

**Uses:**

- Measures air velocity for indoor climate measurements
- Measures air velocity fluctuations (turbulence intensity)
- Measurements used to evaluate Draught Risk for Thermal Comfort

**Features:**

- Robust design for field use
- Accurate and traceable results
- Omnidirectional measurements
- Reacts quickly to changes in air velocity
- Stable measurements
- Complies with ISO7726

**Introduction**

The Air Velocity Transducer MM0038 is based on the constant temperature difference anemometer principle.

The transducer is designed to measure air velocities in indoor climates. Therefore, the transducer's measurement range concentrates on the lower velocities. Here, the transducer reacts very quickly to changes in the air velocities (fluctuations) and provides very stable and accurate results, according to ISO7730.

Because of the nature of the air flow in indoor climates, the transducer measures omnidirectional air velocities.

**Measurement Principle**

Air velocity is measured as a function of heat loss from a heated body, by measuring the power input required to maintain a constant temperature between two sensor elements.

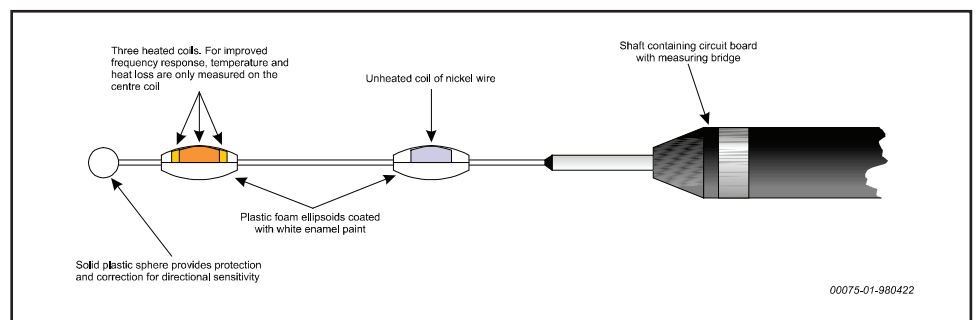
Heat loss is, however, also a function of the temperature and direction of air-flow and the radiative exchange with the surroundings.

The errors associated with these effects are eliminated through the design and construction of this transducer.

Two sensor elements, one of which is heated electrically, are housed in two plastic foam ellipsoids on a single shaft. The heated sensor contains three heated coils. Temperature and heat loss is measured on the middle one. This provides a better frequency response.

The eccentricity of the ellipsoids and the length of the heating coils are optimized to give the smallest possible variation in directional sensitivity. The controlled electrical heating maintains a constant temperature difference of 15°C (27°F), independent of the ambient temperature, between the two sensors.

The smallish sphere at the end of the shaft prevents errors occurring if the air-flow is parallel to the shaft.



# Specifications – INNOVA MM0038

## AIR VELOCITY TRANSDUCER:

**Measurement Range:**  
0 to 10m/s (0 to 2000ft/minute)

**Response Time:**  
<0.2s to 90% of step change

**Accuracy:**  
 $v_a < 1\text{m/s}$ :  $\pm(0.05v_a + 0.05)\text{m/s}$  for any flow direction greater than 15° from rear of transducer axis  
 $1 < v_a < 10\text{m/s}$ : typically better than  $\pm 0.1v_a$  m/s perpendicular to transducer axis and typically better than  $\pm 0.25v_a$  m/s for flow directions more than 15° from rear of transducer axis  
(Displayed reading will drop 2% when a standard 6m extension cable is used)

**Integral Connection Cable:**  
Length 2.5m; connected to associated equipment via a 6-pin DIN plug

**WEIGHT:**  
Approx. 150g (including cable)

**DIMENSIONS:**  
Length: 250mm



### COMPLIANCE WITH STANDARDS

CE-mark indicates compliance with EMC Directive and Low Voltage Directive.

<b>Safety</b>	EN 61010-1 (1993) & IEC 1010-1 (1990): Safety requirements for electrical equipment for measurement, control and laboratory use.
<b>EMC Emission</b>	EN 50081-1 (1992) : Generic emission standard. Part 1: Residential, commercial and light industry. EN 50081-2 (1993): Generic emission standard. Part 2: Industrial environment. CISPR 22 (1993): Limits and methods of radio disturbance characteristics of information technology equipment. Class B Limits. FCC Class B limits.
<b>EMC Immunity</b>	EN 50082-1 (1992): Generic immunity standard. Part 1: Residential, commercial and light industry. EN 50082-2 (1995): Generic immunity standard. Part 2: Industrial environment. <b>Note:</b> The above is guaranteed using accessories listed in this Product Data sheet only.
<b>Temperature</b>	IEC 68-2-1 & IEC 68-2-2: Environmental Testing. Cold and Dry Heat. Operating Temperature: 5 to 40°C (41 to 104°F). Storage Temperature: -25 to +70°C (-13 to 158°F).
<b>Humidity</b>	IEC 68-2-3: 90% RH (non-condensing at 40°C).
<b>Mechanical</b>	IEC 68-2-6: Vibration: 0.3 mm, 20m/s <sup>2</sup> , 10-500 Hz. IEC 68-2-27: Shock: 1000 m/s <sup>2</sup> . IEC 68-2-29: Bump: 1000 bumps at 250m/s <sup>2</sup> .

## Ordering Information

MM0038 Air Velocity Transducer

### Optional Accessories

Type 1221	Thermal Comfort Data Logger with UA1276	KE0357	Transducer Carrying Case
	Thermal Comfort Module	UA0803	Tripod
DH0492	Tripod Mounting Adaptor for 3 Transducers	UA1348	Tripod Extension Rods (3)
UA1347	Tripod Mounting Adaptor for 4 Transducers	UA0588	Transducer Mounting Adaptor
		WL0693	Extension Cable (std. length 6m)
		WL0693/y	Extension Cable (definable length up to 20m; y is length in meters)

LumaSense Technologies reserves the right to change specifications and accessories without notice.

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