AVR[®] **Motor Control Evaluation**

AV*R*°

EVALUATE AND DESIGN BRUSHLESS DC MOTORS APPLICATIONS

The ATAVRMC100 is an evaluation kit dedicated to brushless DC motor control, for both Hall effect sensor control and sensorless control using Back ElectroMotive Force.

The kit includes an evaluation board, a 3-phase BLDC motor and a demon-

stration software. It allows users to quickly evaluate the capability of **AVR**[®] microcontroller the AT90PWM3B to control high speed brushless DC motor applications. The kit can also serve as a development platform. Low cost AVR development tools make debugging easier, and source codes, written in C, can be easily re-used by developers for their own motor control applications.



Key Features

- Evaluation Board with AT90PWM3B Microcontroller
- 3-phase BLDC Motor
- For both Hall Sensor and Sensorless Applications
- Supports In-System Programming and Chip Emulation
- CD-ROMs with Datasheets, Application Notes and Demonstration Software

Applications

- Air Conditioning (HVAC)
- Refrigerators, Fans, Pumps
- High Tech Industrial Constant Speed Applications
- Traction Elevator
- Medical Equipment

Evaluation Kit ATAVRMC100

MICROCONTROLLERS

ATAVRMC100 BLDC Motor Control Evaluation Kit

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The board includes power bridges for BLDC motors and can realize zero crossing voltage detection, hardware overcurrent detection and motor supply voltage

measurement. An on board LIN transceiver allows to drive application through a LIN network. Programming of the code into the microcontroller's Flash memory can be performed with an AVRISP or a JTAGICE mkII through the dedicated connectors.

Product Features

- On board AT90PWM3B microcontroller in SO32 package (2.7-5.5V)
- Hall sensor or sensorless configuration
- Zero crossing voltage detection
- Hardware overcurrent detection
- Motor supply voltage and operating current measurement

Power Bridge for BLDC Motors

- Any commutation schemes are possible.
- Recommended Voltage Operation from 8 to 16V DC (4A)

BLDC Motor

For a comprehensive and ready-to-use evaluation, a 3-phase BLDC motor is provided.

- Manufacturer: TecMotion
- Hall sensors included. Also usable as sensorless motor.

Support

All design hints are described. Any new design can use these examples as a starting point.

Development Tools

Only low cost standard AVR tools are required for application development and debug.

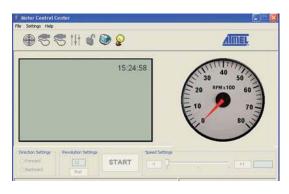
• Phases: 3 – Poles: 8

- Voltage: 12V
- Speed: 6200 RPM
- Peak Torque: 0.19 N.m
- ATAVRMC100 User Manual
- Hardware schematics and layout
- Self tutorials
- Application notes and software examples
- AVR Studio[®] software interface
- ISP connector for on-chip In System Programming
- ISP connector for debug wire

Ordering Information

• ATAVRMC100

The latest version of all softwares is available free of charge on Atmel web site: www.atmel.com



System clock: internal RC oscillator

- On board LIN transceiver Atmel ATA6661
- Expansion connector to be used with other AVR microcontrollers
- Many access points for test and debug
- Dimension: 75 mm x 55 mm