

QUANTUM™ LX PROGRAM SOFTWARE UPGRADE PROCEDURE USING A USB FLASH DRIVE

This document describes the procedure to upgrade the software version of the Quantum LX control, using the software downloaded from the Frick website. It is recommended that you print these instructions for your reference.

Read the following pages of instructions in their entirety before beginning the software upgrade.

Do not attempt to upgrade the software from Quantum LX versions 6.01 through 6.20 or from any version that has a 64mb flash card to this version or a later version. A replacement Quantum LX Program Flash Card will be needed and the setpoints will have to be re-entered manually.

Record a written copy of your current setpoints before beginning the software upgrade. You can also save your current setpoints to the USB Program Upgrade Flash Drive. Refer to sheet 5 for setpoints that are not restored after a Full Installation and Restore Setpoints is performed. These will need to be re-entered manually after the software upgrade. Do not attempt to restore setpoints from Quantum LX versions 6.01 through 6.06.

You must have Administrator rights on your PC and a basic understanding of imaging a drive to perform this function properly. If you have any questions after reading these instructions, please call Frick Engineered Control Solutions (ECS) for assistance.

There are four parts to this procedure:

PART 1) Download two files from the Frick Web Site

(http://www.frickcontrols.com/pages/quantum_lx/home) to your PC (right click on the file and select “Save As”). This will be the Upgrade Instructions (print this PDF file) and the Quantum LX Upgrade 7_xx.exe file (the 7_xx is referring to the latest version). The Upgrade file is a large file and may take several minutes to download.

PART 2) Once the files are downloaded to your PC, run (double-click) the Quantum LX

Upgrade 7_xx.exe file. This will extract the necessary upgrade files to your PC. When prompted to select a directory, enter C:\QUANTUM LX



This will be a new directory and you will have to select Yes to create it.



The files will extract to your PC.

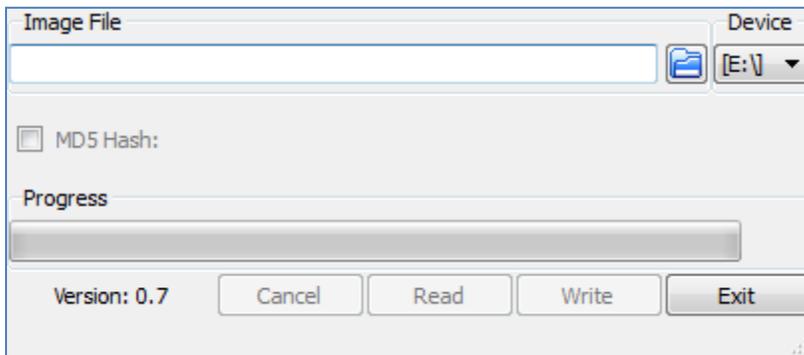
**PART 3:
COPY QUANTUM™ LX PROGRAM SOFTWARE UPGRADE TO USB FLASH DRIVE**

Use the Win32DiskImager utility to copy the Quantum LX USB Software Upgrade image to your USB Flash Drive. Win32DiskImager will work on Windows XP and Windows 7 operating systems. You must have Administrator rights on your PC and a basic understanding of imaging a drive to perform this function properly.

***** WARNING *****
Unplug all USB memory devices from your computer
(except the Quantum LX USB Software Upgrade Flashdrive).

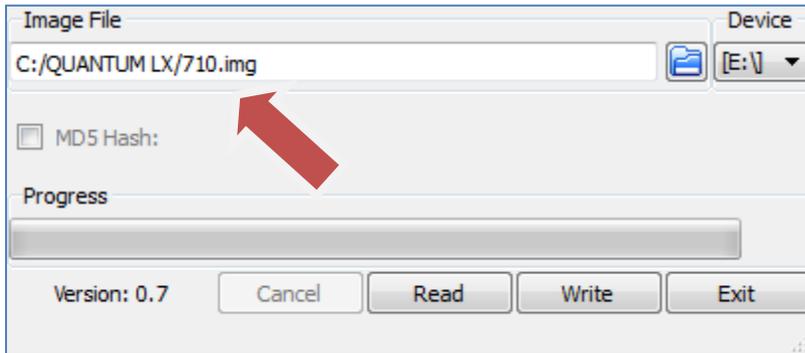
This includes flash drives, memory sticks, USB hard drives, etc. If a USB memory device is left plugged in, its data could be overwritten. This utility has the power to completely wipe out any and all data on any drive(s) available to it when runs. The user must be very careful to select the proper drive names to which an image file is written to.

- 1). Ensure the appropriate Quantum LX Software Upgrade image file (ex: 7xx.img) is on your PC in folder C:\QUANTUM LX. Insert your new USB Flash Drive into your PC.
- 2). Run the **Win32DiskImager.exe** that is in the folder C:\QUANTUM LX. The window below should appear (after a short delay).

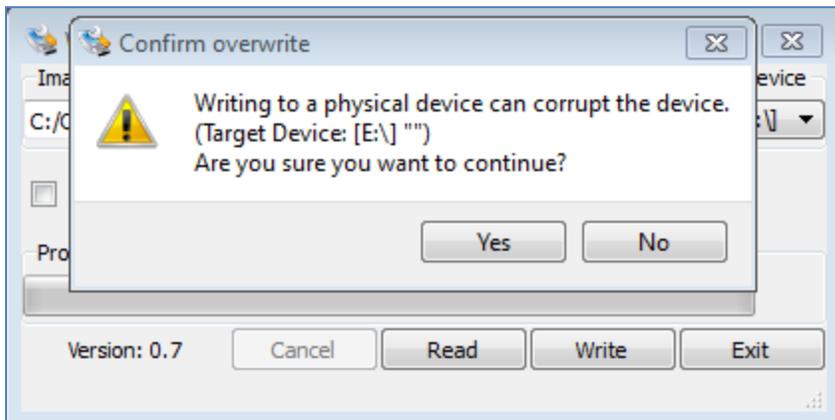


3). Select the “Device”. This is your USB Flashdrive. Example: E:\

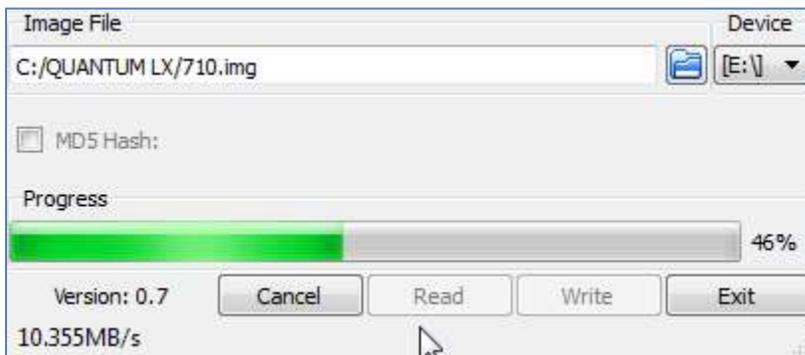
Select the “Image File”. Use the Browse Folder Icon  and find C:\QUANTUM LX\7xx.img (the 7xx being the latest image file). Example 710.img



4). Select “Write” and then select “Yes” to confirm the overwrite.



The image file should begin copying.



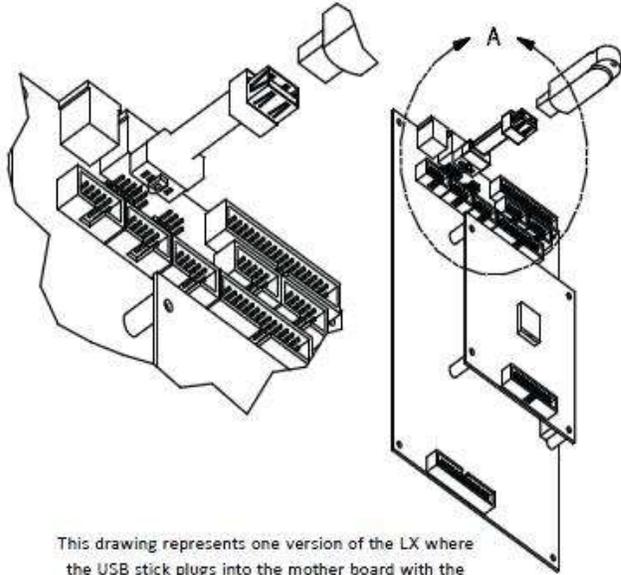
When completed, you should see:



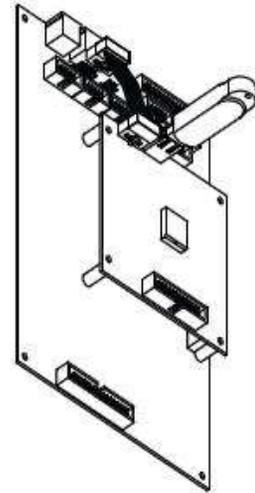
5). Click OK and Exit to complete image copy. Remove the USB Flash Drive. As with any USB device, be sure to select “Safely Remove Hardware” to stop the USB device, before removing the USB flash drive.

PART 4: QUANTUM LX SOFTWARE UPGRADE

PART 4 involves taking the USB Flashdrive to the Quantum LX to perform the software upgrade. The next page (Page 5) will show the different hardware scenarios that you may encounter on a Quantum LX control panel. Page 6 & 7 will list the setpoints that do not get restored after a Setpoint Restore. These setpoints will have to be re-entered manually. Page 9 begins the instructions to perform a Setpoint Save, the Full System Install (software upgrade) and the Setpoint Restore.



This drawing represents one version of the LX where the USB stick plugs into the mother board with the use of an adapter.



This version of the LX has a USB connector located on the daughter board, no adapter is required.

Quantum 4 USB Plug-in locations



Q5 USB Plug-in locations

Setpoint Defaults When Performing a Quantum LX Software Upgrade or Restoring from a different version.

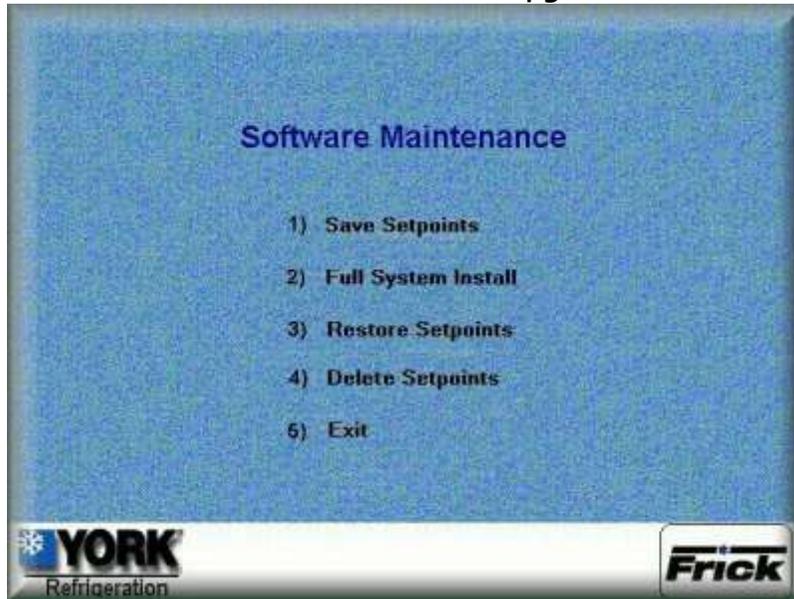
The following lists the setpoints that get reset to their default when a Quantum LX software upgrade or restore setpoints from a different version is performed. They get set to default values even after a Restore Setpoints is performed, so the person doing the upgrade must then set them manually to what they need to be if they are critical to the application.

The main message here is to record these setpoints manually before performing any software upgrade and save your existing setpoints to a Setpoint Saver Flashdrive. After completing a software upgrade, restore your original setpoints from the Setpoint Saver Flashdrive and manually re-enter these setpoints as necessary.

Setpoint Description	Location	When upgrading from Software Version x.xx or older
Ethernet Configuration	<i>Menu>Conf>Ethernet</i>	6.11
PowerPAC Flag	<i>Menu>Conf>Comp</i>	6.51
Ethernet Process Enable	<i>Menu>Conf>Ethernet>Protocol</i>	6.51
Regulation Mode	<i>Menu>Modes>Active Mode</i>	6.52
Max Slide Valve Timer	<i>Menu>Setpt>Misc</i>	6.52
Compressor Type	<i>Menu>Conf>Comp</i>	6.55
Process Leaving Temp. Safeties	<i>Menu>Setpt>Misc</i>	6.55
Compressor Start #'s in the Sequencing Systems	<i>Menu>Setpt>Seq>System x Setup</i>	6.55
Filter Differential Calculation	<i>Menu>Conf>Comp</i>	6.58
Allen Bradley Checksum Type for Comm 1- 3	<i>Menu>Conf>Communication</i>	6.58
Pump Type	<i>Menu>Conf>Comp</i>	6.59
Data Points for Trending	<i>Menu>System Status>Trending</i>	6.65
Power Assist	<i>Menu>Setpoints>Package</i>	6.82
Low (Main) Oil Inj Pres Shutdown Delay	<i>Menu>Setpoints>Package</i>	6.82
Vyper Standby Time	<i>Menu>Operating Values>Vyper>Vyper</i>	6.83
EZ Cool PID Control	<i>Menu>Setpoints>PID Setup</i>	6.83
All PID Control Points	<i>Menu>Setpoints>PID Setup</i>	6.83
User Defined List	<i>Menu>Operating Values>User Defined</i>	6.83
Trending List	<i>Menu>System Status>Trending</i>	6.83
CT Factor *** You must set CT Factor to 10, Submit change and then set to correct value and Submit.	<i>Menu>Setpoints>Motor</i>	7.06
The Compressor Type.	<i>Menu>Configuration>Compressor</i>	7.07
The Oil Pump Type - When the Oil Pump Type is changed, the - Low Oil Pressure Shutdown: - Low Oil Pressure Warning: - Low Oil Pressure Shutdown Delay: - Low Oil Pressure Warning Delay:	<i>Menu>Configuration>Compressor</i> <i>Menu>Setpoints>Package</i>	7.07
The Maximum Discharge Pressure	<i>Menu>Setpoints>Miscellaneous</i>	7.08
PID Setpoints Capacity Mode (1-4) Control Channels Capacity Mode (1-4) Setpoints	<i>Menu>Setpoints>PID Setup</i> <i>Menu>Configuration>Compressor</i> <i>Menu>Setpoints>Capacity Control</i>	7.08

Input Channel To Retransmit	<i>Menu>Calibration>Analog Outputs>Retransmitting Outputs</i>	
User Defined list	<i>Menu>Operating Values>User Defined</i>	
Aux Digital Output Setpoints	<i>Menu>Setpoints>Auxiliaries>Digital Outputs</i>	
Trending List	<i>Menu>System Status>Trending</i>	
Separator Velocity Reference	<i>Menu > Setpoints > Compressor</i>	7.08
Compressor Type	<i>Menu>Conf>Comp</i>	7.08
Discharge Butterfly Valve Control Offset setpoint	<i>Menu>Setpoints>Discharge Butterfly Valve</i>	7.10
Balance Piston Pressure setpoint	<i>Menu>Setpoints>Compressor</i>	7.10
PHD Monitoring Setpoints	<i>Menu>Setpoints>PHD Monitoring</i>	7.11
EZ Cool LIOC Port Multiplier	<i>Menu>Setpoints>EZ Cool LIOC</i>	7.11
The warnings below may appear after upgrading from version 6.53 or below. This is due to a sensor input out of range. Usually because the input is not used. If this is the case, you can disable this input (if it is not used) to clear the warning. In session level 3, set the "IO Board" to "None" to disable the input.		
Low Rem Capacity Position Sensor Warning	<i>Menu>Calibration>Motor Miscellaneous</i>	
Low RPM Sensor Warning	<i>Menu>Calibration>Motor Miscellaneous</i>	
Low Manifold Pressure Sensor Warning	<i>Menu>Calibration>Pressure</i>	
Low Filter Pressure Sensor Warning	<i>Menu>Calibration>Pressure</i>	

Quantum LX Software Upgrade



ACCESSING:



Service...

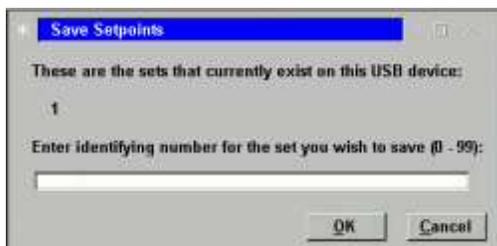
Software Maintenance

DESCRIPTION: The *Software Maintenance* screen has been provided as a way for the user to upload the operating software to their system, to save setpoints or to restore setpoints. **NOTE:** Before accessing this screen, insert the USB Upgrade Flash Drive into the USB port of the processor/communication board with the Quantum LX power on. If needed, use the USB adapter and connect to PL8 on the main processor board.

NOTE: You must be in User Level 2 or above to access this menu. Use caution when accessing this screen remotely with a web browser.

The following selections have been provided:

- **Save Setpoints** - Use this option to save all setpoints and custom text to a USB device as a form of backup:
 - Ensure that all setpoint values have been documented as a safety precaution. Install a USB device into the provided connection on the Quantum LX™.
 - Select the **Save Setpoints**.
 - The software program will read the USB device, and the following dialog box will appear:

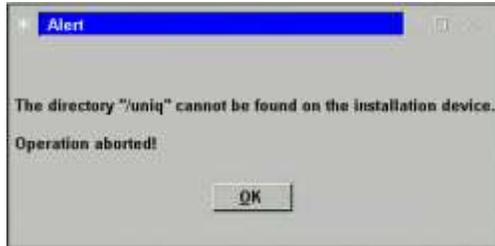


- Any numerals that appear on the center line of this box will represent units that have already

been saved (from 0 to 99). If no units have yet been saved, the center line will be blank.

- Enter a number on the keypad that corresponds to the unit number that you wish to save, and then press **[Enter]**. If the unit number has not been saved before, the setpoints will be saved to a file on the USB device (a progress bar will appear asking you to *Please Wait...* In the future, any time you try to write the setpoints to this number, you will be prompted with a message telling you that *the set number already exists – do you wish to overwrite it?* Answer by highlighting the Yes button, and pressing **[Enter]** if you do indeed wish to overwrite the values. If you enter a number that does not appear on the center line, no such warning will appear.
- After the file has been written or updated, the dialog boxes will disappear, and you can continue with the Full System Install.
- **Full System Install** - Use this option to install the new program:
 - Ensure that all setpoint values have been documented as a safety precaution.
 - Select the **Full System Install**.

- If a valid USB device with the operating system loaded on it is plugged in, the software will be loaded. If however, there is no USB device installed, or the device does not contain the operating software, the following dialog box will appear:



- If the above dialog box appears, you must insert a valid software upgrade USB device.
- **Restore Setpoints** – Use this option to re-load the previously saved setpoints and custom text to the Quantum LX™.

- Ensure that all setpoint values have been documented as a safety precaution. Install the previously saved setpoint USB device into the provided connection on the Quantum™.
- Select the **Restore Setpoints**.
- The software program will read the USB device, and the following dialog box will appear:



- Any numerals that appear on the center line of this box will represent units that have already been saved (from 0 to 99). If no units have yet been saved, the center line will be blank and therefore there are no setpoints to restore.
- Enter a number on the keypad that corresponds to the unit number that you wish to restore, and then press **[Enter]**.
- A progress bar will appear asking you to *Please Wait...*
- After the file has been written or updated, the dialog boxes will disappear, and you can either exit, or continue with another function.

Delete Setpoints – Use this option to delete the setpoints and custom text for a particular unit, if desired:

- Ensure that all setpoint values have been documented as a safety precaution. Install the previously saved setpoints USB device into the provided connection on the Quantum™.
- Select the **Delete Setpoints**.
- The software program will read the USB device, and the following dialog box will appear:



- Any numerals that appear on the center line of this box will represent units that have already been saved (from 0 to 99). If no units have yet been saved, the center line will be blank, and therefore there are no setpoints to delete.
- Enter a number on the keypad that corresponds to the unit number that you wish to delete, highlight the *Ok* button, and then press **[Enter]**. You will be prompted with a new dialog box which will ask you *OK to delete set number (0-99)?*
- Highlight the *Yes* button, and press **[Enter]**. The dialog box will be updated with a new message stating that *Set number (0-99) has been deleted!*
- Press **[Enter]** to return to the Software Maintenance menu.
- **Exit** - Use this selection to leave this screen by selecting **Exit**. The program will restart and a box will then appear during reboot stating that a system update file has been found. The user should then select **[Yes]** to allow the operating system upgrade to continue.
- The upgrade will test to see if the existing Program Flash Card image is larger than 64 mb. If the Program Flash Card image is 64 mb, the installation will be aborted. If this occurs, remove the USB device and reboot the panel. To complete a Program Upgrade, a new Program Flash Card must be used.

These Software Maintenance instructions can also be found in the Quantum LX Maintenance manual. If you have any questions after reading these instructions, please call Frick Controls for assistance.