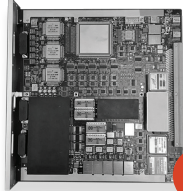
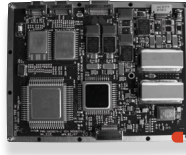


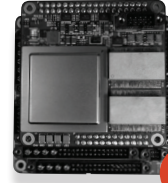
Motor Controller Specifications



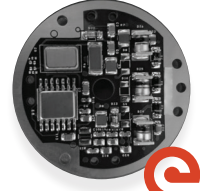
ALPHA-II



BRAVO



DELTA



ECHO

Axis	Single Axis Motor Controller Card	Dual Axis Motor Controller Card	Single Axis Motor Controller	Single
Motor Support	3-Phase BLDC or Stepper	3-Phase BLDC or Stepper	BLDC Motors and Stepper Motors	Drive for Center Tapped WYE Wound BLDC Motor
Stepper Modes	Full & Half	Full & Half	—	—
BLDC Control	Brake, Current, Position & Velocity	Current, Position & Velocity	Current, Velocity, & Position	Motor direction changes with reversal of input voltage polarity or with optional logical inputs
Commutation	Halls, Resolver, Absolute Encoder	Hall Sensor	Hall Sensor, Encoder, or Resolver	Hall Sensor
Feedback	Resolvers, Inductosyns, Quadrature Encoders, Temperature Sensors, Strain Gauges, Contact Switches	Quadrature Encoders	Absolute Encoder, Multi-Speed Resolver Sensing, Inductosyns	Velocity Indicator Pulse Output; Current Sense Output
Low Operational Temp	-55°C	-55°C	-55°C	-55°C
High Operating Temp	125°C	125°C	125°C	125°C
IO Port	Yes	Yes	Yes	No
Radiation Tolerance	100kRad	100kRad	Up to 100kRad	100kRad
Communication	RS-485/RS422	RS-422	RS-422	—
Telemetry	Motor Current, Bus Voltage, Board Temp, 8+ Channels of User Defined	Motor Current, Bus Voltage, Board Temp, 8 Channels of User Defined	Motor Current, Bus Voltage, Board Temperature, User Defined Telemetry	Velocity Indicator Pulse Output; Current Sense Output
Size	23.6cm x 24.8cm	7.5 x 10cm	7.5 cm x 7.5 cm	4.3 cm diameter
Weight	1.89kg	185g	130g	17g
Current Capacity	6A (Continuous) 10A (Peak)	1.3A Per Channel, 2.6A Max	28V Operations, 3A Continuous - 6A Peak	22V-36V, 1.6A Continuous
Sample Applications	Single Axis Robotic Brushless Drive PID Velocity/Position Control, Current Control, Open Loop PWM Drive, Output Sensing Interfaces, Brake Control	Instrument Controls, Filter Wheels, High Torque Latch Systems, Mechanism Controls, Planetary Manipulators	Integrated Robotic Joint Controller, On-Orbit Manufacturing, On-Orbit-Assembly	Deployments, Hinges, Doors, Protective Covers
Export Restrictions	Export of the Alpha-II Motor Controller is controlled under Export Control Classification Number (ECCN) 9A515.x and is available for sale in the countries listed in Group A:5.	Export of the Bravo Motor Controller is controlled under Export Control Classification Number (ECCN) 9A515.x and is available for sale in the countries listed in Group A:5.	Export of the Delta Motor Controller is controlled under Export Control Classification Number (ECCN) 9A515.x and is available for sale in the countries listed in Group A:5.	Export of the Echo Motor Controller is controlled under Export Control Classification Number (ECCN) 9A515.x and is available for sale in the countries listed in Group A:5.