● CO$_2$ Module: Model SH-NDC(Dual wavelength)

■ Application

✧ CO$_2$ Control for Indoor Air Quality

✧ CO$_2$ Measuring for Ventilation Control

✧ CO$_2$ Control for Building, Hospital, School

✧ CO$_2$ Control for Air cleaner, Air conditioner.

✧ Mushroom Control, Boiler Control

■ Technical Specifications

Measuring Type	Dual Light Wavelength Non-Dispersive Infrared (NDIR)
Measuring Range	0 ~ 3000ppm / 5000ppm / 10000ppm
Accuracy	±3 % of reading value @0 ~ 50℃
Signal Update	Every 2.0 Seconds
Warm-Up Time @25℃	< 90sec
Operating Condition	-10 ~ 50℃, 0 ~ 99.5% RH (Non-Condensing)
Output	Analog : 0~3VDC (0~3000, 5000, 10000ppm) [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	4PIN Header[CN2], 6PIN Header[CN1]
	Molex 5267 included. With 2.54mm spacing.
	Refer to Dimensions
Size	(W)65 mm x (H)45 mm x (D)17.6 mm (±0.5 mm), Weight : 19 g

♣ *This product can be changed for quality improvement without any notification.*

■ Features

1. Dual light Wavelength **NDIR (Non-dispersive Infrared)** Method, which detects CO_2 in the air.

2. Analog and Digital output by request of control system
   A. Analog Output: 0~3V (0~3000 / 5000 / 10000ppm)
   B. Digital Output: UART (3.6V Level RS-232) Output

※ Enable to make changes in specifications and protocol on customer's demands.

■ Output option

1. Digital Output: UART (3.3 V Level TTL, RS-232)

A. SH-DC Format (ASCII Data)

- Baud rate : 9600bps
- Signal update term : every 2 seconds

1	2	3	4	5	6
CO_2 Value				CR	LF

Output example) When CO_2 concentration is 1000ppm,
   1000[CR][LF]
   Hex value (ASCII) : 0x31, 0x30, 0x30, 0x30, 0x0D, 0x0A

2. Analog Output (CO_2 only)

- CO_2: 0 ~ 3V (0 ~ 3000 / 5000 / 10000 ppm Option)
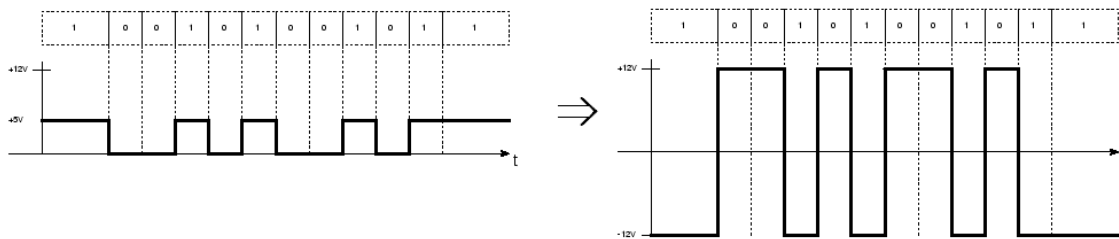
*** Output Current: Max 30mA**

A. Analog Output table

	3000ppm	**5000ppm**	**10000ppm**
0V	0ppm	0ppm	0ppm
1V	1000ppm	1666.7ppm	3333.3ppm
2V	2000ppm	3333.3ppm	6666.7ppm
3V	3000ppm	5000ppm	10000ppm

■ PC communication

1. UART interface

A. Use RS-232 interface converter

Communicate with PC using TTL signal is unsuitable,
Thus, communication by change voltage level

2. Communication Program

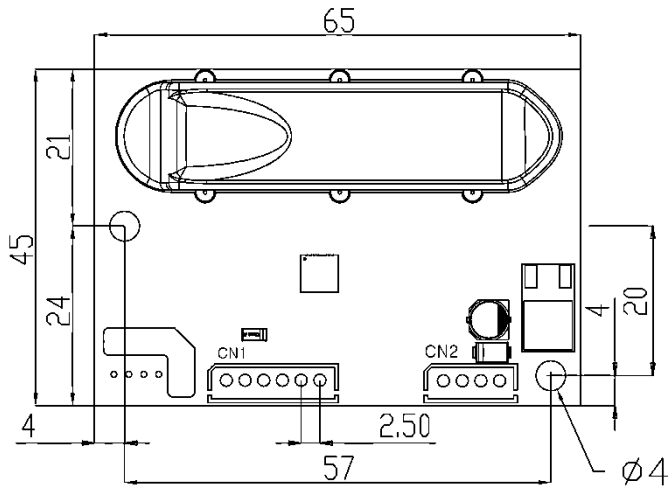A. Use Hyper terminal or other Communication Program

■ Cautions

1. Products are weak against the impact and it may cause the change of the characteristic. .

2. When make alterations on product, Please do it after technical consult with SOHA TECH

3. Please avoid installation at environment that not match with working temperature and humidity

4. When install at external environment, please installed inside exterior case.

5. Please contact us if the CO2 sensor has to be installed at a place where dew condensation is worrisome. (Coating is optional)
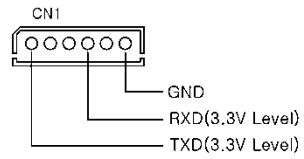
■ Dimension

- Size : 65(W) * 45(H) * 17.6(D)
- Waveguide material : ABS

  − SIZE : 65(W) * 45(H) * 15.5(D)
  − 도파관 재질: PP

Molex: 5267-6P(Pith 2.54mm)

CN1
- GND
- RXD(3.3V Level)
- TXD(3.3V Level)

Molex: 5267-4P(Pith 2.54mm)

CN2
- DC7V~12V INPUT
- VOUT(0~3V)OUTPUT
- GND
- UART(3.3V Level)

CN1

CN2

65
21
45
24
4
2.50
57
Ø4
20
4

65
60
12.1
1.6

Max. 15.5