Johnson Controls DP180 Low Differential Pressure Transducer Installation Guide

Johnson Controls DP180 Low Differential Pressure Transducer

Contents

Introduction

The Johnson Controls® DP180 Series measure differential or gauge (static) pressure and convert this pressure difference to a proportional high-level analog output for both unidirectional and bidirectional pressure ranges. Every sensor in the DP180 Series is tested and factory calibrated before shipment. The DP180 Series contains two standard excitation and output versions as shown in **Table 1.**

- **Figure 1: DP180 Transducer**

Table 1: DP180 output versions

Excitation	Output	Output codes
9 VDC to 28 VDC	4 mA to 20 mA	4
9 VAC to 30 VAC 12 VDC to 40 VDC	0 VDC to 5 VDC	2

Compatibility

Use DP180 transducers with air or nonconducting gases.

Note: To avoid damage to the unit, do not use with liquids or corrosive gases.

The operating temperature limits of the DP180 are as follows:

- Operating temperature range: 0°F to 150°F (-18°C to 65°C)
- Compensated temperature range: 40°F to 150°F (5°C to 65°C)

Mounting

The DP180 comes complete with 3/16 in. O.D. barbed brass pressure fittings, install with 1/4 in. push-on tubing. Both the positive (high) pressure port and the reference (low) pressure port are on the bottom of the unit, labeled high and low respectively. For the best results and shortest response times, use 3/16 in. I.D. for tubing lengths up to 100 ft long, 1/4 in. for tubing lengths up to 300 ft, and 3/8 in. I.D. for tubing lengths up to 900 ft.

The static pressure probe is the positive (high) pressure port on the bottom of the unit. Use the reference (low) pressure port on the bottom of the unit for differential pressure measurements.

Installation

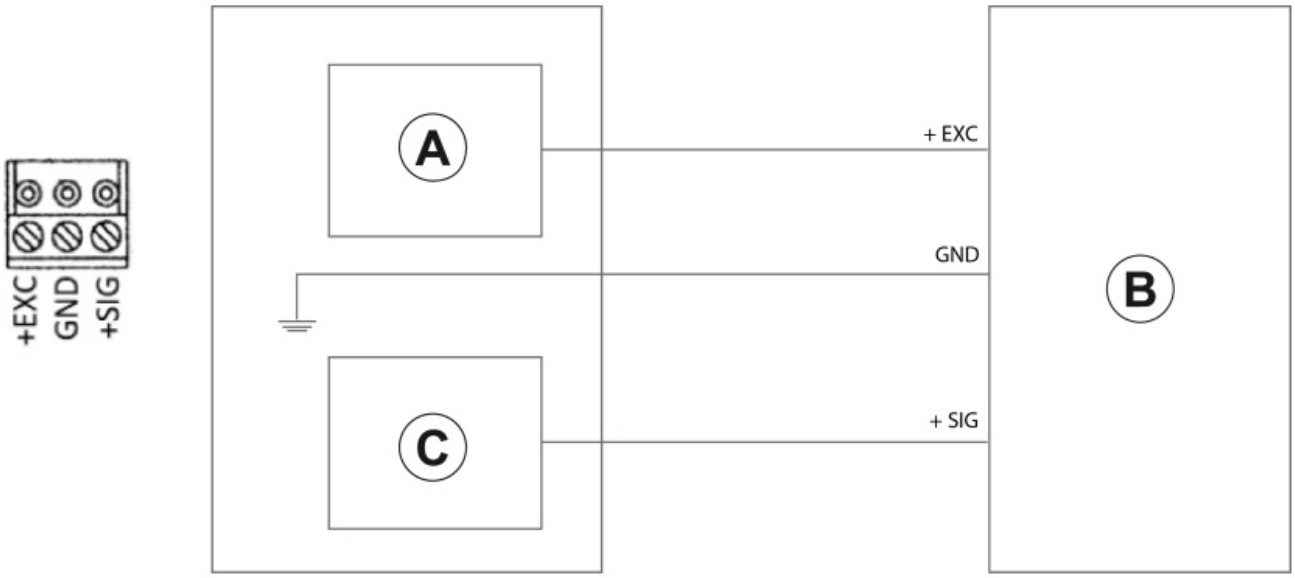
Wire the unit through a 1/2 in. conduit opening. Both current and voltage output units are reverse wiring protected.

Wiring

To access the terminal strip, turn the screws on top of the case counterclockwise until you can remove the cover. The screws are captive in the top of the case. Identify wiring terminations on the circuit board below the terminal strip. Figure 2 shows the voltage output and Figure 3 shows the current output, both for electrical code 1.

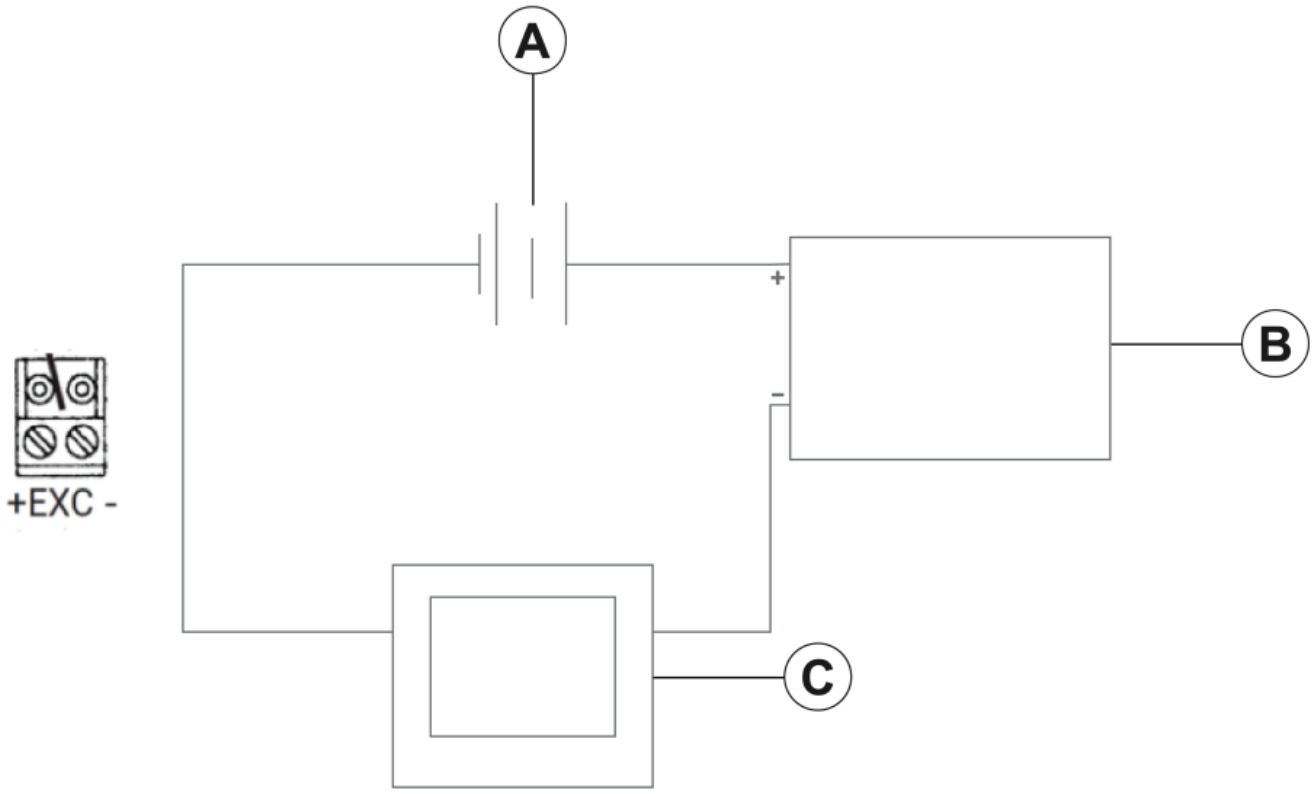
- **Figure 2: Voltage output**

Callout	Description
A	9 VAC to 30 VAC or 12 VDC to 40 VDC
B	DP180 Transducer
C	Readout or Data Access Server (DAS)
EXC	Connect to positive terminal of DC or AC power supply
GND	Connect as the reference for power supply and output signal
SIG	Connect to positive terminal of control or pressure monitor



- **Figure 3: Current output**

Callout	Description
A	9 VDC to 30 VDC
B	DP180 Transducer
C	Current monitor device



Calibration

The DP180 is factory-calibrated for installation on a wall or other vertical surface and requires no field adjustment.

If you mount the DP180 on a horizontal surface, there may be a slight zero shift that depends on the range of the sensor. Whenever possible, correct any zero or span offsets by software adjustment in the user's control system. You can access both zero and span adjustments under the cover of the unit, below and to the right of the wiring terminal strip.

Compliance

This product complies with EN61326-1:2006 in accordance with EN61326-2-3:2006 to be used in controlled EM immunity and class B emission environment. Take the following special precautions to fully meet EU EMC compliance:

1. Use shielded cables, and tie the shield to earth ground (not power supply ground) on at least one end of the cable shield or drain wire. Maintain the shield all the way from the sensor to the power supply.
2. If you use unshielded cables, use an earth-grounded metal conduit fitting to replace the shielded cable.
3. For a sensor with a metal body or enclosure, ground the body or enclosure to earth.
4. If you use a protective plastic housing, the housing must be able to withstand at least 2 KV from the housing to earth ground, without damaging the circuit.
5. Install or operate the unit in a controlled electromagnetic environment.

Repair information

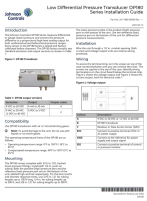
If the DP180 transducer fails to operate within its specifications, replace the unit. For a replacement assembly, contact the nearest Johnson Controls representative.

Customer Support

http://www.johnsoncontrols.com/

Johnson Controls

Documents / Resources

	**Johnson Controls DP180 Low Differential Pressure Transducer** [pdf] Installation Guide DP180, DP180 Low Differential Pressure Transducer, Low Differential Pressure Transducer, Differential Pressure Transducer, Pressure Transducer, Transducer

References

- johnsoncontrols.com
- User Manual