

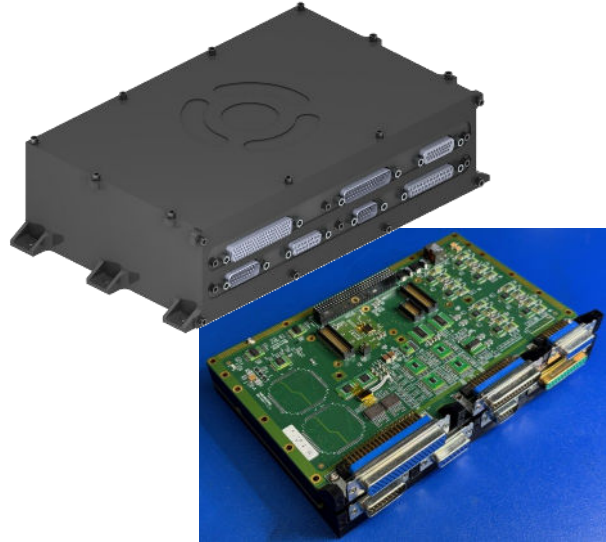
# BRAVO2 Motor Controller

## 100W Rad Hard Dual Axis Stepper & BLDC Controller

Motiv Space Systems has developed the BRAVO2 motion control electronics to meet the needs of high reliability space applications. This microcontroller based platform employs 8 half-bridges to support a wide range of motors, including but not limited to, stepper motors, BLDC motors, and brakes. The BRAVO2 controller offers a unique fit for advanced mechanism applications in an optimized package while maintaining high reliability and radiation hardness.

The firmware of the BRAVO2 is highly adaptable to a multitude of applications. The current amplifiers within this design utilize cycle-by-cycle current limiting to regulate current. All Motiv motor control platforms utilize extensive fault protection features including motor winding faults, temperature monitoring, and radiation effects. If an application does not fit within the standard capabilities, the BRAVO2 architecture is designed to be adaptable to meet the needs of any application.

For requests or questions send to: [info@motivss.com](mailto:info@motivss.com)



BRAVO2 Controller Models

PERFORMANCE	VALUES
Input Voltage Range	28V (22-34V)
Motor Continuous Current	2 Arms / axis
Motor Peak Current	3A, 2 seconds
Quiescent Power	5W
Commutation Sensing	Hall Effect Sensor, Resolver, Encoder
Sensing	<ul style="list-style-type: none"> <li>• Potentiometer</li> <li>• Temperature</li> <li>• Limit Switches</li> <li>• Resolver</li> </ul>
Motor Speed Support	500-10,000 RPM (typical)
Communication Bus Options	Standard: RS-422/485, CAN Option: 1553, Spacewire, Ethernet
Control Modes	Brushless/Servo: <ul style="list-style-type: none"> <li>• Position</li> <li>• Velocity</li> <li>• Current</li> <li>• Torque</li> </ul> Stepper: <ul style="list-style-type: none"> <li>• Microstepping</li> <li>• Full Step (1k PPS, max)</li> </ul>
Applications	<ul style="list-style-type: none"> <li>• Filter Wheels</li> <li>• Reaction Wheels</li> <li>• Array Deployment</li> <li>• Instrument Alignment and Pointing</li> <li>• Robotics</li> <li>• Antenna Positioning</li> <li>• ECSS Valves and Pumps</li> <li>• Gimbals</li> </ul>

ENVIRONMENTAL	VALUES
Operating Temperature	-55°C to +70°C
Non-Operating Temperature	-55°C to +125°C
Random/Sine Vibration	GEVS Standard
Radiation Tolerance TID	100 kRad
SEU LET Threshold	>60 MeV-cm <sup>2</sup> /mg
Orbit/Mission Support	LEO, GEO, MEO, Lunar, Deep Space
EMI/EMC Filter Included	MIL-STD-461
PHYSICAL	VALUES
Dimensions (packaged)	9" x 5.3" x 2.7" 22.8cm x 13.4cm x 6.8cm
Mass/Weight	4.41 lbs 2.02 Kg
Available EEE Classes	Class 2/3
Available Hardware Models	EDU/EM/FM

### EXPORT RESTRICTIONS

Export of Motiv 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.

