



# Turbo Clipper Drive

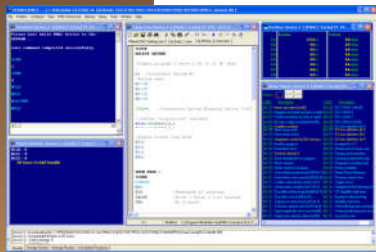
4 - Axis Complete Solution – Easily Integrated Controller, Breakout Board and Amplifier

## Tools & Software



### LV Setup Software

Allows you to easily setup your 'LV' controller /amplifier & motors.



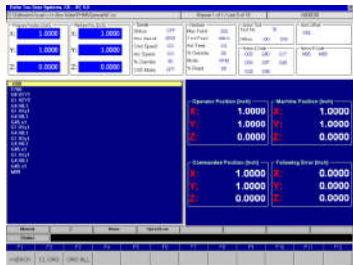
### PMAC Executive (PEWIN)

Use to: jog motors, issue commands, monitor status & positions, download motion & PLC programs.



### Tuning Pro2

Use the **Auto-Tuner** to quickly get servo motors moving. Then use the **Interactive Tuning** tool to 'fine tune' servo performance and generate response plots.



### PMAC-NC Pro2

A Windows-based customizable GUI for PC based CNC control.

## Specifications and Features:

### Controller Hardware Specifications

80 MHz DSP56303 Turbo PMAC CPU  
256k x 24 user SRAM  
1M x 8 flash memory for user backup & firmware  
Latest released firmware version  
RS-232 serial interface  
100 Mbps Ethernet interface  
480 Mbps USB 2.0 interface  
4 channel axis-interface circuitry, each including:  
3-channel differential/single-ended encoder input  
5 input flags, 2 output flags  
UVW TTL-level "half" inputs  
PID/notch/feedforward servo algorithms  
16 Inputs (12-24VDC)  
16 Outputs (12-24VDC, 500 mA)  
2 Handwheel Ports  
2 Pulse/Direction Ports

Dual Ported Ram \*

### Amplifier Specifications

4 axes: 2 or 3 phase  
DC Bus (Input) Voltage: 12 VDC to 60 VDC  
Output Current: 5A continuous, 15A peak (1 sec.) each  
Power (per axis): 240W  
PWM Frequency: 2 KHz to 40 KHz  
Status display: 7 segment  
Protections: voltage (over/under), temperature (over), short circuit, current (over)  
Input Logic Power (req.): +24 VDC (2A, +/- 20%)  
Cooling: Fully rated cooling standard (none additional required)

### Motion Features

Trajectory Generation  
Linear interpolation mode with S-curve accel/decel  
Circular interpolation mode with S-curve accel/decel  
Rapid point-to-point move mode  
Cubic B-spline interpolation mode  
Cubic Hermite-spline (PVT) interpolation mode  
Automatic move-until-trigger functions with hardware capture  
Altered destination on the fly  
Interactive jog moves  
Multi-move lookahead for velocity and acceleration limiting  
Servo Loop  
Standard digital PID feedback filter  
Velocity, acceleration, and friction feedforward  
2nd-order notch/low-pass filter  
Gains changeable at any time  
Programmable input, integrator, and output limits  
Alternate 35-term "pole-placement" servo filter  
Alternate user-written high-level "Open Servo" algorithms  
Commutation  
Sinusoidal commutation of AC servo motors  
Field oriented vector control of AC induction motors  
Digital current-loop closure with direct PWM output  
Compensation  
Position compensation tables (1D & 2D)  
Torque compensation tables  
Backlash compensation  
Tool radius compensation

\* Option or Accessory Required

### Motion Features (continued)

Safety  
Hardware and software overtravel limits  
Amplifier enable/fault handshaking  
Following error limits  
Integrated current limit  
Watchdog timer  
Program and communications checksums  
Computational  
Real-time multi-tasking operating system  
48-bit floating-point math for user programs  
Trigonometric and transcendental functions  
Automatic type-matching of different variable types  
User-defined pointer variables to any registers  
Coordination and Master/Slave  
User-defined coordinate systems for auto coordination of axes  
Separate coordinate systems for independent motion of axes  
Multi-motor axis support (e.g. gantries)  
Dynamic axis transformations (e.g. offsets, rotations, mirroring)  
User-written forward and inverse-kinematic algorithms for non-Cartesian geometries  
Electronic gearing (no programming required)  
Electronic cams with programmable profiles  
Motion Program  
High-level programming language for up to 32 axes of control  
Automatic sequenced execution of moves  
Calculations and I/O synchronous to motion  
Axes programmed in user engineering units  
Motion values as constants or expressions  
Automatic coordination of multiple axes  
Ability to execute G-code programs

### PLC Features

Execution asynchronous to programmed motion  
I/O control as in hardware PLC  
Executive functions for standalone applications  
Safety and status monitoring  
Servo gain scheduling  
Data reporting functions  
Access to all registers in controller  
ModBus I/O control \*

### Supported Feedback types / devices

Digital quadrature encoders  
Sinusoidal encoders\*  
MLDT's

### Supported Motor types include

Brushless (AC/DC)  
DC Brush  
Stepper  
Induction  
Voice Coil

\* Option or Accessory Required

Warranty: 1-year from date of shipment

## Turbo Clipper Drive Ordering Information

C P S 4 - B B - 4 0 0 - 0 0 1 : 0 0 0 0

### BB CPU & Memory Options

C0 - 80 MHz, 8Kx24, 256Kx24SRAM, 1MB Flash  
C3 - 80 MHz, 8Kx24, 1Mx24SRAM, 4MB Flash  
F3 - 240MHz, 192Kx24, 1Mx24SRAM, 4MB Flash

### G Communication Options

0 - No Options  
D - (Clipper OPT-2) DPRAM option, size 8Kx16-bit wide  
M - (Clipper Opt-15M) Modbus Ethernet Comm, Protocol  
S - (Clipper Opt-2 and Opt-15) DPRAM and Modbus

### J Other Options

0 - No Options (Default)  
1 - Opt. 11A Hi-Speed Dig. Out PWM Laser Control

### KL Factory Assigned Options

00 - No Additional\* Options  
Xx - Factory assigned digits for Additional\* Options

\* Additional options available, contact distributor / factory for complete listing

