

Firmware Upgrade Procedure

This procedure is the only way to update the LCI-3 firmware. It requires a SanDisk USB SD Reader/Writer (or equivalent) and a 64MB SD memory card. Larger density cards (128MB and greater) may be used, but the write and read access times are increased. The new firmware image is copied from the PC onto the SD Card. The SD Card is placed into the LCI-3 SD card slot. The LCI-3 is rebooted with the service pin depressed. And the user will follow the directions presented on the LCI-3screen. The following sequences detail the process of upgrading an LCI- 3 image.

Creating the LCI-3 SD Card Image

A SD card image is required to update the LCI-3 firmware. The SDTOOL.EXE windows application is used to format and transfer the LCI-3 firmware image on the SD memory card. The file format on the SD memory card is proprietary. It is optional to update the boot loader.

You will need the following:

- SanDisk USB SD memory card reader/writer
- 64MB SD memory card
- sdttool.exe: SD memory card PC utility
- nk.bin: LCI-3 WinCE application image

The following file is used for updating the boot loader:

- xboot.bin: XSTREAM development platform boot loader image

Creating the SD Card Image

1. Connect the SanDisk USB Reader/Writer to your PC.
2. Insert the SD memory card into the SD Reader/Writer.
3. Run the SDTOOL.EXE Windows Application.
4. Select the USB SD memory card reader/writer device from the drop down box.



5. If the Format button is not valid, skip to step 8.

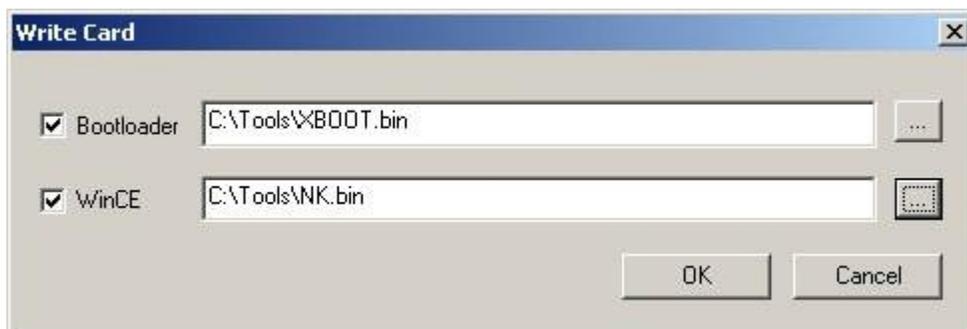
6. Select the Format button if the Format button is valid. The Format button will only be selectable if the SD card needs formatted for the XSTREAM proprietary format.
7. From the Format Card dialog, select the Yes button.



8. Select the Write Card button.



9. If updating the boot loader firmware, select the Bootloader checkbox, browse to the correct directory, and select the boot loader firmware file, XBOOT.BIN.
10. Ensure the WinCE checkbox is selected, browse to the correct directory, and select the LCI-3 firmware image NK.BIN.



11. Select the OK button. A Working Dialog will display the write status.
12. Select the Close Button.

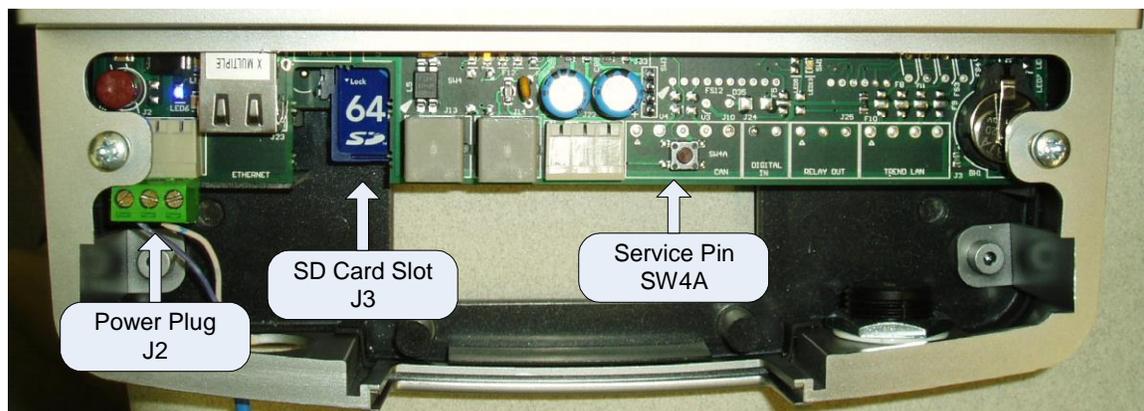


Upgrading the LCI-3 Firmware

The user must have a memory card with the LCI-3 application image copied onto it. The image on the SD card is in a proprietary format. The only way to read or write the SD memory card image is through the SDTOOL.EXE program. The user is unable to use the normal Windows Explorer to view the image on the SD memory card. If the user tries to view the file through Explorer, the Windows Operating systems prompts the user to format the card. Formatting the SD Memory card from Windows Explorer will erase the LCI-3 image from the card.

You will need the following:

1. LCI-3 with the front access cover removed
2. 64MB SD memory card with the LCI-3 application image



Upgrading the LCI-3 Firmware

1. Remove the front access panel from the LCI-3.
2. The LCI-3 can be powered while inserting the SD memory card.
3. Locate the SD memory card slot, J3. It is located on the left hand side of the bottom most PC board. It is located between the Ethernet and Modem ports on the PC board below the two ports.
4. Insert the SD memory card in the SD slot. Slide the SD memory card with the shiny contacts on the bottom into the SD slot.
5. Push the SD memory card until it stops and is fully inserted into the SD slot.
6. Remove power from the LCI-3 by unplugging the power plug, J2. This plug is left of the Ethernet port.
7. Locate the LCI-3 Service Pin Button, SW4A.
8. While depressing the Service Pin Button, power on the LCI-3 by plugging in the power plug, J2.
9. The LCI-3 will display the XStream Bootloader dialog box. This dialog will have three buttons: Reset to Factory Defaults, Upgrade Firmware, and Exit.
10. Press the Upgrade firmware button.
11. The LCI-3 will display the following:

| Upgrade Firmware | | | |
|------------------|-----------------|--------------|---------|
| | Current Version | Card Version | Action |
| Bootloader | unknown | xxxxxxxx | upgrade |
| Kernel | unknown | xxxxxxxx | upgrade |
| | | Start | Cancel |

12. The Bootloader information will not be displayed if the XStream Bootloader image was not copied onto the SD card.
13. Press the start button to begin the upgrade process.
14. The LCI-3 will show the status of the update by displaying the following, Reading Card, Erasing Flash, and Writing Flash.
15. When the upgrade process is complete, the LCI-3 will display Upgrade Complete – Remove Card.
16. Remove the SD card while the LCI-3 is powered.
17. The LCI-3 will display the XStream Bootloader dialog box. This dialog will have three buttons: Reset to Factory Defaults, Upgrade Firmware, and Exit.
18. Press the Exit button to reboot the LCI-3.
19. The LCI-3 should operate as normal. If the LCI-3 is operating as expected, the upgrade process is complete. If the LCI-3 is not working correctly, it will be necessary to restore the LCI-3 to factory defaults.

Restoring LCI-3 Factory Defaults

It may be necessary to restore the LCI-3 to factory defaults. This is most common when upgrading to an incompatible LCI-3 version. The Factory Defaults are stored in the system registry. Restoring the factory defaults is the process of erasing the existing non-conforming registry and replacing it with the new LCI-3 registry. All previous LCI-3 configuration settings will be lost, such as the configured IP address. There is no existing utility for backing up or copying the system registry.

You will need the following:

LCI-3 with the front access cover removed

Restoring the LCI-3 factory defaults

1. Remove the front access panel from the LCI-3.
2. Remove power from the LCI-3 by unplugging the power plug, J2. This plug is left of the Ethernet port.
3. Locate the LCI-3 Service Pin Button, SW4A.
4. While depressing the Service Pin Button, power on the LCI-3 by plugging in the power plug, J2.
5. The LCI-3 will display the XStream Bootloader dialog box. This dialog will have three buttons: Reset to Factory Defaults, Upgrade Firmware, and Exit.
6. Press the Reset to Factory Defaults button.
7. The LCI-3 will display a confirmation dialog.
8. Select the Yes button.
9. The LCI-3 will begin restoring the factory defaults and will display a progress bar.
10. After the restore is complete, the LCI-3 will display the XStream Bootloader dialog box. This dialog will have three buttons: Reset to Factory Defaults, Upgrade Firmware, and Exit.
11. Press the Exit button to reboot the LCI-3.