MOVELASER

3D Scanning Doppler Wind Lidar
Molas 3D

Molas 3D is a three-dimensional scanning doppler wind lidar based on the principle of pulsed laser coherent Doppler frequency shift. Various scan modes (PPI/RHI/DBS/programmed scan) are realized. Molas 3D can be applied to offshore wind resource assessment, complex terrain research, wind turbine wake detection, airport glide path wind shear warning, urban meteorological observation, high-altitude turbulence detection and other customized wind speed measurement scenarios.

Product Advantages

- **Rich measurement information:** 3D wind field refined measurement, up to 300 custom distance layers
- **large range:** 10km sight detection distance (under the height of 600m)
- **High precision:** Pointing accuracy 0.01°, visual direction wind speed accuracy 0.1m/s
- **Rich scanning methods:** PPI/RHI/DBS/ Programmable arbitrary scan method
- **Flexible deployment:** Small and lightweight, easy to transition and build
- **all-weather:** No fear of harsh wild environment, with LPZ0B minefield survivability
- **Safe to use:** With GPS location reporting and geo-fencing functions, data encryption has no risk of leakage
- **Rich configuration:** 4 distance resolutions and 5 accumulation times to choose from

Application Field

wind power

civil aviation

meteorological

air quality inspection

- Wind resource assessment, measuring wind field information in a large area, reducing site selection risk
- Long-distance power curve measurement, wake eddy current measurement, optimize wind energy utilization, optimize unit efficiency
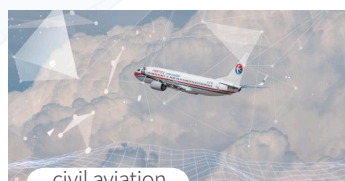
- Detection and early warning of dangerous meteorological phenomena, such as wind shear, microburst, etc.
- Measure wake vortices to optimize flight separation for airport traffic
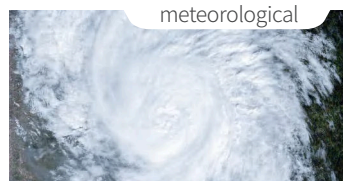
- Provide wind field information to understand the state of wind in the boundary layer
- Provides accurate and high spatiotemporal wind profile information within a few kilometers of the near surface, filling the gap in low-altitude observations
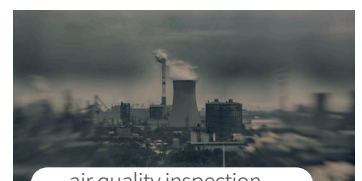
- Real-time 3D information on plume dispersion to track emission sources
- Optimizing Dust Emission Control for the Mining Industry

Parameters

Basic Parameters

Maximum acquisition distance	15km
Sight detection distance	10km (under the height of 600m)
Vertical measuring distance	4km
Distance Resolution	15m、30m、75m、120m
Accumulation Time	0.2 ～ 10s optional
Sight wind Speed Range	-50~+50m/s
Sight Wind Speed Accuracy	0.1m/s
Distance Layers	up to 300
Horizontal Range	360° × n
Vertical Range	-10°~190°
Pointing Accuracy	±0.005°
Scanning Method	PPI、RHI、DBS and program scan
Data Output	Profibus DP/Modbus TCP/CAN optional
Data Network	1000BASE-TX or 4Gremote access

Other Parameters

Power Consumption	Room temperature within 300W / Extreme temperature within 1KW
Powered Supply	220VAC±20% / 50Hz±10%
Size	750mm*650mm*1150mm
Weight	≤160kg

Auxiliary Function

Data Storage Time	5 to 18 months
Data Format	.csv file

Environmental Parameters

Operating Temperature	-40 ～ +55°C
Operating Humidity	0% ～ 95% RH
IP Protection Level	Housing IP65，Inner ModuleIP66
Storage Temperature	-40 ～ +70°C
Storage Humidity	5% ～ 100% RH no condensation

Schematic Diagram Of 3D Scanning Doppler Wind Lidar

Fiber Laser

Seedder — Coupler — Driver — Modulator — EDFAs — Circulator — Telescope — Scanner

f_d – Doppler Shift

Aerosol Particles in the Atmosphere

BPD — Coupler

CDU

Low Noise Amplifier

Analog-digita Converter — Processor

SPU

Legend:
— Optical Fiber Connection
— Electrical Connection