

## WMA-5

# CO<sub>2</sub> Gas Analyzer

With Optional  $H_2O$  and  $O_2$  Measurement

The WMA-5 is designed for accurate, reliable and continuous measurement of CO<sub>2</sub>. It is extremely easy to set up and install and our innovative "Auto-Zero" technology ensures long term stability, accuracy and calibration. The WMA-5 requires minimal maintenance without the need for factory recalibration that saves both time and money.

### **Product Features**

- High precision, compact, non-dispersive infrared gas analyzer for CO<sub>2</sub>
- Accuracy: < 1% over calibrated CO<sub>2</sub> range
- CO<sub>2</sub> 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
- Built-in air sampling pump and electronic flow sensor
- Voltage, current and digital output
- External water trap
- Rugged IP65 enclosure
- Audible and visual alarms/warnings
- Available options include:
  - H<sub>2</sub>O sensor (Solid state)
  - O<sub>2</sub> sensor (Electrochemical cell)
  - WiFi

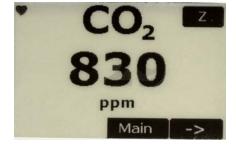


For users who demand accuracy, reliability and long term stability

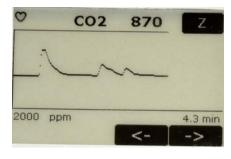
### WiFi Optional

## **Applications**

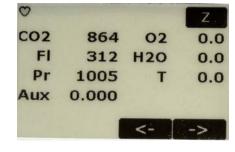
- Plant growth chambers
- Environmental control rooms
- Incubators
- Fruit storage
- FACE sites
- Breweries
- Indoor air quality
- Industrial monitoring
- CO<sub>2</sub> leakage detection
- Ambient air monitoring



Main display for CO<sub>2</sub>



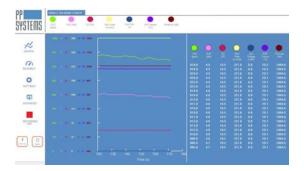
Graphical display for monitoring CO<sub>2</sub> history/trends



Monitor CO<sub>2</sub>, H<sub>2</sub>O and O<sub>2</sub> from one display

### **GAS Software**

Our **GAS** (Gas Analysis Software) software package is available for use with the WMA-5 for monitoring, logging and recording environmental sensor data.



## WiFi (Optional)

Monitor the WMA-5 remotely from your computer or smartphone browser in real-time with our WiFi option.





#### For further information, contact us at:

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## **Technical Specification**

Analysis Method  Non-dispersive infrared, configured as an absolute absorptiometer with microprocessor control of linearization  CO2 Measurement Ranges  0-1000 ppm (µmol mol ¹) 0-2000 ppm (µmol mol ¹) 0-10000 ppm (µmol mol ¹) 0-20000 ppm (µmol mol ¹) 0-30000 ppm (µmol mol ¹) 0-30000 ppm (µmol mol ¹) 0-50000 ppm (µmol mol ¹) 0-50000 ppm (µmol mol ¹) 0-50000 ppm (µmol mol ¹) 0-100000 ppm (µmol mol ¹) 0-100000 ppm (µmol mol ¹) Readings are automatically corrected for temperature and pressure.  4 1% of span concentration over the calibrated range but limited by the accuracy of the calibration mixture  Linearity  4 1% throughout the range  Stability Auto-Zero at regular intervals corrects for sample cell contamination, source and detector ageing and changes in electronics.  Warm-up Time Approximately 15 minutes  Sampling Rate  10 Hz. Sample data is averaged and output every 1.0 seconds.  Sampling Pump Integral, long life 12V air sampling pump  Gas Flow Rate  200-500 cc/min (280-340 cc/min is optimal). An internal electronic flow sensor monitors flow rate.  Terminal Block  22 pin terminal block for all system inputs and outputs  Analog Output  Digital Output  0-2.5V (CO <sub>2</sub> range selectable) and 4-20mA  Digital Output  RS232 and USB An external water trap and internal hydrophobic filter are used to protect the system from water ingestion.  Alarm  Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO <sub>2</sub> Control  High and low user set points  Data Storage (USB)  USB Flash Drive for data storage in multiple formats  Display  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Normal operation: 6W (12V @ 0.5A)  Enclosure  High impact, IP65 enclosure  Gas Connections  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  Temperature  Power Required in dirty environments.  1.5 kg  Optional Accessories  H <sub>2</sub> O Sensor - Range: 0-Dewpoint (mb)  - O <sub>2</sub> Sensor - Range: 0-D		
linearization   O-1000 ppm (µmol mol 1)   O-2000 ppm (µmol mol 1)   O-5000 ppm (µmol mol 1)   O-5000 ppm (µmol mol 1)   O-5000 ppm (µmol mol 1)   O-20000 ppm (µmol mol 1)   O-20000 ppm (µmol mol 1)   O-20000 ppm (µmol mol 1)   O-50000 ppm (µmol mol 1)   O-100000 ppm (µmol mol 1)   O-1000000 ppm (µmol mol 1)   O-10000000 ppm (µmol mol 1)   O-100000000 ppm (µmol mol 1)   O-1000000000000000000000000000000000000	Analysis Method	Non-dispersive infrared, configured as an absolute
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Auto-Zero at regular intervals corrects for sample cell contamination, source and detector ageing and changes in electronics.  Warm-up Time Approximately 15 minutes  Sampling Rate 10 Hz. Sample data is averaged and output every 1.0 seconds.  Sampling Pump Integral, long life 12V air sampling pump  Gas Flow Rate 200-500 cc/min (280-340 cc/min is optimal). An internal electronic flow sensor monitors flow rate.  Terminal Block 22 pin terminal block for all system inputs and outputs  Analog Output 0-2.5V (CO2 range selectable) and 4-20mA  Digital Output RS232 and USB  Air Filter & Water An external water trap and internal hydrophobic filter are used to protect the system from water ingestion.  Alarm Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO2 Control High and low user set points  Display 2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements 12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Power Consumption Warm up: 12W (12V @ 1.0A)  Normal operation: 6W (12V @ 0.5A)  Enclosure High impact, IP65 enclosure  Gas Connections Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating 0-50 °C, non-condensing. External filtration may be required in dirty environments.  Dimensions 21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight 1.5 kg  Optional Accessories - H <sub>2</sub> O Sensor - Range: 0-Dewpoint (mb) - O <sub>2</sub> Sensor - Range: 0-Dewpoint (mb) - O <sub>2</sub> Sensor - Range: 0-Dewpoint (mb)		
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changes in electronics.  Warm-up Time Approximately 15 minutes  Sampling Rate  10 Hz. Sample data is averaged and output every 1.0 seconds.  Sampling Pump Integral, long life 12V air sampling pump Gas Flow Rate  200-500 cc/min (280-340 cc/min is optimal). An internal electronic flow sensor monitors flow rate.  Terminal Block 22 pin terminal block for all system inputs and outputs  Analog Output 0-2.5V (CO2 range selectable) and 4-20mA  Digital Output RS232 and USB Air Filter & Water Trap filter are used to protect the system from water ingestion.  Alarm Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO2 Control High and low user set points  Data Storage (USB) USB Flash Drive for data storage in multiple formats Display 2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements 12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Power Consumption Warm up: 12W (12V @ 1.0A) Normal operation: 6W (12V @ 0.5A)  Enclosure High impact, IP65 enclosure  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating Operating Operating Temperature Pimensions 21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight 1.5 kg  Optional Accessories  - H2O Sensor - Range: 0-Dewpoint (mb) - O2 Sensor - Range: 0-Dewpoint (mb) - O2 Sensor - Range: 0-Dewpoint (mb)	Stability	<u> </u>
Warm-up Time       Approximately 15 minutes         Sampling Rate       10 Hz. Sample data is averaged and output every 1.0 seconds.         Sampling Pump       Integral, long life 12V air sampling pump         Gas Flow Rate       200-500 cc/min (280-340 cc/min is optimal). An internal electronic flow sensor monitors flow rate.         Terminal Block       22 pin terminal block for all system inputs and outputs         Analog Output       0-2.5V (CO₂ range selectable) and 4-20mA         Digital Output       RS232 and USB         Air Filter & Water       An external water trap and internal hydrophobic filter are used to protect the system from water ingestion.         Alarm       Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)         CO₂ Control       High and low user set points         Data Storage (USB)       USB Flash Drive for data storage in multiple formats         Display       2.7" electronic paper touch display with 264 x 176 pixel resolution         Power Requirements       12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)         Power Consumption       Warm up: 12W (12V @ 1.0A)         Normal operation: 6W (12V @ 0.5A)         Enclosure       High impact, IP65 enclosure         Gas Connections       Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing         Operating       0-50 °C, non-condensing. External filtration ma		
Sampling Rate  10 Hz. Sample data is averaged and output every 1.0 seconds.  Sampling Pump  Integral, long life 12V air sampling pump  Gas Flow Rate  200-500 cc/min (280-340 cc/min is optimal). An internal electronic flow sensor monitors flow rate.  Terminal Block  22 pin terminal block for all system inputs and outputs  Analog Output  O-2.5V (CO2 range selectable) and 4-20mA  Bigital Output  RS232 and USB  An external water trap and internal hydrophobic filter are used to protect the system from water ingestion.  Alarm  Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO2 Control  High and low user set points  Data Storage (USB)  USB Flash Drive for data storage in multiple formats  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Warm up: 12W (12V @ 1.0A) Normal operation: 6W (12V @ 0.5A)  High impact, IP65 enclosure  Gas Connections  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  Operating  Operating  Temperature  Power Ly 2 Sensor - Range: 0-Dewpoint (mb)  - O2 Sensor - Range: 0-Dewpoint (mb)  - O2 Sensor - Range: 0-Dewpoint (mb)  - O2 Sensor - Range: 0-100%		
1.0 seconds.  Sampling Pump  Integral, long life 12V air sampling pump  200-500 cc/min (280-340 cc/min is optimal). An internal electronic flow sensor monitors flow rate.  Terminal Block  22 pin terminal block for all system inputs and outputs  Analog Output  0-2.5V (CO2 range selectable) and 4-20mA  Digital Output  RS232 and USB  Air Filter & Water  Trap  filter are used to protect the system from water ingestion.  Alarm  Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO2 Control  High and low user set points  Data Storage (USB)  USB Flash Drive for data storage in multiple formats  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Consumption  Warm up: 12W (12V @ 1.0A)  Normal operation: 6W (12V @ 0.5A)  Enclosure  High impact, IP65 enclosure  Gas Connections  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  Operating  Temperature  Dimensions  21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight  Optional Accessories  H <sub>2</sub> O Sensor - Range: 0-Dewpoint (mb)  O <sub>2</sub> Sensor - Range: 0-Dewpoint (mb)	•	†
Integral, long life 12V air sampling pump	Sampling Rate	
Gas Flow Rate    200-500 cc/min (280-340 cc/min is optimal). An internal electronic flow sensor monitors flow rate.   22 pin terminal block for all system inputs and outputs   Analog Output   0-2.5V (CO2 range selectable) and 4-20mA     Digital Output   RS232 and USB     An external water trap and internal hydrophobic filter are used to protect the system from water ingestion.   Alarm   Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)     CO2 Control   High and low user set points     Data Storage (USB)   USB Flash Drive for data storage in multiple formats     Display   2.7" electronic paper touch display with 264 x 176 pixel resolution     Power Requirements   12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)     Power Consumption   Warm up: 12W (12V @ 1.0A)     Normal operation: 6W (12V @ 0.5A)     Enclosure   High impact, IP65 enclosure     Gas Connections   Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing     Operating   0-50 °C, non-condensing. External filtration may be required in dirty environments.     Dimensions   21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)     Weight   1.5 kg   Optional Accessories   H <sub>2</sub> O Sensor - Range: 0-Dewpoint (mb)     O 2 Sensor - Range: 0-Dewpoint (mb)	<u> </u>	
internal electronic flow sensor monitors flow rate.  Terminal Block  22 pin terminal block for all system inputs and outputs  Analog Output  Digital Output  RS232 and USB  Air Filter & Water  Trap  An external water trap and internal hydrophobic filter are used to protect the system from water ingestion.  Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO2 Control  High and low user set points  Data Storage (USB)  USB Flash Drive for data storage in multiple formats  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Warm up: 12W (12V @ 1.0A) Normal operation: 6W (12V @ 0.5A)  Enclosure  High impact, IP65 enclosure  Gas Connections  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  Temperature  Temperature  Dimensions  1.5 kg  Optional Accessories  - H2O Sensor - Range: 0-Dewpoint (mb) - O2 Sensor - Range: 0-Dewpoint (mb) - O2 Sensor - Range: 0-Dewpoint (mb) - O2 Sensor - Range: 0-Dowpoint (mb)		
Terminal Block  22 pin terminal block for all system inputs and outputs  Analog Output  Digital Output  RS232 and USB  Air Filter & Water  Trap  An external water trap and internal hydrophobic filter are used to protect the system from water ingestion.  Alarm  Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO2 Control  High and low user set points  Data Storage (USB)  USB Flash Drive for data storage in multiple formats  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Warm up: 12W (12V @ 1.0A)  Normal operation: 6W (12V @ 0.5A)  Enclosure  Gas Connections  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  Temperature  Temperature  Dimensions  21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight  Op Sensor - Range: 0-Dewpoint (mb)  - O2 Sensor - Range: 0-Dewpoint (mb)  - O2 Sensor - Range: 0-Dewpoint (mb)	Gas Flow Rate	
Outputs  Analog Output  Digital Output  RS232 and USB  Air Filter & Water  Trap  An external water trap and internal hydrophobic filter are used to protect the system from water ingestion.  Alarm  Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO2 Control  High and low user set points  Data Storage (USB)  Display  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Power Consumption  Warm up: 12W (12V @ 1.0A)  Normal operation: 6W (12V @ 0.5A)  Enclosure  High impact, IP65 enclosure  Gas Connections  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  Operating  Temperature  Poimensions  21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight  Optional Accessories  - H2O Sensor - Range: 0-Dewpoint (mb) - O2 Sensor - Range: 0-Dewpoint (mb) - O2 Sensor - Range: 0-Dewpoint (mb)	T : 101 1	
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Air Filter & Water Trap  An external water trap and internal hydrophobic filter are used to protect the system from water ingestion.  Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO2 Control  High and low user set points  Data Storage (USB)  USB Flash Drive for data storage in multiple formats  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Warm up: 12W (12V @ 1.0A) Normal operation: 6W (12V @ 0.5A)  Enclosure  High impact, IP65 enclosure  Gas Connections  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  Operating  O-50 °C, non-condensing. External filtration may be required in dirty environments.  Dimensions  21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight  O-2 Sensor - Range: 0-Dewpoint (mb) - O <sub>2</sub> Sensor - Range: 0-Dewpoint (mb)		
filter are used to protect the system from water ingestion.  Alarm  Visual and audible alarm/warnings. 2 relay contacts (Alarm1 and Alarm2)  CO2 Control  High and low user set points  Data Storage (USB)  USB Flash Drive for data storage in multiple formats  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Warm up: 12W (12V @ 1.0A)  Normal operation: 6W (12V @ 0.5A)  Enclosure  High impact, IP65 enclosure  Gas Connections  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  O-50 °C, non-condensing. External filtration may be required in dirty environments.  Dimensions  21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight  O-2 Sensor - Range: 0-Dewpoint (mb)  O-2 Sensor - Range: 0-Dowpoint (mb)		
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(Alarm1 and Alarm2)  CO₂ Control High and low user set points  Data Storage (USB) USB Flash Drive for data storage in multiple formats  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements 12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Power Consumption Warm up: 12W (12V @ 1.0A)  Normal operation: 6W (12V @ 0.5A)  Enclosure High impact, IP65 enclosure  Gas Connections Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating 0-50 °C, non-condensing. External filtration may be required in dirty environments.  Dimensions 21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight 1.5 kg  Optional Accessories - Range: 0-Dewpoint (mb)  - O₂ Sensor - Range: 0-Dewpoint (mb)	Alama	
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Data Storage (USB)  USB Flash Drive for data storage in multiple formats  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Warm up: 12W (12V @ 1.0A) Normal operation: 6W (12V @ 0.5A)  Enclosure  High impact, IP65 enclosure  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  Operating  Temperature  Dimensions  21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight  1.5 kg  Optional Accessories  - H <sub>2</sub> O Sensor - Range: 0-Dewpoint (mb) - O <sub>2</sub> Sensor - Range: 0-100%	CO Control	
Display  2.7" electronic paper touch display with 264 x 176 pixel resolution  Power Requirements  12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Power Consumption  Warm up: 12W (12V @ 1.0A) Normal operation: 6W (12V @ 0.5A)  Enclosure  High impact, IP65 enclosure  Gas Connections  Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating  Operating  O-50 °C, non-condensing. External filtration may be required in dirty environments.  Dimensions  21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight  1.5 kg  Optional Accessories  - H <sub>2</sub> O Sensor - Range: 0-Dewpoint (mb) - O <sub>2</sub> Sensor - Range: 0-100%	=	
pixel resolution  Power Requirements 12 VDC, 1.5A or 100-240 VAC, 50-60 Hz, 0.6A (AC Adapter included)  Power Consumption Warm up: 12W (12V @ 1.0A) Normal operation: 6W (12V @ 0.5A)  Enclosure High impact, IP65 enclosure  Gas Connections Two barbed fittings (inlet and exhaust) for use with 1/8" (.125") ID tubing  Operating 0-50 °C, non-condensing. External filtration may be required in dirty environments.  Dimensions 21.3 cm L x 18.5 cm H 11.4 cm W (Enclosure only)  Weight 1.5 kg  Optional Accessories - Range: 0-Dewpoint (mb) - O <sub>2</sub> Sensor - Range: 0-100%		
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Weight 1.5 kg  Optional Accessories - H <sub>2</sub> O Sensor - Range: 0-Dewpoint (mb) - O <sub>2</sub> Sensor - Range: 0-100%		†
Optional Accessories  - H <sub>2</sub> O Sensor - Range: 0-Dewpoint (mb) - O <sub>2</sub> Sensor - Range: 0-100%		
- O <sub>2</sub> Sensor – Range: 0-100%		
_	Optional Accessories	
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