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DATA SHEET

DPT-Dual-MOD-AHU-D

Produal

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DPT-Dual-MOD-AHU Modbus differential pressure transmitter



The DPT-Dual-MOD-AHU Modbus differential pressure transmitter is especially designed for air handling units. It has two pressure sensors with different measurement ranges, and is ideal for measuring pressure from two measurement points. It also measures air volume flow rate and air velocity. In a typical air handling unit application, one sensor monitors the airflow across the centrifugal fan while the other sensor monitors the filter cleanliness.

This differential pressure transmitter has two multifunctional inputs for reading 0...10 V, digital and resistive signals from external devices. Since the BMS system can read the input signals of these connected external devices from the Modbus registers of the DPT-Dual-MOD-AHU transmitter, you can use temperature sensors instead of temperature transmitters to save in device and installation costs. For example, you can connect two passive temperature sensors (Pt1000, Ni1000, Ni1000-LG or NTC 10) to this transmitter to measure temperature at two measurement points.

This differential pressure transmitter does not have analogue outputs. The BMS system reads the measurement data directly from the Modbus registers of the transmitter using Modbus RTU communication over the RS-485 interface.

The transmitter supports six pressure measurement units and four airflow measurement units for the display. The backlit display shows the measured airflow and differential pressure at the same time. If external passive temperature sensors are connected to the multifunctional inputs, the display alternates between showing the differential pressure/airflow readings and the temperature readings. For voltage input signal, the display shows the measured voltage.

Commissioning the device is simple using the device menu. The measurement range settings are fixed and cannot be modified.

The DPT-Dual-MOD-AHU differential pressure transmitters are typically used in building automation systems for:

- airflow monitoring across centrifugal fans and blowers
- in-duct airflow monitoring
- VAV applications
- filter monitoring
- pressure and flow monitoring
- pressure monitoring in cleanrooms

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Technical specifications

Property	Value
Power supply	24 Vac/dc ±10 %
Power consumption	< 1.3 W
Pressure measurement	* factory setting
Range	
Sensor A	-700...7000 Pa
Sensor B	-250...2500 Pa
Accuracy (from applied pressure, including general accuracy, linearity, hysteresis, long term stability and repetition error)	
Sensor A	≤ 125 Pa: ±1.5 % + ±2 Pa from reading (when the read value is between -125 and +125 Pa) > 125 Pa: ±1.5 % + ±1 Pa from reading
Sensor B	≤ 125 Pa: ±1 % + ±2 Pa from reading (when the read value is between -125 and +125 Pa) > 125 Pa: ±1 % + ±1 Pa from reading
Temperature compensation	Measurement is temperature compensated when ambient temperature is 0...50 °C.
Measuring element	MEMS, no flow-through
Measurement units	
Pressure	*Pa, kPa, mbar, inchWC, mmWC, psi (selectable via device menu)
Air volume flow rate	*m^3/s, m^3/h, cfm, l/s (selectable via device menu)
Air velocity	m/s, ft/min (selectable via device menu)
Overpressure	
Proof pressure	25 kPa
Burst pressure	30 kPa
Response time (T_{63})	adjustable between 1...20 s, factory setting 4 s (typical, 63 % of the change)
Zeroing	manually by pushbutton or via Modbus
Pressure fittings	
Type	barbed fitting, male
Size	Ø5.2 mm
Material	brass
Inputs	This device has 2 input connectors. * factory setting
Multifunctional inputs	2 x 0...10 V / digital / Pt1000 / Ni1000 / Ni1000-LG / *NTC 10
Accuracy for input	< 0.5 %
Outputs	None. The BMS system reads the registers via bus.

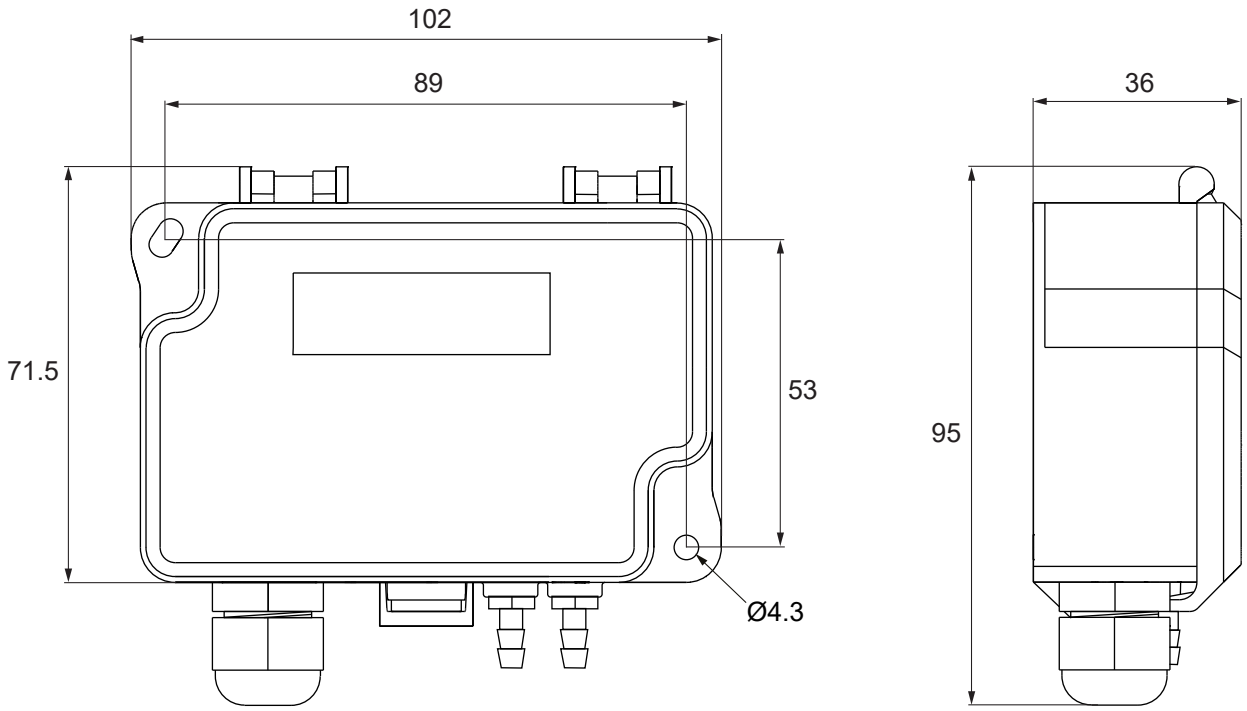
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Property	Value
Modbus communication	* factory setting
Protocol	Modbus RTU
Interface	RS-485
Bus speed	*9600/19200/38400 bit/s
Data bits	8
Parity	*none/odd/even
Stop bits	1
Unit load	1/8 UL
Display	backlit 2-line display, 46.0 x 14.5 mm. Shows the measured airflow and pressure. Also shows input from connected external sensors.
Wiring terminals	
Type	spring-loaded terminals
Wire	0.2...1.5 mm^2 (24...16 AWG)
Tightening torque	0.4 Nm
Appliance class (IEC 60664-1)	III
Operating conditions	
Ambient temperature	-20...50 °C
Storage temperature	-40...70 °C
Ambient humidity	0...95 %rH (non-condensing)
Compatible media	dry air or non-aggressive gases
Housing	
Protection class	IP54, cable downwards
Cable gland	M20
Materials	ABS and PC plastic (housing), silicone (tubing)
Mounting	2 x Ø4.3 mm screw holes, one slotted
Dimensions (w x h x d)	102 x 95 x 36 mm
Weight	150 g
Warranty	5 years
CE UKCA	Refer to the EU Declaration of Conformity or the UK Declaration of Conformity for compliance information. You can find the declarations on this product's page at www.produal.com.
Company certificates	
Quality management	ISO 9001
Environmental management	ISO 14001

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Dimensions

All dimensions are in millimetres (mm).



Wiring

WARNING: Device wiring and commissioning can only be carried out by qualified professionals. Always make the device wirings in de-energised electricity network.

WARNING: This product is appliance class III product according to IEC 60664-1. The product may only be connected to SELV (separated extra low voltage) electricity network.

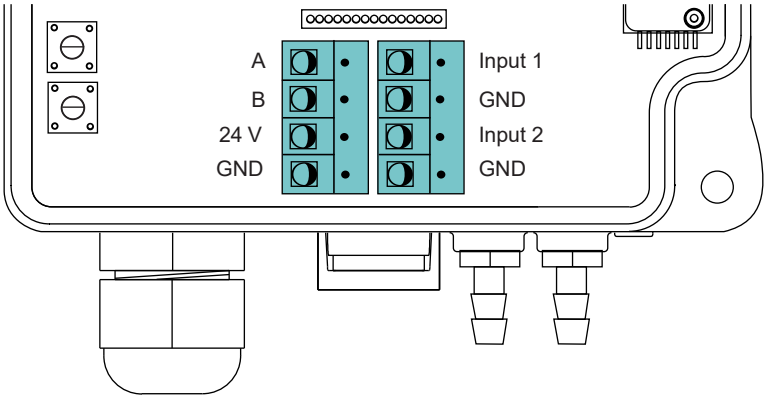
CAUTION: Use single stranded wires or use wire end sleeves if multi stranded wires are used.

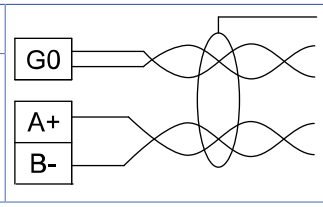
Important: For CE and UKCA compliance, a properly grounded shielding cable is required.

Note: When using 0...10 V inputs, this device and the connected devices must have the same power supply voltage potential. For example, you can connect all devices to the same power supply.

1. Open the cover.
2. Unscrew the strain relief on the cable gland.
3. Route the cable through the strain relief and the cable gland.

4. Connect the wires to the terminal blocks according to the table below.



A+ *B-*		Modbus RTU, RS-485
24 V		24 Vac/dc power supply
GND		0 V
Input 1		Input 1: digital / 0...10 V / PT1000 / Ni1000 / Ni1000-LG / NTC 10
GND		Ground
Input 2		Input 2: digital / 0...10 V / PT1000 / Ni1000 / Ni1000-LG / NTC 10
GND		Ground

The nominal tightening torque for wiring terminal screws is 0.4 Nm.

Important: Do not use excessive force when you tighten the wiring terminal screws.

5. Tighten the strain relief.
6. Close the cover.

Ordering information

	Model	Product number	Description
	DPT-Dual-MOD-AHU-D	120.016.013	Differential pressure transmitter for air handling units. Pressure and flow measurement, Modbus communication and display. Two pressure sensors: -250...2500 Pa and -700...7000 Pa.

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