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WHEN MEASUREMENTS MATTER

CPEC300

Compact Closed-Path Eddy-Covariance System with EC155 and Pump Module

For Various Trace Gas Applications

Ideal for applications that don't require automatic zero and span

Overview

The CPEC300 is a turn-key, closed-path eddy-covariance (EC) flux system for long-term monitoring of atmospheric-biosphere exchanges of carbon dioxide, water vapor, heat, and momentum. A complete system consists of a closed-path gas analyzer (EC155 closed-path gas analyzer), sonic anemometer (CSAT3A sonic anemometer), datalogger (CR6 datalogger), and sample pump.

The gas analyzer's intake design and small sample cell volume (5.9 mL) provide excellent frequency response (4.3 Hz cutoff frequency) with low total system power (12 W). Additionally, the vortex intake (United States Patent No. 9,217,692) greatly reduces maintenance and maintains frequency response compared to traditional inline filters.

Benefits and Features

- Compact, entry-level system with CR6 datalogger processing power
- Suitable for sites with fewer sensors and a shorter tower
- Simple design for easier troubleshooting

Detailed Description

The gas analyzer's small sample cell volume (5.9 mL) minimizes the sample residence time (50 ms at the system's nominal flow rate, 7 LPM). This gives excellent frequency response (5.8 Hz half-power bandwidth) with low total system power (12 W).

Eddy-Covariance Measurements

CO_2 and H_2O are measured with an EC155 Closed-Path Gas Analyzer. Three-dimensional wind speed and sonic air temperature are measured with a CSAT3A sonic anemometer head.

CPEC300 System Enclosure

The 24.9 x 34.0 cm (9.8 x13.4 in.) enclosure houses the EC100 electronics and the CR6 datalogger attached to the lid of the enclosure. The CPEC300 enclosure can be mounted to a tripod mast, CM106 tripod leg base, tower legs, or a large-diameter pole.

CPEC300 Pump Module

The pump module, a standard component of the CPEC300 system, consists of a small dual-head diaphragm pump with a brushless dc motor mounted inside a fiberglass enclosure. An integral cable connects the pump module to the CPEC300 system enclosure, which provides power, temperature

measurement and control, pressure measurement, and pumping speed measurement and control.

Specifications

Operating Temperature Range	-30° to +50°C
Input Voltage Range	10.5 to 16.0 Vdc
Power	› 12 W (typical) › 35 W (maximum, at cold startup)

System Enclosure

Dimensions	34 x 25 x 13 cm (13.4 x 9.8 x 5.1 in.)
Weight	4.02 kg (8.85 lb)

Pump Module

Inlet Connection	3/8-in. Swagelok
Pressure Sensor Range	15 to 115 kPa
Pumping Speed	3 to 9 LPM (automatically controlled at the set point, typically 7 LPM)
Cable Length	3.0 m (10 ft)
Dimensions	35.6 x 29.2 x 13.5 cm (14.0 x 11.5 x 5.3 in.)
Weight	5.4 kg (11.8 lb)

For comprehensive details, visit: **www.campbellsci.com.au/cpec300**

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