

I. Introduction and Features

Integrated sensor and transmitter design, suitable for CO₂ measurement in indoor environment.

- Non-dispersive infrared light principle (NDIR) carbon dioxide sensors
- Dual Channel Carbon Dioxide Sensor
- Meet the standard 86 junction box installation
- Beautiful appearance, lead wire from the back of the shell, suitable for concealed wire.
- Stable performance and long service life

II. Technical parameters

Power supply: DC 24V (22V~26V) ☐ _____

Maximum current: 80mA (DC 24V)

Measuring range: 0ppm~2000ppm

☐ 0ppm~5000ppm

(10000ppm, 50000ppm can be customized)

Accuracy: $\pm (40 \text{ ppm} + 3\%F-S)(25^{\circ}\text{C})$

Temperature drift: $\pm 0.2\%F-S/^{\circ}\text{C}$

Stability: $\leq 2\%F-S$

Non-linearity: $\leq 1\%F-S$

Pressure drift: 0.13% of reading per mmHg impact

Response time: $\leq 2\text{min}$ to reach 90% of the change

Signal refresh time: 4s

System warm-up time: $\leq 2\text{min}$ (operable)

$\leq 10\text{min}$ (maximum accuracy)

Working environment: $0^{\circ}\text{C} \sim 50^{\circ}\text{C}$, 0%RH~95%RH

(no condensation)

Output signal:

Current output type: 4mA~20mA

Voltage output type: 0V~5V/0V~10V

Network output type: RS485, RS232

Load capacity:

Voltage output type: output impedance 250 Ω

Current output type: $\leq 500\Omega$

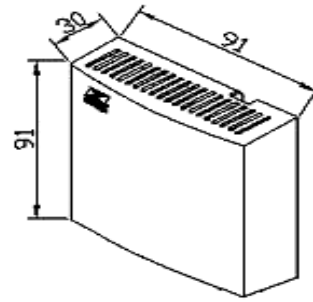
Installation: Wall mounting

Shell: ABS white 91mm×91mm×30mm

Product weight: $\leq 160\text{g}$

III. Shape, wiring

Dimension: 91mm×91mm×30mm



Wiring instructions: (Any incorrect wiring may cause irreversible damage to the transmitter)

A in the illustration is the display instrument, actuator or acquisition card.

Analog Output

Terminal 1:

GND (signal ground or power ground)

Terminal 2:

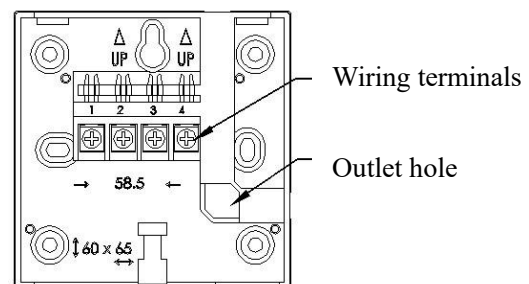
V- (power supply negative)

Terminal 3:

V+ (power supply positive)

Terminal 4:

OUT (output signal)



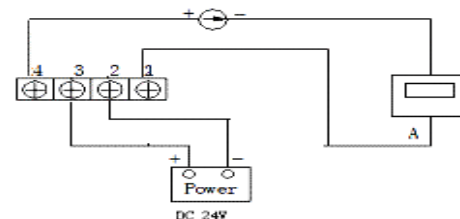
● Network output (JQAW-12W1/W2)

Terminal 1: GND (power ground) Terminal 2: V+ (power positive)

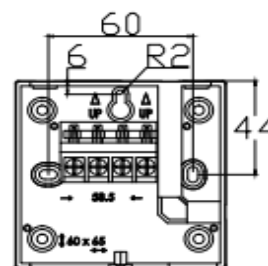
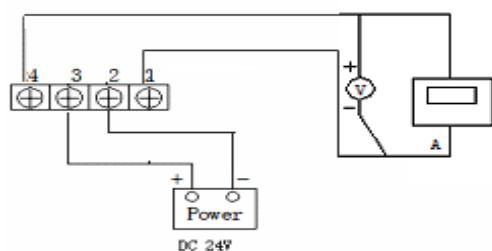
Terminal 3: RX (RS232) or B- (RS485)

Terminal 4: TX (RS232) or A+ (RS485)

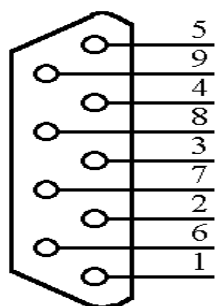
● Current output (JQAW-12AC)



● Voltage output (JQAW-12VB1/2)



Positive mounting hole size



DB9 socket

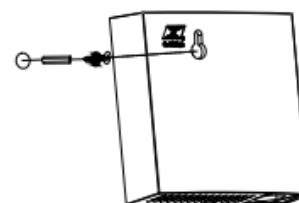
The DB9 terminal outputs are defined as follows:

Pin2: RXD → Terminal 4

Pin3: TXD → Terminal 3

Pin5: GND → Terminal 1

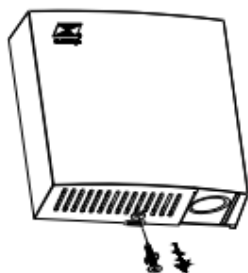
③



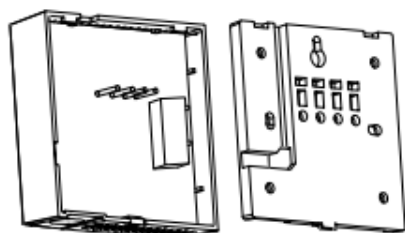
Top-end installation (recommended)

④-A

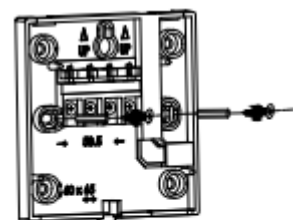
IV. Installation



①

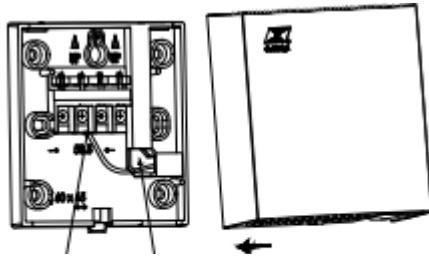


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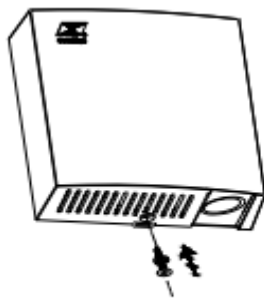
Left and right double hole fixed mounting

④-B

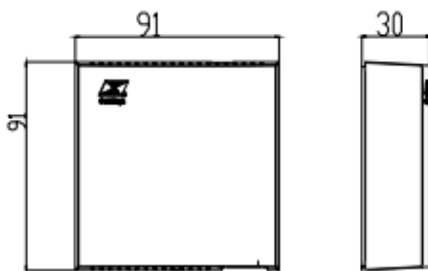


wiring terminal outlet

See wiring instructions for terminal definitions



⑥



⑦

Mounting method:

- 1.wall hoist hole installation (recommended), as shown in Figure A;
- 2.wall junction box installation, as in Figure B;

Installation steps:

- 1.Turn on the transmitter, as shown ①;
- 2.Connect the cable wires to the transmitter according to the correct wiring sequence on the terminal block of the base plate, then mount the base plate on the wall Then install the base plate on the wall and cover the transmitter as shown in Figure ⑤。

Installation location:

- 1.The environmental area where the measurement is mainly required.

Installation precautions:

- 1.Install in the area with relatively stable environment, avoid direct light, stay away from windows and air conditioners, heaters and other equipment, and avoid directly facing windows and room doors.

- 2.As far as possible from high-power interference equipment, so as not to cause inaccurate measurement, such as inverter, motor, etc.

V. Use

- 1.After checking carefully to make sure the wiring is correct, turn on the DC 24V power supply, the sensor LED flashes, and use the output CO2 corresponding hexadecimal value after 2min, and the output reaches the maximum accuracy after 10min.

- 2.If you want to disassemble the transmitter, you must first disconnect the power supply, and then disassemble.

- 3.This transmitter is indoor type, avoid having water inside the transmitter to avoid damage.

VI. Attention

- 1.Please read this manual carefully before use to make sure the wiring is correct. Any wrong wiring may cause irreversible damage to the transmitter.

- 2.avoid in easy to transfer heat and will directly prevent chemical reagents, oil, dust and other direct infringement of the sensor, do not condensation, extreme temperature environment for long-term use. Do not carry out cold or thermal shock.

- 3.This product is an electronic product, scrapping will produce environmental pollution, scrapping should follow the national electronic device scrapping related standards.

VII. Transportation, storage

- 1.Transmitter avoid vibration as much as possible, gently take and put.

- 2.Storage conditions: 10°C~40°C; 20%RH~50%RH.

VIII. Open box inspection

- 1.After opening the package, check whether the transmitter is intact.

2. Transmitter	1set
Manual	1serving
Certificate of conformity	1sheet
Package of desiccant.	1 package

4. Description of the query and write commands:

IX. Troubleshooting and Analysis

1.If the transmitter output is 0, or the output value is not within the range, please check whether the wiring is correct and firm.

2.If not the above reasons, please contact with the manufacturer.

X. Communication protocols

Compliant with standard MODBUS protocol (RTU method).

Byte format: 8 bits data, no parity, 1 bit stop bit, default baud rate 9600, address 01.

1.host query, transmitter answer master-slave mode
Data H (high byte) and data L (low byte) are the respective data values to be queried.

Example: Read the current CO2 value of the transmitter at address 01

Request: 01 04 00 00 00 01 31 CA

Response: 01 04 02 03 78 B9 E2

0378 is a hexadecimal number where 03 is the high byte of data, 78 is the low byte, which is converted to a decimal number of 888, i.e. 888 ppm.

Where 31 CA is the CRC check code, the low byte in front.

2.address and baud rate of the next command and the return value of the same is set successfully, re-power to take effect. The address range is 0x01-0xF7,. The correction value change amount is not higher than 1000ppm.

3.Baud rate code and actual baud rate correspondence table

Baud Rate Code	3	4	5	6	7	8	9
Baud rate (kbps)	1200	2400	4800	9600	19200	38400	57600

Query Name	Memory Address	Sample (query or write)
Carbon Dioxide	0X0000	Read CO2 data to the transmitter with address bit 01: 01040000000131CA Answer: Address + 0402 + CO2 H + CO2 L + CRCL + CRCH
Offset	0X0210	Read the offset operation for the transmitter with address bit 01 as: 0103021000018477 Answer: Address + 0302 + offset H + offset L + CRCL + CRCH Write offset: Add 500ppm offset to the transmitter with address bit 01. 0106021001F489A0 Answer: Address + 0602 + offset H + offset L + CRCL + CRCH
Address	0X0030	Query Address: Transmitter read address operation is: FF030030000191DB Answer: Address + 0302 + Address H + Address L + CRCL + CRCH Change transmitter address: The operation to change the transmitter address to 02 address for address bit 01: 0106003000020804 Answer: Address +06+0030+ new address H+ new address L+ CRCL+ CRCH
Baud rate	0X0031	Change the transmitter baud rate for the address bit baud rate of the transmitter with address bit 01 to 9600 operation: 0106003100060804 Answer: Address + 06 + 0031 + new baud rate code H + new baud rate code L + CRCL + CRCH