

491Flex™ SD

Secondary Dilution

Description

The **491Flex™ SD 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 Base and 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 SD can provide adjustable concentration over a 200:1 range.

The SD is one of several auxiliary modules designed to work with the Base Module. Up to 5 auxiliary modules can be used with a single Base Module to form a complete gas standards generating system.



Operation

The **491Flex™ SD** has two operating states: **Standby** and **Span**. In the **Standby** state, the secondary dilution flow controller is isolated and upstream span gas passes to the span out port. In the **Span** state, the primary concentration span mixture created by upstream permeation and/or direct blending modules flows through the SD where a carefully measured portion is split off and rediluted to form lower concentration mixtures. Dilution ratios from 3.4:1 to 500:1 are available with the standard SD module. Operation of the SD is controlled through the microprocessor subsystem in the Base Module.

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)
- Computer Control - Controlled through the microprocessor subsystem in the 491Flex™ Base module Modes of Operation - Standby, span

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 lpm secondary dilution, with 10 to 100 sccm component flow rate
- Optional Ranges (specified at time of purchase): 0.5 to 10 lpm 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 lpm to Span at 1 lpm: < 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)

Represented by:



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