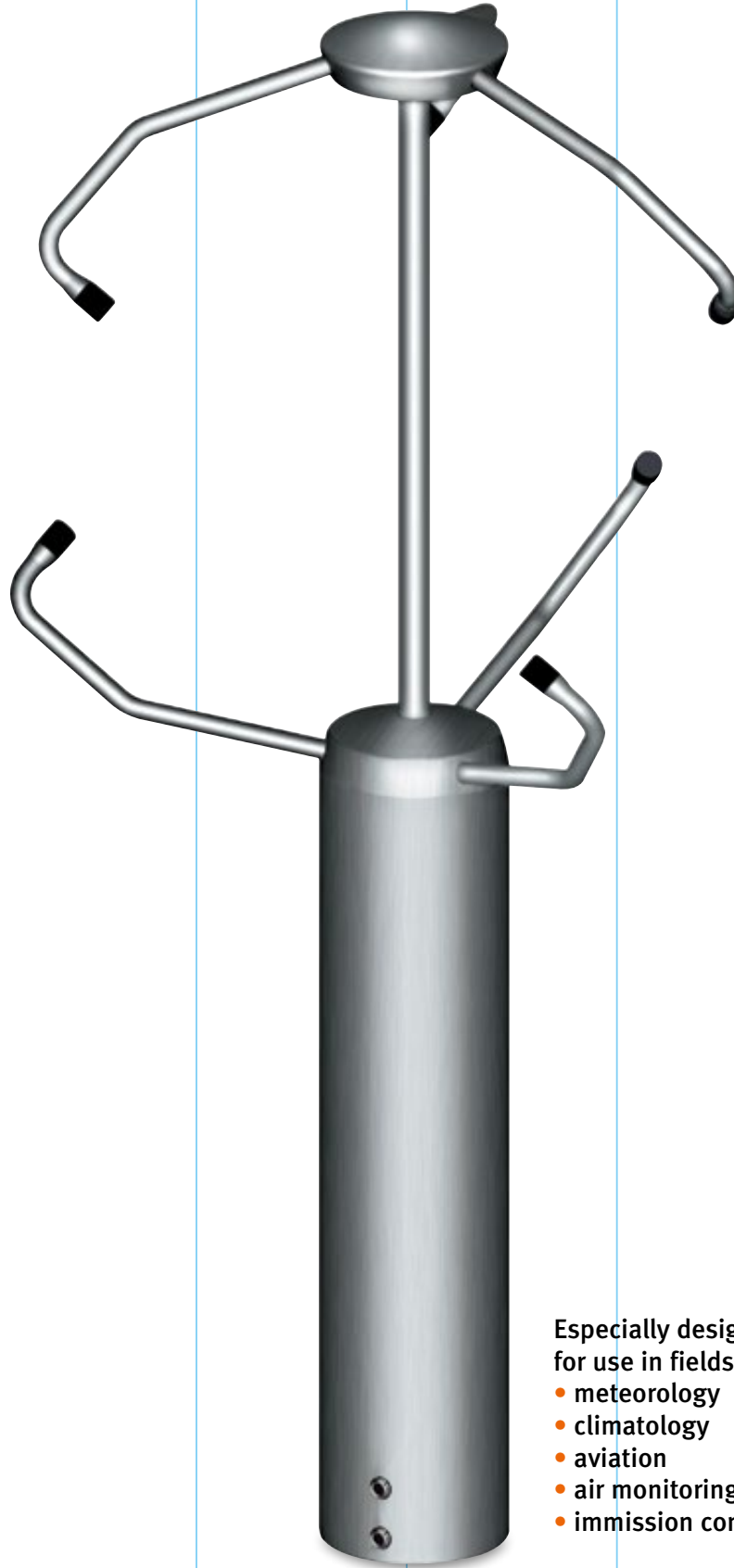


ULTRASONIC ANEMOMETER 3D

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

Thies
CLIMA



Especially designed for use in fields of

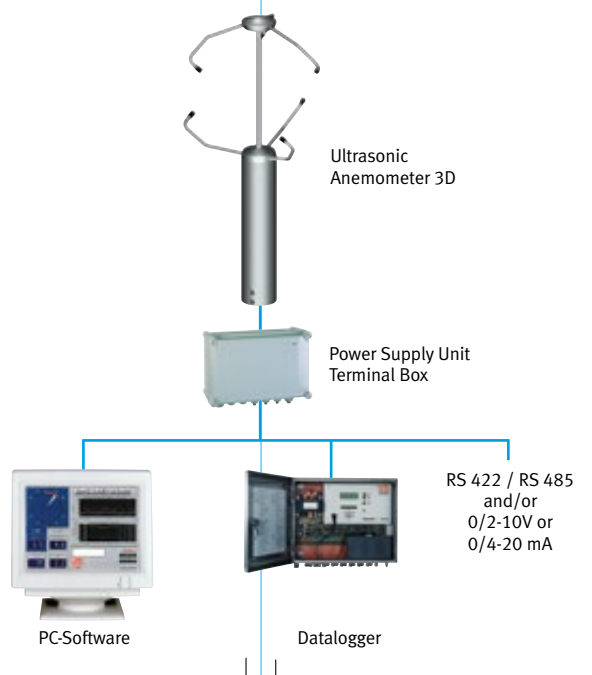
- meteorology
- climatology
- aviation
- air monitoring
- immission control



Ultrasonic Anemometer 3D

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 a high-capacity digital

signal processor (DSP) within the propagation time of the ultrasonic signals, based on an accuracy 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 the writing of a user-specific output telegram.



- Visualisation
- Recording
- Monitoring

- Recording
- Controlling
- Data Processing

Technical Data:

Wind velocity and wind direction

Measuring range:

0.01-85 m/s Azimuth 0°-360°,
0.01-85 m/s Elevation 0°-180°

Accuracy:

WV ±0.1 m/s rms @ ≤5 m/s
±1% rms of measured value
@ >5 m/s ... <35 m/s

Resolution:

WD ±1° @ WV <35 m/s
Wind speed = 0.01m/s
angle = 1°

Acoustic virtual temperature

Measuring range:

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

Accuracy:

Resolution:

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
RS485/RS422, FD, HD, bus mode
1200 up to 921600 Bps
3 analogue channels for output
of X, Y, Z vector components or
Horizontal wind velocity,
wind direction and virtual
temperature

Data output digital:

Baud rates:

0(2) ... 10 V at min. 4 kΩ
0(0)4 ... 20 mA at max. 400 Ω load
16 Bit

Analogue output:

Analogue inputs:

optional; 3 x voltage input
0-10 V, 16 Bit,
meas. error ≤ 0.1%.

Output formats:

ASCII Thies, NMEA 0183 Version 3,
user-definable

Features

Memory:

Statistic:

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

Firmware-update:

General

Operating voltage:

12-24V AC/DC, power
consumption:
2.5 VA, heated 150 VA
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-water-
proofed anodized aluminum



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requirements.
We advise you gladly.

