USER GUIDE FOR CDW-33A ATMOSPHERIC TEMPERATURE, HUMITIDY & PRESSURE SENSNOR

This document is applied for the following products

SKU	CDW	HW Ver.	1.0	FW Ver.	1.0
Item Code	CDW-33A	Temp & Humi & Pressure Sensor，4-20mA RS485 Output，ABS，-40-80℃，0-100%RH，10-110kPa			

1. Introductions

CDW-33A Atmospheric Temperature, Humidity & Pressure Sensor is a professional measurement of air temperature, relative humidity & barometric pressure. Sensors are built-in the water-proof and anti-UV shelter. It is widely used in agriculture, forestry, meteorology as well as a climate chamber, warehousing and other places.This model also can be equipped with 12 plates radiation shield(CDP-10A) to protect the sensors from solar radiation and rain.

2. Specification

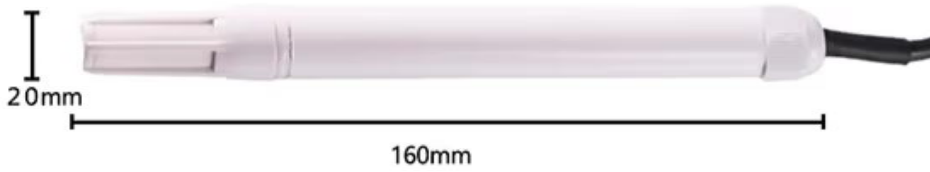| Item	Technical Specification		
	Temperature	Humidity	Pressure
Range	-40-60℃	0-100%RH	10-110kPa(100-1100hPa)
Resolution	0.1℃	0.5%RH	0.1hPa
Accuracy	±0.5℃	±3%RH	±1hPa
Supply	5VDC, 12-24VDC		
Output Signal	4-20mA,0-5V,0-10V,RS485(MODBUS),IIC①		
Current Consumption	<20mA		
Operating Temperature	-40℃-+80℃		
Ingress Protection	IP65		
Storage	10-60℃@20%-90%RH		
Weight(unpacked)	120g		
Probe material	ABS		
Radiation Shield(optional)	CDP-10A,12 plates		

3.Working Process

The design of the product uses a pen appearance structure, beautiful appearance, small, mainly used in indoor computer rooms, environmental control and outdoor weather monitoring fields, high integration, convenient application. Its main technical indicators include: the measurement range is -40 ℃ to 60℃ (temperature), 0 to 100RH (relative humidity), 10 to 110kPa (atmospheric pressure); Cable length 2.5meters; Working environment temperature is -40 ℃ to 80℃; The protection grade is IP65.
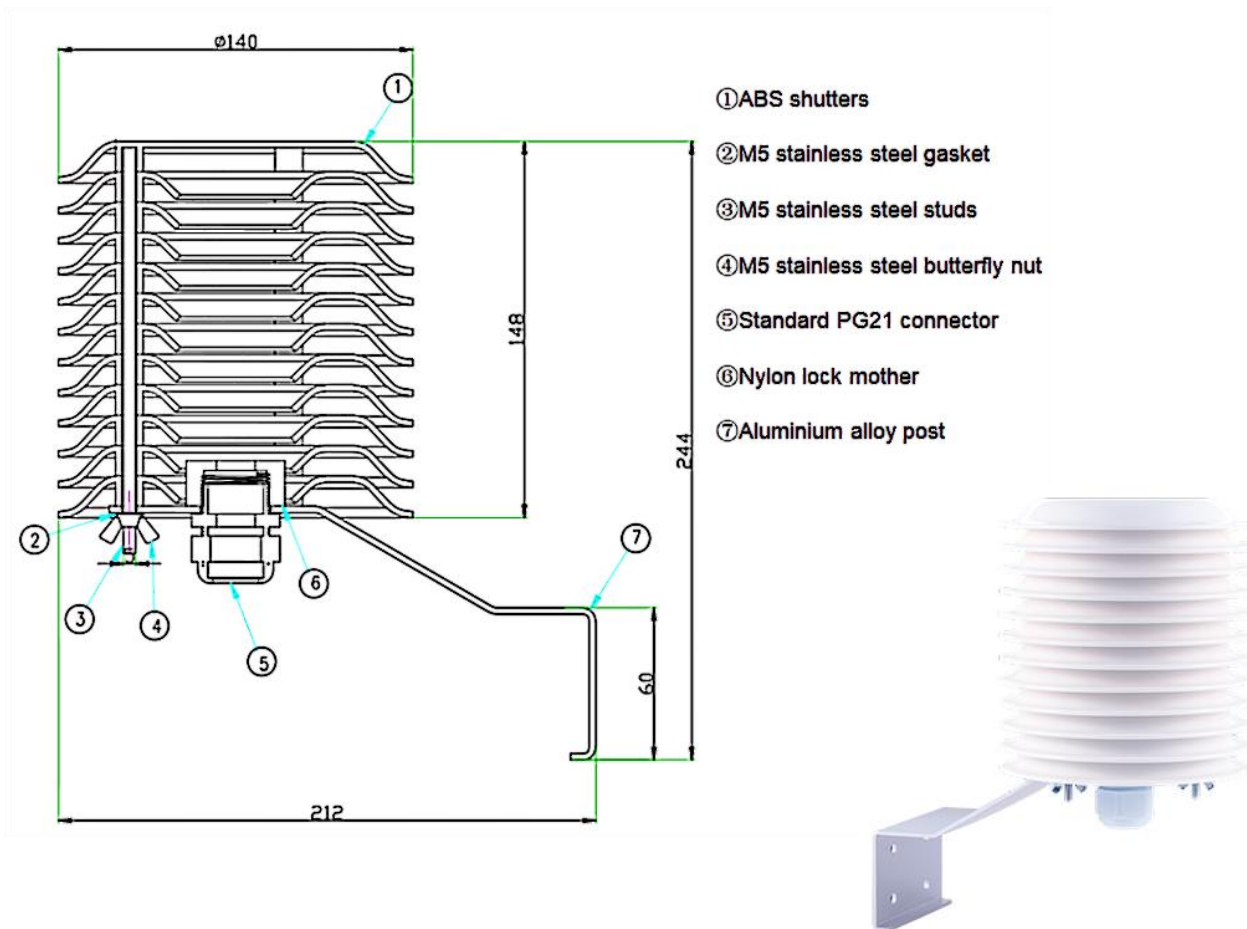
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4. Electrical Connections

Cable	Voltage/Current	Cable	RS485
Red	V+	Red	V+
Yellow	T-Signal	Yellow	RS485A
Black	V-	Black	V-
Green	H-Signal	Blue	RS485B

5. Dimension

20mm

160mm

6. Installation

Ø140

148

244

60

212

① ABS shutters

② M5 stainless steel gasket

③ M5 stainless steel studs

④ M5 stainless steel butterfly nut

⑤ Standard PG21 connector
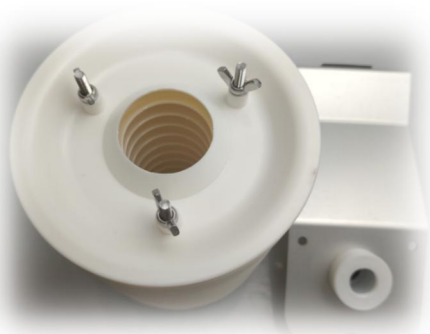
⑥ Nylon lock mother

⑦ Aluminium alloy post

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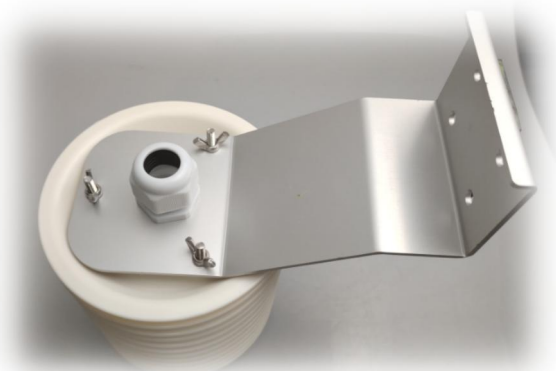
2. Fixing rail is optional.

3. If you use indoor, recommends clamp to install, as shown on the right picture.

Step 1: Remove the sensor and shelter from the packaging

Step 2: Remove the shelter screws, install the bracket accordingly, and lock the screws

Step 3: Install the sensor inside the shelter and lock securely

7. 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)

7.1 The 03H Function Code Example: Read Atmospheric Temperature, Humidity & Pressure

Host Scan Order(Slave addr:0x01):
01 <u>03 00 00</u> 00 03 05CB

Slave Response:
01 <u>03 06</u> 1A 18 1F B2 27 1F FE 86

Temperature:(1A18)H=(6680)D,6680/100-40=26.80(℃)

Humidity:(1FB2)H=8114(D), 8114/100=81.14(%)

Pressure:(271F)H=10015(D),10015/10=1001.5(mbar)

7.2 The 10H Function Code Example: Modify the slave address

Host Scan Order (Changed the 01H):
00 <u>10 00 01 00 01 02</u> 00 01 6B D1 (00 01 new address)

Slave Response:
00 10 00 01 00 01 51 D8

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.

7.3 OUTPUT CHARACTERISTICS

● **Current**
T=(I-4)/16*100-40, (where T = temperature(℃),I = output current(mA))
H=(I-4)/16*100%, ((where H = humidity(RH),I = output current(mA)))

● **RS485**
If the transmission distance is over 100m, please add a 120Ω terminal matching resistances on the front end and back end of bus interface respectively.Attach communication protocol.

8. 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.

9. Support contacts: