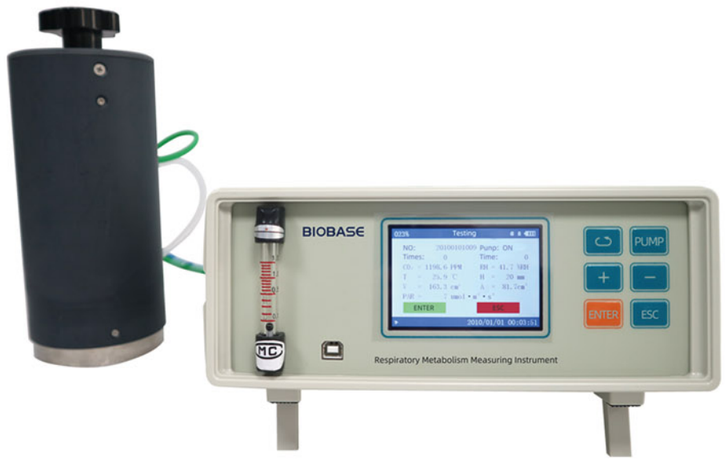
Respiratory Metabolism Measuring Instrument



Features:

* Simultaneous detection of multiple parameters, including CO_2, temperature, humidity, photosynthetically active radiation, and airflow.
* High-specification core sensors ensure accurate and sensitive detection, with CO_2 difference data acquisition in 1 second.
* Strong environmental adaptability, resistant to -20~60℃ and 0-85% humidity, suitable for routine testing.
* Long battery life (12 hours with lithium battery) and large storage (2GB expandable to 16GB), suitable for field operations.
* Easy to operate, true-color screen visible even in strong light, direct data transfer via USB, compact and portable main unit.
* Wide range of applications, suitable for ecological and carbon sequestration research, as well as insect/root respiration detection.

Technical Parameters:

Model	RMM-3080E
CO_2 Analysis	Measuring Range: 0~5000ppm, Resolution: 0.1ppm; Accuracy: 3ppm; CO_2 difference acquisition can be completed within 1 second
Temperature	Measuring Range: -20~80℃; Resolution: 0.1℃; Error: ±0.2℃
Humidity	Measurement Range: 0~85%; Resolution: 0.1%; Error: ±1%
Photosynthetically Active Radiation	Measurement Range: 0~3000μmol/(m²·s); Precision: ±5μmol/(m²·s); Response Wavelength Range: 400~700nm
Flow Measurement	Flow measurement: Glass rotor flow meter, flow rate settable within the range of 0.2~1.5L; Error: 1%; Accuracy <±0.2% within the range of 0.2~1L/min; A miniature electronic flow meter is optional, with flow rate settable within the range of 0.2~1.5L. Resolution: 0.0001L.
Breathing Chamber Size	Diameter: 100mm, height: 180mm
Operating Environment	Temperature: -20℃~60℃, relative humidity: 0~85%(no water vapor condensation)
Data Storage	Memory 2G, can be expanded to 16G
Data Transmission	USB connection to computer can directly export data
Display	LCD
Optional Accessory	Soil moisture temperature sensor
Power Supply	DC8.4V lithium battery, can work continuously for 12 hours; AC220V 50/60Hz(Standard); AC110V 50/60Hz(Optional)
Product Size(W*D*H)	260*260*130mm
Net Weight	3.25kg
Packing Size(W*D*H)	550*400*250mm
Gross Weight	9kg

Applications:

Soil respiration is a crucial process in the carbon cycle of soil ecosystems, resulting from the balance between soil carbon assimilation and dissimilation, and is also a major pathway for carbon to return to the atmosphere from terrestrial ecosystems. It is a characteristic of soil life activities, and accurately measuring its release is key to evaluating ecosystem biological processes. By monitoring soil respiration and its related parameters, the responses of roots and soil microorganisms to climate change can be assessed. Soil CO_2 flux is influenced by a variety of complex spatiotemporal physical and biological processes; therefore, long-term, continuous, and accurate measurement of soil carbon flux is of great significance for studying carbon flux in terrestrial ecosystems. Soil respiration meters can simultaneously display CO_2 concentration, temperature, and humidity changes within the respiration chamber, as well as the intensity of external photosynthetically active radiation. They are widely used in agricultural ecology research, carbon source and sink research, global climate change, land use change, ecological restoration research, soil microbial activity assessment, plant ecology research, insect respiration, and root respiration.