AX-ADFPT

Air Differential Pressure & Flow Transmitter

Product Overview

The AX-ADFPT is used for measuring volume flow, velocity, and static and differential pressure of air and non-combustible gases in order to monitor and control building automation, HVAC and cleanroom systems. The AX-ADFPT can be connected directly to the pressure measurement points in a centrifugal fan, providing accurate flow measurement of the fan providing enables easy selection of settings according to the selected fan or in-duct measurement probe.

Products Features

- Cost-effective Solution
- Multiple field selectable measurement units for Flow, Velocity & Pressure
- Proportional output for Flow or Velocity: voltage (0–10 V / 2-10 V) or current (4–20 mA)
- Optional Auto Zero function
- Can be configured to transmit flow measurement
- Proportional output for Pressure: voltage (0–10 V / 2-10 V) or current (4–20 mA)

Product Specifications

Power Supply:		24Vac or 24Vdc, ±10%
Output:	Voltage	0-10V or 2-10V, min. resistance 1kΩ
	Current	4-20mA, min. load 20Ω, max. load 500Ω
Accuracy:	1K and 2K:	Pressure < 125 Pa = 1 % + ±2 Pa , Pressure > 125 Pa = 1 % + ±1 Pa
	5K and 7K:	Pressure < 125 Pa = 1.5 % + ±2 Pa , Pressure > 125 Pa = 1.5 % + ±1 Pa
Overpressure:	Proof:	25kPa
	Burst:	30kPa
Pressure Connection:		Ø5mm and Ø6.3mm ABS connectors
Electrical Connection:		Screw terminals suitable for cables 0.2-1.5mm²
Response Time:		1.0–20 s, selectable via menu
Zero Point Calibration:		Automatic autozero, manual pushbutton
Compatible Media:		Dry air or non-aggressive gases
Display :		2-line display (12 characters/line) Line 1: Volume or velocity measurement Line 2: Pressure measurement
Pressure Units (select via menu):		Pa, kPa, mbar, inWC, mmWC
Flow Units (select via menu):	Volume:	m3/s, m3/hr, cfm, l/s, none
	Velocity:	m/s, ft/min
Protection Standard:		IP54
Operating Environment:	Temperature:	-20°C to 50°C (Temperature compensated range: 20°C to 50°C) -40°C to 50°C (Low temperature model) -5°C to 50°C (Models with Auto Zero calibration)
	Humidity:	0 to 95 % RH, non condensing
Country of Origin:		Finland

Order codes

Part number	Description
AX-ADFPT-1K-D	Air Diff Pressure & Flow Transmitter, LCD, 0-1000 Pa
AX-ADFPT-2K-D	Air Diff Pressure & Flow Transmitter, LCD, 0-2000 Pa
AX-ADFPT-5K-D	Air Diff Pressure & Flow Transmitter, LCD, 0-5000 Pa
AX-ADFPT-7K-D	Air Diff Pressure & Flow Transmitter, LCD, 0-7000 Pa
	-Add suffix "-40" after part number for -40 ºC cold resistant
	-Add Suffix "-AZ" after part number for Autozero Calibration

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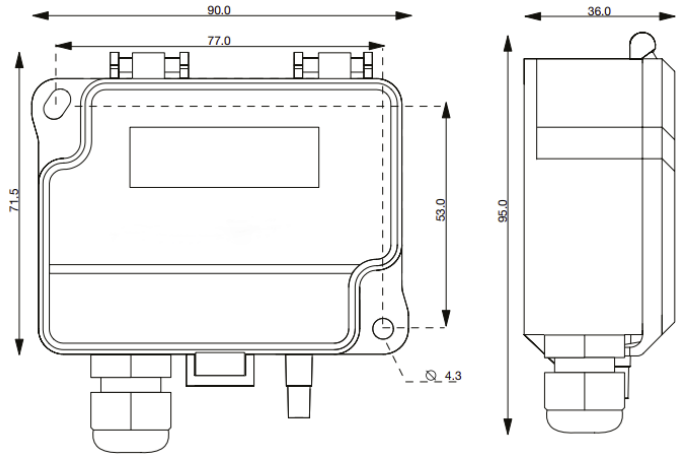
AX-ADFPT

Air Differential Pressure & Flow Transmitter

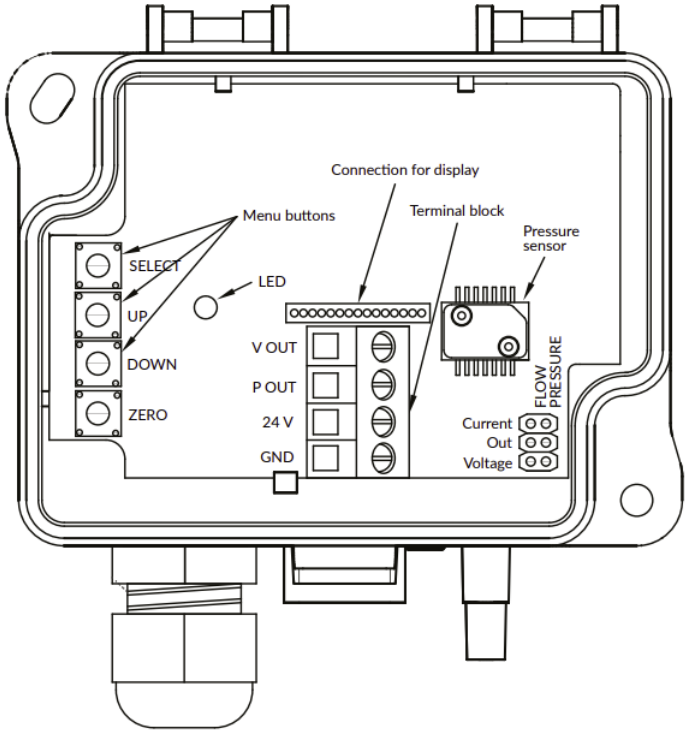
Installation

The unit should be installed by a suitably qualified technician in accordance with prevailing regulations and any guidelines for the equipment to which it is to be connected. This unit is not suitable for use with Mains Voltage. The unit has two fixing lugs moulded into the base for use with screws up to 4mm in diameter. When fixing the transmitter, care should be taken not to stress the unit. The unit is designed to be mounted on a vertical plane with the gland and pressure connections at the bottom of the unit.

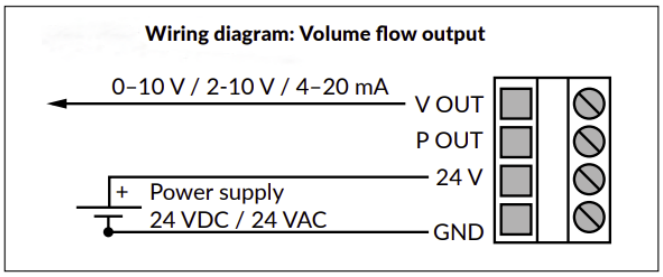
Dimensions

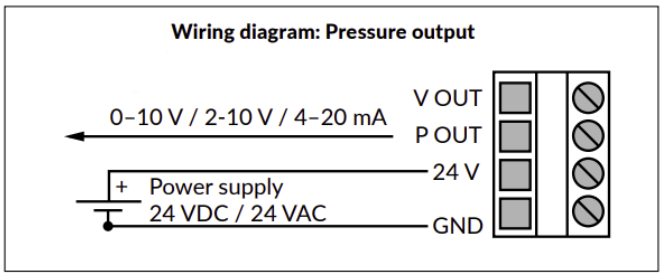


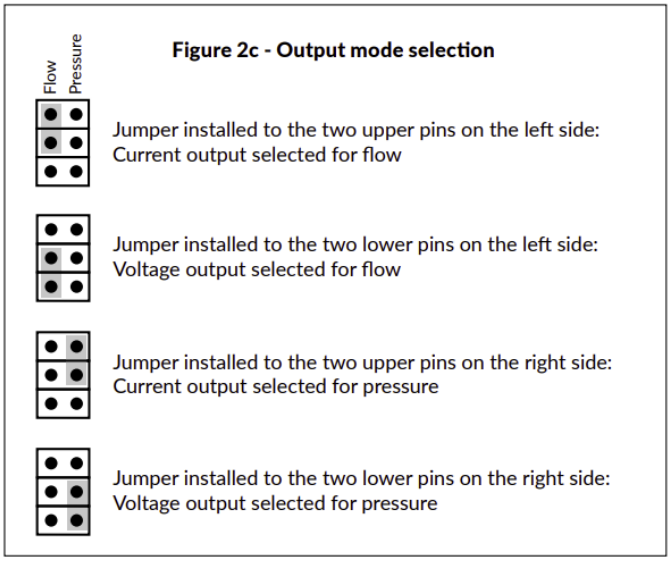
Connections



Wiring



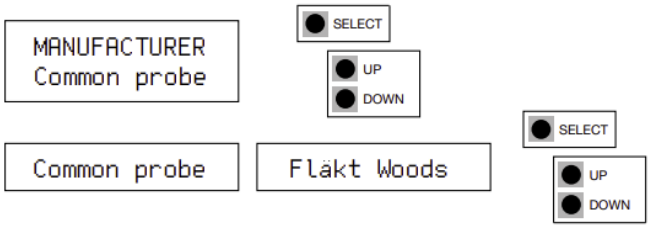




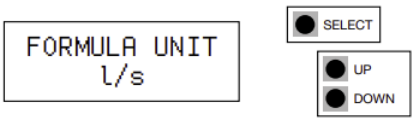
Configuration

1) Activate the device Menu by pushing the select button for 2 seconds

2) Select the functioning mode of the flow meter:
- Select Manufacturer when connecting DPT-Flow to a fan with pressure measurement points
- Select Common probe when using DPT-Flow with a common measurement probe that follows the formula:
q = k · √ΔP (i.e. FloXact)



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



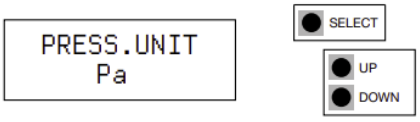
4) Select K-value
a. If manufacturer selected in step 2:
Each fan has a specific K-value. Select the K-value from fan manufacturer's specifications.

Manufacturer: K-value:
Fläktwoods k = 0.3...99
Rosenberg k = 37...800
Nicotra-Gebhardt k = 50...4700
Comefri k = 10...2000
Ziehl k = 10...1500
ebm-papst k = 10...1500
Gebhardt k = 50...4700
Nicotra k = 50...5300

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.

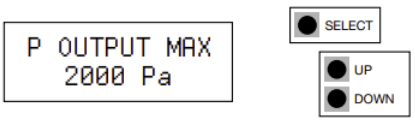
Available K-value range: 0.001...9999.000

5) Select pressure unit for display and output: Pa, kPa, mbar, inWC or mmWC



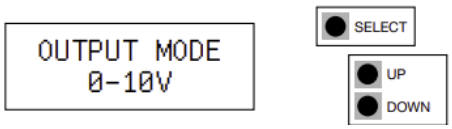
6) Pressure output scale (p OUT). Select pressure output scale to improve output resolution.

DPT-Flow-1000	DPT-Flow-2000	DPT-Flow-5000	DPT-Flow-7000
100–1000 Pa	200–2000 Pa	500–5000 Pa	700–7000 Pa
0.1–1.0 kPa	0.2–2.0 kPa	0.5–5.0 kPa	0.7–7.0 kPa
1.0–10 mbar	2.0–20 mbar	5.0–50 mbar	7.0–70 mbar
10–100 mmWC	20–200 mmWC	50–500 mmWC	70–700 mmWC
0.4–4.0 inWC	0.8–8.0 inWC	2.0–20 inWC	2.5–30 inWC



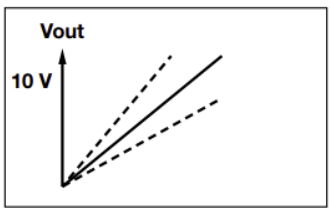
7) Select flow unit for display and output:
Flow volume: m3/s, m3/h, cfm, l/s, none Velocity: m/s, f/min

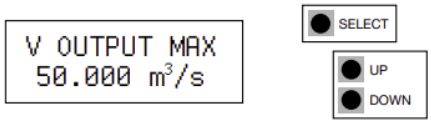
8) Output mode: Select output voltage 0-10 V or 2-10 V. By selecting 2-10 V you gain ability to detect if the wire is broken



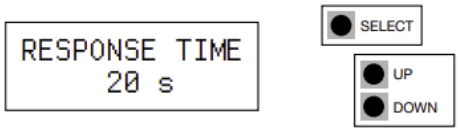
9) Flow output scale (V OUT): Select flow output scale to improve output resolution.

Unit:	*Range:*
m3/s	0.025–50
m3/h	100–200,000
cfm	50–100,000
l/s	25–50,000
m/s	1.0–100
f/min	200–20,000

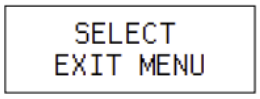




10) Response time: Select response time between 1.0–20s.



11) Push select button to save changes and to exit menu



Zeroing The Device

To zero the device two options are available:

1) Manual Pushbutton zero point calibration

2) Autozero calibration

Does my transmitter have an autozero calibration? See the product label. If it shows -AZ in the model number, then you have the autozero calibration.

1) Manual Pushbutton zero point calibration

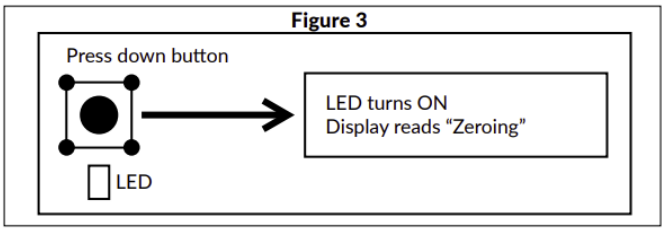
NOTE: Supply voltage must be connected at least one hour prior to zero point adjustment.

a) Disconnect both pressure tubes from the pressure ports labelled + and –.

b) Push down the zero button until the LED light (red) turns on and the display reads “zeroing” (display option only). (see figure 3)

c) The zeroing of the device will proceed automatically. Zeroing is complete when the LED turns off, and the display reads 0 (display option only).

d) Reinstall the pressure tubes ensuring that the High pressure tube is connected to the port labeled +, and the Low pressure tube is connected to the port labeled −.



2) Autozero calibration

If the device includes the optional autozero circuit, no action is required.

Autozero calibration (-AZ) is an autozero function in the form of an automatic zeroing circuit built into the PCB board. The autozero calibration electronically adjusts the transmitter zero at predetermined time intervals (every 10 minutes). The 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 autozero adjustment takes 4 seconds after which the device returns to its normal measuring mode. During the 4 second adjustment period, the output and display values will freeze to the latest measured value.

Transmitters equipped with the autozero calibration are virtually maintenance free.

-40C Model: Operations In Cold Environment

The lid of the device has to be closed when the operation temperature is below 0 °C.

The display needs 15 minutes to warm up if the device is started in temperature below 0 °C. NOTE!

The power consumption rises and there can be an additional error of 0,015 volts when the operation temperature is below 0 °C

Datasheet Contents

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