

MCK28035 DSC MOTION CONTROL KITS MSK28035 DSC MOTION STARTER KITS

DESIGN ENVIRONMENT FOR PICCOLO™ TMS320F28035

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

The Technosoft MCK28035 and MSK28035 are complete motion control development and evaluation kits, based on the TMS320F28035 Piccolo™ digital signal controller (DSC).

The Piccolo series will feature advancements such as a programmable floating-point control law accelerator (CLA), representing ideal environments for the design, development and implementation of digital motion control applications.

The MCK28035 kit is a complete DSC digital signal controller development platform that comes with a power module and a brushless motor, representing the perfect tool for digital motion control solutions design.

The MSK28035 kit is the best DSC development platform for users that already have the power module and motor, and want to develop their motion control software application.

To quickly develop and test motion control algorithms, the MSK28035 DSC board uses the 60 MIPS computational power of the Piccolo™ TMS320F28035, 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 MCK28035 and MSK28035 kits can be connected to a PC

MSK28035 DSC Motion Starter Kit

- ✓ MSK28035 DSC board
- ✓ Processor evaluation software
- ✓ DMCD28x-Lite with assembler and linker
- ✓ User's Guide

MCK28035 DSC Motion Control Kit

- ✓ MSK28035 DSC Motion Starter Kit
- ✓ PM50 Power module (50W)
- ✓ Brushless motor with Hall sensors and 500-line encoder
- ✓ Motion Control Demos
- ✓ User's Guide



MSK28035 DSC board – Hardware specifications

- Digital Signal Controller Piccolo™ TMS320F28035 operating at 60 Mhz
- 64K word on-chip Flash program memory
- 10K word on-chip data/program of RAM memory
- 8K word on-board of E2ROM memory
- RS-232 serial communication port
- Opto - isolated CAN communication interface
- Standard I/O connector (3.3V – MC-BUS) for simultaneous links with two power modules
- Access to 45 Individually Programmable GPIO DSP pins
- 16 channels of 12-bit accuracy A/D inputs
- 2 channels of 12-bit accuracy D/A outputs
- Standard TI JTAG interface available
- Single DC power supply: 5V
- Dimensions: 104x63 mm

via an RS232 interface to download, execute and debug the software applications without the need of other hardware devices.

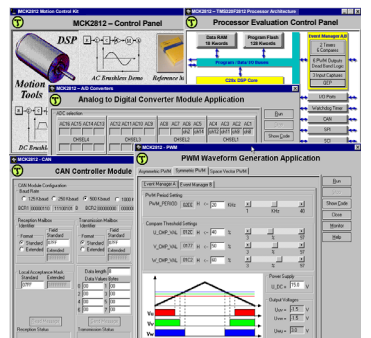
GRAPHICAL EVALUATION OF DSP DIGITAL MOTOR CONTROL

The MCK28035 and MSK28035 DSC development kits contain a comprehensive software packages for the Digital Signal Controller evaluation and basic development (assembler, linker and debugger), integrated under a Windows IDE platform. A set of ready-to-run demos (with C/ASM source code) is provided. Tests for timers, PWM, I/O, A/D functions are available at a click of the mouse.

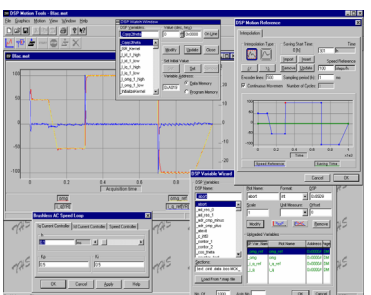
MOTION CONTROL APPLICATIONS

Demos for AC and DC brushless motor speed control are included in the MCK28035 DSC 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, which allows the quick optimization of control algorithms.



Processor evaluation software



Motion Control Application

Your
Next
Intelligent
Move



TECHNOSOFT
MOTION TECHNOLOGY

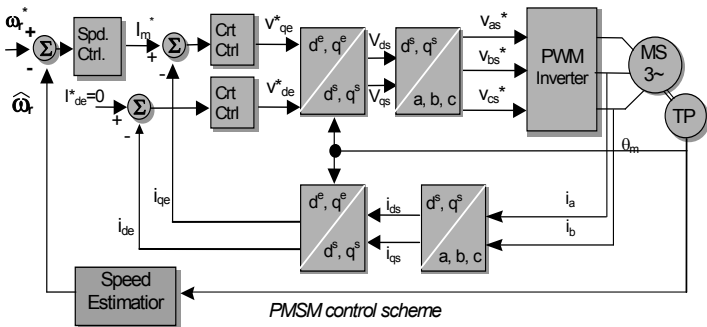
PROFESSIONAL KITS

DMCD28X-PRO, DIGITAL MOTION CONTROL DEVELOPER

The MSK28035 / MCK28035 Pro kits include DMCD28x-Pro, the Technosoft 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

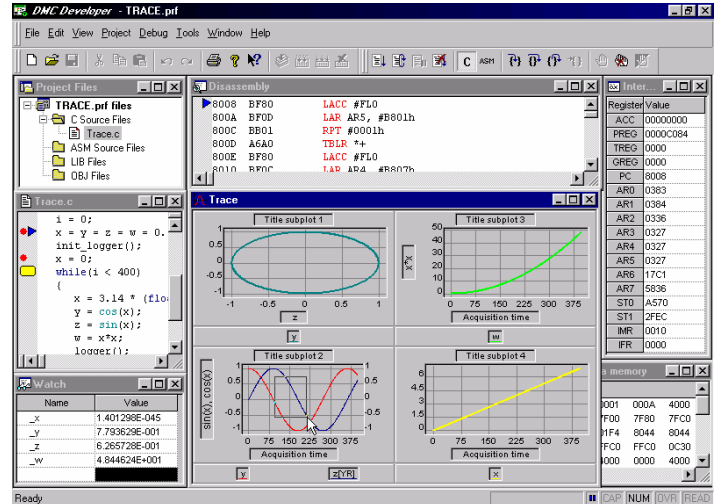
- True real-time data storage logger with advanced graphical IDE. Graphical control panel for on-line data visualization and motion parameter setting
- Observe / Edit global variables during debugging
- View / Edit of data and program memory contents of the DSC target board
- Full disassembly window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



Order List

Part No.	Description
24TKI82001	MSK28035 DSC Motion Starter Kit ✓ MSK28035 DSC board ✓ Processor evaluation software ✓ DMCD28x-Lite, Digital Motion Control Developer Lite
24TKI82003	MSK28035 Pro ✓ MSK28035 DSC Motion Starter Kit ✓ DMCD28x-Pro, Digital Motion Control Developer Pro
24TKI82212	MSK28035 Kit C Pro ✓ MSK28035 Pro Kit ✓ TI C/C++ Compiler/Assembler/Linker (TMS320F28x)
24TKI82011	MCK28035 DSC Motion Control Kit ✓ MSK28035 DSC Motion Starter Kit ✓ PM50, 3-phase, 36V, 2.1A, MOSFET inverter ✓ Brushless motor with Hall sensors & 500-line encoder ✓ Motion Control Applications
24TKI82112	MCK28035 Kit A Pro ✓ MCK28035 DSC Motion Control Kit ✓ DMCD28x-Pro, Digital Motion Control Developer Pro
24TKI82312	MCK28035 Kit C Pro ✓ MCK28035 Pro Kit ✓ TI C/C++ Compiler/Assembler/Linker (TMS320F28x)
24TKI82313	MCK28035 Kit C Pro-S(BL) ✓ MCK28035 Kit C Pro ✓ DMCode-S(BL), Source Code Speed Control library for Brushless Motor
24TKI82315	MCK28035 Kit C Pro-S(IM) ✓ MSK28035 C Pro + ACPM750E + Induction Motor ✓ DMCode-S(IM), Source Code Speed Control library for Induction Motor
24TKI82316	MCK28035 Kit C Pro-MS(BL) ✓ MCK28035 Kit C Pro ✓ DMCode-MS(BL), MATLAB-Simulink Position / Speed Control library for Brushless Motor
24TKI82317	MCK28035 Kit C Pro-MS(IM) ✓ MSK28035 C Pro + ACPM750E + Induction Motor ✓ DMCode-MS(IM), MATLAB-Simulink Position / Speed Control library for Induction Motor

Piccolo™ is a Texas Instruments registered trademark.



DMCode, MOTOR CONTROL SOURCE CODE LIBRARIES

The MCK28035 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 DMCD28x-Pro

- complete source code for brushless motor speed control:
- Trapezoidal mode (BLDC)
- Sinusoidal mode (PMSM – vector control)

DMCode-S(IM) plug-in for DMCD28x-Pro

- complete source code for induction motor speed control:
- Vector control
- V/f mode

These applications are structured as projects for the DMCD28x-Pro platform.

All motion applications and libraries are available as Code Composer Studio v4 projects also.

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 mainly in C language with some specific functions in assembler. **MATLAB™** – compatible versions of the DMCode libraries are also available, with **Simulink™** models for the motor control structure. One can easily simulate the system behavior and validate the control scheme performances. Then, you can use the C-code generator feature of MATLAB, and obtain the corresponding C-code, compile, download and test it on the DSC module.

TI Third Party Network Member



Kane Computing Ltd
 Suite I, Ascot Court,
 71-73 Middlewich Road,
 Northwich, Cheshire, CW9 7BP.
 Tel: +44(0)1606 351006
 Fax: +44(0)1606 351007
 Email: sales@kanecomputing.com
 Web: www.kanecomputing.co.uk