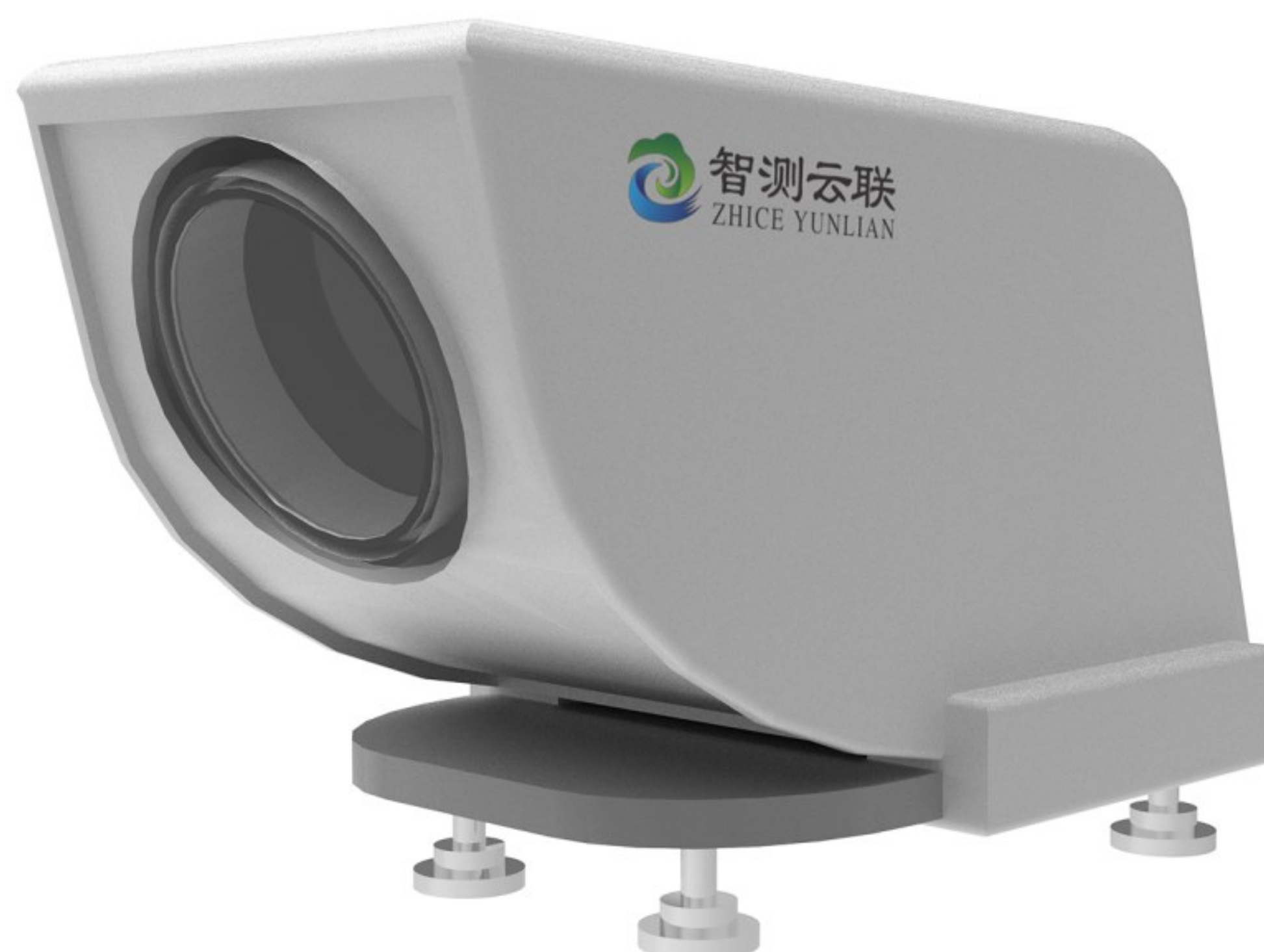




CABIN-TYPE WIND MEASUREMENT LASER RADAR



Introduction

The cabin-type wind measurement laser radar developed by Zhice Yunlian is a high-precision, high-resolution lidar with wide detection range for wind field information. It can accurately detect wind speed and wind direction at any 10 customizable distance gates 50~400 meters directly in front of the wind turbine hub.

This product is widely applied in atmospheric wind field detection, wind turbine performance evaluation & optimization, wind resource assessment, flight path correction, wake flow detection and other fields.

Software Description

The matching upper computer software analyzes detected signals, combines longitude, latitude and altitude data to calculate and output various wind field parameters including wind speed, wind direction, turbulence and wind shear.



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Parameters

Technical Performance Indicators

Item	Parameter
Laser Wavelength	1550nm
Measurement Range	50~400m
Number of Measured Cross-Sections	10 (customizable)
Sampling Frequency	4Hz
Wind Speed Measuring Range	0~70m/s
Wind Speed Accuracy	±0.2m/s
Wind Direction Measuring Range	0~360°
Wind Direction Accuracy	±1°
Laser Beams	4 beams
Beam Installation Precision	±0.1°
Beam Included Angle	Horizontal 30°, Vertical 10°

Physical Specifications

Category	Item	Size & Weight
Dimension	Outdoor Unit	(500±10)mm × (450±10)mm × (350±10)mm
	Indoor Unit	(350±10)mm × (320±10)mm × (250±10)mm
Weight	Outdoor Unit	≤16kg
	Indoor Unit	≤10kg

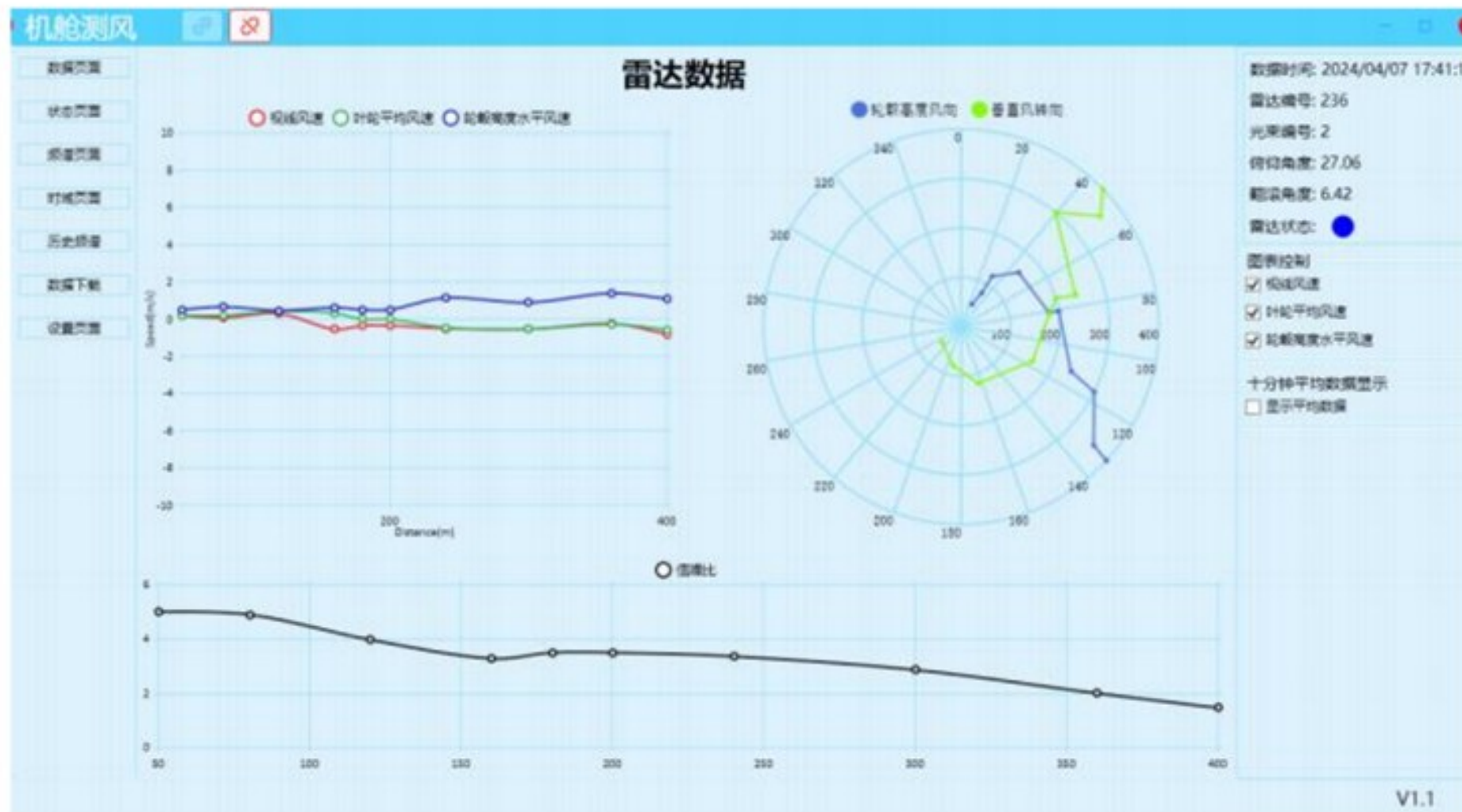
Electrical Performance

Item	Parameter
Power Supply	220V (90~305VAC), Frequency: 50Hz (47~63Hz)
Power Consumption	45W at normal temperature, max 70W limit
Communication Protocols	Profibus DP / Modbus TCP / Modbus RTU / CANOPEN / RS485 / TCP IP

Other Indicators

Item	Parameter
Operating Temperature	-45~55°C
Data Storage Duration	≥6 months
Lightning Protection Grade	LPZ0B (outdoor unit), LPZ1 (indoor unit)

Computer Software Interface

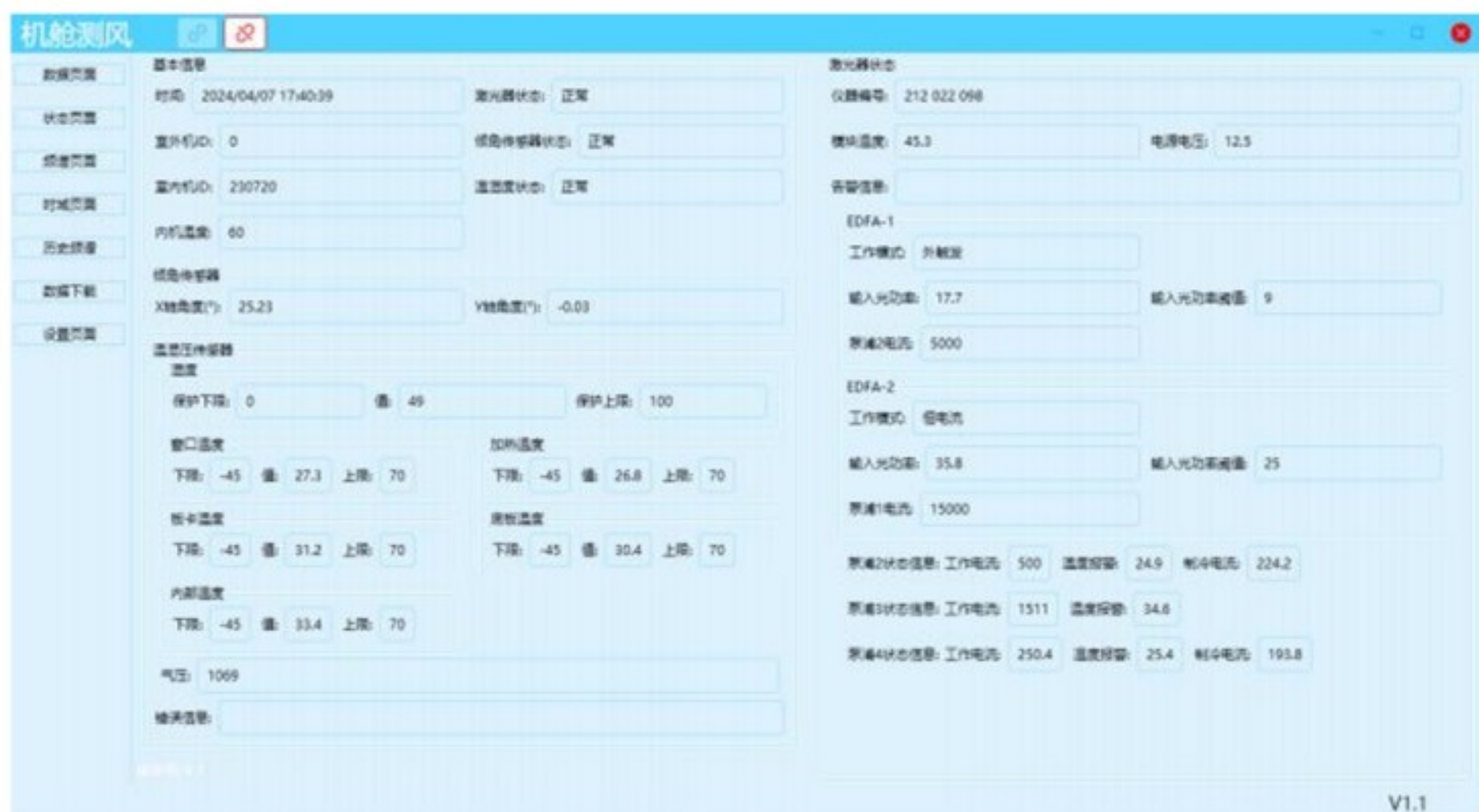


Radar Data Interface

Left: Wind speed trend graph showing the variation of sight-line wind speed, average blade wind speed and contour horizontal wind speed with distance (0~400m); the curve below represents signal-to-noise ratio to reflect signal quality.

Middle: Wind rose diagram intuitively showing the distribution of contour horizontal wind direction and vertical wind direction for quick access to wind field dynamics and data reliability.

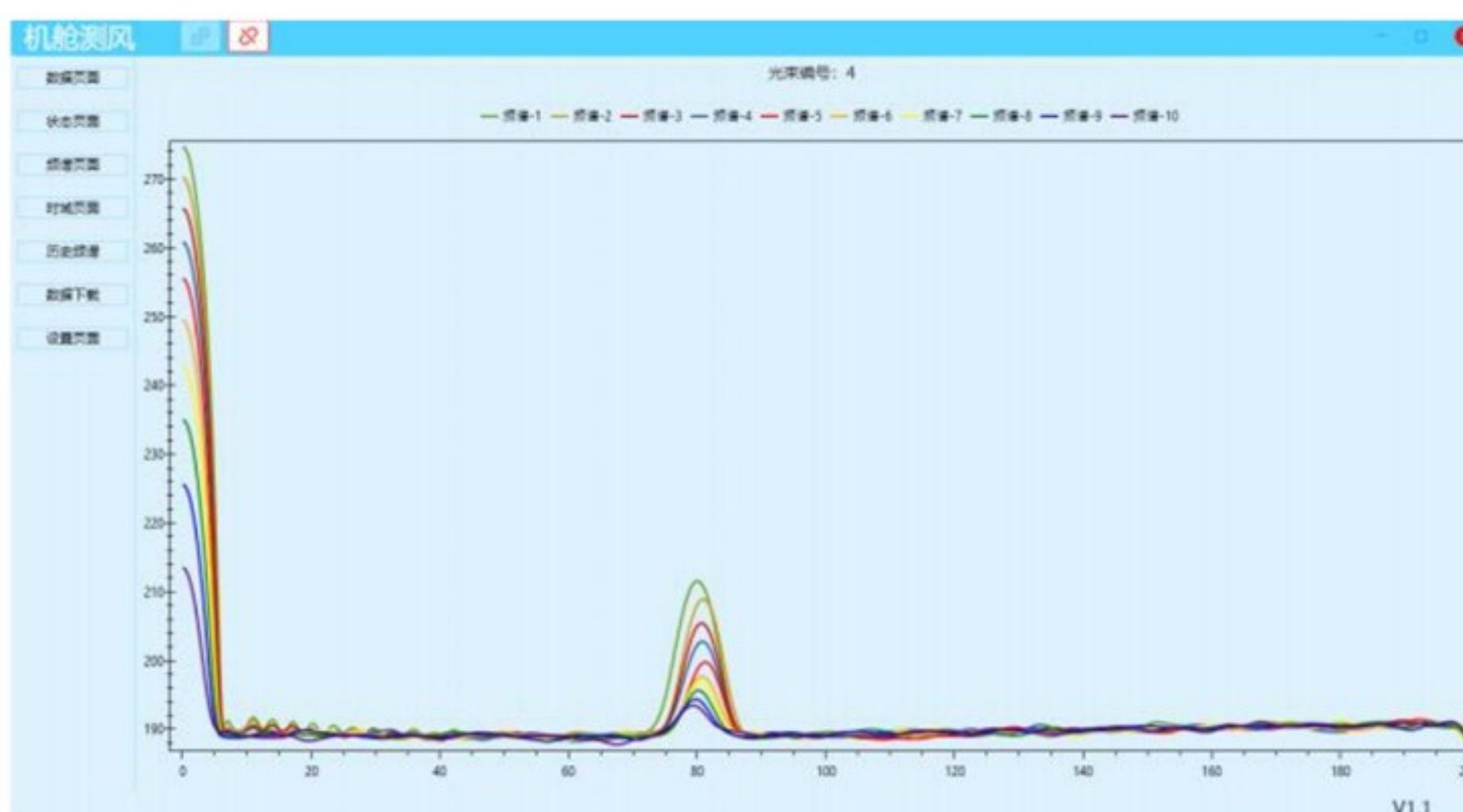
Right: Displays radar time, serial number, beam ID and other equipment status; supports switching between 10-minute average and real-time average data.



Status Information Interface

Left: Basic device information (data timestamp, indoor & outdoor temperature, equipment elevation angle, operation mode, etc.), including internal temperature, upper protection limit, PVT current and other hardware operating status.

Right: Core operating parameters such as laser status, power supply voltage and storage capacity, split into modules to display EDFA-1/2 working mode, input optical power and accumulated alarm information.



Time Series Data Interface

Raw signal time series monitoring interface for cabin wind lidar, used to analyze echo signal quality.

It displays intensity variation curves of echo signals from 10 different distance gates (Range 1~10) over time and distance, directly reflecting signal attenuation and characteristic peak distribution.

Optical gain is marked as 4 at the top for reference of signal amplification ratio.