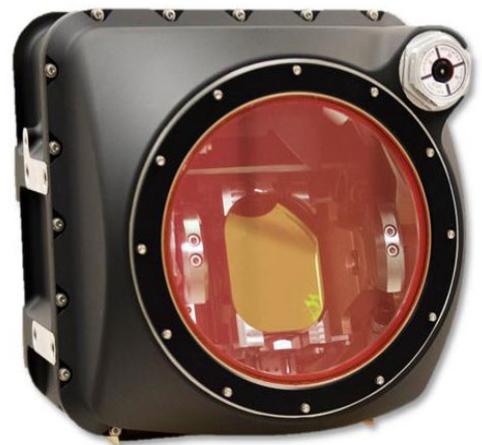# LiSA

Lidar for Situational Awareness

Areté's Lidar for Situational Awareness (LiSA) is a state-of-the-art sensor providing superior pilotage and safety, improving understanding of hazards, wires, obstacles, flight paths and landings in all weather conditions, especially Degraded Visual Environments (DVE). LiSA provides superior range – 2km – and real time 3D spatial awareness of the operational environment and flight guidance at all phases of flight.

LiSA enables safer flight and survivability across flight profiles, from Medical Evacuation, to Search and Rescue, Wildland Fire Operations, Emergency Rescue, and other Civil operations.

LiSA is currently in service with over 20,000 flight hours executed with no sensor failures - enabling thousands of safe landings and flight operations at nighttime, in brownouts, whiteouts, snow, sand, smoke, smog, clouds, fog, rain, and flat light.

Key Features

- **Superior Pilotage** – in all phases of flight, in all conditions.
- **Safe Low Level Terrain Flight** – provided by Real-Time, High-Fidelity 3D imaging at 2km Range.
- **Increases aircrew/aircraft safety** – avoiding obstacle strikes or Controlled Flights Into Terrain (CFIT).
- **Low Size, Weight, and Power** – supports flexible aircraft configuration and integration.
- **FAA Certified** – DO-178C Certified.

LiSA – Lidar for Situational Awareness

Areté LiSA Lidar Operational Parameters		
Wavelength	1.54 µm	Eyesafe
Pulse Rep Rate	Variable	50-250 kHz
Angular Resolution	0.02° (0.38 mrad) full angle	IFOV
Range	0 to 2000 m	R=30% at 2000 m
Range Precision	< 3"	SNR dependent
Field of Regard	45°AZ / 60°EL	Elevation stage
Frame	45°AZ / 10°EL	Tunable scan pattern
Frame Rate	500 vertical (EL) lines/sec Nominal 4 Hz AZ scan rate	Tunable scan rate
Lidar Processing		
Lidar Processing	Full waveform capture and processing	Real-time FPGA
Number of Detects/Waveform	Up to 3 points per pulse	Hard target detections with advanced dust rejection
Output	Streaming pointclouds	Sensor relative
Physical / Environmental		
Size	10" x 9.5" x 12"	<1000 in^3
Weight	31.5 lbs (14.3 kg)	
Power	250W nominal (400W Max)	400 W when window heater ON
Temperature Range	-40° to 70° C	
Vibration	4.92 g RMS functional vibration testing 4.54 g RMS CH-47 D external stores	MIL-STD-810G 514.6+ Compliant
Shock	107g peak	MIL-STD-810G 513.6 Compliant
Humidity	95% relative humidity +60°C for 6 hours followed by 95% RH +30°C	MIL-STD-810G 507.5 Compliant
Certifiable	DO-178/254, DAL C	