Wall Mount CO2 Monitor Operating Instructions
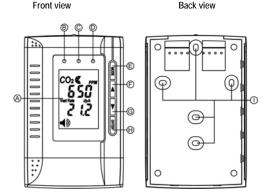
Product Overview

Thank you for selecting this CO2 wall mount monitor. This product was developed to detect the presence of CO2 in the ambient air and help people to take care of the Indoor Air Quality. The compact device is designed for use in HAVC in the building. The demand controlled ventilation in the building, also the greenhouse with the CO2 concentration control.

By using the CO2 monitor as the indicator, it can easily get the current CO2 concentration together with the ventilation rate. And then adjust the ventilation to the comfort condition automatically by the setting data. So the over-ventilation of the building can be reduced, and the energy can be saved. The CO2 monitor can be widely used in the office building, green house, school, exhibition, shopping mall.
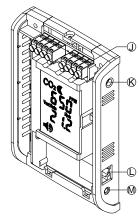
The CO2 monitor is easy to use and has many features:

- NDIR (Non-Dispersive-Infrared) technology used to measure CO2 concentration.
- Three different LED display show the current Indoor Air Quality situation.
- Linear analog output (0~10V Voltage, 4~20mA Current) and Relay output based on CO2 Level.
- Reliable Sensor provides long-term calibration stability.
- The visual and audible alarm function can be adjustable by user.
- Mounting bracket with terminal block provides quick easy installation.

Operation Instruction

Front view   Back view

Side view

A. Main LCD Display
B. Green LED Display (<800ppm)
C. Yellow LED Display (800-1200ppm)
D. Red LED Display (>1200ppm)
E. Mode Button
F. Up Button
G. Down Button

H. Enter Button
I. Screw Position
J. Terminal Block
K. Power Inlet
L. RJ 45 Socket (For factory use only)
M. Gas Entry Hole

* RJ 45 Socket including the RS232 and analog output，Power Inlet is used for factory testing only，and when using 6VDC,the LCO and LVO will not work。

LCD Display Symbol

Symbol	Meaning	Description
CO_2 PPM 400	CO2 Concentration PPM Parts Per Million	The current CO2 concentration in your household
Vent Rate cfm/p 12.3	Ventilation Rate cfm/p Cubic Feet Minute/Person	The Present Cubic Feet/Minute Ventilation for one person.
Vent Rate l/p/s 5.2	Ventilation Rate L/P/S Liter/Person/Second	The Current Liter/ Second Ventilation Rate for one person
🔊	Alarm	The Alarm Setting Icon, the factory setting with alarm is buzzer off
CALIBRATING	Calibration	To calibrate the CO2 sensor when the accuracy deviates from the actual CO2 concentration
AL 1	Alarm Level 1	The 1st Alarm Level Relay status will invert after CO2 level exceeds AL1 The Buzzer and Yellow LED will work after CO2 level exceeds AL1
AL 2	Alarm Level 2	The 2nd Alarm Level The Buzzer and Red LED will work after CO2 level exceeds AL2
ReFactSet	Recover Factory Setting	To Recover Factory Setting to cancel the customized setting

Safety Instruction

Warning: Your safety is very important to us .To ensure you use your product correctly and safety, we would like to your attention to read those warning and the User Manual before using the product. These Warning provides important safety information and should be observed at all times.

1. Please take the devices lightly, Do not subject the product to impact or shock.
2. Do not immerse the product in water.
3. Please pay attention to the terminal block connection instruction, the wrong mode of operation or opposite installation will destroy the circuit of the devices.
4. Do not touch the exposed electronic circuitry of the device under any circumstances. Keep the circuit is close during installation. As there is the danger of electric shock.
5. Please keep the devices away from children touch to avoid the danger or the accident.
6. Do not keep the product under the hot and moisture environment. Keep the product away form the heat source or near water.
7. Please ensure the screws are fixed on the wall tightly. Do not let the screws approach or close to the surface of PCB board during installation. It has the risk of circuit damage or irreparable damage to devices.

Caring for product

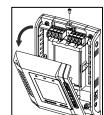To make sure you receive the maximum benefit from using this product, please observe the follow guideline.
1. Cleaning—disconnect the power before clean. Use a damp cloth; do not use the liquid cleaning agent, such as benzene, thinner or aerosols.
2. Repair----Do not attempt to repair the product or modify the circuitry by yourself. Please contact with our local dealer time or a qualified repairman if the product needs servicing.
3. Calibration--- Please observe the calibration operation to make sure the accuracy for the devices when it's necessary.
4. Air circulation---The vents allow the air circulation liquid for measurement of the CO2 concentration and the ventilation should not be blocked.

Installation Step

Step 1: Release the screw from the device, take the front cover off.
Step 2: Release the four screws from the backcover, take the CO2 board from the backcover.
Step 3: Using the screw to fix the backcover to the current outlet, let the wires come out of the hole. Please pay attention to the terminal block connection data information.
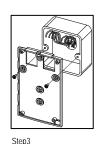Step 4: Re-assembling the CO2 board by screw to the back cover.
Step 5: After finishing the terminal block wire connection. Press the front cover to the LCD display.
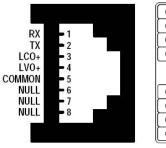

Step 1   Step 2   Step3

Step 4   Step 5

RJ45 Interface & Wiring Connection

Caution: The RJ45 socket is only for factory calibration use, not for LAN, it was covered by plastic cover, the incorrect RJ 45 connection will have the risk of circuit damage or irreparable damage to devices.

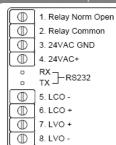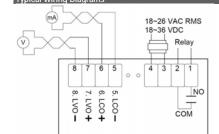⚠ COMMON (LVO-/LCO-/RS232 DGND), but COMMON CANNOT connect to power GND

RX 1	1. Relay Norm Open
TX 2	2. Relay Common
LCO+ 3	3. 24VAC GND
LVO+ 4	4. 24VAC+
COMMON 5	RX / TX —RS232
NULL 6	5. LCO -
NULL 7	6. LCO +
NULL 8	7. LVO +
	8. LVO -

Fig1：RJ45 Interface (Side view)   Fig 2: Wiring Connection

Typical Wiring Diagrams

* LCO －: Linear, Analog Current Output（－）
  LCO ＋: Linear, Analog Current Output（＋）
  LVO ＋: Linear, Analog Voltage Output（＋）
  LVO －: Linear, Analog Voltage Output（－）

These terminals are only for output, they CANNOT connect to any power source. The terminal 5, 8 CANNOT connect to the terminal 3 (24VDC GND), otherwise The device will be burn out.
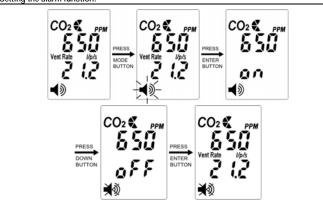
Customized Settings

When the power has been connected, The CO2 monitor will begin to work. In order to meet you personal requirement, it is advisable to set up the customizing parameter. Warm Up: It lasts approximately 1min before WARM UP disappears; all MODE functions will not response during warm up.

Ventilation Rate：

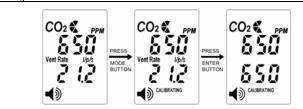| |
|---|
| 1. Press up/down to choose the ventilation rate modes. |
| 2. When pressing up button, the LCD display sequence is Vent Rate l/p/s -> Vent Rate cfm/p. When pressing down button, The LCD display sequence is reverse. |

Setting the alarm function:

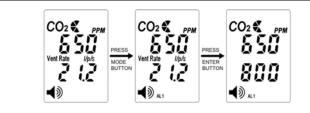| |
|---|
| 1. Press the MODE, the speaker icon flashes simultaneously. |
| 2. Press ENTER, use up/down to select the on/off. |
| 3. Press ENTER again to save the setting. |

Note: The factory setting with alarm is buzzer off; user can set the alarm on/off according to alarm function instruction.

Setting the Calibration mode:

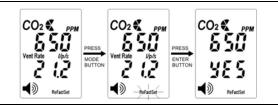| |
|---|
| 1. Press the MODE ,the CALI icon flashes. |
| 2. Press the ENTER ,CALI show on the display. |
| 3. Adjust the display to the ambient CO2 value by up/down button. |
| 4. Press the MODE morn than 10 sec, CALI flashes. Calibration will be done automatically after 10 minutes and LCD will display "Pass" or "Fail". If it shows "fails",please try again |

Setting the Alarm parameter Mode：

1. Press the MODE, the speaker icon flashes simultaneously.
2. Press ENTER. Using the Up/Down to set the parameter.
3. Press the ENTER again to save the data.

Remark: There have AL1 & AL2 when you press the mode. You can set the two different levels on your opinion. The resolution is 100 ppm per times.

Using the ReFactSet Mode:

1. Press MODE, The ReFactSet flashes simultaneously.
2. Press ENTER, Using the Up/Down to select the No/Yes
3. After the slecting, Press the ENTER to save the changes.

Remark: If the user setting the data or calibrate the sensor wrongly. You can use the ReFactSet (Recover the factory Setting) to come back the factory setting data.
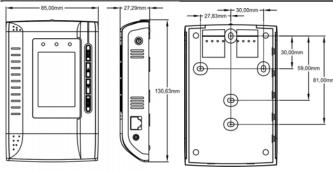
Specification

Method - NDIR

Sample Method -Diffusion or flow through (50 ~200 ml/min)

■ Performance - CO2

Measurement Range	0-3,000 ppm display
Display Resolution	1ppm at 0~1,000ppm; 10ppm at 1,001~3,000ppm
Accuracy	±75ppm or ±5% of reading whichever is greater
Repeatability	±20 ppm @400ppm
Temperature Dependence	Typ. ±0.2% of reading per °C or ±2 ppm per °C, whichever is greater, referenced to 25°C
Pressure Dependence	0.13% of reading per mm Hg
Response Time	<2min for 90% of step change
Warm-Up Time	<60 seconds at 22°C
Sound Alarm	70db@10cm
Zone LED Display	Green:<800ppm Yellow:800~1200ppm Red: >1200ppm
Power Supply	18~26VAC RMS 50/60Hz or 18~36VDC (Double insulated, Full-wave rectifier, no polarity input)
Linear Voltage Output	0~10VDC
Linear Current Output	4~20mA (Max Load is 500 Ohm) (Max Load is 400 Ohm while power supply＜20 VDC)

Relay Output	30VDC or 250VAC, max 2A ., SPST .Normally Open
Operating Temperature	0°C ~50°C (32°F~122°F)
Operating Humidity Range	0 ~ 95% RH non-condensing
Storage Temperature	-20°C to +60°C (-4°F to 140°F)

Dimension

Calibration

Notice: Before calibrating, you need standard gas or semi-standard gas; there are 3 methods to get standard gas.

■ Method A: use CO2 in office/building

-Use two Meters (One is the device for calibration. The other one is a calibrated (new) one.
-Use ambient room gas for calibration in office, waiting at least 10min,until the CO2 reading doesn't change
 (Notice: user must not breathe toward the CO2 monitor, CO2 from the user will affect the reading of CO2 monitor)
-Use the reading of the new device as the standard
-Calibrate the device by the Cali Mode instruction .

■ Method B: use CO2 outsides

-Use ambient room gas for calibration outsides, waiting at least 10min,until the CO2 reading doesn't change
 (Notice: user must not breathe toward the CO2 monitor; CO2 from the user will affect the reading of ZGw08VRC)
-Use 380~420ppm as the standard reading.
-Calibrate the device by the Cali Mode instruction.

■ Method C: use standard CO2 in the bottle

-Pump the standard CO2 gas (0~1000ppm, flux = 0.1~0.2 liter/min) into the CO2 monitor from the Gas Entry Hole waiting about 2~3min.
- Calibrate the device by the Cali Mode instruction.