3D Scanning
Wind LiDAR

Enhanced Wind Shear, Turbulence, and Wake Vortex Detection

The DTN LiDAR-based Windshear Alerting System (LiWAS) is a state-of-the-art solution to track headwind and tailwind direction changes in airports concerned about windshear avoidance events. As an expert, DTN was the first company to be license by UCAR to use the LiWAS Phase-3 algorithm developed for the FAA.

DTN partners with leading wind LiDAR manufacturers like LEICE, to deliver best in class wind shear alerting solutions. LEICE's Wind3D 10K has the ideal price/ performance ratio for aviation weather applications, such as wind shear, turbulence, or wake vortex detection.

Seamlessly integrated with the DTN Metconsole Aviation Weather Suite

The Wind3D 10K can be deployed as part of MetConsole® LiWAS or fully integrated with MetConsole LiWAS and an X-Band Doppler Weather Radar as part of an enhanced low-level wind shear alerting system.

Overview

- With a minimum range resolution as low as 15 m, and an operational maximum range of up to 10 km. The Wind3D 10K 3D Scanning Wind LiDAR is the perfect choice for monitoring, identification, and alerting of low-level wind shear, clear air turbulence, and wake vortex.
- Thanks to its low power consumption, small size, and weight, the Wind3D 10K can be easily deployed within the runway strip, like any other meteorological sensor to better monitor the glide path, or on the roof of the control tower or terminal building.
- Its full-sky high accuracy optical scanner and its customizable script scanning capabilities, allow for maximum flexibility in the deployment of scanning scenarios (DBS /VAD /PPI /RHI /CAPPI/ LOS/custom scanning).
- High accuracy: wind speed accuracy against reference cup anemometer <0.1 m/s.
- High resolution: up to 10 Hz refresh rate and up to 15 m of range resolution.
- Robust design to withstand the most severe and demanding environmental conditions.

Technical Data Wind3D 10K

Main Features	
Laser wave length	1.5 µm, eye safe
Radial detection range	60m to 12000m
Range resolution	15 m / 30 m / 60 m / 150 m User selectable
Integration time	0.1s to 10s User selectable
Radial wind velocity range	-37.5m/s to 37.5m/s
Wind velocity accuracy	≤0.1 m/s
Wind velocity range	0 to 75 m/s
Wind direction range	0 to 360°

Scanning Modes and Data Outputs	
Scanning modes	LOS / DBS / VAD / PPI / RHI / CAPPI / User Configurable Script Programming
Scanning angular range	Azimuth: 0 to 360° Elevation: -90° to 270°
Servo pointing accuracy	±0.1°
Scanning speed	≤55°/s User programmable
Data outputs	DBS / VAD wind profile, vertical airflow (vortex detection), RHI / PPI / CAPPI radial velocity field and inversion wind field, virtual met tower, wind turbine wake field, wake vortex and wind shear, cloud and aerosol back-scattering intensity, visibility
Data formats	ASCII / CSV / JSON
Data storage	1 TB, for typically 1 year of data
Data transmission	Ethernet / Wi-Fi (standard) FOC, Modbus /RS485 (optional)

Other	
Power supply	220 to 250VAC, 50 / 60Hz (can be powered at 24 VDC)
Power consumption	< 200 W < 800 W (coolers/heaters ON)
Dimensions	640×740×1075mm
Weight	< 110 Kg
Environmental	Temperature: -40 to 55 °C Humidity: 0 to 100% Ingress Protection: IP66 a Anti-corrosion: ISO12944, ISO9226 Rain-wiper Built-in heating system
Others	Embedded GPS for time synchronization, servo-following camera system for weather recording and security protection

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