

THE CPEC310 ADVANTAGE

Introduction

Campbell Scientific's CPEC310 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. With a patented vortex intake and online calibration ability, the system has been designed to operate with minimal maintenance. Additionally, the expandability of the system allows for measurements of the energy balance and a suite of biometeorological sensors. When paired with our EasyFlux™ DL program, the CPEC310 provides fully corrected fluxes on the datalogger, streamlining the path to publishable results.

Design Features

- › **Compatible with EasyFlux DL:** The CPEC310 can run EasyFlux DL at sample frequencies of 10 Hz or 20 Hz. EasyFlux DL provides fully corrected fluxes following community-accepted algorithms, in real time on the datalogger, and in several output formats (including the standard AmeriFlux format).
- › **Fully Expandable:** With the optional CDM-A116, the CPEC310 can measure the energy balance, in addition to several other biometeorological variables.
- › **Online Calibration:** The CPEC310 is the only closed-path EC system on the market to include a valve module. This allows online calibration of the gas analyzer at a user-specified interval, ensuring the highest accuracy for gas measurements.
- › **Pressure Measurement:** Pressure in the sample cell is measured with an absolute pressure sensor, providing a more accurate pressure measurement relative to systems using a differential pressure sensor.
- › **Corrosion Resistance:** The sample cell is constructed of high quality stainless-steel, providing greater corrosion resistance than lower-cost materials used in other systems.
- › **Lowest Maintenance:** The CPEC310 includes the patented filterless vortex intake (U.S. Pat. No. 9,217,692). When combined with a nominal flow rate of 8 LPM, maintenance is greatly reduced.
- › **Lowest Power:** With a nominal system power requirement of only 12 W, the CPEC310 has the lowest power requirement of any closed-path EC system available on the market. Therefore, the CPEC310 is ideal for use in remote, harsh environments where power limitations exist.
- › **High-Frequency Response:** The heated intake and small-sample-cell design give an excellent frequency response of 4.3 Hz half-power bandwidth for both CO₂ and H₂O.
- › **Easy Installation:** Fully integrated pump and valves, housed in a single enclosure and integrated sensor head mounting platform, simplify installation. The CPEC310 is significantly easier to install than other systems available on the market.
- › **Free of Hazardous Chemicals:** The CPEC310 uses a molecular sieve (patent pending) to scrub CO₂ and H₂O from inside the gas analyzer sensor head. This eliminates many challenges associated with shipping instruments that contain hazardous chemicals. The use of a molecular sieve instead of hazardous chemicals makes the instrument safer to handle by the station operator and is environmentally friendly.
- › **Single-Vendor Solution:** Campbell Scientific manufactures all the components used in the CPEC310. The gas analyzer is backed by a 3-year or 17,500-hour warranty.

