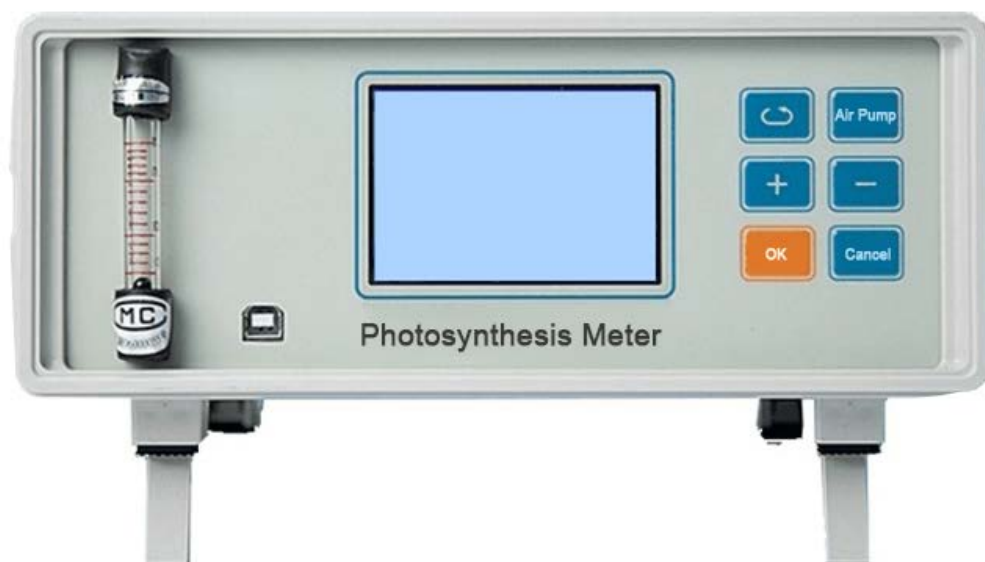


# SISCO

## Plant Photosynthesis Meter

SISCO-PM-AW-308D



## Introduction

The AW-308D Photosynthesis Analyzer employs a closed-circuit measurement method to measure factors such as CO<sub>2</sub> concentration, air temperature and humidity, plant leaf temperature, light intensity, and gas flow rate. It calculates photosynthetic rates, transpiration rates, intercellular CO<sub>2</sub> concentration, stomatal conductance, and water use efficiency (WUE), among other photosynthetic indicators. This photosynthesis analyzer has broad application prospects in experimental courses across many disciplines, including biology, agronomy, horticulture, forestry, entomology, microbiology, and zoology.

## Parameters

### Measurement Method:

- Closed-circuit measurement

### Measurement Items:

- Non-diffusion infrared CO<sub>2</sub> analysis
- Leaf temperature
- Photosynthetically active radiation (PAR)
- Leaf chamber temperature
- Leaf chamber humidity

### Analysis and Calculation:

- Leaf photosynthetic rate (P<sub>n</sub>)
- Leaf transpiration rate (Tr)
- Stomatal conductance (G<sub>s</sub>)
- Intercellular CO<sub>2</sub> concentration (C<sub>i</sub>)
- Water use efficiency (WUE)
- Possible addition: Respiration rate measurement (R<sub>d</sub>)
- Possible addition: Soil carbon flux measurement (requires a soil respiration chamber)

## Technical Specifications:

### CO<sub>2</sub> Analysis:

- Features a temperature-controlled dual-wavelength infrared carbon dioxide analyzer.
- Measurement Range: 0-3000ppm
- Resolution: 0.1ppm
- Accuracy:  $\pm 3$ ppm.
- Carbon dioxide measurement is unaffected by temperature changes, offering stability, high accuracy, and rapid response; differential carbon dioxide measurement can be completed within 1 second.

### Leaf Chamber Temperature:

- High-precision digital temperature sensor
- Measurement range:  $-20\sim 80^{\circ}\text{C}$
- Resolution:  $0.1^{\circ}\text{C}$
- Error:  $\pm 0.2^{\circ}\text{C}$

### Leaf Temperature:

- Platinum resistance thermometer
- Measurement range:  $-20\sim 60^{\circ}\text{C}$
- Resolution:  $0.1^{\circ}\text{C}$
- Error:  $\pm 0.2^{\circ}\text{C}$

### Humidity:

- High-precision digital humidity sensor
- Measurement range:  $0\sim 85\%$
- Resolution:  $0.1\%$
- Error:  $1\%$

### Photosynthetically Active Radiation (PAR):

- Silicon photovoltaic cell with correction filter
- Measurement range:  $0\sim 3000\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
- Accuracy:  $<5\mu\text{mol}\cdot\text{m}^{-2}\cdot\text{s}^{-1}$
- Response wavelength range:  $400\sim 700\text{nm}$

### Flow Measurement:

- Glass rotor flow meter
- Flow rate can be set arbitrarily within the range of  $0.2\sim 1.5\text{L}$ , with stable airflow
- Error:  $1\%$
- Accuracy is  $0.2\%$  within the range of  $0.2\sim 1\text{L}/\text{min}$

### Leaf Chamber Dimensions:

- Standard size  $55\times 20\text{mm}$ , other sizes can be customized according to customer requirements.

**Operating Environment:**

- Temperature: -20°C~60°C
- Relative Humidity: 0~85% (no condensation)

**Power Supply:**

- High-capacity DC8.4V lithium battery, continuous operation for 15 hours on a single charge.

**Data Storage:**

- 2GB RAM, expandable to 16GB.

**Data Transfer:**

- Direct data export via USB connection to a computer.

**Display:**

- 3.5" TFT true-color LCD screen, 800×480 resolution, clearly visible even in strong light.

**Dimensions:**

- 260×260×130mm

**Weight:**

- Main unit 3.25kg

## Features

- **Multifunctional:** The photosynthesis meter can simultaneously measure ten indicators: photosynthetic rate, transpiration rate, intercellular carbon dioxide concentration, stomatal conductance, water use efficiency, carbon dioxide concentration, relative humidity, photosynthetically active radiation, air temperature, and leaf temperature.
- **Stability:** The photosynthesis meter incorporates a temperature-regulated dual-wavelength infrared carbon dioxide analyzer. Carbon dioxide measurement accuracy is unaffected by temperature changes, and it features stability, high precision, and rapid response. Carbon dioxide difference data acquisition can be completed within 1 second. The gas pump flow rate can be set as needed, and the gas flow rate is stable.
- **Intelligent:** A multi-information menu display and cursor-guided operation allow for timely display and storage of the measurement process and final results on the photosynthesis meter's screen. Compact size, lightweight, and portable, the photosynthesis meter can be operated by a single person.
- **Wide applicability:** Equipped with different types of leaf chambers (respiration reactors), the photosynthesis meter can be widely used for plant measurements of various leaf shapes in field crops, fruit trees, vegetables, forest trees, and forage grasses, as well as for experiments on respiration in soil, seeds, and insects.
- High cost-performance ratio: Low price, low operating cost, and easy maintenance.

**Optional accessories:**

- Leaf chamber: (Choose one)
- Type I: (20×20mm)
- Type II: (55×20mm) Standard size
- Type III: (55×10mm)
- Type IV: 11.3mm diameter circle
- GPS positioning: Optional GPS positioning function, which can display the latitude and longitude of the measurement location in real time.
- Soil breathing chamber: 100mm diameter, 180mm height.