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DATA SHEET

AVT

Produal

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AVT air velocity transmitter





The AVT air velocity transmitters are electronic air velocity and temperature transmitters for air. They measure air velocity and temperature in ventilation ducts using a duct mount probe.

The transmitter provides separate readings and outputs for air velocity and temperature. The transmitter has one velocity output and one temperature output. The available output signal modes are voltage (Vdc) and current (mA). The voltage output is scalable.

The transmitter options include:

- Display (-D models)
- Field adjustable relay (-R models)
- Modbus RTU communication (-MOD models)
- MyTool® Connect connection for easy commissioning via smartphone application and the MyTool® Connect dongle (-BT models)
- Three probe lengths
  - 112 mm (-100 models)
  - 212 mm (standard models)
  - 412 mm (-400 models)

The models without a display have three field selectable measurement ranges for air velocity. You can select the measurement range with jumpers.

The -D and -BT models provide a freely selectable measurement range for air velocity. You can select the measurement range via the device menu (-D models) or the Produal MyTool® smartphone application (-BT models).

The -D and -BT models have a PID controller for air velocity. The PID controller controls the output according to the air velocity setpoint you define for the controller.

You can configure the device settings using:

- the device menu (-D models)
- Modbus communication (-MOD models)
- the MyTool® Connect dongle and Produal MyTool® application (-BT models)

The transmitter comes with an adjustable duct flange suitable for both round and rectangular ducts.

The AVT air velocity transmitters are typically used in building automation systems in the HVAC/R industry for in-duct air flow and velocity monitoring, in-duct temperature monitoring, and VAV applications.

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Technical specifications

Property	Value
Supply	24 Vac/dc ± 10 %
Current consumption	max. 80 mA + 40 mA with mA output + 10 mA with relay option (DC supply voltage)
Relay (-R models)	250 Vac, 6 A res., adjustable operating direction, switching point and hysteresis
Air velocity measurement	* factory setting / ** selectable in -D and -BT models
Range	0…2 m/s, *0…10 m/s, 0…20 m/s, **freely selectable **200...4000 ft/min
Accuracy (typ. at 25 °C)	v ≥ 0.15 m/s and ≤ 2 m/s (0.2 m/s + 2 % from reading) v > 2 m/s and ≤ 10 m/s (0.5 m/s + 3 % from reading) v > 10 m/s (1.0 m/s + 3 % from reading)
Response time	T63: 1.5 s (typical, 63 % of the change)
Measurement units	*m/s, **ft/min
Temperature measurement	* factory setting / ** selectable in -D and -BT models
Range	*0...50 °C, **-25...50 °C, **-13...122 °F (probe)
Accuracy (25 °C)	±0.5 °C (air velocity > 0.5 m/s)
Measurement units	*Celsius, **Fahrenheit
Warm-up time	15 seconds
Outputs	
Output signal 1 (T out [C])	0...10 Vdc, load > 1 kΩ 4...20 mA, load 20…400 Ω
Output signal 2 (v out [m/s])	0...10 Vdc, load > 1 kΩ 4...20 mA, load 20…400 Ω
Accuracy	Vout: ± 0.025 V at 25 °C Iout: typically ±0.04 mA at 25 °C, load 100 Ω max. ± 0.1 mA at 25 °C, load 20...400 Ω
Relay output (-R models)	3-screw terminal block (NC, COM, NO), potential free SPDT 30 Vdc, 6 A / 230 Vac, 6 A res. (IEC 60664-1 OVC II)
Modbus communication (-MOD models)	* factory setting
Protocol	Modbus RTU
Interface	RS-485
Bus speed	9600/*19200/38400 bit/s
Data bits	8

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Property	Value
Parity	*none/odd/even
Stop bits	1
Unit load	1/8 UL
Display (-D models)	2-line display (12 characters/line), 46.0 x 14.5 mm Line 1: velocity / Line 2: temperature (default) Line 1: direction of control output (optional) Line 2: relay status (optional)
Wiring terminals	
Type	Tilted screw terminals
Wire	0.2...1.5 mm^2 (24...16 AWG)
Tightening torque	0.4 Nm
Commissioning tool	MyTool® Connect dongle with Produal MyTool® application GET IT ON Google Play
Appliance class (IEC 60664-1)	III
Operating conditions	
Ambient temperature	-25...50 °C (probe) 0...50 °C (transmitter housing)
Ambient humidity	0...95 %rH (non-condensing)
Storage conditions	
Temperature	-20...70 °C
Housing	
Protection class	IP54, cable downwards / -R and -MOD models: IP54, cables downwards and cables in both cable glands
Cable gland	M16 (2 x M16: -R and -MOD models)
Materials	ABS plastic, PC plastic (cover)
Probe	
Dimensions	10 x 112/212/412 mm
Materials	Stainless steel (AISI 304) (probe), LLPDP (duct flange)
Mounting	with a duct flange, probe immersion length adjustable: 50...95 mm (-100 models) 50...195 mm (standard models) 50...395 mm (-400 models)
Dimensions (w x h x d)	86 x 93 x 163 mm (-100 models) 86 x 93 x 263 mm (standard models) 86 x 93 x 463 mm (-400 models)
Weight	220 g
Warranty	5 years

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Property	Value
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

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: Fuse at load supply (normally 6 A, 10 A, 16 A) does not always limit the relay output load current to 6 A. The relay maximum load is 250 Vac, 6 A res.

WARNING: Add an external fuse to relay common connector. Use a time-lag fuse (max 6 A) that is in accordance with the standard IEC 60127-2. The product does not have an internal fuse for the relays.

CAUTION: The product may only be connected to overvoltage category II electricity network according to IEC 60664-1.

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.

The relay models (-R) and the Modbus (-MOD) models have two cable glands (the left and the right cable gland). Other models only have one cable gland (the left cable gland). See section Wiring for Modbus models (-MOD) on page 5 for Modbus model wiring instructions.

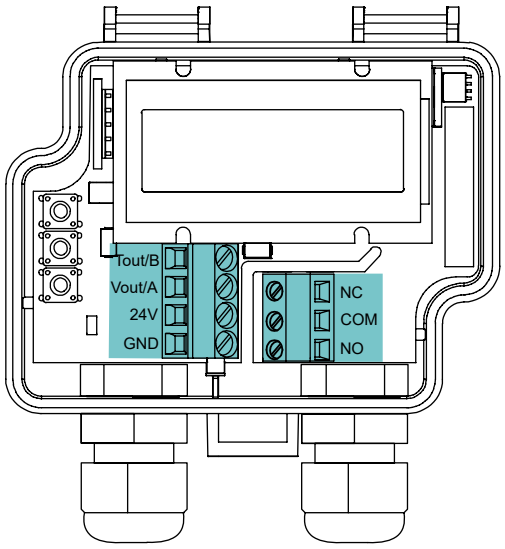
1. Open the cover.

   WARNING: Do not open the device cover when the relay mains supply voltage is connected. Always do the commissioning of the device in de-energised relay electricity network.

2. Unscrew the strain relief on the left cable gland and route the cables for power in and signal out through the cable gland.
3. For relay models (-R), unscrew the strain relief on the right cable gland and route the cable for the relay through the cable gland.

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4. Connect the wires according to the table below.



Tout/B	Temperature measurement output signal: 0...10 Vdc, load > 1 kΩ 4...20 mA, load 20...400 Ω
Vout/A	Air velocity measurement output signal: 0...10 Vdc, load > 1 kΩ 4...20 mA, load 20...400 Ω
24V	24 Vac/dc supply
GND	0 V
NC	Relay output on -R models: 30 Vdc, 6 A / 230 Vac, 6 A res.
COM	
NO	

The nominal wiring terminal screw tightening torque is 0.4 Nm.

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

5. Tighten the strain reliefs.

Wiring for Modbus models (-MOD)

Note: The -MOD models have Modbus communication instead of analogue outputs.

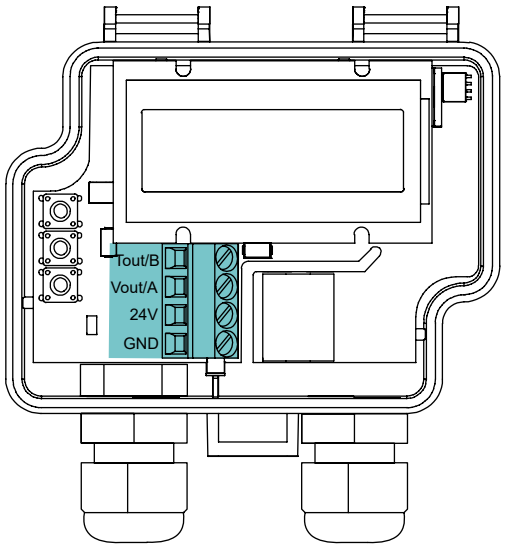
Important: For CE and UKCA compliance, a properly grounded shielding cable is required.

It is recommended to use shielded twisted pair cable for Modbus cabling. The cable shield must be earthed only in one point, usually at the end of the main cable.

1. Open the cover.
2. Unscrew the strain relief on the left cable gland.
3. Route the cables for power in and Modbus communication through the left cable gland.
4. To connect this device to the next device in a daisy chain network:
   a. Unscrew the strain relief on the right cable gland.
   b. Route the Modbus cable to the next device through the right cable gland.

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5. Connect the wires according to the table below.



Tout/B	Modbus RTU (RS-485)
Vout/A	
24V	24 Vac/dc supply
GND	0 V

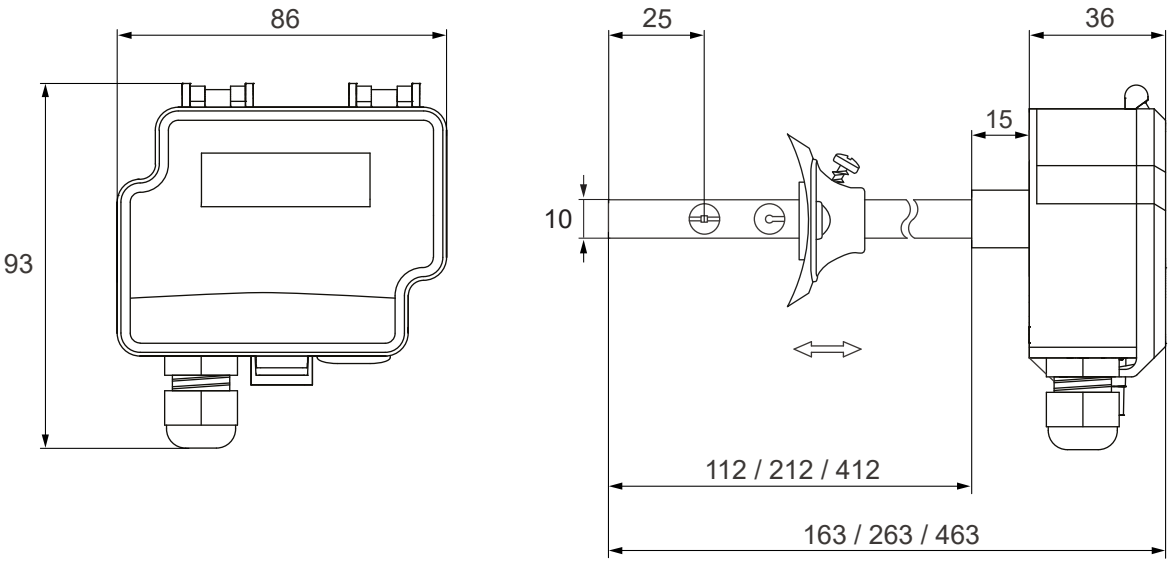
The nominal wire terminal screw tightening torque is 0.4 Nm.

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

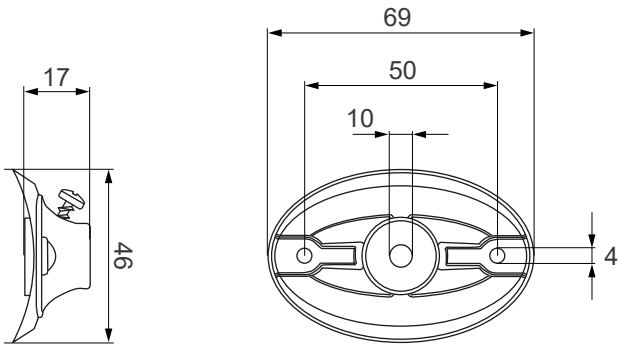
6. Tighten the strain reliefs.

Dimensions

All dimensions are in millimeters (mm).



Duct flange dimensions



Ordering information

You can use the ordering guide below to generate ordering information for products you would like to order. For example, the ordering information for an air velocity and temperature transmitter with MyTool® Connect connection, display and 412 mm probe is as follows:

Product type: AVT-BT-D-400
Product number: 1138602000

			Type	0	1	2	3	4	5	6
0	Air velocity transmitter			1138		0		0	0	0
1	Device type	Air velocity and temperature transmitter	AVT		1					
		Air velocity and temperature transmitter with display	AVT-D		2					
		Air velocity and temperature transmitter with display and relay output	AVT-D-R		3					
		Air velocity and temperature transmitter with display and Modbus communication	AVT-MOD-D		4					
		Air velocity and temperature transmitter with MyTool® Connect connection	AVT-BT		5					
		Air velocity and temperature transmitter with MyTool® Connect connection and display	AVT-BT-D		6					
		Air velocity and temperature transmitter with MyTool® Connect connection and relay output	AVT-BT-R		7					
		Air velocity and temperature transmitter with display, MyTool® Connect connection and relay output	AVT-BT-D-R		8					
		Air velocity and temperature transmitter with MyTool® Connect connection and Modbus communication	AVT-BT-MOD		9					
		Air velocity and temperature transmitter with display, MyTool® Connect connection and Modbus communication	AVT-BT-MOD-D		A					
2	Reserved					0				
3	Probe length	212 mm					0			
		112 mm			-100		1			
		412 mm			-400		2			