

CO2 Monitor Operating Instructions

Model: ZG10U

Product Instruction

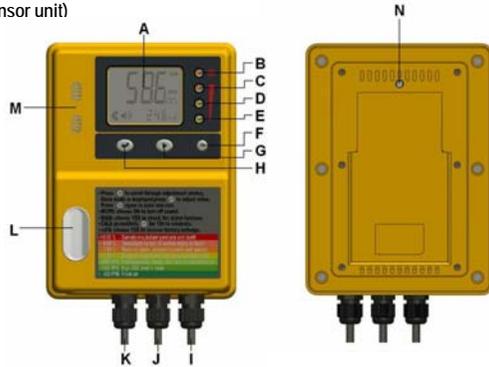
Thank you for selecting the ZG10U CO2 Monitor. It is designed to detect the presence of Carbon Dioxide in the ambient air to protect people in confined spaces. High concentrations of CO2 in confined spaces are dangerous, and may lead to health problems ranging from headaches and fatigue to asphyxiation and death. The ZG10U CO2 Monitor is with the audible alarm and visual indication which will activate when CO2 concentration reaches a pre-set level. Detection of high levels of CO2 will also activate a relay that could be used for a fan to ventilate the confined space and reduce CO2 concentration in the area. The ZG10U CO2 Monitor can be widely used in CO2 storage areas, breweries, wineries, cellars, beverage dispensing areas, and fast food outlets.

ZG10U CO2 Monitor is cost-effective and has many features:

1. NDIR (Non-Dispersive Infra-Red) technology is used to measure CO2 concentration up to 50,000 ppm (parts per million).
2. With the SEU(Sensor Unit) and RDU (Remote Display Unit), it can connect up to 3 RDU for safety notices.
3. Large digital LCD display clearly indicates the ambient CO2 Concentration and temperature.
4. Relay output can automatically control a fan to ventilate confined spaces.
5. Audible and visual alarm indications.
6. Water Proof Protection of the SEU(Sensor Unit) except backside.

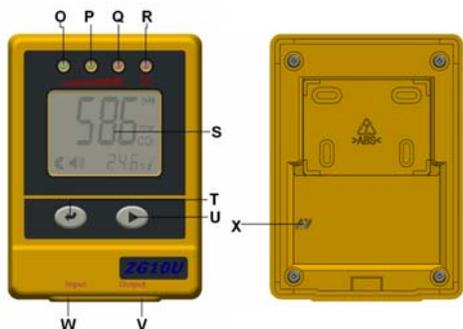
Main Unit View

SEU (Sensor unit)



- A. LCD display
- B. Red 2 LED
- C. Red 1 LED
- D. Yellow LED
- E. Green LED
- F. Reset Button
- G. Mode Button
- H. Enter Button
- I. Communication Cable to RDU
- J. Relay output
- K. Power Supply
- L. Rubber Cap
- M. Gas entry
- N. Buzzer

RDU (Remote Display Unit)



- O. Green LED
- P. Yellow LED
- Q. Red 1 LED
- R. Red 2 LED
- S. LCD display
- T. Enter Button
- U. Mode Button
- V. RJ45 Plug for next RDU
- W. RJ45 Plug for SEU
- X. Buzzer

LCD Display Symbol

Symbol	Meaning	Description
586 ppm CO2	CO2 Concentration ppm (Parts Per Million)	ambient CO2 concentration
24.6 °C	Temperature (Celsius)	ambient temperature in Celsius
76.3 °F	Temperature (Fahrenheit)	ambient temperature in Fahrenheit
Speaker icon	Alarm	alarm icon
MUTE	MUTE	alarm silencing function icon
DIAG	Diagnose	Test communications between the SEU and RDU
CALI	Calibration	To calibrate the CO2 sensor when the accuracy deviates from the actual CO2 concentration.
ReFactSet	Recover Factory Setting	To recover factory default settings and cancel any custom settings
ESC	ESC	To indicate the CO2 leakage once the CO2 level is above 1.5%
Power icon	Power Icon	Power Icon
Hi	Hi	The CO2 concentration is above 5%.

SEU (Sensor Unit) Function Instruction

The SEU (Sensor Unit) should be placed in a room where the CO2 is likely to accumulate, such as a room where CO2 is stored, like an area with CO2 beverages. The large LCD displays the ambient CO2 concentration and the temperature. The various colored LED's show the different zones of CO2 concentration.

The SEU has the "MUTE", "DIAG", "CALI", ReFactSet" function, The "MUTE" will help the user to set the alarm function. The "DIAG" function executes communication tests between the SEU and RDU. The user can do the calibration under the "CALI" Mode when necessary. If data-setting is done incorrectly, the user can use the "ReFactSet" back to the original factory setting.

There are two alarm levels, the first alarm level is 5,000ppm, and the SEU will display a Green LED indicator below the first level. When the ZG10U CO2 Monitor detects CO2 concentration that exceeds the first alarm level, the yellow LED will blink and the buzzer will sound intermittently. The second alarm level is 15,000 ppm; if the concentration of CO2 continues to rise above the second level, the yellow and red LED's will flash together and the tempo of the buzzer will increase. If the red2 error LED is lit, power is not properly connected. The green LED will blink continuously while the unit is operating.

Warning: If the ambient CO2 concentration reaches the second alarm level, there will be a safety notice "ESC" displays on the LCD. Careful action, such as ventilating the space, must be taken before entering the room where the SEU is placed.

To clear the flashing "ESC" from the LCD, unplug the AC adaptor and reconnect it to the power. or use the "ReFactSet" to restore the unit to the original factory settings.

The 2nd Red LED will flash under the following conditions:

1. Data transmission fault between the RDU and SEU.
2. EEPROM fault (System fault)

If cleaning places where the SEU is installed, first take off rubber cap off and putting it on the position of gas entry. Water will not enter into the SEU during cleaning. The following picture shows the position changes of the rubber cap.



RDU (Remote Display Unit) Function Instruction

The RDU(Remote Display Unit) should be placed outside the room when in use. The RDU is connected to the SEU with a wire that has a maximum length of 25 feet. The RDU should be placed where it can be conveniently observed before entering the room where the SEU is located. The RDU is a repeater, and displays the measurements made by the SEU on an easy-to-read digital LCD along with important safety information.

The RDU has "MUTE," "DIAG" function. The alarm can be silenced with "MUTE" function from the RDU before entering the room where the SEU is located. The "DIAG" can test the communication between the SEU and RDU. Resetting the ZG10U CO2 Monitor is only available from SEU.

Safety Notes

Warning: Your safety is very important to us. To ensure that user can use the product correctly and safety, please read these warnings and the entire User Manual before using the product. Otherwise, the protection provided by the equipment may be impaired. These warnings provide important safety information and should be observed at all times.

1. Please handle the device carefully; do not subject the product to impact or shock.
2. Do not immerse the product in water. Water can cause electric shock, fire or malfunction which may result in injury or death.
3. Do not place the unit, or the adaptor near a heat source. Heat can cause distortion of the unit, which may result in an explosion or fire.
4. Do not touch the exposed electronic circuitry of the device under any circumstances, as there is the dangerous of electric shocks.
5. Please keep the devices away from children touch to avoid the dangerous or the accident.
7. Please use only the included power adaptor. Improper power adaptor or power sources can cause serious damage to the product, or result in injury or death to the user.
8. Please take care of wire connection between SEU (Sensor Unit) and RDU (Remote Display Unit). Make sure the wire from SEU is connected into the INPUT port of RDU.

Caring For Product

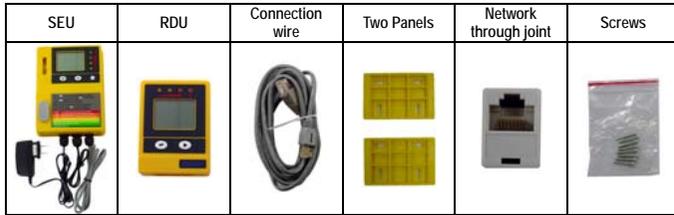
To make sure to receive the maximum benefit from using this product, please observe the follow guidelines.

1. Repair - Do not attempt to repair the product or modify the circuitry by yourself. Please contact your local dealer or a qualified repairman if the product needs servicing.
2. Cleaning - Disconnect the power before cleaning. Use a damp cloth. Do not use liquid cleaning agents such as benzene, thinner or aerosols, as these will damage the device.
3. Maintenance – We recommend users to test the communication between the SEU and RDU under "DIAG" function to verify the working conditions for the SEU and RDU. If the four LEDs blink and the buzzer of SEU and RDU sound simultaneously, it indicates that SEU and RDU work normally. When the LCD displays a safety icon "ESC", please take immediate protective action to check if CO2 leakage has occurred. We suggest users to do the calibration and thorough function check once within two year to make sure that the ZG10U CO2 Monitor is working properly.

Installation Instructions

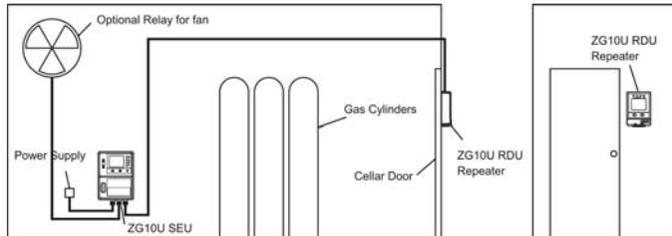
The ZG10U CO2 Monitor is packaged with the SEU, RDU, power adaptor, connection wire, two panel holders, network through joint, screws and this User Manual. Before installation, please carefully remove all the parts from the box.

The packing box includes:



Step-by-step Installation:

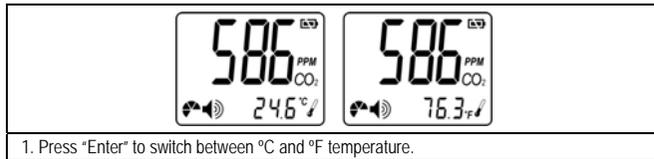
1. Choose a suitable location to install the device. Fix the panel holder on the wall with the four screws (included).
2. Put the SEU on the panel holder, making sure that they are connected tightly.
3. Fix the other panel holder in a suitable location, outside the monitored space, with screws (included). Push the RDU onto panel holder.
4. The connection wire is pre-wired to the SEU. Route the wire to the RDU and plug the wire into the socket on the RDU. Communication is now ready between the SEU and RDU.
5. The ZG10U CO2 Monitor has one relay output. The relay can control a fan or blower to ventilate the monitored space when necessary. The relay will only close when the CO2 concentration is above 5,000 ppm.
6. After finishing the installation, connect the AC power adapter. The SEU and the RDU will begin to work. The content of the display is same on the SEU and RDU.



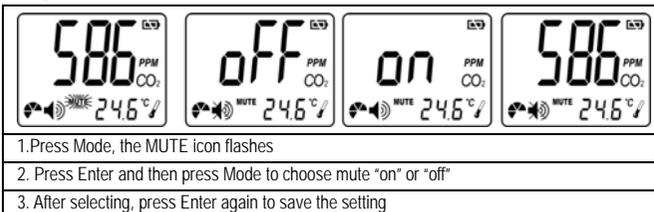
Customizing Settings

When power has been connected, the SEU and RDU will begin to monitor the CO2 concentration and the temperature. In order to get the timely alarm safety information and meet the personal requirements, it is advisable to set up the customizing parameter when necessary.

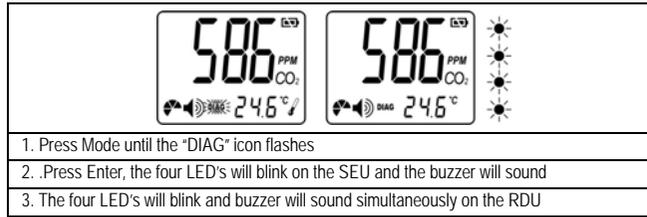
Temperature °C/°F:



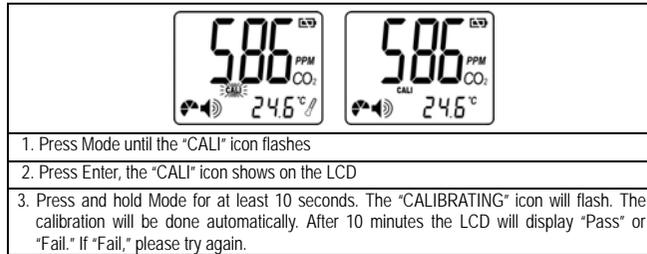
Setting the MUTE function:



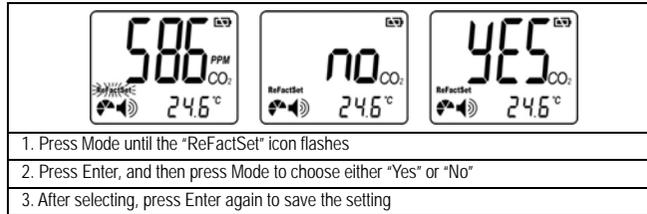
Setting the DIAG function:



Setting the CALI function:



Using the ReFactSet function:



Note: If the user sets the data or calibrates the sensor incorrectly, use the ReFactSet (recover the factory Setting) to come back the default factory setting.

Specification

CO2 & Temperature specification:

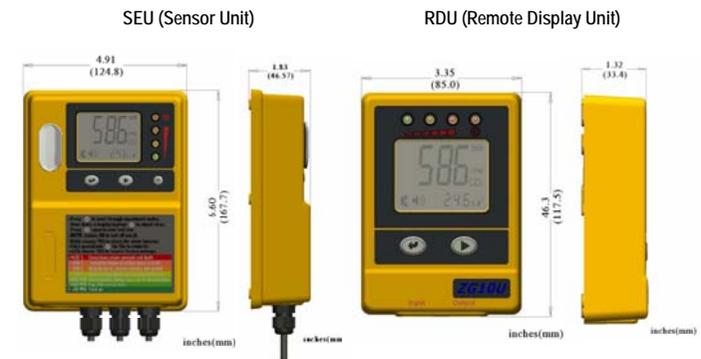
CO2 Specification	
Measurement Range	0 - 50,000 ppm (5%) display
Display Resolution	10 ppm
Accuracy	±100 ppm or ±5% of reading
Repeatability	±20 ppm @400 ppm
Annual Drift	<20 ppm/Year@400ppm
Temperature Dependence	±0.2% of reading per °C or ±2 ppm per °C, whichever is greater, referenced to 25°C
Pressure Dependence	0.13% of reading per mm Hg
Response Time	<60 seconds for 90% response to step change
Sound Alarm	80db@10cm
Warm-Up Time	<60 seconds at 22°C
Temperature Specification:	
Temperature Range	Display 32°F to 122°F (0°C to 50°C)
Display Resolution	0.1°F (0.1°C)
Display Options	°F / °C
Accuracy	±2°F (±1°C)

Response Time	20-30 minutes (case must equalize with environment)
Operating Conditions:	
Operating Temperature	32°F to 122°F (0°C to 50°C)
Humidity Range	0 - 95% RH non-condensing
Storage Conditions:	
Storage Temperature	-4°F to 140°F (-20°C to 60 °C)

Power Supply & Relay Output:

Power Supply	AC adapter 110/220 VAC	
AC Input	Voltage	100 - 240 VAC
	Frequency	50 / 60 Hz
	Power Requirement	1 W maximum @ 115 VAC 60 Hz 2 W maximum @ 231 VAC 50 Hz
AC/DC Output	Voltage	6VDC
	Power	1.8 W
Peak Input Current	0.2 A from 6 VDC	
Relay Output	30 VDC or 250 VAC, max 2A, SPST, Normally Open	

Dimension



Fault Codes & Troubleshooting Guide

This section includes a list of Frequently Asked Questions for problems you may encounter with the ZG10U CO2 Monitor.

No	Fault Icon	Description of the fault	Suggested Actions
1	Er3	The ambient temperature has exceeded the temperature range (0°C to 50°C)	This error will clear when the temperature returns to the range between 0°C and 50°C.
2	Er4	The sensor has exceeded its expected life or some wrong measurement	Please restart the ZG10U CO2 Monitor. If the "Er4" still appears, please send back to the factory for repair.
3	Er5	EEPROM System Problem	Please restart the ZG10U CO2 Monitor. If the "Er5" still appears, please send back to the factory for repair.
4	Er7	Internal Data Transmission Error	① unplugging the AC adapter and reconnected it again. ② Check the RJ45 plug is connected into the INPUT port of RDU, if the "Er7" displays on the RDU only.

