# Differential Pressure Transducer DP150 Multi-Range Series Product Bulletin

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## Introduction

The Johnson Controls® DP150 Series multi-range low differential pressure transducer uses a dead-ended capacitive sensing element that requires minimal amplification and delivers excellent accuracy and longterm stability. It is an ideal solution for any contractor, and combines flexibility of a multi-range transducer with the performance of a single range transducer. The MRG has eight field-selectable ranges and three field-selectable outputs that makes it easily adjustable with a flip of a switch or jumper. The MRG has two different housing configuration options: standard design (wall mount) or a universal design that includes both a duct probe as well as a DIN rail mount option to address any installation changes on the job site.

The core technology of the DP150 is the all stainless steel capacitive sensing element. The welded dead-ended capacitive sensor requires minimal amplification and delivers excellent accuracy and longterm stability.

**Figure 1: DP150 transducer**




## Applications

The Differential Pressure Transducer DP150 Multi-Range Series has the following suggested uses:

- Quick installation for sub-contractors
- Flexible for building specification changes
- Service and retrofit friendly
- Quick and accurate for service technicians
- Easy reconfiguration

## Features and benefits

The Differential Pressure Transducer DP150 has a universal design, is field-selectable, and is suitable for harsh environments. Features include:

- Field-configurable duct probe
- 3.5 digit LCD
- Field-selectable range
- Field-selectable output
- Simple 5-step setup
- Field-accessible pushbutton zero and span
- External mounting tabs and optional DIN rail
- Unregulated AC or DC operation

### Standard design

The standard design of the DP150 is for a wall mount configuration.

### Universal design

The DP150 uses a universal design that gives the user total flexibility to make changes on the job site. The user has the option to choose field-selectable ranges, output, mounting setup and engineering unit. This flexibility enables a contractor to stock one product for all of their needs.

### Field-selectable ranges

The DP150 provides eight field-selectable ranges, 0.5 in., 1.0 in., 2.5 in., and 5.0 in. W.C. You can select the required application ranges on-site.

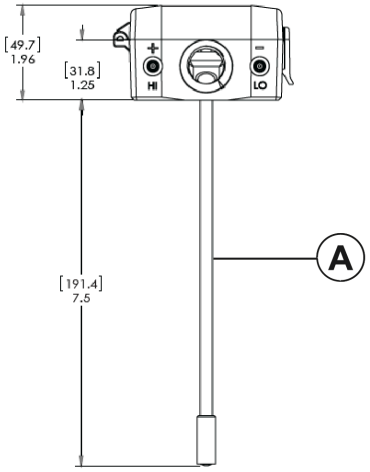
### Harsh environments

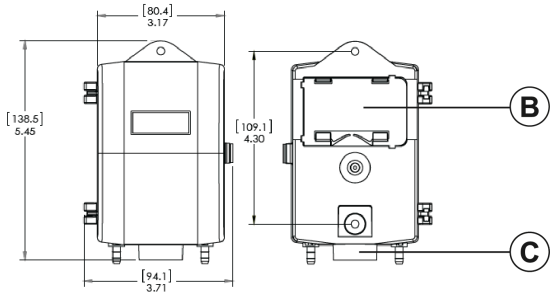
The DP150 housing has a robust IP67-rated design, sealed with a gasket to make it washdown capable for difficult applications. The DP150 also has a conduit fitting for easier installation and wiring.

## Dimensions

See the following figures for the dimensions of the DP150 Transducer.

**Figure 2: Dimensions of the DP150 Transducer, in. (mm)**




| Callout | Description |
|---|---|
| **A** | Static pressure probe |
| **B** | DIN rail backplate |
| **C** | 1/2 in. conduit |

## Ordering information

See the following table for ordering options for the DP150 Differential Pressure Transducers. For example, DP150MRC-SC is model DP150 with 0.1 in. W.C. and 0.25 in. W.C., and standard configuration. All units have 1/2 in. conduit electrical fitting.

**Table 1: Product codes**

| Product code | Range, in in. W.C. | Configuration | Electrical fitting | Duct Probe |
|---|---|---|---|---|
| DP150MR1-SA | 0.1, 0.25, 0.5, and 1.0 | Standard | No | No |
| DP150MR1-UA | 0.1, 0.25, 0.5, and 1.0 | Universal | No | Yes |
| DP150MR2-SA | 1.0, 2.5, 5.0, and 10 | Standard | No | No |
| DP150MR2-UA | 1.0, 2.5, 5.0, and 10 | Universal | No | Yes |
| DP150MRC-SC | 0.1, 0.25 | Standard | Yes | No |
| DP150MRC-UC | 0.1, 0.25 | Universal | Yes | Yes |
| DP150MRG-SA | 0.5, 1.0, 2.5, and 5.0 | Standard | No | No |
| DP150MRG-UA | 0.5, 1.0, 2.5, and 5.0 | Universal | No | Yes |

## Technical specifications

**Table 2: Differential Pressure Transducer DP150 technical specifications**

| Description | | Specification |
|---|---|---|
| **Performance data** | Accuracy RSS, at constant temperature<br>ⓘ **Note:** RSS of non-linearity, hysteresis, and non-repeatability | ±1.0% FS |
| | Compensated range | 32°F to 122°F (0°C to 50°C) |
| | Thermal effects<br>ⓘ **Note:** Units calibrated at nominal 70˚F. Maximum thermal error calculated from this data. | FS 0.03°F (0.054°C) |
| | Maximum line pressure | 10 psi, 277 in. W.C. |
| | Overpressure | Up to 10 psi (277 in. W.C.), range dependent |
| | Long term stability | 2.0% FS per year |
| **Position effect** | Zero offset | 0.5% FS per g<br>ⓘ **Note:** The unit is factory-calibrated at 0g effect in the vertical position |
| **Physical specifications** | Case | Fire-retardant polycarbonate, UL 94 V-0 approved, hinged lid |
| | Mounting | Two screw holes vertical position |
| | Electrical connection block | Removable screw terminal |
| | Pressure fitting | 3/16 in. O.D. barbed brass |
| | Zero | Button |
| | Span | Button |
| | Weight, approx. | 8 oz |
| **Environmental data** | Operating temperature<br>ⓘ **Note:** Operating temperature limits of the electronics only. Pressure media temperatures may be considerably higher. | 32°F to 122°F (0°C to 50°C) |
| **Electrical data** | Excitation range | 13 VDC to 30 VDC, 18 VAC to 24 VAC, voltage output<br>13 VDC to 30 VDC, 4 mA to 20 mA output at terminals |
| | Current consumption | 30 mA, maximum |
| | Mis-wiring | Reverse excitation protection |
| | Field-selectable output<br>ⓘ **Note:** Calibrated into a 50K ohm load, operable into a 10K ohm load or greater. | 3-wire: 0 V to 5 V, 0 V to 10V<br>2-wire: 4 mA to 20 mA |
| | Output resistance, voltage output | 10 ohm, maximum |
| | Load resistance, voltage output | 10 K ohm, minimum |
| | Loop resistance, 4 mA to 20 mA | 0 ohm to 800 ohm |
| **Pressure media** | Air or similar non-conducting gases | |
| **Compliance** | CE Mark - Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC and RoHS Directives. | |
| CE | | |

ⓘ **Note:**

- Span full-scale output factory set to within 1%
- Calibrated at factory with a 24 VDC loop supply voltage and a 250 ohm load

- Span full-scale output factory set to within ±0.16 mA

The performance specifications are nominal and conform to acceptable industry standards. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.

## Product warranty

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

## Software terms

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## Patents

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