

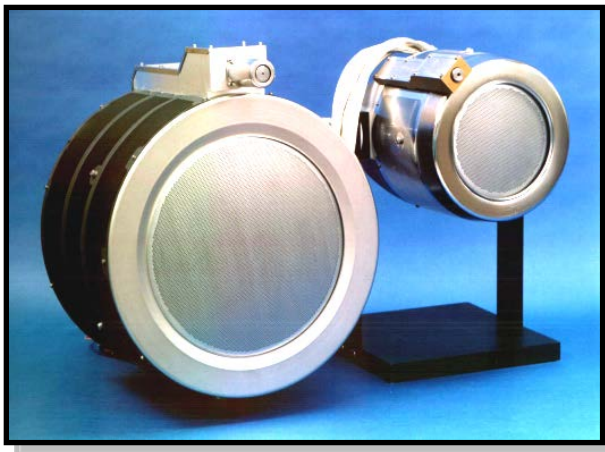
# XENON ION PROPULSION SYSTEM (XIPS)



## Xenon Ion Propulsion System (XIPS) Thrusters

L3 Electron Devices (L3 EDD) has been a world leader in the development and production of Xenon Ion Propulsion Systems (XIPS) for more than fifty years. L3 EDD currently has more than 116 25 cm ion thrusters in orbit with over 280,000 accumulated failure-free flight hours. L3's new 8 cm thruster is based on our space-qualified in-orbit flight heritage technology and is designed for small satellite applications.

XIPS can be used for satellite orbit raising, station-keeping, and de-orbiting. The ion thruster ejects electrically charged particles at high velocities that generate impulses. A satellite uses these impulses to move itself from transfer orbit to the final designated orbit. Once in the final orbit, the impulses are used to correct for the tug of solar or lunar gravity and reposition the satellite in its proper orbit and altitude.



25 cm (4.2 KW)

13 cm (0.45 KW)

### KEY FEATURES

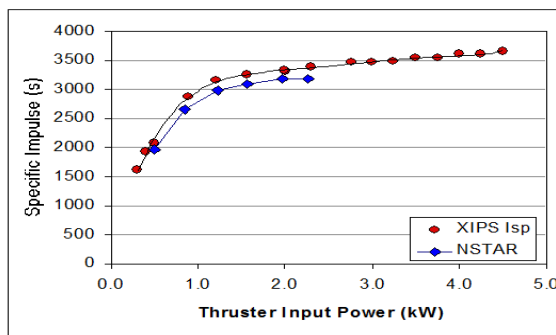
- Space qualified, flight proven heritage ion thruster technology
- Provides 10x more efficiency than conventional chemical propulsion
- Variable throttle levels

### SPECIFICATIONS

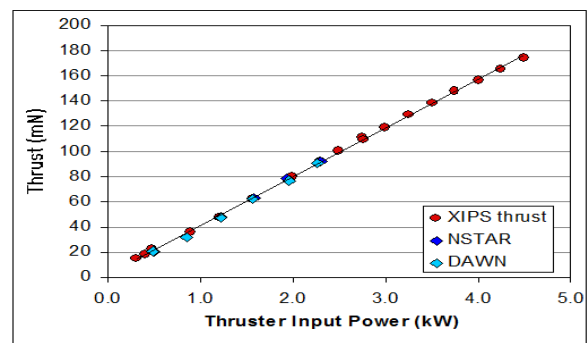
Thruster	13 cm	25 cm	25 cm	30 cm	30 cm
Input Power to Thruster (W)	450	2000	4250	2274	480
Thrust Efficiency (%)	48	69	71	61	40
Specific Impulse (s)	2390	3400	3550	3280	1950
Thrust (mN)	18	79	165	92	19
Xenon Mass Flow (mg/s)	0.71	2.36	4.71	2.86	1.02
Acceptance Test Temperature (°C)	-100 – +162	-40 – +183	-40 – +183	-98 – +143	-98 – +143
Weight (Kg)	6.2	13.7	13.7	8.2	8.2

8 cm thruster (100-500 W) under development

### 25 cm Thruster Extended NSTAR Performances



Isp (s)



Thrust (mN)

# XENON ION PROPULSION SYSTEM (XIPS)

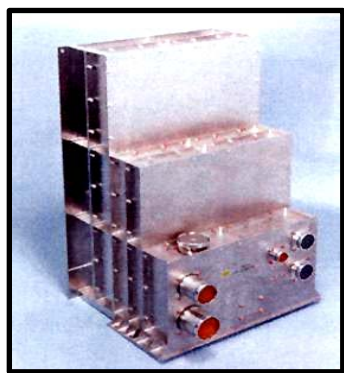


## Power Processing Units (PPUs)

The Power Processing Unit (PPU) controls the thruster and interfaces with the satellite system by taking raw satellite bus power and conditions this power to the power levels needed by the thruster. The PPU also provides timing and sequencing for thruster on and off commands, performs fault-protection to avoid damage to the thruster and any of the spacecraft components, and provides telemetry for measuring thruster performance and subsystem state of health.



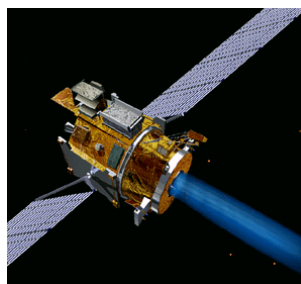
25 cm XPC



13 cm PPU

## SPECIFICATIONS

Power Supply	13 cm	25 cm	25 cm	30 cm	30 cm	8 cm <i>(proposed)</i>
Input Power to Power Supply (W)	530	2200	4500	2500	540	100-300
Efficiency (%)	86	92	94	92	89	89
Input Bus Voltage (V)	49-53	97-103	97-103	80-145	80-145	28-100
Size (cm)	28x20x44	21x54x35	21x54x35	37x49.6x8.3	37x49.6x8.3	21x16x21
Acceptance Test Temperature (°C)	-24 – +71	-11 – +79	-11 – +79	-20 – +55	-20 – +55	-11 – +79
Weight (Kg)	14.6	21.3	21.3	14	14	7



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