

# Delta AB and A2 Drive Setup for CNC11 Systems Velocity Mode

This document describes how to setup the Delta Servo drive parameters for use with a CNC11 system running a GPIO4D or Optic4. The Delta drive should be setup first based on the following table of parameters. After the parameters are set, a Jog trial should be done to make sure the drive can run the motor correctly.

## Modifying Delta drive parameters

- Press the MODE key to enter parameter mode.
- Press the SHIFT key to select the parameter group you need.
- Use the UP and DOWN keys to select parameter numbers.
- Press the SET key to enter the parameter.
- Press the UP or DOWN keys to change the parameter value.
- Press the SHIFT key to shift the cursor to the left one place.
- Press SET to save the parameter or when finished press MODE to exit parameter mode.

### Delta A2/AB Drive Parameters

P02-10	101	DIO1 - Drive Enable
P02-11	0	DIO2 - not used
P02-12	0	DIO2 - not used
P02-13	0	DIO3 - not used
P02-14	102	DIO5 - Reset Servo Drive
P02-15	0	Disable + limit switch
P02-16	0	Disable - limit switch
P02-17	0	Disable EMGS function
P02-21	108	DO4-Motor Brake Output
P02-66	4	Auto-reset Undervolt error
P01-00	0	Encoder is AB Pulse output
P01-01	2	Velocity Mode control
P01-40	*	Motor Max Commanded RPM
P01-41	200	Max Analog Torque command
P01-46	1, 40000**	Encoder output pulses**
P01-55	*	Max allowed RPM of motor

**\*Important:** The value for Parameter 01-40 should be set to 10% over the max rate that CNC11 will command at 10VDC on the analog output. This means that if the motor will be commanded at 3000 RPM, this parameter should be set to about 3300 RPM. Also, Parameter 01-55 should be set about 5% above Parameter 01-40, or 3450 RPM in this example, to avoid issues at max rate. This parameter sets the absolute max rate the motor is allowed to spin.

\*\* 1 is the default output value for the Delta AB drive encoder emulation output. On the AB drives leave this parameter at 1 to get 2500 ppr or 10000 counts per revolution. On the A2 drives set this parameter to 16384 ppr to get 65536 counts per revolution.

Some of these parameters cannot be set when "Drive Enable" is on. A message flashes after pressing SET if the Delta drive inhibits the parameter change.

There are some parameters that will not take effect until the servo drive is restarted. It is recommended to restart the servo drive after parameters are changed. Please refer to the Delta servo drive operator manual for more details on the parameters.

To reset all parameters to factory default, change P02-08 to 10 and save, then power cycle the drive.

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ASDA2 manual, Delta A2 Software, usb cable, extension cable, Windows laptop or computer w/cnc11

Download links

## [CNC11](#)

<http://www.centroidcnc.com/dealersupport/downloads/software/windows/cnc11v309beta030.zip>

## [Delta Software](#)

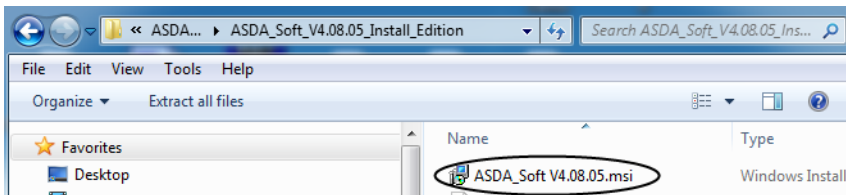
[http://www.delta.com.tw/product/em/motion/motion\\_servo/download/software/ASDA\\_Soft\\_V4.08.05\\_Install\\_Edition.zip](http://www.delta.com.tw/product/em/motion/motion_servo/download/software/ASDA_Soft_V4.08.05_Install_Edition.zip)

## [Delta A2 Manual](#)

[http://www.delta.com.tw/product/em/motion/motion\\_servo/download/manual/DELTA\\_ASDA-A2\\_M\\_EN\\_20130315.pdf](http://www.delta.com.tw/product/em/motion/motion_servo/download/manual/DELTA_ASDA-A2_M_EN_20130315.pdf)

## Installing and configuring Delta Software

1. Copy zip file to the computer you will be using to connect to the drive.
2. On the computer you will be using to tune the drive, Double click the ASDA\_Soft\_V4.08.05\_Install.zip file to open it and then double click the Msi to install.

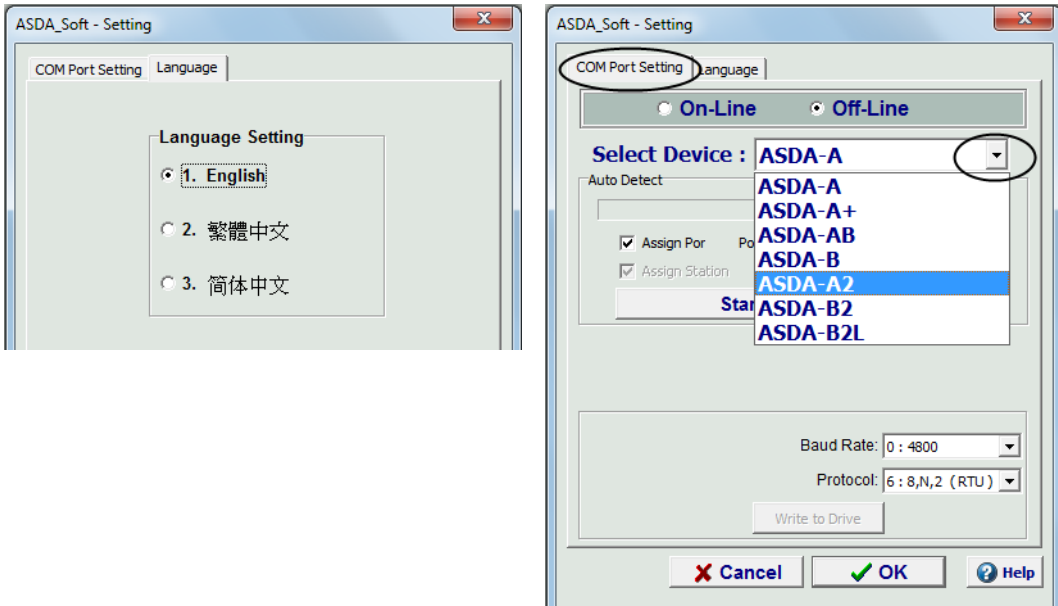


Install everything to the default locations that the program chooses for you. This will create a shortcut on your desktop.

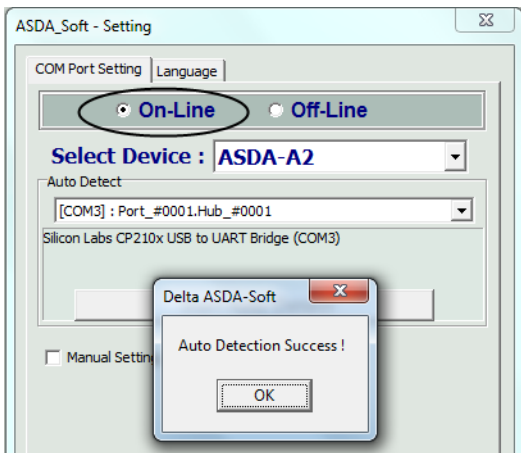
3. Double click the ASDA shortcut on your desktop to start the Delta software. The first time you run it, you will be prompted to install usb drivers, install usb drivers, power off, power back up with usb cable disconnected.

Plug usb cable into drive and computer -Windows may indicate it is installing drivers when you reboot, let it complete before starting software.

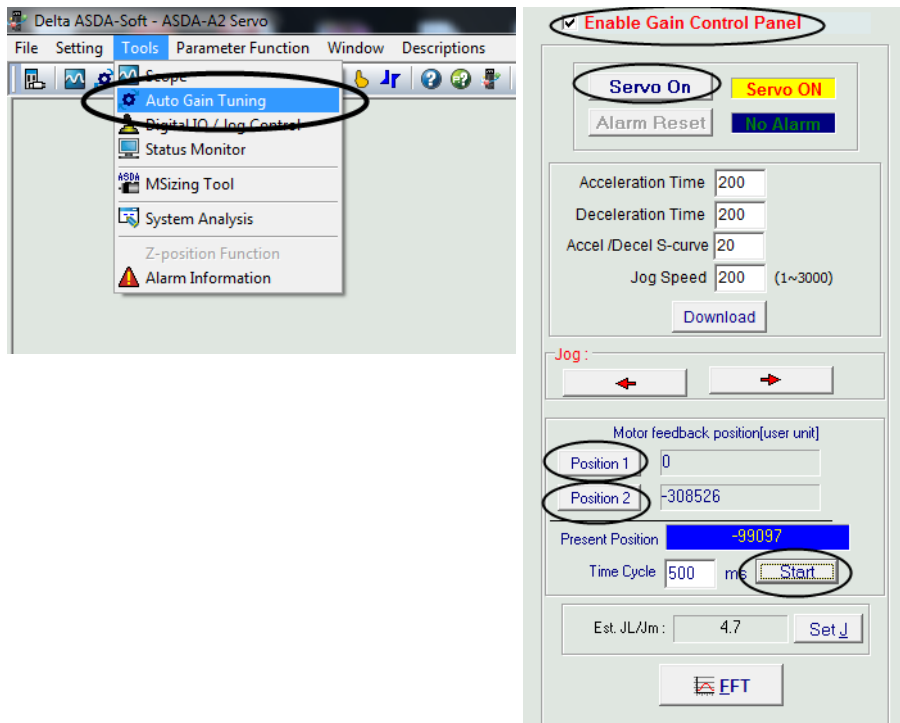
4. Start ASDA software - you will be prompted to select a language. After you have selected a language, click on the "COM Port Setting" tab, then click on the down arrow of the dropdown box and scroll down to select ASDA-A2, click ok to set drive type and language.



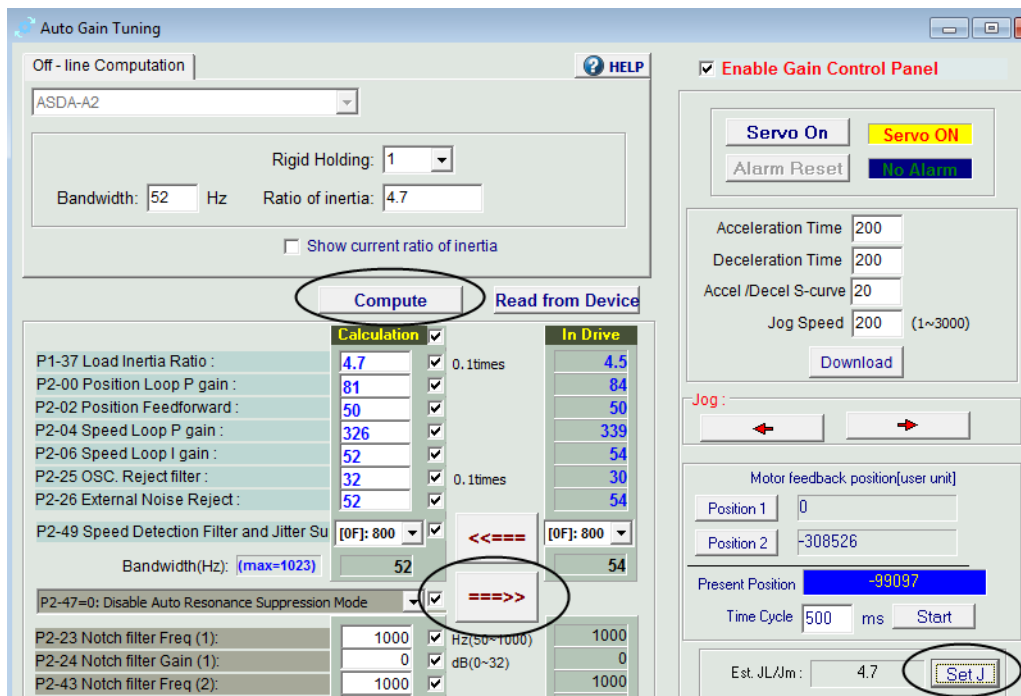
5. Click autodetect, to configure your com port settings. If not succesfull, try powering off and back up again. After it has autodetected, click ok. Notice that the drive has now come online.



Select "Tools" from the menu bar and then click "Auto Gain Tuning" from the drop down. At the top right of the screen, check the box for "Enable Gain Control Panel". When the Gain Control Panel is displayed, click "Servo On". Use the arrow button(s) to jog to the first position you wish to move to while tuning and then click the "Position 1" button. Now use the arrow button(s) to the second position you wish to use for tuning (should be a couple of inches from the first position) and click "Position 2" button. Then click start to begin tuning.



7. Watch the value in Est. J/L/Jm box at the bottom of the screen, when it stops changing (less than a minute) you can stop the auto tune. Press Set J, then press the "Compute" button in the upper section of the screen and then press the ==>> button in the bottom section of the screen to send the data to the drive.



NOTE: You can generally use the auto-calculated values for Bandwidth (52hz) and Ratio of inertia (4.7) without trouble. It may be necessary, particularly on bigger machines, to manually adjust the bandwidth closer to 100Hz and the ratio of inertia around 1 or 2. But try using the autocalculated values first.