

DIFFERENTIAL PRESSURE TRANSMITTERS DPT-MOD



Multifunctional differential pressure transmitters with air flow measurement and Modbus communication

DPT-MOD is a multifunctional transmitter for measuring volume flow, velocity, and static and differential pressure. The measurements can be read and the configuration done via Modbus communication. DPT-MOD requires less wiring than the traditional 3-wire transmitters because multiple devices can be connected on serial line.

The DPT-MOD is used for measuring air flow or low pressures of air and non-combustible gases in order to monitor and control building automation, HVAC and cleanroom systems. It can also be used with several different measurement probes such as FloXact™ or pitot tube, and air dampers.

DPT-MOD series devices include:

- Two selectable functions:
 - Measure and monitor in-duct volume flow, velocity or differential pressure
 - Measure and monitor air flow across centrifugal fans
- Multiple selectable measurement units:
 - Volume flow: m³/s, m³/h, cfm, l/s
 - Velocity: m/s, ft/min
 - Pressure: Pa, inWC, mmWC, kPa, mbar
- Modbus communication protocol

DPT-MOD series device options offer:

- AZ (autozero) function for automatic zero point calibration, eliminating the need for periodic manual autozeroing to ensure long term accuracy



SIMILAR PRODUCTS

- DPT-R8 series 8-range differential pressure transmitters
- DPT-MOD series differential pressure transmitters with Modbus configuration
- DPT-Flow series air flow transmitters
- AVT series air velocity transmitters

APPLICATIONS

DPT-MOD series devices are commonly used in HVAC/R systems for:

- fan, blower and filter monitoring
- pressure and flow monitoring
- valve and damper control
- pressure monitoring in cleanrooms
- air flow monitoring across centrifugal fans and blowers
- in-duct air flow or pressure monitoring
- measuring air flow or pressure in VAV applications

MODEL SUMMARY

| | DPT-MOD-2500 | | DPT-MOD-7000 | |
|--|---------------------|--------------|--------------------|--------------|
| Measurement ranges (Pa) | -250...2500 Pa | | -250...7000 Pa | |
| Description | Model | Product code | Model | Product code |
| Differential pressure transmitter with air flow measurement and Modbus communication | | | | |
| - with display | DPT-MOD-2500-D | 102.011.001 | DPT-MOD-7000-D | 102.006.027 |
| - with autozero and display | DPT-MOD-2500-AZ-D | 102.011.003 | DPT-MOD-7000-AZ-D | 102.006.029 |
| - with cold resistance and display | DPT-MOD-2500-D-40 C | 102.011.023 | DPT-MOD-7000-D-40C | 102.006.055 |

DIFFERENTIAL PRESSURE TRANSMITTERS

DPT-MOD

SPECIFICATIONS

Performance

Accuracy (at applied pressure):

Model 2500:

Pressure < 125 Pa = 1 % + ±2 Pa

Pressure > 125 Pa = 1 % + ±1 Pa

Model 7000:

Pressure < 125 Pa = 1.5 % + ±2 Pa

Pressure > 125 Pa = 1.5 % + ±1 Pa

(Accuracy specifications include: general accuracy, linearity, hysteresis, long term stability and repetition error)

Overpressure:

Proof pressure: 25 kPa

Burst pressure: 30 kPa

Zero point calibration:

Automatic autozero, manual pushbutton or via Modbus register

Response time:

1.0-20 s, selectable via menu or via Modbus register

Communication

Protocol: MODBUS over Serial Line

Transmission Mode: RTU

Interface: RS485

Byte format (11 bits) in RTU mode:

Coding System: 8-bit binary

Bits per Byte:

1 start bit

8 data bits, least significant bit sent first

1 bit for parity

1 stop bit

Baud rate: selectable in configuration

Modbus address: 1-247 addresses selectable in configuration menu

Technical Specifications

Media compatibility:

Dry air or non-aggressive gases

Pressure units (select via menu):

Pa, kPa, mbar, inWC, mmWC

Flow units (select via menu):

Volume: m³/s, m³/hr, cfm, l/s

Velocity: m/s, ft/min

Measuring element:

MEMS, no flow-through

Environment:

Operating temperature: -20...50 °C,

-40C model: -40...50 °C

With autozero (-AZ) calibration -5...50 °C

Temperature compensated range 0...50 °C

Storage temperature: -40...70 °C

Humidity: 0 to 95 % rH, non condensing

Physical

Dimensions:

Case: 90.0 x 95.0 x 36.0 mm

Weight:

150 g

Mounting:

2 each 4.3 mm screw holes, one slotted

Materials:

Case: ABS

Lid: PC

Duct connectors: ABS

Tubing: PVC

Protection standard:

IP54

Display

2-line display (12 characters/line)

Line 1: Volume or velocity measurement

Line 2: Pressure measurement

Size: 46.0 x 14.5 mm

Electrical connections:

4-screw terminal block

Wire: 0.2-1.5 mm² (12-24 AWG)

Cable entry:

Strain relief: M16

Knockout : 16 mm

Pressure fittings

Male ø 5.0 mm and 6.3 mm

Electrical

Supply voltage:

24 VAC or VDC ± 10 %

Power consumption:

< 1.3 W

Output signal:

via Modbus

Conformance

Meets requirements for CE marking:

EMC Directive 2014/30/EU

RoHS Directive 2011/65/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: | Product series | | |
|-------------------|----------------|--|--------|
| DPT-MOD-2500-AZ-D | DPT-MOD | Differential pressure transmitter with air flow measurement and Modbus communication | |
| | | Highest available measurement range | |
| | -2500 | -250...2500 Pa | |
| | -7000 | -250...7000 Pa | |
| | | Zero Point Calibration | |
| | -AZ | With autozero calibration | |
| | | Standard with pushbutton manual zero point calibration | |
| | | Display | |
| | -D | With display | |
| | | Cold resistance | |
| | | Without cold resistance | |
| | -40C | With cold resistance (not available with autozero calibration) | |
| Model | DPT-MOD | -2500 | -AZ -D |