

AVT Air velocity transmitter






AVT air velocity transmitters are engineered for building automation in the HVAC/R industry. They are electronic air velocity and temperature transmitters for air. They measure air velocity and temperature in ventilation ducts, with field selectable options for measurement range and output settings in a single device. AVT has a duct mount probe and an adjustable duct flange suitable for both round and rectangular ducts.




Technical specifications

Property	Value	CE UK CA
Supply	24 Vac/dc \pm 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		
Measurement range	0...2 m/s, 0...10 m/s, 0...20 m/s, freely selectable	
Accuracy (typ. at 25 °C)	$v \geq 0.15$ 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)	
Temperature measurement		
Measurement range	-25...50 °C (probe)	
Accuracy (25 °C)	± 0.5 °C (air velocity > 0.5 m/s)	
Warm-up time	15 seconds	
Outputs		
Output signal 1 (T out [C])	0...10 Vdc, load > 1 k Ω 4...20 mA, load 20...400 Ω	
Output signal 2 (v out [m/s])	0...10 Vdc, load > 1 k Ω 4...20 mA, load 20...400 Ω	
Accuracy	Vout: ± 0.025 V at 25 °C	

Property	Value	CE UK UK PA
	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)	
Communication (MOD models)	Modbus RTU	
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)	
Operating conditions		
Temperature	-25...50 °C (probe) 0...50 °C (transmitter housing)	
Humidity	0...95 %rH (non-condensing)	
IP protection class	IP54, cable downwards / -R and -MOD models: IP54, cables downwards and cables in both cable glands	
Wire	0.2...1.5 mm ² (24...16 AWG)	
Cable gland	M16 (2 x M16: -R and -MOD models)	
Mounting	with a duct flange, probe immersion length adjustable: 50...80 mm (probe length 100 mm) 50...180 mm (probe length 200 mm) 50...380 mm (probe length 400 mm) The probe diameter is 10 mm.	
Materials		
Housing	ABS plastic	
Cover	PC plastic	
Probe	Stainless steel (AISI 304)	
Duct flange	LLPDP	
Dimensions (w x h x d)	86 x 95 x 168 mm (probe length 100 mm) 86 x 95 x 268 mm (probe length 200 mm) 86 x 95 x 468 mm (probe length 400 mm)	
Weight	220 g	
Storage temperature	-20...70 °C	


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.

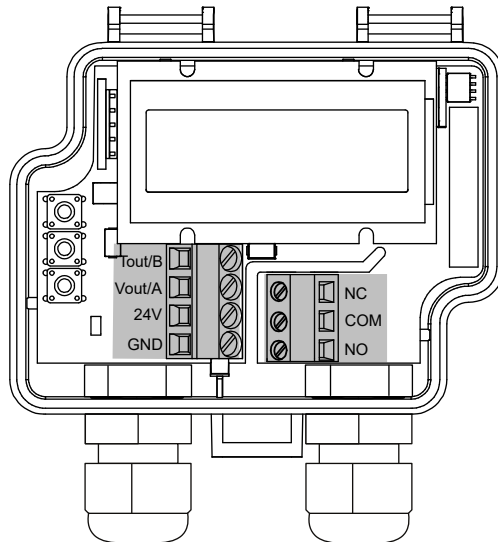
-  **CAUTION:** The product may only be connected to overvoltage category II electricity network according to IEC 60664-1.
-  **CAUTION:** Use single stranded wires or use wire end sleeves if multi stranded wires are used.
-  **Important:** For CE and UKCA compliance, a properly grounded shielding cable 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 4 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.
4. Connect the wires according to the table below.





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

The nominal wire terminal screw tightening torque is 0.4 Nm.

 **Important:** Do not use excessive force when tightening the wiring terminal screws.

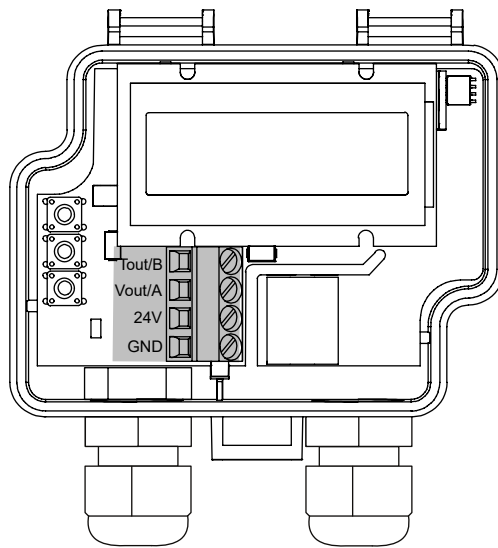
5. Tighten the strain reliefs.

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.
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

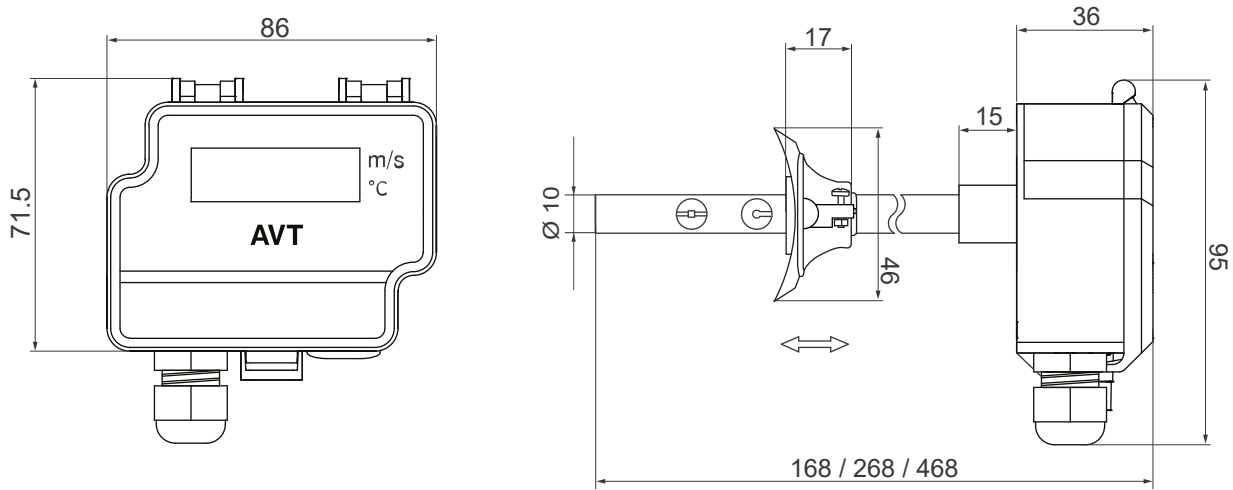
The nominal wire terminal screw tightening torque is 0.4 Nm.

-  **Important:** Do not use excessive force when tightening the wiring terminal screws.

6. Tighten the strain reliefs.

Dimensions

All dimensions are in millimeters (mm).



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 connector, display and 400 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	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 connector	AVT-BT	5					
		Air velocity and temperature transmitter with MyTool® Connect connector and display	AVT-BT-D	6					
		Air velocity and temperature transmitter with MyTool® Connect connector and relay	AVT-BT-R	7					
		Air velocity and temperature transmitter with display, MyTool® Connect connector and relay	AVT-BT-D-R	8					
		Air velocity and temperature transmitter with MyTool® Connect connector and Modbus communication	AVT-BT-MOD	9					
		Air velocity and temperature transmitter with display, MyTool® Connect connector and Modbus communication	AVT-BT-MOD-D	A					
2	Reserved				0				
3	Probe length	200 mm				0			
		100 mm			-100	1			
		400 mm			-400	2			

Supported directives, regulations and standards

All AVT models support the following EU directives, UK regulations and standards.

EU directives

2014/30/EU	Electromagnetic Compatibility (EMC).
2011/65/EU	Restriction of Hazardous Substances (RoHS2) Directive.
(EU) 2015/863	Commission Delegated Directive, amending Annex II to Directive 2011/65/EU.
2012/19/EU	Waste electrical and electronic equipment (WEEE).
2014/35/EU	Low Voltage Directive (LVD).
(EC) No 1907/2006	Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

UK regulations

S.I. 2016 No. 1091	Electromagnetic compatibility regulations
S.I. 2012 No. 3032	The restriction of the use of certain hazardous substances in electrical and electronic equipment regulations
S.I. 2013 No. 3113	The waste electrical and electronic equipment regulations
S.I. 2016 No. 1101	The electrical equipment (safety) regulations
S.I. 2008 No. 2852	The REACH enforcement regulations

Standards

EN 61326-1:2021	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
EN 62368-1:2014 + AC:2015 + AC2:2015	Audio/video, information and communication technology equipment - Part 1: Safety requirements
