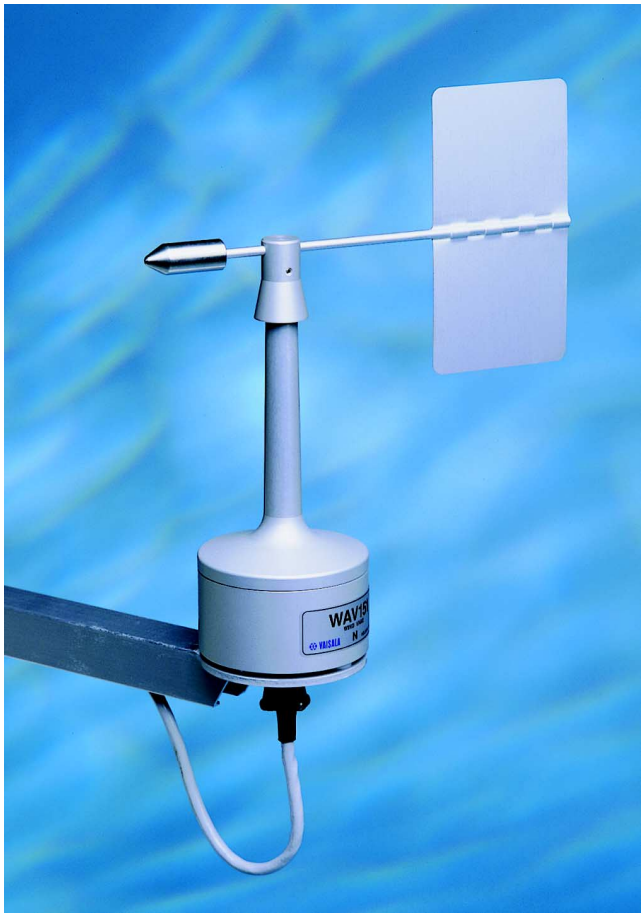
WAV151
Wind Vane

- Counter-balanced optoelectronic sensor
- Low inertia and starting threshold
- Shaft heating



The WAV151 Wind Vane has established itself as the industry standard in the wind sensor market over its history of several successful years. The WAV151 is a counter-balanced, low-threshold optoelectronic wind vane. Infrared LEDs and photo-transistors are mounted on six orbits on each side of a 6-bit GRAY-coded disc. Turned by the vane, the disc creates changes in the code received by the phototransistors. The code is changed in steps of 5.6°, one bit at a time to eliminate any ambiguities in the coding.

A heating element in the shaft tunnel keeps the bearings above freezing level in cold climates. Nominally it provides 10 W of heating power. A thermostat switch is included in the sensor crossarm WAC151, for switching power on below +4 °C.

The WAV151 is designed to be mounted to the northern end of Vaisala's standard crossarm with a regular 10-pin connector.

The WAV151 Wind Vane complies with the standards of the following performance and exploratory tests :

- Wind tunnel tests per ASTM standard method D5366-93 (for starting threshold, distance constant, transfer function; see technical data)
- Exploratory vibration test per MIL-STD-167-1
- Humidity test per MIL-STD-810E, Method 507.3
- Salt fog test per MIL-STD-810E, Method 509.3

TECHNICAL DATA

Transducer type		Optical code disc
Measuring range	At wind speed 0.4 ... 75 m/s	0 ... 360°
Threshold		0.4 m/s
Resolution		5.6°
Damping ratio		0.14
Overshoot ratio		0.65
Delay distance		0.4 m
Accuracy		better than ± 3°
Operating power supply	U_{in} = 9.5 ... 15.5 VDC	20 mA typical
Heating power supply	AC or DC	20 V, 500 mA nom.
Output code		6-bit parallel GRAY
Output levels	With I_{out} < +5 mA With I_{out} > –5 mA	High state > U_{in} –1.5 V Low state < 1.5 V
Settling time after power turn-on		< 100 µs
Plug		MIL-C-26482 type
Cabling		10-wire cable through cross arm
Operating temperature	With shaft heating below +0 °C	–50 ... +55 °C
Storage temperature		–60 ... +70 °C
Housing material		AlMgSi
Dimensions	Swept radius of vane 172 mm	300 (h) × 90 (Ø) mm
Weight		660 g

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