



Portable Photosynthesis System

Proven Solutions for Advanced Environmental Insights

The LI-6800 Portable Photosynthesis System is the global standard for simultaneously measuring photosynthetic gas exchange and chlorophyll *a* fluorescence over the same area in plants and aquatic samples.

The LI-6800 is designed to:

- Take highly precise, rapid, and reliable measurements.
- Offer insights into plant function, stress, and efficiency.
- Work with a broad spectrum of organisms and environments.
- Adapt to evolving research goals with a variety of chambers.

Plant Chambers



Clear-top Chamber

Compatible with Small Light Source

Measures gas exchange of small to mid-sized leaves with 1x3, 2x3, and 3x3 cm sample areas



Large Leaf & Needle Chamber

Compatible with Large Light Source

Measures gas exchange of large leaves, conifer sprigs, needles, and shoots with a 6x6 cm sample area



Bryophyte Chamber

Compatible with Large Light Source

Measures CO₂ gas exchange from mosses, hornworts, liverworts, and lichens



Small Plant Chamber

Compatible with Large Light Source

Measures *Arabidopsis thaliana* plants, other small rosettes, and short canopies or turfs

Light Sources



Multiphase Flash Fluorometer

A combined light source and chamber that measures gas exchange and chlorophyll *a* fluorescence

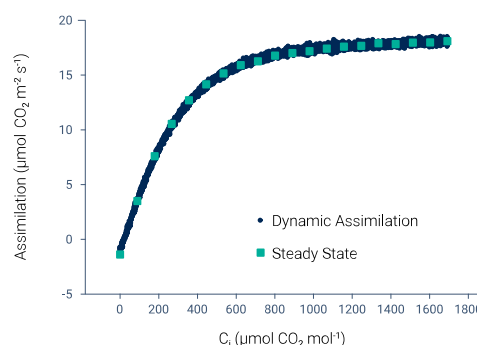


Large & Small Light Sources

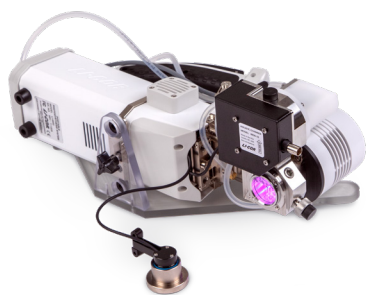
Provide uniform illumination using individually controlled lights and compatible chambers

Faster Insights into Plant Responses

Get trusted data in less time. The LI-6800 is the only instrument to use the Dynamic Assimilation™ Technique, which not only saves you time but also delivers the highest quality data. Altogether, this helps you easily understand a plant's response to its environment with more confidence than ever before.



Specialized Chambers



Aquatic Chamber

Measures steady-state carbon assimilation and chlorophyll *a* fluorescence from aquatic samples



Soil CO₂ Flux Chamber

Measures the rate of diffusion of CO₂ from the soil surface with a 20-cm sample area



Insect Respiration Chamber

Measures CO₂ respiration from insects, very small animals, and small fruits



Custom Chamber Adapter

Connects the LI-6800 to a custom-designed chamber for unlimited applications



A Trusted Solution for Every Goal and Everyone

For decades, LI-COR photosynthesis instruments have set the global standard in plant research as the most cited in published literature. The LI-6800 continues this tradition, offering a new generation of industry-best advantages for today's researchers and tomorrow's discoveries.

- Built using patented technology and proven techniques.
- Intentionally designed to suit the application needs of all users.
- Adapts to growing needs with additional chambers and accessories.
- Compatible with any environment and research application.



A Powerful Partnership for Total Plant Insights

Go a step further with the LI-600/N Porometer/Fluorometers. Designed to complement the LI-6800, the LI-600 takes survey measurements of large plant populations. Together, you can quickly screen fields or greenhouses with the LI-600 followed by in-depth investigation with the LI-6800.



Key Specifications

CO₂ Gas Analyzer

Type: Absolute non-dispersive infrared gas analyzer

Measurement Range: 0 – 3100 $\mu\text{mol mol}^{-1}$

Precision (signal noise) RMS 4-second signal averaging at 10 $\mu\text{mol mol}^{-1}$: $\leq 0.1 \mu\text{mol mol}^{-1}$

Accuracy: Within 1% of reading at 200 $\mu\text{mol mol}^{-1}$ or above, $\pm 2 \mu\text{mol mol}^{-1}$ at $< 200 \mu\text{mol mol}^{-1}$

Orientation Sensitivity: $\leq \pm 1 \mu\text{mol mol}^{-1}$ variation at 400 $\mu\text{mol mol}^{-1}$ from any orientation

H₂O Gas Analyzer

Type: Absolute non-dispersive infrared gas analyzer

Measurement Range: 0 – 75 mmol mol^{-1}

Precision (signal noise) RMS 4-second signal averaging at 10 mmol mol^{-1} : $\leq 0.01 \text{mmol mol}^{-1}$

Accuracy: Within 1.5% of reading at $> 5 \text{mmol mol}^{-1}$; $\pm 0.08 \text{mmol mol}^{-1}$ at $< 5 \text{mmol mol}^{-1}$

Air Flow Rates

Bulk Flow Rate: 680 – 1700 $\mu\text{mol s}^{-1}$ at SATP1

Leaf Chamber Flow Rate: 0 – 1400 $\mu\text{mol s}^{-1}$ at SATP

Batteries

Weight: 0.435 kg

Capacity: 6800 mAh

Type: Lithium Ion

Storage: -20 – 60 °C; $\leq 80\%$ RH

Temperatures

Operating Temperature Range: 0 – 50 °C

Storage Temperature Range: -20 – 60 °C

Temperature Control Range:

Leaf Temperature: ± 10 °C from ambient

Setpoint Resolution: 0.1 °C

Chamber exhaust air temperature and temperature control block:

Type: Thermistor

Range: -10 – 60 °C

Accuracy: ± 0.15 °C

Leaf temperature sensor:

Type: Type E fine-wire thermocouple

Sensitivity Range: -10 – 60 °C

Accuracy: $< \pm 0.5$ °C total; ± 0.2 °C cold junction reference; ± 0.3 °C thermocouple when within ± 10 °C of cold junction temperature

CO₂ Control

CO₂ Control Range: 0 – $> 2000 \mu\text{mol mol}^{-1}$ (with pump set to low; dependent on bulk flow rate)

CO₂ Cartridge Type: 8 gram

Cartridge Lifetime: > 8 hours after puncture (dependent on setpoint)

CO₂ Scrubber: Soda lime

H₂O Control

H₂O Control Range: 0 – 90% RH (noncondensing)

Humidifier Substrate: Nafion

Desiccant: Silica Gel (BASF Sorbead® Orange CHAMELEON®)

Light Measurement

Chamber and light source PAR sensors:

Sensitivity Range: 0 – 3000 $\mu\text{mol m}^{-2} \text{s}^{-1}$

Resolution: $< 1 \mu\text{mol m}^{-2} \text{s}^{-1}$

Calibration Accuracy: $\pm 5\%$ of reading; Traceable to the U.S. National Institute of Technology (NIST)

External LI-190R PAR Sensor:

Detector: Silicon photodiode

Sensitivity: 5 – 10 μA per 1000 $\mu\text{mol s}^{-1} \text{m}^{-2}$

Calibration Accuracy: $\pm 5\%$ of reading; Traceable to NIST

Communication

RJ-45 Ethernet; IP/TCP for networks and computers: 1

Full Specifications

