

# CO<sub>2</sub> Gas Detector Introduction (CDS2000 Series)

**Product Bulletin**

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**Subject:** Remind information on CO<sub>2</sub> Gas Detector for Duct application

**Distribution List:** E&ES

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Dear all,

Please find attached a release bulletin about the CO<sub>2</sub> Gas Detector products, **CDS2000A3000C**.

Best regards,

Sang Hyun Park

**Approved by:**

**Kim, KiPyo**

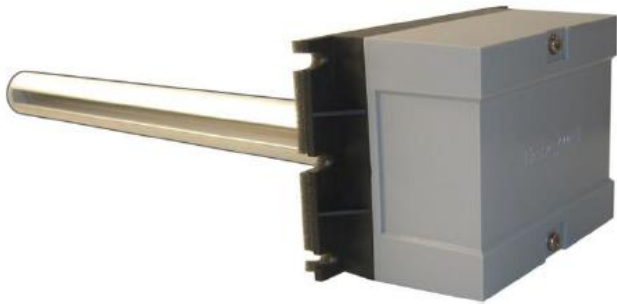
**Regional General Manager (Korea)**

**Honeywell | Environmental & Energy Solutions**

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# CO<sub>2</sub> Gas Detector



## Contents

1. Summary
2. Product Information
3. Specification
4. Dimension
5. Installation
6. Wiring Diagram
7. Caution on Use

## 1. Summary

CDS2000A3000C sensor and controller measures the carbon dioxide gas concentration in the ventilated duct. This product is used in ventilation and air conditioning systems to control the amount of fresh outdoor air supplied to maintain acceptable levels of CO<sub>2</sub> in the space.

## 2. Product Information

### Features

- High sensitivity and good resolution
- High technology adopted by NDIR method
- On/Off relay output for CO<sub>2</sub> limit monitoring
- Two types analog signal (DCV and DCA) output
- Automatic Background Calibration (ABC) algorithm based on long-term evaluation reduces required typical zero-drift check maintenance.

## 3. Specification

- Gas detected : Carbon dioxide (CO<sub>2</sub>)
- Sensing method : NDIR (Non-dispersive infrared)
- Detect range : 0~2,000ppm
- Accuracy : ±30ppm ±5% of measured value
- Warm-up time : Within 2 minutes
- Power supply : 24Vac, 24Vdc±20%, 50/60Hz
- Sensor life : >10 years
- Maintenance interval : not required
- Analog output : 0~10Vdc(default) or 0~20mA (selectable by jumper setting)
- Alarm output : SPST relay, normally open, 1A/120Vac, 1A/24Vdc contact rating,  
: activated at greater than 1000ppM, deactivated at less than 900ppM
- Response time : Within 120 sec (90% step)
- Protection class : IP63
- Operating temperature : 0 ~ 50 °C
- Operating Humidity : 0 ~ 95%RH (non condensing)
- Storage temperature : -20 ~ 60 °C
- Storage Humidity : 0 ~ 95%RH (non condensing)

| Model         | Display | Analog output       | Alarm output |
|---------------|---------|---------------------|--------------|
| CDS2000A3000C | None    | 0 ~ 10Vdc, 0~20mAdc | Relay        |

## 4. Dimension

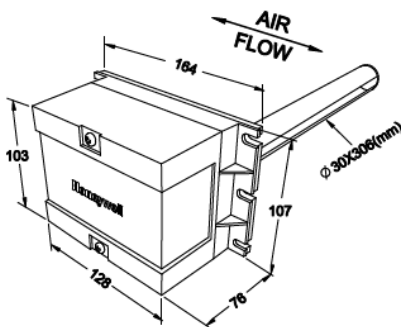
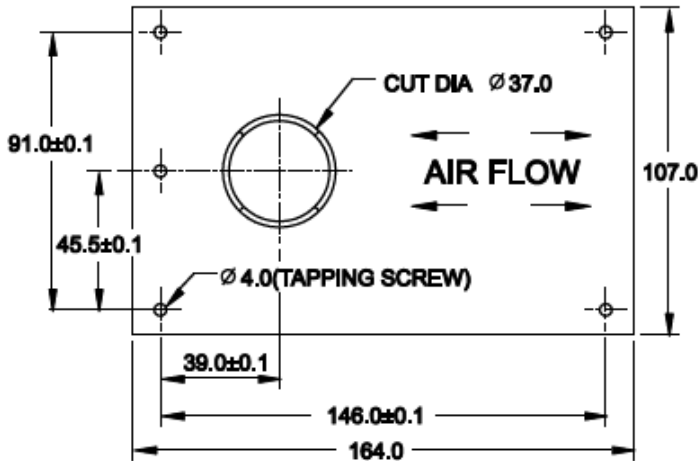


Fig. 1 dimensions (mm).

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## 5. Installation

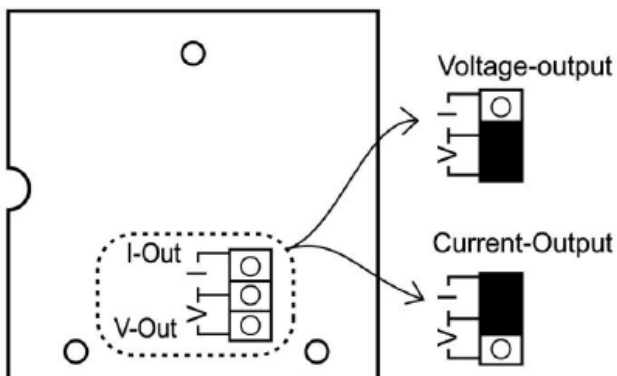
1. Confirm the product model number on the product case and check accessory package.
2. Installation procedure
  - ① Remove the protective paper backing from the template and affix to the desired location.  
BE CERTAIN TO OBSERVE THE AIR FLOW DIRECTION ARROWS.  
Duct air must flow directly into insertion tube slot.
  - ② Punch or drill the holes of  $\Phi 4.0$  for fixing of M5 screws (5EA included).  
See figure 2.



**Fig. 2 Mounting Template.**

- ③ Center punch for the  $\Phi 37$  hole with saw or other hole cutting means.
  - ④ Create the  $\Phi 37$  hole for sampling tube.
  - ⑤ Remove the screws at the front cover to separate it from the base.
  - ⑥ Insert the sampling tube into the duct through the  $\Phi 37$  hole and mount the base to the duct with M5 screws.
3. Analog output mode selection
    - Initially, output mode is configured as 0~10Vdc
    - Voltage output (0~10Vdc): set Jumper(JPI) at the bottom of the PCB to "V-OUT" position (refer to figure 3)
    - Current output (0~20mA) : set jumper (JPI) at the bottom of the PCB to "I-OUT" position (refer to figure 3)
  4. Reassemble the cover to the base.

## ANALOG OUTPUT SELECTION



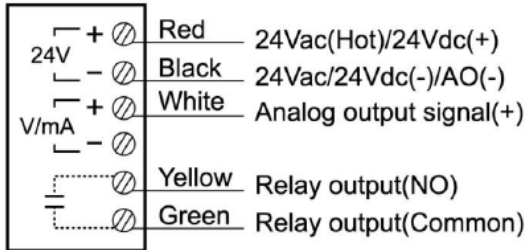
**Fig. 3 Analog output selection**

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## 6. Wiring diagram

- ① Connect power and signal output wires to the cable at the right side of device.(refer to figure 4). Then, verify the lines correctly fixed not to move.
- ② When installing, power and output wires must keep enough distance with other utility power lines for safety.

### 3-wire configuration

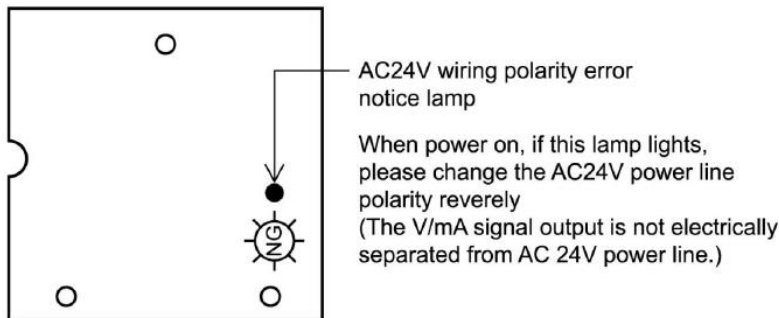


### 4-wire configuration



Fig. 4 wiring diagram

## Caution on wiring



## 7. Caution on Use

- Do not use this device for outdoor use. This product is manufactured only for indoor use.
- Do not use this device for where a building is continuously occupied 24 hours per day, or where there could be significant sources of non-occupant related CO<sub>2</sub> such as greenhouses, breweries and other industrial and food processing applications.
- Do not use this device for medical, life or safety purpose.
- This device must abide by the operating temperature/humidity and the storage temperature/humidity.
- Do not leave or use the device for longtime in a highly-damped place in which humidity is near 95%RH.
- The standard test condition in which the product was tested is 25°C±3°C, 50°C±30%RH. Signal may vary slightly by environment condition.
- Be careful when install and use as vibration/shock/falling can cause a serious damage on the sensor.
- We do not guarantee the performance of the device in case of user installation, disassembling and inspection. When installing and inspection is necessary, please contact our technicians.
- Sensor using NDIR is influenced by air pressure. It can be used without correction within 300M above the sea level. However, add the output value by +1.0% per 100M height above 300M.  
Ex) If the output signal is indicating 600ppm at the height of 500M, correct the output to 630ppm by adding 30(600\*0.01\*5)ppm.
- Use when it is fixed, but not use while it is in motion.

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