



## Complete, Integrated System

Preprogrammed and low power

### Overview

The AP200 is a complete, integrated CO<sub>2</sub> and H<sub>2</sub>O atmospheric profile system. It measures carbon dioxide (CO<sub>2</sub>) and water vapour (H<sub>2</sub>O) concentration from up to eight intakes, which are normally spaced along the height of

a tower to give a vertical profile. The AP200 is often used in conjunction with an eddy covariance system to measure the storage term and give a more complete measure of the surface gas exchange.

### Benefits and Features

- › Fully integrated system
- › Requires only 13 W (average at 25°C and 12 Vdc)
- › Contains a Campbell Scientific CR1000X Measurement and Control Datalogger
- › Automatically performs CO<sub>2</sub> zero and span
- › Automated temperature and pressure control
- › Data logger program included

### Technical Description

#### Measurements

*Primary:*

- › CO<sub>2</sub> concentration at each intake
- › H<sub>2</sub>O concentration at each intake
- › System diagnostic word

*Secondary:*

- › Sample flow rate

- › Sample cell pressure
- › Sample cell temperature
- › Other control variables

**Note:** Contact a Campbell Scientific applications engineer from the micromet group for questions or updates regarding the datalogger program.

### Specifications

#### System Enclosure

Operating Temperature -30° to +45°C

Power Requirements

- › 3.75 A (45 W) maximum power (cold startup)



	<ul style="list-style-type: none"> <li>› 10 to 16 Vdc (voltage)</li> <li>› 13 W (average power at 25°C) Average power varies from 12.5 W above +35°C to 22.5 W at -30°C.</li> </ul>
Dimensions	52.1 x 44.5 x 29.7 cm (20.5 x 17.5 x 11.7 in.)
Weight	<ul style="list-style-type: none"> <li>› 15.9 kg (35 lb) for AP200 base model</li> <li>› 272 g (10 oz) for CR1000KD</li> <li>› 1 kg (2.3 lb) for LI-850</li> <li>› 154 g (5.4 oz) for CFM100/NL116</li> </ul>

### Pump Module

Pump Type	Dual-head diaphragm pump with a brushless dc motor
Mounting	Mounted in an insulated, temperature-controlled box inside system enclosure
Control	Pumping speed is automatically controlled to maintain the pump inlet pressure at the set point
Maximum Pumping Speed	9.0 liters per minute (LPM)
Pressure Sensor Range	15.0 to 115.0 kPa
Heater	8.0 W (turns on/off at 2°C)
Warm-up Time	~50 min (from -30° to +2°C)
Fan	0.7 W (turns on at 50°C and off at 45°C)

### Valve Manifold

Mounting	Mounted inside system enclosure
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Inlets	Eight air sample inlets plus one inlet for zero, one inlet for CO <sub>2</sub> span, and one inlet for H <sub>2</sub> O span
Connections	0.25-in Swagelok
Mass Flow Sensor	0 to 1.0 standard liters per minute (SLPM)
Heater	8.0 W (turns on/off at 5°C)
Warm-up Time	~20 min (from -30° to +4°C)
Fan	0.7 W (turns on at 45°C and off at 43°C)

### Intake Assembly

Filter	1.0-in diameter, sintered stainless-steel disk filter, 10-micron pore size
Orifice Heater	2 kohm (0.07 W at 12 Vdc)
Mixing Volume	750 mL
Sample Connection	0.25 in. Swagelok
Number of Connections for Heater Cable Entry Seals	3 (1 in, 2 out)
Cable Diameter for Heater Cable Entry Seals	2.8 to 6.6 mm (0.11 to 0.26 in.)
Wire Diameter for Heater Cable Screw Terminals	26 to 12 AWG
Wire Stripping Length for Heater Cable Screw Terminals	5.0 mm (0.2 in.)
Screw Tightening Torque for Heater Cable Screw Terminals	0.4 N•m
Orifice Inside Diameter	0.178 mm (0.007 in.)
Dimensions	31 x 12.5 x 19 cm (12 x 5 x 7.5 in.)
Weight	1.4 kg (3.1 lb)

For comprehensive details, visit: [www.campbellsci.eu/ap200](http://www.campbellsci.eu/ap200) 



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