



**Built-In  
CO<sub>2</sub>/H<sub>2</sub>O Analyzer  
with WiFi!**

# CFLUX-1

## Automated Soil CO<sub>2</sub> Flux System

- Fully automatic, programmable & stand-alone operation
- Integral CO<sub>2</sub> & H<sub>2</sub>O infrared gas analyzers
- WiFi for setup & remote monitoring from desktop & mobile devices
- Easy installation & setup
- Optional sensors for soil moisture & soil temperature



## CFLUX-1 Automated Soil CO<sub>2</sub> Flux System

A dedicated, self-contained system for long-term deployment and unattended operation for measurement of soil CO<sub>2</sub> flux.

Ideal for both spatial and temporal analysis.

With all key components built into a single station, there is no limit to where systems can be placed in the field.

*Shown: Stevens HydraProbe II is an optional plug and play sensor for measuring soil moisture and soil temperature. Sold separately.*

The **CFLUX-1 Automated Soil CO<sub>2</sub> Flux System** is the latest innovation in a long line of trusted and tested technology for the measurement of soil respiration from PP Systems. Features that set the CFLUX-1 apart from other systems include:

### Built-in CO<sub>2</sub> & H<sub>2</sub>O Gas Analyzers

Each CFLUX-1 Automated Soil CO<sub>2</sub> Flux System has integral, accurate, non-dispersive infrared gas analyzers for CO<sub>2</sub> and H<sub>2</sub>O. Two independent infrared gas analyzers in each system means accurate measurement and fast response times regardless of where each system is stationed – eliminating problems associated with long distances between chambers, analyzers and multiplexing devices.

A robust, water tight enclosure protects the built-in CO<sub>2</sub> and H<sub>2</sub>O gas analyzers, electronics and terminal block connections.

### Auto-Zero

Incorporated into each CFLUX-1 system, Auto-Zero eliminates the need for field recalibration and allows for fast warm-up, adaptation to changing ambient conditions and excellent stability and accuracy for both CO<sub>2</sub> and H<sub>2</sub>O.

### Soil Moisture & Soil Temperature

The CFLUX-1 has one SDI-12 input and one analog input (0-1V) for use with commercially available sensors for measurement of soil moisture and soil temperature. Soil moisture and soil temperature can be measured and recorded along with flux data.

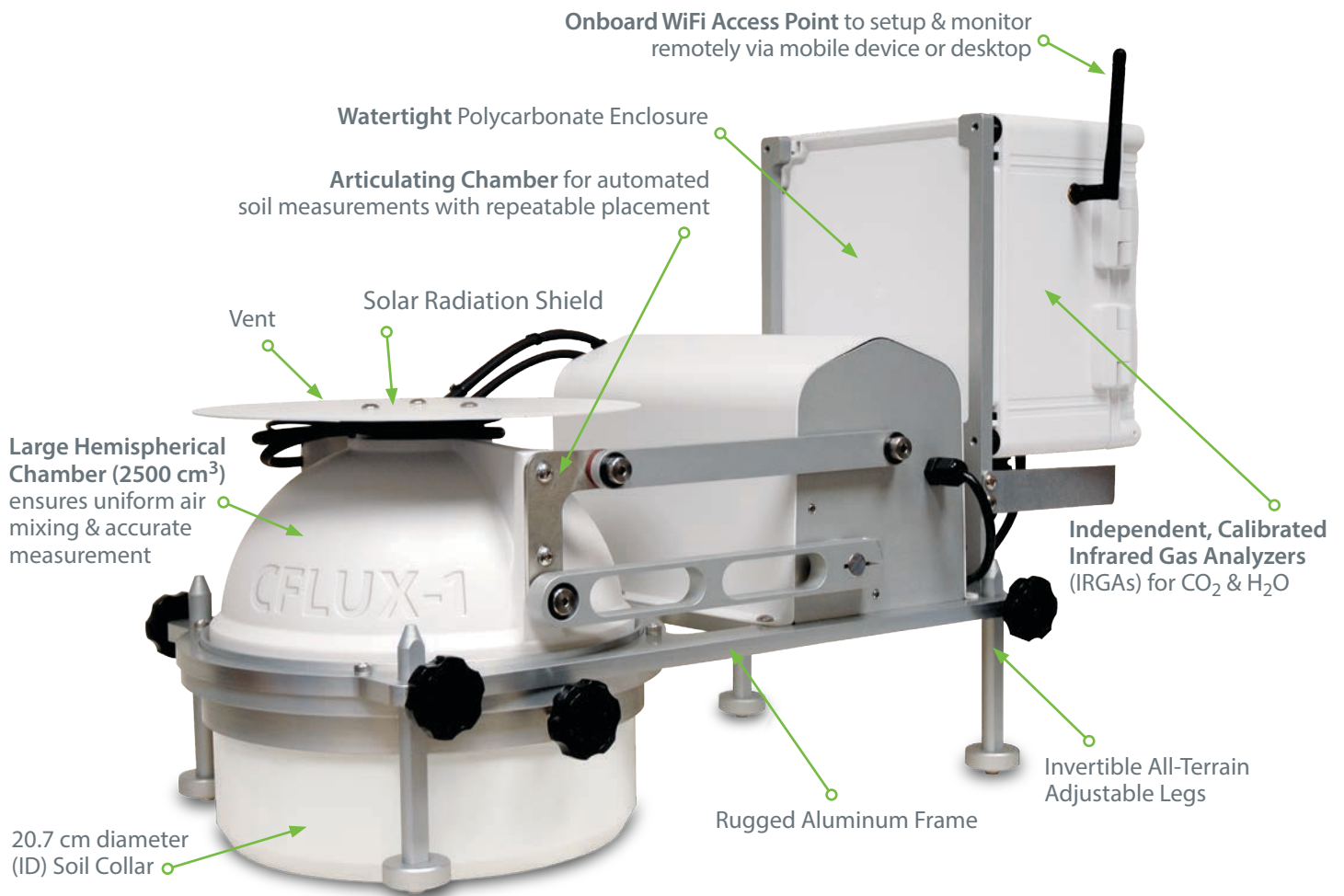
### WiFi

Onboard WiFi access point is used for setting up and monitoring the system remotely from your phone or computer. If connected to a local computer with a router the CFLUX-1 system can be monitored from anywhere in the world with internet access.

### Expanded Measurement Range for High CO<sub>2</sub> Environments

The CFLUX-1 can be calibrated up to 30000 ppm for soil CO<sub>2</sub> flux measurements in high CO<sub>2</sub> environments such as volcanic areas.

# CFLUX-1 Survey • Long Term • Stand-Alone Operation



## Data Storage

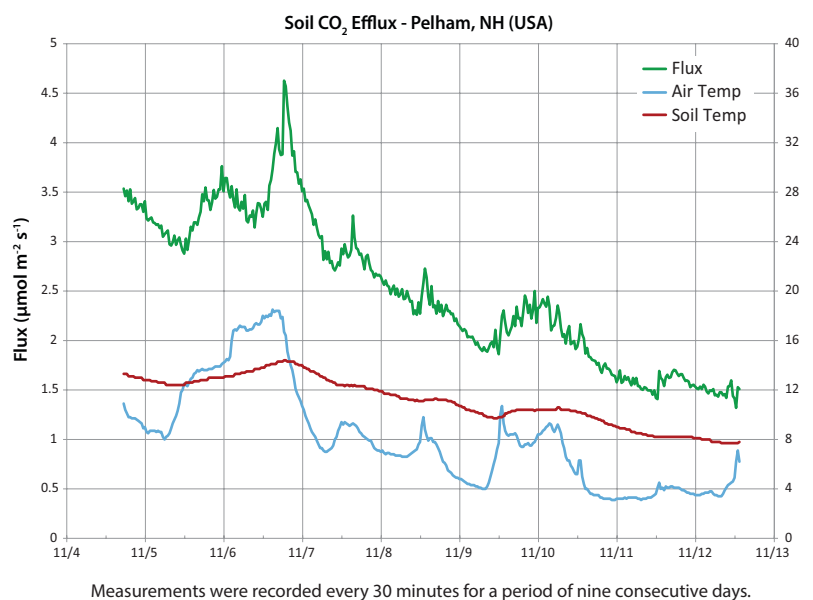
The CFLUX-1 system includes full data storage direct to a USB Flash Drive (memory stick). Sensor data and information can also easily be stored on an external data logger if necessary.

## Soil Respiration Chamber

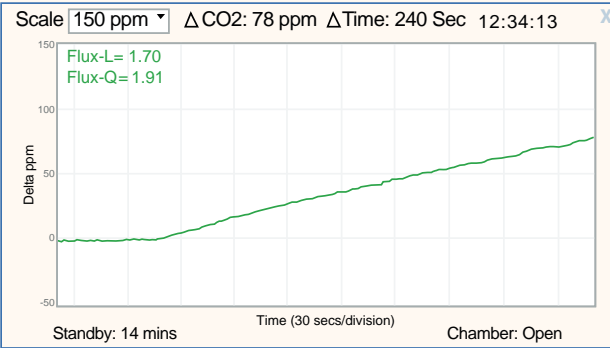
Our large hemispherical chamber (2500 cm<sup>3</sup>) is carefully designed to ensure uniform air mixing and accurate measurement of soil CO<sub>2</sub> flux. It includes an internal mixing fan with adjustable control that can be enabled or disabled by the user on demand, enhancing air circulation inside the chamber.

It also features a unique venting system to balance the pressure between chamber air and ambient air. A power-efficient actuator and electronics control the opening and closing of the chamber at user-defined time intervals. Four user-adjustable legs allow the chamber to be easily deployed at the field site.

## Software & Data Analysis



**PP Systems** CFLUX-100013  
**Standby: 14 mins** [Start Now](#)



**Sample Measurements** 12:34:13

<b>CO2</b> 488 ppm	<b>Δ CO2</b> 78 ppm	<b>H2O</b> 10.1 mb
<b>Flux-L</b> 1.70 μmol m <sup>-2</sup> m <sup>-1</sup>	<b>Flux-Q</b> 1.91 μmol m <sup>-2</sup> m <sup>-1</sup>	<b>Δ Time</b> 240 seconds
<b>Air Temperature</b> 9.3 °C	<b>Soil Temperature</b> 7.5 °C	<b>Soil Moisture</b> 20.9 %

Standby: 14 mins Chamber: Open

**System Status** 12:37:16

<b>Standby Power</b> High	<b>CO2 IRGA Temp.</b> 55.0 °C	<b>H2O IRGA Temp.</b> 55.1 °C
<b>Air Flow</b> 0 CC / min	<b>Air Pressure</b> 1017.7 mbar	<b>Air Temperature</b> 9.3 °C
<b>Voltage</b> 12.1 Volts	<b>Status</b> System OK	<b>Absorber</b> 82 %

Standby: 14 mins [Show More](#) Chamber: Open

Sensor data and information is easily viewed via computer or mobile device. Flux rates based on linear and quadratic fit are continuously calculated and displayed.

## Technical Specifications

### Gas Analysis Unit

<b>Analysis Method</b>	Two non-dispersive infrared, configured as an absolute absorptiometer with microprocessor control of linearization for both CO <sub>2</sub> and H <sub>2</sub> O. All readings are automatically corrected for temperature, pressure and foreign gas broadening.
<b>CO<sub>2</sub> Measurement Range</b>	0-2000 μmol mol <sup>-1</sup> (Standard) <ul style="list-style-type: none"> <li>Precision: 1 μmol mol<sup>-1</sup></li> </ul> For high CO <sub>2</sub> environments the system can be calibrated up to 30000 ppm.
<b>H<sub>2</sub>O Range</b>	0-75 mb <ul style="list-style-type: none"> <li>Precision: 0.1 mb</li> </ul>
<b>Pressure Compensation Range</b>	80-115 kPa
<b>Absolute Accuracy</b>	< 1% of span concentration over the calibrated range but limited by the accuracy of the calibration mixture
<b>Linearity</b>	< 1% throughout the range
<b>Stability</b>	Auto-Zero at regular intervals corrects for sample cell contamination, source and detector aging and changes in electronics.
<b>Calibration</b>	User-programmable calibration (If required)
<b>Warm-up Time</b>	Approximately 15 minutes
<b>Sampling Rate</b>	10 Hz
<b>Sampling Pump</b>	Integral pump for sample (analysis) air <ul style="list-style-type: none"> <li>Range: 200-500 cc/min</li> </ul> An internal electronic flow sensor monitors flow rate.
<b>Air Temperature Sensor</b>	<ul style="list-style-type: none"> <li>Range: -20 °C to +50 °C</li> <li>Accuracy: +/- 0.5 °C at 25 °C</li> </ul>
<b>Environmental Sensor Inputs</b>	For use with commercially available sensors (soil moisture, soil temperature, etc.) <ul style="list-style-type: none"> <li>One analog input (0-1V)</li> <li>One SDI-12 input</li> </ul>
<b>Data Storage (USB)</b>	USB flash drive port for data storage
<b>WiFi</b>	For user setup/monitoring and connectivity to internet
<b>Power</b>	7-16 VDC (User supplied)
<b>Power Consumption</b>	Warm up: 15W (12V at 1.2A) Normal operation: 7.2W (12V at 0.6A)
<b>Enclosure</b>	Hinged, rugged, polycarbonate enclosure
<b>Operating Temperature</b>	-20 to +50 °C, non-condensing
<b>Dimensions</b>	60.75 cm (L) x 30 cm (H) x 30 cm (W)
<b>Weight</b>	8.5 kg

### Soil Respiration Chamber

<b>Volume</b>	2500 cm <sup>3</sup>
<b>Exposed Soil Area</b>	336 cm <sup>2</sup>
<b>Soil Collar (ID)</b>	20.7 cm (8") Diameter

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**Portable • Accurate • Reliable**

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