

Carbon Dioxide (CO₂) Transmitter

Datasheet

CD-100M(LG)-HT

**CD-100M****CD-100ML (with LCD)**

General

CD-100M(LG)-HT series are one board RS-485 MODBUS type transmitters of CO₂ Sensor and It has temperature and relative humidity sensors.

CD-100M(LG)-HT transmitters can communicate with other controller as a slave sensor.

Only a Modbus master can initiate a transaction. The sensor is a slave and will never initiate communication.

Features

- **CO₂ sensor** : NDIR (Non-Dispersive Infrared)
- **LCD Display** model is available (CD-100ML).
- **RS-485 MODBUS output**
Modicon Mod-Bus RTU MODE, which follow Modicon Mod-Bus protocol (<http://www.modbus.org>)
– settable Address ID by switch
- **4 wired output**
- **Re-calibration function**
10 minutes manual recalibration(MCDL) or weekly auto-calibration(ACDL) are supported and settable by switch.
- **CO₂ ppm measurement range** -settable by switch
- **Power** of 24V DC, AC.
- **Size** : 123mm x 70mm x 43mm (115g)

CD-100M(LG)-HT Specification

General Performance

Operating Temperature range

-10 ~ 60°C

※ "BZ" Option : -40 ~ 40°C

Operating Humidity range

0 ~ 95% RH (Non-condensing)

Storage Temperature

-30°C ~ 70°C

CO₂ Measurement

Sensing Method

NDIR (Non-dispersive Infrared)

Measurement Range

0 to 2,000/ 3,000 / 5,000 / 10,000ppm
(Optional)

Accuracy ±30ppm ±5% of reading
(ACDL operation : ±30ppm ±3% of reading),

Response Time(90%) 150 seconds

Sampling Interval 3 sec.

Option Sensor module

Temperature & Humidity

± 0.3 °C (-40°C ~ 80°C)

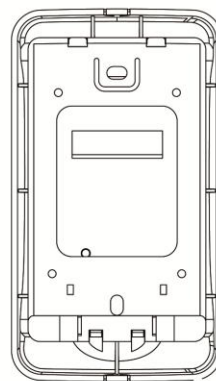
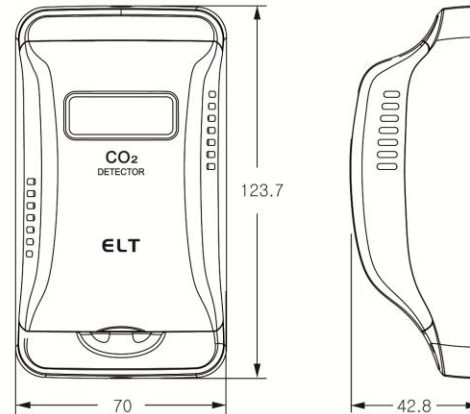
± 2% RH (0~ 99% RH)

Electrical Data

Input Power

24VAC/24VDC ± 20%, 50/60Hz (4-wired)

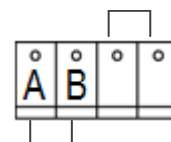
Dimensions (unit : mm)



Wiring Method

[4-wired] 24VAC or 24VDC

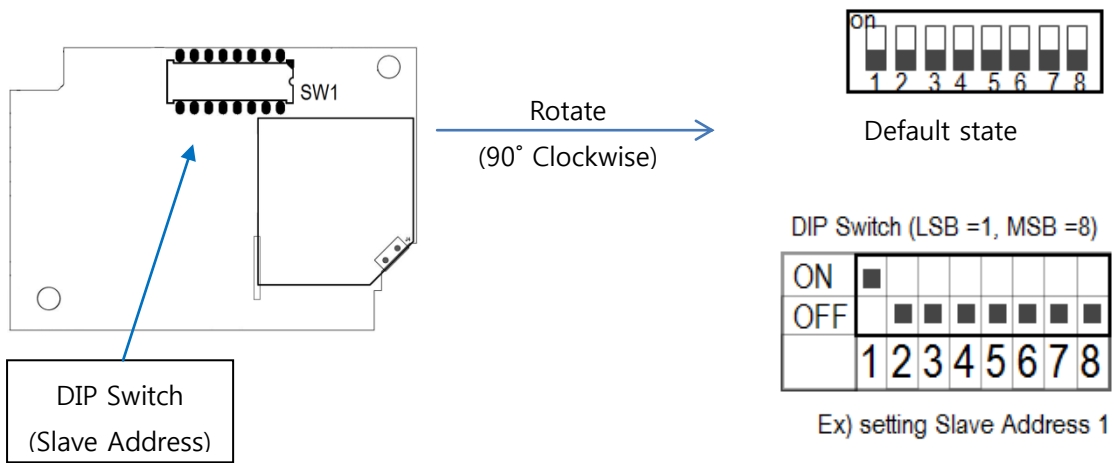
24VAC/24VDC



RS-485 A/B

RS485 Mod-Bus Slave Address setting

■ **SW1** : Mod-Bus slave address can be set by DIP Switch.



RS485 Mod-Bus Protocol

- 1) Modicon Mod-Bus RTU Mode: Follow Modicon Mod-Bus protocol (<http://www.modbus.org>)
- 2) Communication Specifications

RS-485 (2-wire, half-duplex)

Parameter	Description
Baud rate	9,600 BPS (Option : 38,400 BPS)
Data Bit	8 Bits
Parity Bit	None
Stop Bit	1
Flow Control	None

3) Hold Register Specifications

- Mapping Base Address : 0x0050.
- Hold Register. Max. Read Size : 4
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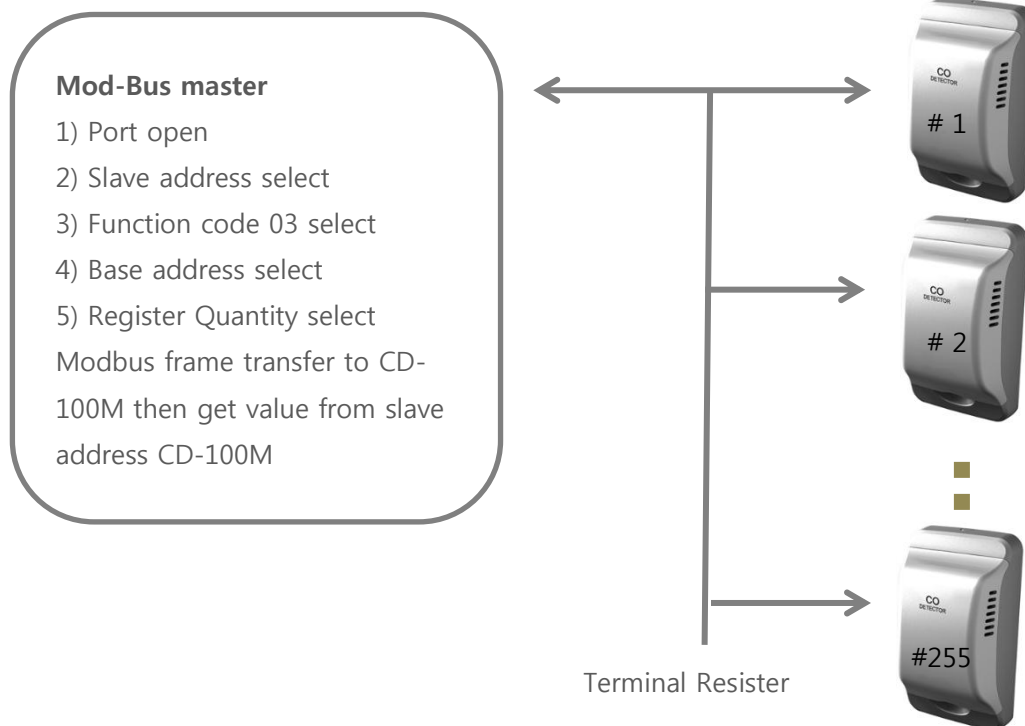
Register Address	Value	Data Type	Unit	Description
0x0050	CO2	2 Byte WORD	PPM	Co2 Ex) 800 -> 800 PPM
0x0051	Temp	2 Byte WORD	°C	Temperature Ex) 255 -> 255 / 10 : 25.5°C
0x0052	Humidity	2 Byte WORD	%	Humidity Ex) 75 -> 75%
0x0053	Reserved			

4) Supported Function Code

- Currently supported only code 03 and exception responses.
- Error code 0x83 or other (CODE + 0x80)

Exception code	Description
01	Exception of Function code
02	Exception of Starting Address
03	Exception of Quantity of Registers

5) Example How to get value from CD-100M(L)-(HT) by Mod-Bus protocol



PPM Measurement Range

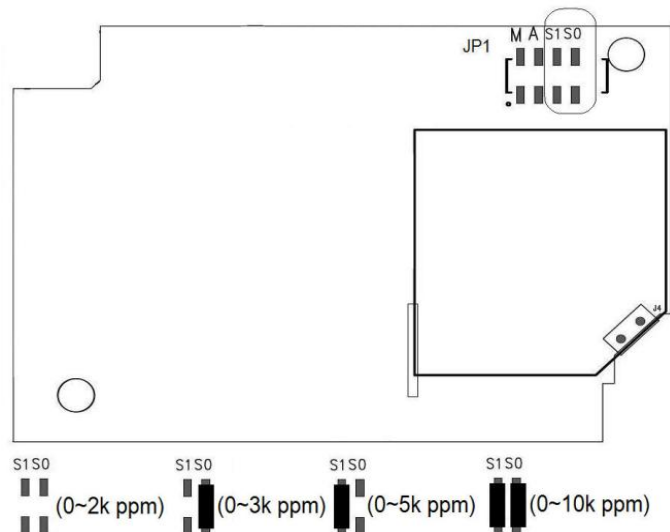
■ JP1 : CO2 Measurement range selection.

2K ppm : 0 ~ 2,000ppm CO2

3K ppm : 0 ~ 3,000ppm CO2

5K ppm : 0 ~ 5,000ppm CO2

10K ppm : 0 ~ 10,000ppm CO2



Operation Mode Selection with MCDL and ACDL

■ JP1: Calibration selection

- M : MCDL

Users can do 10 minutes manual calibration (MCDL) when sensor showed much different ppm in severe condition like as agricultural applications.

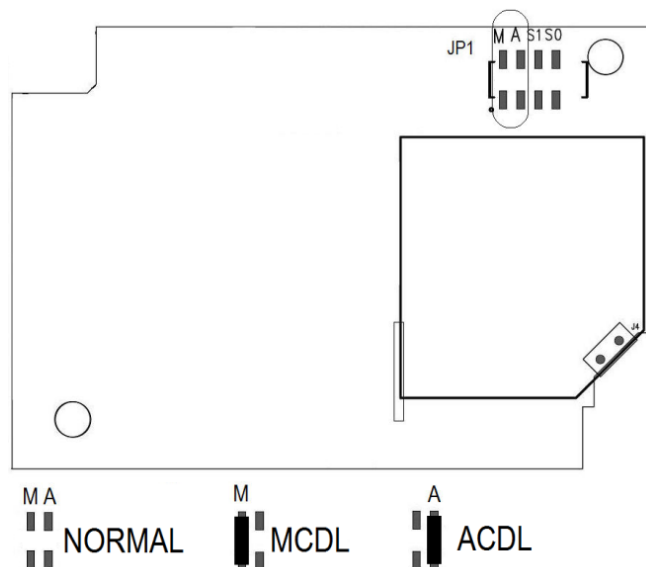
Procedures : Move the switch [No.1] to 'ON' position and wait over 11 minutes in fresh air. After the setting of ambient air-flowing status

- A : ACDL

When users are using the CD-100M in indoor ventilation applications like as HVAC, building, houses etc., the ACDL function operation is strongly suggested.

Procedures : Move the switch [No.2] to 'ON' position. Auto calibration acts first 2days, and every 7 days after power on.

※ Caution : Move back the switch to 'NORMAL' position again after finishing manual calibration.

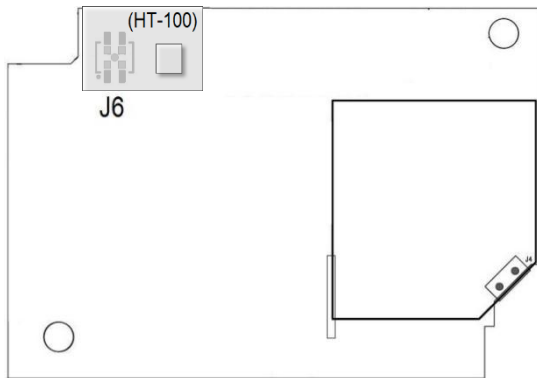


Temperature and Humidity Sensor module

■ J6 (4pin socket) : Temperature & Humidity

Accuracy $\pm 0.3\text{ }^{\circ}\text{C}$ ($-40^{\circ}\text{C} \sim 80^{\circ}\text{C}$)

$\pm 2\%$ RH (0~ 99% RH)



Ordering Code with Option selection.

Model	'L'	'G'	Temp.& Humidity	Note
CD-100ML-HT	○	X	○	'G' : 99% (Non-condensing) 'L' : LCD display 'M' : RS485-Modbus
CD-100MG-HT	X	○	○	
CD-100MLG-HT	○	○	○	
HT-100MG	X	○	○	Temp.& Humidity Transmitter without CO2 sensor $\pm 2\%$ RH (0~ 99% RH) $\pm 0.3\text{ }^{\circ}\text{C}$ ($-40^{\circ}\text{C} \sim 80^{\circ}\text{C}$)