



**Custom Electronics Systems, Inc.**  
455 Forum Parkway  
Rural Hall, NC 27045

# **CES 455 Pulse Purge System**



***User Manual***

## Contact Information

If you have any questions or comments about this instrument please feel free to contact us.

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## **Introduction**

Thank you for your purchase of the CES 455 Purge Master. This instrument will effectively remove particulate matter from your flow station's air stream.

This manual describes the installation, general operation, technical specifications, maintenance procedures for the CES 455.

## ***Features***

- Effectively cleans flow station air paths
- Unique "Pulse Purge" minimizes shop air utilization while providing superior cleaning.
- Steel Enclosure (NEMA 4)
- User selectable purge schedule
- Remote Purge (initiate purge with control systems, PLC, etc.)

## ***Options***

- 467 Auto-Zero Transmitter ([Click here for further information](#))
- Stainless Steel (NEMA 4X) Enclosure
- Windowed enclosures available upon request

## ***Specifications***

### ***Enclosure***

Type: NEMA 4 (steel)

Size: 20" x 24" x 6"

Hinge: Left

### ***General***

Power: 120 VAC

Flow Station Fittings: 1/2" Brass

### ***Purge Cycle***

Purge Air Supply: 100 SCFM, 100-120 PSI (Dry, clean, oil free air)  
Accumulator Tank: Required if purge air supply is less than stated specs.  
Purge Type: Pulse  
Pulse Count: 3 (user selectable 1 – 15)

## ***Installation***

If you have any questions or difficulties installing this unit, please don't hesitate to contact CES at (336) 969-2411.

Due to the extremely low pressures measured by these devices preventing small and intermittent leaks. Leaks can lead number of issues including, unstable zero reading, unstable readings across the range, and an inability to achieve the full scale readings.

During installation, you may discover small air leaks that impact your instrument's performance that otherwise go unnoticed.

We recommend brass pipe fittings with pipe dope to prevent leaks. Mate-N-Lock, Tylock, and two part compression fittings connectors can also be used with care. We do not recommend push on plastic connectors as they are prone to leaks, and even worse, intermittent leaks.

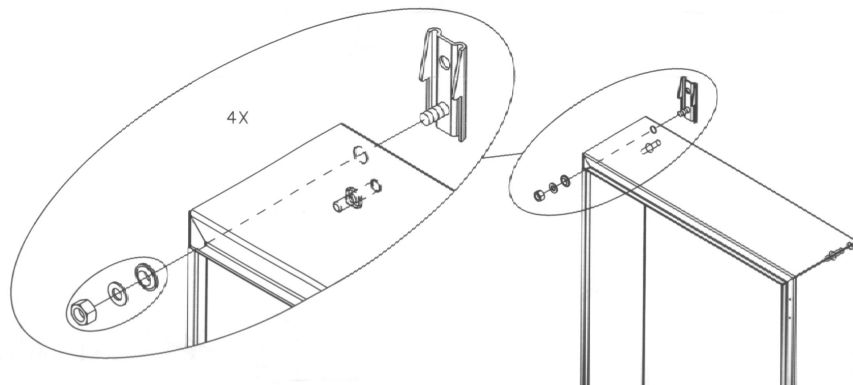
## **Mechanical Installation**

1. Inspect the unit and make certain it wasn't damaged in shipping.
2. Visually confirm that packing material isn't lodged in the pneumatic fittings on the case.
3. Make certain there isn't any air pressure coming from the flow station (i.e. there isn't any flow in the ducts).
4. CES ***strongly*** recommends you install this instrument in a climate controlled or semi-conditioned space. Caution: If the temperature of this unit falls below freezing, your unit may be damaged and your warranty voided.
5. If your unit came installed with an optional heater, use a small screwdriver to set the thermostat to 55F (below). We ***strongly*** recommend you insulate the outside of your case in these instances.
6. Find a stable, flat, and vertical surface to mount the CES 455. A



grounded surface is preferred but not required. Make certain this location isn't too close to an extreme heat source. The unit should never be in an area that is hotter than 130F.

7. Mount the unit as shown using the included nuts (or a bolt if you desire). The mounting feet pictured aren't included but can be obtained from Hoffman if needed.



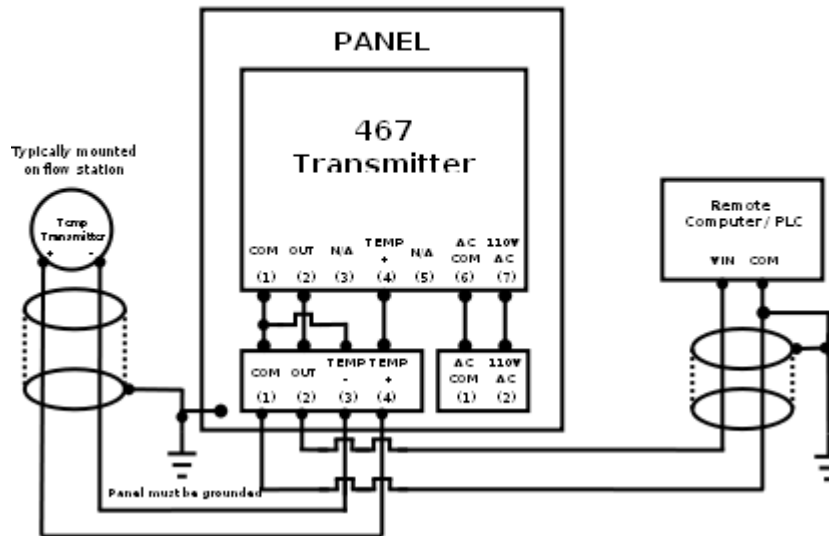
8. From the flow station, connect the Static (low) and Total (hi) pressure pneumatic fittings on the bottom of the enclosure. Connect the static pressure to the low connector and the total pressure to the connector marked "Hi".
9. Connect the 100-120 PSI purge air supply to the bottom of the enclosure as labeled.

## Electrical Installation

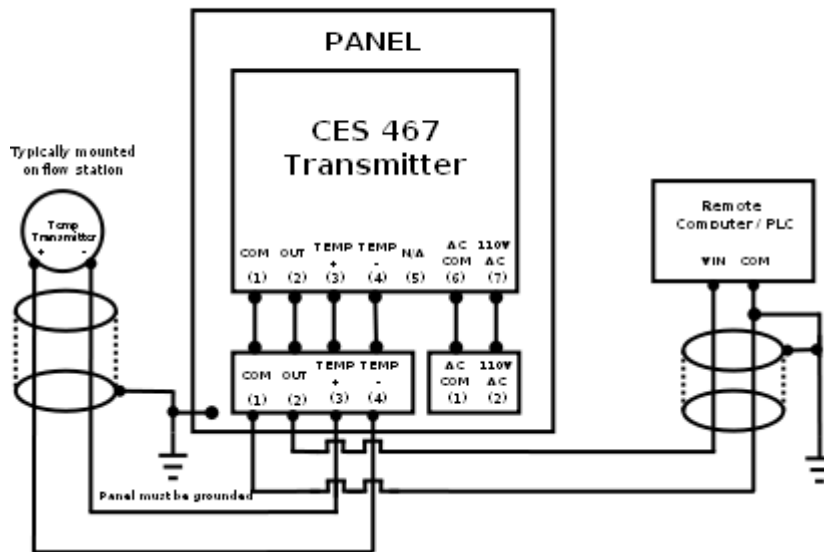
1. Open the enclosure door.
2. Locate the ground stud on the lower left hand side of the panel.

3. **Important:** Connect the building to the ground stud to ensure the panel is properly grounded.
4. If your unit was ordered with Absolute Pressure (AP) Compensation, use the first diagram below. If your instrument only includes temperature compensation, then use the second diagram.

### 467 Temp. & AP Compensation Wiring Diagram



## 467 Temp. Compensation Wiring Diagram



5. Once you 120VAC is applied to the enclosure, the 467 transmitter should begin it's power up procedures.

### **Operation**

This unit should operate with very little or no maintenance. If you wish to perform a manual purge, you may press the Purge button on the 455CS control sequencer.

### **Normal Operation**

At a preset time or times, the CES 455 Purge Master will automatically perform a purge cycle. This unit also includes an autozero transmitter that will periodically zero itself.

To set the purge schedule, locate the 455CS on the panel. Rotate the timer disc in the direction of the arrows until the correct time of day aligns with the time of day mark. Then slide one of the tabs on the timer to set the time of day you wish to initiate a purge cycle.

While CES has found the default settings more than adequate, it is possible to select the number of pulses that occur. For more information on this feature, please contact CES support (336-969-2411 or [support@drafrange.com](mailto:support@drafrange.com)).



Should need to introduce compressed air in the vicinity of the flow station (i.e. cleaning the ducts etc.) please perform the following steps:

Press the "Autozero" button on the 467 transmitter. The transmitter's AZ light will blink rapidly. It's now safe detach the tubing from the "Hi" and "Lo" ports on the 467, angle the tubing away from the transmitter. When you're done performing your maintenance reattach the tubing and press the Autozero button. Your 467 will begin functioning normally.

### ***Warranty***

Custom Electronics Systems (CES) warrants its products against defects in materials and workmanship under normal and proper use and service for six years from date of shipment. CES's obligation under this warranty is limited to, at CES's election, furnishing without charge, F.O.B. Rural Hall, N.C. a replacement for any defective part or repairing such part after examination to CES's satisfaction that the equipment is defective and has not been subject to misuse, negligence, accident or failure to follow the appropriate operating manual. This warranty does not apply to any product which has been operated at other than specified voltages or currents or which has been subjected to abuse or in which case the product has been tampered with. CES shall under no circumstances be liable for any direct, special or consequential damages, expenses, or losses resulting from operation of or defects in equipment covered herein.