



## CD SERIES CARBON DIOXIDE DETECTOR OPERATING MANUAL

### ● Description

CD series detector and controller is designed to detect carbon dioxide gas in the air. This model has good resolution by NDIR method, so it is a optimum device for ventilation of building, house, etc. Also, the advantage of this model is compact size and easy installation.

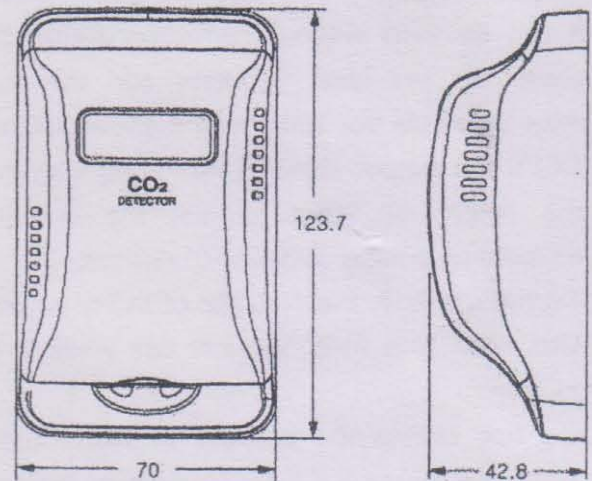
### ● Model

AI-CDW-02	CO <sub>2</sub> Detector without display
AI-CDW-01	CO <sub>2</sub> Detector and controller with LCD display

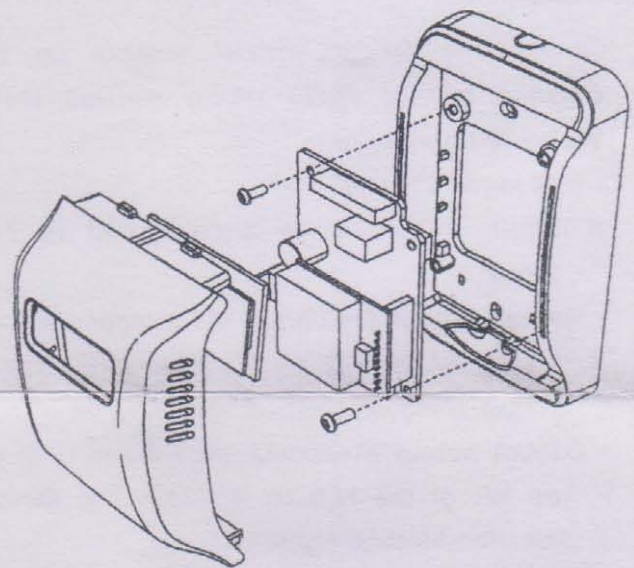
### ● Specifications

Sensor Type	NDIR (Non-dispersive Infrared)
Measurement Range	0 ~ 5,000 ppm (expandable up to 10,000ppm)
Warm up Time	Within 2 minutes
Power Supply	24V <sub>AC</sub> , 24V <sub>DC</sub> / 50~60Hz
Output Signal	0 ~ 10V <sub>DC</sub> or 0 ~ 20mA 2 ~ 10V <sub>DC</sub> or 4 ~ 20mA (User selectable)
Accuracy	±30ppm±5% of measured value
Response Time	Within 150 sec (90%)
<b>Relay output (CD-200 model only)</b>	
- Contract rating	1A/120VAC or 1A/24VDC
- Configuration	SPST, Normally open relay
- Relay activated	greater than 1,000ppm
- Relay deactivated	less than 900ppm
Wiring	4-wire (CD-100) 6-wire (CD-200)
Operating Temperature	0 ~ 50°C
Operating Humidity	10 ~ 95%RH (non-condensing)
Storage Temperature	-20 ~ 60°C
Storage Humidity	10 ~ 95%RH (non-condensing)
Dimension	70W × 124H × 43D (mm)

### ● Dimensions (unit : mm)



### ● Assembly



### ● Cautions on Usage

1. Do not use this device for outdoor use. This product is manufactured only for indoor use.
2. 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.
3. The standard test condition in which the product was tested are 25°C±3°C, 50±30%RH. Signal may vary slightly by environment condition.
4. Be careful when install and use as vibration/shock/falling can cause a serious damage on the sensor.
5. We do not guarantee the performance of the device in case user installs, disassembles, assembles it at his discretion. When installing and inspection is necessary, please contact to our

technicians.

6. 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  $30(600 \times 0.01 \times 5)$  ppm.
7. Do not use it for medical, life, or safety purpose.
8. Use when it is fixed, but not use while it is in motion.
9. Do not expose the product to high humidity when the sensor is off. Measurements may show abnormally high figures.

### ● Installations

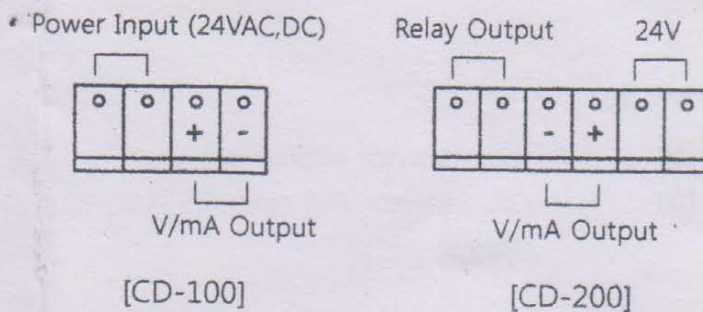
1. Confirm the product model number on the package box to check wiring method (Refer Wiring Method figure).
2. Output Mode Change
  - ※ Initially, output mode is configured as 2 ~ 10V<sub>DC</sub>.
  - Voltage output (2~10V<sub>DC</sub>): set Jumper (JP1) on top left of the PCB to "V" position (Refer the Output Selection Method figure).
  - Current output (4~20mA): set Jumper (JP1) on top left of the PCB to "I" (Refer the Output Selection Method figure).
3. Installation procedure
  - Ⓐ Connect Power and Signal Output wires to the terminal block at the base side of device. Then, verify the lines correctly fixed to the terminal (Refer to the Wiring Method figure & Assembly figure).
  - Ⓑ Push the bottom of front cover to separate form the base (Refer to the assembly figure).
  - Ⓒ Make sure to distinguish the upper and lower sides of the base and fix the base by using the screw nails (Be cautious PCB assembly not to be damaged).
  - Ⓓ Reassemble the cover.
4. Recommended installation location
  - Ⓐ Mount approximately 120~180 cm above floor.
  - Ⓑ Avoid the following places to install.
    - A place within 1m of the gate or window
    - A place near a ventilation system in which it directly affects the flow of the air

- A place within 1m of a corner where 2 walls are attached
- A place which is likely to be influenced by breath

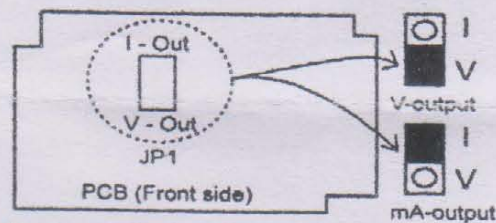
### Ⓒ Do not connect as 3-wire type.

- Ⓓ If sudden movement of the device from cold place to warm place makes it dewy, make sure to dry it enough before using again.
- Ⓔ When installing, power and output wires must keep enough distance with other utility power lines for safety.

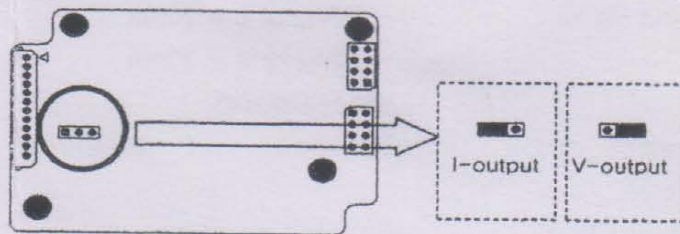
### ● Wiring Method



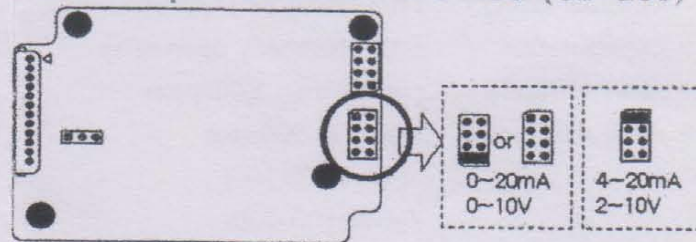
### ● V/mA output Selection Method (CD-100)



### ● JP1 Output Selection Method (CD-200)



### ● JP2 Output Selection Method (CD-200)



### ● JP2 ppm Range Selection (CD-200)

