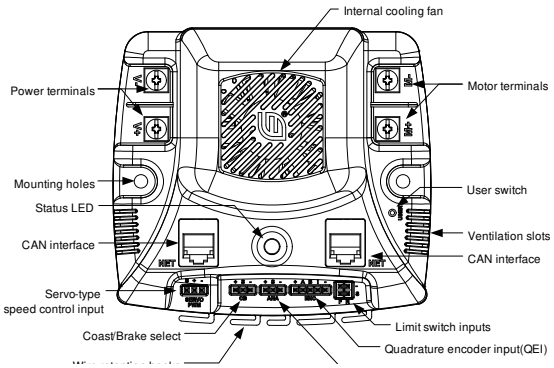
Stellaris® Brushed DC Motor Control Module with CAN

The Stellaris® Brushed DC Motor Control Module with CAN (MDL-BDC) offers a variable speed control for 12 V brushed DC motors at up to 40 A continuous current. The motor control module includes high performance Controller Area Network (CAN) connectivity and a rich set of control options and sensor interfaces, including analog and quadrature encoder interfaces. The high-frequency PWM on the MDL-BDC enables DC motors to run smoothly and quietly over a wide speed range. The module uses highly optimized software and a powerful 32-bit Stellaris® microcontroller to implement open-loop speed control as well as closed-loop control of speed, position, or motor current.

The Stellaris® MDL-BDC is powered by the LM3S2616 microcontroller, featuring CAN and advanced motion control capabilities. The LM3S2616 microcontroller's robust combination of features, along with the efficient and deterministic performance of the ARM® Cortex™-M3 core, positions the modules into a wide variety of consumer and industrial applications, including factory automation devices and systems, mobile robots, household appliances, pumping and ventilation systems, and electric wheelchairs and mobility devices.

Features



The MDL-BDC ships as a ready-to-run, yet customizable, module with the following features:

- Quiet control of brushed DC motors
  - 15 kHz PWM frequency
- Two options for Speed control
  - Industry-standard R-C servo type (PWM) interface
  - Controller Area Network (CAN) interface
- CAN communication
  - Full configurability of module options
  - Real-time monitoring of current, voltage, speed, and other parameters
  - Load firmware over CAN
- Limit switch inputs for forward and reverse directions
- Status LED indicates Run, Direction, and Fault conditions
- Motor brake/coast selector
- Quadrature encoder input (QEI) and analog input
- Color-coded screw terminals for all power wiring
- Easy to customize using tools supporting the MDL-BDC from Keil, IAR, Code Sourcery, or Code Red (using a Stellaris evaluation kit or preferred ARM® Cortex™-M3 debugger)

Reference Design Kit



In addition to being offered as a stand-alone, ready-for-production module (MDL-BDC), the Stellaris® MDL-BDC is also offered as a complete open-tool reference design kit (RDK-BDC). The RDK ships with everything needed to quickly evaluate and easily customize the MDL-BDC for your specific application, including:

- MDL-BDC motor control module
- Mabuchi RS-555PH-5255 Brushed DC Motor (rated 5000 RPM, 12 V, 3 A)
- Universal input wall power supply
- BDC CAN console based on EK-LM3S2965 Evaluation Kit
- CAN cable and terminator
- USB cable
- Adapter cable for ARM JTAG/SWD fine-pitch header
- Ribbon cable for ARM JTAG/SWD
- Reference design kit CD
  - Complete documentation, including Quickstart and user's guides
  - Stellaris Flash Programmer utility for firmware updates
  - Complete source code, schematics, and PCB Gerber files

Ordering Information

Product Number	Description
MDL-BDC	Stellaris® Brushed DC Motor Control Module with CAN for Single-Unit Packaging
MDL-BDC-B	Stellaris® Brushed DC Motor Control Module with CAN for Volume Packaging
RDK-BDC	Stellaris® Brushed DC Motor Control Reference Design Kit (includes the MDL-BDC module)

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