Hoffman|Controls

Installation & Operating Instructions

Pressure Transducer

Description

This instruction is a guide for connecting and operating the 203-6 (24) P Pressure Transducer. This Transducer provides an output signal that is proportional to the air pressure within the duct.

The 203-6(24)P series of controls are available in 4 standard ranges. Each range is identified with an "A", "B", "C", or "D" suffix in the model designation as shown below. Always select the lowest range that will accomplish the control objective.

203-6A(24)P provides 2-10vdc over 0-1" H_2O.

203-6B(24)P provides 2-10vdc over 0-2" H_2O.

203-6C(24)P provides 2-10vdc over 0-3" H_2O.

203-6D(24)P provides 2-10vdc over 0-4" H_2O.

When controlling static pressure (inches W.G.) with a 709 series controller, a 265-PI "plug in" Interface card will be required when control at a setpoint without signal error is desired.

Complete details on control methods using 203-6 series transducers are available in the 709 & PI Interface Application Notes documentation.

Installation

Wiring

1. Use 20 AWG wire or larger for all connections. Keep output signal wires separated from power lines to avoid signal interference. 100ft maximum length of twisted pair wires.

2. When 24 VAC is applied to the circuit, one side of the transformer secondary may be tied to ground through the terminal labeled "GND".

3. Both terminals labeled "GND" are circuit grounds in common.

Installation

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

2. Locate the transducer so that the pneumatic tubing length does not exceed 18 inches from the pressue pickup in the duct to the on-board pressure probe. Choose the pressure pickup length that is equal to 1/2 of the duct diameter.

See Figure 1 for pickup length example.

3. 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 measurement of pressure.

   See Figure 2 for determining which pressure tube end goes to "POS" or "NEG" pressure.

4. Avoid sharp bends and kinks in the pneumatic tubing. This will insure that the full amount of pressure is able to reach the pressure transducer.

5. If tubing must be removed from the transducer barbs, always cut off the tubing lengthwise at the barb. Gently remove the tubing.

6. Verify operational pressure (H_2O) is not below limits as per the graph of Pressure vs. DC Output Voltage as shown in Figure 5.

7. Always use twisted pair wire for establishing signal connections.

CAUTION

Do not attempt to pull tubing off of the sensor barbs. (The transducer tips provide calibrated orifices and must not be damaged.) Cut tubing off if required.

Operation

1. Connect the 203-6(24)P transducer, as shown in Figures 3&4, when using a Hoffman Controls 709 Series Control with the 265 PI Interface option.

2. Terminals "VOUT" & "GND" are the output for 2.0–10.0 vdc. Connect *BOTH* "VOUT" & "GND" to the input of the control. The load impedance should be 10,000 ohms or greater.

3. Apply an uninterrupted 24V AC source to the 203-6 (24) P Series transducer.

4. The output will be proportional to air pressure in the duct when the Pressure Pickup Part No. 520-87P is used.

5. It is the intent that this transducer be used in a system that will accept the 2.0–10.0 vdc Pressure Output signal from this transducer.

6. Quick Transducer Test:

   a. Connect Digital Voltmeter (DVM) across the terminals labeled "VOUT" & "GND".

   b. Pinch the hose so no pressure is applied.

   c. Voltage at DVM should read 2 volts +/- 0.1.

   d. Let air pressurize the tubing. The DVM should read greater than what was read when no air pressure was in the tubing.

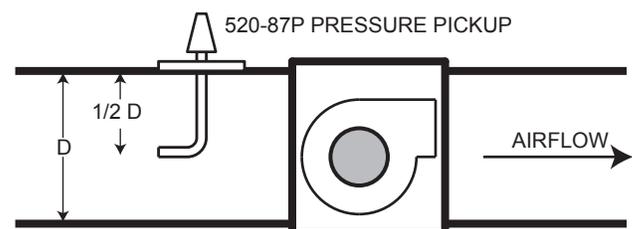7. IMPORTANT: Review engineering application bulletin for detailed instructions for various pressure applications

Figure 1 - Duct Probe Length

Pickup may be on negtive or positive side of blower as required.
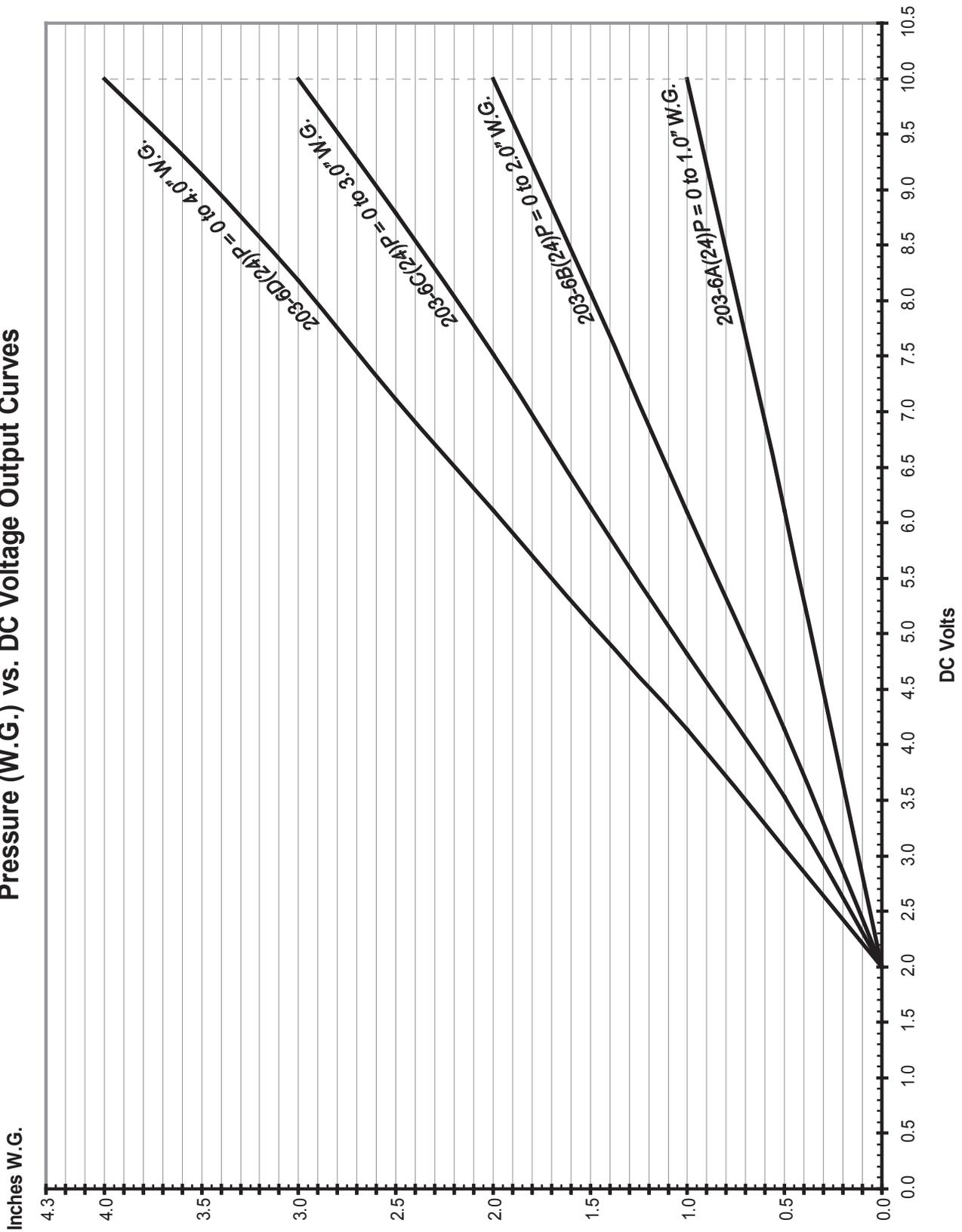
Pressure (W.G.) vs. DC Voltage Output Curves

Inches W.G.

203-6D(24)P = 0 to 4.0" W.G.

203-6C(24)P = 0 to 3.0" W.G.

203-6B(24)P = 0 to 2.0" W.G.

203-6A(24)P = 0 to 1.0" W.G.

DC Volts

Figure 5 - 203-6 Series Output Response Curves