

AIR HANDLING CONTROLLER DPT-CTRL



Multifunctional PID controller with differential pressure or air flow transmitter for building automation systems

The DPT-Ctrl series PID controllers are engineered for building automation in the HVAC/R industry. With the built-in controller of the DPT-Ctrl it is possible to control the constant pressure or flow of fans, VAV systems or dampers. When controlling air flow, it is possible to select a fan manufacturer or a common measuring probe that has a K-value.

DPT-Ctrl series devices include:

- PID-controller
 - Control differential pressure or air flow in duct or across centrifugal fans
 - All parameters (PID) are adjustable via menu
- Differential pressure or air flow transmitter (selectable via menu)
 - Measure and monitor differential pressure or air flow in duct or across centrifugal fans
- Multiple field selectable measurement units:
 - Volume flow: m³/s, m³/h, cfm, l/s
 - Velocity: m/s, ft/min
 - Pressure: Pa, inWC, mmWC, kPa, mbar, psi
- Unique proportional output options:
 - Control output: Voltage (0–10 V) or current (4–20 mA)
 - Differential pressure or air flow: Voltage (0–10 V) or current (4–20 mA)



DPT-Ctrl 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

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

APPLICATIONS

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

- Controlling differential pressure or air flow in air handling systems
- VAV applications
- Controlling parking garage exhaust fans

MODEL SUMMARY

	DPT-CTRL-2500		DPT-CTRL-7000	
Measurement ranges (Pa)	0–2500 Pa		0–7000 Pa	
Description	Model	Product code	Model	Product code
PID controller with differential pressure or air flow transmitter				
- with display	DPT-CTRL-2500-D	103.007.102	DPT-CTRL-7000-D	103.016.044
- with autozero and display	DPT-CTRL-2500-AZ-D	103.007.103	DPT-CTRL-7000-AZ-D	103.016.045
- with -40 °C cold resistance and display	DPT-CTRL-2500-D-40C	103.007.209	DPT-CTRL-7000-D-40C	103.016.100

AIR HANDLING CONTROLLER

DPT-CTRL

SPECIFICATIONS

Performance

Accuracy (from 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 or manual pushbutton

Response time:

1.0–20 s, selectable via menu

Technical Specifications

Media compatibility:

Dry air or non-aggressive gases

Controller parameter (selectable via menu):

Setpoint 0...2500/7000 Pa

P-band 0...10 000

I-gain 0...1000

D-factor 0...1000

Pressure units (select via menu):

Pa, kPa, mbar, inWC, mmWC, psi

Flow units (select via menu):

Volume: m³/s, m³/hr, cfm, l/s

Velocity: m/s, ft/min

Measuring element:

MEMS, no flow-trough

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

Protection standard:

IP54

Display

2-line display (12 characters/line)

Line 1: Direction of control output

Line 2: Pressure or air flow measurement, selectable via menu

Size: 46.0 x 14.5 mm

Electrical connections:

4-screw terminal block

Wire: 0.2–1.5 mm² (16–24 AWG)

Cable entry:

Strain relief: M16

Knockout: 16 mm

Pressure fittings

5.2 mm barbed brass

+ High pressure

- Low pressure

Electrical

Voltage:

Circuit: 3-wire (V Out, 24 V, GND)

Input: 24 VAC or VDC, ±10 %

Output: 0–10 V, selectable via jumper

Power consumption: <1.0 W,

-40C model: <4.0 W when <0 °C

Resistance minimum: 1 kΩ

Current:

Circuit: 3-wire (mA Out, 24 V, GND)

Input: 24 VAC or VDC, ±10 %

Output: 4–20 mA, selectable via jumper

Power consumption: <1.2 W,

-40C model: <4.2 W when <0 °C

Maximum load: 500 Ω

Minimum load: 20 Ω

Conformance

Meets the requirements for:

	CE:	UKCA:
EMC:	2014/30/EU	S.I. 2016/1091
RoHS:	2011/65/EU	S.I. 2012/3032
WEEE:	2012/19/EU	S.I. 2013/3113

COMPANY WITH
MANAGEMENT SYSTEM
CERTIFIED BY DNV
ISO 9001 • ISO 14001



AZ-CALIBRATION

AZ-calibration is a 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-CTRL-2500-AZ-D	DPT-CTRL	PID controller with differential pressure or air flow transmitter	
		Highest available measurement range		
		-2500	0...2500 Pa	
		-7000	0...7000 Pa	
		Zero Point Calibration		
		-AZ	With autozero calibration	
			Standard with pushbutton manual zero point calibration	
		Display		
		-D	With display	
		Cold resistance		
			Without -40 °C cold resistance	
		-40C	-40 °C cold resistance (not available with autozero calibration)	
Model	DPT-CTRL	-2500	-AZ	-D