

## CO<sub>2</sub> module: SH-NDC



### SPECIFICATION

|                        |   |
|------------------------|---|
| Measuring Type         | Non-Dispersive Infrared (NDIR)              |
| Measuring Range        | 0 ~ 3000ppm / 5000ppm / 10000ppm            |
| Accuracy               | ±(2% FS+3% measured value) @0 ~ 50°C        |
| Signal Update          | Every 2.0 Seconds                           |
| Warm-Up Time @25°C     | < 90sec                                     |
| Operating Condition    | -10 ~ 50°C, 0 ~ 99.5% RH (Non-Condensing)   |
| Output                 | Analog 0~3VDC [CN2]                         |
|                        | UART 9600 bps [CN1] / TTL Level 3.3V        |
| Power Input            | DC7V ~ 12V Input                            |
|                        | Fixed (Order Made): 5 VDC Regulated (±4%)   |
| Current Consumption    | Normal 35mA, Peak 80mA                      |
| Interface (connection) | 4PIN Header [CN2], 6PIN Header [CN1]        |
|                        | Molex 5267 included. With 2.54mm spacing.   |
|                        | Refer to Dimensions                         |
| Size(mm)               | (W)65 x (H)45 x (D)17.6 (±0.5), Weight 19 g |

### OUTPUT

#### 1. UART 3.3 LEVEL & RS-232

##### a. Format ASCII Data

- Baud rate: 9600 bps
- Signal update: Every 2 sec

|                       |   |   |   |    |    |
|-----------------------|---|---|---|----|----|
| 1                     | 2 | 3 | 4 | 5  | 6  |
| CO <sub>2</sub> Value |   |   |   | CR | LF |

Ex) CO<sub>2</sub> = 1000 ppm

|                       |      |      |      |      |      |
|-----------------------|------|------|------|------|------|
| 0x31                  | 0x30 | 0x30 | 0x30 | 0x0D | 0x0A |
| CO <sub>2</sub> Value |      |      |      | CR   | LF   |

#### 2. Analog (CO<sub>2</sub> only, SH-NDTH includes Thermometer and Hygrometer)

- Range: 0-3V
- Output Current: Max 30mA

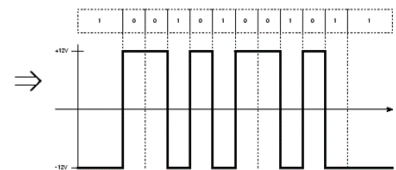
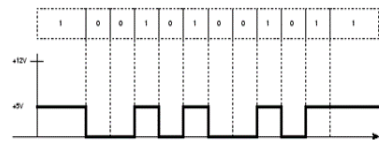
· Table for Voltage distribution

| ppm \ Voltage | 3000 | 5000   | 10000  |
|---------------|------|--------|--------|
| 0             | 0    | 0      | 0      |
| 1             | 1000 | 1666.7 | 3333.3 |
| 2             | 2000 | 3333.3 | 6666.7 |
| 3             | 3000 | 5000   | 10000  |

#### 3. PC COMMUNICATION

##### a. UART interface

- Require the Converter for RS-232
- In order to communicate with PC, transfer the TTL signal into 3.3 Voltage level.



##### b. Software: Recommend "Hyper terminal"

##### c. Communication specification

- Baud rate: 9600 bps
- Data bit: 8 bits
- Parity bit: None
- Stop bit: 1 bit(Only)
- Flow control: None

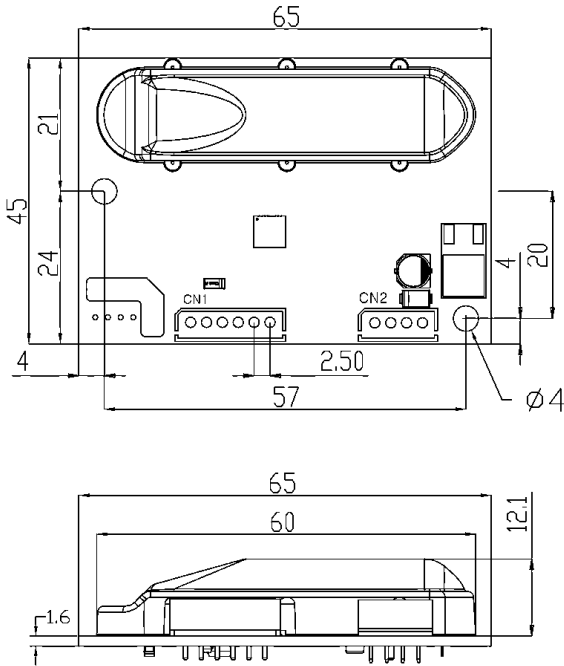
### FEATURES

1. NDIR method & Long trustworthy durable data accuracy
2. Digital & Analog output.
3. One Point correction.

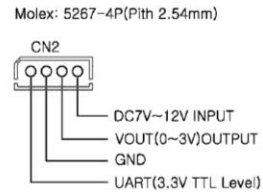
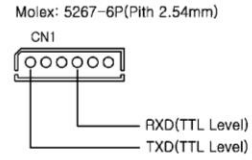
### CAUTIONS

1. Products need to be extra careful. Any impacts or deforming may cause the malfunction or /and accelerate the drifts.
2. Severe environmental conditions cause the malfunction or/ and drifts.
3. Dewpoint and waterdrop cause damage on the product.
4. Recommend regular calibration or correction process.
5. Recommend coating treatment at high humidity but dewpoint is not the case and guarantee this treatment.

## DIMENSIONS



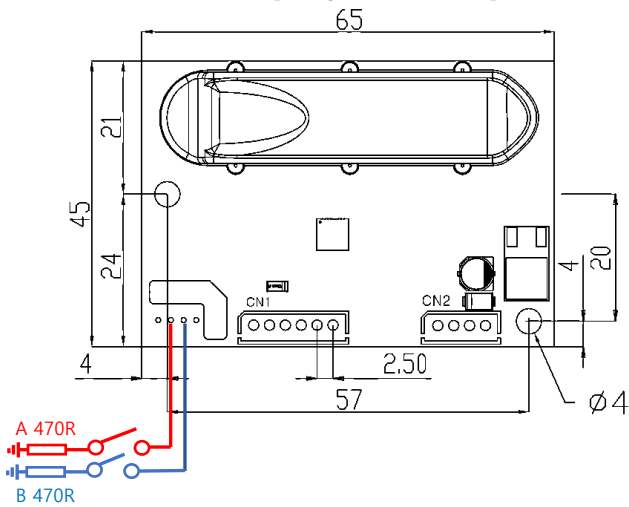
Size(mm): 65(W) \* 45(H) \* 17.6(D)  
Materia: ABS



Information of connector

## CORRECTION *(need to be advised with manufacturer)*

Function: [One point correction]



### Process as below:

1. Put the NDC on the proper conditions where it is definitely or presumably less 400ppm for 5 minutes.
2. Activate the B short circuit for 1-2 sec.
3. Stand by for more than 5 minutes.
4. Turn OFF and ON to be adapted this function on the NDC.

### Description of A /B Register

- A short circuit: Cancel the correction value.
- B short circuit: Correct the sensor reading value at 400ppm.
- Cancel in A circuit: Only corrected value will be deleted but it's not deleted the calibration value
- 400ppm: It's a criteria point. Regardless of actual CO<sub>2</sub> ppm, sensor's reading value will be 400ppm at the moment.

※ Please be advised by the manufacturer from the purchasing stage.