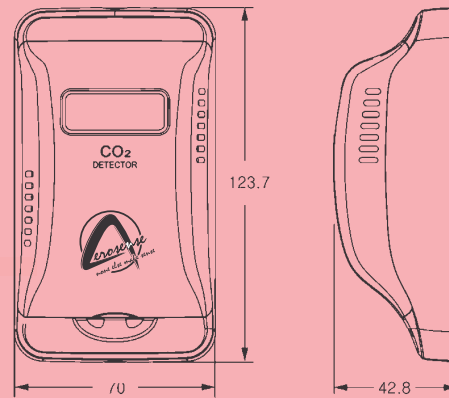




CARBON DIOXIDE TRANSMITTER



Dimensions (unit : mm)



Series CDT-100, Carbon Dioxide Transmitter with analog Output and RS-485 MODBUS type transmitter, which are 3-wired/4-wired supporting. They give current, voltage and RS485 MODBUS output and various functions are supported like as recalibration function.

FEATURES

- CO2 Sensor:** NDIR (Non-Dispersive Infrared) technology
- Analog Voltage/Current Output:** (3-wired)
0/4-20Ma or 0/2-10V- settable by switch
- RS-485 MODBUS output:** (4-wired)
Modicon MODBUS RTU mode, which follow Modicon Modbus protocol-settable address ID switch
- 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:** 24VDC, AC
- Size:** 123mmX70mmX43mm

SPECIFICATIONS:

- Operating Temperature:** -10 to 60°C
For -CS Models: -40 to 40°C
- Operating Humidity range:** 0 to 95% RH
- Storage temperature:** -30 to 70°C
- Storage temperature for cold storage:** -40 to 70°C
- Measurement range:** 0 to 2000/ 3000/ 5000/ 10000 ppm
(Selectable by Jumper)
- Accuracy:** ±30ppm ±3%
- Response time:** 150 seconds
- Response time for cold storage:** 70 seconds
- Sampling interval:** 3 sec

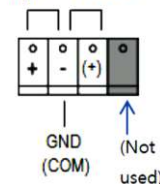
ELECTRICAL DATA

- Input power:** 24VDC ±20%, 50/60 Hz (3-wired)
- Input power for CDT-M:** 24VDC/24VAC ±20%, 50/60 Hz (4-wired)

Ordering Table:

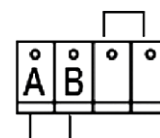
Model NO	Specifications
CDT-100	Carbon Dioxide Transmitter
CDT-100-LCD	Carbon Dioxide Transmitter with display
CDT-100-CS	Carbon Dioxide Transmitter for cold storage
CDT-100-CS-LCD	Carbon Dioxide Transmitter for cold storage with display
CDT-100-M	Carbon Dioxide Transmitter with MODBUS Communication
CDT-100-M-LCD	Carbon Dioxide Transmitter with MODBUS Communication & display

[3-wired] 24VDC only
V/mA Output 24VDC



Wiring method for CDT-100/ CDT-100-CS

[4-wired] 24VAC or 24VDC
24VAC/24VDC



RS-485 A/B

Wiring method of CDT-100-M

CARBON DIOXIDE TRANSMITTER

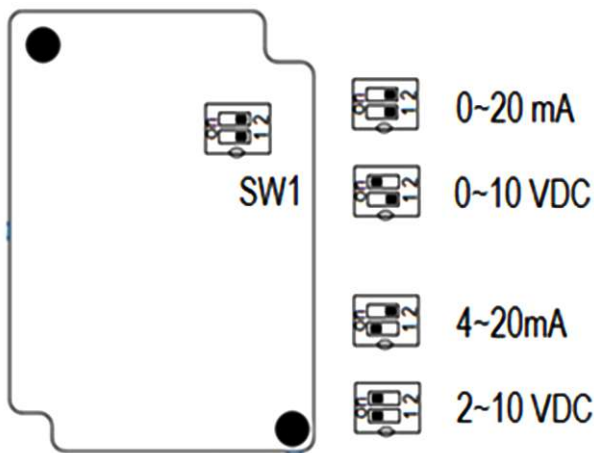
Instruction manual for CDT-100

Output Signals

■ **SW1** : Voltage, Current output and range selection.

0 ~ 20mA or 0 ~ 10VDC

4 ~ 20mA or 2 ~ 10VDC



PPM Measurement Range

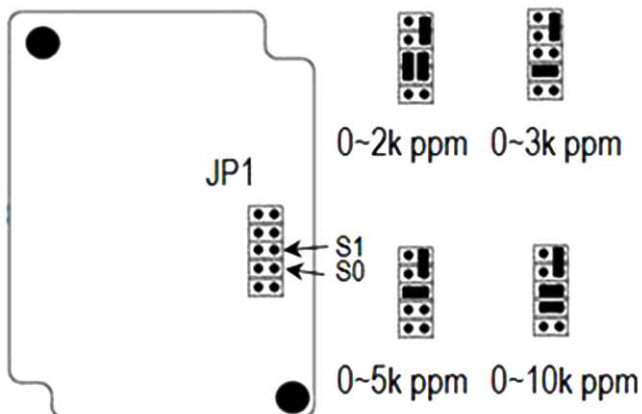
■ **JP1:CO2 Measurement range selection.**

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 when sensor showed much different ppm in severe condition like agricultural applications.

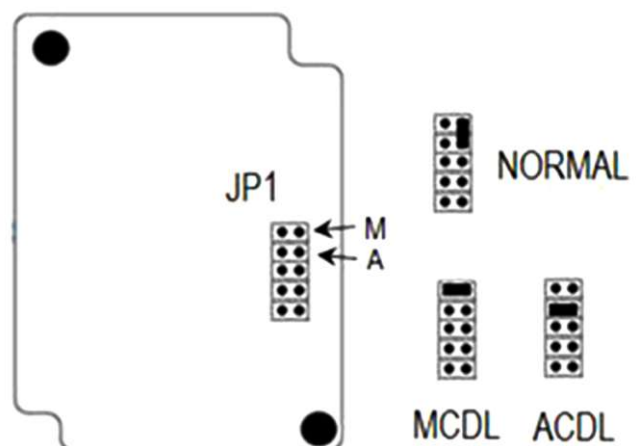
Procedures: Move the 2mm-pitch Jumper to M' position and wait over 11 minutes in fresh air. After the setting of ambient air flowing status to be 400 ppm finished, move back the Jumper CAP to NORMAL position again.

■ **IA** : ACDL

When users are using the CDT-100 in indoor ventilation application like HVAC, building, houses, etc. the ACDL function operation is strongly suggested.

Procedures: Move the 2mm-pitch Jumper to 'A' Position.

Auto calibration acts first 2 days, and every 7 days after power on.



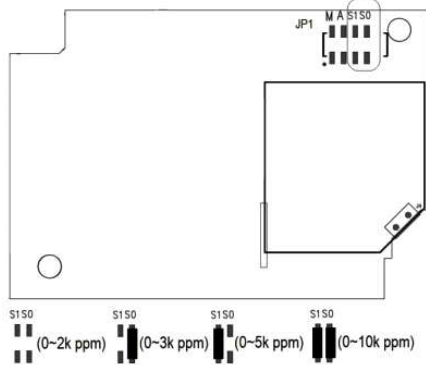


Instruction Manual for CDT-100-M

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

IM : MCDL

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

Procedures:

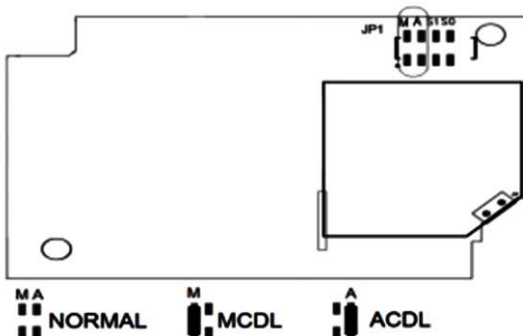
Move the switch to 'ON' position and wait over 11 minutes in fresh air.
After the setting of ambient air-flowing status.

IA : ACDL

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

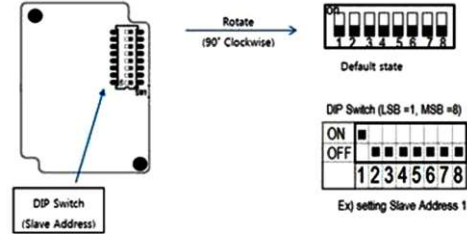
Procedures:

Move the switch to 'ON' position.
Auto calibration acts first 2 days and every 7 days after power on.



RS485 MODBUS 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
2. Communication Specifications

RS485 (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

Register Address	Value	Data type	Unit	Description
0 x 0050	CO2	2 Byte WORD	PPM	Co2 Ex) 800 ->800 PPM
0 x 0051	Reserved	2 Byte WORD	°C	
0 x 0052	Reserved	2 Byte WORD	%	
0 x 0053	Reserved	2 Byte WORD		

4. Supported Function Code

- Currently supported only code 03 and exception responses.
- Error code 0x 83 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 CDT-100-M by Mod-Bus protocol

