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**

METEK Meteorologische Messtechnik GmbH
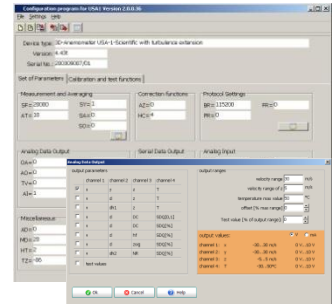
Ultrasonic Wind Sensor uSonic-3 Class A

Typical Applications

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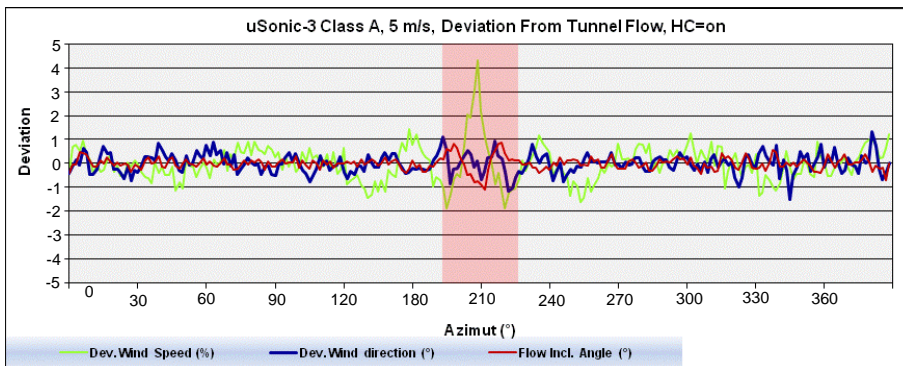- Air quality studies
- Mast instrumentation on booms

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 provides accurate information about tilt angles of the sensor head. Further 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 can deliver both, raw data (x, y, z, T) and/or turbulence data sets. Even raw counter readings of each path are available.

User interface (GUI)

Graphic output

Mechanical drawing

uSonic-3 Class A, 5 m/s, Deviation From Tunnel Flow, HC=on

- Dev. Wind Speed (%)
- Dev. Wind direction (°)
- Flow Incl. Angle (°)

Ambient conditions	- 40 … + 60 °C, 5 … 100 %
Average time / number	1 … 3600 s / 1 ... 65365 samples
Sampling rate	0.1… 30/50 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
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
Serial interface	RS422, RS485 (300 … 115200), ASCII

TÜV CERT
DIN EN ISO 9001

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2013-01-29