

Environmental Product Catalog

Europe

Effective January 2021

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.

Throughout the product catalog you will find packages that are designed to provide savings and offer you a complete solution for your research needs. OEM and volume discounts are also available.

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

Sincerely,
LI-COR

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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.

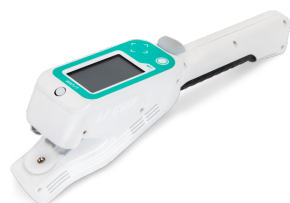


LI-6800 Portable Photosynthesis System

- The only instrument in the world that uses Rapid Sensing™ Technology for fast A-Ci curves and survey measurements
- Extensive collection of chambers support many research applications
- See page 6

6800-18 Aquatic Chamber

- NEW! For measurements from algae and other aquatic samples
- Extends the functionality of the LI-6800 to wet and aquatic samples
- See page 12



LI-600 Porometer/Fluorometer

- For rapid surveys of many plants
- Light weight, handheld, and ergonomic
- See page 13



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)

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

- 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.

- 622-10509 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 8-gram CO₂ cartridges (100 total), two packs 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.
609-15792	Monopod Single-post podium for the sensor head.
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.



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 base porometer. Accessories include a 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. Includes the base Porometer with the Fluorometer module. 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. |



LI-6400/XT Portable Photosynthesis System Light Sources, Chambers, and Accessories

Supply is limited. Contact LI-COR or your distributor to inquire about availability of LI-6400/XT chambers and parts.

licor.com/6400

Leaf Chamber Fluorometer

6400-40 Leaf Chamber Fluorometer

Used for simultaneous gas exchange and fluorescence measurements. Provides maximum saturating flash intensity, MPF protocol, and independent control of blue and red LEDs. Includes 10 sets of dark adapting clips, software upgrade, spares kit, and instruction manual. Requires OPEN V4.0 or above.

6400-41 Fluorometer Gasket Kit

Includes 15 upper white polyethylene foam gaskets, 10 black neoprene lower leaf gaskets, and 5 black neoprene air-passage gaskets.

Light Sources

6400-02B Red/Blue LED Light Source

Used to control light in the leaf chamber. For use with the 6 cm² chamber only. Includes installation kit and spares kit.

6400-18A RGB Light Source

7-cm diameter LED light source with three independent wavelengths that can be combined in any proportion. Designed for use with the Whole Plant Arabidopsis Chamber, Lighted Conifer Chamber, and Bryophyte Chamber. Powered independently of the LI-6400XT. Includes an AC power supply and an adapter for 12 VDC power supplies.

6400-28 RGB Battery Belt Kit

Optional accessory to power the RGB Light Source in the field. Includes battery belt, shoulder strap, one rechargeable NiMH battery pack, hot swap box, and battery charger.

9964-122 NiMH Battery Pack

Extra battery packs can be purchased for extended run time. Battery packs can be hot swapped for continuous use of RGB Light Source.

9964-138 Battery Pack Charger

An extra charger is recommended if more than one battery pack is being used. Can recharge one battery at a time.

6400-33 Red/Blue LED Light Source Gasket Kit

Includes 15 upper white polyethylene foam gaskets, 10 black neoprene lower leaf gaskets, and 5 black neoprene air-passage gaskets.

Whole Plant Arabidopsis Chamber

6400-17L **Lighted Whole Plant Arabidopsis Chamber Package**

This package includes the 6400-17 Whole Plant Arabidopsis Chamber and 6400-18A RGB Light Source.

6400-17 **Whole Plant Arabidopsis Chamber**

Includes chamber bottoms for 38 mm Cone-tainer™ and 63 mm pot, spares kit, exhaust tubes, five 38 mm Cone-tainers™, five 63 mm pots, and installation instructions.

Lighted Conifer Chamber

6400-22L **Lighted Conifer Chamber Package**

Designed for measurement of short-neededled conifers. Package includes the 6400-22 Opaque Conifer Chamber and 6400-18A RGB Light Source.

6400-22 **Opaque Conifer Chamber**

Can be ordered separately if you already have the RGB light source.

Lighted Bryophyte Chamber

6400-24L **Lighted Bryophyte Chamber Package**

Allows for measurements that explore both response to light intensity and spectral distribution. This package includes the 6400-24 Bryophyte Chamber and 6400-18A RGB Light Source.

6400-24 **Bryophyte Chamber**

Allows for loose material such as bryophytes (moss) to be held in a shallow well for gas exchange measurements. Includes spares and gasket kit.

Additional Chambers

6400-09 **Soil CO₂ Flux Chamber**

Includes soil temperature probe, gasket kit, and six soil collars.

6400-11 **Narrow Leaf Chamber (2 cm × 6 cm)**

Includes spares and gasket kit.

6400-05 **Conifer Chamber**

Includes spares and gasket kit.

6400-07 **Needle Chamber (2 cm × 6 cm)**

Includes spares and gasket kit.

6400-15 **Extended-Reach 1 cm Chamber**

Includes spares and gasket kit.

6400-08 **Clear Bottom for Standard Leaf Chamber (2 cm x 3 cm)**

Includes spares and gasket kit.

6400-37 **Thick Gasket Kit**

Designed for use with thick, fleshy, or cylindrical leaves or leaves with thick vasculature. Includes gaskets for 6400-02B, 6400-40, and air passage.

6400-19 Custom Chamber Kit
Contains commonly required accessories in order to interface a custom chamber to the LI-6400XT sensor head. Includes optical path mounting plate and screws, Teflon™ tape, thermocouple wire and connector, exhaust air tubing, and o-rings.

6400-89 Insect Respiration Kit
Includes components to measure insect respiration with the LI-6400XT.

LI-6400XT Accessories

9964-150 CO₂ and Chemicals Kit
Includes two packs of 12-gram CO₂ cartridges (Qty. 100 total), two bottles of soda lime (wet type, 6-12 mesh, 450 g each, for use in LI-6400XT external scrub tube only), and two packs of silica gel (0.45 kg each).

9964-037 12-gram CO₂ Cartridges (Qty. 25)
CO₂ cartridges to supply pure CO₂ gas to the LI-6400XT.

622-16951 Silica Gel Desiccant
0.45 kg resealable foil pack for use with the LI-6800 and LI-6400/XT Portable Photosynthesis Systems (BASF Sorbead® Orange CHAMELEON®).

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.

9964-090 Soda Lime
Wet type, 6-12 mesh, 450 g, for use in LI-6400XT external scrub tube only.

9964-015 LI-6400/XT Spares Kit
Spares including screws, o-rings, filters, tubing, propafilm, thermocouple, and other items to operate the LI-6400/XT.

6400-03 Rechargeable Lead-Acid Battery

LI-6021 Single Port Battery Charger
For use with a single 6400-03 or a single 6200B rechargeable battery.

6400-70 Indoor AC Power Supply

6000-09TC Soil Temperature Thermocouple
Soil temperature thermocouple probe for use with the LI-6400/XT, LI-8100A, and Smart Chamber (8200-01S). Included with the Soil CO₂ Flux Chamber (6400-09), 8100-102, and 8100-103 survey chambers.

6400-04 Leaf Temperature Thermocouple

6400-88 Expanded Temperature Control Kit
Extends the temperature control range.

9964-098 Field Stand Leg Extenders (30.5 cm long)



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 and Tovi™ Software for advanced analysis of the time series.

licor.com/ec-customize

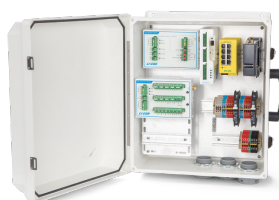


CO₂/H₂O Gas Analyzers

- Featuring low noise, high precision, and long-term stability
- See LI-7500DS on page 18
- See LI-7200RS on page 20

CH₄ Gas Analyzer

- Methane fluxes computed in real time on the SmartFlux System
- See LI-7700 on page 22



Eddy Covariance Accessories

- Biomet system and sensors
- Tripod and mounting hardware
- Cellular and satellite options
- See page 25

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, EddyPro® Software, and Tovi™ Software. Sonic anemometer cables must be ordered separately.

LI-7900EFT 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
- Tovi Data Analysis Software license (7900-560)

LI-7900EFTP 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
- Tovi Data Analysis Software license (7900-560)

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.

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-7200RSFT 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, EddyPro® Software and Tovi™ Data Analysis Software.

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.

LI-7700AIU

Open Path CH₄ Analyzer / LI-7550 Analyzer Interface Unit Package

Package includes the LI-7700 Open Path CH₄ Analyzer and LI-7550 Analyzer Interface Unit.

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 24 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

7900-129 Biomet Backup Battery



The backup battery (12 VDC) powers the Data Retention Module and other accessories if the main power fails. Provides assurance that biomet data are recorded even if the other eddy covariance data is not.

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 (NRLite 2)	✓		
Four Component Net Radiometer (Hukseflux NR01)		✓	
Four Component Net Radiometer (Kipp & Zonen CNR4)			✓
Pyranometer (LI-200R-BL-*)	✓		
Quantum Sensor (LI-190R-BL-*)	✓	✓	✓
Air Humidity and Temperature Probe (HMP155)	✓	✓	✓
Tipping Bucket Rain Gauge (TR-525M)	✓	✓	✓
Soil Heat Flux Plates (HFP01)	✓ ✓ ✓	✓ ✓ ✓	
Self-calibrating Soil Heat Flux Plates (HFP01SC)			✓ ✓ ✓
Soil Moisture Probe (Decagon/Meter EC-5)	✓ ✓		
Soil Temperature Thermistors (7900-180)	✓ ✓ ✓		✓ ✓ ✓
Soil Probe (Stevens HydraProbe)		✓ ✓ ✓	✓ ✓ ✓
Phenocam (StarDot 5MP)			✓

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

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.

Power 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.

FluxSuite™ Software



FluxSuite is cloud-based monitoring and data management software for eddy covariance stations. When used with a web-connected eddy covariance system and the SmartFlux® System, this powerful tool provides plots of fully processed flux results, right from the field site. It provides customizable alerts for daily notification of issues at the site. Great for monitoring single or multiple stations through a single software platform. Compatible with computers and mobile devices.

licor.com/fluxsuite/

- 7900-550 One-Year License
- 7900-555 Additional Site, One-Year License
- 7900-552 Additional User Seat Beyond 10 Seats, One-Year License

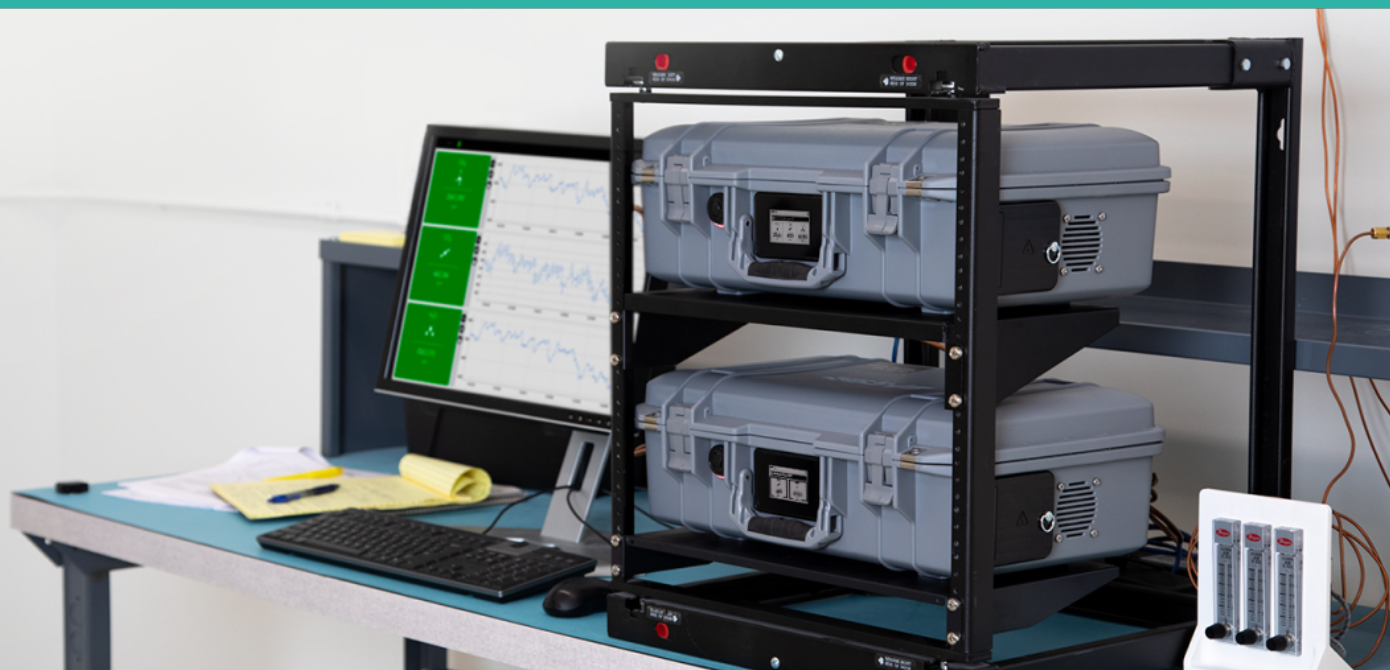
Tovi™ Data Analysis Software



Tovi™ Data Analysis Software is a revolutionary new way to visualize, evaluate, and process eddy covariance data. A Tovi license is included with the purchase of eddy covariance systems from LI-COR. Licenses are also available for purchase. Features QC screening, automated weather station data retrieval, footprint modeling, flux allocation, gap filling, u^* threshold detection, flux partitioning, embedded python and R programming environments, energy balance and carbon cycle dashboards, footprint and fingerprint charts, a process log, and reference builder.

licor.com/tovi

- 7900-560 Single-User License



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

- NEW! LI-7820 N₂O/H₂O Gas Analyzer
- LI-7815 CO₂/H₂O Gas Analyzer
- LI-7810 CH₄/CO₂/H₂O Gas Analyzer
- See page 35

CO₂/H₂O Gas Analyzers

- LI-850 CO₂/H₂O Gas Analyzer
- LI-830 CO₂ Gas Analyzer
- See page 37



Dew Point Generator

- LI-610 Portable Dew Point Generator
- For calibrating water vapor measurements
- See page 38



Trace Gas Analyzers

Laser-based gas analyzers for measuring N_2O , CH_4 , CO_2 , and H_2O 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 $\text{CH}_4/\text{CO}_2/\text{H}_2\text{O}$ Trace Gas Analyzer

LI-7810

$\text{CH}_4/\text{CO}_2/\text{H}_2\text{O}$ Trace Gas Analyzer



High precision CH_4 measurements for atmospheric monitoring and other applications. Accurate CO_2 and H_2O measurements suitable for soil gas exchange measurements. Includes AC power supply, two rechargeable batteries (442-11807), instruction manual, and Ethernet cable.

LI-7815 $\text{CO}_2/\text{H}_2\text{O}$ Trace Gas Analyzer

LI-7815

$\text{CO}_2/\text{H}_2\text{O}$ Trace Gas Analyzer



High precision CO_2 measurements for atmospheric monitoring or other applications. Includes AC power supply, two rechargeable batteries (442-11807), instruction manual, and Ethernet cable.

LI-7820 $\text{N}_2\text{O}/\text{H}_2\text{O}$ Trace Gas Analyzer

LI-7820

$\text{N}_2\text{O}/\text{H}_2\text{O}$ Trace Gas Analyzer



High-precision N_2O measurements for chamber-based soil flux measurements and atmospheric monitoring. Includes AC power supply, two rechargeable batteries (442-11807), manual, and Ethernet cable.

Trace Gas Analyzer Accessories

610-17341

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 40

Long-Term Systems

- Featuring the NEW LI-8250 Multiplexer
- Designed for use with the LI-870 and LI-COR Trace Gas Analyzers
- Compatible with third-party analyzers
- See page 42



Gas Analyzers

- Measure the gas of interest, including CO₂, CH₄, N₂O, and H₂O
- Integrated system provides data logging and flux results
- See page 44



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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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



The Smart Chamber is a battery powered soil chamber that allows the user to connect an external gas analyzer and compute real-time gas fluxes. Includes Stevens HydraProbe Soil Probe, two lithium ion rechargeable batteries (442-11807), battery charger, three soil collars, and spares kit.

Smart Chamber Accessories

9982-009

Trace Gas Analyzer Cable Assembly, 1.2 m

For use with the Smart Chamber (8200-01S) or 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.

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.
- 6000-09TC** **Soil Temperature Thermocouple**
Soil temperature thermocouple probe for use with the LI-6400/XT, LI-8100A, and Smart Chamber (8200-01S). Included with the Soil CO₂ Flux Chamber (6400-09), 8100-102, and 8100-103 survey chambers.
- 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.

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 LI-COR Trace Gas Analyzer.
- 392-19110 25-meter Ethernet cable**
Sealed RJ45-to-standard RJ45 connectors for connecting the multiplexer to a LI-COR Trace Gas Analyzer.
- 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.

Soil Chamber Accessories

- 9982-056 Chamber Cable Assembly (15 m)**
Cable and tubing to connect a chamber to the 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 35.

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.

LI-7815



CO₂/H₂O Trace Gas Analyzer

Includes AC power supply, two rechargeable batteries (442-11807), instruction manual, and Ethernet cable.

LI-7820



N₂O/H₂O Trace Gas Analyzer

Includes AC power supply, two rechargeable batteries (442-11807), instruction manual, and Ethernet cable.



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.

licor.com/soil

LI-8100A and LI-8150 Soil Chambers

8100-102 Survey Chamber, 10 cm



Connects directly to the LI-8100A Analyzer Control Unit. Designed for repeatable survey measurements. Includes temperature probe, gasket kit, spares kit, and six soil collars.

8100-103 Survey Chamber, 20 cm



Connects directly to the LI-8100A Analyzer Control Unit. Designed for repeatable survey measurements and uses the same soil collars as the Long-Term Chambers. Includes soil temperature probe, gasket kit, spares kit, and six soil collars.

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.

LI-COR offers two-day soil gas flux training courses for instrument users and potential customers. Contact LI-COR for details.

licor.com/soil-training

LI-8100A System Accessories

- 8100-405 CO₂ Mapping Kit**
Used to map CO₂ 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 CO₂ 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.
- 6000-09TC Soil Temperature Thermocouple**
Soil temperature thermocouple probe for use with the LI-6400/XT, LI-8100A, and Smart Chamber (8200-01S). Included with the Soil CO₂ Flux Chamber (6400-09), 8100-102, and 8100-103 survey chambers.
- 8100-205 Soil Moisture Probe (Decagon Devices GS1)**
Bare leads for connection to the LI-8100A.
- 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.
- 8150-205** **Soil Moisture probe (Decagon Devices GS1)**
For Long-Term Chambers.
- 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.
- 8150-770-XY** **AC to DC Power Supply**
Includes connection for the LI-8150. Please specify type: -02 for Europe, -04 for UK.
- 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.



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 50

LI-3000C Portable Leaf Area Meter

- For measurements of leaves in the field
- Optional conveyor accessory for bench-top measurements
- See page 51



LI-3100C Area Meter

- For precise, rapid measurements of detached leaves
- Rugged bench-top instrument quickly measures the area, length, and width
- See page 51

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, RS-232 cable, 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.
licor.com/light



LI-180 Spectrometer

- Quickly capture a complete spectral profile
- Ideal for greenhouses, agriculture, and indoor light measurements
- See page 53

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 54



Radiation Sensors

- Quantum sensors, photometric sensors, and pyranometers for measurements of light
- Underwater and spherical quantum sensors for measuring light under water
- See page 56

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

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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 cable connector, 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 cable connector, 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 cable connector, 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

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licor.com/env/support

+49 (0) 6172 17 17 771

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.

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 [‡]
6800-901	LI-6800 Recalibration and Maintenance [†]
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 remarks, scope

(1) Unless agreed otherwise in writing in the individual case, the following terms of business shall apply to all current and future business relations between ourselves and the purchaser.

(2) We do not effect legal transactions with private consumers. Consequently, these General Terms of Business have no validity in respect of transactions with private end-users.

(3) Even if known, any departing, conflicting or supplementary General Terms of Business shall not form part of the contract unless their validity is expressly agreed in writing.

2. Conclusion of contract

(1) Our quotations are always non-binding.

(2) By ordering goods the customer makes a binding declaration that he wishes to acquire the goods ordered. We shall be entitled to accept the contract offer inherent in the order within two weeks of receipt by us by issuing a written order confirmation. The supply contract shall not exist until we have issued a written order confirmation or the order has been executed.

(3) If the customer orders the goods electronically we will confirm receipt of the order without delay. The confirmation of receipt shall not form an order confirmation. The confirmation of receipt may be combined with the order confirmation.

(4) The contract is concluded subject to the reservation that we are supplied correctly and punctually by our own suppliers. This shall only apply in the event that we are not responsible for the nondelivery.

(5) The customer will be informed without delay if it is not possible to execute the order. Any payment will be reimbursed without delay.

(6) If the customer orders the goods electronically the text of the contract will be stored by us and sent to the customer electronically (by e-mail) on request along with the present General Terms of Business.

3. Delivery and payment

(1) We will always endeavour to comply with the delivery dates and deadlines stated in the order confirmation. Nonetheless, details of delivery and performance dates are provided for guidance only and are non-binding on us, unless we have given an express assurance in writing that a delivery date is binding. If a binding assured delivery date is not met for reasons for which the customer is responsible, e.g. incomplete or nonpunctual performance of his contractual obligations, in particular incomplete and non-punctual forwarding of all necessary approvals, documentation, samples and drawings, then the assertion against us of any claim for damages shall be excluded.

(2) If the failure to meet the deadline is due to unforeseeable events for which we are not responsible, e.g. strike, measures by authorities, operating or transport disruption, fire or water damage, war, energy or raw materials shortage or force majeure, we shall be released from compliance with the delivery dates and prices.

(3) Should we be in default of delivery for reasons for which we are responsible, the customer may only demand payment of damages instead of performance if he has set us a reasonable subsequent period in which to perform the service and this subsequent period has expired without result.

(4) If performance or delivery is delayed or cancelled at the customer's request or for reasons for which the customer is responsible we shall be entitled to claim any expenses that we have thereby incurred from the customer in damages and to charge the customer for costs incurred, e.g. storage charges, as appropriate.

(5) The scope of supply shall be determined by our written order confirmation.

(6) We reserve the right to make technical changes – in particular construction and design changes – based on improvements in technology or changed legislative requirements within the confines of what is reasonable, even after conclusion of the contract, provided that the fitness of the object supplied for the intended purpose is not thereby impaired. The same shall apply to changes in the scope of supply.

(7) Partial deliveries shall be made only with the express consent of the customer; the higher carriage costs thereby incurred will be invoiced in addition.

4. Packaging and shipping, transfer of risk

(1) Packing and the choice of packaging materials shall be our responsibility. The choice of shipping method shall be at our discretion. If the customer wishes express carriage, however, he shall pay the additional costs thereby incurred.

(2) Performance and delivery will be effected with the usual level of due care unless the customer has given very specific instructions when placing or confirming the order. We shall not be liable for damage arising therefrom.

(3) Should supply include erection and assembly, the risk shall transfer to the customer at the time of acceptance.

5. Prices and payment terms

(1) The selling price quoted is for delivery ex works excluding statutory value-added tax in each case. Supply and invoicing shall be carried out at the list prices (plus value-added tax and carriage costs) and conditions effective on the shipping date.

(2) Our prices are always calculated in euros, the price in euros being binding even if payment of the purchase price in a currency other than euros is agreed. Changes in the exchange rate with the euro which occur after the contract has been concluded relative to the exchange rate on the date

the contract is concluded shall be for the purchaser's account.

(3) The purchase price shall be payable immediately following issue of the invoice, within 30 days without deduction.

(4) On expiry of 30 days from issue of the invoice the customer shall be in arrears. Whilst he is in arrears the customer shall pay interest on the debt at 8% above the interest base rate. We reserve the right to substantiate and claim greater damages for the arrears in individual cases.

(5) The customer shall be entitled to offset amounts only if his counter-claims have been legally established or recognised by us.

(6) Should we become aware following conclusion of the contract of circumstances which suggest that the customer may be unable to pay, we shall be entitled to refuse to supply the goods and to set the customer a reasonable period in which to pay the purchase price or provide adequate security. In this event supply of the goods purchased shall take place step by step with payment of the purchase price or provision of the security.

(7) If the customer is in arrears with a payment or there are grounds to doubt his ability to pay we shall be entitled to declare any deferred invoice amounts due immediately

(8) If payment of the purchase price in installments has been agreed we shall be entitled to declare the entire outstanding purchase price due immediately should the customer be in arrears with the payment of an installment.

6. Reservation of ownership

(1) We reserve right of ownership of the goods sold until full settlement of all claims from a current business relationship.

(2) The customer shall bear the risk for the goods supplied by us and shall be obliged to insure them adequately against fire, water and theft risks at replacement value.

(3) The customer shall be obliged to inform us without delay of any access to the goods by third parties, for example in the event of attachment, and of any damage to or destruction of the goods. The customer shall notify us without delay of any change in ownership of the goods or any change in his own address. The customer shall be liable for the costs arising from any access by third parties to the goods.

(4) In the event of breach of contract by the customer, in particular in the event of default on payment or infringement of one of the above obligations, we shall be entitled to withdraw from the contract and to demand return of the goods.

7. Warranty

(1) Our warranty for defects in the goods supplied by us shall initially provide for repair or replacement at our discretion.

(2) If the remedial measures are unsuccessful the customer may at his discretion demand a reduction in payment

(reduction) or annulment of the contract (recission). However, the customer shall have no right of recission in the event of minor infringement of contractual liabilities on our part, in particular in the case of defects which reduce the value of the object only insignificantly.

(3) Obvious defects must be indicated to us in writing within a period of two weeks of receipt of the goods; otherwise the assertion of any warranty claim shall be excluded. Dispatch within this period shall be sufficient to comply with the deadline. The customer shall bear the full burden of proof for all claim conditions, in particular the defect itself, the date on which the defect was found and the punctuality of the complaint.

(4) If the customer chooses recission from the contract following failure to remedy a defect he shall have no further claim to damages on account of the defect.

(5) If the customer chooses compensation following failure of remedial work the goods shall remain with the customer if this is reasonable for him. The compensation shall be limited to the difference between the purchase price and the value of the defective object. This shall not apply if the breach of contract was caused maliciously by us.

(6) The warranty period shall be one year from delivery of the goods. This shall not apply if the customer has not indicated the defect to us punctually (item 3 of this provision).

(7) Only the product description shall be deemed agreed in respect of the nature of the goods, unless it has been expressly agreed between ourselves and the customer in writing that a certain nature of the goods is binding.

(8) Our liability shall be limited to the legal warranty with the scope described above. We shall not provide the customer with warranties in the legal sense. Manufacturers' warranties in respect of the wearing parts used in our products shall be unaffected by this.

(9) No warranty is given in respect of the deterioration of wearing parts which occurs as a result of the usual and proper use of our equipment.

(10) Our equipment and products are intended solely for laboratory and research purposes. We shall not be liable for any damage arising from failure to observe the relevant accompanying assembly, operating, maintenance and inspection instructions. Neither shall we be liable should the customer carry out repairs, install other parts or make other technical changes to the equipment supplied by us without our consent. Neither shall we be liable for damage arising from the use of our equipment domestically or on humans or animals.

(11) In the event of the sale of used equipment or used spare parts only the guarantees agreed in writing with authorised members of staff shall apply. There shall be no other warranty in respect of this equipment and these parts.

(12) Assignment of compensation and warranty claims by the customer to third parties is impermissible.

(13) We shall be liable for consequential damage of defects only in cases of grossly negligent or willful breach of our contractual liabilities.

(14) The advice given by us in respect of applied technology is given to the best of our knowledge. However, we shall be liable for any resulting damage only in cases of grossly negligent or deliberately incorrect advice.

8. Assembly

(1) Assembly of our equipment shall always be carried out on the customer's site by our authorised technical staff.

(2) In the event that assembly is to be carried out by the customer himself the customer shall ensure that the technical conditions specified by us (e.g. PC system requirements) are met and shall confirm this to us in writing on request. We accept no liability for damage arising from the fact that the necessary technical requirements are not provided by the customer. Any additional costs and expenses arising therefrom shall be for the customer's account.

9. Miscellaneous, concluding provisions

(1) The law of the Federal Republic of Germany shall apply to all legal relations with our customers. The provisions of the UN Convention on the Sale of Goods shall not apply.

(2) Special agreements shall require our written consent. This shall also apply to any departure from the present terms of business.

(3) The place of performance for the customer's payment and other obligations and the sole legal venue for all disputes arising from this contract shall be our place of business in each case. This shall also apply if the customer has no general legal venue in Germany or his domicile or usual place of residence is not known at the time the claim is brought.

(4) Should individual provisions of the contract with the customer – including these General Terms of Business – be or become ineffective in full or in part, the effectiveness of the other provisions shall be unaffected. The fully or partly ineffective ruling shall be replaced by a ruling which comes as close as possible to the financial result of the ineffective provision.

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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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