

SFAS

Compact High-Performance Sodar Wind Profiler



Photo courtesy of Toragon AB

The Scintec SFAS is a very compact acoustic profiler for the measurement of wind and turbulence up to 500 m above the ground.

The operation is based on the reflection of acoustic pulses at temperature inhomogeneities in the air with subsequent doppler analysis.

The instrument can replace towers, tethered balloons or radiosondes at a fraction of the operational costs. With its small size and low weight, the system can be easily transported and installed. Low power consumption facilitates operation in remote areas.

With its proprietary Flat Array Antenna and patented technology, the Scintec SFAS has significant advantages in accuracy, data availability, energy efficiency, lifetime and serviceability – even over systems which are much larger and require more power.

The versatile but easy-to-use operation software APRun satisfies the most demanding needs. Its configurability, graphical display and output options, quality control features, statistical analysis tools, remote access support and self-test functions define today's standard in wind profiler operation software.

Features

- maximum range up to 500 m
- vertical resolution down to 5 m
- compact and lightweight design
- easy-to-use
- multi-frequency technology (sequential and polyphonic)
- simultaneous multi-beam technology
- low noise-emission with active tapering
- fully-automated self-test
- remote access
- RASS extensions available (RAE2 and *windRASS*™)

Applications

- wind energy
- micrometeorology
- urban climate
- agrometeorology, forestry
- atmospheric dispersion
- climate change
- optical propagation studies
- defence weather
- airport safety
- fog forecasting

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Data output

Data output includes (but is not limited to):

- wind speed and direction
- standard deviations of wind components
- turbulence intensity for wind energy applications
- wind shear for airport applications
- standard deviation of wind directions (sigma phi, sigma theta) and stability class for air quality applications
- structure parameter of temperature C_T^2 for wave propagation studies
- turbulent kinetic energy
- eddy dissipation rate
- mixing height estimation
- data quality (signal-to-noise ratio)
- data confidence (consensus level)
- wind roses
- frequency distribution of wind speeds for power-curve calculations

Description	Specifications	Remarks
No. of antenna elements	64	piezo-electric
Electric (acoustic) output power	20 W (5 W)	maximum, user selectable
Frequency range	2525 - 4850 Hz	auto-configuration or user-defined
Multi-frequency	sequential and polyphonic	
Multi-beam operation	up to 9 beams in two configurations	
Beam angles	0°, ±8°, ±13° or 0°, ±19°, ±24°	selectable
No. of range gates	100	maximum setting
Vertical resolution	5 m	finest setting
Minimum height	10 m	depending on settings, environment and atmosphere
Maximum height	500 m	
Averaging time	1 - 60 min	user-defined
Accuracy of horizontal wind speed	0.1 to 0.3 m/s	depending on mode, average over varying conditions
Accuracy of vertical wind speed	0.025 to 0.1 m/s	
Accuracy of wind direction	< 1.5°	at wind speeds > 2 m/s
Measurement range of horizontal wind speed	0 to 50 m/s	nominal
Measurement range of vertical wind speed	-10 to 10 m/s	
Operating conditions	Temperature: -35 to +55 °C (-30 to +130 °F) Relative Humidity: 0% to 100%	
Power requirement DC operation	12 or 24 VDC, 20 to 40 W	average, depending on settings
Power requirement AC line operation	100 to 240 VAC, 35 to 70 W	
Size	44 x 42 x 16 cm	Antenna without Enclosure
Weight	11.5 kg	

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Specifications are subject to change without notice.
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