

491MB Gas Standards Generator

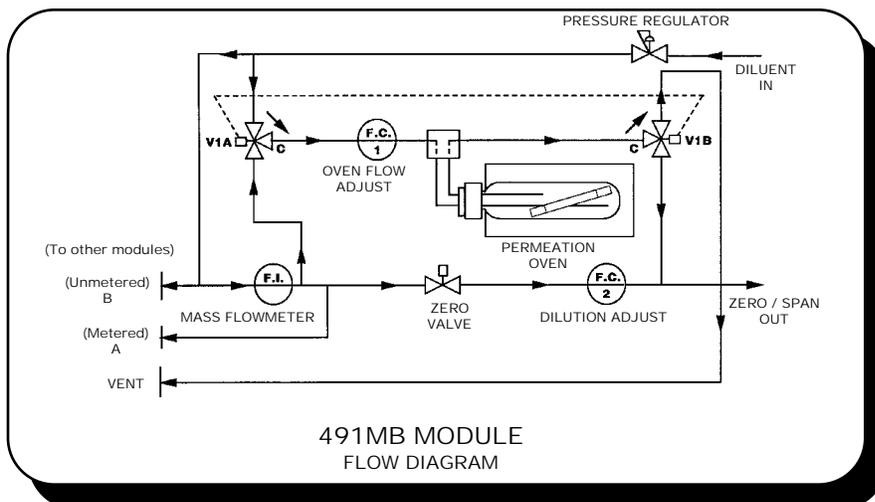
DESCRIPTION

The **491MB Gas Standards Generator** is a laboratory instrument designed to calibrate most types of gas analyzers including gas chromatographs, mass spectrometers, and ion mobility spectrometers. The **491MB Gas Standards Generator** uses Trace Source™ Permeation Tubes to generate low concentration (**1000 ppm to ppb**) gas standards for VOCs, Acid Gases, Amines, Sulfurs and Hydrocarbons (over 250 compounds).



The 491MB holds the Trace Source™ Permeation Tube at a constant temperature and introduces a controlled flow of dilution gas over the tube. A small, accurate, constant flow of pure component vapor permeates from the tube and mixes with the dilution gas to form the ppm or ppb standard. The standard then flows through the generator output to the gas analyzer.

The **491MB Gas Standards Generator** can be used as a stand-alone, single-oven unit or as a base module in a multi-module 491M system. It contains one permeation oven, dilution flow controls and a mass flowmeter. All the tubing is stainless steel or teflon. The **491MB Gas Standards Generator** uses Disposable and liquid filled Refillable Permeation Tubes.



491MB Module Flow Diagram

The **491MB** has three operating modes: Standby, Zero and Span. In the Standby Mode, the dilution gas enters the dilution flow path, passes through the pressure regulator and splits into two unmeasured flows: the Oven Flow and the Main Flow. The Oven Flow (a small controlled flow) flows over the permeation tube to vent. The Main Flow is capped off or is available for other modules.

In the Zero Mode, the unmeasured Oven Flow goes to vent and the Main Flow passes through the mass flowmeter to the analyzer to check its Zero set-point. In the Span Mode, dilution gas passes through both the pressure regulator and the mass flow meter, then splits into two metered flows: the Oven Flow and the Main Flow. The Oven Flow flows over the permeation tube and joins the Main Flow to form the Span mixture. The **491MB** can also provide metered dilution flow for other modules.

FEATURES

- ❖ The high thermal mass oven keeps the permeation tube at a constant temperature.
- ❖ The digital temperature controller is accurate to $\pm 0.1^{\circ}\text{C}$ and traceable to NIST.
- ❖ The **491MB** uses disposable, LFH or ULED type Trace Source™ permeation tubes.
- ❖ A mass flowmeter measures the dilution flow to $\pm 1\%$ of full scale.
- ❖ The span gas contacts only glass, teflon and stainless steel.
- ❖ The sample is available at any pressure up to 40 psig for calibration of monitors requiring pressurized sample.
- ❖ A convenient carry-handle and small cabinet make it easy to carry.
- ❖ The **491MB** can be used as a base module in a 491M Modular Gas Standards Generator system.

BENEFITS

- ❖ Delivers ppm / ppb gas standard directly to the gas analyzer.
- ❖ Generates multi-point calibration standards from one permeation tube.
- ❖ The user deals with only small quantities of toxic gas.
- ❖ Eliminates the necessity of keeping a large stock of gas cylinders.

APPLICATIONS

- ❖ VOC standards to calibrate GCs used in process streams.
- ❖ ppb standards of methanol, ethanol & acetone for GCs used in ethylene & propylene processes.
- ❖ ppm standards of acrylonitrile, styrene and butadiene in air.
- ❖ ppm HCN multi-point standards for checking multi-point sampling systems.
- ❖ ppb standards for GCs used to control contaminants in specialty gases; Example: to check pure nitrogen for contaminants such as methane, H_2 , O_2 & moisture.

SPECIFICATIONS

Oven Capacity: up to six 1/4" dia. x 6" long disposable permeation tubes, one LFH or one ULED.

Temperature Range: 30°C to 150°C

Flow Range: 0.25 to 5 liters per minute

Typical Concentration Range: 1,000 ppm to ppb

Dimensions: 6" wide x 12" high x 19" deep

Weight: 32 lbs.