

# Ultrasonic Wind Sensor uSonic-3 Scientific

previously USA-1



- 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

# Ultrasonic Wind Sensor uSonic-3 Scientific

previously USA-1

## 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 Scientific** 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 or as analogue output.

The **uSonic-3 Scientific** shows a perfect linearity between 0 ... 60 m/s and high resolution in time (max. 30/50 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, 3D).

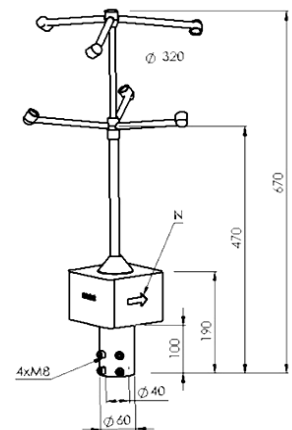
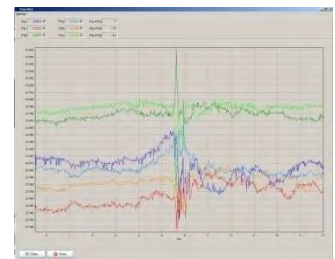
With no moving parts **uSonic-3 Scientific** avoids the shortcomings of mechanical wind sensors: no bearings subject to wear and tear, no shift of calibration parameters, no thresholds, no time delays.

Optional extensions are sensor head heating, analogue data output, analogue data input, separation of sensor head and electronic, online turbulence calculation. Comprehensive online data quality checks and automatic static reports provide for long term system availability.

User interface (GUI)



Graphic output



weight: 2,9 kg

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 ... 60 m/s, - 40 ... + 70 °C
Accuracy (max. dev.) wind speed / wind direction	0.1 m/s or 2 % / 2° @ 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 / 55 W / 100 W
Analogue input (option)	2 x PT100, 6 x analog 16 bit, 2 x counter
Analogue output	4 x 0-5V/±5V, 0-10V, ±10V, 0-2,5V, ± 2,5V
Serial interface	RS422, RS485 (300 ... 115200), ASCII

