HEALTHYPHOTON

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HEALTHY PHOTON

HT8800 Series
All-in-one Portable GHG Analyzers

Innovation for Green Life

R&D BACKGROUND

As global climate change intensifies, the impact of greenhouse gas emissions and variations on the environment and climate becomes increasingly evident. In order to better monitor the composition and concentration of greenhouse gases in the atmosphere to support climate research and environmental protection measures, HealthyPhoton Technology Co., Ltd. has introduced the HT8800 Series All-in-one Portable GHG Analyzers.

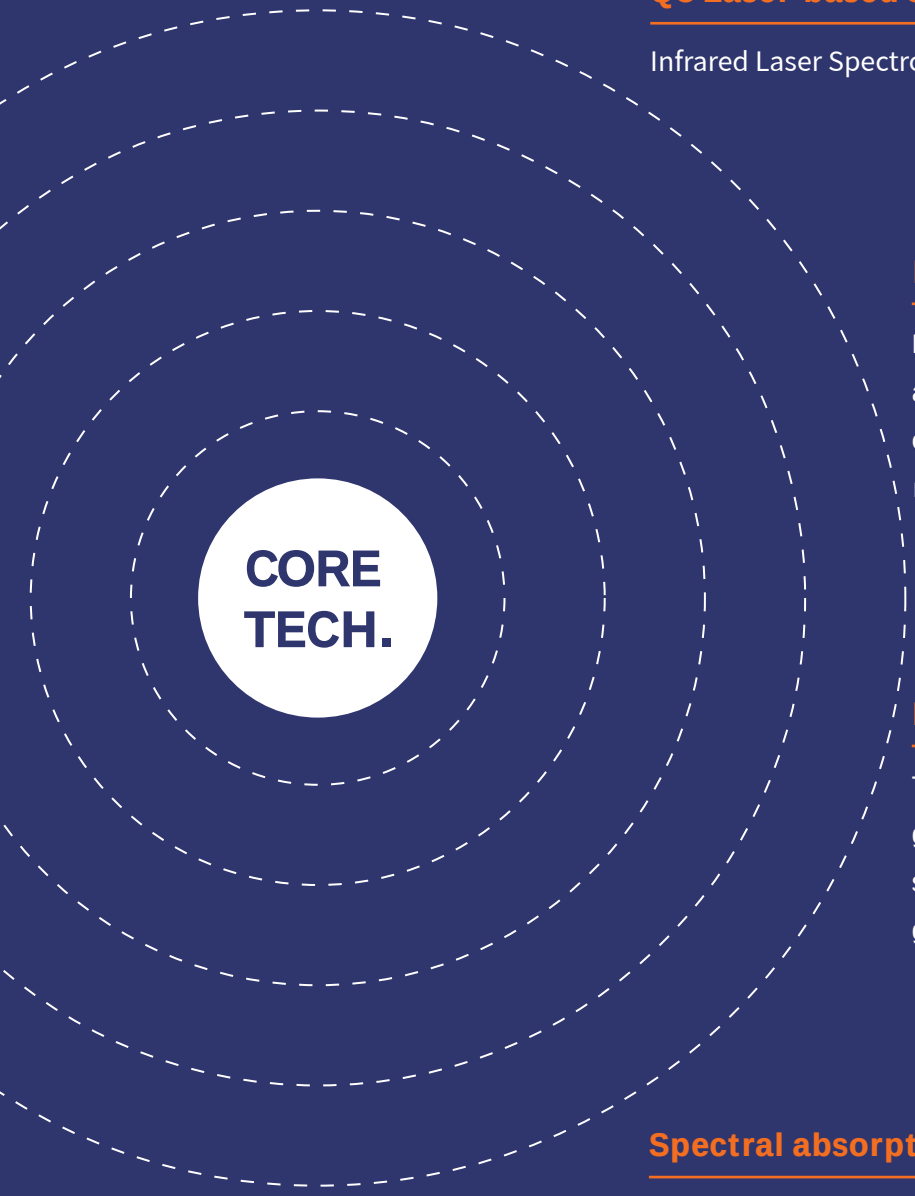
PRODUCT INTRODUCTION

HT8800 Series All-in-one Portable GHG Analyzers (carbon dioxide, methane, nitrous oxide, water) are independently developed, produced, and sold by HealthyPhoton Technology Co., Ltd., representing a domestically innovative product. This series of instruments uses semiconductor quantum cascade lasers

(QCL) as light sources, allowing the laser to pass through an original mid-infrared enhanced optical cavity. The transmitted light is received by a mid-infrared photodetector, and the transmitted spectra are extracted and analyzed. This process accurately calculates the concentrations of the target greenhouse gases, enabling more precise, timely, and scientifically accurate measurements of target greenhouse gas molecules.

HT8800 Series All-in-one Portable GHG Analyzers achieves rapid and high-precision greenhouse gas measurements within a portable instrument case. It employs independent strong absorption spectral lines, eliminating cross-interference from other gas molecules. This series of gas analyzers can be powered by solar energy or lithium batteries, enabling fixed-point or mobile continuous observation of greenhouse gas concentrations.

CORE TECHNOLOGY



QC Laser-based Sensing Technology

Infrared Laser Spectroscopy Detection

Intelligent calibration algorithm

Built-in intelligent calibration algorithms accurately compensate for sensor drift, ensuring the reliability and accuracy of measurement results.

Multi-component analysis technology

The HT8800 series uses multi-channel gas analysis technology, allowing simultaneous measurement of multiple greenhouse gases.

Spectral absorption technology

The instrument uses spectral absorption principles, where a laser beam at specific wavelengths interacts with gas molecules to achieve non-contact concentration measurements.

UNIQUE ADVANTAGES

- **World-wide service**
- **Immediate response**
- **Worry-free after-sales support**

PRODUCT APPLICATIONS

Environmental Monitoring

Used for urban air quality monitoring, industrial gas emission detection, and more.

Climate Research

Utilized to collect greenhouse gas concentration data required for climate model research.

Agriculture Ecology

Employed to monitor greenhouse gas emissions in farmland and gas variations in ecosystems.

Scientific Research

Serves as experimental equipment for research and educational activities.

PRODUCT FEATURES

01

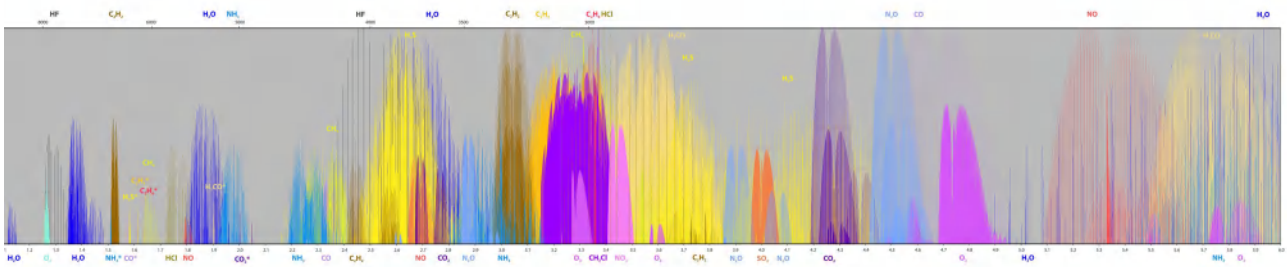
Multi-component

Target species: CO_2, CH_4, N_2O and H_2O.
Accuracy is ensured by independent and strong absorption spectral lines in the mid-infrared band with no cross-interference.

02

Reliability

Strong MIR absorption signals of gas molecules eliminate the need for an extremely long optical cavity, resulting in stable optics and highly reliable data.



03

Portability

A waterproof, durable, and easy-to-carry casing based on high-strength ABS material.

04

Low power consumption

Less than 100W power consumption that can be powered by solar panels or batteries for continuously uninterrupted operation.

05

Flexibility

Support fixed-point or vehicle-mounted continuous automatic detection.

MEASURED COMPONENTS

Model	HT8850	HT8840	HT8830	HT8820
Measurement Component	CO_2, CH_4, N_2O, H_2O	CO_2, CH_4, H_2O	CO_2, N_2O, H_2O	CH_4, N_2O, H_2O

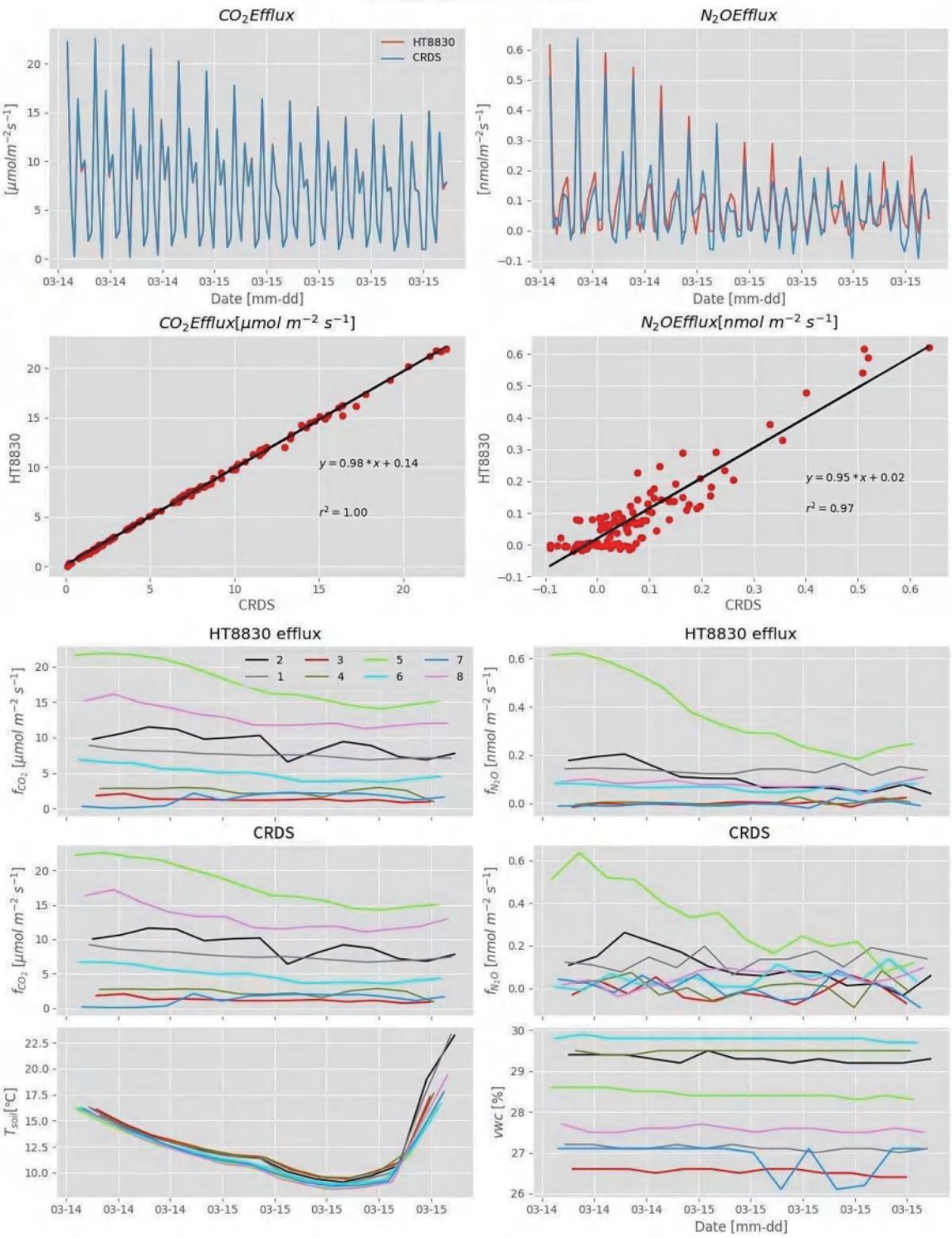
*HT8830 is the only portable gas analyzer in the world that can simultaneously measure CO_2 and N_2O.

Gas	CO_2	CH_4	N_2O	H_2O
Measurement Range	0.02~2%	0.1~15ppmv	0.1~5ppmv	0~3% (non condensing)
Measurement Accuracy(5s)	< 0.3ppmv	< 3ppbv	< 0.5ppbv	< 100ppmv
Response Time(T90)	< 15s			
Data Rate	10/1/0.1/0.01Hz			

PRODUCT PARAMETERS

Operating Temperature	-10°C ~ 45°C
Sampling Pressure	70 ~ 110 kPa
Environmental Relative Humidity (RH)	<99% R.H. non condensing
Data Communication Method	USB / COM / WIFI
Data Storage	Integrated SD card
User Interface	Windows UI on PC/ Android UI on Pad
Dimensions	47cm*36cm*20cm
Weight	15 kg
Power Supply Voltage	24 VDC/5A (max)
Power Consumption	80~100 W
Optional Accessories	Soil respiratory chamber, external vacuum pump, vacuum tubing, data logger, rechargeable batteries, shoulder strap, trolley and instrument shipping case.

Comparison between HT8830 and a commercial CRDS analyzer in soil respiration experiment



FULL-AUTOMATIC RESPIRATORY CHAMBER

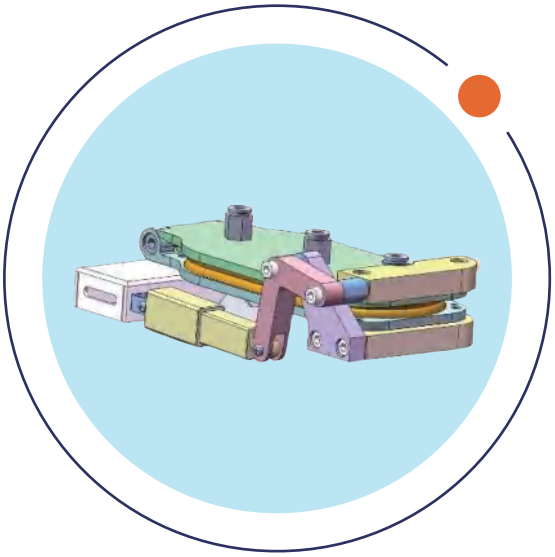
Deploy the respiration chamber at the observation point for continuous automatic monitoring.
The type of trace gases monitored varies depending on the greenhouse gas analyzer used in conjunction and is contingent upon the research objectives.

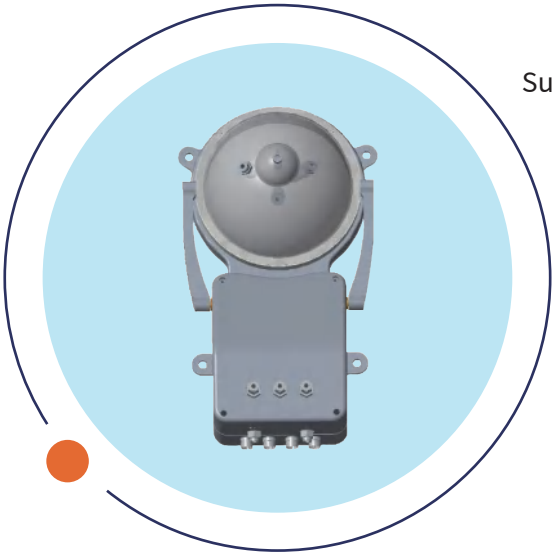
MODEL PARAMETERS

Micro Respiration Chamber

Suitable for leaf respiration measurements.

Dimensions	Base area 82.6 cm^2
chamber volume	82.6 mL
Power consumption	<8W (dynamic)
	<1W (idle)
Execution time	3~5 s





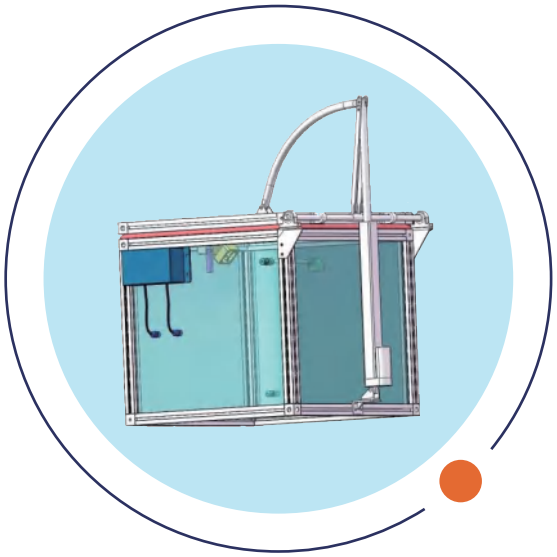
Small Respiration Chamber

Suitable for respiration measurements of low vegetation types such as bare ground or grassland.

Dimensions	Base area 314 cm^2
chamber volume	3500 mL
Power consumption	<8W (dynamic, typically)
	<1W (idle)
Execution time	10~13 s

Medium Respiration Chamber

Suitable for respiration measurements of slightly taller vegetation types like wheat and rice.



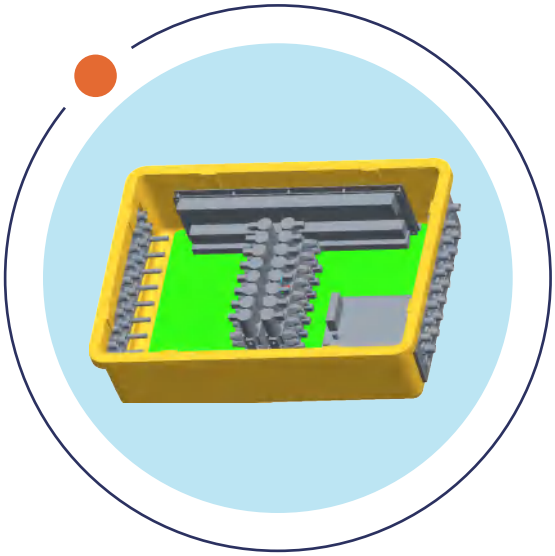
Dimensions	Base area 2500 cm^2
chamber volume	125 L
Power consumption	6~16W (maximum 16W during opening and closing actions, typically 6W) ~6W (during operation after closure) <1W (idle)
Execution time	3~5 s

MULTIPLEXER

When employing a single analyzer to measure multiple points, it is necessary to use a multiplexer to expand the number of respiration chambers.

The multiplexer mainly consists of :

- a shell
- two side panels
- busbar
- valve island
- motherboard
- power board
- expansion board



APPLICATION CASES

Tsinghua University-SIGS

Outdoor on-site experiments on soil emissions

Grassland at Jiangsu Province

Auto soil chambers with MUX, parallel sampling & comparing with CRDS

Field at Lanzhou Province

Monitoring of greenhouse gas emissions from soil in the field

COMPANY INTRODUCTION

HealthyPhoton Technology Co., Ltd., established in 2014, was formerly known as a company specialized in QC Laser-based products for various applications and services. It is a leading high-tech company in China, seamlessly integrating research and development, production, and sales.
We offer products encompassing fundamental optical sensing modules, complete gas detection systems, data service platforms, and end-user application solutions. These products are extensively utilized in various fields, including scientific research, environmental protection, agriculture ecology, and industry. The company has successfully provided solutions to over 200 customers globally, with a customer base spanning across China and receiving high acclaim from users in countries such as the UK, the USA, and the Netherlands.

Driven by technological innovation

HealthyPhoton's core technical team originated from top universities such as Tsinghua University and Princeton University in the United States, possessing core intellectual property in the field of high-sensitivity trace gas molecular photoelectric analysis and holding numerous patents.

Innovation for green life

HealthyPhoton aspires to be a world-class provider of spectroscopy analysis products and services in China. Their vision is to achieve more timely and precise scientific measurements, contributing to the global goal of "carbon neutrality."