AVR® AC Induction Motor Control Evaluation

EVALUATE AND DESIGN ASYNCHRONOUS AC MOTOR APPLICATIONS

The ATAVRMC200 is an evaluation kit dedicated to asynchronous AC motor control, using various sensors for regulation.

The kit includes an evaluation board and a demonstration firmware. It allows users to quickly evaluate the capability of the AVR® microcontroller AT90PWM3/3B to control asynchronous AC 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.

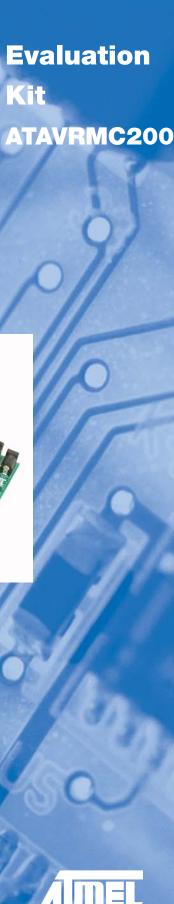


Key Features

- Evaluation Board with AT90PWM3B Microcontroller
- Various Sensor Inputs
- Supports In-System Programming and Chip Emulation
- Complete Software and Schematics
- Asynchronous AC Motor (to be ordered separately)

Applications

- Air Conditioning (HVAC)
- Washing Machines, Dryers, Vacuum Cleaners
- Refrigerators, Fans, Pumps
- Traction Elevator
- Medical Equipment
- Industrial Applications



ATAVRMC200

ASYNCHRONOUS AC 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

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

Tel: (33) 1-30-60-70-00 fax: (33) 1-30-60-71-11

Atmel Japan

France

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



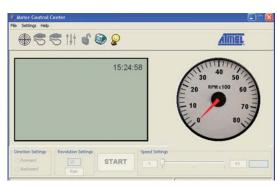
Disclaimer: The information in this document is provided in connection with Atmel products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of Atmel products. EXCEPT AS SET FORTH IN ATMEL'S TERMS AND CONDITIONS OF SALES LOCATED ON ATMEL'S WEB SITE, ATMEL ASSUMES NO LIABILITY WHATSOEVER AND DISCLAIMS ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY RELATING TO ITS PRODUCTS INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY. OF NOTE OF NON-INFRINGEMENT. IN NO EVENT SHALL ATMEL BE LIABLE FOR ANY DIRECT, CONSCOUENTIAL, PUNITIVE, SPECIAL OR INCIDENTAL DAMMAGES (INCLUDING, WITHOUT LIMITATION), DAMAGES FOR LOSS AND PROFITS, BUSINESS INTERRUPTION, OR LOSS OF INFORMATION) ARISING OUT OF THE USE OR INABILITY TO USE THIS DOCUMENT, EVEN IF ATMEL HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, Atmel makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Atmel to do the products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not suitable for, and shall not be used in, automotive applications in applications intended to support or sustain life.

support or sustain life.

• Atmel © Atmel © Atmel © 1000 and combinations thereof, "Everywhere You Are" and others are registered trademarks or trademarks of Atmel Corporation or its subsidiaries. Other terms and product names may be the trademarks of others. 4096B-AVR-12/07/

The on-board AT90PWM3/3B drives the power bridges for Asynchronous AC motors and provide hardware detection for overcurrent and measure motor supply voltage. An on board isolated RS-232 transceiver allows to control the kit remotely. Code

programming into the microcontroller's Flash memory can be performed with an AVRISP mkII or a JTAGICE mkII through the dedicated connectors.



Product Features

- On board AT90PWM3/3B microcontroller in SO32 package (2.7-5.5V)
- Hardware overcurrent detection
- Isolated inputs for sensors
- 0-10V input
- Any commutation schemes are possible.
- Motor supply voltage, operating current and power stage temperature measurement
- System clock: internal RC oscillator
- On board isolated RS-232 transceivers
- Many access points for test and debug
- Dimension: 100 mm x 200 mm
- Recommended Voltage Operation from 110 to 230V – 1/2 HP (370 W)

Asynchronous AC Motor: ATAVRMC201 (to be ordered separately)

An asynchronous AC motor (ATAVRMC201) allows a comprehensive and ready-to-use evaluation.

Manufacturer: Almo (RMA 56-G4)

Phases: 3 – Poles: 4Power: 90V @ 230WSpeed: 1280 RPM

Support

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

Dedicated motor control web resources: www.atmel.com/products/avr/mc/

- ATAVRMC200 User Manual
- Hardware schematics and layout
- Self tutorials
- Application notes and software examples

Development Tools

ATAVRMC200 supports standard AVR tools for application development and debug.

- AVR Studio[®] software interface
- ISP connector for on-chip In System Programming
- ISP connector for debug wire

Ordering Information

- ATAVRMC200: Evaluation Kit with AT90PWM3/3B AVR Microcontroller
- ATAVRMC201: Asynchronous AC Motor (ALMO RMA 56-G4)
 The latest version of all softwares is available free of charge on Atmel web site: www.atmel.com/avr