Installation Manual
For

2009 CUSD Control System: LIGHTING

Rev. 1.0

Note: This is the manual for the guy *installing* the control system and the lighting interface, NOT the guy *using* the system. There's a different manual for that!

Hardware Installation/Wiring Protocol - Lighting

This is the protocol for hard-wiring the sub-circuits together with the control board, connecting wires and cables and plugs to their respective places in order to establish proper interface with the lighting system. Note: All power supplies and/or anything connected to outlets are connected last in order to preserve proper connection.

1. Connect two wires from both ACs screws on the M1EZ8 Control Board to the AC screws on the ELK Transformer. (Cross Platform Control Installation Manual, Page 5 – see diagram)
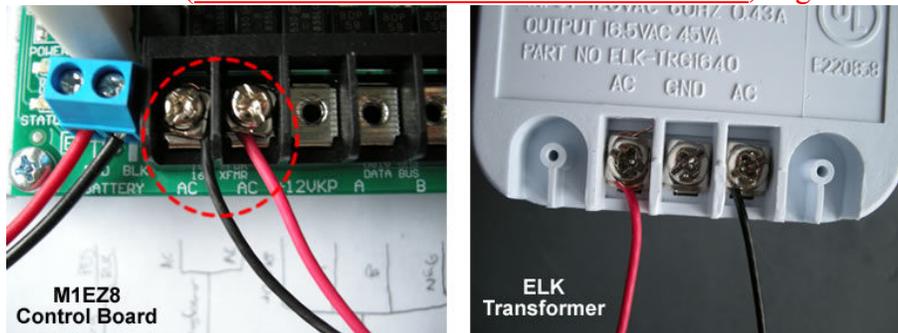
2. Plug one end of a CAT5 RJ45 cable into connector J1 on the EZ8MSI Main Serial Port Interface. Plug the other end into connector J5 on the M1EZ8 Control Board. (Main Serial Port Interface Quick Guide, Step 1; Cross Platform Control Installation Manual, Page 5 – see diagram)
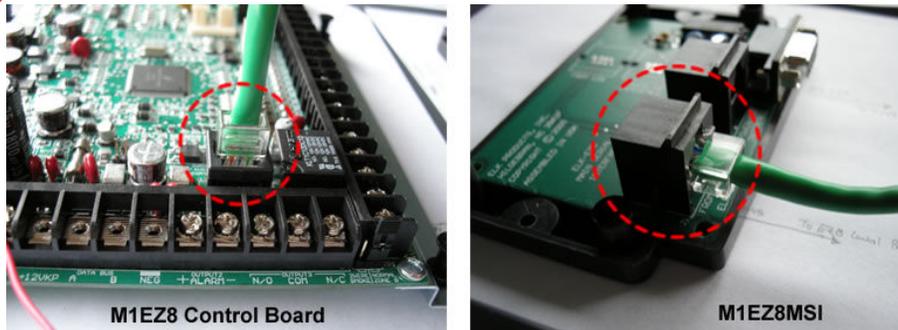
3. Connect four wires from M1 Keypad to the terminals on M1EZ8 Control Board as follows:
   a) BLACK to Neg
   b) WHITE to B
   c) GREEN to A
   d) RED to +12V
   (Cross Platform Control Installation Manual, Page 5 – see diagram for color code)

M1EZ8 Control Board

M1 Keypad
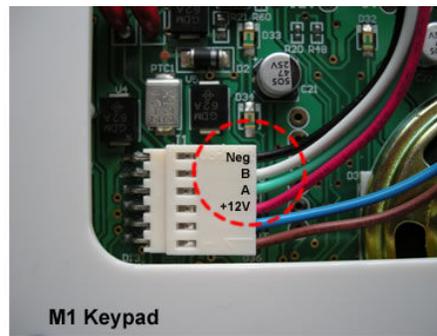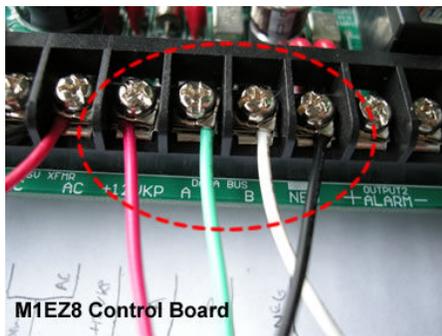
4. Connect a 2200 ohm resistor from the "+" terminal of Output 2 on the M1EZ8 Control Board to the "-" terminal. (Cross Platform Control Installation Manual, Page 5 – see diagram)
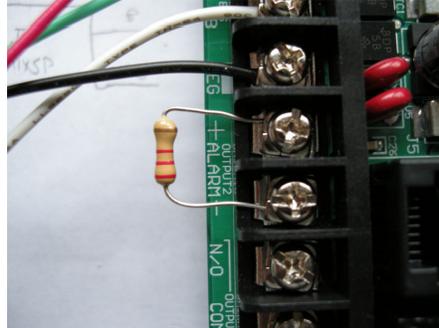
5. Plug one end of an RS232 serial cable into the M1XEP male connector. Plug the other end into the EZ8MSI female connector. Note: The RJ45 Powerline interface for the EZ8MSI is only for X10 devices – you do not need it. (ELK-M1XEP Installation Manual, Page 5, Step 2; Main Serial Port Interface Quick Guide, Step 2)

M1XEP

M1EZ8MSI
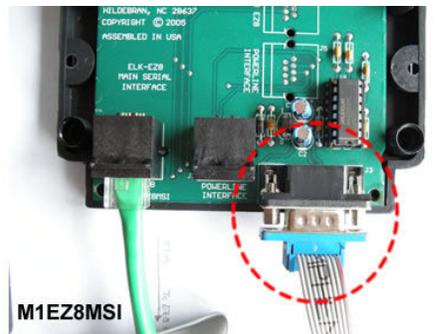
6. Connect a CAT5 RJ45 cable from the M1XEP to a router. (ELK-M1XEP Installation Manual, Page 5, Step 2)

M1XEP
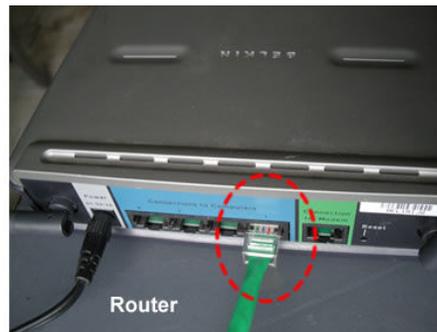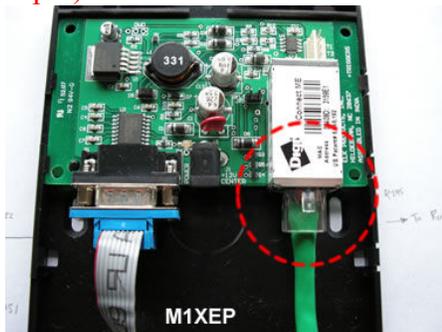
Router

7. Connect a CAT5 RJ45 cable from a computer/laptop to a router.

Laptop Computer
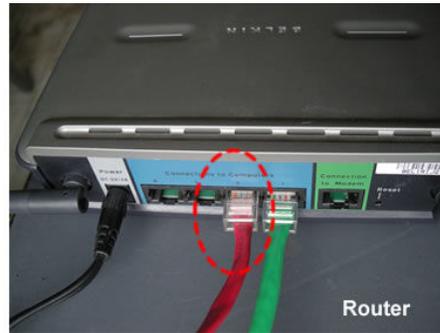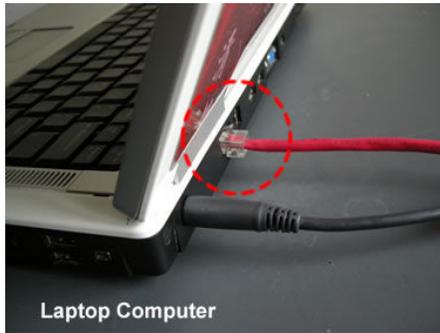
Router

8. Connect a CAT5 RJ45 cable from the "Network" Port on the Insteon ISY-99i/IR Pro to a router. (Universal Devices Tech Support, 818-631-0333)

ISY-99i

Router

9. Connect a CAT5 RJ45 cable from the "Port A" Port on the Insteon ISY-99i/IR Pro to the Insteon Powerlinc Modem. (Universal Devices Tech Support, 818-631-0333)

ISY-99i

Powerlinc Modem
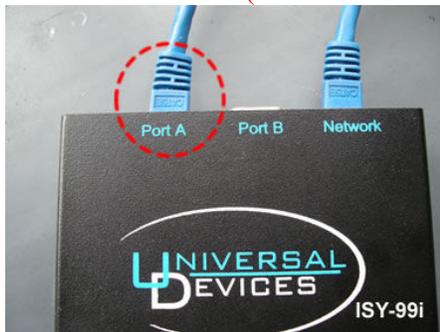
10. Connect the M1EZ8 Control Board to the 12V Battery and the Transformer to an electrical socket. (Cross Platform Control Installation Manual, Page 5 – see diagram)
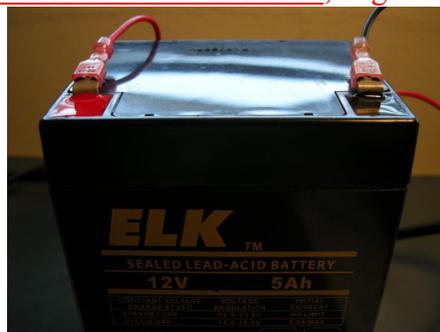
This completes the protocol for hardwiring and installing components together for the lighting system.

Configuration/Setup Protocol - Lighting

This is the protocol for setting up and configuring the hardware with the software. This includes making connections to the Elk RP software as well as enrollment into the Elk Keypad.

To Disable the Zones for Arming the Keypad:
1. On the ELK Keypad, press the **ELK** key, then **9** to display *9 – Installation Programming*. Press the **RIGHT** arrow key to select this menu.
2. Enter the Installer Program Code (**172839**)
3. Press **05** to display *05 – Zone Definition*. Press the **RIGHT** arrow key to select this menu. Press the **RIGHT** arrow key again to select the first zone.
4. The display should read *ZN001 01:Def=XX*. Set the Def = **00** so that the display reads "*Disabled Zone*"
5. Press the **ELK** key twice to exit out if the first zone. Press the **UP** arrow key to go to Zone 2.
6. Repeat steps 4 and 5 for Zones 1-8.

(ELK Tech Support 1-800-797-9355)

To Enroll Bus Modules:
1. On the ELK Keypad, press the **ELK** key, then **9** to display *9 – Installation Programming*. Press the **RIGHT** arrow key to select this menu.
2. Enter the Installer Program Code (**172839**)
3. The display will be *Bus Module Enrollment*. Press the **RIGHT** arrow key to select this menu.
4. After a few seconds, the Keypad will beep five or six times and will display a *Lost Comm.* message. Then it will display *XX Bus Modules Enrolled, Edit*.
5. Press the **RIGHT** arrow key to view enrolled devices.
6. Press the ***** or **Exit** key to exit Installer Programming

(Cross Platform Control Installation Manual, Page 12, Steps 1-6; ELK-M1XEP Installation Manual, Page 5, Step 4)

To Install/Setup Computer Software:
1. Install the Elk-RP Software onto the computer using the CD-ROM.
2. Open Elk-RP.
3. To create an account, click **File → New Account.**
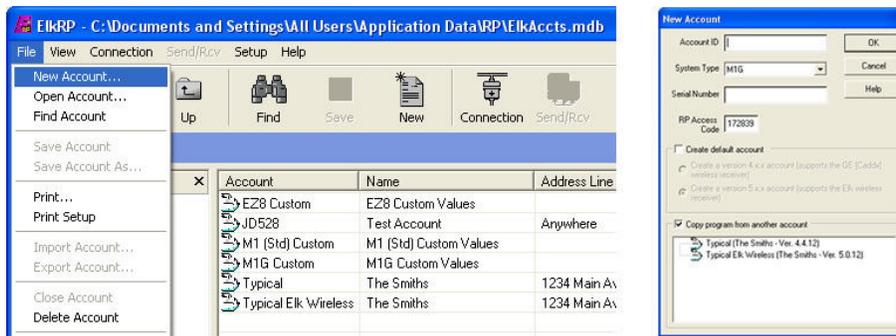
4. In Account ID, type in a name (e.g. CUSD House)
5. In System Type, select **EZ8**.
6. Type in the Serial Number that is located on the sticker on the M1EZ8 Control Board (i.e. **40008A8**)
7. Type in the RP Access Code. (Default is **172839** – don't change this number!!!)
8. Click **Create default account**. Then click **OK**.
9. Once a new account is created, fill in the contact information if desired. Make sure all the connections to the XEP, MSI, Control Board, and router are okay and powered up.

(ISY to ELK Manual, Page 1, Step 3)

To Connect the Control Board/Peripherals to the Software:
1. In the Account Details tab, click **M1XEP Setup** in the bottom right of the screen.
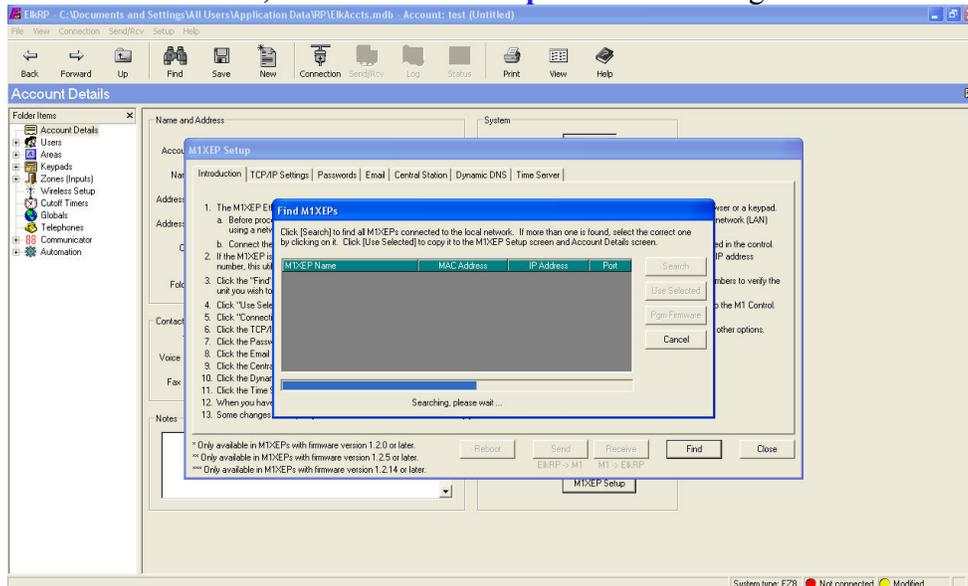
2. Click **Find**. After the Port and IP address show up in the screen, click **Use Selected**.
3. When the window closes, click **Close** in the M1XEP Setup window.
4. On top of the screen, click the icon **Connection** and click **Network** in the drop-down menu.
5. Once connected, verify the connection at the bottom corner of the window.

(ISY to ELK Manual, Page 2-3)

To Connect the ISY-99i/IR-Pro to the Computer:
1. After the ISY-99i device and the computer is connected to the router, double-click on the icon called **My Lighting** that appears in the **My Network Places** of the computer.
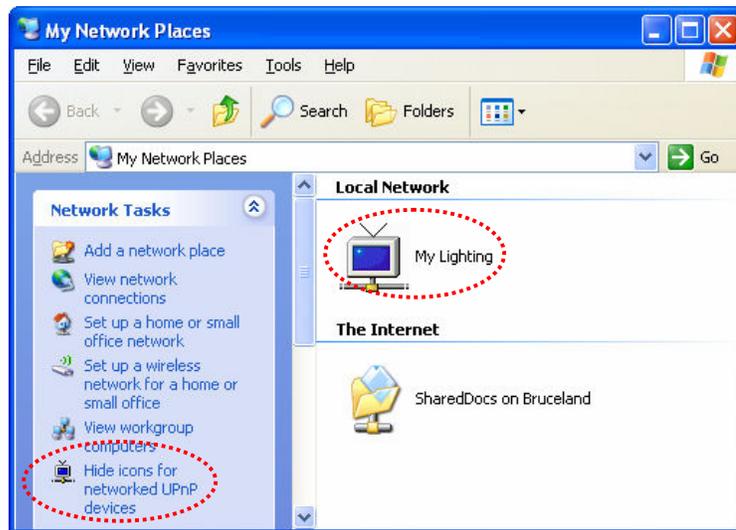
2. Make sure that the UPnP line is enabled on the left-hand column so that it says "Hide icons for networked UPnP devices".

3. A web browser (it works better if it's Internet Explorer than Firefox) should appear with the Universal Devices logo. Wait until the Java Applet loads. This may take a few minutes...yes **minutes** (not seconds), so be patient.

4. Note: This console does not seem to function properly unless the Elk RP Software is running and connected to the control board. You will see a login screen. Type in the default user ID (**admin**) and the password (**admin**).

5. If the applet stalls and does not respond, force quit it and try again. You may have to shut down and reboot the computer.

6. Click **OK**.

(ISY to ELK Manual, Step 2, Page 3-4)

This completes the protocol for installing/configuring the software for the lighting system.

Linking Insteon Devices to ELK Protocol - Lighting

        This protocol is two part: the first is for linking Insteon switches and outlets together. This does not require any computers, keypads, or software. It all depends on the hardwiring. The second part is for linking Insteon devices to the control board for keypad/computer use. This part requires software.

PART I: Linking Insteon Devices together - There are many ways to control the lights in a system. Because this is a small house, we won't do anything fancy. We'll just stick with three simple configurations:

1. The first is hardwiring an Insteon device directly to a light source. This is *exactly* like hardwiring a regular switch to, say, a ceiling light. The only difference is, you can control that switch remotely if you want. In this case, you really aren't "linking" anything together except an Insteon switch and a light bulb.
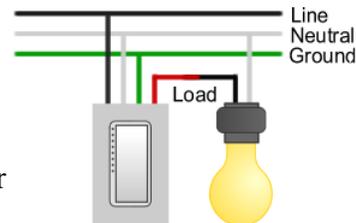
2. The second one is an Insteon switch controlling a regular outlet. This is neat because you don't need to replace every outlet with an Insteon outlet. You can *indirectly* control the outlet by directly controlling the switch (i.e. Turn the switch on from your computer and the outlet gets turned on). Again, it's exactly like hardwiring a regular switch to a regular outlet; you really aren't "linking" them.
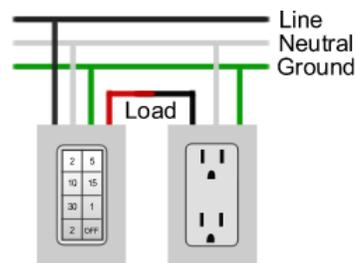
3. The last one is an Insteon switch controlling an Insteon outlet. With this setup you can remotely control either the switch or the outlet *directly (*So if you wanted to turn on a light from your computer
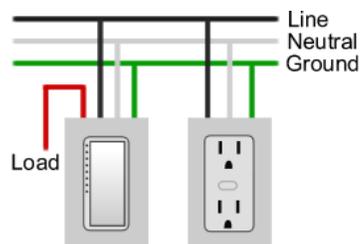
without having to turn it on from the switch, you could do that – you can't do that in the 2nd config). Note that the load wire on the switch is not connected to anything.

a) To link these two devices, press and hold the *top paddle* on the switch for about 10 seconds until the LED blinks. This means it's in linking mode.
b) While it's blinking, press and hold the *SET* button in the middle of the outlet until the LED blinks and you hear a clicking sound.
c) Now the switch controls the outlet without them being wired together. Test it out to see if it works.
d) Actually if you wanted to link one switch to control more than one Insteon outlet, all you have to do is repeat steps a-c for the other outlets.
(Various SwitchLinc Quick-Start Guides)

4. If you wanted, you could actually link two Insteon switches together, but I don't see the practicality of turning on a switch to control another switch, so I'm just not gonna bother.

Part II: Linking Insteon Devices to the Control Board – This is the procedure for installing the devices and linking them together on the control board so that you can control them remotely from either your computer or the keypad (or program them to be automatic!)

To Link the Switches/Outlets into the Computer System:
1. Open the Elk-RP Software and connect to the board.
2. Open the ISY Java applet and log in.
3. On the Java applet, in the **Link Management** Menu, select **Start Linking**. A *Linking In Progress* dialog box should appear.
4. Select **Remove existing links**. This will override old devices and add new ones.
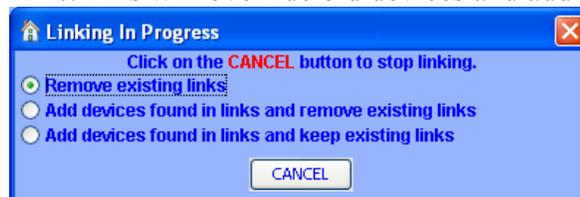
5. On each Insteon device (switch, outlet, etc), there should be a set button. Press and hold it until the LED on the device blinks and the address of the device appears in the list box on the software.

6. After linking them onto the software, click **Cancel** to stop the linking process. Rename the devices by right clicking each device and selecting **Rename**.
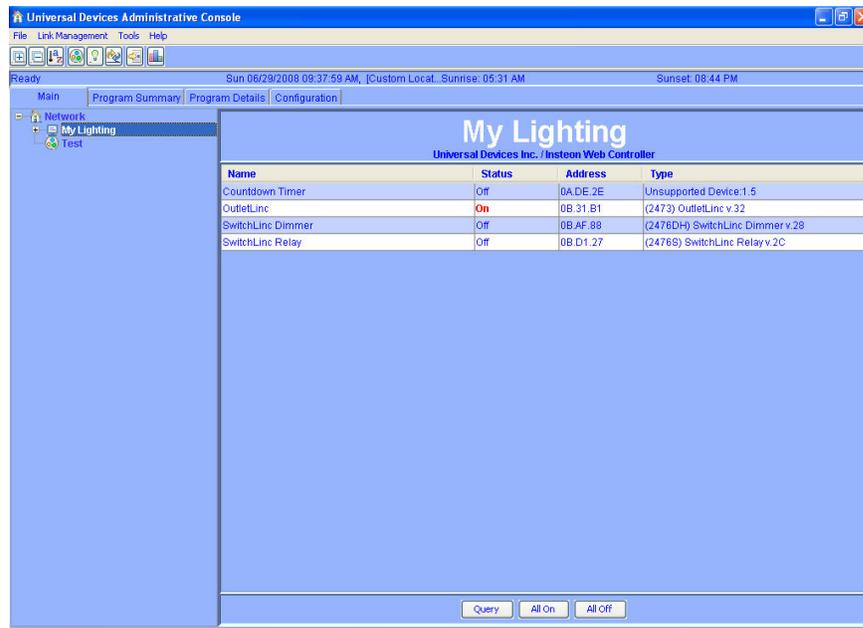
7. Test out the devices. You should be able to control the switches/outlets from the computer. (ISY User Guide, Pages 18-19)

To Control the Lighting from the ELK Keypad:
1. Once you can control the lighting from the Java Applet on the computer, click on the tab (not menu, tab) labeled **Configuration**.
2. Oh yeah, click on **Synchronize the Clock with Computer's Time**.
3. Click on the tab labeled **ELK M1XEP**.
4. Type in the IP Address. (Hint: You can find this in the Elk RP software!). Type in **2101** for the Port. Actually, type in 2101 for the Port on the Elk RP as well.
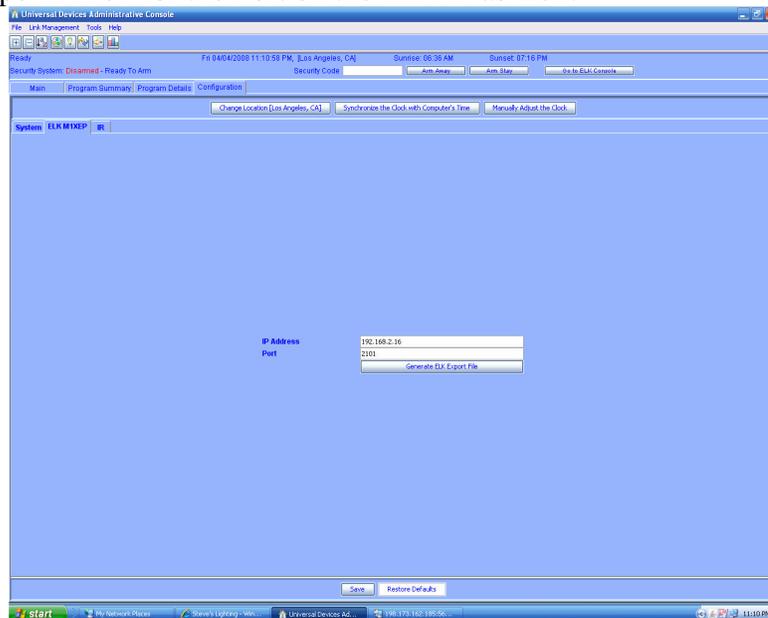
5. Click **Save** on the bottom of the screen.
6. Click **Generate ELK Export File**.
7. Save in somewhere you won't forget it (like the Desktop, maybe).
8. Go back to the Elk RP software and on the left panel, under **Automation**, right-click **Lighting**.

9. Click **Import Lighting Data** and click **Browse**.
10. Find the file you just saved earlier (in the Desktop, maybe).
11. Click **Import**. On the right panel, you should see a list of all the Insteon devices you linked in the Java applet.
12. Make sure **Opt.** and **Show** is checked for each device.
13. Connect to the Control board and click **Send to Control**. Save the account and disconnect.
14. On the ELK Keypad, press the **ELK** key. Press the **RIGHT** arrow key, the **UP** arrow key, and then the **RIGHT** arrow key again. You should see the name of the device and it's on/off status. Press the # key to change these. The lights should toggle.

This completes the protocol for linking the Insteon devices to each other and on the software.

The keypad and the XSP are both connected to the data bus on the control board (in parallel)

The RS232 connection on the XSP connects to the thermostat