

SRC-1 Soil CO₂ Flux System

**A closed system for accurate measurement
of soil CO₂ flux**



For over 20 years, PP Systems has been manufacturing high quality instrumentation for researchers worldwide. The method of measuring soil respiration is that described by Dr. K.J. Parkinson in 1981, where a chamber of known volume is placed on the soil and the rate of increase in CO₂ within the chamber is monitored. In the original method, air samples were withdrawn at one minute intervals and separately analyzed. With this system, the air is continuously sampled in a closed circuit through the EGM-4, and the soil respiration rate is calculated, displayed and recorded by the instrument. The air within the chamber is carefully mixed to ensure representative sampling without generating pressure differences which would affect the evolution of CO₂ from the soil surface.

An optional STP-1 Soil Temperature Probe is also available if required. It is suitable for static temperature measurements where a robust unit is required. The sensor is mounted in the tip of a stainless steel tube and protected by a stainless steel cap.

System Features

- Lightweight and field portable
- Accurate, integral CO₂ analyzer and H₂O sensor (Optional)
- Closed system measurement
- User friendly operation
- Simple setup
- Full data logging, storage and output of data



Optional STP-1 Soil Temperature Probe

PP
SYSTEMS

Data Sheet

Technical Specifications

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EGM-4 Environmental Gas Monitor

Analysis Method

Non-dispersive infrared, configured as an absolute absorptiometer with microprocessor control of linearization.

Measurement Range

CO₂: 0-2,000 ppm ($\mu\text{mol mol}^{-1}$)

Measurements are automatically corrected for temperature and pressure.

Accuracy

Better than 1.0% (limited by calibration gas mixture)

Linearity

Better than 1.0% throughout the range.

Stability

Automatic Zero at regular intervals, corrects for sample cell contamination, source and detector ageing and pre-amplifier gain changes.

Sampling Pump

Integral DC pump.

Air Filter

Filtered sample line (hydrophobic).

Calibration

Default value preset in factory (built-in initialization). Automatic calibration by keypad if required.

CO₂ Control

High and low set points.

Alarm

Audio alarm

Real Time Clock

Accuracy > 1 minute per month at 25^o C, operating temperature 0-70^o C. Automatic correction for month end and leap years.

Recording

Manual (by keypress) or automatic at user selected intervals between 1 and 250 minutes.

Data Storage

512K Battery backed RAM (1,000 records).

Response Time

Display/Analog Output: 1.6 seconds

Environmental Sensor Interface

Input available for use with external sensors (%RH, Temperature, PAR, etc.).

Analog Output

4-20 mA, 0-1V, 0-2V, 0-3V, 0-4V, 0-5V (Linear).

Digital (RS232) Output

9600 baud/8 data bits, 1 start bit/2 stop bits/ no parity. ASCII format.

Display

High contrast 2 x 16 character LCD.

Power Supply

12V, 2.0 Ah rechargeable lead acid battery. Up to 4 hours continuous operation. Longer times possible with external 12V battery.

Optional 12V NiMH Battery for longer operation in the field.

Gas Connections

Two gas ports (inlet and exhaust) for use with 1/8" (.125) ID tubing.

Housing

High impact, aluminum enclosure.

Dimensions

18 cm (W) x 21.5 cm (H) x 6.3 cm (D)

Weight

1.5 kg. (including battery).

SRC-1 Soil Respiration Chamber

Chamber Construction

Rugged PVC with stainless steel ring.

Measurement Range

0-9.99 g CO₂ m² hour

Fan

12V DC

Dimensions

15 cm (H) x 10 cm (D) -excluding handle.

Weight

0.9 kg.

STP-1 Soil Temperature Probe (Optional)

Probe Construction

Electronics housed in anodized aluminum with stainless steel tip (sensor housing).

Connector

1 Meter cable fitted with appropriate connector

Power Supply

7-12V DC @ 33 mA

Measurement Range

0-50^o C

Accuracy

0.5^o C

Output

0-1V

Dimensions

40 cm (L) x 1.9 cm (D) - excluding handle.

Weight

0.2 kg.

Optional Accessories

Humidity Sensor

PP Systems is continuously updating its products and reserves the right to amend product specifications without notice.