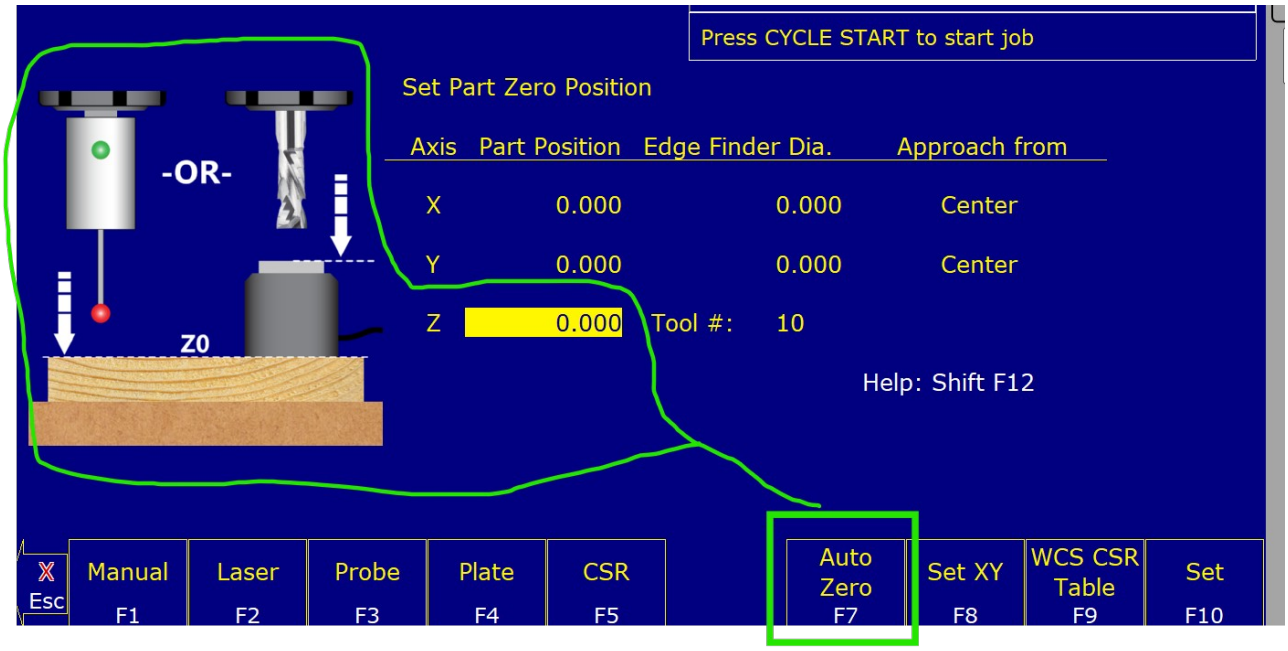
Centroid CNC12 v5.24 RC5 Mill, Lathe, Router, Plasma Release Notes: 1-28-25

CNC software is now available for use with Acorn, AcornSix, Hickory, Allin1DC, Oak and MPU11. Please Follow the installation instructions. Do not use “restore report” using a report from an earlier version.

Download CNC12 v5.24 here.
https://www.centroidcnc.com/centroid_diy/centroid_cnc_software_downloads.html

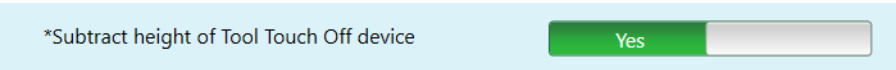
This is a free CNC software update! All previous license files file work with this new version of CNC12 software (in their respective categories: Acorn mill licenses work with Acorn mill, Oak lathe licenses work with Oak lathe CNC12, etc.)

1. Updated Mill and Router F7 Auto Zero Part Setup menu with improvements.

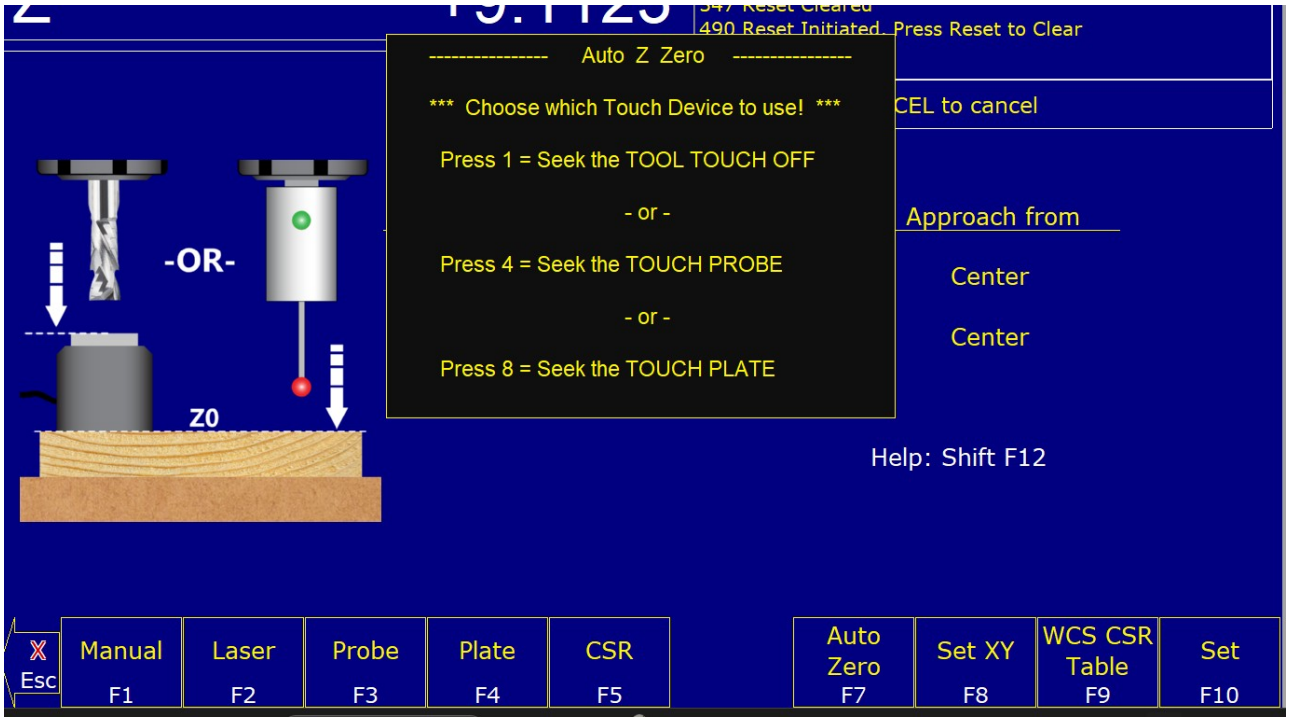


F7 Auto Z zero will now trigger off any type of Probe Input definition. Useful for using a TT to set Part Z zeros. Either the Probe or the TT or Touch Plate can be used with F7 Auto Z zero menu.

Notes: If you have the TT set to subtract the TT height for tool length measurements, F7 Auto Zero will also subtract the height of the TT therefore setting the Z zero location on top of whatever the TT is sitting on.

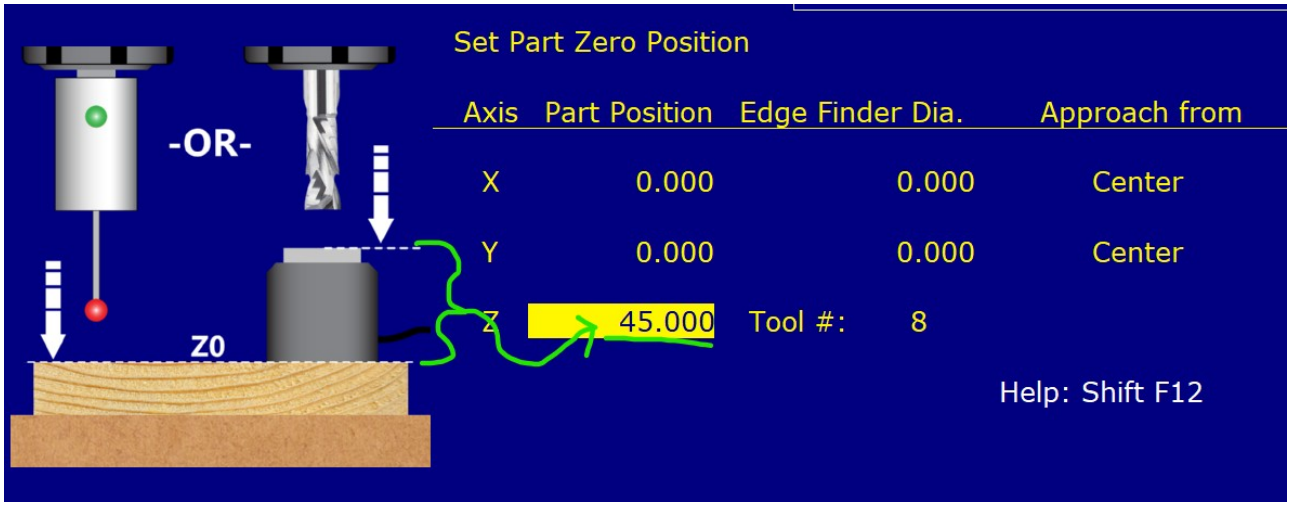


And same for a Touch Plate.



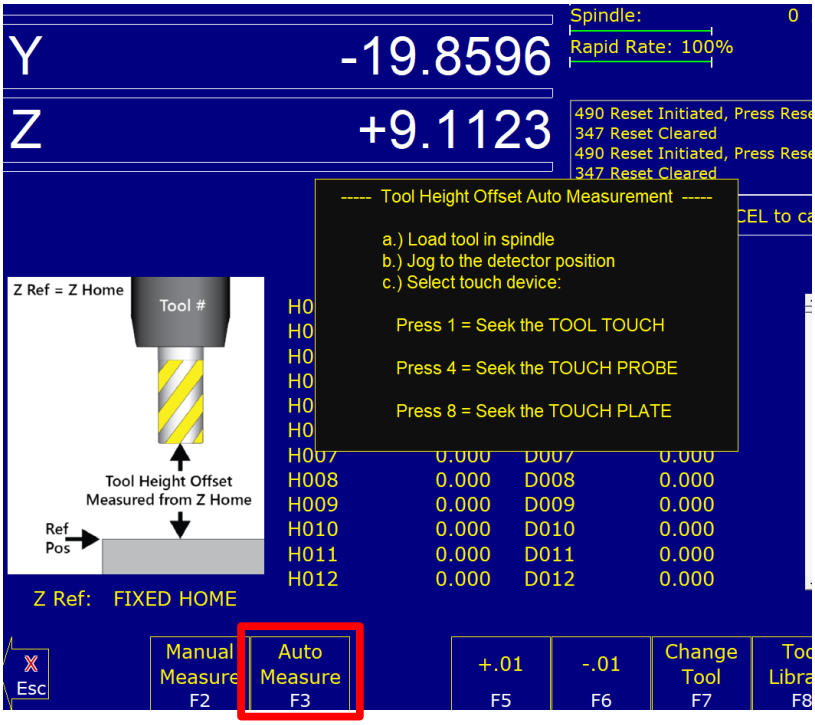
The new Auto Part Z zero macro also employs the new P0 probing cycle command argument which tells the probing cycle to trigger off of any input setup as a probe. So, for instance when probing a TT with a Touch Probe the probing cycle will use whatever input triggers first.

Note: You can always type in the TT height value here as well if you don't have CNC12 set to subtract the TT height for Tool measurement or if you desire to set the z zero at another position.



In this example above the TT height is 45 mm, which sets the part zero at the bottom of the TT with "subtract TT height" set to No in the Wizard.

2. Improvements made to the Tool Library Auto Tool Height Measurement Macro. C:\cncm\system\tool_offset_auto_measure.cnc



The Auto Tool Height Measurement macro (tool_offset_auto_measure.cnc) will auto recognize all configured touch devices and present the operator with a choice of touch devices to use during the tool height offset measurement cycle.

The new Auto Tool Height Measurement macro employs the new P0 probing cycle command argument which tells the probing cycle to trigger off of any touch device input. So, for instance when measuring a Touch Probes Tool Height Offset with a TT, the probing cycle will use whatever input triggers first either the TP or TT.

Just like all Centroid provided macros, the tool_offset_auto_measure.cnc macro is user editable so users may edit to their particular application and work flow.

Note: You can also hold the SHIFT key in the Tool Offset menu to make use of the old (previous to v5.24) F3 Auto Measure hard coded auto tool measure routine

3. Added: PWM Laser Delay Fine Tuning Parameter 424 added. Useful for compensating for millisecond delays introduced when using RAS with Clearpath servos.

4. Added new M-codes: M297 (Defeat Soft Travel Limits) and M298 (Re-enable Soft Travel Limits). The default state of the software behaves as if M298 has been called. M297 can either be called during a job or in MDI mode to temporarily defeat the soft travel limits. This lasts until:
   - M298 is called
   - MDI mode is exited
   - The job finishes (or is canceled/aborted)

   Note that if M298 is used within a job, soft travel limits will be treated as active again for any subsequent moves (or until M297 is called again).

   Useful for commanding special machine movements OUTSIDE the Software Travel Limits. Use with caution!

   Added M297 to Wizard generated Home Programs.

5. Added M291 - Reset MPG Offset. Ultimate License required.

   M291 resets any accumulated MPG offset for all axes across all MPGs, provided that PLC program “SV_MPG_X_OFFSET_MODE” (where X represents the MPG number) is active.

   Example (assuming an accumulated 0.25" offset on the Z-axis):

   Without M291:
   G0 Z0 ; Though Z0 was commanded, the Z-axis will move to an offset position from Z0 - in this case, 0.25"

   With M291:
   M291 ; reset MPG offsets
   G0 Z0 ; Z-axis moves to Z0 as commanded now that the MPG offset has been reset

   Note: Custom PLC program interaction is needed for this feature as the PLC program is in direct control of MPG modes.

   Useful for when using an MPG wheel to adjust the position of an axis on the Fly. In special CNC applications the operator can adjust the position of an axis under CNC program control using the MPG while the job is running and when the job is finished CNC12 can be commanded to cancel any offset amount that the operator added or subtracted from that axis with the MPG OR leave the offset applied.

6. Fixed bug where M115/116 P0 would not register a NO (normally open) probe without a detect tripping

7. Fixed bug with M115/116 P0 where a NC probe without a detect in combination with any other device would result in all device inputs being ignored if probe protection via tool number was not active

8. Fixed bug where user defined message would be discarded if M0 jogging was not enabled for M200/201

9. Fixed bug where M223 would power an axis motor after an M93 call for that axis

10. Fixed bug where running a job from the Run-Search menu and then reentering the menu later would result in CNC12 crashing

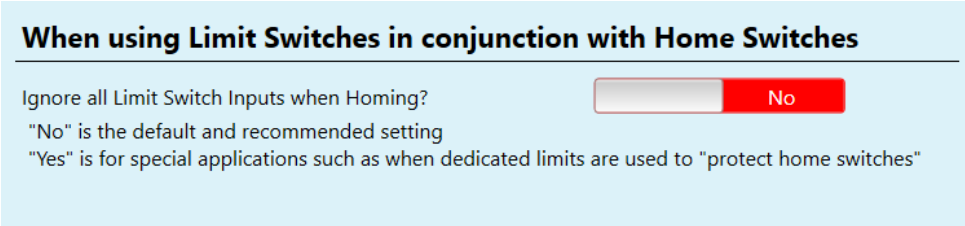
11. Added Centroid API call Axis.GetPower(...) to get the power status of a given axis.

12. Removed the on screen ESC key from the RTG screen.

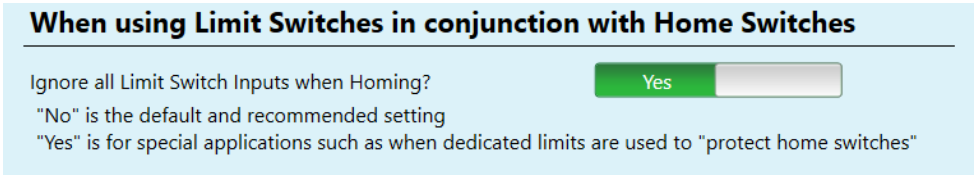
13. Fixed 'bug' where fkeys would disappear not showing anything when a keyboard modifier is pressed. This occured because CNC12 attempted to draw alternative keys but found none.

14. Removed excess space on the run time graphics screen to allow 5+ axes to fit better

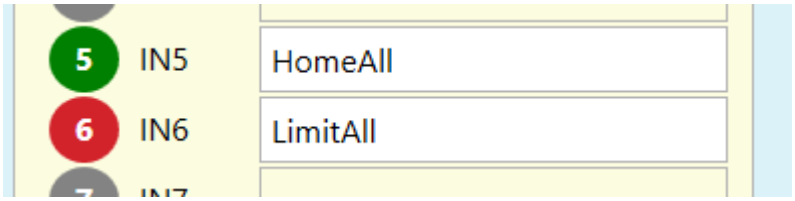
15. Added option to ignore all limit switch inputs or not when homing for Acorn.



When set to “Yes” any limit switch input triggered while homing will be ignored. Use this feature with caution. This feature is typically used when “protecting” home switches with limit switches. (limits trip first) which allows the seeking of the home switch to continue right past a limit switch.



For instance NO prox limit switches wired into Input 6 in parallel and Metrol precision micro switches ran in series with Input 6



Would produce a home program like this by the Wizard.

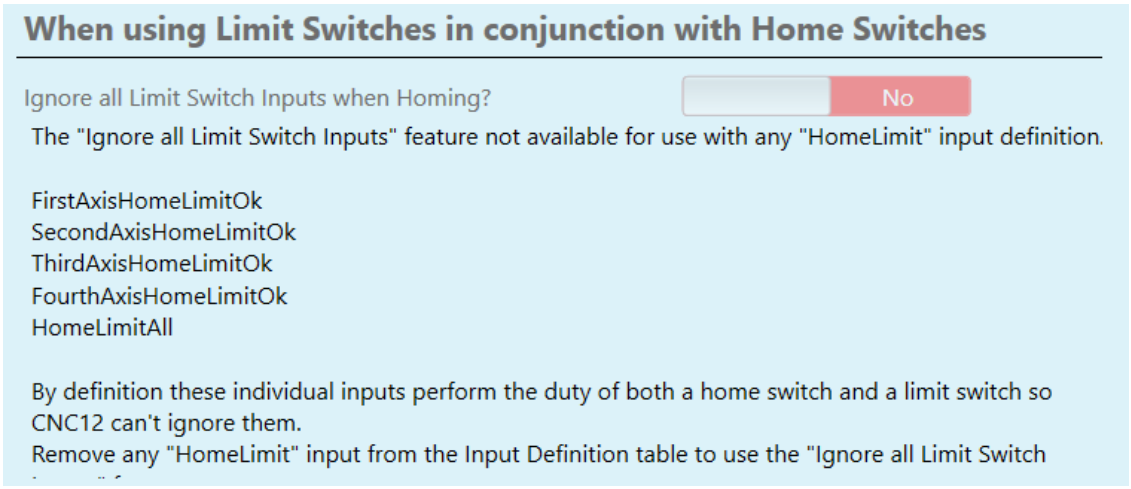
```
;Perform Homing commands
;Disable any assigned limit switch inputs
M94 /105 ; disable Limit All
M92/Z L1
M26/Z
M92/Y L1
M26/Y
M91/X L1
M26/X

;Enable all limits
M95 /101 /102 /103 /104 /105
```

Then you would hand edit it to reset home within the travel of the limits protecting the home switches so the software travel limits would stop the machine from hitting the limits as well.

;Perform Homing commands
;Disable any assigned limit switch inputs
M94 /105 ;disable LimitAll
M92/Z L1
M26/Z
M92/Y L1
M26/Y
M91/X L1
M26/X
G91 X1.000Y-1.000Z-.5000
M26/X/Y/Z

;Enable all limits
M95 /101 /102 /103 /104 /105

Note: This feature will be disabled (grey'd out) if any "homelimit" inputs are set. Since by definition these inputs act as both a home and a limit switch input.



16. Added Centroid API calls WCS.SetWorkpieceLocation(...) to set wcs at a location other than zero and Job.SetSystemVariable(...) to set a system variable. Added some additional validation to preexisting WCS calls

17. Removed P228 (S Curve) from the ad2 presets menu as it is a deprecated experimental feature.

18. Edited the Default Router smoothing profiles "V-Carve" and "3-D Relief Fine" to have a S Curve value of zero

19. Added ERROR_LICENSE_LOCKED error code to Centroid API return codes for features locked behind a pro or ultimate license

20. Added PLC IO to the Report Summary

21. Fixed bug where Centroid API call SetWorkpieceOrigin was not working

22. Fixed bug where tool check with an unplugged NC probe would result in a probe tripped error

23. Fixed bug where swing-arm ATCs wouldn't initialize

24. Increased upper constraint of P40 for Metric to 0.0254

25. Fixed PWM2 output for AcornSix that was broken under certain combinations and made it more robust at the same time. Now AcornSix PWM2 will only turn on with the M37 (laser on) Note: The Laser feature G37 (Laser power based on velocity, aka velocity modulation) only works with PWM2 not PWM1, (think of it this way: PWM1 is for spindles, PWM2 is for Lasers)

26. The Simple PLC diagnostic menu can be launched from more (but not all) menus in CNC12

27. Fixed bug where the WCS Config menu would display incorrect function keys if a keyboard modifier was pressed

28. Upon completion of a job, the g-code display will return to the top of the file

29. Fixed bug where g-code display would require a job to be run at least once before canceling the job and displaying the last known g-code line correctly

30. Improvement: Allow non zero software travel limit when used in conjunction with screw comp.

31. Fixed a bug with Wizard related to P423 where it would let larger values than valid numbers which are: 0-255

32. Reinstated the v4.82 color schema for g-code display while running a job which was accidentally ignored when the Color Picker was introduced.

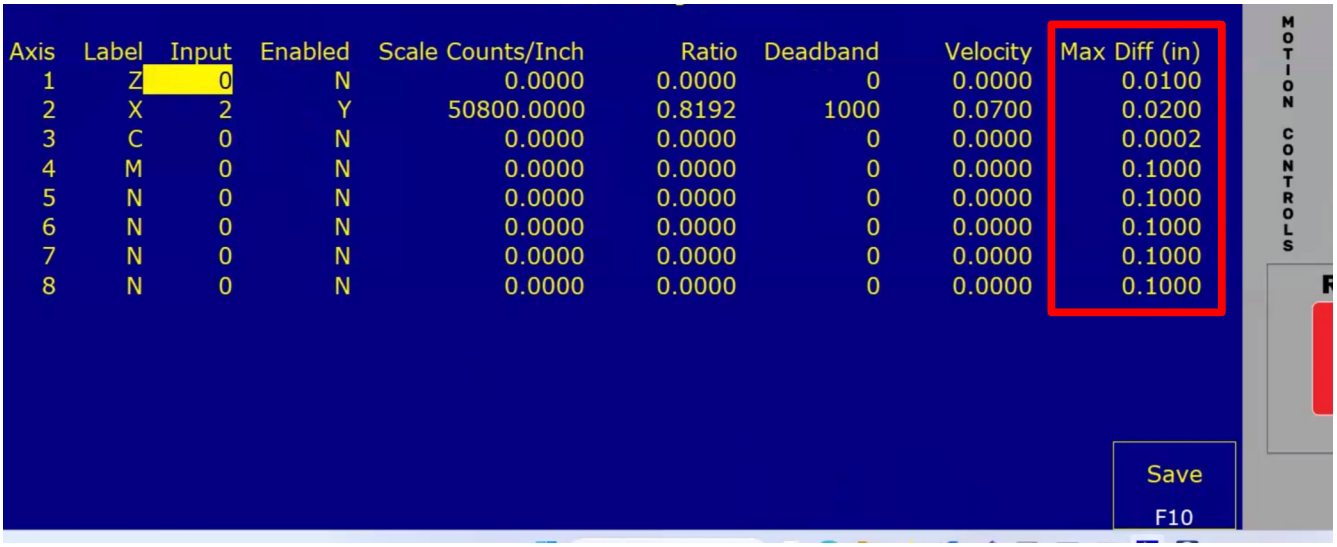
33. Acorn/AcornSix/Hickory Wizard: add M297 to wizard generated and default home files

34. Acorn/AcornSix/Hickory Wizard Improvement to ATC Rack Mount logic made to be more flexible: M95/80 will turn off ToolRack In, M95/81 will turn off ToolRack Out

35. Plasma: M64 marking macro: Fixed undefined variable.

36. Improved the input output text report in the report.txt for better human readability.

37. Added a “maximum scale difference error” parameter for each axis. CNC12 uses this value to determine when to issue an error message. Users can now specify the maximum allowable scale to actual position error allowed before CNC12 issues a 410 fault message. P571 thru 578 571 = axis 1, 572 = axis 2, 573 = axis 3 etc.. these values are ‘echo’d” in the CNC12 scale setup menu.



Axis	Label	Input	Enabled	Scale Counts/Inch	Ratio	Deadband	Velocity	Max Diff (in)
1	Z	0	N	0.0000	0.0000	0	0.0000	0.0100
2	X	2	Y	50800.0000	0.8192	1000	0.0700	0.0200
3	C	0	N	0.0000	0.0000	0	0.0000	0.0002
4	M	0	N	0.0000	0.0000	0	0.0000	0.1000
5	N	0	N	0.0000	0.0000	0	0.0000	0.1000
6	N	0	N	0.0000	0.0000	0	0.0000	0.1000
7	N	0	N	0.0000	0.0000	0	0.0000	0.1000
8	N	0	N	0.0000	0.0000	0	0.0000	0.1000