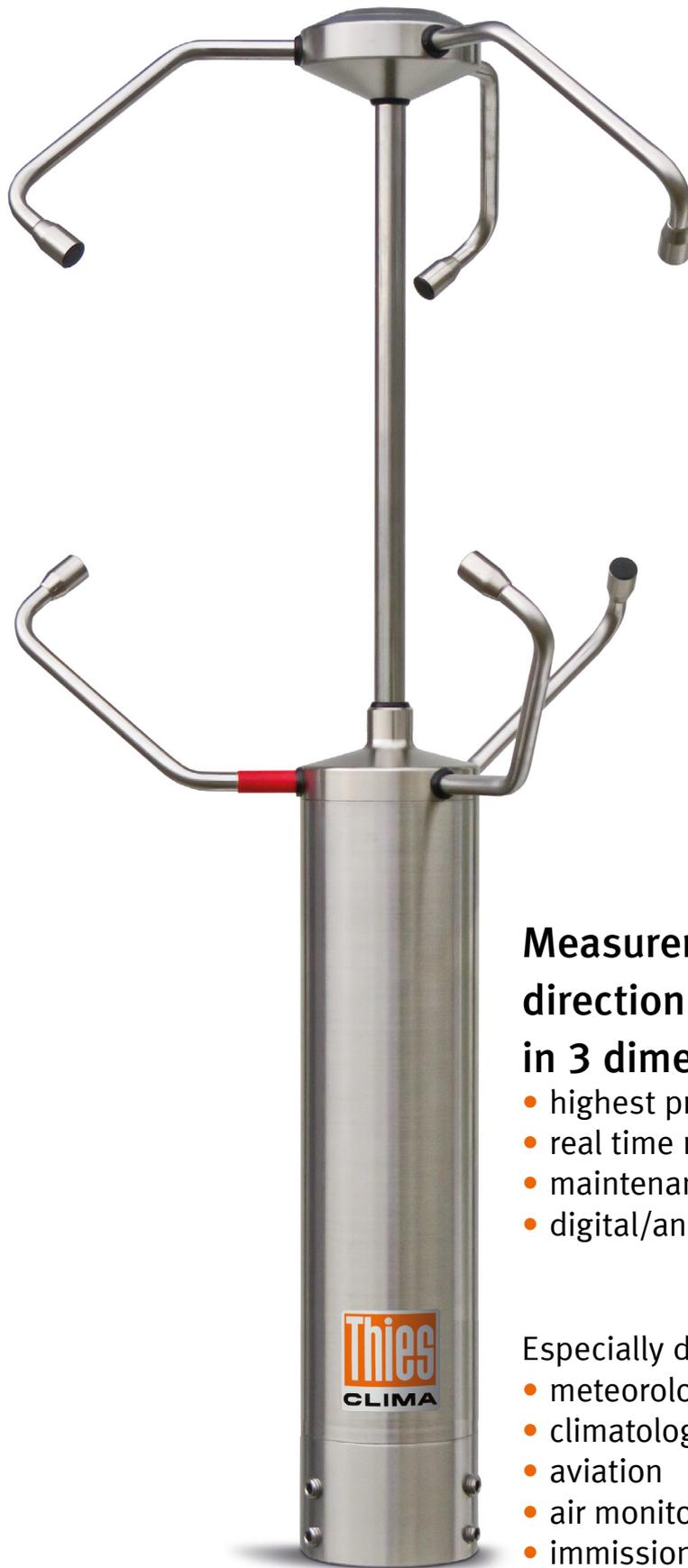


# ULTRASONIC ANEMOMETER 3D

**Thies**  
**CLIMA**



## Measurement of wind direction and wind speed in 3 dimensions X, Y, Z

- highest precision
- real time measurement
- maintenance free/heated
- digital/analogue in- and outputs

Especially designed for use in fields of:

- meteorology
- climatology
- aviation
- air monitoring
- immission control

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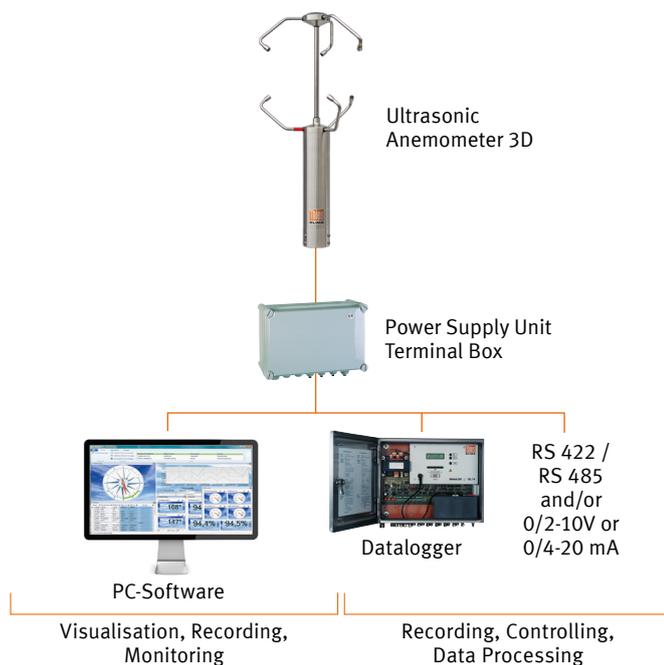
## TECHNICAL DATA

The Ultrasonic Anemometer 3D serves for the three-dimensional measurement of the wind direction and wind velocity. The anemometer is free from wear and maintenance and needs no further calibration. For winter operation also under extreme weather conditions the instrument is equipped with a heating. In addition, the instrument calculates the acoustic virtual-temperature from the propagation times of the sound of each measurement path. Due to its maximum measurement rate, limited only by the propagation time of the sound, the instrument is especially suited for the inertia-free measurement of gusts and peak values.

All calculations are carried out by the latest digital signal processor technology (DSP) in high speed and accuracy based on a resolution of 32 bit. The RS485/RS422 interface allows a real-time-output of even extensive telegrams without restricting the maximum rate of measuring value acquisition.

The instrument offers extensive statistic functions, such as gliding averaging, standard deviation, covariance etc., which can be selected via the digital interface. The gliding averaging can alternatively be set in vectorial or scalar form, and for each parameter equally or differently.

The digital interface (RS485/422) allows the access to all data and status information of the instrument up to a self configurable user-specific output telegram.



Order no.: 4.383x.xx.xxx

### Wind speed

Measuring range	0 ... 85 m/s
Resolution	0.1 m/s (standard) 0.01 m/s (user defined)
Accuracy	±(0.1 m/s +1%) rms (0 ... 35 m/s) ±2% rms (35 ... 65 m/s) ±3% rms (65 ... 85 m/s)

### Wind direction

Measuring range	0 ... 360° / 540° / 720°
Resolution	1° (standard) < 1° (user defined)
Accuracy	±1° (1 ... 35 m/s) ±2° (35 ... 65 m/s) ±4° (65 ... 85 m/s)

### Acoustic virtual temperature

Measuring range	-40 °C up to +70 °C
Accuracy	±0.5 Kelvin in the range from -40 °C to +60 °C
Resolution	0.1 Kelvin

### Output of measuring data

Measuring rate	Typ. 3.5 ms at 20 °C
Output rate	1 ms up to 60 seconds, settable in 1-ms-increments
Data output digital	RS485/RS422, FD, HD, galvanically isolated
Baud rates	1200 up to 921600 Bps
Analogue output	3 analogue channels for output of X, Y, Z vector components or Horizontal wind velocity, wind direction and virtual temperature 0(2) ... 10 V at min. 4 kΩ 0(4) ... 20 mA at max. 400 Ω load 16 Bit
Analogue inputs	optional; 3 x voltage input 0-10 V, 16 Bit, meas. error % 0.1%.
Output formats	ASCII Thies, NMEA 0183 Version 2, user-definable

### Features

Memory	for burst-measurement-mode
Statistic	turbulence intensity, longitudinal, transversal, vertical standard deviation x, y, z and T (vT) Co-variances: xy, xz, yz, yT, zT
Firmware-update	Uploadable via serial interface (RS485)

### General

Operating voltage	12-24V AC/DC, power consumption: 2.5 VA electronics, 150 VA heating (360 VA option) The heating can be switched off, and is temperature-controlled
Temperature range	-40 °C up to +70 °C
with heating	-75 ... +70 °C
Protection	IP 67
Mounting	on mast tube 1.5"
Housing	V4A stainless steel und sea-waterproofed anodized aluminum

Please contact us for your system requirements. We advise you gladly.



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