

CO2 SENSOR

RY-VS09

MANUAL



INTRODUCTION

The RY-VS09 CO2 sensor uses a CO2 probe imported from Sweden, with a wide range and strong antistatic ability. It converts the digital change of carbon dioxide content into analog current, voltage, or MODBUS protocol output for measuring ambient CO2 concentration.

Widely used in meteorological environment, fresh air system, greenhouse cultivation, breeding, storage, scientific research and other fields.

TECHNICAL SPECIFICATION

- Principle: NDIR
- Measuring range: 0~5000ppm
- Accuracy: $\pm 70\text{ppm} \pm \text{data}3\%$ (Start ABC, general application environment, within the range of 0 ~ 2000ppm, the accuracy that can be achieved after 3 weeks of continuous operation)
- Working voltage: DC12V
- Working current: DC12V <35ma(485) ; DC12V <55ma(current)
- Power Consumption: DC12V <0.42W (485) ; DC12V <0.66W (current)
- Output:

RY-VS09	RY-VS09/485
4-20mA	RS485modbus

- Load capacity: Current mode output impedance $\leq 500 \Omega$
- Standard line length: 1.5m
- Farthest lead wire: Current 200m、 RS485 100 m
- Working temperature: 0°C ~ 50°C
- Working Humidity: 0~100%RH (Sensor is powered)
- Preheating time: < 1 minute
- Ingress Protection: IP65
- Weight: about 200g
- Shell size: 140mm x 30mm

COMMUNICATION PROTOCOL

Communication specification

Baud rate: 9600

Data bit: 8

Stop bit: 1

Check bit: None

Flow control: None

Unified format of data package

(XX: slave station No. 0x01-0xff; crclo crchi: CRC check code low byte first, high byte last)

Write station number command

Host send command format:

Device address Function code Start register address No. of registers Data length
Data CRC check

xx 10 0001 0001 02 00xx CRCloCRChi (XX=0X01-0XFF)

Slave response command format:

Device address	Function code	Start register address	No. of registers	CRC check
xx	10	0001	0001	CRCloCRChi

Example:

Command 00 10 00 01 00 01 02 00 33 EA 04

Respond 00 10 00 01 00 01 51 D8

Read station number command (fixed command)

Host send command format:

Device address	Function code	Start register address	No. of registers	CRC check
00	03	0001	0001	CRCloCRChi

Slave response command format:

Device address	Function code	Data length	Data	CRC check
00	03	02	00xx	CRCloCRChi (XX=01-ff)

Example:

Command 00 03 00 01 00 01 D4 1B

Respond 00 03 02 00 FF C5 C4

Read station number command

Host send command format:

Device address	Function code	Start register address	No. of registers	CRC check
xx	03	0000	0001	CRCloCRChi

Slave response command format:

Device address	Function code	Data length	Data	CRC check
xx	03	02	00yy	CRCloCRChi

Example:

Command FF 03 00 00 00 01 91 D4

Respond FF 03 02 02 08 91 36

Note: CO2 value=02 08 (hexadecimal) = 520 (Decimal) ppm

WIRING METHOD

485 output sensor is equipped with a 3m four core cable as standard. Users can customize the cable with appropriate length according to their needs. The cable specification is 0.2mm² Four core shielded cable. The wiring color is defined as

RS485	
Red	Positive pole
Black	Negative pole
Green	A
Blue	B

The current output sensor is equipped with a 1.5m three core cable as standard. The user can customize the cable of appropriate length according to the needs. The cable specification is 0.2mm² Three core shielded cable. The wiring color is defined as:

Current output	
Red	Positive pole
Black	Negative pole
Yellow	Current output

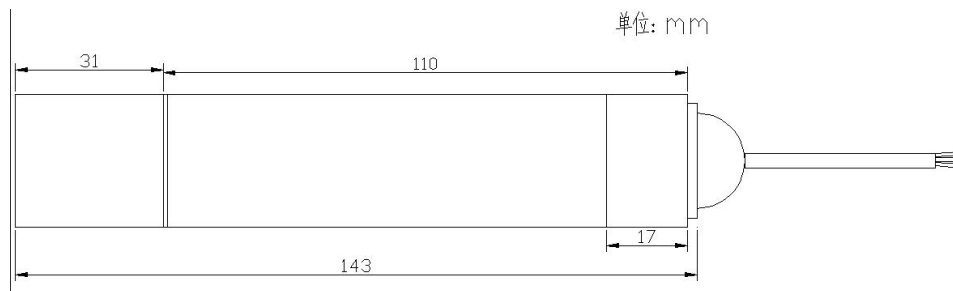
INSTALLATION USE

Selection of installation location. This product can be installed indoors or outdoors, and far away from high-power electrical equipment to prevent interference.

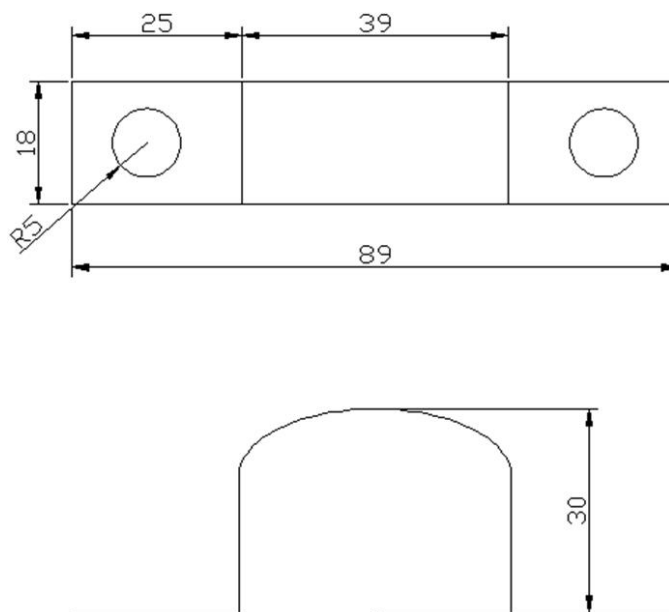
Fixed mode

U-clip, after fixing the product on the mounting rack or indoor wall, test whether the data collection is normal. If not, check whether the cable plug is connected well.

SENSOR SIZE



U CLIP SIZE



WARRANTY & SERVICE

Warranty commitment: the warranty period is 12 months from the delivery period (except for the product problems caused by the failure to operate according to the corresponding technical requirements or other human behaviors).

After sales commitment: users can consult relevant technical problems by phone and get clear solutions. If it is a quality problem, it can be returned to the factory for maintenance or replacement.

Service Phone: 0310-8033736