ZG 106 | Portable temperature and CO$_2$ concentration monitor

The ZG-106 is used to measure and record the temperature and the concentration of CO2. Thanks to the 16A/250V relay output (optional accessory) it has the ability to control other devices when the set CO2 level is reached.

- 〉 measures, records temperature and CO2 concentration
- 〉 Datalogger mode – stores 48 logs of CO2 and temperature in the past 24 hours
- 〉 Max/Min mode – records the max and min of CO2 since turned on
- 〉 Alarm mode – a sound signal indicates, that the set CO2 level is reached
- 〉 the ZG-106 can be used in the offices, waiting rooms, schools, restaurants and likewise

Description

ZG106 is a portable, accurate handheld CO$_2$ monitor. In addition to measuring the CO$_2$ concentration, this device can also measure the ambient temperature. and both values can be recorded for a limited time period (last 24 hours). It uses NDIR technology to improve the long term stability.

Technical specification

Outputs	OC: Normally Low, 100mA max. @ 24 VDC. Adjustable setpoint, factory setting is 1000ppm, hysteresis is 50ppm. One RJ-45 Connector digital output.
Power supply	Alkaline, AA* 4 (80 hours).
	6 VDC from external AC/DC adapter which is included in package (Use specified AC adapter only).
Power Requirement	160 mA Peak, 15 mA average from 6V.
Operating temperature	32-122°F (0-50°C) 0-95% RH, non-condensing.
Storage temperature	-4 to 140°F (-20 to 60°C).
Weight (incl. batteries)	273.6 grams(9.65 oz)

CO$_2$ measuring:

Measuring range	0-3,000 ppm display
Display resolution	1ppm at 0~1,000ppm 5ppm at 1,000~2,000ppm 10ppm at 2,000~3,000ppm
Accuracy	±50 ppm or ±5% of reading
Repeatability	±20 ppm
Temperature dependence	±0.1% 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 (Corrected via user input for altitude)
Response time	<2min for 63% of step change
Warm-Up time	<60 seconds at 22°C
Calibration interval	12 months, offset adjustment using single gas at 0-1000 ppm CO$_2$. Full factory calibration available.

Temperature measuring:

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Measuring range	Display 32 to 122°F (0 to 50°C)
Display resolution	0.1°F (0.1°C)
Display options	°F / °C, or Off. Set with Up / Down

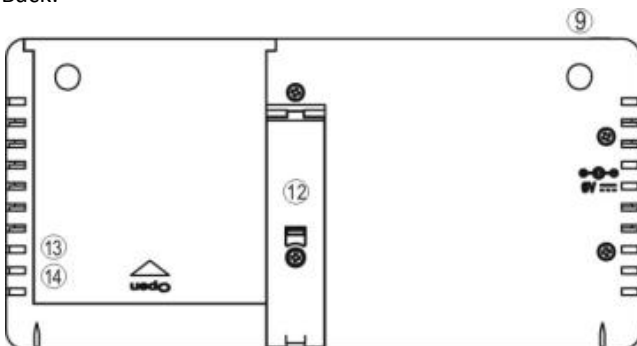# ZG 106 | Portable temperature and CO₂ concentration monitor

Legend:

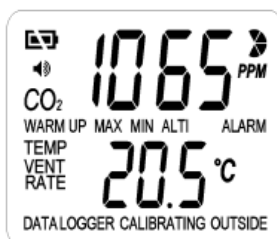|	
1. Power Button	8. Function Label
2. Enter Button	9.Gas Entry Hole
3. Down Button	10. Power inlet
4. Up Button	11. RJ45 socket
5. Mode Button	12. Housing Stand
6. LCD Display	13. Battery Cover
7. LED Light	14. AA Batteries*4

Front:
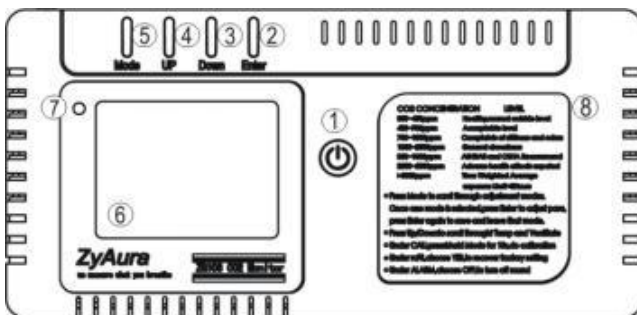
Back:

Display features and modes

Start up

■ **PowerOn -** Press Power button (①)to turn on the device after placing 4 AA batteries into the battery holder or AC adapter plug into the DC socket. Once power on, CO₂ reading will show after 15 seconds of warm up.

■ **WarmUp -** It lasts approximately 1min before WARMUP disappears; all the functions will not response during warm up.

■ **UserMode -** After warm up, the device will stabilize and display the normal CO₂ Reading (Upper Display)- remain visible at all times.

■ **Temp and Ventilation Rates (Lower Display) -** The Up/Down button (④③)allows you to scroll through the Temperature and Ventilation Modes. When pressing the Up button, the lower display will go through the following sequence: TempºC -> TempºF -> Vent Rate lps -> Vent Rate cfm/p.

 *Note: lps refers to Liter Per Second Per Person; cfm/p refers to Cubic Feet Per Minute Per Person.

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Working modes

There are several Modes which we can adjust the setting parameters. These modes are Alti Mode, Alarm Mode, Outside Mode, Ucal Mode, Datalogger Mode, MaxMin Mode and rcFS Mode in sequence.

ALTI	Compensate the pressure changes with appropriate altitude of location when measure.	1065 PPM CO_2 / TEMP 20.5℃ ALTI
ALARM	Alarm while CO_2 concentration exceed one threshold, which can be modified. the Alarm sound can be turn on/off while the "speaker Icon" flash.	1065 PPM CO_2 / TEMP 20.5℃ ALARM
OUTSIDE	Modify the outside CO_2 concentration, for defining the ventilation rate.	1065 PPM CO_2 / TEMP 20.5℃ OUTSIDE
CALI	Calibrate the sensor while the reading deviates from the actual CO_2 concentration.	1065 PPM CO_2 / TEMP 20.5℃ CALI
DATA LOGGER	Show the past CO_2 and Temperature records in the past 24 hours.	1065 PPM CO_2 / TEMP 20.5℃ DATALOGGER
MaxMin	Show the Max and Min CO_2 reading before being cleared or powered off after PowerOn.	1065 PPM CO_2 MAX MIN / TEMP 20.5℃
rcFS	Recover the factory setting, if the device cannot show accurate reading.	1065 PPM CO_2 / TEMP rcFS

Operation of Mode Adjustment

1. ALTI Mode

- Press the Mode Button (⑤), ALTI flashes.
- Press Mode (⑤) to alter between m (meters) and ft (feet).
- Press Up/Down (④③) to adjust the altitude (Step=100m/500ft).
- Press the Enter Button (②) save or leave the ALTI Mode, return to UserMode.

2. ALARM Mode

2.1 Adjust the alarm level

- Press the Mode button (⑤), until ALARM flashes.
- Press Enter Button (②), "CO_2" icon flashes.
- Press Up/Down (④③) to adjust the alarm level ($\geq$1,000 ppm, interval is ±100ppm; **<** 1,000 ppm, interval is ±50 ppm).
- Press the Enter (②) save the setting and return to UserMode.

2.2. Turn ON/OFF the ALARM

- Press the Mode button (⑤), until "Speaker Icon" flashes.
- Press the Enter Button (②)
- Press Up/Down (④③) to turn on/off the ALARM.
- Press the Enter (②) save the setting and return to UserMode.

3. OUTSIDE Mode

** Note: Ventilation Rate** Ventilate rate represents how much air is introduced into the indoor space from the outside. Low values indicate low ventilation rates and potentially poor air quality. High levels indicate excessive ventilation and potential excessive energy usage. **To obtain an accurate measurement, reading should be taken 2~3 hours after occupancy has stabilized in a space or at a peak in daily CO_2 concentrations**. In indoor air quality control, CO_2 value is an indicator of ventilation rate. **400ppm (Parts Per Million) is the default CO_2 concentration outside** (according to ASHRAE: American Society of Heating, Refrigeration and Air conditioning Engineers.

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- Press the Mode button (⑤),until OUTSIDE flashes.
- Press Enter (②) show OUTSIDE, CO$_2$ and PPM flash.
- Press Up/Down (④③)to adjust the reading.
- Press the Enter (②) save the setting and return to UserMode. After modification, the VENT Rate will change.

4. CALI Mode

The CO$_2$ monitor has been calibrated in the factory and should recalibrate every 12 months with a specified concentration of CO$_2$.Sensor drift usually occurs in linearity. Please follow below steps.

- If battery icon shows low power, please replace new batteries or use AC adapter.
- Press the Mode button (⑤) until CALI flashes.
- Press Enter (②) CALI shows on display.
- Adjust the lower display to ambient CO$_2$ value by Up/Down (④③)Button.
- Press Mode button (⑤)more than 10 sec., CALIBRATING flashes. Calibration will be done after 5 min and LCD will appear "PASS". If LCD appears "FAIL", please calibrate once again.
- Press Enter (②) return to UserMode.

5. DATA LOGGER Mode

ZG106 has a built-in data logger, which can provide users the past CO$_2$ and temperature readings within the past 24 hours.

- Press the Mode button (⑤) until DATALOGGER flashes.
- Press Enter (②) CO$_2$ and Temperature show up. Press Up/Down (④③)to page up/down the records.
- Press the Enter (②) return to UserMode.

6. MaxMin Mode

ZG106 has a built-in MaxMin mode, which can provide users the Maximum and Minimum CO$_2$ readings since the device has last been turned on.

- Press the Mode button (⑤) until MAX MIN flashs.
- Press Enter button (②) MAX and MIN CO$_2$ reading alternatively shows.

- "CLR" will flash if press Up/Down(④③)Press Enter(②)to CLEAR the MAX and MIN record.
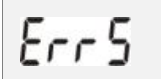- Press Mode or Enter (⑤) return to UserMode.

7. rcFS Mode

If user set or calibrated the sensor wrongly, you can recover the factory setting.

- Press the Mode button (⑤) until rcFS flashes on the lower display.
- Press Enter (②) "no" shows on the upper display.
- Press Up/Dow (④③) "no" change to "yes", Press Enter (②) Factory Setting will reload, return to UserMode.
- Press Mode (⑤) leave rcFS Mode, return to UserMode.

■ LCD ERROR MESSAGES

The device incorporates visual diagnostic messages as follows:

Err3	**Error 3**, it is displayed when the temperature being measured is outside of the measurement range.
Err5 Err6	**Error 5~6,** it is necessary to reset the device. To reset it, turn the instrument off, remove the battery and wait for a minimum of one minute, reinsert the battery and turn on. If the error message remains please contact the Service Department for further assistance.

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Package contents

Standard:

- ZG106 monitor
- AC adapter

Optional:

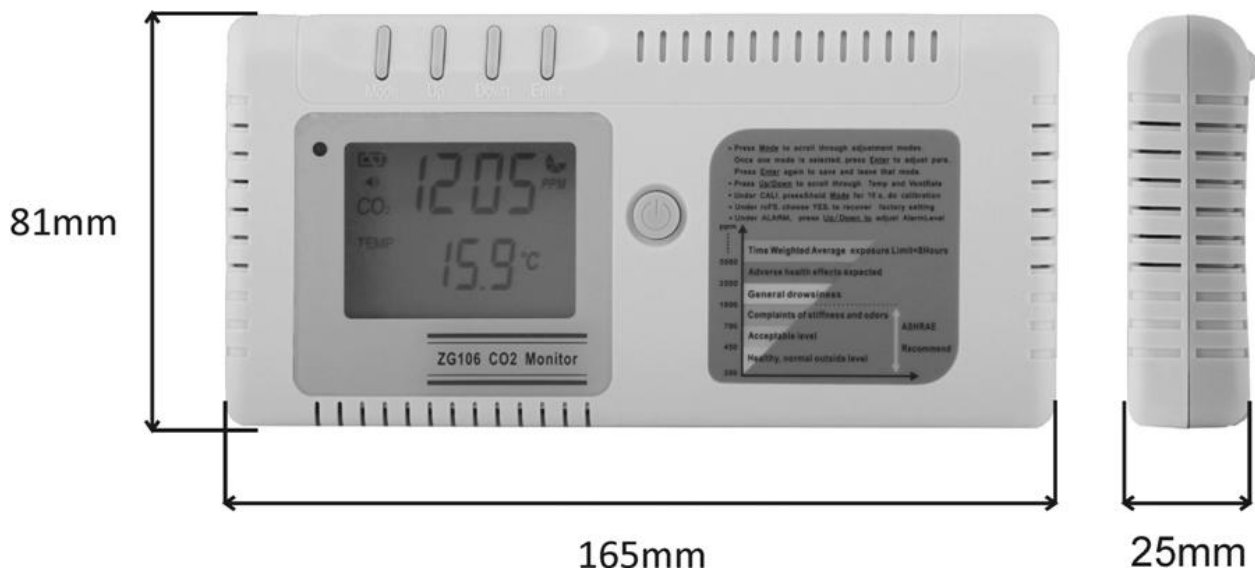- ZG106-RE relay 16A/250V with connection cable

Dimensions:

Way to use

The product is intended for indoor use only.

What to do at the end of lifetime of this product

Discard the product in according to the electronic waste law and the EU directives.

The producer reserves the right of technical changes in order to product improvements, its properties and functions, without previous notice.