These Analyzers are designed to withstand high humidity and are ideal for measuring methane in rice paddies.

METHANE ANALYZERS

FAST • LOW POWER • HIGH PRECISION

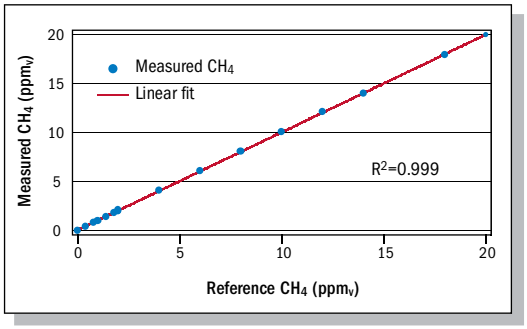
For your convenience, we now offer three versions of our popular methane analyzer. These instruments are designed to work in ambient air and to deliver accurate results at rapid response rates. If you require the fastest response rate possible (data rate up to 20 Hz), you will want to use our Fast Methane Analyzer. For applications requiring measurements of CH_4 and CO_2, our Methane/Carbon Dioxide Analyzer and Greenhouse Gas Analyzer measure both gases simultaneously. LGR analyzers are not adversely affected by other atmospheric gases (no cross interferences) or changes in ambient atmospheric pressure (no pressure broadening effects). Also, these analyzers require less than 90 watts and thus may be easily operated on DC battery power with an appropriate AC/DC inverter.

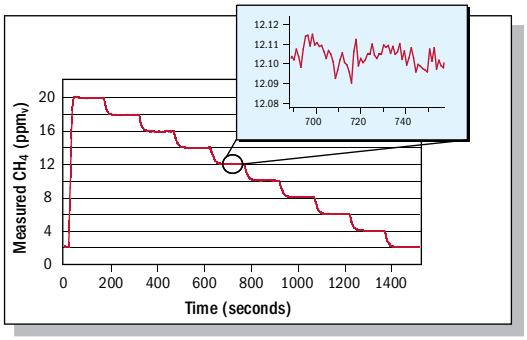
The Fast Methane Analyzer is designed to suit many applications including eddy correlation flux measurements using established micrometeorological techniques, chamber flux measurements, and leak detection from natural gas pipelines. The Methane/Carbon Dioxide Analyzer and Greenhouse Gas Analyzer are designed to suit many applications including ambient air monitoring, chamber flux measurements, and leak detection from natural gas pipelines.

As described in the Theory Section, the measurement strategy is based on high-resolution direct-absorption spectroscopy. As a result, the instrument is effectively self-calibrating. (Under extreme conditions—such as following shipment—you may wish to recalibrate the instrument. There is a Calibration mode available for this.) The instrument includes an internal computer that can store data practically indefinitely on its internal hard drive (for applications requiring unattended long-term operation), and send real-time data to a data logger through its analog and digital (RS232) outputs. In addition, an Ethernet connection allows remote access to data files stored on the instrument's hard drive.

Accurate

Measurements of NIST/ESRL reference standards obtained with the Fast Methane Analyzer.

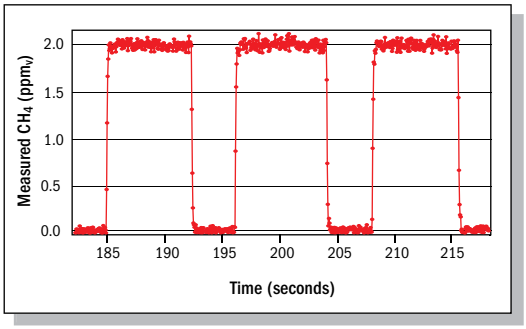


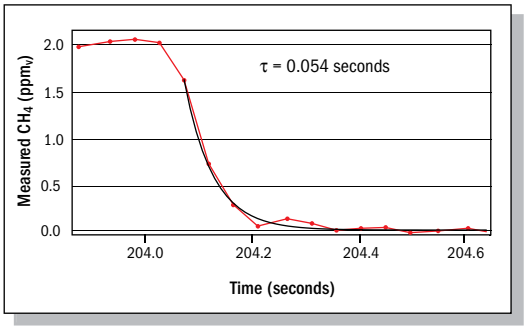


Measurements of methane in calibrated air mixtures over a wide dynamic range. The inset shows the measured methane fluctuations (1 second measurement time) in flowing air.

Fast

Response of the instrument to a repetitive square waveform over 30 seconds of N_2 flow (zero CH_4) and room air (2 ppmv CH_4) to illustrate instrument flow response.





Exponential fit to a portion of the data above yields a 1/e response time of less than 0.1 seconds, sufficient for 10-Hz eddy covariance flux measurements.

3 VERSIONS — FAST CH_4, CH_4/CO_2, FAST $CH_4/CO_2/H_2O$

Fast Methane Analyzer Performance Specifications

Repeatability/Precision (1-σ, 1 Hz)
1 ppbv (typical ambient levels)
Response Time (flow time through cell)
0.05 seconds (with optional external pump — see DSVP)
25 seconds (with internal pump)
Accuracy
Total uncertainty <1% of reading (without calibration)
Measurement Range (total uncertainty <1%, without calibration)
0.3–25 ppmv
Operational Range
0.005–100 ppmv
Outputs
Digital (RS232), Analog, Ethernet
Data Storage
Internal Hard Drive
Display
12" Color TFT
Sample Temperature
0–50 °C
Operating Temperature
5–45 °C
Ambient Humidity
<98% RH Non-Condensing
Inlet/Outlet Fittings
3/8", 1/2" Swagelok®
(fast flow, optional external pump);
3/8", 1/4" Swagelok®
(slow flow, internal pump)
Power Requirements
80 W; 115/230 VAC; 50/60 Hz
(excluding optional external pump)
Dimensions (Benchtop Package)
10" H × 38" W × 14" D
Dimensions (Rackmount Package)
8.75" H × 19" W × 24" D
Weight
60 pounds (27 kg)

Ordering Information

Price: $29,950

Benchtop Package
Model Number: 908-0001

Rackmount Package
Model Number: 907-0001

Please Specify When Ordering

24 VDC (Rackmount Package Only)
Add -2 to Model Number

Opt. Dry-Scroll Vacuum Pump (DSVP)

Model	Name	Price
-9001	Dry Scroll Vacuum Pump Pump (DSVP)	$9,000
-9002	DSVP Maintenance Kit	$400
-9003	DSVP Connection Kit	$150
-9004	DSVP Exhaust Silencer	$325
-9005	24 VDC to 110 VAC Pure Sine Inverter	$800
-9006	24 VDC to 220 VAC Pure Sine Inverter	$1,250

Methane/Carbone Dioxide Analyzer Performance Specifications

Repeatability/Precision (1-σ)
CH_4: 0.7 ppbv
CO_2: 0.2 ppmv
(typical ambient levels at 0.1-Hz rate)
Response Time (flow time through cell)
2.5 seconds (with optional external pump)
25 seconds (with internal pump)
Accuracy
Total uncertainty <1% of reading (without calibration)
Measurement Range (total uncertainty <1%, without calibration)
CH_4: 0.1–8 ppmv
CO_2: 200–16000 ppmv
Operational Range
CH_4: 0.005–30 ppmv
CO_2: 20–64000 ppmv
Outputs
Digital (RS232), Analog, Ethernet
Data Storage
Internal Hard Drive
Display
12" Color TFT
Sample Temperature
0–50 °C
Operating Temperature
5–45 °C
Ambient Humidity
<98% RH Non-Condensing
Inlet/Outlet Fittings
1/4", 3/8" Swagelok®
Power Requirements
80 W; 115/230 VAC; 50/60 Hz
(excluding optional external pump)
Dimensions (Benchtop Package)
10" H × 38" W × 14" D
Weight
60 pounds (27 kg)

Ordering Information

Price: $33,950

Benchtop Package
Model Number: 908-0007

Option - manual injection capability

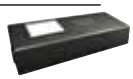
Model	Name	Price
custom (inquire)	Injection of discrete samples via syringe	$4,950

Fast Greenhouse Gas Analyzer Performance Specifications

Repeatability/Precision (1-σ, 1 Hz)
CH_4: 1 ppbv
CO_2: 0.2 ppmv
H_2O: 100 ppmv
(for typical ambient levels)
Response Time (flow time through cell)
0.1 seconds (with optional external pump — see DSVP)
25 seconds (with internal pump)
Accuracy
Total uncertainty <1% of reading (without calibration)
Measurement Range (total uncertainty <1%, without calibration)
CH_4: 0.1–20 ppmv
CO_2: 200–4000 ppmv
H_2O: 7000–70000 ppmv
Operational Range
CH_4: 0.005–50 ppmv
CO_2: 20–10000 ppmv
H_2O: 150–70000 ppmv
Outputs
Digital (RS232), Analog, Ethernet
Data Storage
Internal Hard Drive
Display
12" Color TFT (benchtop package)
Sample Temperature
0–50 °C
Operating Temperature
5–45 °C
Ambient Humidity
<98% RH Non-Condensing
Inlet/Outlet Fittings
1/4", 3/8", 1/2" Swagelok®
Power Requirements
90 W; 115/230 VAC; 50/60 Hz
(excluding optional external pump)
Dimensions (Benchtop Package)
10" H × 38" W × 14" D
Dimensions (Rackmount Package)
8.75" H × 19" W × 24" D
Weight
60 pounds (27 kg)

Ordering Information

Price: $36,950



Benchtop Package
Model Number: 908-0010

Rackmount Package
Model Number: 907-0010

Option - manual injection capability (incompatible with fast flow model)

Model	Name	Price
custom (inquire)	Injection of discrete samples via syringe	$4,950