

LizzieSat® is a highly adaptable satellite bus platform engineered to support a wide range of mission profiles, including in-orbit demonstrations, Earth observation, technology validation, and microgravity research.

Built with flight-proven subsystems, LizzieSat® delivers reliable remote sensing capabilities and actionable data to a diverse customer base across commercial, government, defense, and intelligence sectors.

By enabling complex missions and delivering high-value insights, LizzieSat® empowers users to meet their unique operational, scientific, and research objectives in space.

Key Benefits

- » **Flight Proven TRL-9** - Space-rated Technology Readiness Level-9 (TRL-9) composite hybrid 3D-printed satellite structure, 100 kg - 800 kg size class, and 3/5/7 year mission life
- » **Multi-mission Capable** - Multi-mission capable with simultaneous multi-sensor (multispectral, AIS, optical and other sensor) data collection
- » **Software Defined Satellite** - Highly reconfigurable and reprogrammable, allowing operators to modify their functionality and performance post-launch and on-orbit
- » **Near Real-time Actionable Data Transmission** - Orlaith™ AI Ecosystem provides rapid on-orbit data analysis, pattern recognition, custom analytics, data fusion, and continuous modeling

Missions



LizzieSat®-1 (LS-1)
March 4, 2024 | Transporter-10
Vandenberg SFB



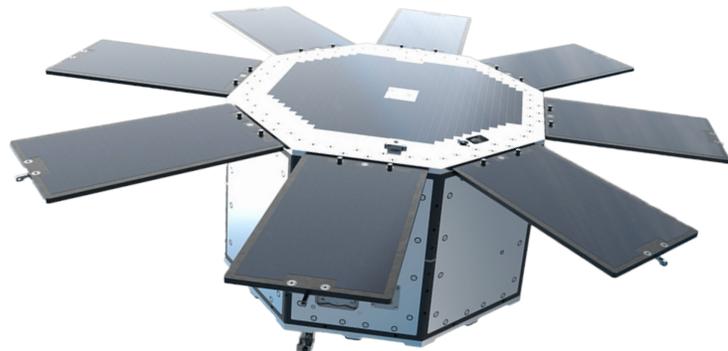
LizzieSat®-2 (LS-2)
December 21, 2024 | Bandwagon-2
Vandenberg SFB



LizzieSat®-3 (LS-3)
March 14, 2025 | Transporter-13
Vandenberg SFB

Applications

- » Antennas
- » Command and Data Handling (C&DH) Hardware
- » Magnetometers and Magnetorquers
- » Microgravity and Radiation Exposure Testing
- » Propulsion
- » Radio Frequency Hardware
- » Reaction Wheels
- » Remote Sensors
- » Solar Cells
- » Star Trackers
- » Sun Sensors



LizzieSat® Specifications

Size and Dimensions	Class	Microsatellite
	Mass	100 kg
	Shape	Octagonal Prism
	Volume	11,500 in ³ (188U)
	Side Width	12.0 in.
	Height	17.2 in.
	Flat-to-Flat	29.0 in.
	Tip-to-Tip	31.4 in.

Power Storage	Battery Type	Lithium Ion
	Energy Storage	1100-Wh [Two (2) 550-Wh battery assemblies]
	Operating Voltage	24.0V - 33.6V

Attitude, Determination and Control (ADCS)	ADCS Type	3-Axis Control
	Mean Accuracy	0.01 (3σ)
	Pointing Knowledge	0.01 (3σ)
	Mean High Frequency Jitter	(>20 Hz): 1.0e ⁻⁶ /s (3σ)
	Mean Low Frequency Vibration	(<20 Hz): 5.8e ⁻⁶ /s (3σ)

Solar Panels	Power	400W
	# Deployable Panels	8
	# Mount Panels	1
	Solar Cell	Triple Junction GaInP/GaAs/Ge on Ge Substrate
	Panel Structure	Aluminum Honeycomb on Composite Skin

Propulsion (Optional)	Type	Bi-propellant 1N Thruster
	Propellant	Nitrous Oxide (N ₂ O) and Propylene (C ₃ H ₆)
	Total Impulse	11.5 kNs
	Total Delta-V (ΔV)	1115 m/s

Orbital Parameters	Altitude	300 - 650 km
	Inclinations	30.0°, 45.0°, 51.6°, 63.4°, 92.0°, 98.6°
	Orbital Period	90.4 - 97.6 minutes

Payload Capacity	Available Mass	35 kg (Without propulsion) 20 kg (With propulsion)
	Available Volume	27U (Without propulsion) 18U (With propulsion)
	Available Power	28V (Each)

Payload Data Downlink	Transmitter Type	X-Band
	Frequency	8.025 - 8.4 GHz
	Data Rate	150 Mbps
	RF Output Power	27 - 33 dBm
	Protocol	DVB-S2 - ETSI EN 302 307-1
Modulation	QPSK, 8-PSK, 16-APSK, 32-APSK	

Telemetry, Tracking and Command (TT&C)	Transmitter (Tx) Type	S-Band
	Tx Frequency	2200 - 2300 MHz
	Tx Data Rate	2 Mbps
	Tx RF Output Power	up to 30 dBm
	Tx Protocol	CCSDS 131.0-B
	Tx Modulation	QPSK, 8-PSK, 16-APSK, 32-APSK
	Receiver (Rx) Type	S-Band
	Rx Frequency	2025 - 2120 MHz
	Rx Data Rate	256 kbps
	Rx Protocol	CCSDS 231.0-B-3
Rx Modulation	BPSK, QPSK	