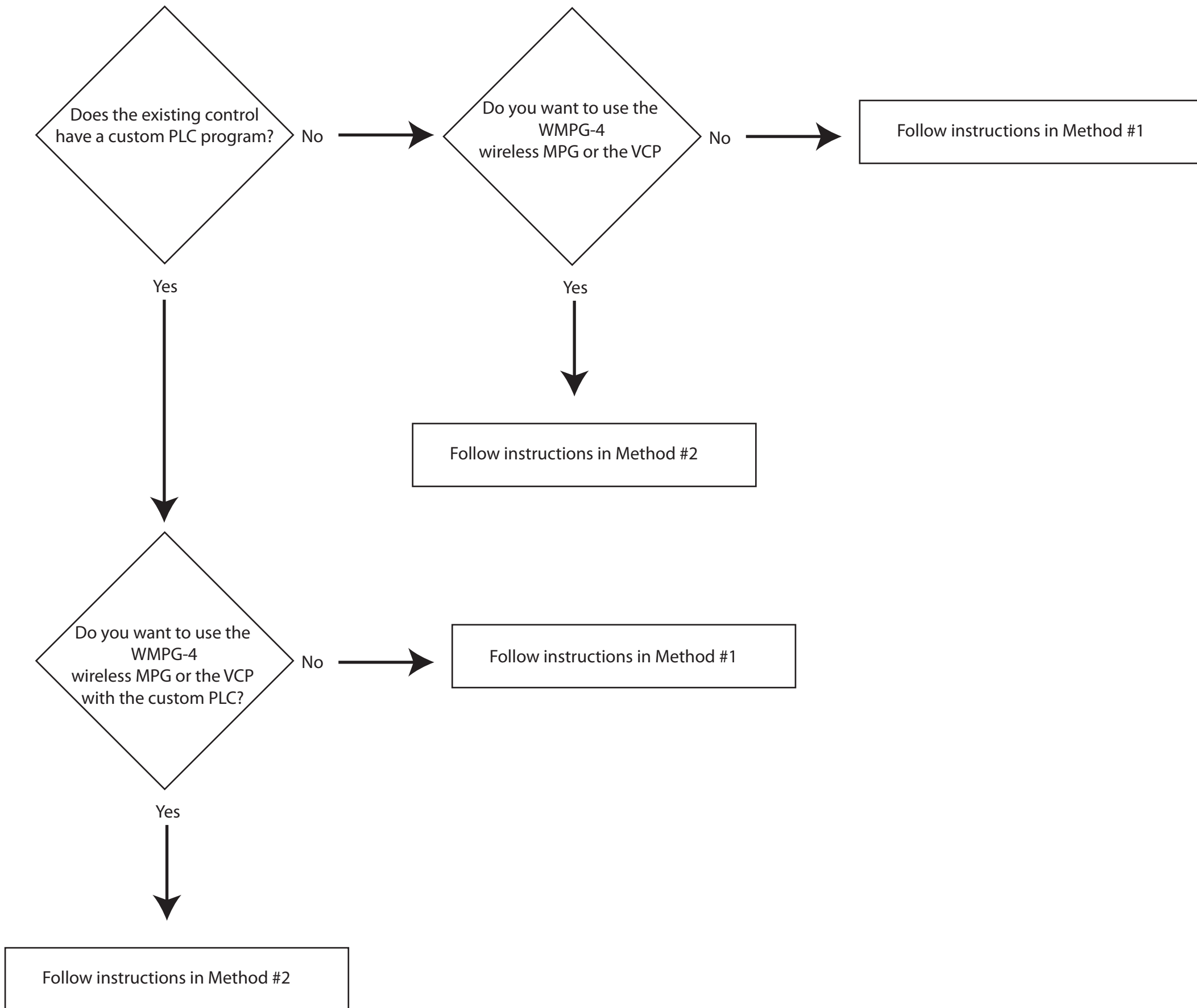1.) CNC12 UPGRADE path to v4.16 from previous versions. This is for updating the CNC software
on an existing running Centroid CNC control using Oak, Allin1DC and MPU11

Does the existing control have a custom PLC program? → No → Do you want to use the WMPG-4 wireless MPG or the VCP → No → Follow instructions in Method #1

Yes (from first diamond, downward)

Yes (from second diamond, downward) → Follow instructions in Method #2

Do you want to use the WMPG-4 wireless MPG or the VCP with the custom PLC? → No → Follow instructions in Method #1

Yes → Follow instructions in Method #2

CNC12 v4.16 **UPGRADE** installations instructions   10-14-20

Method #1: Update an existing CNC11/12 installation, use this when there is no need for wireless MPG or the new VCP

This method uses the old existing PLC program with the new version of CNC12.

1.) Press in Estop button

2.) create a fresh report.zip, then make a backup copy cncm/t directory

3.) run setup.exe (this will install on top of existing working cncm/t directory)

4.) choose NO to "install plc program?"

5.) with estop depressed, boot cnc12, make a fresh report.zip, email that fresh v4.16 report.zip file to diysales@centroidcnc.com to receive a License file. Install the license file.

Method #2: Update from previous version of CNC12/11 and you want to use the new VCP 2.0 or wireless MPG

This update method will use a new PLC program to "pick up" all the new PLC code that supports the new VCP 2.0 and Wireless MPG and other fixes and updates.

1.) Press in Estop, start existing installation of CNC12/11

2.) create a fresh report.zip. Close CNC12/11

2.) make a copy of the cncm/t directory

3.) run setup.exe

4.) choose YES to install plc program, choose PLC program from supplied list that is closet to your application and choose "Install – and keep existing machine configuration"   which stands for update existing CNC12/11/10 installation with the new PLC program but leave in place the cnc configuration and parameters from the old existing installation.

5.) with estop depressed, boot cnc12, make a fresh report.zip, email that fresh v4.16 report.zip file to diysales@centroidcnc.com to receive a License file. Install the license file.

6.) Be sure to configure CNC12 cnc control configuration and parameter to for any new features that you plan on using such as the wireless MPG and/or the new VCP 2.0.

8.) If you have a custom PLC program it will be necessary edit the new PLC program with any custom modifications previously made and recompile so that you will now have a PLC program with the custom modifications AND one that supports the new features (Wireless MPG and VCP 2.0)

CNC12 v4.16 **NEW installation instructions** (not an upgrade of an existing system)

1.) configure Windows 10 meet the Centroid requirements.   (see Centroid Tech Support forum for detailed information and sign up for free tech support there as well. www.centroidcncforum.com)

2.) run setup.exe

3.) choose YES to install plc program, choose PLC program from supplied list that is closet to your application and click "Install – and overwrite existing machine configuration", this will install the default cnc12 parameters.

4.) with Oak, Allin1DC or MPU11 in bench test configuration and estop depressed: boot cnc12, make a fresh report.zip, email that fresh v4.16 report.zip file to diysales@centroidcnc.com to receive a License file. Install the license file.

5.) Configure CNC12 cnc control configuration screens and parameter to suit the machine tool. See detailed videos on Allin1dc and Oak bench testing and configuration on the Centroid Tech Support forum. www.centroidcncforum.com be sure and sign up for free account to receive free tech support.

License files.

Trial License files as the name implies will allow all CNC software features to function for a limited amount of time, Trial license files are provided free of charge. To receive a Trial license file email a fresh v4.16 report.zip to support@centroidcnc.com

The table showing the feature set for the Pro License file and Ultimate licenses is on the following pages.

To receive a Pro or Ultimate license file if you are updating from a previous version

1.) purchase the upgrade on the website

https://www.centroidcnc.com/centroid_diy/centroid_cnc_software_downloads.html

If you are updating an existing system purchase a Pro License for CNC12 v4.16 at a discounted rate.

Choose age of system

System purchased within 18 months of 10-6-20 (15008) $99.00 USD ⌄

Add to Cart

2.) Forward the PayPal receipt that you received via email to diysales@centroidcnc.com along with a FRESH v4.16 report.zip.

If you purchased an Oak or Allin1dc and purchased a Pro or Ultimate license file at the same time you will be emailed the License file when the system ships to you.

CNC12 Software Levels and optional software Plug-ins for "servo controls": Oak, Allin1dc, MPU11. CNC12 v.4.16 rev9 (10-14-20)

Feature set and Functionality:

See the CNC12 "Free" , "Pro" ($549) and "Ultimate" ($995) definition table below for definition of what CNC features are included with each level. Note: The cost of the main board cnc hardware (oak, allin1dc, mpu11) has been reduced.

Pro and Ultimate License files require a Hardware Key Code or Trial Code to run. So for the v4.16 release there are four license files: Mill Pro, Mill Ultimate and Lathe Pro and Lathe Ultimate.   Each license file can contain a Trial code, Hardware Key Code and the ATC plug in, CNC12-C Plug-in, (from user experience stand point there is only one thing to install the license file itself using the CNC12 utility menu). This eliminates the previous method of hand typing in of codes. The licenese file has all the information that CNC12 needs to activate the feature set.

Codes and Plug-ins

1.) "Hardware Key Code": Hardware Key Codes License files are issued when the Hardware (Oak, Allin1dc, MPU11) is paid for. Hardware Key Code allows CNC12 Pro and Ultimate to run without a Trial code.
CNC12 "Free" does not require a Hardware Key Code License file or a Trial code License file to run.
The Hardware Key Codes main purpose is to ensure that Net 30 orders get paid. For instance, to ensure a Net 30 order of an Oak is paid the Oak system will not run Pro or Ultimate license without the Hardware Key Code. (in this case a Trial code is issued)

2.) Trial Codes: "10 day Trial" code "21 day Trial" code, "45 day Trial" code license files.

The 10, 21 and 45 Day Trial code license file activates the ATC and the "Ultimate" level. (For cases where customer/integrators want to try full feature set before buying or when reselling a machine tool the integrator and "hold back" the actual license file and use a Trial code license file while he waits on payment for the machine tool).

3.) In addition to the three levels, (Free, Pro and Ultimate) there are these separate optional software Plug-ins.

  a.) "ATC capability Plug-in" #10660 $280 (formerly known as BCD tool change output),
    same code works on either mill or lathe.

  b.) 5 axis + simultaneous motion. "CNC12-C Plug-in"

Upgrade path to CNC12 v4.16 software from older versions of CNC10,CNC11,CNC12

1.) Everyone can buy CNC12 Pro License who is upgrading from cnc7,10,11, or cnc12 for $299 (this will be called "Legacy Software Upgrade" and can be purchased directly on the website here.
https://www.centroidcnc.com/centroid_diy/centroid_cnc_software_downloads.html)
(Note: very old systems will need a hardware upgrade as well at additional cost to support CNC12 at the going rate for such hardware).

2.) Anyone who has an existing paid cnc7,10,11 or 12 software option unlock that is in the Ultimate Level (see list below), will get the Ultimate Level License with the $299 Legacy Software upgrade cost.

3.) Anyone who bought an Oak/Allin1DC/Mpu11 within 18 months of this release can purchase the Legacy Software Upgrade for $99, older than 18 months $299

4.) If someone purchases Pro then at a later date wants to upgrade to Ultimate they can purchase Ultimate for: $450

Centroid CNC12 Servo CNC Mill and Lathe Software Levels

Features	CNC12 Free v4.16	CNC12 Pro v4.16	CNC12 Ultimate v4.16
Cost	Free	Mill Pro $549, Lathe Pro $549, (future Router Pro $549)	Mill Ultimate $995, Lathe Ultimate $995, (future Router Ultimate $995)
Mill and Lathe Intercon Conversational programming	Limited to 20 blocks of conversational	Unlimited	Unlimited
Wireless MPG Support ***	Not available	Yes	Yes
Xkey, USB keyboard emulator support	Included	Included	Included
G-code program size	Limited to 50Kb Mill/Router G-code file size, 5Kb Lathe	Unlimited G-code file size	Unlimited G-code file size
Work Coordinates Systems (WCS)	One (G54)	Eighteen (G54-G59 plus extended WCS)	Eighteen (G54-G59 plus extended WCS)
Menu driven Probing cycles	Center of bore	Complete Set of menu driven probing cycles. Bore, Boss, Slot, Web, Inside Corner, Outside corner, Single edge find, find angle, auto probe for CSR	Complete Set of menu driven probing cycles. Bore, Boss, Slot, Web, Inside Corner, Outside corner, Single edge find, find angle, auto probe for CSR
Menu driven Digitizing cycles	Grid, Radial, Contour, Wall following, limited to 2500 points	Grid, Radial, Contour, Wall following, limited to 2500 points	Unlimited point Grid, Radial, Contour, Wall following
Auto Tool Height Measurement	Unlimited auto measure on: Reference Tool & Tools 1,2,3	Unlimited auto measure on all tools.	Unlimited auto measure on all tools.
Coordinate System Rotation	Manual	Automatic and Manual	Automatic and Manual
Tool Library	10 Tools	200 Tools, (99 Tools Lathe)	200 Tools Mill, (99 Tools Lathe)
Sub Programs and Macros (M98 & G65) Write your own custom macros, many uses	Not Included	Included	Included
Cutter Compensation	Included	Included	Included
Backlash Compensation	Included	Included	Included
Screw compensation (laser or manual!)	Included	Included	Included
3 axis simultaneous	Included	Included	Included
4 axis simultaneous	Not included	Included	Included
4 th Axis linear or rotary conversational programming.	limited to 20 blocks of Intercon	Unlimited	Unlimited
Operate as a 2 axis CNC with Manual Quill	Included	Included	Included
Operate as a 2 or 1 axis CNC control	Included	Included	Included
Any axis can be Linear or Rotary	Included	Included	Included
Spindle Encoder feedback,w/ RPM display	Included	Included	Included
Mill Rigid Tapping	Not Included	Included	Included
Lathe Threading	Not included	Included	Included
Lathe Automatic CSS	Not Included	Included	Included
Lathe Rigid Tapping	Not included	Included	Included
Lathe C axis	Not included	Not included	Included
Lathe Automatic Tool Measurement	Unlimited auto measure on: Tools 1,2,3	Unlimited auto measure on all tools.	Unlimited auto measure on all tools.
G81 drilling cycles	Included	Included	Included

Compression Tapping G-code Cycles	Included	Included	Included
Mill G-code scaling and mirroring	Included	Included	Included
True G-code backplot graphics	Included	Included	Included
Run Time Program Graphics	Included	Included	Included
Smart Search (stop and restart at any point)	Included	Included	Included
Touch Screen Virtual User Control Panel	Included	Included	Included
Menu driven Part and Tool setup menus	Included	Included	Included
Operate in Millimeter or Inches	Yes	Yes	Yes
4th axis Jogging	Yes	Yes	Yes
Software Axis pairing. Pair an axes with the 4th or 5th axis. Allows Two axis to be paired axes.	No	Yes	Yes
Auto Squaring of Paired Axes	No	Yes	Yes
4th axis G-code moves: 4&1,4&2,4&3,4&1&2,4&2&3,4&1&3,4&1&2&3,4	No	Yes	Yes
G code Smoothing	Yes	Yes	Yes
PLC Detective Software	Included	Included	Included
CNC12 Scale Input for DRO position display	Included	Included	Included
Scale Input for axis positioning feedback	Not Included	Not Included	Included
M0 Jogging	No	Included	Included
ATC support plugin	Requires ATC Software Plug-in $280	Requires ATC Software Plug-in $280	Requires ATC Software Plug-in $280
5 axis + simultaneous motion	Requires CNC12-C Plug-in	Requires CNC12-C Plug-in	Requires CNC12-C Plug-in

*** Wireless MPG support for machines NOT using a stock v4.16 PLC program require their custom PLC program to be edited and tested which requires PLC programming, minimum custom PLC engineering/programming rate is $90/hr.

** VCP support for machines NOT using a stock v4.16 PLC program require their custom PLC program to be edited and tested which requires PLC programming, minimum custom PLC engineering/programming rate is $90/hr.

TB313 (REV 4) - Centroid CNC12 New Parameter Quick Reference
Purpose: Quick Reference for new parameters and software features.

Description	Parameter Number	Value	Value Description	Comments
Allow Cycle Start in Run Menu	400	0	Disabled	
		1	Enabled	
Forget Last Job Loaded	401	0	<v4.14 yes, v4.14 no	set to "no"
		1	<v4.14 no, v4.14 yes	
Disable KeyBoard Jogging Legend (Alt-J)	403	0	Legend Enabled	
		1	Legend Disabled	
Virtual Control Panel (VCP)	219	0	Disabled	Requires software restart
		1	Enabled	
Default feed rate override percentage	170	5	Sets Default Feed rate to 100%	systems without physical jog panel
Mini PLC Add Devices. "unconfigured Mini PLC _ found" message	900	0	No PLCADD device	Turn off "unconfigured Mini PLC _ found" message
		1	1 PLCADD	
		3	2 PLCADD	
		7	3 PLCADD	
		15	4 PLCADD	
MPG 1 Encoder Input	348	0	No MPG Installed	Turn off "MPG 1 Encoder Error" Message
		15	USB MPG or Wired MPG	
Advanced File Ops	4	9	Use Windows file explorer	Use Windows file explorer to open programs, copy programs to local drive.

Wired MPG				
MPG 1 Encoder Input	348	15	Sets MPG encoder input to MPG Connector	
	349	100	100 detents (clicks)/rev	
	350	400	400 counts/rev	

Wireless MPG				
MPG Type	411	0	CWP-4	
		1	WMPG-4	
USB MPG Options Requires Software unlock (#14688)	218	0	Disabled	Requires Software restart
		3	Lathe	
		7	3 Axis Mill/Router	
		15	4 Axis Mill	
MPG 1 Encoder Input	348	15	Sets MPG encoder input to USB MPG	
	349	100	100 detents (clicks)/rev	
	350	100	100 counts/rev	

Active G Code				
Oak/Allin1DC Mill	46	0	Always	
		1	MDI Only	
		2	Never	
Oak/Allin1DC Lathe	404	0	Always	Parameter 408 is labeled Active G code but set 404 instead. (known bug)
		1	MDI Only	
		2	Never	
Acorn Mill	46	0	Always	Set in Wizard
		1	MDI Only	
		2	Never	
Acorn Lathe	408	0	Always	Set in Wizard
		1	MDI Only	
		2	Never	

Custom Park Behavior (Acorn Only)	
In Acorn Wizard: Axis → Homing and Travel → Machine Parking. There is now the option to set a custom park macro. Set "Override default park behavior?" to yes and Edit "park.mac" to customize park macro.	

	Keyboard shortcuts		
	Please See CNC12 Operators manual here: CNC 12 Operators Manual Section 2.25 for more information		
	Key (s)	Function	Comments
	Alt S	Cycle Start	
	Esc	Cycle Cancel	
	ALT+i	Live PLC I/O	See Section 2.27.3 CNC12 operators manual
	CTRL+ALT+i	Toggle inputs	
	CTRL+ALT+F	Toggle Outputs	

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