

PPU-1500

In progress

The PPU-1500 is a power processing unit under development for electric propulsion systems in the 1.5 kW class. It is designed to convert onboard satellite power and control the operation of electric propulsion subsystems, including the ST-100 Hall thruster and the Xenon Feed System.

A laboratory model of the PPU-1500 has demonstrated strong performance during testing with Hall thrusters up to 1.5 kW under laboratory conditions. An engineering model is currently in development, aimed at validating the system for flight applications.

The PPU-1500 is designed to receive power from the onboard bus and convert it into the required levels for all propulsion subsystems. It manages thruster and feed system operation through automated control algorithms, processes

commands via the data interface, and enables precise control of individual system elements. The unit also collects, monitors, and transmits telemetry data, while supporting in-orbit software updates and parameter adjustments.

The architecture is being developed with flexibility and future missions in mind, including the capability to transition to radiation-hardened components without requiring a complete redesign. This makes the PPU-1500 suitable for a wide range of missions, from LEO to more demanding environments such as MEO, GEO, and deep space.

With its scalable design and advanced control capabilities, the PPU-1500 is positioned as a next-generation solution for higher-power electric propulsion systems.

PPU-1500 PRODUCT SHEET



FUNCTION BLOCK	ITEM	SPECIFICATION
Inverter	Input Voltage	80 – 140 VDC
Communication	Data Interface	CAN, RS-485, MIL-1553B (optional), Ethernet (optional)
Anode Power Supply	Discharge Power	800 – 1500 W
	Discharge Voltage	200 – 500 VDC
Cathode Heaters Power Supply	Number of Power Supplies	2
	Max. Output Current	10 A
Ignitor	Ignition Voltage	400 VDC
Solenoid Power Supply	Number of Power Supplies	2
	Max. Output Current	2 A
Valve Power Supply	Valves Number	Up to 9
	Actuation Voltage	28 VDC
	Holding Voltage	7 VDC
Xenon Heaters Power Supply	Number of Power Supplies	2
	Output Voltage	12 VDC
	Max. Output Current	3 A
Radiation tolerance (COTS)		Up to 30 kRad
Radiation tolerance (Rad-hard)	Radiation-hardened configuration available based on customer requirements	
TRL	4	