

Bio-Plex Manager™ 4.1 Software

Installation Instructions

For workstations with IS 2.3 software

BIO-RAD

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For technical support, contact your local Bio-Rad office, or
in the US, call 1-800-4BIORAD (1-800-424-6723)

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Section 1

Introduction

These instructions are part of a kit specifically developed to enable using Bio-Plex Manager version 4.1 software on workstations with IS 2.3 software. Details are provided for installing Bio-Plex Manager 4.1 software and verifying the firmware located on each of the array reader (analyzer), microplate platform (XY platform), and HTF (sheath delivery system). These instructions should be followed precisely as written.

Once Bio-Plex Manager 4.1 software has been successfully installed, it can be used for workstation operation, data acquisition and data analysis. The accompanying Bio-Plex components (validation kit 4.0, MCV plate III and calibration kit) should be used exclusively with Bio-Plex Manager 4.1 software.

Note that two cables have been included with this kit; a USB cable for the connection between the array reader and the computer, and a second cable for a new connection between the array reader and the HTF. Do not install these cables until instructed to do so.

New features for Bio-Plex Manager 4.1 include automatic port detection, ability to cancel any fluidic operation, sample timeout, choice of bead maps, control of the filling function of the HTF, and compatibility with hyperthreading (a feature found on newer computers with processor speeds ≥ 3 GHz).

If any problems are encountered, contact your local Bio-Rad office, or in the US, call 1-800-4BIORAD (1-800-424-6723).

Section 2 Requirements

Instrumentation

Identify the serial numbers of each of the array reader, microplate platform, and HTF in order to determine whether they meet the minimum requirements. Serial numbers can be interpreted as follows:

LX100 01 342 009

LX100 – Denotes the type of system

LX100 corresponds to the array reader (or analyzer)

LXY corresponds to the microplate platform (or XY platform)

LXSD corresponds to the HTF (or sheath delivery system)

01 – Refers to the year of manufacture (in this case 2001)

342 – Refers to the day of manufacture (in this case, the 342nd day of the year)

009 – Refers to the instrument built that day (in this case, the 9th instrument built that day)

Refer to the following chart to determine whether Bio-Plex Manager 4.1 software can be successfully installed on the current system.

Component	Minimum Requirements (Serial Number)
Array Reader (or Analyzer)	Array readers manufactured on or after October 1st (day 274) in the year 2000. For array readers manufactured prior to this date, contact your local Bio-Rad sales representative.
Microplate Platform (or XY Platform)	Microplate platforms manufactured on or after January 1st (day 001) in the year 2002. For microplate platforms manufactured prior to this date, contact your local Bio-Rad sales representative.
HTF (or SDS)	All upgradeable.

Materials Provided

The following items are provided with the selected kit.

Catalog #	Description
171SUPG30	Bio-Plex Manager 4.1 Standard Software for 3.0 Workstation , includes workstation license, validation kit 4.0, MCV plate III, and communication cables to upgrade Bio-Plex Manager 3.0 workstation
171SUPG40	Bio-Plex Manager 4.1 Software for 4.0 Workstation , includes communication cables to upgrade Bio-Plex Manager 4.0 Standard or Security workstation.
171STND23	Bio-Plex Manager 4.1 Standard Software for IS 2.3 System , includes workstation license, validation kit 4.0, MCV plate III, calibration kit, communication cables and calibration reminder sticker for systems with IS 2.3 software

Section 3

Software Installation

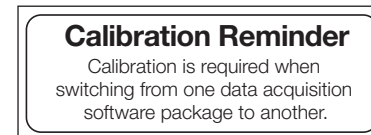
Prior to proceeding with the software installation, ensure that the minimum requirements for the array reader, microplate platform and HTF have been met (refer to Section 2 – Requirements).

It is important to follow the installation instructions precisely as written. If problems are encountered, contact your local Bio-Rad office, or in the US, call 1-800-4BIORAD (1-800-424-6723).

Install Bio-Plex Manager 4.1 Software

1. Insert the Bio-Plex Manager 4.1 software disk into the CD drive. The installation will start automatically.
2. Select **Install Bio-Plex Manager**. The Wise Installation Wizard will start and the Windows Installer will open.
3. When the Welcome to the Bio-Plex Manager 4.1 Installation Wizard window appears, click **Next**.
4. Read the Readme Information screen and insert the new software license key (hardware protection key) provided with the kit onto the computer.
5. Enter Name and Organization if desired and select **Next**.
6. To accept the default Destination Folder (recommended) select **Next**.
7. To accept the default Database Destination Folder (recommended) select **Next**.
8. When queried for the installation type, select **Typical** then **Next**.
9. When notified that the installer is Ready to Install the Application, select **Next** to begin installation. If a Bio-Plex Manager window opens noting that the database installation directory already contains a database file, select **Yes** to replace the existing file.

10. When prompted that Bio-Plex Manager has been successfully installed, select **Finish**. The software installation is complete.
11. Locate the Calibration Reminder label (provided with the kit) and affix it to a visible location at the front of the instrument. This will serve as a reminder to calibrate with the Bio-Plex calibration kit whenever using Bio-Plex Manager software.



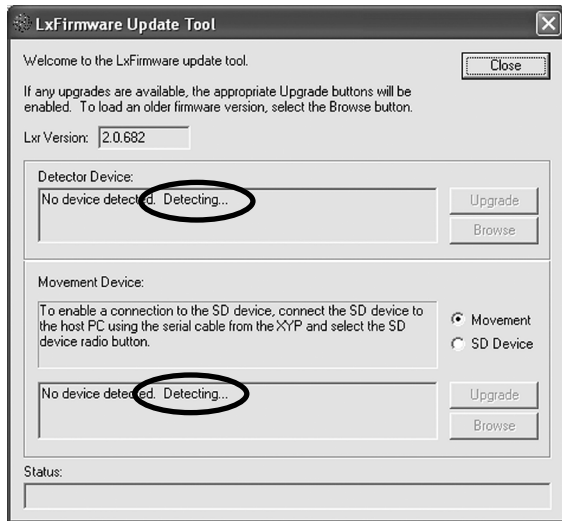
Section 4

Firmware Verification

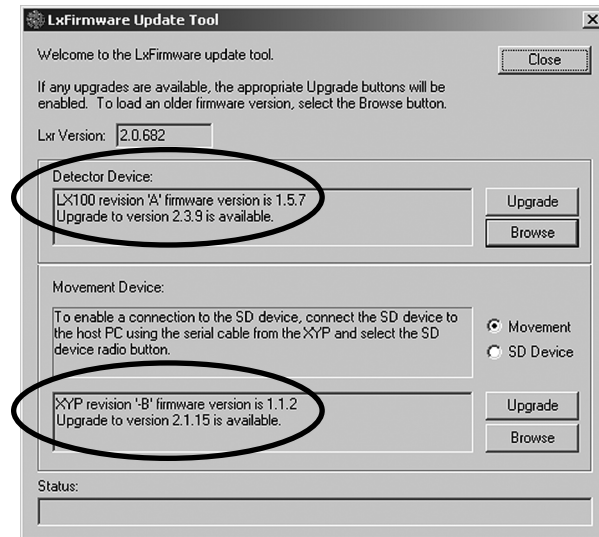
Prior to using the newly installed Bio-Plex Manager 4.1 software, verify the firmware located on each of the array reader, microplate platform, and HTF as follows.

Verify Array Reader Firmware

1. Power on the array reader and microplate platform. The HTF should remain powered off.
2. Select **Start | All Programs | Luminex | LXR | LX Firmware**. The LxFirmware Update Tool screen will open as follows:



3. Both the Detector Device box (for the array reader) and the Movement Device box (for the microplate platform) will show that the program is detecting the devices (the Movement Device for the SD Device (HTF) will be addressed later). It may take up to 3 minutes for both devices to be detected and the screen will appear as shown (some variations of the firmware versions may be observed):

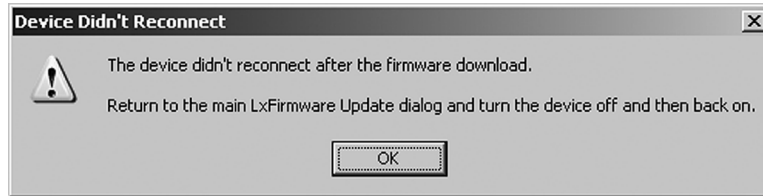


NOTE: If the LxFirmware Update Tool does not detect both devices after 3 minutes, turn the devices off and on. If the devices are still not detected, confirm that the cables are firmly connected to each device, reboot the computer, and repeat steps 2 and 3. If the devices are still not detected, contact Bio-Rad Technical Support.

4. Record the current firmware versions for the Detector Device _____ and the Movement Device _____. The firmware versions for the Detector Device and Movement Device should always be 2.3.9 and 2.1.15, respectively.

- If the message in the Detector Device box states that the LX100 firmware version is already 2.3.9, skip to Verify Microplate Platform Firmware below. However, if the LX100 firmware version is not 2.3.9 and the message indicates that the upgrade to version 2.3.9 is available, select **Upgrade** and then **Yes** to download version 2.3.9 firmware to the array reader. It may take a few minutes to download the firmware and initialize the instrument. Select **OK** when the download is complete. The Detector Device box should now indicate that the LX100 firmware version is 2.3.9.

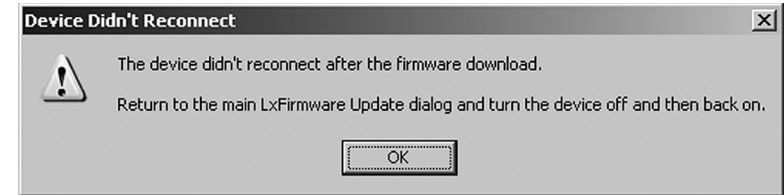
NOTE: The following message may appear if the array reader is not able to reconnect once the firmware has been downloaded. Follow the instructions in the dialog box to reconnect the array reader.



Verify Microplate Platform Firmware

- If the message in the Movement Device box states that the XYP firmware version is already 2.1.15, skip to step 2. However, if the XYP firmware version is not 2.1.15 and the message indicates that the upgrade to version 2.1.15 is available, select **Upgrade** and then **Yes** to download version 2.1.15 firmware to the microplate platform. It may take a few minutes to download the firmware and initialize the instrument. Select **OK** when the download is complete. The Movement Device box should now indicate that the XYP firmware version is 2.1.15.

NOTE: The following message may appear if the microplate platform is not able to reconnect once the firmware has been downloaded. Follow the instructions in the dialog box to reconnect the microplate platform.



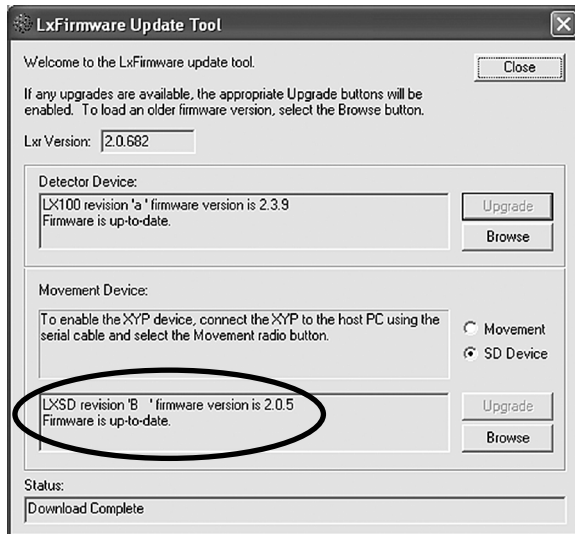
- Close the LxFirmware Update Tool. Power off the array reader and microplate platform prior to proceeding.
- Check the cable connection between the array reader and the computer. If the connection at the computer uses a USB port, the correct cable is already installed. If the computer connection used a serial port, replace the serial cable with the new communication cable provided (catalog # 171-002003). Connect the USB end to the computer and the serial end to the array reader (port P1). Then use the serial cable to connect the microplate platform to COM 1 on the computer (refer to the cable connection diagram in the Appendix).
- Power on the array reader and microplate platform. Restart the LxFirmware Update Tool by going to **Start | All Programs | Luminex | LXR | LX Firmware**. Confirm that the current firmware versions are 2.3.9 for the Detector Device and 2.1.15 for the Movement Device.

NOTE: If the LxFirmware Update Tool does not detect both devices after 3 minutes, turn the devices off and on. If the devices are still not detected, confirm that the cables are firmly connected to each device, reboot the computer and repeat steps 2 and 3 (Verify Array Reader Firmware). If the devices are still not detected, contact Bio-Rad Technical Support.

Verify HTF Firmware

If the system includes an HTF, continue following these instructions. If the system does not include an HTF, the firmware verification is complete (skip to Reset Instrument Pressure Settings in Section 5).

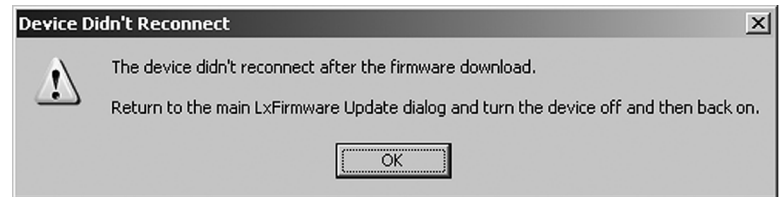
1. If the HTF has a cable connecting it to the array reader, disconnect this cable at the HTF. Then disconnect the serial cable from the microplate platform and connect it to the HTF. The serial cable should now connect the HTF to the computer. Power on the HTF.
2. In the LxFirmware Update Tool screen, select the SD Device option next to the Movement Device box. It will take a few minutes for the device to be detected and the screen will appear as follows (some variations of the firmware versions may be observed).



3. Record the current firmware version for the SD Device _____. The firmware version for the LXSD Movement Device should always be 2.0.5.

4. If the message in the Movement Device box states that the LXSD firmware version is already 2.0.5, skip to step 7. However, if the LXSD firmware version is not 2.0.5 and the message indicates that the upgrade to version 2.0.5 is available, select **Upgrade** and then **Yes** to download version 2.0.5 firmware to the HTF. Select **OK** when the download is complete. The Movement Device box should now indicate that the LXSD firmware version is 2.0.5.

NOTE: The following message may appear if the HTF is not able to reconnect once the firmware has been downloaded. Follow the instructions in the dialog box to reconnect the HTF.



5. Close the LxFirmware Update Tool. Power off the HTF prior to proceeding.
6. Power on the HTF. Restart the LxFirmware Update Tool by selecting **Start | All Programs | Luminex | LXR | LX Firmware**. Select the SD Device option next to the Movement Device box. Confirm that the current firmware version is 2.0.5 for the LXSD Movement Device.
7. Close the LxFirmware Update Tool and remove the serial cable from the HTF and reconnect it to the microplate platform.
8. Then use the cable attached to the array reader (from step 1 on page 10) to reconnect the array reader and the HTF. If there wasn't a cable connecting the array reader and HTF, connect the second new communication cable provided (catalog #171-002002) to the array reader (port P2) and the HTF (port P1). Refer to the cable connection diagram in the Appendix. The firmware verification is complete.

Section 5

Pressure Setting Adjustment

Verify HTF Pressure Settings

1. Launch Bio-Plex Manager 4.1 software. From the menu bar, select **Instrument | Additional Functions | Prime**. Select **OK** to begin priming the array reader and HTF.
2. Once priming begins, select **Instrument** and open the Instrument Information window. Monitor the sheath pressure value and record the sheath pressure _____ once it has stabilized. It may be necessary to repeat the prime function a few times.

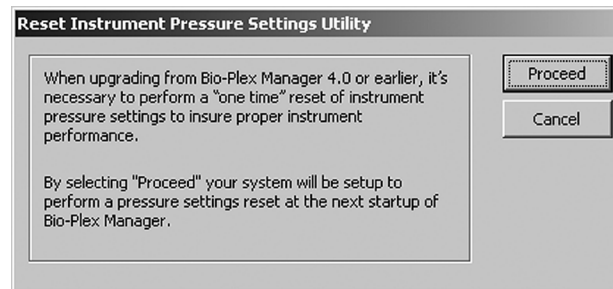
NOTE: If priming does not begin because the system is continually in Pressurizing status, it will be necessary to reset the instrument pressure settings as described on the next page.

3. Open the door on the front of the array reader just to the left of the sample probe.
4. Find the regulator screw, which is located about 1.5 inches to the left, and just below the sample syringe. This screw needs to be turned fully clockwise, but be careful to first determine if it is already turned fully clockwise. To do so, first turn the screw one full turn in the counter-clockwise direction to develop a feel for the amount of force required to turn the screw. Now begin turning clockwise and keep going until you first feel additional resistance (this may require many full turns of the screw if the screw was not already fully clockwise). Do not force it beyond initial resistance.
5. Close the front door and run another prime and note if the sheath pressure is elevated above what was noted in step 2.
6. If the sheath pressure is elevated, find the regulator screw on the front of the HTF. It is labeled Regulator and is immediately below the Prime button. Again while priming, and the pressure stable, adjust the pressure with this screw until it is the same as noted in step 2. Turning the screw counter clockwise lowers the pressure. Continue running prime until the pressure is correctly set.

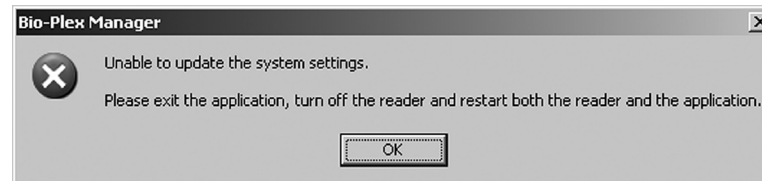
7. Run prime once more to verify the pressure is set correctly by observing that it stabilizes at the correct pressure (± 0.2 psi).

Reset Instrument Pressure Settings

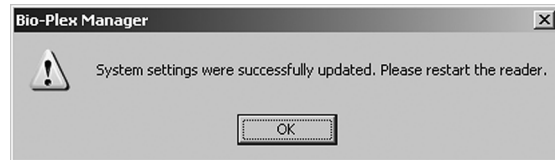
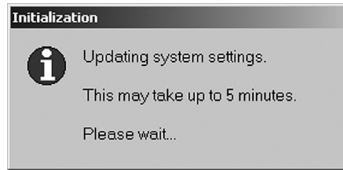
1. Close the Bio-Plex Manager 4.1 software application. Select **Start | All Programs | Bio-Plex Manager 4.1 | Utilities**.
2. Select **Reset Instrument Pressure Settings**. The following dialog box will appear:



3. Select **Proceed**. Select **OK** once the Setup Completed Successfully message appears.
4. Power off the array reader, then power it back on.
5. Launch the Bio-Plex Manager 4.1 software application. If the system is already warmed up, the following dialog box will appear:



- Exit the application and power off the array reader. Then power on the array reader and restart the Bio-Plex Manager 4.1 software application. The following two dialog boxes will appear in succession:



- To restart the array reader, first exit from Bio-Plex Manager. Cycle the power on the array reader and relaunch Bio-Plex Manager. Congratulations—the Bio-Plex Manager 4.1 software installation is complete!

NOTE: If the system settings were not set properly, follow the instructions on any error message that appears. If problems are encountered, contact your local Bio-Rad office, or in the US, call 1-800-4BIORAD (1-800-424-6723).

Appendix Cable Connection Diagram

