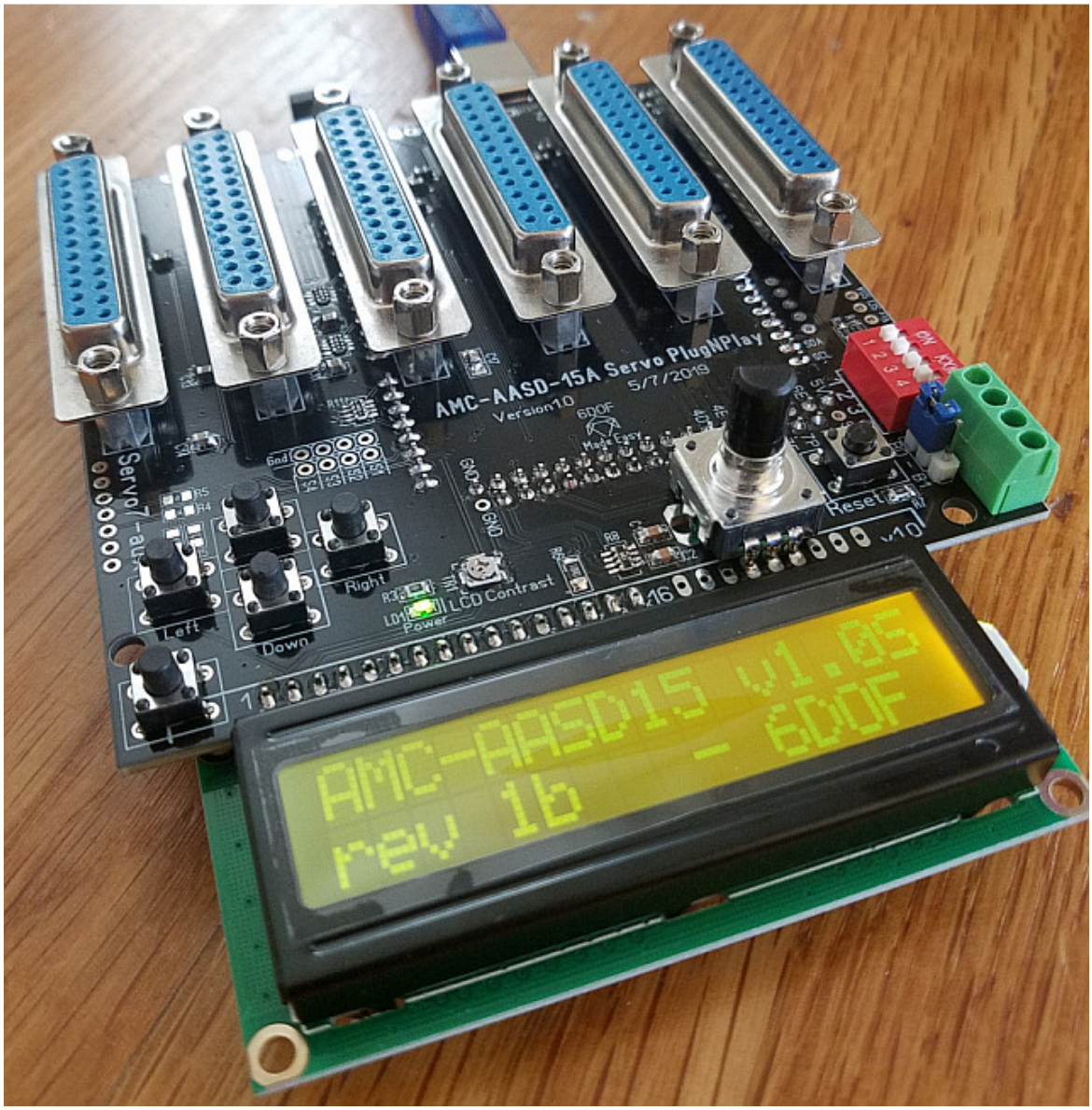
AMC-AASD15A servo controller Manual
for 4DOF + TL Servo Kit



Interface information for connection to Simtools

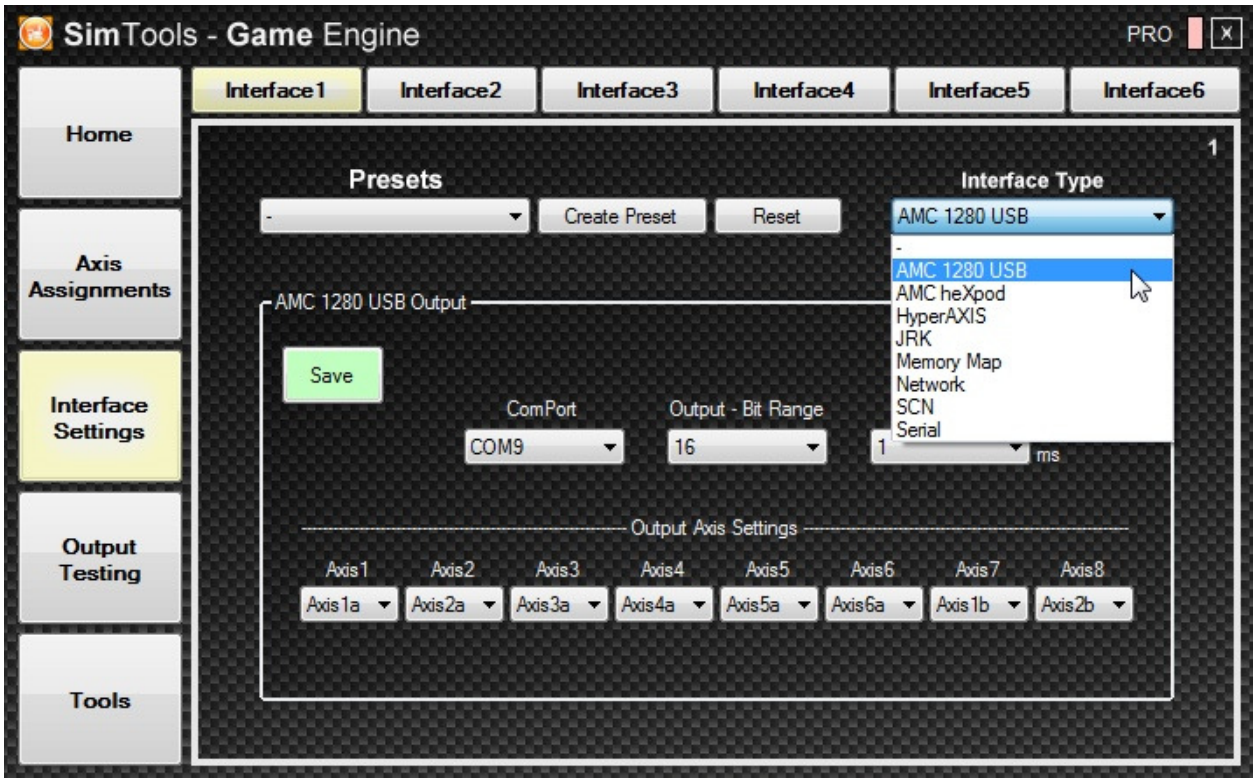
The AMC-AASD15A servo controller allows seamless and fast interface between the PC and the MDBOX servo drives. Using the AMC-AASD15A controller you can interface your linear servomotors to Simtools, X-sim and Ian's 6DOF BFF motion software. The connection to PC is a simple USB connection and the connection to the AASD-15A drives is via straight DB25 cables, one for each drive.

In the LCD menu of the AMC-AASD15A, you can set the following to match your simulator platform (Other settings are not so much important):

- Number of motors (5DOF for 4DOF + TL)
- Actuator Stroke (set to 10cm for SFX100 DIY actuators)
- Lead screw (Set to 5 for the for SFX100 DIY actuators)
- Motor Direction (Set to Inline for SFX100 DIY actuators)

The USB Data connection requires FTDI driver that can be downloaded from the FTDI website:
http://www.ftdichip.com/Drivers/VCP.htm

The device appears in the PC Device manager as COM Serial interface device that then can be defined for use with Simtools or any other motion software that provides interface support for the AMC-AASD15A.



Software Setup

Simtools:

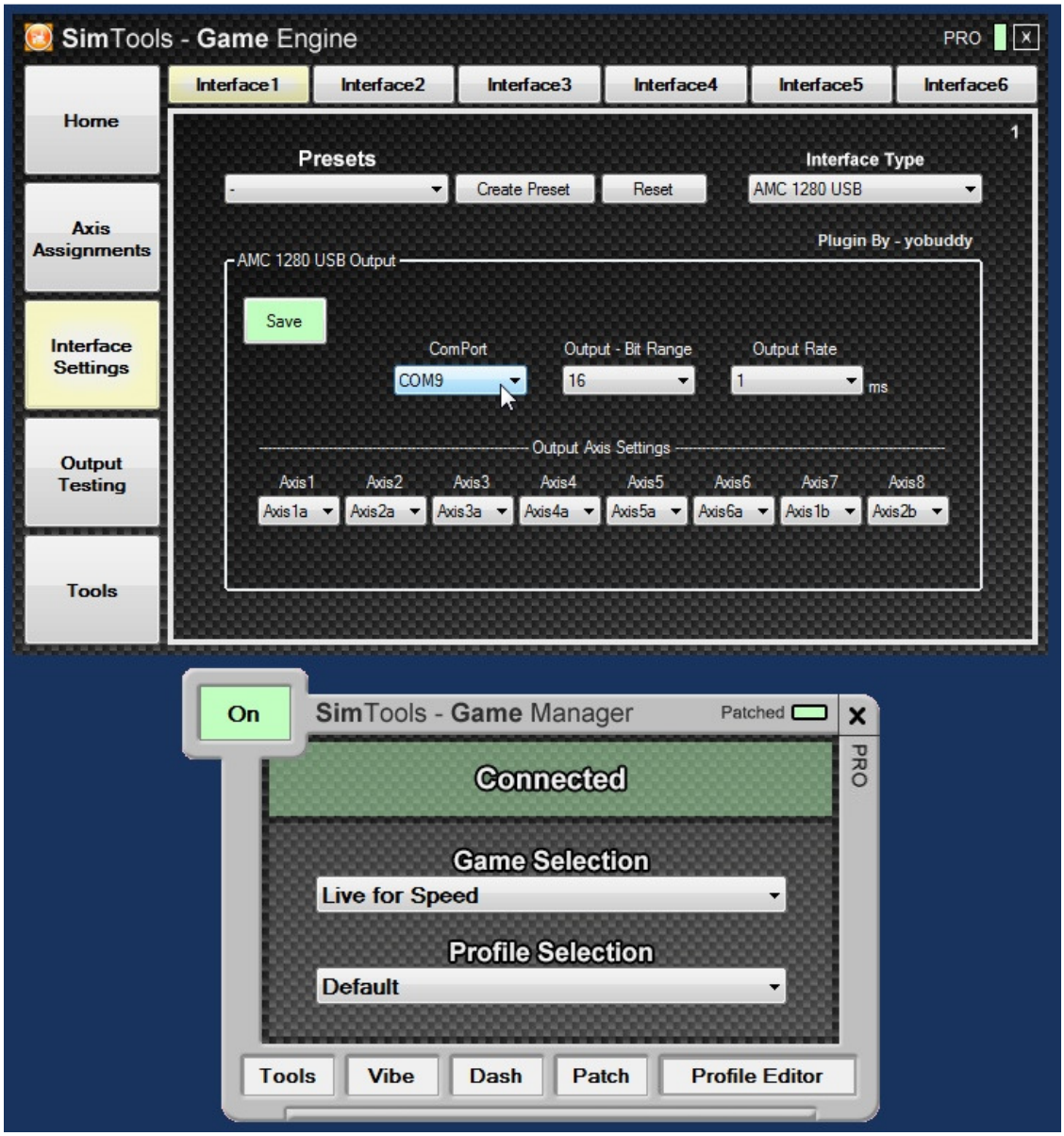
Simply drag and drop the "AMC1280USB_InterfacePlugin.dll" into the Simtools PluginUpdater
Start Simtools, you should see 8axis available now for the AMC1280USB interface plugin.

The data packet string now is 20 bytes long and includes additional spare motion data slots for up to 8axis

The ID is byte values 0xFF + 0xFF
Each Axis is 16bit wide.
LF+CR is required in the end (0x0A + 0x0D)

ID AXIS1 AXIS2 AXIS3 AXIS4 AXIS5 AXIS6 AXIS7 AXIS8 LF/CR

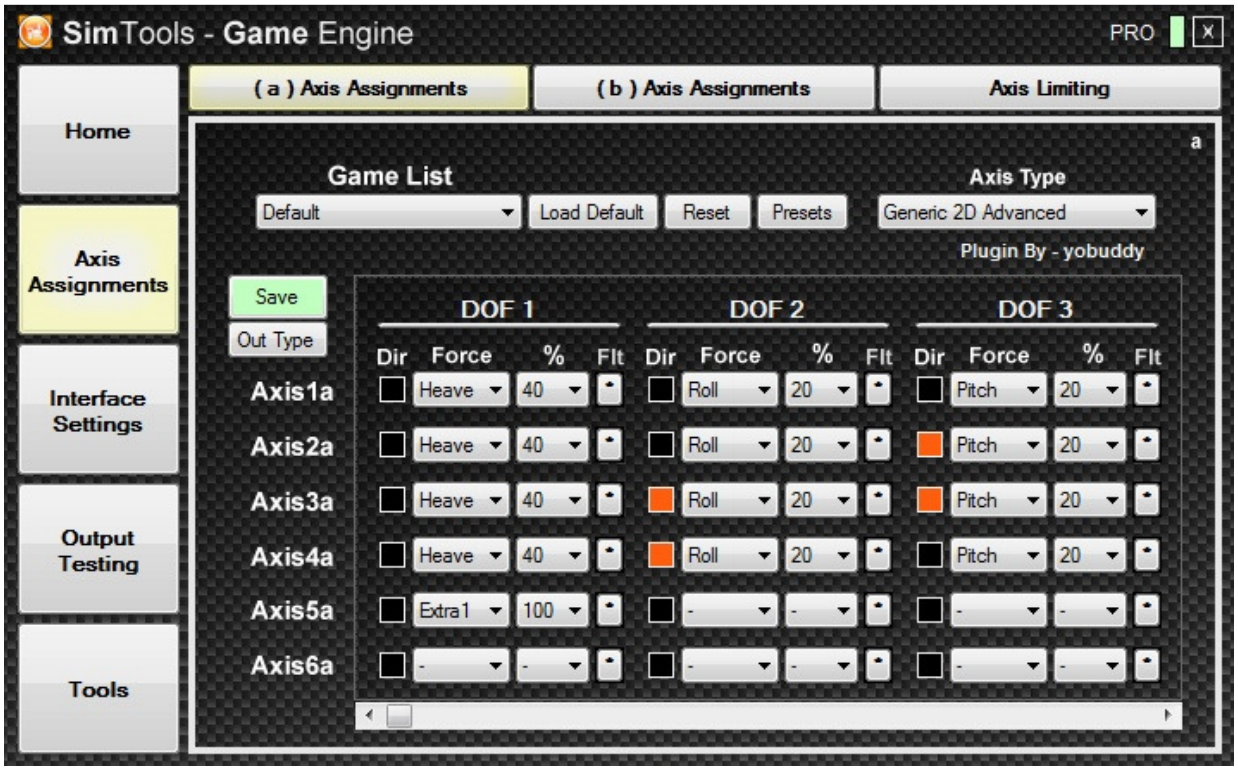
Interfacing the Simtools with direct axis is simple as seen on the below capture. It only requires selecting the AMC1280USB interface and selecting the COM Port that is assigned to the AMC-AASD15A in the PC device manager.

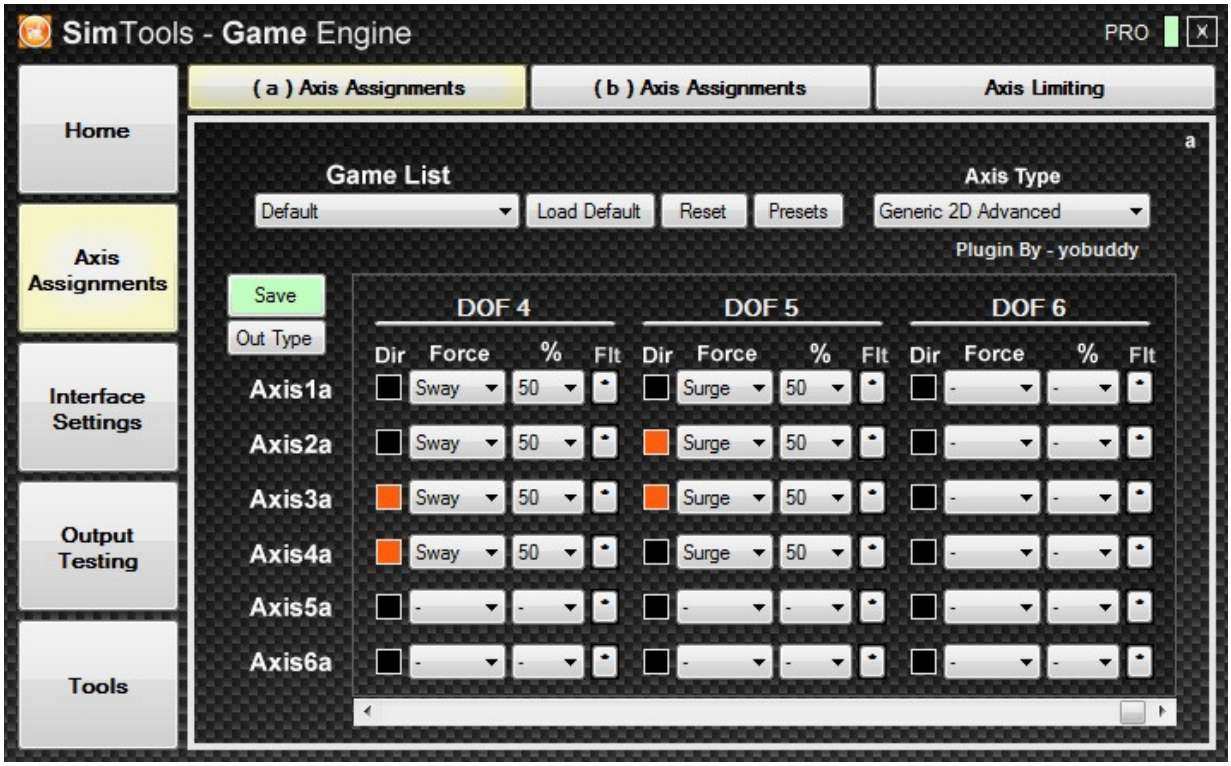


The axis assignments for each DOF provided is up to the use to mix and use as needed. The AMC-AASD15A can be configured to use any of the 3axis, 4axis or 5axis outputs.

To get the desired motion from the computer game to the actuators, you will have to create some profiles that mix the axis information from the game to the axis setup of the actuators. This can be done in the Axis Assignments section of the Game Engine of Simtools. If additional traction loss actuator is used, it can be assigned to Axis5a (extra1 for many games).

Setup example of the Axis assignments with various DOF (degrees of freedom) motion cues data inputs for combined motion. The axis5a on the example uses just the “Extra1” that is traction loss usually:





Physically you will need to arrange the order of connection of each actuator to the AMC-AASD15A controller to correspond to correct order described to the Axis assignments of Simtools. For 5DOF platform the order of connection of each actuator 1-5 is:

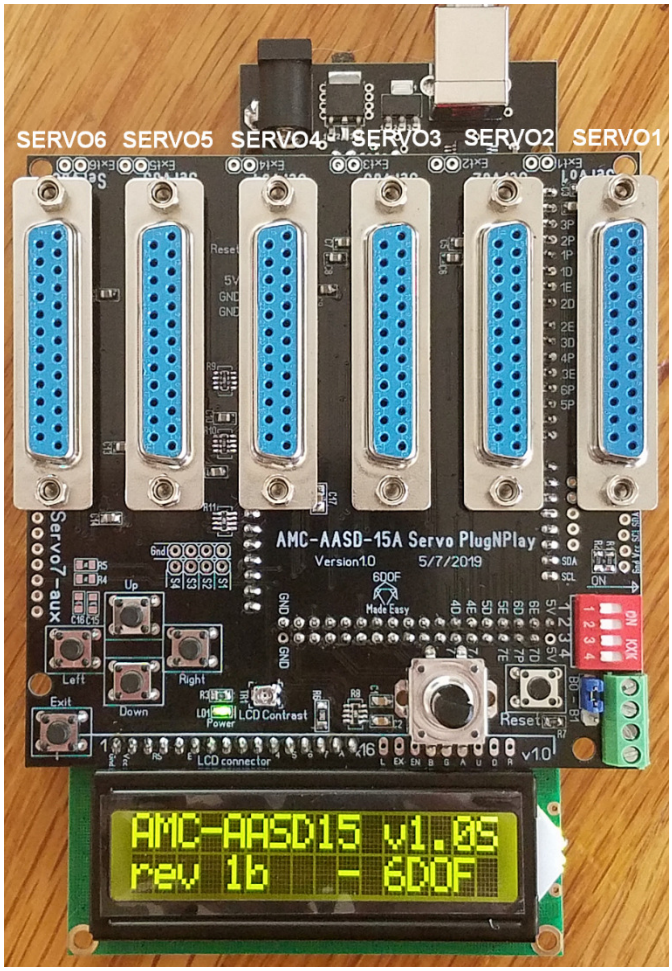
Rear left - Servo 1 connector of AMC-AASD15A

Front left - Servo 2 connector of AMC-AASD15A

Front right - Servo 3 connector of AMC-AASD15A

Rear right - Servo 4 connector of AMC-AASD15A

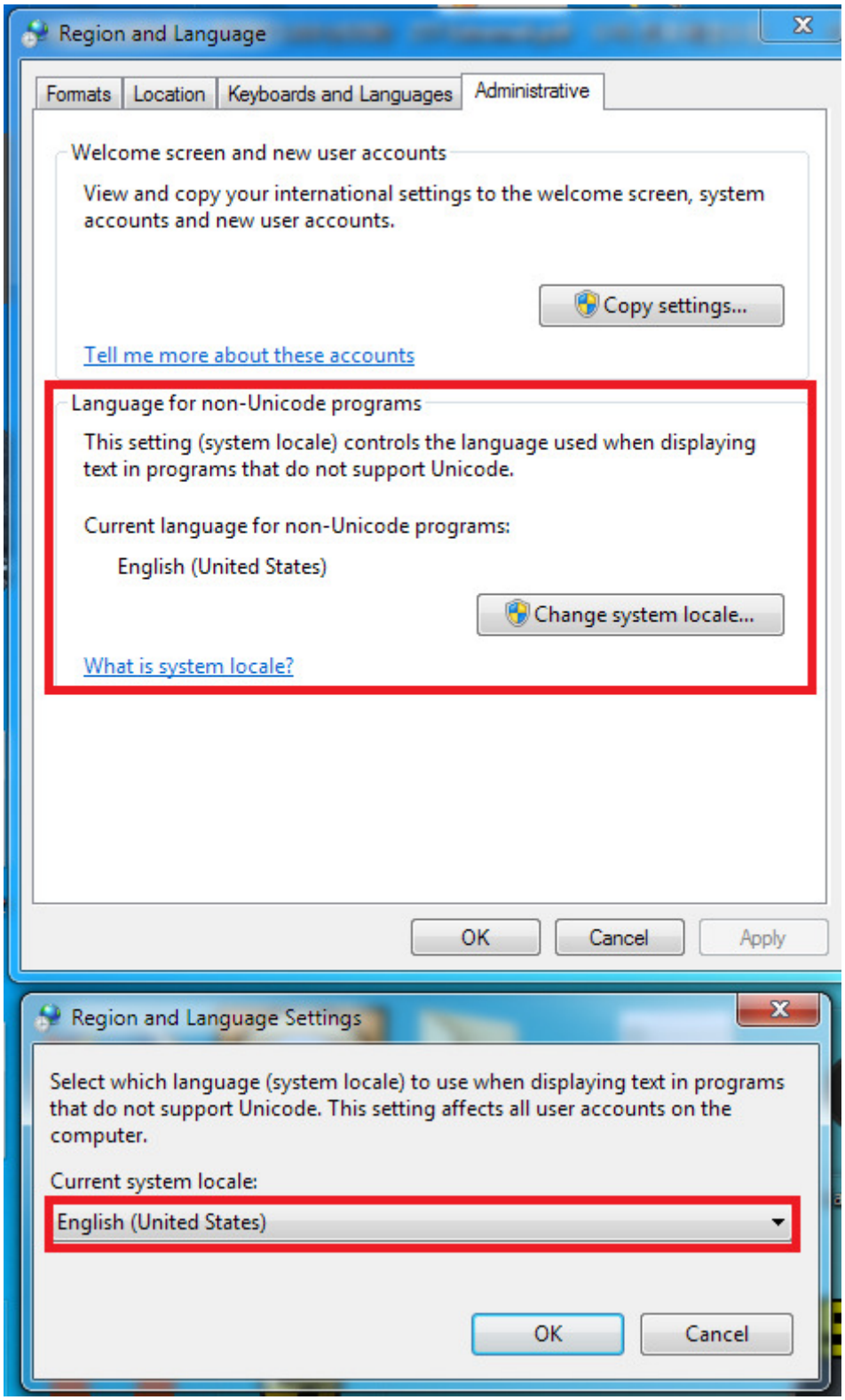
Traction loss - Servo 5 connector of AMC-AASD15A




2
3
1
4

Troubleshooting:

If no there is no motion when you test manually the sliders in Simtools, please change the computer Region and Language settings as below:



Here are some examples of platforms for use with the AMC-AASD15A:

The AMC-AASD15A can be interfaced to all models of AASD that have the DB25 connector and are compatible. Example servo and drive below.

80ST-M02430 220V 0.75W AC Servo Motor 2.4N.M 3000RPM Servo Motor Single-Phase AC Drive Permanent Magnet Matched Driver AASD-15A
https://www.aliexpress.com/item/80ST-M02430-220V-0-75W-AC-Servo-Motor-2-4N-M-3000RPM-Servo-Motor-Single-Phase/32973113245.html

The AASD-15A drives need some parameters before they are ready to be used. Most of the parameters are same as SFX100 DIY but some additional one are required.

AASD-15A Servo Settings:
Push MOD until you see Pn000. This enters the parameter mode.
Change and check these settings on all motors:

Pn8 = 300
Pn9 = -300
Pn51 = 3000
Pn98 = 20 - Pulse Multiplier (electronics gear)
Pn109 = 1 - smoothing, 1=fixed smoothing, 2=s-Shaped smoothing
Pn110 = 30 - Smoothing Filter Time
Pn113 = 20 - Feedforward %
Pn114 = 10 - Feedforward Filter Time (ms)
Pn115 = 100 - Gain %
---Extra parameters needed---
Pn24 = 100
Pn52 = 1
Pn60 = 2
Pn61 = 6

Contact for inquiries or questions: Tronicgr@gmail.com