

DIFFERENTIAL PRESSURE SWITCHES DPI SERIES



Electronic differential pressure switch(es) and transmitter

The DPI series electronic pressure measuring devices are engineered for building automation in the 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:
 - Open on rise or fall in pressure
 - Hysteresis of set-point
- Measurement units (Pa, kPa, mmWC, inWC, mbar)
- Measurement ranges (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
- Autozero calibration



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

| | DPI±500 | | DPI2500 | |
|---|---------------------------------|---------------------|----------------------------|---------------------|
| Measurement ranges (Pa) (field selectable via menu) | ±100 Pa / ±250 / ±300 / ±500 Pa | | 100 / 250 / 1000 / 2500 Pa | |
| Description | Model | Product code | Model | Product code |
| Electronic differential pressure switch & transmitter | | | | |
| -with display and one relay | DPI±500-1R-D | 118.001.001 | DPI2500-1R-D | 118.002.001 |
| -with display, one relay and autozero | DPI±500-1R-AZ-D | 118.001.002 | DPI2500-1R-AZ-D | 118.002.002 |
| -with display and two relays | DPI±500-2R-D | 118.001.003 | DPI2500-2R-D | 118.002.003 |
| -with display, autozero and two relays | DPI±500-2R-AZ-D | 118.001.004 | DPI2500-2R-AZ-D | 118.002.004 |

DIFFERENTIAL PRESSURE SWITCHES

DPI SERIES

SPECIFICATIONS

Performance

Accuracy:
±1.5 % (±0.7 %*)
%FS from highest pressure range (including:
general accuracy, temperature drift, linearity, hysteresis,
and repetition error)
*Can be achieved with span point calibration

Long term stability:

Typical 1 year
With autozero: ±1 Pa
Without autozero: ±8 Pa

Thermal effects:

Temperature compensated across the full spectrum of
capability

Overpressure:

Proof pressure: 25 kPa
Burst pressure: 30 kPa

Zero point calibration:

Automatic with autozero (-AZ) circuit or
Manual via menu

Response time:

0.5–10 s, 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 autozero : -10...50 °C
With autozero: -5...50 °C
Storage temperature: -20...70 °C
Humidity: 0 to 95 % rH, non condensing

Physical

Dimensions:

Case: 89 x 86.5 x 37.1 mm

Weight:

150 g

Mounting:

Case: 2 each 4.3 mm holes
Lid: 2 each 4.3 mm holes

Materials:

Case: ABS
Lid: PC
Duct connectors: ABS
Tubing: PVC

Protection standard:

IP54

Touch sensitive buttons on the lid:

Menu, Back, OK, down arrow, up arrow

Display:

3 1/2 digit LCD backlit display
Size: 46.0 W x 14.5 H mm

Electrical connections:

n/out:
Terminal block (24 V, GND, 0–10 V)
Wire: 0.2–1.5 mm² (12–24 AWG)

Relay 1:

Terminal block (NC, COM, NO)
Wire: 0.2–1.5 mm² (12–24 AWG)

Relay 2:

Terminal block (NC, COM, NO)
Wire: 0.2–1.5 mm² (12–24 AWG)

Cable entries:

Strain relief: M16 & M20
Knockout : 16 mm
Knockout : 20 mm

Pressure fittings:

5.2 mm barbed brass
+ High pressure
– Low pressure

Electrical

Circuit: 3-wire (24 V, GND, 0–10 V)

Input:

Without autozero: 21–35 VDC / 24 VAC, ±10 %
With autozero: 24 VAC or VDC, ±10 %

Output:

Analog: 0–10 V
Relay 1: 250 VAC / 30 VDC / 6 A
Relay 2: 250 VAC / 30 VDC / 6 A
Adjustable switching point and hysteresis

Zero/Span output calibrated within ±0.025 V

Resistance minimum: 1 kΩ

Current consumption:

35 mA + relays (7 mA each) + AZ 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
LVD Directive: 2014/35/EU
WEEE Directive 2012/19/EU

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



AZ-CALIBRATION

AZ-calibration is an autozero function in the form of an automatic zeroing circuit built into the PCB board. The AZ-calibration electronically adjusts the transmitter zero at predetermined time intervals (every 10 minutes). The AZ-calibration 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 AZ 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 AZ-calibration are virtually maintenance free.

HOW TO GENERATE A MODEL?

| | | | | | |
|---------------------------------|--|---|-----|----|--|
| Example: DPI±500-2R-D | Product series | | | | |
| | DPI | Differential pressure indicator | | | |
| | Highest available measurement range | | | | |
| | ±500 | ±500 Pa | | | |
| | 2500 | 0–2500 Pa | | | |
| | Number of relays | | | | |
| | -1R | One relay | | | |
| | -2R | Two relays | | | |
| | Zero point calibration | | | | |
| | -AZ | With optional autozero calibration function | | | |
| | Standard with pushbutton manual zero point calibration | | | | |
| Display | | | | | |
| -D | With Display | | | | |
| Model | DPI | ±500 | -2R | -D | |