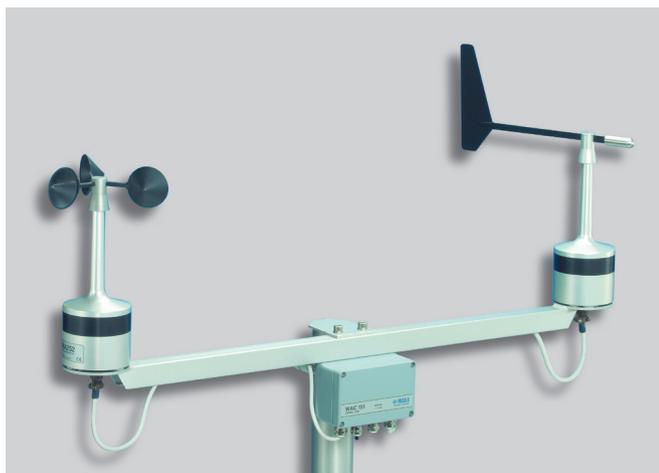


## WA25 Wind Set



*The WA25 resists snow build-up and ice formation. The result is accurate wind measurement in cold environments.*

The Vaisala Wind Set WA25 is a high-quality cup and vane wind measurement station designed for arctic conditions. The WA25 consists of a Vaisala Anemometer WAA252, a Vaisala Wind Vane WAV252, an optional crossarm, a power supply and cabling.

### Heating provides resistance to snow and ice

Most of the heating power is consumed where it is needed most – in the cups and vane. Foil heaters, integrated into the cups and vane, prevent snow buildup and ice formation.

Heating power is also supplied to the sensor shafts, bearings and bodies. This keeps the sensor bodies free of ice, which is important for maintaining the aerodynamic performance.

### Anemometer with excellent linearity

The WAA252 is a fast-response, low-threshold anemometer. Three lightweight, conical cups mounted on the cup wheel, provide excellent linearity over the entire operating range, up to 75 m/s.

A wind-rotated chopper disc attached to the shaft of the cup wheel cuts an infrared light beam 14 times per revolution. This generates a pulse output from a phototransistor.

The output pulse rate is directly proportional to wind speed (e.g., 246 Hz = 24.6 m/s). However, for the highest accuracy, the characteristic transfer function should be used to compensate for starting inertia.

(See technical data.)

### Sensitive wind vane

The WAV252 is a counterbalanced, low threshold, optoelectronic wind vane providing a 6-bit GRAY-coded message. Turned by the vane, the disc creates changes in the code received by the phototransistors. The code is changed in steps of 5.6°.

### Complete package available

The anemometer and vane are designed to be mounted on Vaisala crossarms.

## Technical data

### Vaisala Wind Set WA25

#### Options and accessories

|                                   |         |
|-----------------------------------|---------|
| Crossarm and termination box      | WAC151  |
| 16-lead signal cable              | ZZ45048 |
| 6-lead power cable                | ZZ45049 |
| Crossarm and analog transmitter   | WAT12   |
| 6-lead cable for signal and power | ZZ45049 |
| Power supply                      | WHP25   |
| Set of bearings and gasket        | 16644WA |
| Heated cup assembly               | WA35066 |
| Heated tail assembly              | WA35336 |

#### Features/Benefits

- Non-freezing, high-performance wind set
- Cups and vane, sensor bodies and bearings are heated to prevent snow buildup and ice formation
- Accurate wind speed and direction measurement
- Low measurement starting threshold
- Conical anemometer cups provide excellent linearity

# Technical data

## Vaisala Anemometer WAA252

### Wind speed

|   |  |
|---|--|
| Measurement range                         | 0.4 ... 75 m/s   |
| Starting threshold                        | < 0.5 m/s *  |
| Distance constant                         | 2.7 m  |
| Characteristic transfer function          | $U = 0.39 + 0.10 \times R$<br>(where U = wind speed [m/s], R = output pulse rate [Hz]) |
| Accuracy (within range 0.4 ... 60 m/s)    |  |
| with characteristic transfer function     | $\pm 0.17$ m/s **  |
| with transfer function $U = 0.1 \times R$ | $\pm 0.5$ m/s ***  |

### General

|  |   |
|--|---|
| Operating power supply                         | $U_{in} = 24$ VDC $\pm 10\%$ , max. 3.2 A |
| Typical power consumption ( $U_{in} = 24$ VDC) |   |
| 72 W below +2 °C (+36 °F) (heating on)         |   |
| 1 W above +6 °C (+43 °F) (heating off)         |   |
| Output   | 0 ... 750 Hz square wave                  |
| Transducer output level                        |   |
| with $I_{out} < +5$ mA                         | high state > 11V                          |
| with $I_{out} > -5$ mA                         | low state < 1.5V                          |
| Plug 6-PIN                                     | MIL-C-26482 type                          |
| Recommended connector at cable end             | SOURIAU MS3116F10-6P                      |
| Operating temperature                          | -55 ... +55 °C (-67 ... +131 °F)          |
| Storage temperature                            | -60 ... +70 °C (-76 ... +158 °F)          |
| Material                                       |   |
| housing  | AlMgSi, grey&black anodized               |
| cups   | PC, reinforced with glassfibre            |
| Dimensions                                     | 264 (h) $\times$ 90 (Ø) mm                |
| Swept radius of cup wheel                      | 91 mm                                     |
| Weight   | 800 g                                     |

### Test compliance

|                            |                               |
|----------------------------|-------------------------------|
| Wind tunnel tests          | ASTM standard method D5096-90 |
| Exploratory vibration test | MIL-STD-167-1                 |
| Humidity test              | MIL-STD-810E, Method 507.3    |
| Salt fog test              | MIL-STD-810E, Method 509.3    |

Complies with EMC standard EN61326-1:1997 + Am1:1998;  
Generic Environment

- \* Measured with cup wheel in position least favoured by flow direction. Optimum position gives approx. 0.35 m/s threshold.  
\*\* Standard deviation  
\*\*\* Typical errors vs. speed with "the simple transfer function" used.

|             |      |      |           |       |       |       |       |       |       |       |       |
|-------------|------|------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|
| RANGE (m/s) | 0-5  | 5-10 | 10-15     | 15-20 | 20-24 | 24-29 | 29-34 | 34-39 | 39-44 | 44-48 | 48-58 |
| ERROR (m/s) | -0.2 | -0.1 | $\pm 0.0$ | +0.1  | +0.2  | +0.3  | +0.4  | +0.5  | +0.6  | +0.7  | +0.8  |

## Vaisala Wind Vane WAV252

### Wind direction

|                    |                           |
|--------------------|---------------------------|
| Measurement range  | 0 ... 360°                |
| Starting threshold | < 0.4 m/s                 |
| Resolution         | $\pm 2.8^\circ$           |
| Damping ratio      | 0.3                       |
| Overshoot ratio    | 0.4                       |
| Delay distance     | < 0.5 m                   |
| Accuracy           | better than $\pm 3^\circ$ |

### General

|  |                                  |
|--|----------------------------------|
| Operating power supply                         | 24 VDC $\pm 10\%$ , max. 2.1 A   |
| Typical power consumption ( $U_{in} = 24$ VDC) |                                  |
| 50 W below +2 °C (+36 °F) (heating on)         |                                  |
| 1 W above +6 °C (+43 °F) (heating off)         |                                  |
| Output code                                    | 6-bit parallel GRAY              |
| Output levels                                  |                                  |
| With $I_{out} < +3$ mA                         | high state > 11V                 |
| With $I_{out} > -3$ mA                         | low state < 1.5V                 |
| Plug 10-PIN                                    | MIL-C-26482 type                 |
| Recommended connector at cable end             | SOURIAU MS3116F12-10P            |
| Operating temperature                          | -55 ... +55 °C (-67 ... +131 °F) |
| Storage temperature                            | -60 ... +70 °C (-76 ... +158 °F) |
| Material                                       |                                  |
| housing  | AlMgSi, grey&black anodized      |
| vane   | carbon fibre + glassfibre        |
| Dimensions                                     | 355 (h) $\times$ 90 (Ø) mm       |
| Swept radius of vane                           | 218 mm                           |
| Weight   | 850 g                            |

### Test compliance

|                            |                               |
|----------------------------|-------------------------------|
| Wind tunnel tests          | ASTM standard method D5366-93 |
| Exploratory vibration test | MIL-STD-167-1                 |
| Humidity test              | MIL-STD-810E, Method 507.3    |
| Salt fog test              | MIL-STD-810E, Method 509.3    |

Complies with EMC standard EN61326-1:1997 + Am1:1998;  
Generic Environment

# VAISALA

For more information, visit  
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