ASDA-B2 Servo System Quick Start Guide

This guide is intended as a quick start guide. On our website you can find also the full manual for the DELTA ASDA-B2 AC servo system, use this when getting into details. This manual is only for when you receive the parcel and want to make sure all is working. Fine-tuning of the system will need to be done

Assumptions: Author: Kevin Damen   April 2013

- Using Delta ASDA-B2 system
- We assume you purchased a programming cable with the set
- In combination with USBCNC or other Step/Dir source (PLC)
- Using DamenCNC compatibility PCB
- Using standard wiring from DamenCNC or self made using DamenCNC procedures
- Basic knowledge of mechanics/electronics

Step 1: 220V Entry is different from the ASDA-B. The control and power circuit have separate inputs. Both need to be connected to 220V. Most common mistake is that only 1 of the 2 is connected, then the system will not work.

3.1.3 Wiring Methods

For servo drives from 100W to 1.5kW the input power can be either single or three-phase.
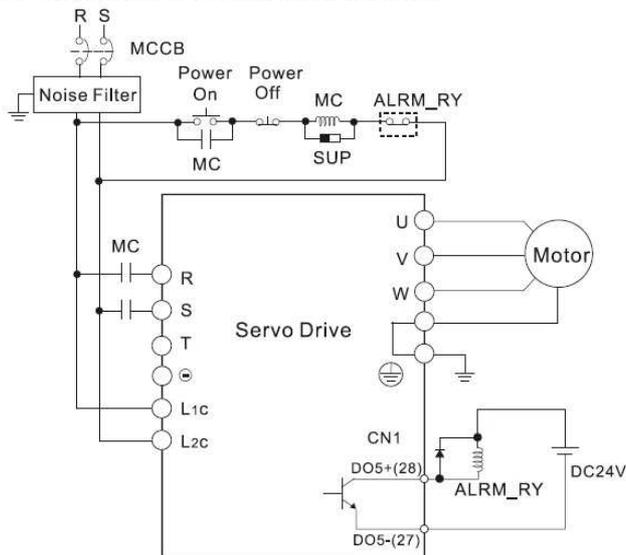However, single -phase connections are for servo drives 1.5kW and below only.

In the wiring diagram figures 3.2& 3.3:

Power ON : contact "a" (normally open)

Power OFF : contact "b" (normally closed)

MC : coil of electromagnetic contactor, self-holding power, contact of main circuit power

Figure 3.2 Single-Phase Power Supply (1.5kW and below)

Step2: Test what happens when 230V is connected. With no other cables you should get the AL011 message. This means the encoder is not connected, which is the correct error message for this situation.

Step 3: Wiring of motor to drive (remover power first! And wait until discharge led is off)

First disconnect power before doing any wiring. Wait long enough that the discharge led is off. This could take several minutes.

Power Connection (Same as ASDA-B)		
Motor side	Cable / Connectors	Drive
Red	1	U
White	2	V
Blue	3	W
Green/Yellow	4	Connect to ground terminal of drive

Encoder Connection (Different but old cables from ASDA-B will work without making any changes, cables are made such that ASDA-B and ASDA-B2 are compatible) The ASDA-B2 uses a serial communication system so less cables could be used, but we attach the cables anyway)			
Motor side	Cable / Connectors (PUR	Drive Pin Number	Terminal Symbol
-	Pink	1	Reserved
Black/Red	Red	2	Reserved
Black	White	3	Reserved
White	Grey	4	T+
White/Red	Green	5	T-
Blue	Blue	6	Ground
-	-	7	Ground
Brown	Brown	8	+5V
-	Yellow	9	Reserved

Step 4: With all cables connected, power on again
You should get alarm AL013

If you get error AL011, then something is wrong with encoder cabling or its not connected. Check the wiring. If connected as above the AL011 error should disappear and the AL013 alarm should appear

Step5: Change Emergency Stop and Limits parameter in drive

AL013 means that the Emergency switch stop is active
Some parameters need to be changed

Download the software
http://damencnc.com/en/components/motors-and-drivers/ac-servo
and click more info on the drive you have
under the tab software you should find the latest version of the software. (4.08.05 at the time of writing)

Install the software and drives.
Attach programming cable to drive
Drive needs to be powered on, USBCNC not connected
Start the software
Make connection

Read Parameters
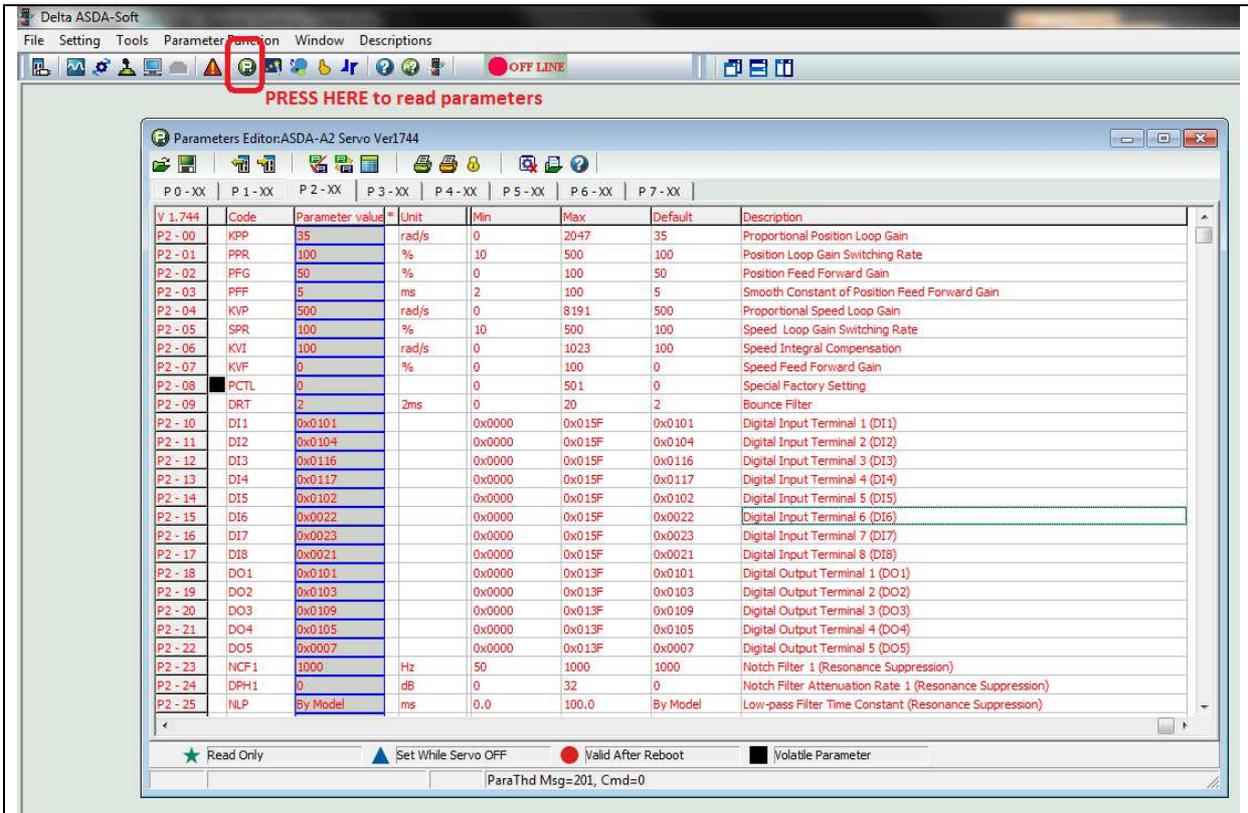
Edit parameters for Digital Input 6 7 8

Disable these inputs by setting parameter to 000

Write the parameters to the drive

(we assume you don't need the Emergency stop in the drive, and also not the limits) Of course for safety reasons you should obviously have these in your systems.

Step 6: Changing the electronic gear ratio

With this fault cleared it should be possible to move the machine
It will be very slow. The encoder has 160,000 pulses/rev so when commanding from USBCNC the movement will be barely visible.

The solution is to reduce the amount of steps needed for one revolution. This is done with the Electronic Gear ratio
Parameter P1-44 and P1-45 determine this ratio
Standard its set to
P1-44 16
P1-45 10

To get less steps/rev use for example
P1-44 1600
P1-45 10
Now you will have 1000 steps/rev of the servo motor.

Step 7: Tuning the system
All we have done above is only to make the first steps with the system. Many people will leave it with these settings and that's a pity. To really get the performance out of a servo system tuning needs to be done. There are Auto Tuning functions in the software, but be very careful with them. Test running could cause a collision or damage if parameters are incorrectly set. To really get good performance make sure the backlash in your system is zero to none, otherwise you will have problems with tuning of the drives. The system will oscillate/vibrate in the backlash. Before doing any auto tuning make sure Estop and end of stroke switches are working. It is not uncommon to have an unstable system during testing.