

SERIES 3000 GAS DELIVERY / GAS BLENDING SYSTEM

The Environics Series 3000 gas delivery/blending system offers on-site gas blending of 100% pure bulk gases and is configured to provide a solution to using costly premixed cylinders of gas. Unlike premixed cylinders, the Environics model 3000 provides a repeatable blend of gases, using precision thermal mass flow controllers. The system offers flexibility in addressing particular process and market needs. Although two and three gas mixtures are more common, gas mixtures of more constituents can be produced. The primary benefits of the system are cost savings in using pure gases versus premixed cylinders as well as the repeatability of the mixture. The system will undoubtedly pay for itself because of these savings.

The main controls of the system are HMI (Human Machine Interface); color touch screen and PLC combined. A series of I/O modules connect to all the electro-mechanical devices. The system offers options such as Ethernet connection, remote operation, alarms, a gas humidifier and an oxygen compatible construction.

Precision mass flow controllers (MFC) are used to control the flow rate of each gas for blending. Each MFC is calibrated at 11 points on a primary flow standard traceable to NIST. The flow standard is accurate to .2% of reading. Using the 11 points of calibration data, the software of the S3000 applies linear interpolation to provide a more accurate and linear flow rate; ultimately providing a precision blend of gases.

Optional precision mass flow meters (MFM) can be installed on the outputs of the MFCs. These electronic meters monitor the flow rate of each flow controller and the PLC mathematically calculates the actual blend concentration based on the metered flows. This provides an independent check on the MFC performance. Each MFM is also calibrated at 11 points with linear interpolation applied.

The system is manufactured in a NEMA 4 wall mount enclosure, with internal electrically grounded aluminum panels for support and a clear polycarbonate door to protect the controls. Optional enclosures are available. Fitting connections and tubing are 316 stainless steel.

When actively mixing, the instrument sends the diluted gas mixture through an in-line static mixer to ensure a homogenous mix of gases. The system provides a controllable positive pressure to meet the requirements of a process downstream. The mixer can be configured to provide gas to a ballast tank, turning off and on as the pressure rises and falls in the tank. This is useful for gas conservation, when the demand for gas is sporadic or intermittent in use.

An optional visual and/or audible alarm can be installed onto the top of the instrument to alert the operator of specific fault conditions. A condition that would trigger an alarm is if the interpreted concentration from the optional flow meters falls outside a user adjustable tolerance.

Typical applications:

- Modified Atmospheric Packaging
- Welding Shielding Gases
- Controlled Atmospheric Storage
- Gas Processing and Blanketing
- Semi conductor fabrication

Computerized Gas Mixing / Dilution / Calibration Systems

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