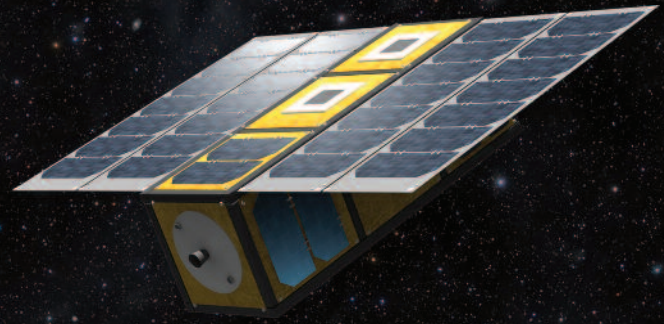




# COMET-1-300 WATER THRUSTER



## DSI Comet-1 CubeSat and Microsatellite Water Thrusters

The Comet-1™ line of thrusters are simple, launch-safe, and cost-effective electrothermal propulsion systems that use water as a propellant. Comet-1 thrusters are the ideal balance of cost and performance, occupying a place in the market between low-cost, low-performance cold gas and resistojets, and high-cost, high-performance monopropellant and electric systems. The Comet-1 design is scalable from CubeSats to small microsatellites, with a highly-flexible interface suitable for a wide range of spacecraft sizes.

Comet-1 is the first propulsion offering by DSI on its roadmap to create an ecosystem of safe, robust, and cost-effective propulsion technologies today that can be supplied by space resources in the future. Comet-1 is inert, launch-safe, and also safe for deployment from the International Space Station.

As of Q3 2016, six flight units have been ordered for Q3 2017 delivery.

### SPECIFICATIONS: COMET-1-300\*

#### Performance

Specific Power	2.52 – 2.8 W/mN
Specific Impulse	150 – 175 s
Nominal Power Consumption	0.25 W idle, 10 W thrusting
Maximum Power Consumption	25 W
Warmup Time	1 minute
Minimum Impulse Bit	25 mNs

#### Physical Characteristics

Volume (CubeSat units)	1.5U
Dry Mass	350 g
Propellant Mass	300 g
Input Voltage Range	8 – 34 V
Physical Layer Interface	UART, RS422/485, I <sup>2</sup> C, CAN
Protocol and Command Interface	NSPv4, customizable

*Specifications subject to change.*

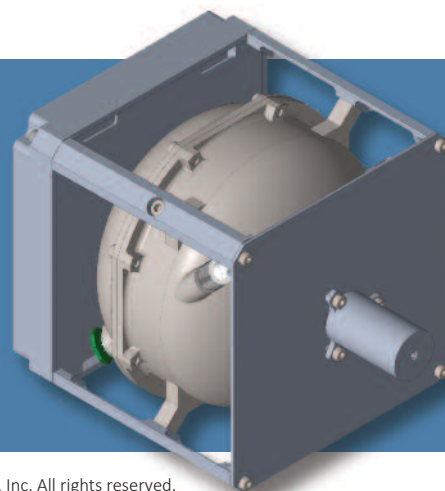
*\*Part number convention is Comet-1-<mass, g>*

### FEATURES

- Dedicated WARM, ARM, and FIRE commands
- Programmable thruster power consumption
- Pulsed- and continuous-mode operation
- Custom-locatable fill, drain, and purge ports
- Four customizable body heaters as-needed
- 0°C to 60°C operating temperature range
- Electronics assembly and inspection to J-STD-001 (space addendum) standards
- Environmental testing per NASA GEVS specifications

### Advantages of Comet-1

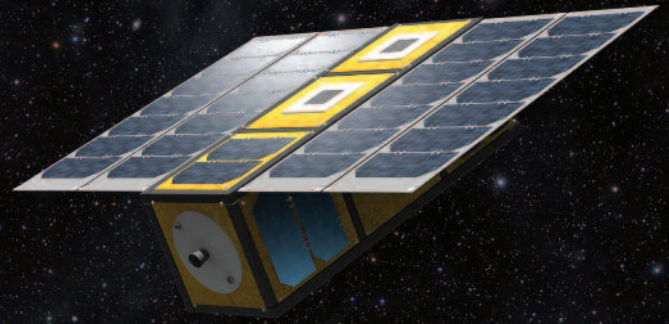
- High-performance, small package
- CubeSat compatible
- Clean, non-toxic, and launch-safe water propellant
- Integrated propellant management and control unit
- Digital command and telemetry interface
- Highly-customizable size and interface



Comet-1-300



# COMET-1-750 WATER THRUSTER



## DSI Comet-1 CubeSat and Microsatellite Water Thrusters

The Comet-1™ line of thrusters are simple, launch-safe, and cost-effective electrothermal propulsion systems that use water as a propellant. Comet-1 thrusters are the ideal balance of cost and performance, occupying a place in the market between low-cost, low-performance cold gas and resistojets, and high-cost, high-performance monopropellant and electric systems. The Comet-1 design is scalable from CubeSats to small microsatellites, with a highly-flexible interface suitable for a wide range of spacecraft sizes.

Comet-1 is the first propulsion offering by DSI on its roadmap to create an ecosystem of safe, robust, and cost-effective propulsion technologies today that can be supplied by space resources in the future. Comet-1 is inert, launch-safe, and also safe for deployment from the International Space Station.

As of Q3 2016, six flight units have been ordered for Q3 2017 delivery.

### SPECIFICATIONS: COMET-1-750\*

#### Performance

Specific Power	2.52 – 2.8 W/mN
Specific Impulse	175 – 200 s
Nominal Power Consumption	0.25 W idle, 25 W thrusting
Maximum Power Consumption	100 W
Warmup Time	1 minute
Minimum Impulse Bit	50 mNs

#### Physical Characteristics

Volume (CubeSat units)	2.5U
Dry Mass	700 g
Propellant Mass	750 g
Input Voltage Range	8 – 34 V
Physical Layer Interface	UART, RS422/485, I <sup>2</sup> C, CAN
Protocol and Command Interface	NSPv4, customizable

*Specifications subject to change.*

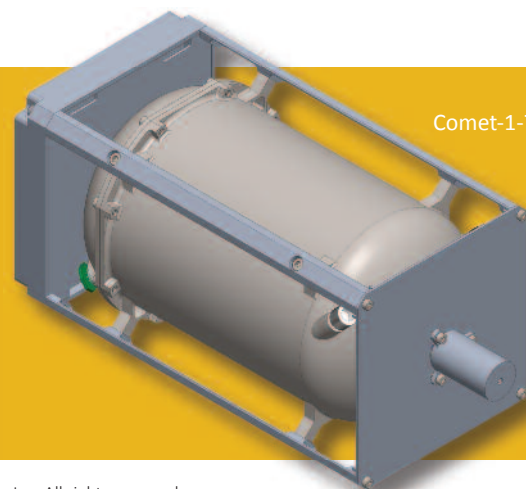
*\*Part number convention is Comet-1-<mass, g>*

### FEATURES

- Dedicated WARM, ARM, and FIRE commands
- Programmable thruster power consumption
- Pulsed- and continuous-mode operation
- Custom-locatable fill, drain, and purge ports
- Four customizable body heaters as-needed
- 0°C to 60°C operating temperature range
- Electronics assembly and inspection to J-STD-001 (space addendum) standards
- Environmental testing per NASA GEVS specifications

### Advantages of Comet-1

- High-performance, small package
- CubeSat compatible
- Clean, non-toxic, and launch-safe water propellant
- Integrated propellant management and control unit
- Digital command and telemetry interface
- Highly-customizable size and interface



Comet-1-750