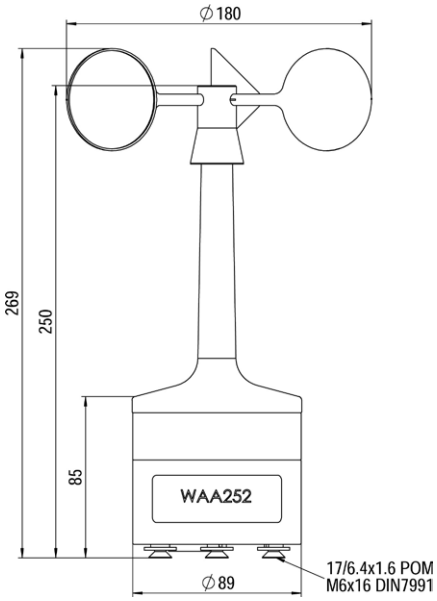
Anemometer Vaisala WAA252

S15100H
(P6150H)

- Non-freezing, all-weather wind set for arctic conditions
- Fully heated anemometer and wind vane (heating in cups and vanes, sensor bodies and bearings prevent snow build-up and ice formation)
- High performance, accurate wind speed and wind direction measurement
- Low measurement starting threshold
- Conical anemometer cups provide excellent linearity

Dimensional Drawing



Cupwheel anemometer - Opto-chopper

Description

The WAA252 Heated Anemometer is an optimum choice, when a non-freezing gauge is required. It offers the linearity and sensitivity of a well-designed cup anemometer plus the advantage of heating carried out right where it is needed - in the cups. Foil heaters are inserted in each cup and in the cup wheel hub. For easy maintenance the cup assembly is removable, with a 2-pin connector for heating electricity.

The transmission of heating power to the WAA252'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 26 kHz low-EMI sine wave. 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 72 watts, is very low considering the heating efficiency and the protection against freezing provided. Approximately 50 watts of the power is on the cup wheel, 12 watts on the shaft and bearings, and 10 watts on the body. Hence also the sensor body is kept free of ice, which is important for maintaining the gauge's aerodynamic performance.

A single 24 VDC (3.5 A) power supply is able to feed the whole device, including the transducer. The WAA252 can even deliver an isolated 12V excitation to a separate wind transmitter, if needed. Thus one power supply is enough for the whole sensor system. Optionally it is possible to take the transducer 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 optochopper type transducer consumes only some 10 mA from a 5... 15 V excitation.

The WAA252 can be mounted on Vaisala's regular WAC151 crossarm and its output interface is compatible with that of the regular WAA151 anemometer. Therefore, updating to a heated-cup system is easy - just a wiring alteration is needed in the crossarm's junction box. Wind tunnel tests per ASTM method D5096-90 have been conducted on the WAA252 in order to define its aerodynamical behavior. The WAA252's power inputs and signal outputs are well protected against line transients and interference. The device itself emits no unacceptable electro-magnetic noise to the signal cables or the atmosphere.

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Characteristic	Description / Value
Measurement range	0.4 ... 75 m/s
Starting threshold	< 0.5 m/s
Distance constant	2.7 m
Transducer output	0 ... 750 Hz square wave
Transfer function	Uf = 0.24 + 0.0979 x R
Accuracy with characteristic	± 17 m/s
Accuracy with transfer function UF 0 0.1 x R	-0.3 / 1.0 m/s
Input power	24 VDC ± 10%, 3.2 A max.
Typ. power consumption	72 W below +2 °C 1 W above +6 °C
Optimal xducer i/p prower (Uxdr)	4.8 - 15.3 VDC, 11mA typ.
Transducer output high level (with Iout < +5 mA)	> 11 V (or > Uxdr - 1.5V)
Transducer output high level (with Iout < -5 mA)	< 1.5 V
Output power for wind xmitters	13 ± 1 VDC, 75 mA max.
Electrical connections	MIL-C-26484 type (6-pin plug)
Operating temperature	-55 ... +55 °C
Storage temperature	-60 ... +70 °C
Housing material	AlMgSi; black & gray anodised
Cup material	PC reinforced with glass fibre; black
Dimensions	269x90 mm
Weight	800g
Manufacturer	Vaisala / WAA252

Last Modification: 2011-12-23