KIN-TEK

The Calibration Specialists

FlexStream™ Base Module

Automated Permeation Tube System



The FlexStream™ Base Module is a stand-alone (fully operational) or expandable permeation system that offers flexibility for creating precision gas mixtures. Mixtures are produced by diluting the gas emitted from Trace Source™ permeation (or diffusion) tubes with a dilution flow of inert gas, typically nitrogen or zero air. The FlexStream™ Base Module is ideally suited for creating trace concentration – ppm, ppb, and pptr – mixtures. The FlexStream™ Base Module is small, easily transportable and easily combined with other FlexStream™ modules to form the perfect scenario for calibrating gas analyzers, gas chromatographs, sensors, or detecting and monitoring devices.

The FlexStream™ Base Module is a microprocessor-controlled Permeation Tube System. It includes a temperature controlled permeation tube oven, dilution flow controls and front panel touch-screen interface. The FlexStream™ Base Module uses Trace Source™ permeation and diffusion tubes. Mixtures containing up to 8 components are possible using disposable permeation tubes in the stand-alone FlexStream™ unit. Concentrations from below 1 ppb to over 1000 ppm are possible using appropriate permeation tubes. Concentration can be varied over a 20:1 range by adjusting dilution flow.

Three operation modes are possible:

- Standby – the permeation tube is held at operating conditions and the permeating gas is vented
- Zero – clean dilution flow is used to verify zero response
- Span – the permeation tube output is added to dilution flow to create a known concentration for calibration.

A touch screen interface is used to set the operating mode and adjust dilution flow to achieve desired concentrations. The FlexStream™ Base Module can also be controlled remotely by a PC with FlexLink™ software (included) using Modbus® connectivity. Combining the FlexStream™ Base Module with other FlexStream™ modules creates a unique calibration system capable of generating complex gas mixtures.

Features

- Complete, integrated, ready-to-use turnkey calibration gas system
- Automated operation with direct readout of concentration in units of ppm, ppb or ppt
- Modes of Operation: standby, zero, span and purge
- Touch-screen interface for local setup and manual control
- Modbus® connectivity for integration with existing systems
- Flow path suitable for reactive gases – mixture contacts only glass and Teflon® (other materials available – i.e. Stainless Steel)
- Accepts disposable permeation tubes, diffusion tubes, refillable tubes, wafer tubes, and prefilled gas permeation tubes
- Accepts up to 8 disposable tubes (KIN-TEK HRT, SRT and EL tubes) or 1 refillable tube (LFH, 57S) with maximum 6 inch length x ¼ inch diameter
- Works as a stand-alone permeation system or can be combined with other modules to form complex gas mixtures.

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- High mass oven with electronic PID control
- Temperature Control Range: From 5 °C above ambient to 150 °C (heat only)
- Temperature Setpoint Resolution: 0.01 °C across control range
- Temperature Display Resolution: 0.01 °C on front panel touch screen
- Standard Flow Range: 0.25-5.0 standard liters per minute
- Optional Flow Ranges: 0.1-1.0 slpm, 0.5-10.0 slpm
- Flow Control over Calibrated Range: < +/-1.5% of reading, or +/- 1% F.S.
- Flow Change – 0 to Full Scale: < 10 sec (2 time constants) at ambient pressure
- Output Concentration Range: below 1 ppb to over 1000 ppm depending on emission rate and dilution flow rate
- Local Interface: color touch screen display with virtual keypad
- Remote Interfaces: RS-232 and Ethernet
- Communication Protocol: Modbus® RTU
- Standard Power: 115 VAC, 50/60 Hz, 2 A
- Optional Power (specify at time of purchase): 230 VAC, 50/60 Hz, 1 A
- Base Module Dimensions: 7" (18 cm) Width x 13.5" (34 cm) Height x 20" (51 cm) Depth
- Weight: Approximately 30 lbs

TECHNICAL

- Trace concentration mixtures for reactive compounds
- Applicable to a wide range of compounds (over 500)
- PPM and PPB mixtures with single step dilution
- Dynamic blending eliminates storage degradation
- Simplifies complex mixture preparation
- Concentrations traceable to NIST (through physical variables)
- Designed for expandability
- Simple operation with automated calibrations
- User friendly interface

ECONOMIC

- Saves space – one unit replaces many gas cylinders
- Reduces cost of multi-point calibrations
- One system calibrates multiple analyzers

SAFETY

- Replaces high pressure bulky gas cylinders
- User handles only small quantities of analyte compounds
- Perm tubes are small, easy to handle, safe devices

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