

# IMDM15 INTELLIGENT MOTOR DRIVE MODULE DEVELOPMENT KITS

DESIGN ENVIRONMENT FOR IR PI-IPM15P12D007 BASED ON TMS320LF2406A

## STATE-OF-THE-ART DEVELOPMENT TOOLS FOR DIGITAL MOTION CONTROL

The Technosoft IMDM15 is a motion control and development kit, built with the International Rectifier PI-IPM15P12D007 fully integrated Intelligent Power module, for high performances servo motor drives applications. The device core is the state of the art DSP controller TMS320LF2406A from Texas Instruments.

This advanced kit accelerates the design, development and implementation of digital motion control (DMC) applications.

The IMDM15 kit is a complete development platform based on a power module and embedded DSP controller, providing a complete tool for digital motion control solutions design.

To quickly develop and test motion control algorithms, the IMDM15 module uses the 40 MIPS computational power of the TMS320LF2406A, combined with a double event manager able to drive up to 16 PWM and 16 A/D converters. The embedded CAN interface may be used to connect the board to multiple-axis structures.

The IMDM15 kit can be connected to a PC via an RS232 or RS422 interface to download, execute and debug the software applications without the need for other hardware devices.



## IMDM15 module– Hardware specifications

### Power Module

- NPT IGBTs 15A, 1200V
- 10us Short Circuit capability
- Gen III HexFred Technology
- 10mΩ sensing resistors on two phase outputs

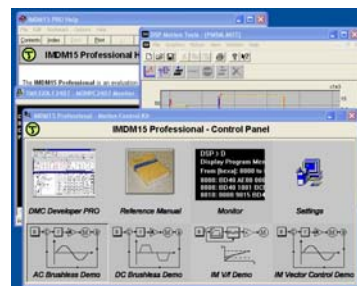
### Embedded driving board

- Programmable 40 MIPS DSP controller
- Current sensing feedback from all phases
- Full protection from ground and line to line faults
- UVLO, OVLO on DCbus voltage
- Asynchronous isolated 2Mbps serial port
- Opto - isolated CAN communication interface
- IEEE standard 1149.1 (JTAG port interface)

- Single 24 Vdc logic power supply

## GRAPHICAL PROGRAMMING FOR DSP DIGITAL MOTOR CONTROL

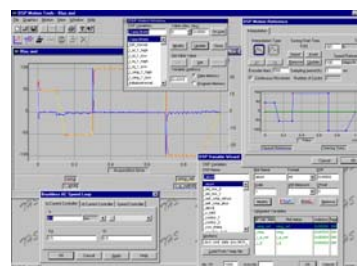
The IMDM15 development kit A-Pro contains a comprehensive software package for complete motion control applications development, integrated under a Windows IDE platform. Advanced project management, debug and graphical analysis tools are included in this professional development kit.



MCWIN software platform

## MOTION CONTROL APPLICATIONS

Demos for AC and DC brushless motor speed control are also included in the IMDM15 A-Pro kit. The dynamic behavior of the real-time system can easily be analyzed through an extended graphical display of all system variables. Speed and current controller parameters can be modified on-line, allowing a quick optimization of control algorithms.



Motion Control Application

### IMDM15 Development Kit

- ✓IMDM15 setup with rectifier, power module and embedded DSP controller
- ✓Processor evaluation software
- ✓DMCD-Pro, professional development IDE for DMC applications
- ✓C-compiler, assembler, linker
- ✓Ready-to-run examples
- ✓DMC libraries – DMCode version kits
- ✓User's Guide

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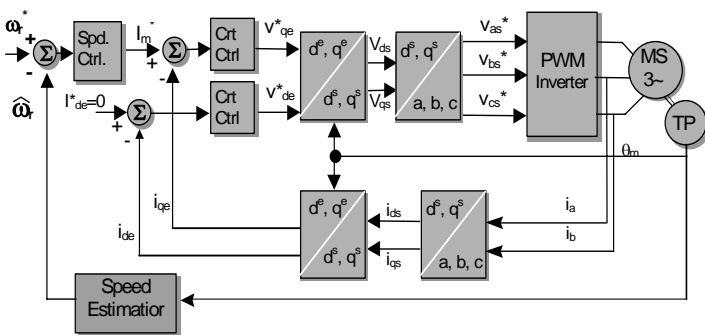


## DMCD-PRO, DIGITAL MOTION CONTROL DEVELOPER

The IMDM15 kits include DMCD-Pro, the Technosoft most advanced software platform, which allows the development of motor control applications in a Windows IDE environment, while providing:

- Real-time debugging through serial interface
- Breakpoints, single step execution, stopping and start of current program
- Project management system
- Advanced reference generator plug-in

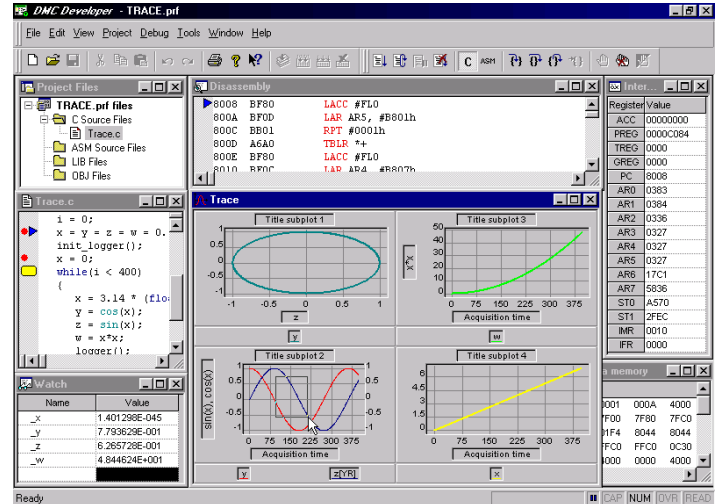
- True real-time data storage logger with advanced graphical IDE. Graphical control panel for on-line data visualization and motion parameters setting
- Observe/Edit global variables during debugging
- View/Edit of data and program memory contents of the DSP target board
- Full disassembly window for C and embedded assembly code
- Fully compatible with TI assembler, linker and C-compiler



PMSM control scheme

### Order List

Part No.	Description
24TKI60112	<b>IMDM15 Development Kit A Pro</b> ✓ IMDM15 setup with rectifier, power module and embedded DSP controller ✓ MCWIN evaluation software ✓ DMCD-Pro, Digital Motion Control Developer Pro ✓ Ready-to-run examples
24TKI60312	<b>IMDM15 Kit C Pro</b> ✓ IMDM15 Development Kit A Pro ✓ TI C Compiler/Assembler/Linker (TMS320C2x/C2xx/C5x)
24TKI60313	<b>IMDM15 Kit C Pro – S (BL)</b> ✓ IMDM15 Development Kit C Pro + Brushless Motor ✓ DMCode – S(BL) plug-in for DMCD-Pro, Source Code for Brushless Motor Speed Control
24TKI60315	<b>IMDM15 Kit C Pro – S (IM)</b> ✓ IMDM15 Development Kit C Pro + Induction Motor ✓ DMCode–S(IM) plug-in for DMCD-Pro, Source Code for Induction Motor Speed Control



### DMCODE, MOTION CODE PLUG-INS FOR DMCD-PRO

The **IMDM15 Kits C Pro -S** include complete digital motion control application source code, fully documented, for the speed control of a brushless or induction motor.

Options are:

**DMCode – S (BL) plug-in for DMCD-Pro**, which contains the complete source code for brushless motor speed control:

- Trapezoidal mode (BLDC)
- Sinusoidal mode (PMSM – vector control)

**DMCode – S (IM) plug-in for DMCD-Pro**, which contains the complete source code for induction motor speed control:

- Vector control
- V/f mode

These applications are structured as projects for the DMCD-Pro platform; they give you all the information needed to understand advanced DSP implementation aspects, and provide a starting point for application development.

Starting with a complete, ready-to-run platform, the user will manage in a very efficient way the changes at hardware or software level, which can be controlled in a 'one change at a time - test - validate' manner.

The code is developed both in C language and assembler.

### COMPATIBILITY WITH TEXAS INSTRUMENTS SOFTWARE TOOLS

TI software tools (C compiler, assembler and linker) are fully compatible with all IMDM15 development Kits.

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