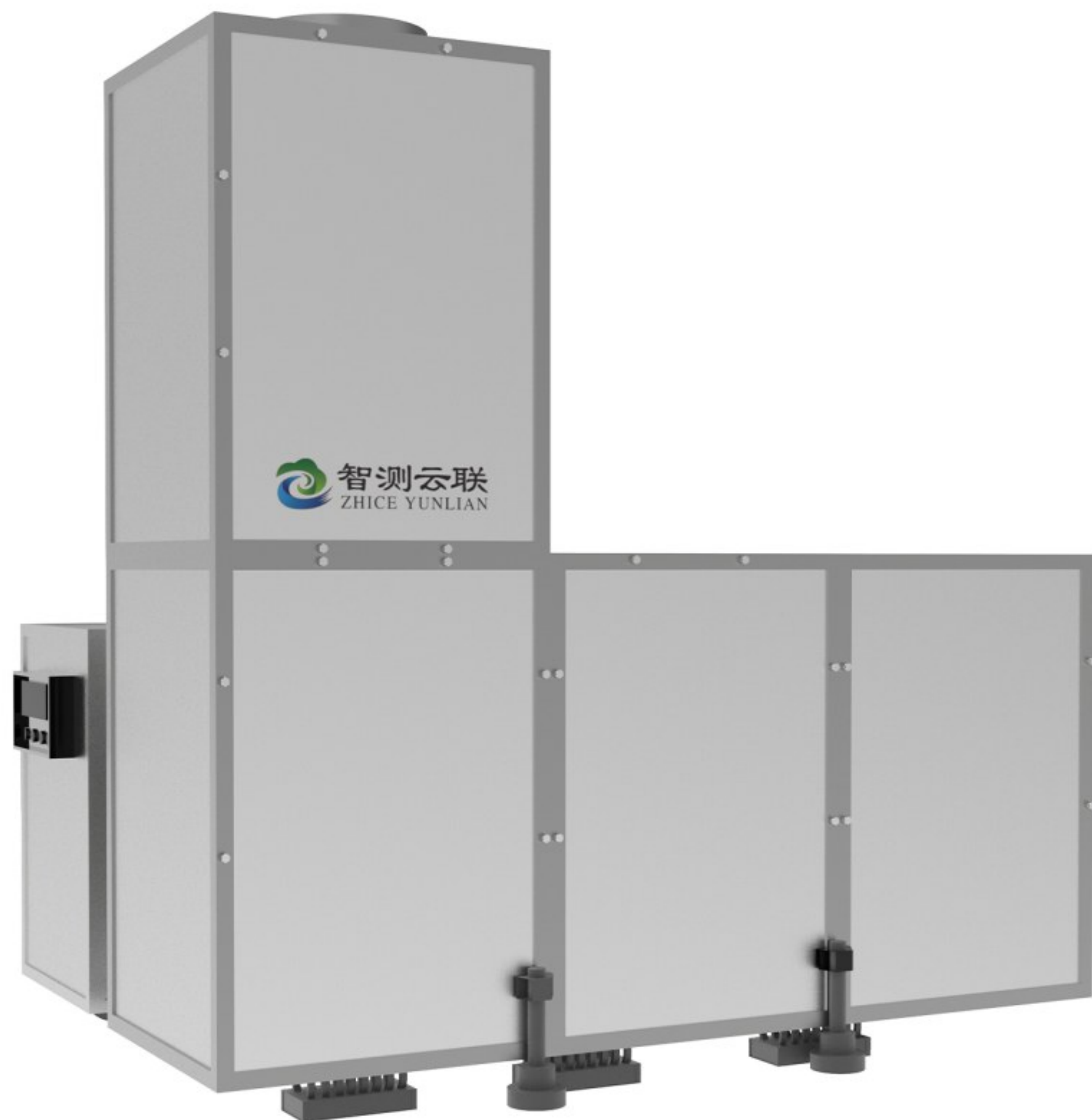




RAMAN HUMIDITY AND TEMPERATURE LASER RADAR



Introduction

Based on the Raman scattering principle, the Raman Humidity and Temperature Laser Radar developed by Zhice Yunlian can automatically, real-time and continuously monitor the vertical profiles of atmospheric temperature and humidity. It supports uninterrupted day-and-night detection and adapts to various atmospheric environment monitoring scenarios, providing accurate data support for atmospheric research and environmental management & control.

Advantages

1. Wide detection range, operable day and night. The minimum detection height is 5 meters above ground, effectively eliminating measurement blind zones.
2. Equipped with grating spectroscopic module to effectively suppress background noise; PMT signal amplification technology improves the measurement accuracy of weak micro-signals.
3. Abundant data types, including raw signals and primary products of temperature & humidity profiles. Secondary aerosol-related products can be obtained with optional supporting software.
4. Terminal software supports real-time data processing and component status monitoring, graphically displays data and supports local storage.



Composition

The core components of Zhice Yunlian Raman Humidity and Temperature Laser Radar include:

- 1. Nd:YAG solid-state laser (emitting 355nm narrow-linewidth high-energy pulses)
- 2. Array receiving telescope assembly
- 3. Precision optical fiber transmission and grating spectroscopic module
- 4. PMT signal amplification and photon counting acquisition module
- 5. Terminal application software

All components cooperate to realize signal emission, reception, processing and data presentation.

Specifications & Parameters

Category	Item	Parameter
Hardware Parameters	Laser	Nd:YAG solid-state laser @355nm
	Detector	PMT
	Detection Channels	5 channels: 355nm, 357nm, 407nm
	Receiving Telescope	Array assembly, max diameter Φ500mm
	Data Acquisition Mode	Photon counting
Measurement Performance	Minimum Detection Height	5m
	Maximum Detection Height	3000m
	Temperature Measuring Range	-65~80℃
	Humidity Measuring Range	0~100%RH
	Temperature Measurement Accuracy	±1℃
	Humidity Measurement Accuracy	±5%RH
	Aerosol Extinction Accuracy	±10%
	Minimum Temporal Resolution	5 min
Electrical Performance	Minimum Spatial Resolution	3m
	Power Supply	AC220V, 50Hz
	Power Consumption	≤3kW
	Communication Interface	RJ45, USB

Precautions

- *Strict requirements for operating environment; stable and appropriate temperature & humidity must be maintained during observation, operation and storage.
- *For long-term fixed observation, an observation room with temperature control capability shall be equipped, and a skylight shall be arranged on the roof.
- *For field operation, a fixed experimental cabin or mobile observation vehicle shall be configured.