Installation Manual

CO2 Sensor

⊗ Munters

CO2 Sensor

Installation Manual

Rev 2.1, 4/2025

Software Version: N/A

This manual for use and maintenance is an integral part of the apparatus together with the attached technical documentation.

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1 Introduction

1.1 Disclaimer

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1.2 Introduction

Congratulations on your excellent choice of purchasing a CO2 Sensor!

In order to realize the full benefit from this product it is important that it is installed, commissioned and operated correctly. Before installation or using the device, this manual should be studied carefully. It is also recommended that it is kept safely for future reference. The manual is intended as a reference for installation, commissioning and day-to-day operation of the Munters equipment.

1.3 Notes

Date of release: May 2021

Munters cannot guarantee to inform users about the changes or to distribute new manuals to them.

2 Introduction

The CO2 Sensor measures CO_2 levels in an agricultural environment. Working in conjunction with a controller, the CO2 Sensor sends a signal when the measured CO_2 levels fall outside the user-defined specifications. This signal activates the controller's ventilation. Refer to Figure 2.
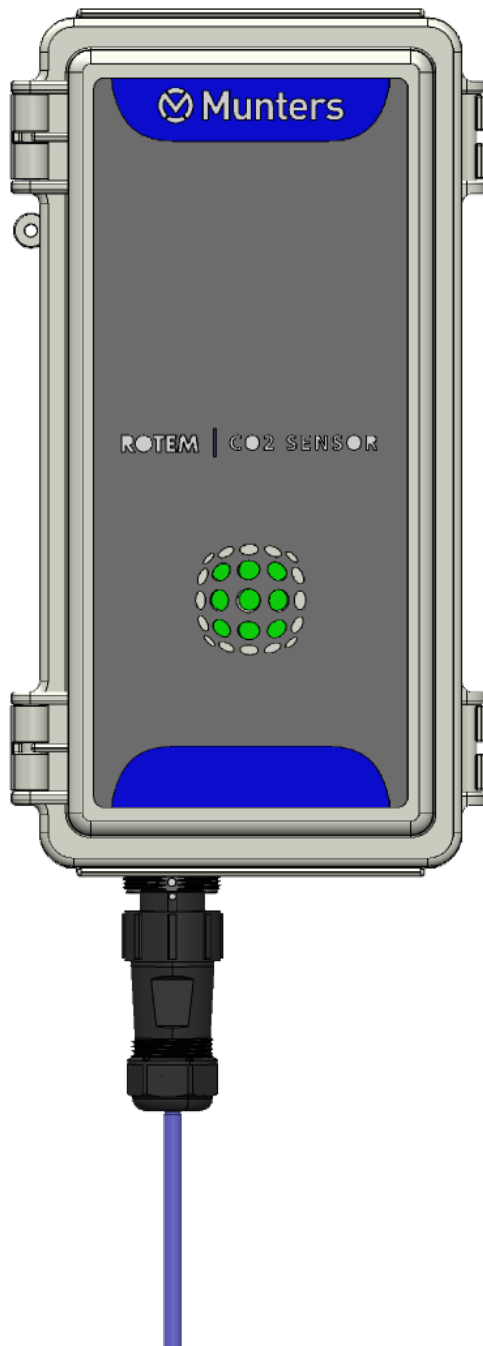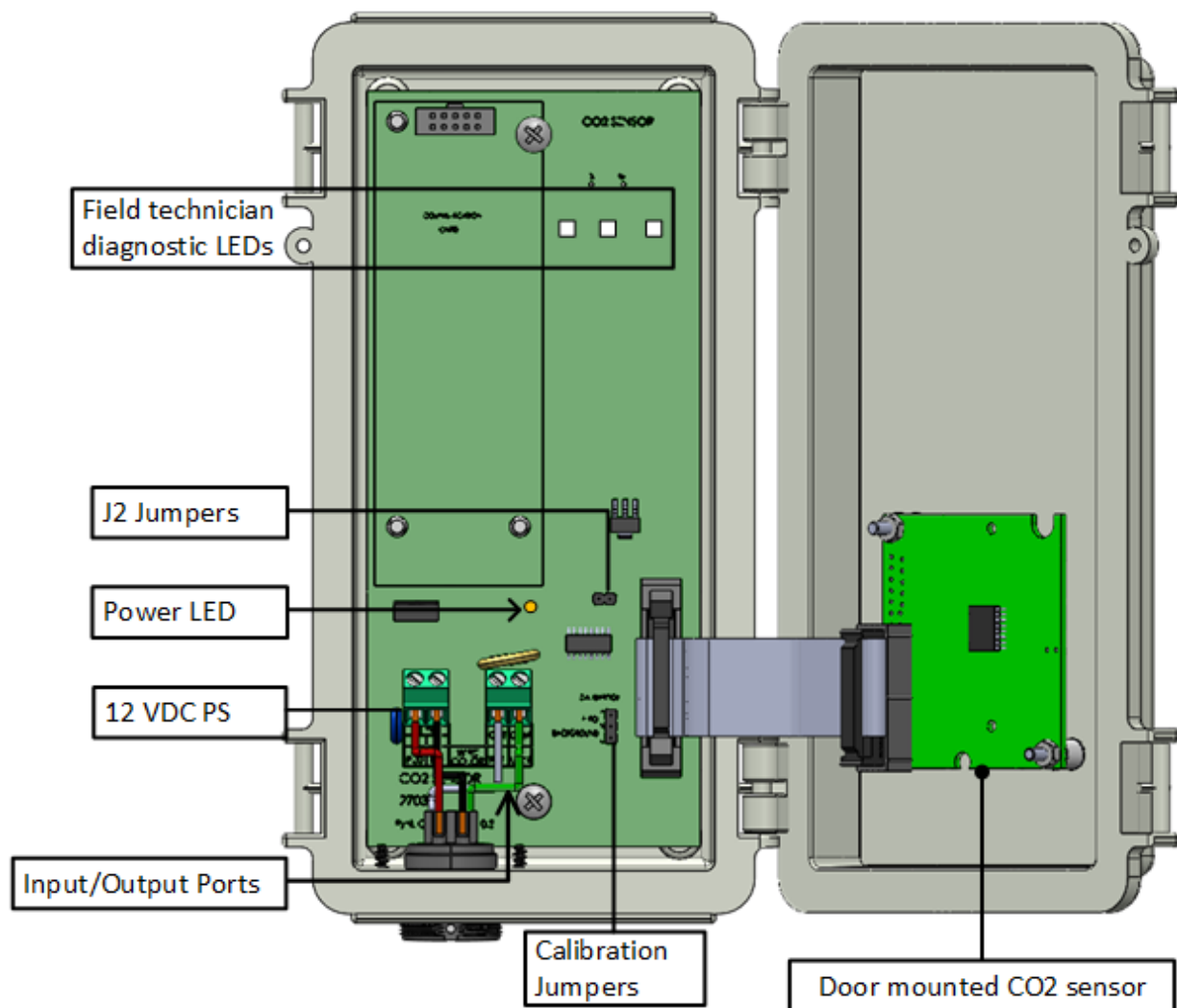

Figure 1: CO2 Sensor, Connector, and Cable

Figure 2: CO2 Sensor Layout

NOTE The unit comes supplied with a 12 VDC supply.
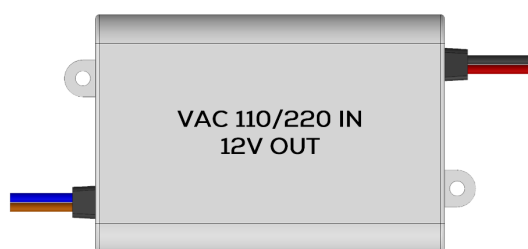
Figure 3: 12 VDC Power Supply

2.1 Features

- Self-contained environment and impact-resistant sealed box
- Quick open clasps
- Easy installation
- Simple to connect and configure
- Continuous uninterrupted CO2 sensing
- Diagnostic LEDs
- Door-mounted sensor

2.2 Operating Mode

The CO2 Sensor operates in a Current Loop mode (4 – 20 milliamps). In this mode, the CO_2 Sensor provides a signal proportional to CO_2 levels.

- Verify that J2 is not shorted (refer to Figure 4).

These jumpers must not be shorted

Figure 4: J2 Jumper

3 Installation

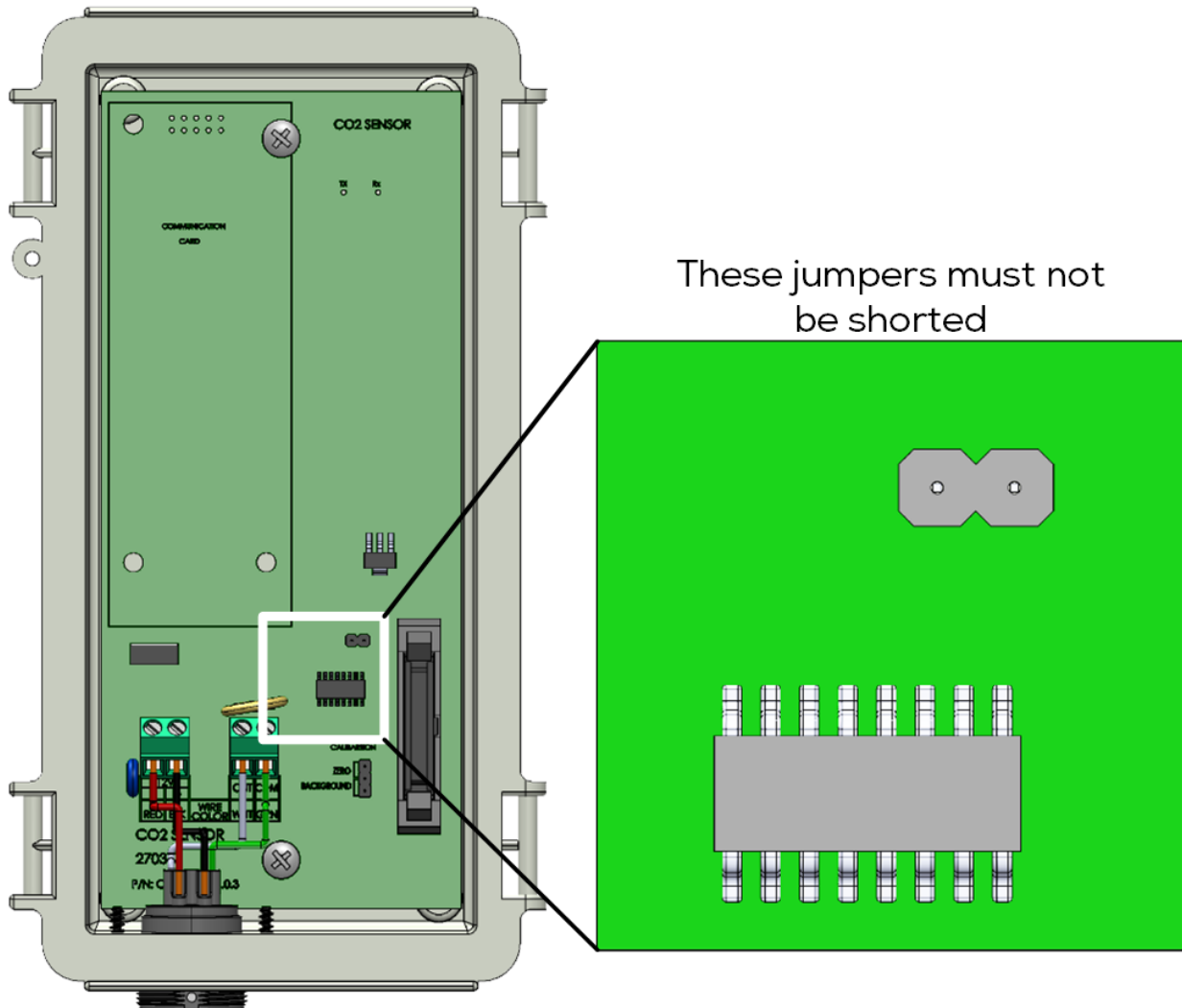This section details how to install the CO2 Sensor (P/N: 913-03-XXXXX).

- **Users installing older devices, refer to** Appendix: Installing Legacy Devices, **page 20.**
- **The functionality of the current and legacy sensors is exactly the same.**

- Placing the Sensor
- Installing the Sensor
- Controller Connection
- Calibrating the Device

3.1 Placing the Sensor

- Place the CO2 sensor approximately about 50 centimetres/2 feet above the floor. However, ensure that the birds or animals cannot touch the sensor.
- Place the sensor in the center of the house or rooms.
- The sensor should not be near cooling systems.

3.2 Installing the Sensor

NOTE The user needs to supply a 4-wired shielded cable that runs from the controller to the CO2 Sensor Connector. This cable is used to:

- Connect the sensor to a power source
- Connect the sensor to the controller (Controller Connection, page 11)
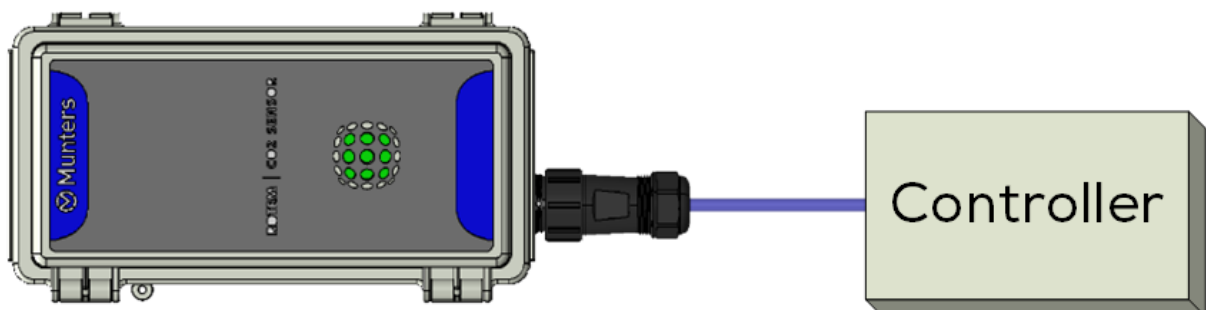- Detach the unit from the house during cleaning and maintenance procedures.

Figure 5: CO2 Sensor Attached to Connector

To install the unit:

1. Mount the sensor in place.

2. Remove the antigron nut and the cover from the connector (Figure 6).

Cover

Antigron
Nut

Cover
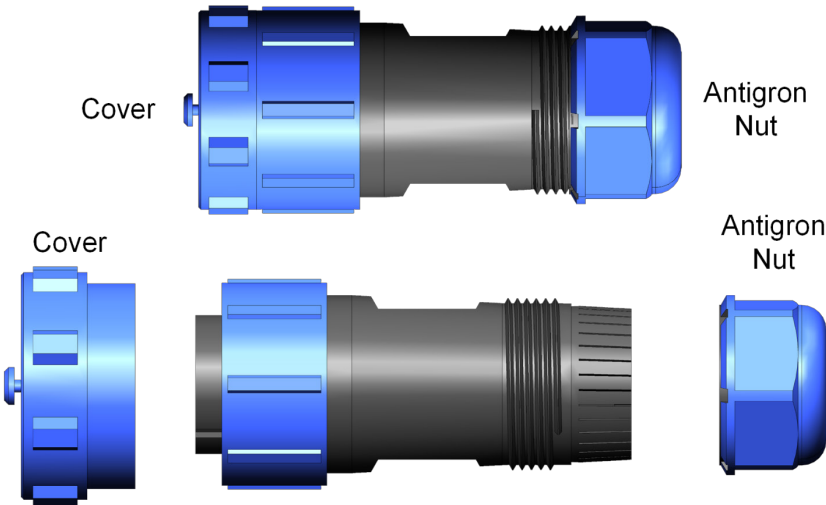
Antigron
Nut

Figure 6: Connector Disassembled

3. Unscrew and remove the socket (Figure 7).

Figure 7: Remove the Connector

4. Threading the cable through the antigron, attach the cable wires according to the following color chart (Figure 8):

Pin Number	Cable Color	Function
1	Black	COM
2	Red	+12VDC
3	Green	SIG Out
4	White	SIG COM
5	Not used	

Figure 8: Threading the Cable and Functions

*NOTE The cable wiring used may have different colors. **Wire the unit according to the functions!***
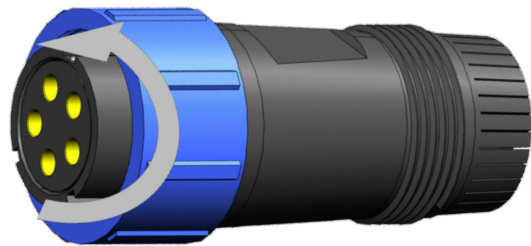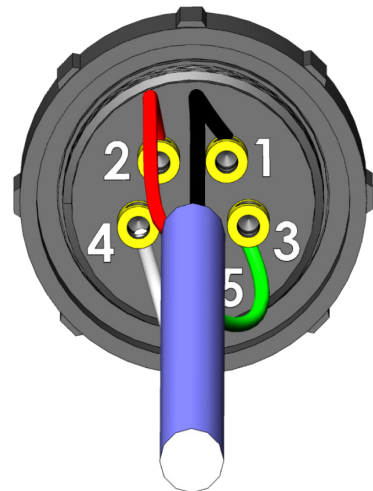
5. Reattach the antigron securing the cable and then reinsert the socket.
6. Remove the cap from the sensor.

Figure 9: Remove the Cap

7. Attach the connector to the sensor. Align the white dots on the two units.
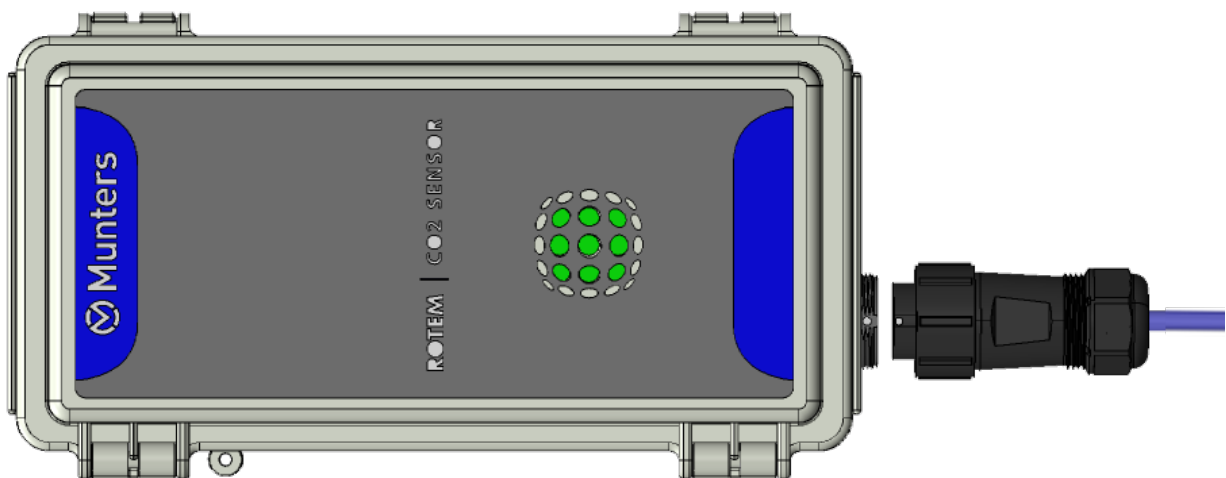

Figure 10: Align the Dots

CAUTION *At the controller, connect the shield to the safety ground! Refer to the wiring diagrams.*

3.3 Controller Connection

- Platinum Wiring
- Platinum Pro Wiring
- AC-2000 Plus Wiring
- TRIO Wiring
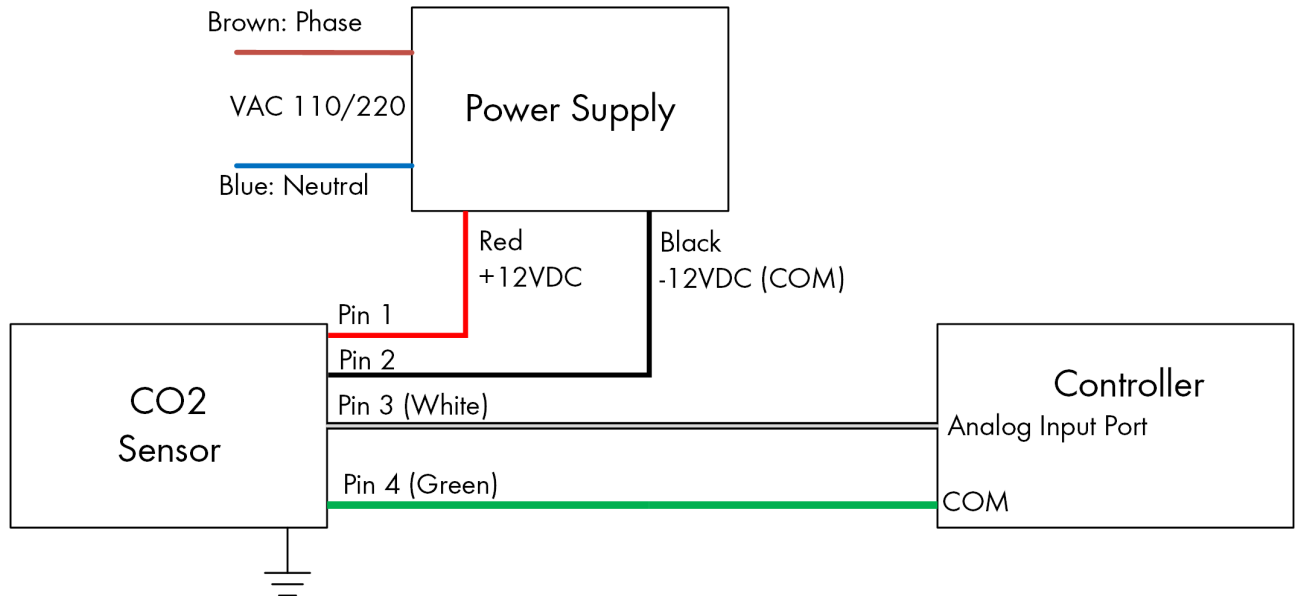
Figure 11: CO2 Sensor Wiring Schematic (colors may vary)

3.3.1 PLATINUM WIRING

1. Attach the other end of the sensor cable to the power supply and Platinum Analog Input Card as indicated in Figure 12.

2. Connect:
   - CO2 COM to COM
   - CO2 output signal to the T5 or T6 terminal

3. **Place a jumper on the T5 or T6 pins (sets the 4 – 20 mA mode).**
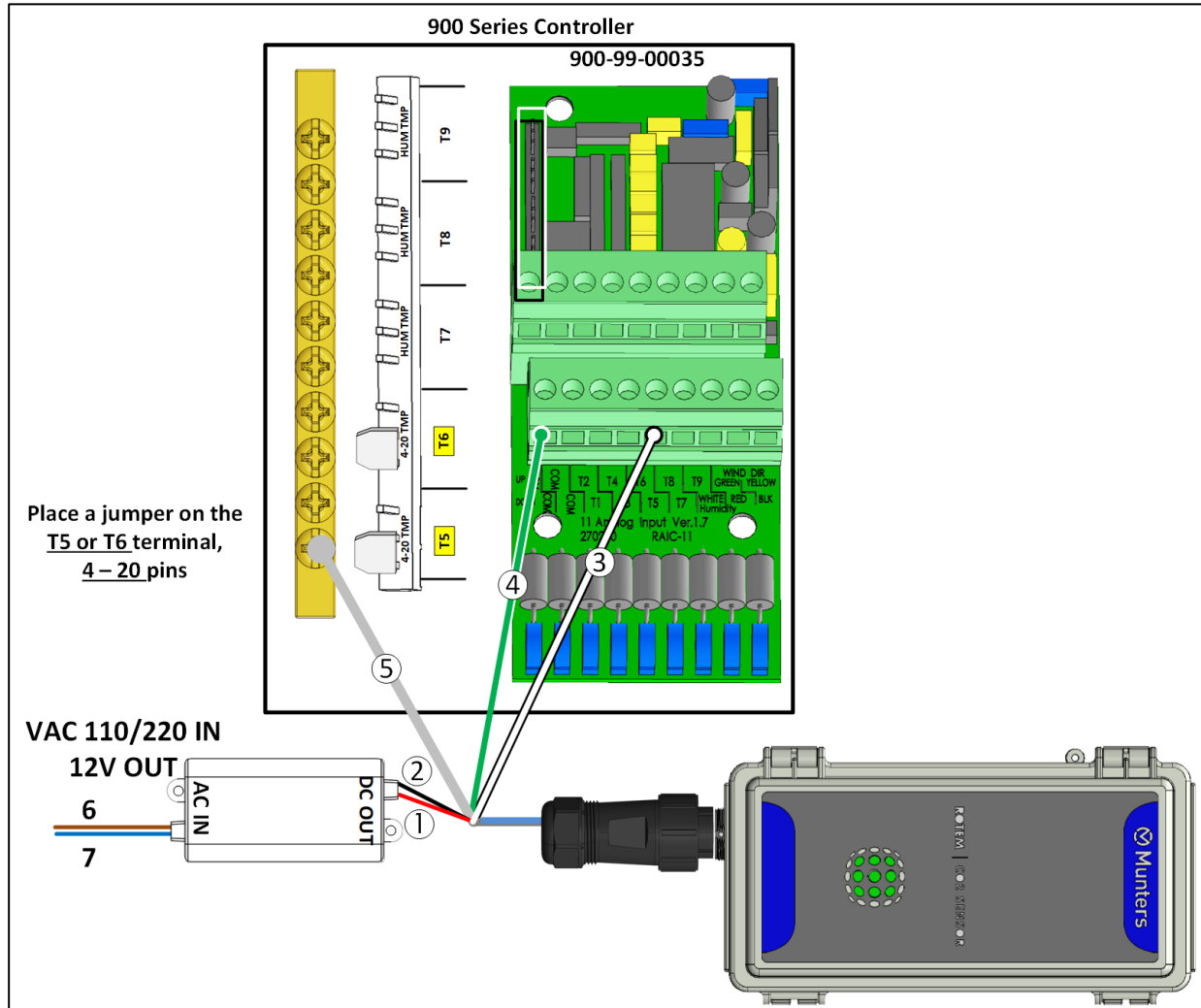
Figure 12: Platinum Wiring

Number	Function
1	Red wire: +12V
2	Black wire: –12V (Sig COM)
3	T5 or T6 port
4	COM port
5	Shield wire
Power Supply	
6	Brown wire: phase
7	Blue wire: neutral

CAUTION   *Connect the shield to the safety ground!*

3.3.2 PLATINUM PRO WIRING

1. Attach the other end of the sensor cable to the power supply and Platinum Pro Analog Input Card as indicated in Figure 13.

2. Turn on DIP Switch 1 **of the corresponding channel.**
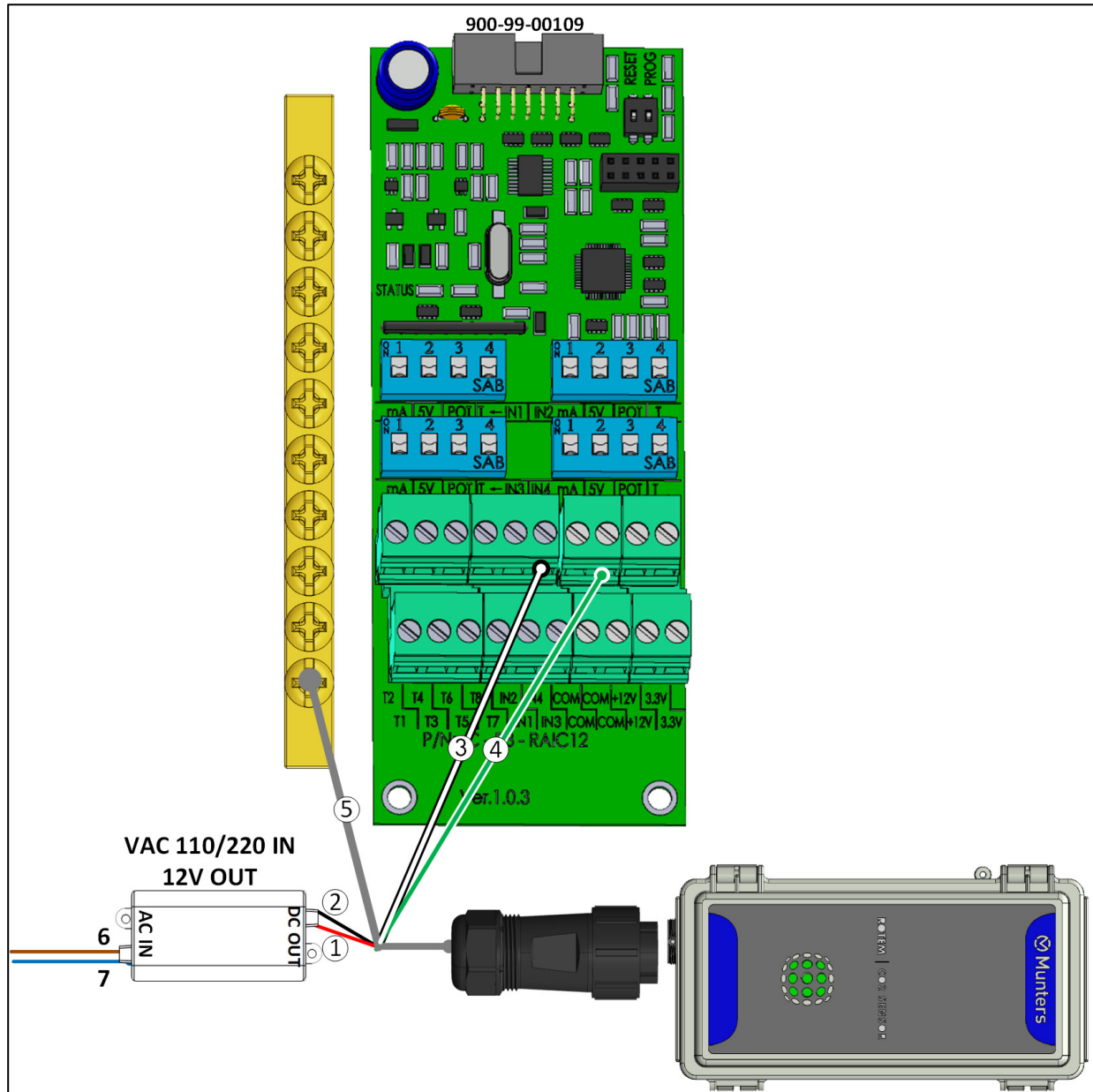
Figure 13: Platinum Pro Power Supply Wiring

Number	Function	Number	Function
1	Red wire: +12V	Power Supply	
2	Black wire: –12V (Sig COM)	6	Brown wire: phase
3	IN 1 to IN 4	7	Blue wire: neutral
4	COM port		
5	Shield wire		

CAUTION   *Connect the shield to the safety ground.*

3.3.3 AC-2000 PLUS WIRING

AC-2000 Plus, Version 8.11 and higher support a CO2 sensor.

1. Attach the other end of the sensor cable to the power supply and AC-2000 board (port 13 or 14). See Figure 14.

2. In Menu 94, map the CO2 sensor to the analog port to which the sensor is wired (2 or 3).
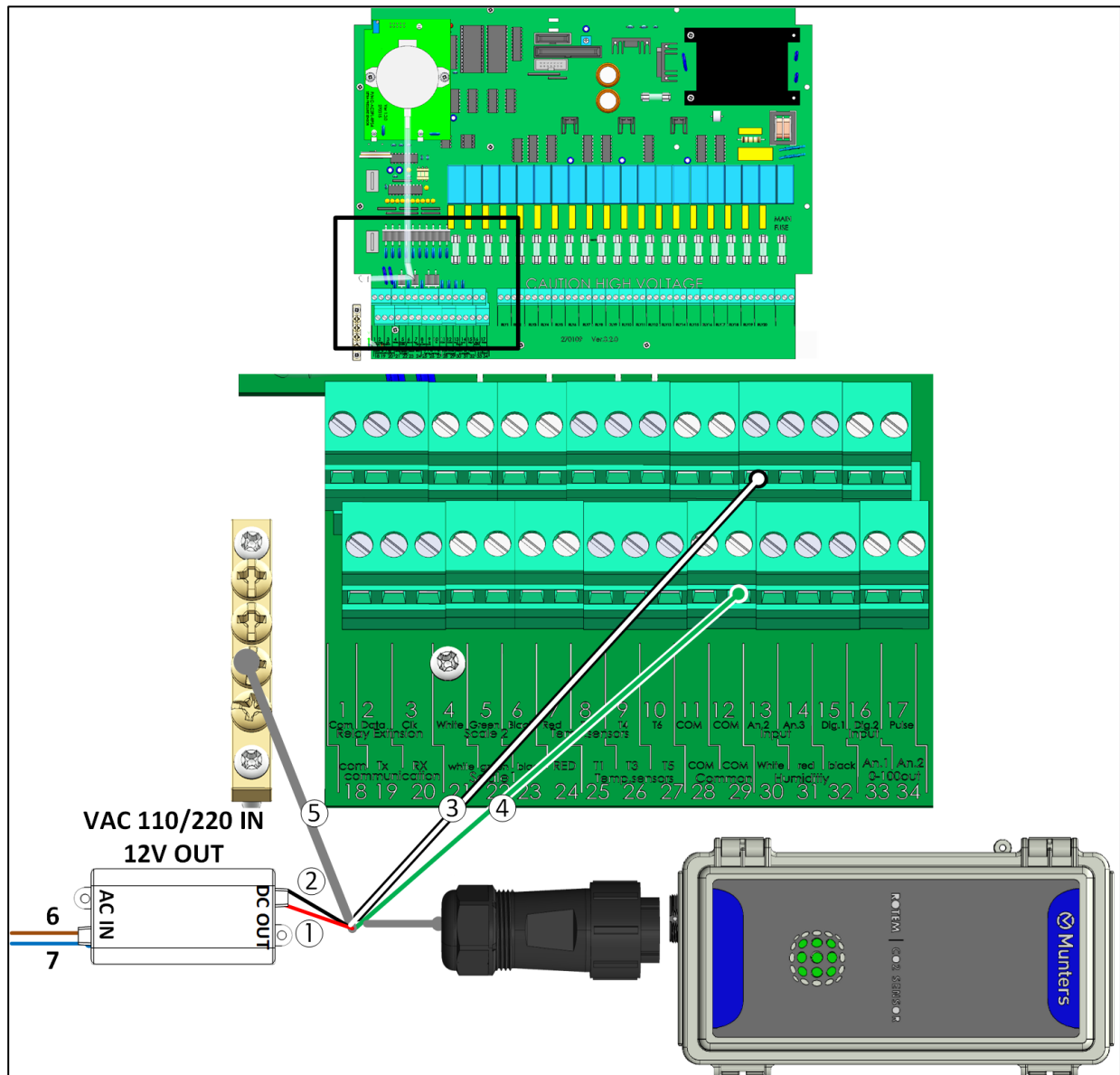
Figure 14: AC-2000 Plus Power Supply Wiring

Number	Function	Number	Function
1	Red wire: +12V	Power Supply	
2	Black wire: -12V (Sig COM)	6	Brown wire: phase
3	Port 13 or 14	7	Blue wire: neutral
4	COM port		
5	Shield wire		

CAUTION   *Connect the shield to the safety ground.*

3.3.4 TRIO WIRING
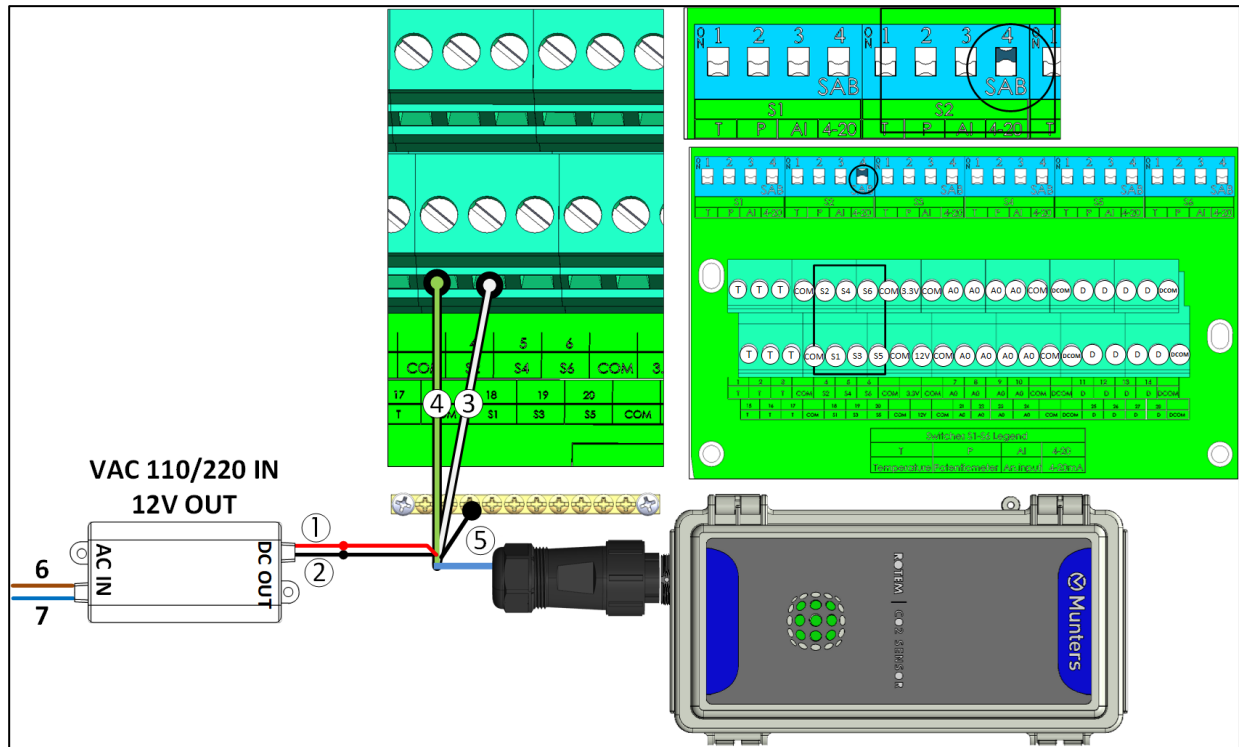
Figure 15: Trio– CO2 Sensor Wiring

Number	Function
1	Red wire: +12V
2	Black wire: –12V (Sig COM)
3	S port
4	COM port
5	Shield wire
Power Supply	
6	Brown wire: phase
7	Blue wire: neutral

CAUTION   Connect the shield to the safety ground.

3.4 Calibrating the Device
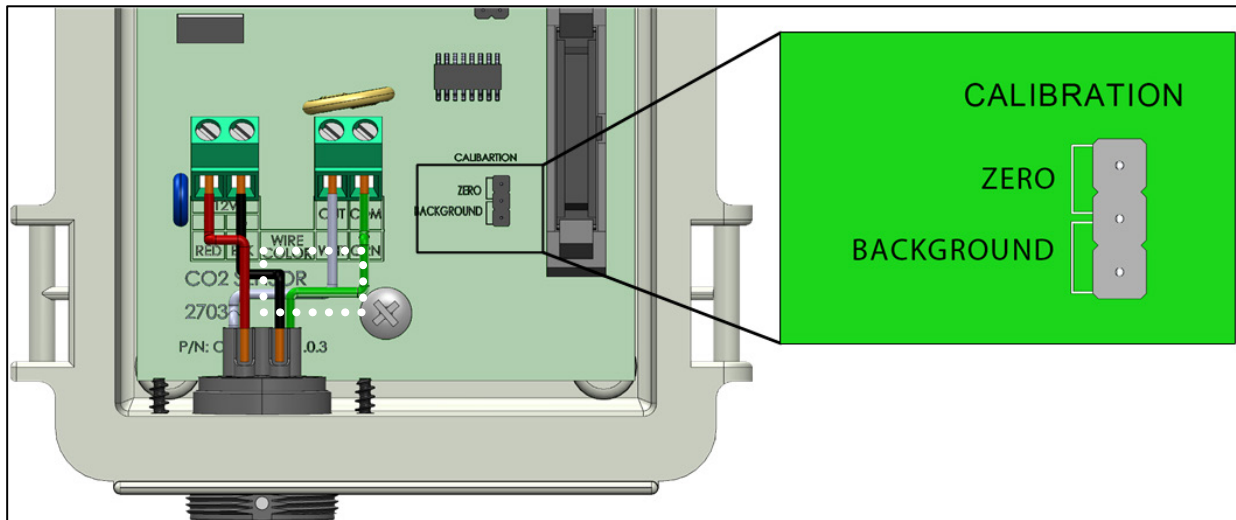
Figure 16: Jumpers

The C02 sensor comes calibrated. In normal conditions fresh air should have approximately 350 – 450 ppm CO2. Calibrate the device if the following conditions are met:

- The CO2 sensor is exposed to fresh air or a room with open windows
- The sensor reading is above 550.

To calibrate the sensor:

1. If connected, disconnect the device from the controller.

2. Place the sensor on a steady base (in an area with fresh air or in a room with open windows).

3. Apply 12V DC power.

4. Operate the CO2 sensor for five minutes to stabilize the device.

5. Using the supplied jumper, short the Background jumpers for 10 seconds as shown in Figure 17.

Figure 17: Shorting the Background Jumpers

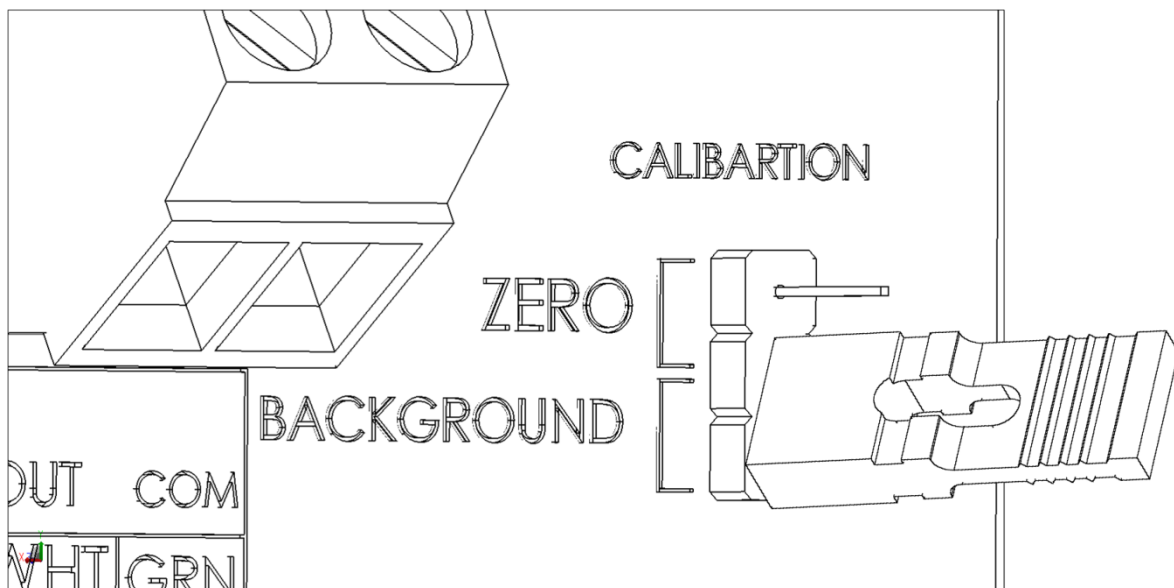6. Remove the jumper.

7. Disconnect the power and (re)connect the sensor to the controller.

CAUTION   *Do not short the Zero jumpers; they are for factory-calibration only. If shorted, remove the jumper and calibrate again.*

NOTE If the device reading is still above 550 when exposed to fresh air, repeat the process.

4 Maintenance and Care

The CO2 Sensor requires little or no maintenance. The following are general maintenance rules:

- Avoid damaging the CO2 Sensor box.
- Avoid contact with water or other fluids (when you clean the poultry house, remove the box).
- Ensure sensor grill on front box panel is clean and clear of obstructions.

NOTE Water may damage the sensor; therefore minimize exposure while washing or using water for any purpose.

5 Specifications

Output signal	4 – 20 mAmp
CO2 range	0 – 5000 ppm
Accuracy	1%
Maximum cable length	300 meters
Minimum wire size	22 AWG
Power supply	12 VDC/350 mA
CAUTION *Unit shuld be powered by Limited Energy Source per IEC 61010-1 or Limited Power Source per IEC 60950-1 or IEC 62368-1*	
Operating temperature	10 º – 70º C
Environmental Specifications	
• **Indoor use only** • Altitude: -400 m to 2000 m • Relative Humidity: 0 – 95% • Main supply voltage fluctuation up to 5% • Overvoltage category: OVCII • Pollution degree: PD2 • Ingress Protection: IPXO	

6 Troubleshooting

The field technician diagnostic LEDs are visual diagnostic indicators for the field technician only. They are not end-user serviceable parts or indicators. Table 1 details possible system failure issues.

Table 1: CO2 Sensor System Failure Issues

Problem	Solution
The **Sensor Fail** LED is lit when CO2 sensing element fails.	Replace CO2 sensing element
The **Min. Fail** or **Max. Fail** LED is lit: The sensor is out of acceptable range.	Replace CO2 sensing element
If the diagnostic LEDs are lit (D2, R12), indicates that the circuit may be incomplete.	Check circuitry for breaks
Readings are off the scale, even when fresh air is present.	Verify that there is a jumper on the Platinum Analog card, placed on T5 or T6, set for 4 – 20 mA (refer to Figure 12).
Readings are lower than expected.	Remove jumper from J2 terminal (refer to Figure 4).
Power LED remains unlit	Check if power/COM wiring has been reversed (refer to the wiring diagrams)

7 Appendix: Installing Legacy Devices

The following section details how to install legacy sensors (P/N: 913-01-XXXXX).

7.1   Installing the Sensor

NOTE The user needs to supply a 4-wired shielded cable that runs from the controller to the CO2 Sensor Connector. This cable is used to:

- Connect the sensor to a power source
- Connect the sensor to the controller (Controller Connection, page 11)
- Detach the unit from the house during cleaning and maintenance procedures (Maintenance and Care, page 18)
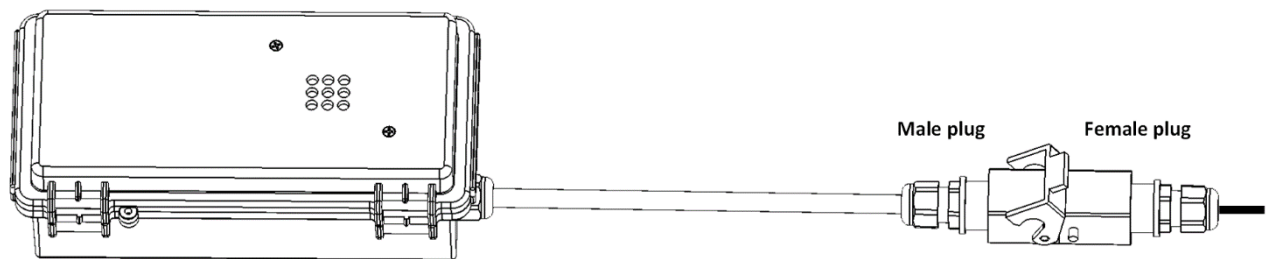

Male plug   Female plug

Figure 18: CO2 Sensor Attached to Connector

To install the unit:

1. Mount the sensor in place.

2. On the female plug, remove the retaining screw from the protective cover (Figure 6).
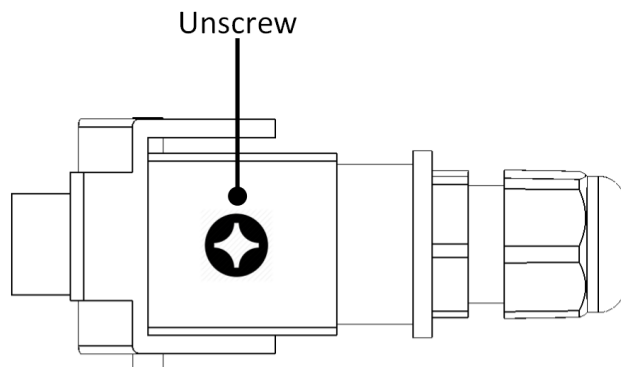

Unscrew

Figure 19: Protective Cover

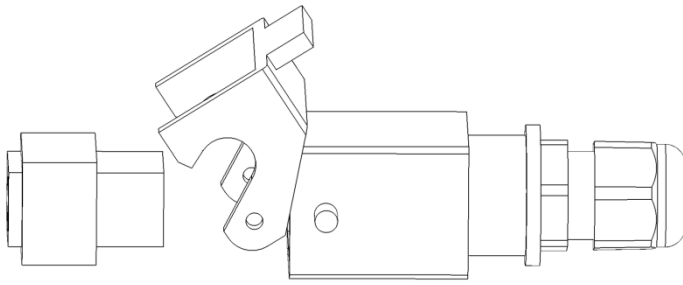3. Pull out the connector from the protective cover (Figure 7).

Figure 20: Remove the Connector

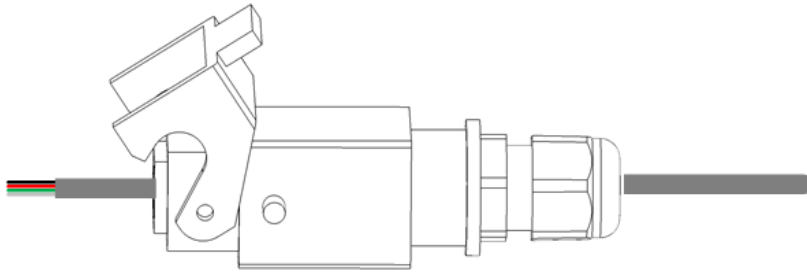4. Place the cable through the protective cover (Figure 8).

Figure 21: Threading the Cable

5. On the top of the connector are numbers (Figure 9. Each wire must be attached to the corresponding port (Table 2). Connect the four wires to the connector Figure 23.

Figure 22: Connector Numbers

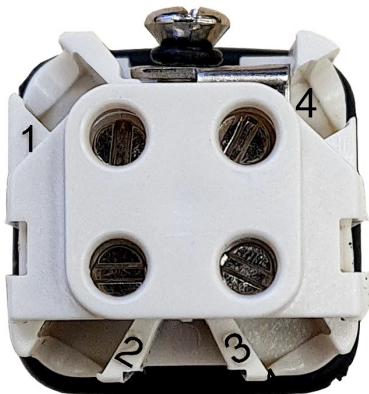Table 2: Connecter Port Functions

Port Number	Function	Wire Color (example)
1	+12 V	Red
2	–12 V (COM)	Black
3	SIG Out	White
4	SIG COM	Green

NOTE The cable wiring used may have different colors.

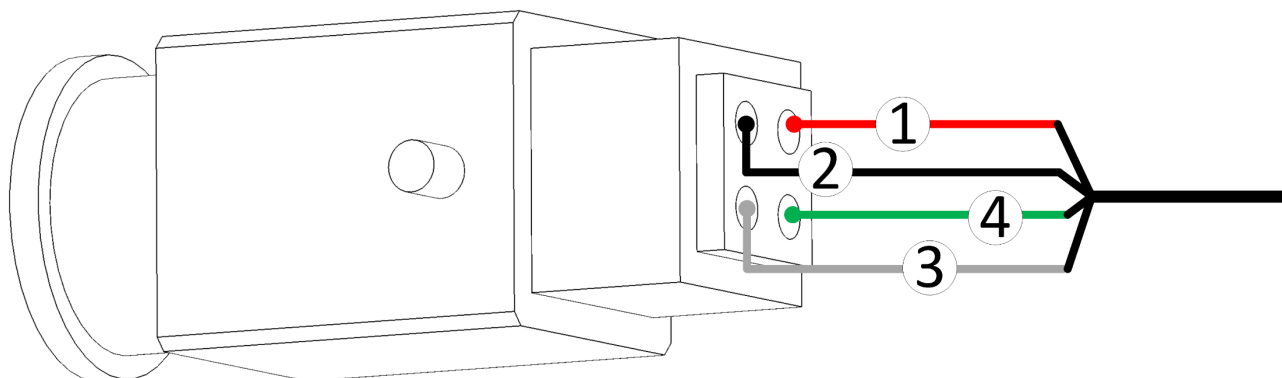*Figure 23: Wired Connector (example cable; actual colors may differ)*

6. Place the wired connector back into the protective cover and place the retaining screw in place (Figure 24).
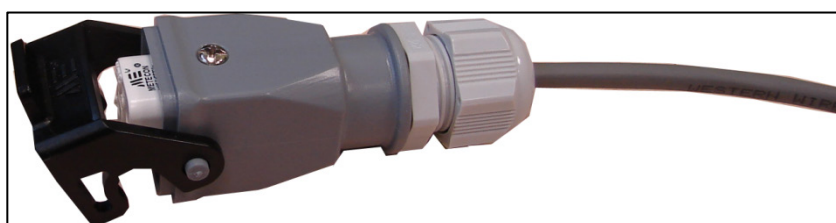

Figure 24: Wired Unit in Protective Cover

7.2 Controller Connection

- Platinum Wiring
- Platinum Pro Wiring
- AC-2000 Plus Wiring
- TRIO Wiring
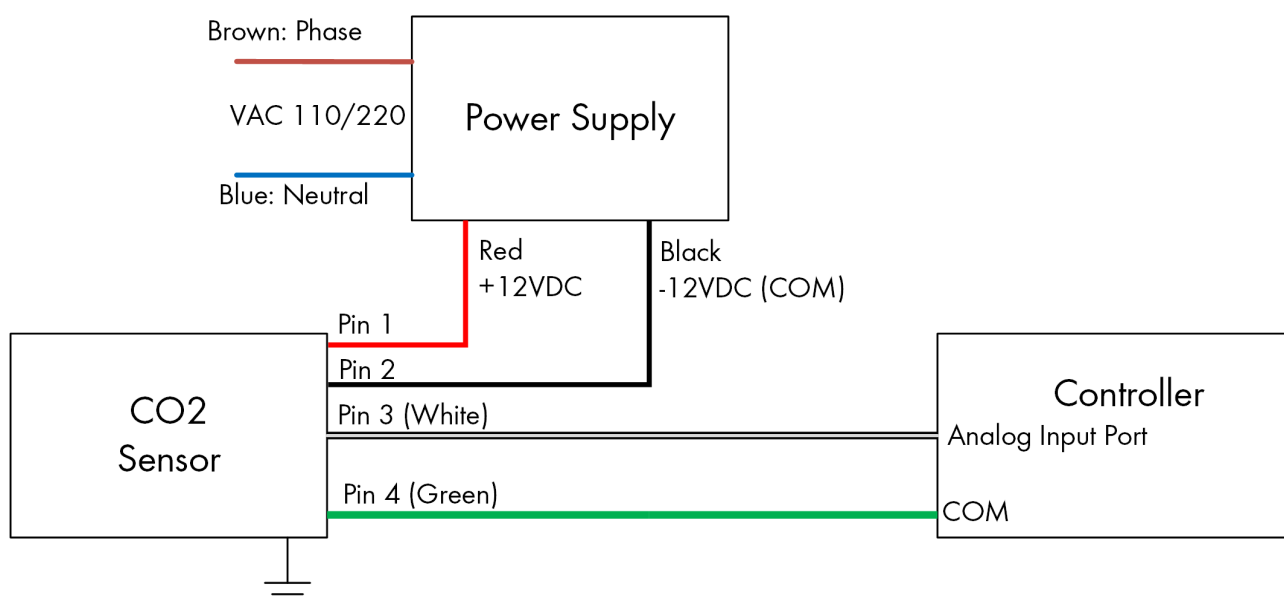
Figure 25: CO2 Sensor Wiring Schematic (colors may vary)

7.2.1 PLATINUM WIRING

1. Attach the other end of the sensor cable to the power supply and Platinum Analog Input Card as indicated in Figure 12.

2. Connect:
   - ○ CO2 COM to COM
   - ○ CO2 output signal to the T5 or T6 terminal

3. **Place a jumper on the T5 or T6 pins (sets the 4 – 20 mA mode).**
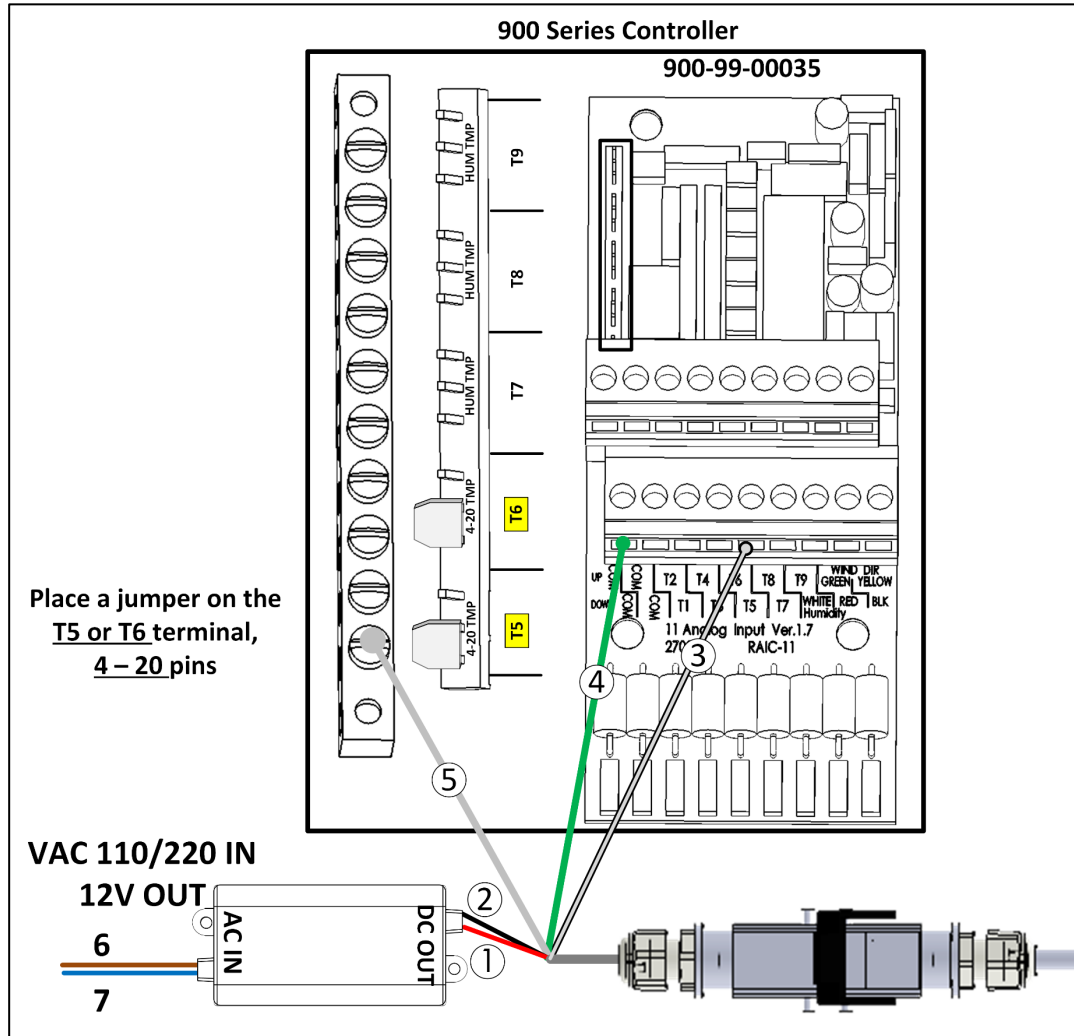
Figure 26: Platinum Wiring

Number	Function
1	Red wire: +12V
2	Black wire: –12V (Sig COM)
3	T5 or T6 port
4	COM port
5	Shield wire
Power Supply	
6	Brown wire: phase
7	Blue wire: neutral

CAUTION   *Connect the shield to the safety ground!*

7.2.2 PLATINUM PRO WIRING

1. Attach the other end of the sensor cable to the power supply and Platinum Pro Analog Input Card as indicated in Figure 13.

2. Turn on DIP Switch 1 **of the corresponding channel.**
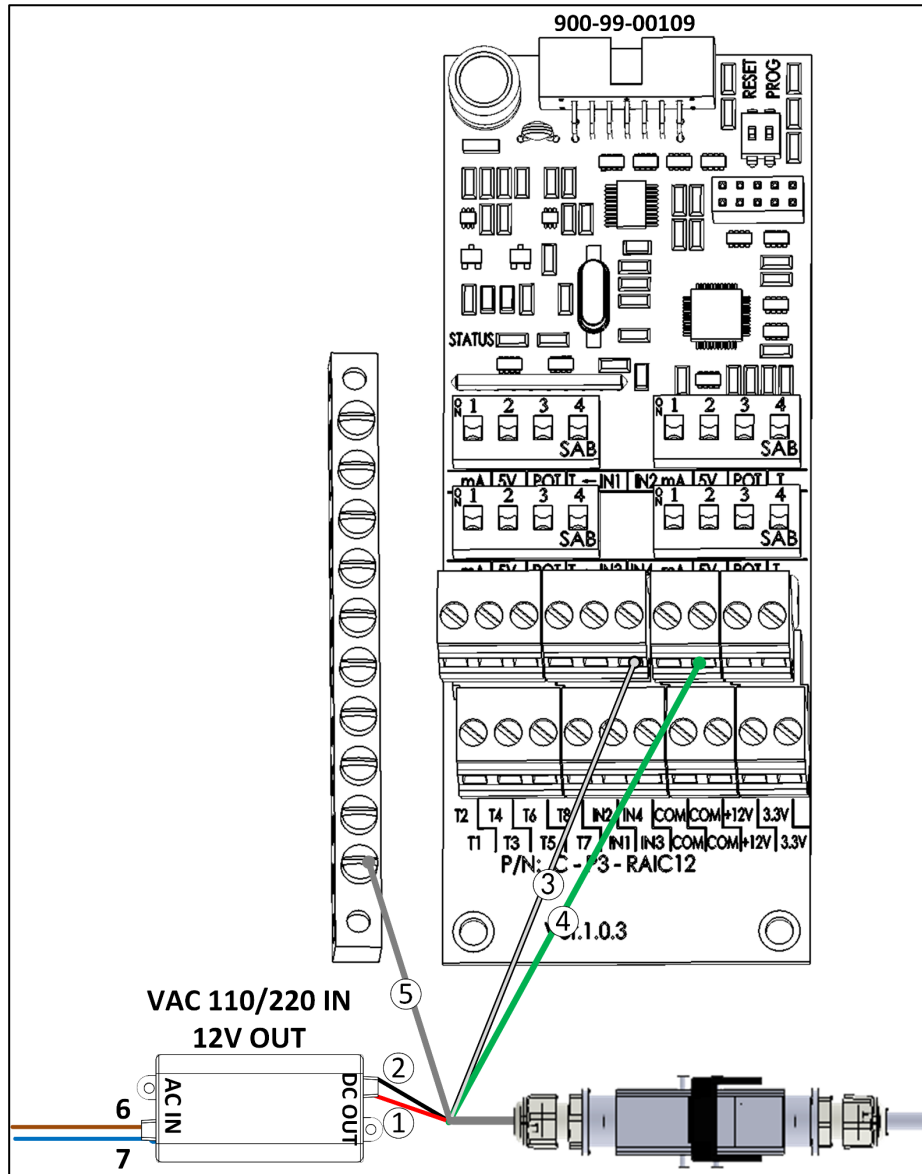
Figure 27: Platinum Pro Power Supply Wiring

Number	Function
1	Red wire: +12V
2	Black wire: –12V (Sig COM)
3	IN 1 to IN 4
4	COM port
5	Shield wire
Power Supply	
6	Brown wire: phase
7	Blue wire: neutral

CAUTION   *Connect the shield to the safety ground.*

7.2.3 AC-2000 PLUS WIRING

AC-2000 Plus, Version 8.11 and higher support a CO2 sensor.

> 1. Attach the other end of the sensor cable to the power supply and AC-2000 board (port 13 or 14). See Figure 14.

> 2. In Menu 94, map the CO2 sensor to the analog port to which the sensor is wired (2 or 3).
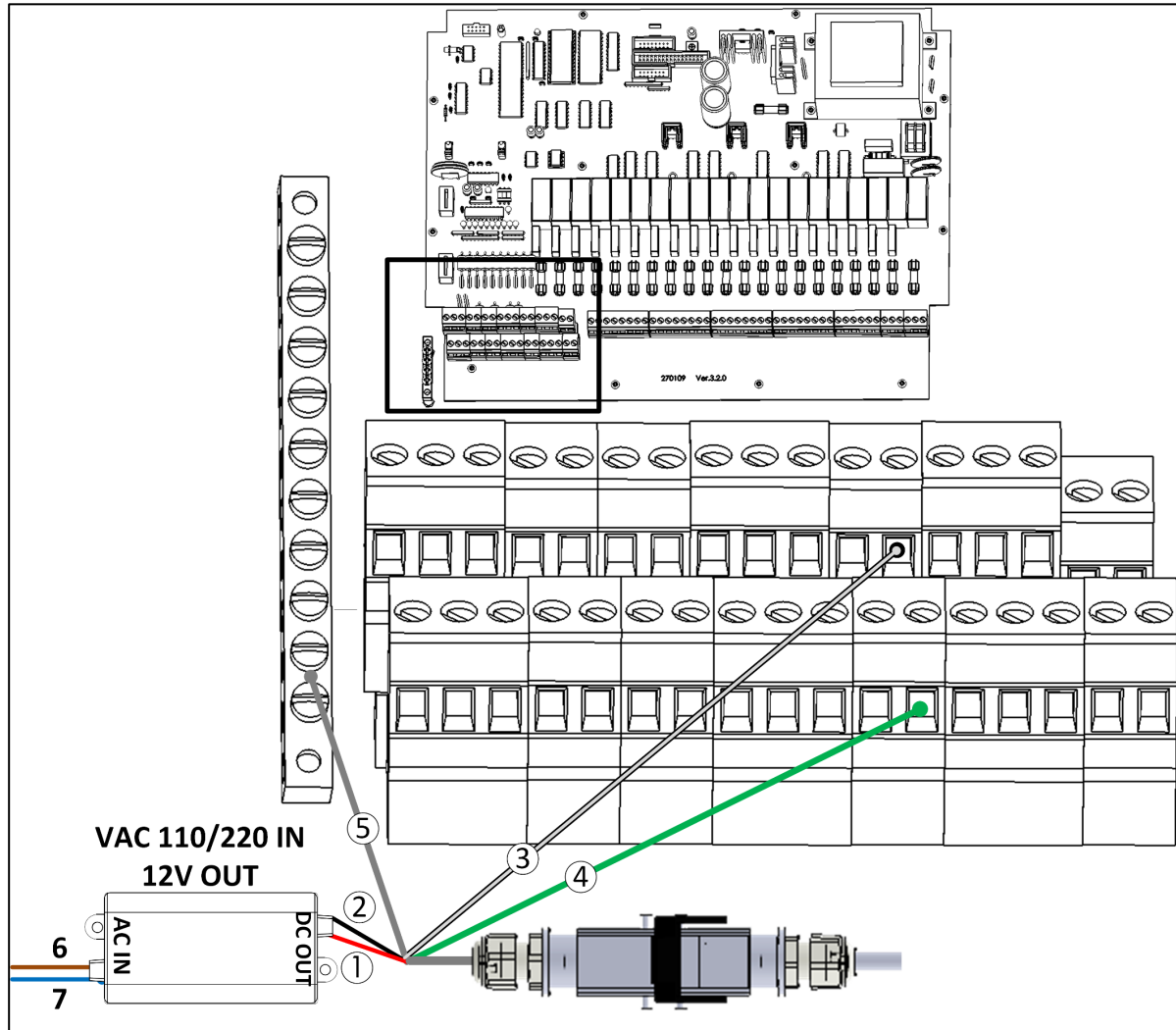
Figure 28: AC-2000 Power Supply Wiring

Number	Function
1	Red wire: +12V
2	Black wire: –12V (Sig COM)
3	Port 13 or 14
4	COM port
5	Shield wire
Power Supply	
6	Brown wire: phase
7	Blue wire: neutral

CAUTION   *Connect the shield to the safety ground.*

7.2.4 TRIO WIRING
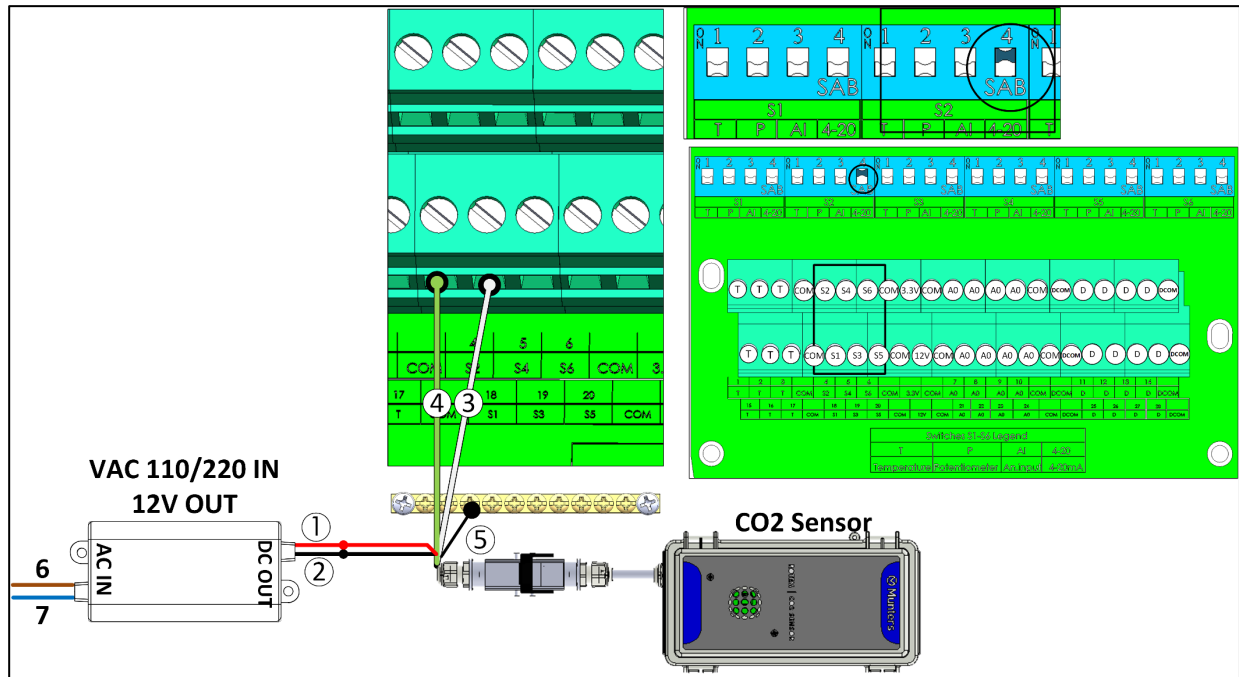
Figure 29: Trio– CO2 Sensor Wiring

Number	Function
1	Red wire: +12V
2	Black wire: –12V (Sig COM)
3	S port
4	COM port
5	Shield wire
Power Supply	
6	Brown wire: phase
7	Blue wire: neutral

CAUTION   *Connect the shield to the safety ground.*

8 Warranty

Warranty and technical assistance

Munters products are designed and built to provide reliable and satisfactory performance but cannot be guaranteed free of faults; although they are reliable products they can develop unforeseenable defects and the user must take this into account and arrange adequate emergency or alarm systems if failure to operate could cause damage to the articles for which the Munters plant was required: if this is not done, the user is fully responsible for the damage which they could suffer.

Munters extends this limited warranty to the first purchaser and guarantees its products to be free from defects originating in manufacture or materials for one year from the date of delivery, provided that suitable transport, storage, installation and maintenance terms are complied with. The warranty does not apply if the products have been repaired without express authorisation from Munters, or repaired in such a way that, in Munters' judgement, their performance and reliability have been impaired, or incorrectly installed, or subjected to improper use. The user accepts total responsibility for incorrect use of the products.

The warranty on products from outside suppliers fitted to the CO2 Sensor is limited to the conditions stated by the supplier: all claims must be made in writing within eight days of the discovery of the defect and within 12 months of the delivery of the defective product. Munters has thirty days from the date of receipt in which to take action, and has the right to examine the product at the customer's premises or at its own plant (carriage cost to be borne by the customer).

Munters at its sole discretion has the option of replacing or repairing, free of charge, products which it considers defective, and will arrange for their despatch back to the customer carriage paid. In the case of faulty parts of small commercial value which are widely available (such as bolts, etc.) for urgent despatch, where the cost of carriage would exceed the value of the parts, Munters may authorise the customer exclusively to purchase the replacement parts locally; Munters will reimburse the value of the product at its cost price.

Munters will not be liable for costs incurred in demounting the defective part, or the time required to travel to site and the associated travel costs. No agent, employee or dealer is authorised to give any further guarantees or to accept any other liability on Munters' behalf in connection with other Munters products, except in writing with the signature of one of the Company's Managers.

WARNING: In the interests of improving the quality of its products and services, Munters reserves the right at any time and without prior notice to alter the specifications in this manual.

The liability of the manufacturer Munters ceases in the event of:

- dismantling the safety devices;
- use of unauthorised materials;
- inadequate maintenance;
- use of non-original spare parts and accessories.

Barring specific contractual terms, the following are directly at the user's expense:

- preparing installation sites;
- providing an electricity supply (including the protective equipotential bonding (PE) conductor, in accordance with CEI EN 60204-1, paragraph 8.2), for correctly connecting the equipment to the mains electricity supply;
- providing ancillary services appropriate to the requirements of the plant on the basis of the information supplied with regard to installation;
- tools and consumables required for fitting and installation;
- lubricants necessary for commissioning and maintenance.

It is mandatory to purchase and use only original spare parts or those recommended by the manufacturer.

Dismantling and assembly must be performed by qualified technicians and according to the manufacturer's instructions.

The use of non-original spare parts or incorrect assembly exonerates the manufacturer from all liability.

Requests for technical assistance and spare parts can be made directly to the nearest [Munters office.](#)

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