About KeypadLinc Controller’s Certification
KeypadLinc has been thoroughly tested by ITS ETL SEMKO, a nationally recognized independent third-party testing laboratory. Products bearing North American ETL Listed mark signifies that the product has been tested to and has met the requirements of a widely recognized consensus of U.S. and Canadian product safety standards, that the manufacturing site has been audited, and that the manufacturer has agreed to a program of quarterly factory follow-up inspections to verify continued conformance.

Smarthome Limited Warranty
Smarthome warrants to the original consumer purchaser of this product that, for a period of two years from the date of purchase, this product will be free from defects in material and workmanship and will perform in substantial conformity to the description of the product in this Owner's Manual. This warranty shall not apply to defects or errors caused by misuse or neglect.

If the product is found to be defective in material or workmanship or if the product does not perform as warranted above during the warranty period, Smarthome will either repair it, replace it or refund the purchase price, at its option, upon receipt of the product at the address below, postage prepaid, with proof of the date of purchase and an explanation of the defect or error. The repair, replacement, or refund that is provided for above shall be the full extent of Smarthome's liability with respect to this product.

For repair or replacement during the warranty period, call Smarthome customer service to receive an RA# (return authorization number), properly package the product (with the RA# clearly printed on the outside of the package) and send the product, along with all other required materials to:

Smarthome
ATTN: Receiving Dept.
16542 Millikan Ave
Irvine, CA 92606-5027

Limitations:
THE ABOVE WARRANTY IS IN LIEU OF AND SMARTHOME DISCLAIMS ALL OTHER WARRANTIES, WHETHER ORAL OR WRITTEN, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH MAY NOT BE DISCLAIMED OR SUPPLANTED AS PROVIDED ABOVE SHALL BE LIMITED TO THE ONE YEAR PERIOD OF THE EXPRESS WARRANTY ABOVE. NO OTHER REPRESENTATION OR CLAIM OF ANY NATURE BY ANY PERSON SHALL BE BINDING UPON SMARTHOME OR MODIFY THE TERMS OF THE ABOVE WARRANTY AND DISCLAIMER.

IN NO EVENT SHALL SMARTHOME BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES RESULTING FROM THE POSSESSION OR USE OF THIS PRODUCT, INCLUDING WITHOUT LIMITATION DAMAGE TO PROPERTY AND, TO THE EXTENT PERMITTED BY LAW, PERSONAL INJURY, EVEN IF SMARTHOME KNEW OR SHOULD HAVE KNOWN OF THE POSSIBILITY OF SUCH DAMAGES.

Some states do not allow limitations on how long an implied warranty lasts and/or the exclusion or limitation of damages, in which case the above limitations and/or exclusions may not apply to you. You may also have other legal rights, which may vary from state to state.
Congratulations!
Thanks for purchasing the KeypadLinc™ Wall Mounted Controller, the finest high quality powerline-controllable keypad available. This amazingly flexible controller is packed with some of the most advanced features available, allowing you to send any standard X10/PLC (Powerline Carrier) command, including PRE-SET DIM commands! It can even send commands to your 2-way intelligent controller, enabling you to activate pre-programmed macros. From controlling a single light to triggering elaborate multi-room scenes, this KeypadLinc wall-mounted keypad can do it all.

Best of all, KeypadLinc Wall Mounted Controllers are easy to install and set up. They install into a regular wall electrical box and only require three electrical connections. They are ideal for new homes or retrofits and require no special training to install it!

KeypadLinc Features
• Any button can be programmed to send any address or command
• Programmable “toggle” ability, allowing up to 4 different command functions from one button (ON, OFF, BRIGHT, DIM, etc.)
• Buttons light up when an ON signals are sent or received
• Includes preprinted button labels or make your own
• Status LED/ Set Button shows powerline activity and facilitates programming
• Button glow softly when off
• Includes support for setting up scenes in Smarthome scene-enabled products
• True-2-way communications with Status Request Commands
• All settings are held in non-volatile memory (no code wheels to set)
• Easy, flexible programming
• High-quality construction designed for years of use
• Safety tested and ISO9002 certified

KeypadLinc Models
Model 12063W 6-Button KeypadLinc
Model 12064W 8-Button KeypadLinc
Model 12073W 6-Button KeypadLinc with Dimmer (Amber LEDs)
Model 12073WB 6-Button KeypadLinc with Dimmer & BoosterLinc (Blue LEDs)
Model 12073WW 6-Button KeypadLinc with Dimmer & BoosterLinc (White LEDs)
Model 12074W 8-Button KeypadLinc with Dimmer (Amber LEDs)
Model 12074WB 8-Button KeypadLinc with Dimmer & BoosterLinc (Blue LEDs)
Model 12074WW 8-Button KeypadLinc with Dimmer & BoosterLinc (White LEDs)

Specifications
Addresses: Any of the 256 PLC (X10) Addresses or Commands
Minimum PLC transmit level: 2V
Minimum PLC receive level: 10mV
Maximum PLC signal rejection: 200mV
Status indicator: Green LED
Dimensions:
  Front Bracket Main Body
  (Width) 1.73" 1.73"
  (Height) 4.14" 2.76"
  (Depth) 1.68" 1.40"
Weight: 4.3 oz.
Operating temperature range: 32°F to 158°F (0° to 70°C)
Input power: 125 VAC, 60 Hz
Max # of KeypadLinc Controllers per multiple gang box: 4
Max. # of KeypadLinc Controllers per circuit: 10 (with more than 6, a coupler-repeater is recommended)
Mounts in single or multiple-ganged J-box

Invest in better Home Automation Products
Unlike most electric items, many PLC-based products haven't changed much over the years. Our Marketing and Customer Service teams surveyed our customers, like you, and our engineers have invented new and better wall switches and plug-in modules. We include more features, higher load handling, and better signal sensitivity for a superior user experience. While in some cases, they cost more; we hope you'll agree that not having to replace a dead module every couple years is worth the added expense and reduced aggravation. Please visit a retailer or distributor for the complete line of automation products from Smarthome Design. Check out our web site at: http://www.smarthome.com/smarthomedesignstore.html
Quick Reference Guide

Use these quick start instructions to make a change to an existing KeypadLinc or after you have read through the detailed programming instructions beginning on page 10. These instructions show the basic steps for the most common programming functions without all the explanations and details.

If this is your first time installing or using KeypadLinc, we recommend you skip this section for now.

Glossary of Terms

PLC - Power Line Control - A control signal that is embedded onto the electricity lines. X10 signals are a form of PLC signals.

X10 Address - The Address part of a PLC signal contains the House and Unit code. An Address can be Unit codes 1 to 16 and House codes A - P. There are 256 total PLC addresses. Examples of PLC Addresses are A1, B-5, P-15, O-9.

X10 Command - The Command is action part of a PLC signal. It tells the module what to do after it sees its address. Examples of a command are ON, OFF, Bright, DIM, PREDim, All Light ON, and All Units OFF. There are other rarely used commands, but these are the most common ones.

Toggle Mode - Causes KeypadLinc to send two different commands on alternate presses. If the button's indicator is off, when pressed, it will send an ON signal. If the button's indicator is on, it will send an OFF command when pressed.

Non-Toggle Mode - KeypadLinc will send the same signal each time the button is pressed regardless of the load's status or the indicator light.

Status & Status Request - Some receivers have the ability to report their on/off/dim status when asked. These modules contain a transmitter that can send PLC signals. When KeypadLinc sends a Status Request command, the module will reply with its status (On, Off, Predim at some %).

Non-Toggled Mode Address Programming

1. Enter Setup mode (hold any two keys for 5 seconds)
2. Press the button to be set
3. Confirm button’s indicator is Blinking
4. Send the address and command (to set the mode)
   Bright: Non-dimmable module
   ON:  Dimmable module
   OFF: 2-Way non-dimmable module
   Dim: 2-Way dimmable module
   8: Controls a Smarthome scene-enabled modules
   (see page 12 for more detailed instructions)

Toggle Mode Address Programming

1. Enter Setup mode (hold any two keys for 5 seconds)
2. Press the button to be set
3. Confirm button's indicator is Blinking
4. Send the address and command (to set the mode)
   Bright: Non-dimmable module
   ON:  Dimmable module
   OFF: 2-Way dimmable module
   Dim: 2-Way non-dimmable module
   8: Controls a Smarthome scene-enabled modules
   (see page 12 for more detailed instructions)

CAUTION!!

Read and understand these instructions before installing! This device is intended for installation in accordance with the National Electric Code and local regulations. For indoor use only. Connect only copper or copper-clad wire to this device. Before installing the control, disconnect power at the circuit breaker or remove the fuse to avoid shock or damage to the control or to the installer. It is recommended that a qualified electrician perform this installation. Retain these instructions for future reference.

Appliance Module - A receiver device that can be used with any type of load, including lighting. It will never contain dimming control as it always has a hard contact relay. An Appliance Module will ignore the All Lights ON command.

Lamp Module - A receiver that is used to only control lighting devices. It may contain dimming control or it may have a hard contact relay. A Lamp Module will respond to the All Lights ON command. KeypadLinc with Dimmer is defined as a lamp module so it will respond to the All Lights On for the primary address housecode.

Hot or Line - The wire in the junction box that contains the incoming electricity from the electrical panel. It is usually black and may be tied with a wire nut to other black wires in the rear of the box.

Neutral - While not used on a mechanical switch to control a load, KeypadLinc will need a neutral wire to operate. Generally, the neutral wires are white and located in the rear of the junction box. There may be two or more wires tied together by a wire nut.

Load - The wire in the junction box that goes to the light(s). Usually, there is just one load wire in a junction box and it's commonly black. No voltage is present on the wire when the switch is off.
Preparation
Before installing KeypadLinc, please familiarize yourself with the following and take the necessary precautions listed here:

• Be sure that the circuit breaker is turned off to the circuit being controlled. Installing KeypadLinc with the power on will expose you to dangerous voltages.

• KeypadLinc Wiring Diagram on page 5 will help you to determine the wire colors of the connections to the KeypadLinc and Multi-Way Companion Switch. Note: While the neutral connection is optional on the Multi-Way Companion Switch, the KeypadLinc requires a neutral connection.

• The KeypadLinc Controllers (12063W & 12064W) do not have any circuitry to control a load. If the existing light switch is going to be replaced with a KeypadLinc, provisions will need to be taken so that the light(s) or load will still be controllable. It is not possible to remove an existing light switch and install the KeypadLinc Controller. Use KeypadLinc with Integrated Dimmer for this application or an additional receiver module. The instructions provide several wiring examples.

• Installation should be performed only by a qualified electrician, or by a homeowner who is familiar and comfortable with electrical circuitry. If there are any questions, consult an electrician or contact Smarthome's Tech Support department for guidance.

Installation Instructions
The KeypadLinc can be easily installed in a new or existing home. The following illustrations do not show the "outgoing" power wires. In a most homes, the wiring circuits are installed in a "daisy-chain" fashion. Typically the wires run from the circuit breaker box to the first switch, then the next switch box, and so on. Normally, "pig-tail" connections will split off these cables inside the wall outlet boxes.

Common wiring colors:
- HOT (or LINE) is usually black wire
- LOAD is usually a black wire
- NEUTRAL is usually a white wire.
- Electrical GROUND is a copper or green wire.
- TRAVELERS (in a 3- or 4-way switch) are usually red.

These are the most common colors used over the last few decades. Depending on the age of the building and local electrical codes, the colors could be different. Knowing which wire is HOT or LINE is important so having a tester available will be helpful to the success of the project.

Helpful Tools
If you’re investing in home automation, there are a few tools that will make your projects run smoother:

Maxi-Controller
This plug-in transmitter has the ability to send individual PLC commands. The buttons are separated into Addresses and Command functions. To use this controller, you have to press the address (for example, “5”), then the command (ON, OFF, BRIGHT, etc.). Many of the features found in Smarthome products need to be programmed with individual button presses. Using a controller that sends the address and command with one button press will not work. For more info visit: www.smarthome.com/4020.html

Signal Meter
This is an invaluable tool when it comes to installing and diagnosing problems. By knowing the signal’s strength at a specific location, you can make sure that the signal will always trigger that module. Generally, it is ideal to have at least 100mV at each location. Conservative installers will want even more; perhaps 250mV just in case the homeowner installs a new big-screen TV after final installation. The extra margin will still give the receivers enough signal strength to be reliably triggered. These units can also be used to measure the effects of signal absorption mentioned earlier. Plug in the signal meter and measure the signal’s strength, then unplug any devices that are plugged into that and nearby outlets. If 10% or greater change is observed, install a filter (like FilterLinc™) on that device.

Voltmeter or Voltage Tester
During the installation of a home automation wall switch or controller, it may be necessary to identify the wires inside the wall box. Knowing for sure which wire is the HOT or LINE wires can reduce the guesswork when installing a single switch and it is absolutely necessary when working with 3-way lighting circuits. A voltmeter is ideal for this application. Many of the digital models can also read current so you’ll know how much power is being drawn by the switch’s load.

A simpler measurement tool, available at most home improvement centers, is a voltage sensor. This device, often costing less than $20, can sense voltage when placed near a wire. The tip of the voltage sensor can tell if voltage is on the wire without touching the bare copper conductor or breaking the insulation.

When using these tools, be certain to read and understand the safety instructions. Often when these tools are used, the power to the circuit will need to be turned on. When working around live electrical wires, take your time and concentrate on the task.
Step-by-Step Instructions
Replacing a Switch Where the Power Comes in at the Wall Switch Box
In this example, the power for the circuit comes into the wall switch box. The switch then controls the power going to the load. Typically, there will be two wires (usually black) connected to a switch. In the back of the wall box, there will be a group of white wires bundled together with a wire nut; these are the neutral wires. At the load’s location, a PLC receiver will need to be installed so that the load can still be controlled. In this case a Fixture Relay Module (Smarthome item #2250, #2250AC, #2251, or #2251AC) is diagrammed.

1. Disconnect the power for the existing switch at the circuit breaker or fuse panel. Verify that the power has been removed by trying to turn on the lights.
2. Remove the trim plate and pull out the existing switch.
3. Remove the two wires from the existing switch.
4. Connect those two wires and the KeypadLinc Controller's black wire all together with a wire nut.
5. Connect the white neutral wire on the KeypadLinc to the group of white wires in the back of the wall box.
6. Connect all the ground wires together.
7. Ensure that all wire connectors are firmly attached and that there is no exposed copper except for the Ground wire.
8. Place KeypadLinc into the wall box (with LED at top of device) and secure.
9. At the load’s location, install a Fixture Relay Module (FRM). Connect FRM black to the black wire coming from the electrical box.
10. Set the PLC address on the FRM.
11. Restore power to the circuit, the green StatusLED will come on after a few seconds.
12. After testing KeypadLinc, install the faceplate (sold separately).

If the buttons on the KeypadLinc are programmed to the same address as the Fixture Relay Module, users will still be able to control the load from the KeypadLinc just like the old switch did.
Changing the Front Plastics

The white plastic trim pieces on the front of the KeypadLinc may be changed if needed. The kit consists of three pieces, however, they come assembled together for easier installation. If the individual pieces come apart, refer to the image on the right for the correct assembly order.

1. Removed the keycap covers following the instructions on page 18. Set them aside as they will be placed onto the new trim piece.
2. Remove the four Phillips screws on the front.
3. Gently pull the trim and button support pieces away from the KeypadLinc.
4. Place the new trim and button support pieces onto the KeypadLinc. The assembly has a cut out at the top for the Status LED/Reset Button.
5. Replace the four screws.
6. Replace the keycap covers.

Replacing a Switch Where the Power Comes in at the Load's Electrical Box

In this example, the power for the circuit comes at load's location. A single cable leads down to the wall switch. The switch then controls the power going to the load. Typically, there will be 2 wires (one black and one white) connected to a switch. At the load's location, a PLC receiver will need to be installed so that the load can still be controlled. In this case a Fixture Relay Module (Smarthome item #2250, #2250AC, #2251, or #2251AC) is diagrammed.

1. Disconnect the power for the existing switch at the circuit breaker or fuse panel. Verify that the power has been removed by trying to turn on the lights.
2. At the load's location, install a Fixture Relay Module (FRM).
3. Connect all the white wires (load's white, white from the circuit breaker, white wire that goes to the switch and FRM's white) together using a wire nut.
4. Connect the FRM blue to the load's black wire.
5. Connect the three remaining wires (usually black) together using a wire nut.
6. Set the address on the Fixture Relay Module.
7. Remove the trim plate and pull out the existing switch.
8. Remove the two wires from the existing switch.
9. Connect the ground wires together.
10. Connect the neutral of the KeypadLinc to the white wire out of the wall box.
11. Connect the black wire in the wall to the black wire on the KeypadLinc.
12. Ensure that all wire connectors are firmly attached and that there is no exposed copper except for the Ground wire.
13. Place KeypadLinc into the wall box (with LED at top of device) and secure.
14. Restore power to the circuit, the green Status LED will come on after a few seconds.
15. After testing KeypadLinc, install the faceplate (sold separately).

How Powerline Signals Travel Around A Home and How To Improve Reliability

Most homes in North America have two lines of 120 volts coming into the home from the utility company. This split-single phase electricity is divided out at the home's breaker box into the circuits that feed light switches, plug-in outlets, and appliances. Half of the electricity outlets and wall switches are fed by one of the 120-volt lines and the second 120-volt line feeds the other half. The intermittent operation of PLC/X10 modules usually happens when the transmitter is sending signals on one line and the receiver module is plugged into an outlet on the other line. For the signals to get to the receiver, it must leave the home, travel to the utility company transformer and then come back in on the other AC line. By the time the signal gets back to the home, travels through the electrical meter and circuit breaker box, there may not be enough signal left to trigger the module.

The first order of business will be to install a coupler-repeater, also known as amplifier. A coupler-repeater will 'see' the incoming signal, re-generate it, and blast it out over both lines of the 120 volts. We recommend that any home larger than 3000 square feet install a coupler-repeater. In smaller homes, a passive phase coupler also known as a signal bridge may give satisfactory results.
Custom Keypad Labels
The KeypadLinc button labels can be changed so you can customize its appearance. You can use the pre-printed labels that shipped with your KeypadLinc or create your own using the enclosed blank labels.
Visit the Smarthome Web site to download replacement label files or a template to allow label creation in word processors that can read the Microsoft® Word format. All can be found at:
http://www.smarthome.com/12063W.HTML
While we encourage you to customize your KeypadLinc, please be gentle in removing the keys. The buttons on the KeypadLinc 8 require extra special care in removing the keycaps. Using a small, flat edged screwdriver, ONLY pry up on the sides of the keys from the middle of the keypad (as shown below). Make sure you are centered on the key as there is a small "lip" to pull up on located there. Should any damage occur to your KeypadLinc during the labeling, please contact Smarthome Customer Service at 1-800-762-7846 and we will be happy to replace your unit.

Replacing a Switch That Controls Power to a Wall Outlet
In this situation, the power comes into the wall switch box, splits into two circuits: the switch controls half a receptacle and the other half is hot all the time. A single cable with three wires plus ground connects to the wall receptacle. Typically, there will be two wires (one black and one red) connected to the switch. At the load's location, a receiver will need to be installed so that the load can still be controlled. In this case a Controllable Receptacle Module is diagrammed.

1. Disconnect the power for the existing switch at the circuit breaker or fuse panel. Verify that the power has been removed by trying to turn on the lights.
2. Remove the trim plate and pull out the existing switch.
3. Remove the two wires from the existing switch.
4. Connect all the ground wires together.
5. Connect the white neutral wire on the KeypadLinc to the group of white wires in the back of the wall box.
6. Connect the black wire from the KeypadLinc to the other black wires.
7. Cap off the other wire (usually red) that was on the switch.
8. At the electrical receptacle, remove the existing outlet and install a PLC Controllable Receptacle Module.
9. Connect the ground, white neutral, and black hot wires out of the wall to the Controllable Receptacle Module.
10. Cap off the remaining wire (same color as in step 7), it will not be used.
11. Ensure that all wire connectors are firmly attached and that there is no exposed copper except for the Ground wire.
12. Place KeypadLinc into the wall box (with LED at top of device) and secure.
13. Set the address on the Controllable Receptacle Module.
14. Restore power, the green Status LED will come on after a few seconds.
15. After testing KeypadLinc, install the faceplate (sold separately).

If the buttons on the KeypadLinc are programmed to the same address as the Controllable Receptacle Module, users will still be able to control the load from the KeypadLinc just like the old switch did. A plug-in module could be used instead of replacing the existing receptacle.
Reinstalling One Wall Switch of a 3- or 4-Way Circuit

In this circuit, the power for the circuit comes into one of the two wall switch boxes. The wire to the load is located at the other wall switch. In this example, both the existing switches will be replaced with a KeypadLinc and a X10/PLC compatible Wall Switch receiver. If this circuit is already set up as a PLC-controlled 3-way, the slave switch will be replaced with a KeypadLinc. The KeypadLinc will have the ability to send signals to control the lights just like any transmitter could.

1. Disconnect the power for the existing switch at the circuit breaker or fuse panel. Verify that the power has been removed by trying to turn on the lights.
2. At the location where the power enters the circuit, there will be three wires coming out of the wall. One will be the incoming power; usually black, and the other two will be the travelers going to the other switch box. Connect one of the traveler wires (choose the black one if it’s available), the incoming power black and the black wire on the KeypadLinc all together.
3. Cap off the other traveler wire (usually red), it will not be used.
4. Connect the white neutral wire on the KeypadLinc to the group of white wires in the back of the wall box.
5. Connect the ground wires together.
6. At the other wall switch location, remove the existing switch from the wall.
7. There will be three wires: two travelers from the first wall switch box where the KeypadLinc is now installed and the outgoing load wire. There may be a group of white neutral wires in the back of the box tied together with a wire nut.
8. Identify the two traveler wires. Normally, these two wires will be under one sheath of cable.
9. Cap off the same colored wire (usually red) that was capped at the first wall switch (step 3). This conductor will not be used.
10. Connect the other traveler (usually black) to the LINE wire on the new switch.
11. Connect the LOAD wire on the new switch to the remaining unconnected wire coming out of the wall box.
12. If the new switch needs a neutral wire, connect it to the neutral wires in the back of the box.
13. Set the address on the new PLC Wall Switch.
14. Ensure that all wire connectors are firmly attached and that there is no exposed copper except for the Ground wire.
15. Place KeypadLinc (with LED at top) and the new switch into their wall boxes and secure.
16. Restore power to the circuit, the green Status LED will come on after a few seconds.
17. After testing the KeypadLinc and new switch, install the faceplates (sold separately).

If these solutions have been tried, the manual has been reviewed and you still cannot resolve an issue you’re having with the KeypadLinc;

- Search our on-line knowledge base at: http://smarthome.custhelp.com
- E-mail tech@smarthome.com
- Call our Technical Support Dept. at 949-221-9200
**Setting Scenes for SmartHome Scene-Enabled Products**

In the Toggle Mode Programming section, a button could be defined to activate a scene using scene-enabled SmartHome switches and plug-in modules. The button can also be used to help in setting up the scene's programming.

1. Push and hold the button for setting up the scene for 3 seconds.
2. The button will begin to blink and send the Scene Clear sequence. The button's indicator will continue to blink and remain in setup mode for about 4 minutes.
3. Adjust the lighting level of each scene-enable switch or module to the desired level.
4. Return to the KeypadLinc and push the blinking button.
5. The KeypadLinc will send the command sequence to lock-in the scene. The button will stop blinking and the KeypadLinc will be ready to use.
6. The SmartHome scene-enabled units that were enrolled in that scene will momentarily blink their lights (if they are still on).

For more information on how scenes work, please refer to the section, "Scene Address Programming" in the product's owner's manual.

**Factory Reset**

If KeypadLinc begins to operate strangely, the factory reset procedure can be used to clear the EEPROM's memory.

1. Gently pull the Set Button out to remove power for five seconds.
2. Push and hold in the Set Button for five seconds, then release.
3. When the Status LED indicator comes on, the KeypadLinc is reset. All of the programming will be defaulted to the assignments below.

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**Replacing One Wall Switch of a 3- or 4-Way Circuit (cont...)**

If the buttons on KeypadLinc are programmed to the same address as the new PLC Wall Switch, users will still be able to control the load from the KeypadLinc just like the old switch did.

It is possible to reverse the positions of the KeypadLinc and the PLC switch. The extra traveler that was capped off and not used in the example would be connected between the load output of the PLC switch and the load wire at the KeypadLinc Controller's location.
Setting Up Groups

Buttons can be programmed in Groups that will allow the indicator lights under the button to stay illuminated after the button is pressed. When another button in that Group is pressed, the KeypadLinc sends the programmed signal, turns off the indicator of the previous button, and turns on the indicator of the recently pressed button.

Groups help identify which mode is in operation at the moment:
- ON/OFF
- Dinner Time, Reading, Movie Time, OFF
- Morning or Night
- Family Home vs. Family Away
- Status of Flags (rain recently vs. dry and run sprinklers)

How to program Groups:
1. Make sure all of the buttons to be Grouped are defined as Non-Toggle (see p.14).
2. Enter the Setup Mode.
3. Select the buttons for the Group (up to four).
4. If you make a mistake and want to remove a button, just push it. The indicator light will go off and it will be removed from the Group.

After 30 seconds, all the indicators will flash and the KeypadLinc exits the setup mode.

To remove a button previously programmed into a Group:
1. Enter Setup Mode.
2. Select the button to be removed from the Group by pressing it once. The other Group buttons are illuminated.
3. Push the button a second time, it will then begin blinking.

After 30 seconds, all the indicators will flash and the KeypadLinc exits the setup mode.

NOTE: If a single button is left in a Group, KeypadLinc will automatically dissolve the group so that the remaining button does not need to be removed from the group.

Special Notes About Groups

- Only Non-Toggle buttons can join a Group
- Up to four Groups are permitted on one keypad
- Up to four buttons can be in one Group
- A button can’t be the only member of a Group
- A button can only be in one Group at a time
- Received PLC signals will not affect the Group’s indicator lights

Tip: If you have trouble communicating to the KeypadLinc, there may be a lot of signal activity on the powerline. Unplug transmitters whose signals that might be intercepted by KeypadLinc during the programming sequences. RF transceivers, computer controllers, and X10 thermostats should be unplugged to avoid interference.

Setting it Up

The KeypadLinc does not use code wheels or dials to set programming addresses. Instead, it accepts the first address on the powerline once the programming mode is started. Any PLC/X10 transmitter can be used to set the primary address. The settings are stored in non-volatile memory that will be retained in the event of a power failure.

You will need a transmitter to set the button’s addresses or functions. To get the maximum number of programming options, we recommend a ControlLinc Duo (Smarthome item #4071) or a Maxi Controller (#4020). A Maxi-Controller has separate keys for the addresses (1, 2, 5, etc.) and the commands (ON, OFF, etc.). Many PLC/X10 transmitters have buttons with combined functions. That is, their buttons combine the address with a command (1-ON, 1-OFF). When single-button controllers are used, the setup choices will be limited. In some of the programming steps, it may be necessary to send only the address.

#4020 Maxi-Controller

The KeypadLinc does not use code wheels or dials to set programming addresses. Instead, it accepts the first address on the powerline once the programming mode is started. Any PLC/X10 transmitter can be used to set the primary address. The settings are stored in non-volatile memory that will be retained in the event of a power failure.

You will need a transmitter to set the button’s addresses or functions. To get the maximum number of programming options, we recommend a ControlLinc Duo (Smarthome item #4071) or a Maxi Controller (#4020). A Maxi-Controller has separate keys for the addresses (1, 2, 5, etc.) and the commands (ON, OFF, etc.). Many PLC/X10 transmitters have buttons with combined functions. That is, their buttons combine the address with a command (1-ON, 1-OFF). When single-button controllers are used, the setup choices will be limited. In some of the programming steps, it may be necessary to send only the address.

Tip: If you have trouble communicating to the KeypadLinc, there may be a lot of signal activity on the powerline. Unplug transmitters whose signals that might be intercepted by KeypadLinc during the programming sequences. RF transceivers, computer controllers, and X10 thermostats should be unplugged to avoid interference.

#4020 Maxi-Controller

The KeypadLinc does not use code wheels or dials to set programming addresses. Instead, it accepts the first address on the powerline once the programming mode is started. Any PLC/X10 transmitter can be used to set the primary address. The settings are stored in non-volatile memory that will be retained in the event of a power failure.

You will need a transmitter to set the button’s addresses or functions. To get the maximum number of programming options, we recommend a ControlLinc Duo (Smarthome item #4071) or a Maxi Controller (#4020). A Maxi-Controller has separate keys for the addresses (1, 2, 5, etc.) and the commands (ON, OFF, etc.). Many PLC/X10 transmitters have buttons with combined functions. That is, their buttons combine the address with a command (1-ON, 1-OFF). When single-button controllers are used, the setup choices will be limited. In some of the programming steps, it may be necessary to send only the address.

Tip: If you have trouble communicating to the KeypadLinc, there may be a lot of signal activity on the powerline. Unplug transmitters whose signals that might be intercepted by KeypadLinc during the programming sequences. RF transceivers, computer controllers, and X10 thermostats should be unplugged to avoid interference.

#4020 Maxi-Controller
Non-Toggled Mode Button Programming  
(Sending the same commands with each keypress)

In the Non-Toggled mode, the keypad will send the same signal each time the button is pressed. Each button can be programmed to send one or two signals. See page 11 for more information.

1. Enter the Setup Mode (by holding any two buttons for 5 seconds).
2. Press the button to be programmed.
3. Make sure the button is in the Non-Toggled mode by observing the button's indicator light; it should be constantly lit. If it isn't, press the button a second time. If other button indicators come on when a button is pressed, it means that button is part of a Group. The other buttons indicators will have no effect on the programming of the selected button. See “Setting Up Groups” on page 15.
4. From a controller you must tell the KeypadLinc how many commands will be put on the button:

<table>
<thead>
<tr>
<th>Send</th>
<th>Example</th>
<th>Function</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Code 1*</td>
<td>F-1</td>
<td>One Address</td>
<td>F-9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>One Command</td>
<td>F-All Units Off</td>
</tr>
<tr>
<td>Unit Code 2*</td>
<td>F-2</td>
<td>Two Addresses</td>
<td>F-9 &amp; F-10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two Commands</td>
<td>F-All Units Off &amp; G-All Units Off</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Address and Command</td>
<td>F-9 &amp; F-On</td>
</tr>
</tbody>
</table>

*Any housecode may be used

- This signal must be a keypress only.
- A transmitter that sends an address and a command (A-1, A-ON) with a single button press WILL NOT WORK.
- If this step is skipped, the KeypadLinc will ignore all other signals. At the end of 30 seconds, the keypad will exit the Setup Mode and the button will retain the function that was previously programmed.

5. Send the one or two addresses or commands to be programmed into the button. The indicator light will turn off and the button is programmed.

Special Case: BRIGHT/DIM of Last Button Pressed
KeypadLinc can send BRIGHT or DIM signals for the last unit code sent from another button on the KeypadLinc, regardless of the House Code.
1. Enter the Setup Mode (by holding any two buttons for 5 seconds).
2. Press the button to be programmed.
3. Make sure the button is in the Non-Toggled mode by observing the button's indicator light; it should be constantly lit. If it isn't, press the button a second time.
4. Send unit code 1 to indicate One Address/Command.
5. Send BRIGHT or DIM (the controller can be set to any house code). The indicator light will turn off and the button is programmed.

Programmed the KeypadLinc Controller's Buttons
The buttons on the KeypadLinc can be programmed in one of two ways:

Toggle Mode
In this mode, the keypad can send two different commands on alternate presses. For example, pressing a button when the indicator light is off will cause an ON signal to be sent. If the indicator light is on, the keypad will send an OFF signal when pressed. Additionally, the button's indicators will reflect the status of that address. If another transmitter sends a signal corresponding to an address on the keypad, the indicator will come on if the signal contains an ON, BRIGHT or ALL LIGHTS ON command. If the address received contained an OFF or ALL UNITS OFF command, the indicator will turn off. If the button was defined as an Appliance, the keypad will ignore the ALL LIGHTS ON for that address.

Please note that most modules only receive signals and don't transmit anything. If you have a device that can be activated manually at the module, then that action would not be sent to the KeypadLinc because most modules can't transmit. It is possible for indicators to become out of sync with the true status of your modules. For example, if you turned on a “receiver-only” wall switch, the indicator light on the KeypadLinc would not come on because most wall switches can't transmit. If you need the modules to transmit when manually activated, check out Smarthome's many 2-way modules like SwitchLinc 2-Way, ToggleLinc 2-Way, and LampLinc 2-Way plug-in modules.

Non-Toggled Mode
The button will always send the same signal each time it is pressed. The signal sent can be made up of the following:

<table>
<thead>
<tr>
<th>Type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>One address</td>
<td>F-9</td>
</tr>
<tr>
<td>Two Addresses</td>
<td>F-9, F-10</td>
</tr>
<tr>
<td>One Command</td>
<td>F-Dim</td>
</tr>
<tr>
<td>Two Commands</td>
<td>F-All Units Off, G-All Units Off</td>
</tr>
<tr>
<td>Address and Command</td>
<td>F-9, F-On</td>
</tr>
</tbody>
</table>

In the Non-Toggled Mode, the indicator lights under each button will not illuminate after the button is pressed or when a signal that matches a programmed address is received. The indicator will only blink momentarily when the keypad is transmitting signals.

Entering Setup Mode
1. To enter Setup Mode, push and hold ANY 2 buttons for at least 5 seconds. When you see that all of the indicator lights under the buttons are blinking, release the buttons.
2. All of the button indicators will blink on and off every second when in Setup Mode.
3. The KeypadLinc allows approximately 30 seconds for setup. After that time, the KeypadLinc will turn off the blinking indicators and return to its normal state.
**Toggle Mode Button Programming**

(Sending different commands on alternate presses)

In this step, it is necessary to send two signals to the keypad from a transmitter. The first transmission will contain the unit code address; the second will tell the KeypadLinc how the button is to behave.

1. Enter the Setup Mode (by holding any two buttons for 5 seconds).
2. Press the button to be programmed.
3. Make sure the button is in the Toggled Mode by observing the button’s indicator; it should be blinking. If it is not blinking, press the button a second time.
4. Send the first signal using a controller. The signal must be an address only; unit codes 1 to 16 without a command.
5. The second signal will set the button’s mode:

<table>
<thead>
<tr>
<th>Command</th>
<th>Mode Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRIGHT</td>
<td>Button is for an Appliance Module (Non-Lamp)</td>
</tr>
<tr>
<td>ON</td>
<td>Button is for a Lamp or Wall Switch Module. When the button is pressed and held, KeypadLinc sends BRIGHT and DIM signals on alternate presses.</td>
</tr>
<tr>
<td>DIM</td>
<td>Button is for an Appliance Module that can confirm its ON/ OFF status. KeypadLinc will send the ON or OFF command followed by a status request signal. The button's indicator will illuminate depending on the returned signal. If a device does not respond, the button's indicator will not change.</td>
</tr>
<tr>
<td>OFF</td>
<td>Button is for a Lamp Module than can confirm its ON/ OFF status. KeypadLinc will send the ON or OFF command followed by a status request signal. The button's indicator will illuminate depending on the returned signal. If a device does not respond, the button's indicator will not change. When the button is pressed and held, it sends BRIGHT and DIM signals on alternate presses.</td>
</tr>
<tr>
<td>UNIT CODE 8</td>
<td>Button is for triggering scenes in scene-enabled Smarthome products. Sends ON/OFF signals on alternate button presses. If the button is pressed and held, it will aid in setting up scenes in SwitchLinc Wall Switches. See section: “Setting Scenes for Smarthome Scene-Enabled Products” on page 15.</td>
</tr>
</tbody>
</table>

The indicator light will turn off and the button is programmed.

---

Most transmitters have only one button to press to send an address with either an ON or OFF signal. These units will limit the button mode to regular lamp module or a lamp module with status. Investing in a Maxi-Controller, (Smarthome #4020), will provide access to all five button modes.

Warning: before using confirmation, make sure the module being controlling is capable of sending STATUS ON/OFF signals (sometimes called Status Request). If it cannot, the KeypadLinc indicator will not correctly indicate the status and the button cannot toggle since it has no way of knowing the status of the receiver (because the remote module can’t transmit back).

The following items have two-way abilities and respond to a Status Request signal:

<table>
<thead>
<tr>
<th>Item</th>
<th>Manufacturer's #</th>
<th>Smarthome #</th>
</tr>
</thead>
<tbody>
<tr>
<td>SwitchLinc 2-Way Wall Switches</td>
<td>2380, 2381, 2383</td>
<td></td>
</tr>
<tr>
<td>ToggleLinc® 2-Way Wall Switches</td>
<td>23890, 23893</td>
<td></td>
</tr>
<tr>
<td>SwitchLinc Relay 2-Way Wall Switch</td>
<td>23883</td>
<td></td>
</tr>
<tr>
<td>SwitchLinc Timer Wall Switch</td>
<td>12083</td>
<td></td>
</tr>
<tr>
<td>KeypadLinc with Integrated Dimmer</td>
<td>12073W, 12074W</td>
<td></td>
</tr>
<tr>
<td>LampLinc™ 2-Way</td>
<td>2000STW, 2000STW3</td>
<td></td>
</tr>
<tr>
<td>ApplianceLinc™ 2-Way</td>
<td>2002STW, 2001STW</td>
<td></td>
</tr>
<tr>
<td>I/O Linc™ Relay Controller</td>
<td>1624</td>
<td></td>
</tr>
<tr>
<td>X10 2-Way Lamp Module</td>
<td>LM14A</td>
<td>2000TW</td>
</tr>
<tr>
<td>X10 2-Way Appliance Module</td>
<td>AM14A</td>
<td>2001TW</td>
</tr>
<tr>
<td>ACT 2-Way Switches</td>
<td>RS-114/115</td>
<td>2270A, 2271A</td>
</tr>
<tr>
<td>Motion Sensing Floodlights</td>
<td>PR511</td>
<td>4080XT</td>
</tr>
<tr>
<td>RF Transceiver Modules</td>
<td>RR-501</td>
<td>4005</td>
</tr>
</tbody>
</table>

1. The I/O Linc automatically echos back commands. Using confirmation settings in KeypadLinc is unnecessary.

Note about signals transmitted by Leviton "Green-Line" products

Some of Leviton’s newest X10 transmitters do not communicate properly to some receivers, including KeypadLinc Controllers. They receive signals normally, but all receivers may not understand their transmitted signals.

We have tested some of their products for compatibility with KeypadLinc and found that signals sent from the Leviton transmitters to the KeypadLinc are not recognized as valid X10 signals. We do not recommend using the Status Request feature with Leviton 2-way and transmitting products ending in "1TW".

Signals from KeypadLinc to all Leviton products are understood.

For those technically inclined, Leviton has updated the way in which these controllers send their X10 signal. They have eliminated the “3-cycle gap” between the two frames of X10 data.