

DESCRIPTION

The Environics® Series 6100 Computerized Multi-Gas Calibration System is a computer controlled, state-of-the-art instrument for dynamic calibration of ambient air analyzers. The Series 6100 automatically performs zero, precision, span and multi-point calibrations using NO, NO₂, SO₂, CO, O₃, hydrocarbons and other gases of interest. The 6100 meets or exceeds all U.S. Environmental Protection Agency requirements.

The Series 6100 consists of a single chassis supporting 2 thermal mass flow controllers, an ozone generation module, a mixing zone, a reaction chamber for gas phase titration, and control electronics.

Commands are entered from the front panel and displayed on a backlit 4 line by 20 character liquid crystal display. The instrument may also be remotely operated using contact closures or the RS-232 serial data interface, both are standard in the Series 6100.

The mass flow controllers are calibrated to a NIST (National Institute of Standards and Technology) traceable primary standard. The calibration data consists of a comparison of desired versus actual flow over the full dynamic range of the instrument with linear interpolation between points. Calibration data is stored in non-volatile memory and may be updated by the user with a suitable standard.

The Series 6100 ozone generator is factory calibrated using a NIST traceable ozone standard. This temperature controlled, ultra-violet (UV) based ozone generator includes a precision photo-optical feedback circuit to compensate for lamp aging effects.

The Series 6100 is available in either a standard rack mount or portable configuration.

PRODUCT FEATURES AND BENEFITS

User-friendly interactive software with plain language prompts is simple to use, reducing technician training time and virtually eliminating error.

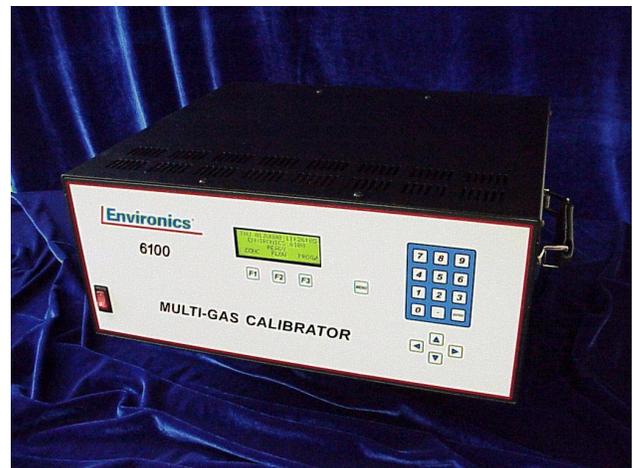
Automatic calculation of dilution and span gas flows based on commanded concentration eliminates the need for manual computation and allows rapid transition from point to point.

Internally-stored mass flow controller calibration data improves accuracy by as much as a factor of ten and simplifies field recalibration.

Internally-stored ozone generator calibration data insures linear, repeatable ozone generation without photometer control. Ozone generator performance exceeds U.S. EPA criteria for ozone transfer standards.

Ozone generator pressure compensation ensures repeatable ozone generation at a flow rate and back pressure other than that at which it was originally calibrated.

Full, two-way RS-232 Serial Data Interface (standard) permits remote operation of the instrument including data collection, gas selection, initiation of zero, span and multi-point calibrations.



SOFTWARE

- **Blend (Conc. Mode):** In response to software prompting, user selects gas port, span (cylinder) gas concentration, output gas flow (total) and output gas concentration. Series 6100 automatically delivers concentrations at the total flow specified.
- **Generate Ozone:** Allows user to specify and then generate a precise concentration of ozone.
- **Gas Phase Titration:** Utilizes blend and generate ozone routines to lead user through GPT using "excess NO" method.

- **Manual (Flow Mode):** Allows user to manually command a desired rate of flow for each mass flow controller.
- **Display:** Allows user to monitor flow rates for each mass flow controller separately. Also provides ozone oven block temperature during generate ozone and gas phase titration routines.
- **Maintain Ports:** User enters the name of the span gas in the source cylinder, its concentration (ppm) and the port to which the cylinder is connected.

SPECIFICATIONS

Mass Flow Controller (as a percent of setpoint)*

	From 10 to 100%
	<u>of Full Scale Flow</u>
Accuracy:	
Concentration:	± 1.0%
Flow:	± 1.0%
Flow Repeatability	± 0.05%

* Mass flow controllers are calibrated using a NIST traceable Primary Flow Standard, using a Reference Temperature of 25° C (77°F) and a Reference Pressure of 760mm Hg (29.92 in. Hg)

Warm up time: 30 minutes

Ozone Generator

Concentration Range: 0.02 - 0.5 ppm at 5 – 10 slpm
 Optional Ranges: 0.05 - 1 ppm at 5 – 10 slpm

Other ranges available upon request

Accuracy: ±2% or ± 0.003 ppm
 30 day repeatability: ±2% or ± 0.003 ppm

Mechanical

Inlets

Balance: External ¼" Swagelok™*
 Span(s): External ¼" Swagelok™*

Outlet

One external ¼" Swagelok™*

*(or compatible fitting)

Operating Pressures at inlets (flow dependent)

Minimum: 15 psig (1.03 Bar)
 Nominal: 25 psig (1.72 Bar)
 Maximum: 30 psig (2.07 Bar)

Wetted Surfaces

Tubing:	Teflon™
Glass Chambers	Pyrex™
MFC's:	Stainless Steel
Seals:	Viton™

Operating temperatures

32° - 122° F (0° - 50° C)

Performance Temperature Range

59° - 95° F (15° - 35° C)

Weight

Standard:	20 lbs.
Including Options:	30 lbs.

Dimensions (w x h x d)

Portable:	17" x 7" x 15"
Rack:	19" x 7" x 15"

Electrical

Standard: 100 VAC to 250 VAC, (50/60 Hz)
 Current: 2 Amps (maximum)

Operating Modes

Front panel keypad
 Internal timer control
 RS-232 serial data interface
 I/O control (8 inputs / 8 outputs) programmable through software

Data I/O

RS-232 serial data interface
 I/O Control (8 inputs / 8 outputs)

OPTIONS

- Rack Mount
- Extra Gas Inlets
- Solenoid Valve on Output
- Permeation Oven
- 3rd Mass Flow Controller

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