

Application Scenarios



1. Rocket Launch Site

Location: Open high ground / observation platform near the command center or within the operation area.

Key Requirements: Clear vertical & horizontal line-of-sight over the operation airspace; avoid high-voltage lines, communication towers, and other strong EMI sources; installation height $\geq 3\text{m}$ to minimize ground vapor and obstacle interference; optional solar power for field sites without mains.



2. Civil Airport

Location: Outer approach zones at runway ends (500–1000m from edge), parallel to centerline; with wind/-ceiling sensors near terminals or runways.

Requirements: Height 5–10m; no beam blockage; avoid engine wake and fuel areas; EMC-compliant.



3. Expressway

Location: Guardrails/gantries in fog-prone sections (bridges, tunnels, bends, downhills); service areas or emergency stations (5–10km spacing).

Requirements: Height 3–5m; two-way coverage; no obstructions; near communication cabinets for power and 4G/5G; avoid tunnel airflow.



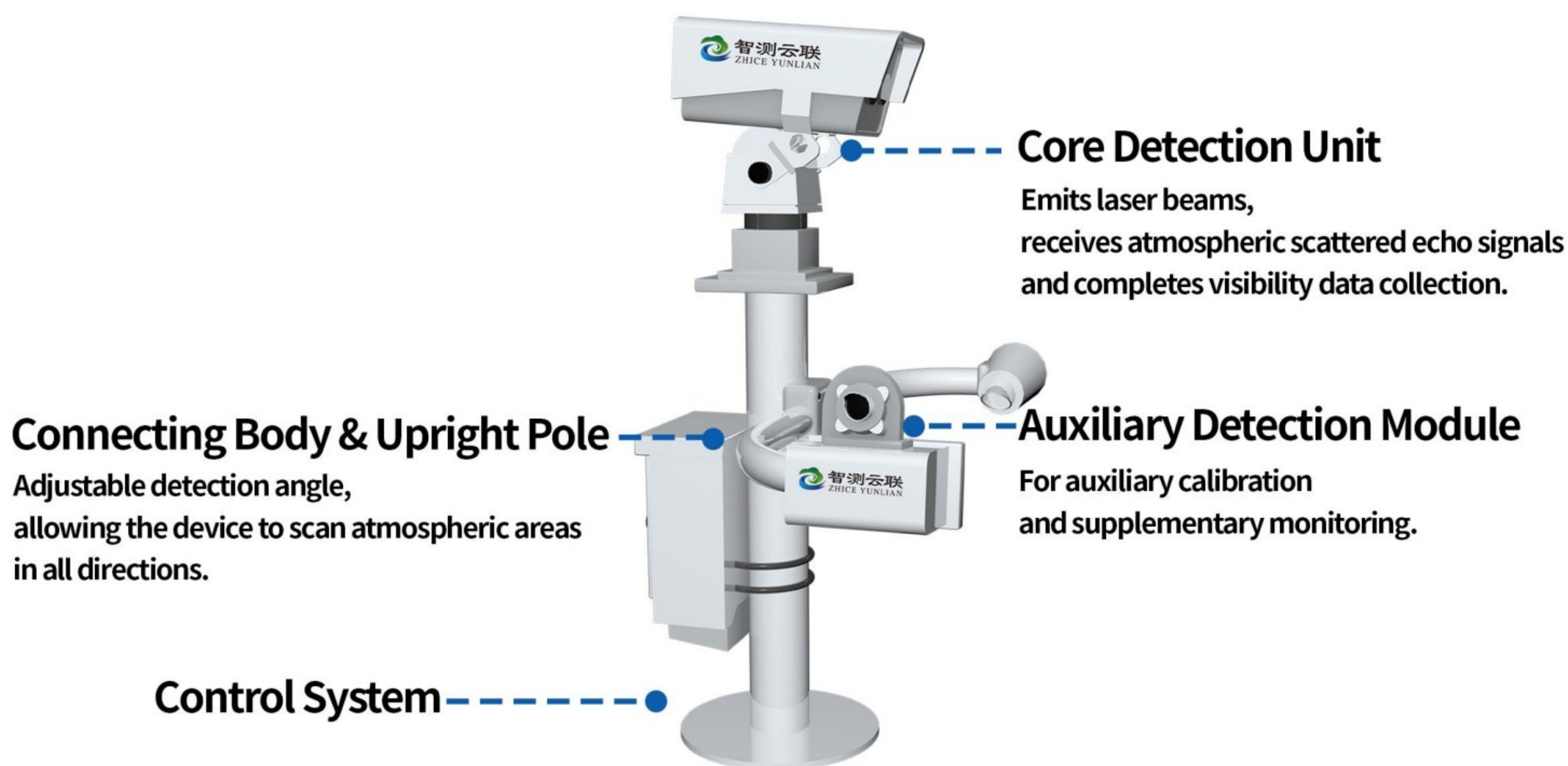
4. Port & Vessel

Location: Wharf fronts, observation piers, breakwaters, lighthouses, VTS rooftops; vessel masts or wheelhouse tops (marine mounts on anti-fog/anti-vibration bases).

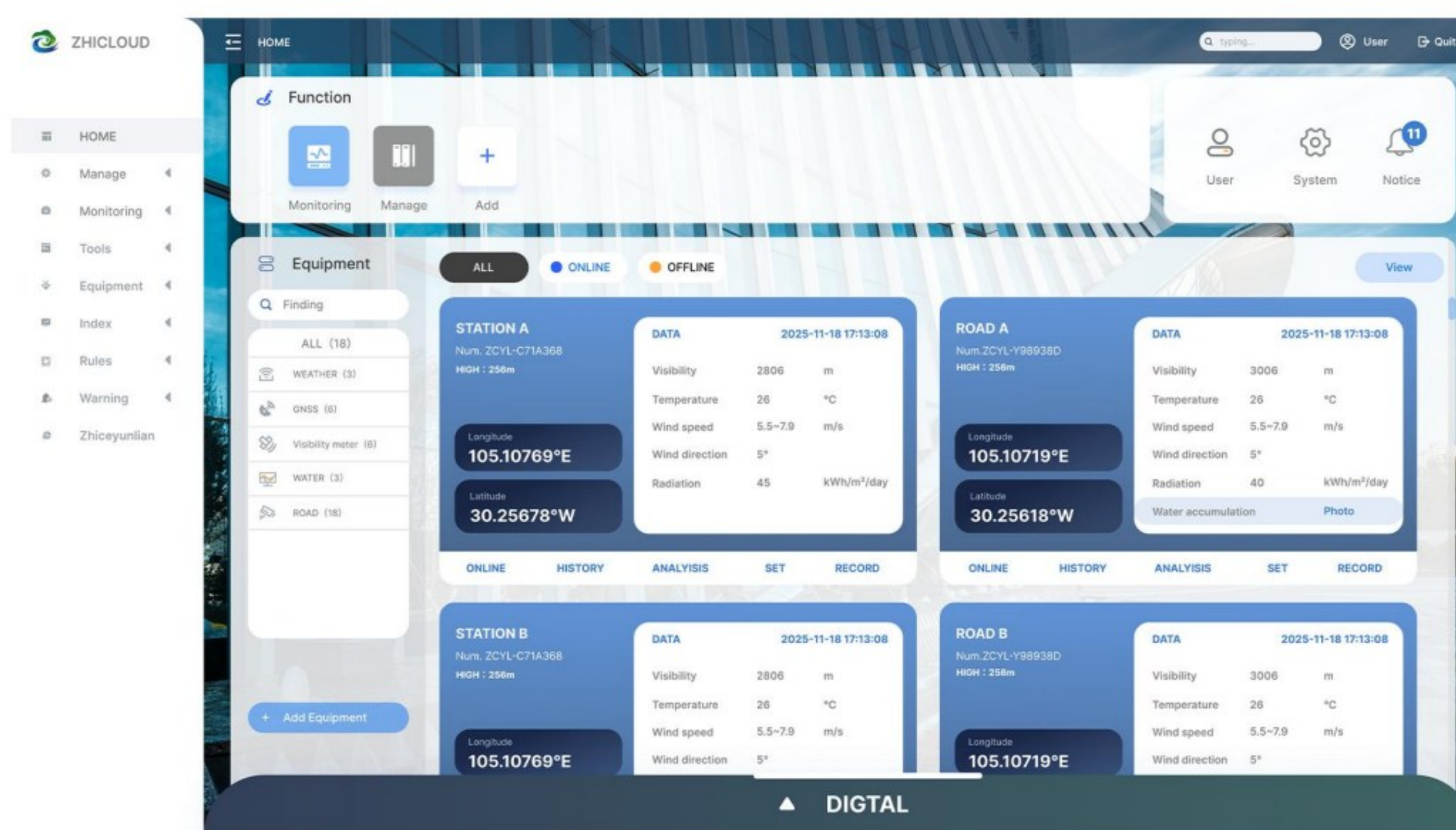


Structure

★ Material customizable on demand



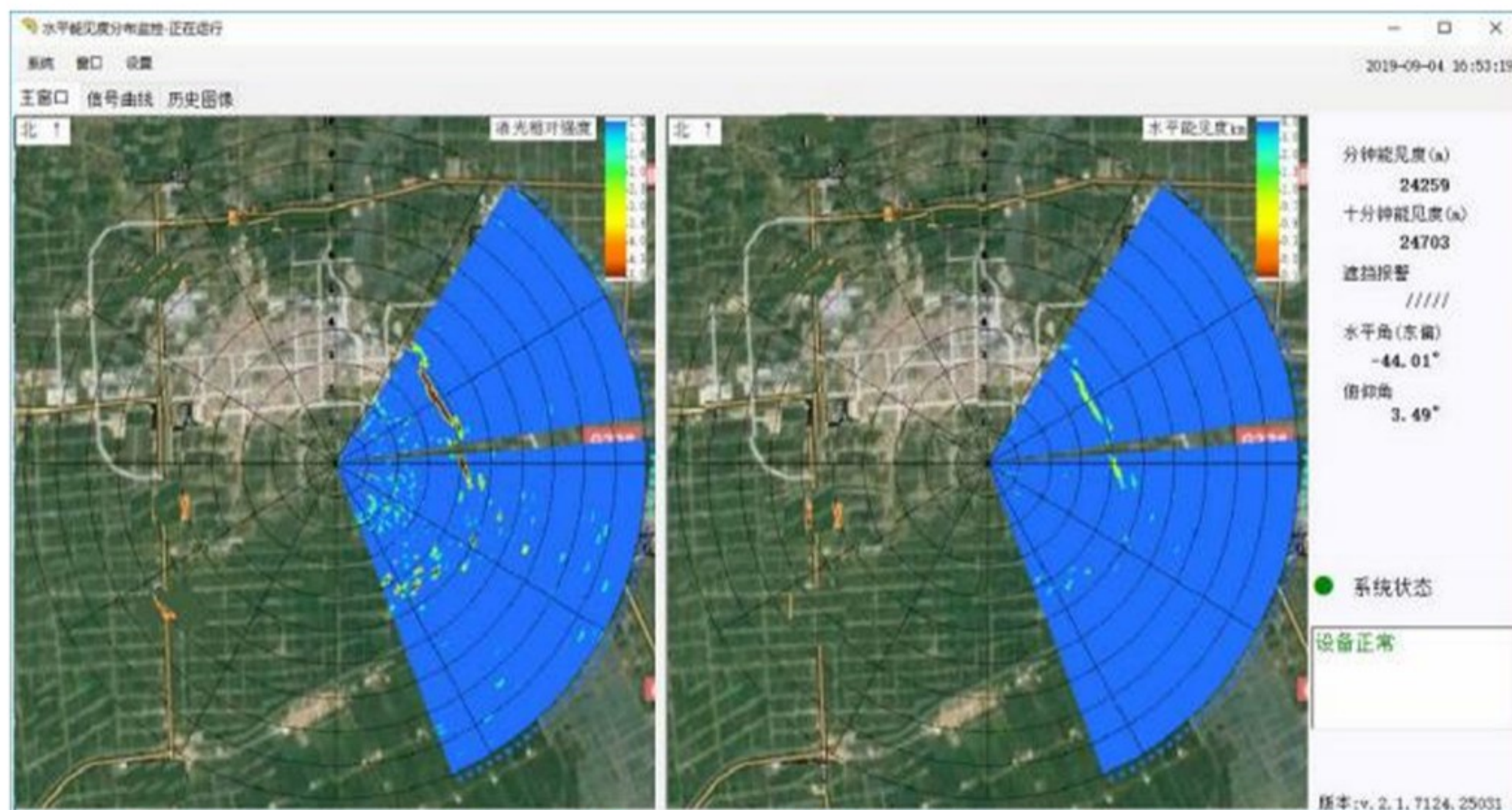
Software Interface



ZhiCloud Cloud Platform

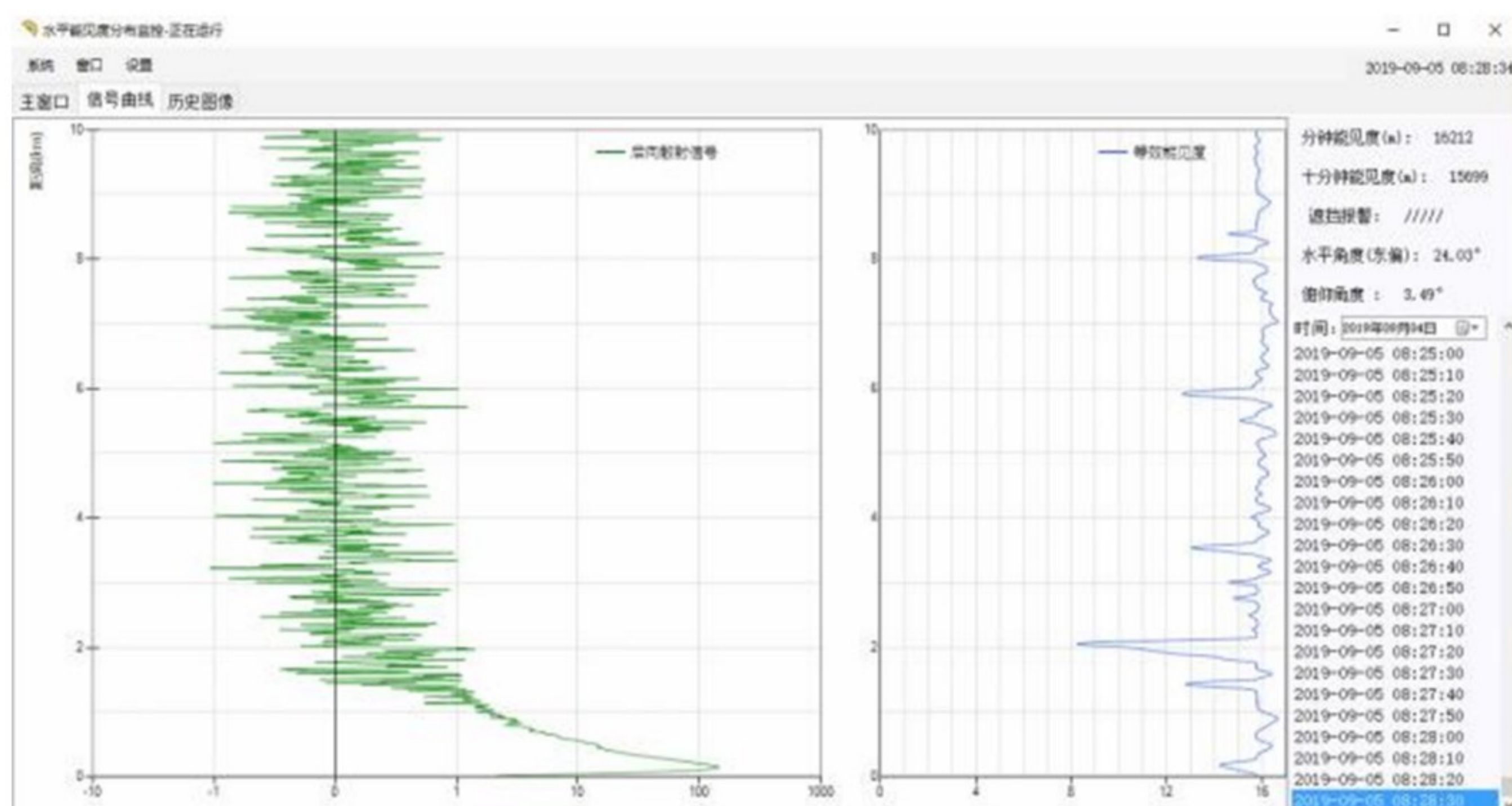
Centrally manages all types of monitoring equipment (meteorological stations, environmental monitors, etc.). It displays real-time data (visibility, temperature & humidity, waterlogging, etc.) and location information of all IoT devices on site. It also supports equipment status monitoring, historical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





Regional Distribution of Visibility

Regional visibility distribution is displayed via map and color heat maps. Blue areas stand for high visibility, while yellow and orange areas represent low visibility. The two subgraphs correspond to monitoring results at different time periods and scanning angles respectively.



Temporal Variation Trend of Visibility

The green curve on the left shows the temporal variation trend of visibility. The horizontal axis represents distance and time dimension, and the vertical axis represents visibility value. Fluctuations of the curve reflect visibility changes at different times and distances (for example, a downward curve indicates reduced visibility, which may correspond to thickening fog or haze).



? Specifications & Parameters

Item	Parameter
Dimension	(730±10) mm × (620±10) mm × (2370±10) mm
Weight	≤100kg
Detection Range	50–10000m
Temporal Resolution	Adjustable from 5s to 10min
Spatial Resolution	5m
Visibility Measuring Range	50–20000m
Power Supply	AC 220V / 50Hz
Power Consumption	≤50W (without heating)≤150W (heating enabled)
Interface Type	RJ45 / 4G Wireless
Operating Mode	24-hour continuous operation
Operating Temperature	-45~55°C (without heating mode)-20~50°C (without constant temperature mode)
Operating Humidity	0–100%RH
Overall Protection Grade	IP65–IP67, customizable

! Terms and Definitions

Laser Radar:A device that uses laser as light source to detect target characteristics and measure atmospheric conditions.

Visibility:The maximum distance at which a person with normal eyesight can distinguish an object with sufficient apparent angle and brightness contrast against the background under current weather conditions, measured in meters (m) or kilometers (km).

Meteorological Optical Range (MOR):The distance at which the luminous flux of a parallel beam emitted by a 2700K incandescent lamp is attenuated to 5% after absorption and scattering by the atmosphere.

Spatial Resolution:The minimum spatial distance distinguishable by the laser radar visibility meter along the beam propagation direction under specified environmental conditions.

Temporal Resolution:The minimum time interval for data collection when the laser radar visibility meter operates normally.