

Environmental Product Catalog

International

Effective January 2022

LI-COR[®]

Dear LI-COR Customer,

Thank you for your interest in LI-COR products. Our commitment is to help you excel in your research and teaching through the development of high quality, innovative instruments.

We are confident that our instruments will provide you the right solutions for your research. Our sales and support teams stand ready to offer advice on instrument systems and to ensure that the instruments you select will be the right choice for your specific application.

Every LI-COR instrument is backed with full technical support. A dedicated support website, highly trained applications scientists and analysts, and complementary software ensure that your selection of LI-COR instruments remains a smart choice for many years.

LI-COR sells and supports instruments worldwide through our offices in the United States, Germany, United Kingdom, and a network of distributors. To find the appropriate point of contact for your country, please visit licor.com/envdistributors.

Feel free to contact us for further assistance, or visit our website at licor.com/env.

Sincerely,
LI-COR

Prices are FCA Lincoln, Nebraska. Prices and specifications are subject to change without notice.

Delivery dates are subject to product availability. For exact delivery date, please consult the LI-COR Sales Department at time of order.

To place an order: Customers from countries not served by a LI-COR representative should place their order directly to the factory. Importing assistance is available from LI-COR, as well as from the customer's purchasing agent, banker or government authority. The customer should ask for a proforma invoice for the instruments desired before ordering, as all orders should reference a valid LI-COR proforma invoice. Shipment by air is required. Unless otherwise specified, LI-COR will determine the shipping method and will prepay freight and insurance and add it to the invoice.

Customers from countries served by an exclusive LI-COR Agent should place their order directly with the Agent organization.

Terms to non-USA accounts are payment in advance or irrevocable letter of credit through a USA bank. Terms for orders placed through exclusive LI-COR distributors are determined mutually between the customer and the distributor organization.

Warranty: All LI-COR products are warranted against defects in material and workmanship for one year from the shipping date to the original purchaser. If any product that is manufactured and sold by LI-COR fails to operate properly during the applicable

warranty period as a result of defect in materials or workmanship, LI-COR will repair or replace (at LI-COR's option) the defective product and restore it to its normal operation without charge for parts and labor.

In order to obtain service under terms of the warranty, the customer must notify LI-COR of any defects before expiration of the warranty period and make suitable arrangements for the performance of repair service. Unless other arrangements have been made in writing, transportation to LI-COR, duties, taxes, etc., are at customer expense throughout the warranty period.

LI-COR's liability is limited to repair or replacement of defective instruments. Damage due to abuse, accident, alteration, shipping damage, misuse or corrosion is not covered by this warranty. Other than the obligation of LI-COR expressly set forth herein, LI-COR disclaims all warranties, express or implied, including but not limited to any implied warranties of merchantability of fitness for a particular purpose. LI-COR, Inc. is not liable for indirect, incidental or consequential damages.

Return Policy: Products may be returned to LI-COR within 45 days of invoice date only with prior authorization. The product(s) being returned must be resalable as new. A 15% re-stocking fee will be assessed on all items returned.

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Product Service and Support**Standard Terms and Conditions**



LI-COR plant measurement systems provide leading technology for measuring numerous aspects of plants in research applications related to agronomy and climate science. Whether you are measuring carbon uptake by terrestrial plants, water stress, or the response of algae to different light conditions, LI-COR has an instrument for you.



LI-6800 Portable Photosynthesis System

- The leading instrument for fast A-Ci curves and survey measurements
- Extensive collection of chambers support many research applications
- See page 6

6800-18 Aquatic Chamber

- For measurements from algae and other aquatic samples
- Extends the functionality of the LI-6800 to wet and aquatic samples
- See page 13



LI-600 Porometer/Fluorometer

- For rapid surveys of many plants
- Light weight, hand-held, and ergonomic
- See page 14



LI-6800 Portable Photosynthesis System

The next generation photosynthesis system. All packages include a console, cables, sensor head, quantum sensor, batteries, battery charger, power supply, carrying harness, CO₂ cartridges, gas conditioning chemicals, and the spares kit.

licor.com/6800

LI-6800 Packages

LI-6800F Portable Photosynthesis System with Fluorometer

Complete gas exchange and fluorescence system with components for field or lab measurements that include fluorescence. Includes:

- Console, sensor head, and cable assembly (9968-092)
- Multiphase Flash™ Fluorometer with apertures (6800-01A) and spares
- Bluestem Operating Software (installed on instrument) - intuitive graphical interface to visualize control configurations, diagnostics, measurement protocols, real-time data values, and more
- Instrument case (9968-222), accessory case (9968-223), and carrying harness (9968-221)
- Photosynthesis tripod (609-15790) and panhead mount (609-15791)
- Three lithium ion batteries (442-11807), AC to DC power supply (9968-232), and single-bay battery charger (590-11830)
- Silica gel, soda lime, and a humidifier column for gas conditioning
- Three boxes of 8-gram CO₂ cartridges (quantity of 25/box)

With the Purchase of a Photosynthesis System:

Get two certificates for two-day training courses on photosynthesis measurements taught by LI-COR scientists. Training covers the fundamentals of gas exchange and fluorescence measurements, as well as basic instrument maintenance.

- Training is conducted at LI-COR headquarters in Lincoln, Nebraska, USA.
- Attendees are responsible for travel and lodging accommodations. Lunch is provided.

Contact LI-COR for more information.

licor.com/photosynthesis-training

LI-6800P**Portable Photosynthesis System**

Complete gas exchange system with components for field or lab measurements with natural or controlled light. Includes:

- Console, sensor head, and cable assembly (9968-092)
- 3 cm × 3 cm light source (6800-02) with spares kit
- Clear-top leaf chamber with apertures (6800-12A) and spares
- Bluestem Operating Software (installed on instrument) - intuitive graphical interface to visualize control configurations, diagnostics, measurement protocols, real-time data values, and more
- Instrument case (9968-222), accessory case (9968-223), and carrying harness (9968-221)
- Photosynthesis tripod (609-15790) and panhead mount (609-15791)
- Three lithium ion batteries (442-11807), AC to DC power supply (9968-232), and single-bay battery charger (590-11830)
- Silica gel, soda lime, and a humidifier column for gas conditioning
- Three boxes of 8-gram CO₂ cartridges (quantity of 25/box)

LI-6800S**Portable Photosynthesis System**

Complete gas exchange system with components for field measurements. Includes:

- Console, sensor head, and cable assembly (9968-092)
- Clear-top leaf chamber with apertures (6800-12A) and spares
- Bluestem Operating Software (installed on instrument) - intuitive graphical interface to visualize control configurations, diagnostics, measurement protocols, real-time data values, and more
- Instrument case (9968-222) and carrying harness kit (9968-221)
- Three lithium ion batteries (442-11807), AC to DC power supply (9968-232), and single-bay battery charger (590-11830)
- Silica gel, soda lime, and a humidifier column for gas conditioning
- Three boxes of 8-gram CO₂ cartridges (quantity of 25/box)

Light Sources**6800-01A****Multiphase Flash™ Fluorometer with Apertures**

Used for simultaneous gas exchange and fluorescence measurements over the same 6 cm² and 2 cm² leaf area. Provides maximum saturating flash intensity, Multiphase Flash™ (MPF) protocol, and independent control of blue and red LEDs. Includes spare gaskets.

6800-02**3 cm × 3 cm Light Source**

For use with existing Clear-top Leaf Chamber with Apertures (6800-12A).

6800-03**Large Light Source**

The Large Light Source measures 6 cm × 6 cm. It is for use with the Large Leaf and Needle Chamber (6800-13), Small Plant Chamber (6800-17), and Bryophyte Chamber (6800-24). It provides irradiance with any combination of red, green, blue, and white light.

Clear-top Leaf Chamber

- 6800-02P** **3 cm × 3 cm Light Source and Chamber Kit**
Used to control light in the leaf chamber. For use with the 3 cm × 3 cm chamber. Includes the 3 cm × 3 cm Light Source (6800-02), Light Source Gasket Kit (9968-206), and Clear-top Leaf Chamber with Apertures (6800-12A).
- 6800-12A** **Clear-top Leaf Chamber with Apertures**
The Clear-top Leaf Chamber with 3 cm × 3 cm, 2 cm × 3 cm, and 1 cm × 3 cm apertures.

Large Leaf and Needle Chamber

- 6800-13L** **Large Leaf and Conifer Chamber with Large Light Source**
The Large Leaf and Needle Chamber (6 cm × 6 cm) and Large Light Source enables the measurements of conifer sprigs and shoots under controlled light conditions with the Large Light Source (6800-03). This package also includes the Conifer Sprig Adapter Kit (9968-271).
- 6800-13** **Large Leaf and Needle Chamber (Chamber only)**
The Large Leaf and Needle Chamber (6 cm × 6 cm) enables the measurements of conifer sprigs and shoots under ambient lighting conditions.

Small Plant Chamber

- 6800-17L** **Small Plant Chamber with Large Light Source**
The Small Plant Chamber and Large Light Source enables the measurements of whole *Arabidopsis thaliana* plants, other small rosettes, or short canopies such as turf in 65 mm (2.5 inch) pots or 38 mm (1.5 inch) Cone-tainers™ under controlled lighting conditions with the Large Light Source (6800-03).
- 6800-17** **Small Plant Chamber (Chamber only)**
The Small Plant Chamber enables the measurements of whole *Arabidopsis thaliana* plants, other small rosettes, or short canopies such as turf in 65 mm (2.5 inch) pots or 38 mm (1.5 inch) Cone-tainers™.

Bryophyte Chamber

- 6800-24L** **Lighted Bryophyte Chamber with Large Light Source**
The Bryophyte Chamber and Large Light Source is used to measure CO₂ and H₂O gas exchange from mosses, hornworts, liverworts, and lichens. The chamber holds loose material in a shallow well during the measurement under controlled lighting conditions with the Large Light Source (6800-03).
- 6800-24** **Bryophyte Chamber (Chamber only)**
The Bryophyte Chamber is used to measure CO₂ and H₂O gas exchange from mosses, hornworts, liverworts, and lichens. The chamber holds loose material in a shallow well during the measurement.

Additional Chambers

- 6800-09** **Soil CO₂ Flux Chamber**
 The 20 cm Soil CO₂ Flux Chamber is used to measure the rate of diffusion of CO₂ from the soil surface. Includes soil temperature/moisture probe, three soil collars, and a spares kit.
- 6800-19** **Custom Chamber Adapter**
 The custom chamber adapter allows you to construct a chamber to meet your needs. The custom chamber kit includes the adapter and hardware, tube connectors, type 'E' thermocouple adapter cable, and a template to provide guidance for interfacing the custom chamber and adapter.
- 6800-89** **Insect Respiration Chamber**
 The Insect Respiration Chamber provides the ability to measure CO₂ respiration from insects, other very small animals, or small fruits. The insect respiration chamber includes the custom chamber adapter and a column to hold the sample (9960-093).
- 9968-313** **One-sided Leaf Measurement Kit for Fluorometer Chamber**
 Hardware kit with custom gasket mounted to an aperture with propafilm for one sided leaf gas exchange measurements for the LI-6800 fluorometer. Includes tubing on gasket for flowing air in to the excluded portion of the leaf as well as exhaust to flow air to a second analyzer, if desired.
- 9960-093** **CO₂ and H₂O Scrub Tube**
 Column to hold the sample in the Insect Respiration Chamber (6800-89). If you already have the 6800-19 Custom Chamber Adapter, you can purchase this 9960-093 CO₂ and H₂O Scrub Tube to hold the sample.

LI-6800 Accessories

- 6800-500** **Digital Board Upgrade**
 Upgraded digital board for the console. Replacement for the original 800 MHz ARM® Cortex® A8 processor and 500 MB RAM providing an ARM® Cortex® A9 processor running at 1 GHz with 2 GB RAM. Provides faster touchscreen response.
- 900-19016** **Soil Moisture/Temperature Probe, 1 m**
 Stevens HydraProbe soil probe for the Soil CO₂ Flux Chamber (6800-09), Smart Chamber (8200-01S), and LI-8250 Multiplexer long-term chambers.
- 9968-109** **CO₂ Tank Adapter Kit**
 Parts to connect external CO₂ tank to LI-6800.
- 9968-210** **Sub-Sampling Kit**
 Parts needed to sample airstream from the LI-6800 sub-sampling ports.
- 9968-258** **Scrub Tube Zero Kit**
 Chemical column attaches between LI-6800 sensor head and console to zero the LI-6800 analyzer. Chemicals not included. Two included in LI-6800 packages.
- 9968-271** **Conifer Sprig Kit**
 Conifer sprig adapter blocks for the Large Leaf and Needle Chamber (6800-13).

- 9968-173** **System Spares Kit**
Spares including screws, o-rings, filters, tubing, propafilm, thermocouple, and other items to operate the LI-6800. One included in LI-6800 packages.
- 9968-207** **6 cm × 6 cm Large Leaf and Needle Chamber Spares Kit**
Spares kit for the Large Leaf and Needle Chamber (6800-13). Includes an o-ring, propafilm kit, and gaskets.
- 9968-249** **Large Light Source Spares Kit**
Spares kit for the Large Light Source (6800-03). Includes four upper white gaskets, four lower black gaskets, and three light source gaskets.
- 9968-269** **Clear-top Chamber Spares Kit**
Spares kit for the Clear-top Leaf Chamber with Apertures (6800-12A). Includes o-rings, foam pads, and gaskets.
- 9968-270** **Multiphase Fluorometer with Apertures Spares Kit**
Spares kit for the Multiphase Fluorometer with Apertures (6800-01A). Includes o-rings, foam pads, and gaskets.
- 9964-090** **Soda Lime**
Wet type, 6-12 mesh, 450 grams. Two included in LI-6800 packages.
- 622-16951** **Silica Gel Desiccant**
0.45 kg glass bottle for use with the LI-6800 and LI-6400/XT Portable Photosynthesis Systems (BASF Sorbead® Orange CHAMELEON®). Two included in LI-6800F and LI-6800P packages, one included in LI-6800S package.
- 622-04299** **Drierite**
10-20 mesh, 0.47 liter bottle.
- 622-10509** **Non-Indicating Drierite**
For use with the LI-6800 and LI-6400/XT Portable Photosynthesis Systems. 10-20 mesh, 0.45 kg bottle.
- 9968-227** **8-gram CO₂ Cartridges (Qty. 25)**
CO₂ cartridges to supply pure CO₂ gas to the LI-6800.
- 9968-250** **Chemical and CO₂ Kit**
Optional kit that provides all the necessary spare chemicals and CO₂ cartridges needed to operate the LI-6800 Portable Photosynthesis System. Includes four packs of 8-gram CO₂ cartridges (Qty. 100 total), two bottles of silica gel, and two bottles of soda lime.
- 9968-211** **Intake Air Filter**
Filter for the intake air.
- 9968-317** **Nafion Humidifier Column (replacement for Stuttgarter Masse column)**
Replacement for the standard Stuttgarter Masse humidifier column. Isolates liquid water from the flow path to ensure that the flow controller and system components are protected from liquid water.

- 9968-225** **Chemical Column (replacement for H₂O scrub and CO₂ scrub columns)**
LI-6800 chemical column with labels. Replaces the H₂O scrub column or CO₂ scrub column. Not suitable for H₂O add column (use 9968-317 humidifier instead).
- 6800-50** **6 cm² Aperture for the 6800-01A**
6 cm² Aperture to be used with the 6800-01A Multiphase Flash™ Fluorometer. Two apertures are required for operation. Gasket and o-ring included.
- 6800-51** **2 cm² Aperture for the 6800-01A**
2 cm² Aperture to be used with the 6800-01A Multiphase Flash™ Fluorometer. Two apertures are required for operation. Gasket and o-ring included.
- 6800-52** **3 cm × 3 cm Aperture for the 6800-12A**
3 cm × 3 cm Aperture for the 6800-12A Clear-top Leaf Chamber. Two apertures are required for operation. Gasket and o-ring included.
- 6800-53** **2 cm × 3 cm Aperture for the 6800-12A**
2 cm × 3 cm Aperture for the 6800-12A Clear-top Leaf Chamber. Two apertures are required for operation. Gasket and o-ring included.
- 6800-54** **1 cm × 3 cm Aperture for the 6800-12A**
1 cm × 3 cm Aperture for the 6800-12A Clear-top Leaf Chamber. Two apertures are required for operation. Gasket and o-ring included.
- 442-11807** **Rechargeable Lithium Ion Battery**
Rechargeable battery (14.4 V; 6.8 Ah) for use with the LI-6800, Smart Chamber, and Trace Gas Analyzers.
- 590-11830** **Battery Charger**
Single-bay battery charger for use with the 442-11807 Lithium Ion Rechargeable Battery. One included in LI-6800 packages.
- 9968-232** **Power Supply with Power Cord**
110 to 240 VAC input; 24 VDC output for the LI-6800. One included in LI-6800 packages.
- 9968-242** **Auxiliary Power Cable**
AC power connector to bare leads for use with the LI-6800.
- 9968-092** **Cable Assembly**
Spare cable to connect the LI-6800 sensor head and console. One included in LI-6800 packages.
- 9968-162** **Thermocouple Adapter Cable**
Thermocouple adapter cable for the custom chamber adapter (6800-19).
- 9968-243** **Light Source Extension Cable**
Cable used to connect an additional light source to the LI-6800 sensor head.
- 9968-221** **Carrying Harness Kit**
Shoulder and waist straps for carrying the LI-6800 console. Included in LI-6800 packages.

- 609-15790** **Photosynthesis Tripod**
Can be used with either the LI-6800 sensor head or console. Included in LI-6800F and LI-6800P packages.
- 609-15791** **Panhead Mount**
Mounts to tripod or monopod. Pivots to a full range of positions. Included in LI-6800F and LI-6800P packages.
- 609-19238** **Photosynthesis Monopod**
Single-post podium for the sensor head (replacement for 609-15792).
- 9968-222** **System Case**
This is the primary case for the LI-6800 System, batteries, manuals, and chambers. Included in LI-6800 packages.
- 9968-223** **Accessory Case**
This is the case for additional chambers, spares kits, tripod, panhead mount, battery charger, power supply, carrying harness, additional batteries, and chemicals to operate the LI-6800. Included in LI-6800F and LI-6800P packages.
- 9968-272** **6800-01 Fluorometer Upgrade**
Upgrade an existing 6800-01 to the new 6800-01A Multiphase Flash™ Fluorometer. The fluorometer must be sent to the global headquarters in the USA, the regional office in Germany, or your distributor.



6800-18 Aquatic Chamber

The aquatic chamber is used to measure steady-state carbon assimilation and chlorophyll *a* fluorescence from an algal suspension using the LI-6800, the preferred photosynthesis system for terrestrial plant research. The chamber is available as a full system, aquatic chamber plus fluorometer, and aquatic chamber only.

licor.com/aquatic

Aquatic Chamber Packages

- LI-6800AQ** **Portable Photosynthesis System with Aquatic Chamber**
 Designed for the primarily aquatic researcher, this package includes the LI-6800 system with console, sensor head, cable assembly, 6800-01A Fluorometer, and 6800-18 Aquatic Chamber. Accessories include the spares kit, power supply, two batteries, silica gel, soda lime, and CO₂ cartridges.
- 6800FAQ** **Aquatic Chamber with Fluorometer**
 Includes the 6800-01A Fluorometer and the 6800-18 Aquatic Chamber. This package is for customers who already have an LI-6800 system and still need a 6800-01A Fluorometer or want a specific 6800-01A Fluorometer for their aquatic work to avoid routine switching back and forth to the leaf level measurements.
- 6800-18** **Aquatic Chamber**
 LI-6800 Aquatic Chamber for measuring Photosynthesis and Respiration in an aquatic solution. Requires the LI-6800 Portable Photosynthesis System and 6800-01A Fluorometer. Includes the spares kit.
- 9968-338** **Aquatic Chamber Adapter Assembly**
 The aquatic chamber sample adapter assembly is for measuring samples such as sea grasses, macro-algae, coral and bryophytes in the aquatic chamber.



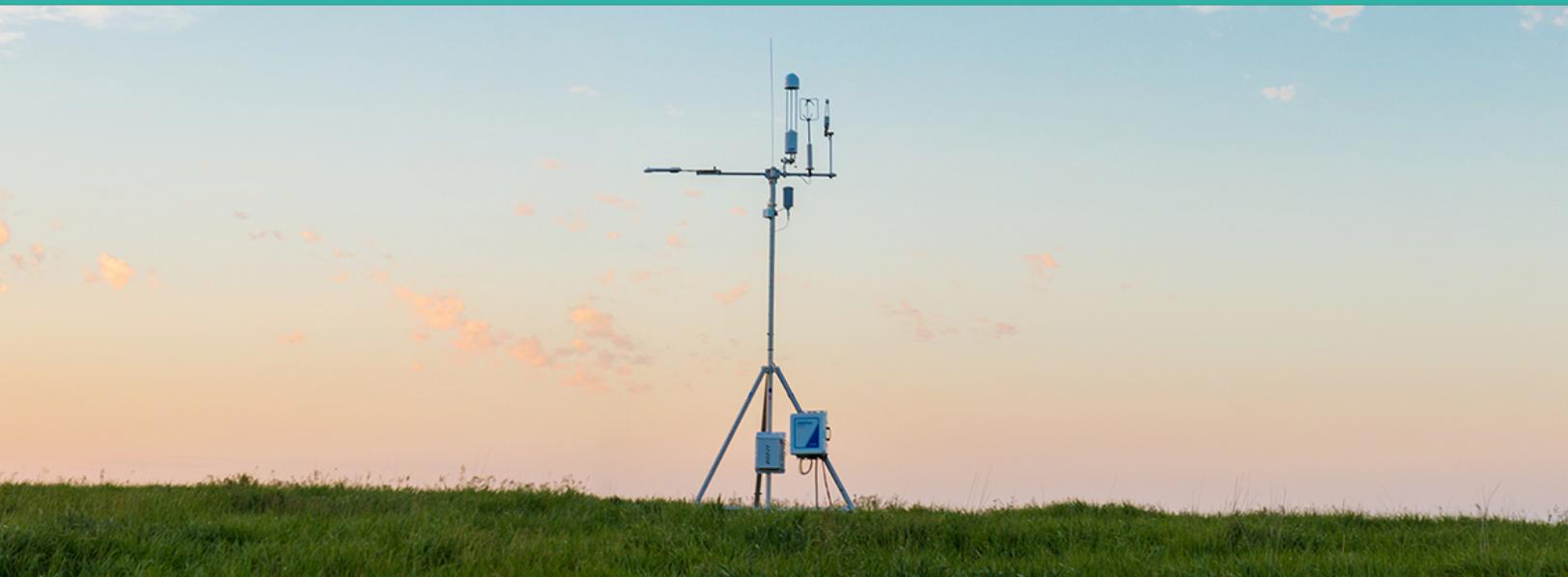
LI-600 Porometer/Fluorometer

The LI-600 Porometer/Fluorometer is a light, fast, hand-held instrument designed for rapid surveys of stomatal conductance and chlorophyll fluorescence.

licor.com/LI-600

LI-600 Packages

- | | |
|-----------------|---|
| LI-600P | Porometer
Porometer for stomatal conductance measurements. Includes the porometer, carrying case, wrist strap, battery charger, USB cable, spares kit, manual and quick start guide. |
| LI-600PF | Porometer/Fluorometer
Combined porometer and fluorometer for stomatal conductance and chlorophyll fluorescence measurements with leaf angle and location data. Includes the porometer and fluorometer. Accessories include a carrying case, wrist strap, battery charger, USB cable, spares kit, manual, and quick start guide. |
| 600-01F | Fluorometer upgrade kit
Fluorometer upgrade kit to install a fluorometer on an LI-600P (Porometer only) instrument. Includes an installation guide. |
| 600RH | RH Sensor Replacement Kit
New RH sensors to replace damaged or worn out sensors in the LI-600. Includes sensors, installation instructions, and calibration data. |



Gas analyzers feature low noise, high precision, long-term stability, and low power consumption. The SmartFlux System provides exquisite analysis of gas, wind, and biomet data, for fully processed flux results in real time. Systems include the leading eddy covariance software, including EddyPro® Software to compute results.

licor.com/ec-customize



CO₂/H₂O Gas Analyzers

- Featuring low noise, high precision, and long-term stability
- See LI-7500DS on page 16
- See LI-7200RS on page 18

CH₄ Gas Analyzer

- Methane fluxes computed in real time on the SmartFlux System
- See LI-7700 on page 19



Eddy Covariance Accessories

- Biomet system and sensors
- Tripod and mounting hardware
- Cellular and satellite options
- See page 23

Open Path Eddy Covariance Systems

Complete eddy covariance systems include the LI-7500DS Open Path CO₂/H₂O Gas Analyzer, a Gill WindMaster/Pro sonic anemometer, the SmartFlux® 3 System, network switch, instruction manual, Windows® Software, and EddyPro® Software. Sonic anemometer cables must be ordered separately.

With the purchase of an LI-7500DS, LI-7200RS, or LI-7700:

Receive two certificates for two-day eddy covariance training with LI-COR scientists. Attendees are responsible for travel to Lincoln, NE USA and lodging accommodations.

licor.com/ec-training

LI-7900EF



LI-7500DS and SmartFlux 3 System

Complete eddy covariance system. Includes:

- LI-7500DS Open Path CO₂/H₂O Gas Analyzer
- Gill WindMaster sonic anemometer (7900-412)
- SmartFlux 3 System (7900-610)
- Network Switch (7900-730)
- EddyPro Software

LI-7900EFP



LI-7500DS and SmartFlux 3 System

Complete eddy covariance system. Includes:

- LI-7500DS Open Path CO₂/H₂O Gas Analyzer
- Gill WindMaster Pro sonic anemometer (7900-422)
- SmartFlux 3 System (7900-610)
- Network Switch (7900-730)
- EddyPro Software

Design your own eddy covariance system

Select your gas analyzer, sonic anemometer, biomet system, communication package, power supply, mounting, ancillary sensors, and cables and get a quote.

licor.com/ec-customize

LI-7500DS Open Path CO₂/H₂O Gas Analyzer

LI-7500DS



Open Path CO₂/H₂O Analyzer

A high-speed, high-precision open path CO₂/H₂O gas analyzer designed for eddy covariance and atmospheric monitoring. Includes the SmartFlux 3 System, instruction manual, Windows Software, EddyPro Flux Processing Software, carrying case, and mounting assemblies.

With the purchase of an LI-7500DS, LI-7200RS, or LI-7700:

Receive two certificates for two-day eddy covariance training with LI-COR scientists. Attendees are responsible for travel to Lincoln, NE USA and lodging accommodations.

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LI-7500DS Accessories

7900-610



The SmartFlux 3 System

Compatible with the LI-7500DS, the SmartFlux 3 System computes eddy covariance flux results at your site using EddyPro Software. Synchronizes digital data from the sonic anemometer with data from the gas analyzers and uses biomet data from a variety of dataloggers. GPS/PTP timekeeping prevents clock drift and keeps all instrument clocks in sync. Also collects diagnostic information from the sonic anemometer and gas analyzers.

9975-054

Calibration Kit

Includes a calibration shroud and temperature sensor used to perform user calibration.

7500-950

Replacement Internal Chemical Bottles (two bottles)

For the LI-7500, LI-7500A, LI-7500RS, and LI-7500DS. Prepared with Ascarite II and magnesium perchlorate. Order only when ready to use.

392-13977

Ethernet Cable, 5 m

392-16699

Ethernet Cable, 25 m

9975-030

Power Cable, 5 m

Connects the LI-7500DS, LI-7550, 7200-102, or LI-7700 to a power supply.

9975-056

Power Cable, 25 m

Connects the DSI box to a power supply.

9975-018

Cold Temperature Test

Verifies the LI-7500DS, LI-7500RS, and LI-7500A Analyzer performance at -40°C.

LI-7200RS Enclosed CO₂/H₂O Gas Analyzer

LI-7200RSF Enclosed CO₂/H₂O Analyzer / Flow Module Package with Tovi



A high-speed, high-precision CO₂/H₂O gas analyzer combining the benefits of open and closed path gas analyzers for eddy covariance measurements. Includes LI-7550 Analyzer Interface Unit, SmartFlux[®] 2 System, head cable (5 m), serial cable and USB adapter, DAC, auxiliary input, SDM Cables (5 m), Ethernet cable (5 m), network switch, 16 GB industrial grade USB drives, instruction manual, Windows[®] Software, and EddyPro[®] Software.

With the purchase of an LI-7500DS, LI-7200RS, or LI-7700:

Receive two certificates for two-day eddy covariance training with LI-COR scientists. Attendees are responsible for travel to Lincoln, NE USA and lodging accommodations.

licor.com/ec-training

LI-7200RS Accessories

7200-102 Flow Module

The 7200-102 Flow Module provides a precisely controlled airflow rate through the LI-7200RS optical path. Outputs mass flow rate, volumetric flow rate, and pressure drops with the data record, and provides diagnostic data to indicate when filter needs to be cleaned or replaced.

7900-600 The SmartFlux 2 System



Compatible with the LI-7500A/RS and LI-7200/RS, the SmartFlux 2 System computes eddy covariance flux results at the site using EddyPro Software. Synchronizes digital data from the sonic anemometer with data from the gas analyzers and uses biomet data from a variety of dataloggers. GPS/PTP timekeeping prevents clock drift and keeps all instrument clocks in sync. Also collects diagnostic information from the sonic anemometer and gas analyzers.

9972-072 LI-7200/RS Intake Tube Rain Cap

Included with the purchase of an LI-7200RS. This rain cap prevents the intake tube from drawing in rain or insects.

7200-040 LI-7200/RS Heated Intake Tube (serial #s AIU-1279 and below)

Straight heated intake tube for use with LI-7200/RS. Can be used instead of non-heated intake tube. Includes additional components for use with LI-7550 with serial number below AIU-1279.

7200-050 LI-7200/RS Heated Intake Tube

Straight heated intake tube for use with LI-7200/RS. Can be used instead of non-heated intake tube. Compatible with LI-7550 serial numbers AIU-1279 and above.

9972-073 LI-7200/RS Intake Filter Kit

Included with the purchase of an LI-7200RS. This 2 micron particle filter attaches to the 1/4" intake tube and filters out dirt particles.

7200-030 Intake Tube Conversion Kit

Field upgrade kit that reduces the LI-7200RS intake tube from 3/8" to 1/4". Includes 9972-072 Intake Tube Rain Cap.

7200-950	Replacement Internal Chemical Bottles (three bottles) For the LI-7200 and LI-7200RS only. Prepared with Ascarite II and magnesium perchlorate. Order only when ready to use.
9972-032	Head Cable Extension Assembly for the LI-7200RS, 5 m
392-10093	SDM Interface Cable, 5 m
392-10268	RS-232 Cable
392-10109	Analog Input/Output Cable
392-10108	Ethernet Cable, 5 m
392-10107	Ethernet RJ45 Adapter
9975-030	Power Cable, 5 m Connects the LI-7500DS, LI-7550, 7200-102, or LI-7700 to a power supply.
9972-050	Cold Temperature Test Verifies the LI-7200RS and LI-7200 Analyzer performance at -40 °C.

Gas Analyzer Upgrade Options

Some earlier models of gas analyzers can be upgraded to a more recent model. However, there are no upgrade paths to the LI-7500DS.

7200RS-675	LI-7200 to LI-7200RS Upgrade Upgrade existing LI-7200 to LI-7200RS. Includes new LI-7200RS software, analyzer head upgrade hardware, and free recalibration. Must be sent to LI-COR.
7500RS-675	LI-7500A to LI-7500RS Upgrade Upgrade existing LI-7500A to LI-7500RS. Includes LI-7500RS software, analyzer head upgrade hardware, and free calibration. Must be sent to LI-COR.

LI-7700 Open Path CH₄ Gas Analyzer

LI-7700 Open Path CH₄ Analyzer



The open path design of the LI-7700 provides elegant solutions to many of the challenges of measuring atmospheric CH₄ flux over various ecosystems and features direct Ethernet data output at up to 40 Hz. Includes power and Ethernet cables (5 m), calibration shroud, washer assembly, mounting hardware, instruction manual, spares kit, carrying case, Windows® Software and EddyPro® Software. Class 1 laser product.

With the purchase of an LI-7500DS, LI-7200RS, or LI-7700:

Receive two certificates for two-day eddy covariance training with LI-COR scientists. Attendees are responsible for travel to Lincoln, NE USA and lodging accommodations.

licor.com/ec-training

LI-7700AIU	Open Path CH₄ Analyzer / LI-7550 Analyzer Interface Unit Package Package includes the LI-7700 Open Path CH ₄ Analyzer and LI-7550 Analyzer Interface Unit.
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7700-950 **Replacement Internal Chemical Bottle**
For use with the LI-7700 only. Prepared with Drierite. Order only when ready to use.

LI-7550 Analyzer Interface Unit and Accessories

LI-7550 **Analyzer Interface Unit**



Configured for high-speed data logging of LI-COR eddy covariance gas analyzers and auxiliary sensor data to a removable USB storage device. Output options include Ethernet, SDM, RS-232, and high-speed DACs. 16 GB industrial grade USB drive included. Included with the LI-7200RS. Optional for the LI-7700.

616-10723 **16 GB Industrial Grade USB Drive**

7550-101 **Auxiliary Sensor Interface**

Includes seven auxiliary inputs (four general ± 5 V for a sonic anemometer and three Type E thermocouple channels). Compatible with the LI-7500A, LI-7500RS, LI-7200, LI-7200RS, and LI-7700 through the LI-7550 Analyzer Interface Unit.

Sonic Anemometers

METEK Meteorologische Messtechnik GmbH

The following METEK Multi-Path Ultrasonic Anemometers are available directly from LI-COR. Sonic anemometer data and power cables are sold separately (see the Digital Sonic Anemometer-to-Analyzer Cables section below). Mounting kits are sold separately (see the Tripod and Mounting Hardware section below).

7900-480 METEK Multi-Path Cage Ultrasonic Anemometer



The METEK Multi-Path Cage Ultrasonic Anemometer performs three independent measurements of the three-dimensional air flow quasi-simultaneously using only one sole sonic anemometer by arranging each sonic transmitter to three opposite sonic receivers. This results in three directly measured vertical wind components available. The "Cage" model is optimized for omni-directional measurements. The anemometer is constructed of stainless steel with optimized design of sensor head and sonic transducers for minimal flow distortion. Includes a configurable, efficient heating function to prevent icing.

7900-490 METEK Multi-Path Class A Ultrasonic Anemometer



The METEK Multi-Path Class A Ultrasonic Anemometer performs three independent measurements of the three-dimensional air flow quasi-simultaneously using only one sole sonic anemometer by arranging each sonic transmitter to three opposite sonic receivers. This results in three directly measured vertical wind components available. The "Class A" model is optimized for situations with a predominant wind direction a majority of the time. The anemometer is constructed of stainless steel with optimized design of sensor head and sonic transducers for minimal flow distortion. Includes a configurable, efficient heating function to prevent icing.

Gill Instruments

The following Gill Instruments 3-Axis Sonic Anemometers are available directly from LI-COR. Sonic anemometer power and data cables are sold separately (see page 22 below). Mounting kits are sold separately (see the Tripod and Mounting Hardware section below).

7900-412 Gill WindMaster™ Sonic Anemometer



Includes the WindMaster Sonic Anemometer, and mounting hardware. Output rate of 20 Hz. Wind speed: range of 0-50 m/s, resolution of 0.01 m/s, and accuracy of 1.5% RMS @ 12 m/s. Direction: range is 0-359°, resolution 0.1° and accuracy 2° @ 12 m/s. Aluminum/carbon fiber construction.

7900-422 Gill WindMaster™ Pro Sonic Anemometer



Includes the WindMaster Pro Sonic Anemometer, and mounting hardware. Output rate of 32 Hz. Wind speed: range of 0-65 m/s, resolution of 0.01 m/s, and accuracy of <1.5% RMS @ 12 m/s. Direction: range is 0-359°, resolution 0.1° and accuracy 2° @ 12 m/s. Robust stainless steel external construction.

Most Gill Sonic Anemometers are available with an optional carrying case and a special order custom calibration. Contact LI-COR for details.

R.M. Young Company

The following R.M. Young Ultrasonic Anemometer is available directly from LI-COR. Sonic Anemometer data and power cables are sold separately (see the Digital Sonic Anemometer-to-Analyzer Cables section below). Mounting hardware is sold separately (see the Tripod and Mounting Hardware section below).

7900-470 R. M. Young 81000RE Ultrasonic Anemometer



The R. M. Young 81000RE Ultrasonic Anemometer is a 3-axis wind sensor. It is ideal for applications requiring fast response, high resolution, and three-dimensional wind measurement. It has an extended mast that separates the transducer array from the instrument body. Each sensor is individually wind-tunnel calibrated. Digital data and diagnostics are output via serial communication. The sensor installs on standard 1 inch pipe.

Digital Sonic Anemometer-to-Analyzer Cables

Sonic Anemometer-to-Analyzer Cables provide a direct digital connection for a METEK Multi-Path Cage, METEK Multi-Path Class A, Gill Instruments WindMaster, Gill Instruments WindMaster Pro; R. M. Young 81000RE, Campbell Scientific CSAT3, or Campbell Scientific CSAT3B sonic anemometer. Digital sonic anemometer data cables attach to the SmartFlux 2 or 3 System to log digital data to the data file.

Metek Cables

Part Number	Description	Length
7900-482-5	METEK Multi-Path Cage RS-485 Data and Power Cables	5-meter
7900-482-25	Connects anemometer to SmartFlux system and a 24 V power supply. Includes a Serial-to-USB device to connect to a PC for configuration modification.	25-meter
7900-482-50		50-meter
7900-492-5	METEK Multi-Path Class A RS-485 Data and Power Cables	5-meter
7900-492-25	Connects anemometer to SmartFlux system and a 24 V power supply. Includes a Serial-to-USB device to connect to a PC for configuration modification.	25-meter
7900-492-50		50-meter

Gill Instruments Cables

Part Number	Description	Length
7900-415-5	Gill Instruments WindMaster and WindMaster Pro Digital Data and Power Cables	5-meter
7900-415-25		25-meter
7900-415-50	Provides RS-485 serial communication and power for the sonic anemometer.	50-meter

R. M. Young Cables

Part Number	Description	Length
7900-472-5	R. M. Young 81000RE RS-485 Data and Power Cables	5-meter
7900-472-25	Connects anemometer to SmartFlux system and a 24 V power supply. Includes a Serial-to-USB device to connect to a PC for configuration modification.	25-meter
7900-472-50		50-meter

Campbell Scientific Cables

Part Number	Description	Length
7900-452-5	Campbell Scientific CSAT3 Power Cables	5-meter
7900-452-50	Connects directly to sonic anemometer. Terminates in bare wire leads for connection to a power supply.	50-meter
7900-454-5	Campbell Scientific CSAT3 Digital Data Cables	5-meter
7900-454-50	The cable connects the CSAT3 sonic anemometer to the SmartFlux 2 or 3 System. Includes an RS-232-to-USB adapter for connection to a computer.	50-meter
7900-462-5	Campbell Scientific CSAT3B Power Cables	5-meter
7900-462-50	Power supply cable for the CSAT3B sonic anemometer.	50-meter
7900-464-5	Campbell Scientific CSAT3B Digital Data Cables	5-meter
7900-464-50	Digital RS-485 data cable to connect the CSAT3B sonic anemometer to the SmartFlux 2 or 3 System. Includes an RS-485-to-USB adapter for connection to a computer.	50-meter

Biomet Systems and Sensors

LI-COR eddy covariance systems support a full complement of additional biomet sensors. Data from these sensors are time-synchronized with gas analyzer and sonic anemometer data and logged to GHG eddy covariance data files, so they can be used for gap filling and interpreting flux results. They are summarized with EddyPro Flux Processing Software output and also can be evaluated independently of the eddy covariance data set.

	Part Number	Product	Cable
	7900-130-5	Humidity and Temperature Probe (Vaisala HMP155).	5-meter
	7900-130-25		25-meter
	7900-130-40		40-meter
	7900-135	Radiation Shield (RM Young 41005-5)	
	7900-140-15	Net Radiometer - single component (Kipp & Zonen NR Lite2).	15-meter
	7900-146-5	Hukseflux NR01 Net Radiometer	5-meter
	7900-146-25		25-meter
	7900-146-50		50-meter
	7900-144-10	Net Radiometer - four component (Kipp & Zonen CNR4).	10-meter
	7900-144-25		25-meter
	7900-144-50		50-meter
	7900-145-10	Net Radiometer Heater and Ventilation Unit (Kipp & Zonen CNF4).	10-meter
	7900-145-25		25-meter
	7900-145-50		50-meter

	Part Number	Product	Cable
	7900-190-5	Quantum Sensor (LI-COR LI-190R-BL), Mounting and Leveling Fixture (2003S), and Installation Guide.	5-meter
	7900-190-50		50-meter
	7900-195-5	Pyranometer Sensor (LI-COR LI-200R-BL), Mounting and Leveling Fixture (2003S), and Installation Guide.	5-meter
	7900-195-50		50-meter
	7900-160-15	Rain Gauge Tipping Bucket (Texas Electronics TR-525M).	15-meter
	7900-160-25		25-meter
	7900-160-50		50-meter
	7900-150	Soil Heat Flux Plates (Hukseflux HFP01).	15-meter
	7900-155	Self-calibrating Soil Heat Flux Plates (Hukseflux HFP01SC).	15-meter
	7900-170	Soil Moisture and Temperature Probe (Stevens HydraProbe).	15-meter
	7900-175	Soil Moisture Probe (Meter Group EC-5).	15-meter
	7900-180	Soil Thermistor (LI-COR 1400-103).	15-meter
	7900-165-15	PhenoCam (StarDot NetCam SC camera) with 5.0 megapixel resolution and automatic day/night infrared filter. Includes a weatherproof enclosure with mounting arm, power cable, and Ethernet cable.	15-meter
	7900-165-30		30-meter
	7900-165-60		60-meter

Biomet System Components

7900-110

Data Acquisition Module (DAQM)



Data Acquisition Module for Eddy Covariance Biomet Systems. Includes 18 single-ended analog channels or 9 differential channels. Configurable excitation channels, thermistor channels, and current sensing channels. Four digital I/O channels (including pulse counting). Three switched power and one 12V output. Supports SDI-12 sensors.

7900-115

Data Retention Module (DRM)



Data Retention Module for Eddy Covariance Biomet Systems. Based on the backup battery size, this module keeps the Biomet System, SmartFlux System, and sonic anemometer operational and able to store data during a power failure. Also has a built-in DC/DC converter for voltage-sensitive sensors and components.

7900-126

Pre-configured Biomet Enclosure



Weather proof enclosure for the Data Acquisition Module, Data Retention Module, and SmartFlux System. Includes terminals for electrical connections, breakers for circuit protection, and mounting hardware.

Biomet System Accessories

7900-050

Eddy Covariance Systems Enclosure



A 35.6 cm x 40.6 cm x 20.3 cm (14" x 16" x 8") enclosure designed for housing various eddy covariance components. Includes back plate, vents to prevent gas buildup from batteries, pre-installed DIN rails, mounting hardware, and handle.

7900-730

Network Switch and Hardware for Biomet Systems

Industrial grade 8-port unmanaged network switch for use in LI-COR eddy covariance stations. Manufactured by Brainboxes in UK. Includes power wires and 30 cm network cable.

7900-121

NL-121 Ethernet Interface (Campbell Scientific, Inc.)

Ethernet adapter used to connect CR-1000 and CR-3000 data loggers with LI-COR eddy covariance systems.

Biomet Sensor Packages

Biomet systems are available with a choice of sensors and cable lengths. Alternatively, the biomet system can be customized to record measurements from almost any sensor at your research site — and from a nearly unlimited number of sensors.

	Basic 7900-109	Standard 7900-118	Premium 7900-119
Single Component Net Radiometer (Kipp & Zonen NR Lite2)	✓		
Four Component Net Radiometer (Hukseflux NR01)		✓	
Four Component Net Radiometer (Kipp & Zonen CNR4)			✓
Heater/Ventilation Unit for CNR4 (Kipp & Zonen CNF4)			✓
Pyranometer (LI-COR LI-200R-BL-*)	✓		
Quantum Sensor (LI-COR LI-190R-BL-*)	✓	✓	✓
Air Humidity and Temperature Probe (Vaisala HMP155)	✓	✓	✓
Tipping Bucket Rain Gauge (Texas Electronics TR-525M)	✓	✓	✓
Soil Heat Flux Plates (Hukseflux HFP01)	✓ ✓ ✓	✓ ✓ ✓	
Self-calibrating Soil Heat Flux Plates (Hukseflux HFP01SC)			✓ ✓ ✓
Soil Moisture Probe (Decagon/Meter EC-5)	✓ ✓		
Soil Temperature Thermistors (LI-COR 7900-180)	✓ ✓ ✓		✓ ✓ ✓
Soil Probe (Stevens HydraProbe)		✓ ✓ ✓	✓ ✓ ✓
Phenocam (StarDot 5MP)			✓
Data Acquisition Module (LI-COR 7900-110)	✓	✓	✓ ✓
Data Retention Module (LI-COR 7900-115)		✓	✓
Backup Battery (LI-COR 7900-129)		✓	✓

7900-109 Basic Biomet Sensor Package for Tripod

Cable lengths are suitable for tripods up to 4 meters. Includes a Data Acquisition Module (7900-110), software program, biomet enclosure (7900-126), radiation sensor mounting bracket, and the following sensors:

- Humidity and Temperature Probe (Vaisala HMP155) with 5-meter cable
- Radiation Shield (RM Young 41005-5)
- Tipping Bucket Rain Gauge (Texas Electronics TR-525M) with 15-meter cable
- Quantum Sensor (LI-COR LI-190R-BL-5) with 5-meter cable, Mounting and Leveling Fixture (2003S), and Installation Guide
- Pyranometer (LI-COR LI-200R-BL-5) with 5-meter cable, Mounting and Leveling Fixture (2003S), and Installation Guide
- Soil Moisture Probe (Decagon/Meter EC-5) (Quantity: 2)
- Soil Temperature Thermistor (LI-COR 7900-180) with 15-meter cable (Quantity: 3)
- Net Radiometer - single component (Kipp & Zonen NR Lite2) with 15-meter cable
- Soil Heat Flux Plate (Hukseflux HFP01) with 15-meter cable (Quantity: 3)

7900-118 Standard Biomet Sensor Package for Tripod

Cable lengths are suitable for tripods up to 4 meters. Includes a Data Acquisition Module (7900-110), Data Retention Module (7900-115), software program, biomet enclosure (7900-126), 12V Backup Battery (7900-129), radiation sensor mounting bracket, and the following sensors:

- Humidity and Temperature Probe (Vaisala HMP155) with 5-meter cable
- Radiation Shield (RM Young 41005-5)
- Tipping Bucket Rain Gauge (Texas Electronics TR-525M) with 15-meter cable
- Quantum Sensor (LI-COR LI-190R-BL-5) with 5-meter cable, Mounting and Leveling Fixture (2003S), and Installation Guide
- Soil Moisture/Temperature Probe (Stevens HydraProbe); 15-meter cable (Quantity: 3)
- Net Radiometer - four component (Hukseflux HR01) with 5-meter cable
- Soil Heat Flux Plate (Hukseflux HFP01); 15-meter cable (Quantity: 3)

7900-118-25 Standard Biomet Sensor Package for Tower

Cable lengths are suitable for tall towers up to 25 meters for selected sensors. Includes a Data Acquisition Module (7900-110), Data Retention Module (7900-115), software program, biomet enclosure (7900-126), 12V Backup Battery (7900-129), radiation sensor mounting bracket, and the following sensors:

- Humidity and Temperature Probe (Vaisala HMP155) with 25-meter cable
- Radiation Shield (RM Young 41005-5)
- Tipping Bucket Rain Gauge (Texas Electronics TR-525M) with 25-meter cable
- Quantum Sensor (LI-COR LI-190R-BL-5) with 50-meter cable, Mounting and Leveling Fixture (2003S), and Installation Guide
- Soil Moisture/Temperature Probe (Stevens HydraProbe); 15-meter cable (Quantity: 3)
- Net Radiometer - four component (Hukseflux NR01) with 25-meter cable
- Soil Heat Flux Plate (Hukseflux HFP01); 15-meter cable (Quantity: 3)

7900-118-50 Standard Biomet Sensor Package for Tower

Cable lengths are suitable for tall towers up to 50 meters for selected sensors. Includes a Data Acquisition Module (7900-110), Data Retention Module (7900-115), software program, biomet enclosure (7900-126), 12V Backup Battery (7900-129), radiation sensor mounting bracket, and the following sensors:

- Humidity and Temperature Probe (Vaisala HMP155) with 40-meter cable
- Radiation Shield (RM Young 41005-5)
- Tipping Bucket Rain Gauge (Texas Electronics TR-525M) with 50-meter cable
- Quantum Sensor (LI-COR LI-190R-BL-50) with 50-meter cable, Mounting and Leveling Fixture (2003S), and Installation Guide
- Soil Moisture/Temperature Probe (Stevens HydraProbe); 15-meter cable (Quantity: 3)
- Net Radiometer - four component (Hukseflux NR01) with 50-meter cable
- Soil Heat Flux Plate (Hukseflux HFP01); 15-meter cable (Quantity: 3)

7900-119 Premium Biomet Sensor Package for Tripod

Cable lengths are suitable for tripods up to 4 meters. Includes a Data Acquisition Modules (7900-110, Quantity: 2), Data Retention Module (7900-115), PhenoCam (Stardot) and mounting kit, software program, biomet enclosure (7900-126), 12V Backup Battery (7900-129), radiation sensor mounting bracket, and the following sensors:

- Humidity and Temperature Probe (Vaisala HMP155) with 5-meter cable
- Radiation Shield (RM Young 41005-5)
- Tipping Bucket Rain Gauge (Texas Electronics TR-525M) with 15-meter cable
- Quantum Sensor (LI-COR LI-190R-BL-5) with 5-meter cable, Mounting and Leveling Fixture (2003S), and Installation Guide
- Soil Moisture/Temperature Probe (Stevens HydraProbe); 15-meter cable (Quantity: 3)
- Soil Temperature Thermistor (LI-COR 7900-180) with 15-meter cable (Quantity: 3)
- Net Radiometer - four component (Kipp & Zonen CNR4) with 10-meter cable
- Self-Calibrating Soil Heat Flux Plate (Hukseflux HFP01SC); 15-meter cable (Quantity: 3)
- Ventilator/Heater unit (Kipp & Zonen CNF4)
- Phenocam (Stardot SC 5MP camera) with enclosure; 15-meter cable

7900-119-25 Premium Biomet Sensor Package for Tower

Cable lengths are suitable for towers up to 25 meters. Includes a Data Acquisition Modules (7900-110, Quantity: 2), Data Retention Module (7900-115), PhenoCam (Stardot) and mounting kit, software program, biomet enclosure (7900-126), 12V Backup Battery (7900-129), radiation sensor mounting bracket, and the following sensors:

- Humidity and Temperature Probe (Vaisala HMP155) with 25-meter cable
- Radiation Shield (RM Young 41005-5)
- Tipping Bucket Rain Gauge (Texas Electronics TR-525M) with 25-meter cable
- Quantum Sensor (LI-COR LI-190R-BL-5) with 50-meter cable, Mounting and Leveling Fixture (2003S), and Installation Guide
- Soil Moisture/Temperature Probe (Stevens HydraProbe); 15-meter cable (Quantity: 3)
- Soil Temperature Thermistor (LI-COR 7900-180) with 15-meter cable (Quantity: 3)
- Net Radiometer - four component (Kipp & Zonen CNR4) with 25-meter cable
- Self-Calibrating Soil Heat Flux Plate (Hukseflux HFP01SC); 15-meter cable (Quantity: 3)
- Ventilator/Heater unit (Kipp & Zonen CNF4)
- Phenocam (Stardot SC 5MP camera) with enclosure; 30-meter cable

7900-119-50 Premium Biomet Sensor Package for Tower

Cable lengths are suitable for towers up to 50 meters. Includes a Data Acquisition Modules (7900-110, Quantity: 2), Data Retention Module (7900-115), PhenoCam (Stardot) and mounting kit, software program, biomet enclosure (7900-126), 12V Backup Battery (7900-129), radiation sensor mounting bracket, and the following sensors:

- Humidity and Temperature Probe (Vaisala HMP155) with 40-meter cable
- Radiation Shield (RM Young 41005-5)
- Tipping Bucket Rain Gauge (Texas Electronics TR-525M) with 50-meter cable
- Quantum Sensor (LI-COR LI-190R-BL-5) with 50-meter cable, Mounting and Leveling Fixture (2003S), and Installation Guide
- Soil Moisture/Temperature Probe (Stevens HydraProbe); 15-meter cable (Quantity: 3)
- Soil Temperature Thermistor (LI-COR 7900-180) with 15-meter cable (Quantity: 3)
- Net Radiometer - four component (Kipp & Zonen CNR4) with 50-meter cable
- Self-Calibrating Soil Heat Flux Plate (Hukseflux HFP01SC); 15-meter cable (Quantity: 3)
- Ventilator/Heater unit (Kipp & Zonen CNF4)
- Phenocam (Stardot SC 5MP camera) with enclosure; 60-meter cable

Eddy Covariance Accessories

616-10723 16 GB Industrial Grade USB Drive

Tripod and Mounting Hardware

7900-300



Heavy Duty Adjustable Tripod

Corrosion resistant aluminum tripod designed for long-term field deployment of scientific instruments. Adjustable measurement height from 2 to 4 meters. Adjustable legs for use on uneven terrain. Designed to withstand severe weather, including wind gusts of up to 160 km/h with a full load of instrumentation. Includes: tripod assembly, cross arm, cross arm mounting hardware, guy wire kit, grounding kit, and instruction manual.

Tripod Accessories

7900-320

Analyzer and Sonic Mount

A mounting apparatus that secures the LI-7500RS/DS gas analyzer models at an ideal location beside the sonic anemometer. Compatible with the Gill WindMaster™/Pro or R3-50™.

7900-340

Analyzer Mounting Kit

To mount an LI-7500x, LI-7200x, or LI-7700 to a tripod cross-arm. Includes crossover fitting, swivel mount, and riser bar.

7900-342

Crossover Fitting

To mount an LI-7200RS, LI-7500RS, or LI-7700 LI-COR gas analyzer or Gill omni-directional sonic anemometer.

7900-334

Mounting Kit for METEK Multi-Path Cage Sonic Anemometer

Mounting kit for the Metek Multi-Path Cage Sonic Anemometer to a LI-COR tripod or other structure of equal dimension. Includes crossover fitting to mount the anemometer to the horizontal cross bar of a tripod and position the anemometer inline with an analyzer.

7900-336

Mounting Kit for METEK Multi-Path Class A Sonic Anemometer

Mounting kit for the METEK Multi-Path Class A Sonic Anemometer to a LI-COR tripod or other structure of equal dimension. Includes appropriate vertical pipe diameter and length to position the anemometer inline with an analyzer. Also includes crossover fitting to mount the vertical pipe to the horizontal cross bar of a tripod. A cross-arm plate and assorted metric hardware is included to securely mount the anemometer to the structure.

7900-332

Mounting Kit for R. M. Young 81000RE Sonic Anemometer

Mounting kit for the R. M. Young 81000RE Sonic Anemometer to a LI-COR tripod or other structure of equal dimension. Includes appropriate vertical pipe diameter and length to position anemometer inline with an analyzer. Also includes crossover fitting to mount the vertical pipe to the horizontal cross bar of a tripod.

7900-350

Radiation Sensor Mount

To mount a net radiometer and two light sensors (7900-190 Quantum Sensor Kit or 7900-195 Pyranometer Sensor Kit) to the cross arm.

7900-322

PhenoCam Mounting Kit

To mount the StarDot PhenoCam and enclosure to a tripod or other structure. Mounts to either a 1" or 3/4" vertical or horizontal pipe. Includes mounting plate, washers, nuts, and U-bolts.

- 7900-330** **Cross Arm and Mounting Kit**
An additional cross arm and mounting hardware.
- 7900-344** **Swivel Cross Fitting**
Used to mount sensor to a riser bar or a ¾" (26 mm; 1.05" outer diameter) iron pipe.
- 9879-010** **Cross Bar (1.5-meter)**
- 7900-346** **Crossover Fitting (1" x 1")**
Hardware for mounting pipes and instrumentation onto the cross arm of the LI-COR tripod.

Solar Power Supplies and Power Accessories



LI-COR offers solar power systems for use with LI-COR eddy covariance systems. Solar power systems are robust power sources developed to our specifications by SunWize® Technologies. Each system conforms to rigorous standards to ensure it will provide reliable power to your instruments in remote field deployments. Contact LI-COR for more information.

Power Supply Accessories

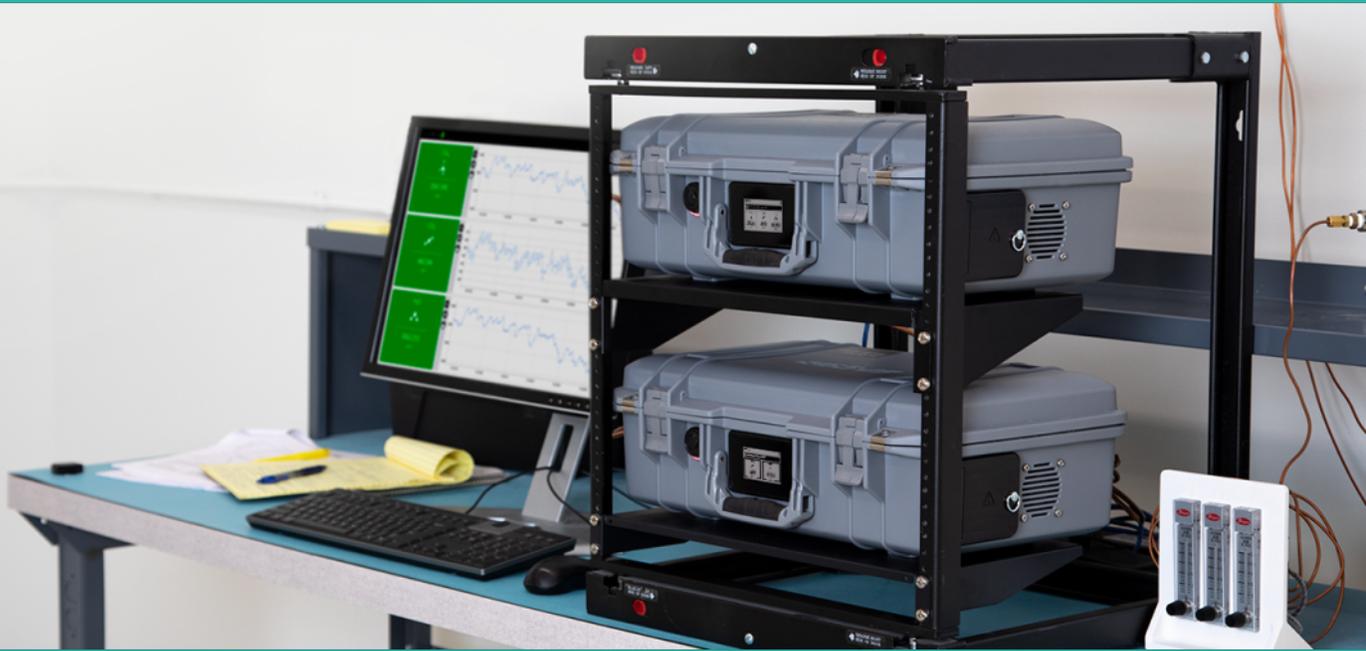
- 7900-230** **DC Power Distribution Box (Unregulated Output)**
Power supply junction for sensors and analyzers in eddy covariance systems with a 12 VDC solar power supply. Provides 11 unregulated power supply connectors to power individual sensors and analyzers; 10 amp maximum. Output voltage is equal to the power supplied.
- 7900-231** **DC Power Distribution Box (Regulated Output)**
Power supply junction for sensors and analyzers in eddy covariance systems with a 24 VDC solar power supply. Provides 6 unregulated power supply connections; 8 amp maximum and 2 regulated 12 VDC power supply connections; 2 amp maximum.
- 7900-235** **Power Distribution Kit**
The Power Distribution Kit is a set of terminal blocks, a circuit breaker, and wiring for installation in the 7900-050 Systems Enclosure. Power can be distributed to instruments and equipment, both inside and outside of the enclosure.
- 7900-232** **Main Power Cable, 20 m**
To transmit power from a solar panel array to the power distribution box. Includes 20 meters of 10 AWG (5.26 mm²) insulated copper wire in conduit. Safe for ground contact.
- 7900-233** **Main Power Cable, 40 m**
To transmit power from one power distribution box to another. Includes 40 meters of 12 AWG (3.31 mm²) insulated copper wire. Not for ground contact.
- 591-15617** **TDK-Lambda DC/DC Converter**
Converts 18-36 VDC into 12 VDC (5 A maximum) for data loggers, biomet sensors, modems, Ethernet switches, and other eddy covariance accessories that may require 12 VDC. Must be mounted inside a biomet or systems enclosure on a DIN rail.

Cellular and Satellite Communication Systems



LI-COR offers cellular communication packages and a satellite communication package for use with LI-COR eddy covariance systems. Packages allow you to remotely check the performance of flux stations from an office, home, or on the go. Data plans must be purchased from your local cellular or satellite service provider. Contact LI-COR for more information.

- 7900-735** **Cellular Wireless Communication Package AirLink RV50X (NA, SA, EMEA)**
For North America, South America, Europe, Middle East, and Africa. Includes an AirLink RV50X cellular radio, enclosure, mounting hardware, antenna, and antenna post.
- 7900-736** **Cellular Wireless Communication Package AirLink RV50X (APAC)**
For Asia-Pacific regions. Includes an AirLink RV50X cellular radio, enclosure, mounting hardware, antenna, and antenna post.
- 7900-720** **Satellite Communication Package Hughes 9502**
Includes a Hughes 9502 radio, enclosure, mounting hardware, and antenna.



Precise, stable, and portable, with low power consumption and low maintenance requirements, LI-COR Trace Gas Analyzers are rugged and reliable enough for the most extreme locations, with stability to match any bench-top instrument. General purpose gas analyzers are cost effective measurement solutions for CO₂ and H₂O.



Trace Gas Analyzers

- LI-7820 N₂O/H₂O Gas Analyzer
- LI-7815 CO₂/H₂O Gas Analyzer
- LI-7810 CH₄/CO₂/H₂O Gas Analyzer
- See page 33

CO₂/H₂O Gas Analyzers

- LI-850 CO₂/H₂O Gas Analyzer
- LI-830 CO₂ Gas Analyzer
- See page 35



Dew Point Generator

- LI-610 Portable Dew Point Generator
- For calibrating water vapor measurements
- See page 36



Trace Gas Analyzers

Laser-based gas analyzers for measuring CO₂, CH₄, and N₂O provide high precision and long-term stability. Providing the performance and stability for long-term monitoring, fugitive emissions measurement, and soil gas flux research—with the portability and ease of use ideal for any application.

licor.com/tracegas

LI-7810 CH₄/CO₂/H₂O Trace Gas Analyzer

LI-7810 CH₄/CO₂/H₂O Trace Gas Analyzer



High precision CH₄ measurements for atmospheric monitoring and other applications. Accurate CO₂ and H₂O measurements suitable for soil gas exchange measurements. Includes AC power supply, two rechargeable batteries (442-11807), instruction manual, and Ethernet cable. Class 1 laser product.

LI-7815 CO₂/H₂O Trace Gas Analyzer

LI-7815 CO₂/H₂O Trace Gas Analyzer



High precision CO₂ measurements for atmospheric monitoring or other applications. Includes AC power supply, two rechargeable batteries (442-11807), instruction manual, and Ethernet cable. Class 1 laser product.

LI-7820 N₂O/H₂O Trace Gas Analyzer

LI-7820 N₂O/H₂O Trace Gas Analyzer



High-precision N₂O measurements for chamber-based soil flux measurements and atmospheric monitoring. Includes AC power supply, two rechargeable batteries (442-11807), manual, and Ethernet cable. Class 1 laser product.

Trace Gas Analyzer Accessories

6578-380 Backpack Harness System

For use with the Trace Gas Analyzers.

7800-110 Small Volume Kit

Kit for measuring small volume samples with the LI-COR Trace Gas Analyzers.

7800-112 Reduced Flow Rate Kit

User-installable kit for the LI-COR Trace Gas Analyzers. Reduces the flow rate of the analyzer to approximately 70 sccm. Includes pre-assembled kit and installation instructions.

9968-232 Power Supply with Power Cord

110 to 240 VAC input; 24 VDC output for the Trace Gas Analyzers.

- 590-11830** **Battery Charger**
Single bay battery charger for use with the 442-11807 Lithium Ion Rechargeable Battery.
- 442-11807** **Rechargeable Lithium Ion Battery**
Rechargeable battery (14.4 V; 6.8 Ah) for use with the LI-6800, Smart Chamber, and Trace Gas Analyzers.
- 9968-242** **Auxiliary Power Cable**
AC power connector to bare leads for use with the Trace Gas Analyzers.
- 286-17638** **Pump Diaphragm Repair Kit**
Repair kit for the Trace Gas Analyzer pump.
- 9978-234** **User Replaceable Filter Pack**
Replaceable Filter Kit (Quantity of 5).
- 622-17627** **Indicating Silica Gel**
1 packet, 17 grams.
- 7800-950** **LI-7810 CO₂ Zero Kit**
Kit for setting the CO₂ zero on the LI-7810 Trace Gas Analyzer. Includes two columns for scrub chemicals, 0.45 kg silica gel desiccant, 0.45 kg wet soda lime, tubing, and connectors.
- 7800-915** **Power Board Upgrade Kit**
The power board upgrade kit enables the automatic restart option for the LI-COR Trace Gas Analyzer. Requires factory installation. Contact LI-COR or your distributor for a service RMA before ordering.

Non-dispersive Infrared Gas Analyzers

General purpose CO₂/H₂O measurement solutions that give accurate, stable readings. Easy-to-use software and minimal maintenance the LI-850 and LI-830 provide hassle-free measurements for a wide range of applications.

LI-850 CO₂/H₂O Gas Analyzer

LI-850

CO₂/H₂O Analyzer



LI-850 CO₂/H₂O Analyzer (0-20,000 ppm CO₂ range and 0-60 mmol/mol H₂O range), accessory kit, AC Power Supply, Windows® and Mac® Interface Software, and manual. Includes installed pump assembly and display.

LI-850-1

CO₂/H₂O Analyzer with pump; does not include display

LI-850-2

CO₂/H₂O Analyzer with display; does not include pump

LI-850-3

CO₂/H₂O Analyzer; does not include pump or display

LI-830 CO₂ Gas Analyzer

LI-830

CO₂ Analyzer



LI-830 CO₂ Analyzer (0-20,000 ppm CO₂ range), accessory kit, AC Power Supply, Windows® and Mac® Interface Software, and manual. Includes installed pump assembly and display.

LI-830-1

CO₂ Analyzer with pump; does not include display

LI-830-2

CO₂ Analyzer with display; does not include pump

LI-830-3

CO₂ Analyzer; does not include pump or display

CO₂/H₂O Analyzer Accessories

9967-008

Gelman Disposable Air Filter (For use with the LI-850, LI-840A, and LI-7000)

300-01961

Balston Disposable Air Filter (For use with the LI-830 and LI-820)

9960-093

Desiccant/Scrubber Tube (For use with the LI-7000)

6200B

Rechargeable Battery Pack (10.5 to 16 VDC; For use with the LI-610)

LI-6021

Single Port Battery Charger

For use with either a 6400-03 or 6200B rechargeable battery.

800-910

Pump Assembly Kit (LI-830/850)

Complete air pump assembly for installation in the LI-830 or LI-850 Analyzer case. Includes pump and all other required parts. User installable.

800-912

Pump Replacement Kit (LI-830/850)

Replacement air pump only. For replacing pump in previously installed 800-910 Pump Assembly Kit (LI-830 and LI-850 only). User installable.

8150-250

Bev-A-Line Tubing (15 m)

LI-610 Portable Dew Point Generator

LI-610



Portable Dew Point Generator

Used to calibrate H₂O analyzers and relative humidity sensors. Includes 610-01 AC Module and one set of 610-04 BNC to mV recorder leads. Requires 6200B Rechargeable Battery and LI-6021 Single Port Battery Charger for battery powered operation.



Hardware, software, and analyzers for soil gas flux research all based on extensive research and testing. Patented designs minimize disruption of natural soil gas transport across the soil surface and record high-precision flux measurements to evaluate spatial and temporal variability. The result is integrated systems that provide an ideal soil gas flux research experience. Soil gas flux systems include SoilFluxPro™ Software for analysis of the dataset.

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Survey Systems

- Featuring the Smart Chamber
- Designed for use with the LI-870 and LI-COR Trace Gas Analyzers
- Compatible with third-party analyzers
- See page 38

Long-Term Systems

- Featuring the LI-8250 Multiplexer and NEW 8250-01 Extension Manifold
- Designed for use with the LI-870 and LI-COR Trace Gas Analyzers
- Compatible with third-party analyzers
- See page 40



Gas Analyzers

- Measure the gas of interest, including CO₂, CH₄, N₂O, and H₂O
- Integrated system provides data logging and flux results
- See page 42



Smart Chamber Survey Packages

LI-COR survey systems allow for rapid surveying of fluxes of your soil gas of interest. Systems pair the Smart Chamber with a gas analyzer to measure a variety of gas species with gas flux, GPS, and ancillary data in one file.

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N₂O Survey Soil Gas Flux Package

LI-7820SC Nitrous Oxide Survey Soil Gas Flux Package



Includes the LI-7820 N₂O/H₂O Trace Gas Analyzer, 8200-01S Smart Chamber, Stevens HydraProbe, cable assembly (2 meters), backpack harness, 10 soil collars, four rechargeable batteries, and SoilFluxPro™ Software.

CH₄ Survey Soil Gas Flux Package

LI-7810SC Methane Survey Soil Gas Flux Package



Includes the LI-7810 CH₄/CO₂/H₂O Trace Gas Analyzer, 8200-01S Smart Chamber, Stevens HydraProbe, cable assembly (2 meters), backpack harness, 10 soil collars, four rechargeable batteries, and SoilFluxPro™ Software.

CO₂ Survey Soil Gas Flux Package

LI-870SC Carbon Dioxide Survey Soil Gas Flux Package



Includes the LI-870 CO₂/H₂O Gas Analyzer, 8200-01S Smart Chamber, Stevens HydraProbe, 10 soil collars, two batteries, SoilFluxPro™ Software.

Smart Chamber

8200-01S Smart Chamber, 20 cm



Survey chamber for soil gas flux measurements. The Smart Chamber computes real-time gas fluxes from LI-COR Trace Gas Analyzers and the LI-870 for measuring CO₂, CH₄, or N₂O soil fluxes. With integrated GPS, the chamber can be used with LI-COR gas analyzers or analyzers from other manufacturers (post-process fluxes separately). Powered by one rechargeable lithium ion battery. Includes one Stevens HydraProbe soil probe, two batteries, and three soil collars.

Smart Chamber Accessories

9982-010 LI-870 Soil Cable Assembly, 1.2 m

For use with Smart Chamber (8200-01S) or LI-8250 Multiplexer. Included with LI-870.

- 9982-011** **Trace Gas Analyzer Cable Assembly for backpack**
For use with a LI-COR Trace Gas Analyzer with a Smart Chamber (8200-01S) or LI-8250 Multiplexer.
- 392-17655** **Smart Chamber to non-LI-COR analyzers Cable, 1.2 m**
Sealed, water-resistant USB Type-B connector to USB Type-A connector cable (1.2 m) for use with the Smart Chamber (8200-01S) and non-LI-COR analyzers.
- 392-17794** **Smart Chamber to non-LI-COR analyzers Cable, 2 m**
Sealed, water-resistant USB Type-B connector to USB Type-A connector cable (2 m) for use with the Smart Chamber (8200-01S) and non-LI-COR analyzers.
- 900-19016** **Soil Moisture/Temperature Probe, 1 m**
Stevens HydraProbe soil probe for the Soil CO₂ Flux Chamber (6800-09), Smart Chamber (8200-01S), and LI-8250 Multiplexer long-term chambers.
- 9982-080** **Soil Probe Thermocouple**
Soil temperature thermocouple probe for use with the 8200-01S Smart Chamber and 6800-09 Soil Chamber.
- 8100-664** **Trace Gas Sampling Kit**
Used to collect samples for further gas analysis from the same air stream and measure other trace gases.
- 6581-044** **Soil Collar (20 cm)**
- 442-11807** **Rechargeable Lithium Ion Battery**
Rechargeable battery (14.4 V; 6.8 Ah) for use with the LI-6800, Smart Chamber, and Trace Gas Analyzers.



LI-8250 Long-Term Soil Gas Flux Systems

Long-term systems run independently for months. They record data from multiple chambers for assessment of spatial and temporal variation in soil gas fluxes. Built for field conditions. Designed to grow and adapt with your research.

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LI-8250 Multiplexer

LI-8250



Multiplexer

Ports for up to eight chambers, the multiplexer is the data collection and processing hub of soil measurements. Compatible with the LI-870, LI-COR Trace Gas Analyzers, and third-party gas analyzers to measure nearly any gas of interest. Includes a power cable (3 meter), indoor power supply (8250-772), and spares kit.

8250-01 Extension Manifold

8250-01



Extension Manifold

8-port extension manifold for the LI-8250 Multiplexer. Connects to one chamber port on the LI-8250, providing an additional 8 ports for connecting 8200-104/C Long-Term Chambers. Includes the 9982-056 Chamber Cable Assembly for power and communication between the LI-8250 and extension manifold, and an indoor power supply and spares kit.

Soil Chambers

8200-104



Long-Term Chamber

The 8200-104 Opaque Chamber is designed for extended field deployments. Features a white enamel finish. Each chamber has three inputs for SDI-12 sensors, light sensors, and chamber air temperature sensor. Includes two soil collars, gasket kit, and spares kit.

8200-104C



Clear Long-Term Chamber

The 8200-104C Clear Chamber is designed for extended field deployments. Features a clear bowl for net carbon exchange (NCE) measurements. Each chamber has three inputs for SDI-12 sensors, light sensors, and chamber air temperature sensor. Includes two soil collars, gasket kit, and spares kit.

Multiplexer Packages

LI-8250-M4

4-chamber package

System includes four opaque chambers (8200-104), cable and tubing for chambers (15 m), indoor power supply, 3-meter power cable, the LI-8250 Multiplexer, and spares kits.

- LI-8250-M8 8-chamber package**
System includes eight opaque chambers (8200-104), cable and tubing for chambers (15 m), indoor power supply, 3-meter power cable, the LI-8250 Multiplexer, and the spares kits.

LI-8250 Accessories

- 8250-770 Weatherized AC Power Supply**
Power supply for outdoor deployments. Tested to IP55 for dust and water ingress. Specified for operating in temperatures from -20 to 50 °C. Compatible with 100 to 240 VAC, 50/60 Hz. Outputs 12 VDC, 6.67 Amps.
- 8250-772 Indoor Power Supply**
Power supply for indoor operation. Compatible with 80 to 264 VAC, 50/60 Hz. Outputs 24 VDC, 3.75 Amps. Included with LI-8250 Multiplexer.
- 392-19109 5-meter Ethernet cable**
Sealed RJ45-to-standard RJ45 connectors for connecting the multiplexer to a cellular gateway.
- 392-19110 25-meter Ethernet cable**
Sealed RJ45-to-standard RJ45 connectors for connecting the multiplexer to a cellular gateway.
- 9982-073 Multi-analyzer Splitter**
Tubing and t-splitter for connecting two gas analyzers to the multiplexer.
- 8100-664 Trace Gas Sampling Kit**
Used to collect samples for further trace gas analysis from the same air stream used to measure CO₂ flux.
- 611-19396 Torque wrench**
Torque wrench to tighten connectors between the LI-8250 Multiplexer and chambers.
- 8250-660 Flask Sampling Kit**
For use with the LI-8250 Multiplexer or 8250-01 Extension Manifold. Includes purge pump, thermistor board, and mounting bracket for connecting the kit to the multiplexer or extension manifold.
- 9982-081 Thermistor Cable Assembly**
Thermistor for use with the 8250-660 Flask Sampling Kit. Thermistor includes 15 meter long cable, terminating in bare leads.

Soil Chamber Accessories

- 9982-056 Chamber Cable Assembly (15 m)**
Cable and tubing to connect a chamber to the LI-8250 Multiplexer or 8250-01 Extension Manifold, or to connect an 8250-01 Extension Manifold to the LI-8250 Multiplexer.
- 9982-010 LI-870 Soil Cable Assembly, 1.2 m**
For use with Smart Chamber (8200-01S) or LI-8250 Multiplexer. Included with LI-870.

- 9982-011** **Trace Gas Analyzer Cable Assembly for backpack**
For use with a LI-COR Trace Gas Analyzer with a Smart Chamber (8200-01S) or LI-8250 Multiplexer.
- 900-19016** **Stevens HydraProbe (1 m)**
Stevens HydraProbe soil moisture and temperature probe outputs SDI-12 signals for use with the long term chambers. Features a 1-meter cable and weather-resistant M12 connector.
- 8200-910** **Clear Chamber Upgrade Kit**
To convert an opaque chamber bowl to a clear chamber. Includes all hardware required.
- 8200-911** **Opaque Chamber Upgrade Kit**
To convert a clear chamber bowl to an opaque chamber. Includes all hardware required.
- 392-18518** **SDI-12 Sensor Cable**
2-meter cable with Eurofast connector and bare leads to attach SDI-12 sensors to long-term chambers.
- 310-18516** **T-Connector**
T-adaptor with female-to-female-to-male connectors. To expand each single input port to a two-connector port on a long-term chamber.
- 190R-8200** **Quantum Sensor with Leveling Stake**
Includes an LI-190R with 2-meter cable and Eurofast connector, mounting and leveling fixture, and mounting stake.
- 200R-8200** **Pyranometer Sensor with Leveling Stake**
Includes an LI-200R with 2-meter cable and Eurofast connector, mounting and leveling fixture, and mounting stake.
- 6581-044** **Soil Collar (20 cm)**

Gas Analyzers for Soil Measurements

The following gas analyzers are designed to operate with LI-COR soil gas flux systems. Trace gas analyzer accessories and warranties are listed on page 33.

- LI-870** **CO₂/H₂O Analyzer**
 For use with the Smart Chamber or LI-8250 Multiplexer. Includes power cable, data cable, and tubing.
- LI-7810** **CH₄/CO₂/H₂O Trace Gas Analyzer**
 Includes AC power supply, two rechargeable batteries (442-11807), instruction manual, and Ethernet cable. Class 1 laser product.
- LI-7815** **CO₂/H₂O Trace Gas Analyzer**
 Includes AC power supply, two rechargeable batteries (442-11807), instruction manual, and Ethernet cable. Class 1 laser product.
- LI-7820** **N₂O/H₂O Trace Gas Analyzer**
 Includes AC power supply, two rechargeable batteries (442-11807), instruction manual, and Ethernet cable. Class 1 laser product.

Accessories

870-772

LI-870 Indoor AC Power Adapter

Power adapter for the LI-870; 12 VDC, 30 W output. Compatible with 100 to 240 VAC, 50 or 60 Hz power. Includes power supply and universal blade kit. For indoor use only.



LI-8100A Automated Soil CO₂ Flux System

Supply is limited. Contact LI-COR or your distributor to inquire about availability of LI-8100A parts and accessories.

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LI-8100A and LI-8150 Soil Chambers

8100-104 Long-Term Chamber



Designed for use with the LI-8150 Multiplexer or with the LI-8100A Analyzer Control Unit. Can be connected directly to the LI-8100A Analyzer Control Unit using the 8100-704 Cable/Hose Assembly (not included) or multiple chambers can be connected to the LI-8150 Multiplexer using the 8150-705 Cable/Hose Assembly (not included). Auxiliary sensor connectors integrated into the chamber for use with multiplexer. Includes gasket kit, spares kit, and two soil collars.

8100-104C Clear Long-Term Chamber



Designed to quantify the net carbon exchange between the ground and atmosphere. Can be connected directly to the LI-8100A Analyzer Control Unit using the 8100-704 Cable/Hose Assembly (not included) or multiple chambers can be connected to the LI-8150 Multiplexer using the 8150-705 Cable/Hose Assembly (not included). Auxiliary sensor connectors integrated into the chamber for use with multiplexer. Includes gasket kit, spares kit, and two soil collars.

8100-911 Opaque Chamber Bowl Assembly

Kit to convert an 8100-104C to an 8100-104.

8100-910 Clear Chamber Bowl Assembly

Kit to convert an 8100-104 to an 8100-104C.

LI-8150 Multiplexer

LI-8150-8 8-Port Multiplexer



Connect up to eight Long-Term Chambers for soil CO₂ flux and/or atmospheric CO₂ profiling measurements or laboratory incubation experiments. Includes spares kit and cable/hose assembly for connection to LI-8100A Analyzer Control Unit. LI-8100A Analyzer Control Unit and Chambers not included. Includes 8150-706 DC Power Cable. 8150-770 AC to DC Power Supply not included.

LI-8150-16 16-Port Multiplexer

Connect up to sixteen Long-Term Chambers for soil CO₂ flux and/or atmospheric CO₂ profiling measurements or laboratory incubation experiments. Includes spares kit and cable/hose assembly for connection to LI-8100A Analyzer Control Unit. LI-8100A Analyzer Control Unit and Chambers not included. Includes 8150-706 DC Power Cable. 8150-770 AC to DC Power Supply not included.

Contact us:

+1-402-467-3576

Survey System Packages

LI-8100A and LI-8150 Soil Gas Flux Systems have been replaced with new Smart Chamber and LI-8250 Multiplexer. Available parts and systems may be limited. Contact LI-COR or your distributor to inquire.

LI-8100A System Accessories

- | | |
|------------------|---|
| 8100-405 | CO₂ Mapping Kit
Used to map CO ₂ concentrations and fluxes. Includes GPS, cables, and tubing. |
| 8100-664 | Trace Gas Sampling Kit
Used to collect samples for further trace gas analysis from the same air stream used to measure CO ₂ flux. |
| 8100-401 | Chamber Control Kit
Used to operate the 8100-104 or 8100-104C chambers independent of the LI-8100A. This kit includes an interface cable, soil temperature and moisture sensors, tubing, and the necessary connectors for integration with other gas analyzers. |
| 9982-080 | Soil Probe Thermocouple
Soil temperature thermocouple probe for use with the 8200-01S Smart Chamber and 6800-09 Soil Chamber. |
| 8100-203 | Soil Temperature Thermistor
Designed for use with single chamber long term configurations, with bare leads for connection to LI-8100A. |
| 8100-663 | Auxiliary Sensor Interface
Included with LI-8100A Analyzer Control Unit. |
| 6400-03 | Rechargeable Battery
Provides approximately three hours of battery life. Used to power LI-8100A in survey configurations. Requires LI-6021 Single Port Battery Charger. |
| LI-6021 | Single Port Battery Charger
For use with a single 6400-03 or a single 6200B rechargeable battery. |
| 8100-704 | Cable/Hose Assembly
Two meters in length. Used to connect the 8100-104 Long-Term Chamber to the LI-8100A Analyzer Control Unit. |
| 590-16299 | TP-Link® Wireless Router (TL-MR3040)
Used for wireless communication between the LI-8100A and a wireless device. |
| 8100-554 | Compact Flash Memory Card
Industrial grade, rated from -40 °C to 85 °C, Type 1, 1 GB. |
| 8100-604 | Leveling Stake
Used to mount the LI-190R-BL-2 Quantum Sensor near the soil when collecting PAR data near a chamber. |
| 6581-044 | Soil Collar (20 cm) |
| 6560-228 | Soil Collar (10 cm) |

LI-8150 Accessories

- 8150-670-8** **Flask Sampling Kit**
Includes all hardware needed to connect up to 8 flasks to the LI-8150-8 Multiplexer.
- 8150-670-16** **Flask Sampling Kit**
Includes all hardware needed to connect up to 16 flasks to the LI-8150-16 Multiplexer.
- 8150-662** **Profiling Kit**
For performing atmospheric profiling studies using the LI-8150 Multiplexer and LI-8100A Analyzer Control Unit. Includes hardware for four ports. Bev-A-Line tubing sold separately.
- 8150-203** **Soil Temperature Thermistor**
For use with multiplexed Long-Term Chambers.
- 392-08577** **Sensor Connection Cable**
Used to connect user-supplied sensors directly to the 8100-104 Long-Term Chamber when multiplexing or to the 8150-661 Chamber Sensor Interface.
- 8150-705** **Cable/Hose Extension Assembly**
Required to multiplex Long-Term Chambers. 15 m in length. Use no more than two extensions per chamber.
- 8150-706** **DC Power Cable**
Three-meter cable, bare lead termination. For user-supplied DC power source.
- 9981-191** **LI-8150 DC/DC Converter**
This DC-to-DC converter allows the use of a LI-COR 24 VDC solar power supply with the LI-8100A and LI-8150 Multiplexer.
- 2420-BLS** **Light Sensor Amplifier**
For use with 8100-104/C Long-Term Chamber(s) in multiplex mode. The 2420-BLS amplifier converts the μA current from a LI-COR quantum sensor into a voltage that can be measured by the LI-8100A Automated Soil Gas Flux System. Connects to the auxiliary input ports on the 8100-104 or 8100-104C, for use only in multiplex mode.
- 8150-661** **Chamber Sensor Interface**
Required for every multiplexed 8100-101 Long-Term Chamber or Flask Sampling Kit only if auxiliary sensors are to be connected. Allows for connection of up to three auxiliary sensors. (Note: not required with the 8100-104 Long-Term Chamber.)
- 8150-250** **Bev-A-Line Tubing (15 m)**
- 8150-916** **8- to 16-Port Upgrade**
For Multiplexers with Serial Number 306 or lower. Upgrade an 8-port Multiplexer to 16 ports. Includes factory installation.
- 8150-916-1** **8- to 16-Port Upgrade**
For Multiplexers with Serial Number 306 or lower. Includes control panel assembly, solenoid/valve bank assemblies, multiplexer module PCA boards, filter assemblies, and necessary hardware.

- 8150-917** **8- to 16-Port Upgrade**
For Multiplexers with Serial Number 307 or higher. Upgrade an 8-port Multiplexer to 16 ports. Includes factory installation.
- 8150-917-1** **8- to 16-Port Upgrade**
For Multiplexers with Serial Number 307 or higher. Includes control panel assembly, solenoid/valve bank assemblies, multiplexer module PCA boards, filter assemblies, and necessary hardware.
- 9981-188** **LGR® UGGA Analog Integration Cable**
Pre-assembled Turck to DB-9 cable for connecting the LGR Ultra-Portable GGA to the LI-8150 Multiplexer.
- 9981-189** **Pneumatic Interface Integration Hose Assembly**
Pre-assembled hose assembly for plumbing an external trace gas analyzer in parallel with the LI-8100A subsampling loop.
- 9981-193** **Interface Kit to connect Trace Gas Analyzers to the LI-8100A**
Pre-assembled hose assembly for plumbing an external trace gas analyzer in parallel with the LI-8100A subsampling loop.



The standard for accuracy and dependability
licor.com/leaf-area



LAI-2200C Plant Canopy Analyzer

- For non-destructive measurements of leaf area index
- Includes software to evaluate data and recompute measurements
- See page 49

LI-3000C Portable Leaf Area Meter

- For measurements of leaves in the field
- Optional conveyor accessory for bench-top measurements
- See page 50



LI-3100C Area Meter

- For precise, rapid measurements of detached leaves
- Rugged bench-top instrument quickly measures the area, length, and width
- See page 50

Contact us:
 +1-402-467-3576

LAI-2200C Plant Canopy Analyzer

LAI-2200C



Plant Canopy Analyzer

Includes LAI-2250 Optical Sensor with a 1.5 m data cable, LAI-2270C Control Unit with integrated GPS, carrying case, USB cable, view restrictors, six AA batteries, diffuser cap, belt clip, instruction manual, and Windows® FV2200 Software for post-processing and light-scattering corrections, which allow you to take samples under many sky conditions and canopy types.

LAI-2200TC

Tall Canopy Package

Includes two LAI-2250 Optical Sensors with 1.5 m data cables, one LAI-2270C Control Unit, carrying case, USB cable, view restrictors, two diffuser caps, eight AA batteries, belt clip, Windows® FV2200 Software, and instruction manual.

2200CLEAR

LAI-2200 Clear Sky Kit with GPS Upgrade

LAI-2200 Clear Sky Kit with GPS Upgrade for all LAI-2200 Plant Canopy Analyzers in the field. This kit allows users to update their LAI-2200 so they can take measurements under clear sky conditions and log and map GPS data. Kit includes GPS board, flex cable, anti-static wrist strap, two diffuser caps, and instructions.

LAI-2250

Optical Sensor

For use with the LAI-2200C in autonomous mode. Additional sensor can take above-canopy readings independently of the control unit. Includes LAI-2250 Optical Sensor with a 1.5 m data cable, view restrictors, diffuser cap, and two AA batteries.

LAI-2270C

Control Unit

For use with the LAI-2250 Optical Sensor(s). Includes LAI-2270C Control Unit with integrated GPS, USB cable, four AA batteries, belt clip, Windows® FV2200 Software, and instruction manual.

LI-3000C Portable Area Meter

- LI-3050C** **Transparent Belt Conveyor Accessory**
Used for measuring detached leaves in the field and laboratory. Connects directly to the LI-3000C.
- 35TB** **Transparent Belt (Requires two for use with the LI-3050C)**
- 3000C-905** **Replacement Battery (For the LI-3000C only)**

LI-3100C Area Meter

- LI-3100C** **Area Meter**
 Used in the laboratory for detached leaves. Includes both 0.1 and 1.0 mm² resolution, RS-232 serial cable, USB cable, Windows® Software, dust cover, and instruction manual.
- 3100TBL** **Lower Transparent Belt (Requires one for replacement)**
- 3100TBU** **Upper Transparent Belt (Requires one for replacement)**
- 3100LAMP** **Fluorescent Lamp (Requires one for replacement)**



The industry standard for more than 45 years.
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LI-180 Spectrometer

- Quickly capture a complete spectral profile
- Ideal for greenhouses, agriculture, and indoor light measurements
- See page 52

Light Sensor Logger and Light Meter

- LI-1500 Light Sensor Logger to record data from radiation sensors
- LI-250A Light Meter to display readings in real time
- See page 53



Radiation Sensors

- Quantum sensors, photometric sensors, and pyranometers for measurements of light
- Underwater and spherical quantum sensors for measuring light under water
- See page 55

Spectrometer



For precise spectral measurements

- Instantaneous results
- Desktop software and mobile applications
- One-click data capture
- Superior portability

licor.com/180

LI-180 Spectrometer

LI-180 Spectrometer

Portable, hand-held spectrometer that provides instantaneous spectral plots and other data with touch screen, WiFi/SD card, SD card, rechargeable lithium battery, carrying case, protective bag, tripod mount, power cables, and data cables. Includes desktop, instrument, and mobile application software.

LI-180 Spectrometer Accessories

180-02 Dark Calibration Cap

Rubber optical cover used for dark calibration of the LI-180 Spectrometer and protection of the optical sensor. (One included in LI-180.)

180-03 USB Head-to-Console Cable (3 m)

USB cable used to transmit data between the LI-180 Head and Console when used in disconnected mode. (One included in LI-180.)

180-04 Power Adapter

Power cord for LI-180 Spectrometer. Includes three additional adapters for use with various outlets in different countries. (One included in LI-180.)

180-05 Tripod Bracket

Tripod Bracket Mount for the LI-180 Spectrometer. Useful for long-term, repeated measurements. (One included in LI-180.)

180-07 16 GB Card

16 GB SD card for data storage in the LI-180 Spectrometer. (One included in LI-180.)

180-08 WiFi Adapter and 8 GB SD Card

Combination WiFi Adapter and 8 GB SD card for the LI-180 Spectrometer. WiFi adapter for communication to mobile platforms using the LI-180 software application and 8 GB storage space for data storage on the instrument. (One included in LI-180.)

Light Sensor Logger and Meter



- Hand-held light sensor logger and light meter
- Filtered photodiode quantum sensors for terrestrial and underwater measurements
- Quantum sensors to measure photosynthetically active radiation; Pyranometer sensors for solar energy studies; Photometric sensors for indoor light studies

licor.com/light

LI-1500 Light Sensor Logger

LI-1500G Light Sensor Logger with GPS

The LI-1500G Light Sensor Logger with GPS is a 3-sensor logger that can also display real-time data. The LI-1500G features a global positioning system (GPS) for recording the location of measurements. Three BNC input ports accept LI-COR terrestrial and underwater light sensors.

LI-1500 Light Sensor Logger (without GPS)

LI-1500DLI Light Sensor Logger Package for Indoor Horticulture

Measure and compute the Daily Light Integral (DLI) in your greenhouse, growth chamber, or in the field. This complete package includes everything needed to measure photosynthetically active radiation (PAR), log data, and compute DLI. Includes the Light Sensor Logger (LI-1500), Quantum Sensor with 2-meter cable (LI-190R-BNC-2), and Mounting and Leveling Fixture (2003S).

LI-1500G-UW Light Sensor Logger with GPS – Underwater Package

The Underwater (UW) package includes the LI-1500G Light Sensor Logger with GPS, an Underwater Carrying Case, and the Underwater Lowering Frame.

LI-1500-UW Light Sensor Logger - Underwater Package

The Underwater (UW) package includes the LI-1500 Light Sensor Logger, an Underwater Carrying Case, and the Underwater Lowering Frame.

1500-GPS GPS Field Upgrade Kit for the LI-1500

The 1500-GPS is a GPS Field Upgrade Kit for the LI-1500 Light Sensor Logger. The kit is designed for LI-1500s that don't have the GPS component installed. Field installable.

LI-250A Light Meter

LI-250A



Light Meter

Displays instantaneous output or 15-second average. Includes one BNC connector for direct connection to BNC terminated LI-COR Light Sensors. Does not store data. Includes battery and instruction manual.

LI-250Q

Light Meter Package for Indoor Horticulture

Includes the LI-250A Light Meter, LI-190R Quantum Sensor with 2 meter cable, and the 2003S Mounting and Leveling Fixture. Ideal for measuring photosynthetically active radiation in indoor plant production facilities.

250-01

Carrying Case

Padded nylon case with belt clip and two internal compartments. Protects LI-250A and sensors during transport.

Terrestrial Light Sensors



The LI-190R, LI-200R, and LI-210R light sensors feature a detachable base and sensor head. Any sensor head can be used with any base. Complete sensors are available, as well as individual cable/base assemblies and sensor heads. Light sensors are available in three versions, based upon cable termination.

Terminal:	BNC: BNC Connector	BL: Bare Wires	SMV: Bare wires
			
Use with:	LI-1500 or LI-250A	Dataloggers that read a microamp signal	Dataloggers that read a millivolt signal
Output:	Microamp current	Microamp current	Voltage; standardized from 0 to 10 mV at full scale
Notes:	Compatible with other dataloggers with adapter	Use with dataloggers that read a microamp signal.	Includes mV adapter with preset variable resistor

LI-190R Quantum Sensor



The LI-190R measures photosynthetically active radiation (PAR; 400 - 700 nm) in $\mu\text{mol}/\text{m}^2/\text{s}$. It is available with a BNC terminal, bare leads, and a millivolt adapter, with cable lengths of 2, 5, 15, and 50 meters.

Part Number	Description	Length
LI-190R-BNC-2	BNC connector termination	2-meter
LI-190R-BNC-5		5-meter
LI-190R-BNC-15		15-meter
LI-190R-BNC-50		50-meter
LI-190R-BL-2	Bare leads termination	2-meter
LI-190R-BL-5		5-meter
LI-190R-BL-15		15-meter
LI-190R-BL-50		50-meter
LI-190R-SMV-2	Standardized millivolt (mV) output, bare leads termination	2-meter
LI-190R-SMV-5		5-meter
LI-190R-SMV-15		15-meter
LI-190R-SMV-50		50-meter

190R Quantum Sensor, Head Only
 Sensor head only. Can be connected to any base.

LI-191R Line Quantum Sensor



The LI-191R Line Quantum Sensor measures PAR (400-700 nm) using a 1-meter quartz rod connected to a housing containing a silicon photodiode and glass filters. Continuous photodiode rod integrates signal over entire 1-meter length. Available with 2-meter or 5-meter cable and BNC or SMV terminals. Includes a bubble level.

Part Number	Description	Length
LI-191R-BNC-2	BNC connector termination	2-meter
LI-191R-BNC-5		5-meter
LI-191R-SMV-2	Standardized millivolt (mV) output, bare leads termination	2-meter
LI-191R-SMV-5		5-meter

LI-200R Pyranometer



The LI-200R Pyranometer measures solar irradiance in W/m^2 . It is available with a BNC terminal, bare leads, and a millivolt adapter, with cable lengths of 2, 5, 15, and 50 meters.

Part Number	Description	Length
LI-200R-BNC-2	BNC connector termination	2-meter
LI-200R-BNC-5		5-meter
LI-200R-BNC-15		15-meter
LI-200R-BNC-50		50-meter
LI-200R-BL-2	Bare leads termination	2-meter
LI-200R-BL-5		5-meter
LI-200R-BL-15		15-meter
LI-200R-BL-50		50-meter
LI-200R-SMV-2	Standardized millivolt (mV) output, bare leads termination	2-meter
LI-200R-SMV-5		5-meter
LI-200R-SMV-15		15-meter
LI-200R-SMV-50		50-meter

200R Pyranometer, Head Only

Sensor head only. Can be connected to any base.

LI-210R Photometric Sensor



The LI-210R Photometric Sensor measures illuminance in lux for indoor lighting studies. It is available with a BNC terminal, bare leads, and a millivolt adapter, with cable lengths of 2, 5, 15, and 50 meters.

Part Number	Description	Length
LI-210R-BNC-2	BNC connector termination	2-meter
LI-210R-BNC-5		5-meter
LI-210R-BNC-15		15-meter
LI-210R-BNC-50		50-meter
LI-210R-BL-2	Bare leads termination	2-meter
LI-210R-BL-5		5-meter
LI-210R-BL-15		15-meter
LI-210R-BL-50		50-meter
LI-210R-SMV-2	Standardized millivolt (mV) output, bare leads termination	2-meter
LI-210R-SMV-5		5-meter
LI-210R-SMV-15		15-meter
LI-210R-SMV-50		50-meter

210R Photometric Sensor, Head Only
Sensor head only. Can be connected to any base.

Light Sensor Accessories

2001S Replacement Sensor Base Cover for LI-190R, LI-200R, or LI-210R
Protects base from elements while sensor head is removed.

2003S Mounting and Leveling Fixture
To mount the LI-190/R, LI-200/R, or LI-210/R. Includes bubble level and mounting hardware.



2200 BNC to Bare Leads Adapter
Converts sensors with BNC cable termination to BL-type sensors with bare lead termination.

2290 Millivolt Adapter (604 Ohm Resistor)
For use with the LI-190R-BNC, LI-191R-BNC, or LI-210R-BNC sensors.

2220 Millivolt Adapter (147 Ohm Resistor)
For use with the LI-200R-BNC sensors. Terminates with bare leads.

2319 Standardized Output Millivolt Adapter
For use with LI-190R-BNC or LI-191R-BNC. Converts BNC to SMV. Provide sensor's serial number when ordering.

2320 Standardized Output Millivolt Adapter
For use with the LI-200R-BNC. Converts BNC to SMV. Provide sensor's serial number when ordering.

- 2321** **Standardized Output Millivolt Adapter**
For use with the LI-210R-BNC. Converts BNC to SMV. Provide sensor's serial number when ordering.
- 2420-BNC** **BNC Amplifier, BNC Connector**
The 2420-BNC Amplifier is for LI-COR Light Sensors to convert and amplify the μA current into a voltage output. This model is designed for use with Light Sensors with a BNC termination.
- 2420-BL** **BL Amplifier, Bare Leads**
The 2420-BL Amplifier is for LI-COR Light Sensors to convert and amplify the μA current into a voltage output. This model is designed for use with Light Sensors which terminate with Bare Leads.
- 2222SB** **Extension Cable - 15 m (BNC connectors)**
- 2222SB-100** **Extension Cable - 30 m (BNC connectors)**

Replacement Sensor Bases

Part Number	Description	Length
BNC-2	Replacement sensor base with BNC connector termination	2-meter
BNC-5		5-meter
BNC-15		15-meter
BNC-50		50-meter
BL-2	Replacement sensor base with bare leads termination	2-meter
BL-5		5-meter
BL-15		15-meter
BL-50		50-meter

Underwater Quantum Sensors

LI-COR's underwater quantum sensors can be used for both underwater and terrestrial measurements of PAR (400-700 nm) in $\mu\text{mol}/\text{m}^2/\text{s}$.

LI-192SA Underwater Quantum Sensor

LI-192SA Underwater Quantum Sensor



LI-193SA Spherical Underwater Quantum Sensor

LI-193SA Spherical Underwater Quantum Sensor



2222UWB Underwater Cables

Part Number	Description	Length
2222UWB-3	Provides waterproof connection for the sensor head and BNC connector termination for a datalogger or readout device. One cable per sensor is required.	3-meter
2222UWB-10		10-meter
2222UWB-30		30-meter
2222UWB-50		50-meter
2222UWB-100		100-meter

Underwater Quantum Sensor Accessories

2009S Lowering Frame

Provides stability and proper orientation for one or two underwater sensors.

1500-01 Underwater Carrying Case

The 1500-01 Underwater Carrying Case is designed for use in conditions where moisture might be present. The Underwater Carrying Case can hold the LI-1500, two LI-192SAs, two LI-193SAs, a Terrestrial Sensor, Underwater Cables, and an Underwater Lowering Frame.

2291 Millivolt Adapter

Allows for the LI-192SA or LI-193SA to produce a millivolt signal. Terminates with bare wires. Connects to the end of the 2222UWB underwater cable. Uses a 1210 Ohm Resistor.

2420-BNC BNC Amplifier, BNC Connector

The 2420-BNC Amplifier is for LI-COR Light Sensors to convert and amplify the μA current into a voltage output. This model is designed for use with Light Sensors with a BNC termination.

Product Service and Support

envsupport@licor.com

+1-402-467-3576

Returning instruments for service? Do this:

- Contact our technical support team to obtain a Return Materials Authorization (RMA) number.
- Download and fill out our Service Information Form from licor.com/service.
- Please record your RMA number in the space provided on the form.
- The address to which you should ship your instrument is on the last page of the service document.
- For Radiation Sensors: An evaluation fee of \$75 will be charged for each radiation sensor returned, should repairs or recalibration be declined.

Factory Recalibration and Maintenance

190-901	LI-190/R Recalibration [†]
191-901	LI-191/R Recalibration [†]
192-901	LI-192 Recalibration [†]
193-901	LI-193 Recalibration [†]
200-901	LI-200/R Recalibration [†] (offered March 20 to September 15 only)
210-901	LI-210/R Recalibration [†]
610-901	LI-610 Calibration and Maintenance [‡]
6800-902	LI-6800 Instrument and Fluorometer Recalibration [†]
6400-901	LI-6400/XT Recalibration and Maintenance [†]
6400-901-2	Recalibration of Light Source (6400-02B) [‡]
6400-901-2	Recalibration of Fluorometer (6400-40) [‡]
7000CAL	LI-7000 Recalibration and Maintenance [‡]
7200-901	LI-7200/RS Recalibration and Maintenance [‡]
7500CAL	LI-7500/A/RS/DS Recalibration and Maintenance [‡]
7700CAL	LI-7700 Recalibration and Maintenance [‡]
7810-901	LI-7810 Recalibration [‡]
7815-901	LI-7815 Recalibration [‡]
7820-901	LI-7820 Recalibration [‡]
8100-921	LI-8100/A Recalibration and Maintenance [‡]
840-901	LI-840/A Recalibration and Maintenance [‡]

[†]Recommended every two years.

[‡]As required.

Standard Terms and Conditions

1. General. LI-COR Inc. ("LI-COR") is delivering these goods and products ("Products") subject to these Terms and Conditions of Sale ("Conditions"). Buyer will be deemed to have assented to these Conditions upon Buyer's placement of order.

Notwithstanding the above, failure of LI-COR to object to provisions contained in any purchase order or other form or document from Buyer shall not be construed as a waiver of these Conditions nor an acceptance of any such provision.

2. Buyer's Use Only/No Resale. The purchase of Products only conveys to Buyer the non-transferable right for only Buyer to use the quantity of Products and components of Products purchased in compliance with the applicable intended use statement, limited use statement or limited label license, if any, in LI-COR catalogues or on the label or other documentation accompanying the Products (all such statements or licenses being incorporated herein by reference as if set forth herein in their entirety). Buyer has no right to resell the Products, or any portion of them, and any such resale is strictly prohibited unless LI-COR first accepts and approves a purchase order and acknowledges in writing that the Products may be resold by Buyer and the terms of such resales.

3. Prices/Taxes. All prices are quoted for delivery to Buyer when goods are loaded on the carrier at LI-COR premises in Lincoln, Nebraska, USA. Accordingly, unless otherwise specified by LI-COR, prices are exclusive of shipping, insurance and installation charges, all of which are Buyer's sole responsibility. All prices are exclusive of all sales, use, excise, value added, withholding and other taxes, and all customs, duties, documentation charges, and freights forwarder charges now or hereafter claimed or imposed by any governmental authority upon the sale of the Products. Any such charges will be added to the product invoice or subsequently invoiced to the Buyer. In the event LI-COR is required to pay any such tax, duty or charge, Buyer will promptly reimburse LI-COR.

4. Payment Terms. All payments shall be made in immediately available U.S. Dollars net thirty (30) days from the date of invoice for qualified accounts, without set-off, deduction or withholding of any kind, unless otherwise stated by LI-COR in writing and may be paid by check (drawn on a U.S. bank), wire transfer or major credit card. All open account invoicing must be pre-approved. Any amounts not paid when due will accrue interest at the rate of 1 1/2% per month, or the maximum amount allowed by law, if lower. In the event that any payment is more than thirty (30) days late, LI-COR shall have the right to suspend doing business with Buyer until all past due balances are made current. Buyer shall pay for all costs (including reasonable fees) incurred by LI-COR in connection with the collection of late payments. Each accepted purchase order is a separate, independent transaction, and Buyer has no right of set-off against other purchase orders or other transactions with LI-COR. Buyer hereby grants LI-COR a security interest in the Products in the amount of the unpaid balance of the purchase price until paid in full. LI-COR may file a financing statement for such security interest and Buyer shall sign any such statements or other documentation necessary to perfect LI-COR security interest.

5. Return Policy. Buyer may return non-consumable Products to LI-COR within forty-five (45) days of invoice date only with prior authorization by LI-COR, the Product(s) being returned in new and unused condition and must be resalable as new. Any returned Product(s) are subject to payment of a fifteen percent (15%) re-stocking fee on all items returned. Buyer shall be responsible to make payment to LI-COR for any and all expenses related to deinstallation of the Product(s), including but not limited to shipping, duties, and taxes. All payments subject to this provision shall be made to LI-COR within thirty (30) days of return, or de-installation, of the Product(s).

6. Delays In Performance. LI-COR shall not be liable for any delay in performance hereunder due to unforeseen circumstances or due to circumstances beyond its control including, but not limited to, acts of nature, acts of government, labor disputes, delays in transportation, delays in customs clearance and delays in delivery or inability to deliver by LI-COR's suppliers.

7. Shipment and Packing. All Product prices exclude costs of shipping and handling and insurance, in accordance with delivery terms designated by LI-COR. Unless otherwise agreed in writing, such costs will be paid by the Buyer and will appear as a separate item on LI-COR invoice. LI-COR shall ship in accordance with LI-COR standard practices. Buyer may specify different shipping instructions, subject to agreement by LI-COR. Unless otherwise agreed to in writing by LI-COR, all products shall be packaged, if appropriate, for shipment and storage in accordance with standard commercial practices. All packing shall conform to carrier requirements.

8. Partial Shipments. Any Products delivered in partial shipments may be invoiced individually. Additional shipping and handling charges may apply.

9. Title/Risk of Loss. All domestic shipments are made FOB per Uniform Commercial Code. All international shipments are made per INCOTERMS 2000 designated by LI-COR. LI-COR title to the Products and the risk of loss of or damage to the Products ordered by the Buyer will pass to Buyer at time of LI-COR delivery of Products to the carrier. The carrier shall be deemed Buyer's agent, and any claims for damages in shipment must be filed with the carrier. LI-COR is authorized to designate a carrier pursuant to LI-COR standard shipping practices unless otherwise specified in writing by Buyer.

10. Intellectual Property Rights. Title to and ownership of the documentation, and any improved, updated, modified or additional parts thereof, and all copyright, patent, trade secret, trademark and other intellectual property rights embodied in the Products, shall at all times remain the property of LI-COR or LI-COR licensors.

11. Acceptance. All sales are final and all Products shall automatically be deemed accepted upon delivery to Buyer when goods are loaded on the carrier at LI-COR premises in Lincoln, Nebraska, USA. Buyer may not return any Products to LI-COR except as provided for by LI-COR warranty or as provided herein.

12. Product Warranties. Unless otherwise specified by LI-COR: (a) LI-COR warrants that, for a period of twelve (12) months from the date of shipment of the Products from LI-COR (the "Warranty

Period”), unless otherwise specified for individual Products or extended by a Support Contract or Extended Warranty Contract, the Products sold hereunder will be free from material defects in materials and workmanship and will conform to LI-COR published specifications in effect as of the date of manufacture. LI-COR SPECIFICALLY DISCLAIMS ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES (INCLUDING LOSS OF USE OR LOST PROFITS) WHICH MAY RESULT FROM THE USE OF PRODUCTS PURCHASED HEREUNDER, AS FURTHER SET FORTH IN SECTION 13 OF THESE CONDITIONS OF SALE. This limited warranty extends only to Buyer as original purchaser unless otherwise agreed upon in writing by LI-COR.

(b) The foregoing warranty shall not apply if the defective Product (i) has been subjected to abuse, misuse, neglect, negligence, accident, improper testing, improper installation, improper storage, improper handling or use contrary to any instructions issued by LI-COR, (ii) has been repaired or altered by persons other than LI-COR, (iii) has not been installed, operated, repaired and maintained in accordance with the documentation or operated outside of the environmental specifications for the Product; (iv) has failed due an Act of God, including but not limited to fire, flood, tornado, earthquake, hurricane or lightning or (v) has been used with any devices, accessories or products not manufactured by or approved by LI-COR. In addition, the foregoing warranty shall not apply to Products (i) LI-COR Standard Terms and Conditions of Sale – rev. 5/15/2009 marked or identified as “sample,” (ii) loaned or provided to Buyer at no cost, or (iii) which are sold “as is.”

c) If during the Warranty Period: (i) LI-COR is notified promptly in writing upon discovery of any defect in the Product, including a detailed description of such alleged defect, (ii) such Product is returned, transportation charges prepaid, to LI-COR designated manufacturing facility subject to the prior approval of LI-COR with a valid Return Material Authorization (“RMA”) number, and (iii) LI-COR inspections and tests determine that the Product is indeed defective and the Product has not been subjected to any of the conditions set forth above, then, as Buyer’s sole remedy and LI-COR sole obligation under the foregoing warranty, LI-COR will, at LI-COR option, repair or replace without charge the defective Product. In no event will the Buyer itself nor will the Buyer allow any party other than LI-COR or a third party authorized in writing by LI-COR to perform any service on the Products.

(d) During the Warranty Period, LI-COR will provide on-site warranty repair for Odyssey® Infrared Imager, Aerius Automated Infrared Imager, Pearl® Imager and/ or 4300 DNA Analyzer Products including travel costs, repair parts, and labor to maintain the hardware in proper operating condition. At LI-COR discretion, the Buyer may be required to run certain diagnostic procedures to help determine the source of the problem before on-site warranty repair is rendered. If an on-site service call is initiated, LI-COR will dispatch a service technician to the Buyer site. On-site service will be provided 8:00 a.m. to 5:00 p.m. (Buyer local time), Monday through Friday, excluding LI-COR holidays. The cost of a repair/service call for an instrument malfunction caused by third party hardware and/or software will be billed to Buyer on a time and material basis.

(e) Any Product that has either been repaired or replaced under this warranty shall have warranty coverage (parts only) for the longer of ninety (90) days or the remaining original warranty period. Replacement parts used in the repair of Products may be new or equivalent to new.

(f) EXCEPT FOR THE WARRANTIES SET FORTH IN THIS SECTION, LI-COR MAKES NO OTHER WARRANTIES, EXPRESS, IMPLIED OR STATUTORY, WITH RESPECT TO ANY PRODUCTS OR OTHER PRODUCTS PROVIDED IN CONNECTION WITH THESE CONDITIONS, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, NONINFRINGEMENT, OR ARISING FROM COURSE OF PERFORMANCE, DEALING, USAGE OR TRADE.

(g) Notwithstanding anything herein to the contrary, LI-COR makes no warranty with respect to any third party products provided under these Conditions. Buyer’s sole remedy with respect to such third party products shall be pursuant to the original manufacturer’s or licensor’s warranty, if any, to Buyer, to the extent permitted by the original manufacturer or licensor.

13. Limitation of Liability. IN NO EVENT SHALL LI-COR, ITS LICENSORS OR ITS SUPPLIERS BE LIABLE TO BUYER OR ANY THIRD PARTY FOR COSTS OF PROCUREMENT OF SUBSTITUTE PRODUCTS OR SERVICES, LOST PROFITS, DATA OR BUSINESS, OR FOR ANY INDIRECT, SPECIAL, INCIDENTAL, EXEMPLARY OR CONSEQUENTIAL DAMAGES OF ANY KIND ARISING OUT OF OR IN CONNECTION WITH THE USE OF THE PRODUCTS OR THESE CONDITIONS, HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY (WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, PRODUCTS LIABILITY OR OTHERWISE). LI-COR TOTAL AND CUMULATIVE LIABILITY ARISING OUT OF OR IN CONNECTION WITH ANY PRODUCTS PURCHASED BY BUYER HEREUNDER SHALL IN NO EVENT EXCEED THE PURCHASE PRICE PAID BY BUYER FOR SUCH PRODUCTS. THE LIMITATIONS SET FORTH IN THIS SECTION SHALL APPLY EVEN IF LI-COR OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, AND NOTWITHSTANDING ANY FAILURE OF ESSENTIAL PURPOSE OF ANY LIMITED REMEDY.

14. Authorized Use of Biotechnology Products. Unless otherwise expressly indicated in LI-COR catalogues, LI-COR website or on the label or other documentation accompanying Biotechnology Products, the LI-COR Biotechnology Products are intended for RESEARCH USE ONLY and are not to be used for any other purposes including, but not limited to, unauthorized commercial purposes, in vitro diagnostic purposes, ex vivo or in vivo therapeutic purposes, investigational use, in foods, drugs, devices or cosmetics of any kind, or for consumption by or use in connection with or administration or application to humans or animals. Buyer acknowledges that the Biotechnology Products have not necessarily been tested for safety or efficacy, unless expressly stated in LI-COR catalogs or on the label or other documentation accompanying the Biotechnology Products.

15. Severability. If any portion of these Conditions is held invalid, the parties agree that such invalidity shall not affect the validity of the remaining portions of these Conditions.

16. Export Control. Buyer acknowledges and agrees that the Products purchased under these Conditions may be subject to restrictions and controls imposed by the United States Government and the regulations thereunder. BUYER WARRANTS THAT IT WILL NOT EXPORT OR RE-EXPORT ANY PRODUCTS PURCHASED WITHOUT PRIOR WRITTEN NOTIFICATION AND APPROVAL OF LI-COR.

17. Assignment. Buyer shall not assign or transfer these Conditions or any rights or obligations under these Conditions, whether voluntary or by operation of law, without the prior written consent of LI-COR. LI-COR may assign or transfer these Conditions to any successor by way of merger, acquisition or sale of all or substantially all of the assets relating to these Conditions. LI-COR or any successor may assign all or part of the right to payments under these Conditions. Any assignment or transfer of these Conditions made in contravention of the terms hereof shall be null and void. Subject to the foregoing, these Conditions shall be binding on and inure to the benefit of the parties' respective successors and permitted assigns.

18. Entire Agreement. These Conditions of Sale take precedence over Buyer's additional or different terms and conditions, to which notice of objection is hereby given. Acceptance by Buyer is limited to LI-COR Conditions of Sale. Neither LI-COR commencement of performance nor delivery shall be deemed or construed as acceptance of Buyer's additional or different terms and conditions. These Conditions supersede all prior communications, transactions, and understandings, whether oral or written, and constitute the sole and entire agreement between the parties pertaining to the referenced quotation or purchase order, provided that: (1) these Conditions shall not, without LI-COR prior written consent, supersede any conflicting terms of: (a) prior written agreements duly executed by LI-COR, or (b) governmental purchase orders, terms of purchase, requests for quotation or acquisition regulations relative to governmental purchasers; and (2) to the extent not in conflict with any such prior or governmental terms, these Conditions shall supplement them. No modification, addition or deletion, or waiver of any of the terms and conditions of these Conditions shall be binding on either party unless made in a non-preprinted agreement clearly understood by both parties to be a modification or waiver, and signed by a duly authorized representative of each party.

19. Force Majeure. Shipping dates are approximate and may be delayed absent prompt receipt from Buyer of all necessary information. LI-COR shall not be responsible for any failure to perform or delay attributable in whole or in part to any cause beyond its reasonable control, including but not limited to Acts of God, government actions, war, civil disturbance, insurrection, sabotage, labor shortages or disputes, failure or delay in delivery by LI-COR suppliers or subcontractors, transportation difficulties, customs clearance, shortage of energy, raw materials or equipment, or Buyer's fault or negligence. In the event of any such delay the date of delivery shall, at the request of LI-COR, be deferred for a period equal to the time lost by reason of the delay.

20. Governing Law and Venue. These Conditions and performance by the parties hereunder shall be construed in accordance with the laws of the State of Nebraska, U.S.A., without regard to provisions on the conflicts of laws.

LI-COR Biosciences

LI-COR Biosciences

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The LI-COR board of directors would like to take this opportunity to return thanks to God for His merciful providence in allowing LI-COR to develop and commercialize products, through the collective effort of dedicated employees, that enable the examination of the wonders of His works. "Trust in the LORD with all your heart and do not lean on your own understanding. In all your ways acknowledge Him, and He will make your paths straight."

—Proverbs 3:5,6

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