

Feynman Launch Vehicle Datasheet

Payload

- 6U Cubesat deployer provided as default option
- Spacecraft can be powered on throughout the mission. Data and power are provided through quick disconnects.
- Special nanosatellite envelopes and payloads can be accommodated on a case-by-case basis with modified payload adaptor.

Reliability and ease of manufacture

The design philosophy of the vehicle is rooted in simplicity and reliability. The scale of the vehicle allows for the introduction of novel production techniques that keep the cost low while reducing component fault rates.

Reusability

Crucial components in the first stage are designed to be detachable for recovery post-flight.

High turnover rate

Streamlined integration, modular interfaces, and simplified vehicle operations are made possible by the small size of the vehicle. Multiple launch vehicles can be kept in stock simultaneously.

Stage 3

- High mass fraction, spin stabilized carbon overwrapped solid rocket motor

Stage 2

- Tank and LOX-methane engine design evolved from the Trailblazer sounding rocket
- Composite materials enable high mass fraction
- Electromechanical thrust vector control

Stage 1

- Powered by one Sisyphus aerospike engine with thrust vector control
- Stabilization fins* reduce range requirements and associated fees per launch
- LOX-Methane fueled, cost-optimized tank design

Pressure feed system

Highly optimized warm-gas system with external composite overwrapped tanks allow great reduction in vehicle complexity while maintaining performance.

Avionics

Controller and telemetry modules are based on Aphelion's previous work in guidance and control units, providing proven reliability.



Nanolauncher.

Feynman uniquely offers dedicated flight opportunities to CubeSat class spacecraft which have growing requirements for mission flexibility as their capabilities and mission scope increase.

- Extremely fast turnover rate is enabled by a lower cost vehicle that comes with mass produced components and a streamlined production process
- Ability to tailor missions to customer specifications
- Provides accommodation for special orbits and payloads, allowing previously impossible missions to be performed
- Fly what you need, when you need: no wait time incurred by ride-share or SmallSat launchers

We will launch Feynman regularly, with at least two flights scheduled every month in the operational phase, allowing ticket-like manifestation. This caters to the growing nanosatellite industry which finds itself

limited by the difficulties of obtaining a launch despite an ever-broadening range of applications. Our advantage over SmallSat launch vehicles is obvious: having a launch scheduled just for you gives you all the advantage of owning the primary payload at a fraction of the cost of our competitors. At the customer's request, we can deliver the nanosatellite into polar and highly eccentric orbits, or interplanetary trajectories.

Total vehicle mass	1426kg
Height	9.1m
Diameter	0.80m
Fuel	LOX-Methane first and second stage, solid third stage
Stages	3
Payload to 400km SSO	11kg
Projected cost per launch**	\$550,000

Launch cost includes:

- Integration and mission management services
- Ground support infrastructure for customer use at launch site
- Launch insurance and certification
- Client consultation