# Product Catalogue

LICA United Technology Limited

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CONTENT

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# PS-9000

## Portable Soil $CO_2$ 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 $CO_2$ 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 $CO_2$ 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 $CO_2$ 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 $CO_2$ and $H_2O$ detector with super performance
- Supports soil and water surface $CO_2$ 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 | $CO_2$ : 0-6000 ppm<br>$H_2O$ : 0-60000 ppm |
| Accuracy | $CO_2$: < 1% of the data reading<br>$H_2O$ : < 5% |
| Repeatability / Precision | $CO_2$ : < 1 ppm<br>$H_2O$ : < 10 ppm |
| Operating temperature | - 20 ~ 60 ℃ |
| Power requirements | < 40 W |
| Storage medium | SD card |
| Communication interface | WIFI, RS-232, SDI-12 |
| Synchronous pump | 12 V, < 0.5 A |
| Flow rate | 500 ml/min |
| Battery type | 14.4 v- 6.90 AH lithium battery |
| Battery life | > 8 hours (two batteries) |
| Dimensions | 37 x 30 x 16 cm |
| Weight | 5.9 kg (including two batteries) |

### SC-15 Soil Survey Chamber

| | |
|---|---|
| Measuring Area | 276.27 cm² |
| Volume of the chamber | 3136.13 cm³ |
| 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

| **Humidity parameters 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 ($\varepsilon_a$) | 1-40 (soil range),± 1$\varepsilon_a$ (unitless)<br>40-80,15% of measurement |

### Manual Transparent Chamber

| | |
|---|---|
| Measuring area | 276.27 cm² |
| Measuring volume | 2973.11 cm³ |
| Work environment | -20-60℃ |
| 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 cm² |
| Work environment | -20 - 60℃ |
| 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

| **Temperature parameters** | |
|---|---|
| Temperature Range | -40℃-+60℃ |
| Temperature Accuracy | -40℃-0℃: ±1℃<br>0℃-60℃ : ±0.5℃ |

## Ordering Information

PS-9000: 1 analyzer console (including $CO_2$ and $H_2O$ 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 $CO_2$/$CH_4$ Flux System

### Main Features

- Simultaneous high-precision measurement of $CH_4$, $CO_2$ and $H_2O$
- CRDS laser spectroscopy technology with ppb-level precision for $CO_2$ and $CH_4$
- 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 $CO_2$/$CH_4$ Flux System is designed for measuring soil greenhouse gas fluxes, including $CO_2$ and $CH_4$, providing reliable data support for carbon cycle research and carbon neutrality efforts.

### Specification

#### Greenhouse Gas Analyzer

| Precision(1σ, 1 sec / 10 sec) | |
|---|---|
| $CH_4$ | < 4 ppb / < 1.2 ppb |
| $CO_2$ | < 0.5 ppm / < 0.15 ppm |
| $H_2O$ | < 100 ppm（1s） |

| Measurement Range | |
|---|---|
| $CH_4$ | 0 - 100 ppm |
| $CO_2$ | 0 - 10000 ppm |
| $H_2O$ | 0 - 3% |

| Operation Condition | |
|---|---|
| Operation Temperature | -20℃ - 40℃ |

| Dimensions and Weight | |
|---|---|
| Dimensions | 55 X 36 X 19 cm |
| Weight | 9.95 kg |

#### PS-9600 Console

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

#### SC-15 Soil Survey Chamber

| | |
|---|---|
| Measuring Area | 276.27 cm² |
| Volume of the chamber | 3136.13 cm³ |
| 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-9600: 1 analyzer consle (including $CO_2$/$CH_4$/$H_2O$ 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-9620

## Portable soil $N_2O/CO_2$ Flux System

### Main Features

- It can simultaneously measure the concentration of $N_2O$ and $CO_2$ 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 $N_2O/CO_2$ Flux System is designed for precise measurement of soil $N_2O$ and $CO_2$ 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(1σ, 1s) :

| | |
|---|---|
| $CO_2$ | < 440 ppb |
| $N_2O$ | < 200 ppt |

#### Measurement Range

| | |
|---|---|
| $CO_2$ | 10ppm - 100,000 ppm |
| $N_2O$ | 2 ppb - 500 ppm |

#### Operation Condition

| | |
|---|---|
| Operation Temperature | 10℃ - 35℃ |

#### PS-9620 Console

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

#### SC-15 Soil Survey Chamber

| | |
|---|---|
| Measuring Area | 276.27 cm² |
| Volume of the chamber | 3136.13 cm³ |
| 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-9620: 1 analyzer consle (including $N_2O/CO_2/H_2O$ 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 $CO_2$/$CH_4$/$N_2O$ Flux System

### Main Features

- Simultaneous high-precision measurements of $CO_2$, $CH_4$, $N_2O$, and $H_2O$
- 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, $CO_2$, and $CH_4$, helping to achieve the goal of carbon neutrality.

## Specification

### Greenhouse Gas Analyzer

**Precision(1σ, 1 sec) :**

| | |
|---|---|
| $CO_2$ | < 440 ppb |
| $CH_4$ | < 4 ppb |
| $N_2O$ | < 200 ppt |
| $H_2O$ | < 100 ppm |

**Measurement Range**

| | |
|---|---|
| $CO_2$ | 10 ppm - 100,000 ppm |
| $CH_4$ | 0 - 100 ppm |
| $N_2O$ | 2 ppb - 500 ppm |
| $H_2O$ | 0 - 3% |

**Operation Condition**

| | |
|---|---|
| Operation Temperature | 10 - 35℃ |

### PS-9640 Console

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

### SC-15 Soil Survey Chamber

| | |
|---|---|
| Measuring Area | 276.27 cm² |
| Volume of the chamber | 3136.13 cm³ |
| 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 consle (including $CO_2$/$CH_4$/$N_2O$/$H_2O$ 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 Soil $CO_2$ Flux Automatic 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 $CO_2$ 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 $CO_2$ and water vapor profiles.

## Main Features

- The system enables multi-point in-situ measurement of soil $CO_2$ 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 - 6000 ppm<br>$H_2O$ : 0 - 60000 ppm |
| Accuracy | $CO_2$ : < 1% of the data reading<br>$H_2O$ : < 5% |
| Repeatability / Precision | $CO_2$ : < 1 ppm<br>$H_2O$ : < 10ppm |
| Operating temperature | - 20 ~ 60 ℃ |
| Number of chambers | 9 or 18 |
| Storage medium | SD card |
| Communication interface | RS-232 / RS-485 / SDI-12 |
| Synchronous pump | 4.2 L / min |
| Display | 7-inch LCD touch screen |

### 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 ~ 60℃ |
| Pump | 3.5 L/min |
| Dimensions | 55 x 28 x 32 cm |

### Soil Temperature and Humidity Sensor

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


## 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

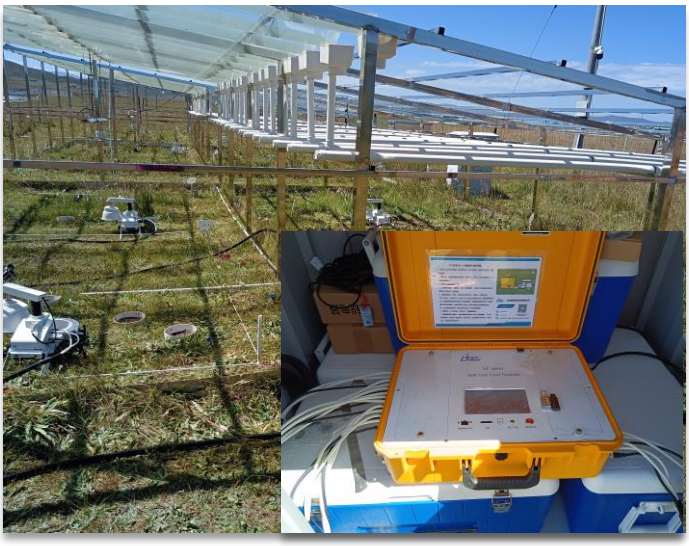
***Support: Provide technical support and service for life***
***Manufacturer: LICA, China***

Fujian Provincial Atmospheric Detection Technology Support Center, Fuding Station

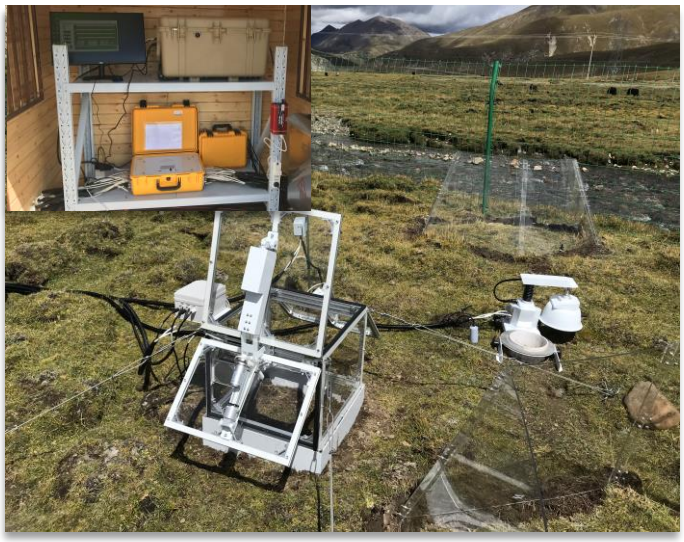
College of Urban and Environmental Sciences, Peking University

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-3500

## Multi-channel Automatic Soil Greenhouse Gas Flux Measurement System

To address the spatiotemporal variability of soil gas flux, LICA has developed a new multi-channel, automatic soil gas flux measurement system, the SF-3500. The SF-3500 can be connected to various greenhouse gas analyzers and stable isotope analyzers to measure the fluxes of multiple gases in soil. It can also enable sequential switching of multiple flux chambers for measurement, allowing long-term, continuous monitoring of multi-point soil gas flux. It can connect numerous analyzers to measure multi-parameter flux synchronously, thereby reducing the system error associated with multi-system measurements. In addition, an LCD touchscreen and an Android cell phone app are added for control and display, eliminating the need for computer settings and a separate display. The SF-3500 remote control and data transmission functions make instrument maintenance easier and simpler, making it more suitable for long-term field measurements. After long-term testing and verification, the SF-3500 demonstrates improved accuracy and stability, making it an ideal choice for prolonged field use.

## 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 $N_2O$, $CH_4$, $CO_2$, $NH_3$, OCS, $CO_2$ isotopes, $N_2O$ 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 Multiplexer

| | |
|---|---|
| Number of Chamber Interfaces | Up to 9 or 18 |
| Storage Media | SD Card |
| Communication Interface | Bluetooth, WIFI |
| Operation Condition | Temperature:<br>-20 - 60℃<br>Humidity: 0 - 95% RH<br>(No condensation) |

### SC-22 Automated Soil Flux Chamber

| | |
|---|---|
| Measuring area | 276.27 ($cm^2$) |
| Volume of the chamber | 2943.8 ($cm^3$) |
| Cable length | 15 m |
| Operating temperature | - 20 - 60℃ |
| 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.
SMT100: Soil temperature and humidity sensor

### LI-G3001 Greenhouse Gas Analyzer

| | |
|---|---|
| Measurement principle： CRDS | |
| Simultaneous measurement ($CH_4$, $CO_2$, $H_2O$) | |
| Precision (1δ, 1 sec / 10 sec) | |
| $CH_4$ | < 4 ppb / < 1.2 ppb |
| $CO_2$ | < 0.5 ppm / < 0.15 ppm |
| $H_2O$ | < 100 ppm (1 s) |
| Measurement range | |
| $CH_4$ | 0 - 100 ppm |
| $CO_2$ | 0 - 10000 ppm |
| $H_2O$ | 0 - 3% |
| Operation Temperature | -20 - 40℃ |
| Dimensions | 56 X 36 X 19 cm |
| Weight | 9 kg |

### LI-G3006 Portable $N_2O/CO_2$ Analyzer

| | |
|---|---|
| Measurement principle： TDLAS | |
| Simultaneous measurement ($N_2O$, $CO_2$) | |
| Sensitivity (1σ) @1 Hz | |
| $N_2O$ | < 200 ppt/s |
| $CO_2$ | < 440 ppb/s |
| Sensitivity (1σ) @5 Hz | |
| $N_2O$ | < 95 ppt/s |
| $CO_2$ | < 200 ppb/s |
| Measurement range | |
| $N_2O$ | 2 ppb - 500 ppm |
| $CO_2$ | 10 ppm - 100,000 ppm |
| Operation Temperature | 10~35℃ |

***Support: Provide technical support and service for life***

***Manufacturer: LICA, China***

## Soil Flux Monitoring of Forest Ecosystem

Greater Khingan RangeNational Forest Ecological Soil Flux Measurement System

Dinghushan National Wild Ecological Station, Chinese Academy of Sciences, soil $CH_4/CO_2/N_2O$ Flux Monitoring

Changbai Mountain National Field Ecological Station Chinese Academy of Sciences Soil $CH_4/CO_2/N_2O$ 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, $N_2O/CO_2/CH_4$ Soil Flux Monitoring

Ergun Ecological Station, Shenyang Institute of Ecology

ZoigeWetland Ecosystem by Wetland Research Institute Chinese Academy of Forestry $CH_4/CO_2/H_2O$ 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 48 open-top flux chambers
- Optional soil emission measurement for $N_2O$, $CH_4$, $CO_2$, $NH_3$, OCS, $CO_2$ isotope, $N_2O$ 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 (1δ,1 sec / 10 sec) | |
|---|---|
| $CO_2$ | < 0.5 ppm / < 0.15 ppm |
| $CH_4$ | < 4 ppb / < 1.2 ppb |
| $N_2O$ | < 500 ppt (1s) |
| CO | < 500 ppt (1s) |
| $H_2O$ | < 100 ppm (1s) |

| Measurement range | |
|---|---|
| $CO_2$ | 0 - 10000 ppm |
| $CH_4$ | 0 - 100 ppm |
| $N_2O$ | 2 ppb to 500 ppm |
| CO | 1ppb - 500 ppm |
| $H_2O$ | 0 - 3% |

| Open Top Chamber | |
|---|---|
| External Dimensions | Height 0.6 m or 1.2 m |
| Measuring Area | ≥ 0.64$m^2$(open-top combined structure) |
| Motion Performance | Electric actuator drive |
| Opening/Closing Time | ≤ 20 s |
| Power | < 5 W |
| Environmental Conditions | Operating temperature -20℃ to 60℃, 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 $CH_4/CO_2/H_2O$

The LI-G3001 $CH_4/CO_2/H_2O$ high-precision greenhouse gas analyzer is a portable instrument specifically designed for greenhouse gas research, enabling real-time, continuous, and simultaneous measurement of $CH_4/CO_2/H_2O$ 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 (1δ, 1 sec / 10 sec) | |
|---|---|
| $CH_4$ | < 4 ppb / < 1.2 ppb |
| $CO_2$ | < 0.5 ppm / < 0.2ppm |
| $H_2O$ | < 100 ppm (1 s) |
| Measurement range | |
| $CH_4$ | 0 - 100 ppm |
| $CO_2$ | 0 - 10000 ppm |
| $H_2O$ | 0 - 3% |
| Environmental Conditions | |
| Operating Temperature | -20 - 40℃ |
| Operating Humidity | 0-95% RH, non-condensing |

| | |
|---|---|
| Transmission Rate | 1 Hz |
| Response Time | Better than 1 Hz, 1/e |
| Sample Flow Rate | 350 sccm |
| Power Consumption | < 30 W |
| Communication Method | WiFi |
| Memory | 30 GB |
| Dimensions | 56 X 36 X 19 cm |
| Weight | 9 kg |

***Support: Provide technical support and service for life***

***Manufacturer: LICA, China***

# LI-2100

## 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 and 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

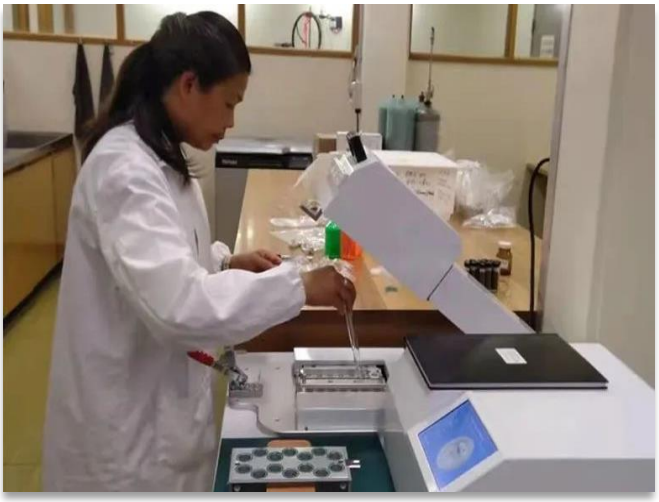
## Specification

| | |
|---|---|
| Extraction speed | Up to 110 samples/day |
| Number of samples that can be extracted simultaneously | 14 |
| System vacuum level | < 1000 Pa |
| System leak rate | < 1 Pa/s |
| Extraction 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℃ |
| Heating | Electric heating, maximum heating temperature up to 195℃ |
| 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 |

Since its launch, the LI-2100 system has achieved cumulative global sales of more than 250 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. 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

## LI-2100


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)

## 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***


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

Soil Carbon Neutrality and Climate Change Response Experimental Base jointly established by the Nanjing Institute of Soil Science, Chinese Academy of Sciences and Nanjing Agricultural University

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 $CO_2$ 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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