

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

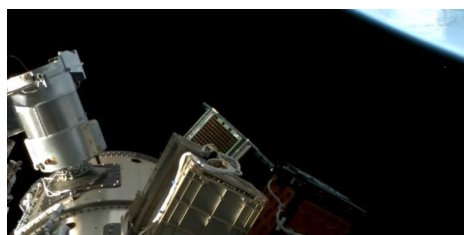
- » **Flight Proven TRL-9** - Space-rated Technology Readiness Level-9 (TRL-9) composite hybrid 3D-printed satellite structure, 100 kg - 800 kg size class, and 3/5/7 year mission life
- » **Multi-mission Capable** - Multi-mission capable with simultaneous multi-sensor (multispectral, AIS, optical and 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

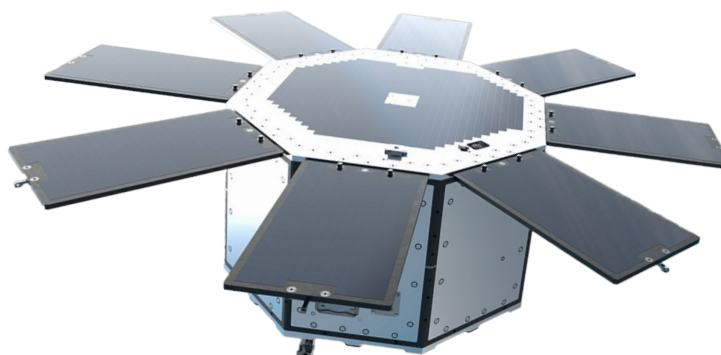


**LizzieSat®-3 (LS-3)**

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 <sup>3</sup> (188U)
	Side Width	12.0 in.
	Height	17.2 in.
	Flat-to-Flat	29.0 in.
Orbital Parameters	Tip-to-Tip	31.4 in.
	Altitude	300 - 650 km
	Inclinations	30.0°, 45.0°, 51.6°, 63.4°, 92.0°, 98.6°
	Orbital Period	90.4 - 97.6 minutes
	Available Mass	35 kg (Without propulsion) 20 kg (With propulsion)
	Available Volume	27U (Without propulsion) 18U (With propulsion)
	Available Power	28V (Each)
Power Storage	Battery Type	Lithium Ion
	Energy Storage	1100-Wh [Two (2) 550-Wh battery assemblies]
	Operating Voltage	24.0V - 33.6V
Payload Capacity	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
Attitude, Determination and Control (ADCS)	Modulation	QPSK, 8-PSK, 16-APSK, 32-APSK
	ADCS Type	3-Axis Control
	Mean Accuracy	0.01 (3σ)
	Pointing Knowledge	0.01 (3σ)
	Mean High Frequency Jitter	(>20 Hz): 1.0e <sup>-6</sup> /s (3σ)
Solar Panels	Mean Low Frequency Vibration	(<20 Hz): 5.8e <sup>-6</sup> /s (3σ)
	Power	400W
	# Deployable Panels	8
	# Mount Panels	1
	Solar Cell	Triple Junction GaInP/GaAs/Ge on Ge Substrate
Propulsion (Optional)	Panel Structure	Aluminum Honeycomb on Composite Skin
	Type	Bi-propellant 1N Thruster
	Propellant	Nitrous Oxide (N <sub>2</sub> O) and Propylene (C <sub>3</sub> H <sub>6</sub> )
	Total Impulse	11.5 kNs
	Total Delta-V (ΔV)	1115 m/s
Payload Data Downlink	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
Telemetry, Tracking and Command (TT&C)	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
Orbital Parameters	Rx Modulation	BPSK, OQPSK