



Features

- Principle of Operation - Secondary dilution of upstream single or multi-component gas stream when used in conjunction with a 491Flex™ Base module.
- Component Flow Path - Mixture contacts only Teflon® and stainless steel (other materials available; specified at time of purchase)
- Flow Control - Extended ranges via hand-selected flow controllers and extended calibration available (specified at time of purchase)
- Manual Control – User controls the front panel toggle switch and flow settings.

491Flex™ Secondary Dilution

491Flex™ SD

The 491Flex™ Secondary Dilution Module is used in series with the 491Flex™ Base Module and any additional permeation modules to extend the range of concentrations attained from permeation tubes.

Using the full flow range of the standard 491Flex™ Base and 491Flex™ SD modules allows a concentration range of 10,000:1 from a single permeation tube. For applications requiring fixed flow of the output mixture, the 491Flex™ SD can provide adjustable concentration over a 200:1 range.

The 491Flex™ SD is one of several auxiliary modules designed to work with the Base Module. Up to 8 auxiliary modules can be used with a single 491Flex™ Base Module to form a complete gas standard generating system.

Operation

The 491Flex™ SD has two operating modes: Off and On. In the “Off” mode, the secondary dilution flow controller is isolated and upstream span gas passes through the module to the span gas out port. In the “On” mode, the primary concentration span mixture created by upstream permeation modules flows through the 491Flex™ SD where a carefully measured portion is split off and re-diluted to form lower concentration mixtures. Manually adjusted PID controllers on the front panel allows the user to easily set the component and dilution flows. Dilution ratios from 3.4:1 to 500:1 are available with the standard flow range (0.25 to 5.0 slpm) of the 491Flex™ SD module. Operation of the SD is manually controlled by a front panel operation.

Specifications

OUTPUT PRESSURE:

- Ambient to 20 psig (138 kPa) for span out mixture

FLOW CONTROL:

- Electronic mass flow control and measurement
- Standard Control Range: 0.25 to 5 slpm secondary dilution, with 10 to 100 sccm component flow rate
- Optional Ranges (specified at time of purchase): 0.5 to 10 slpm secondary dilution, with 20 to 200 sccm component flow rate
- Flow Measurement: The lesser of $\pm 1.5\%$ reading and $\pm 1\%$ FS
- Flow Change: 0 to Full Scale: < 10 sec (2-time constants) at ambient pressure
- Mode Change: Zero at 1 slpm to Span at 1 slpm: < 5 sec (2-time constants) at ambient pressure

DILUTION RATIO:

- Standard 500:1; Optional: 1000:1, 1250:1, 1667:1
- When combined with the 491Flex™ Base module primary dilution, the total system dilution ratio is Standard: 10,000:1; Optional: 20,000:1, 25,000:1, 50,000:1

ENVIRONMENTAL CONDITIONS:

- Operating (Ambient) Temperature: 5 to 40 °C.
- Relative Humidity: Maximum of 80% for operating (ambient) temperatures up to 31 °C decreasing linearly to 50% at 40 °C
- Storage Temperature: 0 to 50 °C
- Maximum Altitude: 2000 m (CE models only)

POWER REQUIREMENTS:

- United States: 110-125 VAC, 1A, 60 Hz
- European Union (EU): 230V~, 0.5A, 50/60 Hz
- European Electronic Fuse Replacement: F 0,5A L 250V
- Purchase option (non-EU): 220-250 VAC, 0.5A, 50/60 Hz

DIMENSIONS:

7-inch (18 cm) Width x 13.5 inch (34 cm) Height x 20 inch (51 cm) Depth with portable carrying case. All dimensions are approximate.

WEIGHT:

24 lb (10.9 kg) with portable carrying case. All weights are approximate.

CERTIFICATION

CE (for 230 VAC, 50 Hz European option)

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