

Product Catalogue



LICA United Technology Limited

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PS-9000

Portable Soil CO₂ Flux System

Unlock the potential of soil carbon monitoring with the PS-9000 and elevate your research to new heights!

Experience the power of precision with the PS-9000, a groundbreaking portable measurement system that revolutionizes the assessment of soil CO₂ flux through the dynamic chamber method. This innovative system seamlessly integrates control measurement, data storage, and processing capabilities, enabling you to effortlessly monitor changes in CO₂ concentration in the chamber. By leveraging additional measurements such as air temperature, barometric pressure, and soil temperature, the PS-9000 delivers accurate and insightful calculations of soil CO₂ flux.

Packed with user-centric features, the PS-9000 offers wireless operation via a handheld controller, presenting real-time data that empowers you to make informed decisions. Adjust settings with ease and access valuable information at your fingertips.

Key Benefits

- Internal NDIR CO₂ and H₂O detector with super performance
- Supports soil and water surface CO₂ flux survey measurement
- Optional transparent chambers and a floating buoy module for different applications
- Lightweight and lower power requirement
- The system can be wirelessly operated via a cell phone that displays the instrument's measured data in real time and allows on-site modification of settings

Specifications

PS-9000 Control Unit

Measurement principle	Non-Dispersive Infrared Absorption Method(NDIR)
Measuring range	CO ₂ : 0-6,000 ppm H ₂ O : 0-60,000 ppm
Accuracy	CO ₂ : < 1.5% of the data reading H ₂ O : < 3%
Repeatability / Precision	CO ₂ : < 1 ppm @ 400ppm H ₂ O : < 10 ppm @ 15,000ppm
Operating temperature	- 20 - 45 °C
Operating humidity	0 - 95% RH (non-condensing)
Power requirements	< 40 W
Storage medium	SD card
Communication interface	WIFI, RS-232, SDI-12
Sampling pump	12 V, < 0.5 A
Flow rate	2.5 L/min
Lithium	14.40 V - 6.90 Ah , 99.40 Wh
Battery life	≥ 5 h
Dimensions	37 x 30 x 16 cm
Weight	6.8 kg (including two batteries)

SC-15 Soil Survey Chamber

Measuring Area	276.27 cm ²
Volume of the chamber	3,136.13 cm ³
Cable Length	2 m
Power requirements	< 9 W
Dimensions	25.5 x 25.5 x 40.6 cm
Weight	4.55 kg

Soil temperature and humidity sensor

Soil Humidity Range

Mineral soil calibration	0 - 70%
Soilless media calibration	0 - 100%
Apparent dielectric permittivity	1 (air) - 80 (water)
Accuracy	
Generic calibration	± 3% (typical in mineral soils that have solution EC < 8 dS/m)
Medium-specific calibration	± 1%-2% in any porous medium
Apparent dielectric permittivity (ε _a)	1-40 (soil range), ± 1ε _a (unitless) ; 40-80, 15% of measurement

Manual Transparent Chamber

Measuring area	276.27 cm ²
Measuring volume,	2973.11 cm ³
Operating temperature	-20-50°C
Cable length	2 m
Product size	27.4 x 26 x 21.3 cm
Product weight	2.4 kg

Water-floating Buoy

Measuring area	803.84 cm ²
Operating temperature	-20 - 50°C
Cable length	5 m
Product size	32 x 72 x 20 cm
Product weight	10.15 kg



SC-13 Manual Transparent Chamber



Water-floating Buoy

Soil Temperature

Temperature Range	-40°C- 60°C
Temperature Accuracy	-40°C - 0°C: ±1°C 0°C - 60°C : ±0.5°C

Ordering Information

PS-9000: 1 analyzer console (including CO₂ and H₂O analyzers); 1 backpack; 1 soil temperature and humidity sensor; 2 batteries; 2 chargers; 1 handheld controller

SC-15: Soil Survey Chamber

Support: Provide technical support and service for life
Manufacturer: LICA, China



PS-9600

Portable Soil CO₂/CH₄ Flux System

Main Features

- Simultaneous high-precision measurement of CH₄, CO₂ and H₂O
- Laser spectroscopy technology with ppb-level precision for CO₂ and CH₄
- Lightweight and portable for field applications
- Low power consumption: < 35W
- The system can be wirelessly operated via a Cell Phone that displays the instrument's measured data in real time and allows on-site modification of settings

Introduction

Soil is a major source of greenhouse gas emissions. Accurate measurement of soil greenhouse gas fluxes is essential for studying changes in the global atmosphere and ecosystems, and it is also an important tool for achieving carbon neutrality goals. The PS-9600 Portable Soil CO₂/CH₄ Flux System is designed for measuring soil greenhouse gas fluxes, including CO₂ and CH₄, providing reliable data support for carbon cycle research and carbon neutrality efforts.

Specification

Greenhouse Gas Analyzer

Precision(1σ, 100 sec)

CH ₄	≤ 0.6 ppb
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CO ₂	≤ 150 ppb
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H ₂ O	≤ 40 ppm
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Measurement Range

CH ₄	0 - 100 ppm
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CO ₂	0 - 10000 ppm
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H ₂ O	0 - 3%
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Operation Condition

Operation Temperature	-20°C - 40°C
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Operating humidity	0 - 95% RH (non-condensing)
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Dimensions and Weight

Dimensions	55 x 36 x 19 cm
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Weight	9.95 kg
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PS-9600 Console

Data Storage	SD Card
Interface	RS-232 / SDI-12 / WIFI

SC-15 Soil Survey Chamber

Measuring Area	276.27 cm ²
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Volume of the chamber	3,136.13 cm ³
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Cable Length	2 m
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Power requirements	< 12 W
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Dimensions	25.5 x 25.5 x 40.6 cm
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Weight	4.55 kg
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Ordering Information

1. PS-9600: 1 analyzer console(including CO₂/CH₄/H₂O analyzer); 1 shoulder strap; 1 soil temperature and humidity sensor; 2 batteries; 2 chargers; 1 handheld controller
2. SC-15: SC-15 Soil Survey Chamber

Support: Provide technical support and service for life

Manufacturer: LICA, China



PS-9620

Portable soil N₂O/CO₂ Flux System

Main Features

- It can simultaneously measure the concentration of N₂O and CO₂ with super high precision
- The analyzer utilizes MID-Infrared laser spectroscopy technology with a ppt-level precision
- No computer is required; the cell phone APP can display and control the operation
- Simple operation, one click to obtain accurate measurement results
- The results are directly displayed and stored, without the need for post-data processing
- Lithium battery DC power supply, the device is lightweight and suitable for outdoor use
- Humanized shoulder strap design, easy to carry and operate, reducing the burden
- Provides continuous concentration and flux observation to meet research needs
- Energy consumption is 35W

Introduction

Soil is an important source of greenhouse gas emissions, and accurate measurement of soil gas fluxes is essential for understanding ecosystem processes, greenhouse gas emissions, and global climate change. The PS-9620 Portable Soil N₂O/CO₂ Flux System is designed for precise measurement of soil N₂O and CO₂ fluxes in the field. It provides reliable data support for research on carbon and nitrogen cycling, agricultural emissions, and climate-related studies, making it a valuable tool for greenhouse gas monitoring and environmental research.

Specification

Greenhouse Gas Analyzer

Precision(1 σ , 100s) :

CO ₂	≤ 44 ppb
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N ₂ O	≤ 50 ppt
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Measurement Range

CO ₂	10ppm - 100,000 ppm
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N ₂ O	2 ppb - 500 ppm
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Operation Condition

Operation Temperature	10°C - 35°C
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Operating humidity	0 - 95% RH (non-condensing)
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PS-9620 Console

Data Storage	SD Card
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Interface	RS-232 / SDI-12 / WIFI
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SC-15 Soil Survey Chamber

Measuring Area	276.27 cm ²
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Volume of the chamber	3,136.13 cm ³
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Cable Length	2 m
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Power requirements	< 12 W
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Dimensions	25.5 x 25.5 x 40.6 cm
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Weight	4.55 kg
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Ordering Information

1. PS-9620: 1 analyzer console (including N₂O/CO₂/H₂O analyzer); 1 shoulder strap; 1 soil temperature and humidity sensor; 2 batteries; 2 chargers; 1 handheld controller
2. SC-15: Portable Automatic Soil Flux Chamber

Support: Provide technical support and service for life

Manufacturer: LICA, China



PS-9640

Portable Soil CO₂/CH₄/N₂O Flux System

Main Features

- Simultaneous high-precision measurements of CO₂, CH₄, N₂O, and H₂O
- Based on laser spectroscopy with ppb-level precision
- The only portable soil flux system for the three kinds of main greenhouse gases in one system
- Lightweight and portable for field applications
- The system can be wirelessly operated via a Cell Phone that displays the instrument's measured data in real time and allows on-site modification of settings

Introduction

Soil is an essential source of greenhouse gases. Accurately measuring soil greenhouse gas flux is a crucial technology for studying global atmospheric environment and ecosystem changes, and it is also a necessary means to achieve the "dual carbon" goal. The PS-9640 portable soil greenhouse gas flux measurement system can measure the fluxes of greenhouse gases such as soil N₂O, CO₂, and CH₄, helping to achieve the goal of carbon neutrality.

Specification

Greenhouse Gas Analyzer

Precision(1 σ , 100sec) :

CO ₂	≤ 44ppb
CH ₄	≤ 0.6ppb
N ₂ O	≤ 50 ppt
H ₂ O	≤ 40 ppm

Measurement Range

CO ₂	10 ppm - 100,000 ppm
CH ₄	0 - 100 ppm
N ₂ O	2 ppb - 500 ppm
H ₂ O	0 - 3%

Operation Condition

Operation Temperature	10 - 35°C
Operating humidity	0 - 95% RH (non-condensing)

Dimensions and Weight

Dimensions	62 x 49.2 x 22.3 cm
Weight	15 kg

PS-9640 Console

Data Storage	SD Card
Interface	RS-232 / SDI-12 / WIFI

SC-15 Soil Survey Chamber

Measuring Area	276.27 cm ²
Volume of the chamber	3136.13 cm ³
Cable Length	2 m
Power requirements	< 12 W
Dimensions	25.5 x 25.5 x 40.6 cm
Weight	4.55 kg

Ordering Information

1. PS-9640: 1 analyzer console (including CO₂/CH₄/N₂O/H₂O analyzer); 1 shoulder strap; 1 soil temperature and humidity sensor; 2 batteries; 2 chargers; 1 handheld controller
2. SC-15: Portable Automatic Soil Flux Chamber

Support: Provide technical support and service for life

Manufacturer: LICA, China



SF-9000

Multi-Channel Automatic Soil CO₂ Flux Measurement System

Unlock the potential of soil carbon monitoring with the SF-9000 and elevate your research to new heights!

The SF-9000 Multi-Channel Soil Carbon Flux Automatic Measuring System, manufactured by LICA in China, can measure soil CO₂ flux at multiple locations, enabling continuous, long-term monitoring. The SF-9000 can operate with up to 18 soil chambers and is also suitable for studying CO₂ and water vapor profiles.

Main Features

- The system enables multi-point in-situ measurement of soil CO₂ flux
- Supports connection of up to 18 soil flux chambers
- Each Chamber may include soil temperature and moisture sensors
- Gas flux is automatically calculated, eliminating the need for post-data processing.
- The lightweight instrument has a lower energy requirement and stores data on an SD card

Specifications



SF-9000

Measurement principle	Non-Dispersive Infrared Absorption Method (NDIR)
Measuring range	CO ₂ : 0 – 6,000 ppm H ₂ O : 0 – 60,000 ppm
Accuracy	CO ₂ : < 1.5% of the data reading H ₂ O : < 3%
Repeatability / Precision	CO ₂ : < 1 ppm @ 400 ppm H ₂ O : < 10 ppm @ 15,000 ppm
Operating temperature	- 20 ~ 45 °C
Operating humidity	0 - 95% RH (non-condensing)
Number of chambers	9 or 18
Storage medium	SD card
Communication interface	RS-232 / RS-485 / SDI-12
Sampling pump	4.2 L / min
Display	7-inch LCD touch screen

Soil Temperature and Humidity Sensor

Humidity Range	0 - 60%
Accuracy	± 3% (0-50%) (Mineral soil) ± 1% (Soil-specific standards)
Temperature Range	- 40 - 80 °C
Accuracy	± 0.2°C (- 20 - 50°C) ± 0.4°C (other)
Cable Length	2 m

SC-22 Automatic Long-term Soil Chamber

Measuring area	276.27 (cm ²)
Volume of the chamber	2943.8 (cm ³)
Cable length	15 m
Operating temperature	- 20 - 50°C
Pump	3.5 L/min
Dimensions	55 x 28 x 32 cm



Ordering Information

SF-9000-09: Multi-Channel Soil Carbon Flux Automatic Measurement System

Including a CO₂ and H₂O analyzer, 9 channels, an LCD screen, 1 adapter, and 1 DC cable.

SF-9000-18: Multi-Channel Soil Carbon Flux Automatic Measuring System

Including a CO₂ and H₂O analyzer, 18 channels, an LCD screen, 1 adapter, and 1 DC cable.

SC-22: Automatic Long-term Soil Chamber

Support: Provide technical support and service for life

Manufacturer: LICA, China



Fujian Provincial Atmospheric Detection Technology
Support Center, Fuding Station



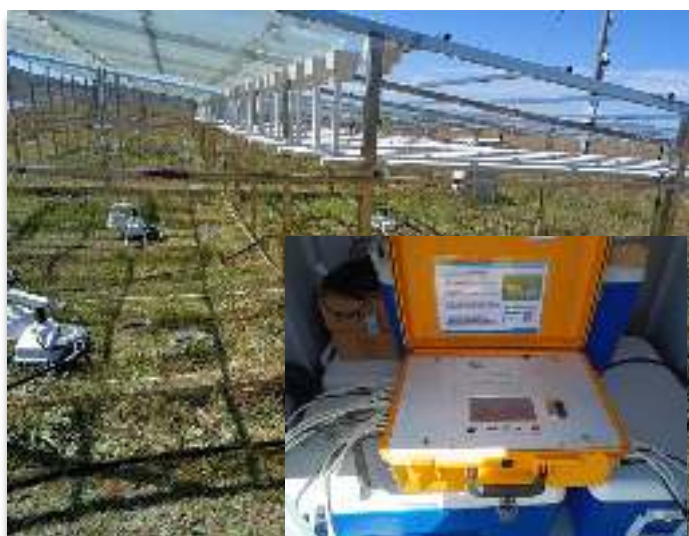
College of Urban and Environmental Sciences
Peking University



Fujian Provincial Atmospheric Detection Technology
Support Center, Anxi Station



Yunnan Jianshui Desert Ecosystem National Positioning
Observation and Research Station



Hongyuan Ecological Station of Southwest University for
Nationalities



China Geological Survey Military-Civilian Integration
Geological Survey Center - Tibet



SF-9100

Distributed Soil CO₂ Flux System

The Distributed Soil Respiration System deploys multiple single-point distributed soil respiration units to measure soil CO₂ flux at multiple locations, enabling continuous, long-term monitoring of soil carbon flux. Each single-point distributed soil flux system includes a CO₂ infrared analyzer, controller, flux chamber, and soil temperature & moisture sensors. Even when multiple devices are distributed across different regions, IoT SIM cards enable nationwide networking, effectively solving several issues of traditional soil flux measurement systems.

- Eliminates pipeline length constraints, truly enabling long-distance simultaneous and synchronized monitoring;
- Enables synchronized measurement across multiple respiration chambers, eliminating errors caused by measurement asynchrony;
- Shortens the pipeline length between analyzer and respiration chamber, effectively eliminating errors from pipeline dead volume and improving accuracy.

The Distributed Soil CO₂ Flux System greatly improves sample throughput, measurement accuracy, and efficiency, truly achieving long-distance synchronized measurement. It provides a new solution for soil flux research and represents a technical innovation for synchronous soil measurement at large spatial scales. It can be widely applied to research in ecology, agronomy, forestry, environmental science, and permafrost studies. This new technology provides novel experimental methods for scientific research, opening up greater possibilities for soil flux measurement at large spatial scales.



Guizhou Normal University



Yellow River Institute of Hydraulic Research, YRCC



Each distributed soil flux chamber can operate independently, measuring CO_2 concentration changes within the chamber while combining self-measured air temperature, atmospheric pressure, and soil temperature data, then calculating CO_2 flux. The acquired raw data and calculated flux results are stored on the SD card. The wireless transmission unit provides remote data transmission, enabling remote parameter modification, measurement status control, and remote data downloading.

Key Features

Unique distributed soil flux system design for continuous, high-precision, fully automatic unattended long-term field monitoring

Multi-temporal and spatial synchronous measurement at multiple sites over large spatial scales, significantly improving sample throughput, measurement accuracy, and efficiency

Remote networking capability for real-time wireless remote data transmission and networking

Ultra-long-distance communication between distributed soil flux system and wireless transmission units

Data encryption ensures data security during wireless transmission

No post-processing required; measurement results are automatically calculated and stored

Accurate and verifiable flux measurements

Each distributed soil flux system can connect to auxiliary sensors for soil temperature and soil moisture

Simple operation with one-click results

Includes post-processing data analysis software

Lightweight and rugged system design



Specifications

Measurement principle	Non-Dispersive Infrared Absorption Method (NDIR)
Measuring range	CO ₂ : 0 – 6,000 ppm (Standard Range) CO ₂ : 0 – 10,000 ppm (Extended Range) H ₂ O: 0 – 60,000 ppm
Accuracy	< 1.5 % of the data reading
Repeatability / Precision	< 1ppm @ 400ppm
Optical cavity temperature	Constant temperature control with temperature compensation
Optical cavity pressure	Pressure compensation
Communication interface	WIFI, RS232, SDI-12
Power supply	Solar power or AC power
Instrument power	Power at room temperature: 6.5 W
Maximum power	40W

Safety protection	Overload protection
Operating temperature	- 20 - 45 °C
Operating humidity	0 - 95% RH (non-condensing)
Waterproof rating	IP67
Networking method	Wireless
Storage medium	32 GB High-Speed SD Card, Wireless remote storage
Measurement area	276.27cm ²
Barometric Pressure	Range: 15-115 kPa Accuracy: ± 1.5%
Dimension	63.4×36.9×28.6 cm
Weight	11kg

Support: Provide technical support and service for life

Manufacturer: LICA, China



SF-3500

Multi-channel Automatic Soil Greenhouse Gas Flux Measurement System

To address the spatiotemporal variability of soil gas fluxes, LICA has developed the SF-3500 Multi-Channel Automatic Soil Gas Flux Measurement System. The SF-3500 is compatible with a wide range of greenhouse gas and stable isotope analyzers, enabling the measurement of multiple soil gas fluxes.

The system automatically switches between multiple flux chambers for sequential measurements, supporting continuous, long-term monitoring of soil gas fluxes across multiple locations. It can also integrate multiple analyzers for the simultaneous measurement of different flux parameters, reducing systematic errors caused by using separate measurement systems.

Equipped with an LCD touchscreen, the SF-3500 allows users to configure and operate the system without an external computer or display. Remote control and data transmission capabilities further simplify system operation, maintenance, and data management, making it particularly suitable for long-term field deployment.

Following extensive testing and validation, the SF-3500 has demonstrated excellent measurement accuracy, stability, and reliability, making it an ideal solution for long-term, automated soil gas flux monitoring in the field.

Main Features

- The system enables multi-point, continuous, unattended, long-term monitoring of soil greenhouse gas flux, and supports connection with up to 18 soil flux chambers
- Optional soil emission measurement for N₂O, CH₄, CO₂, NH₃, OCS, CO₂ isotopes, N₂O isotopes, and other gases, and is compatible with various NDIR and laser-based gas analyzers from different manufacturers
- Customizable chamber options for diverse applications, including transparent chambers, open-top chambers, underground chambers, and water surface chambers
- The system is rugged and reliable, capable of stable operation in harsh environments and extreme weather conditions.

Specification

SF-3500 Multi-channel Measurement System

Channel Number of Chamber	Up to 9 or 18
Storage Media	SD Card
Communication Interface	Bluetooth, WIFI
Operating temperature	-20 - 45°C
Operating humidity	0 - 95% RH (non-condensing)

SC-22 Automated Soil Flux Chamber

Measuring area	276.27 (cm ²)
Volume of the chamber	2,943.8 (cm ³)
Cable length	15 m
Operating temperature	- 20 - 60°C
Pump	3.5 L/min
Dimensions	55 x 28 x 32 cm

Ordering Information

SF-3500-9:	9-channel soil gas flux measurement system
SF-3500-18:	18-channel soil gas flux measurement system
SC-22:	Fully automatic soil flux chamber, standard 15-meter tubing kit, and one soil collar.
SMT-100:	Soil temperature and humidity sensor

LI-G3001 Greenhouse Gas Analyzer

Measurement principle: Laser Gas Analyzer

Simultaneous measurement (CH₄, CO₂, H₂O)

Precision (1σ, 100 sec)

CH₄ ≤ 0.6 ppb

CO₂ ≤ 150 ppb

H₂O ≤ 40 ppm

Measurement range

CH₄ 0 - 100 ppm

CO₂ 0 - 10,000 ppm

H₂O 0 - 3%

Operation Temperature -20 - 40°C

Dimensions 56 X 36 X 19 cm

Weight 9 kg

LI-G3006 Portable N₂O/CO₂ Analyzer

Measurement principle: Laser Gas analyzer

Simultaneous measurement (N₂O, CO₂)

Precision (1σ, 100 sec)

N₂O ≤ 50 ppt

CO₂ ≤ 44 ppb

Measurement range

N₂O 2 ppb - 500 ppm

CO₂ 10 ppm - 100,000 ppm

Operation Temperature 10 - 35°C

Support: Provide technical support and service for life

Manufacturer: LICA, China

Soil Flux Monitoring of Forest Ecosystem



Greater Khingan Range National Forest Ecological Soil Flux Measurement System



Dinghushan National Wild Ecological Station, Chinese Academy of Sciences, soil $\text{CH}_4/\text{CO}_2/\text{N}_2\text{O}$ Flux Monitoring



Changbai Mountain National Field Ecological Station Chinese Academy of Sciences Soil $\text{CH}_4/\text{CO}_2/\text{N}_2\text{O}$ Flux Monitoring



Banna Botanical Garden Chinese Academy of Science

Shenyang Applied Ecology Institute Soil NO_x Flux System

Soil Flux Monitoring of Grassland Ecosystem



Institute of Geographic Sciences and Natural Resources, Chinese Academy of Sciences, Hong-Yuan Field Ecological Station, $\text{N}_2\text{O}/\text{CO}_2/\text{CH}_4$ Soil Flux Monitoring



Ergun Ecological Station, Shenyang Institute of Ecology



Zoige Wetland Ecosystem by Wetland Research Institute Chinese Academy of Forestry $\text{CH}_4/\text{CO}_2/\text{H}_2\text{O}$ Soil Flux System



Chengdu Institute of Mountain Hazards and Environment CAS, Soil CO_2/CH_4 Flux System



SS-5000

Multi-channel Synchronous Sampling Gas Flux Monitoring System

This system uses patented technology to achieve automated synchronous collection of greenhouse gases in soil across multiple channels. After collection, the concentration and flux of greenhouse gases in each channel are accurately measured channel by channel.

Main Features

- The system measures soil greenhouse flux at multiple locations for continuous, unattended, and long-term monitoring, up to 100 open-top flux chambers
- Optional soil emission measurement for CO₂, CH₄, N₂O, NH₃, OCS, CO₂ isotope, N₂O isotope, and others, connected to different NDIR and laser gas analyzers from different manufacturers
- During measurement, open-Top Chambers are automatically closed, then the control system can simultaneously collect gas samples from all chambers, measure changes in gas concentration in the airbags over a set period, and calculate the flux value
- This patent technology enables real synchronous measurement of greenhouse gas fluxes across multiple field plots

Specifications

Precision (15, 100 sec)

CO ₂	≤ 150 ppb
CH ₄	≤ 0.6 ppb
N ₂ O	≤ 50 ppt
CO	≤ 50 ppt
H ₂ O	≤ 40 ppm

Measurement range

CO ₂	0 ~ 10,000 ppm
CH ₄	0 ~ 100 ppm
N ₂ O	2 ppb ~ 500 ppm
CO	1 ppb ~ 500 ppm
H ₂ O	0 ~ 3%

Open Top Chamber

External Dimensions	Height 0.6 m or 1.2 m
Measuring Area	≥ 0.64m ² (open-top combined structure)
Motion Performance	Electric actuator drive
Opening/Closing Time	≤ 20 s
Power	< 5 W
Environmental Conditions	Operating temperature -20°C to 60°C, built-in 4 fans for forced mixing

In-situ synchronous sampling system in the field

Number of channels	Up to 24, 30, or 48 (Independent solenoid valve, independent air pump)
Control method	Programmed control of rinsing, opening and closing, and synchronous gas intake (parameters can be set independently)
Gas circuit protection	The chamber is equipped with a gas flushing and rinsing function and has an automatic airtightness check function
Protection level	Solenoid valve pressure resistance ≥6.9 bar; interface IP68; core control box IP65; cable plug-in self-locking



Red Soil Ecological Experimental Station, Nanjing Institute of Soil Science, Chinese Academy of Sciences



LI-G3001

High-Precision Greenhouse Gas Analyzer for CH₄/CO₂/H₂O

The LI-G3001 CH₄/CO₂/H₂O high-precision greenhouse gas analyzer is a portable instrument specifically designed for greenhouse gas research, enabling real-time, continuous, and simultaneous measurement of CH₄/CO₂/H₂O concentrations. Soil is a significant source of greenhouse gas emissions, and accurate measurement of its flux is crucial for studying the global atmospheric environment and ecosystem changes, and it is also one of the key means to achieve "dual carbon" goals (carbon peaking and carbon neutrality). With its lightweight design, high sensitivity, and low power consumption, the LI-G3001 is not only suitable for soil greenhouse gas flux monitoring but also provides high-quality data support for achieving carbon neutrality targets, making it an ideal tool for climate research, ecological monitoring, and compliance testing.

Specification

Precision (15, 100 sec)

CH ₄	≤ 0.6 ppb
CO ₂	≤ 150 ppb
H ₂ O	≤ 40 ppm

Measurement range

CH ₄	0 - 100 ppm
CO ₂	0 – 10,000 ppm
H ₂ O	0 - 3%

Environmental Conditions

Operating Temperature	-20 - 40°C
Operating Humidity	0-95% RH, non-condensing

Transmission Rate	1 Hz
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Response Time	Better than 1 Hz, 1/e
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Sample Flow Rate	350 sccm
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Power Consumption	< 30 W
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Communication Method	WiFi
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Storage	30 GB
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Dimensions	56 X 36 X 19 cm
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Weight	9 kg
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Support: Provide technical support and service for life
Manufacturer: LICA, China

LI-2100/2200

Automatic Plant and Soil Water Vacuum Condensation Extraction System

LI-2100 is a fully automatic vacuum condensation extraction system independently developed by LICA and has passed CE certification. It fundamentally solves the problem of water extraction from plants and soil, overcoming the complexity of traditional liquid nitrogen cooling. Not only does it prevent isotope fractionation, but it is also safe and efficient, and it will not damage plants and soil. It can be used for water stable isotope measurement by a water isotope laser analyzer or a mass spectrometer.



Hydrogen and oxygen stable isotopes in different water bodies can be used to study the sources of plant water use, water vapor transport, soil water migration and recharge mechanisms, recharge sources and groundwater dynamics, water evaporation, the distinction between plant transpiration and soil evaporation, runoff formation and convergence, and the reconstruction of paleoclimate. Therefore, it has attracted widespread attention from hydrologists, ecologists, and climatologists.

Features

- Sample Pretreatment for hydrogen and oxygen stable isotopes measurement
- Follow the traditional vacuum distillation methods, with reliable data
- Automatic extraction: Unattended operation
- Simple Operation: No operating experience required
- Fully automatic extraction for 14 samples simultaneously.
- Fast and Efficient: Up to 110 samples/day
- No Liquid Nitrogen needed: Fast compressor refrigeration
- Quality control: Auto fault alarm

Specification

Extraction speed	Up to 110 samples/day
Number of samples that can be extracted simultaneously	LI-2100 14 / LI-2200 20
System vacuum	< 1000 Pa
System leakage rate	< 1 Pa/s
Extraction rate	> 98%
Recovery rate	99%-101%
Vacuum pump	5 L/min, 24V, maximum pressure: 5 mbar
Cooling	No liquid nitrogen required; compressor and cold trap combined; minimum cooling temperature: -95°C
Heating	Electric heating, maximum heating temperature up to 195°C
Display and Operation	7-inch LCD touch screen
Automatic Protection	The heating system automatically shuts off if the temperature is too high or exceeds the set temperature
Automatic alarm	Refrigeration system fault indication and alarm, vacuum leak fault alarm
Dimensions	90 cm (H)×74 cm (W)×110 cm (D)
Weight	120 kg

LI-2100

Since its launch, the LI-2100 system has achieved cumulative global sales of more than 300 units. As the only commercially available dedicated instrument currently capable of performing this function in the labs, the LI-2100 provides critical technical support for researchers conducting related studies.

The system has been widely used in numerous research projects and has supported the publication of many peer-reviewed scientific papers (>300). With its stable and reliable performance and positive user feedback, the LI-2100 is gaining increasing attention and adoption from research institutions worldwide, gradually becoming an important technological platform for advancing water stable isotope research.



Brazil Space Academy



Flinders University, Australia



Beijing Forestry University



Institute of Forest Ecology, Environment and Protection
Chinese Academy of Forestry

Ordering Information

LI-2100EP: Automatic vacuum condensation extraction system. The standard configuration includes: 2 sample pools, 28 valves blocks, 200 sample bottles, 200 condensers, 200 capillaries, 30 filter elements, 30 silicone tubes, 30, one box of vacuum silicone grease, one cabinet key, and two fuses.

Support: Provide technical support and service for life

Manufacturer: LICA, China



Harbin Normal University



Xinjiang University



Shenyang Meteorological Bureau
Panjin Wetland Ecological Station



Guangxi Botanical Park



College of Resources and Environmental Engineering
Guizhou University



The Hong Kong University of Science and
Technology (Guangzhou)

Beijing LICA United Technology Limited

Web: www.li-ca.com

Email: sales.int@li-ca.com

Tel: +86-10-51292601

Add: Building No. 5, Guanghua Pioneer Park, 18 Anning Zhuang East Road, Haidian District, Beijing City, China 100085



Institute of Mountain Hazards and Environment, Chinese Academy of Sciences
Qinghai-Tibet Plateau



Institute of Wetland Research, Chinese Academy of Forestry
Zoige Wetland - a national alpine wetland ecosystem in the northeast of the Qinghai-Tibet Plateau



“The overall data performance has been excellent. For plant water use research, your instrument has become our preferred choice.”

— Mingyan Fan
Qinghai University



“The PS-9000 delivered stable, high-quality carbon flux data in field studies, providing strong support for grazing impact research and enabling results published in the *Journal of Environmental Management*.”

— Xu Li, Ph.D.
Shandong Agricultural University



“Using the PS-9000 Portable Soil Carbon Flux Measurement System, our study on oyster carbon sequestration was successfully published in *PNAS*, highlighting the system’s accuracy, real-time capability, and strong support for high-impact research.”

— Xueweijie Chen, Ph.D., Postdoctoral Researcher
Ocean University of China



“Team used the PS-9000 Soil Greenhouse Gas Flux System to monitor CO₂ flux dynamics in constructed wetlands with different plant landscape designs. Supported by the instrument’s portable design, simple operation, and reliable data, the study was published in *Ecological Engineering*.”

— Zhen Zhilei, Associate Professor
Shanxi Agricultural University

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