

Ultrasonic Wind Sensor uSonic-3 Class A



- High end 3D turbulence probe
- Measurement of 3 wind components and acoustic temperature
- Ideal instrument for eddy-covariance sites
- Embedded 2-axis inclination sensor
- Flow optimized design for boom set-up
- Synchronized analog input channels, 16 Bit
- RS422 / RS485 serial interface
- Sensor head heating
- Measuring range
0 ... 40 m/s , - 40 ... + 70° C
- Easy operation via graphic user interface



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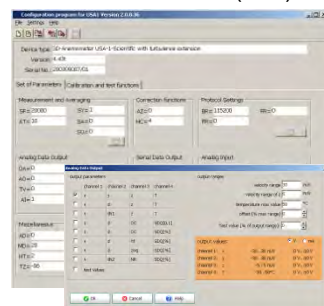
Typical Applications

- Determination of eddy covariance fluxes
- Small scale turbulence research
- Air quality studies
- Research station
- Mast instrumentation on booms

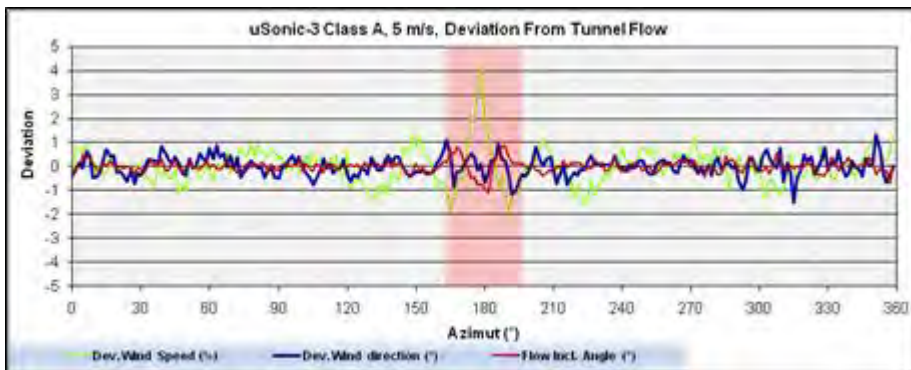
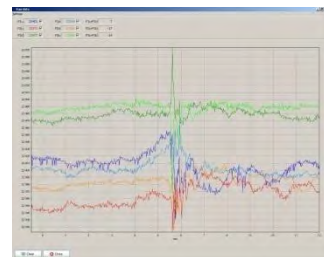
The Ultrasonic Anemometer **uSonic-3 Class A** represents the high precision solution of METEK's ultrasonic sensor family. It has been designed to meet the scientific needs of small scale turbulence measurement or mast instrumentation. With its sensor head optimized for a boom type set-up the flow distortion has been minimized within a wide acceptance angle of 320°.

An embedded 2-axis inclination sensor (option) provides accurate tilt angles of the sensor head. A 6 m cable connects the sensor head to the sensor electronic. Optional up to 6 analog input channels allow synchronized data sampling with 16 bit resolution of fast response sensors of water vapor, carbon dioxide, methan, ozon etc. for eddy covariance installation. The reading of all analog input channels can be individually time shifted to compensate output delays of the external sensors. The sensor delivers raw data (x, y, z, T) and/or online calculated turbulence data sets. Even raw counter readings of each path are available. The system comes with external open end cables of 12 m length for power supply and data transfer.

User interface (GUI)



Graphic output



Sensor head



Sensor electronic



Ambient conditions	- 40 ... + 60 °C, 5 ... 100 %
Average time / number	1 ... 3600 s / 1 ... 65365 samples
Sampling rate	0.1 ... 50 Hz
Measurement ranges	0 ... 40 m/s, - 40 ... + 70 °C
Accuracy (max. dev.) wind speed / wind direction	7.5 cm/s or 1.5 % / 1.5° (@ 5 m/s)
Resolution	0.01 m/s, 0.1°, 0.01 K
Output data set	x, y, z, T / vel, dir, z, T
Averaging method	scalar, vectorial
Output protocols	standard, checksum, NMEA
Data output	async, polling, time synchronized
Turbulence module (option)	online calculation of means, variances, covariances, heat flux, momentum flux, Monin-Obukhov length, etc.
Internal memory	15300 standard / 2600 data sets turbulence calc.
Power supply	9 ... 36 VDC / 3 W (5 W with options)
Sensor head heating (option)	24 VDC / max. 100 W
Analog input (option)	6 x analogue 16 bit, 2 x TTL counter, 2 x PT100
Serial interface	RS422, RS485 (300 ... 115200), ASCII

