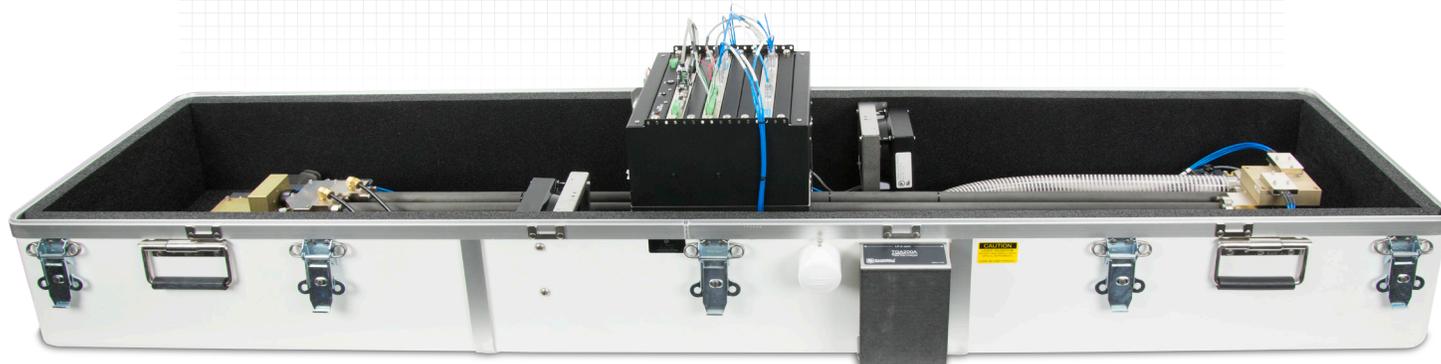


High speed, low maintenance, field rugged

N_2O , CH_4 , or CO_2 isotopes



Overview

The TGA200A Trace Gas Analyzer measures trace gas concentrations in an air sample using tunable-diode laser absorption spectroscopy (TDLAS). This technique provides high sensitivity, speed, and selectivity. Its simple design allows it to measure one of many gases by choosing an appropriate laser source.

The TGA200A features a thermoelectrically cooled laser with a 1.5 m single-pass optical measurement system.

The TGA200A is housed in a rugged environmental enclosure designed for demanding climates ranging from high latitude boreal forests, permafrost and tundra to agricultural intensive mid-latitude regions and equatorial rainforests. Common applications include slow gradient or high speed eddy-covariance flux measurements of nitrous oxide, methane or isotopologs of carbon dioxide in all global ecosystems.

Benefits and Features

- › Small sample cell volume that provides superior frequency response
- › Thermoelectrically cooled laser; no cryogenic cooling required.
- › Upgrades available to existing TGA customers (contact Campbell Scientific for more information)
- › Choice of laser sources to measure N_2O , CH_4 , or CO_2 isotopes
- › Optically-simple measurement system that does not require cleaning of the optical cell in the field
- › 500 Hz measurement rate that supports excellent synchronization
- › Rugged environmental enclosure that allows the TGA200A to be placed outside on the ground
- › Simple Windows® user interface for setup, configuration and real-time monitoring
- › Complete greenhouse gas measurement flux solution provided by combining one or more TGA200As with Campbell Scientific's sonic anemometers, dataloggers, gas analyzers, closed-path gas analyzers, or eddy covariance system
- › Advanced sampling systems also available for low flow applications such as profile gradient or user-supplied chamber measurements



Ordering Information

Closed-Path Trace Gas Analyzer

TGA200A Closed-Path Trace Gas Analyzer. Must choose a laser (see right)

Enclosure Cover

16599 TGA insulated enclosure cover has a rain-proof, white exterior to reflect the sun's heat, and additional insulation to further dampen diurnal temperature fluctuations.

Lasers

- 30478** Laser for measuring nitrous oxide (N_2O)
- 30477** Laser for measuring methane (CH_4)
- 31121** Laser for measuring nitrous oxide (N_2O), and carbon dioxide (CO_2)^c
- 31119** Laser for measuring carbon dioxide (CO_2) and $\delta^{13}C$
- 30877** Laser for measuring carbon dioxide (CO_2), $\delta^{13}C$, and $\delta^{18}O$

Specifications^a

› Measurement Noise^b

Laser part number	Description	Typical Noise ^b
30478	Nitrous Oxide (N_2O)	1.5 nmol mol ⁻¹
30477	Methane (CH_4)	7 nmol mol ⁻¹
31121	Nitrous Oxide (N_2O)	1.8 nmol mol ⁻¹
	Carbon Dioxide ^c (CO_2)	0.3 μ mol mol ⁻¹
31119	Carbon Dioxide (CO_2)	0.15 μ mol mol ⁻¹
	$\delta^{13}C$	0.5 ‰
30877	Carbon Dioxide (CO_2)	0.5 μ mol mol ⁻¹
	$\delta^{13}C$	2 ‰
	$\delta^{18}O$	2 ‰

- › Measurement Rate: 500 Hz
- › Sample Cell Volume: 200 ml

Physical Specifications

- › Length: 211 cm (83 in)
- › Width: 47 cm (18.5 in)
- › Height: 55 cm (21.5 in)
- › TGA200A Weight: 62.8 kg (138.5 lb)
- › 30981 Power Module Weight: 5.4 kg (12.0 lb)

Power Requirements

- › Analyzer: 90 to 264 Vac; 47 to 63 Hz; 34 W (maximum), 22 W (typical)
- › Heater: 90 to 264 Vac; 47 to 63 Hz; 150 W (maximum), 50 W (typical)

^aSubject to change without notice.

^bAllan deviation with 100 ms averaging time.

^cBased on the $^{13}C^{16}O^{16}O$ isotopolog