



# LASER CLOUD HEIGHT METER



## Introduction

Zhice Yunlian Laser Cloud Height Meter is a sensor that automatically and continuously monitors cloud base height. Adopting Mie scattering laser radar technology, it vertically emits infrared pulsed laser at a fixed frequency, and detects atmospheric backscattering signals at fixed time intervals to obtain echo profiles of height distribution.

Through signal processing and algorithm analysis, it identifies cloud layers, calculates and outputs cloud base height and cloud layer thickness, and counts cloud coverage. Vertical visibility can also be calculated under overcast sky conditions.

## Functional Features

### **Anti-pollution Observation Optimization**

Equipped with inclined optical window design, built-in lens contamination detection and automatic heating self-cleaning function. It effectively removes snow and ice accumulation to improve observation performance during precipitation.

### **Flexible Multi-scenario Deployment**

Compact, lightweight and easy to install with stable performance and strong environmental adaptability. Suitable for fixed ground observation; compatible with vehicle-mounted, ship-borne mobile observation via shock-absorbing accessories.





Structure

### Inclined Top Optical Window

Dual inclined window design separately for transmitting and receiving optical paths. The inclined surface reduces rain, snow and ice adhesion.



### Core Detection Module

Integrated laser transmitting unit, photoelectric receiving unit and signal processing board.

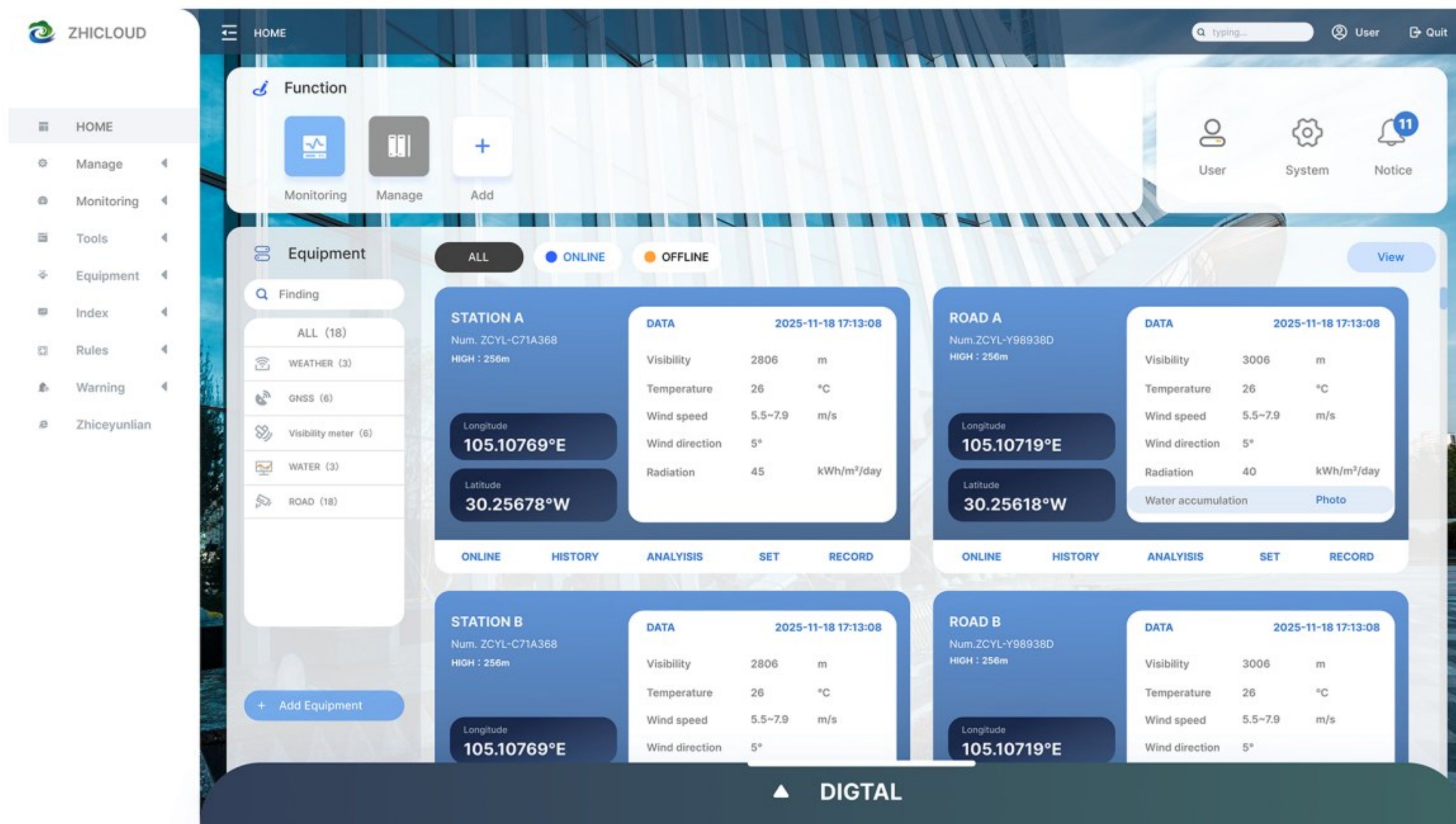
### Integrated Protective Enclosure

High-strength waterproof plastic with IP67 protection grade.  
Built-in constant temperature control system enables stable operation of core modules within wide temperature range of -45~55°C.

Specifications & Parameters

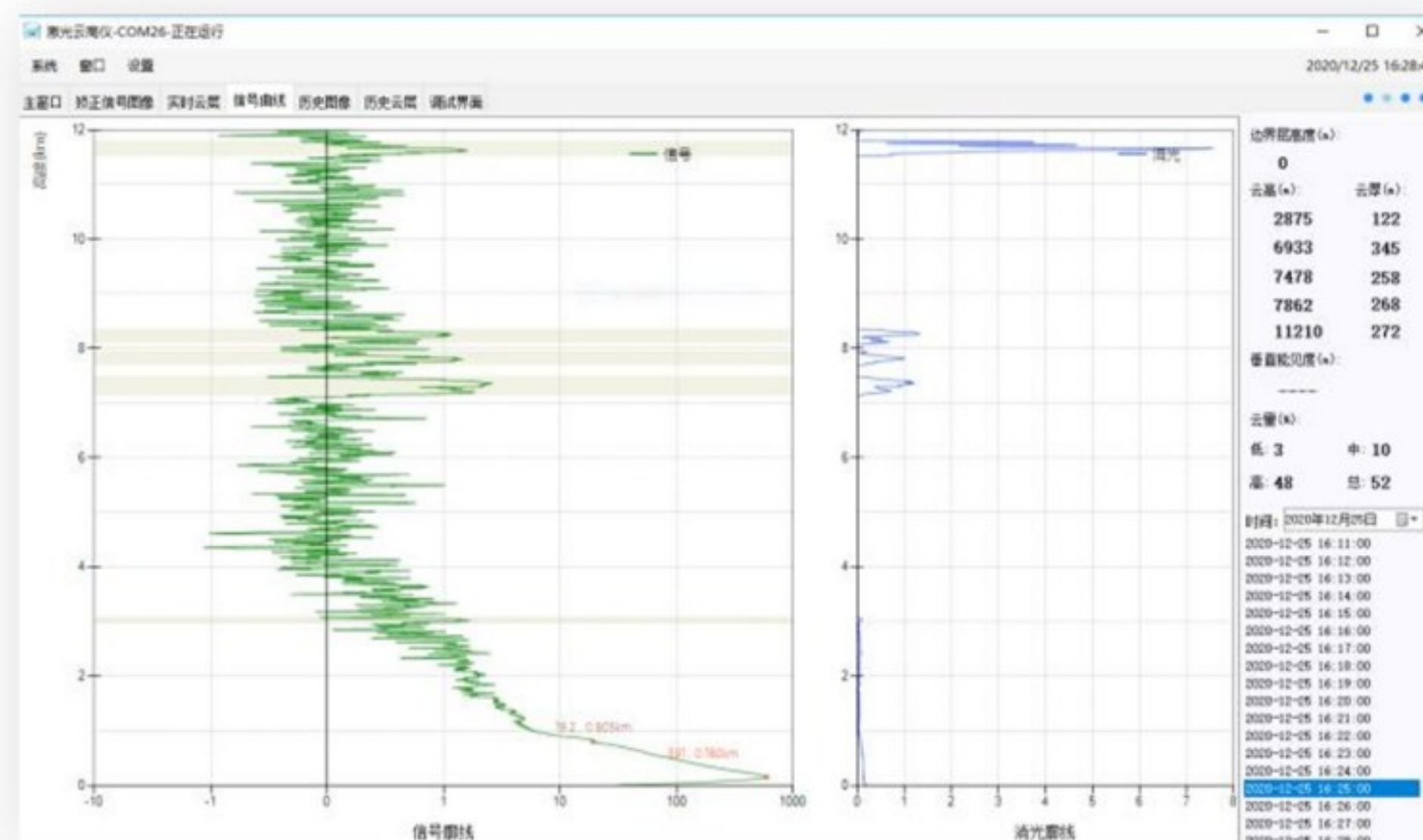
| Category                   | Parameter Item                           | Specification Description                         |
|----------------------------|------------------------------------------|---------------------------------------------------|
| Physical Specs             | Dimension (L×W×H)                        | (350±10) mm × (230±10) mm × (520±10) mm           |
|                            | Weight                                   | ≤ 20kg                                            |
| Measurement Performance    | Cloud Base Measuring Range               | 15~12000m                                         |
|                            | Accuracy for Solid Targets               | ±15m; ±15m (<150m), ±10% (150~300m), ±20% (>300m) |
|                            | Spatial Resolution                       | 5m                                                |
|                            | Detectable Cloud Layers                  | Up to 5 layers                                    |
|                            | Data Output Interval (Measurement Cycle) | 60s (default); 120s; 30s optional                 |
| Electrical Performance     | Power Supply                             | AC 198-242V / DC 24V                              |
|                            | Power Consumption                        | ≤ 10W (without heating); ≤ 100W (heating enabled) |
|                            | Communication Interface                  | RS232 / RS485                                     |
| Environmental Adaptability | Operating Temperature                    | -45~55°C                                          |
|                            | Operating Humidity                       | 0~100%RH                                          |
|                            | Storage Temperature                      | -55~60°C                                          |
|                            | Storage Humidity                         | 0~100%RH                                          |
|                            | Protection Grade                         | IP66 / IP67 optional                              |

## Software Interface



## ZhiCloud Cloud Platform

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



## Monitoring Data Visualization

The left signal profile (green curve) shows laser echo intensity at different heights, locating altitude distribution of cloud layers, aerosols and other targets. The right extinction profile (blue curve) reflects variation of atmospheric extinction coefficient.

The right panel synchronously displays key metrics: cloud ceiling, cloud amount, vertical visibility, plus time-series observation logs. It supports simultaneous comparison of real-time and historical data, enabling meteorologists to quickly grasp atmospheric structural evolution and providing intuitive basis for meteorological observation & analysis.