

# 3-phase BLDC/PMSM Low Voltage Motor Control Kit Fact Sheet

## Description

The urgent need to offer a final solution within a short delivery time to the market leads developers to optimize and speed up the whole development process. Fast prototyping and fast development are essential requirements for success. The area of motor control needs to meet these requirements as well. Therefore, Freescale provides the hardware, software, tools and knowledge-based support for motor control applications. The 3-ph Low Voltage Motor Control Kit represents a platform for motor control application development. This modular system enables the fast development of sensor / sensorless BLDC and PMSM motor applications using different controllers, starting with the HCS08, the DSC, and up to the ColdFire family. Moreover, easy porting from one controller to another, with motor control libraries support and the FreeMASTER development tool, significantly contributes towards finalization of the development far earlier than ever before. This motor control kit is also suitable for those who want to easily learn and develop their first motor control application soon, verify existing motor control techniques, or to implement a new one.

3-ph BLDC/PMSM LV Motor Control Kit



## Target applications

- BLDC motor
- PMSM motor
- DC motor
- Automotive applications
- Motor control applications

## Product Features and Specifications

- 3-ph BLDC/PMSM Low Voltage Motor Control Drive board
- MC56F8006 daughter board
- MC9S08MP16 daughter board
- 40W BLDC motor
- 24V / 3A power supply
- 2 CDs with datasheets, reference manuals, source codes and much more
- user interface / FreeMASTER
- 3-ph MOSFET bridge inverter
- 3-ph MOSFET gate driver (MC33937)
- d.c.-bus voltage and current sensing
- BEMF voltage sensing
- phase current sensing
- Encoder/Hall sensor sensing
- CAN physical layer
- USB interface (MC9S08JM60) for FreeMASTER
- LED indicators

The 3-ph BLDC/PMSM Low Voltage Motor Control Drive board incorporates all the necessary circuitry needed for development of motor control applications. It incorporates a complete 3-phase power stage, a communication interface, feedback signal handling and the user's interface. All the control, feedback and communication signals are routed to the MCU header connectors. The MCU header incorporates the main MCU controlling the system. The MCU headers can be easily changed to another with a different microcontroller. This modular approach allows for easily porting an application among different controllers. The MC9S08MP16 and MC56F8006 MCU headers are included in the Motor Control Kit.

Two BLDC sensorless applications are provided for the attached controllers. Detailed designer reference manuals ( DRM108 and DRM 117) and source codes are included as well. Applications are already loaded in the controllers and are up and running as soon as a power supply is applied. The BLDC sensorless applications can be controlled using the push buttons and toggle switch, or by using FreeMASTER control pages. The 3-ph BLDC/PMSM Low Voltage Motor Control Drive board is then connected to the host PC via the USB cable.

This kit is ready to order on the freescale website [www.freescale.com](http://www.freescale.com), under 3PHASELV-KIT.

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