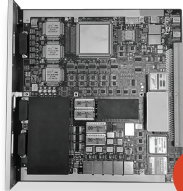
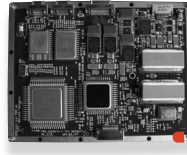


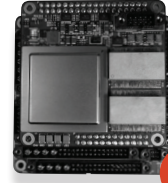
# Motor Controller Specifications



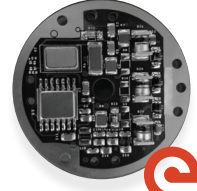
**ALPHA-II**



**BRAVO**



**DELTA**



**ECHO**

<b>Axis</b>	Single Axis Motor Controller Card	Dual Axis Motor Controller Card	Single Axis Motor Controller	Single
<b>Motor Support</b>	3-Phase BLDC or Stepper	3-Phase BLDC or Stepper	BLDC Motors and Stepper Motors	Drive for Center Tapped WYE Wound BLDC Motor
<b>Stepper Modes</b>	Full & Half	Full & Half	—	—
<b>BLDC Control</b>	Brake, Current, Position & Velocity	Current, Position & Velocity	Current, Velocity, & Position	Motor direction changes with reversal of input voltage polarity or with optional logical inputs
<b>Commutation</b>	Halls, Resolver, Absolute Encoder	Hall Sensor	Hall Sensor, Encoder, or Resolver	Hall Sensor
<b>Feedback</b>	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
<b>Low Operational Temp</b>	-55°C	-55°C	-55°C	-55°C
<b>High Operating Temp</b>	125°C	125°C	125°C	125°C
<b>IO Port</b>	Yes	Yes	Yes	No
<b>Radiation Tolerance</b>	100kRad	100kRad	Up to 100kRad	100kRad
<b>Communication</b>	RS-485/RS422	RS-422	RS-422	—
<b>Telemetry</b>	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
<b>Size</b>	23.6cm x 24.8cm	7.5 x 10cm	7.5 cm x 7.5 cm	4.3 cm diameter
<b>Weight</b>	1.89kg	185g	130g	17g
<b>Current Capacity</b>	6A (Continuous) 10A (Peak)	1.3A Per Channel, 2.6A Max	28V Operations, 3A Continuous - 6A Peak	22V-36V, 1.3A Continuous
<b>Sample Applications</b>	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
<b>Export Restrictions</b>	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.