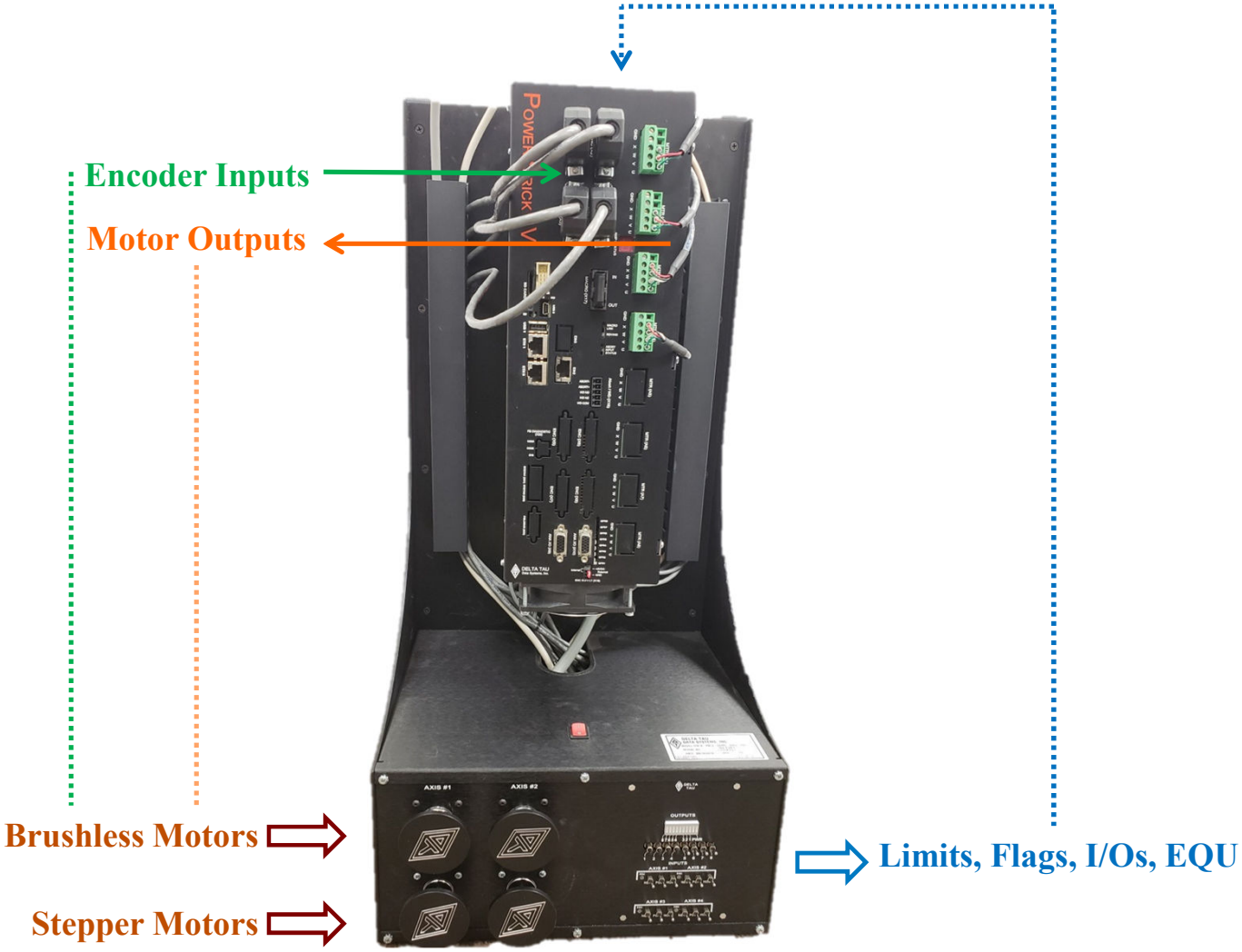
Hardware Overview
Power Brick LV

Power Brick LV Training Stand



Power Brick LV Training Stand

⇨ Digital Output LEDs

⇨ Digital Input Switches

⇨ Limits, Home Flags, EQU

Power PMAC CPU

- **The Power PMAC CPU acts as both a dedicated controller and general purpose embedded computer. It is the computing engine for the Power Brick LV.**
- **Runs a Linux operating system with a hard-real-time kernel guarantying determinacy of tasks (e.g. phase, servo)**
- **Large on-board memory**
- **High speed (1 Gbs) Ethernet communication**
  - Multiple ports
  - Optional EtherCAT port(s)
- **Device and host USB ports**
- **Serial port for diagnostic**
- **SD-format flash port**
- **PCIe expansion**
- **SATA port**
- **32-bit UBUS backplane**

Documentation

- **Power PMAC Software Reference Manual**
  - Command syntax summary
  - Data structures and (control & status) elements
    - Hardware specific (e.g. ACC-24E3, BrickLV)
    - Cam tables
    - Compensation tables
    - Coordinate systems
    - EtherCAT
    - Encoder conversion tables
    - ASIC (Gate)
    - Motors
    - System
  - Online commands specifications
  - PLC or motion program command specifications
  - Script commands and mathematical features
  - I/O offset(s) and memory map

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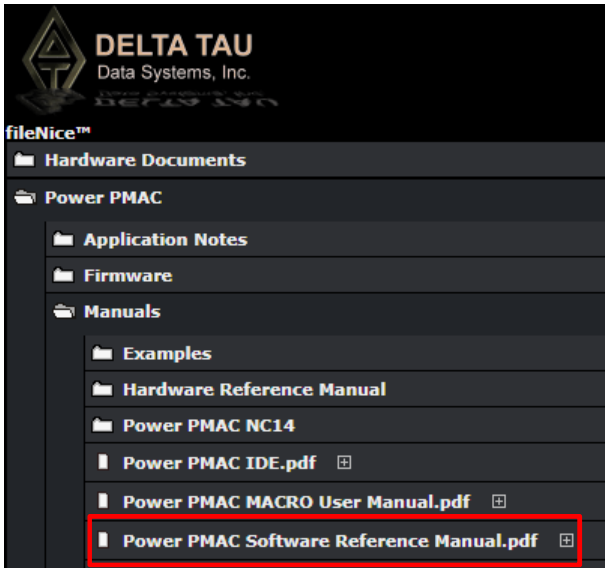

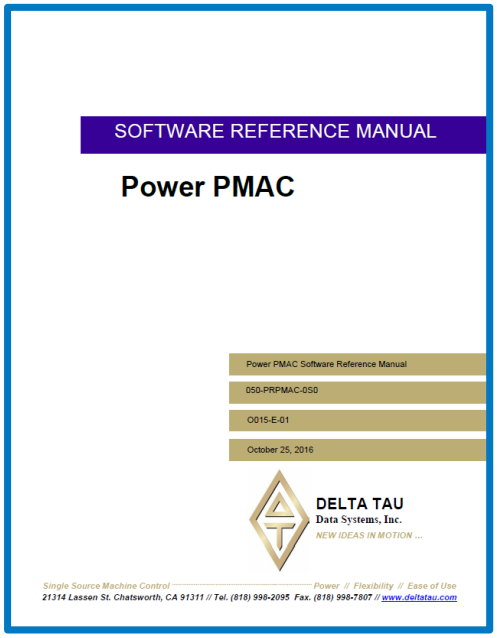

Documentation

- **Power PMAC User's Manual**
  - Organized by application (features)
  - Descending order for new user(s)
  - Progression similar for setting up a machine
    - Overview
    - Communication
    - System configuration
    - Encoder configuration
    - Motor configuration
    - Compensation tables
    - Electronic cam tables
    - Making the application safe
    - Executing moves
    - Setting up coordinate systems
    - Multi-tasking scheme (computational features)
    - Digital and analog I/O configuration / use
    - Writing and executing programs (and C functions)

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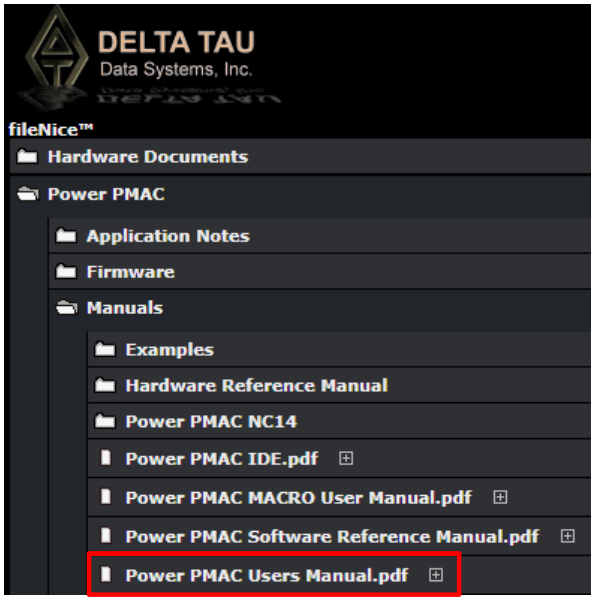
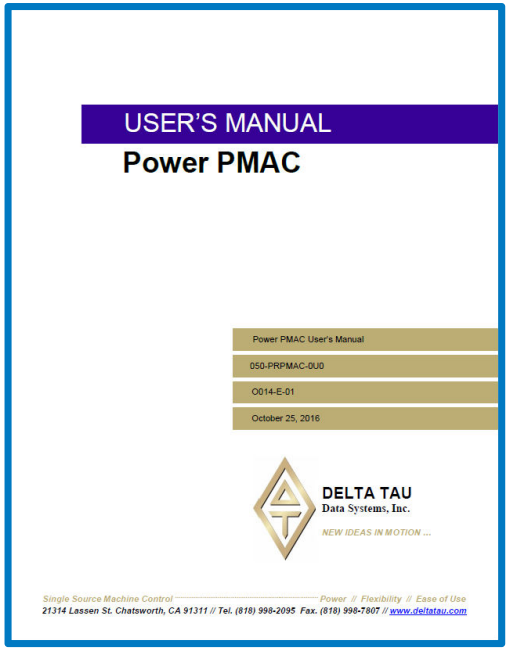
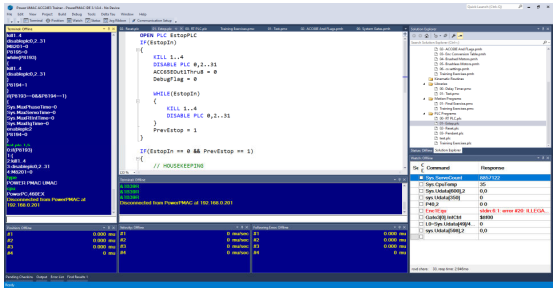




Documentation

- **Power PMAC IDE User's Manual**
  - General info about the IDE revision history
  - Download location
  - Communication setup
  - Project examples folder(s)
  - IDE layout
    - Utility tools description
  - Project system description
    - File organization
  - Other function descriptions
    - Associating motors with user-written algorithms
    - MACRO interface
    - Project upload
    - Debugger



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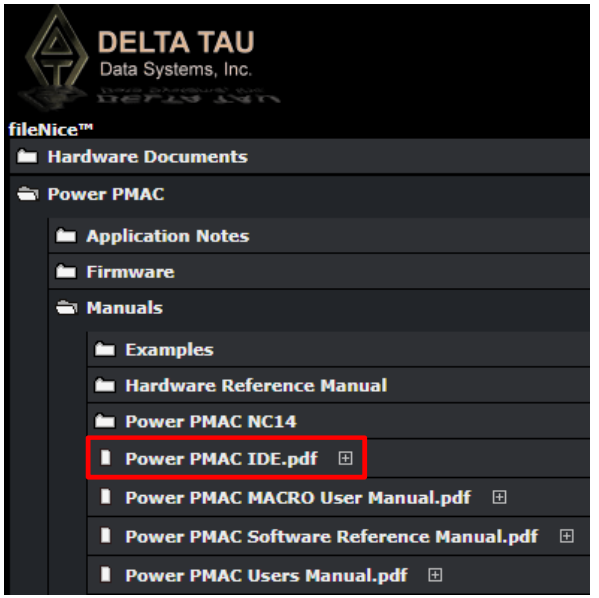

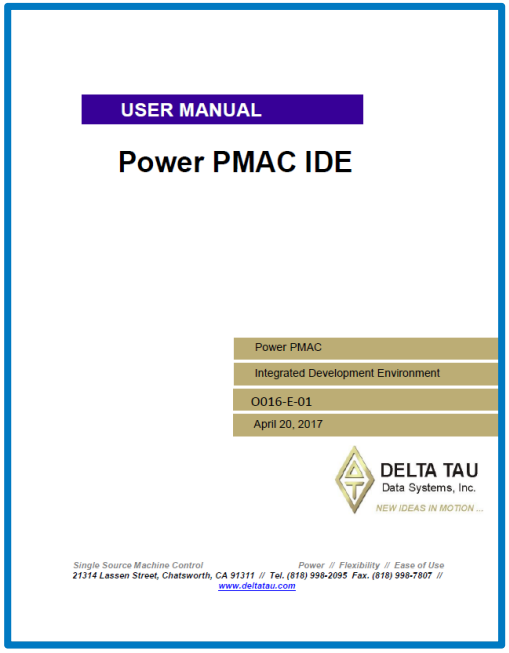

Documentation

➢ Power PMAC & Gate3 specific Hardware Reference Manuals

- Dedicated to a specific Power PMAC product
- Conformity declarations
- Product information
- Part number designation
- Connector pinouts
- Basic functions configuration
- Troubleshooting techniques
- Jumper configuration
- Addressing scheme(s)

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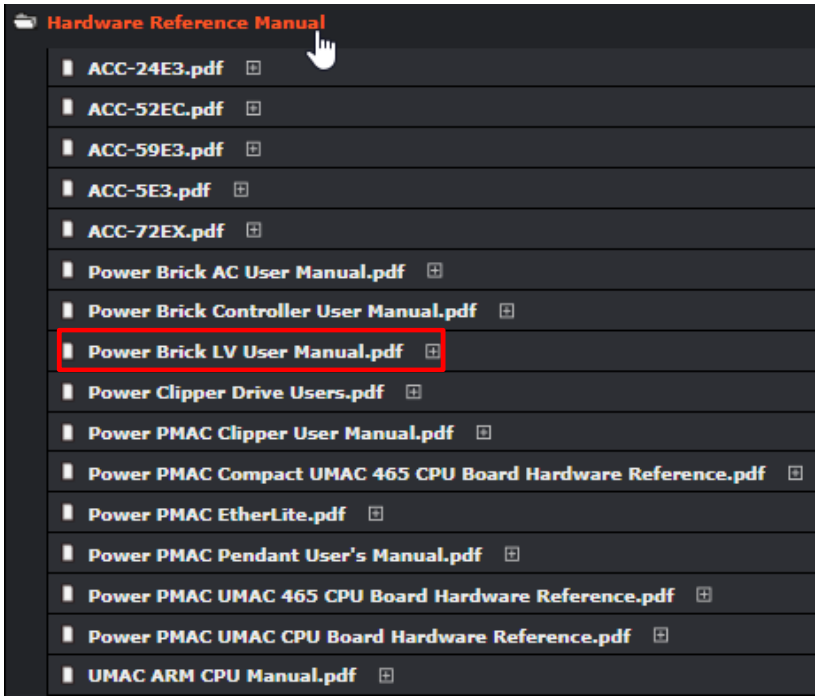

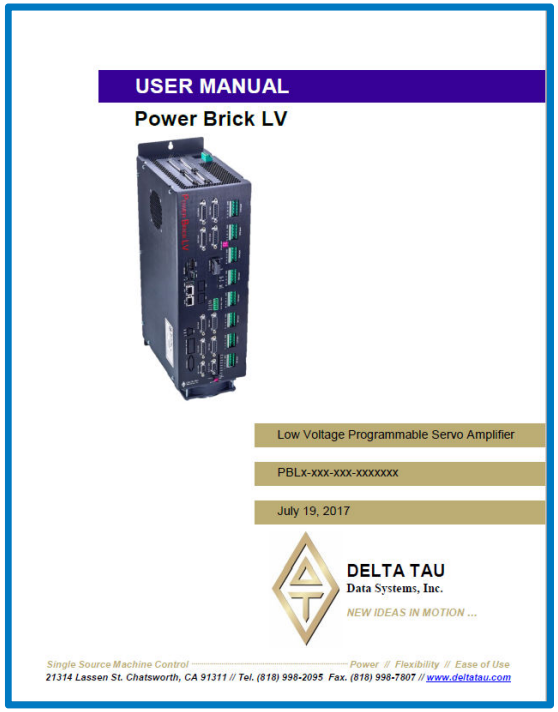

Documentation

➢ Other Accessory Hardware Reference Manuals

- Dedicated to a specific accessory (compatible with Power PMAC)
- Conformity declarations
- Product information
- Part number designation
- Connector pinouts
- Basic functions configuration
- Troubleshooting techniques
- Jumper configuration
- Addressing scheme(s)

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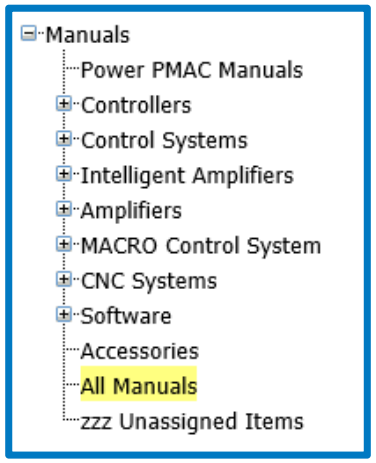

ACC-66E	2/14/2015	Digital I/O – 48 Sinking Inputs
ACC-67E	2/14/2015	Digital I/O – 48 Sourcing Outputs
ACC-68E	7/21/2015	Digital I/O – Sinking Outputs, Sourcing inputs
ACC-68M	12/9/2009	MACRO UR Protected/OPTO (Sinking 24in/24out)
ACC-69E	7/24/2008	UMAC SLM Axis Interface
ACC-6E	7/24/2008	8-16 Channel A/D Converter Board
ACC-70E	7/24/2008	TAMAGAWA Encoder Interface Board
ACC-70P	7/24/2008	Tamagawa Encoder Interface Board
ACC-72E	8/4/2008	UMAC Fieldbus Interface
ACC-72EX	9/14/2015	UMAC Fieldbus Interface
ACC-72P	7/24/2008	PCI Fieldbus Interface
ACC-73	7/24/2008	ISA Fieldbus Interface
ACC-76	7/24/2008	32 Inputs and 32 Outputs Interfacefor SNAP I/O from Opto-22T™
ACC-77	7/24/2008	64 Inputs Interface for SNAP I/O from Opto-22™
ACC-82M	7/24/2008	MACRO INTERFACE FOR SIGMA-II (YASKAWA)
ACC-84C	10/1/2013	Universal Serial Encoder Interface Board
ACC-84E	7/21/2015	Universal Serial Encoder Interface
ACC-84S	2/24/2014	Universal Serial Encoder Interface for Clipper
ACC-85M	1/16/2013	MACRO INTERFACE FOR YASKAWA SIGMA-V
ACC-8A	7/24/2008	Analog Interface with Sub-Count Interpolator Option
ACC-8D	7/24/2008	Terminal Block Board
ACC-8D OPTION 2	7/24/2008	Voltage to Frequency Converter Board
ACC-8D OPTION 4	7/24/2008	40W Four Channel Linear Amplifier Board
ACC-8D OPTION 4A	7/24/2008	150W Four Channel PWM Amplifier Board