Thank you for selecting the ZG10Un CO2 and O2 Monitor. It is designed to detect the presence of Carbon Dioxide and Oxygen in the ambient air to protect people in confined spaces. High concentrations of CO2 or low concentrations of Oxygen in confined spaces are dangerous, and may lead to health problems ranging from headaches and fatigue to asphyxiation. The ZG10Un CO2 & O2 Monitor uses the audible alarm and visual indication which will activate when CO2 or O2 concentration exceeds the preset 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 ZG10Un CO2 & O2 Monitor can be widely used in CO2 storage areas, breweries, wineries, cafes, beverage dispensing areas, and fast food outlets.

ZG10Un CO2 & O2 Monitor is cost-effective and has many features:

1. NDIR (Non-Dispersive Infrared) technology is used to measure CO2 concentration up to 50,000 ppm (parts per million) and electrochemical technology to measure O2 concentration up to 30%.
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/O2 concentration.
4. Relay output can control a fan to ventilate confined spaces.
5. Audible and visual alarm indicators.
6. IP64 Water Protection of SEU (Sensor Unit) except backside when installed on the wall.

Package Contents & Check Main & Unit View

The ZG10Un package comprises the following parts:

Main Unit:
- SEU (Sensor Unit)
- RDU (Remote Display Unit)
- Panel holders

Network cable connector: 7 meters communication cable
User manual
Accessories:
- Plug lock: 1 pc
- Screw: 10 pcs
- Expansion plug: 10 pcs
- Nail cable clip: 10 pcs
- Warning paper: 1 pc

Please check all parts and put it to position L when ZG10Un is taken from the package, the vents are not blocked while ZG10Un is working.

SEU (Sensor Unit)

1. Please handle the device carefully; do not subject the product to impact or shock. Otherwise, this may cause the accuracy drift.
2. 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.
3. Do not touch the exposed electronic circuitry of the device under any circumstances, as there is the danger of electric shock.
4. Please only install the included power adapter. Improper power adapter or power sources can cause serious damage to the product, or result in injury or death to the user.
5. Please use the “DIAG” function to verify the communication between SEU and RDU.
6. To make sure the communication between SEU and RDU works properly, please finish the installation which is shown on pages 13-15.
7. Please make sure that the power adaptor is mounted by plug lock tightly, so the power adaptor cannot be disconnected without using of mechanical tools.
8. Please take care of cable connection between SEU and RDU. Make sure the cable is connected into the INPUT port of RDU.
9. Please ensure the external power supply is normally supplied to ventilation fan while the relay is working. If there has no normally power supply to the fan, the relay will not work, which may result in potential danger with high CO2 concentration or low O2 concentration in confined space.

Caring For Product

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

1. Repair - Do not attempt to repair the product or modify the circuitry by yourself.
2. Contact your local dealer or a qualified repairman if the product needs servicing, including the replacement or calibration of sensor.
3. Ventilation - Ensure proper ventilation to prevent high CO2 concentration.
4. Cleaning - Disconnect the power before cleaning. Do not use liquid cleaning agents such as benzene, thinner or aerosols, as these will damage the device.

Installation Instruction

Please carefully take out the SEU (Sensor Unit), RDU (Remote Display Unit), panel holders, network cable connector, 7 meters communication cable, user manual, plug-lock, screws, expansion plugs, nail cable clips, warning paper from the package.

Step-by-Step Installation:

1. Choose a suitable location to install the SEU. Fit the panel holder on the wall with the four screws (included), the recommended installation height is about 1.45 meters (5 feet) from floor to close to the manifolds and valves as possible.
2. Put the SEU on the panel holder, making sure that they are connected tightly.
3. For another panel holder in a suitable location outside the monitored space with screws (included), Push the RDU onto panel holder, and stick the warning paper next to RDU.
4. The communication cable is pre-wired to the SEU. Route the cable to the RDU and the communication cable to the wall by nail cable clips, and then plug the cable into the input port on the RDU. Communication is now ready between the SEU and RDU.
5. The ZG10Un CO2 and O2 Monitor has two relay output; one is for CO2 and the other is for O2. The relay cable is pre-wired to the SEU. The relay can control a fan or blower to ventilate the monitored space when necessary and the relay will be triggered when the CO2 concentration exceeds the first alarm level or O2 concentration drops the first alarm level.
6. After finishing the installation, the controller can be used to control the power adapter into the electrical supply plugout.

Mount the plug lock by expansion plugs so that the power adapter cannot be disconnected without use of mechanical tools.
10. Specification

CO2 & O2 Specification

**CO2:** 0 - 50,000 ppm (5%) display

**Measurement Range**

**O2:** 0-30% display

**Accuracy**

CO2: ±100 ppm or ±5% of reading, whichever is greater

O2: Better than ±3% of FS over 0.1 to 30%

**Repeatability**

CO2: ±0.2% of reading per °C or ±2 ppm per °C

O2: Less than ±1.0%

**Annual Drift**

CO2: <20 ppm/Year@400ppm

**Temperature Dependence**

CO2: ±0.2% of reading per °C or ±2 ppm per °C

O2: <30 seconds for 90% response to step change

**Pressure Dependence**

CO2: ±1.5% of reading per mm Hg

O2: <30 seconds for 90% response to step change

This section includes a list of Frequently Asked Questions for problems you may encounter with the ZG10Un CO2 & O2 Monitor.

**CO2:** 5000ppm, 1/1.5/2%, Default AL1= 1.5%

**AL1 (First Alarm Level)**

O2: 18%, 18.5%, 19%, 19.5%, 20%

**Description**

SEU

This error will disappear

“Er3”

Indication

Icon

**CO2:** 1.5/2/2.5/3/3.5/4%, Default AL2= 3%

**AL2 (Second Alarm Level)**

O2: 16%, 16.5%, 17%, 17.5%, 18%

Default AL2=17%

**Fault LED**

CO2: blink, Buzzer beep

O2: blink, Buzzer beep

**Power Supply & Relay Output**

**Power Supply**

AC adapter 110/220 VAC

1 W maximum @ 115 VAC 60 Hz

AC/DC Output

Peak Input Current 1 W maximum @ 115 VAC 60 Hz

Peak Output Current 0.5 A from 6 VDC

**Relay Output**

Two Relay output, Peak Current< 2A@30 VDC

**CO2,RL<150Ω**

**Sensor Resistance**

CO2,RL<150Ω

**O2,RL<250Ω**

**4~20mA for O2, RL**

**4~20mA for CO2,RL**

**Voltage**

100 ~ 240 VAC

6VDC

**Power**

3.0 W

1 W maximum @ 115 VAC 60 Hz

Power 3.0 W

**AC Input**

1 W maximum @ 115 VAC 60 Hz

Power Requirement

2 W maximum @ 230 VAC 50 Hz

**ACDC Input**

8VDC

**Output Power**

3.0 W

**Operation Conditions**

Humidity Range 0-50% RH non-contaminating

Storage Temperature -20°C to 60 °C (-4°F to 140°F)

**Power**

1. Press Mode until the “AL2” icon flashes

2. Press Enter, the “AL2” icon shows on LCD

3. Press Mode to go through “16%,16.5%,17%,17.5%,18%” alarm level

4. Press Enter again to save the setting after selection

Notes: The second alarm level should be higher than the first alarm level when setting with the alarm level parameter.

Using the CO2 CALI function:

1. Press Mode until the “CALI” icon flashes

2. Press Enter, the “CALI” icon shows on LCD

3. Press and hold Mode for at least 30 seconds. The “CALI” icon will flash. The calibration will be done automatically. After about 3 minutes, the LCD will display “Pass” or “Fail”. If “Fail”, please try again.

Using the O2 CALI function:

1. Press Mode until the “CALI” icon flashes

2. Press Enter, the “CALI” icon shows on LCD

3. Press and hold Mode for at least 10 seconds. The “CALI” icon will flash. The calibration will be done automatically. After about 3 minutes, the LCD will display “Pass” or “Fail”. If “Fail”, please try again.

Using the ReFactSet function:

1. Press Mode until the “ReFactSet” icon flashes

2. Press Enter, the “ReFactSet” icon shows on LCD

3. Press Mode to go through “18%,18.5%,19%,19.5%,20%” alarm level

4. Press Enter again to save the setting after selection

Notes: 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.

12. Fault Codes & Troubleshooting Guide

This section includes a list of Frequently Asked Questions for problems you may encounter with the ZG10Un CO2 & O2 Monitor.

**Fault Code**

- **AL1**: CO2: 0-50,000 ppm (5%) display

- **AL2**: O2: 0-30% display

- **AL3**: CO2: ±100 ppm or ±5% of reading, whichever is greater

- **AL4**: O2: Better than ±3% of FS over 0.1 to 30%

- **AL5**: CO2: ±0.2% of reading per °C or ±2 ppm per °C

- **AL6**: O2: <30 seconds for 90% response to step change

- **AL7**: Press Mode until the “AL7” icon flashes

- **AL8**: Press Enter, the “AL8” icon shows on LCD

- **AL9**: Press Mode to go through “1.5%,2%,2.5%,3%,3.5%,4%” alarm level

- **AL10**: Press Enter again to save the setting after selection

Notes: The second alarm level should be higher than the first alarm level when setting with the alarm level parameter.

Setting the CO2 First Alarm parameter:

1. Press Mode until the “AL1” icon flashes

2. Press Enter, the “AL1” icon shows on LCD

3. Press Mode to go through “1.5%,2%,2.5%,3%,3.5%,4%” alarm level

4. Press Enter again to save the setting after selection

Notes: The second alarm level should be higher than the first alarm level when setting with the alarm level parameter.

Setting the CO2 Second Alarm parameter:

1. Press Mode until the “AL2” icon flashes

2. Press Enter, the “AL2” icon shows on LCD

3. Press Mode to go through “16%,16.5%,17%,17.5%,18%” alarm level

4. Press Enter again to save the setting after selection

Setting the O2 First Alarm parameter:

1. Press Mode until the “AL1” icon flashes

2. Press Enter, the “AL1” icon shows on LCD

3. Press Mode to go through “5000ppm, 1%, 1.5%, 2%” alarm level

4. Press Enter again to save the setting after selection

Notes: The second alarm level should be higher than the first alarm level when setting with the alarm level parameter.

Setting the O2 Second Alarm parameter:

1. Press Mode until the “AL2” icon flashes

2. Press Enter, the “AL2” icon shows on LCD

3. Press and hold Mode for at least 30 seconds. The “AL2” icon will flash. The calibration will be done automatically. After about 3 minutes, the LCD will display “Pass” or “Fail”. If “Fail”, please try again.

Notes: When do the calibration, it is suggested to take SEU outside, using the ambient gas for calibration, waiting around 3 minutes until the CO2 reading of SEU doesn’t change, then use the 500 - 600 ppm as the standard CO2 reading. Calibration of the unit according to “CALI” mode instruction, user should not breathe toward to SEU during the calibration process, as the CO2 and O2 from the user will affect the CO2 and O2 reading of SEU.

Using the ReFactSet function:

1. Press Mode until the “ReFactSet” icon flashes

2. Press Enter, the “ReFactSet” icon shows on LCD

3. Press Mode to go through “18%,18.5%,19%,19.5%,20%” alarm level

4. Press Enter again to save the setting after selecting

Notes: 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.

11. Weight & Dimension

**Weight:**

SEU (Sensor Unit): 459 g

RDU (Remote Display Unit): 130 g

**Dimensions:**

SEU (Sensor Unit):

Length: 215 mm

Width: 75 mm

Height: 50 mm

RDU (Remote Display):

Length: 210 mm

Width: 116 mm

Height: 50 mm

**AC Input:**

AC adapter 110/220 VAC

1 W maximum @ 115 VAC 60 Hz

Power 3.0 W

Peak Input Current 1 W maximum @ 115 VAC 60 Hz

Peak Output Current 0.5 A from 6 VDC

Amplifier output:

Two channel linear current output 4-20mA for CO2, 4-20mA for O2

Relay Output:

Two Relay Output, Peak Current< 2A@30 VDC or 250 VAC, SPST, Normally Open.

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