































### 491Flex Specifications

<b>Principles of Operation</b>	<b>FlexStream Base Module</b>
Dilution of constant component vapor emission from permeation or diffusion tubes	✓
Delivery of precise, adjustable, low concentration dynamically blended gas mixtures. Trace concentrations – ppmv, ppbv, pptv	✓
Oven temperature and dilution flow rate adjustment and standby, zero, span selection	Manual controls
Permeation Tube Oven	
Construction – high thermal mass oven with electronic PID control	Vertical orientation
Oven temperature range (heat only)	30-150 °C
NIST-traceable oven temperature	✓
Oven setpoint resolution and control	±0.1 °C
Temperature digital indication and adjust via front panel	✓
<b>Diluent Gas (customer-supplied)</b>	
Carrier flow rate across oven	manually-set
Uses inert, non-reactive, non-hazardous dry gas (Nitrogen, zero air, Argon, etc.)	✓
Mass flow controller subsystem is factory-calibrated in Nitrogen; contact factory for calibration in other type gas	✓

Primary Dilution Flow Rate	
Dilution flow rate type	Mass flow meter
Standard dilution flow rate range	0.25 to 5 lpm
Optional flow rate ranges available	10, 1, 0.5 lpm
Flow rate accuracy	±1% FS
Flow rate calibration method	Analog zero/span adjust
Flow rate indication via front panel	
Accepts Vapor Emissions from the Following Devices*	
Liquid-filled disposable tubes up to 15 cm in length (maximum of 8 tubes)	
Liquid-filled high rate (LFH) permeation tubes (maximum of 1 tube)	
Factory pre-filled gas-fed permeation tubes (maximum of 1 tube)	
Diffusion tubes (maximum of 4 tubes)	
*Note: A single oven can hold only one of the above tube types at a time	
<b>Standard Component Flow Path</b>	
Component contacts only glass, Teflon® and stainless steel	
Glass permeation tube holder	
Suitable for reactive component gases	
<b>Optional Component Flow Path (specified at time of order)</b>	
Heated output lines	
Stainless steel	
Electro-polished stainless steel	
Sulfinert-coated stainless steel	
Teflon only	
Teflon permeation tube holder	
<b>Standard Modes of Operation</b>	
Standby	

Zero	
Span-by-flow	Manual valve set and digital indication
Auto-calculates flow setpoint based on target concentration, tube emission rate and oven temperature	Manual calculation
<b>Output Concentration Range</b>	
Below 1 ppb to over 1000 ppm depending on tube emission rate and dilution flow rate; low ppb and ppt concentrations with secondary dilution	
<b>Expandability</b>	
Additional permeation ovens	
Customer-refillable gas-fed permeation oven option	
Secondary dilution flow rate option; other ranges available	0.5 to 5 lpm
Overall output gas stream dilution ratio with both primary and secondary dilution	Up to 10,000:1
Direct gas blending module option	
Humidified gas module option	
Gas stream output Interface module option; If secondary dilution module is installed, subtract 10 psig (69 kPa)	ambient to 40 psig (276 kPa)
<b>Instrument Housing (specified when ordering)</b>	
Carrying case (standard)	
Expansion chassis (option); desktop or rack-mount; 2 cases maximum	3 modules per case
Maximum number of modules in a single system	6
<b>Power Requirements (specified when ordering)</b>	
115 VAC, 50/60 Hz, 2 A	
230 VAC, 50/60 Hz, 1 A	
<b>Dimensions and Weight</b>	
Dimensions (Base module in carrying case)	Similar

Weight (Base module in carrying case)	Similar
<b>Certifications</b>	
European CE Mark (230 VAC, 50 Hz)	
NRTL (site-specific)	not tested
CSA (site-specific)	not tested
UL (site-specific)	
<b>Speciality Applications (Please contact the Factory)</b>	
Special diluent (carrier) gases other than inert gases	
Trace moisture	
Chemical compatibility issues	
Heat tracing requirements	
Other	