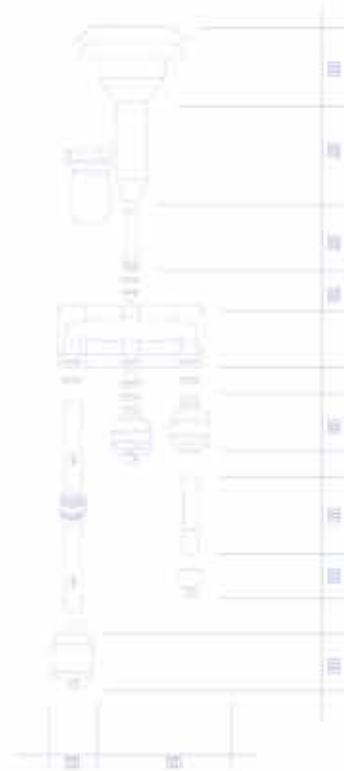




Air Samplers



Ambient Ion Monitor

Time Resolved Direct Measurement of Nitrate, Sulfate and Ammonium

MEASUREMENT CAPABILITIES:

- State-of-the-Art Sampler with the Ability to Separate and Analyze Each Ion Individually
- Anion and Cation Particulate Analyzed Every Hour
- Optional Configuration Available to Analyze Every 15 Minutes
- Can be Configured to Achieve Detection Limits as Low as $.05\mu\text{g}/\text{m}^3$
- Separates the Nitrate and Sulfate Ions so the Measurements are Not Affected by Other Nitrogen Containing Compounds
- Measures Actual Nitrate Ions, Not Converted Forms of Nitrate Such as NOX
- Losses Due to Volatilization are Eliminated

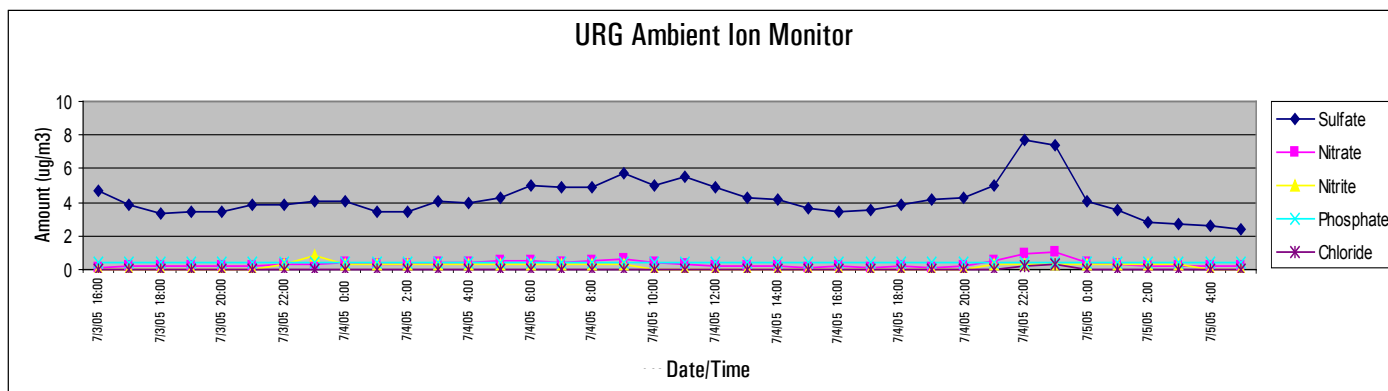
SPECIFICATIONS for URG-9000A & URG-9000B:

- Detection Limit Range of $.1\mu\text{g}/\text{m}^3$
- 3Lpm Sampling Rate
- Available as 115VAC or 220VAC
- Bidirectional RS232 Internal Data Storage
- Displays Data in $\mu\text{g}/\text{m}^3$
- Available as Free Standing or Rack Mountable Unit
- 19" x 16" x 36"
- 65-85 lbs.



URG-9000A
Ambient Ion Monitor
External View

Data Collected in
Chapel Hill, North Carolina



Ambient Ion Monitor

ANALYSIS METHOD:

- Incorporates Proven Analysis Method of Ion Chromatography which is Currently Being Used by USEPA
- Requires as Little as 4 Liters of Deionized Water for 10 Sample Days
- Can Collect and Analyze up to 10 Days Unattended

ORDERING INFORMATION:

- **URG-9000A** - Time Resolved Measurements of Nitrate and Sulfate
- **URG-9000B** - Time Resolved Measurements of Nitrate, Sulfate and Ammonium

All of the Ambient Ion Monitors Include Chemical Suppression Ion Chromatographs (IC). The IC's on any of the URG 9000 Series Ambient Ion Monitors Can Be Upgraded to the Options Below:

IC OPTIONS:

- *Electrolytic Suppression IC*
- *Reagent Free IC*



URG-9000B
Ambient Ion Monitor
Internal View

**Software Control Screen
for Ambient Ion Monitor**



Ambient Ion Monitor

Time Resolved Direct Measurement of Nitrate, Sulfate, Hydrogen Chloride, Nitric Acid, Nitrous Acid and Sulfur Dioxide

MEASUREMENT CAPABILITIES:

- State-of-the-Art Sampler with the Ability to Separate and Analyze Each Ion Individually
- Anion Gases and Particulate Analyzed Every Hour
- Optional Configuration Available to Analyze Every 15 Minutes

SPECIFICATIONS for URG-9000C:

- Detection Limit Range of $.1 \mu\text{g}/\text{m}^3$
- 3Lpm Sampling Rate
- Available as 115VAC or 220VAC
- Bidirectional RS232 Internal Data Storage
- Displays Data in $\mu\text{g}/\text{m}^3$
- Available as Free Standing or Rack Mountable Unit
- 19" x 16" x 36"
- 65-85 lbs.

ANALYSIS METHOD:

- Incorporates Proven Analysis Method of Ion Chromatography which is Currently Being Used by USEPA
- Requires as Little as 4 Liters of Deionized Water for 10 Sample Days
- Can Collect and Analyze up to 10 Days Unattended

ORDERING INFORMATION:

- **URG-9000C** - Time Resolved Measurements of Nitrate, Sulfate, Hydrogen Chloride, Nitric Acid Nitrous Acid and Sulfur Dioxide

All of the Ambient Ion Monitors Include Chemical Suppression Ion Chromatographs (IC). The IC's on any of the URG 9000 Series Ambient Ion Monitors Can Be Upgraded to the Options Below:

IC OPTIONS:

- *Electrolytic Suppression IC*
- *Reagent Free IC*



URG-9000C
Ambient Ion Monitor
External View

Ambient Ion Monitor

Time Resolved Direct Measurement of Nitrate, Sulfate, Hydrogen Chloride, Nitric Acid, Nitrous Acid and Sulfur Dioxide

MEASUREMENT CAPABILITIES:

- State-of-the-Art Sampler with the Ability to Separate and Analyze Each Ion Individually
- Anion Gases and Particulate Analyzed Every Hour
- Optional Configuration Available to Analyze Every 15 Minutes

SPECIFICATIONS for URG-9000D:

- Detection Limit Range of $.1 \mu\text{g}/\text{m}^3$
- 3Lpm Sampling Rate
- Available as 115VAC or 220VAC
- Bidirectional RS232 Internal Data Storage
- Displays Data in $\mu\text{g}/\text{m}^3$
- Available as Free Standing or Rack Mountable Unit
- 19" x 16" x 36"
- 65-85 lbs.

ANALYSIS METHOD:

- Incorporates Proven Analysis Method of Ion Chromatography which is Currently Being Used by USEPA
- Requires as Little as 4 Liters of Deionized Water for 10 Sample Days
- Can Collect and Analyze up to 10 Days Unattended

ORDERING INFORMATION:

- **URG-9000D** - Time Resolved Measurements of Nitrate, Sulfate, Hydrogen Chloride, Nitric Acid Nitrous Acid and Sulfur Dioxide

All of the Ambient Ion Monitors Include Chemical Suppression Ion Chromatographs (IC). The IC's on any of the URG 9000 Series Ambient Ion Monitors Can Be Upgraded to the Options Below:

IC OPTIONS:

- *Electrolytic Suppression IC*
- *Reagent Free IC*



URG-9000D
Ambient Ion Monitor
Internal View

Semi-Volatile Organic Aerosol Sampler

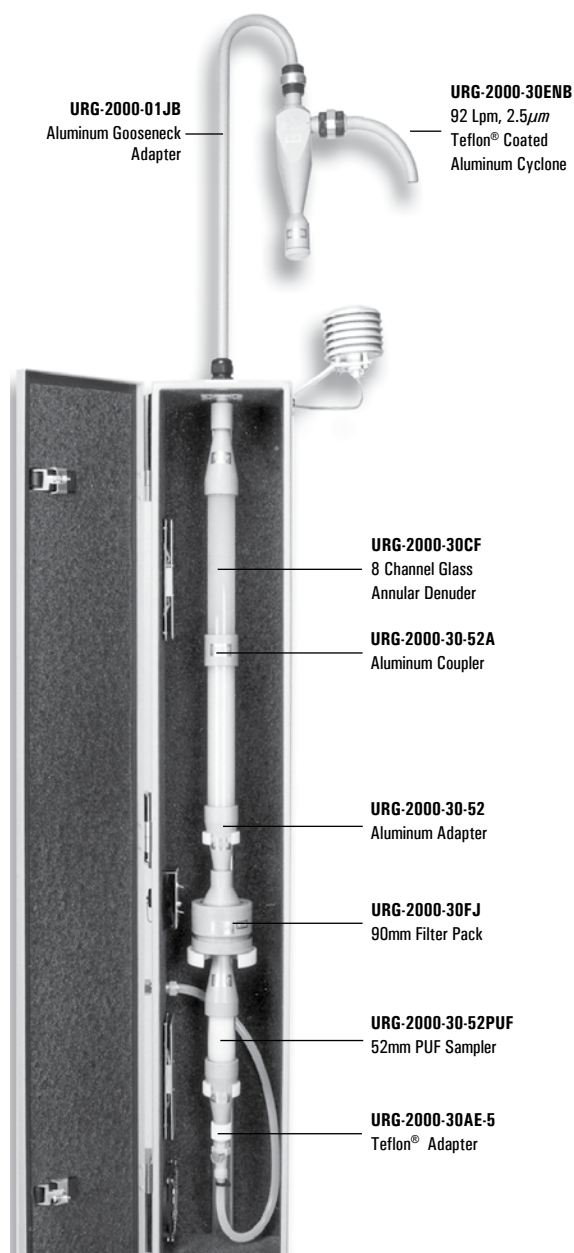
Simultaneous Collection of Gas and Particulate Phase Semi-Volatile Organics

MEASUREMENT CAPABILITIES:

- Direct Determination of the True Phase Distribution of SVOC's
- XAD-4 Coated Annular Denuder for Separation of SVOC Gases
- The Temperature Regulated Sampling Box Minimizes Volatilization of the SVOC's During Sampling and Protects the Collection System from Environmental Changes

SPECIFICATIONS for URG-3000DB:

- Temperature Regulated Sampling Box 60" x 12" x 12", 20 lbs.
- Computerized Sampling Pump, 100Lpm @ 15" Hg 24" x 10" x 10", 40 lbs.
- 92Lpm 2.5 μ m
- Available as 115VAC or 220VAC
- Interactive Process Control Software
- Maintains User Defined Settings for Flow and Temperature
- Monitors Ambient and Sample Conditions
- Data Logging Capable



**Insulated
Sampling Box**



Computer



Pump

Annular Denuder System

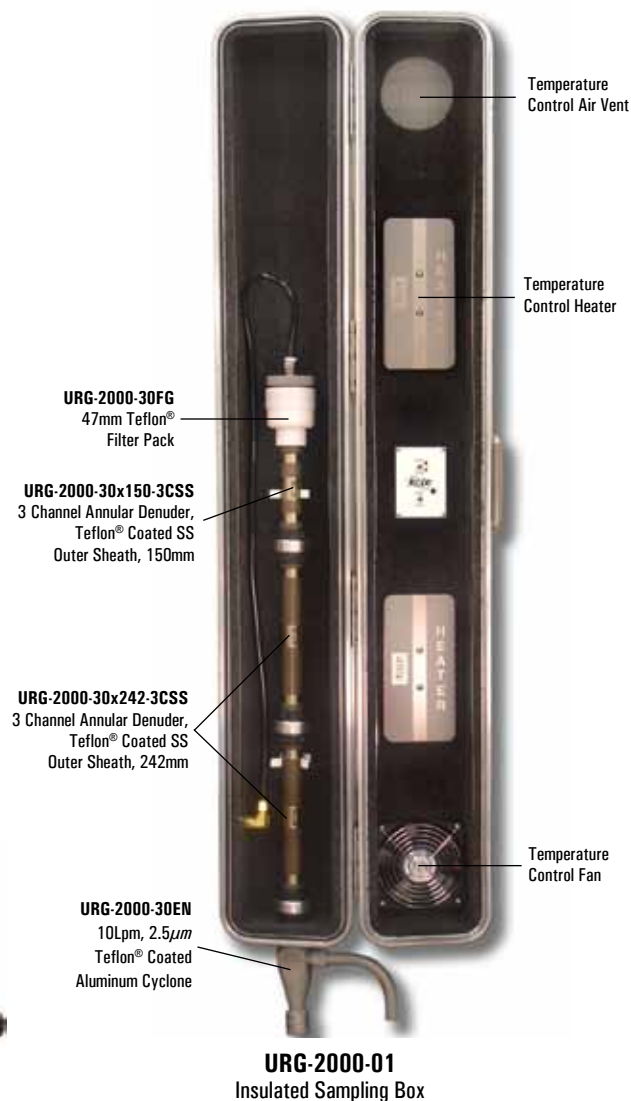
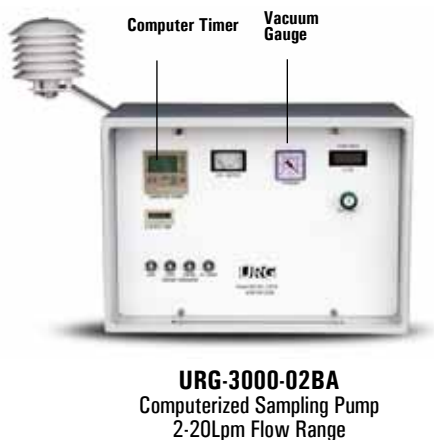
Simultaneous Collection of Particles and Gases

MEASUREMENT CAPABILITIES:

- Designed to Meet USEPA's Compendium Method IP-9 and Compendium Method IO-4.2, *Determination of Atmospheric Fine Particles and Gases in Ambient Air Using Annular Denuder Technology*
- Accurate Method for Measuring
Gases: HNO_3 , HONO , NH_3 , SO_2 , HCl
Particles: NO_3^- , SO_4^{2-} , NH_4^+
- Single Day Sampler
- Concentrates Samples for Characterization by Ion Chromatography

SPECIFICATIONS for URG-3000C:

- Temperature Regulated Sampling Box
49.5" x 7" x 7", 28 lbs.
- Computerized Sampling Pump
Seven Day Programmable
18" x 14.5" x 11", 40 lbs.
- 10Lpm 2.5 μm
- Available as 115VAC or 220VAC



Medium Volume Particulate Sampler

Medium Volume PM-2.5 and PM-10 Particulate Sampler



URG-3000ABC
External View

URG-2000-30DBN
Teflon® Coated
PM-10 Inlet 32 Lpm

URG-2000-30EH
16.7Lpm, 2.5µm
Teflon® Coated
Aluminum Cyclone

MEASUREMENT CAPABILITIES:

- Can Collect Multiple PM-2.5 and PM-10 Samples Simultaneously
- Eight Flow Rates Controlled by Critical Orifices
- Enclosure Has Sufficient Space for Multiple Sampling Configurations Including Annular Denuders, Filter Packs and PUF Samplers

SPECIFICATIONS for URG-3000ABC:

- Weather-tight Aluminum Enclosure 24" x 20" x 12", 20 lbs.
- 66Lpm Total Flow Rate
- Available as 115VAC or 220VAC
- Circle Timer for On/Off Settings
- Varied Vacuum Pump Capable of 16" Vacuum at 66Lpm
- Resettable Elapsed Timer
- Total Vacuum Gauge

Internal View Configured for (8) 47mm Filter Holders



4-Port Manifold

Circle Timer

Elapsed Timer

URG-2000-30HE
2-Port Manifold

URG-2000-30FG
47mm Teflon®
Filter Pack

Total Vacuum Gauge

Critical Orifice Manifold

Versatile Air Pollutant Sampler (VAPS)TM

Simultaneous Collection of Coarse and Fine Particles

MEASUREMENT CAPABILITIES:

- Designed to Collect Both Coarse Particles ($2.5\mu\text{m}$ to $10\mu\text{m}$) and Fine Particles with Little or No Interference from Sampling Artifacts
- Three Samples Taken Simultaneously
- Virtual Impactor Inlet
- Concentrates the Samples for Characterization by State-of-the-Art Analytical Methods, Ion Chromatography, XRF, HPLC and GL

SPECIFICATIONS for URG-3000K:

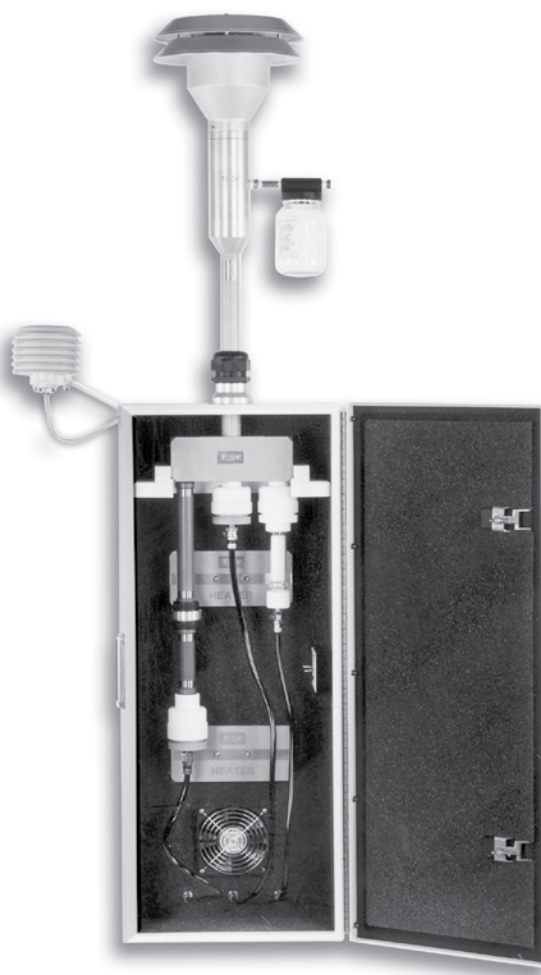
- Temperature Regulated Sampling Box
8" x 14" x 36", 40 lbs.
- Computerized Sampling Pump
32" x 18" x 15", 80 lbs.
- 32Lpm Flow Rate
- Available as 115VAC or 220VAC



URG-3000-02G
Computerized Sampling Pump

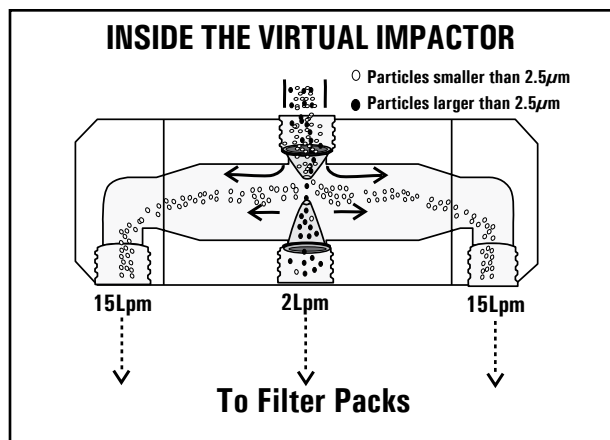


URG-3000-02C
Dry Gas Meters



URG-2000-01D
Insulated Sampling Box

Versatile Air Pollutant Sampler (VAPS)TM



Simultaneous Collection of Particles and Gases

LEFT CHANNEL - INORGANIC FINE PARTICLES

URG-2000-30x242-3CSS

#30 Annular Denuder, 3 Channel, Teflon[®] Coated
Stainless Steel Outer Sheath, 242mm

Coat with: Na₂CO₃

Collects: SO₂, HNO₃, HCl

Analysis: IC, Colorimeter Autoanalysis, Selective Electrodes

URG-2000-30x150-3CSS

#30 Annular Denuder, 3 Channel, Teflon[®] Coated
Stainless Steel Outer Sheath, 150mm
(Optional Denuder)

Coat with: Phosphorous or Citric Acid

Collects: NH₃

Analysis: IC, Colorimeter Autoanalysis

URG-2000-30FG

47mm Teflon[®] Filter Pack, 2-Stage

Collects: Fine Particles, Mass, H⁺, Elemental Composition, Trace Elements

Analysis: XRF (X-ray Fluorescence), INAA (Instrumental Neutron Activation Analysis), Atomic Absorption and ICP Instrumentation

MIDDLE CHANNEL - COARSE PARTICLES

URG-2000-30F

47mm Teflon[®] Filter Pack, 1-Stage

Collects: Coarse Particles

Analysis: SEM (Scanning Electron Microscopy)

RIGHT CHANNEL - ORGANIC FINE PARTICLES

URG-2000-30FB

47mm Teflon[®] Filter Pack, 1-Stage with Adapter for PUF

Collects: Fine Particles, Inorganic Anion Concentration, Acidity, Particulate PAH's Elemental Carbon

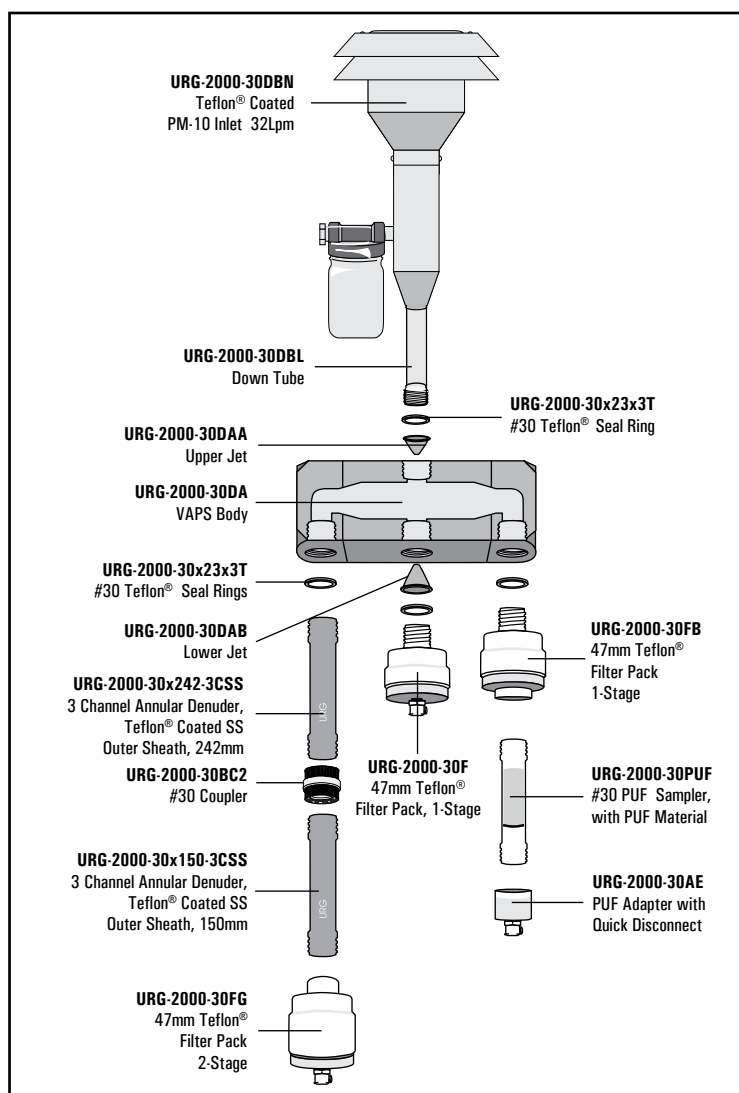
Analysis: XRF, SEM (Scanning Electron Microscopy)

URG-2000-30PUF

PUF Sampler, Includes PUF Material and Teflon[®] Lined End Caps

Collects: Semi-Volatile and Condensable Organic Polynuclear Aromatic Hydrocarbons (PAH's)

Analysis: High Pressure Liquid Chromatographic and Gas Chromatographic-Mass Spectrometry, GC/FID or GC/ECD



Weekly Air Particulate Sampler

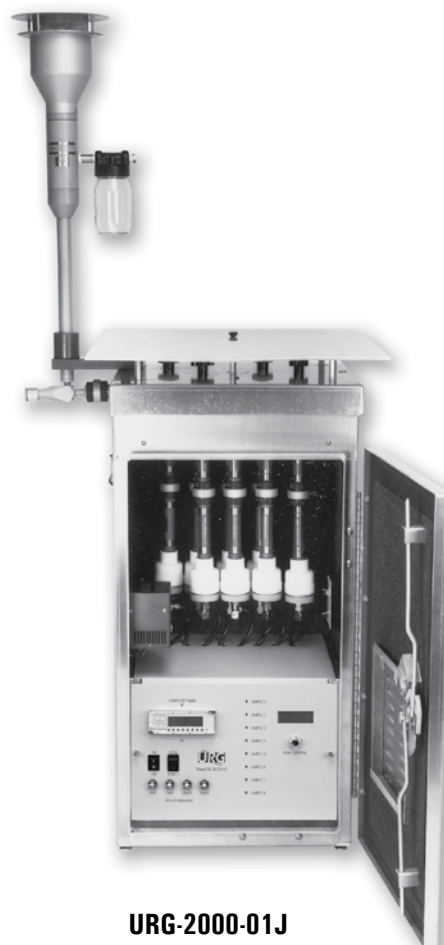
Seven Day Sampler Simultaneous Collection of Particles and Gases

MEASUREMENT CAPABILITIES:

- Low Maintenance - Ideal for Remote Areas
- System Can be Left Unattended for Up to Seven Days
- Programmable for Collection of Up to Eight Consecutive Samples at Pre-Set Intervals
- Capable of Viewing and Programming Multiple Settings for Different Sampling Time Periods
- Internal Components are Interchangeable (Filter Packs, Annular Denuders and PUFs)
- Volumetric Flow Control
- Constant Temperature Control

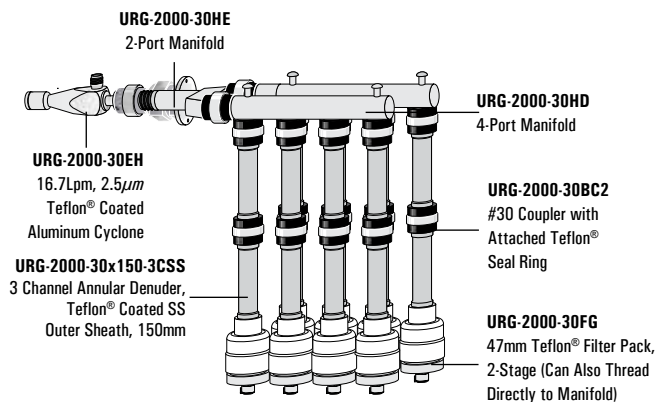
SPECIFICATIONS for URG-2000-01J:

- Temperature Regulated Sampling Box
36" x 22" x 13 1/2", 80 lbs.
- 16.7Lpm 2.5 μ m
- Available as 115VAC or 220VAC

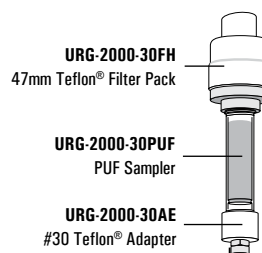


URG-2000-01J
Internal View

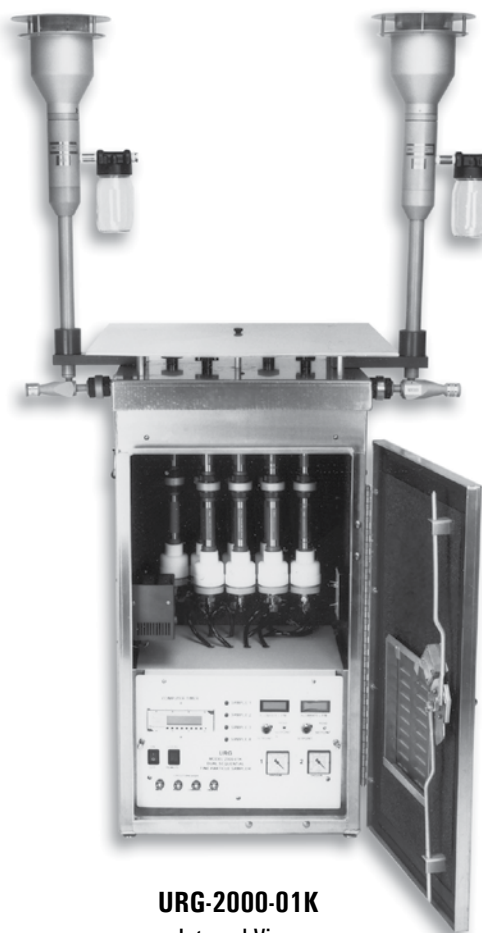
URG-2000-01J Detailed View of Sampling Components



Optional Sampling Train Configured for the Collection of SVOC's



Dual Sequential Fine Particle Sampler



URG-2000-01K
Internal View

Four Day Sequential Sampler Simultaneous Collection of Particles and Gases

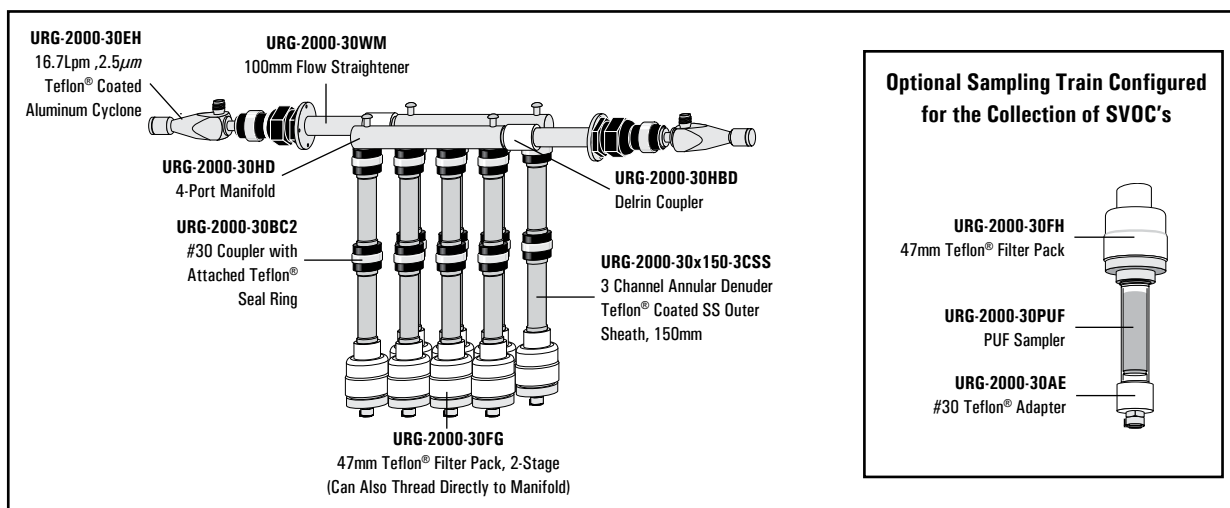
MEASUREMENT CAPABILITIES:

- Collects Four Pairs of Samples in Parallel
- Collects Aerosols, SVOC's and Mass
- Low Maintenance - Ideal for Remote Areas
- Capable of Viewing and Programming Multiple Settings for Different Sampling Time Periods
- Internal Components are Interchangeable (Filter Packs, Annular Denuders, and PUFs)
- Volumetric Flow Control
- Constant Temperature Control

SPECIFICATIONS for URG-2000-01K:

- Temperature Regulated Sampling Box
36" x 22" x 13 1/2", 80 lbs.
- 16.7Lpm 2.5 μ m
- Available as 115VAC or 220VAC

URG-2000-01K Detailed View of Sampling Components



Mercury Sampling System

Simultaneous Collection of Gas Phase and Particulate Mercury

MEASUREMENT CAPABILITIES:

- Speciated Measurements of Reactive Gas Phase Mercury (RGM) and Particulate Mercury
- Incorporates KCl Coated Quartz Annular Denuder
- Insulated Sampling Box Maintains Temperature at Approximately 35 Degrees Celsius

SPECIFICATIONS for URG-3000M:

- Insulated Sampling Box
49.5" x 7" x 7", 15 lbs.
- Computerized Sampling Pump
Seven Day Programmable
18" x 14 1/2" x 11", 40 lbs.
- 10Lpm 2.5 μ m
- Available as 115VAC or 220VAC



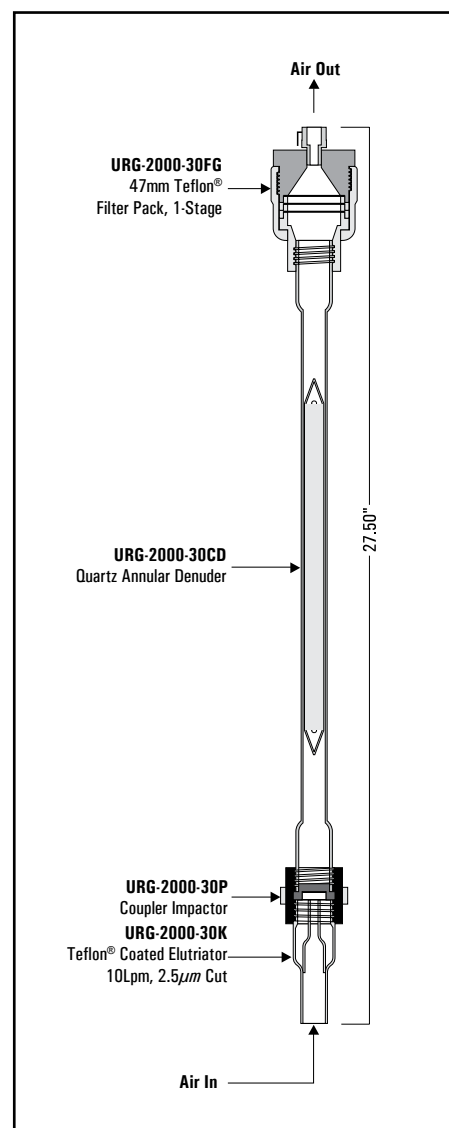
URG-2000-01N-B
Insulated Sampling Box



URG-3000-02C
Dry Gas Meter

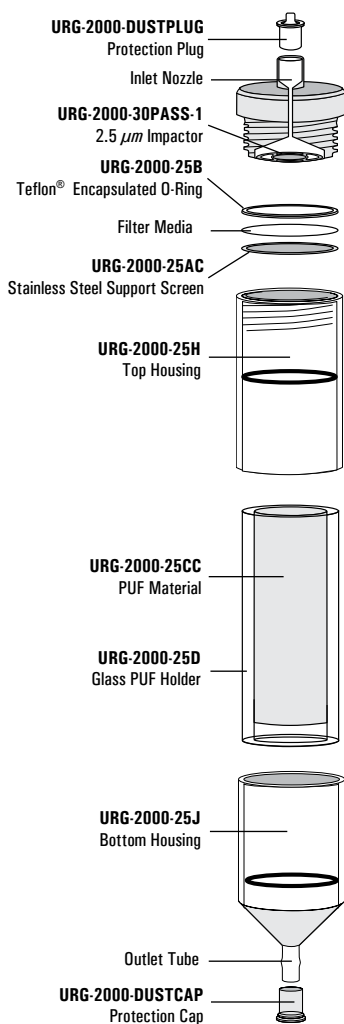


URG-3000-02BA
Computerized Sampling Pump
2-20Lpm Flow Range



Personal Sampling Systems

Personal Sampler for Pesticides, PAH's and Other Semi-Volatile Compounds



URG-2000-25E
Impactor Removal Tool

MEASUREMENT CAPABILITIES:

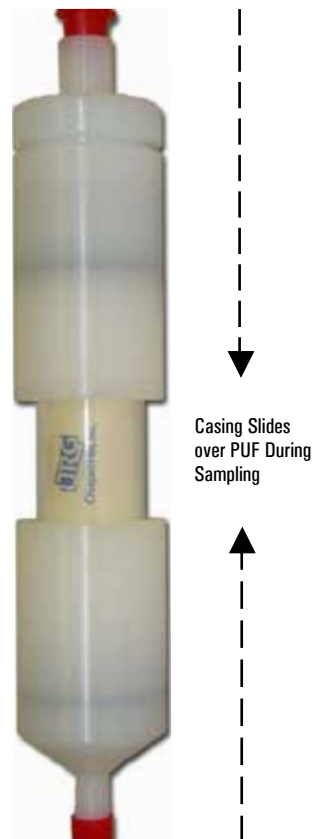
- **ASTM Standard 4861** Reads: "7.1.6. A size-selective impactor inlet with an average particle-size cut-point of 2.5 μ m mean diameter at a sampling rate of 4Lpm may be used to exclude non-respirable airborne particulate matter (9)."
- **ASTM Standard 4947**
- **USEPA Method TO-10**
- Collects Pesticides, PAH's and Other Semi-Volatile Compounds
- Designed for 25mm Filter Media
- PUF Encased in Glass Holder for Easy Removal
- Impactor Removable for Easy Cleaning
- Wearable

SPECIFICATIONS for URG-2000-25 Series:

- 35mm Outer Diameter
- 160mm Overall Length
- 3.4 Ounces

ORDERING INFORMATION:

- **URG-2000-25A** 4Lpm, 2.5 μ m
- **URG-2000-25AA** 4Lpm, 1.0 μ m
- **URG-2000-25AB** 4Lpm, 10.0 μ m
- **URG-2000-25AG** 2Lpm, 2.5 μ m
- **URG-2000-25AF** 2Lpm, 1.0 μ m
- **URG-2000-25AH** 2Lpm, 10.0 μ m



URG-2000-25A

Personal Impactor for 25mm Filter

SPECIFICATIONS:

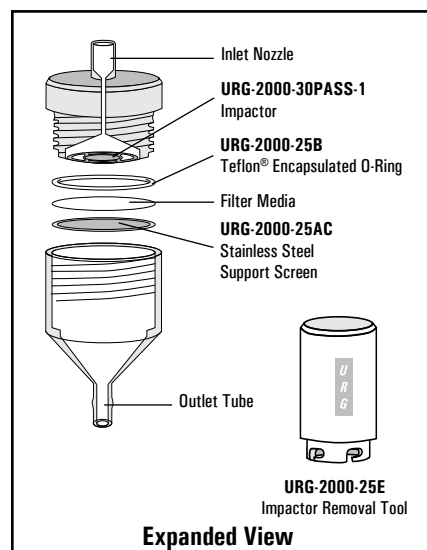
- For Measuring Mass, Anions, Cations, Trace Metals and Carbon
- 35mm Outer Diameter
- 65mm Overall Length
- High Density Polyethylene Housing

ORDERING INFORMATION:

- 4Lpm, 1 μ m • 2Lpm, 1 μ m
- 4Lpm, 2.5 μ m • 2Lpm, 2.5 μ m
- 4Lpm, 10 μ m • 2Lpm, 10 μ m



URG-2000-25F



PM-2.5 Personal Impactor with 37mm Cassette

SPECIFICATIONS:

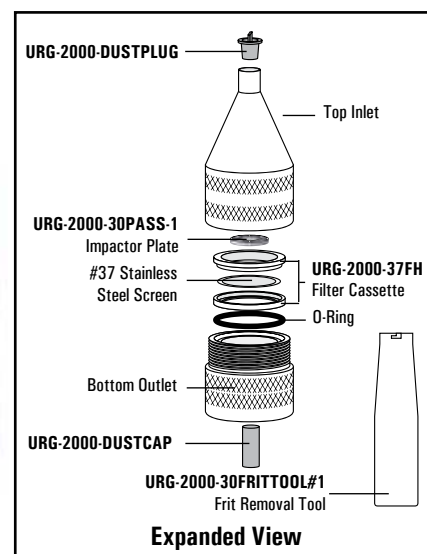
- For Measuring Mass, Anions, Cations and Trace Metals
- 52mm Outer Diameter
- 118mm Overall Length
- High Density Polyethylene Housing

ORDERING INFORMATION:

- 2Lpm, 2.5 μ m, 1-Stage
- 5Lpm, 2.5 μ m, 1-Stage



URG-2000-37F



Personal Sampler for Human Biomarker Studies

SPECIFICATIONS:

- For Measuring Fine Particles, Semi-Volatiles, Metals and PAH's
- Lightweight, Modular
- 200mm Overall Length

ORDERING INFORMATION:

- 1.5Lpm, 2.5 μ m
- 1.7Lpm, 2.5 μ m
- 2Lpm, 2.5 μ m

