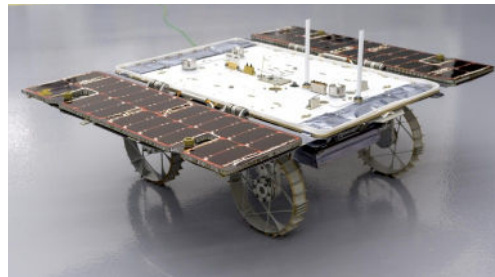


Compact Multi-Axis BLDC & Stepper Controller

Uniquely designed and qualified to support JPL's CADRE Lunar Rover mission, the FOXTROT controller integrates Rocket Lab's product heritage of high performance motion control for space applications with a small, lightweight package for multi-axis control needs. The FOXTROT architecture is designed to operate in multiple configurations including both closed and open loop while supporting up to 8 motor interfaces.

Consistent with Rocket Lab's flight heritage, the architecture and firmware of the FOXTROT is modernized for new-space applications yet maintains the reliability expected of traditional aerospace. The current amplifiers within this design utilize cycle-by-cycle current limiting to guarantee accurate current regulation. All Rocket Lab motor control platforms utilize extensive fault protection features including motor winding faults, temperature monitoring, and radiation effects. The FOXTROT multi-axis controller has been designed to be adaptable to meet the needs of complex instrument payloads and rover platforms.

For requests or questions send to: info@motivss.com



Lunar CADRE Rover



FOXTROT Controller

PERFORMANCE	VALUES
Input Voltage Range	10.5-16.8 V
Motor Continuous Current	3.5 Arms
Motor Peak Current	5A, 2 seconds
Quiescent Power	<3W
Commutation Sensing	Hall Effect Sensor
Sensing	- Motor current (4 BLDC) - Open Loop (an additional 4 BLDC)
Motor Speed Support	500-5,000 RPM (typical)
Communication Bus Options	Standard: RS-422/485
Control Modes	Brushless/Servo: - Position - Velocity - Current - Torque Stepper: - Full Step (1k PPS, max)
Applications	- Wheel Drives - Array Deployment - Instrument Release Mech - Instrument Alignment and Pointing - AZ/EL Positioning

ENVIRONMENTAL	VALUES
Operating Temperature	-40C° to +90C°
Non-Operating Temperature	-55C° to +125C°
Random/Sine Vibration	11.6 grms
Radiation Tolerance TID	30 kRad
SEU LET Threshold	>37 MeV-cm ² /mg
Orbit/Mission Support	Lunar / Leo
EMI/EMC Filter (optional)	MIL-STD-461
PHYSICAL	VALUES
Dimensions (packaged)	2.5" x 5.3" x 0.6" 6.4cm x 13.5cm x 1.5cm
Mass/Weight	90.2 g (no packaging)
Available EEE Classes	Space Plastic / Optional Screening for Level 3
Available Hardware Models	EDU/EM/FM

EXPORT RESTRICTIONS

Export of Rocket Lab Motor Controllers is controlled under Export Control Classification Number (ECCN) 9A515.x and is available for sales in the countries listed in Group A:5.

