

TB264 (Rev2) - Delta ASDA-A2 Precision Mode Setup With Optic Direct

Precision mode tuning and configuration of Delta ASDA2 servo drives and CNC11 v3.09+ software

What you need:

ASDA2 manual, Delta A2 Software, usb cable, extension cable, Windows laptop or computer w/cnc11 v3.09r15 or higher, Optic direct PLC program, optic direct, delta optic direct ribbon cable, fibers or wires for connection to mpu11, rtk4 or optic4.

Download links

[CNC11](#)

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

[Delta Software](#)

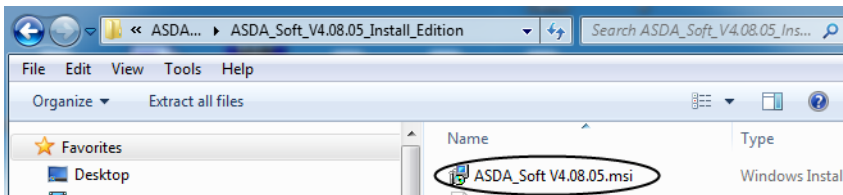
http://www.delta.com.tw/product/em/motion/motion_servo/download/software/ASDA_Soft_V4.08.05_Install_Edition.zip

[Delta A2 Manual](#)

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.

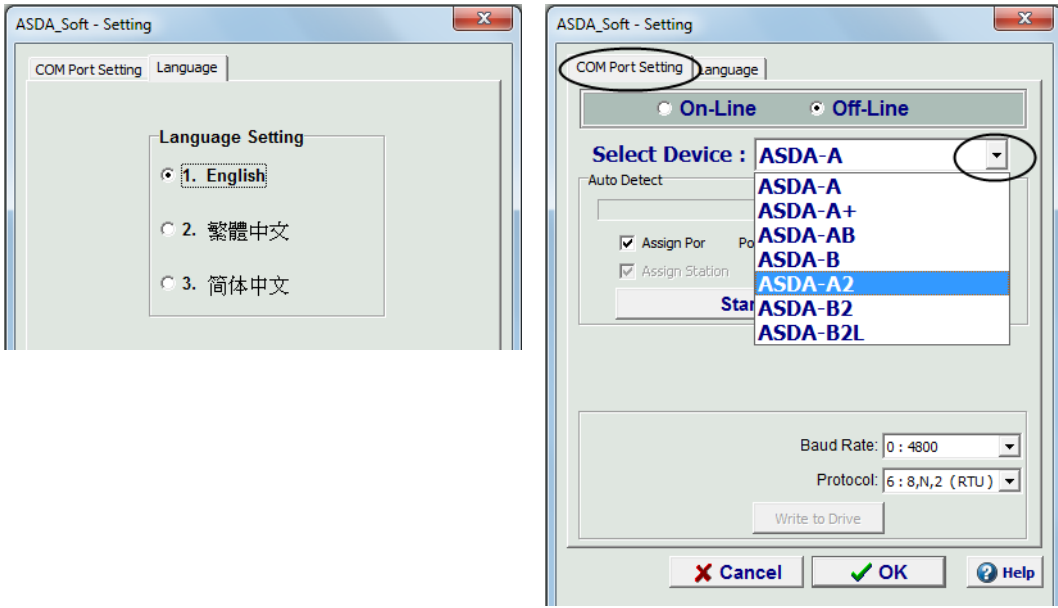


Install everything to the default locations that the program chooses for you. This will create a shortcut on your desktop.

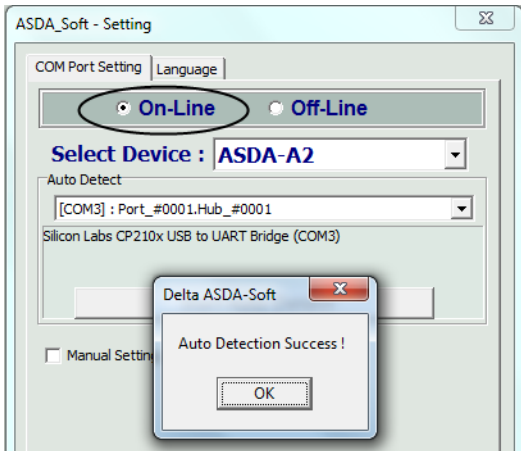
3. Double click the ASDA shortcut on your desktop to start the Delta software. The first time you run it, you will be prompted to install usb drivers, install usb drivers, power off, power back up with usb cable disconnected.

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.

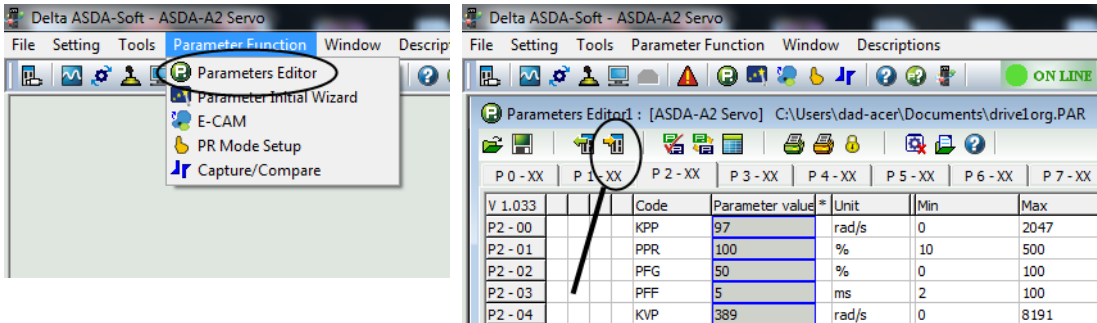


5. Click autodetect, to configure your com port settings. If not succesfull, try powering off and back up again. After it has autodetected, click ok. Notice that the drive has now come online.

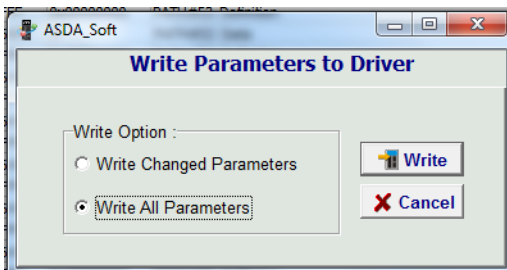


Configuring and Tuning Delta ASDA-A2 Drives For Precision Mode Operation

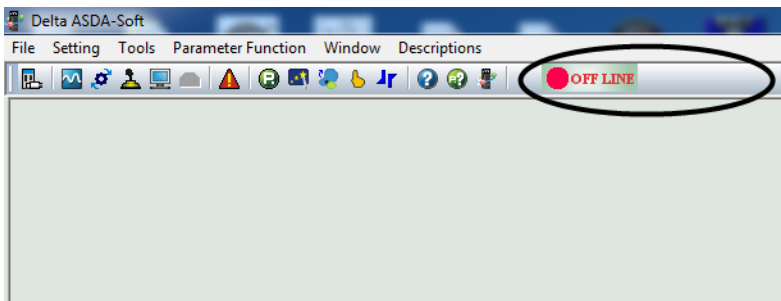
1. ALWAYS begin by setting the drive back to factory default configuration. To do this, select "Parameter Function" from the menu bar at the top of the screen. Select "Parameters Editor" from the dropdown. When the editor screen fills, it fills with the default settings for the drive, now just click the icon with the arrow pointing at the drive to send the default parms to the drive.



Select "Write All" when prompted to write just the changed or write all parameters to the drive. You may see a few errors about being unable to write certain parms - it is safe to ignore them.



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" Drop Down Menu and set the following parameters to configure the drive for precision mode operation:

Note Use the tabs at the top of the parameter editor screen to select the parameter group (01-, 02- etc..for editing

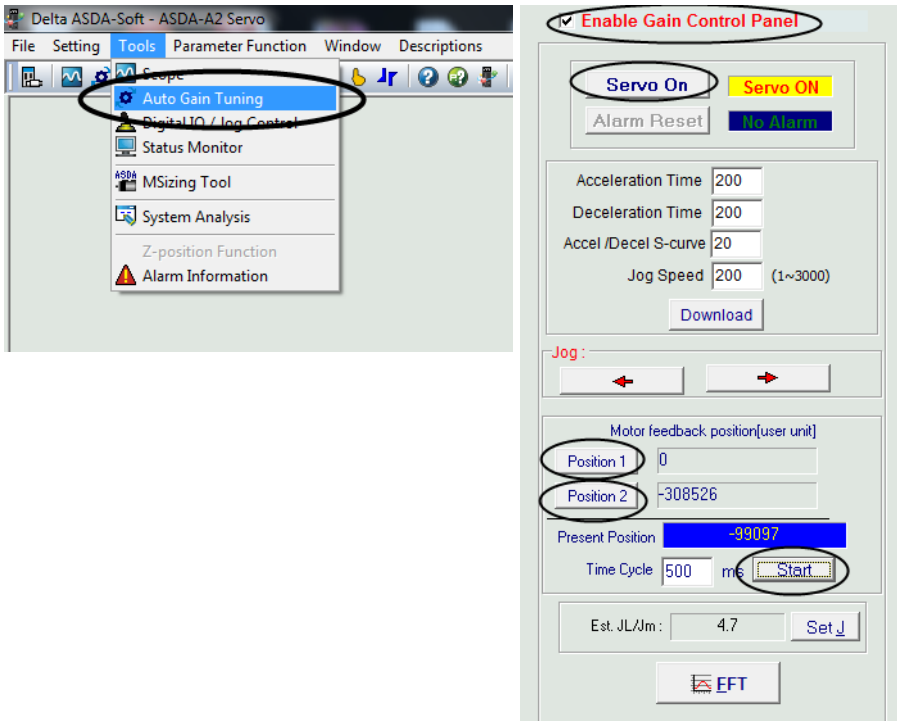
P01-00	0x1000 Encoder is AB Pulse output
P01-01	0x0100 Precision Mode control
P01-40	3000* Motor Max Commanded RPM. Depends on motor
P01-41	200 Max Analog Torque command
P01-44	320000 Encoder output pulses**Delta encoder line count
P01-45	8192 Centroid pulse input ratio
P01-46	8192 Encoder output pulses**
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
P02-21	0x0108 DO4-Motor Brake 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 you have set all the parameters above click the icon with the arrow pointing at the drive to send the precision mode parameters to the drive. Select "Write All" when prompted to write just the changed or write all parameters to the drive.(Just as you did in step#1 when writing the default parameters to the drive). You may see a few errors about being unable to write certain parms - it is safe to ignore them.

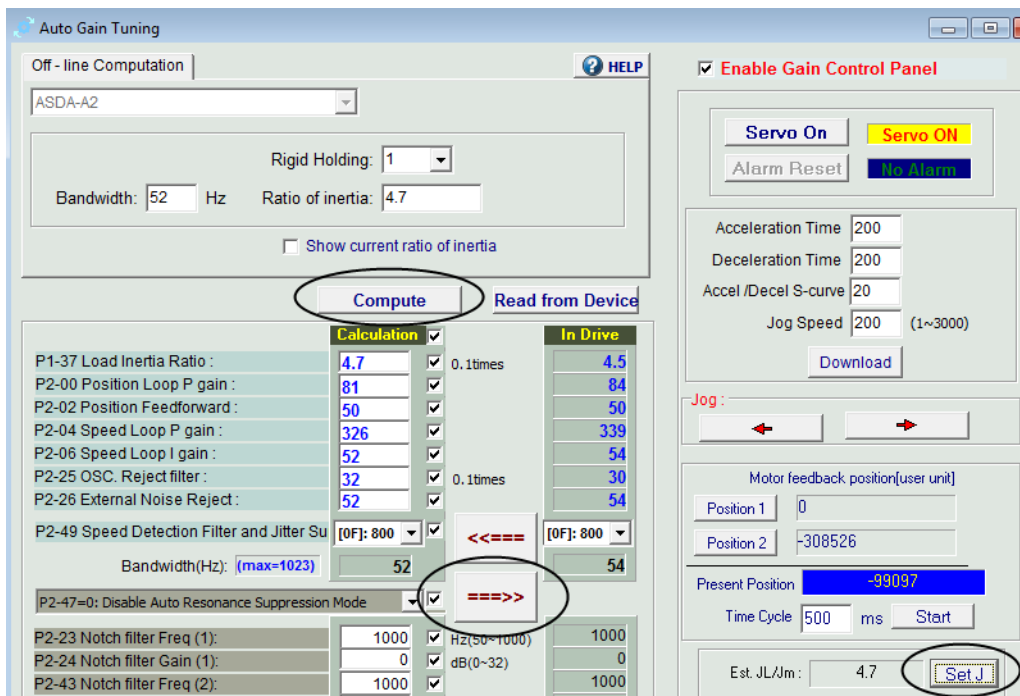
4. Unplug the power from the drive and plug it back in to reboot the drive.

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

6. 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. JI/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.

8. Turn off "Servo On" and close the Auto Gain Tuning window, Close the Delta software, unplug the power from the drive and plug it back in to reboot the drive.

CNC11 Control Configuration

1. When all your drives have been tuned (and parameters SAVED to the drive) in the Delta software, Start CNC11, set all axes encoder counts/rev to 32768, set parm 256 to 2 to enable precision mode. In the PID screen, set Kp, Ki, Kd to 0 for all axes. NOTE: Do NOT set your accels to 0 or you will not be able to move the machine. Leave these set to .5
2. In the PID screen, press F5 "Tune" and then Cycle Start to calculate the finish the configuration.

Document History

Rev2 Created on **2013-04-03** by **#277**

[Rev1](#) Created on **2013-02-08** by **#000**