

PS-3010

Ultraportable Automatic
Soil Respiration System



Preface

Irrational greenhouse gas (GHG) emissions from human activities have a significant impact on global climate change. Greenhouse gases mainly includes CO_2 、 CH_4 、 N_2O 、 H_2O 、 OCS , etc. Among them, CO_2 、 CH_4 and N_2O are considered to be main GHG and has been widespread concerned. Soil greenhouse gas respiration is an important flow path in the global greenhouse gas cycle. The loss of CO_2 , CH_4 and N_2O in the soil significantly increased the gas content of CO_2 , CH_4 and N_2O in the atmosphere and enhanced greenhouse gas effects. On-line, long-term and accurate measurement of soil greenhouse gas flux, which are of great significance to the study of greenhouse gas flux.



The PS-3010 portable automatic soil respiration system is a measurement system that utilizes the chamber method to measure soil CO_2 and CH_4 flux emissions. The system has the functions of control measurement, storage and data processing. The PS-3010 can read the changes of CO_2 , CH_4 and H_2O in the respiration chamber measured by the ultra-portable greenhouse gas analyzer (MGGA) in real time, and combine the monitoring data of the air temperature, atmospheric pressure and soil temperature. The CO_2 and CH_4 emission flux values are then can be obtained. Meantime the acquired raw data and the calculated flux results are stored in the SD card.

SC-12 portable automatic soil respiration chamber can automatically repeat measurements. Also it is light, easy to carry and operate in situ. Uniquely designed, measurement results will be more accurate.

PS-3010 set a variety of measurement parameters through the wireless mobile phone APP real-time, and displays the measurement results of the instrument at the same time.

Main features

- The analyzer could measure CO₂, CH₄ and H₂O flux at the same time.
- The analyzer's measuring frequency could reach 10Hz.
- The system is highly integrated: the control system and MGGA analyzer were highly integrated and can be displayed through phone APP.
- Simplified user interface, could easily get the results with only a few operations.
- No need the steps of data post-processing, the measured results can be directly displayed and saved.
- Weight is as light as 6.1 kg.
- The energy consumption is as low as 35 W.

Specifications

■ Analyzer: Microportable Green Gas Analyzer (MGGA)

Measure three gases (CO₂, CH₄, H₂O) simultaneously

Repeatability/Precision:

(15, 1 sec / 10 sec / 100 sec):

CH₄: 4 ppb / 1.2 ppb / 0.5 ppb

CO₂: 0.6 ppm / 0.25 ppm / 0.1 ppm

Measurement Range:

CH₄: 0~100 ppm (standard range)

CH₄: 0~2.5% (extended range)

CO₂: 0~20000 ppm

H₂O: 0~30000 ppm

Environment conditions:

Sample temperature: -40 – 50 °C

Operation temperature: 5 – 45 °C

Environment wetness:

0 - 98% RH, no condensations

Measurement speed:

0.01 – 10 Hz (can be modified)

Flow response time: 1s (1/e)

Data output:

WiFi / USB / Ethernet / MIU / RS-232

Power requirements: 35 watts

Size and weight:

34×29.5×12 cm, 6.1 kg (Battery included)



■ PS-3010 Control system

Storage media: SD card

Communicating interface: RS-232, SDI-12, UART, WiFi

Synchronous pump: 12V, 1.5A, Flow rate: 3 L/min

Battery Type: 20 AH Lithium



PS-3010

■ Portable automatic soil respiration chamber (SC-12)

Dimensions: 265 (D) x 430 (H) mm

Measuring Area: 298.5 (cm²)

Fixed volume of air chamber: 3341 (cm³)

Cable Length: 2 m

Air pressure detection:

Measuring range: 15 ~ 115 kPa, **Measurement accuracy:** ±1.5%

Temperature detection:

Measuring range: -25 ~ 85°C, **Measurement accuracy:** ±0.5°C

Weight: 3.5 kg



SC-12

Ordering Information

1. **GLA131-GGA:** MGGG Greenhouse gas analyzer
2. **PS-3010:** Control system
(including power adapter, SD Card, 2 of 20AH Lithium battery, Lithium battery charger, etc.)
3. **SC-12:** Portable respiration chamber

Support: Provide technical support and service for life

Manufacturer: ABB, Canada / LICA, China

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