



LOW BLIND ZONE WIND MEASUREMENT LASER RADAR



Introduction

The low blind zone wind measurement laser radar developed by Zhice Yunlian is a new type of equipment that realizes long-range wind field detection with low blind zone by combining pulsed laser detection and continuous wave blind compensation.

The continuous wave system adopts a short-focus optical path. A focusing motor precisely adjusts the distance between the fiber end face and the lens, continuously changing the focal position to realize measurement in the near-range low blind zone (3~40m). The pulsed wave system uses a long-focus aspheric lens to form a plane wave at all altitudes for medium-long range (40~6000m) measurement.

The continuous wave optical path and pulsed optical path operate in parallel, meeting both near and long-distance measurement requirements, and realizing synchronous coverage measurement of atmospheric wind fields from 3m to 6000m.

Features

- (1) Small measurement blind zone, minimum detection height 3m, maximum measuring distance up to 6km
- (2) Equipped with a 3D servo gimbal, supporting fixed-point / VAD / PPI / RHI and wind shear monitoring modes
- (3) Real-time monitoring of data & equipment status with fault alarm function
- (4) Built-in local data storage; stored data can be queried and read via communication interfaces



Parameters

Physical Specifications

Item	Parameter
Dimension	≤360×700mm³
Weight	≤100kg

Technical Performance Indicators 1

Item	Parameter
Laser Wavelength	1550nm
Operating Modes	Fixed-point / VAD / PPI / RHI / wind shear mode
Measuring Distance	Wind profile mode: 3~3000mScanning mode: 3~6000m (elevation angle <15°)
Wind Speed Measuring Range	0.5-60m/s
Range Resolution	≤3m (3-40m)≤6m (40-500m)≤30m (500-6000m)
Data Refresh Rate	Wind profile mode: 5sScanning mode: 0.25s
Wind Direction Measuring Range	0~360°
Wind Speed Measurement RMSE	≤0.5m/s
Wind Direction Measurement RMSE	≤5° (wind speed ≥5m/s)

Technical Performance Indicators 2

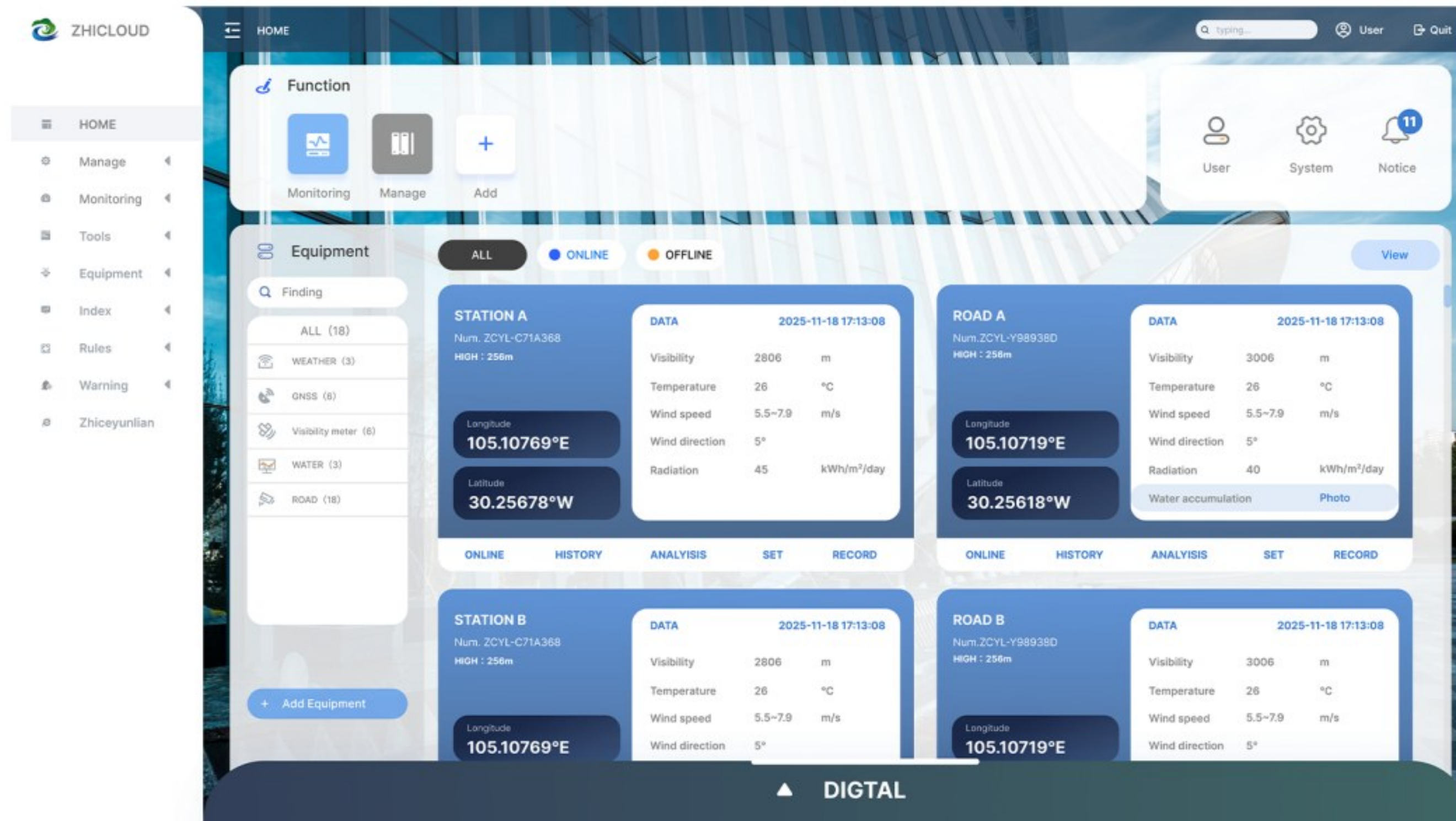
Item	Parameter
Servo Positioning Accuracy	≤0.1°
Servo Scanning Speed	90°/s
Output Data Products	Radial velocity, spectral width, spectral intensity, signal-to-noise ratio, horizontal wind speed, wind direction, etc.

Environmental Adaptability

Item	Parameter
Operating Temperature	Outdoor unit: -40~50°CIndoor unit: 10~30°C
Storage Temperature	Outdoor unit: -40~60°CIndoor unit: 5~60°C
Max Humidity	Outdoor unit: ≥95%RH (35°C)Indoor unit: ≥90%RH (30°C)
Operating Altitude	≤3000m above sea level

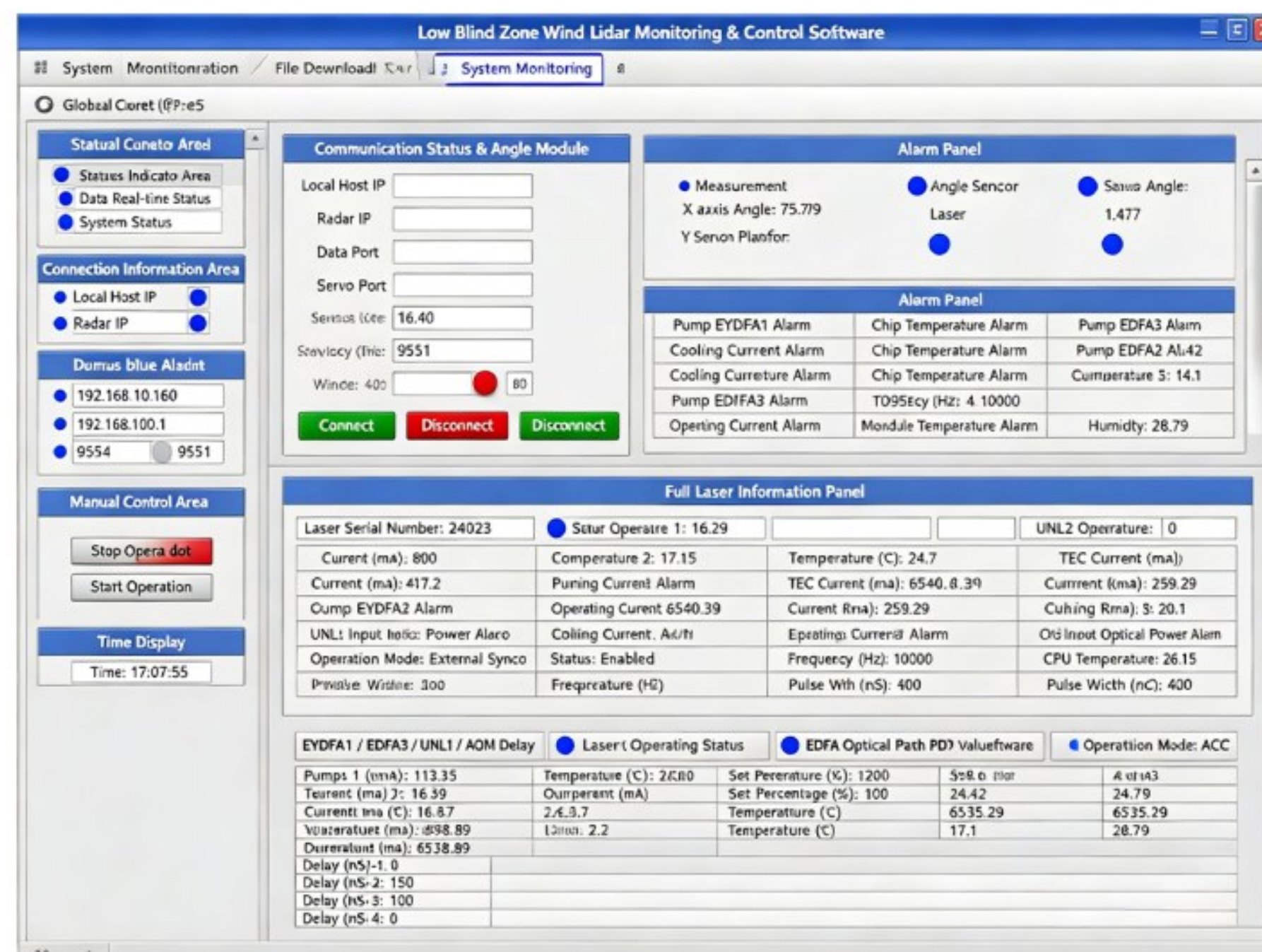


Software Interface



ZhiCloud Cloud Platform

Centrally manages all types of monitoring equipment such as meteorological stations and environmental monitoring stations. It displays real-time data (visibility, temperature & humidity, waterlogging, etc.) and location information of all on-site IoT devices. It also supports equipment status monitoring, historical data query, curve analysis and other functions, helping users remotely monitor environmental conditions and equipment status at all observation points.



System Monitoring Interface

Left section: Connection information (local host / radar IP, port), manual control buttons and real-time clock
 Middle section: Operating status of communication modules, angle sensors, laser and other components, as well as current and temperature data of core parts such as pump and EDFA
 Right section: Alarm status indicators (pump current over-limit, temperature alarms) and multi-channel temperature data of thermal modules