Environics®

Product Data
Series 4040
Computerized Gas Dilution System

A low cost, computerized gas dilution system with an advanced Windows user interface.

The Environics® Series 4040 is a computerized gas dilution system that automatically generates precise gas standards for rapid multi-point calibration of analyzers. The gas mixes can be used in generating precise gas calibration standards, creating gaseous atmospheres or producing gas mixes for analytical research or production purposes. The Series 4040 can produce gas concentrations from percent to ppb levels for single or multi-point calibration.

The system consists of two components: the Series 4040 instrument and the user's personal computer. The user interface is a Microsoft Windows application that communicates with the Environics system via an RS232 serial interface.

The Series 4040 consists of a single chassis supporting up to four mass flow controllers. The mass flow controllers are factory calibrated using a primary flow standard traceable to the United State's National Institute of Standards and Technology (NIST). Each flow controller utilizes an 11 point calibration table with linear interpolation, to increase accuracy and reduce flow controller nonlinearity.

PRODUCT FEATURES AND BENEFITS

- Broad range of dilution ratios (up to 1,000:1) allows the user to significantly reduce the number of cylinders needed to perform compliance tests.
- Allows multi-point calibration of analyzers.
- Automatic calculation of dilution and span gas flows.
- Internally-stored Mass Flow Controller calibration tables.
- Modular design allows for additional gas circuits to be added.
- User definable cylinder library allows for easy selection of frequently used gas cylinders. Each cylinder may contain an unlimited number of component gases with automatic K-factor calculation.

INSTRUMENT OPERATION

The Series 4040 has four basic modes of operation.

- **Concentration Mode:** Allows user to create a blend by entering target gas concentrations for each source gas cylinder, and the desired total output flow for the mix.
- **Divider Mode:** Allows the user to operate the instrument as an automated ten step gas divider.
- **Flow Mode:** Allows user to specify the flow rate of each gas cylinder.
- **Program Mode:** Provides the ability to program the instrument for unattended operation. Programs can be recalled and run in any sequence, at various times/dates.

SPECIFICATIONS

Performance

Accuracy

Concentration:	± 1.0% setpoint
Flow:	± 1.0% setpoint
Repeatability:	± 1.0% setpoint

*Performance specifications are valid when all Mass Flow Controllers are operating between 10% and 100% of full scale flow. Mass flow controllers are calibrated using a NIST traceable Primary Flow Standard, using a Reference Temperature of 0° C (32°F) and a Reference Pressure of 760 mm Hg (29.92 in. Hg)

Warm up time: 30 minutes

Mechanical

Inlets

External ¼" Swagelok™ (or compatible fitting)

Outlet

External ¼" Swagelok™ (or compatible fitting)

Operating Pressures at inlets

Recommended:	25 psig (1.68 Bar)
Minimum:	10 psig (0.67 Bar)
Maximum:	75 psig (5.04 Bar)

Wetted Surfaces

Tubing: Electropolished 316 Stainless Steel
MFC's: Stainless Steel
Seals: Viton®
(Optional: Kalrez®, Buna-N, Neoprene, Metal)

Operating temperatures
32° - 122° F (0° - 50° C)

Weight
18 lbs. (2 Mass Flow Controllers)
23 lbs. (4 Mass Flow Controllers)

Dimensions (w x h x d)
17" x 4.25" x 20"

Electrical

110 to 240 VAC, 50/60 Hz

Electronics

12 Bit A/D and D/A Conversion
RS232 Serial interface

Software

Environics Instrument Control Software
(supplied on 3½" floppy disks)

PC Requirements

IBM PC or compatible (486-33 or higher)
Microsoft Windows 3.1
8 MB RAM
10 MB Hard Disk Space
3½" floppy drive
RS-232 Communication port

OPTIONS

Additional input ports (up to 4)
Additional MFC's (up to 4)

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ISO 9001 CERTIFIED #97-1068

69 Industrial Park Road East, Tolland, CT 06084
(860) 872-1111 Fax: (860) 870-9333
World Wide Web: http://www.environics.com
E-mail: info@environics.com