

**NEW**

# LI-600 Porometer/Fluorometer

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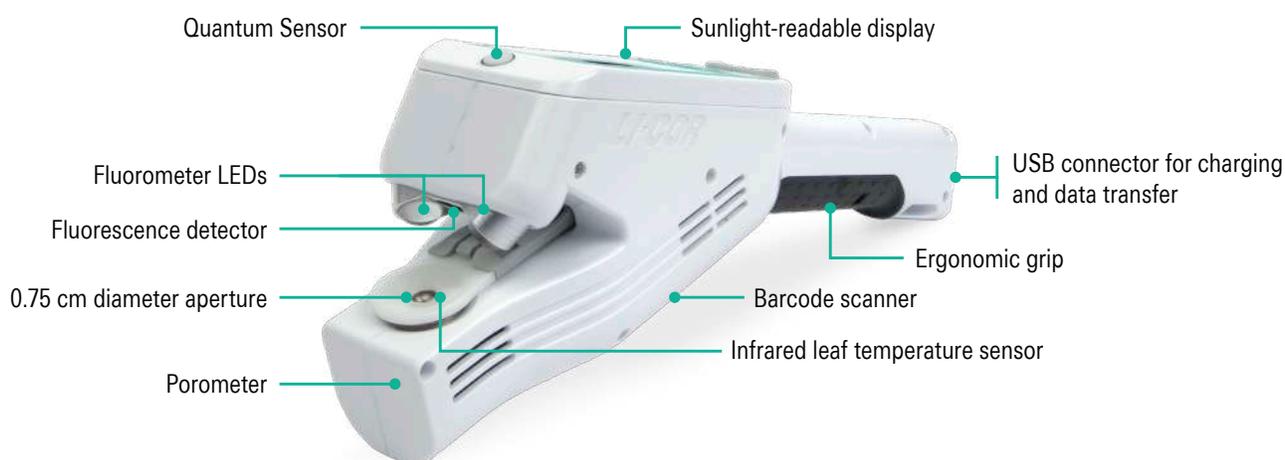
For fast measurements of stomatal conductance and chlorophyll fluorescence



# 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?

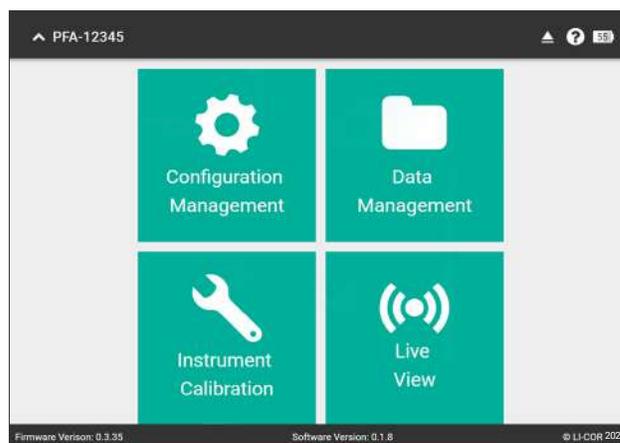
Stomatal openings regulate the exchange of water vapor and CO<sub>2</sub> between a leaf and the air. Measurements of stomatal conductance indicates a plant's physiological response to environmental conditions.

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](mailto: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:**  $\pm 0.2 \text{ }^\circ\text{C}$

### Leaf temperature sensor:

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

**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  $\text{mol m}^{-2} \text{s}^{-1}$

-  $VP_{\text{cham}}$  kPa;  $VP_{\text{ref}}$  kPa;  $VP_{\text{leaf}}$  kPa;  $VPD_{\text{leaf}}$  kPa

-  $H_2O_{\text{ref}}$   $\text{mmol mol}^{-1}$ ;  $H_2O_{\text{samp}}$   $\text{mmol mol}^{-1}$ ;

$H_2O_{\text{leaf}}$   $\text{mmol mol}^{-1}$

## 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:

$F_o$ ;  $F_m$ ;  $F_v$ ;  $F_v/F_m$ ;  $F_s$ ;  $F_m'$ ;  $\Phi_{PSII}$ ; ETR

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