Carbon Dioxide Transmitter with Relay Datasheet

CD-400(LG)(-T)

CD-400(G)(-T)
Without LCD-Display

CD-400L(G)(-T)
(with LCD Display)

General

CD-400(LG) series are transmitter type models which measure CO2 concentration with analogue voltage/current output with relay.

CD-400(LG)(-T) series gives Temperature measurement with relay as well as CO2.

Features

- **CO2 sensor** : NDIR (Non-Dispersive Infrared) technology
- **Analog Voltage/Current output**
  4-20mA & 2-10V – settable by switch
  0~20mA & 0~10V or 0~5V or 1~5V can be orderable as option.
- **Re-calibration function**
  10 minutes manual re-calibration (MCDL) or weekly auto-calibration(ACDL) are supported
- **CO2, Temp Relay range** is changeable with switch
- **Power** of 24V DC, AC.
- **Size** : 123mmx70mmx43mm

CD-400(LG)(-T) Specification

General Performance

Operating Temperature range

-10 ~ 60℃

Operating Humidity range

0 ~ 95% RH (Non-condensing)

'G' option : 0 ~ 99% RH (Non-condensing)

Storage Temperature

-30℃ ~ 70℃

CO_2 Measurement

Sensing Method

NDIR (Non-dispersive Infrared)

Measurement Range

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

-settable by switch)

Accuracy

±50 ppm ±3% of Reading

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

Response Time(90%)

150 seconds

Sampling Interval

3 sec

Temperature Measurement (option)

Accuracy (* NTC)

± 0.4 ℃ (-40℃ ~ 100℃)

Electrical Data

Input Power

24VAC± 20%, 50/60Hz(4-wired)

Or 24VDC ± 20% (3-wired available)

Relay Contact Ratings

1A 120VAC / 1A 24VDC

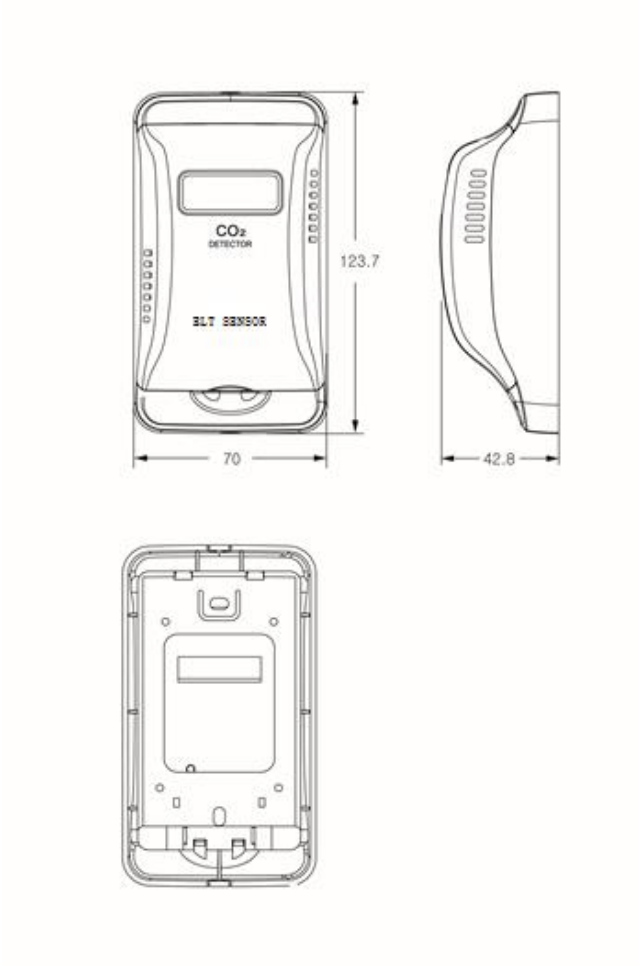
Output Selection

Current 4~20mA & Voltage 2~10VDC

output with switch.(0~20mA & 0~10V or 0~5V

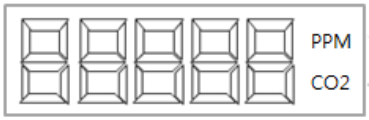
or 1~5V is can be chosen or ordering.)

Dimensions (unit : mm)

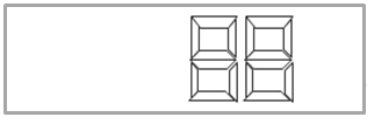


LCD Display

· CO2 is default



· Temp. (Optional)



· Display

- CD-400L model shows only CO2 value.
- CD-400L-T model shows CO2 and Temperature values alternately.
  i. CO2 value for 6 sec.
  ii. Temperature value for 3 sec.
  iii. Repeated.

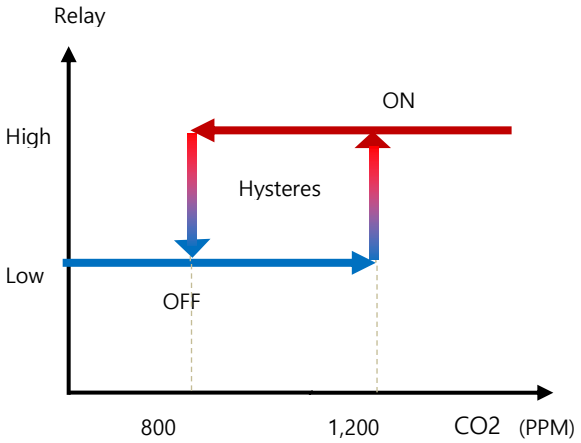
CO2/Temp. Relay Range Settings

Contract Rating : 1A/120VAC

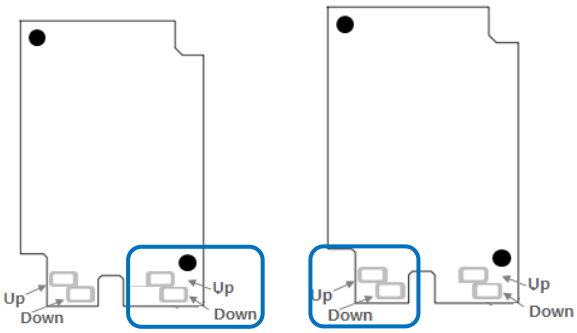
Configuration : SPST, Normally Open relay

CO2, (Temp. option) Relay Activated : On ≥ 1,200ppm, (25℃)

CO2, (Temp. option) Relay Deactivated : Off ≤800ppm, (20℃)

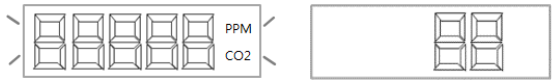


※ Relay On/Off values of CO2 and Temp. can be changed as needed using CO2/Temp Keys.



<CO2 Keys> **<Temp Keys>**

■ **CO2, Temp. Relay range change process.**

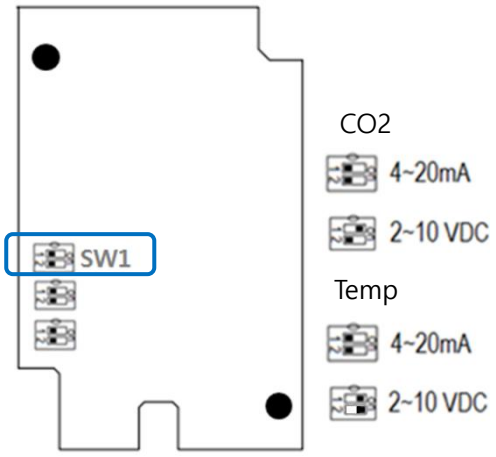


[Procedure]

1. Press CO2 or Temp. Up/Down Key for 2 sec.
2. LCD lights flash.
3. Set-up CO2 or Temp. value by using "Up, Down Key".
4. Press CO2 or Temp. "Up, Down Key" both at the same time for 0.5 sec.

Output Signals

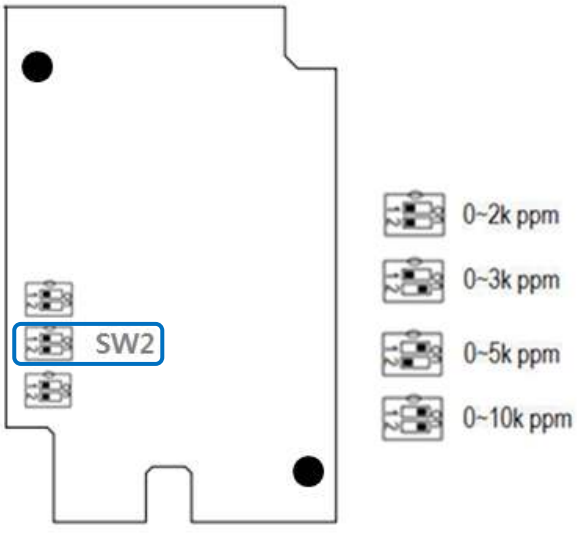
■ **SW1 : 4 ~ 20mA & 2 ~ 10V for CO2 and Temp. (0~20mA & 0~10V or 0~5V or 1~5V is can be chosen or ordering.)**



PPM Measurement Range

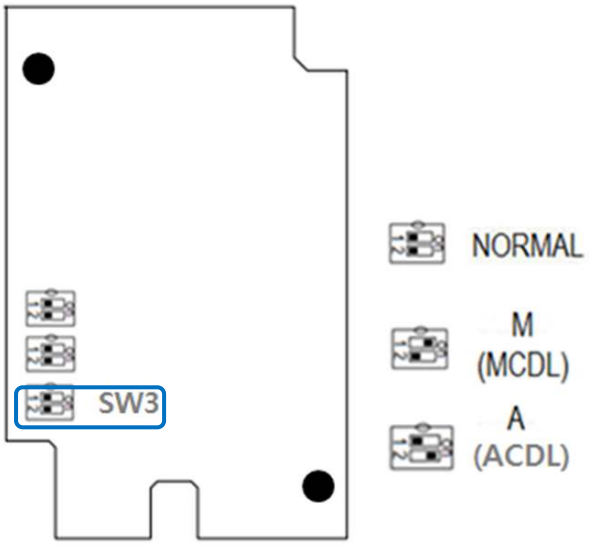
■ **SW2 : CO2 Measurement range selection.**

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

■ **SW3 : Calibration selection**



- **M : MCDL**

Users can do 10 minutes manual calibration (MCDL) when sensor needs calibration in short time.

Procedure : Move switch to 'M' position and wait over 11 minutes at ambient air-flowing status near 400ppm, and move switch back to 'NORMAL' position before 18 minutes.

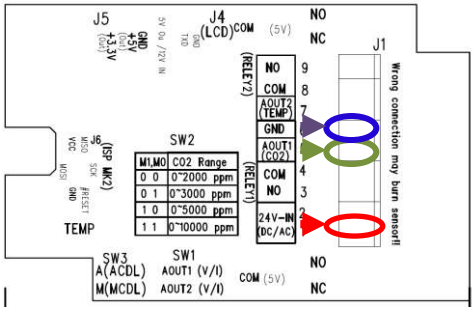
- **A : ACDL**

When users are using the CD-400 in indoor ventilation applications like as HVAC, building, houses etc., the ACDL could calibrate sensor By itself, saving user's management effort.

Procedure : Move switch to 'A' position. Auto-calibration act first in 2 days, second in 5 days, and every 7 days after then since power on.

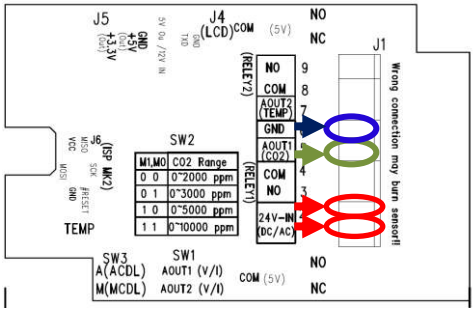
● **[J1] Wiring Method for 24VDC, 24VAC**

For 3 wired method, 24VDC should be wired into either pin-1 or pin2, GND (Ground) into pin-6, Analog-output into pin-5.



9	Temp. Relay 2 – **NO**(Normal open)
8	Temp. Relay 2 –**COM**(Common)
7	Temperature **A-OUT**
6	**GND**
5	CO2 **A-OUT**
4	CO2 Relay 1 –**COM**(Common)
3	CO2 Relay 1 – **NO**(Normal Open)
2	(24VDC+ can be wired here instead pin-1)
1	**24V**DC

For 4 wired method, 24VAC+ (or 24VAC-) and 24VAC- (or 24VAC+) should be wired into both pin-1 and pin2, GND (Ground) into pin-6, Analog-output into pin-5.



9	Temp. Relay 2 – **NO**(Normal open)
8	Temp. Relay 2 –**COM**(Common)
7	Temperature **A-OUT**
6	**GND**
5	CO2 **A-OUT**
4	CO2 Relay 1 –**COM**(Common)
3	CO2 Relay 1 – **NO**(Normal Open)
2	**24V**AC- (or 24VAC+)
1	**24V**AC+ (or 24VAC-)

Ordering Table

CD-400(LG)-	Base	'L' option (LCD)	'G' option (~ 99% Humidity)	CO2 Output	Temp. Output	Remark
1	CD-400-	L	G	4_20		4~20mA (c.f. 2~10V can be chosen with Switching (SW1)
2				2_10		2~10V (c.f. 4~20mA can be chosen with SW1)
3				0_20		0~10mA (c.f. 0~10V can be chosen with SW1)
4				0_10V		0~10V (c.f. 0~20mA can be chosen with SW1)
5				0_5V		0~5V (c.f. no other output can be chosen)
6				1_5V		1~5V (c.f. no other output can be chosen)
7				4_20	&4_20	4~20mA (c.f. 2~10V can be chosen with Switching (SW1)
8				2_10	&2_10	2~10V (c.f. 4~20mA can be chosen with SW1)
9				0_20	&0_20	0~10mA (c.f. 0~10V can be chosen with SW1)
10				0_10V	&0_10V	0~10V (c.f. 0~20mA can be chosen with SW1)
11				0_5V	&0_5V	0~5V (c.f. no other output can be chosen)
12				1_5V	&1_5V	1~5V (c.f. no other output can be chosen)

Ex1 : CD-400LG-1 (=CD-400LG-4_20) has LCD-display, with 'G' option i.e. could operate up to 99% humidity environment, giving CO2 output of 4~20mA which could be changed to 2~10V with switch-1 setting.

Ex2 : CD-400-4 (=CD400-0_10) has no LCD-display, with 'G' option i.e. could operate up to 90% humidity environment, giving CO2 output of 0~10V. (c.f. 0~20mA could be chosen when SW1 setting changed.

Ex3 : CD-400G-11(=CD-400G-0_5&0~5) has no LCD-display, with 'G' option i.e., could operate up to 99%, giving outputs 0~5V for CO2 and Temperature each.

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