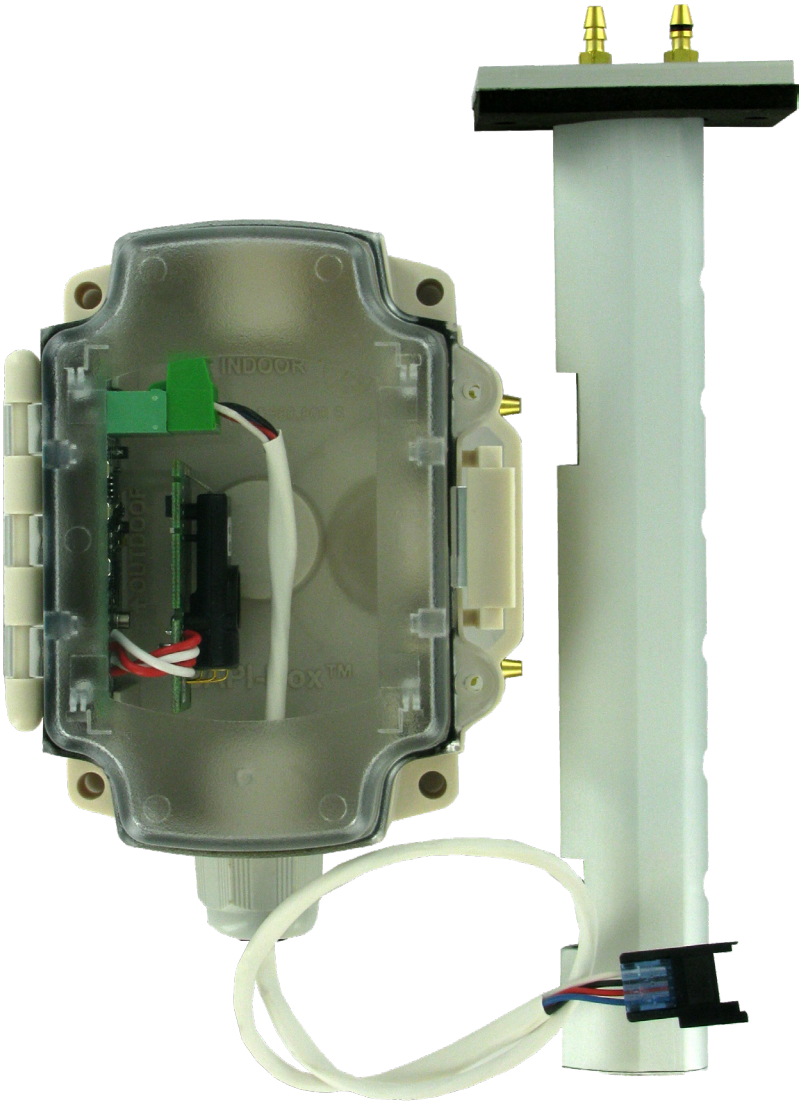
Duct-Mounted E-BUS CO_2 Sensor Technical Guide (0-5,000 ppm)



DUCT- MOUNTED E-BUS CO_2 SENSOR REVISION LOG	
REVISION AND DATE	**CHANGE**
Rev. A,October 19,2022	Original

DUCT-MOUNTED E-BUS CO_2 PARTS REFERENCE	
PART DESCRIPTION	**PART NUMBER**
Duct-Mounted E-BUS CO_2 Sensor (0-5,000 ppm)	ASM07290
VCCX2 Controller	ASM01698
E-BUS Cable Assembly 1.5 ft., 3 ft., 10 ft., 25 ft., 50 ft., 75 ft., 100 ft., 150 ft., and 1,000 ft. spool	G029440 (1.5 ft.), G012870 (3 ft.), G029460 (10 ft.), G045270 (25 ft.), G029510 (50 ft.), G029530 (75 ft.), G029450 (100 ft.), G029470 (150 ft.), V36590 (250 ft.), G018870 (SPOOL)

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All manuals are also available for download from www.aaon.com/library

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Duct-Mounted E-BUS CO_2 Sensor General Information

Overview

The ASM07290 Duct-Mounted E-BUS CO_2 Sensor is not a direct replacement for the ASM01831. It is specifically used for Direct-Fired units that require a wider measurement range of 0 to 5,000 ppm.

The Duct-Mounted E-BUS CO_2 Sensor with Remote Pickup Tube is used for monitoring duct CO_2 levels and is designed for permanent mounting in the return air duct. It utilizes an aspiration box to accurately capture CO_2 levels in the duct. This is useful to obtain an average CO_2 reading in the area served by the HVAC unit or when there are tampering concerns with a Wall-Mounted E-BUS CO_2 Sensor.

The Duct-Mounted E-BUS CO_2 Sensor connects to an E-BUS expansion port on the VCCX2 or VCB-X Controller using a 10 ft. E-BUS cable (provided) and then plugs into the aspiration box's attached 3 ft. cable. Additional E-BUS cable length can be purchased if needed. See **Figure 1, this page,** for dimensions.

NOTE: If using multiple E-BUS sensors or modules, the E-BUS hub or adapter board may be required.

Some typical applications for the CO_2 Sensor include:

- Controlling ventilation in a building where the occupancy varies frequently
- Controlling ventilation to ensure excess outdoor air is not causing energy waste
- Ensuring good air distribution throughout building zones

Features

The CO_2 Sensor provides the following:

- Uses dual beam Non-Dispersive Infrared (NDIR) technology
- A very accurate and stable sensor guaranteed to maintain its accuracy due to infrared self-calibration feature of sensor
- Sensor accuracy of +/- 50 ppm @ 1,000 ppm or 2% of the measured value
- Annual drift of +/- 2 ppm per year
- Measurement range of 0 to 5,000 ppm
- HB LED under front cover shows active CO_2 sensing

Environmental Requirements

The Duct-Mounted E-BUS CO_2 Sensor needs to be installed in an environment that can maintain a temperature range between -40°F and 185°F and a humidity range between 0% and 95% RH (non-condensing).

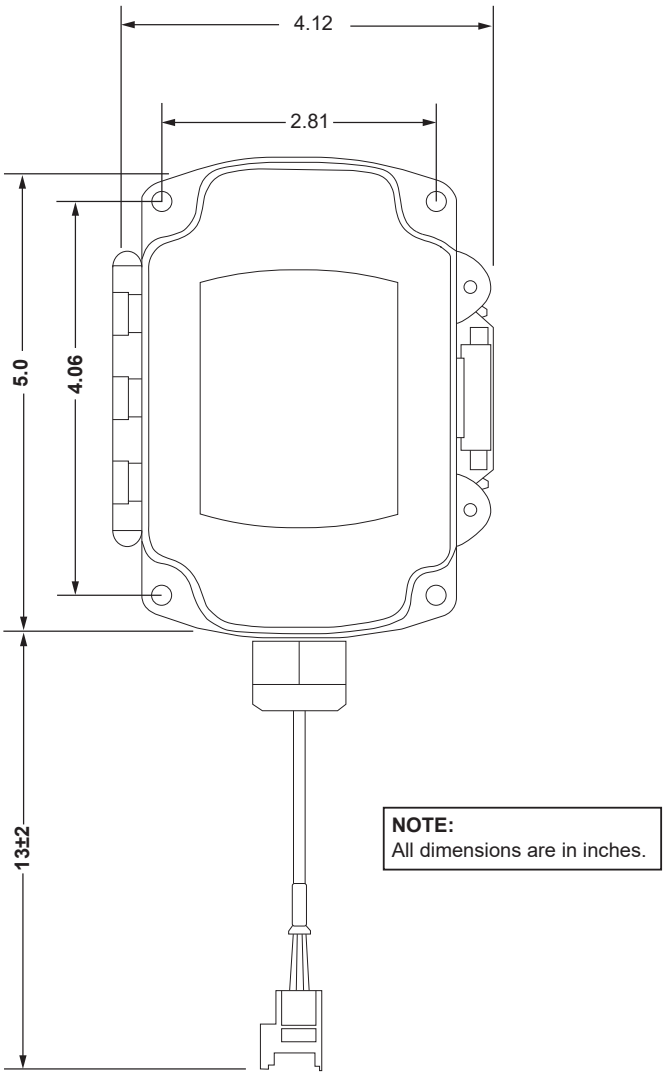

Figure 1: Duct-Mounted E-BUS CO_2 Sensor Dimensions

Duct-Mounted E-BUS CO_2 Sensor Installation

Installation Steps

To install the Duct-Mounted E-BUS CO_2 Sensor, please see the following instructions.

1. Pickup Tube Installation: Find the location in the return duct where you want to sense the CO_2 level. Cut a 1.25 inch diameter hole in the location. Insert the pickup tube in this location with the inlet side (round holes) facing directly into the airstream. Secure the pickup tube to the ductwork using the included mounting plate and screws.
2. Sensor/Aspiration Box Installation: Select a location for the sensor/aspiration box between the pickup tube and the unit controls cabinet while remaining within 10 ft. of the pickup tube. Ensure the tubing between the pickup tube and aspiration box is not restricted. Then secure the aspiration box to the duct using the included sheet metal screws.
3. Tubing Installation: Connect included tubing to brass fittings on the side of the aspiration box. Connection order does not matter. Tubing may be cut to remove excess, if desired.
4. E-BUS Cable Installation: Connect the included E-BUS cable to the integral E-BUS cable on the aspiration box and route to the unit controls cabinet. Connect the other end of the E-BUS cable to any available E-BUS port in the unit controls cabinet. If needed, longer E-BUS cables are available.

See **Figure 2, this page**, for detailed illustration of the Duct-Mounted E-BUS CO_2 Sensor and its wiring and components.

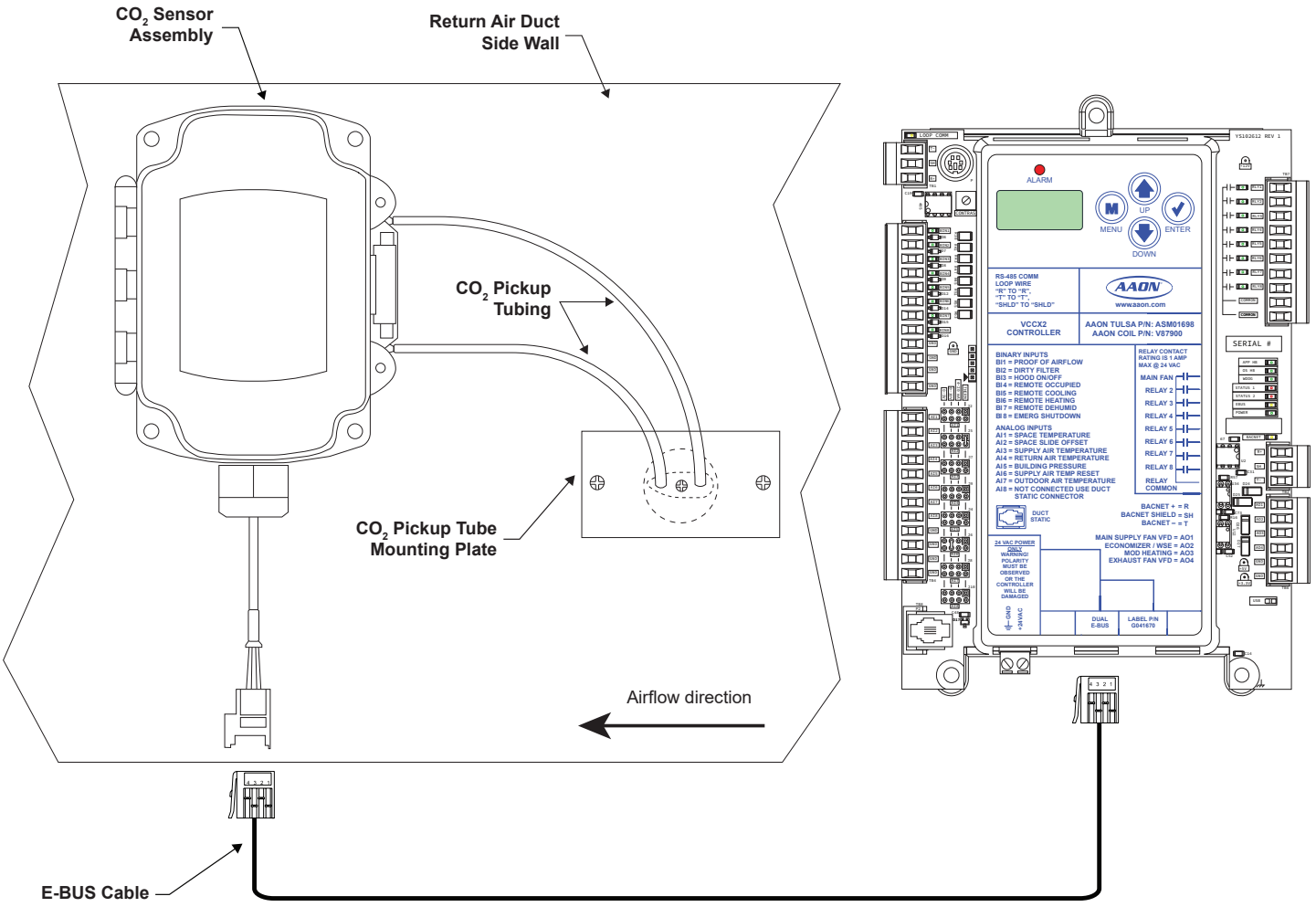

Figure 2: Duct-Mounted E-BUS CO_2 Sensor Wiring and Components

LED Information

Using LEDs to Troubleshoot

LEDs are available for troubleshooting the CO_2 Sensor. There are two LEDs that are visible at an angle through the plastic cover. See **Figure 3, this page**, for locations.

COMM LED

The COMM LED blinks whenever communications are sensed.

HB LED

Initially, the HB LED blinks fast for 30 seconds. Then it blinks once every 30 seconds.

NOTE: A CO_2 sample is taken once every 30 seconds.

Altitude Correction

Altitude changes can affect the accuracy of the CO_2 reading. To get the most accurate reading, configure the altitude for the job site location using one of our operator interfaces. The altitude can be configured from 0 to 15,000 ft. The default is 500 ft.

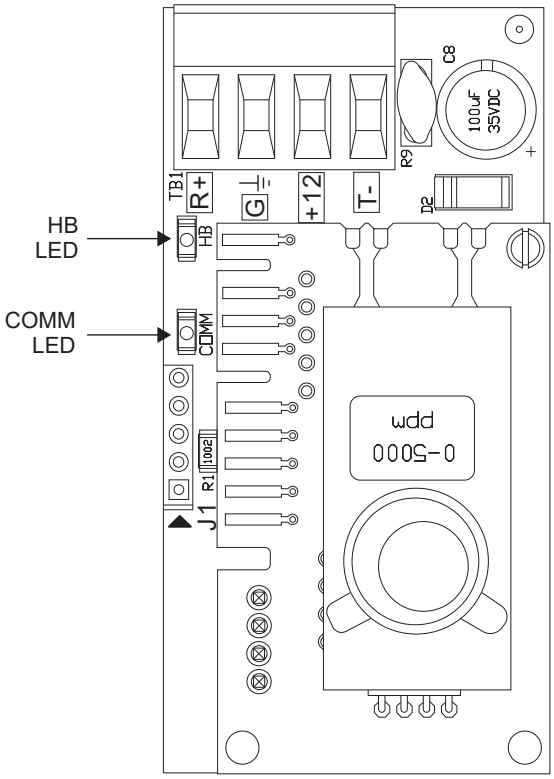

Figure 3: Sensor LED locations

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NOTE: Before calling Technical Support, please have the model and serial number of the unit available.

PARTS: For replacement parts, please contact your local AAON Representative.

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