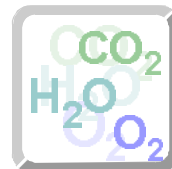




SRS-1000

Portable Soil Respiration System



Ultra compact gas exchange system for the accurate field measurement of CO₂ flux in soil



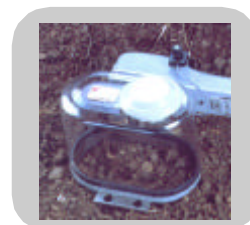
- *Truly portable*
- *Highly accurate CO₂ IRGA*
- *Optimised soil chamber*
- *Easy to use*
- *Integral data storage*

Field Soil Flux Experimentation

There is an increasing interest in the measurement of CO₂ exchange from soil samples in ambient field conditions. This may be associated with a variety of research applications including:

- Carbon Balance
- Microbial Ecology
- Soil Biomass
- Bioremediation
- Pesticide Impact
- Eddy Covariance

To enable researchers to conduct this experimentation, ADC BioScientific has developed the SRS-1000, an ultra compact, battery operated and highly accurate gas exchange system for the measurement of soil flux.



Accurate Soil Respiration Measurements

The SRS-1000 consists of a console programming unit and a soil respiration chamber. The highly accurate miniaturised CO₂ infra red gas analyser is housed directly adjacent to the soil chamber, ensuring the fastest possible response to gas exchanges from the soil. This “open system” has an operating range of 0-2000ppm, with a resolution of 1ppm. The IRGA has been designed to have minimal drift. All measurements are automatically compensated for atmospheric pressure and temperature.

Pressure variations in some soil chamber designs can lead to a suppressing or enhancing of CO₂ exchanges. The ADC Soil Respiration Chamber has been specifically designed to ensure that there is no internal pressure gradient. Incorporation of an integral pressure release valve ensures that there is no significant difference between the chamber head space and outside atmospheric pressure. The Chamber features an internal circulatory fan, which is powered by the main system console.

The chamber consists of an upper chamber and a metal collar. The collar is inserted into the soil to ensure optimal upper chamber positioning, regardless of soil condition, and to ensure that total soil flux activity is measured with the chamber area. This collar may be left in the soil for long term comparative studies.

In addition to gas exchange data and soil flux calculations the system also measures soil temperature. This is supplied by a high quality soil temperature sensor.



Truly Portable

Weighing only 2kg, the battery operated, SRS-1000 is a truly portable system incorporating the latest in low power consumption technology. It will operate fully for up to 10 hours from a single charge.

Full functionality, flow control and data logging are all contained within the ultra compact console. Experimental programming and operation of the SRS-1000 is achieved with just five keys to drive a series of simple menus. All soil respiration data and calculations are clearly presented on a large high definition liquid crystal display.



The SRS-1000 features unlimited data storage. All data and calculations are stored on easily exchangeable PC cards. This popular feature, already incorporated into other ADC gas exchange instrumentation, allows separate PC cards to be used for individual users or specific experimental applications.

Experimental data may be downloaded via the RS232 port or transferred directly from the PC card to a computer.

Versatile Research Instrument

The SRS-1000 is a highly versatile gas exchange system. A variety of easily interchangeable plant leaf chambers are available which quickly converts the SRS-1000 into the most portable research photosynthesis system ever.

Full photosynthetic data and calculations are displayed and recorded.

This multi-purpose gas exchange system offers endless applications and outstanding value for money for any multi-disciplined research laboratory.



Technical Specification

Gas exchange:	CO ₂ : 0-2000ppm, 1ppm resolution Infrared gas analyser 0.1% of reading repeatability @ 350ppm. Temperature effect <0.05% of f.s.d. Per °C.
	H ₂ O: 0-75mbar, 0.1mbar resolution Two fast response water vapour sensors. 0.5% repeatability
Other sensors:	
Chamber temperature:	0°C to 50°C, precision 1.5% Precision thermistor
Soil temperature:	0°C to 50°C, precision 1.5% Precision thermistor
PAR:	0-3000umols m ⁻² sec ⁻¹ Silicon photocell
Flow rate to chamber:	100-500ml min ⁻¹
Display:	240 x 64 dot matrix LCD
Warm up time:	5 minutes @ 20°C
Recorded data:	Removable RAM cards typically stores 2,000 sets of data on a 128K Byte card. Up to 1MB cards supported
Battery:	2.6Ah lead acid 12V battery. 10 hour life.
Battery charger:	90-260V, 50/60 Hz
Analogue output:	Single 0-5V user selected parameter.
RS232 Output:	User selected up to 19200 baud for printer or PC connection.
Temperature range:	5°C - 45°C
Dimensions:	
Chamber volume:	1L
Console (HxWxD):	240 x 125 x 140 mm
Chamber (HxWxD):	11 x 85 x 145 (ellipse)
Weight:	
Console:	2.4kg
Chamber:	190grms



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