

TILE-V1

Modular Small Satellite Propulsion

MISSION CAPABILITIES

- NON-KEPLERIAN ORBITS
- INCLINATION CHANGES
- ORBIT RAISES
- STATION-KEEPING
- CONSTELLATION SETUP
- DE-ORBIT

ACCION HERITAGE

DATE	MILESTONE/EVENT
2004	Proof of Concept
2015	First Technology Demo Flight
2017	TILE-Lite Qualification
2017	TILE Flight Qualification
2018	TILE-Lite Demo Flight
2018	TILE US AFRL Demo Flight
2018	First TILE Product Deliveries



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Images: Accion Systems TILE-V1 electric propulsion system including passive propellant supply and power electronics. Shown in linear thrust configuration; attitude control options available.

PRODUCT OVERVIEW

This 1U (10cm x 10cm x 12.5cm) system features high-specific impulse electric propulsion that delivers up to 4,860 N-s of impulse for small satellites. This configuration allows for up to 9 TILES to be used in parallel for higher-thrust applications.

The system, which includes the thruster head, propellant supply system, and power electronics is unpressurized for simplified integration and launch while providing 1,500 seconds of specific impulse.

PRODUCT SPECIFICATIONS

Performance Item	Unit	Specification
Dimensions	cm	10 x 10 x 12.5
Dry Mass	g	1,400
Total Impulse	N-s	4,860
Specific Impulse	s	1,500
Nominal Thrust (Axial)	mN	1.8
Minimum Impulse Bit	μN-s	< 15
Propellant		Ionic Liquid (non-volatile, unpressurized)
Power Consumption	W	Powered, standby for thrust command: 1.5 Nominal thrust output: 25
Hi-Rel, Radiation Tolerance		Yes, > 10 years LEO
Command/TLM + Power Interface		12-28 V Unregulated RS485, SPI
Operating (Survivable) Temperature Range	°C	-10 to 80 (-40 to 100)
Launch Environment Vibration Spec		GEVS

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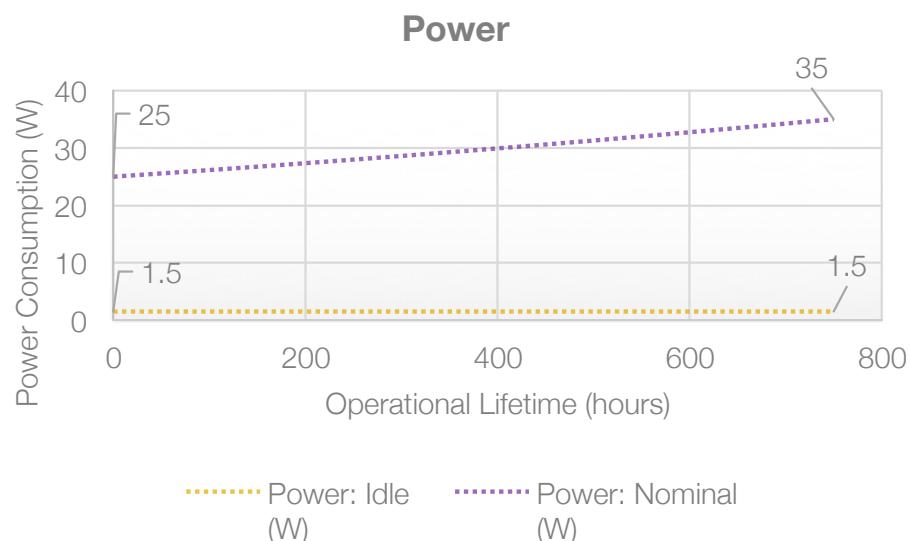
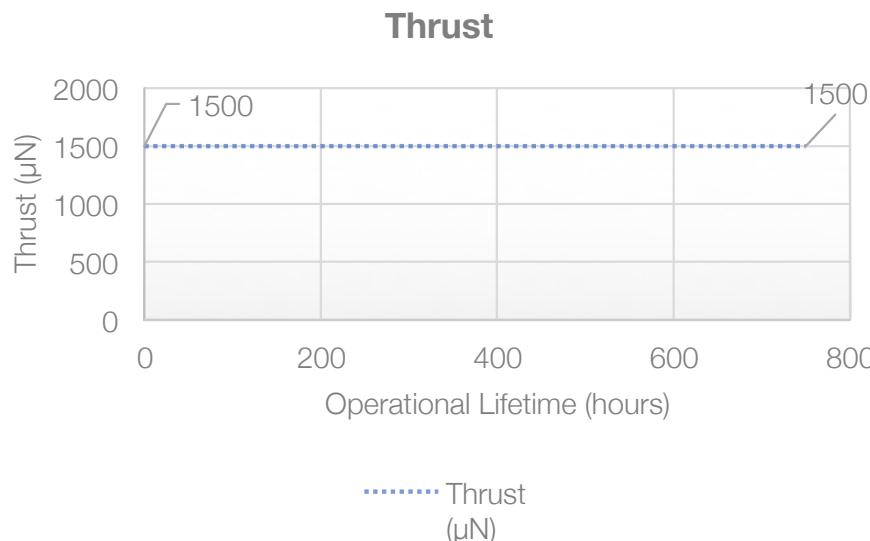
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COMMAND/TLM
INTERFACE

SPI, UART

LAUNCH ENVIRONMENT
VIBRATION SPECNASA GSFC-STD-7000A GEVS
Successful vibe testing to 14 gRMS

PERFORMANCE DATA





Accelerating the future of space.



ABOUT ACCION SYSTEMS

Accion Systems was founded to accelerate the exploration of space. To fulfill this mission, our experienced team develops in-space propulsion technologies that optimize scalability, performance and efficiency. Accion's flagship product, TILE, uses proprietary electrospray thrusters, bringing electric propulsion to satellites of all sizes and redefining in-space capabilities for the 21st century. Accion Systems was founded in 2014 by two MIT engineers, Natalya Bailey and Louis Perna, and is based in Boston, MA.

For more information about Accion Systems and TILE, visit www.accion-systems.com.



Accion Systems, Inc.
56 Roland St. Suite 206
Boston, MA 02129

(617) 500-2563
info@accion-systems.com

