

# XFAS

## Powerful High-Performance Sodar Wind Profiler

Photo courtesy of Nuclear Power Corporation of India Ltd. (NPCIL)



The Scintec XFAS is a high-performance, long-range acoustic profiler for the measurement of wind and turbulence within the atmospheric boundary layer.

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. 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 XFAS 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 boundary layer height (nominal > 2000 m)
- vertical resolution down to 20 m
- powerful low-frequency antenna
- can be transported and installed without special equipment
- easy-to-use
- multi-frequency technology (sequential and polyphonic)
- simultaneous multi-beam technology
- low noise-emission with active tapering
- fully-automated self-test
- various remote access options
- RASS extension available

### APPLICATIONS

- airport wind profiling
- air quality
- nuclear power plant safety
- atmospheric dispersion
- micrometeorology
- optical propagation studies
- military
- severe weather
- 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	52	
Electric (acoustic) output power	500 W (35 W)	maximum, user selectable
Frequency range	825 - 1375 Hz	auto-configuration or user-defined
Multi-frequency	yes	
Multi-beam operation	yes, up to 9 beams	
Beam angles	0°, ±22°, ±29°	independent of frequency
No. of range gates	256	maximum setting
Vertical resolution	20 m	finest setting
Minimum height	40 m	depending on settings, environment and atmosphere, limited to height of boundary layer
Maximum height	> 2000 m	
Averaging time	1 - 180 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	0.03 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 temperature	-35 to +55°C (-30 to +130 °F)	
Power requirement DC operation	± 18 V, 2 to 8 A average	depending on settings
Power requirement AC line operation	100 to 240 VAC, 1500 W	without antenna heating
Size	145 x 145 x 33 cm	Antenna without Enclosure
Weight	144 kg	

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Specifications are subject to change without notice.  
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