USER GUIDE FOR CDW-12A CO2 SENSNOR

CDW-12A-01-MN-10	SEP-2024

This document is applied for the following products

SKU	CDW	HW Ver.	1.0	FW Ver.	1.0
Item Code	CDW-12A	CO2 Sensor, 4-20mA RS485 0-5V Output, ABS, 0-2000ppm,0-5000ppm,0-10000ppm			

1. Introductions

CDW-12A CO2 transmitter is using NDIR principle to detect the CO2 concentration in the air, designed with advanced infrared absorption gas detection technology ,a precise optical path and an excellent circuit. A temperature sensor built-in realizes temperature compensation to ensure the accuracy of measurement. It is without oxygen dependence , of long service life.

2. Specification

Item	Technical Specification
Range(concentration)	0-2000ppm,0-5000ppm,0-10000ppm
Accuracy	±50ppm+2%rdg @25℃
Supply	5VDC,12-24VDC
Output	4-20mA,0-5V,RS485
Power Consumption	<0.25W
Warm Up Time	3min
Response Time	<20s
Temperature Drift	≤0.2%FS/℃
Stability	<±40ppm/year
Repeatability	<±1%FS
Operating Temperature	-20℃-+60℃@15-80%RH
Storage	-40-70℃@20%-90%RH
Shell Material	ABS

3.Working Process

Contains high-precision and high-stability amplifier integrated circuit for amplifying and processing the weak signal output of induction components, and has temperature compensation and other functions to improve measurement accuracy and stability.

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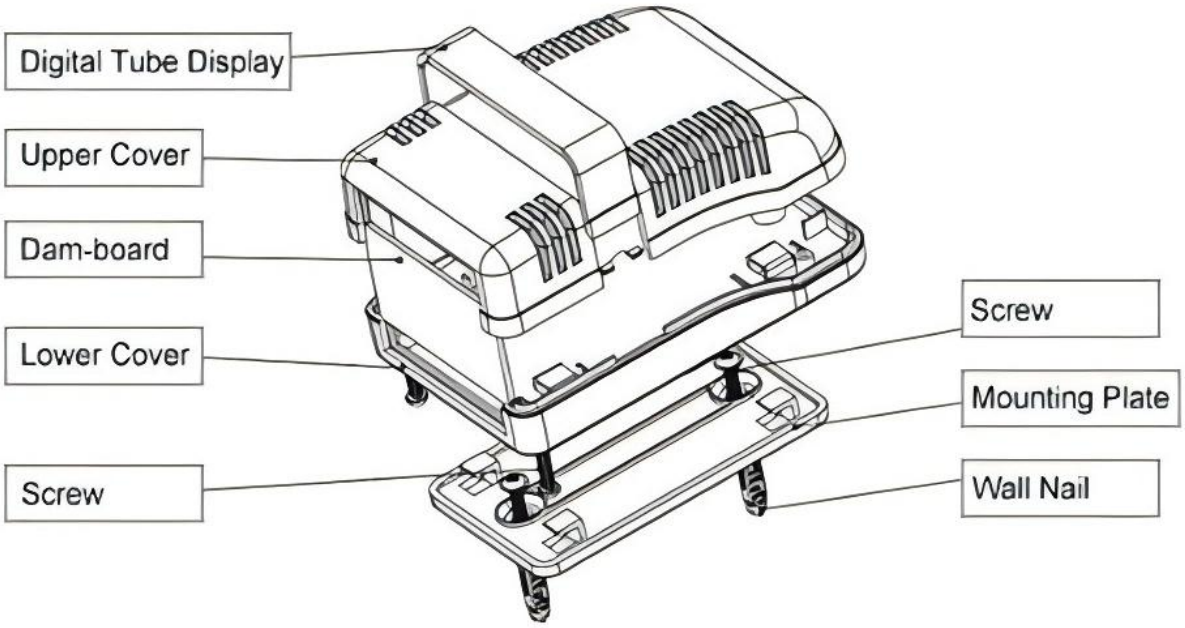
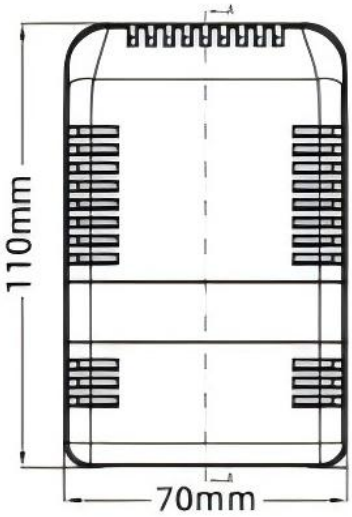
4. Electrical Connections

Connector（cable）	Voltage	Current	RS485
Red	V+	V+	V+
Black	V-	V-	V-
Yellow	Signal out	Signal out	RS485A
Green			RS485B

5. Dimensions&Installation





1.Install the product in stable environment area, avoid direct sunlight, away from windows air-conditioning, heating and other equipment. Otherwise it will cause atmospheric pressure measurement inaccuracies.

2. It is recommended to install in the cabinet open to the atmosphere,for example: instrument shelter

6.Communication Protocol（MODBUS）

Transmission mode: MODBUS-RTU,**Baud rate:** 9600bps,**Data bits:**8,**Stop bit:**1,**Check bit:**no

Slave address:the factory default is 01H (set according to the need,00H to FFH)

6.1 The 03H Function Code Example: Read CO2 Concentration

Host Scan Order(slave address:0x01)
01 03 00 00 00 01 840A

Slave Response
01 03 02 0E 48 BC12

CO2: (0E48)H=(3656)D=3656ppm

6.2 The 06H Function Code Example: Modify the slave address

Host Scan Order (Changed the 01H to 02H):
01 06 00 30 00 02 0804

Slave Response:
01 06 00 30 00 02 0804

If you forget the original address, you should use the broadcast address(FEH) (ensure that no other devices on the bus at this time).

Note:
1. All underlined is fixed bit;

2. The last two bytes is CRC check command.

Note: This product has been tested and complies with European CE requirements for EMC directive.

6.3 OUTPUT CHARACTERISTICS

- **Current**

4-20mA is corresponding to pressure from 0 to full scale.

- **Voltage**

The zero point voltage to full scale voltage is corresponding to pressure from 0 to full scale.

- **RS485**

If the transmission distance is over 100m, please add one 120Ω terminal matching resistance on the front end and back end of bus interface respectively.See appendix for communication protocol.

7.Troubleshooting

If some error occurs, such as no output or unreliable. Please disconnect the sensor first, then check if the sensor installation and connection is correct with the instruction manual.

If still not successful, please contact our company.

8. Support contacts:

Complies with applicable CE directives.

Manual subject to change without notice. Version 1.0

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