

"All-In-One DC" Board-Level CNC Control

Includes Motion Control CPU, 3-axis DC servo motor drive, 16 IN 9 Relay OUT CNC PLC and Spindle Control
Starting at **\$2249** with CENTROID Mill or Lathe software

Machines in Motion inc.
www.machinesinmotion.com
socialtech@roadrunner.com
Toll free (877) 733-5500

CNC PC choices:

Your Windows 7 PC



OR:
Our All-in-One PC
\$1200 (11084tb)

OR:
Our CNC PC \$1175
cabinet mount (#11084)
& your display



OR:
Our CNC console
\$3350 (#11082)

Panel Mount console **\$2675** (#11170)
Touch screen option **\$495** (#12568)
High perf PC upgrade **\$615** (12858)



Operator's
Control Panel
\$765 (#11077)



Optional
Manual Pulse
Generator (MPG)
\$495 (#11069)

Additional
Encoders
or Scales



All-in-One DC
\$2249 (#11144)

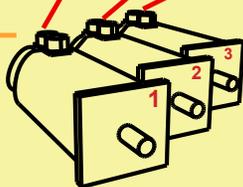
Ethernet
Cable to PC

16 PLC Inputs
Spindle Control

9 Fused
Relay Outputs

Encoder Cables

1 Servo Motor
2 Cables
3



Use your DC Servo Motors

Up to 40 in lb (4.52 Nm)

-OR-

Add CENTROID DC Servo motors (encoders and cable installed)

- 16 in-lb w/16ft cable: **\$1275** each (#10667)**
- 29 in-lb w/16ft cable: **\$1279** each (#10816)**
- 40 in-lb w/16ft cable: **\$1390** each (#10935)**
- Motor Cable (custom lengths over 16ft (4.8m)): **+\$7/ft**
- 7 in-lb, 10 in-lb and 40 in-lb w/brake also available, call for \$

2000 line differential quadrature encoders w/ 6mm shaft: **\$175** each (#3403)
(other sizes and resolutions also available: 1/4", 3/8", 1/2" call for pricing)

110 / 220 / 440 VAC to DC Power Supply (No Transformer, use your own): **\$165** (#10766)

110 VAC to DC Power Supply **\$505** (#10537)

220 / 440 VAC to DC Power Supply **\$1140** (#10010)

Optional
Auto Tool Set
- TT-2 **\$1350** (#12486)
- TT-1 **\$725** (#10220)



Optional Touch Probe & Software
DP-4 **\$1590** (#10405)
DP-7 **\$4200** (#12431)

Console, Display, & Cabinet opt. mounting hardware

- Console ext. cable in conduit (6 ft) **\$395** (#11028)
- Console cable in conduit (over 6ft) **\$28.50/ft** (#11028)
- Console mounting arm **\$299** (#10636)
- Console swivel mount (use w/ your arm) **\$125** (#10834)
- Rolling cabinet stand and display tray **\$595** (#10512)
- Rolling console stand **\$575** (#10695)
- Display/keyboard tray with arm **\$475** (#10240)
- Operators Pendant mounting hardware **\$76** (#10491)
- MPG internal cable 20' w/bulkhead con. **\$125** (#11086)
- Probe internal cable 6' w/bulkhead con. **\$50** (#11085)
- Operators control panel internal cable 20' **\$50** (#11029)
- OEM/DIY console cable connector set **\$35** (#13138)

Optional IO Expansion Boards

Add up to 4 in any combination
for up to 80 In / 73 Out

Note: All-in-One DC include enough pre-
configured I/O for typical milling machine/lathe
applications, optional expansion boards are avail-
able for complex retrofits requiring additional I/O
above and beyond the included I/O.



4 Digital to Analog Outputs
4 Analog to Digital Inputs
\$525 (#11141)

Optional DC1
Single Axis Drive
Add axis drives
up to **6 total axes**
\$585 each (#11112)





993 Carbon Canyon Rd. Chino Hills, CA 91709
Office: (714) 528-7061 Fax: (714) 528-4892



Here are the details needed to make good choices

The all in one board set:

This professional level motion control board handles all of the coordinated axis motion as commanded by the CNC control software. Compares the encoder feedback to the commanded position and makes the necessary corrections to stay on track. Monitors inputs such as limit switches, low lube, and High gear / Low gear status. Controls outputs to turn on devices such as the lube pump, spindle, and coolants. Provides 3 axis of servo drive power. You will wire the DC servo power to this board and it will control up to 3 servo motors (4th and 5th axis optional). **BONUS** – Sell your OEM servo drives on Ebay.

This board includes the CNC control software, Programming manual, All in one build manual, and permanent control unlocks. Your control serial number is based on this single component.

The PC computer:

There are 4 choices available for your CNC PC computer.

1. purchase the shop hardened full console. This gives you the LCD monitor, PC computer loaded with pre configured and fully licensed Windows7 or 8 and the CNC software.
2. PC computer only. Open chassis design intended to be installed inside an electrical enclosure. Again you will have a preconfigured and fully licensed Windows7 or 8 and CNC software.
3. The All in one PC. This is a desk top version with LCD display and PC computer built into a single plastic enclosure.
4. Supply your own PC computer.

Purchasing your PC from Machines in Motion, Inc. means everything will work as it should the first time you power it on. Communications is already configured, Special windows parameters have been set, the CNC software is loaded and tested. Also we know how your computer is set up. If you phone us with questions we can ignore the configuration issues and go right to the central issue.

When you supply your own PC you will need to follow our technical document for setting up Windows, setting up communications, and loading the CNC software. Ask for our minimum hardware specifications if you choose this route.

Operator pendant:

This is not required but it makes using your new control much simpler. Each axis has its own +/- jog buttons. There is a spindle control section covering both manual and programmable operation. There are 9 AUX buttons that can be programmed to perform most any function you like. Then there are several specialty operation buttons like Emergency Stop, Cycle Start – Cycle Cancel – Feed Hold

This has about 12' of cable and plugs directly into the all in one board. The only wiring needed is for the emergency stop circuit. Without this pendant you will be operating control commands by pressing combinations of keyboard keys like Ctrl + S for cycle start.

MPG Handwheel:

A rotating handwheel provides 100 clicks per revolution. Each click can represent motion of .0001" (X1) .001" (X10) .010" (X100) the distance per click is selected by one of the two control knobs on the handwheel pendant. The other knob selects the axis to be moved. This is a personal preference over using the push buttons. Most operators use the jog buttons for longer distances and the handwheel for fine tuning position especially when touching off the tools.



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Servo Motors:

The all in one is compatible with most any DC (brush type) servo motor. Our standard board will supply 6amps to 15 amps per motor. If you are working with smaller (lower amperage) motors just let us know. This requires a small modification.

Read the label on your servo motor. Most work fine from 120VDC to 165VDC. For these voltages you can use Centroid's lower cost DC power supply without the need for a transformer. If your old control has a transformer we recommend using it. You can also use the storage capacitor and bridge rectifier from your old control. This assumes they work properly. If you are not sure what you have take a photo and email it to us. We can usually determine by looking it over.

Encoders:

Remove the back cover from your OEM DC servo motor. There is usually some kind of feedback device mounted on the end of the motor shaft. A potentially usable encoder will have 8 wires. If the device label states this is an encoder but it has only 5 wires then this will need to be upgraded with new units. If the feedback device has 6 wires it is most likely a resolver. This is an analog device that will require upgrading with a new encoder.

I always recommend upgrading the encoders you'll have better positioning performance. Also the lifespan of the typical encoder is 8-11 years. If your encoder is older than this you're living on borrowed time.

New encoders come with a flat 9pin connector. When you purchase new encoder cables the connectors at both ends are included and the cable has been tested. One less (actually 3 less) thing to go wrong.

That's the basics for a simple 2 or 3 axis machine. An automatic tool changer will require an ADD1616 board to cover the additional IO required plus a custom PLC program. This level of programming is usually outside the average person's skill set. Personally I have my custom PLC programming handled by an in house professional. Some shops do have this knowledge and we can supply you with the PLC programming manual.

Hope this answers your questions. If not call our office for the answers you need. Centroid warranty does not cover damage from applying the wrong voltage in a sensitive location. It's easy to tell if that has happened. However, they will fix your damaged board and the fee is reasonable.

Purchasing your control component hardware from Machines in Motion, Inc. includes 3 weeks of technical support by phone or Email. We can not supply wire by wire advice. If you need this level of assistance then it may be necessary to hire a local technician. Machines in Motion charges for transportation plus \$132 per hour while on site.

Machines in Motion, Inc.

socaltech@roadrunner.com

714 528-7061 8:00am to 5:00pm Pacific time

CENTROID CNC Software and Accessories Price Sheet

New Prices Effective November 10, 2014

Software Description	Part #	Price
Compression tapping	10620	Free
User Definable Macros and Sub Programs [M98 & G65]	10610	Free
Cutter Compensation	10851	Free
4 TH Axis Software	10360	Free
Extended Multiple work coordinate systems [G54 p1 –p12] (6 WCS included, this option allows an additional 12 WCS)	10600	\$305
4MB part program size	-	Free
Unlimited part program size	10630	\$550
Intercon conversational programming (for your CNC control)	10729	Free
Intercon off-line conversational program (for your desktop PC)	10730	\$275
Rigid tapping [G74 & G 84] (includes 10620)	10810	\$550
Coordinate System Rotation (CSR)	10850	\$220
Scaling and Mirroring [G50 & G51]	10625	\$220
DXF in, CAD Drawing Input software	10814	\$305
BCD tool change output (M-39, M-400, T39, or T400 only)	10660	\$280
Engraving software	10740	\$500
C Axis Software	10611	\$1975
CNC11-C 5+ axis Simultaneous Software * required export paperwork		\$2500 USA
		\$5000 International
Digitizing & Probing	Part #	
DP-4 probing package w/ Probe, Probing software, and CSR (10850)	10405	\$1,590
DP-7 probing package w/ Probe, Probing software, and CSR (10850)	12431	\$4,200
2D & 3D digitizing software (includes CENTROID's Mold Magic™ software) <i>requires 10405 or 10960</i>	10770	\$3,350
TT-1; Tool touch off kit	10220	\$649
TT-2, Tool touch off kit	12486	\$1,295
Tool room package: (10405) DP4 Probe with probing, (10220)TT-1, and (10600)Work Coordinates	10772	\$2,239
Manual Pulse Generators (MPG)	Part #	
100 Step MPG, CNC10 system	10808	\$495
100 Step MPG, MPU11 system	11069	\$495

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Software options can be purchased at any time.

Software purchases are non-refundable.
 This price sheet supersedes all previous pricing.