

A low cost, multi-component gas mixing system with an advanced Windows user interface.

The Environics® Series 4000 is a multi-component gas mixing system that now automatically mixes up to seven individual gases in a balance gas. 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 4000 can produce gas concentrations from percent to ppb levels for single or multi-point calibration

The system consists of two components: the Series 4000 instrument and the user's personal computer. The user interface is a Microsoft® Windows application that communicates with the Environics system via a USB (standard) or RS232 serial interface.



The Series 4000 consists of a single chassis now supporting up to eight mass flow controllers. The mass flow controllers are factory calibrated using a primary flow standard traceable to the United States 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. All units are built to your specific needs and can include additional features such as cleaning for oxygen service, Silconert/Sulfinert coating, speciality seals (Kalrex, metal). Custom systems can also be built to handle explosive gases.

PRODUCT FEATURES AND BENEFITS

- Simultaneously mixes up to seven gases in a balance gas at user set concentrations.
- 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 4000 has three 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.
- **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: $\pm 1.0\%$ setpoint

Flow: $\pm 1.0\%$ setpoint

Flow Repeatability: $\pm 0.05\%$ 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 1/4" Swagelok™ (or compatible fitting)

Outlet

External 1/4" Swagelok™ (or compatible fitting)

Operating Pressures at inlets (flow dependent)

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° - 104° F (0° - 40° C)

Performance temperatures

59° - 95° F (15° - 35° C)

Weight

18 lbs. (2 Mass Flow Controllers)

23 lbs. (4 Mass Flow Controllers)

35 lbs. (8 Mass Flow Controllers)

Dimensions (w x h x d)

Portable: 17" x 7" x 15"

(43.18cm x 17.78 cm x 38.1 cm)

Rack: 19" x 7" x 15"

(48.26 cm x 17.78 cm x 38.1 cm)

Electrical

100 to 250 VAC, 50/60 Hz

Electronics

12 Bit A/D and D/A Conversion

USB (standard) or RS232 Serial interface

Software

EnviroNics Instrument Control Software

(CD or via download)

PC Requirements

IBM PC or compatible (486-33 or higher)

Windows 95/98/Me/NT/2000/XP or Windows 7/8/10

8 MB RAM

10 MB Hard Disk Space

CD_ROM or access to internet

USB (standard) or RS-232 Communication port

OPTIONS

Additional input ports (up to 8)

Additional MFC's (up to 8)

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EnviroNics®

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