i4 Automation Ltd
Innovative Solutions for Industry

Email: sales@i4automation.co.uk
Web: www.i4automation.co.uk
Phone: 01480 395 256

Servo Drive Startup Guide

This guide contains the minimum amount of setup required to make the servo motor spin. Please be aware that this may make machinery move and appropriate safety precautions should be taken.

Unilogic program: Servo Drive Startup Guide.ulpr

Servo Drive setup

The buttons on the servo drive are from left to right

[Select] - [Up] - [Down] - [Enter]

Reset servo drive to factory default.

Go to Fn001 and press enter, display shows LOAD.
Press and hold enter until display shows DONE.
RESTART the servo drive to complete factory reset!

Enable servo drive parameter menu.

Go to Fn007 and press enter, display shows -200-.
Press up, down, down, up, display will not change.
Press enter, display shows Fn007.
PnXXX menu is now available until the next restart.

Set servo drive CAN ID

Set Pn704 to 2 as this is the CAN ID that Unilogic defaults to.
Restart the servo drive!

Disable the overtravel switches

If the overtravel switches are not required or not present then disable them.
Go to Pn000 and press enter until display shows 0110.
Restart the servo drive!

Note that if multiple parameters are changed that require a servo drive restart it is only necessary to restart the drive once after all changes are complete.

i4 Automation Ltd
Innovative Solutions for Industry

Email: sales@i4automation.co.uk
Web: www.i4automation.co.uk
Phone: 01480 395 256

CAN wiring

Cut one end off of an CAT5 patch cable and use the brown/brown trace wires to connect to the CPU.

Brown wire to CAN L
Brown trace wire to CAN H
Connect a 110 ohm resistor between CAN H and CAN L
There is no need to supply power to the CANbus

Servo Drive Startup

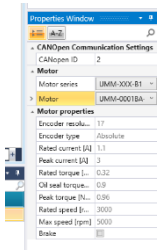
Switch on servo drive, assuming the above changes have been made the display will read one of the following.

A.67 – CANbus not connected, plug in connector.
A.66 – CANbus communication fault. PLC not switched on.
. bb – Servo ready but not enabled.

Unilogic setup

Open a new Unilogic project.

Select Hardware Config > Motion Drives > Servo > Servo Drives and from the right hand toolbox add a UMD-B3 drive, even if you have a B1 or B2 drive.



In the Properties window select the motor series and motor type. It is important to get this exactly correct then note the encoder resolution, it should be 20 or 23 bit.

Set the appropriate CAN ID. Note that the CAN ID defaults to 2 whereas the servo drive defaults to 1.

The properties window now contains values relevant to the selected motor, note the max speed of 5000 or 6000 revs per minute.

Select Hardware Config > Motion Drives > Servo > Servo configurations and add a configuration for your drive. DO NOT EDIT IT

Email: sales@i4automation.co.uk
Web: www.i4automation.co.uk
Phone: 01480 395 256

Select Motion > Axes and add an axis, selecting the drive you previously configured.

You will be asked if you want to import the in built motion program, select 'skip for now' to keep things simple. Select Axis 1 and note:

Under UNITS the pulses per revolution has been set to whatever the encoder resolution is for your motor. All of the motion control commands now work in revs not pulses.

Under Velocity Options the Max Velocity has been set to either 83 or 100, this is in revs per second and relates directly to the max speed in the motor properties window which is in revs per minute.

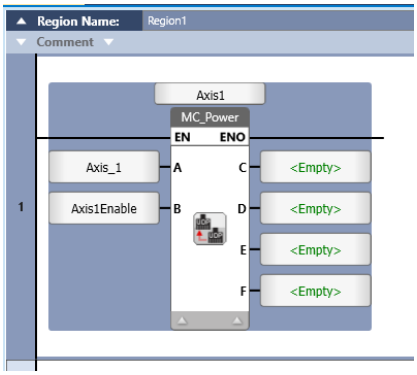
83 rps = 5000 rpm
100 rps = 6000 rpm

You cannot set the speed any higher than these values.

Under Homing the default home function is 35 which is 'set as zero position'. When the homing function is energised the current position is set to zero and taken as being the home position.

Select Ladder > Module 1 > Function 1

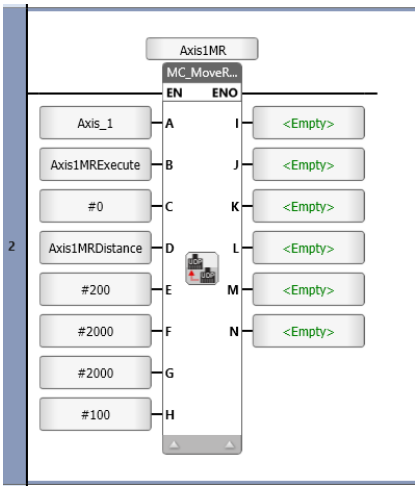
Add the following from the Motion Control toolbox.



This function enables the servo and will 'lock' the motor so that it no longer freely rotates by hand. The servo must be enabled before any other commands are sent to it.

i4 Automation Ltd
Innovative Solutions for Industry

Email: sales@i4automation.co.uk
Web: www.i4automation.co.uk
Phone: 01480 395 256



This function moves the servo motor by the number of revolutions specified in Axis1MRDistance on the rising edge of Axis1MRExecute.

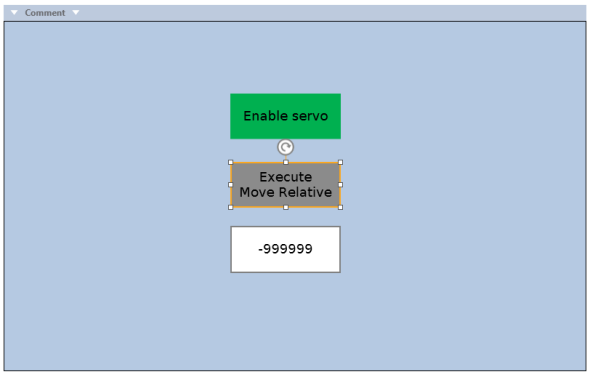
Parameters E thru G are fixed in this instance but would normally be replaced with tags so that the speed and acceleration can be changed.

Green parameters are optional.

Be aware that this function will cause the servo to move at 200 revs (or the maximum speed of 83 or 100 rps) per second, you may wish make parameter E smaller.

Add a Binary Text Variable button to Screen 1 to control the servo enable function.

Add a Binary Text Variable button and a numeric object to Screen 1 to allow control of the Move Relative function.



Tony Spearing
April 2022