

# POWER DISTRIBUTION UNITS

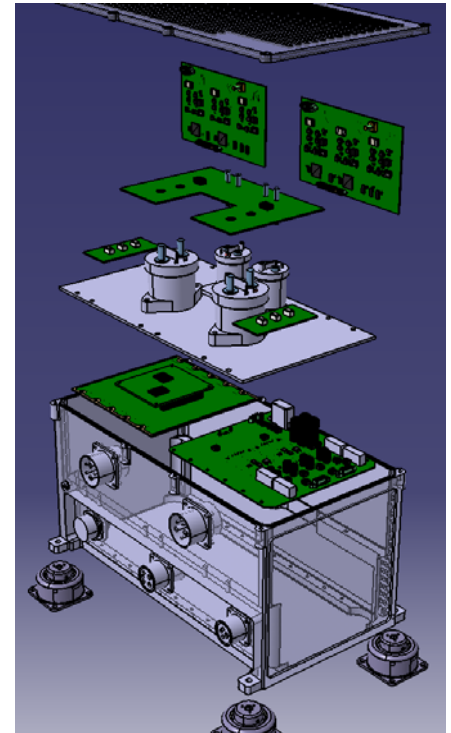
## 270VDC

### HEPODIS PDU

**HEPODIS PDU is a 270V power distribution unit for critical/essentials loads, based on a modular design.**

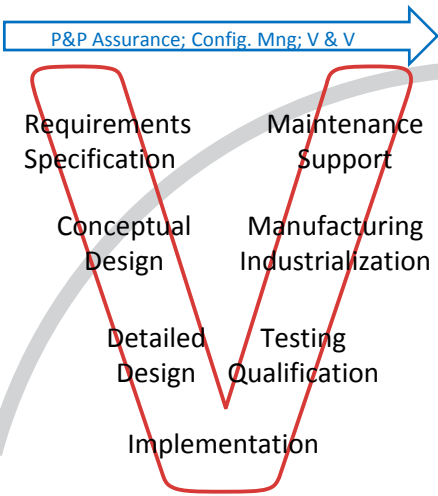
HEPODIS PDU is being developed under the framework of CleanSky2 Horizon 2020 and will be incorporated to the electrical system of the C295 FTB2 Demonstrator in order to provide 270HVDC capabilities. Thus, main objectives of CleanSky2 program (reducing CO<sub>2</sub>, gas emissions and noise levels produced by aircraft) will be accomplished due to new technologies implemented will reduce weight and will increase power density in a significative way.

HEPODIS PDU distributes electric power, generated by the ACGens (2 units, 115VAC) and transformed by the HVTRUs (2 units, 115VAC to 270VDC), to the Electromechanical Actuators (EMAs) (6 units), in charge of moving the flight surfaces instead of the current hydraulics ones.



**HEPODIS PDU Flight Equipment will be qualified under DO-160G (Environmental & EMI/EMC), MIL-STD-704F (Electrical), DO254 (DALB – Complex Electronics) and DO178C (DALC/B – Embedded Software) for C295 platform from Airbus Defence & Space.**

- Electrical Power Distribution with modular architecture
- 2x 270VDC – 15kW Power Inputs / 6x 270VDC – 2,5kW Power Outputs
- Hybrid Switching technology. Electromechanical contactors for Power Inputs and Bus tie, and Solid State Power Contactors (SSPCs) for Power Outputs
- OverCurrent (I<sub>2t</sub> and Delay trip) and OverVoltage protections
- Current, temperature and voltage for all inputs and outputs &, status of switching points monitoring
- Built in Test
- Arinc429 reporting
- Redundant Control/Monitor based on 2 CPLDs, Monitoring based on microcontroller



## Technical Specs

- **Weight and Dimensions**
  - 390 x 205 x 234
  - < 12 Kg
- **Functionality**
  - Distribution
  - I<sub>2t</sub>/Itrip/OverVoltage Protections
  - Switch on/off Loads
  - Starting/Reconfiguration
  - Energy Recovery
  - Energy Management
  - Faults Storage (NVM)
  - Built-in-Test
  - Arinc429 reporting (MIL-STD-1553 available)
- Technology Readiness Level: TRL6

- **RTCA/DO-160 –G/MIL-STD-810 qualification:**

Altitude	A2 sect. 4; 30 Kfeet
Temperature	A2 sect. 4; -40°C; +70°C
Temperature Variation	C sect. 5; -2°C/min
Humidity	A sect. 6
Vibration	PTS 4.2; 28.000 hours endurance @ 8.90 Grms
Operational Shock	E sect. 7; 6 transients 6g / 20 ms
Crash Safety	E sect. 7; 20g / 20 ms
Fluid Susceptibility	N/A
Sand and Dust	N/A
Fungus Resistance	F sect. 13
Salt Spray	N/A
Explosion Proofness	N/A
Icing	A/B sect. 24
Flammability	C sect. 26

- **RTCA/DO-160 –G/MIL-STD-810 qualification:**

270VDC / 28VDC Electrical	MIL-STD-704F
Magnetic Effect	Z sect. 15
Voltage Spikes	A sect. 17
Power Supply Audio Frequency Conducted Susceptibility	R sect. 18
Induced Signal Susceptibility	ZC sect. 19
Radio Frequency Susceptibility (radiated)	F sect. 20
Radio Frequency Susceptibility (conducted)	W sect. 20
Emission of Radio Frequency Energy (radiated)	M sect. 21
Emission of Radio Frequency Energy (conducted)	M sect. 21
Lightning Induced Transient Susceptibility	Section 22
Electrostatic discharge	A sect. 25

- MIL-STD-704F
- RTCA/DO-254 DAL B
- RTCA/DO-178 DAL C/B