

Quick Reference Guide

Multi-Axis Coordinated Motion (PLCopen Part 4)

Create Groups

Axes for coordinated motion are organized into groups for PLCopen Part 4 function blocks

Hardware configuration defines what role each axis plays for a particular mechanical system

Step	Description	Detail
1	Go Online with Hardware Configuration	Start MotionWorks IEC Version 3.2 or higher. Open the project or start a new project. Click the hardware configuration icon. Click "connect".
2	Configure Axes	Set units, set axis parameters, file-save, online- reboot controller, test run
3	Go Offline	Click "disconnect". Groups must be created offline in ver 3.2.
4	Add a group	In hardware tree click Groups, Add Group. Edit the Group Name. <i>The group name appears in the hardware tree.</i>
5	Mechanism Type	In hardware tree click on the new group. Choose the mechanism type that most closely approximates the machine. <i>Kinematic equations for each mechanism exist in the controller firmware</i>
6	Assign Axes	Pull down axis name to assign the axis as shown in the graphic. <i>Secondary "prime" axes (X', Y', Z') can be added. This means both axes move together. Secondary axes are not shown in the graphic.</i>
7	Group Data	Global Group Data is normally left enabled and I/O Task Assignment set to Fast. <i>Global Group Data creates an Axis_Group_Ref structure to be used with PLCopen Part 4 function blocks. The elements of the structure contain status information such as coordinate position and path speed. I/O Task Assignment controls the update cycle for this data.</i>
8	Joint Limits	Sets maximum and minimum positions for each axis.
9	Offline Save	In Hardware Configuration, File - Save. <i>At this point the required libraries are automatically inserted into the project, IO_Configuration is updated, and global variables are created.</i>
10	Send Offline Configuration and Reboot	<i>Firmware 3.2 or higher is required.</i> METHOD 1: a. Online - Controller Configuration Utilities, b. Send offline configuration to controller then reboot controller. METHOD 2: a. Connect, b. Use Offline Configuration, c. File - Save, e. Online - Reboot Controller
11	Make and download project, warm start	<i>Project updates applied by Hardware Configuration must be compiled.</i>