VAISALA

WAV252
Heated Wind Vane

- **Non-freezing all-weather sensor**
- **Lightweight vane assembly with integral heaters**
- **Non-contact heating power transmission**
- **Low starting threshold**
- **Fast response; delay distance less than 0.5 m**
- **Used with the WAA252 Heated Anemometer**

The WAV252 Heated Wind Vane is a non-freezing gauge of novel design. Its lightweight vane offers excellent sensitivity and fast response. The foil heaters integrated in the vane & tail assembly protect the gauge's rotating parts against freezing in all wintry weathers, even in extreme climates.

The transmission of heating power to the WAV252's rotor is contactless, with no slip rings or brushes. This feature completely eliminates sparks and excessive friction or wear. Power to the heaters is supplied via a rotary transformer, with 26kHz low-EMI sinewave. For easy maintenance the vane & tail assembly is removable, with a 2-pin connector for heating electricity.

An intelligent heating control circuitry is included, with integral sensors for both ambient and internal temperature. Therefore, there is no need for a separate temperature sensor in the system.

Power consumption, typically 50 watts, is very low considering the heating efficiency and the protection against freezing provided. Approximately 30 watts of the power is on the cupwheel, 12 watts on the shaft and bearings, and 8 watts on the body. Hence also the sensor body is kept free of ice, which is important for maintaining the gauge's aerodynamic performance.

The WAV252 is normally used with the WAA252 Heated Anemometer. A single 24VDC (5.5A) power supply such as the Vaisala WHP25 is able to feed both devices simultaneously. The WAV252 can be mounted on Vaisala's regular WAC151 crossarm and its output interface is compatible with that of the regular WAV151 vane. Therefore, upgrada-tion to a heated-vane system is easy - just a minimal wiring alteration is needed in the crossarm's junction box.

The operational voltage for the gauge's transducer part is taken from the 24V heating power with a galvanically isolated voltage converter integral in the WAV252. Thus no separate transducer power supply is needed. Optionally it is possible to take this power from an external device such as the WT521 or WAT12 wind transmitter. This guarantees an uninterrupted transducer supply, independent of the heating power. The opto-electronic type transducer consumes less than 20mA from a 5... 15V excitation.

Wind tunnel tests per ASTM method D5366-93 have been conducted on the WAV252 in order to define its aerodynamical behaviour.

The WAV252's power inputs and signal outputs are well protected against line transients and interference. The device itself emits no inacceptable electro-magnetic noise to the signal cables or the atmosphere.

TECHNICAL DATA

Sensor/Transducer type		Mechanical vane / Optical code disc
Measuring range		0 … 360°
Starting threshold		< 0.4 m/s
Damping ratio		0.23
Overshoot ratio		0.47
Delay distance		< 0.5 m
Resolution		± 2.8°
Accuracy		better than ± 3°
Signal output		6-bit parallel GRAY code
Input power supply		24 VDC ± 10 %, max. 2.1 A
Typical power consumption	(U_{in} = 24 VDC)	50 W below +2 °C (heating on) 1 W above +6 °C (heating off)
Optional xducer i/p power	(U_{xdr})	4.8 - 15.3VDC, 19mA typ.
Transducer output high level	(with I_{out} < +3 mA)	> 11V (or > U_{xdr} - 1.5V)
Transducer output low level	(with I_{out} > -3 mA)	< 1.5 V
Electrical connections		MIL-C-26482 type 10-pin plug
Operating temperature		–55 ... +55 °C
Storage temperature		–60 ... +70 °C
Housing material		AlMgSi, grey & black anodized
Vane material		carbonfibre+glassfibre; black
Dimensions		355 (h) × 90 (Ø) mm; swept radius of vane: 218 mm
Weight		850 g

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