

## Power-over-Ethernet (PoE) Airflow and Temperature Measurement with Humidity Capability



### TYPICAL INSTALLATION LOCATIONS

- Any Small Opening ( $\leq 8$  sq ft.)

### MONITORING BENEFITS

- Verify Damper Operation
- Confirm Occupied/Unoccupied Mode Ventilation Rates
- Ensure Economizer Operation
- Validate Fan Operation
- Verify Coil Performance
- Detect Filter Loading and/or Failure
- Detect Desiccant Wheel Frosting
- Verify Zone Ventilation Rates

### ALARM ABILITIES

- Up to 10 Simultaneous Alarms Configurable per Device
- High and Low Thresholds
- Delay, Tolerance, Zero-Offset Adjustments
- % of Tolerance vs. Actual Measurement
- Manual and Automatic Reset

### Product Highlights

- Power-over-Ethernet (PoE) connection using a single Ethernet cable to deliver both power and communication
- Easy to install probe design with two mounting styles available (type UI or US)
- Accurate and repeatable thermal dispersion technology with bead-in-glass thermistor sensors
- Sensor nodes are individually calibrated at 7 airflow rates to NIST traceable standards
- 0 to 3,000 FPM calibrated range with percent-of-reading accuracy
- Optional integrated RH sensor for psychrometric measurement data
- FEP plenum-rated cable with terminal DIN connector plug included
- Remote monitoring and access via Vu-IQ™ web interface for configuration, data viewing, diagnostics, and system status alarming

### Vu-IQ™ Overview

GreenTrol's Vu-IQ™ ecosystem integrates a family of low-cost, easy to install, Power-over-Ethernet (PoE) sensors designed specifically for monitoring and alarming applications. Each device provides continuous, real-time measurement of airflow, temperature, humidity, CO<sub>2</sub>, and other environmental parameters. Data is collected through a resident background application and interface (required) that can be accessed from any browser-based device—allowing users to configure setpoints, trend data, and receive alarm notifications whenever monitored values fall outside defined limits.

LEARN MORE:  
VU-IQ™



## Product Overview

The TD-POE2000-D is a Power-over-Ethernet (PoE) transmitter with an integrated IAT2-DI duct probe, providing airflow and temperature measurement, with optional humidity, dew point, and enthalpy sensing available on probe lengths  $\geq 9$  inches, all within a single measurement solution.

The IAT2-UI probe is designed for insertion mounting into interior ducts (ducts protected from rain and/or snow) while the IAT2-US probe is designed for installation inside plenums or other openings where airflow measurement is required.

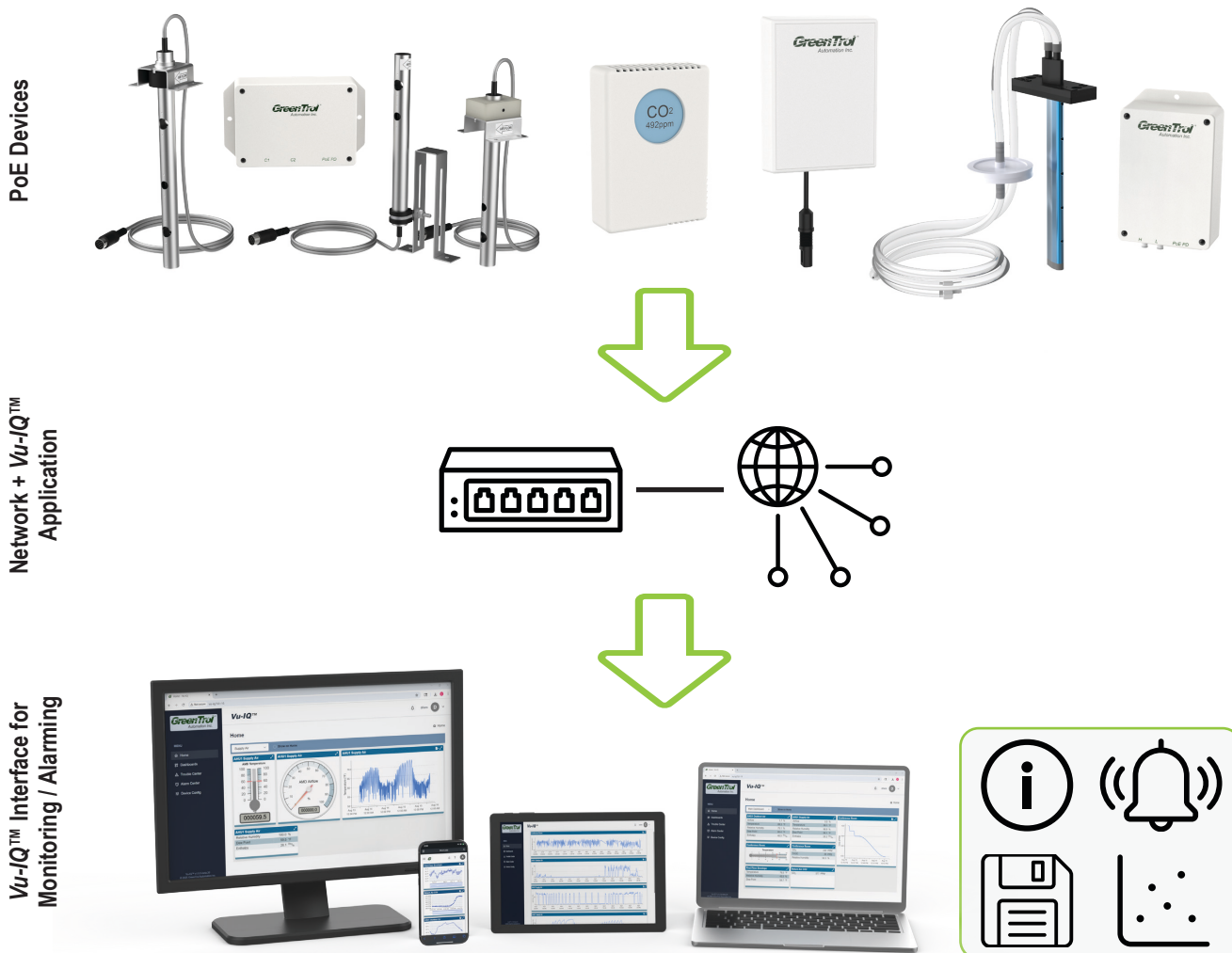
Probes come in available lengths of 6, 8, or 16" with optional enthalpy sensing. Two probe configurations enable installation in two separate locations, both configurable and monitored within Vu-IQ™. Each probe includes an adjustable mounting assembly that allows flexible installation depth for a wide range of duct or plenum configurations. Each sensor node contains two hermetically sealed bead-in-glass thermistors, potted in a waterproof assembly. The sensors are designed for long-term stability, drift-free performance, and trouble-free operation. Each probe is calibrated at 7 points in high-performance wind tunnels.

The TD-POE2000-U transmitter communicates over a single Ethernet cable using PoE and a resident background application and interface (required), streamlining installation and complexity by eliminating the need for separate power and data wiring.

An integrated Learn Mode monitors airflow over a user-defined period (up to 7 days) to automatically determine maximum system airflow for accurate scaling when configuring 0–100% Airflow Adjustment Mode in Vu-IQ™.

The TD-POE2000-U is "plug and play" and operates on power up. The user interface for the device is accessed using GreenTrol's Vu-IQ™ web interface, enabling real-time monitoring, data logging, configuration, and diagnostics from any network connected device.

## Vu-IQ™ Ecosystem



## TD-POE2000-U Technical Specifications

### Functionality

**Airflow Measurement:** Provides the average airflow rate of probe in FPM [m/s] or CFM [LPS] via the Vu-IQ™ web interface.

**Temperature Measurement:** Provides the velocity weighted temperature in °F [°C] via the Vu-IQ™ web interface.

**Relative Humidity (RH) Measurement:** Provides RH via the Vu-IQ™ web interface

**Enthalpy Calculation:** Provides Enthalpy via the Vu-IQ™ web interface

**Dew Point Calculation:** Provides Dew Point via the Vu-IQ™ web interface

**System Status Alarms:** Yes, via the Vu-IQ™ web interface. See the Vu-IQ™ web interface data sheet for more details.

### Network Connection

Vu-IQ™ with auto setup using CAT5e or newer cable

### User Interface

Vu-IQ™ web interface

### Airflow / Temperature Measurement Probe

Type:

-UI: Universal Insertion Mount

-US: Universal Standoff Mount

#### Available Configurations

**Single Probe:** 1 probe x 1 sensor node/probe

**Dual Probe:** 2 probes x 1 sensor node/probe

#### Sensing Node Sensors

**Self-heated sensor:** Precision, hermetically sealed, bead-in-glass thermistor probe

**Temperature sensor:** Precision, hermetically sealed, bead-in-glass thermistor probe

#### Probe Tube

**Material:** Mill finish 6063 aluminum

#### Probe Mounting Brackets

**Material:** 304 stainless steel

**Probe Length:** 6, 8 or 16 in. [152.4, 203.2 or 406.4 mm] (adjustable)

#### Sensing Node Housing

**Material:** Glass-filled Polypropylene

**Sensor Potting Materials:** Waterproof marine epoxy

#### Sensing Node Internal Wiring

**Material:** Kynar® coated copper

#### Probe to Transmitter Cables

**Material:** FEP jacket, plenum rated CMP/FT6/CL2P, UL/cUL listed, -67 to 302 °F [-55 to 150 °C], UV tolerant

**Standard Lengths:** 10, 25 and 50 ft. [3.1, 7.6 and 15.2 m]

**Connecting Plug:** 0.60" [15.24 mm] nominal diameter

#### Airflow Measurement

**Sensor Accuracy:** ±3% of reading to NIST-traceable airflow standards

**Averaging Method:** Independent, arithmetic average

**Installed Accuracy:** Typically better than ±10% of reading in ducts/ openings ≤ 8 sq ft [0.74 sq m]

**Calibrated Range:** 0 to 3,000 fpm [0 to 10.16 m/s]

**Calibration Points:** 7

#### Temperature Measurement

**Averaging Method:** Independent, velocity weighted

**Accuracy:** ±0.15°F [0.08°C]

### Optional Relative Humidity Sensor (/H Option)

**Type:** Ruggedized capacitive polymer RH sensor

**/H2 Option:** Each probe has RH sensor

**Operating Range:** 0-99% RH, non-condensing

**Accuracy @ 77 °F [25 °C]**

20 to 80 %RH: ±2% RH

0 to 20 and 80 to 100 %RH: ±3.5% RH

**Temperature Coefficient:** 0.07%/°F [0.13%/°C]

**Long Term Drift:** 0.5% RH/year

**Calculated Measurements:** Velocity weighted relative humidity, velocity-weighted enthalpy and dew point using measured RH, velocity-weighted temperature and on-board barometric pressure sensor.

### Environmental Limits & Power Requirements & Dimensions

#### Transmitter

##### Environmental Limits

**Temperature:** -20 to 120°F [-28.9 to 48.9°C]

**Humidity:** 0 to 99% RH, non-condensing

Important: Provide a weather-proof enclosure if the transmitter module is mounted outdoors

##### Power Requirement

Power-over-Ethernet (PoE)

Wattage: 4W

PoE Standards Supported: IEEE 802.3af, 802.3at

**Dimensions:** 3.57H x 6.00W x 1.50D in. [90.7 x 152.4 x 38.1 mm]

#### Probe

##### Environmental Limits

**Temperature:** -20 to 160°F [-28.9 to 71.1°C] Note:

Temperature limits for operation may be limited by the transmitter

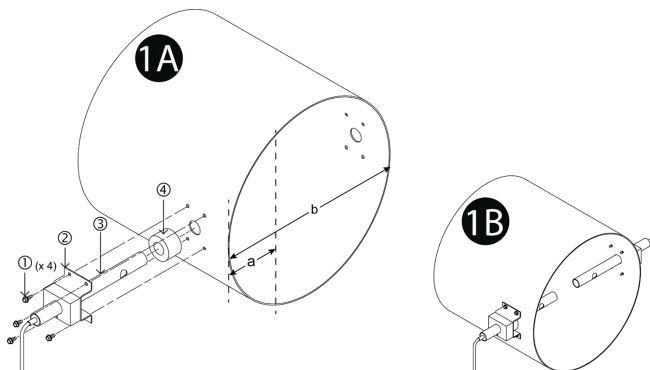
**Humidity:** 0 to 100% RH

**Power Requirement:** Power is provided by the transmitter

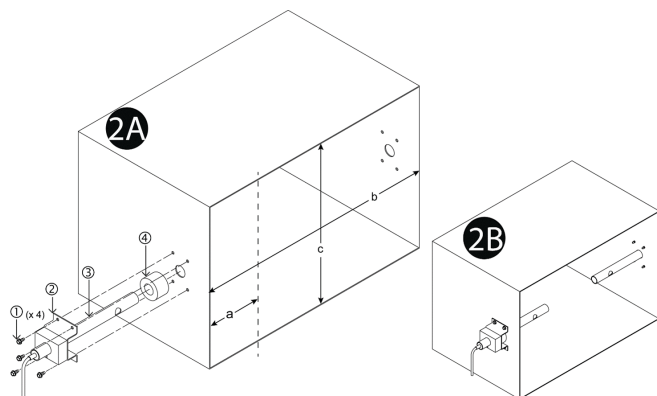
## Sensor Probe Installation Diagrams

Detailed installation guidelines for probes are provided in the Greentrol -UI and -US installation guide.

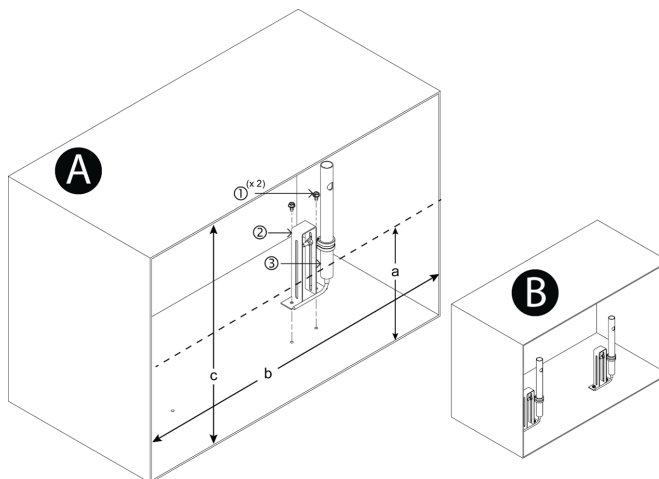
### -UI Probe Installation (Insertion Mounting - Round Ducts)



### -UI Probe Installation (Insertion Mounting - Rectangular/Oval Ducts)

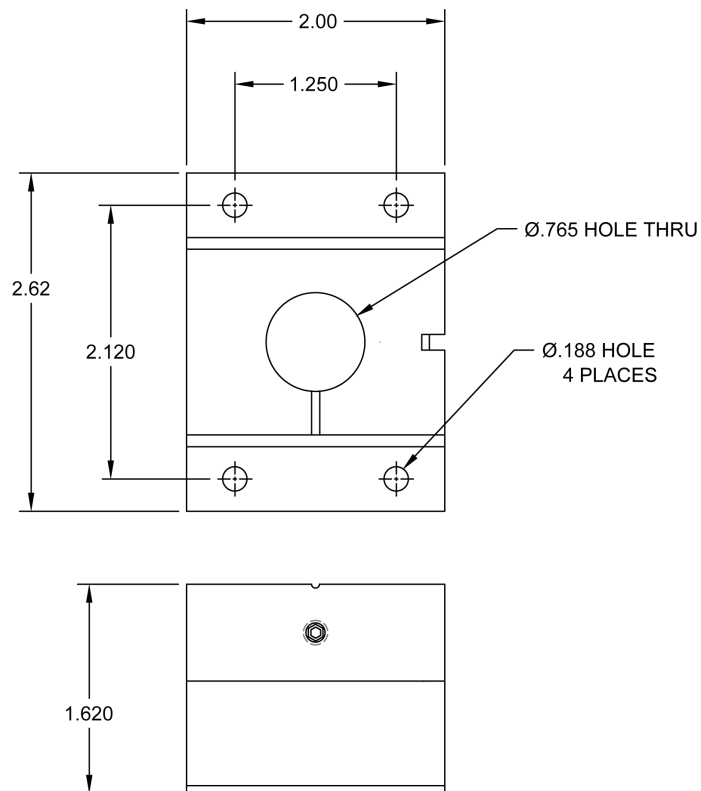


### -US Probe Installation (Standoff Mounting - Rectangular Ducts)

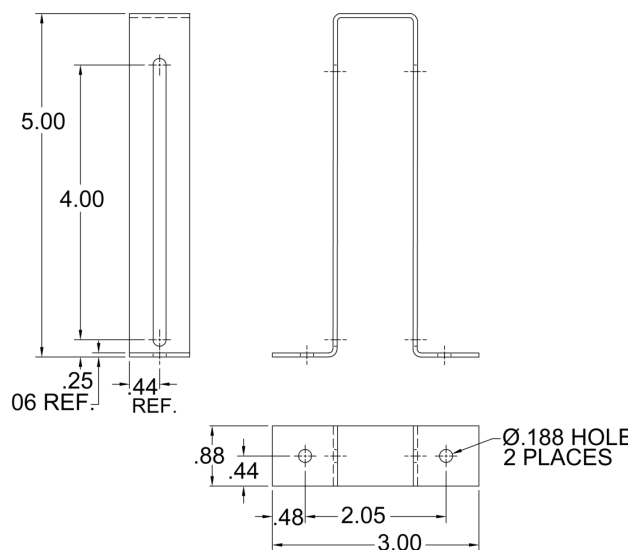


## Sensor Probe Mounting Bracket Dimensions

### Insertion Mounting Bracket (-UI Probe)

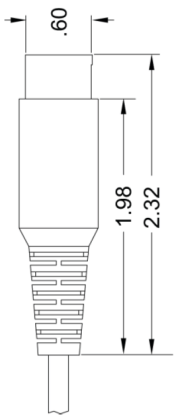


### Standoff Mounting Bracket (-US Probe)



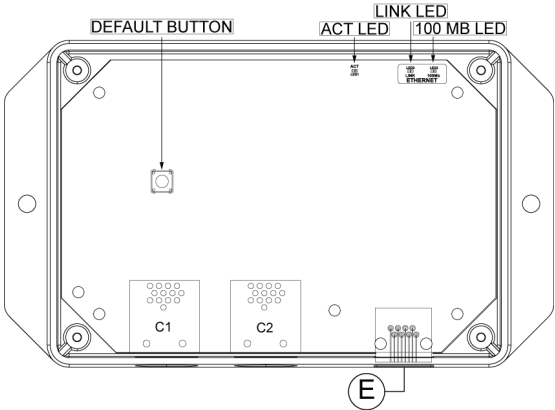
Wiring and PoE Connection

Detailed wiring and connection guidelines are provided in the TD-POE2000-U installation guide.



**⚠** Push in **keyed** connector plugs (sensor data is stored in serial memory chip in connector plug). **DO NOT TWIST!**

**i** Cables have an FEP plenum rated jacket that are UV tolerant and suitable for operation over the entire operating temperature range of the device.

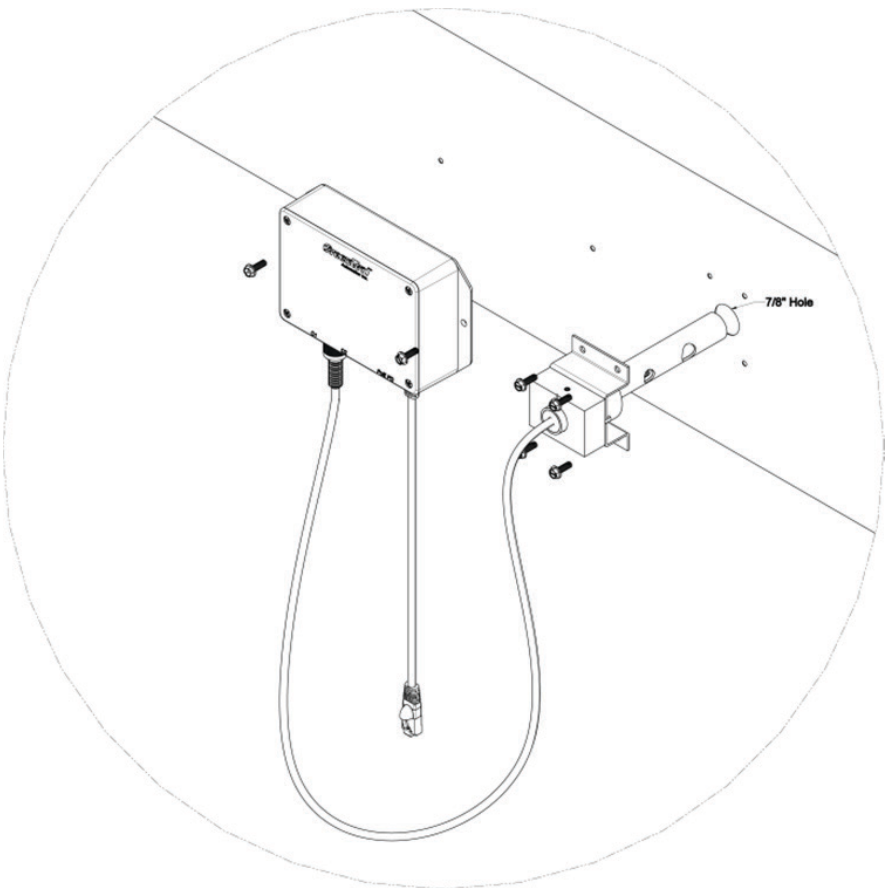


**TD-POE2000-U CONNECTIONS**  
Single Location Configuration

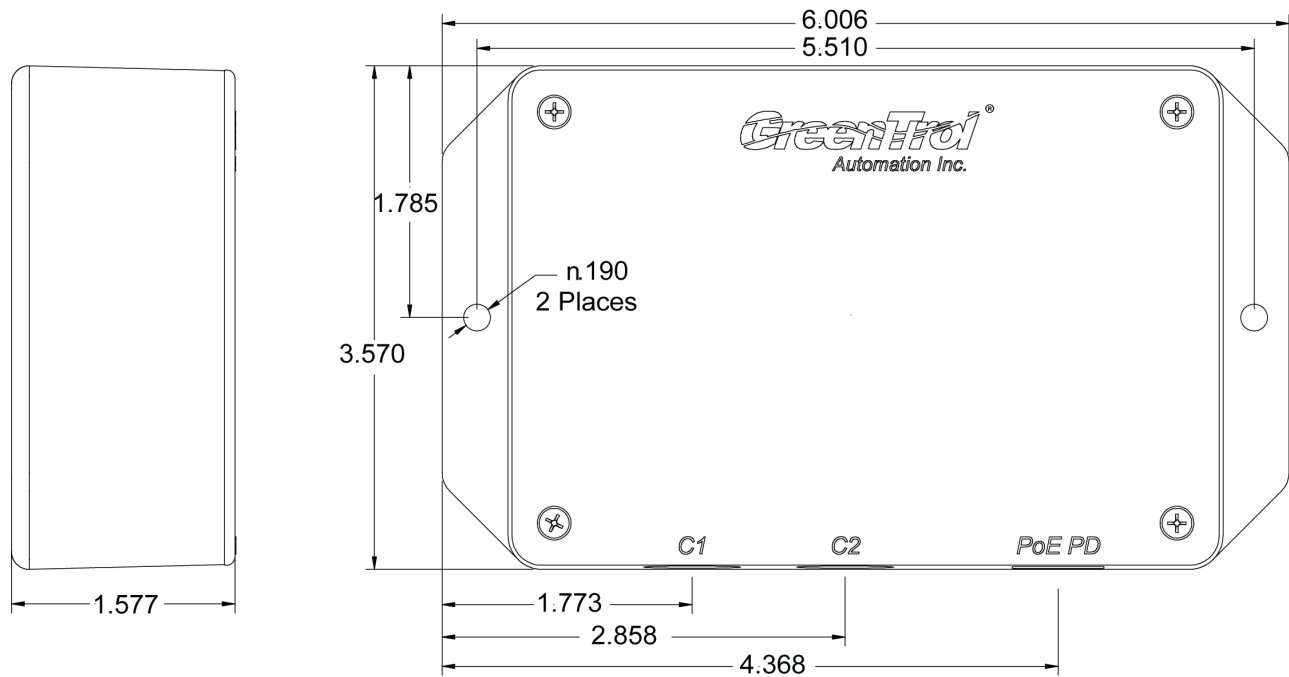
| Power Over Ethernet   | Connector                 |                           |
|-----------------------|---------------------------|---------------------------|
|                       | C1                        | C2                        |
| E                     | C1                        | C2                        |
| RJ-45 CAT5 or Greater | 1 probe x 1 sensors/probe | 1 probe x 1 sensors/probe |

Dual Location Configuration

| Power Over Ethernet   | Connector                 |                           |
|-----------------------|---------------------------|---------------------------|
|                       | AF1                       | AF2                       |
| E                     | C1                        | C2                        |
| RJ-45 CAT5 or Greater | 1 probe x 1 sensors/probe | 1 probe x 1 sensors/probe |



Transmitter Enclosure Dimensions

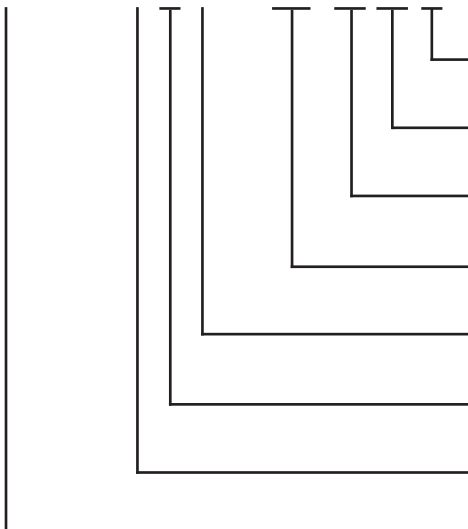


Note: All dimensions listed in inches

Quotations and Ordering

Use the model code below to request a quote or place an order. Quotations and orders are provided by your local GreenTrol representative.

**TD - POE 2 1 0 - U - - /**



- Relative Humidity**  
{leave blank} = Not provided, H = Humidity sensor on 1 probe, H2 = Humidity sensor on 2 probes
- Cable Length**  
10 = 10 ft, 25 = 25 ft, 50 = 50 ft
- Probe Length**  
06 = 6", 08 = 8", 16 = 16"
- Probe Type**  
UI = Universal Insertion mounting probe; US = Universal Standoff mounting probe
- Sensor Nodes per Probe**  
1 = 1 sensor
- Probes**  
1 = 1 probe, 2 = 2 probes
- Series**  
2 = 2000
- Measurement Type**  
TD = Thermal Dispersion