

OA-ICOS™ GLA132-CCIA2 analyzers

CO₂ isotopic analyzers - Ultraportable



Highly sensitive, accurate and fast analyzer for reliable measurement of $\delta^{13}\text{C}$, $\delta^{18}\text{O}$, CO₂ and H₂O.

Measurement made easy

— OA-ICOS™ GLA132-CCIA2
ultraportable analyzer

Features and benefits

- Simultaneous measurements of $\delta^{13}\text{C}$, $\delta^{18}\text{O}$ and CO₂
- Unprecedented stability, precision and low drift
- Measurement rates selectable up to 1 Hz
- Installed and operational in minutes
- Insensitive to hydrocarbons or H₂S
- Extremely high dynamic range allows measurements of elevated CO₂
- Unsurpassed reliability
- Real-time diagnostics

Overview

The ABB OA-ICOS gas analyzers are built on the heritage and extensive track record of Los Gatos Research analyzers, using patented Off-Axis Integrated Cavity Output Spectroscopy (OA-ICOS) technology, the latest evolution in tunable diode laser absorption spectroscopy (TDLAS).

Isotopic measurements of carbon dioxide allow determination of transport, uptake, residence time, sequestration, and depletion modes of carbon dioxide throughout the atmosphere and biosphere. Carbon dioxide is a particularly useful gas for this type of analysis because of its presence in the metabolic processes of living organisms as well as being a by-product of combustion processes.

When making isotopic carbon dioxide measurements, scientists require: (1) accurate measurements over a wide range of mole fractions, (2) high precision, (3) ability to report reliable values even if mixing ratios are rapidly changing, (4) portability, (5) user-friendly interface, (6) low drift, (7) insensitivity to H₂S, NH₃, as well as methane and other hydrocarbons.

... Overview

ABB's patented OA-ICOS technology, a fourth-generation cavity

Specification (air background)

Precision (1 σ , 1 second / 10 seconds / 100 seconds):

$\delta^{13}\text{C}$: 6‰ / 2‰ / 0.6‰

enhanced absorption technique, has many advantages over conventional Cavity Ringdown Spectroscopy (CRDS) techniques such as being alignment insensitive, having a much shorter measurement time, not requiring tight control of cavity pressure and temperature, and not requiring expensive and power-consuming auxiliary elements.

The analyzer includes an internal computer that can store data practically indefinitely on its internal hard drive (for applications requiring unattended longer term operation), and send real-time data to a data logger through its analog and digital (RS232) outputs. Several optional features are available which improve the flow time response, allow multiple inlet sources, or provide for remote access and control of the analyzer via the Internet.

Accessories

| | |
|--------------|---|
| MIU-16 | Multiport Inlet Unit Automated control of up to 16 inlet ports |
| MIU-8 | Multiport Inlet Unit Automated control of up to 8 inlet ports |
| ACC-GPB-CCIA | Gas Pretreatment Box Nafion and Drierite, (2x) 1/4" + (2x) 3/8" Tube |
| OPT-DATALOG | Digital Data Logging Capability Multi-channel data logging option records and synchronizes serial (RS-232) outputs from multiple ABB analyzers and other devices (GPS, anemometers) |

$\delta^{18}\text{O}$: 32‰ / 10‰ / 4‰
 $^{12}\text{CO}_2$: 1.6 ppm / 0.6ppm / 0.2 ppm

Measurement Range (meets all specs):

CO_2 : 380 – 25000 ppm
 H_2O : 4000 – 60000 ppm

Operational Range:

CO_2 : 0 – 50000 ppm
 H_2O : 0 – 70000 ppm (non-condensing)

Measurement Rates:

User-selectable rates up to 1 Hz

Response time:

<30 seconds

Sampling Conditions:

Sample Temperature: -20 – 50 °C
 Operating Temperature: 5 – 45 °C
 Ambient Humidity: non-condensing (0 – 100% RH)

Outputs:

Digital (RS-232), Ethernet, USB

Power Requirements:

115/230 VAC, 50/60 Hz
 66 W

Dimensions (H x W x D):

18cm (7") x 47 cm (18.5") x 36 cm (14")

Weight:

17 kg