Ecogate Dust Collector Interface
User & Installation Guide

Updated: January 25, 2026 Dust Collector Interface (Block #2) Copyright Ecogate, Inc. 2026, All rights reserved.

Table of Contents

ECOGATE DUST COLLECTOR INTERFACE INTRODUCTION 4

DUST COLLECTOR INTERFACE AIR VELOCITY, PRESSURE, AND AMBIENT AIR SENSOR RANGES 5

1. ***Air Velocity Sensor Range is 0- 8,000 FPM*** *(pressure range 0-4" w.c., 1,000 Pa)* 5
2. ***Filter Differential Pressure Sensor Range is 0-10" w.c.*** *(0-2,500 Pa)* 5
3. ***Fan Pressure Sensor Pressure Range is 0-40" w.c.*** *(0- 10,000 Pa)* 5
4. ***Cleaning Pump Pressure Sensor Range is 0-400 "w.c.*** *(0-100,000 kPa = 14.5 PSIG Pound-force per square inch)* 5
5. ***Ambient Air Temperature, Humidity, and Atmospheric Pressure Sensors*** 5

DUST COLLECTOR INTERFACE ENCLOSURE VIEW 6

DUST COLLECTOR INTERFACE INSIDE VIEW 7

DUST COLLECTOR INTERFACE AAVS, FILTER, AND FAN PRESSURE FITTINGS VIEW 8

DUST COLLECTOR INTERFACE CLEANING PD PUMP PRESSURE FITTINGS VIEW 9

DUST COLLECTOR INTERFACE ENCLOSURE VIEW WITH WEATHER SHIELD 10

DUST COLLECTOR INTERFACE ENCLOSURE BACK VIEW WITH WEATHER SHIELD 11

DUST COLLECTOR INTERFACE ENCLOSURE VIEW WITH OPEN DOOR AND OPEN WEATHER SHIELD 12

DUST COLLECTOR INTERFACE WEATHER SHIELD 13

ECOGATE SYSTEM BLOCK DIAGRAM WITH DUST COLLECTOR INTERFACE 14

MODBUS TERMINATING RESISTOR AT "MODBUS FROM GREENBOX" TERMINAL 15

CONNECTING ECOGATE DUST COLLECTOR INTERFACE 16

HOW TO MOUNT DUST COLLECTOR INTERFACE ON THE WALL OR POLE 17

FAN AND FILTER PRESSURE TUBING CONNECTION 18

ECOGATE PRESSURE TAP PER AMCA STANDARD 19

CHECK THE PRESSURES WHILE DUST COLLECTING SYSTEM IS RUNNING 20

HOW TO USE THE OLED SCREEN 21

SCREEN CONTENT 21

ADDING ECOGATE DUST COLLECTOR INTERFACE TO GREENBOX 22

PRESS ADD DUST COLLECTOR 22
Initial Setup and Connection *22*
Sensor Naming and Calibration *23*
System Settings Integration *23*
DUST COLLECTOR INTERFACE OLED DISPLAY 29

DUST COLLECTOR INTERFACE SPECIFICATION (BLOCK #2) 30

DUST COLLECTOR INTERFACE AIR VELOCITY AND PRESSURE RANGES 30
Air Velocity Sensor Range is 0- 8,000 FPM *30*
Filter Differential Pressure Sensor Range is 0-10" w.c. *30*
Fan Pressure Sensor Pressure Range is 0-40" w.c. *31*
Cleaning Pump Pressure Sensor Range is 0-400 "w.c. (0-100,000 kPa = 14.5 PSIG Pound-force per square inch) *31*
DUST COLLECTOR INTERFACE DIMENSIONS & WEIGHT 31

ECOGATE SUPPORT CONTACT 32

APPENDIX A: MULTIPLE DUST COLLECTOR INTERFACES CAN BE CONNECTED TO ONE GREENBOX 33

Ecogate Dust Collector Interface Introduction

The Ecogate Dust Collector Interface is a sensor suite for monitoring dust collection systems. It is designed for outdoor installation with robust, weather-sealed enclosure that houses **pressure sensors for fan and filter pressures, for cleaning PD pump pressure, and for averaging air velocity sensor**. It has also a **built-in ambient air sensor for automatic anti-freezing mode for winter filter bags**. Connection to the Ecogate greenBOX is straightforward via the Ecogate MASTER Cable which also provides 24DC power supply.

The Ecogate Interface is **designed for convenient installation directly beside the dust collector**. This placement shortens the hoses connecting the fan, filter, and averaging air velocity sensor, resulting in **reduced susceptibility to freezing**, and **reduction installation costs** compared to previous systems that required running hoses up to the Power MASTER VFD inside the factory building.

Ecogate Pressure Tap designed per AMCA standard is recommended for reading fan inlet oud outlet pressures.

Constructed from durable stainless steel, the enclosure, mount, and its retractable weather shield are built to withstand harsh outdoor conditions, including sun, rain, and snow. The oversized door rubber seals provide excellent protection against moisture. The retractable weather shield allows for easy access and opening of the enclosure during installation while offering robust protection once closed.

Dust Collector Interface Air Velocity, Pressure, and Ambient Air Sensor Ranges

1. Air Velocity Sensor Range is 0- 8,000 FPM (pressure range 0-4" w.c., 1,000 Pa)
2. Filter Differential Pressure Sensor Range is 0-10" w.c. (0-2,500 Pa)
3. Fan Pressure Sensor Pressure Range is 0-40" w.c. (0- 10,000 Pa)
4. Cleaning Pump Pressure Sensor Range is 0-400 "w.c. (0-100,000 kPa = 14.5 PSIG Pound-force per square inch)
5. Ambient Air Temperature, Humidity, and Atmospheric Pressure Sensors
    - Temperature sensor operating range: - 40 C…+85 C (-40 F…185 F)
    - Relative humidity sensor range: 0 … 100% r.H.
    - Atmospheric pressure sensor range: 300…1,100 hPa (32.48 inHg, 1,100 mbar)

The Ecogate Dust Collector Interface is built-in a green metal enclosure, measuring 10.7" x 7.7" x 3", that comes with a mounting bracket and weather shield. It operates on a 24V DC power supply from greenBOX, with a maximum consumption of ~ 10W. All measured values are transmitted to greenBOX via Modbus RTU. Multiple dust Collector Interfaces can be connected to one greenBOX.

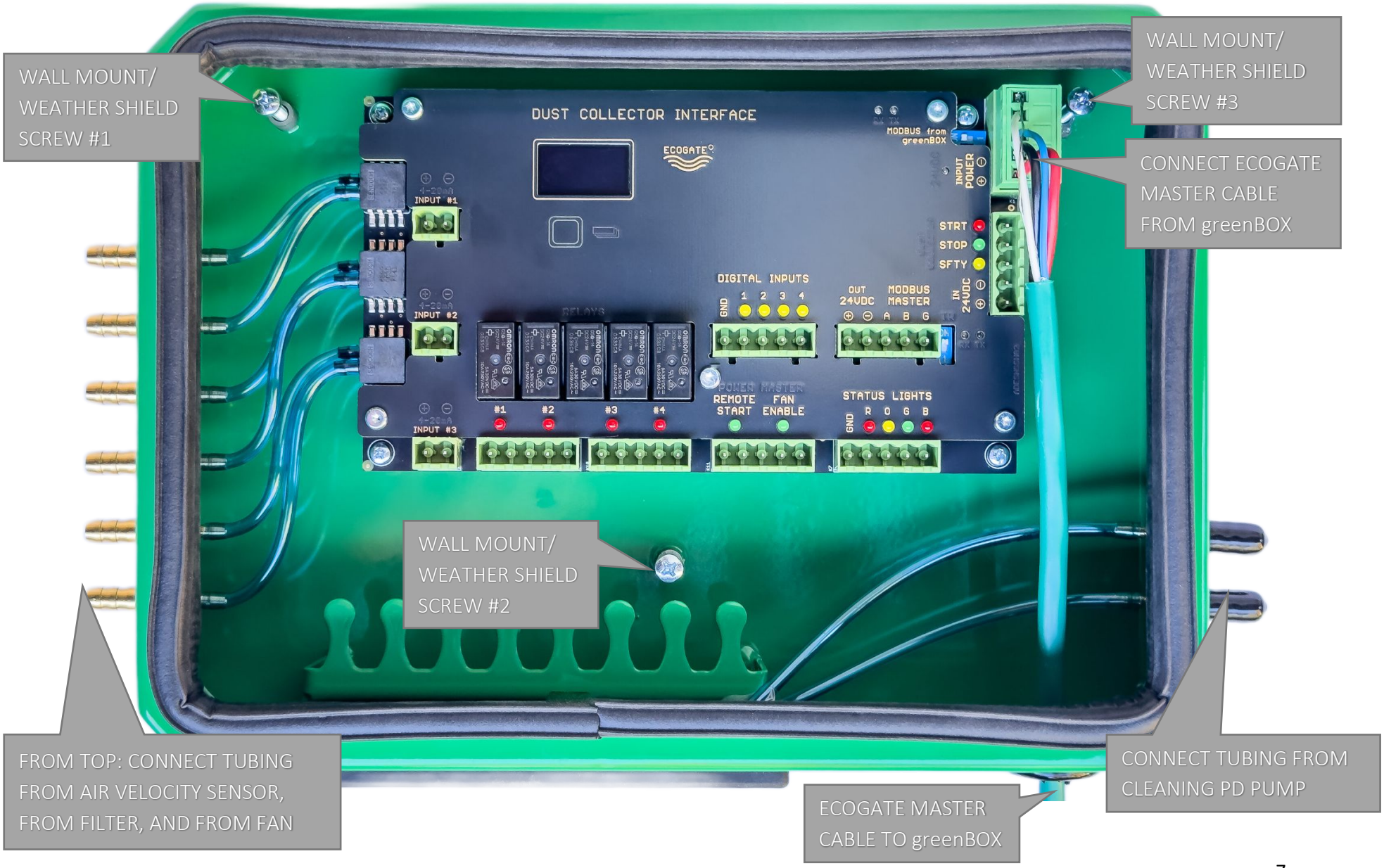
Dust Collector Interface Enclosure View

ICOTEK CABLE ENTRY (IP 65, NEMA 12) for sixteen 1 mm to 6.5 mm diameter cables, four 1nmm to 8.3 mm diameter cables, and one 1 mm to 12.1 mm diameter cable

Ambient Wheater Sensor - measures temperature, relative humidity, and atmospheric pressure

PREFERABLY USE CONDUIT AND CONTDUIT CONNECTOR TO CONNECT CABLE FROM greenBOX

Dust Collector Interface Inside View



Dust Collector Interface AAVS, Filter, and Fan Pressure Fittings View

1. AIR VELOCITY / AIR VOLUME SENSOR, CONNECT AVERAGING AIR VELOCITY SENSOR, 0-1 kPa (4” w.c.), 0- 8,000 FPM

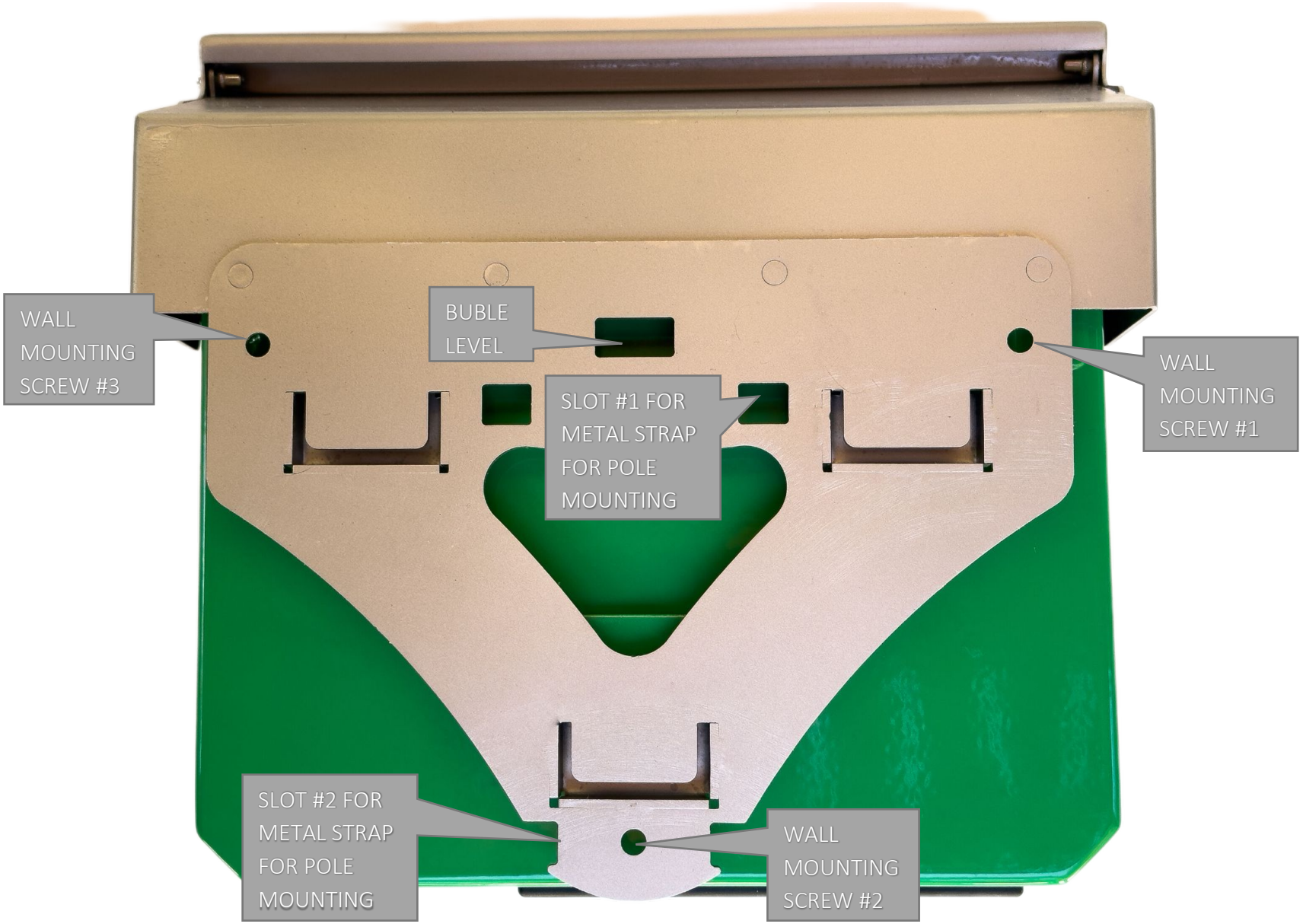
2. FILTER DIFFERENTIUAL PRESSURE: CONNECT TUBING FROM FILTER, 0-2.5 kPa (10” w.c.)

2. FAN TOTAL STATIC PRESSURE: CONNECT TUBING FROM FAN INLET AND OUTLET, 0-10 kPa (40” w.c.)

Dust Collector Interface Cleaning PD Pump Pressure Fittings View

Dust Collector Interface Enclosure View with Weather Shield

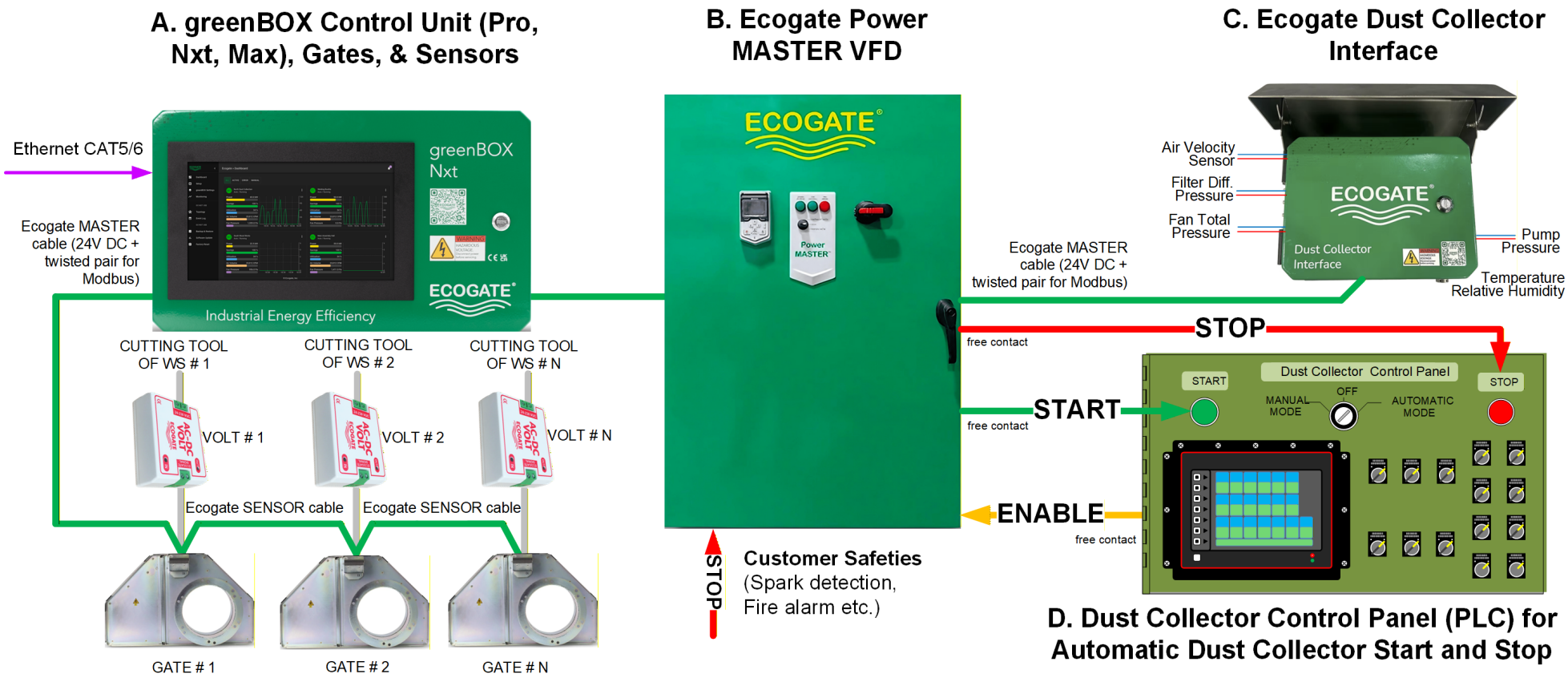
Dust Collector Interface Enclosure Back View with Weather Shield



Dust Collector Interface Enclosure View with Open Door and Open Weather Shield

Dust Collector Interface Weather Shield

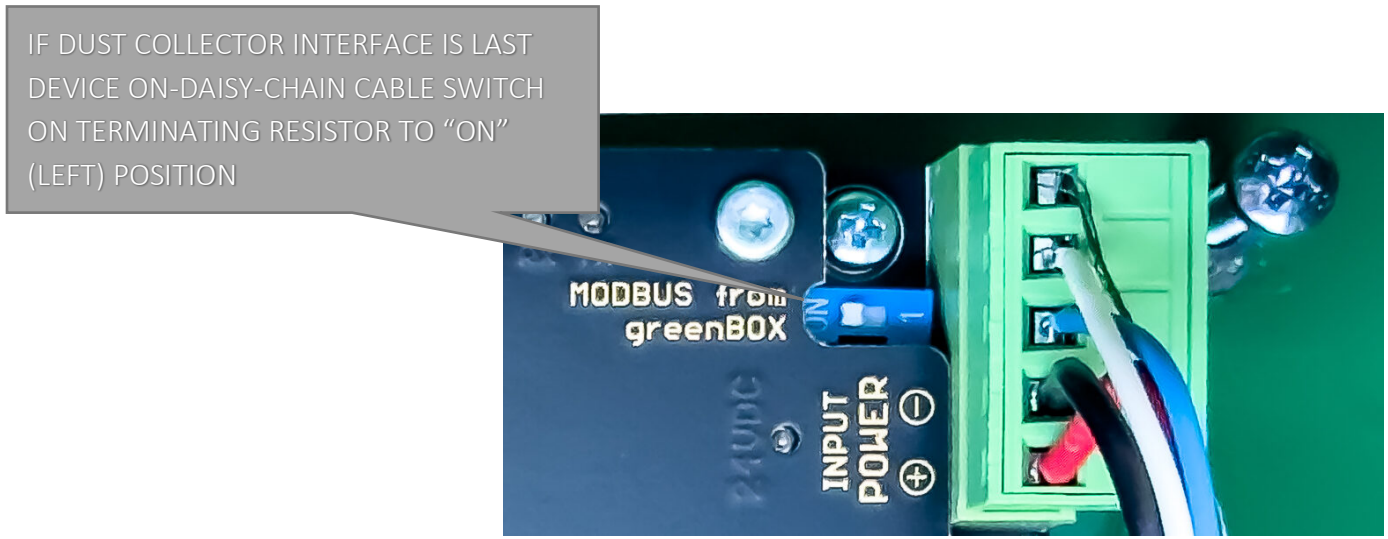
Ecogate System Block Diagram with Dust Collector Interface



Dust Collector Interface Power and Communication: The Dust Collector Interface is connected to the greenBOX by using daisy-chained Ecogate MASTER Cable**.** One greenBOX Modbus port can handle up to 30 devices (25 gates and five other devices like Dust Collector Interfaces).

Modbus Terminating Resistor At “MODBUS from greenBOX” Terminal

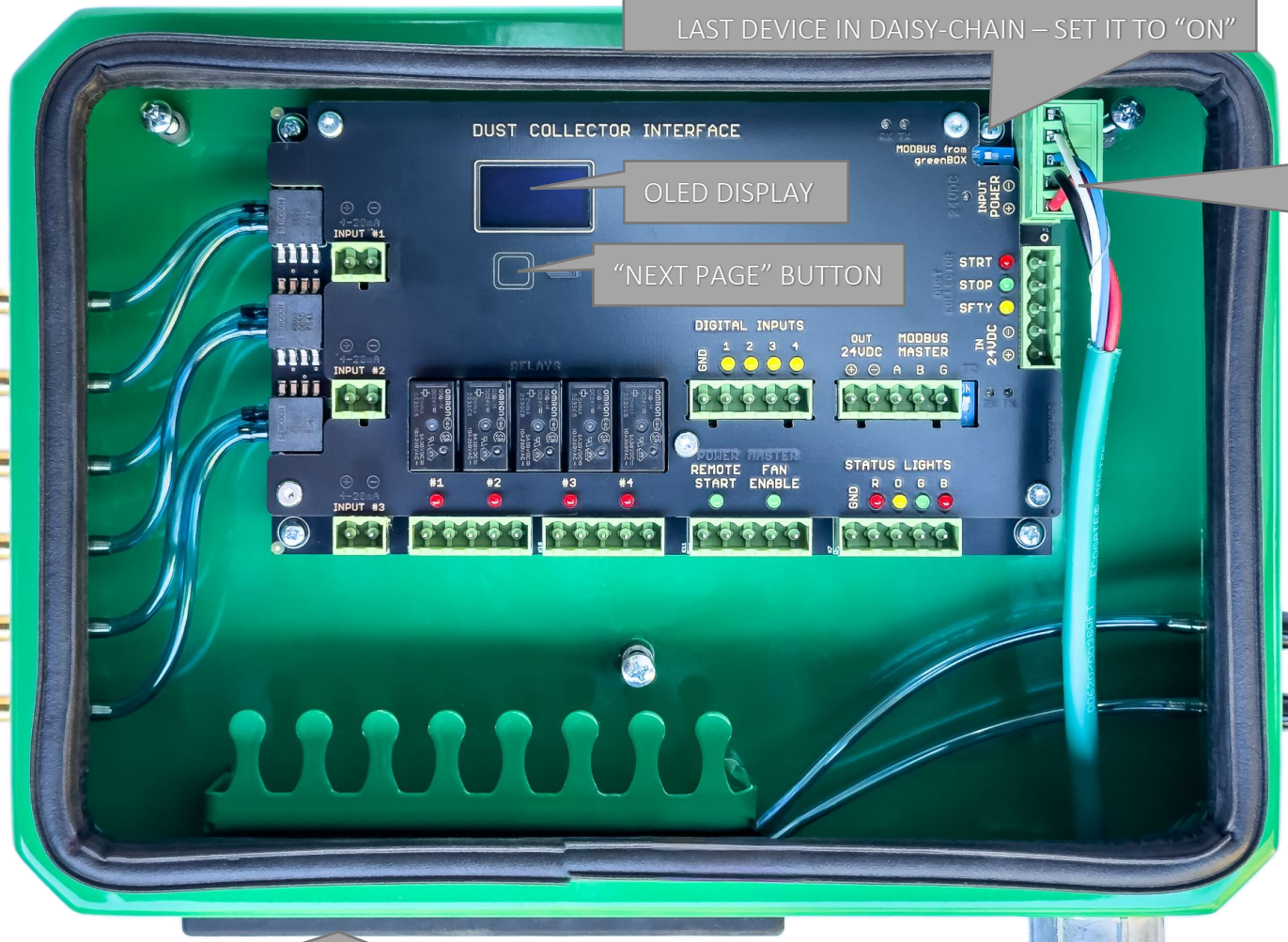
Each daisy chained Modbus cable must have terminating resistor switched on at beginning of the cable (usually at greenBOX where terminating resistor is switched on as default) and at the last device in daisy-chain. Because Dust Collector Interface will be often last device in daisy-chain it means the terminating resistor should be switched on: move DIP switch next to Modbus terminal “MODBUS from greenBOX” to “On” position (i.e. not to “1” position).



Without power supply connected to the Dust collector Interface you can measure resistance between A, B Modbus port terminals:

1. If terminating resistor is switched of resistance is ~ 21.21 kOhm
2. If terminating resistor is switched on resistance is ~265 Ohm

Connecting Ecogate Dust Collector Interface



MODBUS TERMINATING REZISTOR SHOULD BE SWITCHED ON IF DUST COLLECTOR INTERFACE IS LAST DEVICE IN DAISY-CHAIN – SET IT TO "ON"

CONNECT ECOGATE MASTER CABLE FROM greenBOX (+, -, A, B, G)

CONNECT AVERAGING AIR VELOCITY SENSOR: FROM TOP +, -

CONNECT FILTER DIFFERENTIAL PRESSURE: FROM TOP +, -

CONNECT FAN INLET & OUTLET PRESSURE: FROM TOP +, -

CONNECT VAUUM CLEANING PUMP: TO + FITTING

PREFERABLY USE CONDUIT AND CONTDUIT CONNECTOR TO CONNECT CABLE FROM greenBOX

SECOND OPTION FOR CABLE ENTRY IS ICOTEK CABLE ENTRY (IP 65, NEMA 12) for sixteen 1 mm to 6.5 mm diameter cables, four 1nmm to 8.3 mm diameter cables, and one 1 mm to 12.1 mm diameter cable

How to Mount Dust Collector Interface on the Wall or Pole

1. Disconnect mounting holder from the enclosure by three Philips screws inside the enclosure
2. Slide enclosure up to dismount it.
3. Mount the holder near the fan, filter, and Averaging Air Velocity sensor (if used). This ensures short pressure hoses and, ideally, places the interface in a shaded area for protection against overheating and for accurate temperature sensing.
4. The holder can be mounted to the wall by using three screws or to pole by two metal straps (½“).
5. Open the weather shield slide enclosure in the holder, fix it by three Philips screws inside.

While the Dust Collector Interface features a small OLED screen primarily for setup and troubleshooting, it seamlessly connects to the Ecogate greenBOX control unit via Modbus RTU with same daisy-chain wiring as Ecogate gates. This integration allows for a comprehensive and detailed display of sensor values on the greenBOX screen and use them for system control.

Fan and Filter Pressure Tubing Connection

We recommend using **Polyconn Polyurethane Type 95A tubing with a ⅜-inch outer diameter (OD)**. This tubing is resistant to UV light (sunshine) and is specifically recommended by Polyconn for use with barbed type connect fittings.

Note: The Dust Collector Interface uses a ¼-inch OD brass barbed fitting.

Polyurethane Type 95A tubing is highly valued for its:

- **Durability:** High resistance to abrasion.
- **Flexibility:** Highly flexible and kink-resistant, with excellent "memory" that allows it to stretch and return to its original shape.
- **Temperature Range:** Operates effectively from -40°F (-40°C) up to 165°F (74°C).

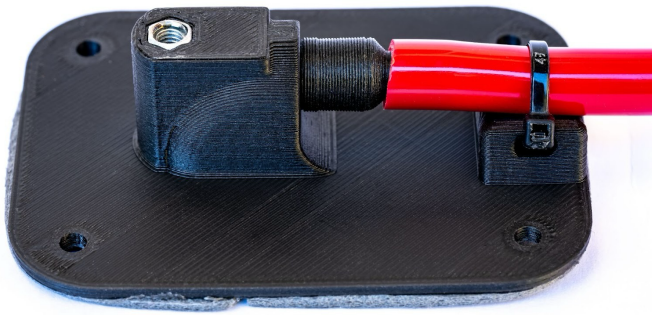
For purchasing, we recommend the 3/8" OD tubing: https://www.polyconn.com/polyurethane-95a-tubing-3-8-od#1.

To prevent connection errors, we suggest using different colors for the positive and negative pressure lines.

Polyconn Polyurethane Type 95A ⅜” outer diameter tubing

Ecogate Pressure Tap per AMCA Standard

The Ecogate Pressure Tap is designed for accurate measurement of static pressure within industrial ventilation duct systems, such as those used for dust and fume collection. It can be installed typically at the fan inlet or outlet, but can be used also at other locations.



Dimensions: 84 x 64 x 24 mm (~3.3 x 2.5 x 1 in.)

Weight: 110 g (~4 oz)

Material: Plastic pressure tap body with a stainless-steel cover

In accordance with the Air Movement and Control Association (AMCA) standard, a pressure tap must not obstruct the airflow inside the duct or alter the pressure reading.

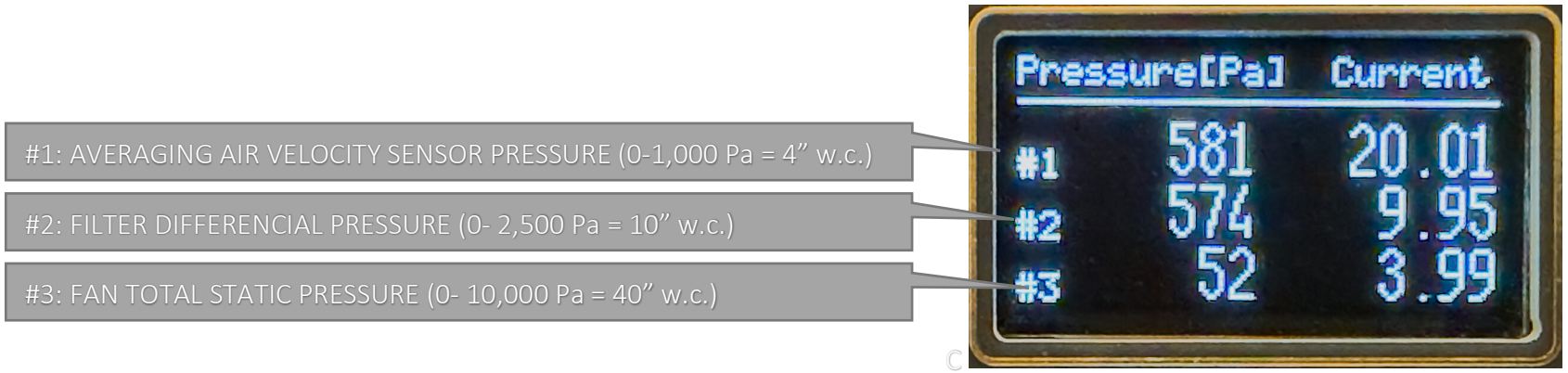
To meet this requirement, the hole drilled in the duct wall must not exceed 0.125” (3.17 mm) in diameter and must have a smooth, burr-free edge.

The pressure tap features an outlet designed to connect with Polyconn 95A UV-stabilized hose ⅜” OD (and 9/16” OD hose). The hose is secured to the tap using a plastic cable tie. The tap is mounted to the duct wall with four screws and is suitable for a duct wall thickness of 0.078 to 0.094 inches (1.98 to 2.38 mm). The ⅜” Polyconn hose connects directly to the pressure sensor inputs at the Ecogate Dust Collector Interface, which is typically mounted at the dust collector.

Check The Pressures While Dust Collecting System is Running

Before checking pressures and air velocity/volume at the greenBOX, you must first verify the pressure readings at the Dust Collector Interface. Follow these steps:

1. **Access the Interface:** Open the weather shield by unscrewing the two butterfly nuts on the left and right sides.
2. **Open the Door:** Use a large flat screwdriver to open the front door of the Dust Collector Interface.
    - **Power Check:** Ensure the 24V DC power supply from the greenBOX via Ecogate MASTER cable is ON. The green "**POWER**" LED next to the "**MODBUS from greenBOX**" terminal should be illuminated, and the OLED display must be active.
3. **Navigate to Pressure Page:** Press the touch button under the OLED display to see "**Pressure - Current**" page.
4. **Prepare Pressure Meter:** Connect the pressure hoses to your pressure meter (e.g., Fluke 922). **Important:** If the fan pressure is higher than 16” w.c., use a meter with a higher range, as the Fluke 922 is limited to 16” w.c.
5. **Verify Averaging Air Velocity Sensor (#1):**
    - Check the reading from the **Averaging Air Velocity sensor at #1** on the OLED display.
    - **Note:** If the value is negative, switch the hoses.
    - **Range and Example:** The sensor range is 0–1,000 Pa (4” w.c.). For instance, a reading of approximately 200 Pa (0.8” w.c.) is expected at 3,500 FPM.
    - **Comparison:** This value should be similar to the reading on your Fluke meter.
6. **Verify Filter Differential Pressure Sensor (#2):**
    - Check the reading from the **Filter Differential pressure sensor at #2** on the OLED display.
    - **Note:** If the value is negative, switch the hoses.
    - **Range:** The sensor range is 0–2,500 Pa (10” w.c.).
    - **Comparison:** This value should be similar to your Fluke meter reading and can also be compared to a separate Magnehelic pressure meter, if one is monitoring filter pressure.
7. **Verify Fan Total Static Pressure Sensor (#3):**
    - Check the reading from the **Fan Total Static pressure sensor at #3** on the OLED display.
    - **Note:** If the value is negative, switch the hoses.
    - **Range:** The sensor range is 0–10,000 Pa (40” w.c.).
    - **Comparison:** This value should be similar to your Fluke meter (if the pressure is below 20” w.c.) or a higher-range pressure meter.
8. **Proceed to greenBOX Integration:** After verifying these readings, you can now **add the Dust Collector Interface to the greenBOX**. Refer to the next pages for step-by-step instructions.



How To Use the OLED Screen

Navigate through the six available screens by pressing the touch button located below the display.

Screen Content

1. Status of **Relays and Digital Inputs**.
2. Values for **Pressure #1 to #3**, and **4-20 mA currents #1 to #3**.
3. Readings for **ambient temperature, humidity, atmospheric pressure, and vacuum pump** pressure.
4. **Processor temperature, 24V DC, 5V DC, and analog reference** voltages.
5. Settings for **greenBOX Communication timeout and the Dust Collector Interface Modbus Address**.
6. Display of **Firmware and Hardware versions, board Serial Number, and production date**.

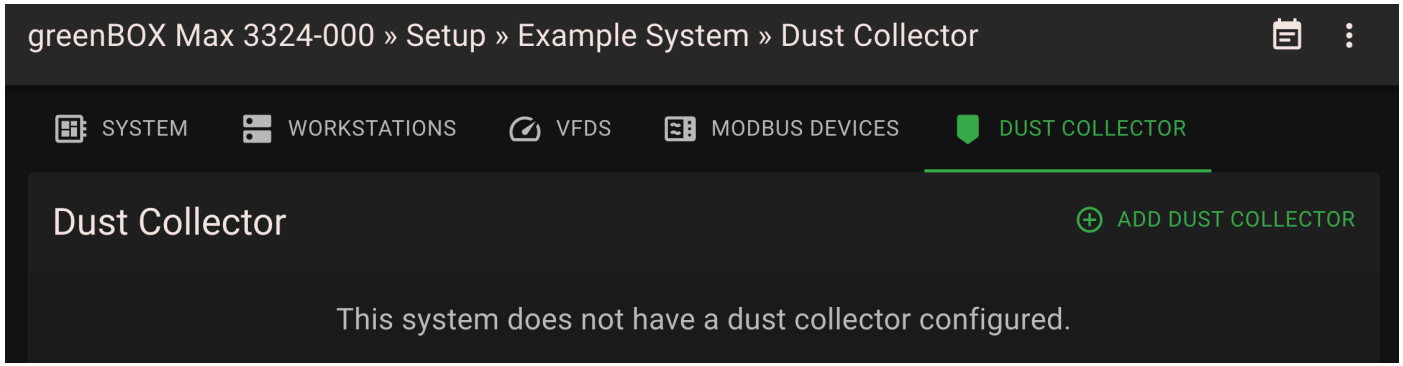
A screensaver will be activated after a period of inactivity to protect the OLED screen, showing text at random positions. Press the touch button below the screen to wake up the display. Details on each screen's content are provided later in this document.

Adding Ecogate Dust Collector Interface to greenBOX

First Connect Dust Collector Interface to greenBOX by using Ecogate MASTER cable which connects both 24V DC power supply for interface and Modbus communication. This is described in previous chapter of this document.

Press ADD DUST COLLECTOR

At greenBOX dashboard press pencil icon to go to the System Setup and select **DUST COLLECTOR** tab:



Follow these steps after pressing **"ADD DUST COLLECTOR"**:

Initial Setup and Connection

1. **Name:** Change the **Name** to clearly identify this dust collector (essential for systems with multiple dust collectors).
2. **Modbus Port:** Select the **Modbus Port** to which this greenBOX MASTER cable is connected (one MASTER cable supports up to 30 devices).
3. **Modbus Address:** Set the **Modbus Address of the Dust Collector Interface**, typically set to 5 or 6 from the factory, you can check it on the “greenBOX COMMUNICATION” page of the OLED screen. (Ecogate support can change the Dust Collector Interface Modbus Address, if necessary, by using the Ecogate System Simulator software on a Windows PC connected to the Dust Collector Interface via a USB-C cable, for example if more Dust Collector Interfaces are needed on the same Modbus port).
4. **Enable Connection:** Press the **ENABLED** button. The connection quality should change from "Disconnected" to “100%”. If not, verify the Modbus Port number, Modbus Address number, cable, and terminals.

Sensor Naming and Calibration

1. **Rename Sensors (Optional):** You can **change the names of the air velocity sensor, filter pressure, and fan pressure** sensors. This is important if connecting multiple dust collectors to a single greenBOX.
2. **Duct Diameter:** Set the **Duct Diameter** where the Air Velocity sensor is installed (typically between the dust collector outlet and the fan inlet because air velocity sensor must be installed in clean air, without dust). greenBOX requires this diameter to accurately calculate Air Volume and Air Velocity in the main duct (which is usually smaller than the clean air duct where the sensor is located).

3. **Air Velocity Calibration:**

    - Hoses from Ecogate Averaging Air Velocity sensor must be connected.
    - Set the ventilation system to Manual mode on the VFD front door – the fan will run at constant speed during calibration.
    - Use a good external air velocity meter (we recommend Fluke 922) with a pitot tube long enough to scan the entire duct.
    - Measure the average air velocity in the duct.
    - At Dust Collector Page, Pressure Sensor 1 press the **CALIBRATE** button and enter the average air velocity measured by the Fluke 922 meter.
    - You can stop the fan now by moving Power MASTER front door selector to STOP.

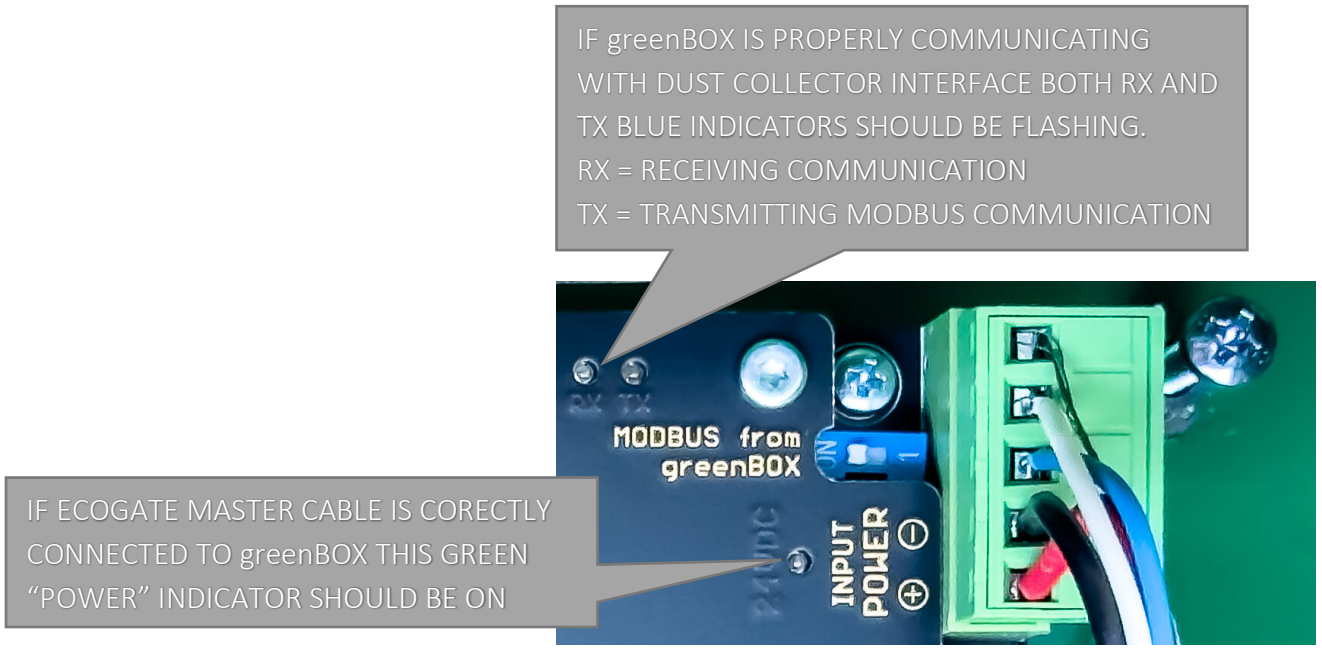
4. **Pressure Zero Calibration:** When the system is stopped, use the **CLEAR** and then **SET** buttons to calibrate the zero readings for the Filter and Fan pressure sensors (Pressure Sensors 2, Pressure Sensors 3).

System Settings Integration

1. **Main Duct Air Measurement:**
    - Select the **SYSTEM** tab.
    - Scroll to **02. Main Duct Air Measurement**.
    - Set **Air Velocity Source** to "**External Sensor**".
    - Set **Data Source** to the air velocity sensor name you set in Step 5 (e.g., "**Donaldson Air Velocity**").
    - Fill in the **Main Duct Diameter** with the correct value. Note: this is not duct diameter where sensor is installed, it is main duct diameter - which is usually slightly smaller compared to clean air duct between dust collector and fan inlet).
    - *Result:* Air Volume and Air Velocity will now display correctly on the system dashboard.
2. **Fan Total Pressure:**
    - Select the **SYSTEM** tab.
    - Scroll to **05. Fan Total Pressure**.
    - Set **Data Source** to the Fan Pressure sensor name you set in Step 5 (e.g., "**Donaldson Fan Pressure**").

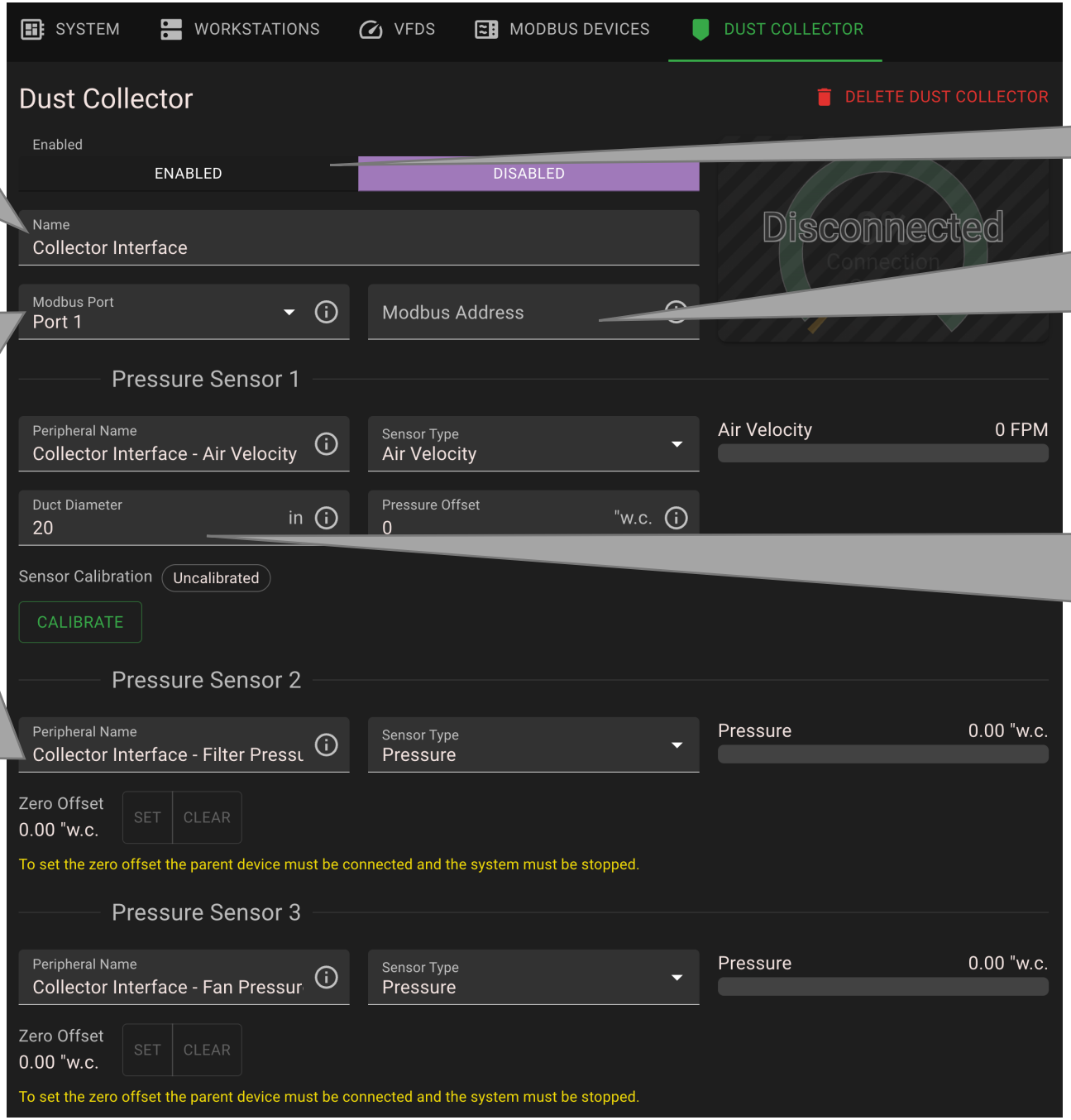
- Set the **Over Pressure Warning Level** and **Over Pressure Error Level** to desired values (Note: the system will stop at the "Over Pressure Error Level").
- *Result:* Fan Pressure will now display correctly on the system dashboard.

3. **Filter Pressure:**
   - Select the **SYSTEM** tab.
   - Scroll to **06. Filter Pressure**.
   - Set **Data Source** to the Filter Pressure sensor name you set in Step 5 (e.g., "**Donaldson Filter Pressure**").
   - Set the **Over Pressure Warning Level** and **Over Pressure Error Level** to desired values (Note: the system will stop at the "Over Pressure Error Level").
   - *Result:* Filter Pressure will now display correctly on the system dashboard.



1. CHANGE THE NAME TO IDENTIFY DUST COLLECTOR

2. SELECT PORT WHERE CABLE TO THE DUST COLLECTOR INTERFACE IS CONNECTED

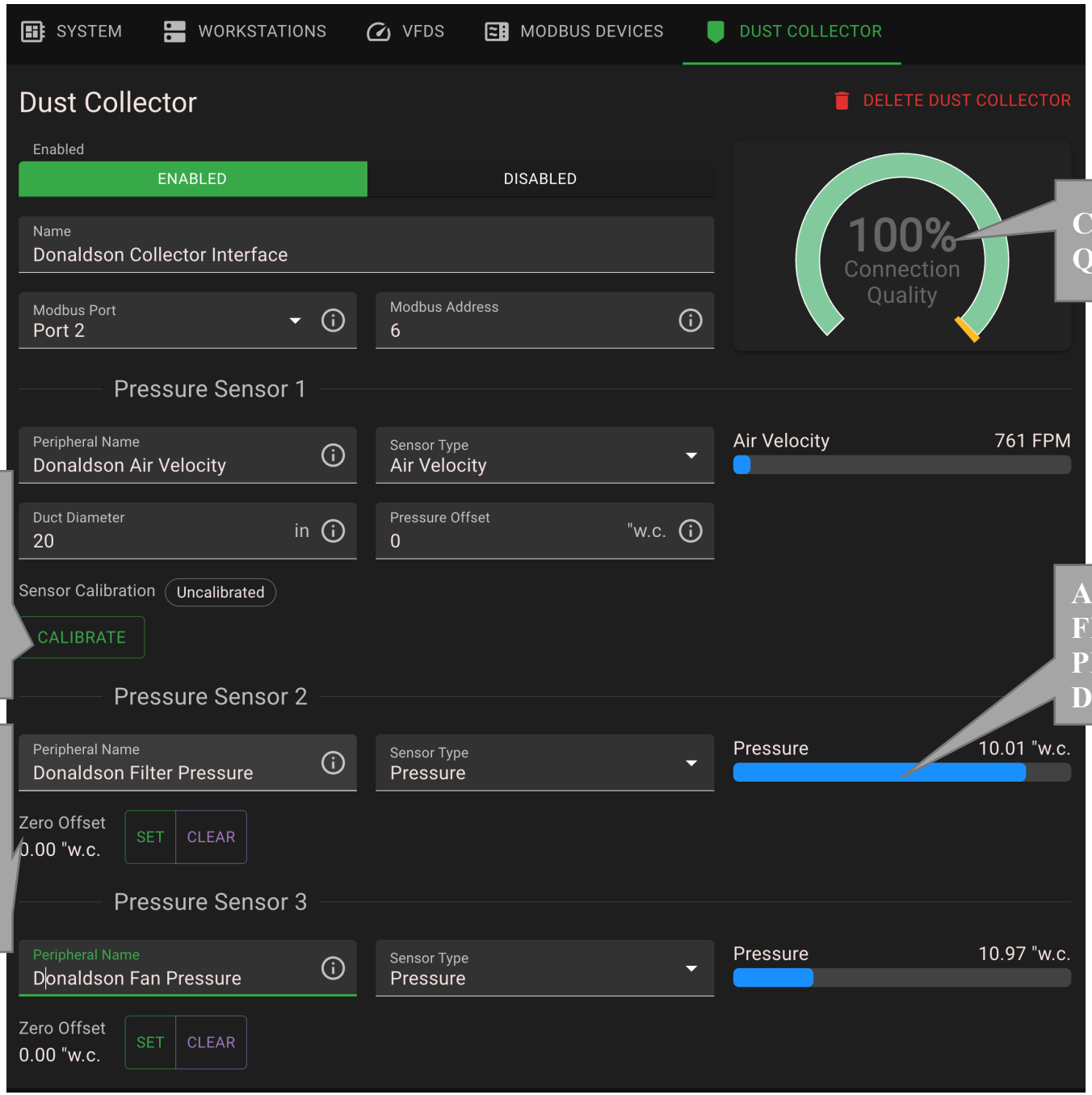


4. PRESS ENABLED BUTTON

3. SET INTERFACE MODBUS ADDRESS – IT IS SHOWN ON OLED DISPLAY

5. SET DIAMETER OF THE DUCT WHERE AIR VELOCITY SENSOR IS INSTALLED

6. YOU CAN ALSO CHANGE NAMES OF SENSORS – FOR EXAMPLE TO “DONALDSON FILTER PRESSURE”

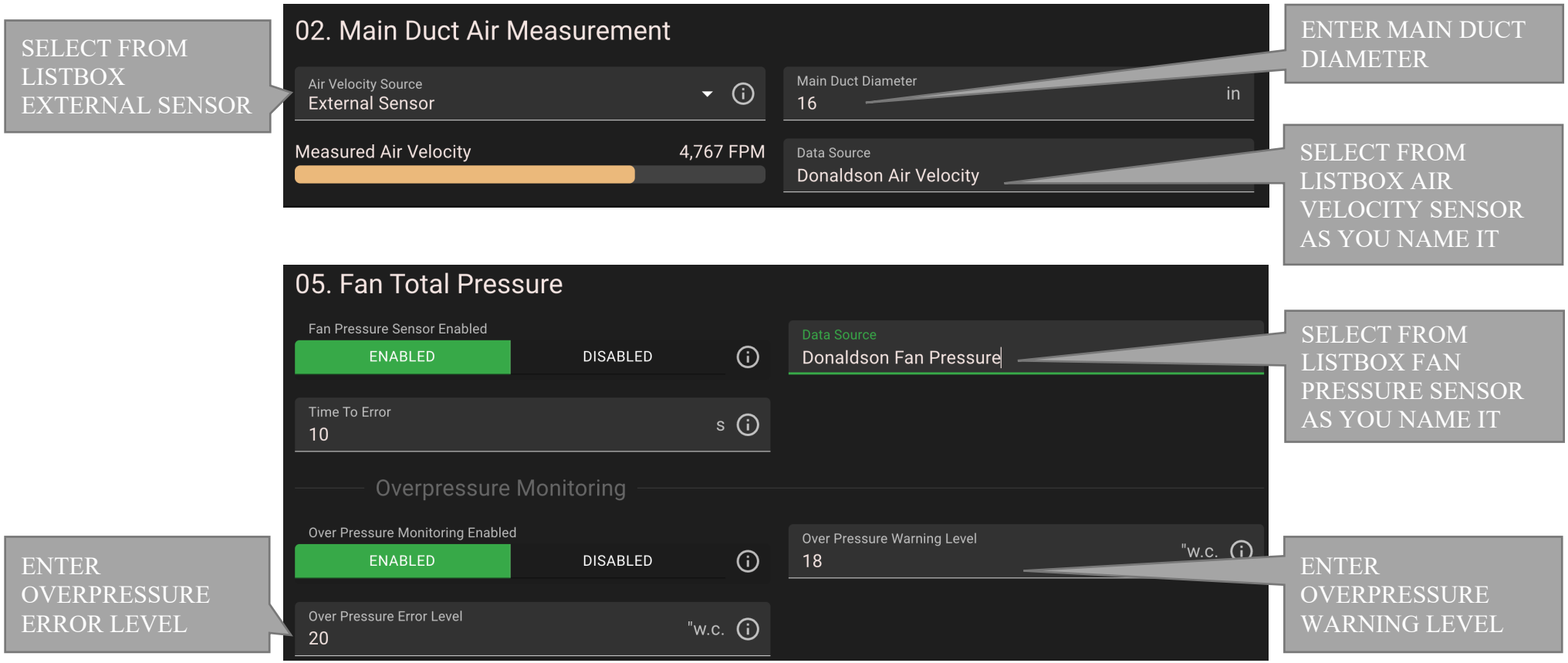


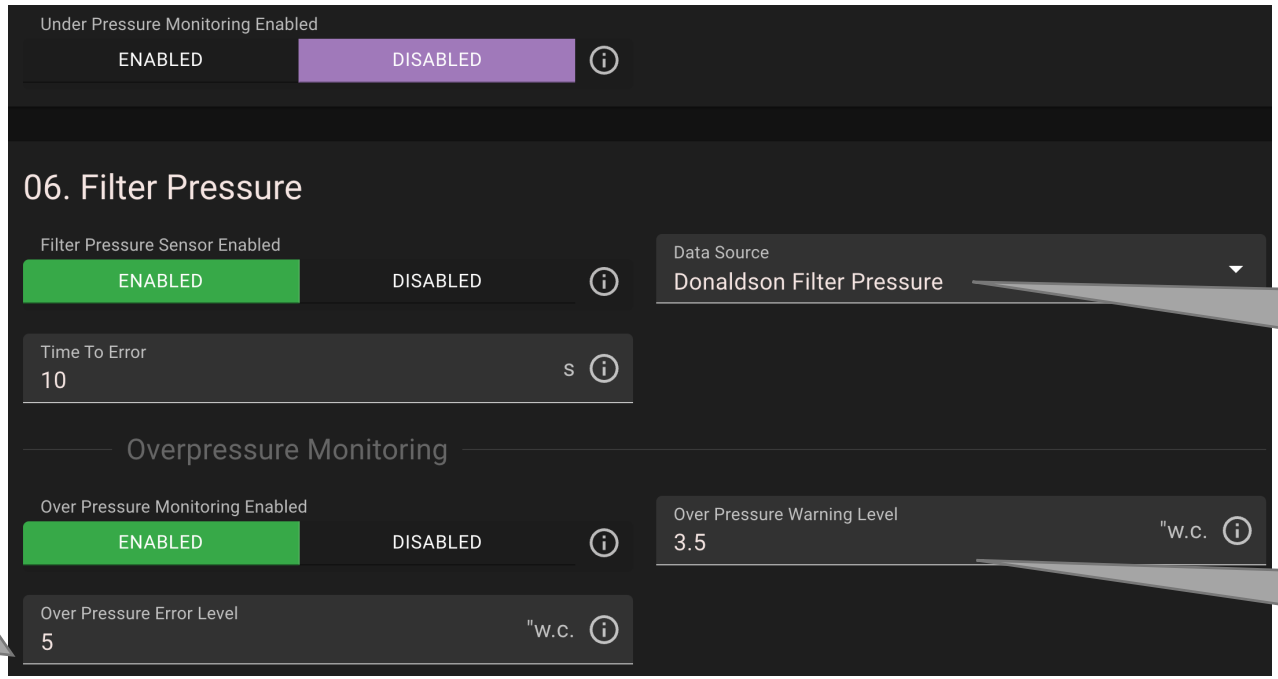
COMMUNICATION QUALITY IS 100%

USE EXTERNAL AIR VELOCITY METER TO CALIBRATE AIR VELOCITY SENSOR

AIR VELOCITY, FILTER, & FAN PRESSURE ARE DISPLAYED

WHEN SYSTEM IS IN STOP CALIBRATE PRESSURE SENSORS ZERO READING


SELECT FROM LISTBOX EXTERNAL SENSOR
02. Main Duct Air Measurement
Air Velocity Source
External Sensor
Measured Air Velocity
4,767 FPM
Main Duct Diameter
16
in
Data Source
Donaldson Air Velocity
ENTER MAIN DUCT DIAMETER
SELECT FROM LISTBOX AIR VELOCITY SENSOR AS YOU NAME IT
05. Fan Total Pressure
Fan Pressure Sensor Enabled
ENABLED
DISABLED
Time To Error
10
s
Data Source
Donaldson Fan Pressure
SELECT FROM LISTBOX FAN PRESSURE SENSOR AS YOU NAME IT
Overpressure Monitoring
Over Pressure Monitoring Enabled
ENABLED
DISABLED
Over Pressure Error Level
20
"w.c.
Over Pressure Warning Level
18
"w.c.
ENTER OVERPRESSURE ERROR LEVEL
ENTER OVERPRESSURE WARNING LEVEL



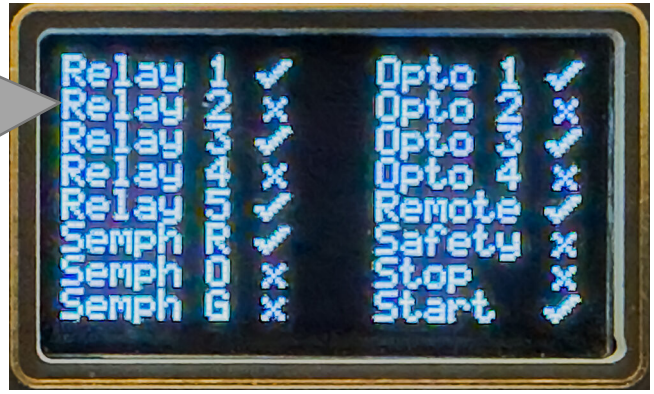
SELECT FROM LISTBOX FILTER PRESSURE SENSOR AS YOU NAME IT

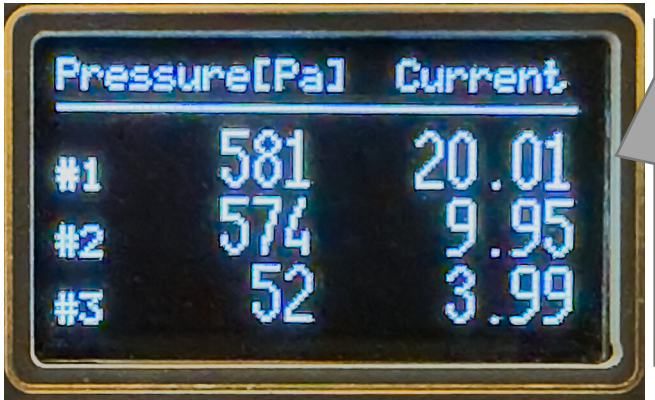
ENTER OVERPRESSURE ERROR LEVEL

ENTER OVERPRESSURE WARNING LEVEL

Dust Collector Interface OLED Display

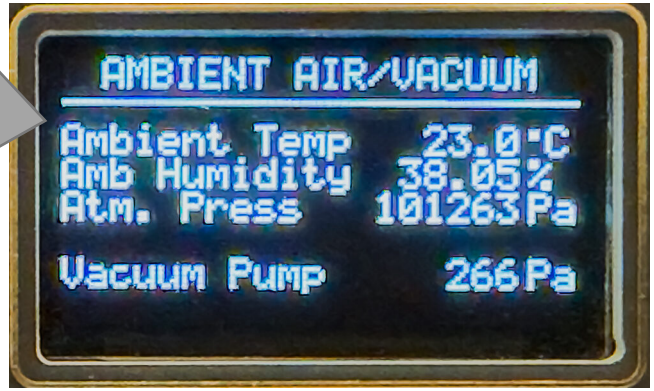
1. STATUS OF RELAYS 1...5, DIGITAL INPUTS 1…4, REMOTE START, SAFETY, START, STOP.

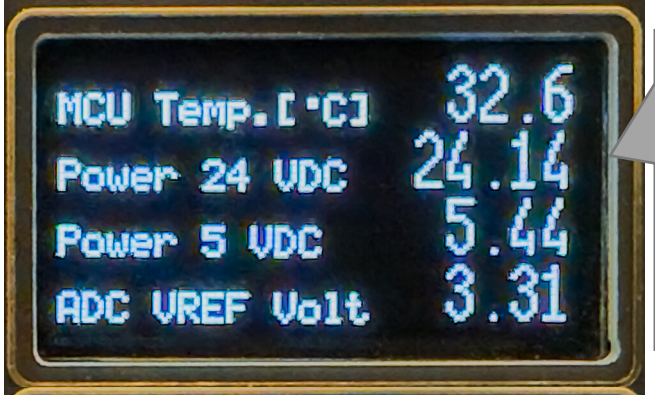




2. LEFT #1 PRESSURE = AVVS, #2 = FILTER PRESSURE, #3 = FAN PRESSURE in Pa. RIGHT ARE ANALOG INPUT CURRENTS #1 = 20.01 mA

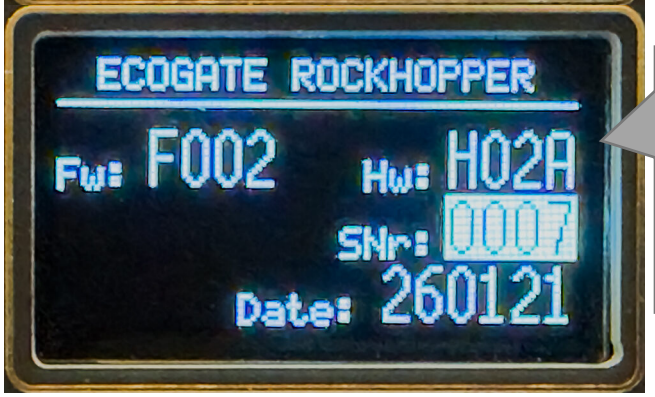
3. AMIBIENT AIR TEMPERATURE °C, RELASTIVE HUMIDITY (%), ATMSPHERIC PRESSURE (PA), AND VACCUM PUMP PRESSURE (Pa).





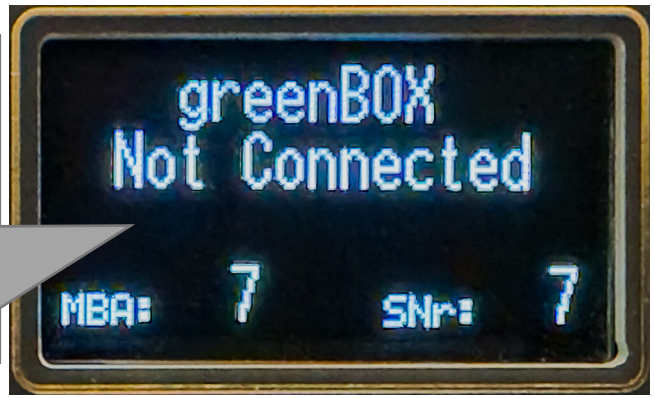
4. PROCESSOR TEMPERATURE, 24V DC VOLTAGE, 5V VOLTAGE, ANALOG CONVERTOR REFERENCE VOLTAGE

5. COMMUNICATION TIMEOUT WITH greenBOX CONTROL SYSTEM IS SET TO 15 SECONDS = AFTER THAT MESSAGE greenBOX IS NOT CONNECTED WILL APPEAR



6. FIRMWARE, HARDWARE VERSIONS, BOARD SERIAL NUMBER, AND PRODUCTION DATE

IF DUST COLLECTOR INTEFACE IS NOT CONNECTED TO greenBOX THIS ERROR PAGE WILL SHOW MODBUS ADDRESS (MBA) IN THIS EXAMPLE = 7



TO PROTECT THE OLED SCREEN AFTER TIMEOUT THE SCREENSAVER PAGE WILL DISPLAY TEXTS AT RANDOM DISPLAY POSITIONS – TO WAKE UP SCREEN PRESS TOUCH BUTTON UNDER THE SCREEN

Dust Collector Interface Specification (Block #2)

The Dust Collector Interface measures ventilation values (air velocity, air volume, fan total static pressure, filter differential pressure, cleaning pump pressure, ambient temperature, relative moisture, atmospheric pressure)

The Ecogate Dust Collector Interface is a green metal enclosure, measuring 10.7” x 7.7” x 3”, that comes with a mounting bracket and weather shield (it can be installed outside directly at the dust collector). It operates on a 24V DC power supply from greenBOX, with a maximum consumption of ~ 10W.

Dust Collector Interface Air Velocity and Pressure Ranges

Air Velocity Sensor Range is 0- 8,000 FPM

The pressure range is 1,000 Pa = 1kPa = 4” w.c. allows to measure air velocities by Ecogate Averaging Air Velocity Sensor **up to 8,000 FPM (~40 m/s)** at normal temperature. Note: sensor works from -2,000 Pa to 2,000 Pa (-8 “w.c. to 8” w.c.) with reduced precision.

Filter Differential Pressure Sensor Range is 0-10” w.c.

The pressure range is 2,500 Pa = 2.5kPa = 10” w.c. Note: sensor works from -4,000 Pa to 4,000 Pa (-16 “wc to 16” w.c.) with reduced precision.

Fan Pressure Sensor Pressure Range is 0-40" w.c.

The pressure range is 10,000 Pa = 10kPa = 40" w.c. Note: sensor works from -14,680 Pa to 16,422 Pa (-66 "wc to 59" w.c.) with reduced precision.

Cleaning Pump Pressure Sensor Range is 0-400 "w.c. (0-100,000 kPa = 14.5 PSIG Pound-force per square inch)

The pressure range is 100,000 Pa = 100kPa = 400" w.c. = 14.5 PSIG Pound-force per square inch

Dust Collector Interface Dimensions & Weight

Dimensions (enclosure without wall mount/weather shield and without pressure fittings): 270 x 195 x 75 mm (10.7" x 7.7" x 3")

Weight without wall mount/weather shield: 2.8 kg (6.23 Lb.)

Dimensions with wall mount/weather shield, and pressure fittings: 315 x 240 x 115 mm (10.7" x 7.7" x 3"); 190mm (7.1") with open shield, **Total weight with wall mount/weather shield**: 4.8 kg (10.6 Lb.)

- **Modbus RTU Terminals**: A Slave terminal for connection from the greenBOX control unit and a Master terminal for connecting VFDs, and Modbus sensors (e.g., Ecogate Air Quality Sensor).
- **Pressure Sensors**:
  - For connecting an Ecogate Averaging Air Velocity sensor (1 kPa = 4" w.c.), Precision +/- 2% of range, over pressure 5 kPa
  - For Filter Differential pressure (2.5 kPa = 10" w.c.), Precision +/- 2% of range, over pressure 6.25 kPa
  - For Fan Total Static pressure (10 kPa = 40" w.c.), Precision +/- 2% of range, over pressure 25 kPa
  - For Cleaning PD Pump pressure, or vacuum pump pressure (100 kPa = 400" w.c. = = 14.5 PSIG Pound-force per square inch), Precision +/- 2% of range, over pressure 250 kPa
- **Ambient Air Sensors**:
  - Temperature sensor operating range: - 40 °C…+85 °C (-40 F…185 F), Precision +/- 0.5 °C in range 0…+65 °C
  - Relative humidity sensor range: 0 … 100% r.H., Precision +/- 3% in range 10…90% r.H.

  - Atmospheric pressure sensor range: 300…1,100 hPa (32.48 inHg, 1,100 mbar), Precision +/- 0.5 hPa, +/- 0.375 inHg

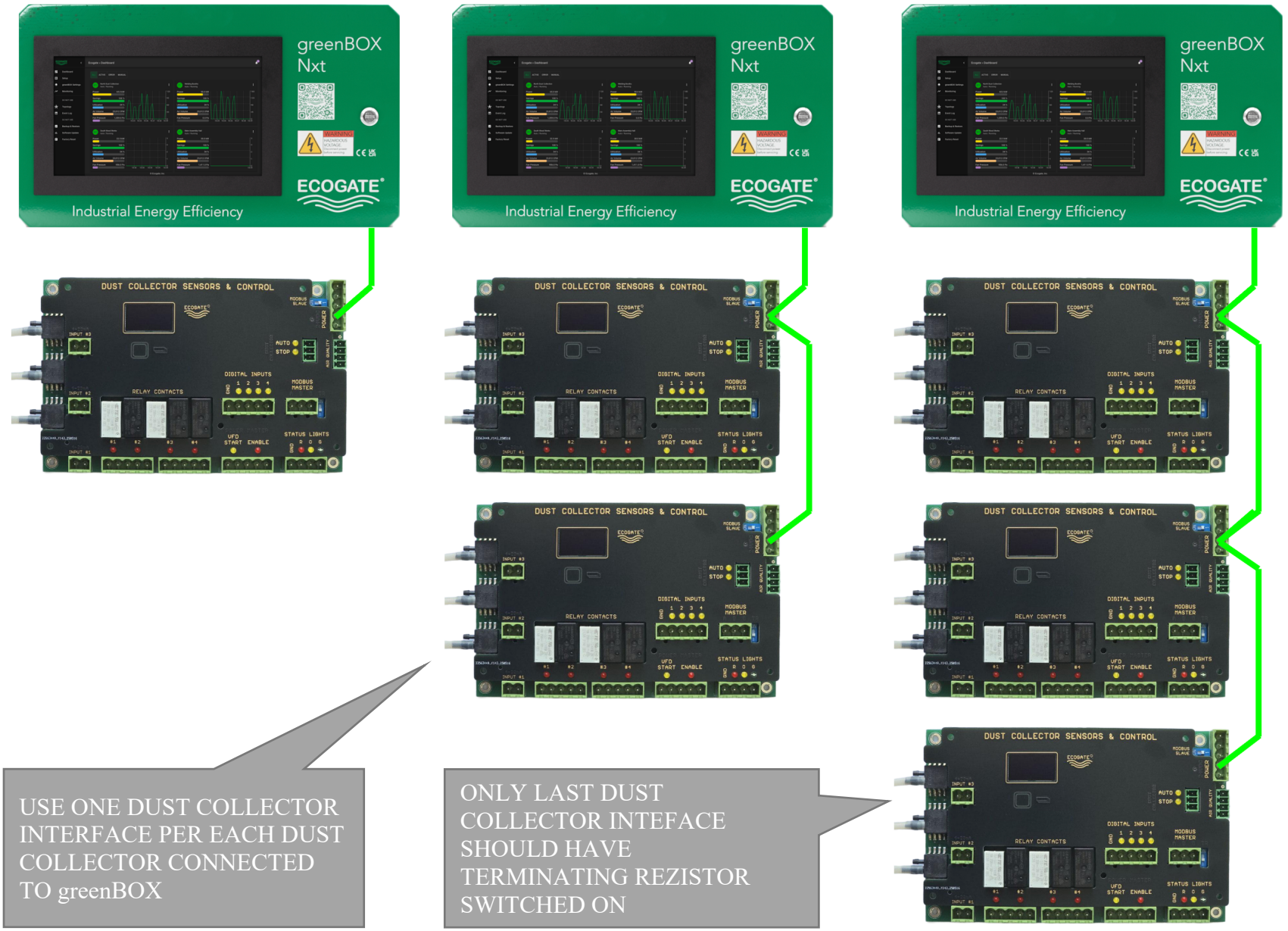
- **Control and Connectivity**:
  - A dry contact “ENABLE” output for the Ecogate Power MASTER VFD for the main fan.
  - An input for remote dust collector Start/Stop from the Power MASTER VFD.
  - Five programmable digital inputs (e.g., for external sensors).
  - Four programmable dry relay contacts (two NO + two NO/NC contacts).
  - Three programmable analog inputs (4-20mA), for example for vibration sensors to monitor fan and motors excess vibrations.
  - An input for dust collector manual Start and Stop buttons.
  - Outputs for LED status lights (green, yellow, red, 24V DC, max. 8W each).
  - Phoenix Contacts pluggable screw terminals (with the same wiring as the greenBOX interface board).
- **User Interface and Programming**:
  - A 1.1” OLED display with a touch button for scrolling through multiple status pages.
  - Software updates via USB-C port using Ecogate Rockhopper service software.

Ecogate Support Contact

support@ecogate.com

888-ECOGATE

Appendix A: Multiple Dust Collector Interfaces Can Be Connected to One greenBOX



Appendix B: Averaging Air Velocity Sensor

The Ecogate averaging air velocity sensor is designed for accurate air velocity and volume measurement in a clean air duct system. It must be installed in the clean air duct, specifically *behind* the dust collector.

Key Features and Functionality

- **Operation:** The sensor functions like a standard Pitot tube. One set of ports measures total pressure (static + velocity), while the other measures static pressure. The difference between these two readings is the velocity pressure which is recalculate to air velocity.
- **Measurement Range:** A 4" w.c. pressure transmitter, built into the Dust Collector Interface, allows for air velocity readings up to 8,000 FPM (40.6 m/s).
- **Averaging Benefit:** The sensor provides an averaged value that is equivalent to the result of twenty Pitot tube traverse readings.
- **Duct Diameter Compatibility:** The insertion depth accommodates duct diameters up to 60 inches. Order length of the sensor based on clean air duct diameter.
- **Compatibility:** The sensor is fully supported by the new generation of greenBOX control units.

System Integration

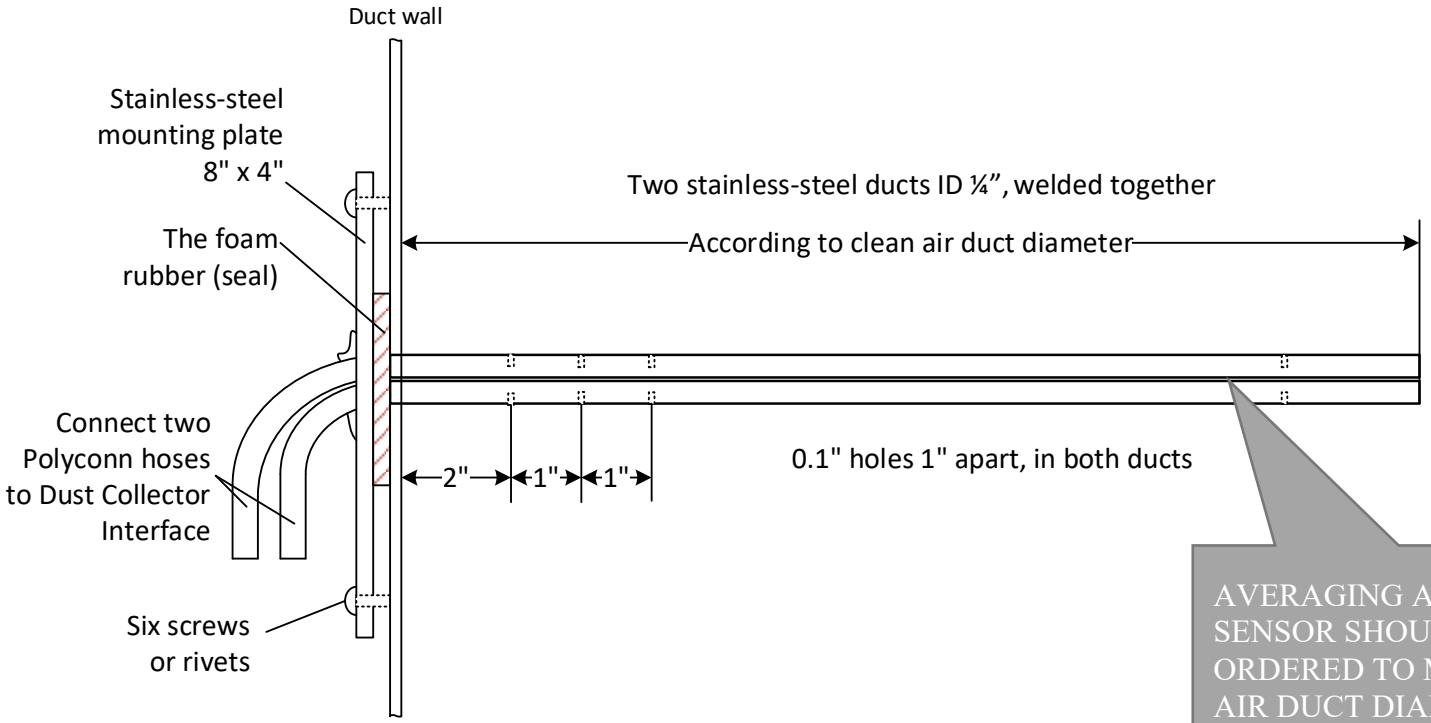
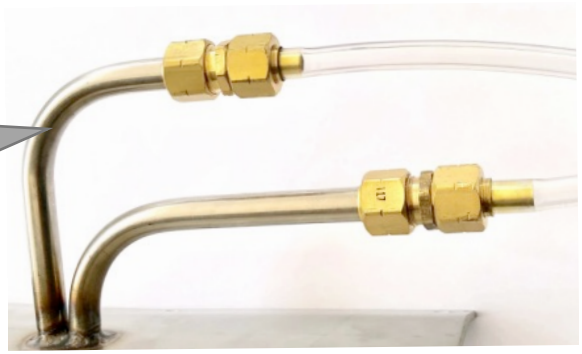
When connected to a new greenBOX control unit, the user can input the duct diameter where the sensor is installed. The control unit will then use this information to recalculate the air velocity for the main duct, ensuring that the minimum required transport velocity is maintained and monitored.

Installation Guidelines

For the most accurate reading, the sensor should be installed:

- Five or more duct diameters downstream and upstream from obstructions such as elbows, junctions, dampers, abort gates, and fans.

- Longer sensors are using additional supporting screw at end of the sensor.



OUTLETS OF AVERAGING AIR VELOCITY SENSORS ARE CONNECTED TO THE AVVS INPUTS OF DUST COLLECTOR INTERFACE