

TB303 (Rev1) - Delta ASDA-A2 Step and Direction Setup for Acorn CNC Controller.

Purpose:

This tech bulletin explains the steps that are needed in order to properly configure the Delta ASDA-A2 servo drives with the Centroid Acorn based control.

Requirements:

ASDA-A2 Drive Manual

Windows PC with Delta A2 Software and Centroid CNC12

USB cable – may need an additional USB extension cable

Download links

[Centroid CNC12](http://www.centroidcnc.com/centroid_diy/centroid_cnc_software_downloads.html)

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

[Delta Software](http://www.delta.com.tw/product/em/motion/motion_servo/download/software/ASDA_Soft_V4.08.05_Install_Edition.zip)

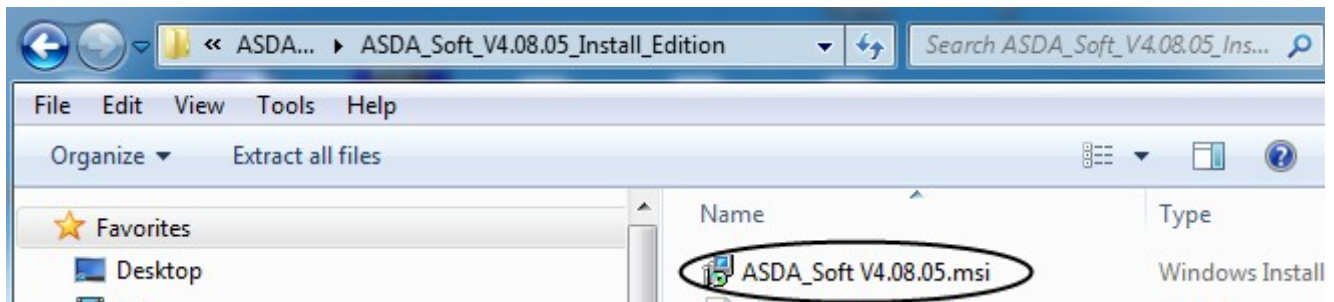
http://www.delta.com.tw/product/em/motion/motion_servo/download/software/ASDA_Soft_V4.08.05_Install_Edition.zip

[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 of Delta Software:

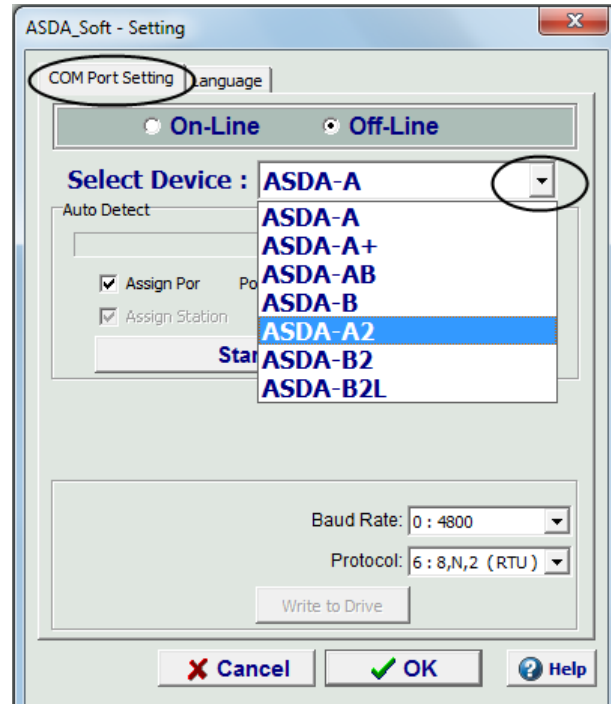
1. Copy the ASDA_Soft_V4.08.05_Install.zip file to the PC which will be used to connect to the Delta drive.
2. Double-click the ASDA_Soft_V4.08.05_Install.zip file to open it and then double-click the ASDA_Soft V4.0805.msi file to install making sure to install everything to the default locations selected by the software.



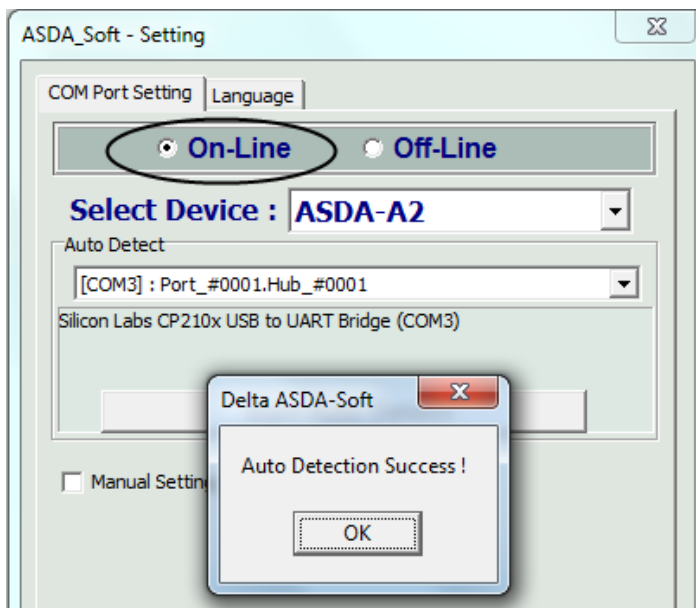
Once the software has completed the installation, there will be a shortcut on the desktop.

3. Double-click the ASDA shortcut to start the Delta software. The first time the software is run, you will be prompted to install USB drivers. Install the USB drivers, shut the PC off, and then power the PC back up with USB cable disconnected.
4. Plug the USB cable into the Delta drive as well as the PC. Windows may indicate that it is installing drivers when you reboot. Let it complete before starting the ASDA software.

5. Start ASDA software
 - a- Select a language.
 - b- Click on the "COM Port Setting" tab.
 - c- Click on the down arrow of the drop-down box.
 - d- Scroll down and select ASDA-A2.
 - e- Click OK.

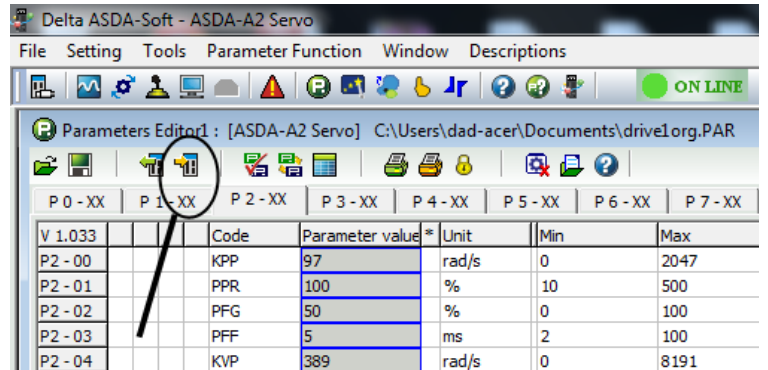
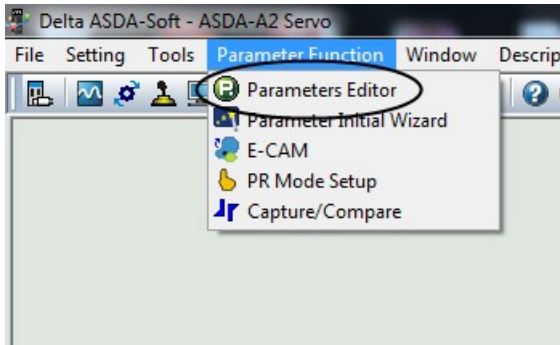


6. Click autodetect to configure your com port settings. If it's not successful, try powering off and back up again. After it has autodetected, click OK. Notice that the drive has now come online.

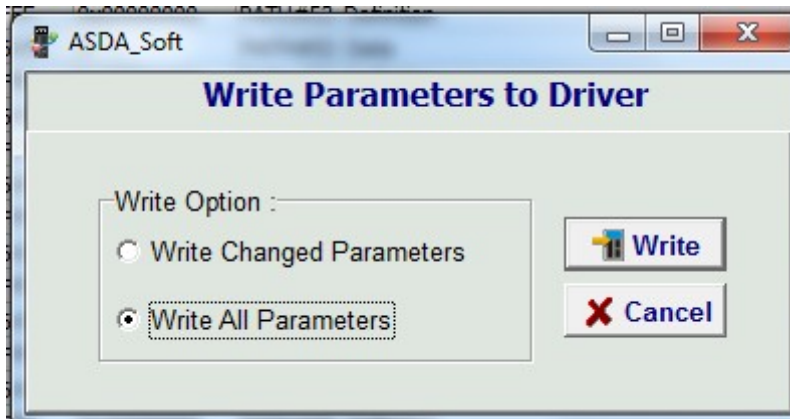


Configuring and Tuning Delta ASDA-A2 Drives:

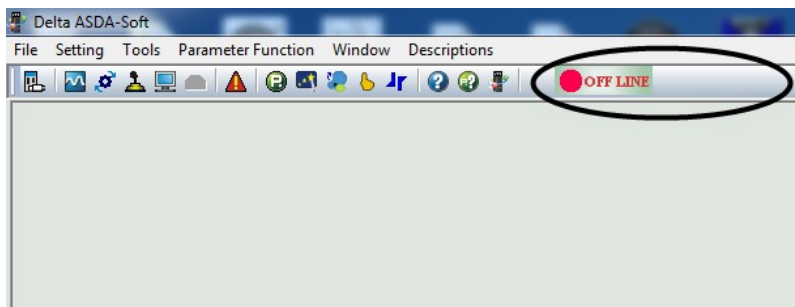
1. **ALWAYS** begin by setting the drive back to the factory default configuration.
 - a- Select "Parameter Function" from the menu bar at the top of the screen.
 - b- Select "Parameters Editor" from the drop-down.
 - c- When the editor screen fills, it fills with the default settings for the drive. Click the icon with the arrow pointing at the drive to send the default parameters to the drive.



- d- Select "Write All Parameters" when prompted. There may be a few errors about being unable to write certain parameters but it's safe to ignore those errors.



2. Since some parameters require the drive to be rebooted before they take effect, remove power from the drive, wait 10 seconds, and then power the drive back up. If the menu bar at the top of the screen indicates "Off Line", click on it to toggle the drive to "On Line".



3. As in step 1, open the "Parameters Editor" from the "Parameter Function" tab and set the following parameters to configure the Delta drive for precision mode operation.

Note – Use the tabs at the top of the Parameters Editor screen to select the Parameter Group (01-, 02- etc.) for editing

P01-00	0x0102	Type of pulse
P01-01	0x0100	Precision mode control
P01-40	3000*	Motor max commanded RPM. Depends on motor
P01-41	200	Max analog torque command
P01-44	320000	Encoder output pulses**Delta encoder line count
P01-45	1024	Centroid pulse ratio
P01-55	3000*	Max allowed RPM of motor. Depends on motor
P02-10	0x0101	DIO1 - Drive Enable
P02-11	0x0000	DIO2 - not used
P02-12	0x0000	DIO2 - not used
P02-13	0x0000	DIO3 - not used
P02-14	0x0102	DIO5 - Reset Servo Drive
P02-15	0x0000	Disable + limit switch
P02-16	0x0000	Disable - limit switch
P02-17	0x0000	Disable EMGS function
P02-22	0x0007	DO5-Motor Alarm Output
P02-32	0x0000	Continuous tuning mode
P02-33	0x0000	Semi-auto mode inertia adjustment
P02-47	0x0000	Auto resonance suppression
P02-66	0x0004	Auto-reset undervolt error

After all the parameters above have been set, click the icon with the arrow pointing at the drive to send the parameters to the drive. Select "Write All Parameters". There may be a few errors about being unable to write certain parameters but it's safe to ignore those errors.

4. Unplug the power from the drive and plug it back in to reboot the drive.

5. When the drive is back up, restart the ASDA software. If the menu bar at the top of the screen indicates "OFF Line", click it to toggle the drive online.

6. To tune the Delta drives.

a- Select "Tools" from the menu bar.

b- Click "Auto Gain Tuning" from the drop down.

c- Check the box for "Enable Gain Control Panel".

d- Click "Servo On".

e- Use the arrow button(s) to jog to the first position you wish to move to while tuning.

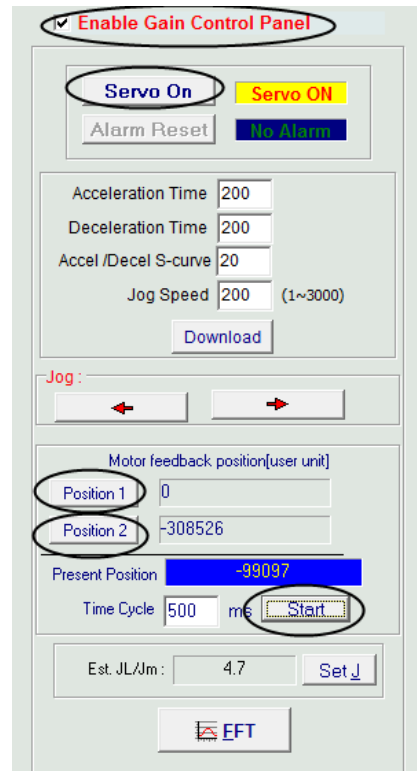
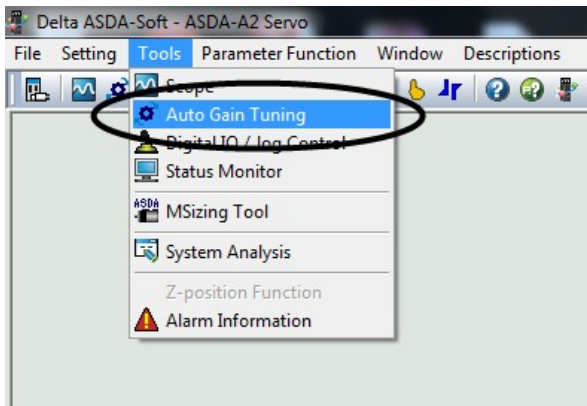
f- Click the "Position 1" button.

g- Use the arrow button(s) to jog to the second position you wish to use for tuning.

Note – It should be a couple of inches from the first position

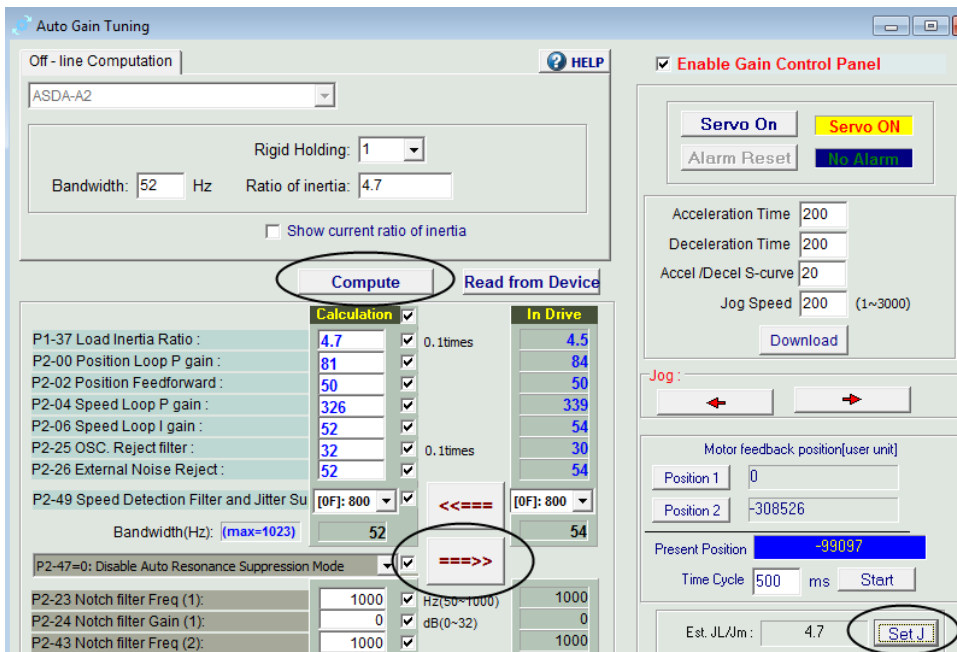
h- Click "Position 2" button.

i- Click "Start" to begin tuning



7. Watch the value in Est. JI/Jm box at the bottom of the screen. When it stops changing (less than a minute) you can stop the auto tune.

- a- Click "Set J".
- b- Click "Compute".
- c- Click 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 to 1 or 2 but try using the autocalculated values first.

8. Turn off "Servo On" and close the Auto Gain Tuning window. Close the Delta software and cycle power to the drive.

9. Run **Acorn Setup Wizard** and set Steps/Rev to **4096**.