

2-AXIS MOTOR CONTROLLERS FOR 24V MILITARY VEHICLES



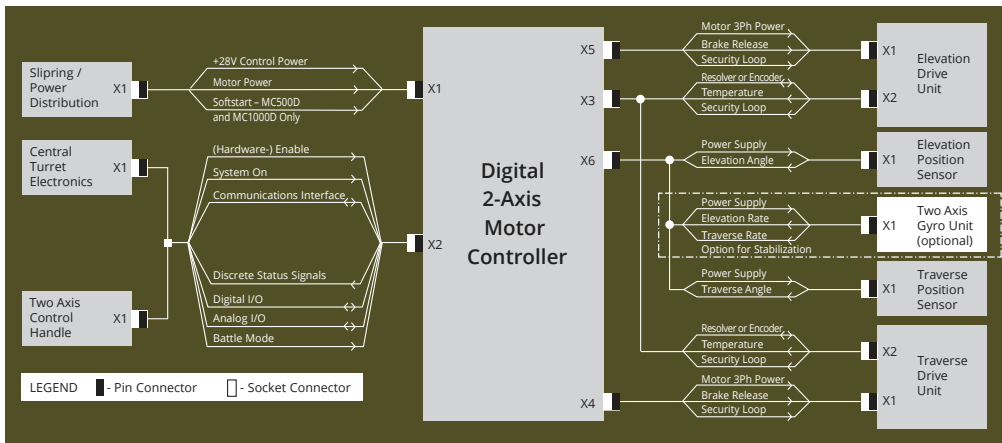
This series of 2-axis, digital motor controllers is designed to provide torque, velocity and position loop closure to drive brushless motors for use in military vehicle applications. The controller accepts 24VDC vehicle input power and command signals from any fire control system, in either digital or analog format, and interfaces with a control handle. There are three controller models available (MC100D, MC500D, MC1000D) that provide a range of output current from 80Apk/axis up to 800Apk/axis. A variety of communication interfaces are available, see common specifications on page 2. These controllers offer end user loop tuning to provide maximum torque and velocity loop closure and they interface with both resolvers and encoders for motor

commutation. The advanced space vector algorithms optimize performance for new or existing motors to provide superior power densities. Typical applications are for use with gun turrets but all of these controllers can be customized as required. There are a wide range of end user programmable software features, as listed below.

PROGRAMMABLE SOFTWARE FEATURES

- Extensive built in test
- No-fire zones
- Obstacle avoidance zones
- End-damping limits
- HUMS (Health Usage Monitoring System)
- Acceleration limits
- Comprehensive loop tuning
- Tracking/Stabilization Modes
- Field weakening
- Joystick shaping function
- Analog and digital I/O
- Status and fault history
- Data logging

SYSTEM BLOCK DIAGRAM



2-AXIS MOTOR CONTROLLERS

MC100D

The smallest controller in the family the MC100D can output 80Apk/axis in a compact, lightweight package. This controller has an internal tilt/accelerometer sensor for improved stabilization performance.

MC500D

This MC500D is the mid-range model. It is available in 2 packages: the standard finned which can output 300Apk/axis or a cold plate mount which can output 400Apk/axis. The finned model has 4 sets of holes predrilled for use with isolation mounts.

MC1000D

The MC1000D is the highest output model at 800Apk/axis. The sides of the controller are predrilled for use with mounting brackets. Lifting handles (2) can be added if required. See picture of an MC1000D model with lifting handles and isolation mounts (back cover).

COMMON 2-AXIS BRUSHLESS-MOTOR CONTROLLER SPECS

PERFORMANCE

Features	Specifications
Power supply – control**	18VDC – 32VDC (per Mil-Std-1275)
Power supply – motors (MC500D and MC1000D only)	18VDC to 60VDC
Environmental specification	Complies with Mil-Std-810
EMC specifications	Complies with Mil-Std-461
Communication interfaces available (*)	CAN-Bus, RS-422, Ethernet, MILCAN or EtherCAT
Position sensor interface	SSI or EnDat serial interface
Motor commutation sensor	Resolver or encoder
Self protection	Over-temperature and over-current
Option: stabilization kit	2-Axis gyro interface

(*) – not all communication interfaces are available with every model, consult Moog Engineering

(**) – power supply noted is applicable for both controls and motors for the MC100D

Note: All of our products are flexible and customizable to meet your specific needs. Please contact us for more information.

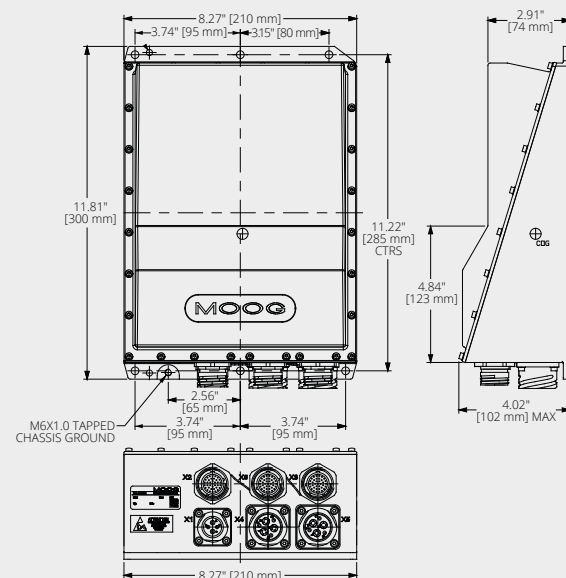
MC100D DIGITAL 2-AXIS 28V BRUSHLESS MOTOR CONTROLLER

PERFORMANCE

Features	Specifications
Temperature – baseplate	-40°F to 160°F (-40°C to 71°C)
Weight	15.4 lbs (7 kg)
Envelope	11.8" x 8.3" x 4.0" (300 mm x 210 mm x 102 mm)
Output current (for each axis)	80 A peak



DIMENSIONS



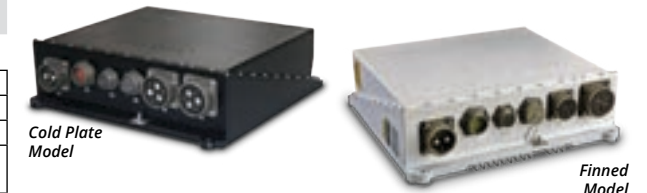
NO.	CONNECTOR FUNCTION
X1	28V Input Power
X2	Signal Interface
X3	Resolver/Encoder Interface
X4	Motor Drive #1
X5	Motor Drive #2
X6	Sensor Interface

SUBJECT TO CHANGE WITHOUT NOTICE

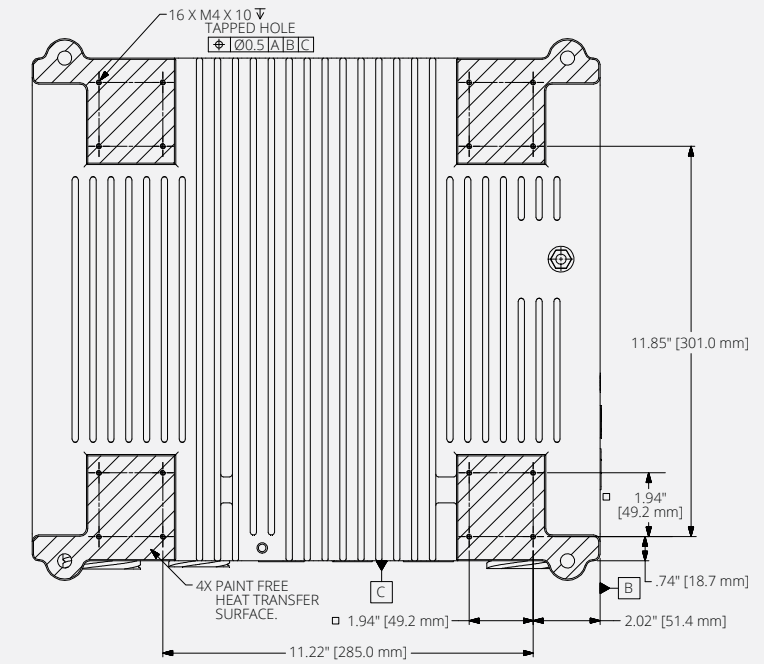
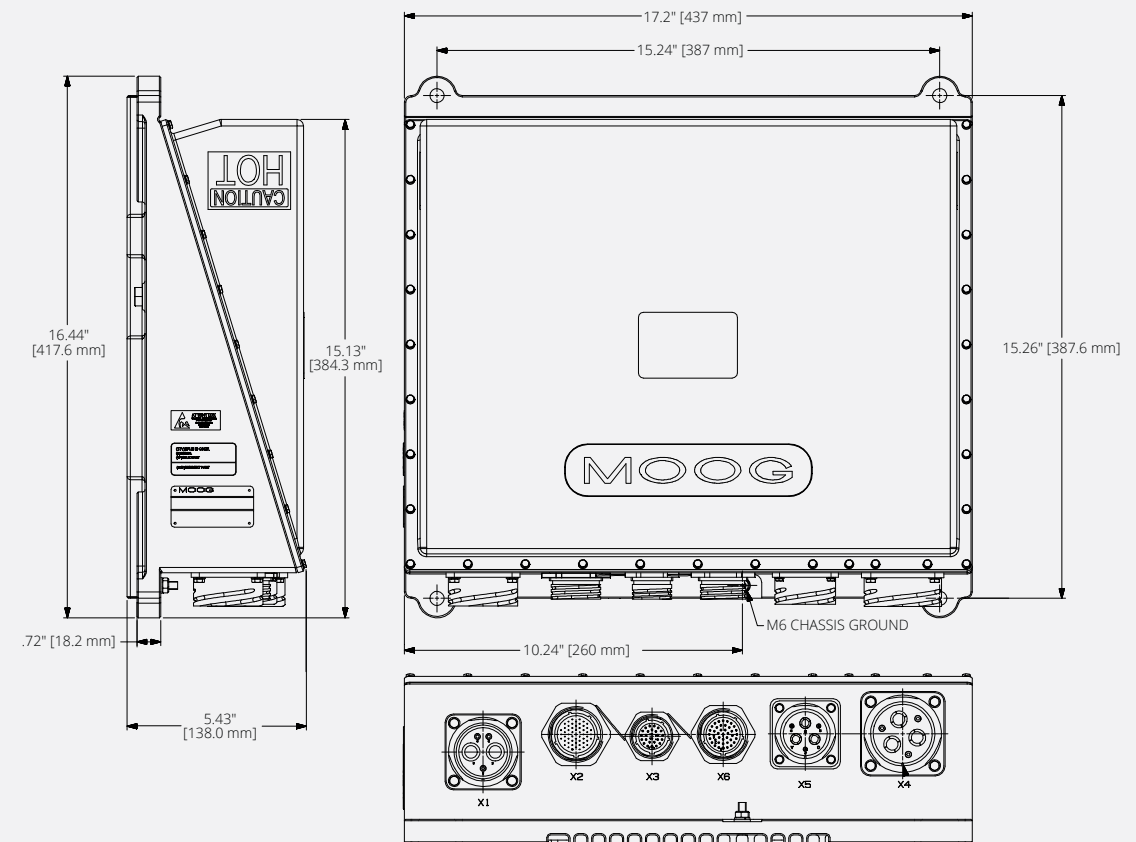
MC500D SERIES 2-AXIS BRUSHLESS MOTOR CONTROLLER

PERFORMANCE

Features	Specifications
Temperature – ambient	-40°F to 149°F (-40°C to 65°C)
Weight	48.4 lbs (22 kg)
Envelope	16.5" x 17.2" x 5.4" (418 mm x 437 mm x 138 mm)
Output current (Axis 1/Axis 2)	Finned: 300 A/200 A peak Cold plate: 400 A/400 A peak



DIMENSIONS



NO.	CONNECTOR FUNCTION
X1	28V Input Power
X2	Signal Interface
X3	Resolver/Encoder Interface
X4	Motor Drive #1
X5	Motor Drive #2
X6	Sensor Interface

SUBJECT TO CHANGE WITHOUT NOTICE

MC1000D SERIES 2-AXIS BRUSHLESS MOTOR CONTROLLER

PERFORMANCE

Features	Specifications
Temperature – ambient	-40°F to 149°F (-40°C to 65°C)
Weight	99 lbs (45 kg)
Envelope	17.8" x 15.7" x 7.8" (451 mm x 400 mm x 197 mm)
Output current (for each axis)	800 A peak
Options	1) Lifting handles 2) Isolation mounts

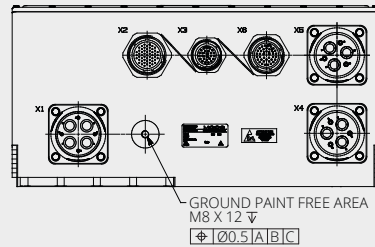
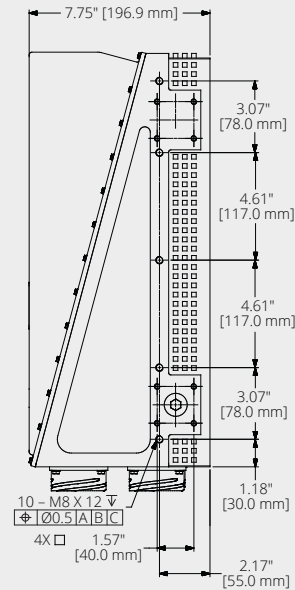
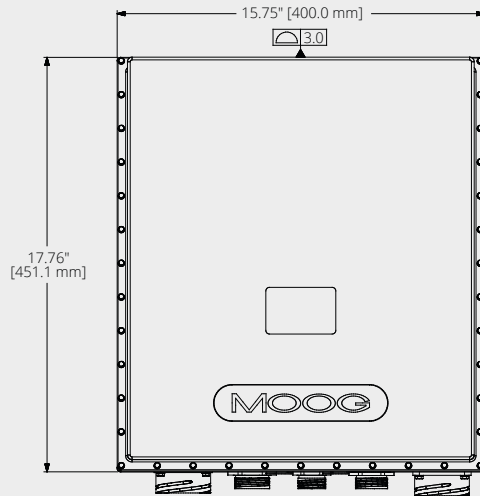


Standard Model



Optional Lifting Handles and Isolation Mounts

DIMENSIONS



NO.	CONNECTOR FUNCTION
X1	28V Input Power
X2	Signal Interface
X3	Resolver/Encoder Interface
X4	Motor Drive #1
X5	Motor Drive #2
X6	Sensor Interface

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