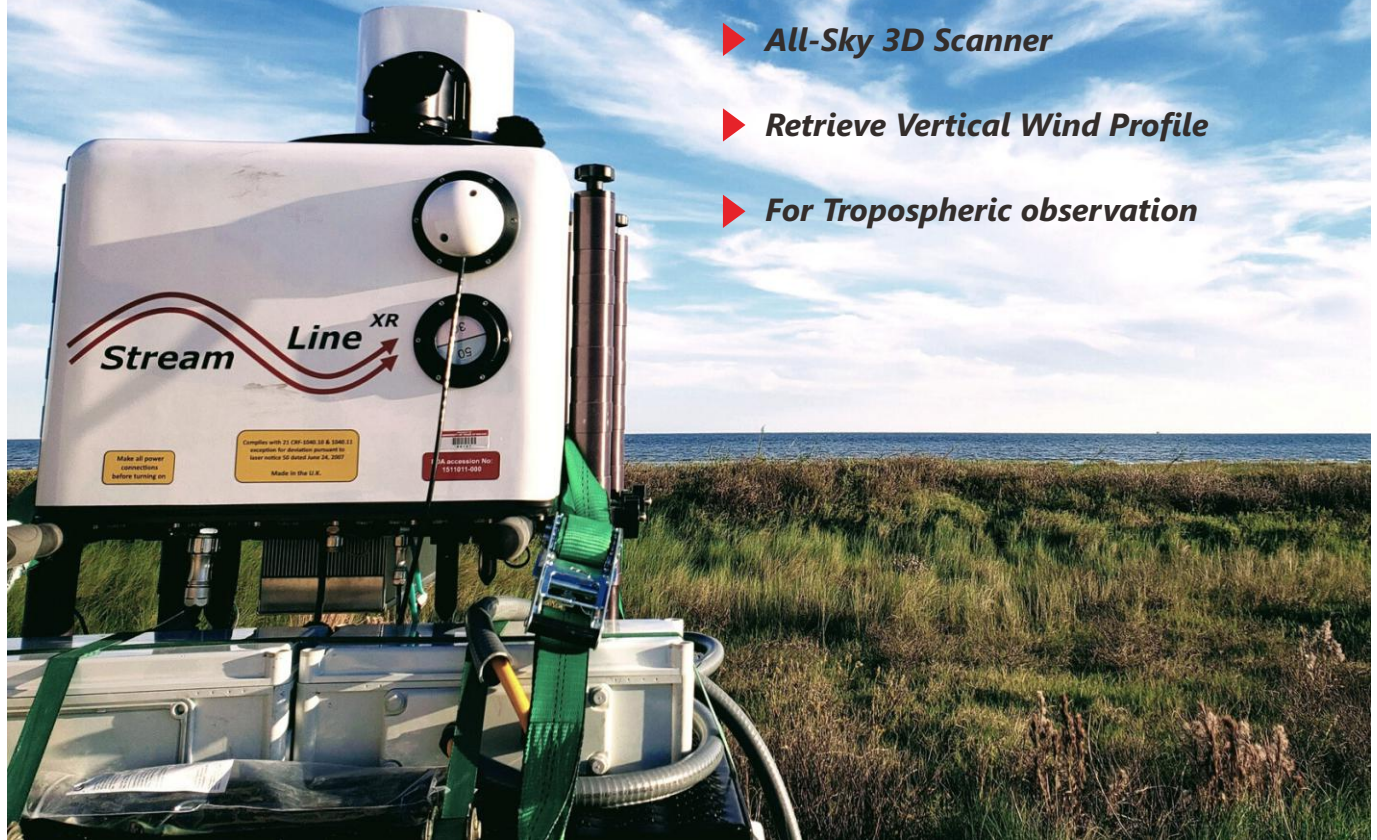


HALO StreamLine Doppler LiDAR

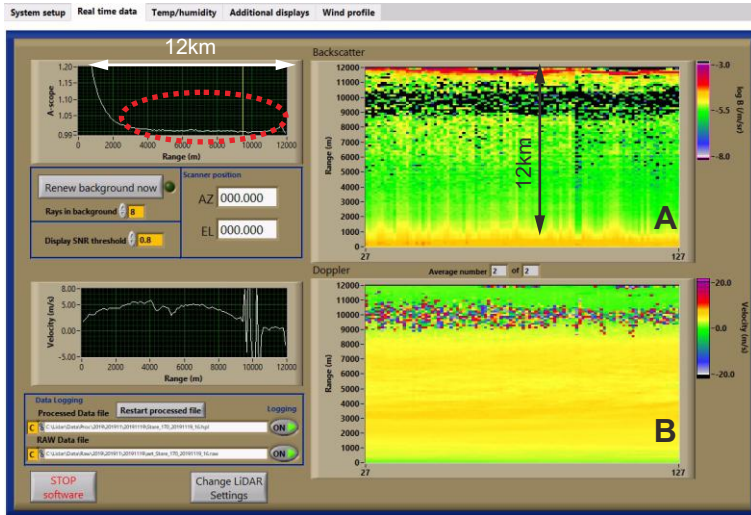



- ▶ **All-Sky 3D Scanner**
- ▶ **Retrieve Vertical Wind Profile**
- ▶ **For Tropospheric observation**

Key Features

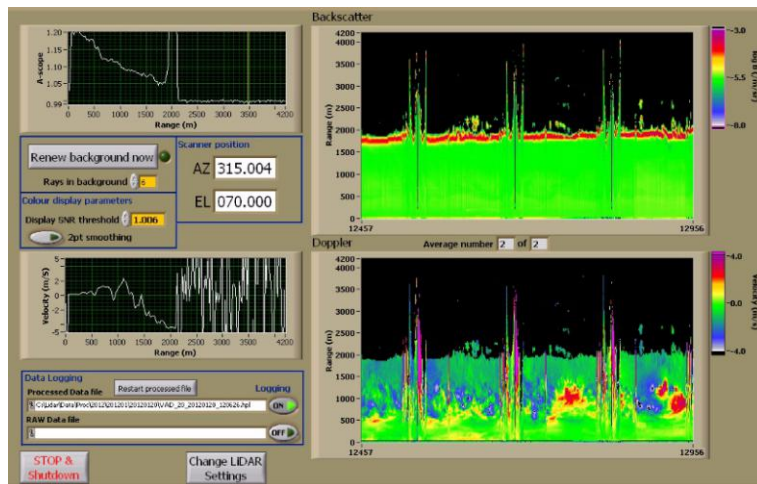
- *Over the past 15+ years Halo Photonics has deployed hundreds of LiDAR systems all over the world in remote and harsh environmental.*
- *Halo Streamline Doppler LiDAR is a pulsed lidar system with a heterodyne detector operating in the near-infrared spectral 1.5 μm .*
- *All-sky scanner has full hemispheric scanning capability and arbitrary scan patterns.*
- *Provide range and time-resolved measurements of radial velocity, attenuated backscatter, and signal-to-noise ratio (SNR) with user-selectable resolution.*
- *Raw averaged data can be logged (un-range gated) and re-processed using different gate lengths and averages.*
- *Gate range 18m to 120m selectable and 3m resolution of gate overlapping.*
- *Compact design Weight 85kg and low maintenance.*
- *Power consumption 24V DC 150W, optional extra 340W for enhanced cooling for 45C°.*

StreamLine v14 is a suite of software to controlling the embedded PC and software modules to running the LiDAR. It is a very easily setting scan schedules and run real time data displayed by A-scope, Doppler velocity both versus range and Scanner position and Data logging on the left. Below is XR+ screen shot.

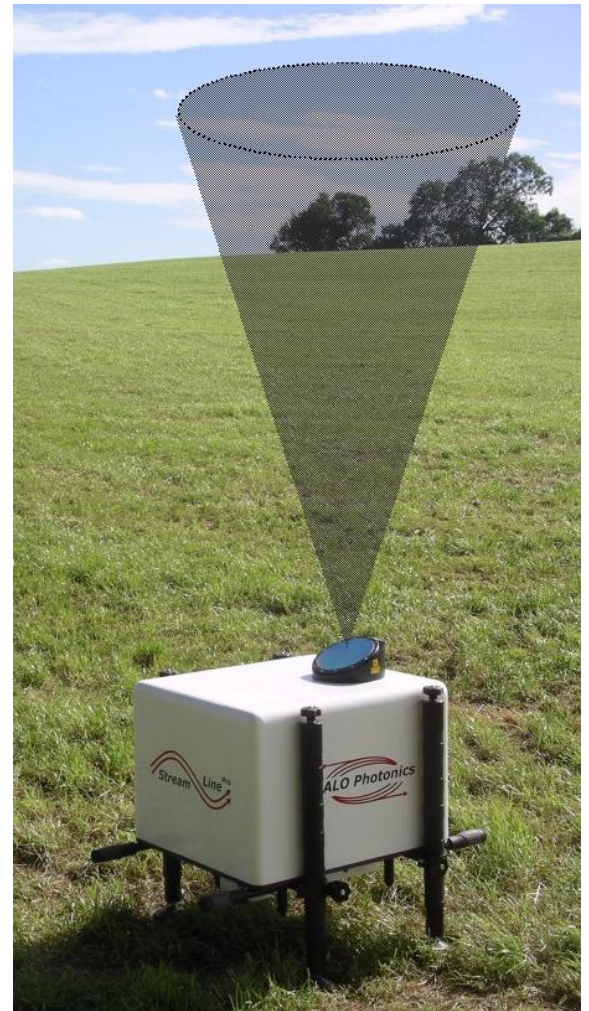
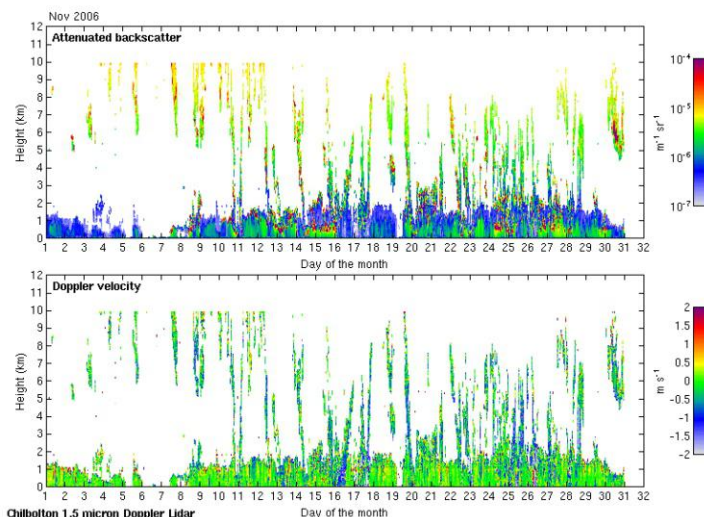


- Samples A is the back scatter intensity and in B is the lower diagrams the radial Doppler velocity
- More powerful transmitter extends range by 50 – 100 %
-  High performance Signal processor extracts consistent Doppler estimates even at low SNR
- Minimum blind zone, first usable range gate is the first gate
- Scan patterns synchronised to GPS time

StreamLine Pro Real-time data quick-look showing vertical profiling with periodic wind profiles by range gate 30m



The daily Halo Doppler lidar images created at Chilbolton by the real-time system, and is updated automatically once a day.





PRO



XR



XR+

Halo all-sky scanner is a flexible selection to fill requirement of modern meteorological observations. No matter portable or stationary observation, its accuracy, reliability, durability, light weight, power saving, low maintenance has won a credit out of clients in the fields.

Measurement & Performance

Data availability range	StreamLine 10, 7, 3 Km by version StreamLine Pro 10 km (70° to 90°) StreamLine XR 12 km StreamLine XR+ 15 km Range variable Depending on aerosol loading of Atmosphere.	Software	Selectable range gate size, number of shots to average and number of gates to process per ray. Raw averaged data can be logged (un-range gated), and re-processed using different gate lengths and averages.
Radial wind velocity range	50MHz ±19 m/s (standard) 100MHz ±38 m/s (optional)	Operating Temperature	-20°C to +45°C, further options are available
Velocity Precision	50MHz ≤ ±0.038 m/s for SNR>-17 dB 100MHz ≤ ±0.074m/s for SNR>-17 dB	DataTransfer/Format	UDP data broadcasting, ASCII
Wind Direction range	0~360°	Safety	Eye Safety Standard IEC60825-1 Laser classification Class 1M Eye Safe
Wind Direction resolution	≤ 2°	Dimension / Weight	Pro 63 × 53 × 40 cm / 60 kg XR 63 × 53 × 40 cm / 85 kg XR+ 63 × 53 × 65 cm / 85 kg
Range gate	User Selectable from 18m to 120m	Power Requirement	24V DC, 150W Extra 340 W for enhanced active cooling option
Overlapped range gate	3m resolution	Direct & Derived Measurements	<ul style="list-style-type: none"> Line-of-sight velocity and SNR Attenuated backscatter Wind speed and wind direction Cloud base height& vertical velocity
Wavelength	1.548 μm		
Minimum Range	Typically < 60m Depending on version		
Temperal Resolution	Selectable 0.1~30 seconds		
Pulse rate	15KHz or 10KHz depend on model		
IR rating	IP66		

Scanning Pattern and Operation mode

Step/Stare	Fixed stare pointing	Scanning Angle	Azimuth full hemispherical coverage 0 - 360° Elevation -15° to 195° (except pro) With ≤ 0.01° resolution in both axes
PPI	Plan Position Indicator	Scanning Speed	Increase from 0.01°/s Angular speed up to 30°/s
VAD	Velocity Azimuth Display	Operation mode	Both step-stare and continuous scanning modes are available and user adjustable
RHI	Range Height Indicator		
User defined	Arbitrary scan patterns		

Halo StreamLine LiDAR series benefit an advantage to fill the gap of boundary Layer observation in Troposphere. Retrieval of vertically resolved wind measurements are crucial for numerical weather prediction, climate research and for modeling aerosol transport.



Meteorology

- Boundary layer properties & dynamics
- Cloud physics
- Analysis of complex flows



Climate Monitoring

- Pollution dispersion
- Cloud statistics
- Inputs to high resolution forecast modelling



Environmental Safety

- Gust detection
- Fluxes of pollutants
- Tracking & quantifying aerosol



Wind Energy

- Site survey
- Power performance assessment
- Now-casting



Aviation Safety

- Wind shear
- Turbulence
- Wake vortex dynamics/dispersion



HALO PHOTONICS BY LUMIBIRD

HALO Photonics was acquired by the Lumibird group at December 2019 with the common aim of utilizing Lumibird's manufacturing and photonics experience and HALO's leading wind LiDAR products to be better service and application support capacity and further develop HALO's best in class wind LiDAR observation systems.

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With a capital of 22 466 882 € - SIREN 970 202 719 - R.C.S. SAINT-BRIEUC - Export TVA FR 76970202719