

WMA-4 CO₂ Analyzer

*For Users Who Demand Accuracy, Reliability
And Long Term Stability*

For over 25 years, PP Systems has been manufacturing high quality CO₂ infrared gas analyzers for researchers worldwide. The WMA-4 is designed for applications that demand a high degree of accuracy and control with minimal maintenance.

Calibration

The design of the WMA-4 ensures an inherent calibration stability that has been confirmed by over 25 years experience in gas analysis technology. The WMA-4 does not require CO₂ recalibration (we recommend periodic checks to confirm system integrity). The WMA-4 employs a non-dispersive, infrared measurement technique, coupled with microprocessor-based signal processing, to achieve excellent stability and specificity to CO₂. Our innovative "Auto-Zero" technology ensures fast warm-up, long term stability, accuracy and analyzer calibration. It also minimizes the effects on span (gas sensitivity) of sample cell contamination, source aging, changes in detector sensitivity and changes in pre-amplifier gain.

Measurement Ranges

The WMA-4 can be supplied with two different optical benches. One bench is optimized for measurement of CO₂ in the ranges of 0-1,000 ppm up to 0-30,000 ppm and another optimized for 0-50,000 or 0-100,000 ppm. For users that want to recalibrate the gas analyzer to a new level, this can easily be achieved as long as it is within the range for that particular optical bench.

Integral Sampling Pump

The WMA-4 features an integral, long life air sampling pump designed for continuous operation for long term measurement and control of CO₂. It has a built-in flowmeter for controlling the flow rate through the analyzer.

Power

The WMA-4 is fitted with a universal power supply. Any AC line voltage between 85V AC and 264V AC (and 47Hz to 63Hz) can be applied at the VAC terminals for system power. If AC power is not available, the WMA-4 can be powered by a 12V DC power source for applications that require measurements at remote locations.

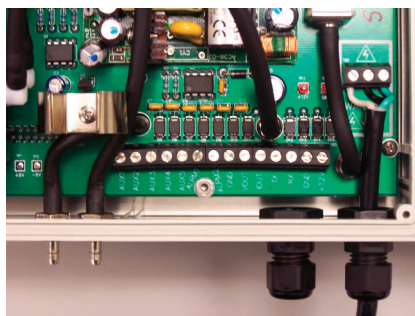


System Features

- High precision, compact CO₂ analyzer
- Accuracy: < 1% of span concentration over calibrated range
- Operation from AC and DC power inputs
- Built-in sampling pump and flowmeter
- Automatic pressure and temperature compensation
- High resolution LCD display
- Voltage, current and digital (RS232) output
- Visual and audible alarm (high and low CO₂)
- Rugged IP65 enclosure
- Compatible with PID controllers for control of CO₂
- Integral data logging capability

For Use In:

- Growth chambers
- Environmental control rooms
- Open top chambers (OTCs)
- Greenhouses and nurseries
- Incubators
- Fruit storage
- FACE sites
- Breweries
- Ambient air monitoring
- CO₂ leakage monitoring
- Indoor air quality and safety
- Industrial monitoring



System power, analog and digital outputs and sensor inputs are connected through the terminal blocks located inside the WMA-4 enclosure.

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WMA-4 CO₂ Analyzer

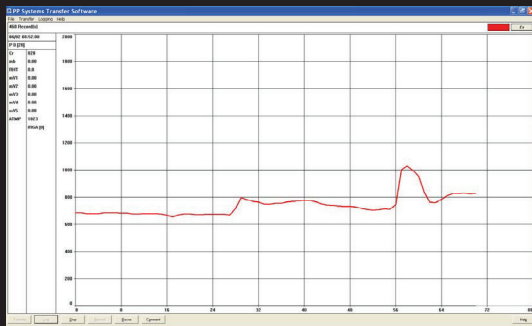
Data Storage and Output

Measurements can be recorded manually or automatically at user selected intervals. Data is safely stored in battery backed RAM and can be later output to a PC in standard ASCII format. Analog and digital output is available for use with external data loggers or for display, collection and recording from an external PC using the Windows® software included.

Flexible, Versatile User Interface

The WMA-4 is an extremely powerful and versatile instrument. The following accessories/sensors can be used with the WMA-4 enhancing measurement capability:

- Humidity sensor
- PAR
- Temperature/PAR
- Oxygen



The WMA-4 is supplied with a Windows® based software program for transferring and logging sensor data. The sensor data may be recorded manually or automatically depending on user specified settings. Stored records (ASCII) can be later imported into your favorite spreadsheet program for further analysis.

On-line help is available to guide you every step of the way.

Dual Channel WMA-4

The WMA-4 can be supplied as a dual channel instrument capable of sampling two separate gas streams through a single CO₂ analyzer. An internal solenoid valve switches between the two channels at user selected intervals. Switching can be performed manually or automatically.

Technical Specifications

Analysis Method

Non-dispersive infrared, configured as an absolute absorptometer with microprocessor control of linearization.

Measurement Range

CO₂: 0-1,000 ppm ($\mu\text{mol mol}^{-1}$)
0-2,000 ppm ($\mu\text{mol mol}^{-1}$)
0-5,000 ppm ($\mu\text{mol mol}^{-1}$)
0-10,000 ppm ($\mu\text{mol mol}^{-1}$)
0-20,000 ppm ($\mu\text{mol mol}^{-1}$)
0-30,000 ppm ($\mu\text{mol mol}^{-1}$)
0-50,000 ppm ($\mu\text{mol mol}^{-1}$)
0-100,000 ppm ($\mu\text{mol mol}^{-1}$)

Custom ranges up to 100,000 ppm upon request. Measurements are automatically corrected for temperature and pressure.

Accuracy

< 1% of span concentration over the calibrated range, but limited by the accuracy of the calibration gas mixture.

Linearity

< 1% throughout the range.

Stability

Automatic Zero at regular intervals, corrects for sample cell contamination, source and detector ageing and pre-amplifier gain changes.

Sampling Pump

Integral, long life 12V AC diaphragm pump.

Gas Flow Rate Through Analyzer

The recommended flow rate through the analyzer is 200-500 ml/min. A flow meter is included for easy flow adjustment (200-1,200 ml/min).

Environmental Sensor Interface

5 input channels are available for external sensors (terminal block)

Air Filter

Filtered sample line (hydrophobic).

Calibration

Default value preset in factory (built-in initialization). Automatic calibration by keypad if required.

CO₂ Control

High and low set points.

Alarm

Visual (LED) and audio alarm

Real Time Clock

Accuracy > 1 minute per month at 25° C, operating temperature 0-70° C. Automatic correction for month end and leap years.

Recording

Manual (by keypress) or automatic at user selected intervals between 1 and 250 minutes.

Data Storage

512K Battery backed RAM (1,250 records)

Response Time

Display/Analog Output: 1.6 seconds

Analog Output

4-20 mA, 0-1V, 0-2V, 0-3V, 0-4V, 0-5V (Linear).

Digital (RS232) Output

9600 baud/8 data bits, 1 start bit/2 stop bits/ no parity. ASCII format.

Display

High contrast 2 x 16 character LCD.

Power Supply

85V AC to 264V AC (47 Hz to 63 Hz) or 12V DC.

Power Consumption

115V @ .15A (maximum)
230V @ .075A (maximum)
12V @ 1.3A (maximum), 0.75A (normal operation)

Gas Connections

Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing.

Housing

High impact, IP65 enclosure

Dimensions

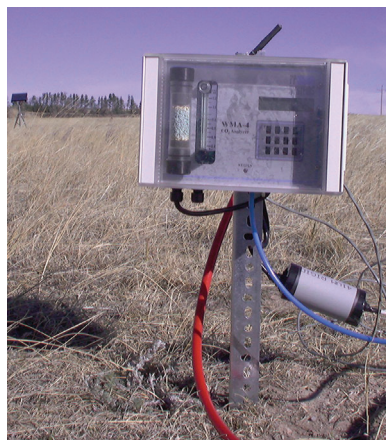
23 cm (W) x 15 cm (H) x 14 cm (D)

Weight

1.9 kg

PP Systems is continuously updating its products and reserves the right to amend product specifications without notice.

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For remote applications, the WMA-4 can be operated from a 12V power source.

Distributor

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