

EE650

Air Velocity Transmitter for HVAC Applications

The EE650 air velocity transmitter is dedicated for accurate and reliable measurement in building automation and ventilation applications.

The device employs an innovative air velocity sensing element, which operates on the thermal anemometer principle and is manufactured by E+E in state-of-the-art thin film technology. Due to its innovative design, the sensing element is very robust and highly insensitive to pollution, which leads to outstanding long-term performance.

For the EE650 with analogue output, the measuring range 0-10/15/20 m/s (0-2000/3000/4000 ft/min), the output signal 4-20 mA or 0-10 V as well as the response time 1 or 4 seconds are selectable by jumpers.

The bus address, the termination resistor and the response time of the Modbus RTU and BACnet MS/TP versions can also be easily set on the electronics board.

The enclosure design and the mounting flange included in the scope of supply allow for fast and easy installation.

With an optional adapter cable and the free EE-PCS product configuration software, the user can adjust the EE650, set the output scale and select the interface parameters.



EE650 - Duct mounting



EE650 - Remote sensor probe

Features

Bayonet Screws

- » Open/closed with a ¼ rotation

Enclosure

- » IP65 / Nema 4

Appropriate for US mounting requirements

- » Knock-out for ½" conduit fitting

External mounting holes

- » Fast and easy installation with closed cover
- » Electronics protected against construction site pollution

Electronics on the underside of the PCB

- » Protection against mechanical damage during installation

Adjustment Configuration

- » Measuring range
- » Output signal
- » Response time
- » Bus address
- » Termination resistor

E+E Air velocity sensor VTQ

- » Exceptional mechanical stability thanks to transfer-moulding technology
- » High insensitivity to pollution
- » Long-term stable
- » Measurement down to 0.2 m/s (40 ft/min)

Technical data



Measuring range

Working range ¹⁾	0...10 m/s (0...2000 ft/min)	
	0...15 m/s (0...3000 ft/min)	
	0...20 m/s (0...4000 ft/min) (factory setting)	
Accuracy at 20 °C ²⁾ (68 °F), 45 % RH, 1013 hPa	0.2...10 m/s (40...2000 ft/min)	± (0.2 m/s (40 ft/min) + 3 % of m. v.)
	0.2...15 m/s (40...3000 ft/min)	± (0.2 m/s (40 ft/min) + 3 % of m. v.)
	0.2...20 m/s (40...4000 ft/min)	± (0.2 m/s (40 ft/min) + 3 % of m. v.)
Response time τ_{90} ¹⁾	typ. 4 sec. (factory setting) or	typ. 1 sec. at constant temperature

Output

Analogue ¹⁾	0 - 10 V	-1 mA < I _L < 1 mA
0...10 m/s / 0...15 m/s / 0...20 m/s	4 - 20 mA (factory setting)	R _i < 500 Ω (linear, 3-wires)
Digital interface	RS485 with max. 32 devices on one bus	
Protocol	Modbus RTU or BACnet MS/TP	

General

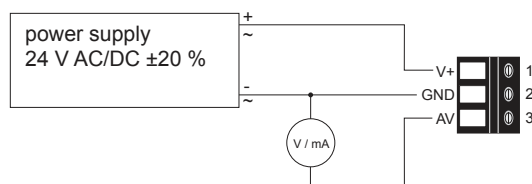
Power supply (Class III) 	24 V AC/DC ± 20 %		
Current consumption		AC supply	DC supply
	Analogue output	max. 170 mA	max. 70 mA
	RS485	max. 120 mA	max. 50 mA
Electrical connection	screw terminals max. 1.5 mm ² (AWG 16)		
Cable gland	M16x1.5		
Electromagnetic compatibility	EN61326-1	EN61326-2-3	
	Industrial Environment		
Enclosure material	Polycarbonate, UL94V-0 approved		
Protection class	Enclosure IP65 / NEMA 4, remote probe IP20		
Temperature range	working temperature probe	-25 ... 50 °C (-13...122 °F)	
	working temperature electronic	-10 ... 50 °C (14...122 °F)	
	storage temperature	-30 ... 60 °C (-22...140 °F)	
Working range humidity	5...95 % RH (non-condensing)		

1) Selectable by jumper, only for analogue output

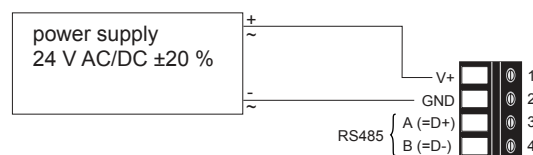
2) The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation).
The accuracy was calculated in accordance with EA-4/02 and with regard to GUM (Guide to the Expression of Uncertainty in Measurement).

Connection Diagram

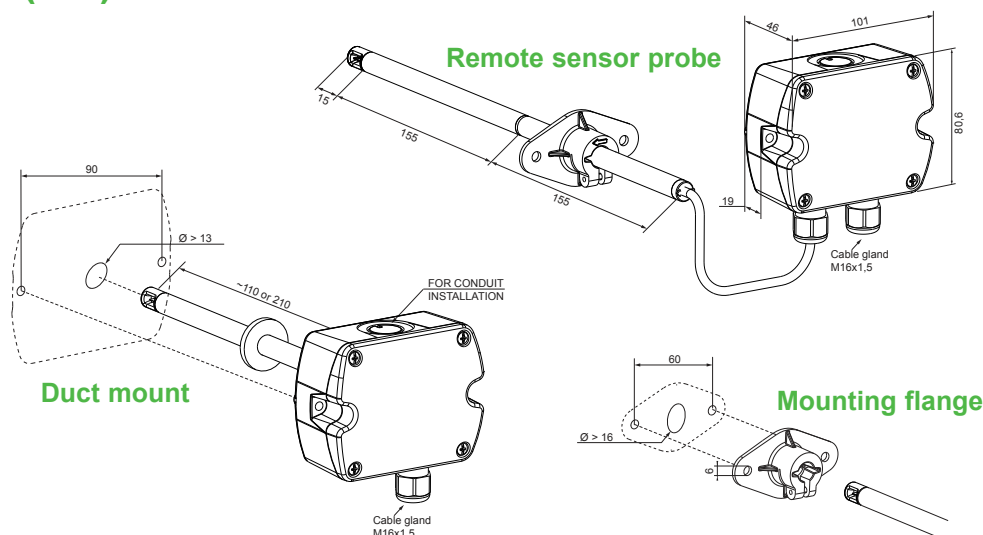
Analogue output



Digital interface



Dimensions (mm)



Ordering Guide

		EE650-		
Hardware Configuration	Type	Duct mounting	T2	
		Remote sensor probe	T3	
	Output	4-20 mA (selectable by jumper to 0-10 V)	A6	
		RS485	J3	
Probe length		100 mm	L100	
		200 mm	L200	
		300 mm (2 x 150 mm)	L300	
Cable length		not applicable	no code	
		1 m	K1	
		2 m	K2	
		5 m	K5	
		10 m	K10	
Setup RS485	Protocol	Modbus RTU ¹⁾	P1	
		BACnet MS/TP ²⁾	P3	
	Baud rate		9600	BD5
			19200	BD6
			38400	BD7
			57600 ³⁾	BD8
	76800 ³⁾	BD9		

1) Factory setting: Even Parity, Stopbits 1
 2) Factory setting: No Parity, Stopbits 1
 3) Only for BACnet MS/TP

Modbus Map see User Guide at www.epluse.com/ee650
 Product Implementation Conformance Statement (PICS) available at www.epluse.com/ee650

Order Example

EE650-T2A6L200

Type: duct mounting
 Output: 4-20 mA
 Probe length: 200 mm

EE650-T3A6L300K2

Type: remote sensor probe
 Output: 4-20 mA
 Probe length: 300 mm
 Cable length: 2 m

EE650-T2J3L200P1BD5

Type: duct mounting
 Output: RS485
 Probe length: 200 mm
 Protocol: Modbus RTU
 Baud rate: 9600

Scope of Supply

- EE650 Transmitter according to ordering guide
- Cable gland (two pieces at output RS485 for daisy chain wiring)
- Mounting flange
- Mounting materials
- Protection cap
- Quick guide
- Two self-adhesive labels for configuration changes (see user guide at www.epluse.com/relabeling)
- Test report according to DIN EN10204 - 2.2

Accessories

USB configuration adapter
 Product configuration software
 Power supply adapter

HA011066
 EE-PCS (free download: www.epluse.com/EE650)
 V03 (see data sheet Accessories)