

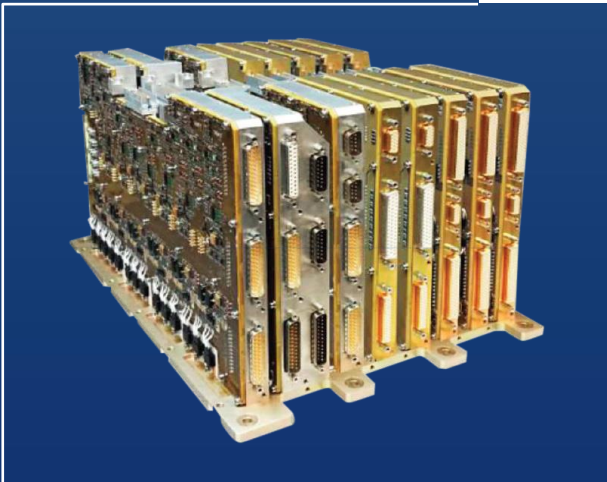
DEFENCE AND SPACE Spacecraft Equipment

EVO PCDU

Power Conditioning and Distribution Unit for Small & Medium Power Applications



P O W E R



EVO is a state-of-the-art PCDU product based on a flexible modular concept, developed in the framework of the Myriade-Evolution platform. EVO is the solution of choice for applications within a wide range of power. EVO offers in one unit both major functionalities of an Electrical Power System:

- The Power Conditioning part (PCU) covers all tasks to control the power flow in the unit
- The Power Distribution (PDU) covers all tasks related to bus protection towards the users

EVO highlights:

- DET or MPPT solar array energy management concepts
- Able to offer unregulated and fully regulated main bus voltage
- Distribution capabilities and modules adaptable according to mission needs
- Flexible design for a wide range of main bus voltages
- Inert mode capability

KEY FEATURES

- Multi-mission configurable PCDU designed to cover a wide user power range and distribution thanks to modular approach.
- Intended for Low, Medium and Geostationary Earth Orbits, and Interplanetary missions
- Optimized envelope for full compatibility with most platforms currently on the market
- Built-in Launch-off capability
- Built-in EOL passivation in line with 'greenspace' regulations
- Deployment module handles EED and/or LSRU
- LCL design with very fast reaction time and improved stability margins

BUDGETS

- Mass & dimensions: depending on Power and Distribution needs.
Typical configurations:
 - Min. configuration (8 modules) : 262x350x210 mm³
 - Typical configuration (20 modules) : 650x350x210 mm³
- Efficiency:
 - > 98,5% Energy transfer efficiency (DET)
 - > 95% MPPT mode
 - > 99% Distribution

INTERFACES

- Power bus: Single or Dual, Non-Regulated or Regulated Bus
- Building blocks enable 28, 50 and 100V mission scenarios
- TM/TC interface: MIL 1553, and Direct Telecommand & Telemetry signals.
- Battery: Li-Ion
- Primary Power Distribution:
 - Latching Current Limiters with single and double switch (LCL,SO-LCL)
 - Auto retriggerable Current Limiters for vital loads (PO-CL)
 - Heater Control Switches (LCL protected)
 - Deployment Device Actuators

ENVIRONMENTS

- Temperature: [-35°C ; +70°C]
- Radiation: compatible to LEO, GEO & Interplanetary
- Lifetime: 15 years

MAIN APPLICATION FIELDS

- PCDU family includes an extensive heritage of more than 20 missions
- Airbus spacecraft equipment quality legacy

Detailed Product Capabilities and Functional Diagram

Function	EVO Performance Parameter	
Data Handling Subsystem Interface	Number of Mil-1553 Bus Interfaces	2 (Nominal+Redundant)
	Number of master Switch Off Lines	1xN + 1xR
	DOC (Direct On Command) Lines available	YES, N+R
DET version Direct Energy Transfer (S3R)	SA sections redundancy scheme	M+1 concept no loss of SA power after failure
	Maximum section current	9.5A each
	Efficiency	>98,5%
MPPT version Maximum Power Point Tracker	SA regulators redundancy scheme	M+1 concept no loss of SA power after failure
	Maximum MPPT power	Depending on bus voltage
	Efficiency	>95%
Battery Interface & Main Error Amplifier	Max. Charge / Discharge Current	Up to 130A
	Number of EOCV Levels	Up to 16
	Number of Charge Current Lim. Levels	Up to 16
	Tapering charge control	YES
	EoL Passivation	YES
	Launch Off Capability	YES
Distribution Capabilities	Max. Number of CL Outlets	Up to 144
	Max. Number of PO-LCL	Up to 24
	Max. Number of Heater Outlets	Up to 256
	Types of Limiters available	SO-LCL, PO-CL, LCL
	Classes of Current Limiters available	0.5A, 1A, 2A, 3, 4A, 5A, 6A, 8A, 10A
	Classes of PO-CL available	0.5A, 1A, 2A, 3A, 7A
Deployment Devices	Supported Actuator Types	Electro explosive and non-explosive devices
	Safety Deployment Strap	YES
	Max. Number of Deployment Outlets	48+48

