EGM-5

CO$_2$ Gas Analyzer

With Optional H$_2$O and O$_2$ Measurement

The EGM-5 is a versatile, robust, field portable instrument designed for accurate and reliable measurement of CO$_2$. It is extremely easy to set up and install and our innovative "Auto-Zero" technology ensures long term stability, accuracy and calibration. The EGM-5 requires minimal maintenance without need for factory recalibration that saves both time and money.
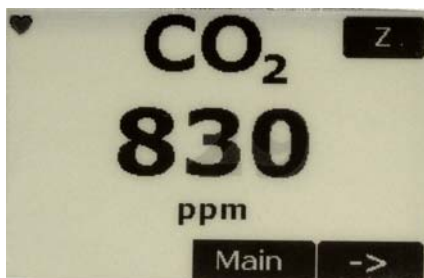
Product Features

- High precision, compact, non-dispersive infrared gas analyzer for CO$_2$
- Accuracy: < 1% over calibrated CO$_2$ range
- CO$_2$ ranges up to 100000 ppm (10%)
- Automatic pressure and temperature compensation
- Numeric and graphical display of data
- Convenient data storage and transfer using USB flash drive
- Operation from AC or DC power inputs
- Large touch display with excellent readability and optimized viewing angle
- Built-in air sampling pump and electronic flow sensor
- Voltage, current and digital output
- Audible and visual alarms/warnings
- Available options include:
    - H$_2$O sensor (Solid state)
    - O$_2$ sensor (Electrochemical cell)
    - Soil moisture
    - Quantum Sensor
    - Soil temperature
    - Temperature and PAR
    - Soil respiration chamber
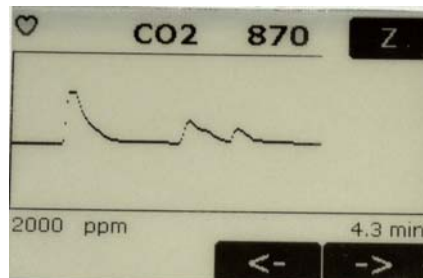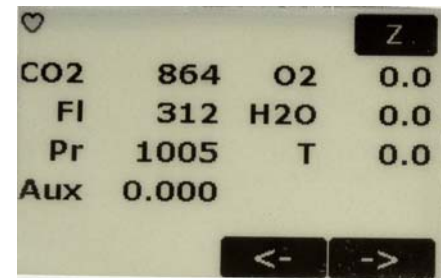   - Canopy assimilation chamber
    - WiFi

Applications

- Ambient air monitoring
- Plant physiology
- Soil CO$_2$ efflux
- Canopy assimilation
- Global change studies
- CO$_2$ sequestration
- Air-sea surface exchange (pCO$_2$)
- Environmental toxicology
- Volcanology
- Bioremediation

Main display for CO$_2$

Graphical display for monitoring CO$_2$ trends and flux rates

Monitor CO$_2$, H$_2$O and O$_2$ from one display

All electrical and pneumatic connections, power, USB flash drive and terminal block are conveniently located on the back panel.

Portability

The EGM-5 is a compact, lightweight (1.5 kg) instrument that is packaged in a rugged, aluminum enclosure with shock absorbing polyurethane base. It is supplied with a very efficient, powerful and rechargeable 7.4V 8.7Ah Li-ion battery capable of providing operation in the field for up to 16 hours. The instrument can also be used with an AC power supply (included) for continuous operation from mains power.

Data Storage

Data storage is virtually unlimited. Data is stored on a USB flash drive for safe storage and easy transfer of data to your PC.

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EGM-5 Technical Specification (Preliminary)

Analysis Method	Non-dispersive infrared, configured as an absolute absorptiometer with microprocessor control of linearization
CO$_2$ Measurement Ranges	0-1000 ppm (µmol mol^{-1}) 0-2000 ppm (µmol mol^{-1}) 0-5000 ppm (µmol mol^{-1}) 0-10000 ppm (µmol mol^{-1}) 0-20000 ppm (µmol mol^{-1}) 0-30000 ppm (µmol mol^{-1}) 0-50000 ppm (µmol mol^{-1}) 0-100000 ppm (µmol mol^{-1}) • Readings are automatically corrected for temperature and pressure.
Pressure Compensation Range	80-115 kPa
Accuracy	< 1% of span concentration over the calibrated range but limited by the accuracy of the calibration mixture
Linearity	< 1% throughout the range
Stability	Auto-Zero at regular intervals corrects for sample cell contamination, source and detector ageing and changes in electronics.
Calibration	User programmable calibration (if required)
Warm-up Time	Approximately 15 minutes
Sampling Rate	10 Hz. Sample data is averaged and output every 1.0 seconds.
Sampling Pump	Integral air sampling pump. Pump can be programmed for both dynamic and static sampling.
Gas Flow Rate	200-500 cc/min (280-340 cc/min is optimal). An internal electronic flow sensor monitors flow rate.
Terminal Block	10 pin terminal block for system inputs and outputs
Analog Output	0-2.5V (CO$_2$ range selectable) and 4-20mA
Digital Output	RS232 and USB
Environmental Sensor Inputs	2 inputs available for use with external chambers and environmental sensors
Alarm	Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)
Data Storage (USB)	USB Flash Drive for data storage in multiple formats
Mini USB	For connection to external PC
Touch Display	2.7" electronic paper touch display with 264 x 176 pixel resolution
Power	Internal, rechargeable 7.4V, 8.7 Ah Li-Ion battery providing up to 16 hours continuous use. Battery life will be reduced if used with external accessories/sensors.
Power Consumption	Warm up: 12W (12V @ 1.0A) Normal operation: 6W (12V @ 0.5A)
Enclosure	Rugged, ergonomic, lightweight aluminum with polyurethane base
Gas Connections	Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing
Operating Temperature	0-50 ^{o}C, non-condensing. External filtration may be required in dirty environments.
Dimensions	20 cm L x 20 cm H 10 cm W (Enclosure only)
Weight	1.5 kg

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