The EE75 series air velocity transmitters were developed to obtain accurate measuring results over a wide range of velocities and temperatures. A high-quality hot film sensor element based on cutting-edge thin film technology ensures maximum sensitivity, even at lowest mass flows. At the same time, the innovative probe design produces reliable measuring results at high flow velocities of up to 40 m/s (8000 ft/min).

The integrated temperature compensation minimises the temperature cross-sensitivity of the EE75 series which, combined with the robust mechanical design, allows it to be used at process temperatures between -40 to +120 °C (-40 to 248 °F).

In addition to air velocity and temperature values, the transmitter calculates the volumetric flow rate in m³/min or ft³/min. The cross section of the duct needs to be determined for this purpose and the volumetric flow rate can be displayed and directed to one of the analogue outputs.

The configuration software included in the scope of supply allows to choose the appropriate output parameter and freely scale the display range and signal level of the two analogue outputs. In addition user-friendly calibration of the air velocity and temperature and the adjustment of key parameters (e.g. response time of the velocity measurement, low flow cut-off points, etc.) are supported as well.

An optional illuminated display with two control buttons integrated in the cover is available. In addition, this enables changes of the configuration to be made directly on the unit.

The EE75 series has a robust metal housing to protect against possible damage in rough industrial environments. There are four different models, providing a comprehensive range of mounting options:

- **Model A** for wall mounting
- **Model B** for duct mounting
- **Model C** with remote probe
- **Model E** with remote probe, pressure-tight up to 10 bar (145 psi)

The EE75 series can be used to measure the velocity of other gasses as well, although a correction has to be applied to the unit at the factory.

**Typical Applications**

- monitoring incoming and outgoing air (energy management) in HVAC applications
- filter monitoring and laminar flow control in cleanrooms
- exhaust systems, exhaust hoods and glove boxes in the pharmaceutical, bio and semiconductor industries
- mass flow measurement during incineration processes
- monitoring and measurement of compressed air systems
- air conveying systems
- wind tunnels and climate simulators

**Features**

- High accuracy
- Working range 0...40 m/s (0...8000 ft/min) and -40...120 °C (-40...248 °F)
- Measurement of air velocity and temperature
- Calculation of volumetric flow rate
- Low dependence on angle of inflow
- Probe diameter 8 mm (0.3")
- Remote probe up to 10 m (32.8 ft)
- Easy mounting and maintenance
- Correction for pressure, humidity and media
- Low flow cut-off
- Pressure tight up to 10 bar (145 psi)
- SI and US units selectable
Technical Data

Measuring value

**Air velocity**

| Working range | 0... 2 m/s  (0...400 ft/min) |
|               | 0...10 m/s  (0...2000 ft/min) |
| 0...40 m/s    | (0...8000 ft/min) |

Accuracy in air at 25 °C (77 °F)

- 0.06... 2 m/s  (12...400 ft/min) ± 0.03 m/s / 8 ft/min
- 0.15...10 m/s  (30...2000 ft/min) ± (0.10 m/s / 20 ft/min + 1 % of measuring value)
- 0.2... 40 m/s  (40...8000 ft/min) ± (0.20 m/s / 40 ft/min + 1 % of measuring value)

Uncertainty of factory calibration ± (1 % of measuring value, min. 0.015 m/s [3 ft/min])

Temperature dependence electronics Typ. ± 0.005 % of measuring value / °C

Temperature dependence probe ± (0.1 % of measuring value/°C)

Dependence of angle of inflow: < 3 % for α < 20°
Dependence of direction of inflow: < 3 %

Response time $\tau_{90}$ < 1.5...40 s (configurable)

**Temperature**

| Working range | probe: -40...120 °C (-40...248 °F) |
|               | probe cable: -40...105 °C (-40...221 °F) |
|               | electronic: -40...60 °C (-40...140 °F) |
|               | electronic with display: -30...60 °C (-22...140 °F) |

Accuracy at 20 °C (68 °F) ±0.5 °C (±0.9 °F)

Temperature dependence electronics typ. ± 0.01 °C / °C

Response time $\tau_{90}$ 10 s

**Outputs**

Output signals and display ranges are freely scaleable (see ranges below)

| voltage (3-wire) | 0-10 V (e.g: 0-5 V, 1-5 V etc.) -1 mA < I < 1 mA |
| current (3-wire) | 0-20 mA (e.g: 4-20 mA etc.) R < 350 Ohm |
| v-scaling | 0.2 / 10 / 40 m/s (0.400 / 2000 / 8000 ft/min) |
| T-scaling | -40...120 °C (-40...248 °F) |
| Vol-scaling | 0...10000 m³/min (0...353147 ft³/min) |

**General**

Supply voltage 24 V DC/AC ± 20 %

Current consumption max. 100 mA; max. 160 mA (with display)

Working range humidity 0...99 % RH - no condensation

Connection screw terminals max. 1.5 mm² (AWG 16)

Electromagnetic compatibility EN61326-1 EN61326-2-3 ICES-003 ClassB

Industrial Environment FCC Part15 ClassB

Pressure range Model E pressure tight up to 10 bar (145 psi)

Material housing / protection class: metal (AlSi3Cu) / IP65; Nema 4

measuring probe: stainless steel

measuring head: PBT (polybuthyleneterephthalat)

System requirements for configuration software Windows 2000 or higher

Interface USB 1.1

1) The accuracy statement includes the uncertainty of the factory calibration with an enhancement factor k=2 (2-times standard deviation).

2) Accuracy refers to measurement in air

3) Response time $\tau_{90}$ is measured from the beginning of a step change to the moment of reaching 90% of the step.

Configuration Software

An easy setup of the EE75 can be made via standard USB interface and the software included in the scope of supply.

The user can easily set the response time, correct for the gas (air) pressure, perform an one or two point adjustment and define the duct cross section for the volumetric flow rate.
Angular Dependence

The innovative design of the probe head minimises the effect of the angle of inflow on the measuring result. The deviation of the measuring value remains < 3 % up to an angle of inflow (α) of ± 20° between the direction of inflow and the sensor element's longitudinal axis.

Low flow cut-off

Small temperature differences in shut-off pipes and ducts can cause minimal flows. Even these would be detected and measured by the EE75. The resulting fluctuations in the output signal can be suppressed by the low flow cut-off. Cut-off point and switching hysteresis can be specified using the configuration software.

Calculation of volumetric flow

The EE75 measures air velocity in m/s or ft/min. The configuration software can be used to enter the cross-section. This enables the transmitter to calculate the volumetric flow rate in m³/min or ft³/min. The data can be displayed and directed to one of the analogue outputs.

Connection versions

<table>
<thead>
<tr>
<th>Standard</th>
<th>Plug option C12</th>
<th>Plug option C13</th>
<th>Plug option C14</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lumberg RKC 5/7</td>
<td>Lumberg RKC 5/7</td>
<td>Lumberg RSC 5/7</td>
</tr>
<tr>
<td></td>
<td>power supply +</td>
<td>power supply +</td>
<td>power supply +</td>
</tr>
<tr>
<td></td>
<td>analogue output</td>
<td>USB</td>
<td>USB</td>
</tr>
<tr>
<td></td>
<td>M16x1.5</td>
<td>M16x1.5</td>
<td>Lumberg RSC 5/7</td>
</tr>
</tbody>
</table>

Connection Diagram

- Measuring probe
- Analogue outputs
- Supply
- USB-interface
- 24V DC ±20%
- 24V AC ±20%
Dimensions in mm

**EE75-VTA**
Wall mounting

**EE75-VTB**
Duct mounting

**EE75-VTC**
Remote probe

**EE75-VTE**
Remote, pressure tight probe up to 10 bar (145psi)

**Mounting flange** (included in the scope of supply)
# Ordering Guide

## Hardware Configuration

<table>
<thead>
<tr>
<th>Parameter</th>
<th>EE75-VTA</th>
<th>EE75-VTB</th>
<th>EE75-VTC</th>
<th>EE75-VTE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Output</strong></td>
<td>0...10 V</td>
<td>4...20 mA</td>
<td>0...10 V</td>
<td>4...20 mA</td>
</tr>
<tr>
<td><strong>Working range</strong></td>
<td>0...2 m/s</td>
<td>0...10 m/s</td>
<td>0...2 m/s</td>
<td>0...10 m/s</td>
</tr>
<tr>
<td><strong>Probe length</strong></td>
<td>200 mm</td>
<td>800 mm</td>
<td>200 mm</td>
<td>800 mm</td>
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<tr>
<td><strong>Cable length</strong></td>
<td>2 m</td>
<td>5 m</td>
<td>2 m</td>
<td>K200</td>
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<tr>
<td><strong>Display</strong></td>
<td>without</td>
<td>D06</td>
<td>without</td>
<td>D06</td>
</tr>
<tr>
<td><strong>Pressure tight</strong></td>
<td>1/2&quot; ISO thread</td>
<td>HA03</td>
<td>1/2&quot; NPT thread</td>
<td>HA07</td>
</tr>
<tr>
<td><strong>Plug</strong></td>
<td>cable glands</td>
<td>C12</td>
<td>1 plug for power supply and outputs</td>
<td>C12</td>
</tr>
</tbody>
</table>

## Software Configuration

### Physical parameters

<table>
<thead>
<tr>
<th>Output 1</th>
<th>Output 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Velocity</td>
<td>v [m/s] (N)</td>
</tr>
<tr>
<td>Volume</td>
<td>v [m³/min] (O)</td>
</tr>
<tr>
<td>Temperature</td>
<td>T [°C] (B)</td>
</tr>
</tbody>
</table>

### Measured value units

<table>
<thead>
<tr>
<th>Units</th>
<th>E01</th>
<th>E01</th>
<th>E01</th>
<th>E01</th>
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</thead>
<tbody>
<tr>
<td>Metric / SI</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non metric / US</td>
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<td></td>
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</tbody>
</table>

### Scaling of v-output

<table>
<thead>
<tr>
<th>In m/s or ft/min</th>
<th>(V01)</th>
<th>(V02)</th>
<th>(V03)</th>
<th>(V04)</th>
<th>(V05)</th>
<th>(V06)</th>
<th>(V07)</th>
<th>(V08)</th>
<th>(V09)</th>
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</thead>
<tbody>
<tr>
<td>0...0.5</td>
<td>0...30</td>
<td>0...35</td>
<td>0...40</td>
<td>0...100</td>
<td>0...200</td>
<td>0...300</td>
<td>0...400</td>
<td>0...1000</td>
<td>0...25</td>
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</tbody>
</table>

### Scaling of T-output

<table>
<thead>
<tr>
<th>In °C or °F</th>
<th>(T02)</th>
<th>(T03)</th>
<th>(T04)</th>
<th>(T05)</th>
<th>(T06)</th>
<th>(T07)</th>
<th>(T08)</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40...60</td>
<td>0...30</td>
<td>0...30</td>
<td>0...30</td>
<td>0...30</td>
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<td>0...30</td>
<td>0...30</td>
<td>0...30</td>
<td>0...30</td>
<td>0...30</td>
</tr>
</tbody>
</table>

### Measurement

- **Air**: B B B B
- **Nitrogen N**: C C C C
- **Carbon dioxide CO**: A A A A

1) Please declare the duct cross-section [m²] with your order.

---

## Order Example

**Model**: duct mounting

**Output**: 0...10 V

**Working range**: 0...10 m/s (0...2000 ft/min)

**Probe length**: 200 mm (7.9"

**Display**: without

**Plug**: 1 plug for power supply and outputs

**Output 1**: T

**Output 2**: v

**Measured value units**: metric / SI

**v-Scaling**: 0...5 m/s

**T-Scaling**: 0...60 °C

**Measurement media**: air