DYNACALIBRATOR® MODEL 235/345 CALIBRATION GAS GENERATOR

DESCRIPTION

The Dynacalibrator® Models 235 and 345 are constant temperature systems designed to generate precise PPM or PPB concentrations of chemical compounds in a gas stream, using permeation devices as the trace gas source for the calibration of a wide range of instruments. They are used for gas chromatography, verifying the accuracy of analytical data generated from air pollution monitoring, industrial hygiene surveys, odor survey programs, tracer studies, and in other instruments that measure gas concentrations.

FEATURES

Two chamber options: state of the art passivation technology or Hastelloy C | Stainless steel cap | Dedicated switched-mode temperature controller with front panel and serial port control | Digital readout for set point and chamber temperature | Power switch with LED indicator light | Stainless steel inlet and outlet fittings for 1/16" tubing (1/4" and 1/8" also available) | Universal power input 110 VAC/230 VAC | Cooling fan

BENEFITS

PPB to high PPM range | Temperature control with an accuracy of ±0.01°C | Economical and flexible alternative to bulky bottled gas mixtures

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ADVANTAGES OVER BOTTLED STANDARDS

Permeation devices from VICI® Metronics offer several key advantages over cylinder-supplied gas calibration standards.

Economy is always a major consideration; customers who have done the arithmetic, factoring in the cost of cylinder purchase, shipment, and disposal, typically discover that the purchase of a Dynacalibrator and a supply of permeation devices will start to save them money in the second year of use.

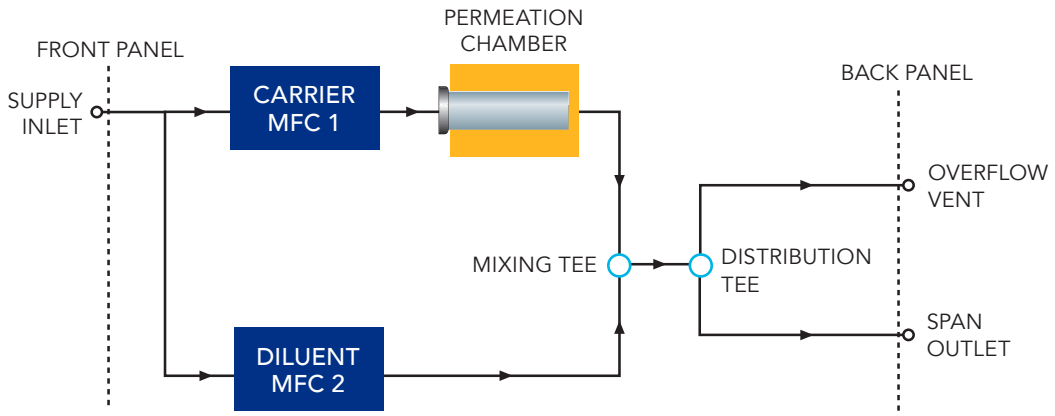
Multicomponent mixtures can be easily generated with a Dynacalibrator and the appropriate combination of permeation devices. This technique also allows the removal of a single component from a gas mixture by simply removing the appropriate permeation device. Alternative methods require expensive custom mixtures or a large number of gas cylinders, which consume valuable lab space as well.

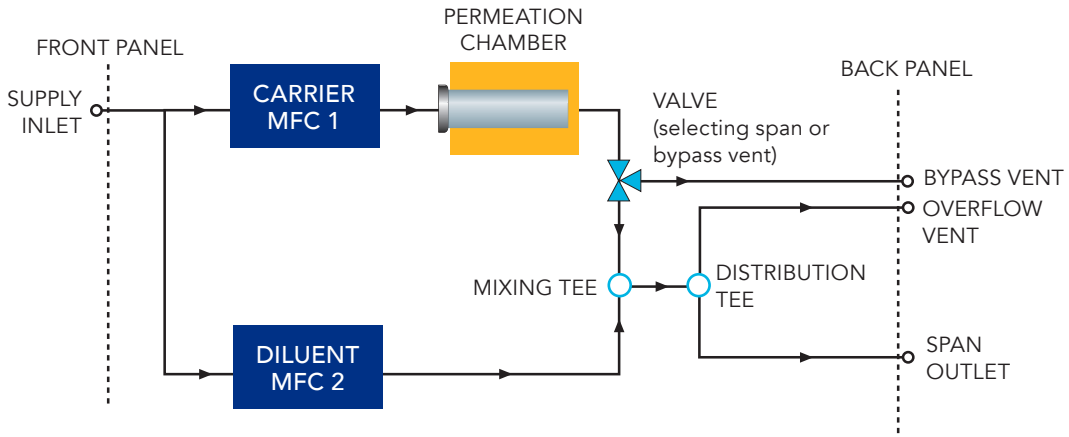
Bottled standards can also have problems arising from degradation of the standard within the cylinder, from changes in the concentration levels as the cylinder pressure changes, and from interaction of calibration components and surfaces.

OPERATING DIAGRAM

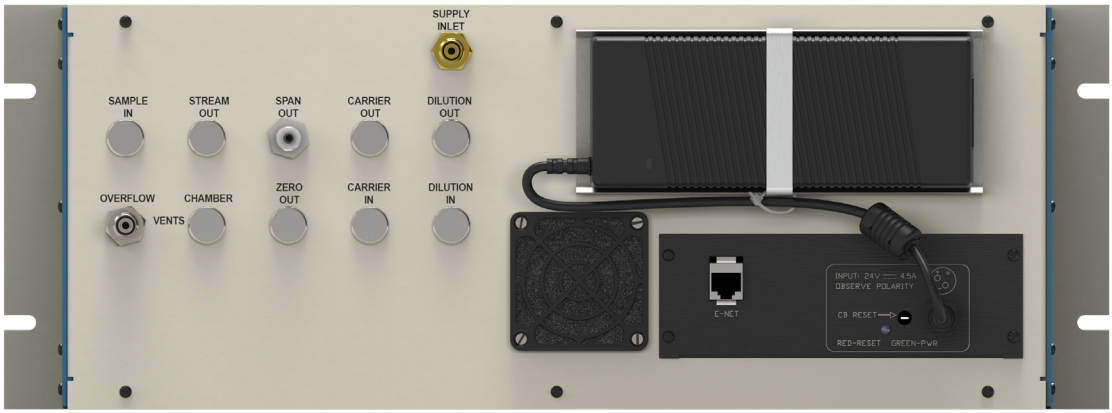
A passivated stainless steel permeation chamber houses the permeation device(s), with measured inert carrier gas sweeping the calibration gas/vapor from the chamber. A digital temperature controller maintains the chamber temperature at a set point with an accuracy of ±0.01°C, traceable to NIST standards. The wide range of temperature settings (5°C above ambient to 110°C) allows the end user to generate a wide range of volumetric concentrations for both low and high vapor pressure chemical compounds, establishing or changing the desired volumetric concentration by simply varying the carrier flow.

The **Model 235** has no valves to redirect the flows in a manner which would provide a zero setting for this instrument. The dilution stream and carrier streams pass through the mixing tee at all times.





The **Model 345** has one valve to direct the carrier flow. In the Span position, the dilution stream and carrier streams pass through the mixing tee.



1.5. Specifications

OPERATIONAL	
FLOW CONTROLS:	
Output Concentration Range	Fractional ppb to hundreds of ppm
Carrier Flow Rate (nominal)	100 sccm
Dilution Flow Rate Range (nominal)	1 to 20 SLPM *(depending on model)
Dilution Flow Accuracy	± 1% of setpoint from 20-100% of full scale ± 0.2% of full scale between 2 to 20% of range
Operating Temperature Range	10° to 50°C (50° to 122°F)
PERMEATION CHAMBER:	
Temperature Range*	30° to 110°C *(must be at least 2°C above ambient)
Temperature Setpoint Accuracy	± 0.05°C (NIST-Traceable) from 30°C to 110°C
Temperature Setpoint Repeatability	± 0.01°C at any fixed ambient temperature
Temperature Equilibrium Time	1.5 hours for highly dynamic changes
Chamber Size	Accepts devices up to 23.5 cm (9.25 in) long x 1.6 cm (0.62 in) diameter
Modes	Span Out (auto or manual)
Operation Duty Cycle	Continuous
ENVIRONMENTAL	
Operating Noise Emission	45 to 50 dBA
Ambient Operating Temperature	20°C to 35°C
Operating Humidity	0 to 95% relative humidity
Storage Temperature	10°C to 40°C
Storage Humidity	0 to 50% relative humidity
POWER REQUIREMENTS	
Voltage, Frequency, Power	100-240 VAC, 50/60 Hz, 150 Watts maximum

ACCESSORIES

Power cord for 110 and 220 VAC | Forceps for removing and inserting permeation devices | Tool for removing and securing permeation chamber cap