

## **Features and Specifications Sheet for FlexStream™ Base Module** **(Base Module)**

### **Principal of Operation**

Works as a standalone permeation system or as the controlling module in a series of modules to create a precise gas standard for calibrating gas analyzers, detectors, sensors, or gas monitoring devices. Automated internal components provide accurate controlled dilution of component vapor emission from permeation or diffusion tubes (in permeation chamber/oven) to achieve final output concentration of ppmv or lower. User interface via front panel touchscreen or via user supplied PC for remote operation with FlexLink™ software (basic FlexLink™ software supplied with purchase of FlexStream™ Base Module).

### **Function**

Preparation of precise, adjustable, low concentration dynamically blended gas mixtures from permeation devices. Trace concentration calibrations – ppmv, ppbv, pptv

### **Permeation Chamber (Oven)**

Accepts KIN-TEK Trace Source™ disposable permeation tubes, diffusion tubes, high rate liquid filled tubes (LFH) and prefilled gas permeation tubes (57 Series). Permeation chamber (equipped with glass adapter bottle) holds up to 8 disposable tubes with maximum 6-inch (15.2 cm) length x ¼ inch (0.635 cm) diameter (KIN-TEK HRT, SRT and EL tubes). Chamber/oven is situated vertically, and each unit is supplied with a glass adapter bottle for use with disposable tubes. Oven chamber will hold the glass adapter bottle or one KIN-TEK LFH tube or one KIN-TEK 57 Series prefilled gas (57S/FPK) tube.

### **Oven Temperature Control**

High mass oven with electronic PID control. Control Range: 5 °C above ambient from 20 °C to 150 °C (heat only).

Setpoint Resolution: 0.01 °C across control range, via touch screen.

Display Resolution: 0.01 °C as shown on front panel touch screen.

Calibrated Accuracy: +/- 0.1 °C or better, calibrated traceable to N.I.S.T.

### **Component Flow Path**

Mixture contacts only glass, Teflon® and stainless steel (other materials available; specified a time of purchase). Suitable for reactive component gases.

**Flow Control**

Electronic mass flow control and measurement.

Standard Control Range: 0.25 to 5.0 liters per minute (250 sccm to 5000 sccm).

Optional Ranges (specified at time of purchase):

- 0.1 to 1.0 liter per minute
- 0.5 to 10.0 liter per minute

Flow Measurement Calibrated Accuracy: The lesser of  $\pm 1.5\%$  reading and  $\pm 1\%$  at Full Scale, calibrated traceable to N.I.S.T.

Flow Change: 0 to Full Scale: < 10 sec (2 time constants) at ambient pressure.

**Input Pressure**

Input Dilution Gas regulated to 50 psig at maximum flow setting (input pressure required >50 psig).

**Output Pressure**

Ambient to nominal 20 psig (138 kPa) maximum for span out mixture. (Output pressure above ambient requires additional interface, e.g., KIN-TEK Interface Module, to convert ambient span gas stream to a pressurized stream).

**Output Concentration Range**

Below 1 ppb to over 1,000 ppm (depending on permeation tube emission rate and dilution flow rate).

**Modes of Operation**

Standby, Zero, Span, Purge.

**Local Interface**

Color touch screen display with virtual keypad

**Remote Interfaces**

Standard RS-232 and Ethernet, FlexLink™ software, User supplied PC.

**Communication Protocol**

Modbus RTU

**Computer Control**

The microprocessor in the FlexStream™ Base module calculates and controls the total flow required to generate the target concentration(s) of trace component(s) specified by the user based on permeation tube parameters.

**Environmental Conditions**

Operating (Ambient) Temperature: 5 °C to 40 °C. KIN-TEK requires that the oven setpoint temperature be maintained at least 5 °C above the ambient room temperature.

Storage Temperature: 0 to 50 °C. Relative Humidity: Maximum of 80% for operating (ambient) temperatures up to 31 °C decreasing linearly to 50% at 40 °C.

Maximum Altitude: 2000 m (only for CE-rated modules).

**Power Requirements**

United States: 110-125 VAC, 2A, 60 Hz

European Union (EU): 230V~, 1A, 50/60 Hz

European Electronic Fuse Replacement: F 1A L 250V

Purchase option (non-EU): 220-250 VAC, 1A, 50/60 Hz

**Dimensions**

7.5 inch (18.4 cm) Width x 13.5 inch (34.3 cm) Height x 20 inch (50.8 cm) Depth

All dimensions are approximate.

**Weight**

29 lb (13.2 kg) for Standalone module with portable carrying case. All weights are approximate.