

NEW

LI-600 Porometer/Fluorometer

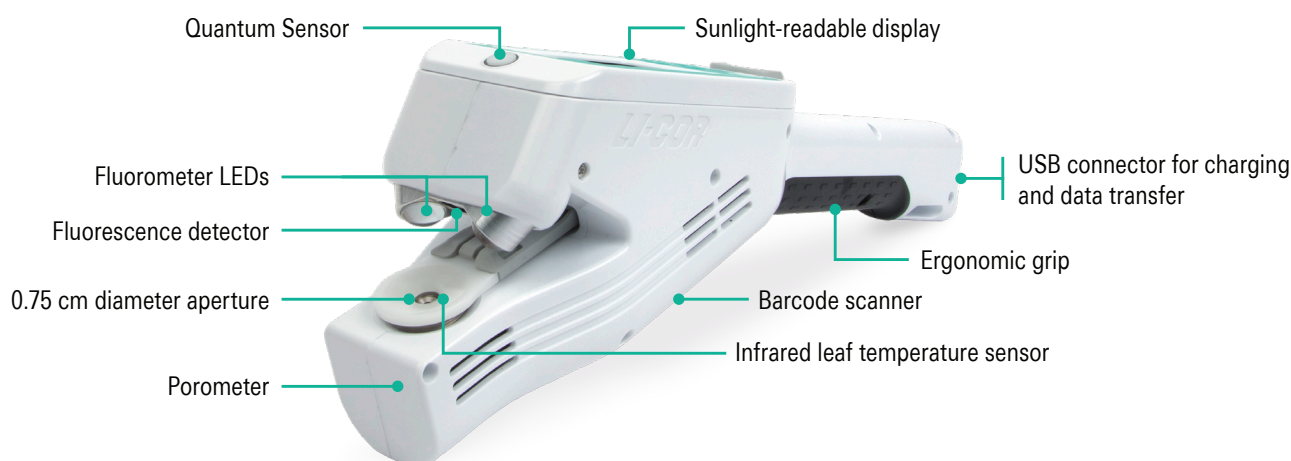
For fast measurements of stomatal conductance and chlorophyll fluorescence



LI-600 Porometer/Fluorometer

The LI-600 is a compact porometer and optional Pulse-Amplitude Modulation (PAM) fluorometer that measures stomatal conductance and chlorophyll *a* fluorescence over the same leaf area.

Designed to quickly survey plants under ambient conditions, the LI-600 provides the speed and precision required by researchers today. You can configure the instrument to log a measurement automatically when parameters are stable, or you can log manually with the press of a button.



Why measure stomatal conductance and chlorophyll *a* fluorescence?

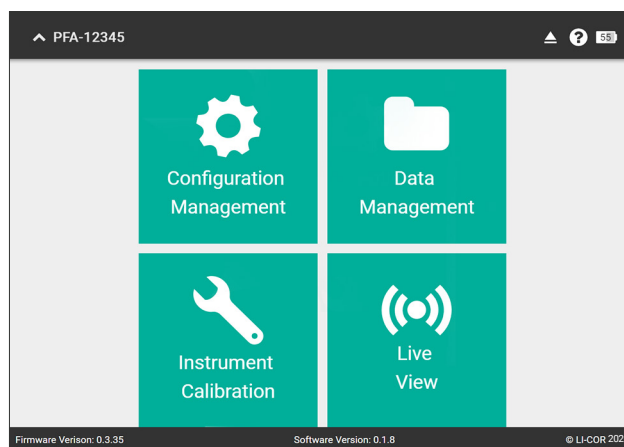
Stomatal openings regulate the exchange of water vapor and CO₂ between a leaf and the air. Measurements of stomatal conductance indicates a plant's physiological response to environmental conditions.

Measurements of chlorophyll *a* fluorescence provide information about the efficiency of photochemistry and an assortment of reactions that collectively protect a leaf when it absorbs excessive light energy. Combined measurements of stomatal conductance and chlorophyll *a* fluorescence present a more complete picture of a plant's physiological state than either technique alone.

Understanding these processes is important to many research applications, including plant physiology, ecology, genetic screening, agronomy, climate change research, and studies of plant stress.

Software that simplifies your work

Whether you are preparing for measurements, evaluating data files, or verifying the calibration, the Windows® and MacOS® software presents a simple, intuitive interface that lets you focus on the task at hand.





Time-saving features for fast surveys

- USB charging and data transfer.
- Sunlight-readable display shows the instrument status, real-time data, and the most recent measurement.
- Barcode scanner to enter sample information and reduce manual data entry errors.
- Built-in rechargeable battery lasts 8 hours or more.
- Ergonomic and light weight for easy handling.
- Completes a measurement in seconds.

Dependable data, day after day

- Infrared temperature sensor for fast, accurate leaf temperature measurements.
- Built-in light sensor measures ambient photosynthetically active radiation (PAR) near the leaf.
- Automatic, user-configurable matching of RH sensors ensures that you measure the true differential.
- Pliable gasket material conforms to the leaf to minimize diffusion and bulk flow leaks.
- Automatic leak detection to ensure that the aperture seals over the leaf surface.

Ordering information

LI-600PF Porometer/Fluorometer

The LI-600PF includes the porometer and fluorometer for both stomatal conductance and chlorophyll *a* fluorescence measurements. Includes a carrying case, wrist strap, battery charger, USB cable, spares kit, manual, and quick start guide.

LI-600P Porometer

The LI-600P includes the porometer for stomatal conductance measurements. Include a carrying case, wrist strap, battery charger, USB cable, spares kit, manual, and quick start guide.

600-01F Fluorometer Upgrade Kit

The 600-01F Fluorometer Upgrade Kit adds the fluorometer module to the LI-600P (porometer only) model for chlorophyll *a* fluorescence measurements.

For more information contact envsales@licor.com.

Specifications

Measurement time:

Porometer: 5 to 15 seconds typically, depending on species, leaf surface characteristics, and leaf conditions

Fluorometer: 1 second

Operating conditions:

Temperature: 0 to 50 °C

Pressure: 50 to 110 kPa

Humidity: 0 to 85%; non-condensing

Weight: 0.68 kg (porometer only); 0.73 kg with fluorometer

Dimensions: 32.4 cm x 16.9 cm x 6.2 cm (L x W x H)

Display:

Dimensions: 6.8 cm diagonally

Resolution: 400 by 240 dots; sunlight readable monochrome

Keypad: 5-button membrane pad

Battery:

Built-in Li-ion

Operating hours: 8 hours typically

Capacity: 5200 mAh

Recharging time: 3.5 hours typically; 2 hours with

Qualcomm® Quick Charge™ 2.0 or 3.0

Data storage: 128 MB

USB specifications:

USB-A to Micro-USB

Qualcomm® Quick Charge™ 2.0 or 3.0 for rapid charging

Universal charging adapter:

Input: 90 to 264 VAC; 50 to 60 Hz

Output: 5 VDC; 1 Amp

Configuration software: Windows® and MacOS® applications

Data files: Plain text data compatible with any spreadsheet application or data analysis program.

Barcode scanner: 1-D and 2-D, including Code 39, Code 128, PDF417, 100% UPC, Data Matrix, QR Code

Photosynthetically Active Radiation (PAR) measurement:

Units: Photosynthetic Photon Flux Density (PPFD); $\mu\text{mol m}^{-2} \text{s}^{-1}$

Calibration Accuracy: $\pm 10\%$ of reading; traceable to NIST

Specifications subject to change without notice

Porometer

Aperture: 0.75 cm diameter

Flow rates:

Low: $75 \mu\text{mol s}^{-1}$

Medium: $100 \mu\text{mol s}^{-1}$

High: $150 \mu\text{mol s}^{-1}$

RH sensor accuracy: $\pm 0.2\%$

Reference temperature: $\pm 0.2^\circ\text{C}$

Leaf temperature sensor:

Accuracy: $\pm 0.5^\circ\text{C}$

Inlet flow measurement: $\pm 1\%$ of reading from $75 \mu\text{mol s}^{-1}$ to $150 \mu\text{mol s}^{-1}$

Exhaust flow measurement: $\pm 5\%$ of full scale up to $200 \mu\text{mol s}^{-1}$

Parameters:

- g_{sw} $\text{mol m}^{-2} \text{s}^{-1}$; g_{bw} $\text{mol m}^{-2} \text{s}^{-1}$; g_{tw} $\text{mol m}^{-2} \text{s}^{-1}$;
E $\text{mol m}^{-2} \text{s}^{-1}$

- VP_{cham} kPa; VP_{ref} kPa; VP_{leaf} kPa; VPD_{leaf} kPa

- H_2O_{ref} mmol mol⁻¹; H_2O_{samp} mmol mol⁻¹;

H_2O_{leaf} mmol mol⁻¹

Fluorometer

Flash types: User configurable Rectangular and Multi-phase Flash (MPF)

Measuring light peak wavelengths: 625 nm

Measuring light peak intensity: 0 to $10,000 \mu\text{mol m}^{-2} \text{s}^{-1}$

Flash intensity: 0 to $7500 \mu\text{mol m}^{-2} \text{s}^{-1}$

Parameters:

F_o ; F_m ; F_v ; F_v/F_m ; F_s ; F_m' ; Φ_{PSII} ; ETR