CALIDUS

micro GAS CHROMATOGRAPH

FASTER

SMALLER

SMARTER

EASIER

GREENER

FALCON

Fast Analytical Solutions & Technologies

Falcon Analytical Introduces the *CALIDUS*™ microGC Faster, Smaller, Smarter, Easier and Greener than Traditional Gas Chromatographs

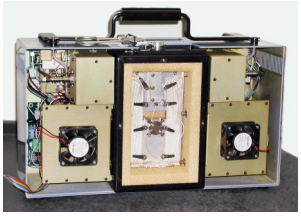
***CALIDUS*™ microGC with optional autosampler and laptop interface**.

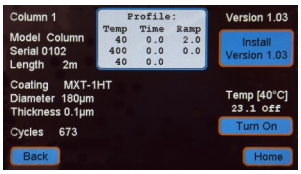
FASTER – With analytical cycles 10 to 50 times faster than traditional gas chromatography, the ***CALIDUS*™ microGC** vastly increases responsiveness for the data consumer. Less time spent waiting on results means more productivity and timely control of the measured process. In the hands of lab and process managers, the speed of the *CALIDUS* microGC can translate into better quality products, produced faster and more profitably than ever before.

SMALLER – Elimination of the air bath column ovens, required for traditional gas chromatography drastically reduces the *CALIDUS*™ micro gas chromatograph footprint. Yet, the *CALIDUS* microGC delivers all the functionality of the much larger, high thermal mass, traditional GCs. At less than 25 pounds, *CALIDUS* offers advanced analytical chemistry in a highly compact and transportable package.

The smaller size of the *CALIDUS* microGC means more efficient utilization of space and, ultimately, bigger profits for the user. The price per square foot for laboratory bench top space may only be exceeded by the cost of installation for online systems in the processing plant. The small *CALIDUS* footprint allows for higher installation density in the laboratory and in shelters for process applications. This small footprint also enables process installation schemes that place the analyzer much closer to its sampling point in the plant. Closer proximity means less sample lag time, as well as more representative measurements for process control.

SMARTER – Using modern computing with standard operating systems and software, the automated *CALIDUS* microGC frees valuable technical resources from the daily grind of interpreting and validating chromatographic results. Built-in ***LineUp***^{TM} technology from ***Infometrix***, ***Inc.*** virtually eliminates misidentification of components and drastically reduces the need for expensive calibration sample runs. Less time spent calibrating the analyzer means more time spent on more economically valuable diagnostics, most notably measured process deviations from the setpoint.





EASIER – Proprietary, plug and play temperature-programmed gas chromatography column modules allow the *CALIDUS* microGC to avoid the complicated and troublesome valve schemes used in isothermal process analyzers and many lab gas chromatographs. Global patents are pending for this unique micro gas chromatograph.

Correlation between laboratory systems and online process control systems becomes realistically possible with the *CALIDUS* microGC, because both physical packages use the same measurement principle, hardware and methodology. Applying the *CALIDUS* microGC in-lab and online means less time spent reconciling lab and process measurements and validating which result is correct. More time can be spent working on more valuable, direct process optimization.

GREENER – The obvious and extraordinary features and benefits of the *CALIDUS* microGC combine to yield something that may not be that evident: ***Green Process Analytical Chemistry***. *CALIDUS* is greener – whether in the control laboratory, online in the processing plant, near line in the pilot plant or when transported for field measurements. Consuming less than 300 Watts in operation, the *CALIDUS* microGC uses a small fraction of the traditional gas chromatograph consumption rate of up to 3000 Watts.

With analytical cycles that are a minimum of 10 times faster and the low electrical load needed for operation, the *CALIDUS* microGC power consumption per analysis is 1% or less of the energy required by traditional gas chromatography. Combine these savings with the reduction in workload for air conditioning systems and the *CALIDUS* solution is greener still. The *CALIDUS* product life cycle environmental impact from manufacturing throughout its useful lifetime to disposal is far less than traditional GCs.

THE RESULT – Faster, Smaller, Smarter, Easier and Greener = better quality, increased productivity, profitability and versatility, with far less hassle and environmental impact. That summarizes the successful, business application equation for the ***CALIDUS***^{TM} **microGC**.

Please review all the content in this brochure and then contact Falcon Analytical to discuss your potential applications.

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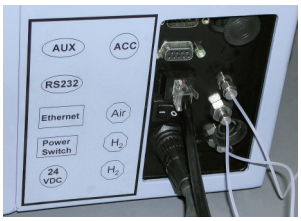
General Specifications shown here.
See specific model literature for details.

Operating Environment
Operating Temperature Range: 0°C to 35°C
Storage Temperature Range: -20°C to 60°C
Relative Humidity Range: 0 to 100% (non-condensing)

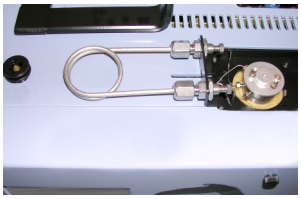


Power Requirements
Less than 300 watts peak power at startup, practical use < 200 Watts for gas or liquid analyses 24 VDC supplied from external power supply, 100 -240VAC using 50/60Hz AC.

Safety
General purpose, light industrial (lab instrument environment)
CE Mark and Nationally Recognized Testing Laboratory (NRTL) certified (TUV Rheinland) pending.

Gas Supplies
50 PSIG, 99.995% hydrogen at up to 250 ml/min, 50 PSIG Zero air for FID operation.

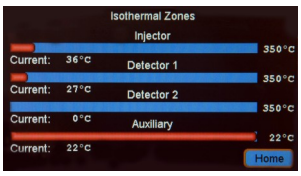
Sample Requirements (via split/splitless injector with septum purge)
Air or gaseous samples. Membrane, SPME and static and dynamic headspace extracts. Direct liquid injections neat or dilute organic solvents (DCM, Hexane, MEK, Toluene, methanol, etc.).



Dimensions
17" wide by 8.5" deep by 11" high, ~ 25 lbs. Uninterrupted power supply and data acquisition computer external to the base unit.

Controls/Outputs
All functions and parameters can be set via Ethernet or USB. Start analysis can be triggered from the instrument display panel or by method from an external computer running ChromPerfect Software™. Column signals are digitized for each column in 24-bit resolution, the FID at 100 Hz and TCD at 50 Hz. ChromPerfect also supplies a full array of control and processing options for other analyzer functions and settings.

Front Panel Displays
The front panel is an LCD touch screen supplying temperature and pressure readings, function on/off, power on/off, status of analysis columns (isothermal, programming, cool down, ready, and cycles run).



Performance (application dependent)
Repeatability of ± 1% RSD or better (area) and of ± 0.1% RSD or better (retention times). Analysis times for VOCs can be <20 seconds and for SVOCs <60 seconds. Dynamic range depends on detector used and application (FID typically 10^5).

Why Falcon?

Why did the producers of the ***CALIDUS***^{TM} **microGC** choose the name **"Falcon"** for their company and the name **"Calidus"** for their first proprietary analyzer?

The *Peregrine Falcon* (*Falco Peregrinus*) has been a symbol of speed and power for centuries. Falconry, the use of birds of prey in hunting, dates back to the year 2000 B.C. Because of its strength, intelligence and maneuverability, the Falcon was always prized among those who hunted with powerful birds.

The Peregrine Falcon can reach speeds over 200 mph (320 km/h) in a dive and flying speeds of up to 120 mph (192 km/h), making it the fastest animal on the planet. Highly versatile and adaptable, the Falcon can be found nearly everywhere on Earth.

The Falcon is compact, with a body length of 13 to 23 inches (34 to 58 centimeters). The Falcon is light, with the heaviest examples of the species weighing only about four pounds. The Falcon is reliable and devoted. It mates for life.

Why Calidus?

The Calidus Falcon (*Falco Peregrinus Calidus)* may be the heartiest and most adaptable of all the Falcons, ranging from the Arctic to Sub-Saharan Africa. While some races of Falcons have been seriously threatened by environmental challenges, the Calidus has continued to thrive in all environments. Symbolic of the portability of the analyzer bearing its name, the Calidus is fully migratory, moving from its northernmost range to its southernmost habitat with the turn of seasons.

It is easy to understand why this company chose the Falcon and the Calidus subspecies to symbolize their enterprise and their extraordinary new gas chromatographic analyzer.

CALIDUS

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The ***CALIDUS™*** **microGC** is a fast programmed temperature micro gas chromatograph consisting of . . .

Heated split/splitless injection port including septum purge and 350°C maximum operating temperatures. The inlet can accept gas or liquid syringe injections or optionally use an automated gas or liquid sample valve.

Two column modules for simultaneous detection on two individual column types.

Plug and play, precalibrated and individually programmed temperature column modules, enabling dual simultaneous analysis on the same sample, using different separation media and temperature profiles for maximum selectivity.

Flame Ionization Detection and Thermal Conductivity Detection (constant temperature filament) are available. Maximum detector operating temperature is 350°C.

ChromPerfect chromatography data system running on a Windows PC.

System configurations enabling measurement of fixed gases up through components with boiling points equivalent to n-C_{50}. Samples can be gas or liquid phase and can be directly injected into the split/splitless injection port. Optional SP/ME and other sampling methods are available.

See the technical specifications inside for more information.

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