

## DIFFERENTIAL PRESSURE SWITCHES - AIR DPI Series

Electronic differential pressure switch(es) and transmitter

The DPI series electronic pressure measuring devices are engineered for building automation in HVAC/R industry. The most technologically advanced and versatile electronic differential pressure switches on the market, combining up to two relay outputs and 0–10 V output options.

The DPI includes the following field selectable features:

- Configurable switching point:
  - o Open on rise or fall in pressure
  - o Hysteresis of set-point
- Measurement units (Pa, kPa, mmWC, inWC, mbar)
- Measurement range (4 ranges per model)
- Output signal (0–10 V, NO/NC)
- Span and zero point calibration

DPI options include:

- Up to 2 relays, which can be configured separately
- **e-zero**

The versatility of the DPI series electronic pressure measuring devices ensures that the right product for the current application specifications is always available.



### SIMILAR PRODUCTS

- PS series mechanical differential pressure switches
- DPT-R8 series 8-range differential pressure transmitters
- DPT-MOD series differential pressure transmitters with Modbus configuration

### APPLICATIONS

DPI series devices are commonly used in HVAC/R systems for:

- fan, blower and filter monitoring
- staircase pressure monitoring and alarm
- pressure monitoring in cleanrooms
- boiler pressure monitoring and alarm

### MODEL SUMMARY

Measurement ranges (inWC) (field selectable via jumper)	DPI2		DPI10	
	-0.4–0.4 / -1.0–1.0 / -1.2–1.2 / - 2.01–2.01 inWC		0–0.4 / 0–1.0 / 0–4.0 / 0–10.0 inWC	
Description	Model #	Part #	Model #	Part #
Electronic differential pressure switch & transmitter				
- with display and one relay	DPI2	10085	DPI10	10089
- with display, one relay and <b>e-zero</b>	DPI2-eZ	10086	DPI10-eZ	10090
- with display and two relays	DPI2-2R	10087	DPI10-2R	10091
- with display, <b>e-zero</b> and two relays	DPI2-eZ-2R	10088	DPI10-eZ-2R	10092

# DIFFERENTIAL PRESSURE SWITCHES - AIR

## DPI Series

### SPECIFICATIONS

#### Performance

##### Accuracy (at applied pressure):

±0.7 % (±1.5 % initial)  
%FS from highest pressure range including:  
general accuracy, temperature drift, linearity, hysteresis,  
and repetition error).

##### Long term stability:

Typical 1 year  
With **e-zero**: ± 0.004 inWC  
Without **e-zero**: ± 0.032 inWC

##### Overpressure:

Proof pressure: 100 inWC  
Burst pressure: 120 inWC

##### Zero point calibration:

Automatic with **e-zero** (-eZ) circuit or  
manual via menu

##### Response time:

0.5–10 sec, selectable via menu

#### Technical Specifications

##### Media compatibility:

Dry air or non-aggressive gases

##### Measuring units:

Pa, kPa, mmWC, inWC, mbar selectable via menu

##### Measuring element:

Piezoresistive

##### Environment:

Operating temperature:  
Without **e-zero**: 14–122 °F (-10–50 °C)  
With **e-zero**: 23–122 °F (-5–50 °C)  
Storage temperature: -4–158 °F (-20–70 °C)  
Humidity: 0 to 95 % rH, non condensing

#### Physical

##### Case:

Dimensions: 3.5" x 3.4" x 1.46"  
(89 x 86.5 x 37.1 mm)

Weight: 5.3 oz (150 g)

Mounting: Case: 2 each 3/16" (4.3 mm) holes

Lid: 2 each 3/16" (4.3 mm) holes

Materials: Case: ABS (UL 94 V-0 Approved)

Lid: PC (UL 94 V-1 Approved)

Protection standard: IP54 / NEMA3

##### Touch sensitive buttons on the lid:

Menu, Back, OK, down arrow, up arrow

##### Display:

3 1/2 digit LCD backlit display  
2-line display (12 characters/line)

Line 1: Active measurement

Line 2: Units

Size: 1.81" W x 0.57" H  
(46.0 W x 14.5 H mm)

##### Electrical connections:

n/Out:

Terminal block (24 V, GND, 0–10 V)

Wire: 12–24 AWG (0.2–1.5 mm<sup>2</sup>)

Relay 1:

Terminal block (NC, COM, NO)

Wire: 12–24 AWG (0.2–1.5 mm<sup>2</sup>)

Relay 2:

Terminal block (NC, COM, NO)

Wire: 12–24 AWG (0.2–1.5 mm<sup>2</sup>)

##### Cable entries:

Strain relief: M16 & M20

Knockout ø: 0.625" (16 mm)

Knockout ø: 0.787" (20 mm)

#### Pressure fittings:

3/16" ø (5.2 mm) barbed brass

+ High pressure

– Low pressure

#### Electrical

Circuit: 3-wire (24 V, GND, 0–10)

Input:

Without **e-zero**: 21–35 VDC/ 24 VAC, ±10 %

With **e-zero**: 24 VAC or VDC, ±10 %

Output:

DPI: 0–10 V

Relay 1: 250 VAC / 30 VDC / 6 A

Relay 2: 250 VAC / 30 VDC / 6 A

Resistance minimum: 1 kΩ

Current consumption:

35 mA + relays (7 mA each) + eZ circuit (20 mA)

+0–10 V output (10 mA)

#### Conformance

Meets requirements for CE marking:

EMC Directive 2014/30/EU

RoHS Directive 2011/65/EU

Meets safety requirements for electrical equipment for  
measurement, control, and laboratory use:  
ETL marking, standard IEC61010-1.

Product is tested and meets the NRTL product approval  
requirements.



Conforms to ANSI/UL Std 61010  
Certified to CAN/CSA Std C22.2 No 61010



COMPANY WITH  
MANAGEMENT SYSTEM  
CERTIFIED BY DNV GL  
= ISO 9001 = ISO 14001 =



**e-zero** (-eZ) is a true autozero function in the form of an automatic zeroing circuit built into the PCB board. The **e-zero** function electronically adjusts the transmitter zero at predetermined time intervals (every 10 minutes). The **e-zero** function eliminates all output signal drift due to thermal, electronic or mechanical effects, as well as the need for technicians to remove high and low pressure tubes when performing initial or periodic transmitter zero point calibration.

The **e-zero** adjustment takes 4 seconds. To avoid conflict with the BAS system, the output and display values will freeze to the latest measured value, after

which the device returns to its normal measuring mode.

Transmitters equipped with the **e-zero** function are virtually maintenance free\*.

\*When the **e-zero** option is not selected, the product is provided with a manual, pushbutton autozero. To maintain proper functionality and accuracy of the transmitter, it is recommended that the manual pushbutton autozero point calibration is performed annually, at a minimum.

### How to generate a model number?

Example:	Product series			
	DPI2-eZ-D	DPI	Differential pressure indicator	
		Measurement range		
	2	±2.01 "WC, highest of 4 available ranges		
	10	0–10 "WC, highest of 4 available ranges		
		Zero point calibration		
	-eZ	With optional <b>e-zero</b> zero point calibration function		
		Standard with Push Button Manual Auto Zero		
		Number of relays		
	-2R	2 relays		
		1 relay (included with base model)		
		Display		
	-D	With display		
		Without display		
Model	DPI	2	-eZ	-D