Integration Note

Manufacturer:	Lutron
Model Number(s):	**HomeWorks Illuminations Processors**
Minimum Core Module Version:	4.0, Build 1600
Comments:	P5 4 Series, 8 Series, Wireless Series
Document Revision Date:	2/11/2013

OVERVIEW AND SUPPORTED FEATURES

The Lutron HomeWorks Illuminations series of lighting control systems use a central controller (processor) along with communicating keypads for control of scenes or individual loads, over wire or wireless RF. HomeWorks Illuminations series processors support RS-232 or Ethernet, enabling reliable feedback and external control in **g!**.

Installing a Lutron lighting system can be broken down into the following steps:

1. Work with the client to determine what lights will be controlled, where switches will be installed, and where keypads will be installed. Follow Lutron guidelines.
2. Install and test the Lutron system, again according to Lutron standard procedures. See **Installation Overview** below for details on wiring the Lutron hardware to the **g!** system.
3. Program the Lutron system: refer to **Lutron Programming Overview** below. Also see the **Connection Diagrams** for details on communication setup.
4. Integrate the lighting system into the **g!** system and test proper operation. See **g! Configuration Details** below.

LUTRON LIGHTING SYSTEMS SUPPORT THE FOLLOWING FEATURES:

Any feature not specifically noted as "supported" is not supported.

Switch Control: Control of individual loads from virtual and simulated keypads.

Scene Control: Control of scenes from virtual and simulated keypads.

Schedule Control: Multiple schedules can be set using the Viewer software, and are automatically tied to the System Mode.

Auto Detection: The **g!** system will automatically detect most switches, keypads, input modules and output modules in the system. See **g! System Programming Overview** for more details.

Virtual Keypads: The system contains some pre-designed templates to emulate real Lutron keypads, and where possible will automatically associate keypads with the correct templates.

Important Note: The Illuminations processor will not actuate third party commands sent to a keypad button set as a "Scene Saver" button in the "Properties" tab.

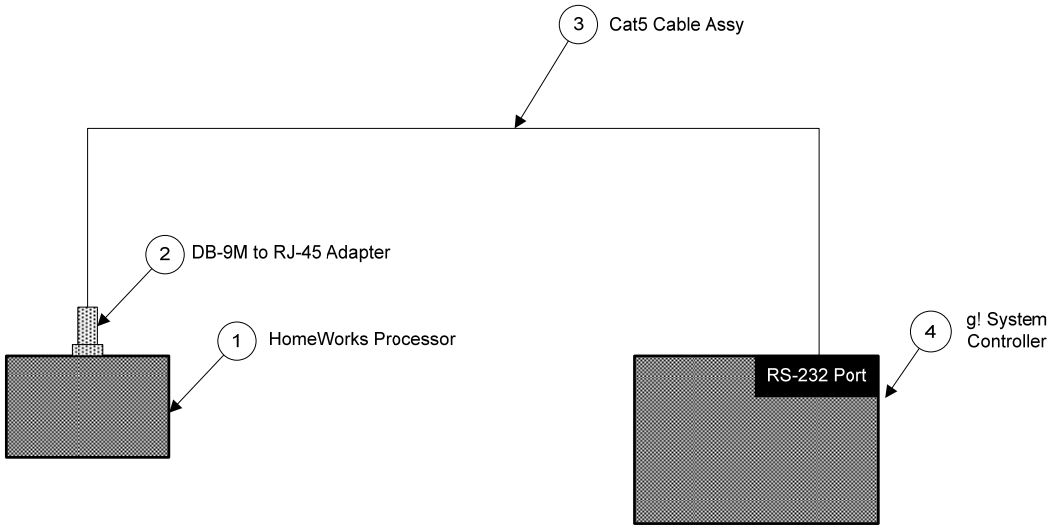
INSTALLATION OVERVIEW

Installing a Lutron lighting system in conjunction with a **g!** system includes the following steps:

1. During the rough-in phase, **in addition** to the wire runs needed for the Lutron system, add a single Cat5 cable from the HomeWorks Processor to the **g!** System Enclosure.
2. Complete the Lutron installation, and test according to Lutron procedures.
3. Terminate, test, and connect the Cat5 cable from the Lutron system and the **g!** system.
4. Configure the **g!** system.

CONNECTION DIAGRAM: RS-232 CONTROL

Refer to the **Bill of Materials** and **Wiring Diagram** that follow. Refer to the **RS-232 Connection Options** Integration Note for alternative connections methods.



BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	HomeWorks Processor	Lutron	H-RFP-2P*	RS-232	DB-9 Female	*example of Lutron part number, refer to Lutron processors
2	DB-9M to RJ-45 Adapter	ELAN	HA-CB-307	RS-232	DB-9 Male X RJ-45 Female	
3	Cat5 Cable Assy.	Installer	N/A	RS-232	RJ-45 Male X RJ-45 Male	Must terminate all 8 conductors
4	g! Controller	ELAN	Various (e.g. HC12)	RS-232	RJ-45 Female	

LUTRON CONFIGURATION FOR RS-232 CONTROL

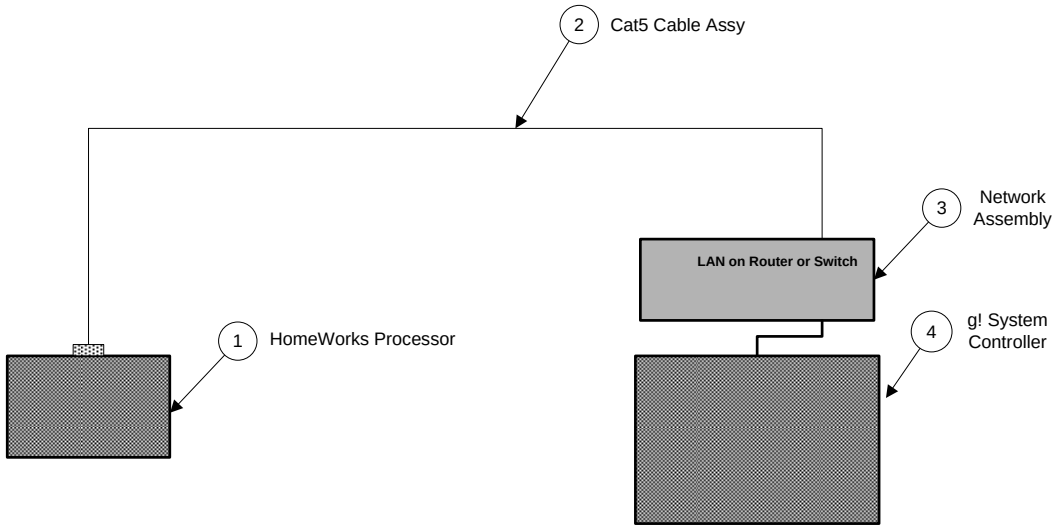
By default, the HomeWorks Illuminations series of processors are set to 9600 baud, with 8 data bits, 1 stop bit, and no handshaking or parity. For control in **g!**, these settings must still be at default.
If you have changed the settings from 9600, you may edit them in HomeWorks Illuminations software:

1. Enter the Terminal section of HomeWorks Illumination software.
2. Under System Commands, click on the command for “Set RS-232 Baud Rate”.
3. Use the drop down box to select 9600 baud.
4. The last line on the left edge of the screen shows the command string ready to be sent to the HW Processor as “SETBAUD, 9600”. Edit this string to show the correct processor ID and Link:
   Ex. SETBAUD, 01:03, 9600
   01 = the processor number, 03 = the link corresponding to the serial port
5. Send the command. A success should respond “For the new baud rate to take effect, you must restart the processor”.
6. Restart the Processor for changes to take effect.

Alternately, there may be a set of config dipswitches on the processor. Setting the 9600 dipswitch to ON should force the correct baud rate and ignore the user setting.

CONNECTION DIAGRAM: ETHERNET CONTROL

Refer to the **Bill of Materials** and **Wiring Diagram** that follow.



BILL OF MATERIALS

#	Device	Manufacturer	Part Number	Protocol	Connector Type	Notes
1	HomeWorks Processor	Lutron	H-RFP-2P*	Ethernet	DB-9 Female	*example of Lutron part number, refer to Lutron processors
2	Cat5 Cable Assy.	Installer	N/A	Ethernet	RJ-45 Male X RJ-45 Male	Must terminate all 8 conductors
3	Network Assembly	ELAN	NWA-1B	Ethernet	RJ-45 Female	
4	g! Controller	ELAN	Various (e.g. HC-12)	Ethernet	RJ-45 Female	

LUTRON CONFIGURATION FOR ETHERNET CONTROL

To configure for Telnet control, in HomeWorks Illumination software:

1. Go to the “Address Assignment” view.
2. Select “Link 9: (Ethernet)” and “Telnet Logins”.
3. Create a user login, Name=homelogic, Password=homelogic.
4. Turn Monitor On for Dimmer Levels, Keypad Buttons, Keypad LEDs, and optionally GrafikEye Scenes. Also enable (check) the Suppress Prompts box.
5. To configure the IP address, open the HW Illumination “Terminal” window and under “Files” select “TCP/IP Setup Wizard”. **g!** uses the default Telnet Port 23.
6. Make sure you remember to upload the configuration to the processor.

LUTRON PROGRAMMING OVERVIEW

The Lutron HomeWorks Illumination system must be fully programmed prior to integration with **g!**. Once you have completed programming the lighting control features, ensure you have properly followed the steps required to setup communication, show with the Connection Diagrams above.

Finally, export your program file as XML. **g!** can read the program file exported from Lutron HomeWorks Illumination software and automatically populate dimmers, keypads etc. in **g!**; including auto-associating keypads with pre-made templates where possible.

To export the XML file:

Steps below were tested on Lutron HomeWorks Illumination software version 1.42 and later:

- With the correct configuration file open, enter the Floorplan View
- Export the XML file:
    - Choose File> Export> Export Control Data as XML. (Versions 1.42-approximately 1.48)
    - Choose Tools>Create XML File>For advanced third party integration (~1.48 and newer)
- **g!** will interpret the XML file correctly with or without presets.
- Names for dimmers and keypads will be pulled into **g!**, and **g!** will attempt to auto-associate a pre-made template for Keypads (if templates are available).

Note: If you add new devices to your Lutron programming after reading the XML file into **g!**, you will need to re-export the XML file and read the config file into **g!** again to gain control over your new devices. If you have changed the programming of existing devices it is recommended you delete your Lighting Interface and add the HomeWorks Illumination again before reading the new XML file.

---

g! CONFIGURATION DETAILS

The following table provides settings used in the **g!** Configurator. Please refer to the Configurator Reference Guide for more details.

- o "<Select from list>" Select the appropriate item from the list (or drop-down) in the Configurator.
- o "<User Defined>", etc. Type in the desired name for the item.
- o "<Auto Detect>", etc. The system will auto detect this variable.

Refer to the **g! System Programming Details** below for additional information.

Devices	Variable Name	Settings (Serial)	Settings (Ethernet)
Communication Devices	**Name**	<User Defined> (Default: **Lighting**)	<User Defined> (Default: **Lighting**)
	Type	**Serial Port**	**Ethernet**
	Communication Type	**Standard Connection**	**Standard Connection**
	Location	<User Defined> (Not Required)	<User Defined> (Not Required)
	COM Port/IP Address	<Select Com Port from list>	<User Defined> (Enter IP address of HW Processor)
Lighting Interface	**Name**	<User Defined> (Default: **Lutron HomeWorks Illuminations RS-232**)	<User Defined> (Default: **Lutron HomeWorks Illuminations Ethernet**)
	Device Type	**Lutron HomeWorks Illuminations RS-232**	**Lutron HomeWorks Illuminations Ethernet**
	Location	<Select from list> (Not Required)	<Select from list> (Not Required)
	COM Device	<Select from list> (Default: **Lighting**)	<Select from list> (Default: **Lighting**)
<Read Config File>	**Press the Read Config File button and navigate to your exported HW Illuminations XML project, and then click OK to import and interpret the file.**		
Lighting Devices	**Name**	<Auto Detect>	<Auto Detect>
	Lighting Interface	<Auto Detect>	<Auto Detect>
	Device Type	<Auto Detect>	<Auto Detect>
	Location	<Select from list> (Not Required)	<Select from list> (Not Required)
	Station / Enc / Mod / LD	<Auto Detect>	<Auto Detect>
Keypads	**Name**	<User Defined>	<User Defined>
	Lighting Interface	<Auto Detect>	<Auto Detect>
	Keypad Type	<Auto Detect>	<Auto Detect>
	Location	<Select from list> (Not Required)	<Select from list> (Not Required)
And / Or:			
Custom Tab		Create Custom Lighting Interfaces to actuate scene buttons, individual loads, etc.	

Note: The Lutron HomeWorks Illuminations driver is only useful if you have the XML file. If you need to auto-detect devices and add one at a time, you must control RS-232 with the older Lutron HomeWorks Interactive driver. See the Lutron HomeWorks Interactive driver for details.

COMMON MISTAKES

1. Incorrect serial port settings on the HomeWorks processor use 9600 baud and no flow control.
2. Importing a HomeWorks HDF file instead of the XML file. You must export a XML copy of the project, and the file extension must be XML for proper importing.