

(Console, Sensor Head, others)

Measuring range	CO ₂	0 ~ 1500ppm
	Humidity	10 ~ 90%RH
	Temperature	10 ~ 50°C
Measurement accuracy (Photosynthesis rate) * 1	Repeatability	± 10% Standard deviation ± 3 σ
Chamber flow rate	At measuring time	Sealed
	Others	500 ~ 1200 mL / min AT20°C
Size/weight (Including standard batteries)	Control part	W215 × D175 × H290mm, about 4.5kgs.
	Measuring part	W90xD355xH170mm, about 2.3kgs.
	Cable	1.2m, about 0.3kgs.
LED artificial light source (Fixed output)	White 4 pcs., red 8 pcs. LED used	
	PPFD : 1200 μmol m ⁻² s ⁻¹	* 5
	Opening: 20mmx30mm	
Display	TFT liquid crystal display 4.3 inches	
Atmospheric pressure correction	Nil	
Ambient operating temperature	10 ~ 40°C	
Power source & continuous availability time	Over 3 hours with standard lithium ion battery 6.4Ah	
Atmospheric zero gas unit * 2	2 soda-lime columns for CO ₂ removal	
	1 silica gel columns for humidity control	
Equipment supplied	Carrier case, Belt, Battery, Battery charger	
	SD card(8GB)	
Option * 3	Standard gas for calibration Zero calibration gas (N) Span gas (CO ₂)	
	* 4	High capacity lithium ion battery 12.8Ah

- * 1 Repeating measurement to assure measurement accuracy shall be in the range of photosynthesis rate 10 ~ 40 μmolCO₂ m⁻² s⁻¹
- * 2 The atmospheric zero gas unit, which is stored inside the console should be used for the control of the zero gas at the time of usual comparative measurement. According to frequency of use, the gas unit should be replaced by
 a. either when measurements have reached 30 thousand times or
 b. after use of 6 months, whichever happens first.
- * 3 Calibrate periodically with a standard gas by use of a small size gas cylinder for zero calibration gas / span gas.
- * 4 When you use MIC-100 system continuously for more than 3 hrs, it is recommended that you use large capacity lithium batteries, which can be used for about 6 hours in succession.
- * 5 Optional: Transparency Type, Light Intensity Switch Type 700 μmol m⁻² s⁻¹

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MIC-100 system

High-speed Photosynthesis Rate Measurement System



MIC-100 is a very unique system to measure photosynthesis rates at high speed by focusing measurement tools on the photosynthesis ability of plant leaves.

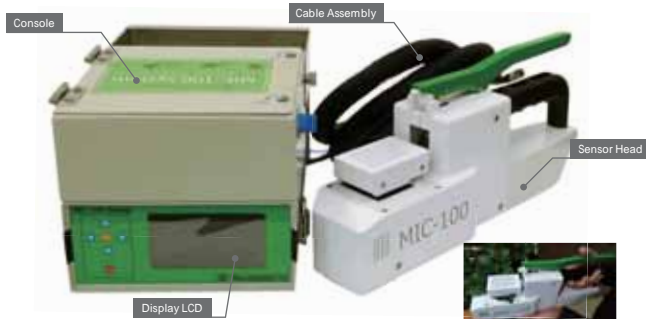
This system is the most suitable for collecting large quantities of comparative data of many kinds of samples.

After completing the measurement, the data (CO₂, temperature, humidity, calculation of photosynthesis rates) is stored on an SD card in Excel format.

By the use of an SD card, this data can be freely analyzed or edited on any personal computer. Data thus gathered can be freely exchanged.

B' 210mm

The System Components



* Outside appearance can be changed without advance notice

<Picture of the Sensor Head in use>

Superiority

01 High-speed Measurement

The photosynthesis rate of leaves can be measured in approximately 30 seconds per sample which is close to one fourth of the time when compared to conventional measuring systems. This means that you can collect much data in about 4 hours (within the measurement time suitable for measurement and evaluation of plants).

02 Light weight

This unit weighs about only 7 kgs, which is about 2/3 of the weight of conventional measuring instruments. This means higher performance of the MIC-100 system by reducing the manual efforts for measurements taken in the field.

03 Ease of use

Very easy to use, which contributes to improvement accuracy and productivity.

04 Long life

In addition to reduced initial investment, total cost reductions become 'value for money' after placing in service for many years.

05 Moderate price

This new measuring method, by focusing application on the photosynthesis rate, has made substantial reduction in costs possible. This method incorporates a semi-open type CO₂ sensor (pat.pending) in the sealed leaf chamber which is located directly under leaf surface and the photosynthesis rate is displayed by predicting arithmetic result.

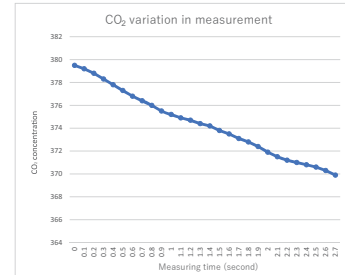
A' 210mm

Information on performance demonstration

Data 1

CO₂ concentration actually measured in the chamber

Measurements of variation are in the range of 10ppm from 380 ~ 370ppm
Measurements can be made every 0.1 second with 0.1ppm resolution for CO₂ concentration

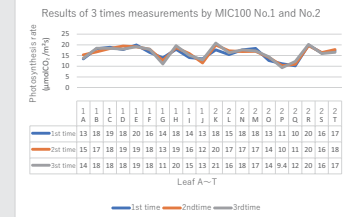


Data 2

Measurement reproduction experiment

* Comparative data results (same leaves/same place) between MIC100 and conventional products were made at our experimental farm

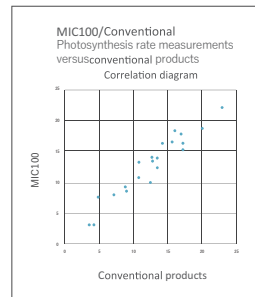
	Standard deviation
MIC100	0.66
conventional products	1.05



Data 3

Measurement correlation experiment

* Depending on the system-setting and leaf conditions there may be differences in measuring results



Data 4

LED Artificial light source spectrum

Measurement opening center distance is 12mm

