

Datasheet EE75

**Highly Accurate Air / Gas Velocity
Sensor for Industrial Applications**



EE75

Highly Accurate Air/Gas Velocity Sensor for Industrial Applications

The EE75 air velocity (v) and temperature (T) sensor is optimized for best measurement results in challenging air flow applications in most various industries.

Outstanding Measurement Performance

With its multipoint v factory adjustment the EE75 meets the highest accuracy requirements. The E+E thin-film sensing element employed operates on the hot-film anemometer principle, which stands for excellent accuracy from 0.06 m/s (12 ft/min) up to 40 m/s (8000 ft/min) and low angular dependency. The integrated temperature compensation combined with the robust mechanical design, makes the EE75 suitable for process temperatures from -40 °C (-40 °F) up to 120 °C (248 °F).

Versatility

The EE75 is available for duct mount as well as with remote probe in various probe lengths. The remote probe types feature different cable lengths and pressure tight versions up to 10 bar (145 psi). The IP65 / NEMA 4 rated metal enclosure facilitates easy installation and maintenance. The v and T measured data is available on two current or voltage analogue outputs. In addition to v and T values EE75 calculates the volume flow V' in m³/min or ft³/min.

Configurable and Adjustable

The setup and adjustment of the EE75 can be easily performed using the configuration software and USB interface cable included in the scope of supply.



EE75 for duct mount



EE75 with remote probe



EE75 with remote probe, pressure-tight up to 10 bar (145 psi)

Features

EE75 Sensor

- Highly accurate over the entire working range
- Combined v and T measurement
- Integrated T compensation
- Optional display with backlight and menu buttons
- Easy mounting and maintenance
- Voltage or current output, selectable
- Low-flow suppression
- Calculation of volume flow V'

EE75 Sensing Head and Probe

- Measuring range from -40 °C (-40 °F) up to 120 °C (248 °F) and 10 bar (145 psi)
- Accurate measurement of air flows from 0.06 m/s up to 40 m/s (12...8000 ft/min)
- Low angular dependency
- Long-term stable



Application Specific Design

- Duct mount and remote probe types with different probe lengths
- Pressure tight remote probes up to 10 bar (145 psi)
- Various cable lengths for remote probe types
- Process connection with stainless steel flange or G 1/2" ISO / 1/2" NPT thread

Adjustment and Configuration

- v and T adjustment
- Scalable measuring range
- Selectable output signal
- Response time
- Calculation of volume flow

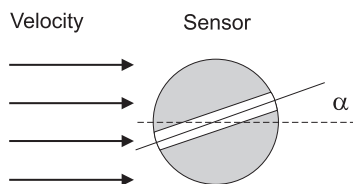
Inspection Certificate

according to DIN EN 10204-3.1 with three v points

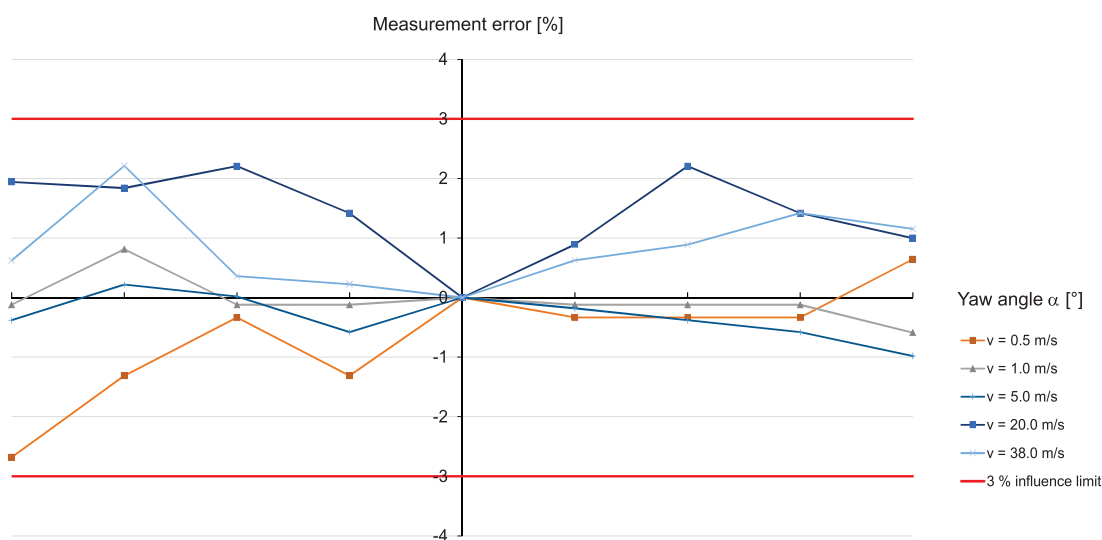
Features

Angular Dependency

The innovative design of the probe head minimises the effect of the angle of inflow (yaw angle) on the measuring result. The deviation of the measuring value remains <3 % up to a yaw angle α of $\pm 20^\circ$ between the direction of inflow and the sensor element's longitudinal axis.



EE75 sensing head in the flow

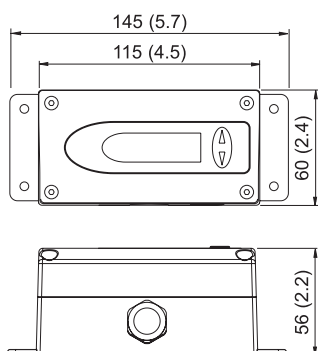


Measurement error over yaw angle for different velocities

Dimensions

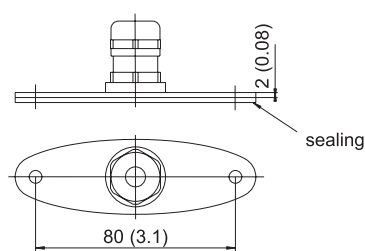
Values in mm (inch)

Enclosure



Mounting flange

for Types T2 and T3 (included in the scope of supply)

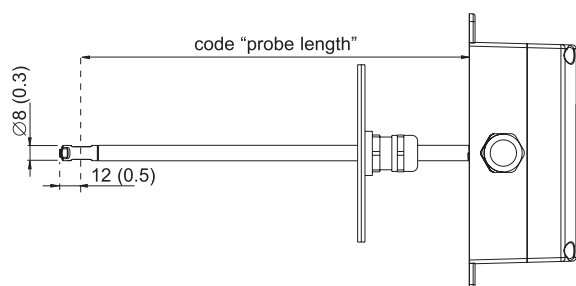


Dimensions

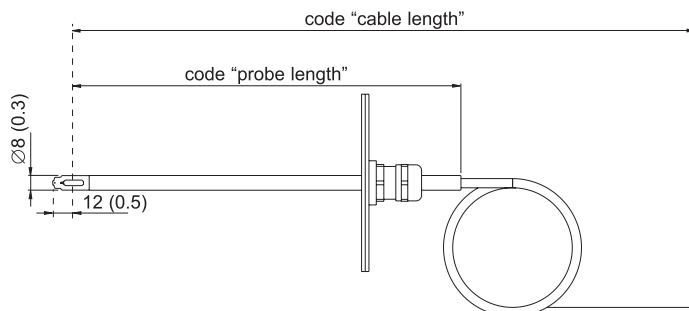
Values in mm (inch)

Type

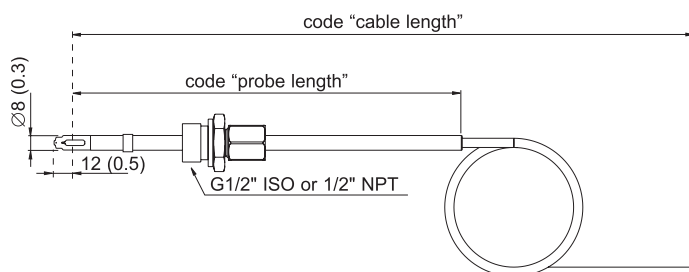
T2 Duct Mount



T3 Remote Probe



T26 Remote Probe, pressure-tight up to 10 bar (145 psi)



Technical Data

Measurands

Air Velocity (v)

Measuring range	0...2 m/s (0...400 ft/min) 0...10 m/s (0...2 000 ft/min) 0...40 m/s (0...8 000 ft/min)	
Accuracy in air at 25 °C (77 °F) and 1 013 hPa (14.7 psi), including non-linearity, hysteresis and repeatability 0.06...2 m/s (12...400 ft/min) 0.15...10 m/s (30...2000 ft/min) 0.20...40 m/s (40...8000 ft/min)	±0.03 m/s (6 ft/min) ±(0.10 m/s (20 ft/min) + 1 % of mv) ±(0.20 m/s (40 ft/min) + 1 % of mv)	mv = measured value
Uncertainty of factory calibration	±1 % of mv, min. 0.015 m/s (3 ft/min)	mv = measured value
Dependency of inflow angle (α) of inflow direction	<3 % for α <20° <3 %	
Response time t ₉₀ , typ.	<1.5...40 s (Factory setting: 1.5 s, configurable via EE75 Configuration Software)	

Technical Data

Measurands

Temperature (T)




Measuring range	-40...+120 °C	
Accuracy in air at 25 °C (77 °F) at air flows ≥ 0.45 m/s (886 ft/min)	± 0.5 °C (± 0.9 °F)	
Temperature dependency of electronics, typ.	± 0.005 % of mv/K deviating from 25 °C (77 °F)	mv = measured value
Temperature dependency of probe, typ.	± 0.1 % of mv/K deviating from 25 °C (77 °F)	mv = measured value
Response time t_{90} , typ.	≤ 10 s	

Outputs

Analogue

Two freely selectable and scalable outputs for v, T, V'	0 - 10 V 0 - 20 mA / 4 - 20 mA (3-wire)	-1 mA < I_L < 1 mA $R_L \leq 350 \Omega$	I_L = load current R_L = load resistance
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General

Power supply class III  USA & Canada: Class 2 supply necessary	24 V DC ±20 %		
Current consumption , typ. With Display	<100 mA <160 mA		
Electrical connection	Screw terminals max. 2.5 mm ² (AWG 16)		
Protection rating	IP65 / NEMA 4		
Temperature working range <div>Probe cable Enclosure Enclosure with display</div>	-40...+105 °C (-40...+221 °F) -40...+60 °C (-40...+140 °F) -30...+60 °C (-22...+140°F)		
Pressure working range <div>T2, T3: T26:</div>	700...1300 hPa (10.2...18.9 psi) Pressure tight 0.05...10 bar (0.73...145 psi)		
Humidity working range	0...95 %RH, non-condensing		
Storage conditions	-20...+70 °C 0...95 %rF, non-condensing		
Material <div>Enclosure Probe Probe head</div>	Die-cast aluminium (AlSi9Cu3) Stainless steel 1.4404 Polybutylenterephthalat (PBT)		
Electromagnetic compatibility	EN 61326-1 FCC Part15 Class B	EN 61326-2-3 ICES-003 Class B	Industrial Environment
Configuration und adjustment	EE75 Configuration Software and USB interface cable included in the scope of supply		
Conformity	 		

Ordering Guide

Feature		Description	Code		
Hardware-Konfiguration			EE75-		
	Type	Duct mount	T2		
		Remote probe		T3	
		Remote probe, pressure tight, 10 bar (145 psi)			T26
	Output ¹⁾	0 - 10 V	A3		
		4 - 20 mA	A6		
	Measuring range	0...2 m/s (0...400 ft/min)		HV23	
		0...10 m/s (0...2 000 ft/min)	HV26	HV26	
		0...40 m/s (0...8 000 ft/min)	HV30	HV30	HV30
	Probe length	100 mm (3.94")		L100	
		200 mm (7.87")	L200	L200	L200
		400 mm (15.75")	L400	L400	L400
		600 mm (23.62")		L600	L600
	Probe cable length	2 m (6.6 ft)		K2	K2
		5 m (16.4 ft)		K5	
		10 m (32.8 ft)		K10	K10
	Display	Without display	No code		
Display with backlight		D2			
Process connection	G 1/2" ISO - cut-in fitting, Ø8 mm (0.31")				
	1/2" NPT - cut-in fitting, Ø8 mm (0.31")				
Electrical connection	Cable glands	No code	No code	No code	
	Plug for power supply and outputs	E4	E4		
	2 x plugs for power supply + outputs and USB	E6	E6		
Software-Setup	Output 1 measurand ²⁾	Temperature T	[°C]	No code	
		Temperature T	[°F]	MA2	
		Air velocity v	[m/s]	MA20	
		Air velocity v	[ft/min]	MA21	
		Volume flow V'	[m³/min]	MA89	
		Volume flow V'	[ft³/min]	MA90	
	Output 1 scaling low	0	No code		
		Value	SALValue		
	Output 1 scaling high	50	No code		
		Value	SAHValue		
	Output 2 measurand	Air velocity v	[m/s]	No code	
		Air velocity v	[ft/min]	MB21	
		Temperature T	[°C]	MB1	
		Temperature T	[°F]	MB2	
		Volume flow V'	[m³/min]	MB89	
		Volume flow V'	[ft³/min]	MB90	
	Output 2 scaling low	0	No code		
		Value	SBLValue		
	Output 2 scaling high	Value	SBHValue		
	Medium	Air	No code		
		Nitrogen	FU2		
		CO ₂	FU3		
		Argon	FU7		
	Duct cross section ³⁾	Value in mm²/inch²	DCValue		

1) Applies to both outputs.

2) Measurands for output 1 and output 2 need to be either metric or non-metric.

3) Only in combination with Volume flow measurement Mx89: value in mm² / Mx90: value in inch².

Ordering Example

EE75-T26A6HV30L400K10D2PA29SAL-20SAH120SBH20

Feature	Code	Description
Type	T26	Remote Probe, pressure tight, 10 bar
Output	A6	4 - 20 mA
Measuring Range	HV30	0...40 m/s (0...8 000 ft/min)
Probe length	L400	400 mm (15.75")
Probe cable length	K10	10 m (32.8 ft)
Display	D2	Display with backlight
Process connection	PA29	G 1/2" ISO - cut-in fitting, Ø8 mm (0.31")
Electrical connection	No code	Cable glands
Output 1 measurand	No code	Temperature T [°C]
Output 1 scaling low	SAL-20	-20 °C
Output 1 scaling high	SAH120	120 °C
Output 2 measurand	No code	Air velocity v [m/s]
Output 2 scaling low	No code	0 m/s
Output 2 scaling high	SBH20	20 m/s
Medium	No code	Air

EE75-T2A6HV26L600E4MA21SAH2000MB90SBH2000FU2DC200

Feature	Code	Description
Type	T2	Duct mount
Output	A6	4 - 20 mA
Measuring Range	HV26	0...10 m/s (0...2 000 ft/min)
Probe length	L600	600 mm (23.62")
Probe cable length	No code	Not applicable
Display	D2	Display with backlight
Electrical connection	E4	1 x plug for power supply and outputs
Output 1 measurand	MA21	Air velocity v [ft/min]
Output 1 scaling low	No code	0 ft/min
Output 1 scaling high	SAH2000	2000 ft/min
Output 2 measurand	MB90	Volume flow V' [ft³/min]
Output 2 scaling low	No code	0 ft³/min
Output 2 scaling high	SBH2000	2000 ft³/min
Medium	FU2	Nitrogen
Duct cross section	DC200	200 inch²

