

Quick Start Guide

S12ZVM-EWP Reference Design Board

A-sample PMSM Electrical Water Pump ECU hardware and software powered by the S12 MagniV® S12ZVM microcontrollers



GET TO KNOW THE S12ZVM-EWP BOARD

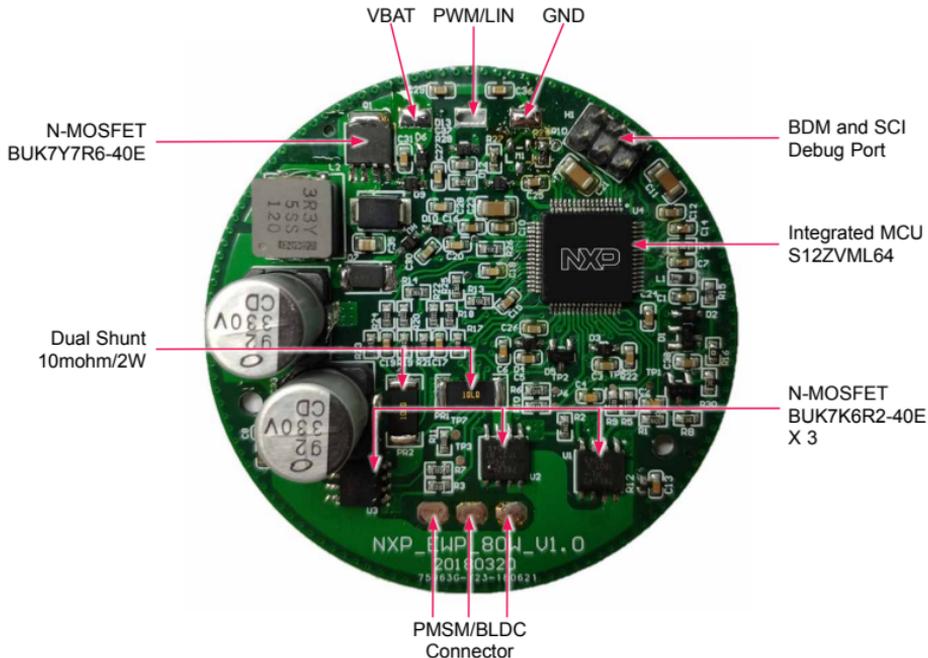


Figure 1: Front side of S12ZVM-EWP



Figure 2: Back side of S12ZVM-EWP

S12ZVM-EWP FEATURES

- PMSM sensorless FOC algorithm supported
- Software over-current, stall detection, under-voltage, over-voltage, over-temperature protection
- Speed control by using PWM duty cycle and FreeMASTER
- Fault clear and restart auto-mode if related MACRO enabled
- PWM and LIN function integrated in one wire
- BDM and SCI integrated in one plug: Four layers PCB with one layer components mounted
- 12 V system application, supply voltage range from 9 V to 18 V
- 7 A input current, up to 80 W input power
- Dual shunt current sampling
- Hardware overvoltage, undervoltage, overcurrent, and short protection

STEP-BY-STEP INSTRUCTIONS

Firstly, install CodeWarrior Development Studio V11 or newer version for S12Z based MagniV device.

Secondly, install FreeMASTER Run-time debugging tool which is used to tune the motor.

1 Download Software



Download installation software and documentation under **“Jump Start Your Design”** at nxp.com/S12ZVM-EWP.

2 Connect the cable and debugger like PE Multilink

Connect power supply cables and water pump or other 3 phase PMSM cables to the board. Connect PE Multilink debugger to BDM port (H1) onboard and another end to PC.

STEP-BY-STEP INSTRUCTIONS CONTINUED

3 Setup DC Power Supply

Connect power supply wires in the cable to the DC power supply. Set the voltage at 12 V, current limit to 7.0 A. Check and make sure all connections are right.

Power Supply
DC: 12 V
Current limit: 7.0 A

Multilink and
FreeMASTER



Water Pump or
3 Phase PMSM

4 Program example codes and see result

Open CodeWarrior and load example projects. Power up the board. Open the FreeMASTER in the S12ZVM-EWP Software Quick Start Package; Configure the connected motor parameters and other parameters in MCAT and generate the "PMSM_appconfig.h" file. Compile and program the project and then connect the FreeMASTER with S12ZVM-EWP board. After that, you can run the motor by using FreeMASTER. More details, please refer to S12ZVM-EWP Software Integration Guide (SWIG).

HEADERS AND CONNECTORS LIST

CONNECTOR	DESCRIPTION
H1	For BDM, PIN1-BKGD, PIN2-GND, PIN4-RESET, PIN6-VDDX
	For FreeMASTER, PIN3-RX, PIN5-TX



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WARRANTY

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Get Started

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