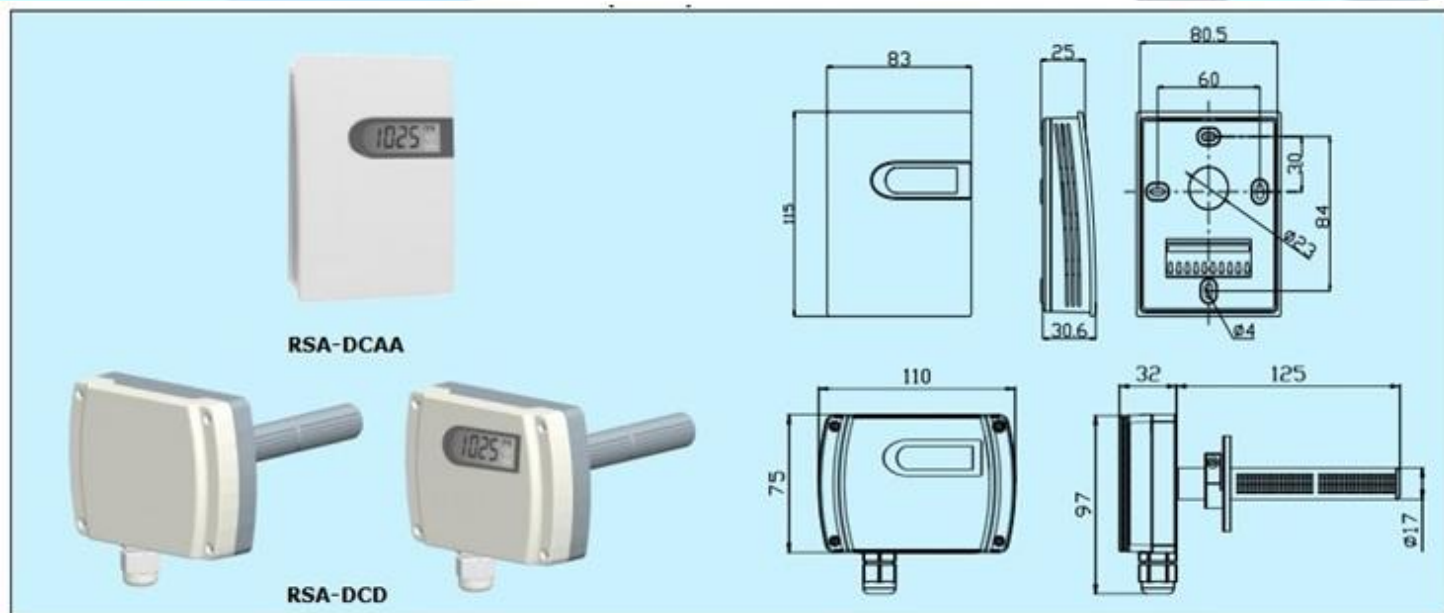


## RSA-DCAA/RSA-DCD Carbon Dioxide (CO<sub>2</sub>) Transmitter



### Applications & Features

- This series transmitters/controllers are designed for monitoring & controlling indoor air quality(CO<sub>2</sub> concentration)
- RSA-DCAA is suitable for wall mount and RSA-DCD is suitable for duct mount. RSA-DCD uses a patented probe structure for excellent sampling performance
- High performance NDIR digital sensor and circuit, ensure precise measurement and temperature compensation
- Stable, reliable and fast response
- 15 years sensor life without maintenance
- Digital technology applied, over voltage and reverse polarity protection, high reliability and anti-interference capability
- All electrical terminals are on the inside bottom, avoid any possible destroy to PCB when wiring(for RSA-DCAA)
- Multiple outputs selection
- LCD & function keys can set various parameters

### Models

Model	RSA-DCAA RSA-DCD			Room CO <sub>2</sub> Transmitter Duct mount CO <sub>2</sub> Transmitter
Accuracy		0 1		50 ppm + 5% reading 40 ppm + 3% reading
Output			1 8	4~20mA/0~10VDC RS485/Modbus
Display			0 1	N/A LCD

### Specifications

**Sensor:** NDIR sensor, with ABC algorithm\*

**Sampling Method:** diffusion

**Accuracy:** see models

**Response time:** <120s (30cc/min, low airflow)

**Drift:** <±10ppm/year

**Range:** 0~2000ppm (measurement range 400~2000 ppm)

**Output:** 4~20mA, 0~10V, RS485/Modbus

**Load resistance:** ≤500Ω(Current output), ≥2kΩ(Voltage output)

**Power supply:** 16~28VAC/18~35VDC

**Display:** Optional LCD, with unit display

**Display resolution:** 1ppm

**Working environment:** 0~50°C, 0~85%RH (Non-cond.)

**Temp. Compensation:** RSA-DCAA 0/ RSA-DCD 0:10~40°C  
RSA-DCAA 1/ RSA-DCD 1:0~50°C

**Storage temperature:** -20~60°C

**Housing:** ABS+PC (RSA-DCAA), fireproof ABS+PC (RSA-DCD) **Protection:** IP30 (RSA-DCAA), housing IP65/probe IP30(RSA-DCD) **Weight:** 135g(RSA-DCAA), 240g(RSA-DCD)

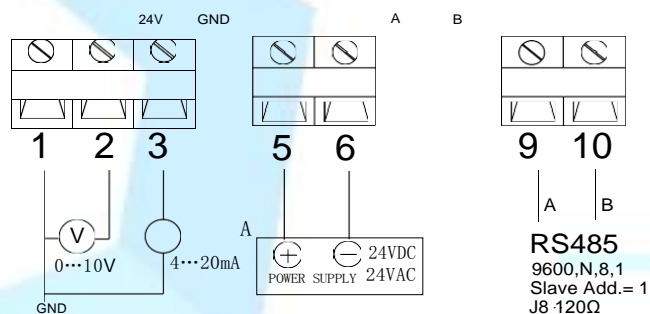
**Approval:** CE

**\*ABC algorithm:** Automatic Baseline Correction, it constantly keeps track of the sensor's lowest reading over a few days interval and slowly corrects for any long term drift detected as compared to the expected fresh air value of 400 ppm CO<sub>2</sub>.

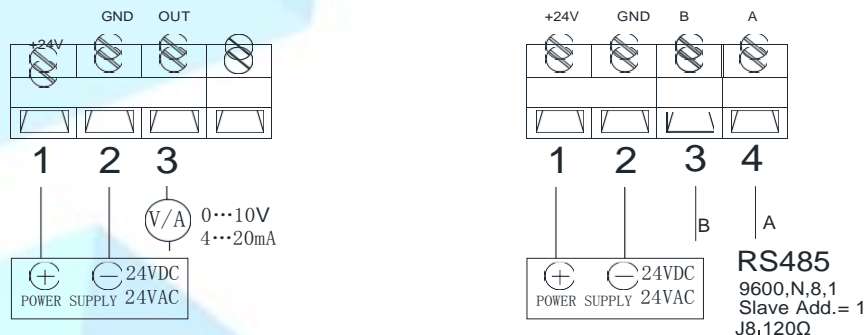
## Connection

Different models have different electrical terminals. Please wire specific model according to the wiring diagram inside the front cover.

### RSA-DCAA



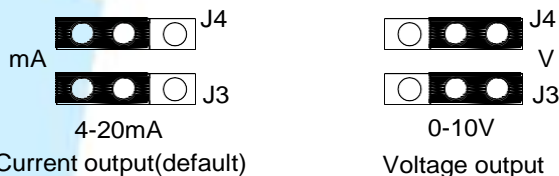
### RSA-DCD



RSA-DCD current and voltage output jumpers J3 & J4:

Current output(4-20mA): left short pin1 and pin2 from J3 & J4 (default).

Voltage output(0-10V): right short pin2 and pin3 from J3 & J4, as the following figure:



RS485/Modbus communication refers to "RSA-DCA series carbon monoxide transmitter Modbus communication instruction". RS485 terminal resistance jumper J8 description:

Terminal resistance 120Ω: left short pin1 and pin2 from J8.

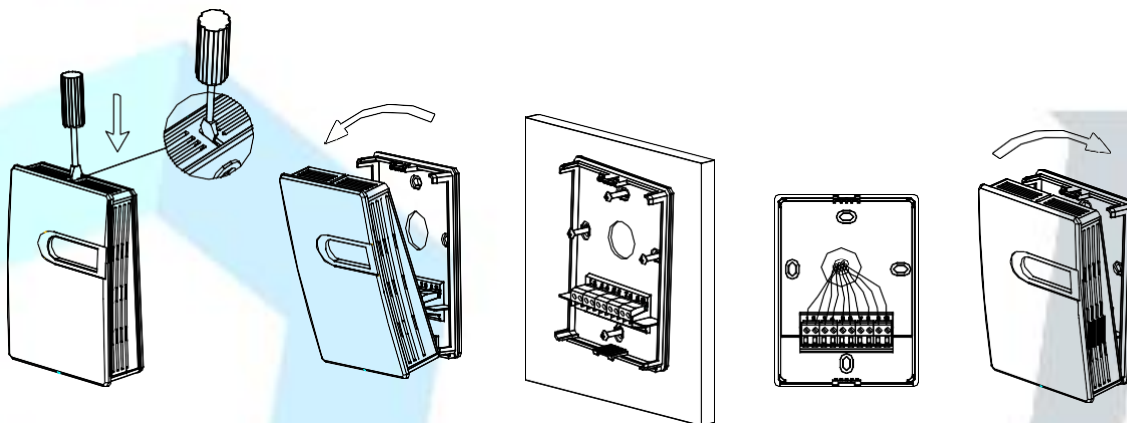
Terminal resistance None: right short pin2 and pin3 from J8, as the following figure:



Terminal resistance : 120 Ω

Terminal resistance :None

## Wall mount installation



- It should be installed vertically on the wall. The installation site should be far away from heater, cooler, fan, humidifier, dehumidifier, and other heat/cool/humidity sources.
- Use a screwdriver, insert into the snap at the upper side of the housing, and push down a little, then open the front cover.
- Feed the cable into the housing before installing the base on the wall according to the diagram.
- Finish electrical connection according to the wiring diagram.
- Restore the front cover, and finish the installation.

## Duct mount installation

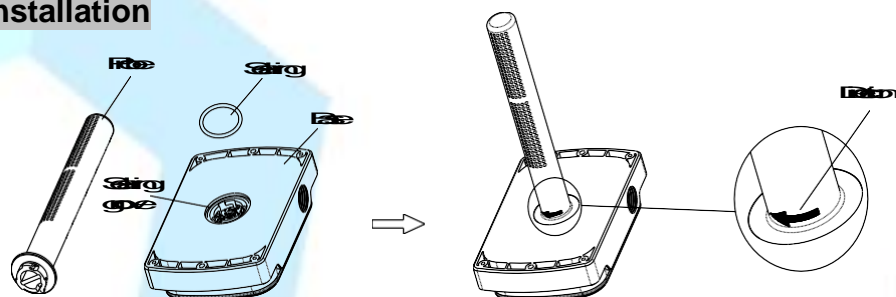


Fig.1

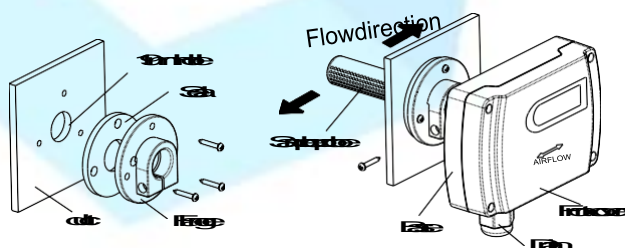


Fig.2

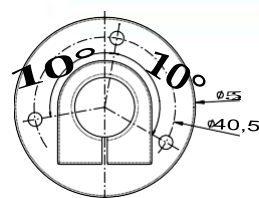


Fig.3

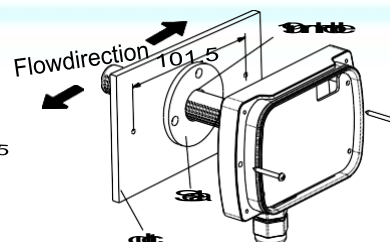


Fig.4

- First, assemble the separated probe on the bottom of enclosure as Fig.1. Insert the seal ring properly and then insert the probe, screw according to the direction indication to the end.
- Duct mount via one of the following ways. Make sure all sampling holes on the probe should be inserted into the duct, and the direction shows on the front cover should be the same as air flow in the duct.
  1. Install via the flange as Fig.2. Drill a  $\phi 19\text{mm}$  hole on the duct, install the seal ring and the flange on, then insert the probe into, screw to lock the whole enclosure on the flange.
  2. Install the enclosure directly on the duct as Fig.4. Drill a  $\phi 19\text{mm}$  hole on the duct, insert the probe into with the seal ring, and screw the enclosure on the duct directly.
- Electrical wiring. Open the front cover. Finish wiring according to the diagram.
- During all above procedures of assembling, installing and wiring, all seal rings should be applied properly to ensure the whole enclosure structures and the assemble part of the probe with the duct can be air tightened. Only in this way, the measured air can go into the enclosure from the sample holes on the probe, other than from the other parts. Meanwhile, keep the whole protection rate up to IP65.

## Attention

- The product is not suitable for high  $\text{SO}_2$  concentration environment.
- The product needs to warm up for 180 seconds. In normal application environment, the transmitter could reach to the accuracy stated in the specifications after 3 ABC cycles of continuing work. Especially within 3 days after the initial power on, the measured value may not be accurate. But after 3 cycles of the internal ABC operation, the function can correct the output to the real value and meet the accuracy. For RSA-DCAA 0 and RSA-DCD 0, the ABC cycle is 3 days. For RSA-DCAA 1 and RSA-DCD 1, the ABC cycle is 8 days.
- It should be power OFF during installing and wiring. When using 24VAC, it is strongly recommended to power the unit with independent transformer. If sharing a 24VAC transformer with other equipments such as controllers, transmitters or actuators, please make sure the terminals 24V and GND are connected correctly. Otherwise, it will perhaps reduce serious damages.

## Warranty

- It has limited warranty for eighteen (18) months after the production date.

## Error code

When the device fails, it will display a number of fault code. The following is the fault code table.

Error code	Possible causes	Solution method
Er3	$\text{CO}_2$ sensor detection failure	Check the electrical connection is correct. Return to plant maintenance.

