DEFENCE AND SPACE
Space Products

ASTRO-BATT

A battery product line made for LEO Radar and Optical missions

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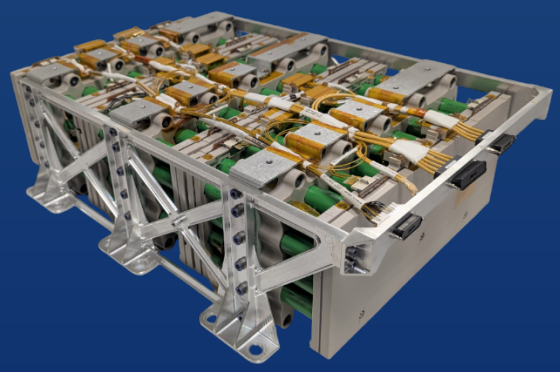

ASTRO-BATT is a versatile and configurable battery module developed by Airbus Space for use in **Low-Earth Orbits (LEO)** to meet the requirements of both **radar and optical missions** – for up to 12.5 years in orbit. Supplied with ECSS Class 1 components, it is **compatible with ESA missions**.

Thanks to its ingenious design, the **ASTRO-BATT** module is available in **three different voltage configurations** – 30, 50 and 100 V – with the same mechanical design and can be installed inside or outside the spacecraft. Two mounting configurations are proposed, either with direct contact between the module baseplate and the spacecraft panel, or with the module insulated from the structure and equipped with its own radiator on top (radiator under customer responsibility or part of the **ASTRO-BATT** product).

The module is equipped with COTS lithium-ion cells, fully qualified by Airbus for Space applications and with flight heritage, allowing Airbus to propose a **very competitive price**.

ASTRO-BATT has been **qualified** mid-2024 and a first batch of 3 FMs will be delivered in 2025.

AIRBUS

		30 V configuration (-30 V)		50 V configuration (-50 V)	100 V configuration (-100 V)
		SMALL (-S)	LARGE (-L)		
Electrical	Battery type	COTS Li-ion			
	Voltage range	20 to 33.6 V *Recommended use at 32.8 V during cycling operations*		30 to 50.4 V *Recommended use at 49.2 V during cycling operations*	60 to 100.8 V *Recommended use at 98.4 V during cycling operations*
	Nominal capacity[1]	122 Ah	183 Ah	122 Ah	61 Ah
	Nominal energy[1]	3,600 Wh	5,400 Wh	5,400 Wh	5,400 Wh
	Energy density	170 Wh/kg	180 Wh/kg		
	Max. continuous charge current	60 A		40 A	60 A
	Max. continuous discharge current	60 A		40 A	80 A
	Max. pulse discharge current	75 A (< 20 sec.)		50 A (< 20 sec.)	100 A (< 20 sec.)
Physical characteristics	Dimensions (L x W x H)	350 x 355 x 155 mm	509 x 355 x 155 mm		
	Weight	21 kg	30 kg		
Environment	Mounting configuration	Inside OR outside the S/C			
	Thermal control	Conductive coupling between unit baseplate and S/C panel OR between unit upper interface and a radiator			
	Vibrations	Sine: 24 g Random: 12.5 g RMS in plane, 14 g RMS out of plane			
	Shock	20 g 100 Hz, 2,000 g 2 kHz, 2,000 g 10 kHz			
	Radiation	12.5 years in LEO, SEP tolerant			
Embedded functions	Thermal hardware	3 regulation thermistors, 6 monitoring thermistors Optional: internal heaters			
	Electronics	Passive balancing function Protected voltage telemetry			
Use case example	Mission type	LEO, 12.5 years Optical mission			LEO, 10 years Radar mission
	Typical cycle life	On ground: 10 years storage at -10°C, 30% SoC 1.5 years AIT at +20°C, 70% SoC In operation: 12.5 years 70,000 cycles at C/5, 10% DoD			On ground: 8 years storage at -10°C, 30% SoC 1.5 years AIT at +20°C, 70% SoC In operation: 10 years 26,000 cycles at C/3, 10% DoD 30,000 cycles at C/5, 10% DoD With peaks < 20 sec. at C
	Nominal temperature range (at cell level)	+10 to +30°C			
	Failure	1 string failure compatible at least			
	Reliability	> 0.999			

[1] *At C/5, 25°C, on 2.5-4.2 V range at cell level*

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