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in sensor  
technology.

# + Datasheet EE660

## Low Air Velocity Sensor



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# EE660

## Low Air Velocity Sensor

The EE660 is optimized for highly accurate measurement of very low air velocity in laminar flow control and special ventilation applications, for instance in clean rooms.

## Excellent Measurement Performance

The E+E thin film sensing element employed in EE660 operates on the hot film anemometer principle, which stands for excellent accuracy down to 0.15 m/s (30 ft/min), high insensitivity to pollution and low angular dependency.

## Analogue and Digital Outputs

The air velocity measured data is available as current and voltage outputs, on the RS485 interface with Modbus RTU or BACnet protocol, as well as on the optional display.

## Easy Configuration and Adjustment

The EE660 is user configurable with jumpers on the electronics board or via software. An optional configuration adapter and the free EE-PCS Product Configuration Software facilitate the adjustment of EE660 and the display setup.



EE660 - T2 duct mount



EE660 - T3 with display and remote probe

# Features

## Display

- Large, easily readable
- With backlight
- 180° orientation

## Bayonet screws

- Open/closed with a ¼ rotation

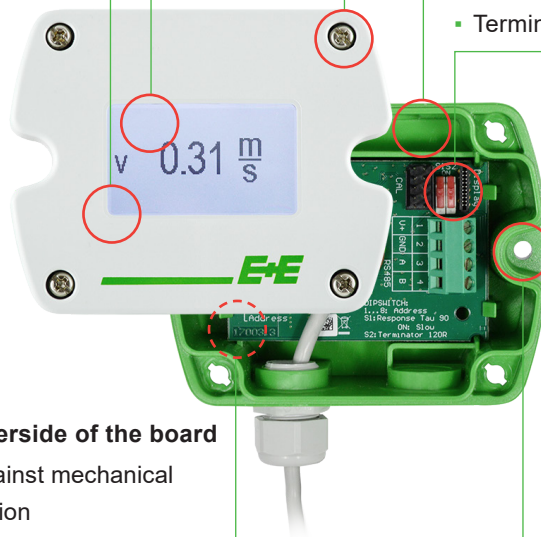
## Knockout for ½" conduit fitting

## Smooth cover surface

- No accumulation of dust in protruding edges

## Adjustment configuration

- Measuring range
- Response time
- RS485 Setup
- Termination resistor

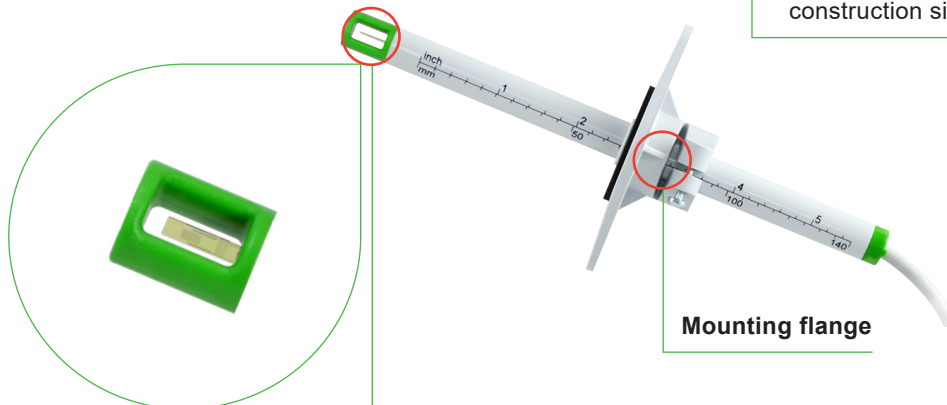


## Electronics on the underside of the board

- Optimum protection against mechanical damage during installation

## External mounting holes

- Easy and fast mounting with closed cover
- Electronics protected against construction site pollution



Mounting flange

## E+E flow sensor element

- Excellent accuracy
- Long-term stability
- Low sensitivity to pollution
- Low angular dependency

Test report



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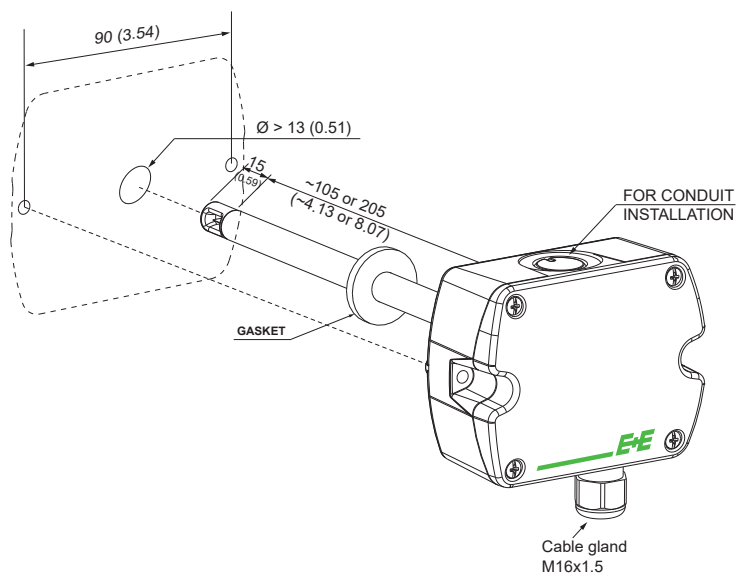
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# Dimensions

Values in mm (inch)

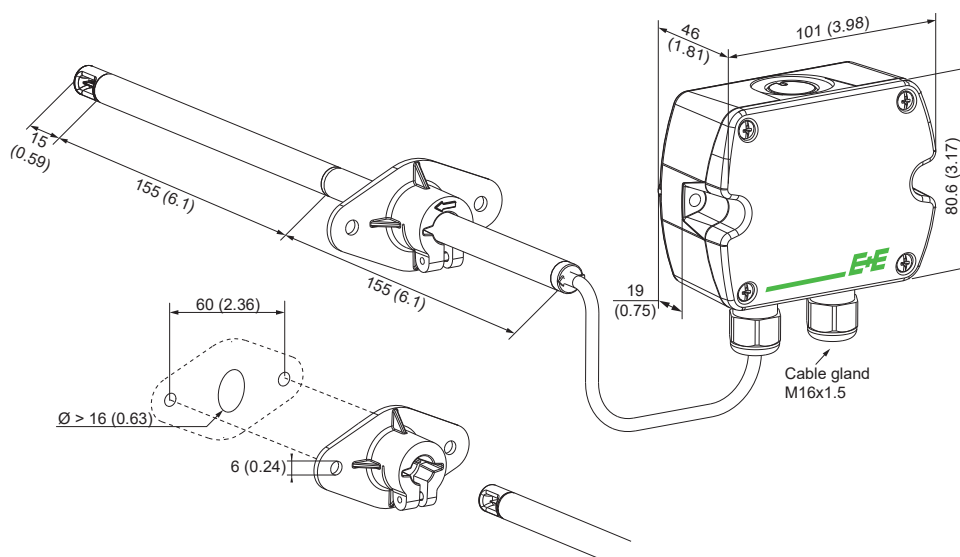
## Type

T2: Duct mount



## Type

T3: Remote probe



# Technical Data

## Measurands

### Air Velocity (v)

<b>Measuring range</b> Selectable by jumper, only for analogue output	0...1 m/s (0...200 ft/min) 0...1.5 m/s (0...300 ft/min) 0...2 m/s (0...400 ft/min)
<b>Accuracy<sup>1)</sup></b> in air @ 20 °C (68 °F), 45 %RH and 1013 hPa (14.7 psi)  0.15...1 m/s (30...200 ft/min) 0.15...1.5 m/s (30...300 ft/min) 0.15...2 m/s (30...400 ft/min)	mv = measured value
<b>Response time t<sub>90</sub>, typ.</b> @ constant temperature	4 s or 1 s (Selectable by jumper (analogue) and slide switch (digital))

1) 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).

## Outputs

### Analogue




<b>Air velocity (v)</b>	0 - 10 V 4 - 20 mA (linear, 3-wire)	-1 < I <sub>L</sub> < 1 mA R <sub>L</sub> < 450 Ω	I <sub>L</sub> = load current R <sub>L</sub> = load resistance
<b>Scaling area</b>	0...1 m/s / 0...1.5 m/s / 0...2 m/s (selectable by jumper, only for analogue output)		

### Digital

<b>Digital interface</b>	RS485 (EE660 = 1 unit load)
<b>Protocol</b> <b>Factory settings</b> <b>Supported Baud rates</b> <b>Measured data types</b>	Modbus RTU 9600 Baud, parity even, 1 stop bit, Modbus address 65 9600, 19200 and 38400 FLOAT32 and INT16
<b>Protocol</b> <b>Factory settings</b> <b>Supported Baud rates</b>	BACnet MS/TP 9600 Baud, no parity, 1 stop bit, BACnet address 65 9600, 19200, 38400, 57600 and 76800

# Technical Data

## General

<b>Power supply class III</b>  USA & Canada: Class 2 supply necessary	24 V AC/DC ±20 %			
<b>Current consumption, max.</b>	<b>AC supply - no display</b>	<b>DC supply - no display</b>	<b>AC supply - with display</b>	<b>DC supply - with display</b>
	<b>Analogue output</b>	74 mA <sub>rms</sub>	41 mA	180 mA <sub>rms</sub>
	<b>Digital output</b>	120 mA <sub>rms</sub>	50 mA	
<b>Dependency of inflow angle (α) of inflow direction</b>	< 3% for α <10° < 3%			
<b>Electrical connection</b>	Screw terminals max. 1.5 mm <sup>2</sup> (AWG 16)			
<b>Cable gland</b>	M16x1.5			
<b>Humidity working range</b>	5...95 %RH, non-condensing			
<b>Temperature range</b>	<b>Probe</b>	-25 °C ... +50 °C (-13 °F...+122 °F)		
	<b>Electronics</b>	-10 °C ... +50 °C (-14 °F...+122 °F)		
	<b>Storage</b>	-30 °C ... +60 °C (-22 °F...+140 °F)		
<b>Enclosure</b>	<b>Material</b>	PC (Polycarbonate)		
	<b>Protection rating</b>	IP65/NEMA 4X		
	<b>Compliance</b>	UL94 V-0 approved / with display: UL94 HB approved		
<b>Protection rating</b>	<b>Remote probe</b>	IP20		
<b>Electromagnetic compatibility</b>	EN 61326-1	EN 61326-2-3	Industrial environment	
	FCC Part15 Class A	ICES-003 Class A		
<b>Conformity</b>	 			
<b>Configuration and adjustment</b>	EE-PCS Product Configuration Software ( <a href="#">free download</a> ) and configuration adapter.			

# Ordering Guide

Feature	Description	Code		
		<b>EE660-</b>		
Hardware Configuration	Type	Duct mount Remote probe	<b>T2</b> <b>T3</b>	
	Output	0 - 10 V and 4 - 20 mA RS485	<b>A7</b> <b>J3</b>	
	Probe length	100 mm (3.94") 200 mm (7.87") 300 mm (11.81")	<b>L100</b> <b>L200</b> <b>L300</b>	
	Probe cable length	1 m (3.3 ft) 2 m (6.6 ft) 5 m (16.4 ft) 10 m (32.8 ft)	<b>K1</b> <b>K2</b> <b>K5</b> <b>K10</b>	
	Display	Without display Display with backlight (only for analogue output A7)	<b>No code</b> <b>D2</b>	
	Display unit	m/s ft/min	<b>No code</b> <b>DA21</b>	
	Setup RS485	Protocol	Modbus RTU <sup>1)</sup> Bacnet MS/TP <sup>2)</sup>	<b>P1</b> <b>P3</b>
		Baud rate	9600 19200 38400 57600 (for BACnet MS/TP only) 76800 (for BACnet MS/TP only)	<b>BD5</b> <b>BD6</b> <b>BD7</b> <b>BD8</b> <b>BD9</b>

1) Further information in the Modbus Map, see User Guide at [www.epluse.com/ee660](http://www.epluse.com/ee660).  
 2) Further information in the Product Implementation Conformance Statement (PICS) available at [www.epluse.com/ee660](http://www.epluse.com/ee660).

## Order Examples

### EE660-T3J3L300K1P1BD5

Feature	Code	Description
Type	<b>T3</b>	Remote probe
Output	<b>J3</b>	RS485
Probe length	<b>L300</b>	300 mm (11.81")
Probe cable length	<b>K1</b>	1 m (3.3 ft)
Display	<b>No code</b>	Without display
Protocol	<b>P1</b>	Modbus RTU
Baud rate	<b>BD5</b>	9600

### EE660-T2A7L200

Feature	Code	Description
Type	<b>T2</b>	Duct mount
Output	<b>A7</b>	0 - 10 V and 4 - 20 mA
Probe length	<b>L200</b>	200 mm (7.87")



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# Accessories

For further information see datasheet [Accessories](#).

Description	Code
USB Configuration Adapter	HA011066
Product Configuration Software (free download: <a href="http://www.epluse.com/configurator">www.epluse.com/configurator</a> )	EE-PCS
Power supply adapter	V03



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