LI-6400XT

PORTABLE PHOTOSYNTESIS SYSTEM

LI-6400XT Portable Photosynthesis System

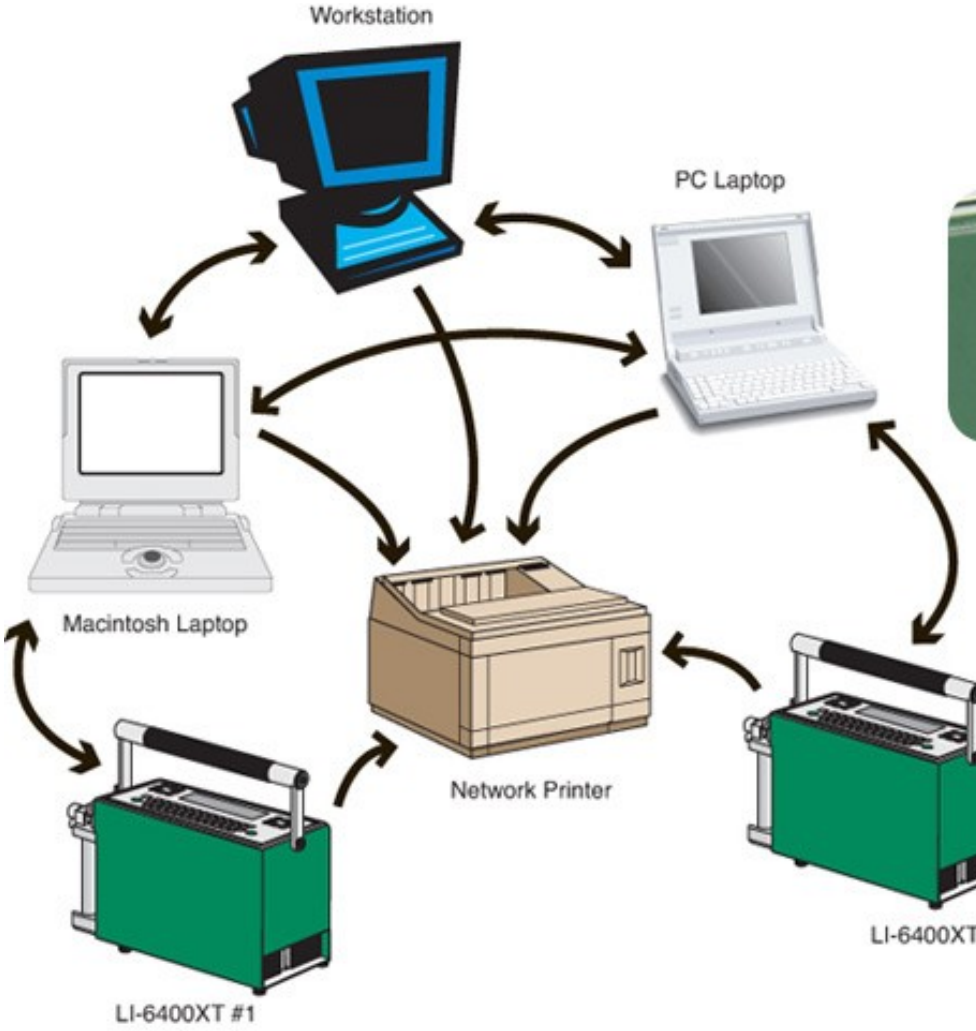
- Precise measurements and rapid response times
- Integrated gas exchange/fluorescence
- Internal and removable Flash memory
- Software simulator and autoprograms

LI-COR is pleased to announce another significant step forward with the LI-6400 System – the new LI-6400XT. Rather than rest on the LI-6400's considerable accomplishments as the undisputed market leader, LI-COR continues to innovate and enhance on a proven, familiar platform. The first new feature you'll notice with the LI-6400XT is a small access panel that covers an expansion slot; this slot supports compact flash memory cards, or an Ethernet connector. What you may not notice is the new, faster computer inside, in the form of a 400 MHz processor on the new digital board… or the new OPEN version 6 software that runs the instrument. Click on the tabs below to learn more about enhanced XT features

Take advantage of the convenience that removable flash memory provides:

- Archive your files.
- Transfer files from the field to the laboratory or office, or vice versa, without moving the instrument.
- Transfer files to other LI-6400XTs.
- Forget the cables completely – just pop the card out and view or chart your data files on your computer.

Flash Memory



Net Working

Include the LI-6400XT in your LAN
Just plug it in – your LI-6400XT will appear with a unique name (based on your unit's serial number). No additional software is required. Now you can…

1.) Drag and drop files between instruments, computers, or even printers.

2.) Configure multiple LI-6400XTs in the same way, by moving configuration files.

3.) Skip the file transfer completely, and simply open an LI-6400XT data file with your favorite spreadsheet or statistical analysis package.

Photosynthesis

The LI-6400XT is the only photosynthesis measurement system to put the CO2 and H2O gas analyzers in the sensor head. These dual path, non-dispersive infrared analyzers feature an open path design with the optical bench of the sample analyzer open directly to the leaf chamber mixing volume. Leaf dynamics are measured in real time, preventing confounding correlations between gas exchange and changes in environmental driving variables.

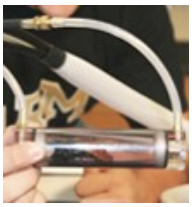
Fluorescence

The field-installable Leaf Chamber Fluorometer easily attaches to the LI-6400XT sensor head. This integrated system gives the user complete control of the leaf environment for simultaneous collection of gas exchange and chlorophyll fluorescence data from a single, portable unit

Soil Respiration

Attach the Soil CO2 Flux Chamber to the LI-6400XT System for an additional carbon cycle application. A pre-defined software protocol and automated measurement cycling ensure ease of use and accurate data collection

Insect Respiration



The LI-6400XT can be used to measure CO2 production from insects with the Insect Respiration Kit. LI-COR provides a software download specific for this application which reports respiration numbers on a per mass basis.

LI-6400XT Console

The LI-6400XT system console combines a data acquisition system with a high speed computer for dedicated data logging and computations. High speed analog to digital converters support fast response applications. The backlit 8 x 40 character graphical display allows any 12 experimental variables to be displayed at once. All computed variables are calculated and displayed in real time.

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Specification

CO2 Analyzer

Type: Absolute, open path, non-dispersive infrared gas analyzer.
Range: 0-3000 µmol mol^{-1}.
Bandwidth: 10 Hz.
Signal Noise: Typically 0.3 µmol mol^{-1} peak-to-peak at 350 µmol mol^{-1} with 1 second signal averaging; 0.8 µmol mol^{-1} maximum. With 4 second signal averaging, signal noise is typically 0.2 µmol mol-1 peak-to-peak.
Accuracy: Maximum deviation: ± 5 µmol mol^{-1} from 0 to 1500 µmol mol^{-1} ± 10 µmol mol^{-1} from 1500 to 3000 µmol mol^{-1}.
Sensor: Solid state. Minimal sensitivity to motion.
Orientation Sensitivity: ± 1 µmol mol^{-1} at 350 µmol mol^{-1} from any orientation.

H2O Analyzer

Type: Absolute, open path, non-dispersive infrared gas analyzer.
Range: 0-75 mmol mol^{-1}, or 40°C dew point.
Bandwidth: 10 Hz.
Signal Noise: Typically 0.04 mmol mol^{-1} peak-to-peak at 20 mmol mol-1 with 1 second signal averaging; 0.06 mmol mol-1 maximum. With 4 second signal averaging, signal noise is typically 0.03 mmol mol^{-1} peak-to-peak.
Accuracy: Maximum deviation: ± 1.0 mmol mol^{-1} from 0-75 mmol mol^{-1}.

Temperature

Operating Temperature Range: 0°C to 50°C.
Optical Housing Block and Air Temperature:
Sensor Type: 3-wire thermistor.
Range: -10 to 50°C.
Accuracy: Maximum error < ± 0.5°C.
Typical Error: < ± 0.25°C.
Temperature Control: Leaf chamber can be heated or cooled ± 6°C from ambient.
Control Range: 0 to 50.0°C.
Set point Resolution: 0.2°C.
Leaf Temperature Thermocouple:
Type: E.
Range: ± 50°C of reference.
Reference: Optical housing block thermistor.
Accuracy: ± 10% of T difference between sample and reference junctions with amplifier zeroed; typically < 0.2° C.

Output

RS-232: Hardwired DTE.
Expansion Slot : Supports either Compact Flash or Ethernet card adapter.
Compact Flash Card: Industrial Grade (included)
Ethernet Card Adapter: Type 1 CF Ethernet card, 10/100

Air Flow

Flow rate: 0 to 700 µmol s^{-1} with 6400-01 CO2 injector and 150 to 1000 µmol s^{-1} without CO2 injector.

Pressure

Pressure Range: 65 to 110 kPa absolute.
Accuracy: ± 0.1% of full scale.
Resolution: 0.002 kPa.
Signal Noise (peak-to-peak): 0.002 kPa typical.

System Console

Processor: 400MHz Intel XScale
Memory: 128 MB RAM for operation; 64 MB flash memory for data storage.
Display: Adjustable contrast, backlit, 8 line x 40 character (240 x 64 dot) LCD graphic display.
Keyboard: Full ASCII keypad, sealed from dust and moisture with membrane overlay.
Power Requirement: 10.5 to 15 VDC; 4A maximum (current draw dependent upon system operation). < 10A momentary peak.

6400-01 CO2 Injector

CO2 Mixing Range: < 50 µmol mol^{-1} to > 2000 µmol mol^{-1}.
Operating Temperature Range: 0-50°C.
CO2 Source Assembly:
Type: 12g pure liquid CO2 cylinder.
Lifetime: 8 hours after activation regardless of use.
CO2 Tank Connector Block:
Minimum Pressure: 1250 kPa (180 psig).
Maximum Pressure: 1500 kPa (220 psig).
Usage Rate: constant at ~10 sccm.

Light Measurement

PAR Internal and External Chamber Sensors:
Range: 0 to > 3000 µmol mol^{-1}.
Resolution: < 1 µmol mol^{-1}.
Calibration Accuracy: ± 5% of reading, traceable to NIST.

6400-02B LED Light Source

Output Range: 0 to 2000 µmol m^{-2} s-1 at 30°C.
Minimum Fraction Blue: 5% (photon basis).
Typical Fraction Blue: 100 µmol m^{-2} s^{-1}, 13%, 1000 µmol $m^{-2}s^{-1}$, 10%, 2000 µmol m^{-2} s^{-1}, 7%.
Red Peak Wavelength: 665 nm ±10 nm at 25°C.
Blue Peak Wavelength: 470 nm ±10 nm at 25°C.
Power Consumption at 2000 µmol m^{-2} s^{-1}: 8W.
Operating Temperature Range: 0-50°C.
Size: 5.2H x 5.6W x 7.3D cm (2.0 x 2.2 x 2.9 in.).
Weight: 0.2 kg (0.44 lb.).

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