cosine

Stereo Imaging Laser Altimeter

The Stereo Imaging Laser Altimeter (SILAT) combines two optical cameras with a low-power photon-counting laser altimeter. The result is a light, multifunctional instrument suite designed for high resolution multispectral images, stereoscopic images, and high accuracy altimetry from the air or from space. This makes SILAT suitable for spectral imagery and topographic studies ranging in scope from altimetry to full DEM data, all from a single payload.

SILAT combines the following sensors into one instrument:

High Resolution Camera

The high-resolution camera is a high resolution multispectral camera. The nadir pointing camera has excellent response from the near-UV to the near-IR, therefore custom filter configurations can be applied to tailor the spectroscopic response.

Stereo Camera

The stereo camera uses the same detector and filter technology as the high-resolution camera, but is oriented 27° off of nadir. The images are easily combined with HRC data to produce stereoscopic imagery of the target area.

Photon-Counting Laser Altimeter

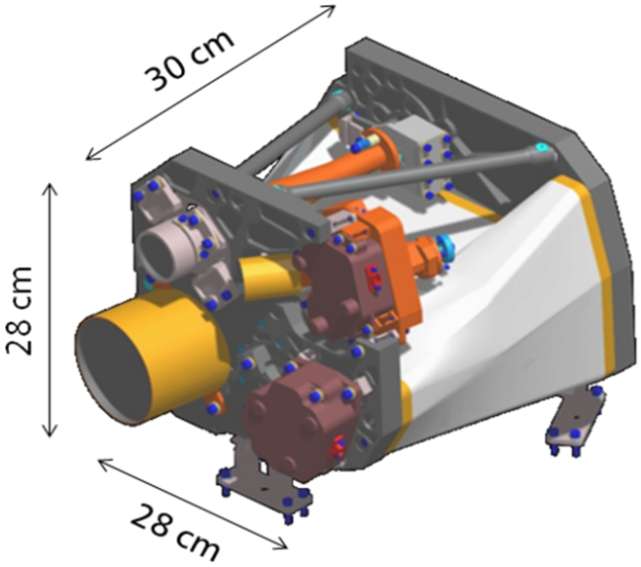
The laser altimeter operates a pulsed laser and a photon avalanche detector with a clock speed of a single nanosecond, which enables a vertical resolution of 15 cm. The transmission unit is modular with an exchangeable microchip laser source.

Microchip Laser

Part of the laser altimeter system, the microchip laser produces a pulsed beam that operates at 10 kHz and has a pulse energy of 25 µJ. The microchip laser is only 5 cm in length and weighs 30 g.

Using cosine's Highly Integrated Payload Suite (HIPS) technology for integration and miniaturisation, the volume, mass and power requirements are significantly reduced.

SILAT	
Total Mass	5 kg
Size (LxWxH)	30x30x30 cm
Avg. Power consumption	12 W
High Resolution Camera (HRC)	
Spectral Bands	404.0 ± 22.5 nm 559.0 ± 32.5 nm 671.0 ± 30.0 nm
FOV	3.3 deg
Aperture	65 mm
Resolution (pixels)	2048 x 2048
Stereo Camera (S-CAM)	
Spectral Band	559.0 ± 50.0 nm
FOV	4.7°
Aperture	18 mm
Resolution (pixels)	1024 x 1024
Laser Altimeter (LAT)	
Laser Wavelength	532 nm
Vertical Resolution (at 600 km AGL)	0.15 m
Ground Resolution (at 600 km AGL)	30 m



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