



Sonimix 2106 Gas Dilution Calibrator



KEY BENEFITS

Accuracy - Unmatched precision on concentration down to 0.5 % of concentration

Stability - No influence from ambient pressure or temperature thanks to the sonic nozzle technology

Wide dilution range – Up to 1024 programmable calibration points

Unsurpassed long term stability - Sonic nozzle have unaffected physical properties and reduce the need for frequent calibrations

Ergonomics - Large color display with touch screen interface, remote PC software and optional Wi-Fi port

Proven metrological performances – Calibration in our ISO 17025 accredited laboratory before delivery and during the entire lifetime of the instrument

Robustness - Compatibility for corrosive gases (% range) with nozzles made of nickel and gold

Reliability - Sonic nozzles are much simple than MFC's, no electronic regulation is used, less components

Connectivity - Gas Cal software, Ethernet, Wi-Fi, RS-232, for remote control and USB data transfer

Regulations compatibility - Design according to ISO 6145-6. Exceeds requirements of the US EPA 40 CFR Part 51 Method 205 Appendix M.

GPT - Optional ozone generator for NOx converter test

Auto-Diagnostic /-validation routines - with internal references to check instrument operation (patented)

Return on investment – Reduce gas cylinders costs

Performances – Many 10 calibration commands can be programmed and activated manually (10 points), automatically or remotely (100 points)

Safe - Smart purge routine removes toxic compounds on the gas path

APPLICATIONS

The **Sonimix 2106** is dedicated to following applications:

- Calibration and linearization of gas monitors for Air Pollution Monitoring networks
- To fulfill the ISO 14481 norm CEM (QUAL 1 to QUAL 3)
- To perform quality control of gas monitors in the laboratory
- To calibrate gas monitors / sensors for gas analyzers production
- To generate accurate gas standards and mixtures for R&D purpose
- As reference in the automotive industry for engine test benches

DESCRIPTION

For more than four decades, the heart of the **Sonimix 2106** is the unique, sonic nozzle technology—the ultimate in dilution technology. It generates accurately, in fixed steps, a large range of binary gas standards by dilution from high concentration gas cylinders and dilution gases like air or nitrogen.

It provides state of the art precision, stability and reproducibility of generated mixtures by the unique combination of sonic nozzles, and high precision mechanical pressure regulators.

The sonic nozzle technology is described in the ISO 6145-6 and its simplicity provides not only metrological superior performances but allows the use of corrosive gases. It reduces also the calibration frequency of the instrument.

Accurate dilution calculations are based upon the internal database of thermodynamic gas constants and the gas sources used, which can be also a mixture of several gases. Dilution sequences and device configurations can be done manually, automatically or remotely from the front panel, via RS 232, Ethernet, Wi-Fi or by remote connection using the GasCal software.

All data related to gas sources, mixtures "recipes" and scenarios are stored in the non-volatile instrument memory.

Some models are available with Auto Calibration and Auto Diagnostic functions for quick check of the instrument performances.

Optional ozone generator and analyzer are available for Gas Phase Titration and NO₂ generation.

The instrument is calibrated (option) into our ISO 17025 accredited laboratory and a report is provided with uncertainty calculations. In this way the device can be easily linked with National Standards (NIST, METAS, UKA, etc).

Specifications

Dilution unit

Dilution points :	10 / 16 / 64 / 128 / 256 / 1024 according the model
Dilution principle :	Sonic nozzles (according ISO 6145-6) and high precision pressure regulators
Accuracy for flow :	< 0.25 % of set point for the dilution gas line, < 0.50 % of set point for the source gas line
Repeatability on flow :	< 0.1 %
Accuracy on concentration :	< 0.5% relative, achieved on the highest dilution ratio
Repeatability on concentration :	Better than 0.2% relative
Gas inlet requirements	Dilution gas: Requires dry (-40°C DP) Air, Nitrogen or other gas, 2 ports Source gas: compatible with corrosive gases up to 10% (if option installed), up to 12 ports Pressure: 3 ± 0.3 bar rel Fittings: 3 x Swagelok 1/4" (Air, Nitrogen, Span gas), optional up to 12 x Swagelok 1/4" per instrument
Gas outlet specifications:	Flow: 2.5 ± 0.25 L/min (other flow rate upon request) , adjustable by by-pass valve in front of the instrument Pressure: Outlet up to 1 bar rel (other pressure upon request) Fittings: 3 x Swagelok 1/4" (Mixture, Waste, Purge)
Response time :	< 15 sec
Auto Diagnostic :	Diagnostic of pressure regulator, valve opening, nozzle functioning, drift
Factory calibration :	By laminar flow with uncertainty < 0.2% of reading or 0.02% full scale, whichever is greater
Operation :	Up to 10 defined calibration points, sequences, during 24 hours
Warm up time :	No warm up time
Interfaces :	LCD touch pad graphic display VGA 640 x 480
Communications :	RS 232 (AK protocol), Ethernet TCP/IP, USB (audit trail download, soft update), Wi-Fi (option),

NOx converter tester (option)

NO ₂ range :	5 to 50 ppm / 25 to 100 ppm / 300 to 1000 ppm, all at 2.2 NL/min
Stabilization time :	Less than 1 min (once the device has warmed up)
Inlet fittings :	2 x Swagelok (NO, air) 1/4"
Outlet fittings :	2 x Swagelok (NO/air or NO ₂ /N ₂ , purge) 1/4"

Electrical specifications

Power consumption :	Max 150 [Watt]
Power requirements :	230V/50-60Hz - 115V/60Hz - 100V/50-60Hz

Physical specifications

Operating temperature:	15°C - 40°C
Dimensions [cm] :	19" 3HE/84 TE , 500mm deep / portable casing in option
Net weight [kg] :	15 to 20 Kg depending on the model

Models - Options – Consumables

Models

- SONIMIX 2106-10 - from 10% to 100% in 10% step
- SONIMIX 2106-16 - from 6% to 100% in 6% step
- SONIMIX 2106-64- from 2% to 100% in 2% step
- SONIMIX 2106-128 - from 1% to 100% in 1% step
- SONIMIX 2106-256 - from 0.5% to 100% in 0.5% step
- SONIMIX 2106-1024 - from 0.1% to 100% in 0.1% step

Options:

- Corrosive gases compatibility
- ISO 17025 calibration and report
- Auto calibration and auto diagnostic *Only for 16, 32, 64, 128, 256 & 512 points
- Wi-Fi port + Note Pad
- Total flow 2.5 NI/min or 5 NI/min
- PC software for remote control
- Multiplexer for up to 12 inlets (max 3x4 inlets or max 1x4 if NOx converter tester installed)
- Portable casing

Power

- Voltage 230V / 50/60 Hz
- Voltage 117V / 50/60 Hz
- Voltage 100V / 50/60 Hz

NO₂ converter tester

- Converter 5 to 50 ppm
- Converter 25 to 100 ppm
- Converter 300 to 1000 ppm

Consumables

- Set of inlet filters (5 pcs)

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