

Power Control and Distribution Unit (PCDU)

Azista’s Power Control & Distribution Unit (PCDU) is a high-reliability power management solution designed for satellite platforms operating in Low Earth Orbit (LEO).

Capable of delivering up to 1.5 kW of output power with a customizable bus voltage range from 21 V to 33.6 V, the PCDU supports both 6-series and 8-series Li-ion battery configurations, ensuring compatibility across a wide range of small satellite architectures.



With advanced protection features such as over-current, over-voltage, under-voltage, and short-circuit protection, along with configurable LCLs up to 10 A, the PCDU enables safe and adaptable power distribution.

Engineered for fault tolerance and long-term reliability, the unit guarantees single-point failure-free operation throughout its mission lifetime, making it an ideal solution for demanding small satellite missions in LEO.

Key Parameters



- 1.5 kW power output
- Modular architecture (500 W,1 kW,1.5 kW)
- 21 V – 33.6 V bus voltage
- 44 regulated voltage lines at 3.3 V, 5 V and 12 V
- 45 unregulated voltage lines
- Configurable LCLs up to 10 A
- TM/TC interface via UART / CAN
- Comprehensive power monitoring
- Fault-tolerant and highly reliable design

Total Power Output	Configuration 1	Configuration 2	Configuration 3
	500 W	1000 W	1500 W

General Specifications

Mass	4 kg
Dimensions	207 mm (L) x 185 mm (W) x 260 mm (H)
Operating Temperature	-15°C to +60°C
Orbit Parameter	LEO: 400 km to 700 km
Mission Lifetime	7 years

Technical Specifications

Output Power	500 W – 1.5 kW
Battery String Configuration	Li-Ion 6 Series – 8 Series
Bus Voltage	21 V – 33.6 V nominal
Regulated Power Supply	10 Outputs @ 3.3 V, 20 Watts
	24 Outputs @ 5 V, 90 Watts
	10 Outputs @ 12 V, 90 Watts
Unregulated Power Supply	45 Outputs @ 10 Amps
TM/TC Interface	RS-422 & CAN

Safety Features and Reliability

- Battery Charge and Discharge Regulation through shunt switches.
- Power Distribution to multiple output channels with independent protection.
- Monitoring of electrical parameters and status and providing telemetry data to the OBC through UART or CAN.
- Over-current, over-voltage, under-voltage and short-circuit protection.
- Configurable LCLs for power distribution lines (up to 10A).
- EMI/EMC Compliance as per MIL-STD-461.
- Radiation tolerance compatible with LEO mission (TID and SEE).
- Autonomous Watchdog timer.
- Capable to support end-of-life (EOL) passivation.
- Ensures single-point failure-free operation.

