

Ultrasonic Wind Sensor uSonic-3 Omni



- High precision 3D sonic anemometer
- Accurate measurement of 3 wind components
- Online calculation of turbulence parameters
- Optimized by wind tunnel calibration
- Robust stainless steel construction
- No moving parts, no maintenance
- Ice protection by efficient sensor heating
- Automatic system monitoring
- Measuring range
0 ... 60 m/s , - 40 ... + 70° C
- Easy operation via graphical user interface

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Typical Applications

- Meteorological systems
- Dispersion parameters for pollution modeling
- Air quality studies forecast
- Eddy correlation fluxes
- Wind shear detection
- Wake vortex monitoring
- Meteorological networks
- Research stations
- Industrial sites
- Airports
- Marine and offshore platforms
- Wind energy
- Sport events

The Ultrasonic Anemometer **uSonic-3 Omni** is a 3D wind and turbulence sensor which has proven reliable operation in all weather types, outstanding flexibility, high rated system performance and user friendly operation in widespread applications. It delivers raw or mean values of wind components x, y, z including acoustic temperature by serial interface RS422 / RS485 (standard), RS232 (on request) or as analogue output.

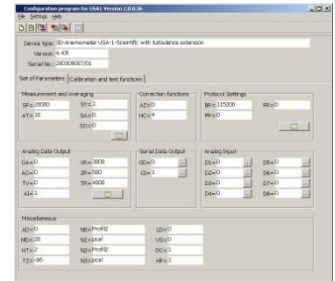
The **uSonic-3 Omni** shows a perfect linearity between 0 ... 60 m/s and high resolution in time (max. 25 Hz) and data (0.01 m/s, 0.01 K). Absence of inertial masses allows even precise turbulence measurements. Flow distortion effects are compensated by wind tunnel calibration (2D).

With no moving parts **uSonic-3 Omni** avoids the shortcomings of mechanical wind sensors: no bearings subject to wear and tear, no shift of calibration parameters, no thresholds, no time delays.

Optional extensions are sensor head heating, analogue data output and online turbulence calculation. Online data quality checks and an automatic status report provide for high system reliability.

Ambient conditions	- 40 ... + 60 °C, 5 ... 100 %
Sampling rate/ output rate	1...50 Hz/1...25 Hz
Measurement ranges	0 ... 60 m/s, - 40 ... + 70 °C 0...360° azimuth, 0 ... 180° elevation
Accuracy of wind speed / wind direction	0.1 m/s or 2 % / 2° @ 5 m/s
Resolution	0.01 m/s, 1°, 0.01 K
Output data set	x, y, z, T / vel, dir, z, T
Averaging method	scalar, vectorial
Output protocols	ASCII, standard, checksum, NMEA
Data output	serial RS422/ RS485 or RS232 (async, polling, time synchronized)
Turbulence module (option)	online calculation of means, variances, covariances, heat flux, momentum flux, Monin-Obukhov length, etc.
Power supply	12 ... 36 VDC / 3.5 W required
Sensor head heating (option)	24 VDC / 55 W
Analogue output (option)	4 x 0-20/4-20 mA or 4 x 0 ... 5 VDC, ±5 VDC/ 0 ... 10 VDC/ ± 10 VDC
Serial interface	RS422/RS485 or RS232 (300 ... 115200), ASCII
Mounting	stud Ø (outer) 34 mm adapters available, diverse on request

User interface (GUI)



Graphic output



Mechanical drawing

