

# Vaisala Wind Profiler LAP<sup>®</sup>-8000



## Benefits

- Continuous wind data up to 8 km
- Continuous virtual temperature data up to 2.5 km
- Unattended operation
- Minimal periodic maintenance
- New vertical profile every 5-60 minutes

## Mid-Troposphere Wind Profiler for your needs

The Vaisala LAP<sup>®</sup>-8000 wind profiler provides continuous and real-time vertical profiles of horizontal wind speed and direction and vertical wind velocity up to 8 km above ground level (agl). When an optional Radio Acoustic Sounding System (RASS) is added to the Vaisala LAP<sup>®</sup>-8000 system, it will provide virtual temperature profiles up to 2.5 km agl, depending on atmospheric conditions. These altitudes are maximum values and will change dramatically depending on atmospheric conditions, profiler configuration, installation site and surrounding environment. The LAP<sup>®</sup>-8000 operates fully unattended and provides continuous data with high vertical and temporal resolution.

## Software that suits your application

The flexible Vaisala LAP-XM<sup>®</sup> software allows site-specific optimization of system performance, including variable temporal and range resolution, in support of various applications. The operator can choose signal processing parameters, quality control features, and data formats.

The optional Vaisala Graph-XM<sup>™</sup> graphical display software provides a wide variety of data visualization schemes including time-height cross sections of wind barbs (vectors), and virtual temperature profiles. The Windows-based data system can archive up to one-year's worth of wind and temperature data in database and text format. Averaged time series, spectra, and moments data can also be archived.

The Vaisala LAP<sup>®</sup> wind profilers, which operate under Windows<sup>®</sup> XP and feature versatile digital signal processing, were jointly developed under a Cooperative Research and Development Agreement (CRADA) with the National Oceanic and Atmospheric Administration (NOAA) and Sonoma Technologies Inc (STI). Current users of LAP<sup>®</sup> systems include NOAA, NCAR, NASA, DOD, DOE, air quality districts, universities, utilities, and private industry.

## Applications

- Aviation operations support
- Border surveillance support
- Global climate change research
- Missile, rocket and artillery support
- Optical turbulence measurements
- Synoptic and mesoscale analysis and forecasting
- Weather modification

# Technical Data

## Specifications

Operating frequency	Nominally 449 MHz
Minimum wind data height <sup>1</sup>	200-300 m
Maximum wind data height <sup>2</sup>	up to 8 km,
	typically varies between 6-8 km
Vertical range resolution	Factory configurable 100-1000 m
Wind speed accuracy	<1 m/s
Wind direction accuracy	<10 °
Averaging time	5-60 minutes
RF power output	2000 W peak
	0.1– 350 W average
Occupied bandwidth	Less than 3 MHz @
	1666 ns pulse duration (ITU 99%)
Antenna	
Type	Electrically steerable coaxial collinear array
Gain	29 dBi @ 449 MHz
Beamwidth	7 °
Aperture	28 m <sup>2</sup>
Power requirements	115 VAC/60 Hz; 4 x 15 A
	230 VAC/50 Hz; 4 x 10 A

## Options

Hardware Monitor	System monitoring and status reporting
Vaisala Graph-XM™	Graphical display software
Moments display software	Graphical moments data display software
RASS	
Minimum data height <sup>1</sup>	200-300 m
Maximum data height <sup>2</sup>	Up to 2.5 km,
	typically varies between 1 – 2.5 km
Vertical range resolution	100 - 1000 m
Temperature accuracy	1 °C
Averaging time	3-60 minutes
Aperture	1.8 m <sup>2</sup> x 4 sources
Audio Frequency	~1 kHz,
	Bragg matched to transmitter frequency
GPS timing receiver	For accurate timekeeping
Hub computer	For remote access and monitoring
Services	Site survey, FAT, SAT, training, installation, extended warranty, service contract
Other operating frequencies	Selectable 440– 490 MHz

<sup>1</sup> Dependent on clutter environment and available radio frequency emission bandwidth.

<sup>2</sup> Dependent on atmospheric scattering conditions, profiler configuration, installation site and surrounding environment.