

MotionMaster 3000

LabVIEW 3.01 for Windows

Front Panel Control Center

IEEE-488 Version

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Introduction

The MM3KCTRL.VI is a LabVIEW 3.01 for Windows compatible control panel designed to enable you to quickly and easily perform your simple, manually controlled positioning requirements. In addition, a position display window is present for each axis which measures displacement in user selected units.

Two positioning modes are available. One is a coarse position control via two direction buttons. While the button is pressed, the motor/stage advances. When the button is released, the motor/stage stops. The other is a fine adjust (i.e. a precise displacement) control via two fine adjust buttons. The magnitude of the fine adjust displacement can be re-set to a new value during operation as often as necessary.

The velocity of a move is easily modified and set with a slider control mechanism.

A final feature of this control panel is a pop-up command input window. The MotionMaster 3000 is a command driven system. A series of two letter commands sets operating parameters, directs motion on each axis, and obtains system status. This window is used initially to set up your system parameters for positioning, which includes troubleshooting in the event that difficulties arise. All features of the MotionMaster 3000 can be exercised with this command entry window.

Start Up Procedure

Load the MM3KCTRL.VI in the LabVIEW environment.

Before running, read the description of each button and control for Axis 1. Point on each object and press and keep pressed the Right mouse key. When the window opens, bounce down to Description ... and release the mouse key.

Repeat the procedure for the Fine Adjust and the Command buttons.

Execute the VI with the Run Arrow.

Step by Step:

1. Select your MotionMaster 3000 IEEE-488 Address and press OK.
2. Click on the Command button.
3. Type RC in the command window and click SendCmd.
4. Note your MotionMaster 3000 module configuration.

5. For DC motor modules, you must, as a minimum, enter the P parameter of the PID servo compensation loop. See Chapter 3 of the MotionMaster 3000 User's Manual for a description of servo loop tuning and suggested parameters for your motor/stage. A quick rule of thumb is that if you are driving your DC motor straight from the interface box, then the P parameter is 1500, and if you are driving through the MD4 motor driver, then the P parameter is 100. Enter the command as follows:

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1KP1500;UF  
2KP100;UF
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Note that the number before the command is necessary to direct the command to the appropriate axis. The above example suggests that MotionMaster 3000 axis 1 has a small DC motor attached directly, and axis 2 is controlling an MD4 or equivalent DC motor driver.

6. For Stepping motor modules, select positioning units as encoder counts or steps with the FM command. If you select encoder positioning, then you must also select the encoder ration with the ER command. See the MotionMaster 3000 Quick Installation and Setup Guide and follow the steps in the section: Important Startup Concepts.

7. Click on Exit when done.

8. Enable each axis individually with the ON/OFF switch.

9. Click on the Units button to select your position display and fine adjust units.

10. In this window, select your stage resolution and the desired units. You must select the correct stage resolution for the units to be correct. Obtain the stage resolution from your order documentation, the catalog, or call one of our sales engineers.

11. Click on OK to exit.

12. Click on the Fine Adjust button to see and possibly modify the default displacement. The displacement is in terms of your selected position units set in step 10 above. Click on OK when done.

13. Start positioning with the Plus, Minus and the round, blue, fine adjust buttons.

14. Change speed with the velocity slider and click Set Velocity. Note that you can change the maximum and minimum speeds to match your system. Before running, use the Text tool and simply overwrite the default settings.

15. Use the Rst button to reset position to zero.