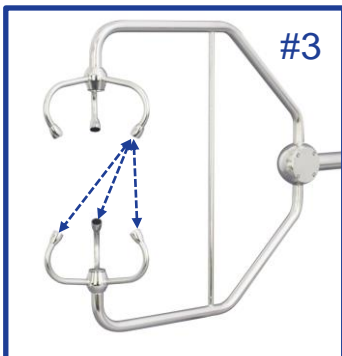
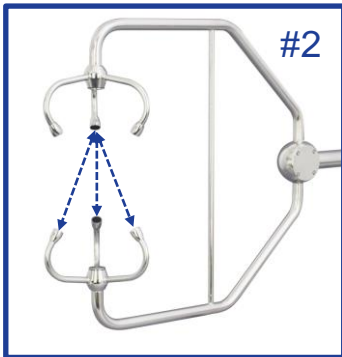
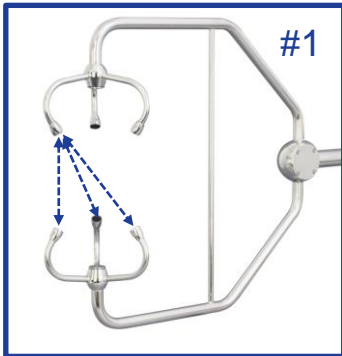


Ultrasonic Wind Sensor

uSonic-3 Class A *MP*



- Innovative approach in 3D wind and turbulence sensing
- Patented “**Multi-Path**” measuring technique
- 3 x 3D sonic arrays in one sensor head
- 3 x 3 Radial wind components
- 3 Directly measured vertical wind component
- 3 x 3 Acoustic temperatures
- Minimum flow distortion by optimized design of sensor head and sonic transducers
- Effective signal control and data validation
- Efficient sensor head heating (option)
- Embedded 2-axis inclination sensor (option)
- Internal mass data storage on SD card
- Convenient communication and data output by RS422 and Ethernet ports
- Remote control of system performance
- High quality measurements in routine and scientific applications (e.g. at eddy covariance sites)

Ultrasonic Wind Sensor uSonic-3 Class A **MP**

Typical instrumental applications

- Determination of eddy covariance fluxes
- Studies in atmospheric turbulence
- Air quality studies
- Sites with low turbulence (e.g. arctic / antarctic areas)
- Remote research stations
- Boom instrumentation on masts

The ultrasonic anemometer **uSonic-3 Class A MP** uses an innovative patented method to provide highest performance in atmospheric wind and turbulence sounding. Based on the well proven METEK ultrasonic sensor family uSonic-3 the sensor head enables the user to perform three independent measurements of the air flow quasi-simultaneously by arranging each transmitting transducer opposite to three receiving transducers. This approach allows redundant measurements along the 3 x 3 signal paths and an automatic selection of the most advantageously positioned transmitter-receiver couples. Furthermore, the sensor head design delivers three directly measured vertical wind components.

The sensor outputs 9 radial components, 9 temperature measures and 3 optimally derived Cartesian wind components (x, y, z) as raw data and/or as averaged data with adjustable averaging intervals.

An embedded 2-axis inclination sensor (option) provides tilt angles of the sensor head thus allowing remote control of correct instrumental set-up.

The directional sensor head of the **uSonic-3 Class A MP** is the optimum solution for boom type installations.

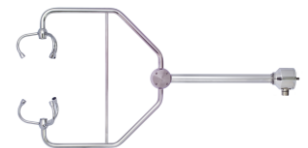
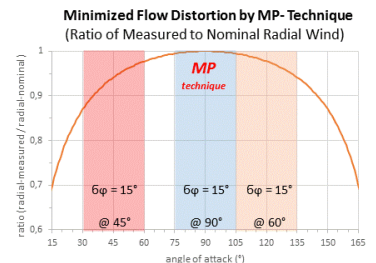
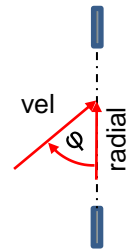
Ambient conditions	- 40 ... + 60 °C, 5 ... 100 % rH, 0 ... 50 m/s
Average time / number	1 ... 3600 s / 1 ... 65365 samples
Sampling rate	Max. 30 Hz (→ max. 3 x 30 = 90 Hz sampling)
Measuring ranges	Max. 40 m/s, - 40 ... + 60 °C
Accuracy wind component	Acceptance angles $\pm 170^\circ$
- max. dev.	$\pm 1\%$ @ 5 m/s, 0° ... 10° inclination
- rms	$\pm 2\%$ @ 5 m/s, 10° ... 20° inclination
	0.5% @ 5 m/s, 0° ... 10° inclination
	1% @ 5 m/s, 10° ... 20° inclination
- resolution	0.006 m/s (vertical), 0.01 (horizontal)
Accuracy wind direction	Acceptance angles $\pm 170^\circ$
- max. dev.	$\pm 1^\circ$ @ 5 m/s, 0° ... 20° inclination
- rms	0.5° @ 5 m/s, 0° ... 20° inclination
Accuracy temperature	
- resolution	0.01 K
Output data set	9 radial components (incl. 3 x vertical), 9 temperatures, x, y, z, T, vel, dir, system status, signal quality
Output protocols	Async, checksum, NMEA, FTP (ethernet)
Synchronisation	1 x digital in, 1 x digital out, ntp, ptp on request
Turbulence module (option)	Online calculation of means, variances, covariances, heat flux, momentum flux, Monin-Obukhov length, etc.
Internal memory (option)	SD card 8 GB (optionally 64 GB)
Power supply	10 ... 36 VDC / 2.5 W (without options)
Sensor head heating (option)	10 ... 24 VDC / max. 100 W, incl. smart energy saving mode
Communication	RS422 (300 ... 115200), Ethernet, SD-card, all ASCII
Analog output (option)	4 x 16 bit, 0 ... 5/10 VDC or 0/4 ... 20 mA, (max. load 250 Ω), adjustable ranges (x, y, z, T)
Measuring paths	6 x 53.2° / 3 x 90°, L = 6 x 165 mm / 3 x 135 mm
Inclinometer (option)	2 axis, resolution 0.1°, response time ≈ 1 s

*all specifications are subject to change.

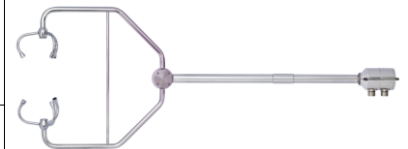
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Phone: +49 4121 43590, Fax: +49 4121 4359 20

E-mail: info@metek.de, Internet: http://www.metek.de



Standard sensor head



Extended sensor head (+200 mm) and optional 2-axis inclinometer



Sensor electronic

