Differential Pressure Transducer DP140 Series Installation Guide

Part No. 24-11486-00012 Rev. A

2023-07-03

Introduction

The Johnson Controls® DP140 Series sense 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 DP140 Series is tested and calibrated before shipment. Three standard excitation and output versions are available. See Table 1.

Table 1: DP140 Series versions

Excitation	Output	Output codes
13 VDC to 30 VDC or 18 VAC to 24 VAC	0 VDC to 5 VDC	1
13 VDC to 30 VDC	4 mA to 20 mA	2
13 VDC to 30 VDC or 18 VAC to 24 VAC	0 VDC to 10 VDC	3

Figure 1: DP140 Series Transducer



Compatibility

Use the Johnson Controls DP140 transducers with air or nonconducting gases.

Note: Use with liquids or corrosive gases damages the unit.

The operating temperature limits of the DP140 are as follows:

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

Mounting

The DP140 transducer includes 3/16 in. O.D. barbed brass pressure fittings, installed with 1/4 in. push-on tubing. For the shortest response times, use 3/16 in. I.D. for tubing lengths up to 100 feet long, 1/4 in. I.D. for tubing lengths up to 300 feet, and 3/8 in. I.D. for tubing lengths up to 900 feet. The static positive pressure port, labelled High, is located on the bottom of the unit. The reference pressure port, labelled Low, is located on the bottom of the unit. Use the reference pressure port for differential pressure measurements.

Installation

Wiring is through a 1/2 in. threaded conduit opening. Both current and voltage output units are reverse wiring protected.

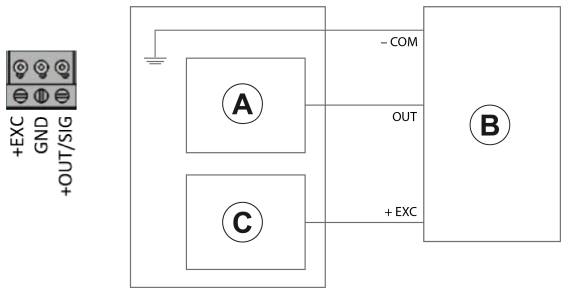
Note: Figure 2 shows the voltage output and Figure 3 shows the current output, both for electrical code 1.

Important: For voltage outputs, do not connect +Excitation to +Out/Sig as this results in unrecoverable damage to the board.

To install the DP140 transducer, complete the following steps:

1. To access the terminal strip, pull the latch away from the base to disengage the cover.
2. Swing open the cover to access the terminal block.
3. Identify wire terminals on the circuit board and the diagram on the inside cover.
4. For voltage output, connect the wires as shown in Figure 2.

Figure 2: Voltage output

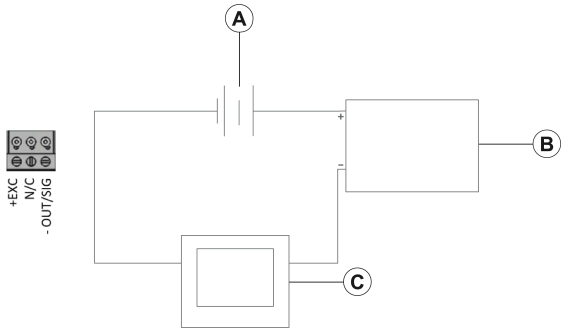


Callout	Description
A	Readout or Data Access Server (DAS)
B	DP140 Transducer
C	13 VDC to 30 VDC or 18 VAC to 24 VAC excitation
EXC	Connect to positive terminal of DC or AC power supply

Callout	Description
COM	Connect as the reference for power supply and output signal
OUT	Connect to positive terminal of control or pressure monitor

5. For current ouput, connect the wires as shown in Figure 3.
6. Close the cover.

Figure 3: Current output



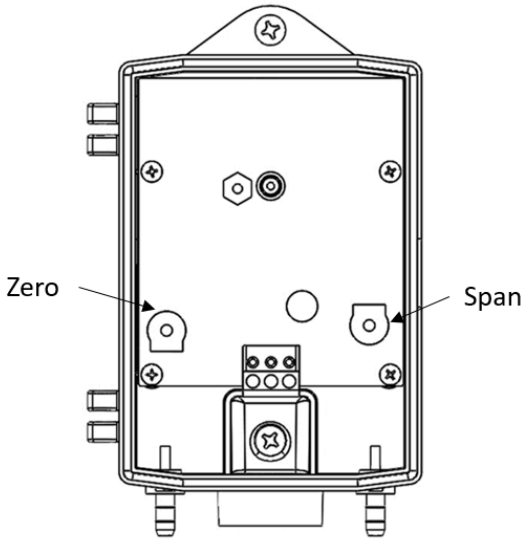
Callout	Description
A	13 VDC to 30 VDC excitation
B	DP140 Transducer
C	Current monitor device

Calibration

The DP140 is factory-calibrated for installation on a wall or other vertical surface, which requires no field adjustment. If you mount the DP140 on a horizontal surface, a slight zero shift may occur that depends on the range of the sensor. Correct any zero or span shift by software adjustment in the user's control system. For calibration, access both zero and span potentiometers under the cover of the unit, on either side of the terminal strip. See Figure 4.

Note: A trained individual must complete calibrations with the correct equipment and standards for the pressure range of the DP140.

Figure 4: Calibration of the DP140 transducer



Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Software terms

Use of the software that is in (or constitutes) this product, or access to the cloud, or hosted services applicable to this product, if any, is subject to applicable end-user license, open-source software information, and other terms set forth at www.johnsoncontrols.com/techterms. Your use of this product constitutes an agreement to such terms.

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Contact information

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