DOWNHOLE MOTOR CONTROLLER

Ruggedly designed to operate in extreme environments

HIGH PERFORMANCE MOTOR CONTROLLER PACKAGED TO MEET YOUR REQUIREMENTS

With over 50 years of high performance motion control experience, Moog can meet your downhole requirements.

The Moog Downhole Motor Controller is a closed loop control solution for velocity and position. Designed to complement our brushless servomotors and servoactuators, and expedite the design and test cycle for the entire system, the single-axis digital motion controller provides superior position control and a range of efficiency improvements.

With minimal power dissipation, we have designed optimized performance parameters based on your application, motor selection and controller algorithms. Designed with health/life monitoring based on time and temperature in the well, this system is tested with Moog motor and actuators specifically for the application.

FEATURES

• Modular design tailored for application and system performance and maintainability
• Compact footprint with multi-board layouts available
• Thermal management option for system protection
• Available with mounting holes or rail mounts
• Easy to use Graphical User Interface adds data logging and troubleshooting tools with built in oscilloscope

ADDED BENEFITS

• Improved reliability with Moog Motors
• Closed loop motor control
• Shorter tool development time via user friendly tools
• User friendly GUI:
  - Accelerates program development
  - Can be used with multiple systems
  - Troubleshooting and diagnostics

APPLICATIONS

• MWD/LWD
• Rotary Steerable Tools
• Completion Tools
• Tractor Tools
• Pump Applications/Control
• Formation Testing

WHAT MOVES YOUR WORLD
## SPECIFICATIONS

### General Information
- **Envelope**
  - Controller Board: 3.96 cm W x 27.94 cm L (1.56" W x 11" L)
  - Power Supply Board: 5.33 cm W x 30.48 cm L (2.1" W x 12" L)
- **Max Component Height**
  - 1.27 cm (0.5") (from the top of board surface)
- **Inter-board Connections**
  - Connectors or Flying Leads
- **Customer interface**
  - Connectors or Flying Leads

### Electrical Information
- **Bus Voltage**
  - Max: 400 Vdc
  - Min: 50 Vdc
  - Absolute Max: 600 Vdc
- **Current**
  - Continuous: 10 Amperes (Phase, Sine Peak)
  - Peak: 20 Amperes
- **Low Voltage Supply**
  - Max: 40 Vdc
  - Min: 20 Vdc

### Communication
- **Host Communication**
  - Protocol: Modbus (Down Hole Variant)
  - Hardware Layer: RS485
- **Digital**
  - Input: Option available

### Servo-control Specifications
- **Motor Control**
  - Command Modes: Torque, Velocity, Position
  - Control Architecture: Field Oriented Control
  - Current Bandwidth: >1kHz
- **Resolver Feedback**
  - Excitation: 3.5Vpp @ 5kHz
  - Position Loop Bandwidth (Typical): 50Hz

### Diagnostics and Fault Control
- **Temperature**
  - Controller Temperature Rating: Motion Disabled above 175° C (347° F)
  - Motor Temperature Rating: Motion Disabled above 220° C (428° F)
- **Current Protection**
  - Exceeds Current Limit: Motion Disabled above 20A
- **Over Voltage Protection**
  - Exceeds Voltage Limit: Motion Disabled above 450V
- **Over Speed Protection**
  - Exceeds Speed Limit: Motion Disabled above Motor Max Speed
- **Low Voltage Protection**
  - Exceeds Voltage Limit: Motion Disabled Below 20V/Above 40V
- **Logging**
  - Controller on time/ Motor run time
  - Events, Warnings, Faults

### Environmental
- **Shock and Vibration**
  - Vibration: 250G, 1ms 1/2 sine wave
  - Shock: 20G rms Random, 50-500Hz

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Moog has offices around the world. For more information or the office nearest you, contact us online.

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