Hoffman Controls

Installation & Operating Instructions

203-4 (24)V Series
Velocity Pressure Transducer

Description

This instruction is a guide for connecting and operating the 203-4 (24)V Velocity Transducer. This Transducer provides an output signal that is proportional to the air flow through the duct.

Installation

Wiring

1. Use 20 AWG wire or larger for all connections. Keep output signal wires separated from power lines to avoid signal interference with power.
2. It is preferable not to ground the 24 volt AC side of the input with relation to the input transformer. If it is grounded, use Terminal #2.
3. Terminals 2 and 5 are circuit grounds in common with terminal #2.

Mechanical

1. The transducer may be mounted directly to the side of the duct using sheet metal screws.

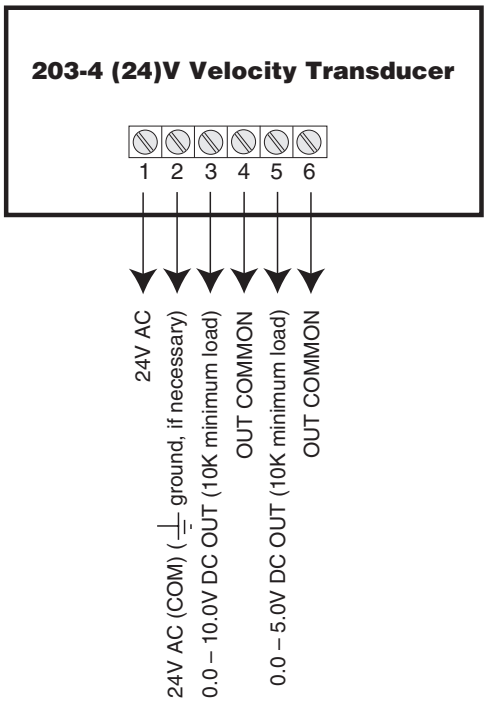


Figure 1

2. Industry-approved pneumatic tubing for connecting the on-board transducer must be used. No air leaks in the tubing or connections are allowed for accurate calibration of velocity.

   See Figure 2 for determining which velocity tube end goes to "HI" or "LO" pressure.
3. Locate the transducer so that the pneumatic tubing length does not exceed 18 inches from the velocity pickup in the duct to the on-board velocity probe.
4. Avoid sharp bends and kinks in the pneumatic tubing. This will allow an exact amount of calibrated air to flow through the velocity probe.
5. If tubing must be removed from the probe barbs, always cut off the tubing lengthwise at the barb. Gently remove the tubing.

CAUTION

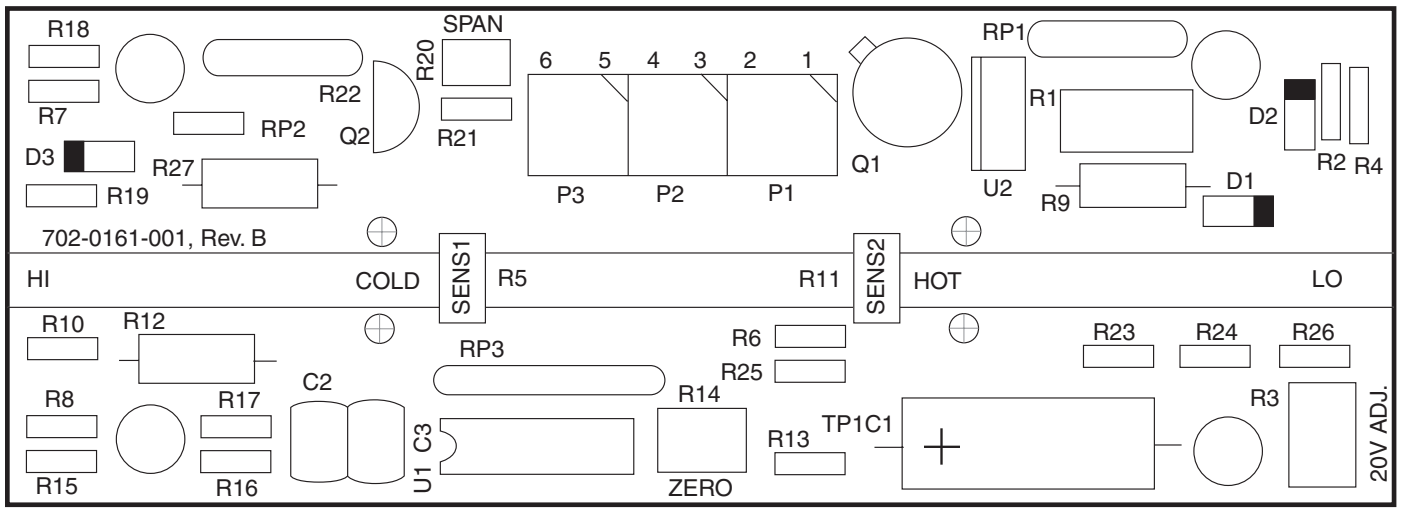
Do not attempt to pull tubing off. (The transducer tips provide calibrated orifices and must not be damaged.)

Operation

1. Connect the 203-4 (24)V transducer as in Figure 1.
2. Terminals 3 – 4 are the output for 0.0 – 10.0V DC. Terminals 5 – 6 are the output for 0.0 – 5.0V DC. The load impedance should be 10,000 ohms or greater.
3. Apply the 24V AC to the 203-4 (24)V transducer.
4. The output selected (0.0 – 10.0V DC or 0.0 – 5.0V DC) will be proportional to airflow in the duct when the Velocity Pressure Pickup Part No. 520-85 is used.
5. It is the intent that this transducer be used in a system, furnished by others, to accept the Velocity Output signal from this transducer.
6. Quick Transducer Test:
   - **a.** Connect Digital Voltmeter (DVM) from 3 – 4 or 5 – 6.
   - **b.** Pinch hose so no air flows.
   - **c.** Voltage at DVM should read below 2 volts.
   - **d.** Let air flow through the tubing. The DVM should read greater than what was read when no air flow was in the tubing.

Troubleshooting Guide

Problem	Cause
Transducer	
1. Air is flowing greater than 200 ft per minute (FPM), but the Vv output is near zero volts.	• Pneumatic tubing pinched. • Pneumatic tubing not connected. • Power is not at 24V AC (+15% –10%). • Lead broken on velocity probe.
2. Vv will not reach 9.0 – 10.0V DC or 4.0 – 5.0V DC volts.	• Air velocity is not sufficient. • The load to the controller is less than 10K ohms. • Check tubing for pinching or air leaks.



203-4 (24)V Board Diagram
Figure 2