

ZG Series Application Software User Manual

Welcome to use the ZG series CO2 monitors. To enhance functions of CO2 monitors, specially design the application software to strengthen the value in use. The software functions include real-time data analysis, data analysis time, CO2 level prompted various parameter settings, calibration, window management, and so on.

This software can provide users: environment air quality, people or plant behavior changes in the environment CO2, such as data analysis, environmental improvement as the best aids.

Software Use Description:

(1) Screen Functions



File→ picture file output *.jpg, printing current screen

Setting→ parameter settings, cure smooth display, event analysis, display range, communication data format.

Calibration→ select CO2 sources, 1000ppm, outdoor air, or user-defined CO2 concentration.

Window→ select the window size.

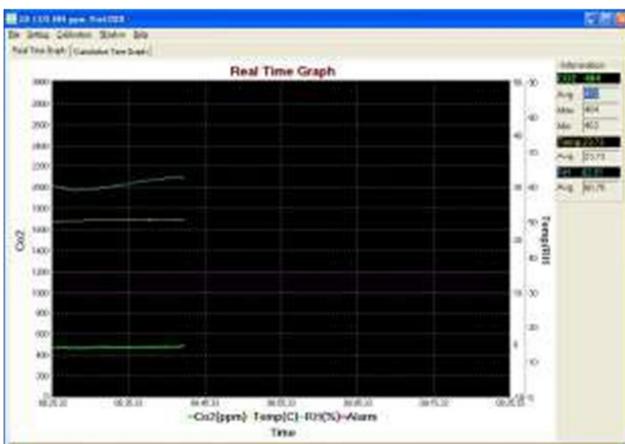
Help→ manual, help, about ZG view

Real Time Graph→ one hour real time span

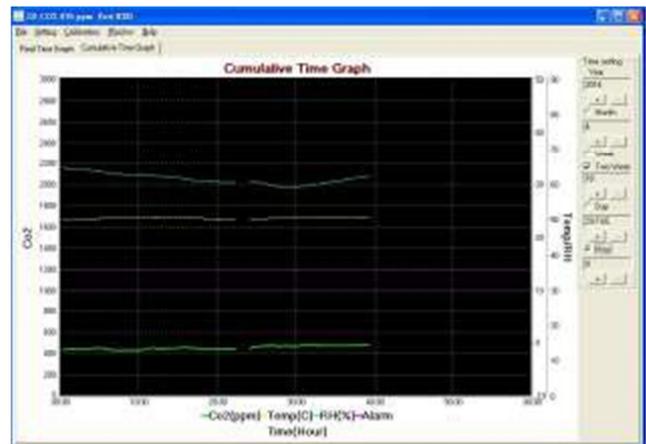
Cumulative Time Graph→ long time span

(2) Real-Time Graph (Picture 1) / Cumulative Time Graph (Picture 2)

Execute ZG series application software, the main screen will display "instant face-" (Picture 1) and show the timescale of one hour (hours: minutes: seconds). If you choose a long time screen, the screen will display the timescale of the right dialog window (Picture 2). Select the timescale display for hour, day, week, two week or month. To change timescale, please select options of the right window. For example, Picture 3, the selected timescale is 1 hour. For example, Picture 4, the selected timescale is day.



Picture 1



Picture 2



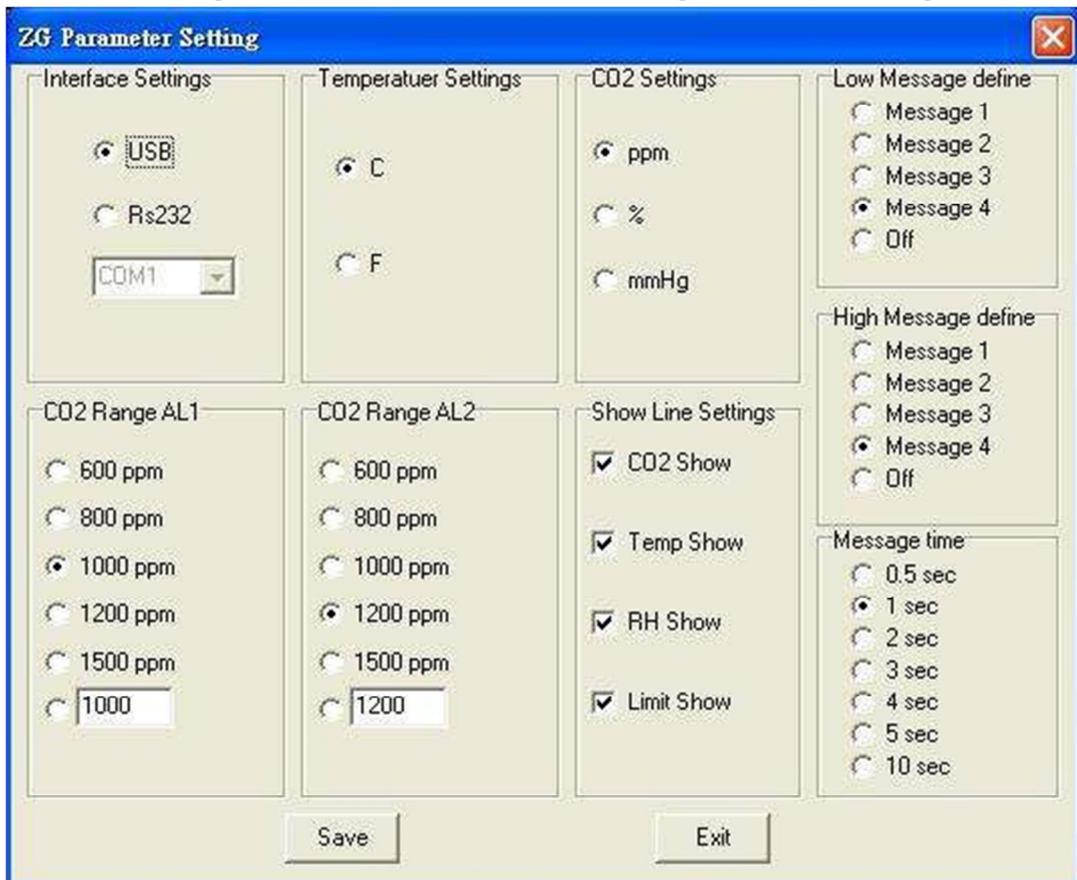
Picture 3



Picture 4

(3) Parameter Setting

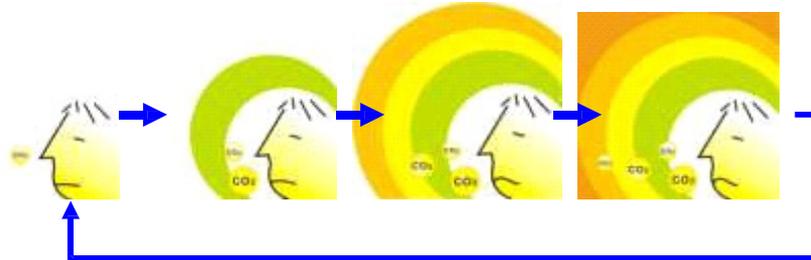
Select parameter setting, the screen displays as Picture 5 including interface, temperature unit, CO2 unit, CO2 range AL1 & AL2, show line, message define, message time, etc.



Picture 5

- (a) Interface Settings: There are two options, USB or RS232. If you use the RS232 interface, you need to confirm the connector number.
- (b) Temperature Settings: To select the unit of temperature, choose either °C or °F.
- (c) CO2 Settings: To select the unit of CO2, choose ppm, % or mmHg.

- (d) CO2 Range AL1 and AL2: Select a fixed range of 600~1500ppm, or a user-defined range. After AL1 and AL2 settings are completed, the screen will display the selected pictures of low message1~4 when CO2 value \geq AL1 setting. Likewise, the screen will display the selected pictures of high message1~4 when CO2 value \geq AL2 setting. If you select all pictures, the screen will sequentially display LowMsg1→LowMsg2→LowMsg3→LowMsg4, and then return to LowMsg1. The residence time of each picture is determined by message time.

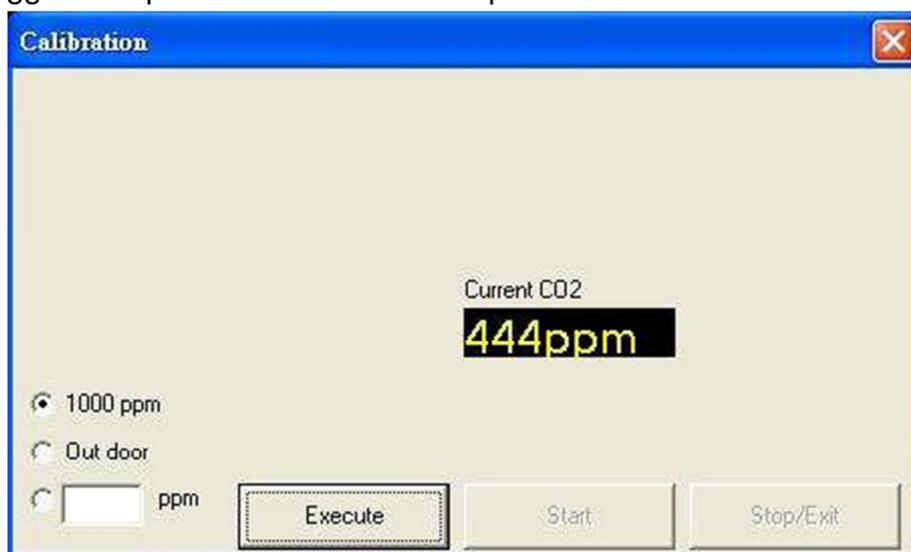


- (e) Show Line Settings: Select to display or hide CO2, temperature, humidity curves.
- (f) Low Message define and High Message define: The screen will display the pictures of low message when CO2 value \geq AL1 setting; likewise, the screen will display pictures of high message when CO2 value \geq AL2 setting. You can replace each picture with self-designed artwork and must use the original definition of the image file name, "LowMsg1~4" and "HighMsg1~4".
- (g) After all settings are completed, press "Save" button to save settings and then press "Exit" button to quit the program.

(4) Calibration

When you use instruments for a period of time, you need to proceed a simple single-point calibration. Use the calibration function. Choose CO2 standard bottles (1000 ppm), outdoor air (350~450 ppm) or other CO2 concentration (less than 1000ppm) to proceed the calibration.

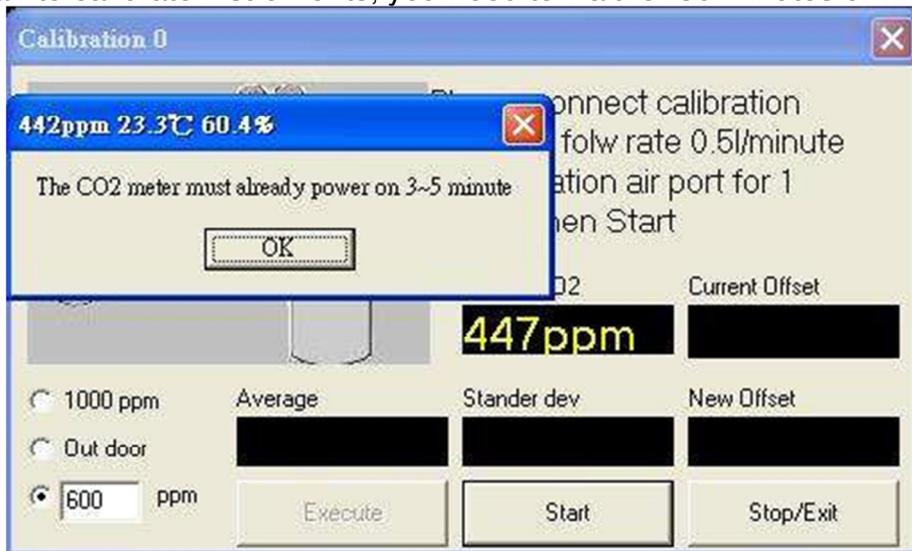
The entire process of calibration is within 5 minutes. It depends on the stability of supplying CO2 and suggests to provide 200CC~500CC per minute.



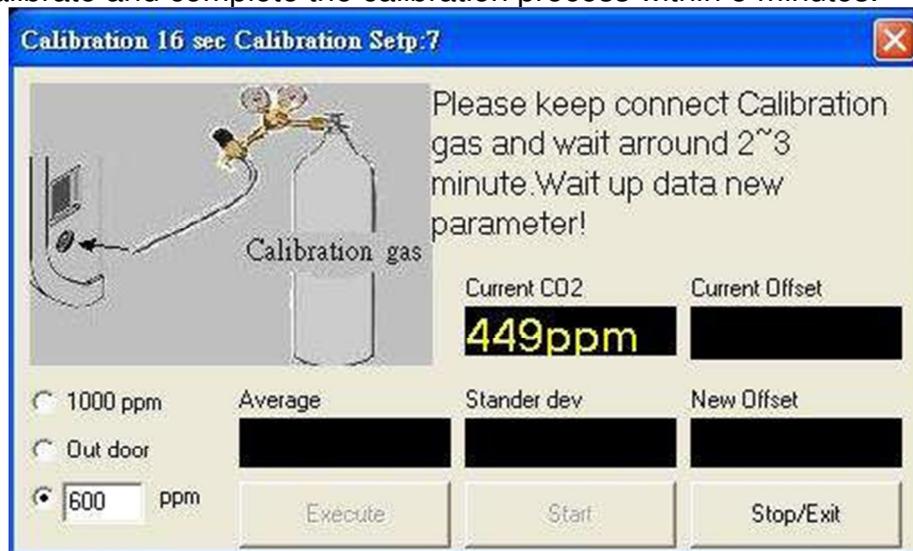
Operating Instructions:

- (a) Select CO2 sources: CO2 standard bottles (1000 ppm), outdoor air, or other CO2 concentration (less than 1000ppm)
- (b) Press "Execute" button

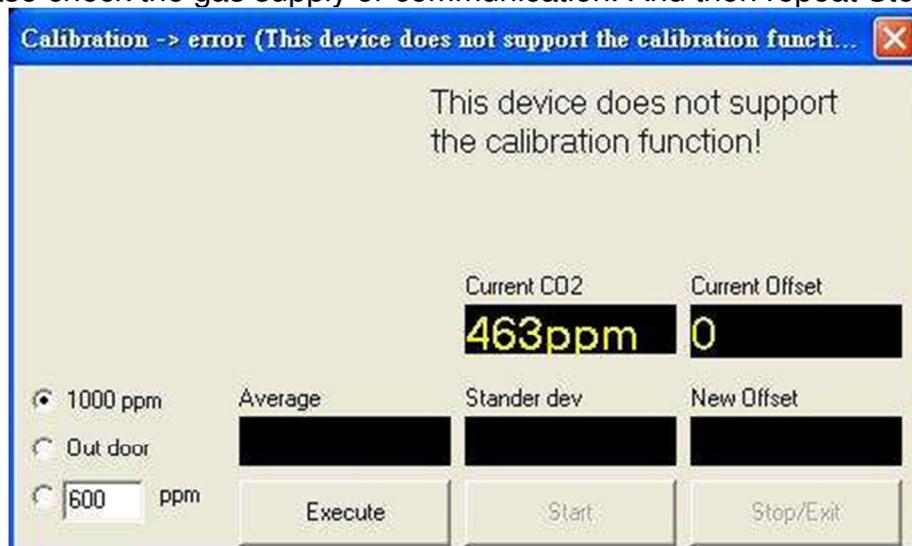
- (c) Confirm whether calibration gas is provided stably to the CO2 meter. If you select outdoor air to calibrate instruments, you need to wait for 30 minutes or more.



- (d) Start to calibrate and complete the calibration process within 5 minutes.

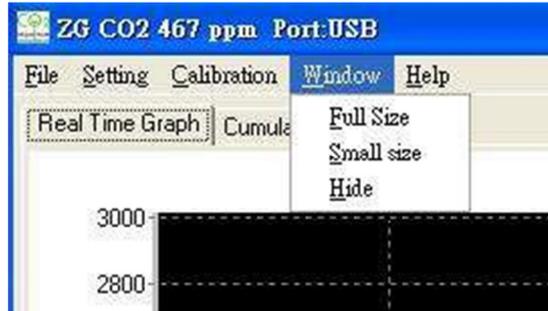


- (e) Confirm whether the reading is consistent with CO2 concentration of the standard bottle. CO2 concentration of outdoor air is about 400 ppm. If the reading differs more than 50 ppm, please check the gas supply or communication. And then repeat Steps (a)~(d).



- (f) Complete calibration procedure.

(5) Window Size Selection



- (a) Full size: Maximum display size
- (b) Small size: Minimum display size
- (c) Hide: Hide the window, but you can still see readings at the bottom of the screen.

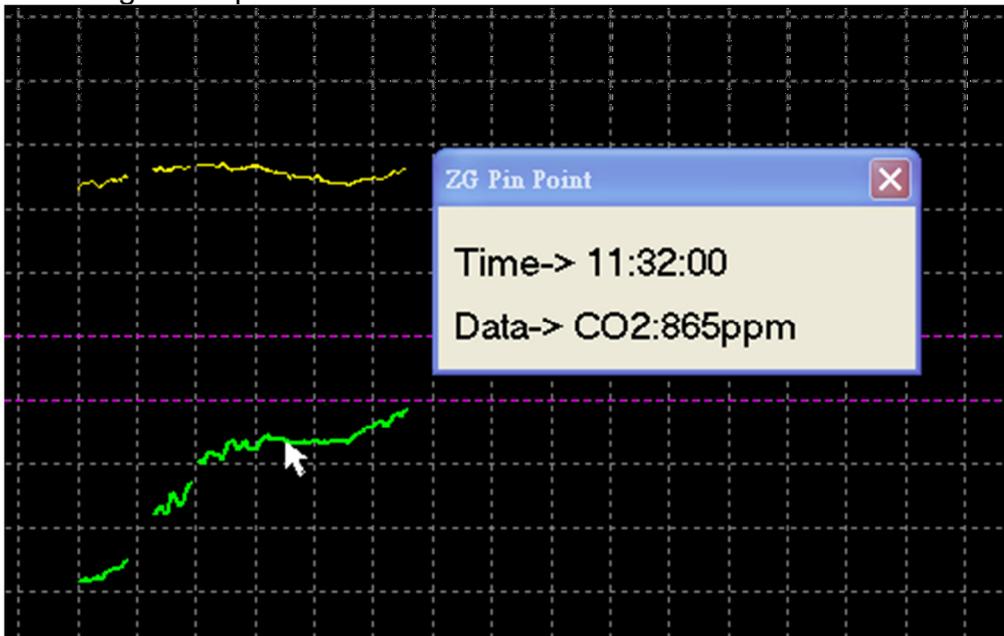


(6) Help

- (a) General Manual
- (b) What is IAQ
- (c) Plants with CO2
- (d) About ZG View

(7) Other Functions

- (a) Pin point indication: click on the curve line, and then press left side of primary button to display the reading of the position.



- (b) Select area average function: Display the readings of the points within range. (time, average, maximum, minimum value, etc.) The selected area is highlighted in white.



ZyAura
Monitor the invisible

Radiant Innovation Inc. [Http://www.ZyAura.com](http://www.ZyAura.com)
1F, No.3, Industrial East 9th Road, Science-Based Industrial Park, HsinChu, Taiwan 300.



Ref.No. : 092014

USB Communication Protocol for CO2mini

Format to USB Protocol

Item	MSB	LSB	Sum	CR
------	-----	-----	-----	----

Item "P"(50h): CntR (Relative Concentration of CO2)

"B"(42h): Tamb (Ambient Temperature)

MSB 8 bit Data Msb

LSB 8 bit Data Lsb

Sum Item+MSB+LSB=SUM

CR 0Dh, End of the message

Example of USB Protocol

1. Relative Concentration of CO2 (CntR)

50	10	00	60	0D
----	----	----	----	----

Item 50h → "P" the item code of CntR

Data MSB 10h

LSB 00h

Relative Concentration of CO2 = 1000ppm

Sum CheckSum 50h+10h+00h=60H (Only Low Byte)

CR 0Dh → 'Carriage Return' means End of Message

2. Ambient Temperature (Tamb)

42	27	50	B9	0D
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Item 42h → "B" the item code of ambient temperature

Data MSB 27h

LSB 50h

Real Temperature Value = 27.50 °C

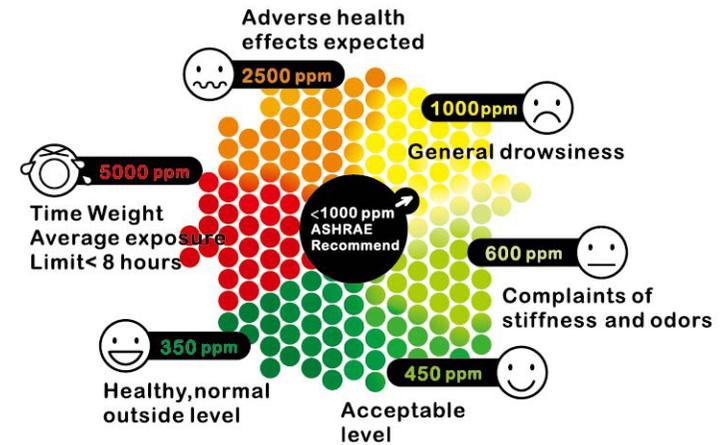
Sum CheckSum 42h+27h+50h=B9h (Only Low Byte)

CR 0Dh → 'Carriage Return' means End of Message

Monitor CO2 to Ensure Indoor Air Quality

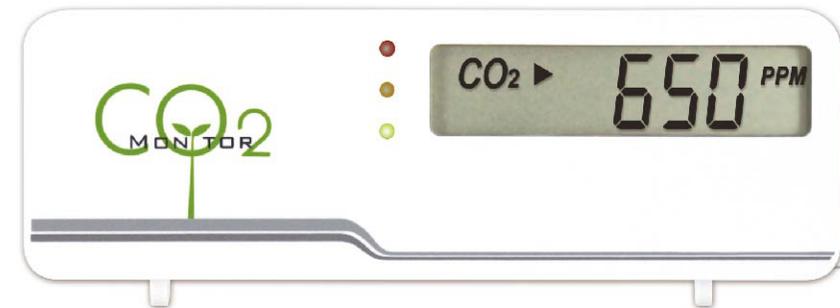


- < 800ppm
- 800~1200ppm
- > 1200ppm



Compact Size

- Dual Beam NDIR (Non-Dispersive-Infrared) technology used to measure CO2 concentration.
- Measure CO2 and temperature
- 3 LED displays show the current Indoor Air Quality
- Communication Interface: Windows XP, Windows 7
- A mini desktop CO2 Monitor



ZGm053U



Power Supply
 USB or 5 VDC AC/DC adapter, which is not included in package (Please use Standard USB power)



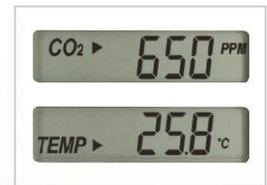
Office



School

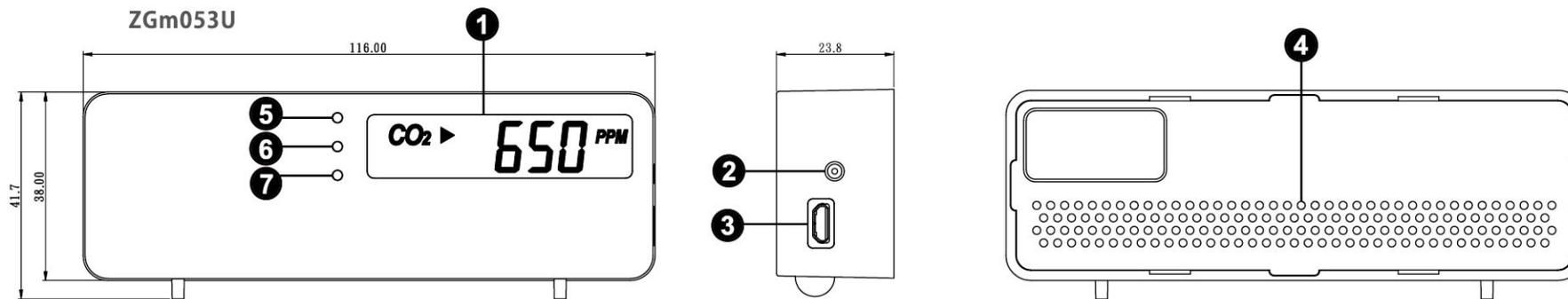


Home



ZG Mini

is smart, compact and easy-to-use. In addition to measuring the CO2 concentration, ZG Mini can also measure the ambient temperature (CO2+Temp). This product is developed to detect the presence of CO2 in ambient air and helps people to take care of Indoor Air Quality.



- 1 LCD Display
- 2 Calibration Gas Entry
- 3 Power Inlet
- 4 Ventilation Slots
- 5 Red LED Display (>1200ppm)
- 6 Yellow LED Display (800-1200ppm)
- 7 Green LED Display (<800ppm)

Specifications

(Specifications are subject to change without notice)

Method - Dual Beam NDIR
Display - LCD Independent CO2 and Temperature readings
Sample Method - Diffusion
Performance - CO2 Channel
Measurement Range 0~3000ppm
Resolution 1ppm at 0~1,000ppm 5ppm at 1,001~2,000ppm 10ppm at 2,001~3,000ppm

Accuracy	0~2,000ppm: ±100ppm or ±7% of reading, whichever is greater; over 2000ppm: ±10%
Repeatability	±20 ppm
Temperature Dependence	Typ. ±0.3% of reading per °C or ±4 ppm per °C, whichever is greater, referenced to 25°C
Response Time	About 2min for 63% of step change
Warm-Up Time	About 60 seconds
Zone LED Display	Green: <800ppm; Yellow: 800~1200ppm; Red: >1200ppm. 800ppm is the default AL1, 1200ppm is the default AL2

Performance - Temperature Channel

Temperature Range	Display 0 to 50°C (32°F to 122°F)
Display Resolution	0.1°C(0.1°F)
Display Options	°C / °F(switch)
Accuracy	±1.5°C(±2°F)
Response Time	20~30 minutes (device must equilibrate with environment)

General Operating Conditions

Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Temperature	-10°C to 60°C (14°F to 140°F)
Power Supply	Power supply USB or 5 VDC for external AC/DC adapter, which is not included in package (Please use Standard USB power) DC output range: 5VDC/ 300mA
Communication interface:	OS Windows XP , Windows 7



Home > Products > Desktop CO2 monitor > ZGm05

PRODUCT

ZGm05 SERIES - ZGm053U

Desktop

ZG106 / ZG106R

ZG106A-M

ZG1163R

ZG1683R(U)

ZGm053U

Multi IAQ

ZGkb301 / ZGkb201p

Wall Mount

ZGw08VRC

ZGw063RY

ZGw19C

ZGh213

ZG10U

ZGa21

CO2 Module

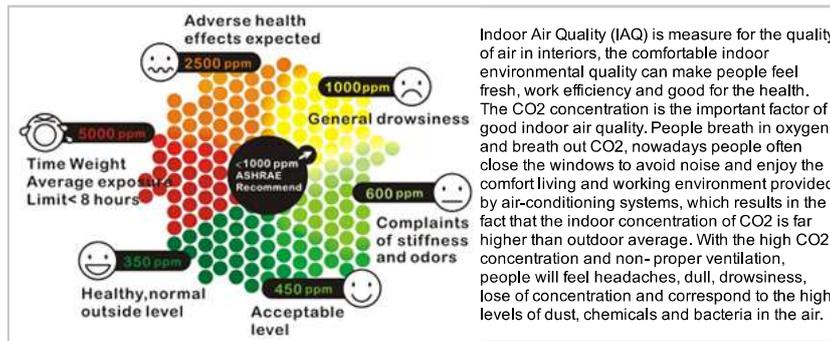
ZG01C



- ➔ General Introduction
- ➔ Features
- ➔ LED Display
- ➔ Mode Function
- ➔ Warm-Up Time
- ➔ Temperature (°C/°F)
- ➔ Caring for product
- ➔ Specifications
- ➔ Dimension
- ➔ Fault Codes & Troubleshooting Guide
- ➔ Available Packages

▶ 3 LED Display: ● < 800 ppm ● 800~1200 ppm ● > 1200 ppm

General Introduction

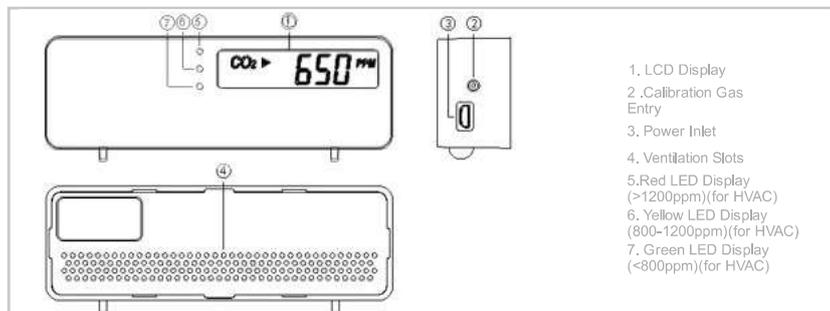


Features

- Three different LED display shows the current Indoor Air Quality
- It uses dual beam NDIR technology to improve the long term stability
- A mini desktop CO2 Monitor
- Communication Interface: Windows XP, Windows 7

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LED Display



Warnings:

- This CO2 monitor is for home use, not suitable for certifying the test results.
- Please use standard USB power (such as USB port from PC, port from general AC adapter), otherwise the device will be damaged.

⚠ EMC/RFI

Readings may be affected if the unit is operated within radio frequency electromagnetic field strength of approximately 3 volts per meter, but the performance of the instrument will not be permanently affected.

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Warm-Up Time: About 60 seconds



The LCD shows 5 digits in accordance with the order of 5~1 during warm-up.

- The device shows the CO2 reading after above 5 digits disappear.

Notes: The display time of Temp and CO2: 15sec, 5 sec.

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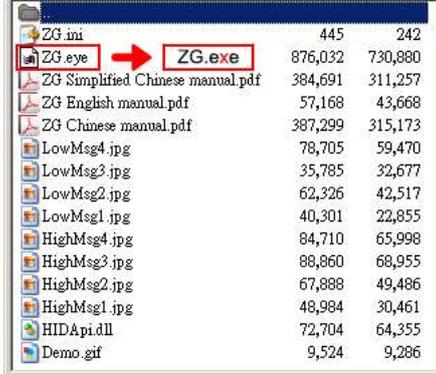
Connect to PC with data log function

Please download ZyAura USB HUB PC software from
http://www.zyaura.com/support/support_software.htm

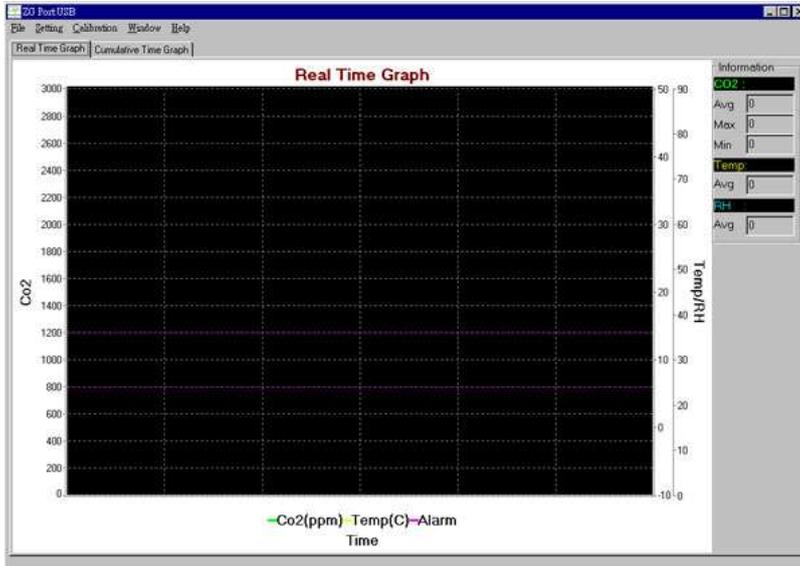
[Download](#)

For Vista、Windows 7 and above, please follow the settings [<more>](#)

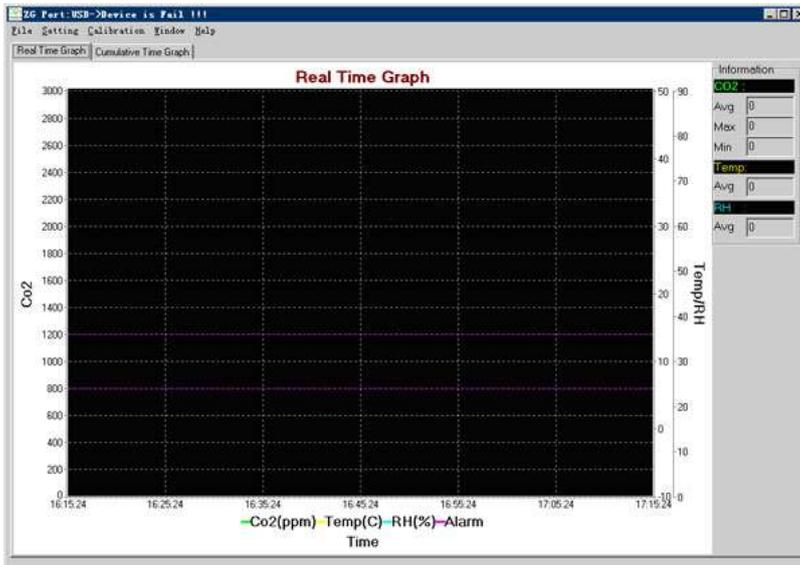
- 1.The ZGm053U connect with PC and use ZyAura USB HUB PC software to record data from ZGm053U
Please download ZyAura USB HUB PC software from http://www.zyaura.com/support/support_software.htm
- 2.You will get ZG.eye file and then please change the "eye" into "exe" to download.



Run "ZG.exe" software, see the interface

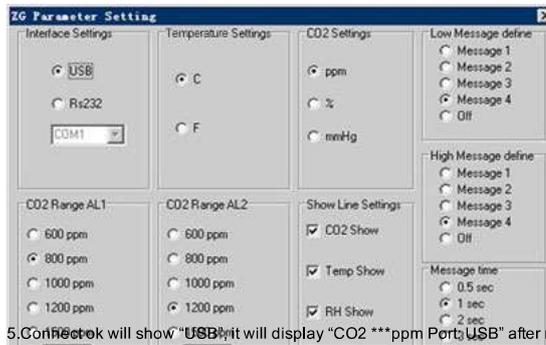


If ZGm053U connect not well the software show "device is fail"

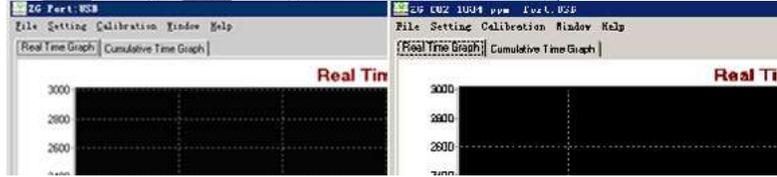


3.Confirm and set the communicate mode to USB mode.

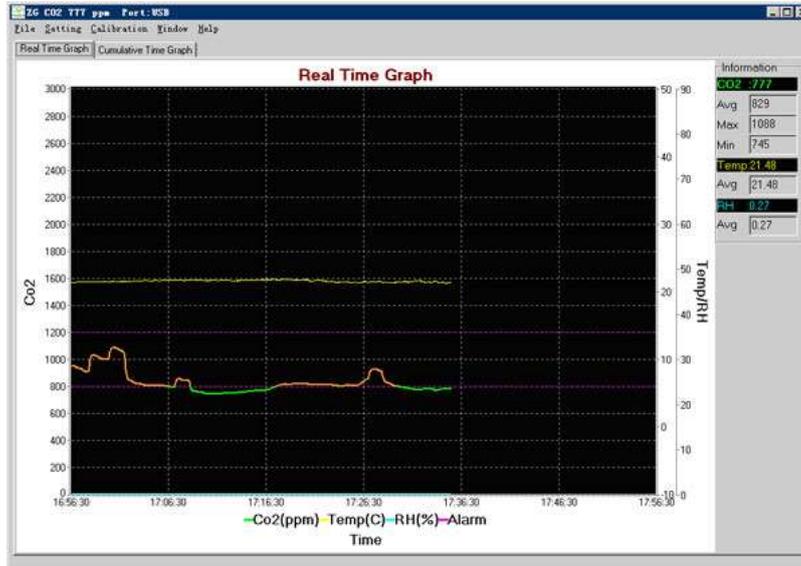
Click Parameter Setting of Setting option, open ZG Parameter Setting option and confirm the Interface Setting is "USB".



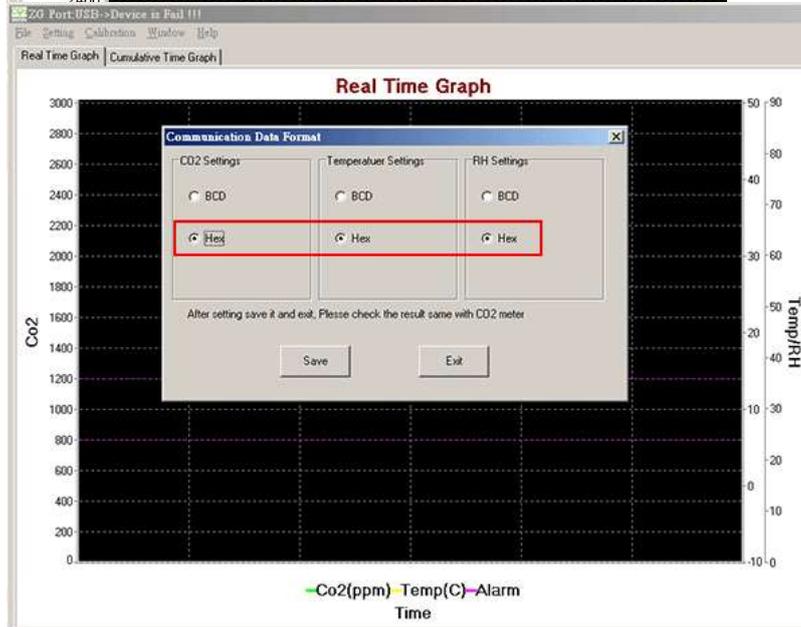
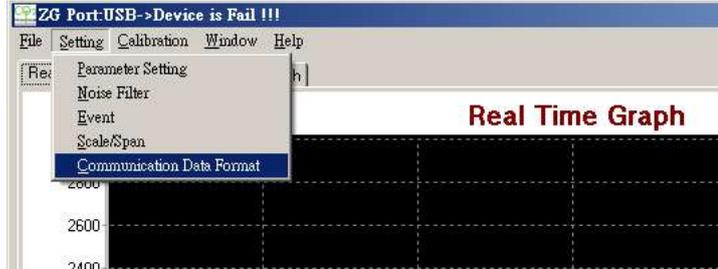
5. Confirm the software will show "USB" and it will display "CO2 *** ppm Port: USB" after reading the correct data



6. Software will record CO2 and Temp data and draw a waveform automatically.



Note: If the data is different from the reading of the device, please make sure the the setting of "Communication Data Format" is Hex

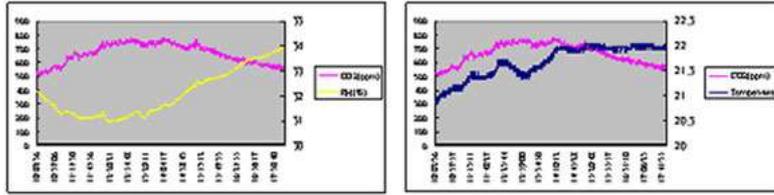


7. The recorded data is a data document (**.CSV) produced in one day cycle. Preserved in the "2013" file. The

name of document is <Day>.CSV



8.You can edit by Excel to draw a waveform as bellow



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Caring for product

To ensure you receive the maximum benefit from using this product, please observe the follow guidelines.

- **Cleaning**— Disconnect the power before clean. Use a damp cloth, do not use the liquid cleaning agent, such as benzene, thinner or aerosols.
- **Repair**—Do not attempt to repair the product or modify the circuitry by yourself. Please contact with the local dealer or a qualified repairman if the product needs servicing.
- **Air diffusion**—The ventilation slots on the housing are designed for CO2 diffusion, so these ventilation slots should not be blocked.

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Specifications

Method - Dual Beam NDIR

Display - LCD Independent CO2 Temperature readings

Sample Method - Diffusion

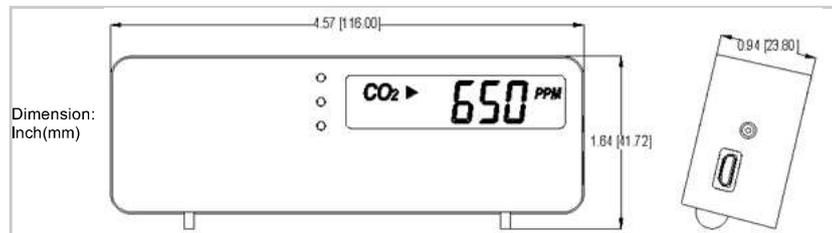
CO2 & Temperature Specification:

CO2	Measurement Range	0~3,000 ppm display
	Display Resolution	1ppm at 0~1,000ppm; 5ppm at 1,001~2,000ppm; 10ppm at 2,001~3,000ppm
	Accuracy	0~2,000ppm: ± 100 ppm or $\pm 7\%$ of reading, whichever is greater; over 2000ppm: $\pm 10\%$
	Repeatability	± 20 ppm
	Temperature Dependence	Typ. $\pm 0.3\%$ of reading per $^{\circ}\text{C}$ or ± 4 ppm per $^{\circ}\text{C}$, whichever is greater, referenced to 25°C
	Response Time	About 2 min for 63% of step change
	Warm-Up Time	About 60 seconds
	Zone LED Display	Green: < 800 ppm; Yellow: 800~1200ppm; Red: > 1200 ppm. 800ppm is the default AL1, 1200ppm is the default AL2
Temperature	Temperature Range	0°C to 50°C (32°F to 122°F) display
	Display Resolution	0.1°C (0.1°F)
	Display Options	$^{\circ}\text{C}$ or $^{\circ}\text{F}$
	Accuracy	$\pm 1.5^{\circ}\text{C}$ ($\pm 2^{\circ}\text{F}$)
	Response Time	20~30min(device must equilibrate with environment)
Operating Conditions	Operating Temperature	0°C to 50°C (32°F to 122°F)
Storage Conditions	Storage Temperature	-10°C to 60°C (-4°F to 140°F)
Power Supply	Power Supply	USB or 5 VDC AC/DC adapter, which is not included in package. (Please use Standard USB power) DC output range: 5VDC/300mA
Communication interface:	OS	Windows XP , Windows 7

Notes: CO2 monitor Power consumption: peak current is 200mA. Average current is about 20mA

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Dimension



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Fault Codes & Troubleshooting Guide

This section includes a list of Frequently Asked Questions for problems you may encounter with the ZGm053 CO2 Monitor.

Fault Icon	Description of the fault	Suggested Actions
Err3	The ambient temperature has exceeded the operating temperature range 0°C to 50°C (32°F to 122°F)	This error will clear when the temperature returns to the range between 0°C to 50°C (32°F to 122°F).
Err5 Err6	EEPROM System Problem	Please power on ZGm053U again If the "Err5, Err6" still appears, please contact the Service department for further assistance.

Err9

The voltage of USB power is too low, the device does not work

This error will clear when user replaces Standard USB power.

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Available Packages

Dimensions: 116*38*23.8mm

Weight: 101.2g(including Micro USB Cable)

One Set Included:

- 1 CO2 Monitor
- 1 Micro USB Cable
- 1 User Manual
- 1 ColorBox

One Carton Included:

- Q'ty: 100pcs PaperBoxes
- ColorBox Size: 145*99*38mm
- Carton Size: 520*315*430mm;2.48 CubeFt
- ▶ N.W: 14.5kgs
- ▶ G.W: 16.0kgs



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