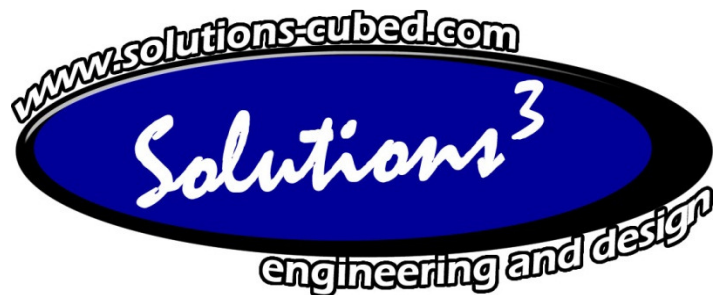


# **AN1015: Programming multiple Motion Mind 3s with the same settings.**



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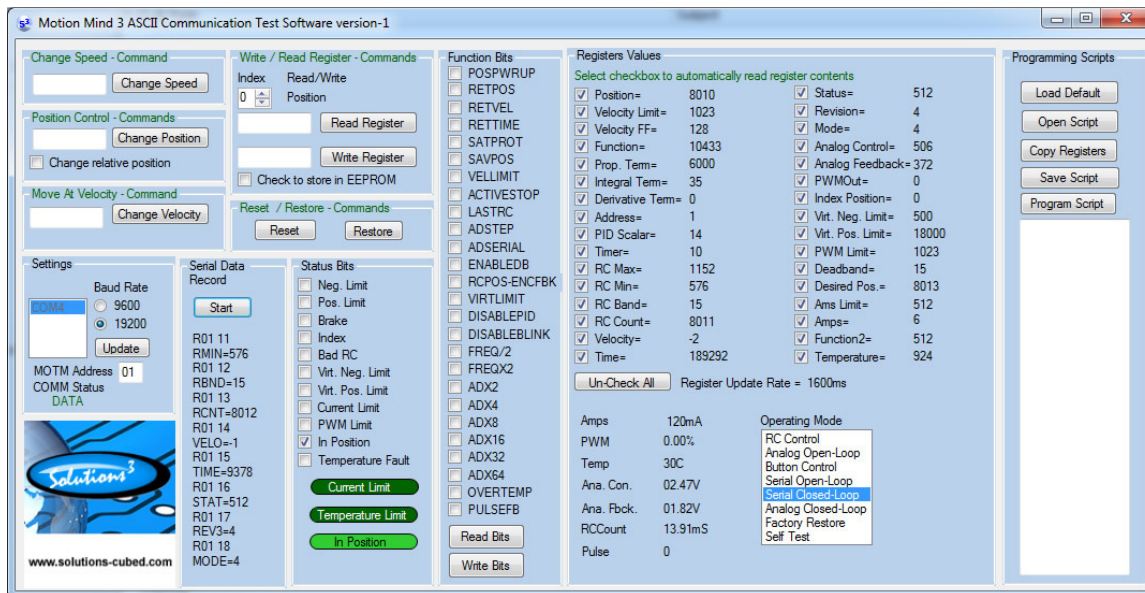
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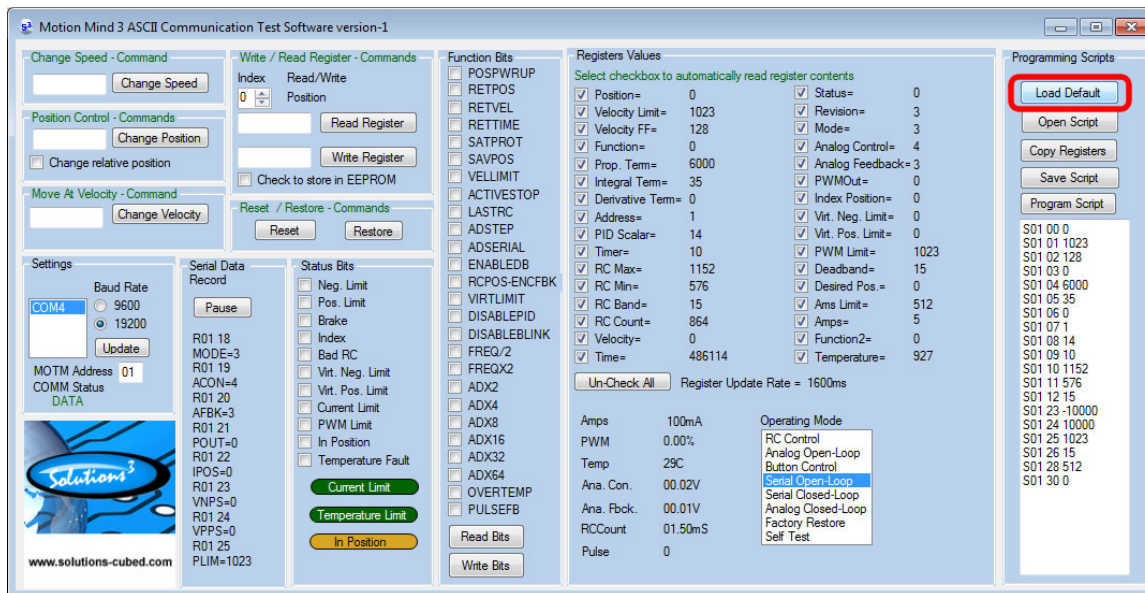
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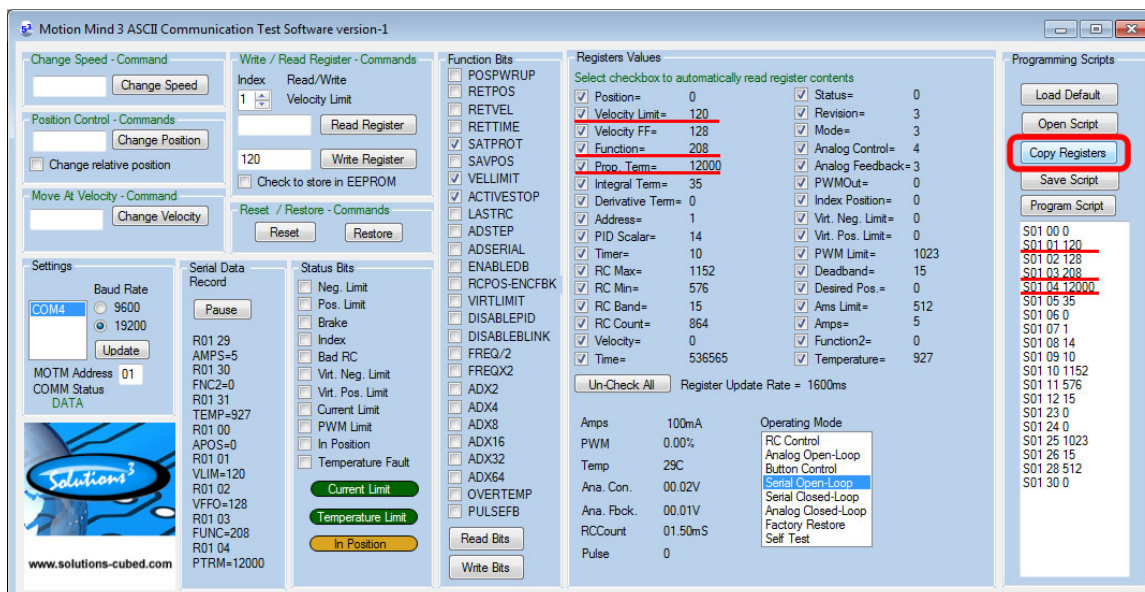
The Motion Mind is an inexpensive and highly configurable motion controller. When it comes to preproduction programming there are quite a few registers that the end user might desire to modify. It's cumbersome to type the desired contents into each register for each Motion Mind you need to program. Designs that make use of a serial interface can sometimes build the production settings into that interface. However systems that don't have external controllers communicating with the Motion Mind may not have that luxury (for example analog control and feedback systems).

When we designed a Windows 7 compatible piece of test software we opted to include in pre-production programming functions. Most of the software window shown here is devoted to implementing commands in the Motion Mind's ASCII communication protocol. You can read and write values to specific registers and store them as defaults. Or you can send commands for open-loop or closed-loop control. You can also just select each register value and watch the internal registers update as the system runs.

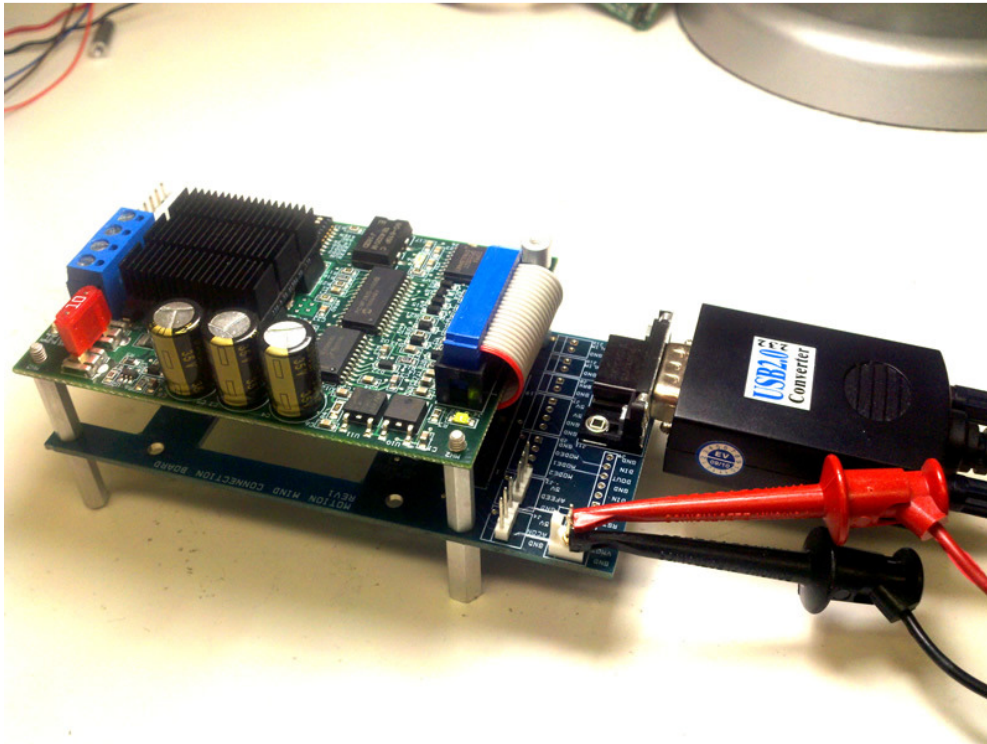
But the right hand side of the window may be used for creating, saving, opening, and programming scripts of commands. These commands use the ASCII communication protocol "Store" command



An easy way to start creating a programming script is to press the "Load Default" button. This will populate the script text box with STORE commands for each writable register in the Motion Mind. The register values will match the default settings of the product. To change the register values simply modify the text that describes the value for each register. For example, if you wanted to change the PTERM register from 6000 to 9000, just highlight the "6" and type in a "9". Once you've made the desired changes press the "Save Script" button and save the text file for later use. When you want to reuse these settings simply select the "Open Script" button, located the text file, and then press the "Program Script" button to program it to a Motion Mind.



You might want to modify Motion Mind settings using this software as part of a test process. When you've completed your testing you can copy the registers in the Motion Mind into the script text box by pressing the "Copy Registers" button. Note: you must have read the registers at least one for their contents to be copied. A good way to do this is to press the button in the adjacent window that causes the software to select each register check box. Once you've copied the registers you can save them as a script to be opened later. In the example shown here three registers were modified and when the button was pressed to copy the register you can see them show up in the script text box.



The hardware needed to turn the ASCII test software into a Motion Mind programmer is pretty straightforward. In this case we're using the Motion Mind connector kit MOTM\_CON, a USB-serial converter, and an external 12V power supply. Once the kit is assembled you can connect your power supply and USB-serial converter to the MOTM\_CON and use the ribbon cable to connect power and communication to the Motion Mind. The Motion Mind connector kit sells for \$20US and requires some soldering.

To program multiple Motion Minds with the same register settings just open a saved script, connect a Motion Mind to the ribbon cable supplied with the connector kit, and press the "Program Script" button. When done remove the Motion Mind and connect a second to the ribbon cable, then press "Program Script". Repeat this process for each Motion Mind you need to program.