Environics®

Product Data
Series 6103
Ozone Transfer Standard / Multi-Gas Calibrator

The Environics® Series 6103 Ozone Transfer Standard / Multi-Gas Calibrator automatically performs zero, precision, span and multi-point calibrations using NO, NO2, SO2, CO,O3, hydrocarbons and other gases of interest. The 6103 meets or exceeds all U.S. Environmental Protection Agency and NCORE requirements.

The Series 6103 consists of a single chassis supporting up to 3 thermal mass flow controllers (MFCs), an ozone generation module, photometer, glass output manifold, mixing chamber, a reaction chamber for gas phase titration, and control electronics.

The internal photometer measures the actual amount of ozone generated, and corrects for errors, using closed-loop PID control. The photometer also allows an external source of ozone to be analyzed and displayed on the screen. The external ozone is connector to a separate sample port, allowing for simultaneous gas blending while monitoring the external ozone source.

The internal ultra-violet (UV) based ozone generator is temperature controlled and includes a precision photo-optical feedback circuit to compensate for lamp aging effects providing stable ozone generation. The ozone generator is factory calibrated using a NIST traceable photometer standard.

The instrument may also be remotely operated using contact closures or the RS-232 serial data interface, both are standard in the Series 6103. LEADS compatibility allows seamless integration of Environics calibrators into your existing collection system. LEADS is a commercial system for collecting, integrating, and processing meteorological, air quality, and water quality data.

The S6103 comes standard with two mass flow controllers, but a third can be added to support a larger range of dilutions. 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.

PRODUCT FEATURES AND BENEFITS

- User-friendly interactive software reduces training time and error.
- An automated, pressure decay leak test to determine if the system has any internal leaks.
- 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 calibration data improves accuracy by as much as a factor of ten. MFCs are factory calibrated at 11 points.
- Internally-stored ozone generator calibration data insures linear, repeatable ozone generation without photometer control. The ozone generator is factory calibrated at 3 points (up to 11 points are available).
- Ozone generator pressure compensation ensures repeatable and stable ozone generation at pressures other than the original calibration pressure.

SOFTWARE

- **Concentration mode:** In response to software prompting, user selects gas port, span (cylinder) gas concentration, output gas flow (total) and output gas concentration. Series 6103 automatically delivers concentrations at the total flow specified.
- **Generate Ozone:** Allows user to specify, then generate a precise concentration of ozone.
- **Photometer:** Allows an external source of ozone to be analyzed and displayed on the screen. Also allows user to control the ozone generator when PID control loop is enabled.
- **Gas Phase Titration:** Utilizes blend and generate ozone routines to lead user through GPT using "excess NO" method.
- **Flow Mode:** Allows user to manually command a desired rate of flow for each mass flow controller, individually or together, and with or without ozone.
- **Display:** Allows user to monitor flow rates for each mass flow controller separately. Also provides ozone oven, pressure and photometer diagnostic information.
- **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% of Full Scale Flow
Accuracy:	
Concentration:	± 1.0%
Flow:	± 1.0%
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

UV Photometer
Repeatability: ±1 ppb
Linearity: 0.3% F.S.O.
Noise: ±1 ppb
Precision: 1 ppb

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

Outlet
Three external ¼" Swagelok™*
*(or compatible fitting)

Operating Pressures at inlets

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: 27 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
- Permeation Oven
- 3rd Mass Flow Controller

Or click here to learn more

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