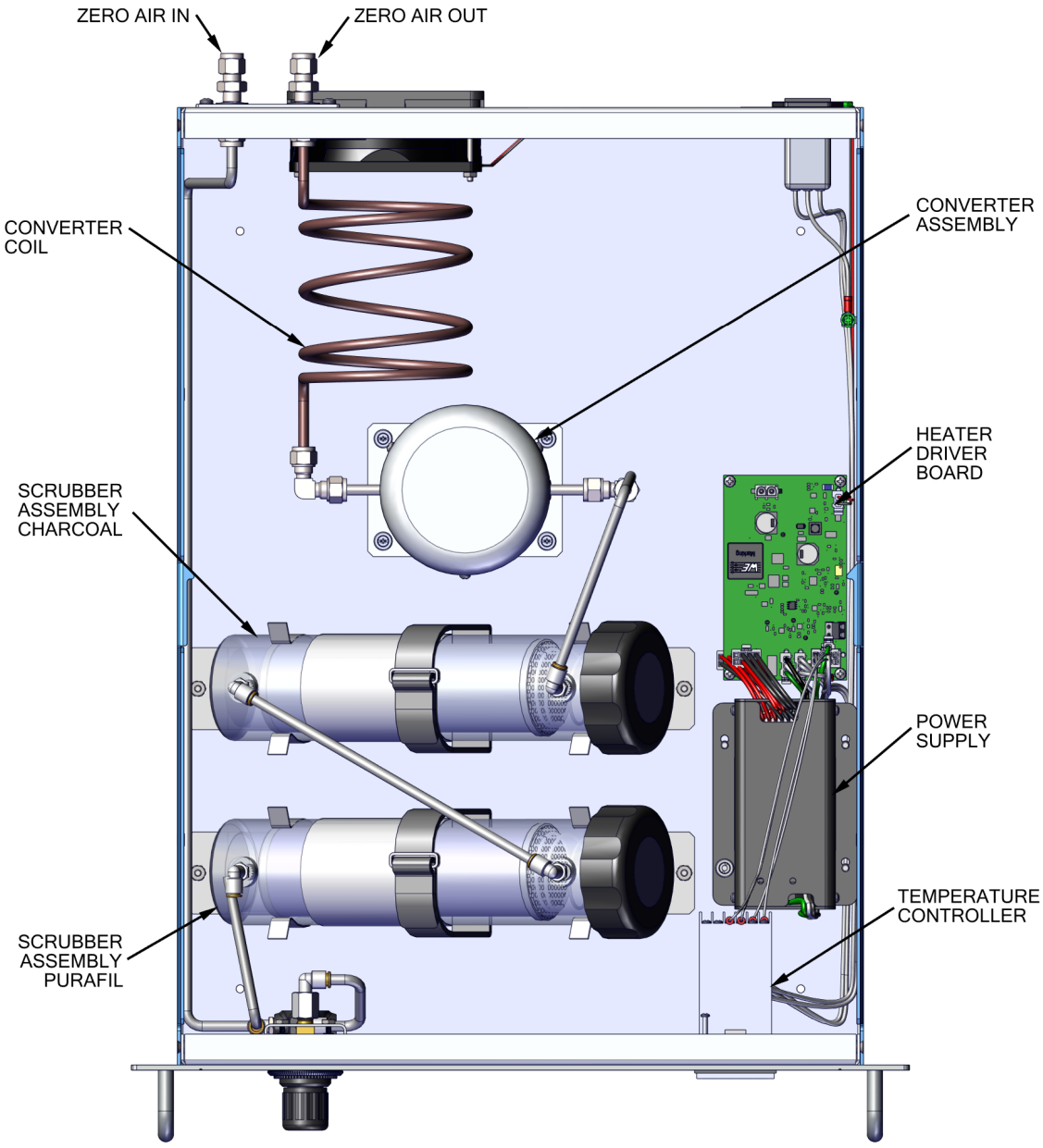


Figure 1–3. Component Layout

Electrical

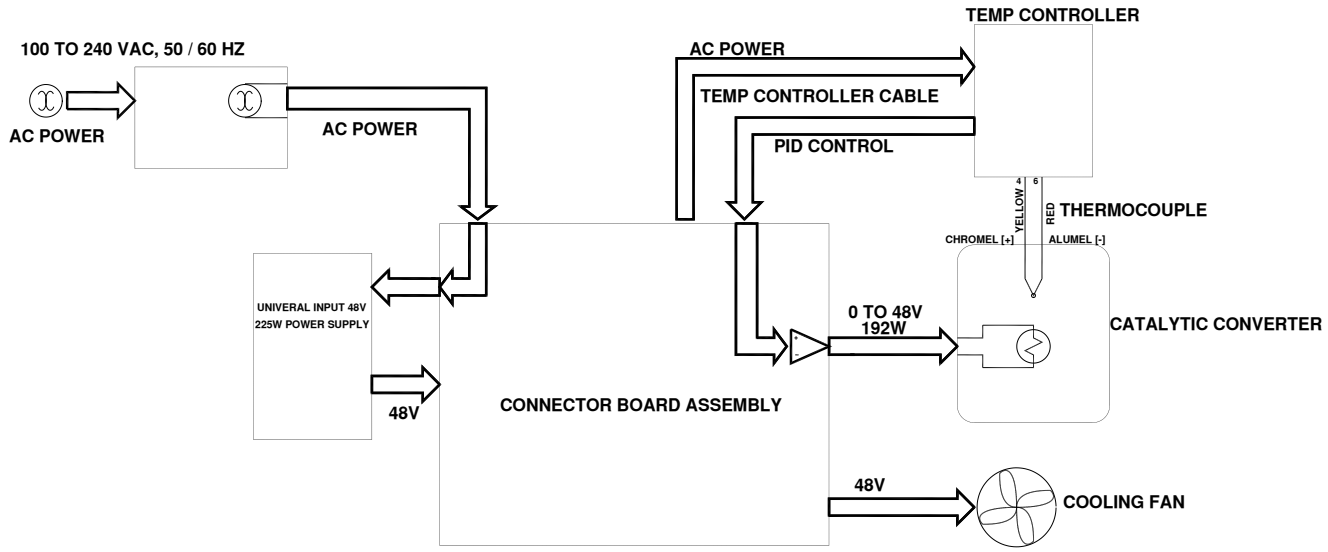


Figure 1–4. Wiring Diagram

Specifications

Table 1–1 lists the specifications for the 111iQ.

Table 1–1. 111iQ Specifications

Approvals and Certifications	ETL, CE, UKCA
Compressor Size	20" (D) x 12" (W) x 17" (H) [508 mm (D) x 304.8 mm (W) x 431.8 mm (H)]
Compressor Weight	40 lbs (18.14 kg)
Converter Temperature	325 to 450 °C
Flow Rate Options	0–10 LPM 0–20 LPM
Mounting Options	Rack mounting, Table top
Operating Temperature Range	0–45 °C
Physical Dimensions	24 in (D) x 16.75 in (W) x 8.72 in (H) [609 mm (D) 425.45 mm (W) x 221.48 mm (H)]
Pollutant Concentration Levels	CO < 0.1 ppm HC < 0.1 ppm NO < 0.5 ppb NO_2 < 0.5 ppb O_3 < 0.8 ppb SO_2 < 0.5 ppb H_2S < 0.5 ppb NH_3 < 0.5 ppb
Power Requirements	115–240 VAC 50/60 Hz 120–190 W
Pressure	10–30 PSI
Storage Temperature	-20 to 60 °C
Water Vapor	0 °C Dew point
Weight	22 lbs (9.98 kg)

Dimensions

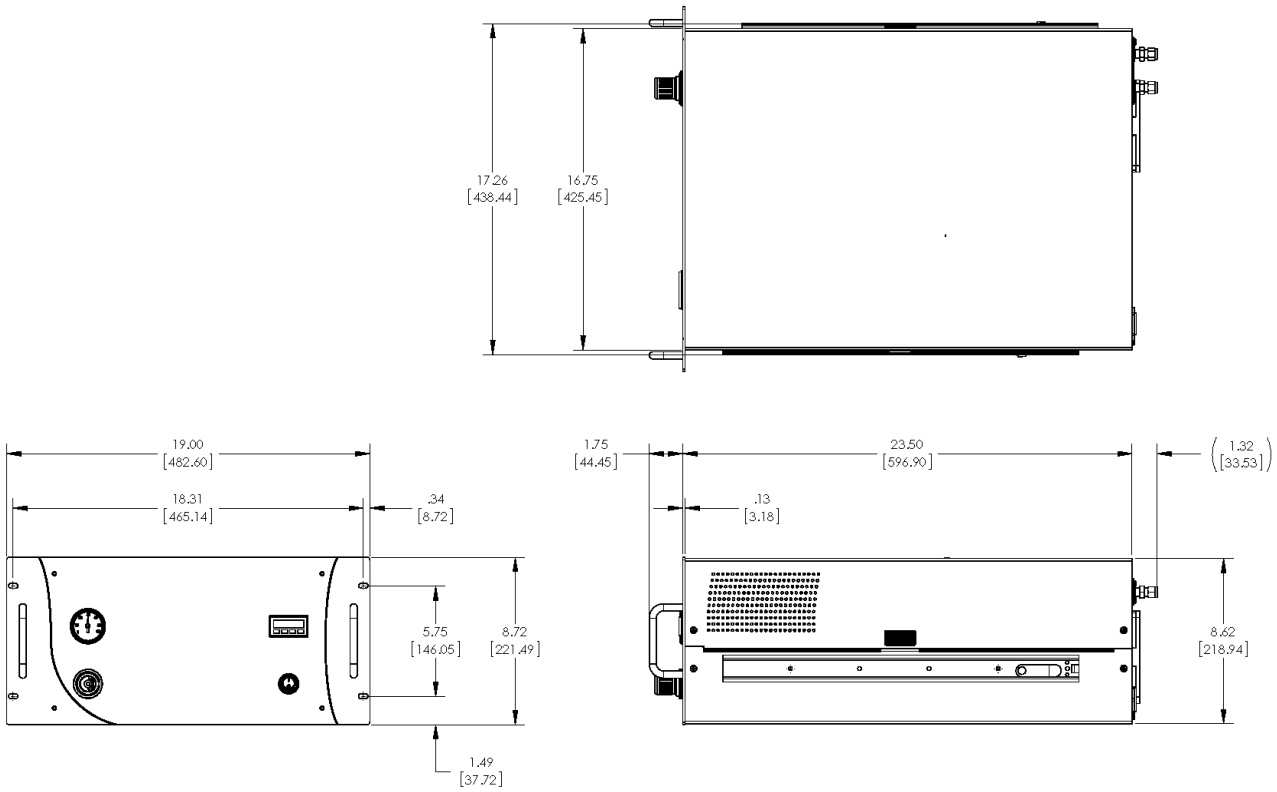


Figure 1–5. Rack Mount Assembly

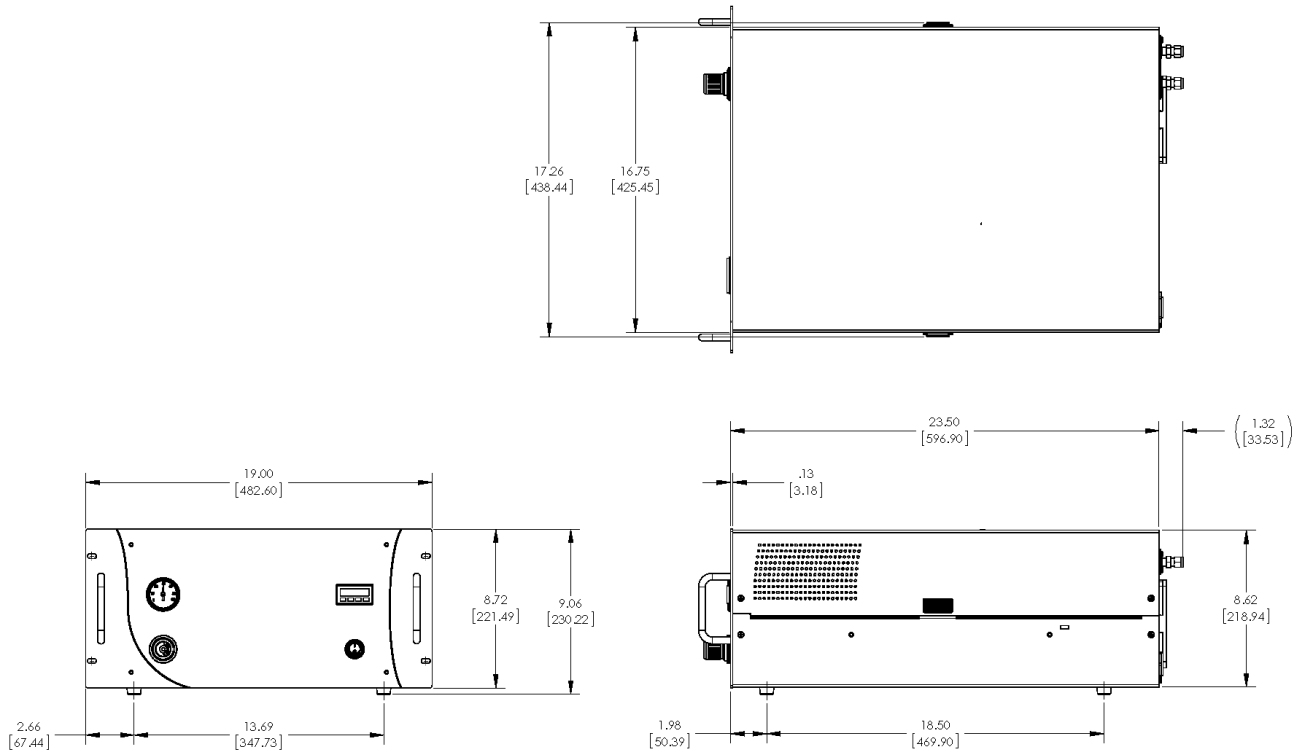


Figure 1–6. Bench Mount Assembly

Chapter 2
Installation and Setup

Installation of the 111iQ includes unpacking the instrument, connecting the compressor, connecting the gas flow lines, and attachment to suitable AC power.

Unpacking and Inspection

The 111iQ is shipped in one container. A second container is used for the compressor (if included). If there is obvious damage to the shipping container(s) when you receive the instrument, notify the carrier immediately and hold for his inspection. The carrier is responsible for any damage incurred during shipment.

Use the following procedure to unpack and inspect the instrument:

1. Remove the instrument from the shipping container and set on a table or bench that allows easy access to both the front and rear.

2. Remove the cover to expose the internal components. (See "Cover Removing and Replacing" on page 2-2).

3. Check for possible damage during shipment.

4. Re-install the cover.

5. Remove any protective plastic material from the case exterior.

6. Remove compressor (if included) from shipping container, unbolt from pallet, and then identify the coalescing filter and pressure regulator.

7. Check for possible damage during shipment.

Cover Removing and Replacing

Use the following procedure to remove and replace the cover.

1. Remove the four screws securing the cover (shipping screws).

2. Press in both latches located on top cover and hold while pulling up to remove. Set upright.

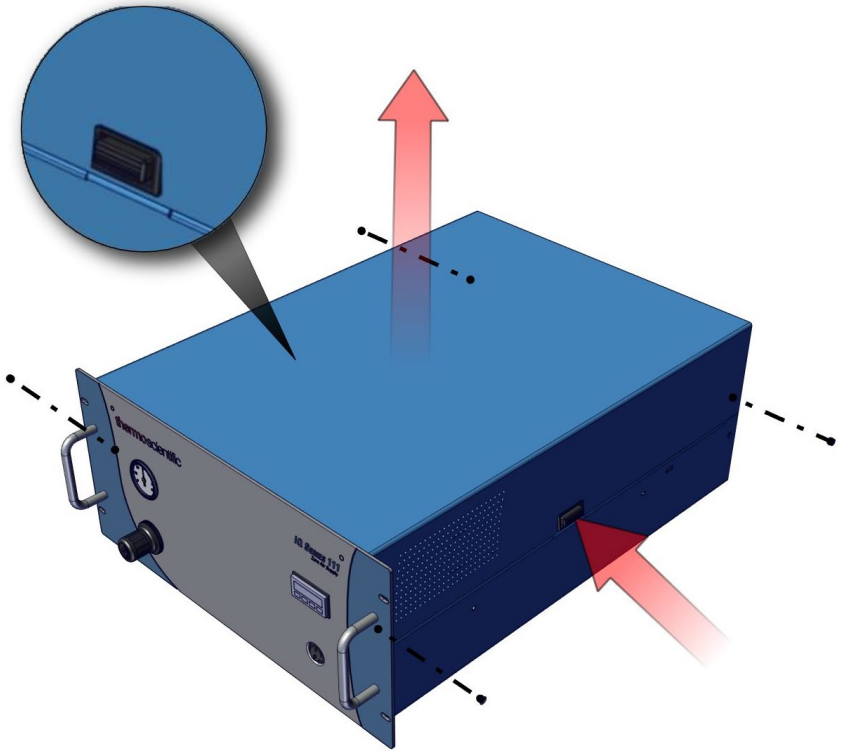


Figure 2–1. Removing the Cover

3. To replace, align cover and drop in. Latches will automatically snap in place.

Assembly

Use the following procedure to assemble the instrument:

1. Using 1/4-inch PTFE tubing, connect the outlet of the pressure regulator located on the compressor to the input of the 111iQ.

Note An optional compressor can be used to supply the higher air flow rates often required in continuous systems. Customer supplied compressed air may also be used, but caution must be taken to ensure that liquid water and oil be completely removed prior to the 111iQ. ▲

2. Using 1/4-inch PTFE tubing, connect the outlet of the 111iQ to the device requiring *zero air* under pressure.

3. Plug the AC line cord into an appropriate power source. The unit will accommodate all voltages 115 V–240 V. The compressor is operated directly off the line voltage. Check the plate on the pump motor to determine the correct voltage and frequency prior to plugging in the compressor.

Note If the compressor's power cord has not been installed at the factory, remove the controller's cover on the compressor. Connect power cord to the screw terminals provided. Be sure to connect the ground wire, the line, and the common. Replace the cover.

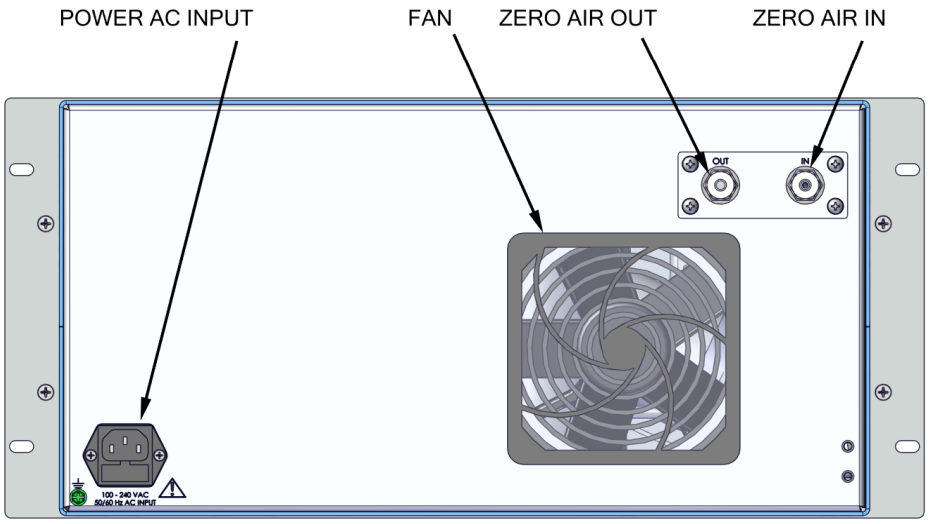


Figure 2–2. Rear Panel

Chapter 3
Operation

Once the 111iQ has been unpacked and assembled, use the following procedure to power up and operate the instrument.

1. Close the manual valve on the output of the compressor and plug in the compressor. The pressure in the tank should gradually increase to 80 to 90 psi. At that point, the pump shuts off.

2. Open the manual valve and adjust the pressure regulator downstream of the coalescing filter for 70 psi.

3. Adjust the pressure regulator on the 111iQ case for the desired pressure (typically 10 to 30 psi).

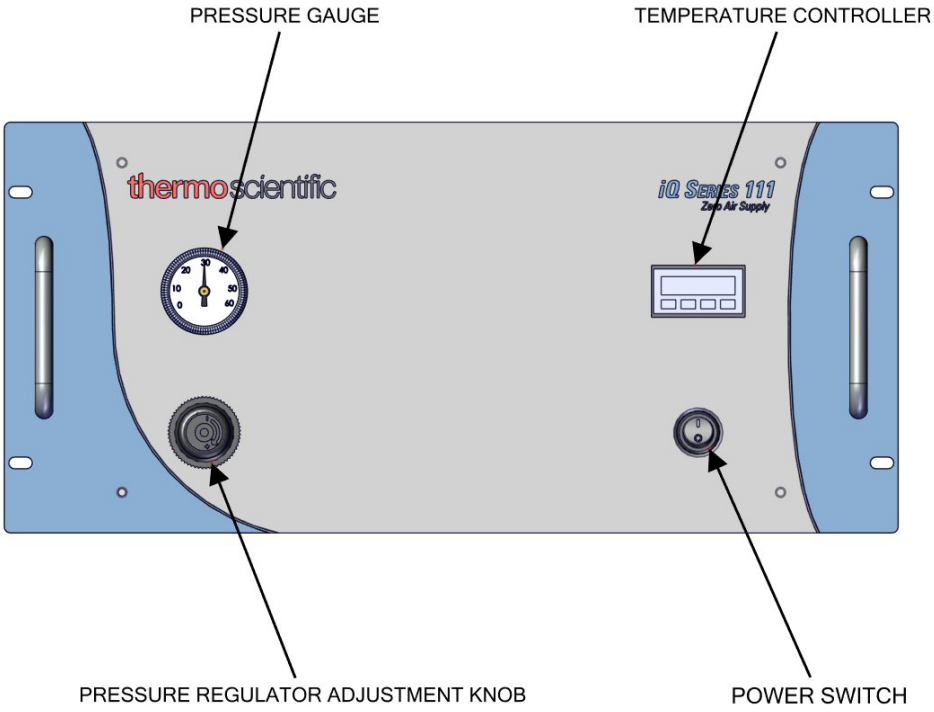


Figure 3–1. Front Panel

4. Once the power is turned on, the temperature controller will start to heat to the programmed setpoint. The internal cooling fan starts blowing and the temperature controller light is on.

   The left side of the display shows the current or actual temperature of the converter. The right side will display the programmed setpoint.

   For more information on programming, setting, and recommended temperature setting for different flow rates "Programming the Temperature Controller" on page 5-2.

5. The system is up to temperature when both displayed values are the same.

   There is a small red indicating light at the bottom left of the display that flashes when the controller is maintaining the temperature. The 111iQ is now ready for use.

6. The compressor's motor will cycle on and off, with the tank pressure is controlled between 80 and 90 psi.

Chapter 4
Maintenance

The 111iQ has been designed with ease of maintenance as an important criterion. Components and sub-assemblies have been selected for high performance, excellent stability, and long life. The exact lifetimes of the scrubbing material is hard to predict. It is dependent upon flow, pressure, and level of contaminate. For most applications the following recommendation should be followed:

Weekly

If optional automatic drain valve is not installed, open the stop cock on the bottom of the tank and drain water.

Check compressor regulator filters. Replace as needed.

Monthly

Check the condition of the Purafil. Fresh Purafil is purple. It becomes brown when it is used up. Replace when the purple color represents less than 20% of the volume. To replace, see "Replacing Purafil" on page 4-2.

Note Air flow should go through the Purafil, then the charcoal. ▲

Yearly

Replace the charcoal. The procedure is the same as "Replacing Purafil" on page 4-2.

Compressor

When it is observed that the pump is having difficulty keeping the pressure, rebuilding may be necessary. For servicing, refer to Appendix A, "Customer Resources" for contact information.

Replacing Purafil

Check the condition of the Purafil. Fresh Purafil is purple. It becomes brown when it is used up. Replace when the purple color represents less than 20% of the volume. An optional tool is provided to assist in canister plumbing. Use the following procedure to replace the Purafil.

1. Turn the instrument OFF, unplug the power, and remove the cover. Wait until the converter cools down (approximately 10 minutes with air flowing).

2. Shut off the air supply so that the 111iQ pressure drops to 0.0 psig.

3. If Velcro straps are installed, remove from canister. Velcro straps are utilized to secure canister during transport. The straps are not necessary for normal operation.

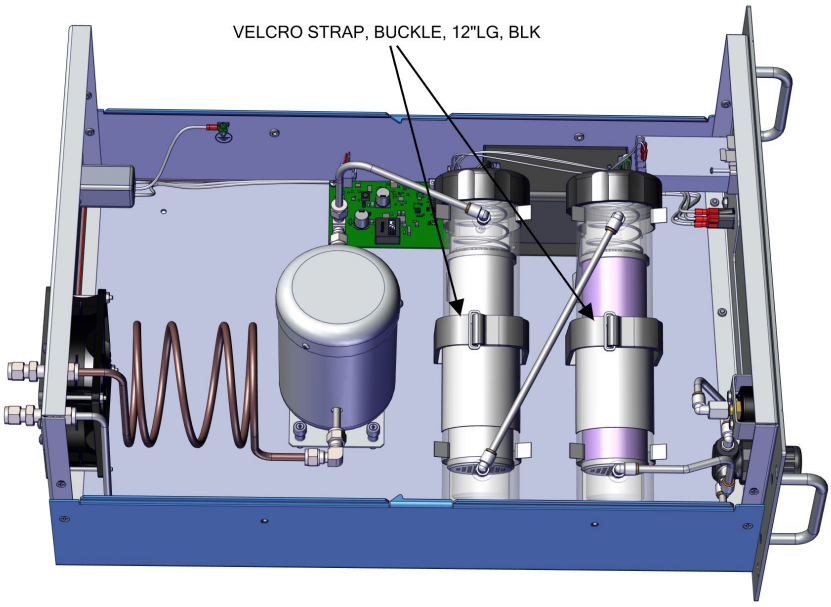
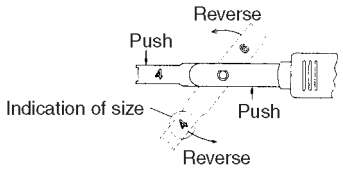


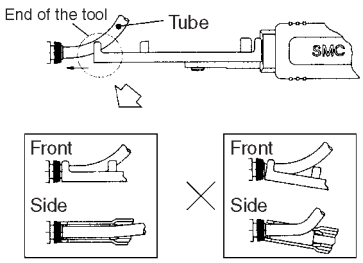
Figure 4–1. Velcro Belt

4. Disconnect tubing from fitting. If using the tool provided:

   a. Adjust tool size to 1/4 tube as indicated on the back side.



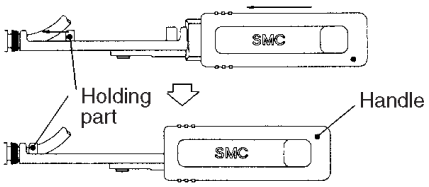
   b. Tool edge should be pushed straightforward into the edge of the release button along with the tube in the axial fitting direction.



   c. After inserting, grasp handle tightly and insert the end of the tubing to the stroke end.

   Note Insert firmly to the guard against an accidental tube release. ▲

   d. After inserting end of tube, relax your grip on the tool. Returning force of spring releases the tube.



   e. Push both sides at once to release. Reverse and fix at the same position as before. Applicable tube size is indicated on the back side.

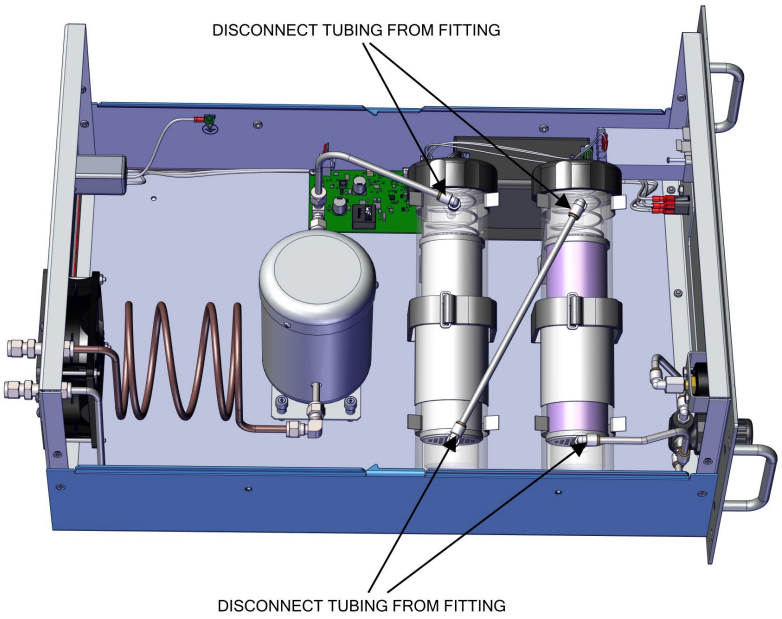


Figure 4–2. Disconnect Tubing from Fitting

5. Remove scrubbers from clips.

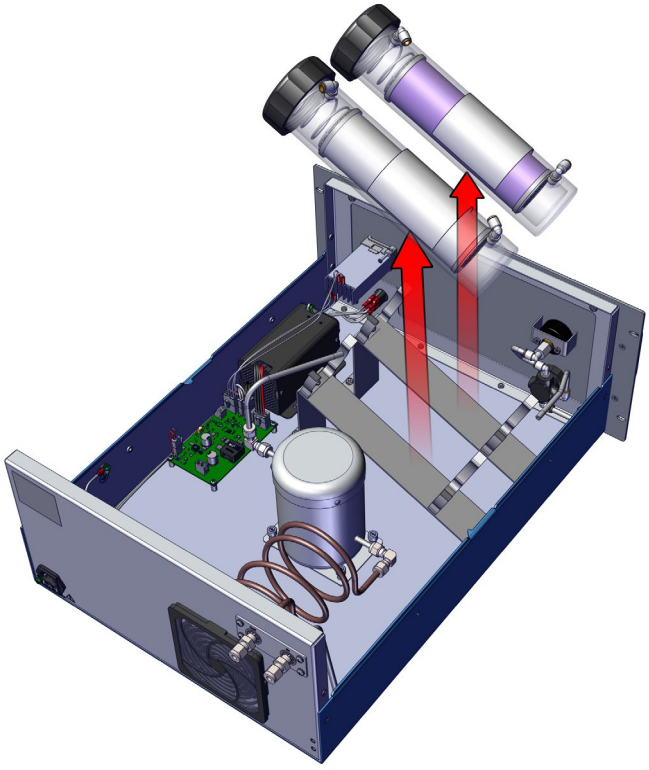


Figure 4–3. Scrubbers Removal

6. Slowly unscrew the cap, allowing any remaining pressure to vent and disassemble. Empty out the used Purafil and discard.

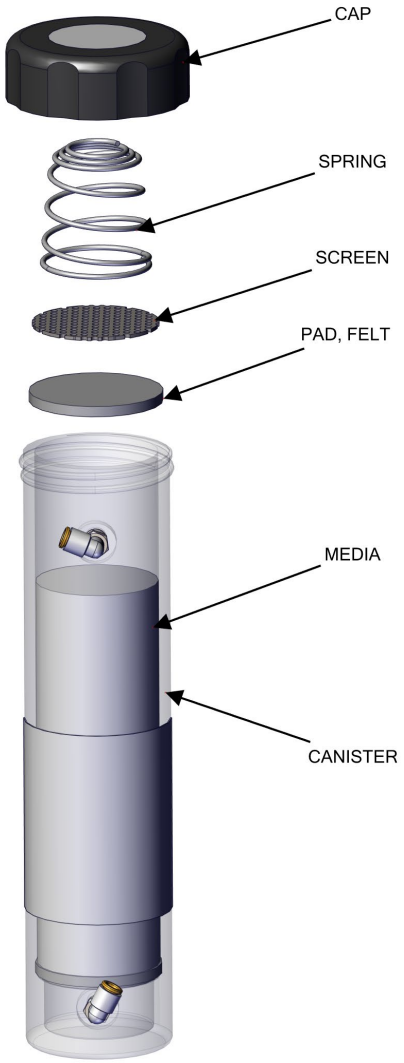


Figure 4–4. Scrubber Parts

7. Replace with fresh Purafil. Reassemble and screw on cover and replace cartridge. Ensure the Purafil is returned to its original location.

Note Do not overfill media. Make sure the screen and felt is below the fitting hole. ▲

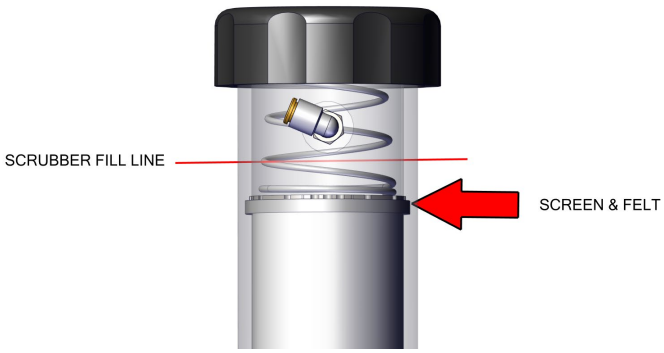


Figure 4–5. Scrubber Fill Line

Replacing Charcoal

This procedure is identical to Replacing the Purafil procedure except refill the canister with charcoal.

Chapter 5
Servicing

The 111iQ has been designed with ease of maintenance as an important criterion. Electric components have been packaged in sealed subassemblies for rapid fault isolation and replacement. Components and subassemblies have been selected for high performance, excellent stability and long life.

Safety Precautions

Read the safety precautions before beginning any procedures in this chapter.

⚠WARNING

The service procedures in this manual are restricted to qualified service representatives. ▲

If the equipment is operated in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. ▲

Equipment Damage Some internal components can be damaged by small amounts of static electricity. A properly grounded antistatic wrist strap must be worn while handling any internal component. For more information about appropriate safety precautions, see "Safety". ▲

Replacement Parts List

For a complete list of spare parts, visit the company website at:

https://www.analyticalinstrumentparts.com/products/source-gas-monitoring.aspx

Refer to Figure 1–3 to identify the component location.

Programming the Temperature Controller

Use the following procedures to program and set the temperature controller:

Table 5–1. Front Key Functions

Key Name	Function
PV	Displays process value.
SV	Displays setpoint value.
= INDEX	Pressing the INDEX key advances the display to the next menu item.
= UP ARROW	Increments a value or changes a menu item. If pressed during the Operation Mode, the set point value will be increased.
= DOWN ARROW	Decrements a value or changes a menu item. If pressed during the Operation Mode, the set point value will be decreased.
= ENTER	Stores the value or item change. If not pressed, the previously stored value or item will be retained. When pressed during the Operation Mode, the controller switches to the Regulation Mode. If held for more than 3 seconds during the Operation Mode, the controller switches to the Initial Setting Mode. If pressed during the Regulation Mode or Initial Setting Mode, the controller will return to the Operation Mode.

Setting the Thermocouple Input Type (Type K):

- From Home (' no Cont' or '325.0 325.0')
- Hold for 5 seconds. SET INPUT TYPE should appear on the PV side.
- Press the or until the symbol for 'Type K' input is displayed on the SV side.
- Press to save the setting.

Setting the Temperature Units:

- From Home (' no Cont' or '325.0 325.0')
- Hold ↵ for 5 seconds. SET INPUT TYPE InPt should appear on the PV side.
- Press ⟲ until SET UNITS tPUn is displayed.
- Press ▼ or ▲ until the symbol Celsius or Fahrenheit is displayed on the SV side.
- Press ↵ to save the setting.
- Press ↵ again to exit to the home display, or ⟲ to program other items.

Programming the Setting to Heat:

- From Home (' no Cont' or '325.0 325.0')
- Press and hold ↵ for 5 seconds and SET INPUT TYPE InPt should appear on the PV side.
- Press ⟲ until SET HEAT OR COOL S-HC is displayed on the PV side.
- Press ▼ or ▲ until the HEAT HEAt symbol is displayed on the SV side.
- Press ↵ to save the setting.
- Press ↵ again to exit to the home display, or ⟲ to program other items.

Changing the temperature Set Point:

Note The temperature Set Point cannot be set until the Input Type (11.1) has been set. ▲

- From Home (' no Cont' or '325.0 325.0')
- Press ▼ or ▲ until the temperature on the SV side reads 325C or the desired value.
- Press ↵ to save the setting.

Setting the temperature control to PID:

Note The temperature controller is configurable for ON/OFF control, which effects the most unstable temperature regulation, and PID control which is more stable. PID also offers four different PID modes from stable to faster response from 0 to 3. There is a fifth mode, 4, which allows the controller to optimize the mode setting as well as the PID parameters when Auto Tune is performed. ▲

- From Home (' no Cont' or '325.0 325.0')
- Press and hold ↵ for 5 seconds and SET INPUT TYPE InPt should appear on the PV side.
- Press ↻ until CONTROL METHOD CtrL symbol appears on the PV side.
- Press ▼ or ▲ until the PID Pid symbol appears on the SV side.
- Press ↵ twice to save the setting.

Setting the PID control mode:

- From Home (' no Cont' or '325.0 325.0')
- Press ↵ and AUTO TUNE At should appear on the SV display.
- Press ↻ until the PID MODE Pidn (n is 0, 1, 2, 3, 4) symbol appears.
- Press ▼ or ▲ until the desired mode is selected (4 is recommended).
- Press ↵ twice to save the setting.

Changing the high limit of the temperature controller:

- From Home (' no Cont' or '325.0 325.0')
- Press and hold the ENTER button ↵ for more than three seconds.
- The controller will switch into the Initial setting Mode.
- Click three times to get to tP-H use the ▼ or ▲ to change the temp limit.
- When complete press ↵ to save.

Changing the high limit of the temperature controller:

Note The temperature Set Point cannot be set until the Input Type (11.1) has been set. ▲

- From Home (' no Cont' or '325.0 325.0')
- Press ▼ or ▲ until the temperature on the SV side reads 325C or the desired value.
- Press ↵ to save the setting.

Recommended temperature settings for different flow rates:

Table 5–2. Recommended Temperature Settings

Flow Rate	Converter Temperature
0–5000 SCCM	350 °C
5000–8000 SCCM	400 °C
8000–10000 SCCM	450 °C

Changing the temperature:

- From Home (' no Cont' or '325.0 325.0')
- Press either the ▼ or ▲ to change the temperature.
- Press ↵ to save the setting.

Chapter 6
System Description

This chapter describes the function and location of the components.

Compressor

The optional Compressor supplies the 111iQ with oil-free compressed air.

Converter

The optional Converter converts CO and Hydrocarbons into CO_2 and water.

Converter Coil

The Coil is attached to the outlet of the converter option. It is used to cool the zero air before it exits the 111iQ.

Heater Driver Board

The Connector/Heater Driver PCBA provides interconnection of the devices in the 111iQ for AC power supply routing, 4-20mA to 0-48V, 4A output for a catalytic converter.

Power Supply

The 48V Power Supply provides power to the heater driver board.

Pressure Gauge

The Pressure Gauge displays the outlet pressure set by the pressure regulator.

Pressure Regulator

The Pressure Regulator regulates the pressure supplied by the compressor

Purafil or Charcoal

Purafil oxidizes NO to NO_2. Charcoal scrubs NO_2 and SO_2.

Temperature Controller

The Temperature Controller reads the temperature directly from the converter using a Type K thermocouple.

Appendix A
Customer Resources, Safety, Warranty, and WEEE

Customer Resources

Environmental Monitoring:

Within United States: 1 (866) 282-0430

Outside United States: 1 (508) 520-0430

www.thermofisher.com

For faster response, see email addresses below for your specific customer service needs.

Customer Service

For orders or product information contact our prompt, professional in-house customer service team that is strategically integrated to handle a diverse level of support. Standard business hours Mon-Fri, 8:00am-6:00pm EST.

Orders.aqi@thermofisher.com

Technical Support

Our dedicated factory certified experts will guide you through troubleshooting and maintenance solutions. Standard business hours Mon-Fri, 8:00am-6:00pm EST.

Epm.techsupport@thermofisher.com

Factory Depot Service/Online Return Authorization Forms

Our depot repair is designed for our customers to easily ship the equipment for repair and maintenance directly to our factory. Return authorization forms are available online at www.thermosfisher.com/servicerepair.

Orders.aqi@thermofisher.com

Field Service

Our regionalized Field Service team can be dispatched to your site to minimize downtime during an emergency or for routine preventive maintenance.

Epm.emfieldservice@thermofisher.com

Technical Training

We offer in-depth technical training at customer sites, within our factory training centers and labs or via webinars. To view our catalog of training visit www.thermofisher.com/EPMtraining.

Training.epm@thermofisher.com

Comprehensive Service Solutions

Thermo Scientific™ Service Solutions are a vital component of your product's lifecycle. These comprehensive solutions are exclusively created to drive optimal performance of your critical instruments that demand maximum uptime. We offer a wide range of services that can be customized to fit all of your specific business needs. When you purchase an extended or post warranty service agreement, you are choosing an economical solution that provides predictable costs, faster response times, increased discounts and scheduled preventive maintenance

To view Extended Warranty and Post Warranty options plus available spare parts kits visit thermofisher.com/EMservice.

The Online Library

The online library was created exclusively as a resource for customers to gain access to our most up-to-date materials. You will find manuals, software/firmware, datasheets, spare parts lists, technical bulletins, service documents and other product related materials.

You must create an account at www.thermofisher.com/theonlinelibrary.

When you access your account, be sure to set up your profile and select your subscriptions by clicking on Edit Profile. This will allow for updated documents and software/firmware links to be emailed to you for your specific instruments.

Safety

Review the following information carefully before using the instrument. This manual provides specific information on how to operate the instrument, however if the instrument is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Safety and Equipment Damage Alerts

This manual contains important information to alert you to potential safety hazards and risks of equipment damage. Refer to the following types of alerts you may see in this manual.

Safety and Equipment Damage Alert Descriptions

Alert	Description
DANGER	A hazard is present that will result in death or serious personal injury if the warning is ignored. ▲
WARNING	A hazard is present or an unsafe practice can result in serious personal injury if the warning is ignored. ▲
CAUTION	The hazard or unsafe practice could result in minor to moderate personal injury if the warning is ignored. ▲
Equipment Damage	The hazard or unsafe practice could result in property damage if the warning is ignored. ▲

Safety and Equipment Damage Alerts in this Manual

Alert	Description
WARNING	• If the equipment is operated in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. ▲ • The service procedures in this manual are restricted to qualified service personnel only. ▲
Equipment Damage	Do not attempt to lift the analyzer by the cover or other external fittings. ▲ This adjustment should only be performed by an instrument service technician. ▲

Warranty

Seller warrants that the Products will operate or perform substantially in conformance with Seller's published specifications and be free from defects in material and workmanship, when subjected to normal, proper and intended usage by properly trained personnel, for the period of time set forth in the product documentation, published specifications or package inserts. If a period of time is not specified in Seller's product documentation, published specifications or package inserts, the warranty period shall be two (2) years from the date of shipment to Buyer for equipment and ninety (90) days for all other products (the "Warranty Period"). Seller agrees during the Warranty Period, to repair or replace, at Seller's option, defective Products so as to cause the same to operate in substantial conformance with said published specifications; provided that (a) Buyer shall promptly notify Seller in writing upon the discovery of any defect, which notice shall include the product model and serial number (if applicable) and details of the warranty claim; (b) after Seller's review, Seller will provide Buyer with service data and/or a Return Material Authorization ("RMA"), which may include biohazard decontamination procedures and other product-specific handling instructions; and (c) then, if applicable, Buyer may return the defective Products to Seller with all costs prepaid by Buyer. Replacement parts may be new or refurbished, at the election of Seller. All replaced parts shall become the property of Seller. Shipment to Buyer of repaired or replacement Products shall be made in accordance with the Delivery provisions of the Seller's Terms and Conditions of Sale. Consumables, including but not limited to lamps, fuses, batteries, bulbs and other such expendable items, are expressly excluded from the warranty under this warranty.

Notwithstanding the foregoing, Products supplied by Seller that are obtained by Seller from an original manufacturer or third party supplier are not warranted by Seller, but Seller agrees to assign to Buyer any warranty rights in such Product that Seller may have from the original manufacturer or third party supplier, to the extent such assignment is allowed by such original manufacturer or third party supplier.

In no event shall Seller have any obligation to make repairs, replacements or corrections required, in whole or in part, as the result of (i) normal wear and tear, (ii) accident, disaster or event of force majeure, (iii) misuse, fault or negligence of or by Buyer, (iv) use of the Products in a manner for which they were not designed, (v) causes external to the Products such as, but not limited to, power failure or electrical power surges, (vi) improper storage and handling of the Products or (vii) use of the Products in combination with equipment or software not supplied by Seller. If Seller determines that Products for which Buyer has requested warranty services are not covered by the warranty hereunder, Buyer shall pay or reimburse Seller for all costs of investigating and responding to such request at Seller's then

prevailing time and materials rates. If Seller provides repair services or replacement parts that are not covered by the warranty provided in this warranty, Buyer shall pay Seller therefor at Seller's then prevailing time and materials rates. ANY INSTALLATION, MAINTENANCE, REPAIR, SERVICE, RELOCATION OR ALTERATION TO OR OF, OR OTHER TAMPERING WITH, THE PRODUCTS PERFORMED BY ANY PERSON OR ENTITY OTHER THAN SELLER WITHOUT SELLER'S PRIOR WRITTEN APPROVAL, OR ANY USE OF REPLACEMENT PARTS NOT SUPPLIED BY SELLER, SHALL IMMEDIATELY VOID AND CANCEL ALL WARRANTIES WITH RESPECT TO THE AFFECTED PRODUCTS.

THE OBLIGATIONS CREATED BY THIS WARRANTY STATEMENT TO REPAIR OR REPLACE A DEFECTIVE PRODUCT SHALL BE THE SOLE REMEDY OF BUYER IN THE EVENT OF A DEFECTIVE PRODUCT. EXCEPT AS EXPRESSLY PROVIDED IN THIS WARRANTY STATEMENT, SELLER DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, ORAL OR WRITTEN, WITH RESPECT TO THE PRODUCTS, INCLUDING WITHOUT LIMITATION ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. SELLER DOES NOT WARRANT THAT THE PRODUCTS ARE ERROR-FREE OR WILL ACCOMPLISH ANY PARTICULAR RESULT.

WEEE Compliance

This product is required to comply with the European Union's Waste Electrical & Electronic Equipment (WEEE) Directive 2002/96/EC. It is marked with the following symbol:

Thermo Fisher Scientific has contracted with one or more recycling/disposal companies in each EU Member State, and this product should be disposed of or recycled through them. Further information on Thermo Fisher Scientific's compliance with these Directives, the recyclers in your country, and information on Thermo Fisher Scientific products which may assist the detection of substances subject to the RoHS Directive are available at: www.thermoscientific.com/WEEERoHS.

WEEE Symbol

The following symbol and description identify the WEEE marking used on the instrument and in the associated documentation.

Symbol	Description
	Marking of electrical and electronic equipment which applies to electrical and electronic equipment falling under the Directive 2002/96/EC (WEEE) and the equipment that has been put on the market after 13 August 2005. ▲

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