



## *SynScan Motor Controller Firmware Loader Operation Manual*

### **Requirements**

- A PC running Windows OS with a serial port or a USB-to-Serial adapter.
- Motor Controller with firmware version 2.00 or above. (This is a hardware limitation. Version 1.xx motor controller cannot be upgraded to version 2.xx.)
- A SynScan hand control with EQ firmware version 3.22 or above, or a SynScan hand control with AZ firmware version 3.05 or above.
- SynScan hand control's mount-to-hand control cable and PC link cable.

### **Preparation**

- Download MCFirmwareLoader.exe.
- Download the latest firmware file for your mount's motor controller and save it into the same location as MCFirmwareLoader.exe above.

### **Update Motor Controller**

1. Connect a SynScan hand control to the telescope mount. Connect the SynScan hand control to a PC's RS-232 serial port with the PC-link cable (The same cable which is used to update the firmware of the SynScan hand control).
2. Turn on the power of the mount.
3. On the SynScan hand control, press the ENTER button several times until it asks if you want to align the mount. Choose "No" to skip the alignment.
4. On the SynScan hand control, press UTILITY button, then press scroll up button to choose menu "PC Direct Mode" and press ENTER button. Now the SynScan hand control acts like a communication relay between the mount and the PC.

5. Run MCFirmwareLoader.exe on PC.
6. In the MCFirmwareLoader window, click the "Browse" button to choose a motor control firmware file whose extension file name is "MCF".
7. In the MCFirmwareLoader window, click the "MC Version" button. The application will detect the connection to the motor controller and display the firmware version number in the window. Please note that only motor controller with firmware version above 2.00 can be updated.
8. In the MCFirmwareLoader window, click the "Update" button. The application will start to program the new firmware into the motor controller.
9. If the application prompts that it cannot connect to a motor controller, click "Update" button again to try connecting one more time.
10. The application will show a percentage number in the window to indicate the updating progress.
11. After the firmware update finishes, the application will show a green bar in the window.
12. If the update fails halfway, turn the power off and repeat the above process again until it succeeds. Ignore the "No link to mount..." message on the SynScan hand control when the power is turned on.