



Environmental Supply Company



## THE A-2000 AUTO ISOKINETIC FLOW INTEGRATOR

*THE BIGGEST METHOD 5 TESTING INNOVATION IN 30 YEARS*



- AUTOMATED DATA LOGGING
- CONTINUOUS PID FLOW CONTROL TO MAINTAIN ISOKINETIC FLOW
- INTEGRATED CALIBRATED VENTURI PRESSURE FOR VOLUME DETERMINATION
- COMPATIBLE WITH EXISTING MANUAL ISOKINETIC TESTING EQUIPMENT
- LOW MAINTENANCE OILLESS SAMPLE PUMP
- LIGHTWEIGHT: 42 pounds  
COMPACT: 18" wide x 12" deep x 17" high

### RELIABLE AUTOMATIC ISOKINETIC SAMPLING CONTROL & DATA LOGGING

The Environmental Supply Company A-2000 Auto Isokinetic Flow Integrator is a modular flow control and data acquisition assembly that has been developed to automate isokinetic testing using flow integrated volume determination, flow control and data acquisition. The A-2000 assembly is compatible with existing manual isokinetic testing equipment, replacing the functions of the manual metering console, but allows operator oversight if monitoring the manual control console is desired. The A-2000 may be used with an oil-free pump as the standalone control console, or with the standard method 5 vane pump if a standalone dry gas meter or fully equipped metering console is used to verify flow volume. The data acquisition system eliminates most operator error as heat control, temperature, dry gas volume, differential pressures and flow determination information is received, averaged and logged many times per second. The system is useful to reduce operator error, expedite reporting, and reduce manpower especially where simultaneous multiple port sampling is required.

### FEATURES:

- Automates all aspects of the Method 5 test and data collection process except the position of the probe
- Adjusts flow continuously to maintain desired Isokinetic conditions
- Displays 8 temperatures, 5 pressures (including barometric), Method 5 test conditions, stack gas parameters and Method 5 computations on the PC Monitor
- Forewarns and informs the operator of the time to place the probe at predetermined positions
- Computes velocities, flow rates and volumes for EPA Method 5 reporting
- Writes all test conditions and data acquisitions to a spreadsheet for reports and data verification



**THE ENVIRONMENTAL SUPPLY COMPANY  
AUTOMATED SYSTEM MODULAR COMPONENTS  
ARE FULLY COMPATIBLE WITH STANDARD  
MANUAL ISOKINETIC SAMPLING SYSTEMS  
THAT HAVE BEEN IN USE FOR OVER 30 YEARS**

### ENVIRONMENTAL SUPPLY COMPANY

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## SPECIFICATIONS

- 2 Independent PID Temp Controllers for Filter and Probe Heat
- Parallel Power Receptacles for Probe-Filter-Auxiliary (Standard 4-Pin Amphenol Power Connector and NEMA 5-15P Receptacles)
- Auto or Manual Pump Power Control
- 7 External Thermocouple Inputs (Type K Combination Standard/Mini) [Stack-Probe-Filter-Dryer-Auxiliary from Stack, DGM inlet-DGM outlet from Manual Console]
- SS Quick Connects
  - 1/4 inch Female for Venturi Pressure
  - 3/8 inch Female for Pitot Pressure
  - 1/4 inch Male & Female for Sample Flow
- 9-Pin Serial PC Computer Connection
- Barometric Pressure Sensor
  - Accuracy +/- .25% full scale
  - Range 800-1100 mb
- Pitot Pressure Transducer
  - Range – 0-5 inches H2O
  - Accuracy - +/- 1% full scale
- Flow Venturi Pressure Transducer
  - Range – 0-10 inches H2O
  - Accuracy - +/- 1% full scale
- Stack Static Pressure Transducer
  - Range – +/- 10 inches H2O
  - Accuracy - +/- 1% full scale
- System Vacuum Transducer
  - Range – 15 psid
  - Accuracy - +/- 1% full scale

Parameter Input

Pitot	Venturi	Venturi	Nozzle	Optional
h	h	h	Orifice	Flowing
1.1400	1.8810	0.5000	0.2711	0.0000

Read from file    Save to file    Use current settings    Cancel changes

Test Conditions

% H2O Est	15.0000	%
Dry/CO2	5.5000	%
Dry/SO2	13.5000	%
Static	0.7000	in H2O Estimate
Barometric	29.5000	inHg Estimate
Pitot #	1.0000	
# of Pits	100.0000	
Time-P1	0.5000	Minutes

file path (blank if empty)  
 C:\My Documents\A2000\data\junk.xls    .xls file preferred

Stop    Sample P1: 1    Min Remaining: 0.00    SECONDS: 0

Probe should be at this location

Computations

H2O% Vol	15.0000	%
Inlet Mol Wt	27.8294	
Vel Stack	57.8421	ft/sec
Vel Nozzle	58.0000	ft/sec
Isokinetic	100.0000	%
Qv	0.7600	DSCFM
Qm	0.7400	DADCFM
Qdcfm	0.7500	DSCFM
Volume	0.0000	DSCF

Stop    Sample P1: 1    Min Remaining: 0.00    SECONDS: 0

Probe should be at this location

ANALYS DATA

dP @ FH Avg		Avg dP@FH	TEMPERATURE	
Pitot	0.050	0.650	Stack	356.0
Vacuum	1.000	23.450	Probe	275.0
Venturi	0.500	10.000	Filter Box	260.0
Analog 4	0.000	0.000	Dryer	90.0
Static	0.700	0.700	Isa	0.0
Baromete	29.900	29.500	DGM In	53.0
Analog 7	0.000	0.000	DGM Out	53.0
Analog 8	0.000	0.000	Filter Out	250.0

Stop    Sample P1: 1    Min Remaining: 0.00    SECONDS: 0

Probe should be at this location

## AUTOMATED SYSTEM COMPONENTS:

A-2000	Auto Isokinetic Flow Integrator
P-0523-101Q	Vacuum Pump, Carbon Vane, Oilless Model 0523
M5-UA-A	Umbilical Adapter, 1/2" SS Quick Connect, Type K Thermocouple, Calibrated Flow Venturi w/ Pressure Taps
UC-25-A	25' Umbilical Cable, Sample Line, 5 Pressure Lines (Pitot-Orsat Sample-Flow Venturi), 5 Thermocouple Lines, Power Line with 4-Pin Amphenol Connectors, Full Length Strain Relief
UC-50-A	50' Umbilical Cable, Sample Line, 5 Pressure Lines (Pitot-Orsat Sample-Flow Venturi), 5 Thermocouple Lines, Power Line with 4-Pin Amphenol Connectors, Full Length Strain Relief
UC-100-A	100' Umbilical Cable, Sample Line, 5 Pressure Lines (Pitot-Orsat Sample-Flow Venturi), 5 Thermocouple Lines, Power Line with 4-Pin Amphenol Connectors, Full Length Strain Relief

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