

Ultrasonic Anemometer Thies 3D

S83100H
(P6007H)

- Measurement of wind direction & speed in 3 dimensions X, Y and Z
- Highest precision
- Real-time measurement
- Maintenance-free / heatable
- Digital / analog outputs and inputs



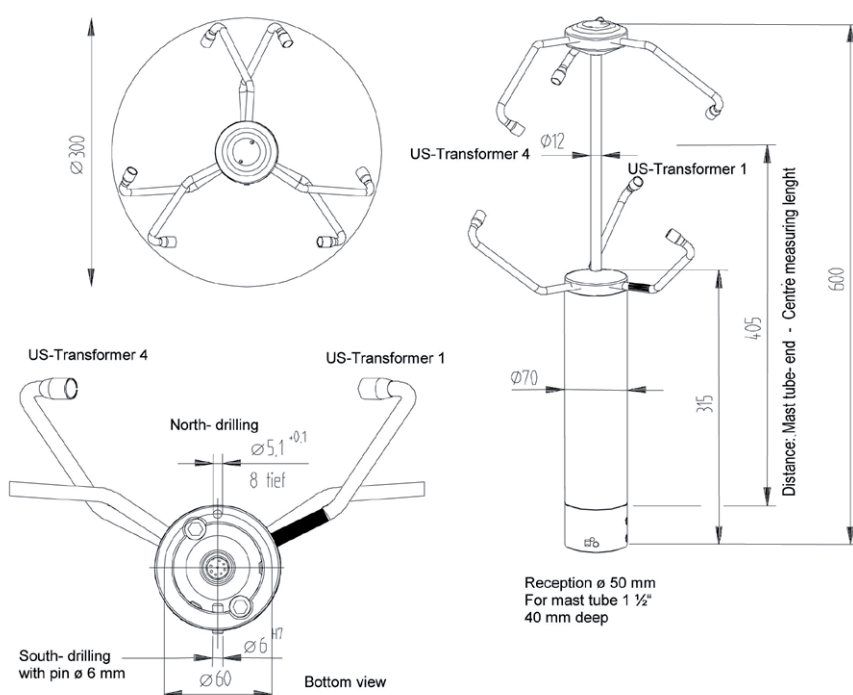
Description

The Ultrasonic Anemometer 3 D serves for the measurement of the wind direction and the wind velocity from all spatial directions. The maintenance-free and wearless anemometer needs no re-calibration, and is equipped with a heating for winter operation even under extreme conditions.

All calculations are carried out by a high-capacity digital-signal-processor (DSP) within the propagation time of the ultrasonic signals with an accuracy basis of 32 bit.

The instrument offers comprehensive statistic functions such as gliding averaging, standard deviation, co-variance etc., which can be selected via the digital interface. The gliding averaging can be set optionally in vectorial or scalar form, identically or differently for each parameter.

Dimensional Drawing



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Wind Speed	
Measuring range	0...65 m/s (up to 99.99 m/s is measured and output) Scaling of the analog output is freely selectable
Accuracy	≤ 5 m/s: ± 0.2 m/s; > 5 m/s: $\pm 2\%$ of meas. value
Resolution	0.1 m/s (telegrams No. 1 to 4); 0.01 m/s (telegrams No. 5 to 12 and user-defined)
Wind Direction	
Measuring range	Azimuth: 0...360° Elevation: -90°...90°
Resolution	1° (telegrams No. 1 to 4), $< 1^\circ$ (telegrams No. 5 to 12 and user-defined)
Accuracy	$\pm 2^\circ$ with wind speed > 1 m/s < 50 m/s
Virtual Temperature	
Measuring range	-40...+70°C (not specified, but useful measuring range: -75...+75°C)
Accuracy	± 0.5 K
Data Output Digital	
Interface	RS 485 / RS 422
Baud rate	1200 to 921600 adjustable
Output	Instantaneous values, wind speed / direction and acoustic virtual temp. Sliding mean values 0.5 sec to 100 min freely selectable
Output rate	1 per 1 msec to 1 per 60 sec., adjustable in msec steps
Status identification	Heating, measurement path failure, ΔT path temperatures
Data Output Analog	
Electr. output	0...20 mA / 0...10 V or 4...20 mA / 2...10 V for wind vectors X, Y and Z
Output	Wind vectors X, Y and Z, Instantaneous values, sliding mean values 0.5 sec to 100 min freely selectable
Output rate	Updating rate 0.1 Hz...100Hz
Resolution	16 bit
Analog inputs	
Input Number	Up to 5 analog inputs possible. (3x standard, 2x add. configurable acc. to manu.)
Input Resolution	16 bit
Sampling rate	0.1...100 Hz per channel
Input range	0...10 V
Data processing	Output of measured values in user-specific telegram
Accuracy	$\pm 1\%$ of meas. value in the range -40...+70°C
Linearity, integral	INL: type < 6 LSB
Effective low-noise bits	Type 14 bit (at DC-supply for avoiding of dynamic cross-talk in the connection line)
General	
Temperature Range	Oper. temperature: -40...+70°C; Storage: -50...+80°C; with heating up to -75°C
Internal measuring rate	Up to 285 complete measurement sequences per second at 20°C
Operating voltage	Power supply electronics: 8 V to 78 V DC, 1.5 VA, max. 2.5 VA Power supply electronics + heating: 24 V AC/DC $\pm 15\%$: typ. 150 VA
EMC	EN 55022: 1998 class B; EN 55024: 1998; EN 61326:1997; A3:2003
Electr. Connection	8-pole plug
Manufacturer	Thies / 4.3830.20.340

Last Modification: 31 October 2012