INVAP
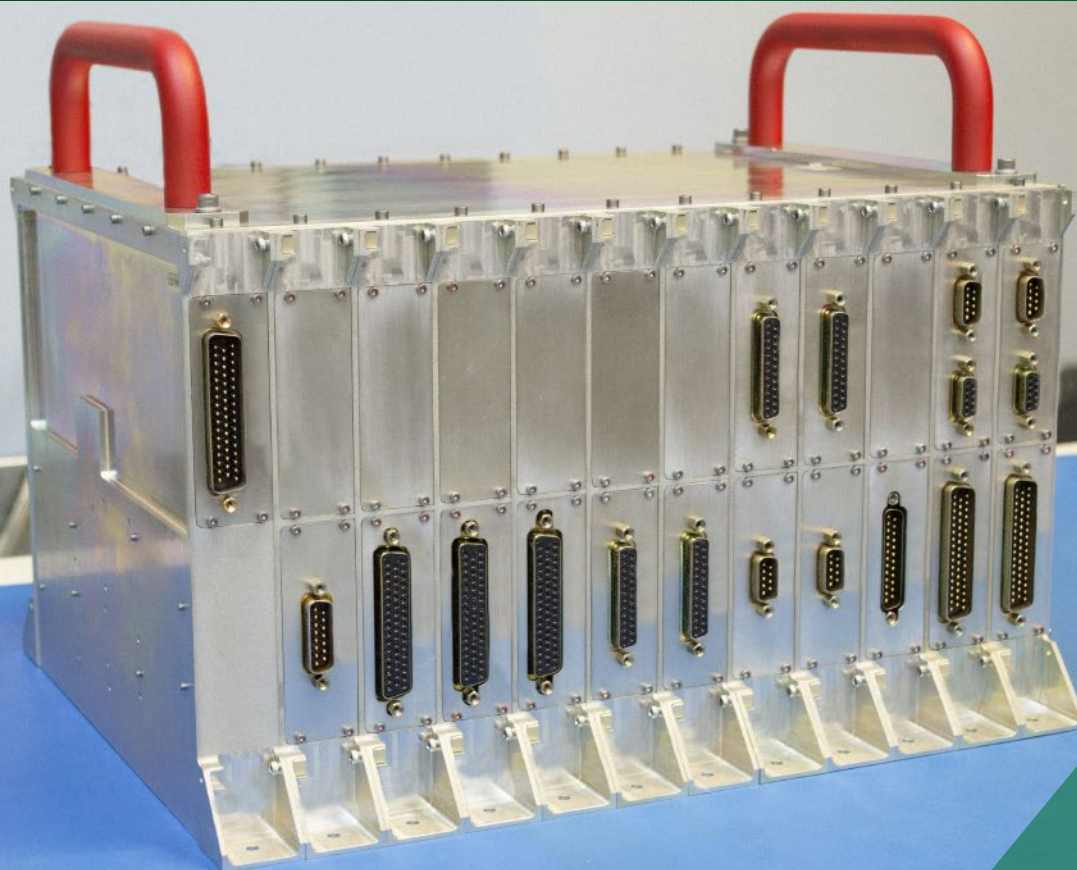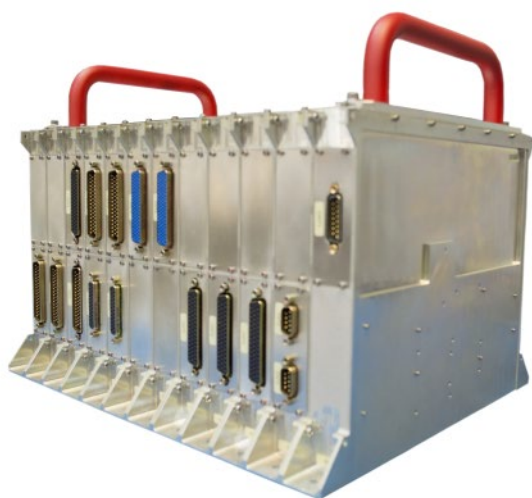
PMU
Power Management Unit

PMU design evolves from the long-term heritage of more than 20 years in orbit of different power systems for Earth Observation satellites built by INVAP. PMU can be easily scaled and adapted to different power levels by selecting the number of modules.

Main functions

• Manage the current delivered by the Solar Array.
• Drive and Regulate main and secondary power buses.
• Connect/Disconnect the battery to the main Power Bus.
• Interface to charge battery and Satellite Power On during tests.
• Acquire subsystem telemetry and send to OBC by CAN Bus.

Features

Number of modules	12 (4 different types)
Solar Array Power allowed	12,5 kW
Max Output Power	10,5 KW (Main Bus)
	1,2 KW (Secondary Bus)
Max Power during eclipse	9 KW (Main Bus)
	1,2 KW (Secondary Bus)
DS3R power control sections @ per one module	9 @ 6,45 A
	3 @ 1.72 A
Power Bus Voltage	100 V Main Bus
	24 – 35 V Secondary Bus
Control and Coms Protocol	CAN Bus
Battery type	LI-Ion

Enviroment

Application fields	GEO Telecom missions
Lifetime	15 Years
Radiation	SEL immune / SEU tolerant
Temperature range	-15 / 50 °C Operation
	-25 / 60 °C Non-Operative
EMI/EMC	MIL-STD-461
Vibration	20 g peak, 14 grms

Budget

Mass	25 kg
Dimensions (L x W x H)	343 x 470 x 250 mm
Power Consumption @ Typical Configuration	44,8 W

Key Features

• Fully autonomous under all operational conditions including contingency situations.

• Single Point Failure Free architecture.

• Manage the SA generated current by S3R algorithm.

• Hot Backup Redundancy.

Design Evolution

• The PMU subsystem has been developed as part of the New Generation, state of the art Integrated Avionics for SMALL-GEO satellites.

• The PMU, PDU and OBC subsystems share the same modular architecture.

• Modular configurable design to attend specific mission requirements.

NUCLEAR

DEFENSE,
SECURITY AND
ENVIRONMENT

SPACE

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INVAP

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