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dsPICDEM MCLV-2 Development Board [Buy it Now](#)

Part Number: DM330021-2


**dsPICDEM MCLV-2 Development Board
(Part # DM330021-2)**
Summary:

The dsPICDEM MCLV-2 Development Board provides a cost-effective method of evaluating and developing sensored or sensorless Brushless DC (BLDC) and permanent magnet synchronous motor control applications. The board supports Microchip's 28-pin SOIC and 100-pin Plug-In-Modules with dsPIC33E or dsPIC33F Digital Signal Controllers. The board supports the use of the internal, on chip OpAmps found on certain dsPIC devices or the external OpAmps found on the MCLV-2 board. A dsPIC33EP256MC506 Internal OpAmp PIM (MA330031) is included. The board is capable of controlling motors rated up to 48V and 15 Amps, with multiple communication channels such as USB, CAN, LIN and RS-232.

The dsPICDEM MCLV-2 Development Board is targeted to control a Brushless DC (BLDC) motor or Permanent Magnet Synchronous Motor (PMSM) in sensor or sensorless operation. This flexible and cost-effective board can be configured in different ways for use with Microchip's specialized motor control digital signal controllers. The dsPICDEM MCLV-2 Development Board supports the dsPIC33E or dsPIC33F motor control device family. It offers a mounting option to connect either a 28-pin SOIC device or a generic 100-pin Plug-In Module (PIM).

The MCLV-2(DM330021-2) replaces the previous MCLV (DM330021) and is fully backwards compatible with the previous MCLV(DM330021) and all motor control PIMs

Key Features:
Motor Control Interfaces:

- Three-phase inverter bridge with a power rating of 48V/15A
- Ability to use internal OpAmps found on certain dsPIC33E devices or external OpAmps on the MCLV-2 board for current sensing
- Hall sensors/quadrature encoder interface for sensored motor control
- Phase voltage feedback for sensorless BLDC operation
- DC bus current sense resistor for single shunt vector control
- Phase current sense resistor for dual shunt vector control
- Overcurrent protection
- Input/output control switches
- Potentiometer
- LED indicator for PWM outputs

Communication Interfaces:

- CAN interface port
- LIN interface port
- UART communication via USB
- UART communication via RS-232

Programming Interfaces:

- ICSP™ connector for programming a dsPIC DSC device
- RJ11 connector for programming a dsPIC DSC device
- ICSP connector for programming the PIC18LF2450 USB to UART bridge

Full Backwards Compatibility with MCLV
Power Supply Connectors:

- Auxiliary power tab "fast-on" connectors for the controller and power stage
- 24V power input connector for the controller
- Dedicated power input connector for the power stage

Supported Application Notes:

- > [AN957](#) - Sensored Trapezoidal BLDC Motor Control
- > [AN1017](#) - Sensored Sinusoidal Control of PMSM Motors
- > [AN1078](#) - Sensorless FOC for PMSM
- > [AN1160](#) - Sensorless BLDC Control with Back-EMF Filtering Using a Majority Function
- > [AN1292](#) - Sensorless FOC for a PMSM using a PLL Estimator and Field Weakening

Plug-in Modules and Motor Accessories

Part Number	Description
MA330031	dsPIC33EP256MC506 Internal OpAmp PIM
MA330031-2	dsPIC33EP256MC506 External OpAmp PIM
MA330033	dsPIC33EP512GM706 Single Motor Internal OpAmp PIM
MA330027	dsPIC33EP512MU810, Dual Motor Control Plug-In Module
MA330025-3	144-pin TQFP to 100-pin dsPIC33EP512MU814 PIM Motor Control device
MA330028	44-pin QFN to 100-pin dsPIC33EP64MC504 PIM Motor Control device
MA240028	44-pin QFN to 100-pin PIC24EP64MC204 PIM Motor Control device
MA240026	28-pin QFN to 100-pin PIC24FJ16MC102 PIM Motor Control device
MA330026	28-pin QFN to 100-pin dsPIC33FJ16MC102 PIM Motor Control device
MA330014	28-pin QFN to 100-pin dsPIC33FJ12MC202 PIM Motor control device
MA330017	44-pin QFN to 100-pin dsPIC33FJ32MC204 PIM Motor Control device
MA330018	44-pin QFN to 100-pin dsPIC33FJ32MC804 PIM Motor Control device
MA330013	100-pin TQFP to 100-pin dsPIC33FJ256MC710 PIM Motor control device
AC300020	Motor, 24V BLDC
AC300022	24V 3-Phase Brushless DC Motor with Encoder
AC002013	24V Power supply for DM183021 and DM330021

Package Contents:

- dsPICDEM MCLV-2 Development Board
- dsPIC33EP256MC506 Internal OpAmp PIM
- Matrix board to configure the MCLV-2 for internal, on chip OpAmp use
- Matrix board to configure the MCLV-2 for external, on board OpAmp use

Downloads

Title	Date Published	Size	DL
Part Number: AC300022 - 24V 3-Phase Brushless DC Motor with Encoder DataSheet	4/1/2011 3:21:58 PM	423 KB	
AC300020 - 24V 3-Phase Brushless DC Motor	4/1/2011 3:20:12 PM	463 KB	
AN1078 - Sensorless Field Oriented Control of a PMSM	4/4/2010 11:21:27 PM	474 KB	
AN1160 - Sensorless BLDC Control with Back-EMF Filtering Using a Majority Function	11/10/2012 1:12:19 AM	693 KB	
dsPIC33FJ256MC710 100-pin to 100-pin TQFP Plug-In Module (PIM) Information Sheet	12/3/2008 4:10:17 PM	672 KB	
dsPICDEM MCLV Development Board User's Guide	8/22/2008 3:06:04 PM	3113 KB	
dsPICDEM MCLV-2 (DM330021-2) Development Board User's Guide	10/4/2012 11:34:42 AM	751 KB	
Low-cost Motor Control and Sensor Designs with PIC MCUs and dsPIC DSCs	9/26/2011 11:27:23 AM	125 KB	
Motor Control and Drive Brochure	10/1/2013 3:36:11 PM	5694 KB	
Quick Guide to Microchip Development Tools	8/5/2013 11:58:02 AM	7385 KB	
Real-Time Data Monitor User's Guide	6/19/2009 10:46:44 AM	1343 KB	
Technical Notice ETN 33	6/30/2011 6:28:30 PM	271 KB	
Updated USB Driver for win2k, xp, vista	12/11/2007 2:46:00 PM	1 KB	