Wind Sensor WM30

for mobile applications

Features

- Combined wind speed and direction sensor with affordable price
- Compact and light design is optimal for mobile applications
- Low power consumption
- Fast and linear response to wind
- Choice of one-wiper or two-wiper potentiometer models

Vaisala Wind Sensor WM30 provides accurate wind measurement in a compact and economical package.

Vaisala Wind Sensor WM30 is a compact and economical wind speed and direction sensor. The rotating cup anemometer at the top of the unit provides a linear response to wind speed. The vane, which is attached to the body of the unit, provides a fast response to wind direction.

Accurate wind measurement

The shape, dimensions, and material of the cups contribute to accurate measurement. The cups are carefully tested to give linear response between the wind speed and the angular velocity of the cup wheel.

The wind vane is located directly beneath the cup assembly and is made of a durable, lightweight material that ensures fast response and low inertia.

Flexible outputs

A relay contact output is provided for wind speed. The wind speed can be recorded either by counting the number of pulses within a fixed time period, or by measuring the time between successive pulses.

A potentiometer detects the position of the vane. The potentiometer features low starting and running torque, linear resistance, and a long operation life. It has a single wiper with an open gap of less than 5 degrees. With constant voltage supplied to the potentiometer, the output voltage is directly proportional to the azimuth angle.

Optimal for low-power applications

The electronics are designed specifically for applications where low power consumption is essential.

Built for harsh conditions

The cups and vane are made of reinforced polyamide (PA) plastic which guarantees a rigid structure even at the highest wind speeds.

The electronics are located inside an anodized aluminum core which creates not only a firm body, but a watertight enclosure for the electronics as well. This provides full protection against water, dust, pollutants, and electromagnetic interference.

Easy installation

A mast adapter for a 30 mm tube is supplied with the sensor. An installation kit for larger tube diameters, from 50 to 110 mm, is available as an option.

Technical data

Measurement performance

Wind speed	
Measurement range	0.5 ... 60 m/s (1.1 ... 134 mph)
Starting threshold	< 0.4 m/s (0.9 mph)
Distance constant	2 m (6 ft 7 in)
Transducer output	1 Hz at approximately 0.7 m/s (1.6 mph)
Characteristic transfer function	U = -0.24 + 0.699 × F [1)]
Accuracy (within range 0.4 ... 60 m/s (0.9 ... 134 mph)):	Wind speed < 10 m/s (22 mph): ±0.3 m/s Wind speed > 10 m/s (22 mph): ±2 %
Wind direction	
Measurement range	WMS301 with 1-wiper potentiometer: 0 ... 355° WMS302 with 2-wiper potentiometer: 0 ... 360°
Starting threshold	< 1.0 m/s (2.2 mph)
Damping ratio	0.3
Overshoot ratio	0.4
Delay distance	0.6 m (1 ft 12 in)
Accuracy	Better than ±3°

1) U = wind speed [m/s], F = output frequency [Hz]

Operating environment

Operating temperature	-40 ... +55 °C (-40 ... +131 °F)
Storage temperature	-60 ... +65 °C (-76 ... +149 °F)

Inputs and outputs

Supply voltage	3 ... 15 VDC
Connector	5-pin male with 12 mm threads
Recommended connector at cable end	BINDER 99 1436 814 05

Mechanical specifications

Dimensions (H × Ø)	265 × 360 mm (10.43 × 14.17 in)
Weight	360 g (12.70 oz)
Materials	
Housing	AlMgSi, gray anodized
Cups	PA, reinforced with carbon fibre, black
Vane	PA, reinforced with fiberglass, white

Spare parts and accessories

Mounting adapter	WMS30KIT
Sensor connector	19370
Sensor connector and cable, 10 m (32 ft 10 in)	19904

Compliance

Wind tunnel tests	ASTM standard method D5366-93 ASTM standard method D5096-90
EMC compliance	EN 61326-1, Basic electromagnetic environment

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