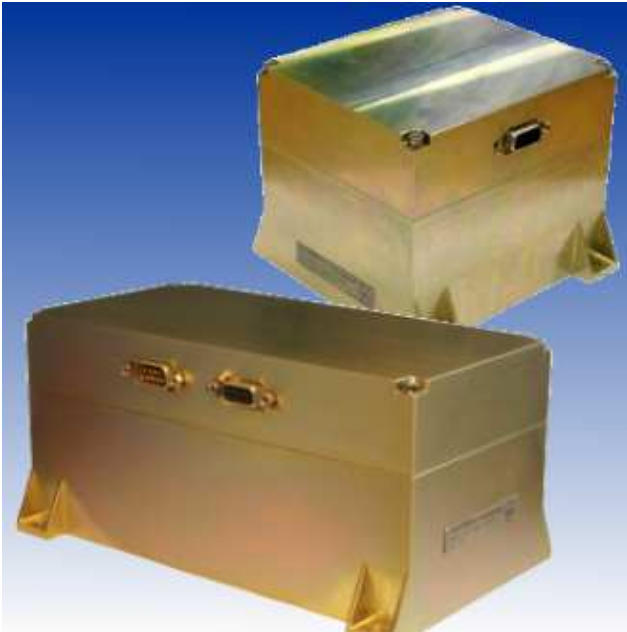


Li-Ion Battery Block VLB-4/ -8 /-16



Battery Block VLB-X

The VLB-16 device is a battery pack specifically designed for the use as power supply on-board small satellites. It consists of e.g. n cells of batteries connected in series with a l capacity of 12 Ah and a nominal voltage of 28 V and integrates temperature, voltage and current measurement functions.

Through its digital control interface the VLB-X device offers a great flexibility and can easily be integrated in any system.

The VLB-X design is more than a simple association of batteries. The battery cell manufacturer is SAFT and the cells have already been selected and qualified for the use on-board small satellites.

Battery blocks are constructed from matched cells, normally from the same manufacturing batch. Cycle testing has been performed to classify and select cells into groups with smaller tolerances to minimize variability within one block.

To provide a dynamic solution which takes into account the ageing and operating conditions of the cells, the control electronics provides cell balancing to prevent individual cells from becoming overstressed. The internal microprocessor measures continuously the cell voltage and is able to switch autonomously a balance current for the cells with an outstanding higher voltage or capacity.

The detailed characteristics of balancing can be determined from the host controller via the digital communication interface.

In addition, the internal electronics prevents each single cell against short-cut and provides overcharge and over-discharge emergency features.

Technical Data of VLB-16

Mechanical	
VLB-16	
Dimensions	195 mm x 169mm x 100mm
Mass	4.5 kg
Mounting pattern	TBD
VLB-8	
Dimensions	114 mm x 192 mm x 92 mm
Mass	2.7 kg
Mounting pattern	4x M4 104 mm x 172 mm

Environmental	
Charging temp. range	-20°C to +60°C
Discharge temp. range	-40°C to +60°C
Vibration	20 g rms random 3 axis
Radiation tolerance	> 20 krad

Electrical (Control Unit)	
Power consumption (max)	< 0.8 W
Power consumption (standby)	< 5 mW
Input voltage range (VDC)	
VLB-4	12 V to 16.6 V
VLB-16	20 V to 36 V
Signal interface	RS422 / RS485
Signal characteristics	Serial asynchronous
Connector Type	3x SUB-D 9e

Performance	
Voltage range	
VLB-8	24 V to 33 V
VLB-16	24 V to 33 V
Capacity	12 Ah
Charge current (max)	2x 4 A
Discharge current (max, cont.)	10 A
Discharge current (max, pulse)	20 A