AVR MICROCONTROLLERS

AVR® Motor Control Evaluation Kit ATAVRMC100

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 demonstration software. It allows users to quickly evaluate the capability of the AVR® microcontroller 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

ATMEL®

ATAVRMC100 BLDC Motor Control Evaluation Kit

Headquarters
Atmel Corporation
2325 Orchard Parkway
San Jose, CA 95131
USA
Tel: (1) 408 441-0311
Fax: (1) 408 487-2600

International
Atmel Asia
Room 1219
Chinachem Golden Plaza
77 Mody Road Tsimshatsui
East Kowloon
Hong Kong
Tel: (852) 2721-9778
Fax: (852) 2722-1369

Atmel Europe
Le Krebs
8, rue Jean-Pierre Timbaud
BP 309 - 78054 St Quentin-en-Yvelines Cedex
France
Tel: (33) 1-30-60-70-00
fax: (33) 1-30-60-71-11

Atmel Japan
9F, Tonetsu Shinkawa Bldg.
1-24-8 Shinkawa
Chuo-ku, Tokyo 104-0033
Japan
Tel.: (81) 3-3523-3551
Fax: (81) 3-3523-7581

Literature Requests
www.atmel.com/literature

Web Site
www.atmel.com

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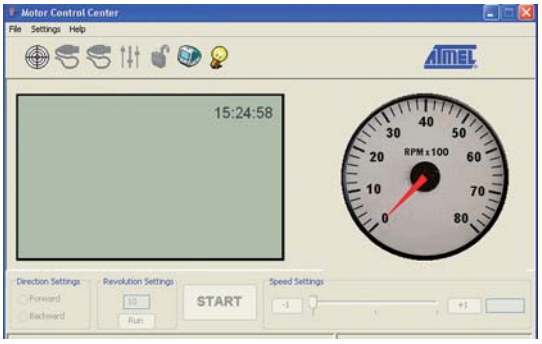
The ATAVRMC100 BLDC motor control kit is an evaluation tool and development board for the AT90PWM3B AVR microcontroller from Atmel.

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
- 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

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.
- Phases: 3 – Poles: 8
- Voltage: 12V
- Speed: 6200 RPM
- Peak Torque: 0.19 N.m

Support

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

- ATAVRMC100 User Manual
- Hardware schematics and layout
- Self tutorials
- Application notes and software examples

Development Tools

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

- 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