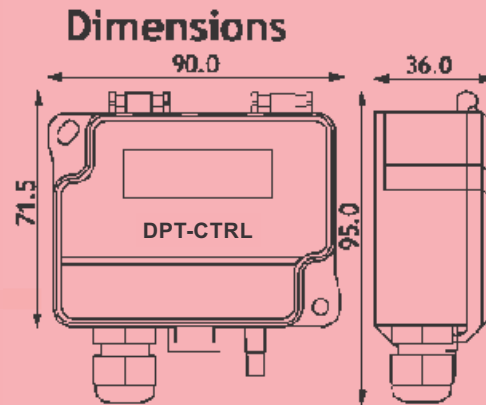# AEROSENSE AIR HANDLING CONTROLLER

Series DPT-CTRL is a Multifunctional PID controller with differential pressure or air flow transmitter for building automation systems. 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 the air flow, it is possible to select a fan manufacturer or a common measuring probe that has a K-value.

Technical Specifications:

Service: Dry air or non-aggressive gases.
Measuring element: MEMS
Accuracy: 1 % + ±1 Pa
Thermal effects: Temperature compensated across the full
spectrum of capability
Proof pressure: 25kPa
Zero Point calibration: Automatic autozero or manual pushbutton
Response time: 1.0 to 20 sec selectable via menu
Pressure units (select via menu): Pa, kPa, mbar, inWC, mmWC, psi
Volume: m3/s, m3/hr, cfm, l/s,
Velocity: m/s, ft/min
Operating temperature: -10……50˚C with autozero (-AZ)
calibration -5………50 ˚C
Storage temperature: -20…..70 ˚C
Humidity: 0 to 95% RH, non condensing
Dimensions: 90.0 x 95.0 x 36.0 mm
Electrical connections: 4-screw terminal block
Cable entry: M16
Weight: 150 g Mounting: 2 each 4.3 mm screw holes, one slotted
Materials: ABS
Protection standard: IP54
Display: 2-line display
Size: 46.0 x 14.5 mm
Line 1: Volume or velocity measurement
Line 2: Pressure measurement

Model Selection Table:

Models	Pressure Range
DPT-CTRL-2500	0-2500 PA
DPT-CTRL-7000	0-7000 PA

Add -D to end of model for display version. For e.g. DPT-CTRL-2500-D
Add -AZ to model for Auto-Zero models. For e.g. DPT-CTRL-2500-AZ

Electrical:

Voltage:
Maximum load: 500 Ω
Power Consumption: <1.0 W
Circuit: 3-wire (V out, 24 V, GND)
Input: 24 VAC or VDC ±10 %
Output: 0-10 VDC, selectable via jumper
Resistance minimum: 1 kΩ
Current:
Power Consumption: <1.2 W
Circuit: 3-wire (mA Out, 24V, GND)
Input: 24 VAC or VDC ±10 %
Output: 4-20 mA, selectable via jumper

Applications:

DPT-CTRL series devices are commonly used
In HVAC/R systems for:
- Controlling differential pressure or air flow in Air handling systems
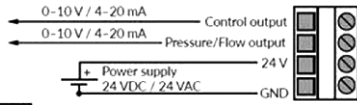- VAV applications
- Controlling parking garage exhaust fans

Optional Auto-Zero Feature:

AZ-calibration is a function in the form of an automatic zeroing Circuit built into the PCB. 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.

AEROSENSE AIR HANDLING CONTROLLER

Jumper installed to the two lower pins on the left side:
0-10 V output selected for control output

Jumper installed to the two lower pins on the left side:
4-20 mA output selected for control output

Jumper installed to the two lower pins on the right side:
0-10 V output selected for pressure

Jumper installed to the two lower pins on the right side:
4-20 mA output selected for pressure

Configuration:

Select the functioning mode of the controller: PRESSURE or FLOW
Select PRESSURE when controlling a differential pressure.

CONTROL UNIT
PRESSURE

1. Select pressure unit for display and output: Pa. kPa, mbar, inWC or mmWC

PRESS. UNIT
Pa

2. Pressure output scale (P OUT). Select pressure output scale to improve output resolution.

P OUTPUT MAX
2000 Pa

3. Response time: Select response time between 1.0-20s

RESPONSE TIME
20 s

4. Select the setpoint of the controller

REF PRESSURE
100 Pa

5. Select Proportional band according to your application

P-VALUE
206

6. Select integration time according to your application specification:

I-VALUE
4.00

7. Select derivation time according to your application specifications:

D-VALUE
1.00

8. Push select button to exit menu to save changes.

SELECT
EXIT MENU

Select FLOW when controlling an air flow.

CONTROL UNIT
FLOW

1. Select the functioning mode of the controller
- Select Manufacturer when connecting DPT-Ctrl to a fan with pressure measurement taps.
- Select Common probe when using DPT-Ctrl with a common measurement probe that follows the formula: $q = k \cdot \sqrt{\Delta P}$ (i.e. FloXact)

MANUFACTURER
Common probe

Common probe   Fläkt Woods

2) If Common probe selected: select measurement units used in the formula (aka Formula unit) (i.e. l/s)

FORMULA UNIT
l/s

3) Select K-value
   a. If manufacturer selected in step 1:
      Each fan has a specific K-value. Select the K-value from fan manufacturer's specifications.
   b. If Common probe selected in step 1:
      Each common probe has a specific K-value.
      Select the K-value from common probe manufacturer's specifications. Available K-value range: 0.001...9999.000

K-VALUE
9000.000

4) Select flow unit for display and output:
   Flow volume: m3/s, m3/h, cfm, l/s
   Velocity: m/s, f/min

FLOW UNIT
m^3/s

5) Flow output scale (V OUT):
   Select flow output scale to improve output resolution.

V OUTPUT MAX
50.000 m^3/s

6) Response time: Select response time between 1.0–20 s.

RESPONSE TIME
20 s

7) Select a setpoint of the controller.

REF FLOW
0.025 m3/s

8) Select proportional band according to your application specifications.

P-VALUE
206

9) Select integration time according to your application specifications.

I-VALUE
4.00

10) Select derivation time according to your application specifications.

D-VALUE
1.00

11) Push select button to exit menu.

SELECT
EXIT MENU