

# Serializer 1.0/2.0 Firmware Upgrade Procedure

## Upgrading the Firmware:

The Serializer's firmware can be upgraded using the Hyperterm program using a few easy steps:

- 1.) Download the latest firmware to a known location on your PC from <http://www.roboticsconnection.com/pc-16-5-serializer-net-robot-controller.aspx>.
- 2.) Connect the Serializer to your PC using a serial cable (Make sure the Serial Communications jumper is installed so that RS232 Voltage levels can be used to communicate with the PC's serial port)
- 3.) Make sure you have your Serializer configured to communicate at a baud rate of 19200, else the bootloader won't be able to upgrade the firmware.
- 4.) Open Hyperterm (Start->AllPrograms->Accessories->Communications->Hyperterm)
- 5.) Set up Hyperterm Settings as shown below:

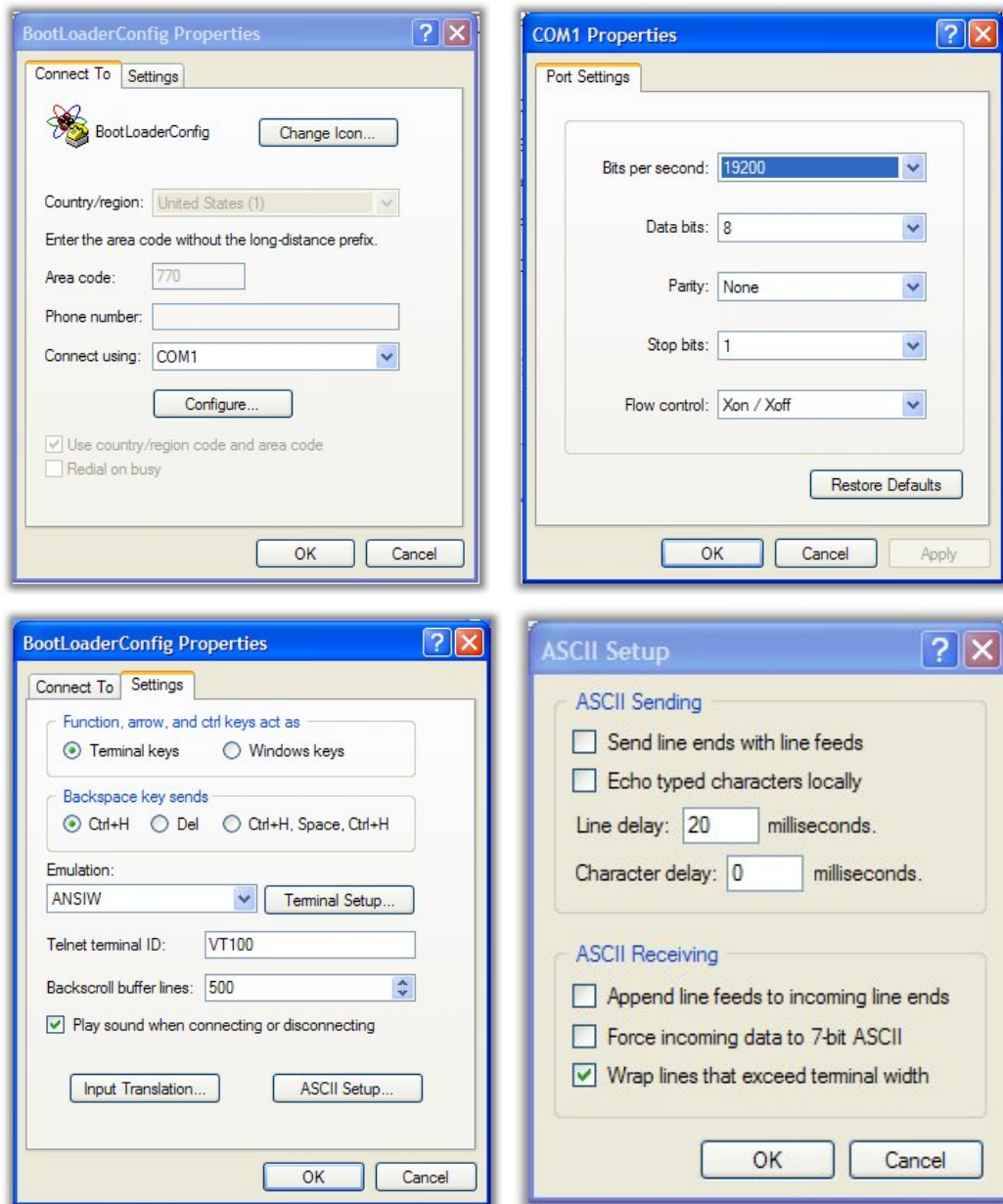
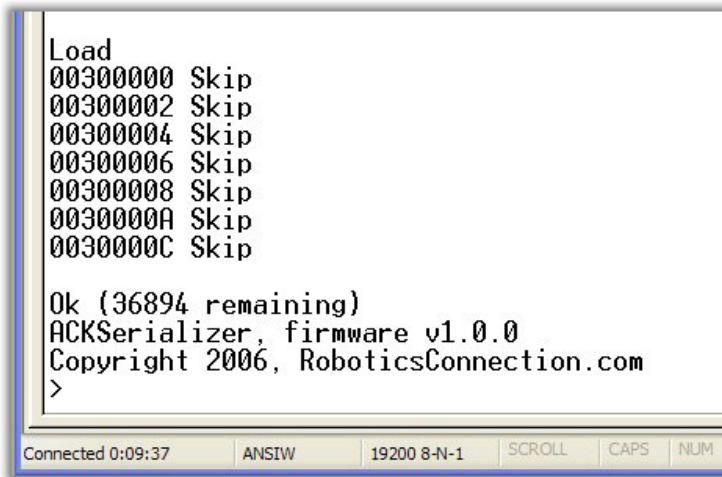


Figure 23: Hyperterm settings for the Bootloader

## Serializer 1.0/2.0 Firmware Upgrade Procedure

- 6.) Once you finish with the settings, you may want to "Save" the configuration, in case you upgrade the firmware at a later time. We saved ours as "BootLoaderConfig".
- 7.) While holding down the "=" key on your keyboard, cycle power to the Serializer. Keep the "=" key pressed down.
- 8.) You should see a "Wait" appear in the Hyperterm window. Once you see this, release the "=" key, and you should see a "Load" in the Hyperterm window.
- 9.) Once you see the "Load" command, select "Transfer", then "Send Text File" in Hyperterm.
- 10.) Navigate to the location of the firmware file, "SerializerFirmware\_vX.X.hex", which you downloaded in step 1, and select it. You may have to change the file filter at the bottom of the open file dialog to "All Files" to see the hex file.
- 11.) Hyperterm should immediately start programming the Serializer.
- 12.) It should take about 50 seconds to 5 minutes to re-program the firmware, depending on the amount of changes from the previous firmware revision. You should also see a number string being incremented as the bytes are being programmed. Once the firmware has been programmed, you should see a screen like the one below:



```
Load
00300000 Skip
00300002 Skip
00300004 Skip
00300006 Skip
00300008 Skip
0030000A Skip
0030000C Skip

Ok (36894 remaining)
ACKSerializer, firmware v1.0.0
Copyright 2006, RoboticsConnection.com
>
```

Figure 24: Hyperterm Firmware Programming Finished Screen

13.) You're finished!

### 14.) **Troubleshooting:**

If you're having troubles getting your firmware upgraded, try the following:

- Set the value of the character delay (under ASCII Setup) to a value between 1 and 500. We have found that for computers using USB to Serial adapters, setting this value is a must, since the adapter is slower than a native serial port (hence a delay needs to be added). This will make uploading the firmware very slow, but it fortunately, that's something that doesn't happen often. ☺ This will probably be the answer to most customer's problems.
- Repeating the procedure on another computer. We have seen a few instances where differences in serial port speeds between computer manufacturers, affects the customers ability to re-program the firmware. Again, try the step above first.
- Make sure you have the jumper installed on the 'Remove to use TTL Serial' pins on the Serializer, and that you're programming it using the RS-232 port.

## **Serializer 1.0/2.0 Firmware Upgrade Procedure**

- Double check the Hyperterm settings above.
- Make sure you have the internal baud rate of the Serializer, as well as the baud rate of Hyperterm, set to 19200. You will not be able to reprogram the Serializer at any other baud rate (since the bootloader is configured to use 19200).
- Make sure you have at least 6 volts of power applied to the Serializer when re-programming.
- Make sure you have a power supply capable of supplying at least 1 Amp out, maybe even more if you have sensors, servos, and other components connected.