

CATALOG

Software Catalog

Software Catalog

3A0-DTSOFT-xCxx

November 1, 2004



DELTA TAU
Data Systems, Inc.

NEW IDEAS IN MOTION ...

Single Source Machine Control

Power // Flexibility // Ease of Use

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Operating Conditions

All Delta Tau Data Systems, Inc. motion controller products, accessories, and amplifiers contain static sensitive components that can be damaged by incorrect handling. When installing or handling Delta Tau Data Systems, Inc. products, avoid contact with highly insulated materials. Only qualified personnel should be allowed to handle this equipment.

In the case of industrial applications, we expect our products to be protected from hazardous or conductive materials and/or environments that could cause harm to the controller by damaging components or causing electrical shorts. When our products are used in an industrial environment, install them into an industrial electrical cabinet or industrial PC to protect them from excessive or corrosive moisture, abnormal ambient temperatures, and conductive materials. If Delta Tau Data Systems, Inc. products are directly exposed to hazardous or conductive materials and/or environments, we cannot guarantee their operation.

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HOST COMPUTER SOFTWARE

PMAC Executive Programs

The PMAC Executive Program for the IBM PC and compatibles is a host program environment for the PMAC controller, intended as a development tool in creating PMAC applications. It provides a terminal emulator, a text editor for writing and editing PMAC motion and PLC programs, a screen to jog motors, extensive tuning utilities, plotting capabilities, and various special screens for viewing various PMAC variables and status registers. The PMAC Executive program is available in different versions for diverse operating systems.

PMAC Communication Libraries

The main set of communication libraries is referred as PCOMM32. This set of DLL functions is the core development for all Delta Tau host computer software. These PCOMM32 libraries are available for the development of host computer software under C++, Visual Basic, LabView and many other software development environments.

PMAC HMI

PMAC HMI allows creating a custom operator interface display using a comprehensive suite of ActiveX graphical control objects such as buttons, indicators, stripcharts, bargraphs, gauges, sliders and many more. The interface can be enhanced with unlimited sophistication using the fully integrated Visual Basic for Applications development and runtime environment.

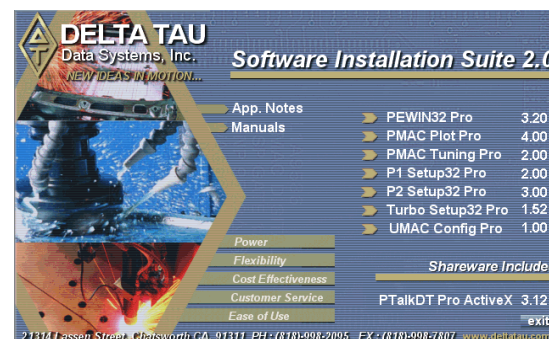
Communications with the PMAC motion controller is based on PCOMM32, which reliably allows interfacing with either one or multiple PMACs through any of the available communication ports. In addition, multiple PMAC HMI interfaces can be linked over a network so that they will transparently work together as one. PMAC HMI is a powerful, flexible and robust world-class operator interface design tool for the PMAC motion controller.

Other Software

In addition to the software packages listed above, Delta Tau provides a variety of other software tools. These include, step-by-step EZ setup programs, open servo for the simplified development of fast machine code, the PMAC NC software for running RS-274 type machine parts code and the laser calibration program for compensation of leadscrew imperfections.

PEWIN32 Pro Suite

Pewin32 PRO is the PMAC Executive program for Microsoft Windows®. It is an environment rich with software tools for the development and maintenance of any application using the PMAC motion controller. These tools allow the optimization of the servo parameters to achieve maximum motor speed and accuracy and also permit the customization of the motion and PLC programs inside PMAC for the application requirements. All types of communications methods are implemented for all the available communication ports, delivering a robust and reliable interchange of data with either single or multiple PMACs. A set of diagnosis tools is also available for displaying variables values, monitoring connector and motor status and plotting motion profiles. The capability to define projects allows combining sets of files and configurations for an easy reference to each particular application.

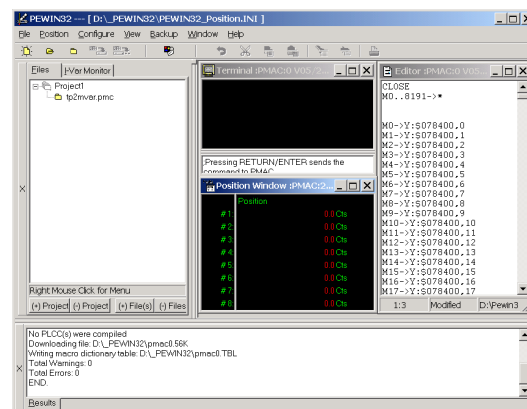


PEWIN32 Pro Components

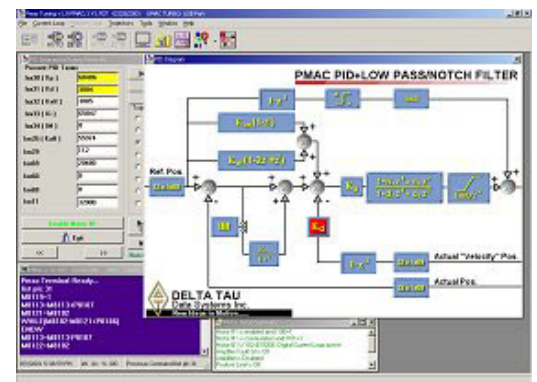
- PEWIN32 Pro is the main program for developing and maintaining any PMAC application
- PMAC Plot Pro allows creating motion trajectory plots or plot any memory register information
- PMAC Tuning Pro allows optimizing the servo parameters for maximum motor accuracy or speed
- P1 Setup32 Pro provides a step-by-step method for configuring any PMAC(1) type (analog) motion controller
- P2 Setup32 Pro provides a step-by-step method for configuring any PMAC2 type (digital) motion controller
- Turbo Setup32 Pro provides a step-by-step method for configuring any Turbo PMAC type motion controller
- UMAC Config Pro provides a method for checking the hardware configuration of any existing UMAC rack

PEWIN32Pro Suite Main Features

- Workspace support that allows saving all the working environment settings for next session restore - for example, the number of windows open, their corresponding sizes and update rate
- Project management for combining sets of files and configurations for any given application
- A terminal window for direct communication with PMAC
- Organizer feature that allows sorting, setting and checking all the I, P, Q and M variables
- Watch window for real-time system information and parameters monitoring
- Motor, Coordinate System and Global status windows that display PMAC's status bits in real-time
- Position Window for displaying position, velocity and following error of all motors on the system
- Methods for backup and restore of files containing all PMAC configuration information
- Methods for the configuration of the encoder conversion table which allows conditioning the data provided by different kinds of feedback devices for servo control use
- Real-time status display of all PMAC's connectors
- Diagnostic routines for checking the functionality of motors and motion programs



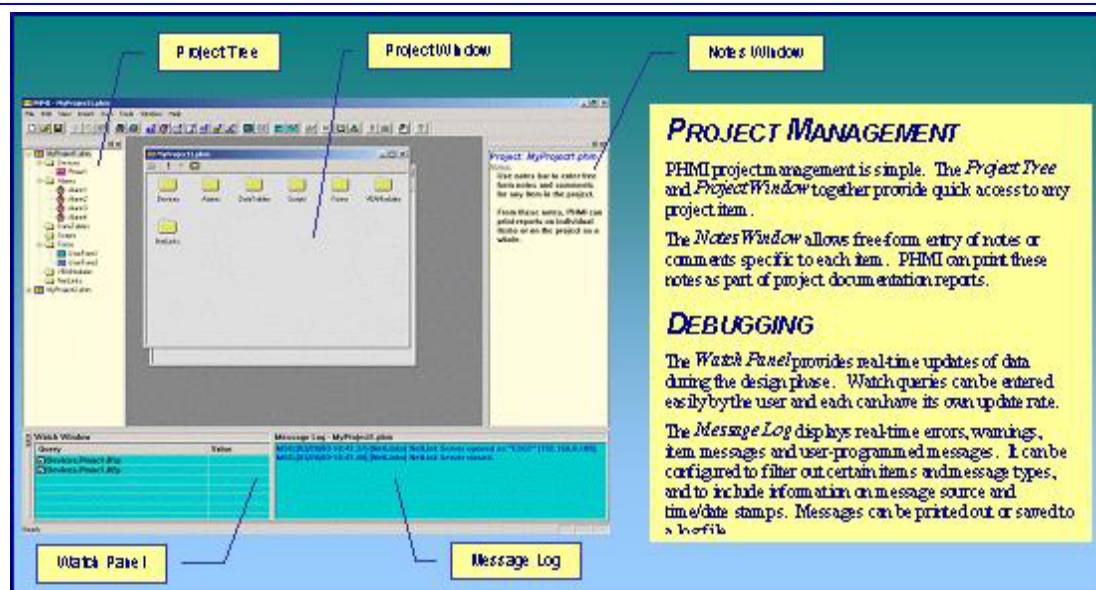
- Methods for downloading compiled logic code, either as compiled PLCCs or Open Servo programs
- A real-time color editor with the following features:
 - Error tracking during downloads that allows identifying the line and offending command on the input file
 - Color options for different commands and compatibility with standard C code
 - Ability to use macro names or aliases for meaningful variable names
 - Syntax highlighting identifying by different colors variables, PMAC commands, and other programming keywords
 - Auto indenting for identifying the proper structure of loops and **IF** conditions
 - Auto correction for language constructs like **IF** conditions and **WHILE** loops
 - Popup debugger window to check variables values, definitions and macro equivalent names
 - Bookmarking feature to highlight pieces of code for easy reference
- Motor tuning functions with the following features:
 - DAC output calibration for assuring zero torque or zero velocity for a zero command output
 - Interactive or automatic current loop tuning for digital amplifiers
 - Interactive or automatic PID Loop tuning for gantry systems
 - Interactive or automatic PID loop of the “extended” version of the PMAC servo algorithm
 - Interactive or automatic PID loop tuning for either current (torque) or velocity mode amplifiers
 - Graphic block diagrams identifying the sections of the PID loop being set up
 - Notch and Pass Filters set up
 - Ability to define custom trajectories as position step, position ramp, parabolic velocity, trapezoidal velocity, S-curve velocity, sine sweep or user defined
- Extensive functions for plotting move trajectories or parameters values including:
 - Plot axis selection as either time or frequency as Fast Fourier Transforms (FFT) plots, either with logarithmic or Cartesian scale
 - Two motors plotting as X-Y axes to check circular or linear interpolation profiles
 - Quick Plot feature for most commonly used motor parameters
 - Detailed plot feature to plot any kind of PMAC parameter or variable
 - Flexible plot scaling and reformatting tools
 - Ability to save plot values as numerical data text files for further analysis with any other external software



Hardware and Software Requirements

- Recommended CPU with 266 MHz Pentium MMX and up
- At least 16 MB of free disk space and 32-48 MB of RAM (32 MB for Windows 98/ME or 48 MB for Windows 2000)
- A free serial communications port, USB port, Ethernet port, or PCI-BUS slot to talk to PMAC for on-line processing
- Any monitor with VGA display adapter and at least 640x480 resolution (800x600 is suggested)
- Windows® 98/ME or 2000 operating system

PMAC HMI



Powerful, Easy to Use Screen Editor

A full-featured, object-oriented screen editor provides a perfect environment for customizing graphical interfaces. Easily populate screens with a wide selection of built-in controls and ActiveX objects including buttons, indicators, strip charts, bar graphs, gauges, sliders and many more. Import bitmap images from a variety of popular graphics programs.

Alarms

Alarms can be set up to monitor data and take action such as logging a message, showing a screen, or running a script. Multiple triggering options are provided.

Security

A run mode security feature is easy to set up and can be used to provide multi-level password protection for screens. A graphical alphanumeric keypad facilitates password entry by mouse or touch screen. Security functionality can be further enhanced using scripts or Visual Basic.



Script Language

Complex HMI operations can be implemented using the PHMI script language. This powerful tool includes many of the features found in full-featured development languages, including procedures, subroutines, strings, global and local variables, arrays, expression evaluation, math functions (over 20 of them), bit operations, Boolean operations, etc... Statements such as **IF**, **ELSE**, **ELSEIF**, **WHILE**, **GOTO**, and **CALL** are also supported.

Multi-Tasking

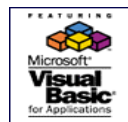
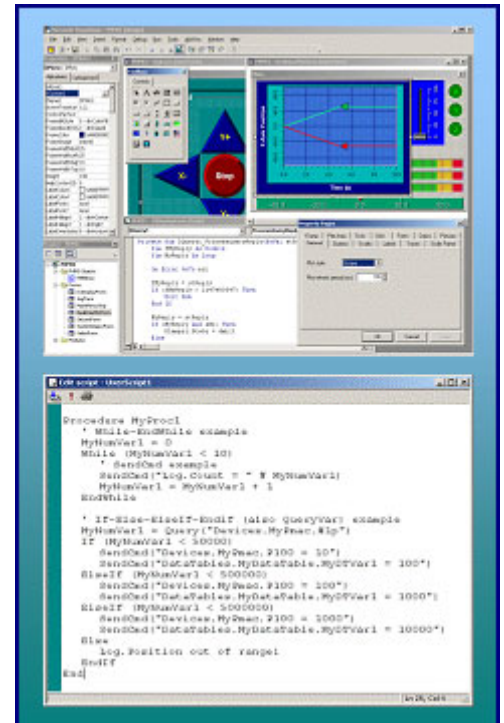
Multiple PHMI scripts can execute simultaneously in the background to perform functions such as monitoring, data collection and processing, event logging, command batching, and so forth.

Network Interface

Communicate between different PHMI applications over a network. Remotely share PHMI resources or communicate with other PMACs.

Visual Basic for Applications

For even greater flexibility, PHMI comes with fully integrated Microsoft Visual Basic for Applications. This offers beginner and seasoned Visual Basic programmers an even more powerful HMI development tool.



EZ Setup Program

The EZ Setup program is a set of software tools for setting up and troubleshooting any non-Turbo PMAC board, the PMAC2A-PC/104 board, the QMAC System, or the Geo PMAC Drive. Different versions of the PMAC Quick Setup program are available for each of these products.

Different screens are dedicated for testing and setting up a particular feature of the motion controller, thus making the installation and setup a very simple process. Once the setup is completed, dedicated motion and PLC programs screens are available for the program development of the machine.

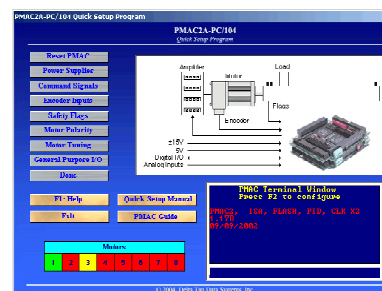
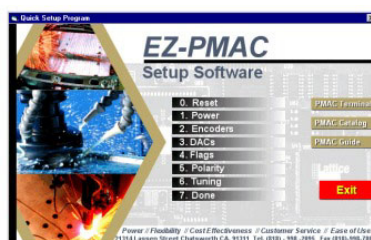
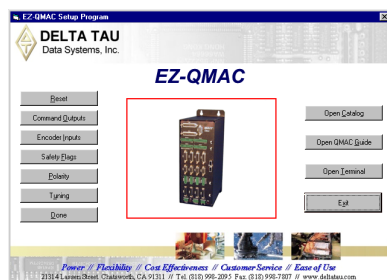
Each EZ Setup program runs in most 32-bit Microsoft® Windows operating systems and can communicate through any method including serial RS-232/422, USB, Ethernet, and computer bus.

Features

- Dedicated screens for checking and configuring all machine connections
- Step by step procedures greatly simplifies the setup of the motion controller for a typical application
- The on-line documentation provides detailed information of every feature on any setup screen
- Dedicated screens for motors jogging and homing
- Integrated screens for writing, running and testing motion programs and PLC programs
- Built-in simulator for the general-purpose I/O connector and optional analog inputs
- Dedicated screens to identify the status of every motor, groups of motors and every PMAC register
- Included example motion programs and PLC programs for an easy start to program development
- Offline mode for the development of programs without a PMAC connected

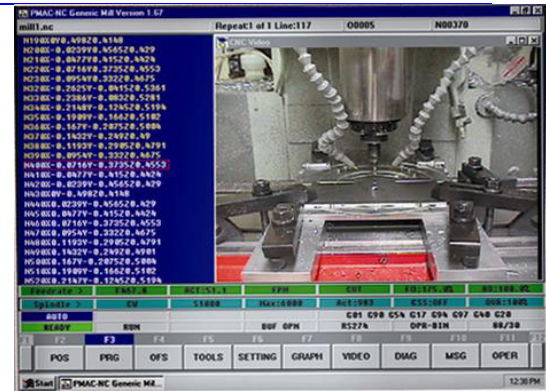
Requirements

- Non-Turbo PMAC board, PMAC2A-PC/104 board, QMAC System, or Geo PMAC Drive (The program also runs offline for demonstration purposes.)
- Serial, USB or Ethernet cable, depending on the method of communications chosen
- A computer running Windows 2000 or Windows-XP
- Optional set of motors or Delta Tau demobox



PMAC NC

The PMAC NC software runs the standard CNC parts program using a PMAC motion controller. This software performs two important functions. It translates standard RS-274 G-Codes programs into PMAC code and feeds the translated code into PMAC's memory using a perfectly synchronized communications scheme. The transfer of the program lines between the host computer and the PMAC motion controller is performed using shared DPRAM memory and either USB, or PCI bus formats. In this fashion, the size of the CNC parts program is limited only by the storage capacity in the host computer. Normally, the PMAC NC software is used with Delta Tau's Advantage line of packaged CNC systems which includes the operator control panel hardware for the machine operation.



Features

- User-friendly and easy-to-use NC operator interface designed for machinists
- Technology cycles for drilling, tapping, rigid tapping, boring etc.
- Selection of operational units in inches or metric
- No limit on part program size (The hard disk space is the only limitation.)
- User definable G-code capability where application specific G, M, T codes other than standard codes
- User programmable error trapping and error display using PLC
- Pop-up message boxes for better interface
- Application specific diagnostic page for online monitoring
- Advanced dynamic block look-ahead for high-speed machining
- Automated CNC auto pilot setup utility
- Open-architecture PC-based network and USB connectivity
- Five axes machining with built-in inverse kinematics. Gantry ready
- Feedrate and rapid traverse limited only by machine dynamics
- Open /close loop spindle
- One or two dimensions lead screw compensation tables and backlash compensation tables
- Tool radius/length/wear compensation
- 3D-cutter compensation for 3-5 axis systems
- Linear, circular, and helical interpolation (Cylindrical interpolation capability)
- Random tool changer capable

Requirements

- Standard PC running a 32-bits Windows® operating system
- USB version 2.0 if USB communications method is used
- PMAC motion controller with DPRAM or USB options

ACC-9PNPRO, PCOMM Communication Libraries

This set of communication libraries, commonly known as PCOMM-32, is a set of more than 200 functions written as a development tool for the creation of host computer programs running under Windows® operating systems. Nearly all methods of communication to PMAC are included. The routines were designed with robustness, speed and portability in mind. The library is structured such that an application using the library can be transported between different versions of the Windows® operating system as long as the application itself uses no operating system specific functions.

ACC-9PLPRO, PMAC Drivers for National Instruments Labview

This set of libraries provides a communication interface for PMAC under the National Instruments Labview® environment and it is commonly known as PMACPanel. PMACPanel is an easily extensible set of more than 400 Virtual Instruments with over 40 tutorials and examples interact with PMAC from any LabVIEW application.

ACC-9PTPRO, 32-Bits PTalk Communication Libraries

This set of communication libraries, commonly known as PTalk, is used for the development of host computer programs running under 32-bit Windows® operating systems. PTalk is a custom control (OCX) communication library designed to provide 32-bit software development with Visual Basic, Visual C++ or Delphi communicating with PMAC. This accessory is selected instead of the equivalent ACC-9PN when simplicity is wanted in the implementation of an application under visual programming environments.

Laser Calibration

The Laser Calibration software tool is presented with a simple, user friendly and self-explanatory HMI screen. In a few minutes it collects the axis position on the fly automatically from the laser interferometer and calculates any error introduced by the potential imperfections of the leadscrew. Based on the calculated error between the actual position and the commanded position, a leadscrew compensation table is created for the use by the servo algorithms in PMAC. In this fashion, by the precise positioning of the axes, the accuracy of the system is greatly increased. In addition, the laser calibration software provides tools for the selection of units of motion, the plotting of the actual and commanded position and the automatic download of the table to the PMAC motion controller.