NEWSPACE MARKET

NEWSPACE MARKET · COMPANY PROFILE

Princeton Satellite Systems

United States · founded 1992 · psatellite.com

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PRODUCTS	SERVICES	WITH DATASHEETS

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as of 20 August 2026

ABOUT

Princeton Satellite Systems

Princeton Satellite Systems, Inc. (PSS) was founded in 1992 by Michael Paluszek, a veteran of the Charles Stark Draper Laboratory who supported early Space Shuttle missions and space station programs. Headquartered in Plainsboro, New Jersey, PSS describes itself as a small company specializing in advanced aerospace and energy technology, with aerospace expertise spanning over 30 years. The company serves U.S. government agencies including NASA, DoD, DOE, and ARPA-E under research and development contracts, while also selling commercial software and hardware products globally. PSS is best known for two parallel technology lines: its MATLAB-based spacecraft design and control toolboxes used by engineers and universities worldwide, and its work on Direct Fusion Drive (now branded Starfire) — a compact fusion-powered rocket engine developed in partnership with Princeton Plasma Physics Laboratory (PPPL). The Starfire concept targets 1–10 MW per engine with high specific power, enabling deep space missions to Mars, Jupiter, Uranus, and beyond. Beyond propulsion, PSS develops guidance, navigation and control (GN&C) systems, flight software, CubeSat hardware, optical navigation sensors, and power electronics for plasma generation. The company developed complete flight software for the Indostar geosynchronous satellite and continues to push research frontiers in hypersonics, advanced nuclear systems, and spacecraft autonomy.

This profile is generated from the live NewSpace Market catalogue. Specifications are as published by the manufacturer; every product links to a page where a request for quotation reaches the company directly.

SERVICES

Services

Customizing our toolboxes for your applications

Princeton Satellite Systems customizes its software toolboxes to meet specific customer application needs.

Training courses

Princeton Satellite Systems offers instructor-led training courses on the use of its software toolboxes.

PRODUCTS

Product catalogue

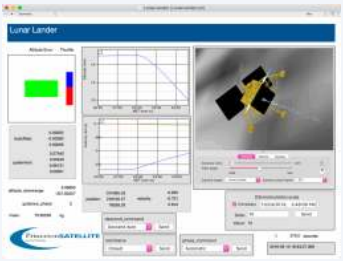
PRINCETON SATELLITE SYSTEMS

3U CubeSat Frame

A custom-machined aluminum 3U CubeSat frame, designed to house satellite components within the standard 10 x 10 x 30 cm form factor.

Weight	0.350 kg
Dimensions	10 × 10 × 10 cm

price on request



PRINCETON SATELLITE SYSTEMS

Advanced Nuclear Toolbox

MATLAB toolbox for analyzing fusion and fission nuclear reactor designs for spacecraft propulsion and terrestrial power, developed in partnership with Princeton Plasma Physics Lab

Platform	MATLAB
Fusion Fuel Cycles	D-T (Deuterium-Tritium), D-He3 (Deuterium-Helium-3)
Plasma Analysis	Collision cross-sections, radiation losses, superconducting magnet sizing
Fission Analysis	Core control simulations, shielding calculations
Mission Tools	Deep space trajectory planning, LCOE analysis
Integration	Compatible with Spacecraft Design Toolbox (SDT)
Development Since	2007

price on request

PRINCETON SATELLITE SYSTEMS

GeoMicroSat (GMS) Satellite Platform

Compact ITAR-free 3-axis-stabilized geosynchronous satellite platform for internet delivery, agricultural sensing, and secure communications with automated formation flying.

Dry Mass	292 kg
Solar Power	4.4 kW
Design Lifespan	10 years
Attitude Control	Four reaction wheels + star camera + MEMS IMU
Propulsion (E-W stationkeeping)	Hydrazine thrusters
Propulsion (N-S stationkeeping)	Hall thrusters
Communications (uplink/downlink)	C-band

price on request

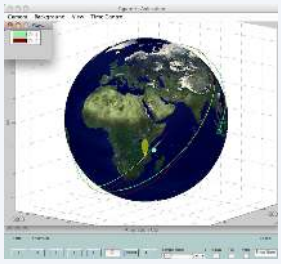
PRINCETON SATELLITE SYSTEMS

SDT Optical Navigation Module

MATLAB add-on for the Spacecraft Design Toolbox enabling optical navigation for solar system missions from Mars orbits to Earth reentry, including lunar landing trajectory generati

Platform	MATLAB (requires Spacecraft Design Toolbox)
Navigation Methods	Horizon/planet-center optical measurements, star catalog
Filter	Unscented Kalman Filter (UKF)
Multi-source Integration	GPS, range/range-rate, image-based navigation
Dynamical Models	Lunar and heliocentric
Mission Applications	Lunar landing/ascent, Mars orbit, Earth reentry
Export Classification	EAR99

price on request



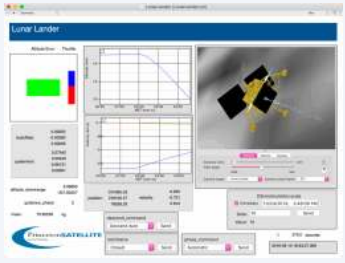
PRINCETON SATELLITE SYSTEMS

Spacecraft Design Toolbox (SDT)

MATLAB-based software suite for complete spacecraft design including attitude control, thermal, power, orbit and mass budgets — incorporating 50+ years of spacecraft engineering ex

Platform	MATLAB
License Type	Perpetual, full source code included
Support	90-day phone support, 1-year email support/updates
Export Classification	EAR99 (no export license required)
Key Capabilities	Attitude control, thermal, power, orbit, mass budgets, GN&C, disturbance analysis

price on request datasheet



PRINCETON SATELLITE SYSTEMS

Starfire (Direct Fusion Drive)

Compact fusion-powered rocket engine developed with Princeton Plasma Physics Lab, targeting 1–10 MW per engine for deep space missions to Mars, Jupiter, and beyond.

Power Output	1–10 MW per engine
Fuel	Deuterium–Helium-3 (D-He3)
Configuration	Princeton Field-Reversed Configuration (PFRC)
Heating Method	Odd-parity RF heating, steady-state closed-field
Target Missions	Human Mars orbit, Jupiter/Uranus probes, asteroid deflection
Propulsion Class	Compact fusion propulsion and power generation

price on request

Contact Princeton Satellite Systems

Open the company profile on NewSpace Market to see full specifications and datasheets, and to send a request for quotation that reaches the manufacturer directly.

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