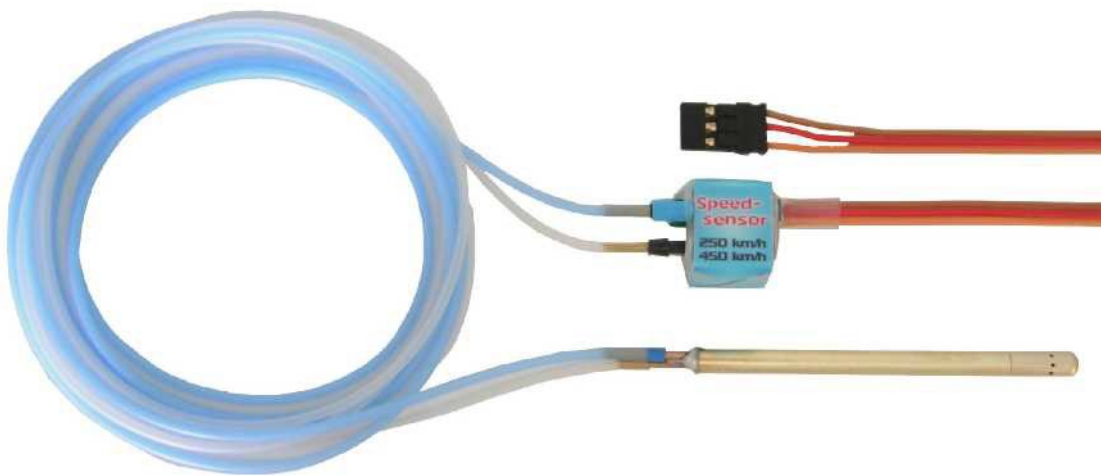


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# Speed-Sensor

*Pitot Tube Pressure Sensor for Unilog Speed Measurement*

## Description and Operating Instructions

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# 1. Introduction

The speed sensor is an addition to the UniLog telemetry module which allows the measurement and recording of speeds of up to 450Kmh (250Mh). The speed measurement is done by measuring the dynamic pressure (air pressure generated by the flight speed) and ambient air pressure.

The speed sensor has two components:

- The pitot tube which measures the ambient pressure directly on the tube. This will make the measurement independent of the pressure conditions in the fuselage.
- Differential pressure sensor with connection to the UniLog telemetry module. Power is provided by the UniLog module.

The connection between the pitot tube and the sensor is made with the supplied silicon tube. The length and diameter of the silicon tubes have no influence on the measurement.

# 2. Installation

The installation and location of the pitot is of great importance for an accurate measurement. The speed sensor needs to make its measurements at a location where there is the least disturbance.

- As close and precise as possible in the direction of flight
- Should not be installed in the wake of the propeller
- At least at a distance of 40mm from the wing or fuselage

## **Recommended locations:**

- Sailplane or jet on the nose
- Motorized airplane, at the wing or landing gear

When installed on the wing, the pitot tube pipe can be attached with a small retaining block.

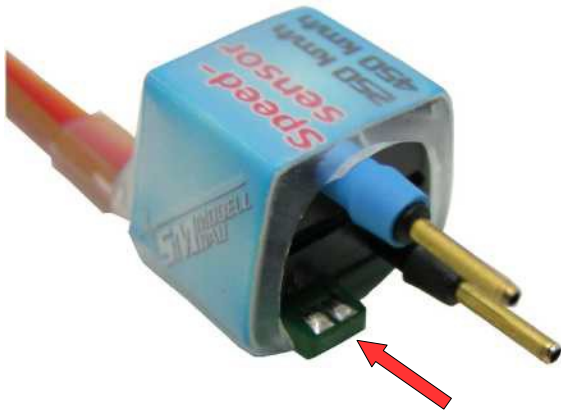
The distance from the fuselage should be sufficient to eliminate any air pressured generated by the propeller.

The two silicone tubes van be ideally guided through the wing or alternatively attached to the load bearing area with adhesive tape. However, this should be done as far as possible behind the leading edge in order to not disturb the aerodynamics of the wing.

The pitot tube must be fixed in such a way that it cannot move from its position

### 3. Connection

The silicone tubes are connected to the sensor tubes where the blue silicon tube is connected to the market blue tubes on the sensor and pitot tube. Both silicon tubes must be connected



**You can change the measuring range by soldering the small bridge on the sensor.**

**Bridge Open – 250 km/h**  
(provide better resolution at lower speeds)

**Bridge Closed 0 – 450 km/h**  
(increased measuring range)

**Soldering  
bridge  
pads**

**The speed sensor wire is connected to input A1. Make sure that the signal cable marking is pointing down.**

### 4. Measuring

The UniLog A1 port needs to be set to the speed sensor desired speed range (250Km or 450Km). This can be done with the UniDisplay module, UniLog PC software or with a telemetry capable radio like Graupner or Jeti.

After switching the UniLog on, the zero point for the speed reduction is automatically set.

It is therefore important that the pitot tube is shielded from wind for as long as the red LED on the UniLog is lit (calibration phase ended).

Since the pressure increases squarely with the speed (double speed means four times the pressure of congestion), measuring low speeds may be difficult. As a result, it can be that even when the model is stopped, it is not always 0 km/h. However, a small deviation of the zero point does not affect the actual measurement value. For example, a 0-display of 10 km/h at a real flight speed of 100 km/h means just 0.5 km/h of error!

## 5. Technical Information

|                               |   |
|-------------------------------|---|
| <b>Power Supply:</b>          | From UniLog (3,3 V)                                 |
| <b>Measuring Range:</b>       | 0 – 250 km/h 0 – 450 km/h (depended on the bridge ) |
| <b>Dimesnions:</b>            | 17 x 15 x 15 mm<br>Weight 6 g                       |
| <b>Pitot Tube Dimensions:</b> | 0 4 x 65 mm<br>Weight 4 g                           |



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