

EcoSystem® Programmer
Version 1.58

Programming Guide



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Introduction

What is EcoSystem®?

EcoSystem lighting control systems are capable of controlling various lighting sources through automated and manual dimming. The automatic light controls include motion sensors and daylight sensors, which monitor a space and appropriately adjust the light to avoid wasted energy and improve the work environment. The manual controls of the system include wall dimmers and handheld remote controls, which allow personal interaction with the lighting by the people in the space. EcoSystem can also work together with the security, HVAC, and other building management systems to provide the appropriate lighting for every situation.

The EcoSystem® Bus

EcoSystem ballasts can be connected to one another to create a system of up to 64 ballasts. Any infrared (IR) receiver, sensor, or wall control connected to a ballast can communicate with any or all fixtures on the bus. Subsystems, called groups, are configured and programmed using the handheld programmer.

Systems using more than one EcoSystem ballast, or ballast module, require an EcoSystem bus power supply. This component powers the communication bus between devices, and is capable of supporting up to 64 ballasts or ballast modules, 32 occupant sensors, 64 wall controls or infrared (IR) receivers, and 16 daylight sensors.

EcoSystem® Programming

EcoSystem is programmed using the handheld EcoSystem programmer. Using a stylus, users make onscreen selections and transmit programming instructions via infrared, similar to a TV remote.

Transmitting to Control Devices with IR Receivers

Programming information is transmitted wirelessly from the EcoSystem programmer to any sensor or control with an integrated IR receiver. When programming, stand within 8 feet (2.4 meters) of the sensor or control and point the top of the programmer directly at it.

Regardless of what function is being performed, the system can be accessed through any IR receiver. For example, it is not necessary to point the programmer at the daylight sensor being programmed if a keypad provides more convenient access.

Keypads and IR receivers have LEDs that blink when programming messages are transmitted.

If the device does not receive the signal, move closer to the device or adjust the angle of the programmer. It is also important to ensure that the programmer battery is charged and has enough strength to transmit the signal to the device.

NOTE: Occupant sensors do not have integrated IR receivers.

Getting Familiar with the Programmer

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This section describes how to perform basic system operations.

EcoSystem® Programmer

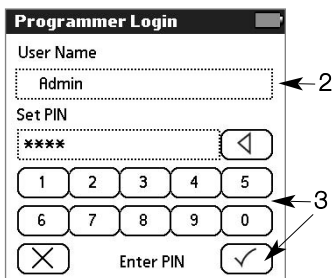


Logging In

When the programmer is powered on, the user is prompted to enter a user name and personal identification number (PIN). PINs must include four to seven numbers. The default PIN is 4321.

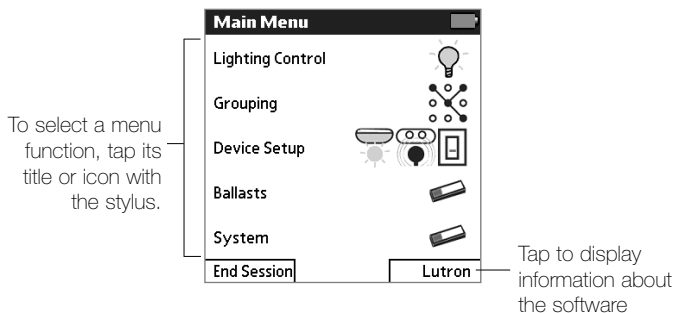
- 1 Press the power button on the top of the programmer to power it on.
- 2 When the Programmer Login screen displays, select your User Name.
- 3 Tap the keypad with the stylus to enter your PIN, then tap ✓.

NOTE: To backspace, tap .



Making Screen Selections

After logging in, the Main Menu becomes the primary navigation screen. To select a menu function, tap its title or icon with the stylus. To make other onscreen selections, simply tap the appropriate option.



Control Device Icons

The following control device icons are used on programmer screens.



Daylight sensor



Occupant sensor



Wallstation



IR receiver



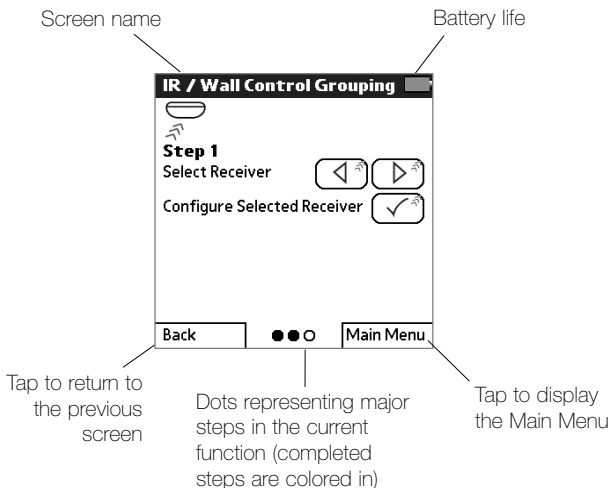
Ballast



Contact closure

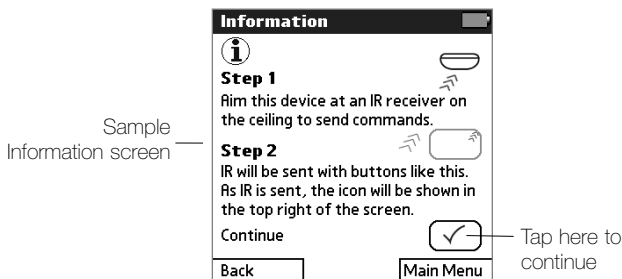
Programming Screen Components

The main components of EcoSystem programming screens are identified below.



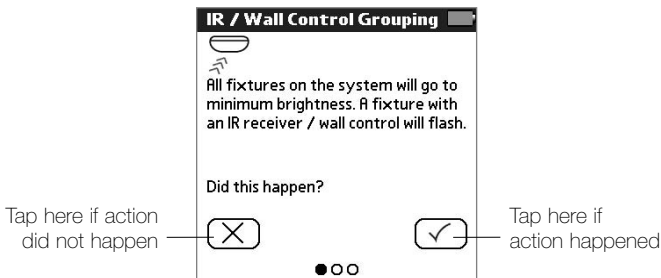
Information Screens

Information screens are displayed after menu functions are selected. These screens are for informational purposes only. Read the onscreen instructions and then tap ✓ to continue.



Prompt Screens

Prompt screens ask the user to confirm that an appropriate action occurred during programming.



Charging the Programmer

To charge the EcoSystem programmer, plug the AC charger into an outlet and connect it to the base of the programmer.

Logging Out

To exit the programmer software, from the Main Menu, tap **End Session** and then **Log Out**.

Programming Your System

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Typical Programming Workflow

Following is the typical workflow needed to program a new EcoSystem when it is installed. This guide includes detailed instructions for each programming step.

- 1 **Address the system.** Begin by addressing the ballasts using the EcoSystem programmer. This enables the programmer to communicate with the ballasts and configure their settings.
- 2 **Configure fixture groups.** Next, configure the group of fixtures to be controlled by each device (IR receiver, daylight sensor, wall control, occupant sensor, or contact closure). A group can be as small as one fixture or as large as the entire EcoSystem bus.
- 3 **Set up devices.** Once fixture groups have been configured for each control device, set custom preferences for each device.
- 4 **Configure ballast settings.** To further fine-tune the system, customize the high level and emergency settings for the ballasts.
- 5 **Configure contact closures.** To allow EcoSystem to integrate with third-party systems, configure contact closures on the bus supply to specify occupancy/vacancy settings, select scenes, or respond to peak demand.
- 6 **Program ballasts to season new fluorescent lamps.** Program the ballasts to operate at full intensity before dimming. New fluorescent lamps can have impurities which can impact their dimming performance. Follow the lamp manufacturer's recommendations on lamp seasoning requirements.

Refer to the following topics for detailed procedures on how to perform each programming step.

How an EcoSystem® Bus Prioritizes Inputs

When programming a system, it is important to understand how the ballasts prioritize inputs:

- 1. Emergency command (typically lights to full on).** The ballast's first priority is to ensure that no emergency exists in the building. If an emergency exists, all emergency fixtures are automatically set to their emergency level and all manual lighting adjustments are ignored. If an emergency does not exist, the ballast proceeds to the next level of priority.
- 2. Programming commands.** The second priority is to respond to a user programming the ballast. If programming commands are being sent, the ballast responds to the commands, but ignores any sensor or control device input. If no programming commands are being sent, the next priority is queued.
- 3. Daylight sensor input.** The third priority is input from daylight sensors. The daylight sensors are checked to set the "high level," or the maximum light level the ballasts can be manually set to.
- 4. Occupancy sensor input or personal control through IR remote or wall control.** After checking the daylight sensor, the ballast waits for the occupant sensor to detect a person in the room or for input from a manual control. Manual control inputs come from users dimming the lights up or down with a wall control or IR remote. The lights will go to the level requested by the occupancy sensor or personal control that last changed.

Addressing the System

Prior to programming, each ballast must be addressed. This enables the programmer to communicate with the ballasts and program their settings.

NOTE: To address new ballasts added to an existing system, refer to page 60.

- 1 From the Main Menu, tap **System**.
- 2 Tap **Reset & Address New System**.
- 3 Read the instructions, then tap ✓ to continue.

NOTE: Occupant sensors do not have integrated IR receivers.

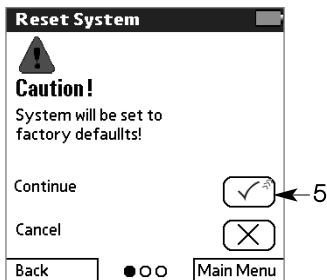
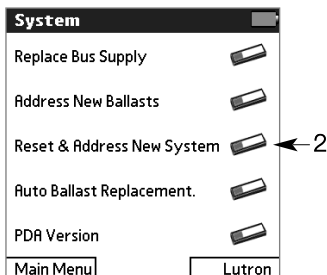
- 4 Tap ✓ to continue.

Caution! System will be set to factory defaults.

- 5 Tap ✓ to confirm the reset. (Or tap ✕ to **Cancel**.)
- 6 If all ballasts flash 3 times, tap ✓. Otherwise, tap ✕.

NOTE: If fixtures do not flash, the signal from the programmer did not reach the IR control device. Refer to page 4 for details.

- 7 Tap ✓ to address the system.
- 8 Tap ✓ to begin addressing.



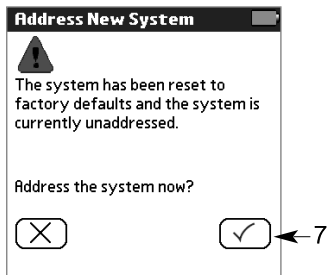
- 9 If all fixtures flash, tap ✓.

Fixtures will go to minimum brightness as they are addressed.

- 10 If all fixtures are at minimum level, tap ✓.

Caution! *Wait until all fixtures flash and are at their minimum level.*

- 11 If all fixtures go to their high level, tap ✓.



Configuring Areas

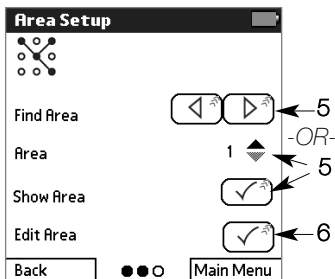
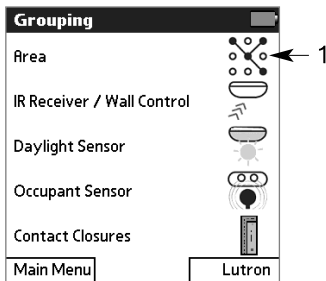
Areas allow a number of fixtures and their associated sensors to be quickly grouped together. If fixtures are added or removed from an area, sensors within the area are automatically assigned to control them, overriding any preexisting grouping in the area. If multiple daylight sensors are in the area, only one is assigned. Once created, areas can be modified through the normal sensor grouping means. Any area can be configured from any IR receiver. It is not necessary to directly access a sensor within the area being created.

- 1 From the Main Menu, tap **Grouping** and then **Area**.
- 2 Read the instructions, then tap ✓ to continue.
- 3 Point the programmer at any IR control device and tap ✓ to begin communication.
- 4 If a single fixture flashes, then fixtures in area 1 go to full brightness and other fixtures go to minimum brightness, tap ✓.

NOTE: If all fixtures flash three times and then go to minimum brightness, area 1 is empty.

- 5 Use the left and right arrow buttons to scroll to the area you want to modify. All fixtures in the area will go to maximum brightness and all other fixtures will go to minimum brightness.

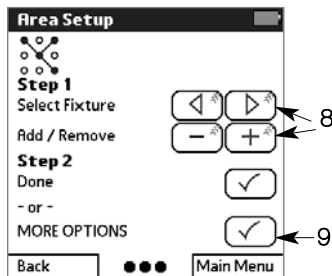
Or, use the up and down arrows and select **Show Area** if you know the area number you want to modify.



- 6 Select **Edit Area** to modify the selected area.
- 7 If a single fixture flashes, then fixtures in the selected area go to full brightness and other fixtures go to minimum brightness, tap ✓.

NOTE: If all fixtures flash three times and then go to minimum brightness, the selected area is empty.

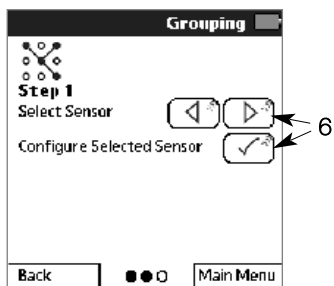
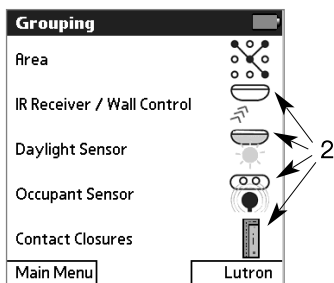
- 8 Scroll to the desired fixture (selected fixture will flash). Tap + to add the fixture to the area, or - to remove it. Repeat for each fixture to be added or removed from the area.
- 9 To clear all the ballasts in the area, select **MORE OPTIONS**, then **Remove All Ballasts from Group**.
To add all the ballasts to the area, select **MORE OPTIONS**, then **Add All Ballasts to Group**.
- 10 Select **Done** to finish editing areas, or **Setup Another Area** under **MORE OPTIONS**.
- 11 Once editing is complete, select **Group All Sensors in this Area**. Acknowledge the warning, then tap ✓ to continue or ✕ to cancel.
- 12 When done, if all fixtures go to their high level, tap ✓.



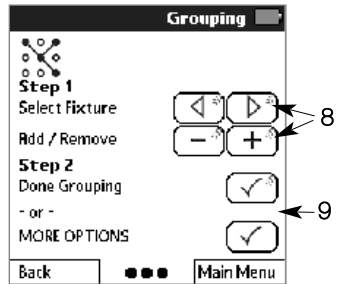
Configuring Fixture Groups

A group of fixtures must be configured for each sensor or control. By grouping multiple fixtures, lighting zones can be easily set up and changed. Any of the grouping modes can be configured from any IR receiver. It is not necessary to directly access the sensor being grouped.

- 1 From the Main Menu, tap **Grouping**.
 - 2 Tap the icon for the sensor, control, or contact closure to be configured.
 - 3 Read the instructions, then tap ✓ to continue.
 - 4 Point the programmer at any IR control device and tap ✓ to begin communication.
 - 5 If a fixture connected to the sensor flashes and other fixtures go to minimum brightness, tap ✓.
- NOTE: If all fixtures flash three times and then return to normal, no sensor was detected.*
- 6 Use the left and right arrow buttons to scroll to the sensor you want to group (its connected fixture will flash). Tap ✓ to configure the selected sensor.
 - 7 If the fixtures for this sensor go to full brightness and other fixtures go to minimum brightness, tap ✓.



- 8 Scroll to the desired fixture (selected fixture will flash). Tap **+** to add the fixture to the group, or **-** to remove it. Repeat this step for each fixture to be added or removed from the group.
- 9 Select **Done Grouping** to exit. Or select **MORE OPTIONS** and then **Group Another Sensor** to configure another group.



NOTE: The MORE OPTIONS menu also enables you to quickly add or remove all ballasts or to quickly copy a group of ballasts from one sensor to another.

- 10 When done, if all fixtures go to high level, tap **✓**. Repeat this procedure to configure groups for each sensor and control.

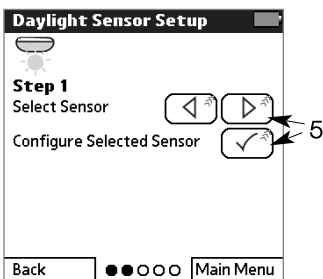
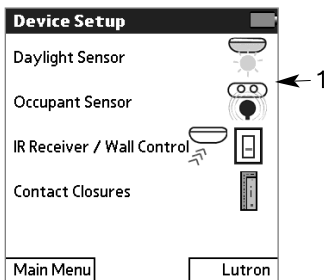
Setting Light Levels for Daylight Sensors

To save energy, a light level can be set for each row of fixtures in a daylight sensor group. Throughout the day, fixtures automatically adjust their light level based on how much daylight the space is receiving. Light levels can be set from any IR receiver. It is not necessary to directly access the sensor being set.

NOTE: Group fixtures before setting light levels. Refer to page 16.

- 1 From the Main Menu, tap **Device Setup** and then **Daylight Sensor**.
- 2 Read the instructions, then tap ✓ to continue.
- 3 Point the programmer at any IR receiver and tap ✓ to begin communication.
- 4 If all fixtures go to minimum brightness and a fixture connected to a daylight sensor flashes, tap ✓.
- 5 Scroll to the daylight sensor to be set (its group fixtures will flash). Then tap ✓ to configure the selected sensor.
- 6 If fixtures in row 1 of the selected sensor group go to full brightness and all other fixtures go to minimum brightness, tap ✓.

By default, all fixtures initially grouped to the daylight sensor are in row 1. Up to 4 different rows are supported in each daylight sensor group. It is not necessary to have fixtures in every row.



- 7 Select the daylight row to be set.
- 8 Scroll to the desired fixture (selected fixture will flash). Tap **+** to add the fixture to the row, or **-** to remove it. Repeat for each fixture to be added or removed from the row.
- 9 Select **Done**.
- 10 Set the light level to be maintained throughout the day for the row. Perform this step when a typical amount of daylight is in the space.

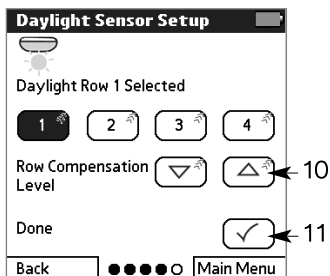
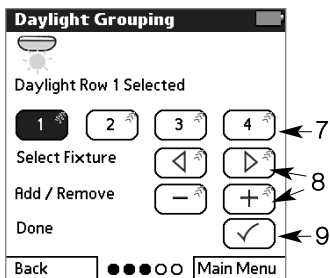
Tap the down arrow button to decrease the compensation level. Doing this will increase the fixture light output.

Tap the up arrow button to increase the compensation level, which will decrease the fixture light output.

NOTE: Changes happen gradually and may not be noticeable without a light meter.

Repeat this procedure to set the daylight light levels for each row of fixtures in each daylight sensor group.

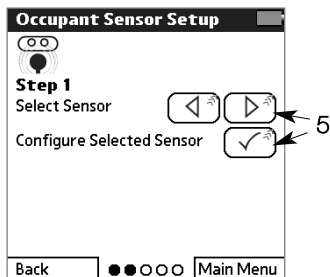
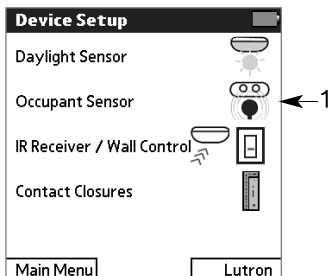
- 11 Select **Done**.
- 12 Select **Setup Another Sensor** to set up another daylight sensor. Or select **Done** to exit.
- 13 When done, if all fixtures flash and go to high level, tap ✓.



Setting Light Levels for Occupant Sensors

Occupied and unoccupied light levels can be set for each fixture in an occupant sensor group. The default occupied setting is the ballast's high level; the default unoccupied setting is OFF. Occupant sensor levels can be configured from any IR receiver.

- 1 From the Main Menu, tap **Device Setup** and then **Occupant Sensor**.
- 2 Read the instructions, then tap ✓ to continue.
- 3 Point the programmer at any IR control device and tap ✓.
- 4 If all fixtures go to minimum brightness and a fixture connected to a sensor flashes, tap ✓.
- 5 Scroll to the sensor to be set (its group fixtures will flash). Then tap ✓ to configure the selected sensor.
- 6 If fixtures in the sensor group go to their occupied level and other fixtures go to minimum brightness, tap ✓.



- 7 Select **Set Occupied Level** or **Set Unoccupied Level**.
- 8 If fixtures in the group go to their occupied/unoccupied level, tap ✓.

NOTE: The intensity will change as you make your selection. If Unaffected, the ballast's light level will not change when becoming occupied/unoccupied.

- 9 Tap the desired occupied or unoccupied light level. If needed, use the arrow keys to adjust the selected level incrementally.

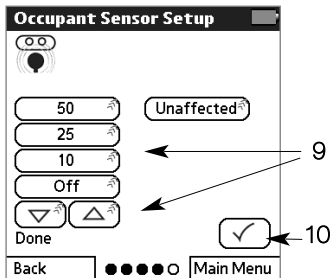
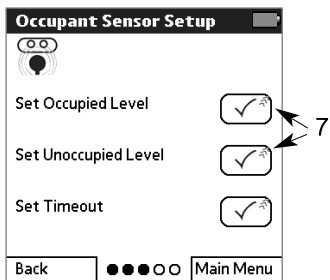
- 10 Select **Done**.

- 11 Depending on what you want to do next, select:

- Continue Setup of Current Sensor
- Setup Another Sensor
- Done

- 12 When done, if all fixtures flash and go to high level, tap ✓.

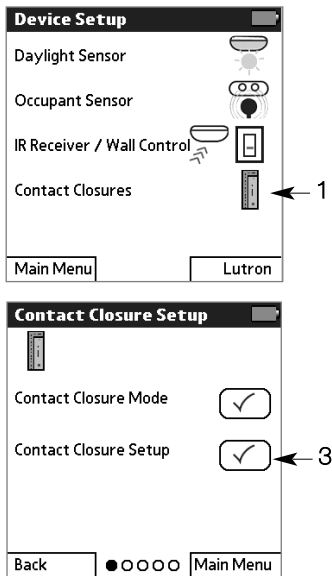
Repeat this procedure to set the occupied and unoccupied light levels for each occupant sensor.



Setting Light Levels for Contact Closures

Occupied and unoccupied light levels can be set for each fixture in a contact closure group. The default occupied setting is the ballast's high level; the default unoccupied setting is OFF. Contact closure levels can be configured from any IR receiver. These settings apply only if the contact closures are set to Normal Mode. Refer to page 42 for information on contact closure modes.

- 1 From the Main Menu, tap **Device Setup** and then **Contact Closures**.
- 2 Read the instructions. Point the programmer at any IR control device, then tap ✓ to continue.
- 3 Select **Contact Closure Setup**.
- 4 Select **Contact Closure 1** or **Contact Closure 2**.
- 5 If a group of fixtures goes to full brightness and other fixtures go to minimum brightness, tap ✓.
- 6 Select **Set Occupied Level** or **Set Unoccupied Level**.
- 7 If fixtures in the group go to their occupied/unoccupied level, tap ✓.
- 8 Tap the occupied or unoccupied light level. If needed, use the arrow keys to adjust the selected level incrementally.



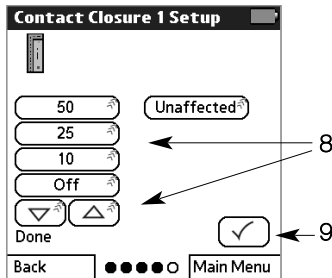
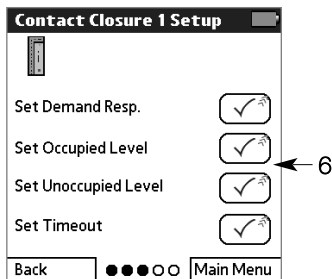
9 Select Done.

10 Depending on what you want to do next, select:

- Continue Setup of Current Sensor
- Setup Another Sensor
- Done

11 When done, if all fixtures go to high level, tap ✓.

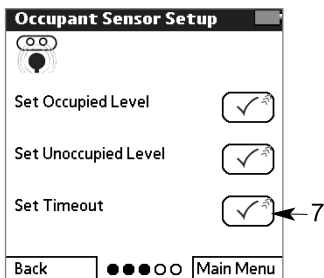
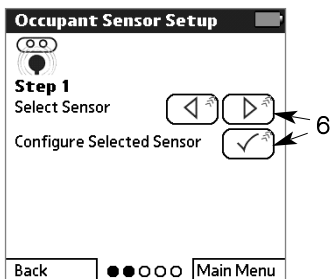
Repeat this procedure to set the occupied and unoccupied light levels for each contact closure group.



Setting an Additional Timeout Period for Occupant Sensors

Occupant sensors can be set up to turn fixtures off automatically after a period of inactivity. The default timeout is zero seconds. Any timeout programmed into the ballast will be in addition to that of the occupant sensor. Consult the installation guide for your occupant sensor to determine the total delay.

- 1 From the Main Menu, tap **Device Setup** and then **Occupant Sensor**.
- 2 Read the instructions, then tap ✓ to continue.
- 3 Point the programmer at any IR control device and tap ✓ to begin communication.
- 4 If a group of fixtures goes to full brightness and other fixtures go to minimum brightness, tap ✓.
- 5 Scroll to the sensor to be set (its group of fixtures will flash). Then tap ✓ to configure the selected sensor.
- 6 If all fixtures go to minimum brightness and a fixture connected to an occupant sensor flashes, tap ✓.
- 7 Select **Set Timeout**.
- 8 Note the warning, then tap ✓ to continue.



9 Select the number of minutes of inactivity after which the fixture group will turn off.

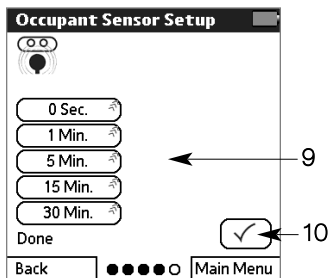
10 Select Done.

11 Depending on what you want to do next, select:

- Continue Setup of Current Sensor
- Setup Another Sensor
- Done

12 When done, if all fixtures flash and then go to high level, tap ✓.

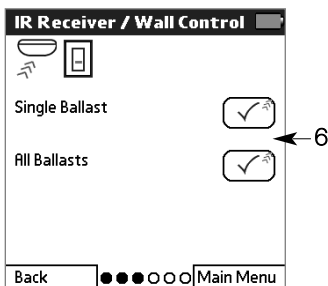
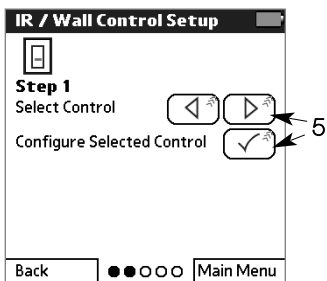
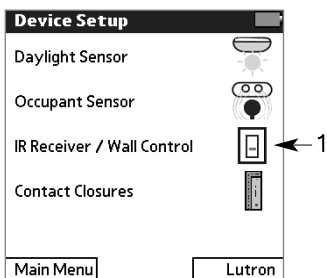
Repeat this procedure to set a timeout for each additional occupant sensor.



Setting Up Scenes for Wall Controls

Wall controls can be set up to activate scenes (preset light levels). A different scene can be configured for each button on the control. Note that all wall controls in a given group will operate the same.

- 1 From the Main Menu, tap **Device Setup** and then **IR Receiver/Wall Control**.
- 2 Read the instructions, then tap ✓ to continue.
- 3 Point the programmer at any IR receiver and tap ✓ to begin communication.
- 4 If all fixtures go to minimum brightness and a fixture connected to a wall control flashes, tap ✓.
- 5 Scroll to the wall control to be set (its group of fixtures will flash). Tap ✓ to configure the selected control.
- 6 Select **Single Ballast** or **All Ballasts** and tap ✓.
- 7 If the ballasts flash and then go to a scene level, tap ✓.
- 8 Select the number of the scene to be set (scene 1 matches the first button on the control, scene 2 matches the second button, and so on).
- 9 If fixtures for this control go to their selected scene level, tap ✓.



- 10 If modifying a single fixture, scroll to the desired fixture (selected fixture will flash). Adjust the scene level up or down, then select **Send Level** to transmit the level to the fixture.

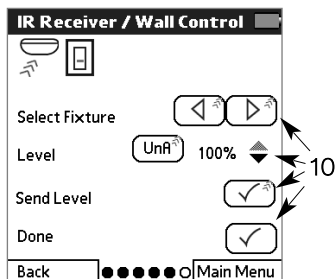
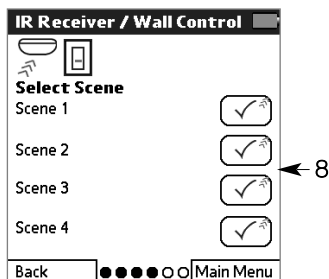
Or, select **UnA** if the fixture should be unaffected for that scene.

Repeat for each scene on the control.

Select **Done**.

- 11 Select **Setup Another Control** to set scenes for another wall control. Or select **Done** to exit.
- 12 When done, if all fixtures go to high level, tap ✓.

Repeat this procedure to set the scene levels for each IR receiver and wall control.



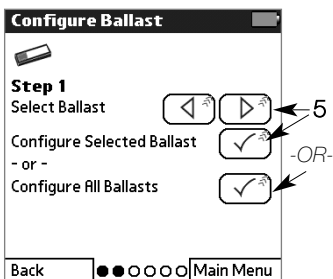
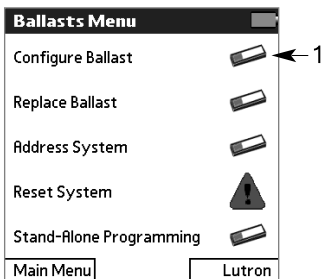
Configuring Ballasts

The factory default settings for ballasts are: high level = 100% and emergency setting = 100%. Each of these settings can be customized to meet specific lighting needs.

- From the Main Menu, tap **Ballasts** and then **Configure Ballast**.
- Read the instructions, then tap ✓ to continue.
- Point the programmer at any IR control device, then tap ✓ to begin communication.
- If the fixture connected to the control device flashes and other fixtures go to minimum brightness, tap ✓.
- Scroll to a specific ballast (its fixture will flash). Tap ✓ to select it.
- OR -
To configure all the ballasts, select **Configure All Ballasts**.
- If selected ballasts go to full brightness and other fixtures go to minimum brightness, tap ✓.

Refer to the following topics to:

- Set high end trim
- Set the emergency level
- Season lamps
- Perform additional ballast configuration options



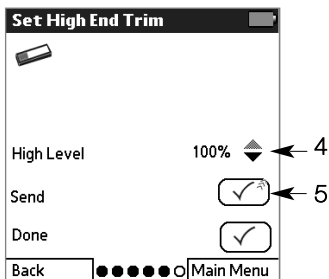
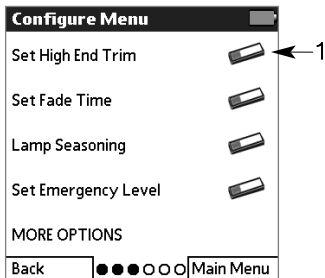
Setting a Ballast's High End Trim

A ballast's high end trim setting controls the maximum light level for a dimming fixture. The factory default high level = 100%. This setting can be customized to meet specific lighting needs.

- 1 From the **Configure Menu**, tap **Set High End Trim**.

NOTE: For procedures on how to to select one or all ballasts and then display the Configure menu, refer to page 28.

- 2 Tap ✓ to begin setup.
- 3 If selected ballasts flash and go to their high level, tap ✓.
- 4 Use the arrow keys to adjust the level incrementally.
- 5 Select **Send** to transmit the level to the fixture.
- 6 If the ballast(s) flash once, tap ✓.
- 7 Depending on what you want to do next, select:
 - Continue Configuration of Current Ballast(s)
 - Configure Different Ballast(s)
 - Done
- 8 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



Setting a Ballast's Emergency Level

The emergency setting controls a ballast's light level in case of an emergency (for example, a power outage or fire). The default emergency setting is the ballast's high level.

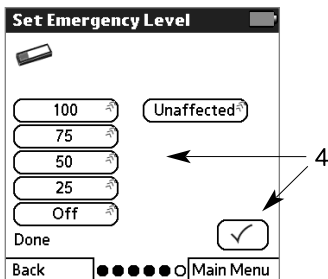
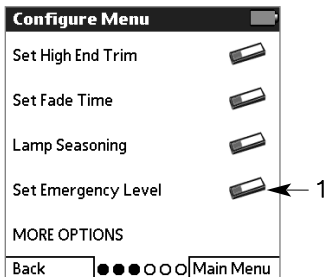
- 1 From the **Configure Menu**, tap **Set Emergency Level**.

NOTE: For procedures on how to select one or all ballasts and then display the Configure menu, refer to page 28.

- 2 Tap ✓ to begin setup.
- 3 If selected ballasts flash and go to their emergency level, tap ✓.
- 4 Tap an emergency light level, then tap ✓.

NOTE: The intensity will change as you make your selection. If Unaffected, the ballast's light level will not change in an emergency.

- 5 Depending on what you want to do next, select:
 - Continue Configuration of Current Ballast(s)
 - Configure Different Ballast(s)
 - Done
- 6 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



Seasoning New Fluorescent Lamps

New fluorescent lamps can have impurities in them that lamp manufacturers cannot eliminate completely. Contact your lamp manufacturer for their lamp seasoning recommendations.

EcoSystem provides a convenient means for seasoning lamps for 100 hours. When a system is first installed, program ballasts to season all new lamps if needed. As lamps are added or replaced, program the seasoning process only for those ballasts.

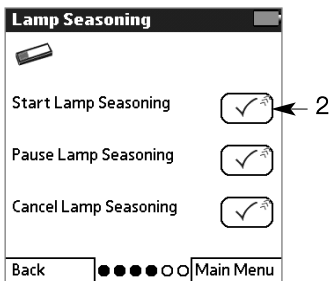
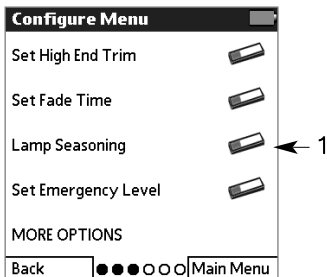
- 1 From the **Configure Menu**, tap **Lamp Seasoning**.

NOTE: For procedures on how to to select one or all ballasts and then display the Configure menu, refer to page 28.

- 2 Select **Start Lamp Seasoning** to force the light to full intensity for 100 hours. Otherwise, select **Cancel Lamp Seasoning**.

*NOTE: To temporarily pause the seasoning process, select **Pause Lamp Seasoning**.*

- 3 If selected ballast(s) flash and go to their high level, tap ✓.
- 4 Depending on what you want to do next, select:
 - Continue Configuration of Current Ballast(s)
 - Configure Different Ballast(s)
 - Done
- 5 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



Configuring BMJ / XPJ Settings

The EcoSystem BMJ power module allows dimming and switching of up to 16A of 3-wire fluorescent ballasts. The XPJ power module allows switching of up to 16A of non-dim loads. The operation of these devices can be configured from the BMJ / XPJ Settings menu. These settings can also be used on a BMF ballast module fixture mount which can dim up to 2A of 3-wire fluorescent ballasts and is intended for mounting within the fixture.

- 1 From the **Configure Menu**, tap **MORE OPTIONS**.

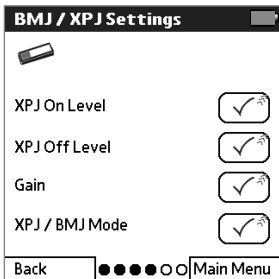
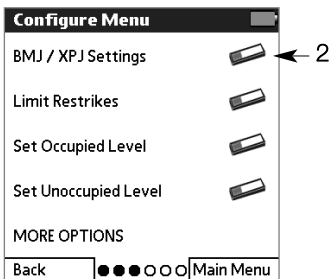
NOTE: For procedures on how to select one or all ballasts and then display the Configure menu, refer to page 28.

- 2 Select **BMJ / XPJ Settings**.

The BMJ / XPJ Settings menu displays and you can:

- Set the XPJ on and off level
- Set the Gain
- Set the XPJ or BMJ Mode

Refer to the following topics for detailed procedures on how to perform each of these programming steps.



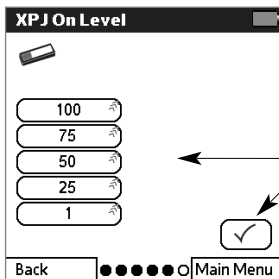
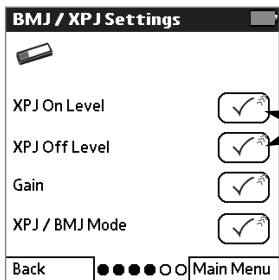
Setting the XPJ On and Off Level

You can set the light level at which the XPJ power module turns on or off its output when doing daylighting or being controlled by a scene.

- 1 From the BMJ / XPJ Settings menu, select **XPJ On Level** or **XPJ Off Level**.

NOTE: For procedures on how to display the BMJ / XPJ Settings menu, refer to page 32.

- 2 If selected ballasts flash and go to their high level, tap ✓.
- 3 Tap a level, then tap ✓.
- 4 Depending on what you want to do next, select:
 - Continue Configuration of Current Ballast(s)
 - Configure Different Ballast(s)
 - Done
- 5 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



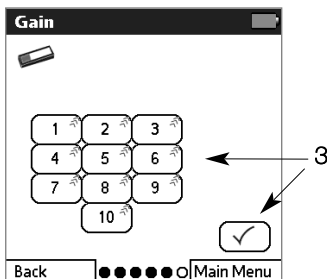
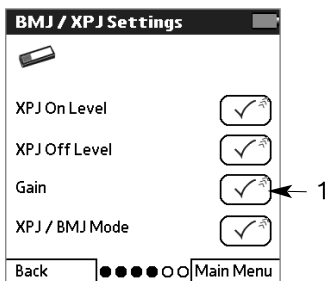
Setting the Gain

You can directly set the BMJ or XPJ module's sensitivity to changing light levels detected by the daylight sensor.

- 1 From the BMJ / XPJ Settings menu, select **Gain**.

NOTE: For procedures on how to display the BMJ / XPJ Settings menu, refer to page 32.

- 2 If selected ballasts flash and go to their high level, tap ✓ .
- 3 Select a gain level of 1 through 10, with 1 meaning the module will be least sensitive to light level changes and 10 being the most sensitive. Then tap ✓ .
- 4 Depending on what you want to do next, select:
 - Continue Configuration of Current Ballast(s)
 - Configure Different Ballast(s)
 - Done
- 5 When done, if the last configured ballast(s) flash and go to their high level, tap ✓ .



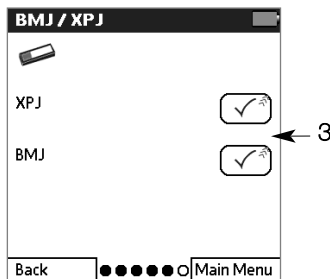
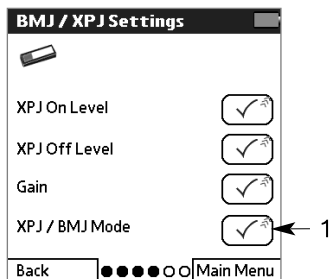
Setting XPJ or BMJ Mode

You can force the module to act as either an XPJ (where the relay turns on and off at particular light levels) or a BMJ (where the relay remains on at all levels except for off).

- 1 From the BMJ / XPJ Settings menu, select **XPJ / BMJ Mode**.

NOTE: For procedures on how to display the BMJ / XPJ Settings menu, refer to page 32.

- 2 If selected ballasts flash and go to their high level, tap ✓.
- 3 Select **XPJ** or **BMJ**.
- 4 Depending on what you want to do next, select:
 - Continue Configuration of Current Ballast(s)
 - Configure Different Ballast(s)
 - Done
- 5 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



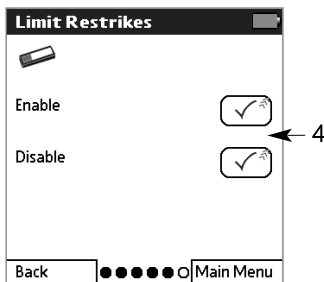
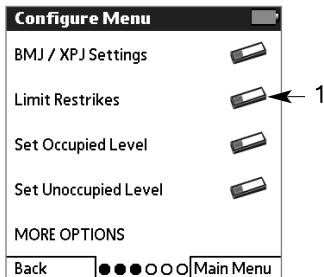
Limiting Restrikes

When there is a problem with the lamp, wiring, or ballast, the ballast may continue to attempt to strike the lamp. Since this may be undesirable, you can limit the number of restrikes to three times. If the lamp still does not light, the ballast will not retry until instructed to turn the lights off and back on again by a sensor or other system input.

- 1 From the Configure Menu, tap **MORE OPTIONS** then **Limit Restrikes**.

NOTE: For procedures on how to select one or all ballasts and then display the Configure menu, refer to page 28.

- 2 Tap ✓ to begin setup.
- 3 If selected ballasts flash and go to their high level, tap ✓.
- 4 Select **Enable** to limit ballast restrike attempts, or **Disable** to restore the default operation of unlimited restrike attempts.
- 5 Depending on what you want to do next, select:
 - Continue Configuration of Current Ballast(s)
 - Configure Different Ballast(s)
 - Done
- 6 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



Setting Occupied and Unoccupied Levels

The occupied and unoccupied settings determine the level the lights will go to when they are in the occupied or unoccupied state. By default, the occupied level is high end and the unoccupied level is OFF. *These settings are the same as those set during the programming of occupant sensors.*

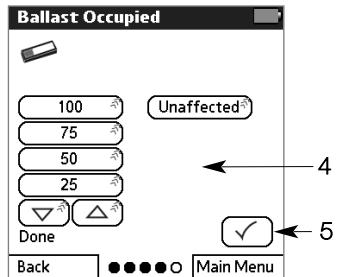
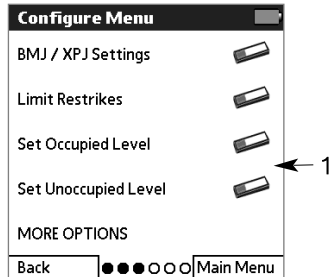
- 1 From the Configure Menu, tap **MORE OPTIONS** and then **Set Occupied Level** or **Set Unoccupied Level**.

NOTE: For procedures on how to select one or all ballasts and then display the Configure menu, refer to page 28.

- 2 Tap ✓ to begin setup.
- 3 If selected ballasts flash and go to their high level, tap ✓.
- 4 Tap an occupied or unoccupied light level. If needed, use the arrow keys to adjust the selected level incrementally.

NOTE: The intensity changes as you make your selection. If Unaffected, the ballast's light level will not change when becoming occupied/unoccupied.

- 5 Select **Done**.
- 6 Select **Done**. Or, select another option to continue configuring ballasts.
- 7 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



Setting Egress Levels

The egress level specifies the minimum light level for a ballast. Under no conditions can the ballast dim beneath the egress level. If the egress level is above its default value of OFF, the lights will not turn off.

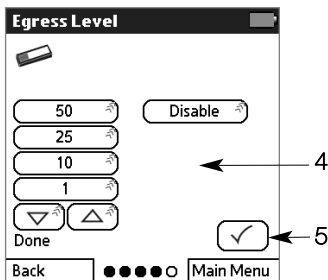
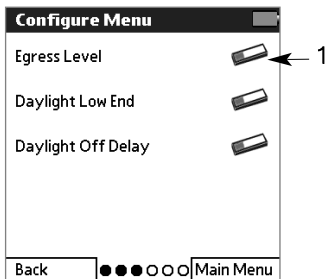
- 1 From the Configure Menu, tap **MORE OPTIONS** twice and then **Egress Level**.

NOTE: For procedures on how to select one or all ballasts and then display the Configure menu, refer to page 28.

- 2 Tap ✓ to begin setup.
- 3 If selected ballasts flash and go to their high level, tap ✓.
- 4 Tap an egress level. If needed, use the arrow keys to adjust the selected level incrementally.

NOTE: The intensity changes as you make your selection. If Disable is selected, the lights will be able to turn off normally.

- 5 Select **Done**.
- 6 Select **Done**. Or, select another option to continue configuring ballasts.
- 7 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



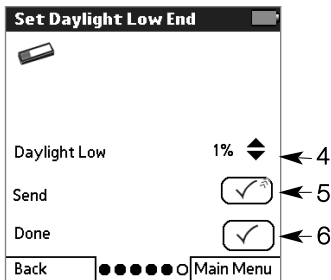
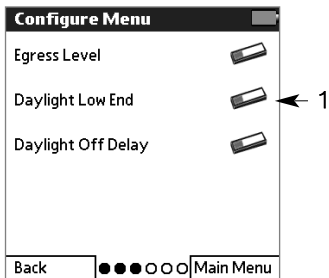
Setting Daylight Low End

The daylight low end is the lowest level a daylight sensor is allowed to dim the lights. It can be set from 0% (allowing the photo sensor to turn the lights off) to 100% (preventing the photo sensor from working at all).

- 1 From the Configure Menu, tap **MORE OPTIONS** twice and then **Daylight Low End**.

NOTE: For procedures on how to select one or all ballasts and then display the Configure menu, refer to page 28.

- 2 Tap ✓ to begin setup.
- 3 If selected ballasts flash and go to their high level, tap ✓.
- 4 Use the arrow keys to adjust the level incrementally.
- 5 Select **Send** to transmit the light level to the ballast.
- 6 Select **Done**.
- 7 Select **Done**. Or, select another option to continue configuring ballasts.
- 8 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



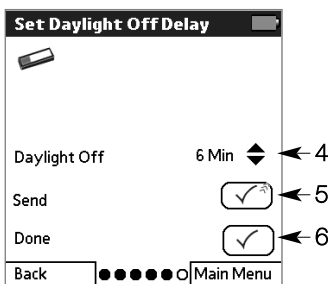
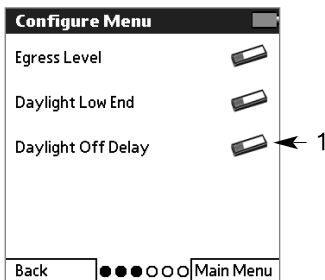
Setting Daylight Off Delay

The daylight off delay is the amount of time a daylight sensor needs to detect a sufficiently low light level before it turns the lights off. This value can be adjusted from 0 to 42 minutes, and is used only if the daylight low end value is set to zero. Note that the daylight off delay does not affect how quickly the lights turn back on if the sensor detects insufficient light.

- 1 From the Configure Menu, tap **MORE OPTIONS** twice and then **Daylight Off Delay**.

NOTE: For procedures on how to select one or all ballasts and then display the Configure menu, refer to page 28.

- 2 Tap ✓ to begin setup.
- 3 If selected ballasts flash and go to their high level, tap ✓.
- 4 Use the arrow keys to adjust the amount of time the sensor has to detect a sufficiently low light level before turning off the lights.
- 5 Select **Send** to transmit the light level to the ballast.
- 6 When done setting the daylight low end, select **Done**.
- 7 Select **Done**. Or, select another option to continue configuring ballasts.
- 8 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



Configuring Contact Closures

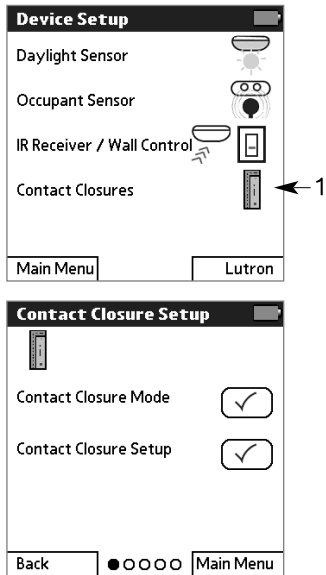
Contact closure inputs on the bus supply allow integration with external devices through their contact closure outputs. Contact closures can be configured to select a link-wide occupied/unoccupied status, select a scene for all devices on the link, or enable a load shed (demand response) feature. For information on available modes, see Lutron Application Note #236. To assign ballasts to Normal Mode and Demand Response Mode groups, refer to “Configuring Fixture Groups” on page 16.

- 1 From the Main Menu, tap **Device Setup** and then **Contact Closures**.
- 2 Read the instructions. Point the programmer at any IR control device, then tap ✓ to continue.

The Contact Closure Setup menu displays and you can:

- Set the contact closure mode
- Configure the contact closure settings

Refer to the following topics for detailed procedures on how to perform these programming steps.



Setting the Contact Closure Mode

The contact closure mode controls how contact closures respond.

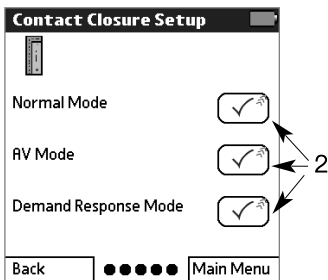
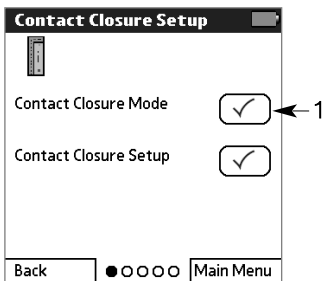
- From the Contact Closure Setup menu, tap **Contact Closure Mode**.

NOTE: For procedures on how to display the Contact Closure Setup menu, refer to page 41.

- Select how the contact closures are to respond:
 - Normal Mode.** Contact closures apply occupied or unoccupied mode to the entire link.
 - AV Mode.** Contact closures select a scene for all ballasts on the link. Fixtures do not need to be assigned to the contact closure group, as all fixtures will respond to AV Mode.
 - Demand Response Mode.** A contact closure reduces the light level of all ballasts on the link.

NOTE: The contact closure mode applies to all contacts on the link. The mode cannot be set on each contact closure separately.

- If all ballasts flash and go to their high level, tap ✓.



Setting the Demand Response Level

The demand response setting specifies the amount of reduction applied to grouped fixtures when a contact closure is present.

- 1 From the Contact Closure Setup menu, tap **Contact Closure Setup**.

NOTE: For procedures on how to display the Contact Closure Setup menu, refer to page 41.

- 2 Select **Contact Closure 1** or **Contact Closure 2**.

- 3 If a group of ballasts goes to full brightness and other ballasts go to minimum brightness, tap ✓.

- 4 Select **Set Demand Resp.**

- 5 If ballasts go to their occupied level, tap ✓.

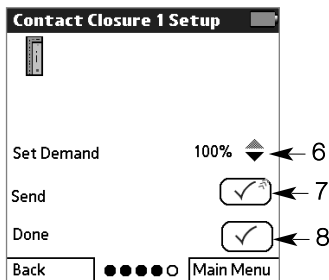
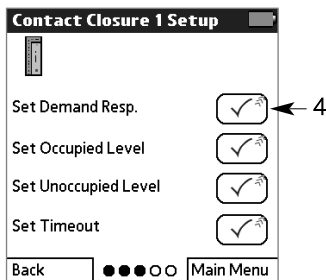
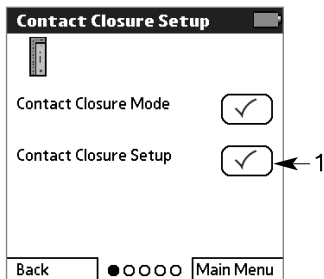
- 6 Use the arrows to select the demand response level. A value of 100% means the lights will stay off.

- 7 Select **Send** to transmit the demand response level to the ballasts.

- 8 Select **Done** when complete.

- 9 Select **Done**. Or, select another option to continue configuring ballasts.

- 10 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



Setting the Contact Closure Occupied or Unoccupied Level

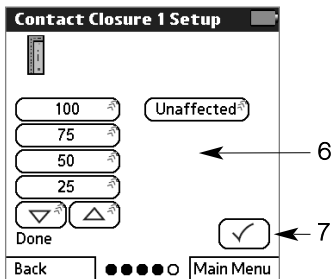
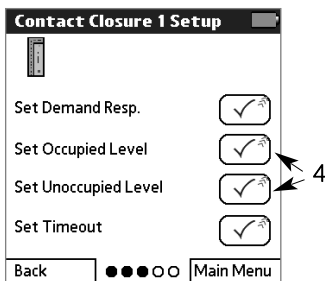
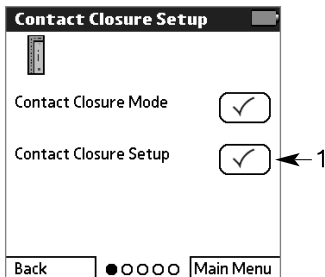
This setting specifies the lighting level to be used when the space becomes occupied or unoccupied.

- 1 From the Contact Closure Setup menu, tap **Contact Closure Setup**.

NOTE: For procedures on how to display the Contact Closure Setup menu, refer to page 41.

- 2 Select **Contact Closure 1** or **Contact Closure 2**.
- 3 If a group of ballasts goes to full brightness and other ballasts go to minimum brightness, tap ✓.
- 4 Select **Set Occupied Level** or **Set Unoccupied Level**. If ballasts go to their occupied or unoccupied level, tap ✓.
- 6 Tap the desired light level. If needed, use the arrow keys to adjust the selected level incrementally. Select **Unaffected** if the ballasts should not change light levels when becoming occupied or unoccupied.

- 7 Select **Done**.
- 8 Select **Done**. Or, select another option to continue configuring ballasts.
- 9 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



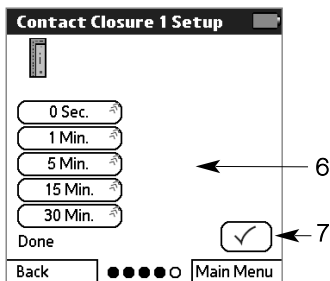
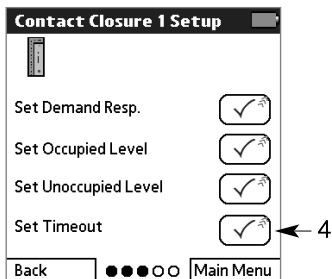
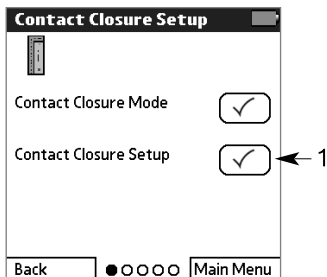
Setting the Contact Closure Occupancy Timeout

The occupancy timeout setting specifies the number of minutes before a fixture group turns off after contact closure input.

- 1 From the Contact Closure Setup menu, tap **Contact Closure Setup**.

NOTE: For procedures on how to display the Contact Closure Setup menu, refer to page 41.

- 2 Select **Contact Closure 1** or **Contact Closure 2**.
- 3 If a group of ballasts goes to full brightness and other ballasts go to minimum brightness, tap ✓.
- 4 Select **Set Timeout**.
- 5 If ballasts go to their occupied level, tap ✓.
- 6 Select the number of minutes until the fixture group turns off after contact closure input.
- 7 Select **Done**.
- 8 Select **Done**. Or, select another option to continue configuring ballasts.
- 9 When done, if the last configured ballast(s) flash and go to their high level, tap ✓.



Stand-Alone Programming

4

In some applications, EcoSystem ballasts and modules are not connected via an EcoSystem link. Ballasts can still be used in this configuration, but sensor and control input cannot be shared between them. Special settings are provided for ballasts and modules used in a stand-alone configuration.

To configure a ballast in stand-alone operation, a sensor or control capable of receiving IR commands must be connected to the ballast and used during programming.

Accessing the Stand-Alone Programming Menu

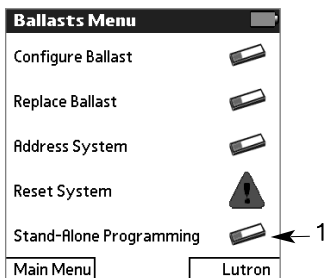
The stand-alone programming menu enables you to configure special settings for ballasts and modules used in a stand-alone configuration.

- 1 From the Main Menu, tap **Ballasts** then **Stand-Alone Programming**. Acknowledge the note regarding stand-alone programming, and tap ✓ to continue.
- 2 Read the instructions. Point the programmer at an IR control device connected to the ballast to be configured, then tap ✓ to continue.
- 3 Point the programmer at the IR control device and tap ✓ to begin communication.

The Stand-Alone Programming menu displays and you can:

- Set the emergency level
- Set the high end trim
- Perform stand-alone lamp seasoning
- Set up a daylight or occupancy sensor, or configure XPJ settings
- Enable or disable 3 wire input
- Reset the selected ballast

Refer to the following topics for detailed stand-alone programming procedures.



Setting Stand-Alone Emergency Level

The emergency level controls whether the ballast goes to high end when no input is seen on the EcoSystem bus. For more information, refer to page 30.

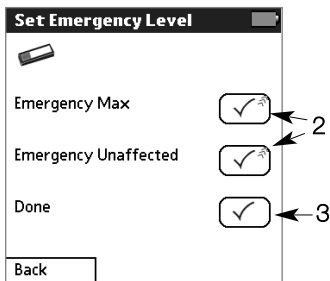
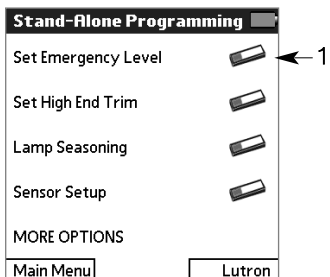
- 1 From the Stand-Alone Programming menu, select **Set Emergency Level**.

NOTE: For procedures on how to access the Stand-Alone Programming menu, refer to page 47.

- 2 To have the lights go to their maximum light level when no input is detected on the digital link, select **Emergency Max** (default operation).

Or, to ignore a missing input on the EcoSystem link, select **Emergency Unaffected** (required operation for stand-alone mode).

- 3 Select **Done**.
- 4 To continue configuring settings on the current ballast, select **Continue Setting Up Ballast**. Otherwise, select **Done** to return to the Main menu.



Setting Stand-Alone High End Trim

The high end trim controls the maximum light level for the lamps. For more information, refer to page 29.

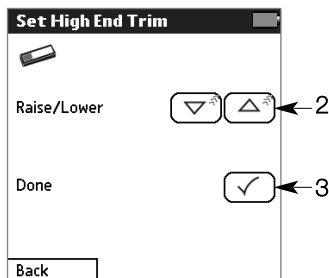
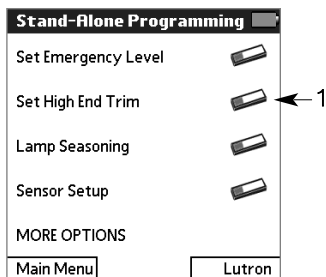
- 1 From the Stand-Alone Programming menu, select **Set High End Trim**.

NOTE: For procedures on how to access the Stand-Alone Programming menu, refer to page 47.

- 2 Use the up and down arrows to adjust the maximum light level for the ballast.

- 3 Select **Done**.

- 4 To continue configuring settings on the current ballast, select **Continue Setting Up Ballast**. Otherwise, select **Done** to return to the Main menu.



Stand-Alone Lamp Seasoning

Contact your lamp manufacturer for their lamp seasoning recommendations. For more information, refer to page 31.

- 1 From the Stand-Alone Programming menu, select **Lamp Seasoning**.

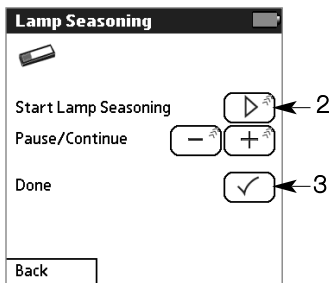
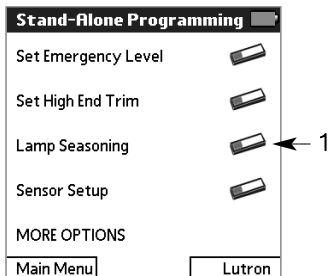
NOTE: For procedures on how to access the Stand-Alone Programming menu, refer to page 47.

- 2 Select **Start Lamp Seasoning** to force the lights to full for 100 hours.

To adjust the programming before the lamp seasoning is complete, press **-** to pause the lamp seasoning timer and return the lights to normal.

When ready, press **+** to return the lights to full and resume the lamp seasoning timer.

- 3 Select **Done**.
- 4 To continue configuring settings on the current ballast, select **Continue Setting Up Ballast**. Otherwise, select **Done** to return to the Main menu.



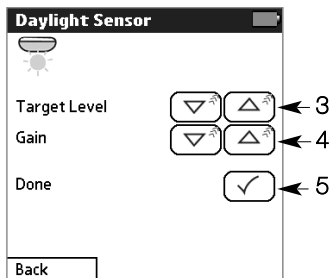
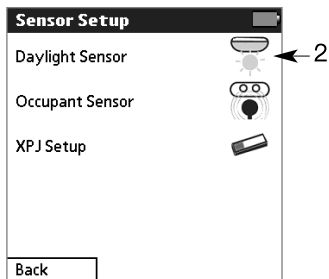
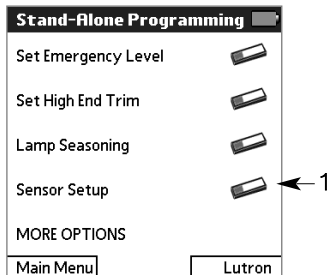
Stand-Alone Daylight Sensor Setup

A daylight sensor adjusts the light level based on how much daylight the space is receiving. For more information, refer to page 18.

- 1 From the Stand-Alone Programming menu, select **Sensor Setup**.

NOTE: For procedures on how to access the Stand-Alone Programming menu, refer to page 47.

- 2 Select **Daylight Sensor**.
- 3 When the sensor detects a significant amount of daylight, use the up and down **Target Level** arrows to adjust the current light level until it matches the desired amount. It may take up to 30 seconds to see a change in the lights as you make selections during steps 3 and 4 of this procedure.
- 4 Use the up and down **Gain** arrows to adjust how sensitive the lights will be to changes in daylight.
- 5 Select **Done**.
- 6 To continue configuring settings on the current ballast, select **Continue Setting Up Ballast**. Otherwise, select **Done** to return to the Main menu.



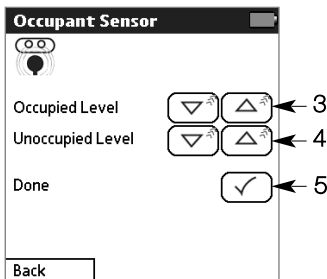
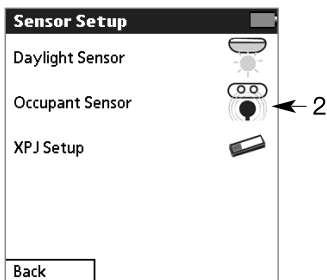
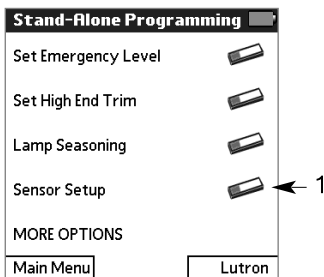
Stand-Alone Occupant Sensor Setup

An occupant sensor adjusts the light level based on whether the space is occupied or unoccupied. For more information, refer to page 20.

- 1 From the Stand-Alone Programming menu, select **Sensor Setup**.

NOTE: For procedures on how to access the Stand-Alone Programming menu, refer to page 47.

- 2 Select **Occupant Sensor**.
- 3 Use the up and down Occupied Level arrows to adjust the occupied light level. The intensity of the lights will change as you make selections during steps 3 and 4 of this procedure.
- 4 Use the up and down Unoccupied Level arrows to adjust the unoccupied light level.
- 5 Select **Done**.
- 6 To continue configuring settings on the current ballast, select **Continue Setting Up Ballast**. Otherwise, select **Done** to return to the Main menu.



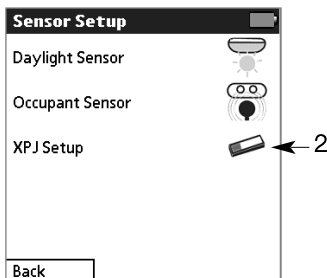
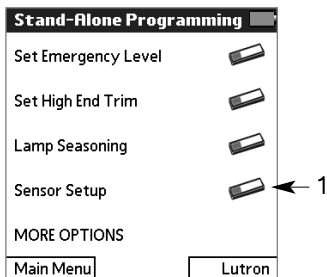
Stand-Alone XPJ Setup

The XPJ power module allows switching of up to 16A of non-dim loads. For more information, refer to page 32.

- 1 From the Stand-Alone Programming menu, select **Sensor Setup**.

NOTE: For procedures on how to access the Stand-Alone Programming menu, refer to page 47.

- 2 Select **XPJ Setup**.
- 3 Follow the procedures beginning on page 34 to adjust the XPJ On Level, XPJ Off Level, and Gain settings.
- 4 When finished with the XPJ settings, tap ✓.
- 5 To continue configuring settings on the current ballast, select **Continue Setting Up Ballast**. Otherwise, select **Done** to return to the Main menu.



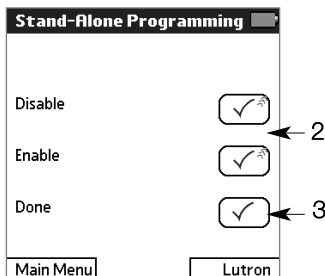
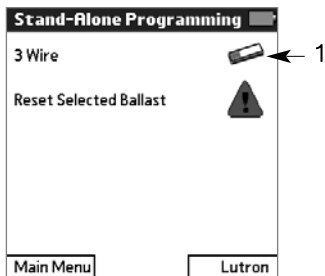
3 Wire Input

The 3 wire (phase control dimming signal) input on the ballast can be enabled or disabled.

- 1 From the Stand-Alone Programming menu, select **MORE OPTIONS** and then **3 Wire**.

NOTE: For procedures on how to access the Stand-Alone Programming menu, refer to page 47.

- 2 Select **Disable** to disable the 3 wire input, or **Enable** to enable the 3 wire input.
- 3 Select **Done**.
- 4 To continue configuring settings on the ballast, select **Continue Setting Up Ballast**. Otherwise, select **Done** to return to the Main Menu.



Maintaining Your System

5

After initial programming is complete, the following additional functions are available to control and maintain your EcoSystem:

- Modify programmed settings as needed
- Manually control light levels via an IR receiver
- Replace the bus supply
- Replace existing ballasts
- Address new ballasts
- Automatic ballast replacement
- Reset the entire system to factory default settings
- Reset a single ballast to factory default settings
- Check EcoSystem programmer software compatibility

Refer to the following topics for detailed procedures on how to perform each of these maintenance functions.

Manually Adjusting the Light Level

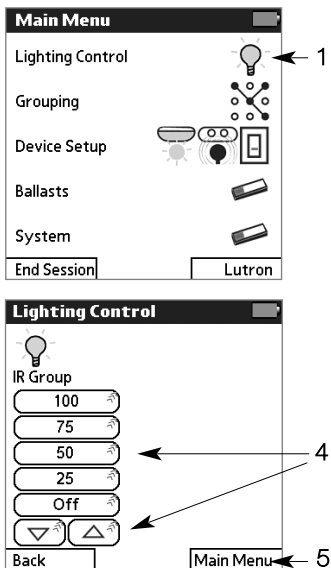
The light level can be manually adjusted for all fixtures in an IR receiver group. The adjusted light level remains in effect until one of the following occurs:

- An emergency situation occurs
- A daylight sensor lowers the fixture to compensate for natural lighting
- The room becomes unoccupied, or
- A user manually adjusts the level again via EcoSystem programmer, wall control, or IR transmission.

- 1 From the **Main Menu**, tap **Lighting Control**.
- 2 Read the instructions, then tap ✓ to continue.
- 3 To control only the fixture(s) assigned to the sensor, select **IR Receiver Wall Control Group**.

To control all fixtures, overriding other sensor inputs, select **All Ballasts**. (The override will end after 15 minutes of inactivity, unless exited manually.)

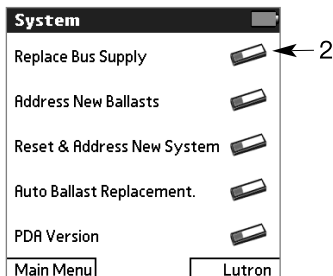
- 4 Point the programmer at the IR receiver whose group fixture(s) are to be adjusted (or any IR receiver if all fixtures are being controlled), then tap a light level.
- 5 Tap **Main Menu** or ✓ to exit.



Replacing the Bus Supply

In the unlikely event the EcoSystem bus should fail, a newly installed bus supply can “learn” the settings of the system by downloading it from the ballasts. This also clears any existing programming in the bus supply.

- 1 Make sure the new bus supply has been properly installed, but do not perform any programming steps.
- 2 From the Main Menu, tap **System** then **Replace Bus Supply**.
- 3 Read the instructions. Point the programmer at any IR control device, then tap ✓ to continue.
- 4 Read the caution, then tap ✓ to begin the replacement procedure.
- 5 If all ballasts flash and go to their high level, tap ✓.
- 6 Once all ballasts go to their minimum level and then flash, tap ✓.



Replacing Ballasts

If a ballast needs to be replaced, enter the serial numbers from the old and new ballast into the programmer. All settings of the old ballast will be applied to the new ballast and the need for reprogramming is eliminated.

NOTE: If a single ballast is being replaced, and Automatic Ballast Replacement is enabled (the default setting), it is not necessary to manually enter serial numbers. Refer to page 61 for details.

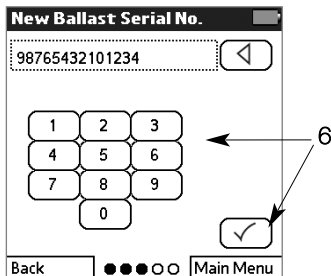
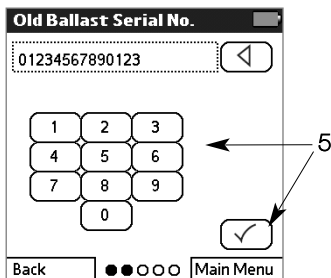
- 1 From the Main Menu, tap **Ballasts** and then **Replace Ballast**.
- 2 Read the instructions, then tap ✓ to continue.
- 3 Point the programmer at any IR control device, then tap ✓.
- 4 If fixtures for a receiver flash and others go to minimum brightness, tap ✓.
- 5 Use the keypad to enter the 14-digit serial number of the old (replaced) ballast, then tap ✓.

The old ballast does not need to be powered on or connected to the system.

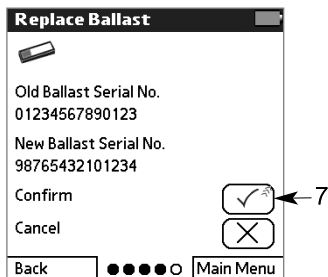
NOTE: To backspace, tap .

- 6 Enter the 14-digit serial number of the new ballast. Then tap ✓.

The new ballast must be powered on and connected to the system.



- 7 If the old and new serial numbers are entered correctly, tap ✓.
- 8 If the new ballast flashes and goes to its high level, tap ✓.
- 9 Select **Done Replacing Ballasts** to exit. Or select **Replace Another Ballast** to enter additional serial numbers.
- 10 When done, if all ballasts flash and go to their high level, tap ✓.



Addressing New Ballasts

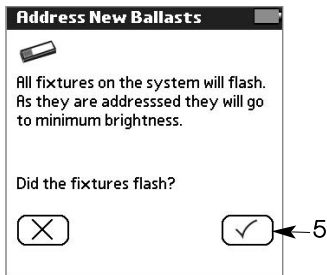
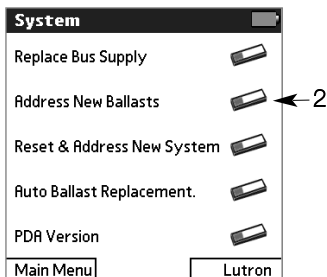
If new ballasts are added to an existing system, the ballasts must be addressed using the EcoSystem programmer. This enables the programmer to communicate with the ballasts and program their settings.

NOTES:

To address all ballasts (for example, when a new system is installed), refer to page 12.

To address a replacement ballast, refer to page 58.

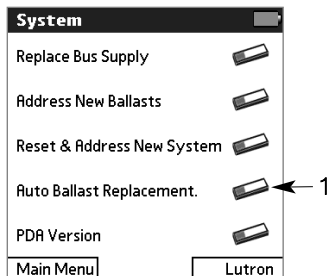
- From the Main Menu, tap **System** and then **Address New Ballasts**.
 - Tap **Address New Ballasts**.
 - Read the instructions, then tap ✓ to continue.
 - Confirm that ballasts are powered, then point the programmer at any IR control device and tap ✓ to begin addressing.
 - If all fixtures flash, tap ✓ .
Fixtures will go to minimum brightness as they are addressed.
 - If all fixtures are at minimum level, tap ✓ .
- Caution!** Do not tap ✓ until all fixtures flash and are at their minimum level.
- If all fixtures go to their high level, tap ✓ .



Automatic Ballast Replacement

If the bus supply recognizes that a single new ballast has been added to the system and a single old ballast is missing from the system, it will automatically program the new ballast with the settings from the old ballast. This prevents the user from having to follow the manual ballast replacement process. The automatic process works only for single ballast replacement; the manual process must be used if more than one ballast is being replaced at a time. This feature is enabled by default.

- 1 From the Main Menu, tap **System** then **Auto Ballast Replacement**.
- 2 Read the instructions. Point the programmer at any IR control device, then tap ✓ to continue.
- 3 Select **Disable** to disable the automatic ballast feature, or **Enable** to turn the feature on.
- 4 Select **Done**.



Resetting the Entire System to Factory Defaults

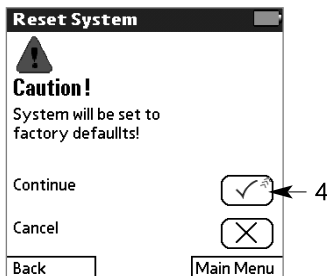
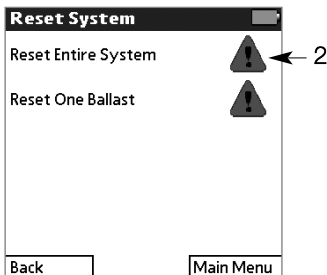
If needed, all EcoSystem ballasts can be reset to their factory defaults.

- 1 From the Main Menu, tap **Ballasts** and then **Reset System**.
- 2 To reset all ballasts, tap **Reset Entire System**.
- 3 Read the instructions, then tap ✓ to continue.

NOTE: To reset a single ballast, refer to page 63.

Caution! *Resetting ballasts deletes their programmed settings, including sensor assignments, and returns them to their factory defaults.*

- 4 Tap ✓ to confirm the reset. (Or tap ✕ to **Cancel**.)
- 5 If all ballasts flash 3 times, tap ✓.



Resetting a Ballast to Factory Defaults

If needed, a single ballast can be reset to its factory default settings.

- 1 From the Main Menu, tap **Ballasts** and then **Reset System**.

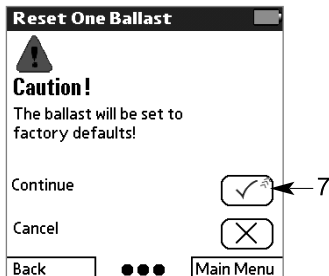
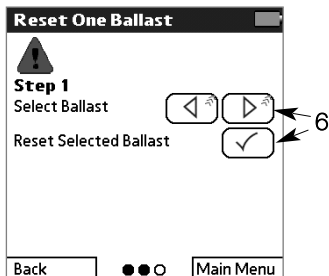
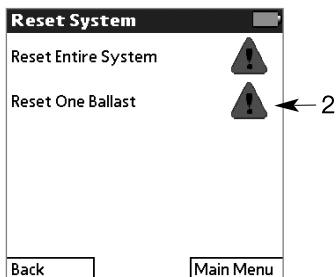
- 2 Tap **Reset One Ballast**.

NOTE: To reset the entire system, refer to page 62.

- 3 Read the instructions, then tap ✓ to continue.
- 4 Point the programmer at any IR control device and tap ✓ to begin.
- 5 If the fixture with an IR receiver or wall control flashes and other fixtures go to minimum brightness, tap ✓.
- 6 Scroll to find the ballast to be reset (its fixture will flash). Then tap ✓ to reset it.

Caution! *Resetting a ballast deletes its programmed settings, including sensor assignments, and returns it to the factory defaults.*

- 6 Tap ✓ to confirm the reset. (Or tap ✕ to **Cancel**.)
- 7 If the reset ballast flashes 3 times and then all fixtures go to high level, tap ✓.

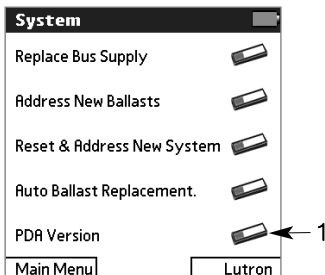


EcoSystem® Programmer Version Check

The version check feature allows you to confirm that the software version of your PDA is compatible with the software in the bus supply.

- 1 From the Main Menu, tap **System** then **PDA Version**.
- 2 Read the instructions. Point the programmer at any IR control device, then tap ✓ to continue.
- 3 Tap **Begin**.
- 4 If all ballasts flash and go to their high level, tap ✓.
- 5 The current EcoSystem Programmer PDA version will be selected. Tap **Send** to test if that version is compatible with the bus supply.

If the bus supply is compatible, the lights will flash.
- 6 Select **Done**.
- 7 If all ballasts flash and go to their high level, tap ✓.



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Limited Warranty

(Valid only in U.S.A., Canada, Puerto Rico, and the Caribbean.)

For a period of one year from the date of purchase, and subject to the exclusions and restrictions described below, Lutron warrants each new unit to be free from manufacturing defects. Lutron will, at its option, either repair the defective unit or issue a credit equal to the purchase price of the defective unit to the Customer against the purchase price of comparable replacement part purchased from Lutron. Replacements for the unit provided by Lutron or, at its sole discretion, an approved vendor may be new, used, repaired, reconditioned, and/or made by a different manufacturer. If the unit is commissioned by Lutron or a Lutron approved third party as part of a Lutron commissioned lighting control system, the term of this warranty will be extended, and any credits against the cost of replacement parts will be prorated, in accordance with the warranty issued with the commissioned system, except that the term of the unit's warranty term will be measured from the date of its commissioning.

EXCLUSIONS AND RESTRICTIONS

This Warranty does not cover, and Lutron and its suppliers are not responsible for: Damage, malfunction or inoperability diagnosed by Lutron or a Lutron approved third party as caused by normal wear and tear, abuse, misuse, incorrect installation, neglect, accident, interference or environmental factors, such as (a) use of incorrect line voltages, fuses or circuit breakers; (b) failure to install, maintain and operate the unit pursuant to the operating instructions provided by Lutron and the applicable provisions of the National Electrical Code and of the Safety Standards of Underwriter's Laboratories; (c) use of incompatible devices or accessories; (d) improper or insufficient ventilation; (e) unauthorized repairs or adjustments; (f) vandalism; or (g) an act of God, such as fire, lightning, flooding, tornado, earthquake, hurricane or other problems beyond Lutron's control. On-site labor costs to diagnose issues with, and to remove, repair, replace, adjust, reinstall and/or reprogram the unit or any of its components. Equipment and parts external to the unit, including those sold or supplied by Lutron (which may be covered by a separate warranty).

The cost of repairing or replacing other property that is damaged when the unit does not work properly, even if the damage was caused by the unit.

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TO MAKE A WARRANTY CLAIM

To make a warranty claim, promptly notify Lutron within the warranty period described above by calling the Lutron Technical Support Center at (800) 523-9466. Lutron, in its sole discretion, will determine what action, if any, is required under this warranty. To better enable Lutron to address a warranty claim, have the unit's serial and model numbers available when making the call. If Lutron, in its sole discretion, determines that an on-site visit or other remedial action is necessary, Lutron may send a Lutron Services Co. representative or coordinate the dispatch of a representative from a Lutron approved vendor to Customer's site, and/or coordinate a warranty service call between Customer and a Lutron approved vendor.

This product may be covered under the following U.S. Patent: 7,391,297; and corresponding foreign patents. U.S. and foreign patent(s) pending.

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www.lutron.com

WORLD HEADQUARTERS

USA

Lutron Electronics Co., Inc.

7200 Suter Road

Coopersburg, PA 18036-1299

TEL +1.610.282.3800

FAX +1.610.282.1243

Toll-Free 1.888.LUTRON1

Technical Support 1.800.523.9466

North and South America Technical Hotlines

USA, Canada, Caribbean: 1.800.523.9466

Mexico: +1.888.235.2910

Central/South America: +1.610.282.6701