

CVC

Gas Flow Calibrator System

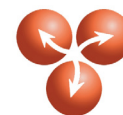


The CVC Gas Flowmeter Calibration System is the ideal solution for applications where accurate and versatile gas flow calibration is required. It offers a combination of high performance, efficiency and convenience. Computer controlled and based on the Multiple Sonic Nozzle principle it quickly and accurately calibrates virtually any type of gas flowmeter.

State of the art data acquisition hardware features digital and analog (18 bit) inputs and serial communication with the PC based control console. This calibrator truly offers unsurpassed accuracy and convenience of use.

The popular **CFlowPro** LabVIEW™ based data acquisition and control software ensures optimal man-machine interface and ease of operation. Report and graph generation features are accessible at the touch of a button.

Traceability to National and International Standards (PTB, NIST, NEL, LNE, etc.) is easily achieved and maintained through the use of appropriately certified pressure and temperature standards.



Data Acquisition Features

The CVC calibrators use CFlowPro, the LabVIEW™ based Flow Calibration software for data acquisition and processing functions. This is a visual, user friendly interface specifically designed for flow calibration environments.

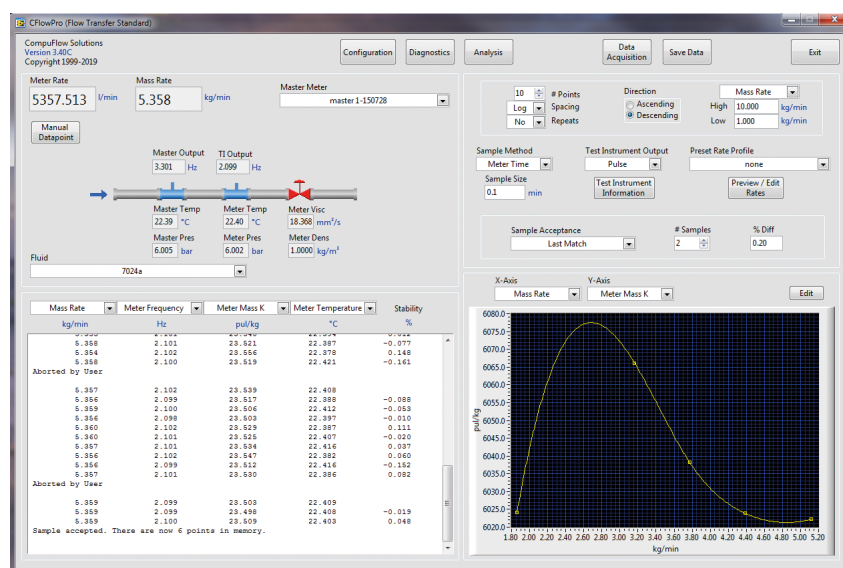
It is currently in use by hundreds of flow laboratories worldwide including National Institutes.

CFlowPro is the culmination of years of effort and extensive testing to ensure a simple and highly intuitive user interface, supported by the most accurate flow calculation algorithms which operate seamlessly and efficiently.

On the Data Acquisition User Interface all crucial information is readily viewable on a single screen.

The process mimic (upper left), displays the values of all critical parameters in real time.

The calibration settings (upper right) configure the software to automatically select and record the desired flowrates in any desired sequence.



As data are collected, they can be observed in real time in numerical as well as graphical formats (bottom).

Calibration files are stored in MS Excel compatible format for easy customization and importation into other software programs.

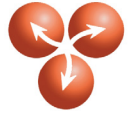
Cubic Spline curve fitting is employed to compensate for the non-linearity of pressure and temperature transducers ensuring optimal accuracy.

18 bit analog I/O hardware ensures that volumetric and mass flowmeters with analog outputs (0-5 V, 4-20 mA, etc.) are calibrated without degradation in accuracy.

Extensive built-in diagnostics using a graphical interface make process fault identification quick and easy.

Density correction for converting mass flow to volumetric is a standard feature.

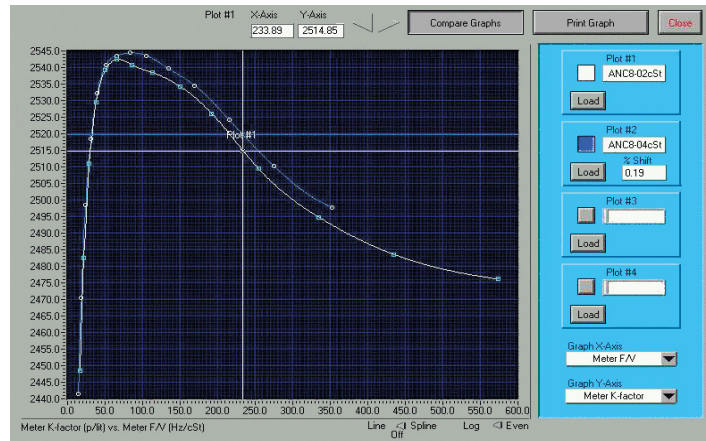
Temperature and pressure corrections are employed to compensate for the effects of outside influences on the master Sonic Nozzles, the flowmeter under test as well as the gas used for calibration.



Advanced Analysis tools

The Analysis portion of the CVC **CFlowPro** software allows presentation of calibration data in a wide assortment of formats. Advanced graphical presentations of a multitude of variables can easily be generated.

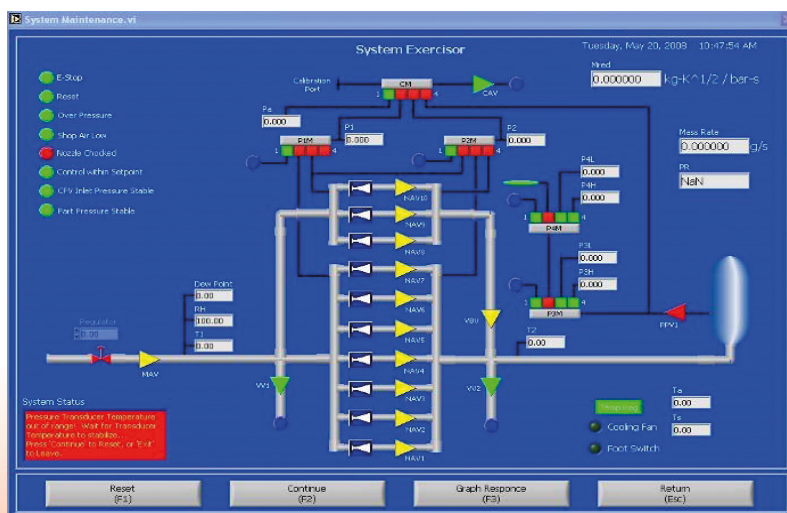
- Multiple graphing capability allows for easy comparison of historical data and evaluation of process changes over time.
- Editing routines are built in and kept under password control.
- Reports in a wide variety of configurations can be printed with the push of a button



Hardware Features

The CVC Sonic Nozzle Gas Flow Calibrator hardware has been designed to be accurate and robust with a standard Notebook or Desktop PC serving as control console.

- On-screen selection of Sonic Nozzles and Pressure Control and real time flow rate calculation allows fast and accurate setting of flow rate
- Digital and analog (18 bit) signal processing is performed within the hardware interface unit which communicates with the PC via serial link.
- Accepts input from any device that generates frequency or analog output.
- Double Chronometry is employed to eliminate timing errors and improve overall accuracy.

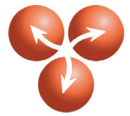


- Pressure and Temperature inputs for flow rate calculation and correction:

- o Master Sonic Nozzles
- o Meter Under Test
- o Ambient conditions

- Automation options offer capability to fully program the calibration process and place it under computer control.

Flow Meter Inputs



The CVC is capable of calibrating practically any type of gas flowmeter:



- Frequency generating flowmeters
Volumetric or mass
Turbines, Vortex, etc.
TTL or 0-10 V pulse.
- Analog output generating flowmeters
Mass or volumetric
Thermal Mass, Coriolis, DP,
Sonic Nozzles, LFE, etc.
4-20 mA, 0-5 VDC, 0-10 VDC
- Visual output flowmeters
Variable Area, Target, etc.



Performance Specifications

Flow Range:	10 – 20000 nlit/min Depending on number of nozzles installed. Contact Factory
Gases:	Air and other non-hazardous gases
Accuracy:	+/- 0.5 % Of Reading depending on nozzle calibration
Repeatability:	As good as +/- 0.1 % Of Reading, depending on the type of flow meter being tested and the application conditions.
Pressure Range:	Up to 8 bar (higher pressures available)
Temp. Range:	10-50 °C

TrigasDM:
ISO 9001:2015
CERTIFIED



Calibration by TrigasFI:
ISO 17025:2005
ACCREDITED

