     TechNOTE

Title: Default Settings for Thorlabs Motorized Actuators
Products(s): DCX-PCI100, MC110
Keywords: motorized actuators, default settings
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Summary
The correct servo loop-gain, velocity, and acceleration values needed to control Thorlab's motorized actuators are described below.

More Information
The following settings are all that are needed to make it possible to successfully issue moves to Thorlabs motorized actuators:

Acceleration	= 10000.0
Max. Velocity	= 9000.0
Proportional Gain	= 1000.0
Integral Gain	= 500.0
Integration Limit	= 50.0
Derivative Gain	= 500.0
Derivative Sampling	= 0.005115
Following Error	= 32000.0 (the maximum possible value is 32000)

To set these values open one of the demo programs (for example, "CWDemo") included with the Motion Control API (MCAPI) and select **Configure Axis...** from the menu. You may enter these settings directly into the dialog box, clicking the OK button will program the controller with the new settings. Note that deceleration is automatically set equal to acceleration on the DCX-PCI100. You may safely leave the deceleration field in the dialog set to zero.

From the CWDemo Setup menu click on **Save All Axes Settings** to save the new settings to the MCAPI configuration file. Then, by enabling **Auto Initialize All Axes** from the CWDemo Setup menu these new defaults will be loaded whenever CWDemo is run. If you are developing your own Windows application use the **MCDLG_RestoreAxes( )** function to load these parameters from the MCAPI configuration file.

Note: If your motorized actuator fails to move (if an "error" condition is displayed) soon after you command a move, it may be because the Following Error Limit has been reached. This may be due to:
1. "Following Error Limit" may be set too low (increase it to a higher value: 32000)
2. The commanded acceleration or velocity may exceed what is possible with the actual load (reduce the "Acceleration" or the "Max. Velocity", or both)
3. The motor current may be reverse-phased (the voltage supply wires may have been connected to the motor incorrectly)