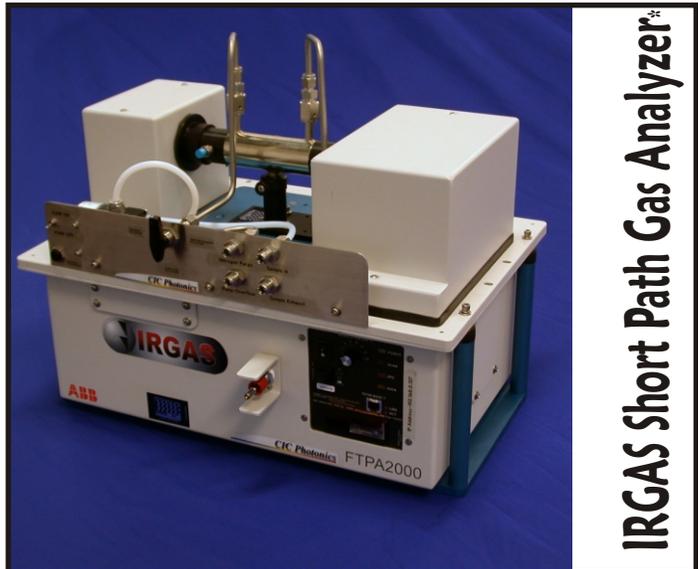# IRGAS SPA

CIC Photonics, Inc. Is dedicated to providing today's growing industries with the highest sensitivity and fastest time response instrumentation. Our analyzers are used worldwide in a variety of different arenas, and although CIC Photonics has a set of core systems, we pride ourselves on truly meeting the needs of our customers by adapting the core analyzers to their specifications.

Our IRGAS Short Path Gas Analyzer incorporates a rugged FTIR spectrometer with a stainless steel short path gas cell. This combination produces a product that can handle some of the most demanding applications, while still providing high energy thru puts of 90 %. The IRGAS Short Path Gas Analyzer is ideal for applications requiring limits of detection in the % level to 50 ppm, and has rapid gas exchange due to it's low internal volume.

Included with the IRGAS Short Path Gas Analyzer is CIC Photonics patented SPGAS analytical software package. This package does everything from concentration tracking and hardware managing to allowing the user to recalculate previously collected data within minutes.

IRGAS Short Path Gas Analyzer*

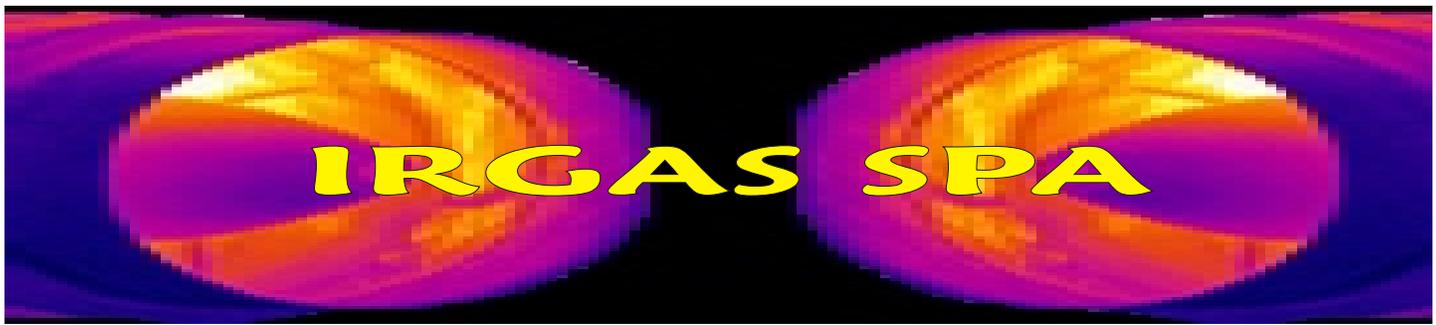* Analyzer pictured contains optional manifold, pump, and valving.

Applications

- Combustion Gas Monitoring
- EPA Protocol Testing
- Emission Gas Analysis
- Stack Gas Analysis
- Gas Certification
- Research Studies
- Semiconductor Monitoring
- Air Monitoring
- Leak Detection
- Moisture Analysis
- Corrosive and Toxic Gases

Limits of Detection

Species	Formula	20cm Scout (ppm)
Water	H_2O	2.00
Ammonia	NH_3	0.50
Carbon Dioxide	CO_2	0.30
Carbon Monoxide	CO	2.40
Formaldehyde	H_2CO	7.00
Hydrogen Chloride	HCl	10.00
Hydrogen Fluoride	HF	2.50
Methane	CH_4	0.80
Nitrogen Dioxide	NO_2	1.80
Nitric Oxide	NO	3.00
Nitrogen Trifluoride	NF_3	7.00
Silane	SiH_4	0.50
Tetrafluorosilane	SiF_4	0.20
Sulfur Dioxide	SO_2	3.00
Tetrafluoromethane	CF_4	0.10

* 2 minutes initial reading, 10 seconds thereafter
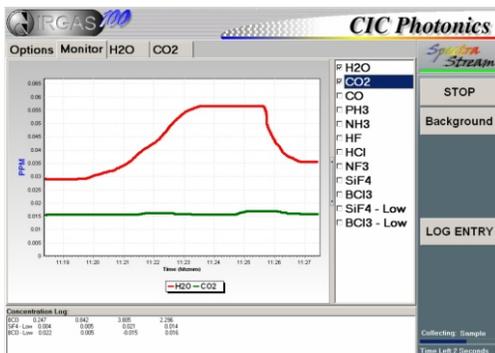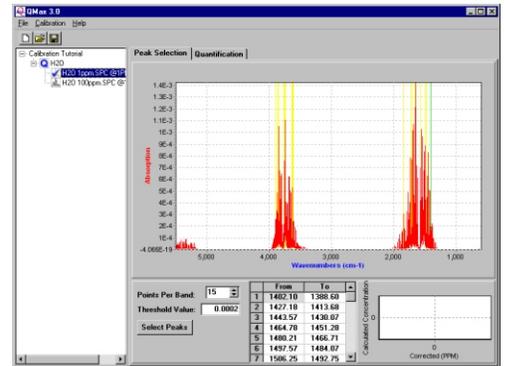
System Specifications

System Components
Bomen WorkIR Spectrometer
2,5,10,15, & 20 cm Scout-EN Gas Cell

Sensitivity Range
% level to 50 ppm

Pressure Range
Atmospheric to 200 psi

Temperature Range
0°C to 300°C

CIC Photonics

IRGAS SPA

Each IRGAS system is incorporated with CIC Photonics patented SPGAS analytical software package. This package includes the following patented softwares: IRGAS 100 or IRGAS 100 with SpectraStream, Qmax, Configuration Manager, and Reprocessing Tool. These programs provide a unique solution to analytical problems. All of the programs are extremely user friendly so that the programs can be operated by anyone regardless of skill level.

The IRGAS 100 software provides real-time monitoring of species concentration, while also having the capabilities to control various hardware components within the system. Some of the hardware components that can be managed by the software are valves, pressure transducers, temperature controllers, etc....
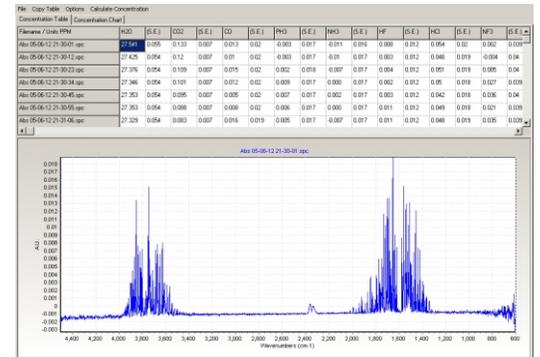
Working with the SPGAS software, SpectraStream allows the user to view changes in species concentrations within seconds of the changes happening through the program's Fast Concentration Tracker by decreasing the response time that is typically associated with FTIR.

The systems calibrations are generated in the Qmax program which permits the user to easily generate calibrations and/or add new species to preexisting calibrations. In addition to creating new calibrations, Qmax can be used to apply correction factors to current calibrations.

The IRGAS Configuration Manager is a program that contains all of the information regarding the system in one central location. In the Configuration Manager the user can find various parameters for the system that can altered to their needs.

Our most recent program added to the software package is the Quantification Reprocessing Tool. This program allows the user to recalculate data that had been previously collected. Instead of having to recollect data for temperature and pressure changes, a user can enter the new parameters in the Quantification Reprocessing Tool and the program will recalculate the data with the new parameters. As well as recalculating new parameters it can reprocess new calibration files that have more or less species being quantified. The Quantification Reprocessing Tool can also be used to determine the accuracy of a calibration file and help to determine the correction factor needed for calibrations. Collected spectra can also be displayed and viewed sequentially in the Quantification Reprocessing Tool allowing the viewer to see slight changes in the spectra.

Analyzer Options

- Digital Analog Output   •Valving Manifold   •Automated Manifold
- Script Editor Software (runs automated manifold)
- Moisture Reduction Stack   •Additional Analyzers (O2, H2, THC)
- SpectralID software (spectral identification program)
- Cabinets/Rack Mount   •Computer   •Pump
- Multipoint Monitoring   •Heated/Unheated Sampling Systems

CIC Photonics