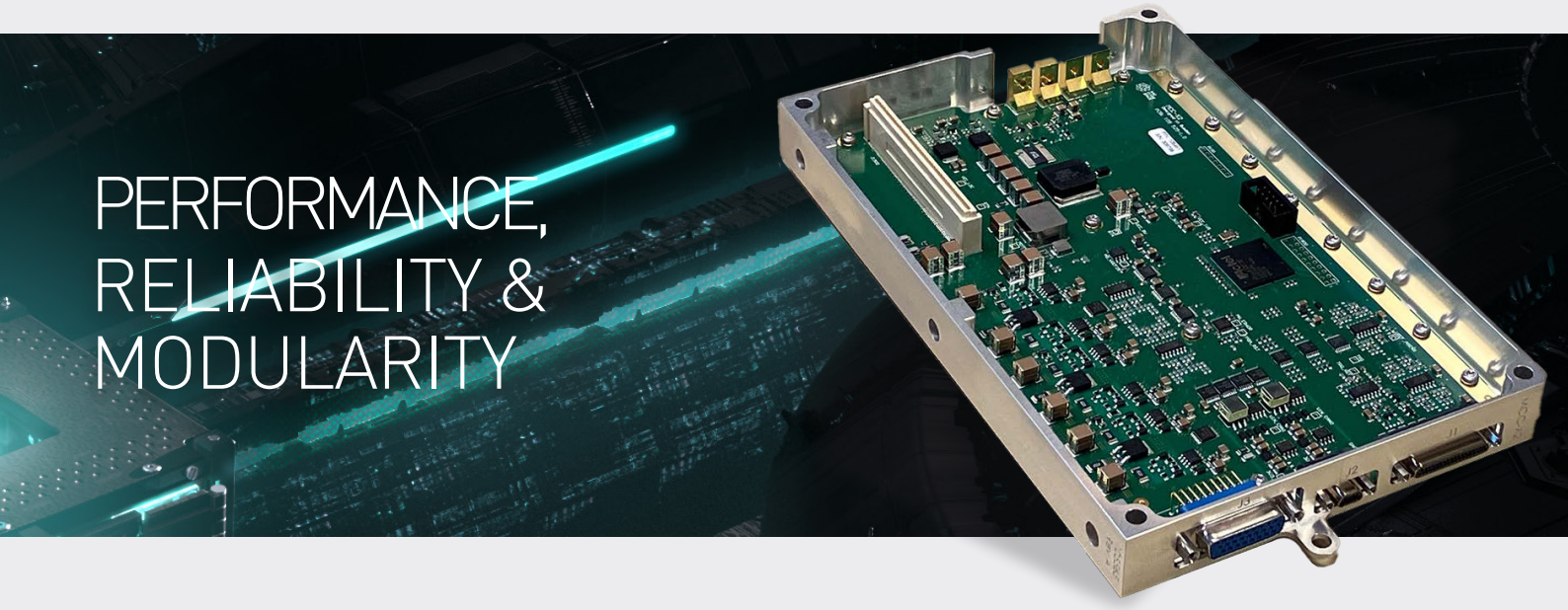
AAC CLYDE SPACE

Power Conditioning & Monitoring Units

STARBUCK-MINI MCC



PERFORMANCE, RELIABILITY & MODULARITY

AAC Clyde Space's SmallSat PCDU (Power Conditioning and Distribution Unit) solutions have demonstrated impressive capabilities stretching across a range of space applications, gaining a market reputation for reliability, robustness and performance. Designed for advanced satellite constellations in LEO and lunar exploration mission-critical electronics, the readily available Starbuck-mini system provides precision and performance.

The Starbuck-mini PCDU is a modular power solution in which modules can be added or combined to offer new configurations or to simply accommodate mission specific requirements.

With the addition of the MCC motor controller module, the Starbuck-mini PCDU now has an integrated driver for applications like rover drive wheels, robotic arms, deploy mechanisms or pointing of devices such as cameras or antennas.

PERFORMANCE

High-performance power solution for small satellite platforms. Modular design approach delivers scalability and easy tailoring of interfaces to mission requirements. The MCC module provides control of BLDC or brushed DC motors with hight efficiency. Several drive-modes are supported, including speed, position and torque control. A CAN bus interface is implemented for low level commanding and monitoring.

RELIABILITY

The MCC module is designed and qualified for five years in LEO. The reliability and qualification levels are chosen to make it suitable for many different mission types. The design is based on using automotive COTS components with verified performance in the space environment. All motors drivers are LCL (Latching Current Limiter) protected to ensure that no failures can propagate to the host system.

MODULARITY

Designed for the most demanding missions the Starbuck-mini PCDU MCC modules provides a flexible solution for a system using several different motorised mechanisms, and also lends itself well to implementing redundancy in motor control.

TECHNICAL SPECIFICATIONS

General	
Design Life	5-7 years in LEO
Max. Battery Voltage	34 V
Storage Temperature	-50°C to 100°C
Vacuum	10^{-5} torr (TBD)
Vibration	TBD
Radiation tolerance (TiD)	>20 kRAD (qualified >30 kRAD,Si)
Operating Temperature Range	>-30°C to +60°C

Size, Weight, & Power	
Length	22 mm
Width	249 mm
Height	147 mm
Mass	~400 grams (PCBA+mech)
Input Voltage	28 V
Input Voltage	14V and 7V
Normal Power Consumption	TBDW

Electrical Interfaces	
Internal/ext comm SPI	ADCs
Motor power	0-80 W each mm
Motor drive voltage	28V nom (21-34V)
Motor phase output	6
Generic analog input	7
Generic digital input	12
Torque sensor input	1
Command interface (redundant)	2 Supports CAN 2.0b (isolated)

To make an enquiry, request a quotation or learn about AAC Clyde Space's other products and services, please contact:
enquiries@aac-clydespace.com

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