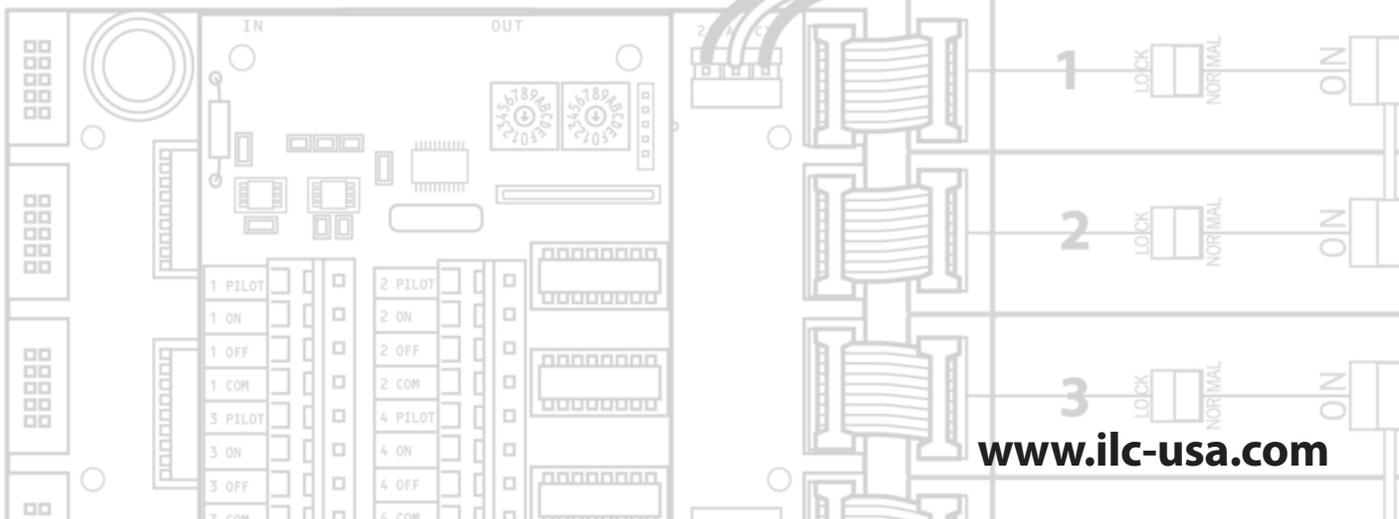# INTELLIGENT LIGHTING CONTROLS, INC.

Energy Saving Lighting Controls

LightLEEDer
Operation
Manual

Includes product details, installation and programming information for LightLEEDer lighting control systems.

www.ilc-usa.com

LightLEEDer

OPERATION MANUAL

*Includes product details, installation and programming
information for LightLEEDer lighting control systems.*

Version 1C
3/14/17

Class A FCC Device Statement

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

INTELLIGENT LIGHTING CONTROLS, INC.

5229 Edina Industrial Boulevard
Minneapolis, Minnesota 55439
Phone 952 829 1900
FAX 952 829 1901
1-800-922-8004

LightLEEDer

Introduction

Thank you for purchasing the ILC LightLEEDer lighting control system. The LightLEEDer line is a very flexible and quality product to meet all of your lighting control needs. These panels are microprocessor-based programmable lighting controllers with networking capabilities. You can program each of the controller's inputs or data line devices to control any or all of the relay outputs. Individual controllers may be linked together to form a local area network or linked across the internet to form a wide area network and function as a single interface. The LightLEEDer controllers are UL and FCC approved for commercial applications.

This operation manual is designed to assist you in understanding, installing, and programming the product to fit your facilities' requirements. This manual will give you step by step procedures to assist you in a quick and proper installation. ILC is committed to help the installation go smoothly with documentation and videos on our web site, quick installation guides, quick programming guides, and technical telephone assistance through our toll free number.

Web site: www.ilc-usa.com

Toll Free Number: 1 800 922-8004

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Section 1
Lighting Controller Details

LightLEEDer

Section 1 Controller Description

LightLEEDer

Figure 1.1 – ILC LightLEEDer 16 Controller

1.0 Enclosure

The enclosures are NEMA 1 rated and are supplied with a hinged locking or screw cover designed for surface or flush mounting. Every panel is provided with 4 pre-drilled holes for easy mounting onto the wall or Unistrut™ framing. Enclosures are available in 5 sizes to accommodate from 4 to 64 relays. Enclosure sizes with 8 - 64 relays are configured with relays on both sides of the enclosure for easy routing of wires from the circuit breaker box and the 4 size enclosures relays are on the right side designed for distributed mounting. All enclosures include high voltage barriers to separate Class 1, Class 2, and emergency wiring. See Table 1.1 for enclosure dimensions and relay quantities.

Enclosure Size	# of Relays	Width	Height	Depth
LightLEEDer 4	up to 4	14 Inches	11 Inches	6 Inches
LightLEEDer 8-16	up to 16	20 Inches	20 Inches	6 Inches
LightLEEDer 24-32	up to 32	20 Inches	29 Inches	6 Inches
LightLEEDer 40-48	up to 48	20 Inches	38 Inches	6 Inches
LightLEEDer 56-64	up to 64	20 Inches	48 Inches	6 Inches

Table 1.1 – ILC LightLEEDer Configurations

1.1 Transformer

• Multi-tap primary that will accept 120/277 VAC or 120/347 VAC.

• 24 VAC w/center tap secondary.

• 40VA of power

• Equipped with an internal self-resetting fuses.

24VAC secondary

120/277 VAC or 120/347VAC primary
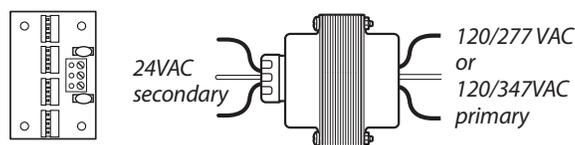
Power Distribution Board   *Transformer*

1.2 Controller Board

The controller provides the intelligence to control relays, monitor inputs, and to communicate in various ways. The integrated components include:

• Power supply used to convert the transformers 24 VAC into DC voltage used by the entire panel.

• Real-Time clock provides all time controlled functions including time of day, day of week, date, and day-light-saving time. It will keep the time for at least 45 days without power to the CPU.

• Non-volatile memory for storing programming information. Retains data for up to 200 years without any power to the CPU.

• Data line communications through RJ45 connectors for communicating with other panels and LightSync data line devices.

• USB serial communications for programming and interfacing with a personal computer.

• TCP/IP communications (optional) for programming and interfacing with a personal computer over a LAN or the Internet.

• Relay override switches for "All On" or "All Off" operation of relays, which is useful when no programming is present.

USB Port   RJ45 Data Out   TCP/IP (optional)

RJ45 Data In   RJ45 Local

Power ON LED   Relay Override Switches   Main Power Switch   Terminal block for 24VAC in
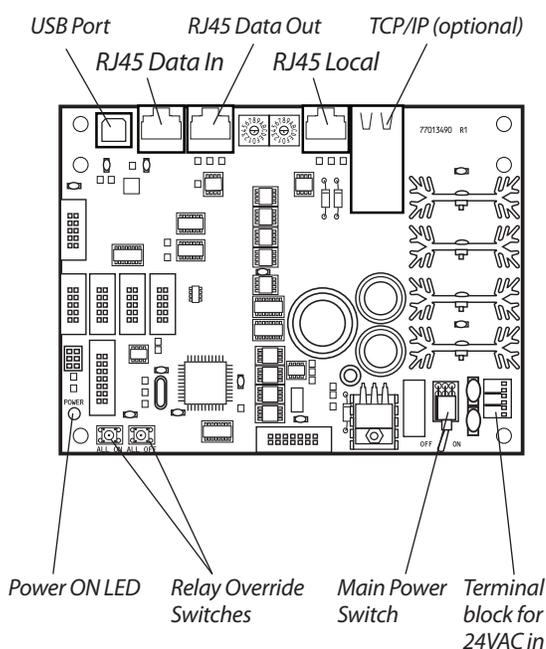
LightLEEDer Controller Board

LightLEEDer

1.3 Output Board

• Each board has 8 relay control points with removable ribbon cable connectors.

• Controls 1, 2, or 3 pole Reliant40 relays.

Ribbon cable connector *Power in*

Ribbon cable connector to relays (8/board)

Power LED

Ribbon cable connector *Power out*
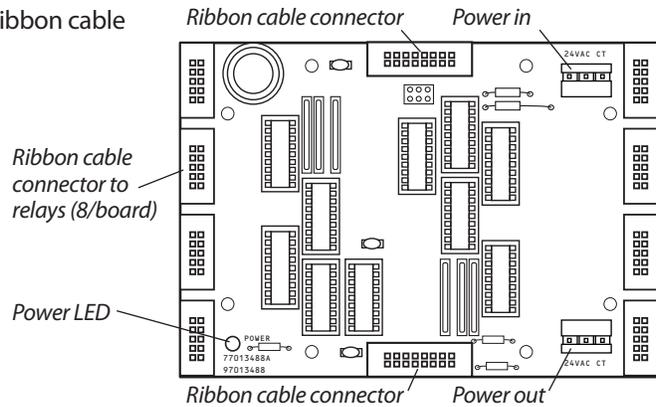
1.4 Input Module

• Modules have 4 inputs that each accepts 2 or 3 wire type switches.

• Accepts momentary, momentary push-button or maintained switch types.

• LED pilot output driver for relay status.

Node addressing switches

Switch inputs and pilot outputs (4/board)
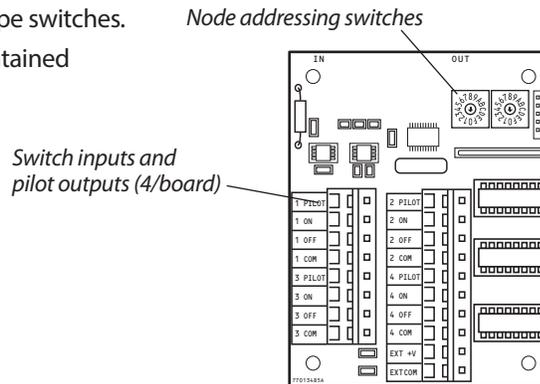
1.5 Keypad and Display Module

• 4 line 20 character LCD.

• Backlit when active

• 4 selection buttons, 2 scrolling buttons, a HOME button, and a BACK button for programming and interacting with the display.

4 line, 20 charcter LCD screen

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Selection buttons (4) *Scrolling buttons (2)*

LightLEEDer
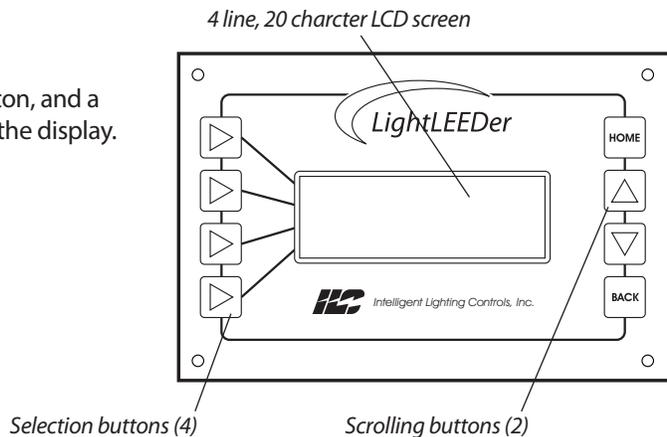
1.6 Reliant40 Lighting Control Relays

• Controls 120 -347VAC per pole for up to 40 Amps.

• Configured as 1, 2 or 3 poles.

Top View

Side View

Ribbon connector to output board

STRIP GUIDE

Line and Load terminals

1-Pole 2-Pole 3-Pole

LOCK NORMAL · ON OFF · LOAD · LINE
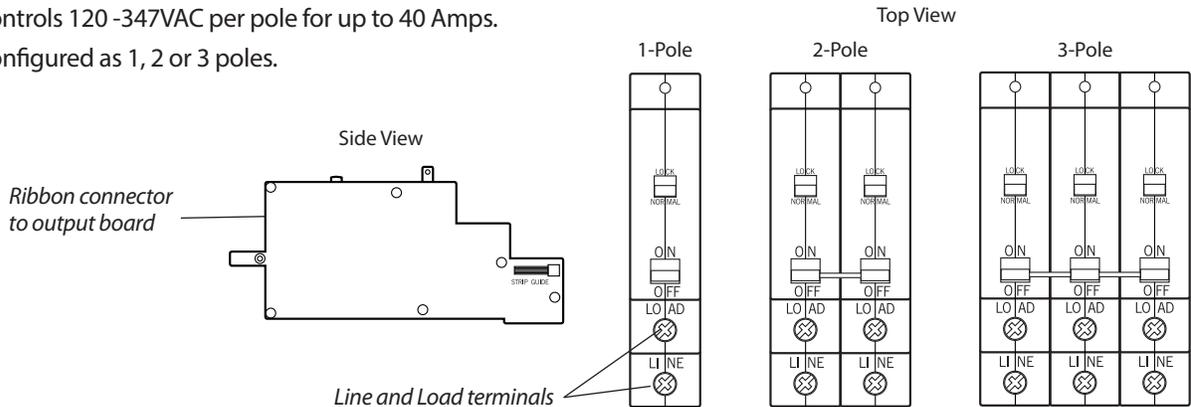
1.7 Optional Modules

• Basic Network Controller for allowing communications to other panels. Syncs panel's clocks and settings and added communications capabilities.

• Advance Network Controller allows the same functions as the Basic Network Controller along with a high speed LightSync scanner, TCP/IP, gateway capability, and power for LightSync devices.

• DTMF telephone control with voice prompted control and status.

• DMX512 control from theatrical control systems.

• Modem for programming and access over a telephone line.

• BAS interface modules for control and monitoring which include; Modbus, N2, BACnet, and LonWorks.

1.8 LightLEEDer Network

• Panels and LightSync devices can be linked together with standard CAT-5, CAT-5E, or CAT-6 cable using RJ45 connectors that easily plugs into the controllers and devices.

• With the use of a network controller you are able to link together up to 254 panels on the network.

• LightSync data line devices connect directly to the local port allowing up to 64 devices per panel, and/or connect up to 254 devices on the panel network with the use of a network controller.

Section 2
Installation

ILC   LIGHTLEEDER
SAT 01/01/11
04:19:44 PM
EDIT   NODE: 01

HOME

BACK

Intelligent Lighting Controls, Inc.

LightLEEDer

LightLEEDer

This section details the installation of the LightLEEDer lighting controller. The proper installation of the hardware and wiring is important to make a trouble free reliable lighting control system.
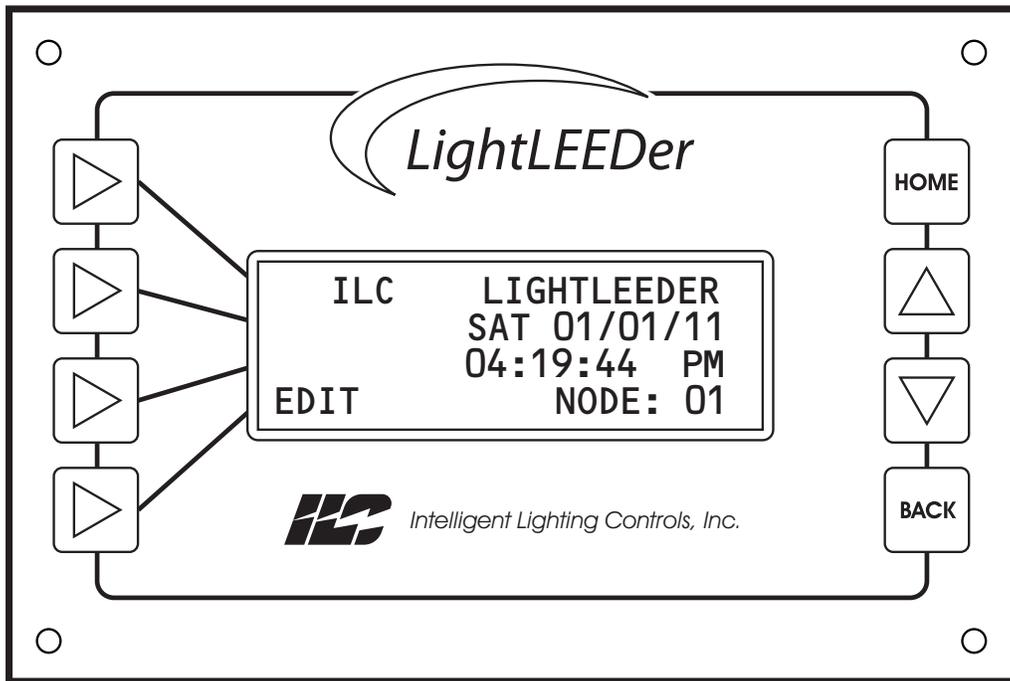
2.0 Pre-Installation Check List

☐ Unpack the lighting control panel.

☐ Report any damage to the freight carrier.

☐ Remove the enclosure door and set aside.

☐ Determine appropriate mounting location for panel.

☐ Mount the panel to the wall.

☐ Punch knockout holes for high and low voltage conduit runs.

☐ Pull a dedicated line and neutral to the control transformer and terminate.

☐ Pull line wires from circuit breaker box to the relays.

☐ Pull load wires to lighting loads from the relays.

☐ Connect line wires to load wires. Test for shorts by powering up the circuits.

☐ After clearing faults, connect line and load wires to relays.

☐ Pull CAT5 data line wires to panels and devices and terminate with RJ45 connectors.

☐ Test all cables with the appropriate cable tester.

☐ Pull any switch wires, dimming wires, or sensor wires and terminate to the appropriate connectors.

☐ Clean the cabinet of any construction debris and dust.

☐ Double check all high voltage connections.

☐ Apply power to the panel

2.1 Mounting the Controller

2.1.1 Location Determine the proper location for mounting the lighting controller. Typically the panels are mounted near the lighting circuit breaker box and near the lighting loads that will be controlled.

2.1.2 Environment Considerations Standard LightLEEDer panels are installed in a NEMA 1 enclosure designed for indoor applications, where conditions are not usually severe. The panels should be mounted in an area with an ambient temperature between 0 and 50° C (32°-122°F) and humidity from 10 to 90% non-condensing.

2.1.3 Mounting The enclosure is provided with 4 holes located at each corner of the enclosure. Secure the enclosure to the mounting surface with the appropriate hardware for the application.

2.2 Wiring the Controller

2.2.1 Wire Control Transformer Pull a dedicated 120VAC, 277VAC, or 347VAC circuit to the panel for the control transformer. See figure 2.1 for termination details. Cap the unused lead to prevent electrical shock.

2.2.2 Line and Load Wires Pull the line wires from the circuit breaker box and the wires from the lighting loads to the enclosure. Be sure to keep the high voltage wires isolated to the high voltage compartment. Connect each line to the appropriate load wire. Power-up the circuits, test for faults and clear any found. After testing each circuit, connect the line and load to the appropriate relay per the schedule. See figure 2.2 for details. Be sure to torque wire terminations to 20 lb. /in.
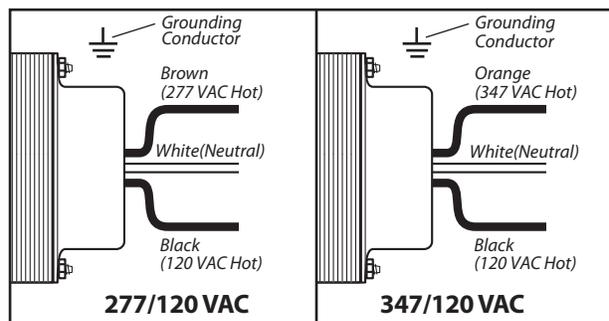
Figure 2.1 – transformer wiring details

LightLEEDer

Low Voltage Routing Area

High Voltage Routing Area

Line and Load terminations (torque to 20lbs./in.)
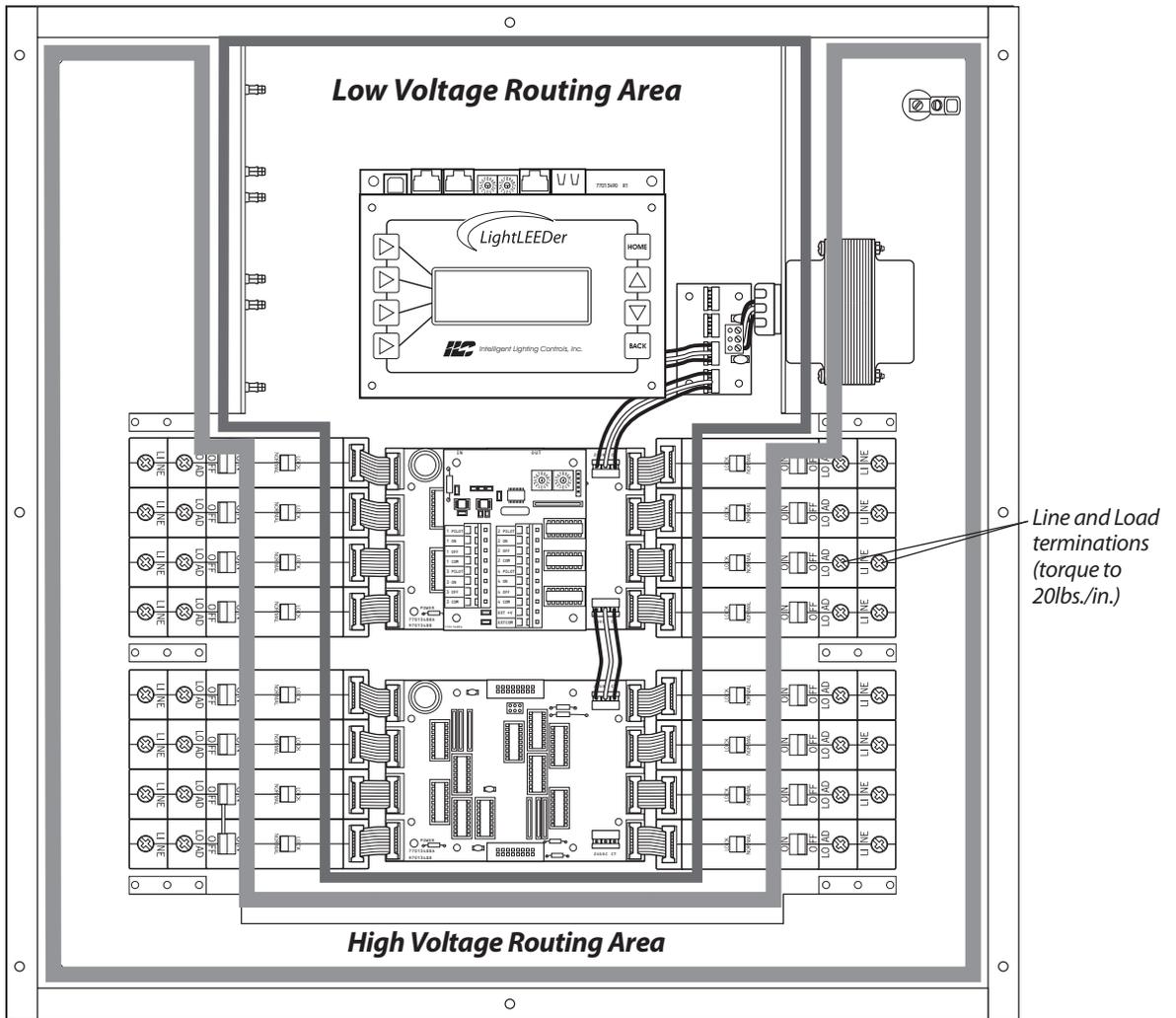
Figure 2.2 – Class2 and HV wiring areas

2.3 Network Cable Installation

2.3.1 Cable Installation Guidelines

• Observe all ILC Data Cable Requirements and LightSync Cable Run Distance Requirements as they pertain to your project in laying out the cable runs.

• Maintain the twists of the pairs all the way to the point of termination, or no more than 1" untwisted.

• Make gradual bends of the cable, where necessary. No sharper than a 1" radius.

• Dress the cables neatly with cable ties. Use low to moderate pressure.

• Use low to moderate force when pulling cable.

• Use cable pulling lubricant for cable runs that may otherwise require great force to install.

• Do not pull ANY data cable or switch wires with or along any high voltage wires.

• Keep all low voltage totally separate from ALL high voltage. Failure to do so will void the ILC warranty.

• Keep cables 2'-3' away from any potential sources of EMI as possible. (Line voltage runs, transformers, light fixtures, etc.)

• Install proper cable supports, spaced no more than 5 feet apart.

• Always label every termination point. Use a unique number for each cable segment. This will make moves, adds, changes and troubleshooting as simple as possible. Document these onto the riser provided.

• Always test every installed segment with a CAT-5 cable tester.

• Always leave extra slack in the cable run, neatly coiled up in the ceiling or nearest concealed place.

• Always use grommets to protect the cable when passing through metal studs or anything that can possibly cause damage.

• Always follow all local and national building and fire codes. Be sure to "fire stop" all cables that penetrate a firewall. Use plenum rated cable where it is mandated.

• Always contact ILC on installations between buildings or cable pulled underground. Special considerations may be needed.

2.3.2 Data Line Cable

The data line cables required for communications between panels and devices use standard Category 5, Category 5e, or Category 6 cable. RJ45 connectors must be rated for the type of cable being terminated to. Be sure that cable run in a plenum is rated for that use. Any cable run underground must have underground rated cable, have a 12AWG solid Cu wire pulled along with it grounded at one end, and have surge suppressors installed. Contact ILC for job specific questions..

2.3.3 Cable Installation

Data line cables need to interconnect all of the lighting control panels and all of the LightSync data line devices. Each controller has a local port that connects LightSync devices only. The controller also includes "in" and "out" ports for connecting panels together, which can also connect LightSync devices, but it is suggested that they are connected to the local port. **Note:** A network controller is required if using Data IN/OUT ports. See Figure 2.3 for network example.

Data cable to either panels or LightSync devices are run in a daisy chain pattern to form a network. "T" connections are permitted with the use of a Power Supply Repeater (PSR) and home-run LightSync devices may be done with a LightSync Hub.

LightLEEDer

To other panels

To other panels

Basic Network Controller

CAT-5 Cable

Power Supply
Repeater (PSR)

LightLEEDer 16

Direct wired switches

LightLEEDer 32

Occupancy sensors

LightSync switches

PSR

LightSync
Photocell Control

LightSync
Shade Motor Control

0-10V Ballast Control

LightSync Input Board

LightSync Hub

Switch Station
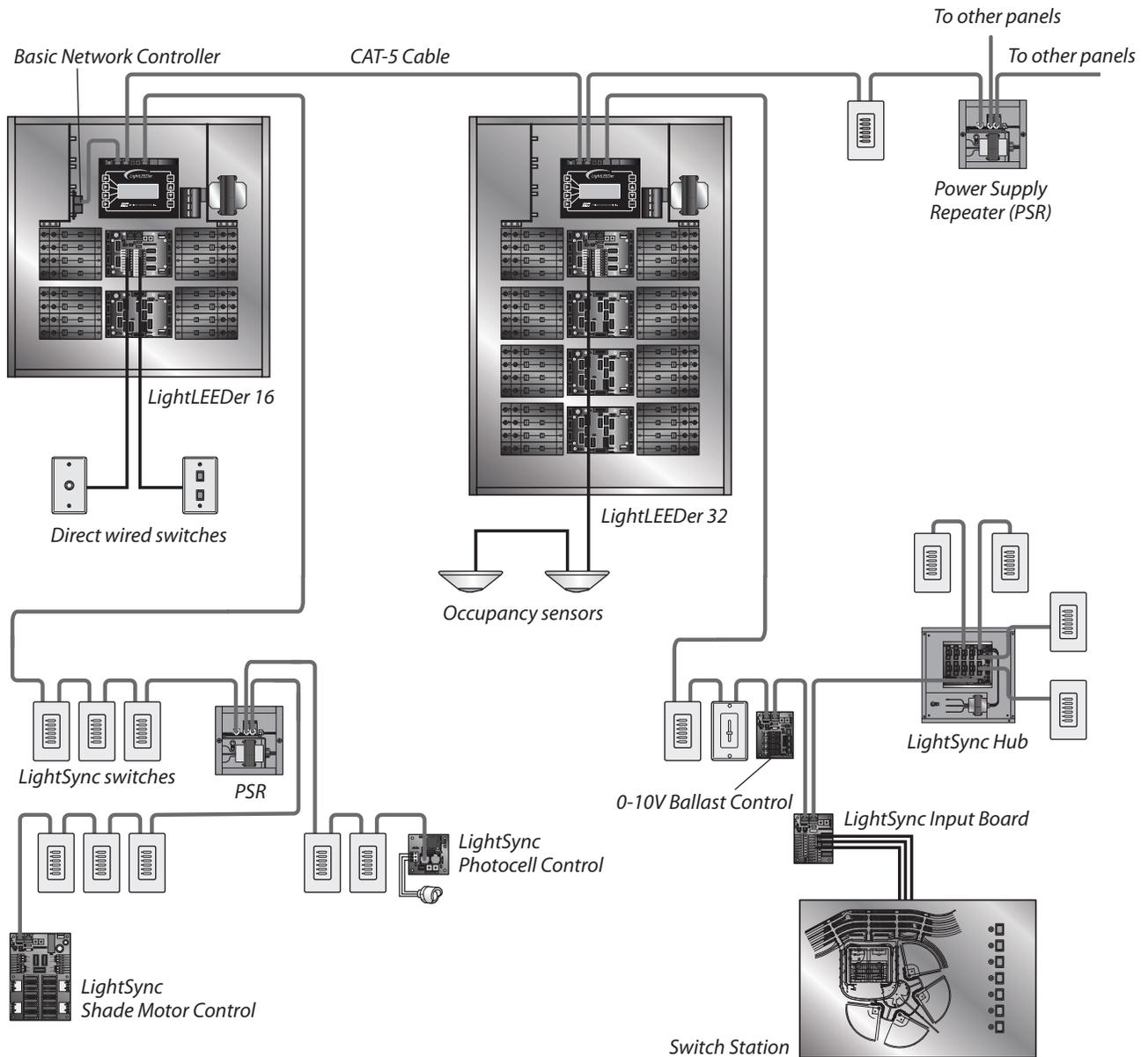
Figure 2.3 – LightLEEDer Network Example

2.3.4 Cable Distances

Data and power is carried across the network cable. There are limitations how far data can be run, how many devices are on the line, and how much power is on the line. With the addition of a Power Supply (PS, adds power to the data line) or a Power Supply Repeater (PSR, adds power and renews data on the data line) data and power can be renewed. See figure 2.4 for more details.

Be sure to record all cable distances on the riser provided.

LightLEEDer

LightSync™ Network Cable Run Distance Detail

Devices that operate on ILC's LightSync CAT-5 , 5E, 6 data line include LightSync switches, photocells, and interfaces like the LightSync D-6 and SIB-4. A standard CAT-5 , 5E, 6 cable is used for the data line and provides both data and power to these devices. There are limitations to the distance data can travel over CAT-5 , 5E, 6 cable without loss, and distance limitations due to voltage drop associated with cable length and number of devices on the LightSync data line. These limitations are addressed by the addition of a Power Supply Repeater, Power Supply or LightSync Hub (see chart), depending on the application. The specific use of these devices depends on the project layout.

There are four main areas of limitation to be addressed:

1. **Total Data Line Overall Distance:** The total data line end to end distance may not exceed 3000 feet without the addition of a PSR to the data line. Only a PSR will extend the data line.

2. **Total number devices (ILC panels and LightSync devices):** Total number of devices without a PSR is 32. A PSR will add 31 more devices (PSRs are counted as a device).

3. **Total number of LightSync devices powered:** No controller panel can power more than its maximum LightSync devices on the data line without a PS, PSR or LightSync Hub (each can power up to 20 additional LightSync devices).

4. **Total Power Cumulative Distance:** The cumulative distance from each device to its power supply may not exceed 2000 feet if powered by a ILC panel, or 3000 feet if powered by a PS, PSR or LightSync Hub.

ILC Power and Data Repeating Device	Total Data (end to end) Distance	No. of LightSync Devices Powered	Cumulative Power Distance
ILC Panel	3000 feet	8	2000 feet
Power Suppy (PS)	N/A	20	3000 feet
Power Supply Repeater (PSR)	3000 feet (combined)	20	3000 feet
LightSync Hub (HUB)	1500 feet per port	20 total	1500 feet per port

ILC Power and Data Repeating Devices

A **Power Supply Repeater** (PSR) is both a power supply and data repeater and its primary purpose is to repeat data and provide a bridge to another data line capable of 3000 feet end to end. This device also has one incoming and two outgoing RJ45 ports to split the line into two different directions. The PSR also adds power to LightSync devices for an additional 3000 cumulative feet.

A **Power Supply** (PS) provides additional power as needed to the LightSync data line. This is the most efficient option to compensate for voltage drop from multiple LightSync devices on the data line. Note that a PS provides power only and does not repeat data.

A **LightSync Hub** (HUB) is a device that allows a home run configuration by providing RJ45 ports for up to 20 LightSync devices, supplying power and data up to 1500 feet per each port.

Figure 2.4 – LightSync Network Cable Run Distance Detail

2.3.5 Cable Termination and Testing

Data cables will be required to be terminated with the proper RJ45 crimp-on connectors for the cable being used. Follow the pin-out shown in figure 2.5. Be sure the color coded wires are terminated exactly as shown. Always visually inspect for a completely seated crimp, as damage could occur to the mating connector on the processor or device.

Test every cable prior to installation for shorts, opens, and inducted voltage. We suggest the use of a LandRover Pro tester manufactured by Test-Um, Inc. Be sure not to connect your tester to a cable connected to any hardware as damage may occur.

1 (orange/white)
2 (orange)
3 (green/white)
4 (blue)
5 (blue/white)
6 (green)
7 (brown/white)
8 (brown)

Top View

Front View

Figure 2.5 – RJ45 Cable Termination Detail

2.3.6 Connect Cable

After cables are tested, they can be plugged into the panels and devices. Cables start at the" out port", go to the next panel or device and enters the "in port". This is continued until all devices are connected. See figure 2.6 for details of ports.

RJ-45 Data In Port

RJ-45 Data Out Port

RJ-45 Local LightSync Port

LightLEEDer

HOME

Figure 2.6 – RJ45 Cable Termination Ports

2.4 Pre-Power-Up Checks

☐ Verify power to controller and output boards from the secondary of the transformer. The voltage should be 24-28VAC from red wire to red wire, 12 – 16VAC yellow wire to each red wire. See figure 2.1 for details.

☐ Verify power connectors to output boards are seated and have voltage from the secondary of the transformer.

☐ Verify all ribbon cables between controller/output boards and connecting relays are well seated.

☐ Verify all high voltage wires are terminated and all high voltage fish paper barriers are installed.

☐ Verify all data cables, sensor wires, dimming wires, input wires are terminated properly.

2.5 Power-Up and Check Out

2.5.1 Power-Up

The power switch is located under the right side of the keypad. Turn the power switch to the right to activate the controller. The power LED located in the lower left should light and the LCD should display the default time and date.

2.5.2 Verify Relay Operation

With the controller powered up press the "all on" push button switch located on the lower left side of the controller, all of the relays should turn ON. Press the "all off" button and verify that all relays turned OFF. The relays have built in indicator on their on/off override switch that indicates their state.

2.5.3 Clearing Memory

It is very critical to clear the memory in the controller prior to programming eliminating any possible unwanted mapping. From the keypad/display push "Edit", then scroll down to "Special Functions", then scroll down to "Firmware Revision", press both up and down scroll buttons simultaneously to enter a hidden menu, and then scroll down to "Clear All Memory".

2.5.4 Set the Internal Clock

Clock settings must be set in the controller if the panel runs time schedules or turns on/off lights in reference to sunrise/sunset. From the keypad/display push "Edit" and scroll down to the "Clock" menu. From this part of the menu you can set the time and date, set up the daylight saving time settings, set the astronomical parameters, and view the current sunrise/sunset settings. See Section 3.3 for more details.

Section 3
Programming

RELAYS
INPUTS
TIMERS
CLOCK

HOME

BACK

LightLEEDer

Intelligent Lighting Controls, Inc.

Section 3 Programming

LightLEEDer

3.0 Information

In this section you will learn how to program a LightLEEDer lighting control system through the keypad. Software is available on our website that simplifies the task and allows programming remotely.

Programming can be accomplished through any keypad in any panel in a networked system. To access a panel other than the one you're at, press ▶ EDIT, scroll down until REMOTE PANEL appears, Press ▶ REMOTE PANEL, select the node number and connect. The keypad is comprised of a 4 line 20 character LCD with 8 interface buttons. The 4 left buttons ▶ corresponds to each line on the display and is pressed to enter that portion of the menu. The center 2 right buttons ▲ and ▼ are for scrolling up and down in the menu. The lower right "BACK" button will navigate you back 1 screen each time it is pushed and the upper right "HOME" button will navigate you back to the home screen.

Below are the suggested basic programming steps for the LightLEEDer panels. Panel programming will vary depending on the complexity of the system. See section 3.9 for programming samples.

1. Setup network panels (section 3.1)

2. Clear system memory (section 3.3)

3. Set the time, longitude/latitude, and time zone (section 3.4)

4. Configure the relay types, output off types, and relay locks (section 3.5)

5. Configure relay groups (section 3.5.5) and presets (section 3.8)

6. Configure LightSync devices and input types (section 3.6)

7. Map inputs to relays and groups (section 3.5.6)

8. Configure timers (section 3.7)

9. Map timers to relay control (section 3.7.3)

Note: For Networked Panel Systems, certain settings are programmed at the system level in the Network Controller (Node 00). If you are at a panel other than the one that contains the Network Controller use the steps below.

Connect to the Network Controller

1. From the home screen press ▶ EDIT

2. Scroll ▼ until REMOTE PANEL appears

3. Press ▶ REMOTE PANEL

4. Press ▲ or ▼ until NODE 00 is displayed

5. Press ▶ CONNECT

6. Follow single panel menu from this point

Connect to Networked Panels

1. From the home screen press ▶ EDIT

2. Scroll ▼ until REMOTE PANEL appears

3. Press ▶ REMOTE PANEL

4. Press ▲ or ▼ until desired NODE is displayed

5. Press ▶ CONNECT

6. Follow single panel menu from this point

Connect to a Networked Panel

```
   ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT           NODE 01
```

Press ▶ EDIT

```
CLOCK
PRESETS
OTHER DEVICES
REMOTE PANEL
```

Press ▶ REMOTE PANEL

```
  REMOTE PANEL
NODE 02
CONNECT
```

Press ▶ CONNECT

3.1 Configure Panels into the Network System

1. From the Network Controller's home screen press ▶ EDIT
2. Press ▶ NETWORK
3. Press ▲ or ▼ to select the node to add into the system.
4. Press ▶ ACTIVATE or DEACTIVATE (Note: Node 01 must always be activated)
5. The communications status is displayed in the lower right hand corner of the screen. If NC appears, there is no connection or no communications to that node.
6. Press "HOME" to exit to the home screen

3.2 Saving Programming Changes

After making changes to the programming the settings are automatically saved into the system. If no activity is detected for 5 minutes the screen will time-out and return to the Home screen.

3.3 Clearing Memory

One of the most important things to do before programming your system is to clear the internal memory. This will remove any programming that may be in the memory.

3.3.1 Clearing all Memory

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Scroll ▼ until SPECIAL FUNCTIONS appears
3. Press ▶ to select SPECIAL FUNCTIONS
4. Press ▶ and select FIRMWARE REVISION
5. From this screen press ▲ and ▼ buttons at the same time to enter a hidden menu
6. Press ▶ and select CLEAR ALL MEMORY
7. You will be prompted CLEAR ALL MEMORY?
8. Press ▶ YES and the memory will be cleared of all programming.

Configure Panels into the Network System

```
ILC LIGHTLEEDER NC
          TUE 01/21/11
          09:46:54 PM
EDIT
```
Press ▶ EDIT

```
NETWORK
INPUT
RELAYS          ▼
TIMERS
```
Press ▶ NETWORK
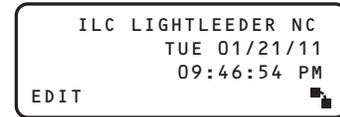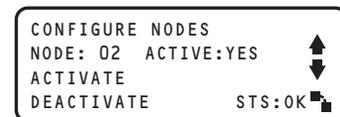
```
CONFIGURE NODES      ▲
NODE: 02  ACTIVE:YES ▼
ACTIVATE
DEACTIVATE   STS:OK
```
Follow Step 4

Clearing all Memory
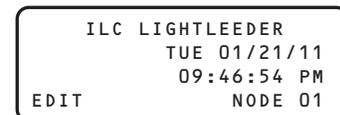
```
ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT          NODE 01
```
Press ▶, then scroll down to SPECIAL FUNCTIONS

```
PRESETS
OTHER DEVICES
REMOTE PANEL        ▲
SPECIAL FUNCTIONS
```
Press ▶ SPECIAL FUNCTIONS

```
EDIT NAMES
CHANGE PASSWORDS
FIRMWARE REVISION
```
Press ▶ FIRMWARE REVISION, then ▲ and ▼
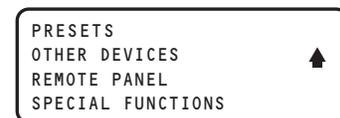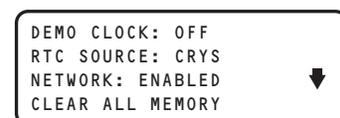
```
DEMO CLOCK: OFF
RTC SOURCE: CRYS
NETWORK: ENABLED    ▼
CLEAR ALL MEMORY
```
Press ▶ CLEAR ALL MEMORY

```
   CLEAR ALL SETTINGS?

NO
YES
```
Press ▶ YES

LightLEEDer
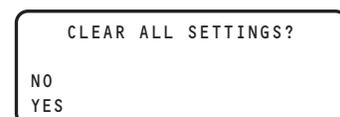
3.3.2 Clearing Specific Parts of Memory

Programming can be cleared for specific configuration or mapping areas programmed into memory. Some can be done in the Network Controller, which is network-wide, while others can only be done at the panel level.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Scroll ▼ until SPECIAL FUNCTIONS appears

3. Press ▶ to select SPECIAL FUNCTIONS

4. Press ▶ and select FIRMWARE REVISION

5. From this screen press ▲ and ▼ buttons at the same time to enter a hidden menu

6. Press ▼ to scroll to desired function

7. Press ▶ and select

   a) CLEAR IN/RLY MAP: Clears all input to relay mapping. (Individual panels only)

   b) CLEAR IN/GRP MAP: Clears all input to group mapping.

   c) CLEAR GROUPS: Clears all group configurations. (Individual panels only)

   d) CLEAR TIMERS: Clears all timers configurations.

   e) CLEAR TMR/GRP: Clears all timers to groups. (Network Controller only)

   f) CLEAR TMR/RLY MAP: Clears all timers to relay mapping. (Individual panels only)

   g) CLEAR PRESETS: Clears all presets configurations. (Individual panels only)

8. You will be prompted to clear selected?

9. Press ▶ YES and the memory will be cleared of all programming

Clearing Specific Parts of Memory

```
   ILC LIGHTLEEDER
           TUE 01/21/11
           09:46:54 PM
EDIT            NODE 01
```
Press ▶ EDIT, scroll down until
SPECIAL FUNCTIONS appears

```
PRESETS
OTHER DEVICES              ⬆
REMOTE PANEL
SPECIAL FUNCTIONS
```
Press ▶ SPECIAL FUNCTIONS

```
EDIT NAMES
CHANGE PASSWORDS
FIRMWARE REVISION
```
Press ▶ FIRMWARE REVISION

```
DEMO CLOCK: OFF
RTC SOURCE: CRYS
NETWORK: ENABLED          ⬇
CLEAR ALL MEMORY
```
Scroll to Desired Function, Press ▶

```
   CLEAR SELECTED?

NO
YES
```
Press ▶ YES

LightLEEDer

3.4 Clock Settings

Clock settings must be set in the controller if the panel executes time schedules or turns on/off lights in reference to sunrise/sunset.

3.4.1 Set the Time and Date

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Scroll ▼ until CLOCK appears

3. Press ▶ CLOCK

4. Press ▶ TIME/DATE, the programmed time and date will be displayed

5. Press ▶ TIME to make changes to the time

6. From this screen press ▶ HOUR or MINUTE and use the ▲ or ▼ buttons to make adjustments to either. Be sure that AM/PM is indicated properly for the time of day.

7. When the time is correct, press ▶ SET

8. If the date requires adjustment press ▶ DATE

9. Select MONTH, DATE, or YEAR and press ▶ the corresponding button then press ▲ or ▼ to adjust the values

10. When the time is correct, press ▶ SET

11. Press "HOME" to exit to the home screen

3.4.2 Set Daylight Saving Time

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Scroll ▼ until CLOCK appears

3. Press ▶ CLOCK

4. Press ▶ DAYLIGHT SAVING

5. Press ▶ CONFIG DST to toggle from enable to disable

6. Press ▶ START DATE or END DATE to adjust the date

7. Press "HOME" to exit to the home screen

Note: The default settings are start: 2nd week in March, end: 1st week in November.

Set the Time and Date

```
    ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT            NODE 01
```

Press ▶ EDIT, scroll down until CLOCK appears

```
RELAYS
INPUTS
TIMERS                  ▼
CLOCK
```

Press ▶ CLOCK

```
TIME/DATE
DAYLIGHT SAVINGS
ASTRO CLOCK
SUNRISE/SUNSET
```

Press ▶ TIME/DATE

```
  SET  TIME/DATE
TIME   11:22:21    AM
DATE   FRI  01/07/11
```

Set correct time and date, Press ▶ SET

Set Daylight Saving Time

```
    ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT            NODE 01
```

Press ▶ EDIT, scroll down until CLOCK appears

```
RELAYS
INPUTS
TIMERS                  ▼
CLOCK
```

Press ▶ CLOCK

```
TIME/DATE
DAYLIGHT SAVINGS
ASTRO CLOCK
SUNRISE/SUNSET
```

Press ▶ DAYLIGHT SAVINGS

```
CONFIG DST: ENABLED
START DATE
END DATE
            CURRENT: STD
```

Set dates, Press ▶ HOME

3.4.3 Set Latitude/Longitude and Time Zone

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Scroll ▼ until CLOCK appears
3. Press ▶ CLOCK
4. Press ▶ ASTRO CLOCK
5. Press ▶ SET BY CITY
6. Press ▲ or ▼ until closest city displays
7. Press ▶ SET
8. Press ▶ LATITUDE or LONGITUDE then ▲ or ▼ to adjust the degrees in relationship to your location from the city chosen.
9. Press "HOME" to exit to the home screen

3.4.4 View Current Sunrise/Sunset Times

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Scroll ▼ until CLOCK appears
3. Press ▶ CLOCK
4. Press ▶ SUNRISE/SUNSET and today's sunrise/sunset times will be displayed in military time
5. Press " HOME" to exit to the home screen

Set Latitude/Longitude and Time Zone

```
ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT          NODE 01
```

Press ▶ EDIT, scroll down until CLOCK appears

```
RELAYS
INPUTS
TIMERS                    ▼
CLOCK
```

Press ▶ CLOCK

```
TIME/DATE
DAYLIGHT SAVINGS
ASTRO CLOCK
SUNRISE/SUNSET
```

Press ▶ ASTRO CLOCK

```
LATITUDE   045
LONGITUDE  090
TIME ZONE   CENTRAL
SET BY CITY
```

Press LATITUDE, LONGITUDE, TIME ZONE, or SET BY CITY to make adjustments

View Current Sunrise/Sunset Times

```
ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT          NODE 01
```

Press ▶ EDIT, scroll down until CLOCK appears

```
RELAYS
INPUTS
TIMERS                    ▼
CLOCK
```

Press ▶ CLOCK

```
TIME/DATE
DAYLIGHT SAVINGS
ASTRO CLOCK
SUNRISE/SUNSET
```

Press ▶ SUNRISE/SUNSET

```
TIMES FOR TODAY
SUNRISE = 07.40
SUNSET = 16.30
```

Press ▶ HOME

LightLEEDer

3.5 Input Setup and Configuration

In this section you will learn how to setup a LightSync switch input type, setup conditionals, and set pilot status.

3.5.1 Configure a LightSync Device

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ INPUTS
3. Press ▲ or ▼ to select the device node number
4. Press ▶ CONFIGURE DEVICE
5. Press ▲ or ▼ to select the switch type. Refer to table 3.1
6. Press ▶ INPUTS: to select if this switch is used globally across the network or locally
7. Press ▶ " HOME" to exit to the home screen

Table 3.1: Input Device Types:

1, 2,3,4,5, or 6 Pushbutton: LightSync data line pushbutton switch stations in Classic, G2 or touch switch

4 Input: LightSync data line hardwire input board that will accept 2 or 3 wire momentary or maintained switch closures. Can be mounted in a panel or remote mounted.

Key Switch: LightSync data line key switch

Photocell 30 Seconds: LightSync photocell with a 30 second delay

Photocell 2 Seconds: LightSync photocell with a 2 second delay

Echo Pushbutton: Echo's any LightSync data line push button device

Echo 4 Input: Echo's any LightSync data line 4 input device

Echo Key Switch: Echo's any LightSync data line key switch device

Echo Photocell: Echo's any LightSync data line photocell device

Retro Hardwire Input: Input from a hardwired LightMaster, Quanta Elite, or Quanta RSX system that has been retro fitted with a LightLEEDer controller.

Note: The Echo input types emulates another device on the system.

Configure a LightSync Device

```
    ILC LIGHTLEEDER
            TUE 01/21/11
            09:46:54 PM
EDIT            NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS
CLOCK
```
Press ▶ INPUTS

```
  LS DEVICE: 01 ____
STATUS
CONFIGURE DEVICE
CONFIGURE INPUTS
```
Press ▶ CONFIGURE DEVICE

```
  LS DEVICE: 01
TYPE   1 BUTTON

INPUTS: LOCAL
```
Press ▲ or ▼ to select the input device

LightLEEDer

3.5.2 Configure a LightSync Device Input Type

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ INPUTS

3. Press ▲ or ▼ to to select the device node number

4. Press ▶ CONFIGURE INPUTS

5. Press ▶ TYPES

6. Press ▶ TYPES A/B

7. Press ▶ TYPE A, or TYPE B

8. Press ▲ or ▼ to to select the switch input type.
   Refer to table 3.2

6. Press ▶ " HOME" to exit to the home screen

Note: Each switch input is programmable to 2 switch types referred to as type A and type B. Each switch type will be active on a Time-of-Day or Open-Closed time and set in section 3.5.4.

Configure a LightSync Device Input Type

```
   ILC LIGHTLEEDER
           TUE 01/21/11
           09:46:54 PM
EDIT           NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS
CLOCK
```
Press ▶ INPUTS

```
  LS DEVICE: 01 1PB
STATUS              ⬍
CONFIGURE DEVICE    ⬍
CONFIGURE INPUTS
```
Press ▶ CONFIGURE INPUTS

```
  INPUT  IN:01.01.1
TYPES               ⬍
CONDITIONALS        ⬍
PILOT
```
Press ▶ TYPES

```
  INPUT  IN:01.01.1
TYPES A/B           ⬍
TYPE TIMES          ⬍
TOGGLE SOURCE
```
Press ▶ TYPES A/B

```
TYPE A◀ DISABLED    ⬍
TYPE B  DISABLED    ⬍
```
Press ▶ TYPE A or TYPE B

```
TYPE A◀ MNT ON/OFF  ⬍
TYPE B  DISABLED    ⬍
```
Press ▲ or ▼ to select device type

Table 3.2: Input Types:

1,2,3,4,5, or 6 Pushbutton: LightSync data line push-button switch stations in Classic, G2 or touch switch

Momentary ON/OFF: When momentary contact is made between the ON and COM, relay outputs controlled by this input shall be turned ON. When momentary contact is made between OFF and COM, relay outputs controlled by this input shall be turned OFF.

Momentary ON/OFF w/Blink: When momentary contact is made between the ON and COM, relay outputs controlled by this input shall be turned ON. When momentary contact is made between OFF and COM, relay outputs controlled by this input shall blink and postpone being turned OFF. The alert time shall be programmable from 2 to 99 minutes. The blink alert function shall blink each relay twice prior to turning OFF. If an ON command is received during the blink alert time, relay output shall be overridden and left ON for the override time. Override times shall be adjustable from 5 to 999 minutes in 1-minute increments. **Note:** Output must be programmed for a blink alert. See section 3.6.2

Momentary Push-Button ON/OFF: When momentary contact is made between the ON and COM, relay outputs controlled by this input are turned ON and OFF alternately, based on current state of the switch.

Momentary Push-Button ON: When momentary contact is made between the ON and COM, relay outputs controlled by this input shall be turned ON.

Momentary Push-Button OFF: When momentary contact is made between ON and COM, relay outputs controlled by this input shall be turned OFF.

Momentary Push-Button Toggle: When momentary contact is made between ON and COM, relay outputs controlled by this input shall toggle from the present state. Note: Toggle Source must be set as shown in section 3.6.5.

Maintained ON/OFF: When contact is made between the ON and COM, relay outputs controlled by this input are turned ON. When contact is broken between ON and COM, relay outputs controlled by this input are turned OFF. **Note:** Requires toggle function programming. See section 3.5.5

Maintained Multi-way: When contact is either made or broken between the ON and COM, relay outputs controlled by this input will be toggled between ON and OFF conditions. This function shall be similar to that of standard 3 and 4 way switches.

Maintained ON/OFF w/Blink: When contact is made between the ON and COM, relay outputs controlled by this input are turned ON. When contact is broken between ON and COM, relay outputs controlled by this input shall blink and postpone being turned OFF. The alert time shall be programmable from 2 to 99

minutes. The blink alert function shall blink each relay twice prior to turning OFF. If an ON command is received during the blink alert time, relay output shall be overridden and left ON for the override time. Override times shall be adjustable from 5 to 999 minutes in 1-minute increments. **Note:** Output must be programmed for a blink alert. See section 3.6.2

Timed ON: The timed ON input shall operate either from the input closure or open. If programmed to operate from the closure, the relays turn ON when the input closes and turn OFF after the timed duration. The relays do nothing when the input opens. If programmed to operate from the open, the relays turn ON when the input closes and remain ON. When the input opens, the relays turn OFF after the timed ON duration.

HID Bi-Level: This feature requires the configuration of ON/OFF relay outputs and HI/LOW relay outputs. The first momentary contact between ON and COM sets the ON relay outputs to ON and the HI/LOW outputs to HIGH (for at least 15 Minutes). The second contact switches the HI/LOW outputs to LOW. Additional contact closures will toggle the HI/LOW relay outputs. The cycle then repeats until momentary contact is made between switch input OFF and COM. Then the ON/OFF outputs and HI/LOW outputs are turned OFF.

Two-Step Alternating Sequence: The first time the switch is activated, relay outputs programmed as "Group A" are turned ON and relay outputs programmed as "Group B" are turned OFF. The second time the switch is activated, "Group A" relay outputs are turned OFF and "Group B" relay outputs are turned ON. The third time the switch is activated, the pattern begins again at step one.

Four-Step Alternating Sequence: The first time the switch is activated, relay outputs programmed as "Group A" are turned ON and relay outputs programmed as "Group B" are turned OFF. The second time the switch is activated, "Group A" relay outputs are turned OFF and "Group B" relay outputs are turned ON. The third time the switch is activated; both "Group A" and "Group B" relay outputs are turned ON. The fourth time the switch is activated; both "Group A" and "Group B" relays are turned OFF. The fifth time the switch is activated, the process begins again at step one.

Set Preset: When momentary contact is made between the ON and COM, the selected preset scene will be activated.

Force Timer: When momentary contact is made between the ON and COM, the selected timer will be activated.

Disabled: When this is selected the inputs will not be active. If the Disabled switch input type A or B is set to an Input Active Time the switch input will be ignored.

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3.5.3 How to see the Status of a Switch Input

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ INPUTS

3. Press ▲ or ▼ to to select the device node number

4. Press ▶ STATUS

5. Press ▲ or ▼ to scroll through the devices. This screen will indicate whether it is connected, and will show button activation when pressed.

6. Press ▲ or ▼ to select another device or Press HOME

How to see the Status of a Switch Input

```
ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT            NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS          ⬇
CLOCK
```
Press ▶ INPUTS

```
 LS DEVICE: 01 1PB
STATUS            ⬍
CONFIGURE DEVICE
CONFIGURE INPUTS
```
Scroll to the desired device then press ▶ STATUS

```
 LS DEVICE: 01 1PB
   INPUTS         ⬍
CONNECTED:YES
```
Press ▶ HOME

3.5.4 Setup an input Active Time

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ INPUTS

3. Press ▲ or ▼ to to select the device node number

4. Press ▶ CONFIGURE INPUTS

5. Press ▶ TYPES

6. Press ▶ TYPE TIMES

7. Press ▲ or ▼ to select the day

8. Press ▲ or ▼ to select the time in 30 minute increments

9. Press ▶ TYPE to select A or B (type A is the default)

Setup an input Active Time

```
 LS DEVICE: 01 1PB
STATUS            ⬍
CONFIGURE DEVICE
CONFIGURE INPUTS
```
From the INPUT screen scroll to the desired device then press ▶ CONFIGURE INPUTS

```
 INPUT  IN:01.01.1
TYPES             ⬍
CONDITIONALS
PILOT
```
Press ▶ TYPES

```
 INPUT  IN:01.01.1
TYPES A/B         ⬍
TYPE TIMES
TOGGLE SOURCE
```
Press ▶ TYPE TIMES

```
MODE: TIME OF DAY
DAY: ◄SUN          ⬍
TIME: 12:00A - 12:29A
TYPE: A
```
Press ▶ DAY or TIME, then scroll to the desired settings
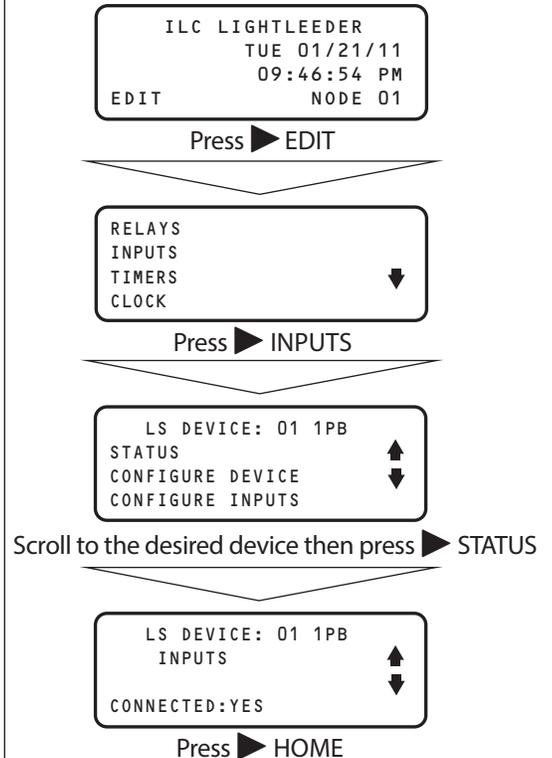
3.5.5 Setup a Toggle Source

This must be set when using a Momentary Push-Button Toggle switch type.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ INPUTS
3. Press ▲ or ▼ to select the device node number
4. Press ▶ CONFIGURE INPUTS
5. Press ▶ TYPES
6. Press ▶ TOGGLE SOURCE
7. Press ▲ or ▼ to select the device node number
8. Press ▶ RELAY
9. Press ▲ or ▼ to select the relay number
10. Press HOME to exit to the home screen

3.5.6 Configure Input Conditionals

An AND conditional can be set to allow switch activation only when both conditions are true. An OR conditional can be set to allow switch activation when either conditional is true.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ INPUTS
3. Press ▲ or ▼ to to select the device node number
4. Press ▶ CONFIGURE INPUTS
5. Press ▶ CONDITIONALS
6. Press ▶ CONDITION A (set condition B for your second conditional if desired)
7. Press ▲ or ▼ to select the condition type. Refer to table 3.3

Table 3.3: Conditional Types

Relay ON: Any chosen relay that is presently ON
Relay OFF: Any chosen relay that is presently OFF
ON input closed: Any chosen ON input that is closed
ON input open: Any chosen ON input that is open
OFF input closed: Any chosen OFF input that is closed
OFF input open: Any chosen OFF input that is open

Note: Switch inputs must be programmed with a switch type to function

Setup a Toggle Source

```
   LS DEVICE: 01 1PB
STATUS
CONFIGURE DEVICE
CONFIGURE INPUTS
```
From the INPUT screen press ▶ CONFIGURE INPUTS

```
   INPUT  IN:01.01.1
TYPES
CONDITIONALS
PILOT
```
Press ▶ TYPES

```
   INPUT  IN:01.01.1
TYPES A/B
TYPE TIMES
TOGGLE SOURCE
```
Press ▶ TOGGLE SOURCE, then ▲ or ▼ to select the device node

```
   INPUT  IN:01.01.1
   TOGGLE SOURCE
NODE ◄ RLY:00.01
RELAY
```
Press ▶ RELAY then ▲ or ▼ to select the relay

Configure Input Conditionals

```
   LS DEVICE: 01 1PB
STATUS
CONFIGURE DEVICE
CONFIGURE INPUTS
```
From the INPUT screen press ▶ CONFIGURE INPUTS

```
   INPUT  IN:01.01.1
TYPES
CONDITIONALS
PILOT
```
Press ▶ CONDITIONALS

```
   IN:01.01.1 DISABLE
CONDITION A = UNUSED
CONDITION B = UNUSED
LOGIC: AND
```
Press ▶ CONDITION A or B

```
TYPE ◄ UNUSED
```
Scroll to the desired conditional. See table 3.3

3.5.6 Configure Input Conditionals, continued

For relay conditionals select 1 of the 4 types

8. Press ▶ NODE then, Press ▲ or ▼ to select the node number

9. Press ▶ DEVICE then, Press ▲ or ▼ to select the device number

10. Press ▶ INPUT then, Press ▲ or ▼ to select the input number

11. Press ▶ BACK

12. Press ▶ LOGIC to toggle from AND to OR

For relay conditionals select 1 of the 2 types

8. Press ▶ NODE then, Press ▲ or ▼ to select the node number

9. Press ▶ RELAY then, Press ▲ or ▼ to select the relay number

10. Press ▶ BACK

11. Press ▶ LOGIC to toggle from AND to OR

3.5.7 Configure Pilot Status

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ INPUTS

3. Press ▲ or ▼ to to select the device node number

4. Press ▶ CONFIGURE INPUTS

5. Press ▲ or ▼ to select the device input number

6. Press ▶ PILOT

7. Press ▲ or ▼ to select the pilot control. Refer to table 3.4

Configure Pilot Status

```
   ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT           NODE 01
```

Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS              ⬇
CLOCK
```

Press ▶ INPUTS

```
  LS DEVICE: 01 1PB
STATUS              ⬆
CONFIGURE DEVICE    ⬇
CONFIGURE INPUTS
```

Scroll to select the desired device, then press ▶ CONFIGURE INPUTS

```
  INPUT  IN:01.01.1
TYPES               ⬆
CONDITIONALS        ⬇
PILOT
```

Scroll to select the desired input, then press ▶ PILOT

```
  IN:01.01.1 PILOT
SOURCE◀ ALWAYS ON   ⬆
                    ⬇
```

Scroll to select the desired pilot control

Table 3.4: Pilot Status Options

Always ON: The status pilot light will always be illuminated (default setting)
Always OFF: The status pilot light will never be illuminated
Relay ON: The status pilot light will be illuminated when the chosen relay is ON
Relay OFF: The status pilot light will be illuminated when the chosen relay is OFF
Group True: The status pilot light will be illuminated when the chosen Group is true
Group False: The status pilot light will be illuminated when the chosen Group is false
Preset True: The status pilot light will be illuminated when the chosen Preset is true
Preset False: The status pilot light will be illuminated when the chosen Preset is false

3.5.8 Configure a LightSync Photocell Input

LightSync photocells can be programmed with a 30 second or 2 second delay.
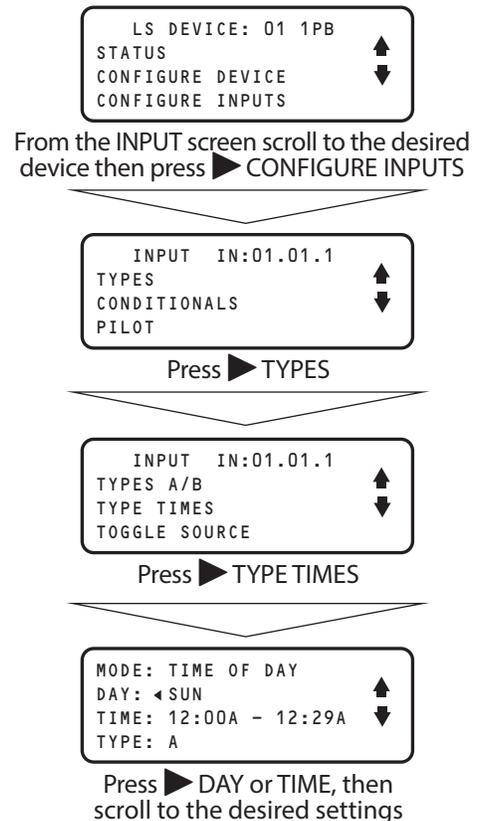
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ INPUTS

3. Press ▲ or ▼ to to select the device node number

4. Press ▶ CONFIGURE DEVICE

5. Press ▲ or ▼ and select PCELL 02S or PCELL 30S
   (PCELL 02S = Photocell with a 2 second filter.)
   (PCELL 30S = Photocell with 30 second filter.)

6. Press ▶ LEVEL to change whether photocell levels are locally monitored or globally monitored

7. Press ▶ INPUTS to change whether photocell inputs are locally monitored or globally monitored

8. Press BACK

9. Press ▶ CONFIGURE INPUTS

10. Press ▶ LIGHT LEVELS

11. Press ▶ OFF or ON to adjust OFF/ON levels set points as desired. See Table 3.5 for foot candle set point settings

12. Press BACK

13. Press ▶ ENABLE/DISABLE to adjust time-of-day it will be enabled or disabled

14. Press ▶ DAY, then Press ▲ or ▼ and select the day

15. Press ▶ TIME, then Press ▲ or ▼ and select the time, then Press ▶ to enable or disable

16. Press BACK

17. Press ▶ CONDITIONALS if you want to setup a conditional

13. Press ▶ CONDITION A (set condition B for your second conditional if desired)

14. Press ▲ or ▼ to select the condition type. See Section 3.5.6 for setting input conditionals

Configure a LightSync Photocell Input

```
  ILC LIGHTLEEDER
         TUE 01/21/11
         09:46:54 PM
EDIT           NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS
CLOCK
```
Press ▶ INPUTS

```
  LS DEVICE: 03 _____
STATUS                ▲
CONFIGURE DEVICE      ▼
CONFIGURE INPUTS
```
Scroll to select the desired device, then press ▶ CONFIGURE DEVICE

```
  LS DEVICE: 03
TYPE◀ PCELL 02S       ▲
LEVEL: LOCAL          ▼
INPUTS: LOCAL
```
Scroll to select the desired input, then press ▶ BACK

```
  LS DEVICE: 03 P02
STATUS                ▲
CONFIGURE DEVICE      ▼
CONFIGURE INPUTS
```
Press ▶ CONFIGURE INPUTS

```
  INPUT IN:01.03.01
LIGHT LEVELS          ▲
ENABLE/DISABLE        ▼
CONDITIONALS
```
Press LIGHT LEVELS, ENABLE/DISABLE, or CONDITIONALS to make adjustments.

Table 3.5: Foot Candle (FC) Conversion			
FC Setting	10-113	**FC Setting**	500-230
1-38	11-117	60-184	600-232
2-53	12-121	70-188	700-234
3-64	13-125	80-191	800-235
4-76	14-128	90-194	900-236
5-85	15-130	100-197	1000-237
6-91	20-141	150-208	1200-238
7-97	30-157	200-216	1400-239
8-102	40-171	300-223	1600-240
9-108	50-179	400-228	1800-241

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3.6 Relay Configuration and Programming

This section will explain how to configure your relays, set power-up options, set conditionals, relay groups, and mapping inputs to control relays.

3.6.1 Configure Number of Relay Poles and Relay Lock

The default setting is single pole relay with the LOCK disabled. If multi-pole relays are installed you must set the first relay location to either double or triple pole. The lock function, if enabled, allows the user to disable any control from timers, switches, or other type of control by means of the switch on the relay.

Note: *Double and triple pole relays must be assembled at the factory with physical connections between each pole. Using single pole relays to control multiple poles may be hazardous and is not acceptable by the NEC and may void the warranty.*

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ RELAYS
3. Press ▶ RELAY OPTIONS
4. Press ▲ or ▼ to select the relay
5. Press ▶ EDIT
6. Press ▶ RELAY TYPE
7. Press ▶ POLE to toggle between SINGLE, DOUBLE, or TRIPLE pole
8. Press ▶ LOCK to toggle between DISABLE/ENABLE

Configure Number of Relay Poles and Relay Lock

```
ILC LIGHTLEEDER
        TUE 01/21/11
        09:46:54 PM
EDIT         NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS          ⬇
CLOCK
```
Press ▶ RELAYS

```
ARELAY STATUS
RELAY OPTIONS   ⬍
GROUP RELAYS    ⬍
INPUT MAPPING
```
Press ▶ RELAY OPTIONS

```
RELAY OPTIONS
RELAY   RLY:01.01  ⬍
EDIT              ⬍
```
Scroll to select the desired relay, then press ▶ EDIT

```
RELAY TYPE
TIMER OFF OPTION  ⬍
POWER-ON ACTION   ⬍
CONDITIONALS
```
Press ▶ RELAY TYPE

```
RELAY   RLY:01.01
POLE: SINGLE      ⬍
LOCK: DISABLED    ⬍
```
Press POLE or LOCK to make adjustments

3.6.2 Relay Output Timer OFF Options

Relays controlled OFF with a timer or switch/blink, have options that control the output in a certain way other than the default OFF. These actions can be as simple as blinking the relay before turning the relay OFF to warn occupants of a pending OFF sweep. Below is a list of the options and an explanation of the control. See section 3.7.6 to adjust time lengths for blink alerts, overrides, and alarms.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ RELAYS
3. Press ▶ RELAY OPTIONS
4. Press ▲ or ▼ to select the relay
5. Press ▶ EDIT
6. Press ▶ TIMER OFF OPTION
7. Press ▲ or ▼ to adjust the timer off option. See table 3.6

Relay Output Timer OFF Options

```
RELAY STATUS          ▲
RELAY OPTIONS
GROUP RELAYS
INPUT MAPPING         ▼
```
From the RELAY screen, press ▶ RELAY OPTIONS

```
  RELAY OPTIONS       ▲
RELAY    RLY:01.01
EDIT                  ▼
```
Scroll to select desired relay, then press ▶ EDIT

```
RELAY TYPE            ▲
TIMER OFF OPTION
POWER-ON ACTION
CONDITIONALS          ▼
```
Press ▶ TIMER OFF OPTION

```
  RELAY   RLY:01.01   ▲
TIMER OFF OPTION
TYPE: TURN OFF        ▼
```
Scroll to the desired option. See table 3.6

Table 3.6: Relay Timer OFF Options
1. Single Blink: Each relay output controlled can be programmed to blink the load twice and then postponed 5 minutes prior to being turned OFF. If an ON command is received during the blink alert time, the relay output will be overridden ON for 120 minutes where the process starts again. See section 3.7.6 to adjust the time length from 2 to 99 minutes.
2. Double Blink: Each relay output controlled can be programmed to blink the load twice and then postponed 5 minutes prior to being turned OFF, and then blinked twice 1 minute before turning OFF. If an ON command is received during the blink alert time, the relay output will be overridden ON for 120 minutes where the process starts again. See section 3.7.6 to adjust the time length from 2 to 99 minutes.
3. HID Delay: Each relay output controlled can be programmed to observe the blink alert without blinking the HID load. Used where normal lights are being blinked, possibly overridden, and turned OFF.
4. Alarm OFF: Relay performs a momentary OFF function. Relays programmed to this function will turn OFF for 5 seconds and then return to the ON state. See section 3.7.6 to adjust the time length from 1 to 99 minutes.
5. Alarm ON: Relay performs a momentary ON function. Relays programmed to this function will turn ON for a 5 seconds then return to the OFF state. See section 3.7.6 to adjust the time length from 1 to 99 minutes.
6. Alarm OFF Pulse: During the OFF pulse period the relay is cycled OFF and ON at 1 second intervals for 5 seconds. See section 3.7.6 to adjust the time length from 1 to 99 minutes.
7. Alarm ON Pulse: During the ON pulse period the relay is cycled ON and OFF at 1 second intervals for 5 seconds. See section 3.7.6 to adjust the time length from 1 to 99 minutes.
8. ACS OFF: Each relay programmed will turn the relay OFF for 5 seconds, setting the Automatic Control Switch to the OFF position
9. ACS Blink: Each relay programmed will turn the relay OFF for 1 second, setting the Automatic Control Switch to initiate a 5 minute delay before shutting OFF.

3.6.3 Configure Power-up Options

Relays can be set to turn ON or OFF after power has been restored from a power outage. The default action is no action. See Table 3.7 for options and descriptions.

Table 3.7: Power-up Options
No Action: Relays will remain in the state they were in prior to the power outage.
Turn ON: The relay is turned ON when power is applied to the panel
Turn OFF: The relay is turned OFF when power is applied to the panel
ON if Input is Closed: The relay is turned ON when power is applied to the panel if the selected input is closed.
OFF if Input is Closed: The relay is turned OFF when power is applied to the panel if the selected input is closed.
ON During Open Hours, OFF During Closed Hours: The relay is turned ON when power is applied to the panel if it is in an OPEN time or OFF if CLOSED time.
ON During Closed Hours, OFF During Open Hours: The relay is turned ON when power is applied to the panel if it is in a CLOSED time or OFF if OPEN time.
ON if Day Time, OFF if Night Time: The relay is turned ON when power is applied to the panel if the load is normally ON controlled by a normal timer or OFF if the load is normally OFF controlled by a normal timer.
ON if Night Time, OFF if Day Time: The relay is turned ON when power is applied to the panel if the load is normally OFF controlled by a normal timer or OFF if the load is normally ON controlled by a normal timer.
Based on Time and Day: The relay is turned ON or OFF when power is applied to the panel according to the schedule programmed. This can be set to 30 minute increments.

Programming Power-up Options

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ RELAYS
3. Press ▶ RELAY OPTIONS
4. Press ▲ or ▼ to select the relay
5. Press ▶ EDIT
6. Press ▶ POWER-ON ACTION
7. Press ▲ or ▼ to select the output option desired as shown above

Programming Power-up Options

```
RELAY STATUS
RELAY OPTIONS        ▲
GROUP RELAYS         ▼
INPUT MAPPING
```

From the RELAY screen, press ▶ RELAY OPTIONS

```
  RELAY OPTIONS
RELAY    RLY:01.01   ▲
EDIT                 ▼
```

Scroll to select desired relay,
then press ▶ EDIT

```
RELAY TYPE
TIMER OFF OPTION     ▲
POWER-ON ACTION      ▼
CONDITIONALS
```

Press ▶ POWER-ON ACTION

```
  RELAY    RLY:01.01
POWER-ON ACTION      ▲
NO ACTION            ▼
```

Scroll to adjust the option.
See Table 3.7

Programming Power-up Options for Input active configuration

    8. Press ▶ CONFIG

    9. Press ▲ or ▼ to select the NODE the input is in

    10. Press ▶ DEVICE then, Press ▲ or ▼ to select the device

    11. Press ▶ INPUT then, Press ▲ or ▼ to select the device input

Programming Power-up Options for Time-of-Day

    8. Press ▶ CONFIG

    9. Press ▲ or ▼ to select the DAY

    10. Press ▶ TIME then, Press ▲ or ▼ to select the time

    11. Press ▶ ACTION to TURN ON or OFF

3.6.4 Setup Conditionals for Relays

Conditionals can be setup to provide logic control allowing for "AND control" and "OR control" for setting relays to a specific state or hold the state if the condition is true. Two conditionals (A & B) can be programmed to each relay.

Priorities can be set for each conditional allowing one to have precedence over another.

Release Revert is an option to set the relay to the previous state after the conditional is no longer true.

Programming a Relay Conditional

    1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

    2. Press ▶ RELAYS

    3. Press ▶ RELAY OPTIONS

    4. Press ▲ or ▼ to select the relay

    5. Press ▶ EDIT

    6. Press ▶ CONDITIONALS

    7. Press ▶ FORCE ON, FORCE OFF, or HOLD STATUS

    8. Press ▶ CONDITION A (set condition B for your second conditional if desired)

    9. Press ▲ or ▼ to select the condition type

Programming Power-up Options for Input active configuration

```
RELAY    RLY:01.01
POWER-ON ACTION:
OFF IF INPUT CLSD
CONFIGURE
```

Press ▶ CONFIGURE

```
RELAY    RLY:01.01
DEVICE◀  IN:01.01.1
INPUT
```

Press ▶ INPUT

Power-up Options for Time-of-Day

```
RELAY    RLY:01.01
POWER-ON ACTION:
BASED ON TIME/DAY
CONFIGURE
```

Press ▶ CONFIGURE

```
RELAY    RLY:01.01
DAY ◀ SUN
TIME 12:00AM - 12:29AM
ACTION  TURN ON
```

Press ▶ DAY, TIME, ACTION

Programming a Relay Conditional

```
RELAY OPTIONS
RELAY    RLY:01.01
EDIT
```

From the RELAY OPTION screen, scroll to the desired device, then press ▶ EDIT

```
RELAY TYPE
TIMER OFF OPTION
POWER-ON ACTION
CONDITIONALS
```

Press ▶ CONDITIONALS

```
FORCE ON
FORCE OFF
HOLD STATUS
PRIORITY
```

Press ▶ FORCE ON, FORCE OFF, or HOLD STATUS

```
RELAY    RLY:01.01
CONDITION A=UNUSED
CONDITION B:UNUSED
LOGIC:AND
```

Press ▶ CONDITION A or B

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For input conditionals select 1 of the 4 types shown in table 3.9

10. Press ▶ NODE then, Press ▲ or ▼ to select the node number

11. Press ▶ DEVICE then, Press ▲ or ▼ to select the device number

12. Press ▶ INPUT then, Press ▲ or ▼ to select the input number

13. Press ▶ BACK then go to step 14

For relay conditionals select ON or OFF type

10. Press ▶ NODE then, Press ▲ or ▼ to select the node number

11. Press ▶ RELAY then, Press ▲ or ▼ to select the relay number

12. Press ▶ BACK

13. Go to step 14

For Priority and Release Revert option

14. Press ▶ LOGIC to toggle from AND to OR

15. Press ▶ BACK

16. Press ▶ PRIORITY

17. Press ▶ 1ST: until the priority is set to your requirements

18. Press ▶ 2ND: until the priority is set to your requirements

19. Press ▶ BACK

20. Scroll ▼ to RELEASE REVERT

21. Press ▶ RELEASE REVERT to toggle from YES to NO

Table 3.8: Relay Conditionals
CONDITIONAL CONTROL IF TRUE:
Force OFF: Forces the relay OFF if the conditional is true
Force ON: Forces the relay ON if the conditional is true
Hold Status: Holds the relay in the present position if the conditional is true

Table 3.9: Conditional Types
Relay ON: Any chosen relay that is presently ON
Relay OFF: Any chosen relay that is presently OFF
ON input closed: Any chosen ON input that is closed
ON input open: Any chosen ON input that is open
Off input closed: Any chosen OFF input that is closed
Off input open: Any chosen OFF input that is open

Table 3.10: Conditional Priority (listed 1st, 2nd, 3rd)
Force ON/Force ON/Force ON - Force ON/Hold Status/Force OFF - Force ON/ForceOFF/Hold Status
Hold Status/Force ON/OFF - Hold Status/Hold Status/Hold Status - Hold Status/Force OFF/Force ON
Force OFF/Force ON/Hold Status - Force OFF/Hold Status/Force ON - Force OFF/Force OFF/Force OFF

Input conditionals

```
TYPE    OFF IN OPEN
NODE:   IN:00.01.1
DEVICE
INPUT
```

Press ▶ NODE, DEVICE, or INPUT and scroll to the desired device input

```
TYPE    OFF IN OPEN
NODE:   IN:00.01.1
DEVICE
INPUT
```

Press ▶ BACK

Relay conditionals

```
TYPE    RELAY OFF
NODE:   RLY:01.01
RELAY
```

Press ▶ NODE or RELAY and scroll to the desired relay

```
RELAY    RLY:01.01
CONDITION A=UNUSED
CONDITION B:UNUSED
LOGIC:AND
```

Press ▶ BACK

Priority and Release Revert option

```
RELAY    RLY:01.01
CONDITION A=UNUSED
CONDITION B:UNUSED
LOGIC:AND
```

Press ▶ LOGIC to select AND or OR, then BACK

```
FORCE ON
FORCE OFF
HOLD STATUS
PRIORITY
```

Press ▶ PRIORITY

```
RELAY    RLY:01.01
  COND PRIORITY
1ST:OFF
2ND:OFF        3RD:OFF
```

Press 1ST or 2ND until the desired priority is obtained, then press ▶ BACK

```
FORCE OFF
HOLD STATUS
PRIORITY
RELEASE REVERT: NO
```

Scroll down once and press ▶ RELEASE REVERT to enable

3.6.5 Configure Relay Groups

Relays can be grouped together to make it easy to program timers and inputs. The LightLEEDer has the capability of 256 groups that are network-wide.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ RELAYS

3. Press ▶ GROUP RELAYS

4. Press ▲ or ▼ to select the group desired

5. Press ▶ RELAY

6. Press ▲ or ▼ to select the relay

7. Press ▶ INCLUDE to toggle between YES and NO

8. Press " HOME" to exit to the home screen

3.6.6 Map an Input to Control Relays or Groups

Inputs must be programmed to control the relays to the desired action. This is accomplished at the panel level for each node. ***Note:*** *Inputs must be configured using the procedure in section 3.5 prior to mapping*

The relay control actions are listed below and the control may vary depending on the input type selected as shown.

Table 3.11: Relay Action
• **ON (SA H-P)** = ON only, HID power, Step A for 2/4 step switching
• **OFF (SB H/L)** = OFF only, HID high-low N.O., step B for 2/4 step switching
• **ON-OFF (H/C)** = ON/OFF, HID high-low N.C., step A for 2/4 step switching

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ RELAYS

3. Press ▶ INPUT MAPPING

For Local Inputs to Relay Control

4. Press ▶ LOCAL/RELAYS

5. Press ▲ or ▼ to select the LightSync input device address

6. Press ▶ INPUT

7. Press ▲ or ▼ to select the LightSync Input

8. Press ▶ RELAY

9. Press ▲ or ▼ to select the relay to be controlled

10. Press ▶ ACTION

11. Press ▲ or ▼ to select the action (ON (A), OFF (B), ON-OFF)

Configure Relay Groups

```
RELAY STATUS
RELAY OPTIONS          ▲
GROUP RELAYS           ▼
INPUT MAPPING
```

From the RELAY screen, press ▶ GROUP RELAYS

```
  RELAY GROUPS
GROUP:◄  GROUP:001     ▲
RELAY:   RLY:01.01     ▼
INLUCDE:YES
```

Scroll to the desired group

```
  RELAY GROUPS
GROUP:◄  GROUP:001     ▲
RELAY:   RLY:01.01     ▼
INCLUDE:YES
```

Press ▶ RELAY and scroll to the relay to include (or remove) in group

```
  RELAY GROUPS
GROUP:   GROUP:001     ▲
RELAY:◄  RLY:01.01     ▼
INCLUDE:YES
```

Press ▶ INCLUDE to add or remove relay from group

Map an Input to Control Local Relays

```
RELAY STATUS
RELAY OPTIONS          ▲
GROUP RELAYS           ▼
INPUT MAPPING
```
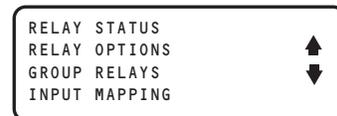
From the RELAY screen, press ▶ INPUT MAPPING

```
  INPUT MAPPING
LOCAL/RELAYS
LOCAL/GROUPS
NETWORK INPUTS
```

Press ▶ LOCAL/RELAYS

```
DEVICE◄   IN:01.01.1
INPUT                 ▲
RELAY     RLY:01.01    ▼
ACTION    NONE
```
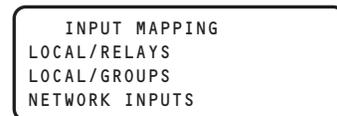
Press ▶ INPUT and scroll to the desired input
Then Press ▶ RELAY and scroll to the desired relay.
Then Press ▶ ACTION and scroll to the desired action.
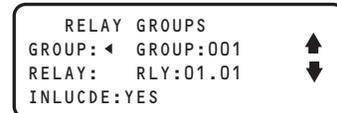
LightLEEDer

For Local Inputs to Group Control

    4. Press ▶ LOCAL/GROUPS

    5. Press ▲ or ▼ to select the LightSync input device address

    6. Press ▶ INPUT

    7. Press ▲ or ▼ to select the LightSync Input

    8. Press ▶ GROUP

    9. Press ▲ or ▼ to select the group to be controlled

    10. Press ▶ ACTION

    11. Press ▲ or ▼ to select the action (ON (A), OFF (B), ON-OFF)

For Network Inputs to Relay Control

Up to 64 network inputs can be configured per panel. Each network input can be mapped to control 1 or up to all the relays in a panel.

    4. Press ▶ NETWORK INPUTS

    5. Press ▲ or ▼ to select a network input (1 of up to 64)

    6. Press ▶ INPUT

    7. Press ▲ or ▼ to select the panel node the switch is located in

    8. Press ▶ DEVICE

    9. Press ▲ or ▼ to select the LightSync Input Device

    10. Press ▶ INPUT

    11. Press ▲ or ▼ to select the LightSync Input

    12. Press ▶ BACK

    13. Press ▶ MAPPING

    14. Press ▲ or ▼ to select the Relay

    15. Press ▶ ACTION

    16. Press ▲ or ▼ to select the action (ON, OFF, ON/OFF)

3.6.7 Relay Status and Forcing Relays On/Off

From the keypad you can view current status of relays and directly control them On and Off.

    1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

    2. Press ▶ RELAYS

    3. Press ▶ RELAY STATUS

Single Relays

    4. Press ▶ SINGLE RELAY

    5. Press ▲ or ▼ to select the relay and see the status of the relay and to see the Lock position

    6. Press ▶ TURN ON to force the relay On

    7. Press ▶ TURN OFF to force the relay Off

For Local Inputs to Group Control

```
   INPUT MAPPING
LOCAL/RELAYS
LOCAL/GROUPS
NETWORK INPUTS
```

Press ▶ LOCAL/GROUPS

```
DEVICE ◀  IN:01.01.1
INPUT
GROUP      GROUP.001
ACTION     NONE
```

Press ▶ INPUT and scroll to the desired input
Then Press ▶ GROUP and scroll to the desired relay.
Then Press ▶ ACTION and scroll to the desired action.

For Network Inputs to Relay Control

```
   INPUT MAPPING
LOCAL/RELAYS
LOCAL/GROUPS
NETWORK INPUTS
```

Press ▶ NETWORK INPUTS

```
   NETWORK INPUT 01
INPUT    UNUSED
MAPPING
DELETE
```
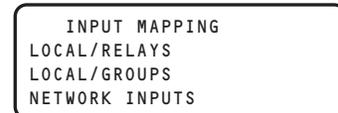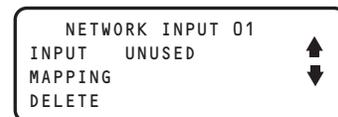
Follow steps 5 - 16

Single Relays

```
RELAY STATUS
RELAY OPTIONS
GROUP RELAYS
INPUT MAPPING
```

From the RELAY screen, press ▶ RELAY STATUS

```
   RELAY STATUS
SINGLE RELAY
RELAY GROUPS
SWEEP RELAYS
```

Press ▶ SINGLE RELAY

```
 RLY:01.01 IS OFF
TURN ON
TURN OFF
  LOCK:OFF
```
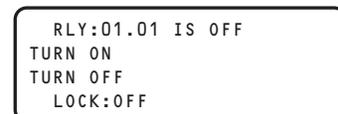
Scroll to the desired relay to see status. Press ▶ TURN ON or OFF to force the relay

Relay Groups (Single Panel)

4. Press ▶ RELAY GROUPS

5. Press ▲ or ▼ to select the group and see the status of the group

6. Press ▶ TURN ON to force the group On

7. Press ▶ TURN OFF to force the group Off

Relay Groups (Networked Panels)

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. From the home screen, press ▶ EDIT

3. Press ▶ RELAYS

4. Press ▶ GROUP STATUS

5. Press ▲ or ▼ to select the Group and see the status of the group

6. Press ▶ TURN ON to force the group On

7. Press ▶ TURN OFF to force the group Off

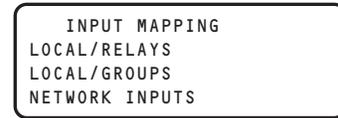**3.6.8 Sweep all Relays in a Panel On and OFF**

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ RELAYS

3. Press ▶ RELAY STATUS

4. Press ▶ SWEEP RELAYS

5. Press ▶ ALL ON to force all relays On

6. Press ▶ ALL OFF to force all relays Off

Relay Groups (Single Panel)

```
    RELAY STATUS
SINGLE RELAY
RELAY GROUPS
SWEEP RELAYS
```

From the RELAYS/RELAY STATUS screen, press ▶ RELAY GROUPS

```
  GROUP.001   IS OFF
TURN ON
TURN OFF
```
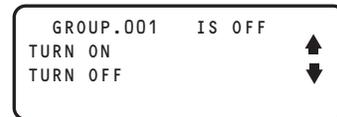
Scroll to the desired group, then Press ▶ TURN ON or OFF to force the group

Relay Groups (Networked Panels)

```
GROUP STATUS
INPUT MAPPING
```

From the RELAY screen, press ▶ GROUP STATUS

```
  GROUP.001   IS OFF
TURN ON
TURN OFF
```
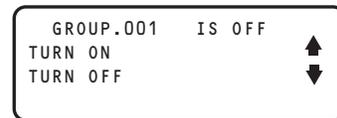
Scroll to the desired group, then Press ▶ TURN ON or OFF to force the group

Sweep all Relays in a Panel On and OFF

```
    RELAY STATUS
SINGLE RELAY
RELAY GROUPS
SWEEP RELAYS
```
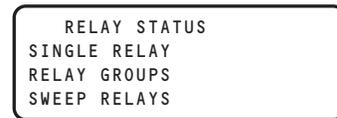
From the RELAYS/RELAY STATUS screen, press ▶ SWEEP RELAYS

```
  SWEEP RELAYS
ALL ON
ALL OFF
```

Press ▶ ALL ON or ALL OFF to sweep relays

3.7 Time Based Operations

LightLEEDer panels are capable of 128 time based actions which include Time-of-Day, Astronomical Scheduling, and Open-Close-Time control. Timers can turn ON or OFF any relay, group of relays, or trigger any Preset. (Presets are a programmed ON/OFF pattern of relays. See section 3.7 for more information).

3.7.1 Timer Types and Functions

Table 3.12: Timer Types and Functions
Time-of-Day(Normal): Schedule events based on a time of day or day of week which can be enabled or disabled for any day of the calendar year.
Astronomical Time Scheduling: Sunrise and Sunset times used for activation times. Activation times can be set from 1 to 999 minutes before or after these times.
Open-Close-Time Control: Timer control based on the Open and Closed times of the facility. Times can be programmed for each day of the week or individual days of the year. Activation times can be set from 1 to 999 minutes before or after these times.
Timer Functions: Can be programmed to turn relays, groups, or presets ON or OFF. Two timers will be needed to be programmed for ON and OFF control, 1 for ON and 1 for OFF.
Blink Alerts and Timer OFF Output Options: Are options that can be programmed into the system that react to an OFF timer to control relays off including; Blink Alert, Double Blink, HID Delay, Alarm OFF, Alarm ON, Alarm OFF Pulse, Alarm ON Pulse, Sentry, ACS OFF, and ACS Blink. See Section 3.7.6 for more information on these options.

3.7.2 Configure Timers

Time-of-Day (Normal Timers)

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
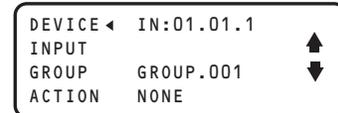2. Press ▶ TIMERS
3. Press ▶ CONFIGURE TIMERS
4. Press ▲ or ▼ to select 1 of the 128 timers
5. Press ▶ TIME
6. Press ▶ NORMAL
7. Press ▲ or ▼ to change the hour. Be sure that the hour is set to AM/PM as desired
8. Press ▶ MINUTE
9. Press ▲ or ▼ to change the minute

Time-of-Day (Normal Timers)

```
RELAYS
INPUTS
TIMERS
CLOCK                    ⬇
```

Press ▶ TIMERS

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS
OPEN/CLOSE TIMES         ⬇
```

Press ▶ CONFIGURE TIMERS

```
   TIMER TIMER.001
TIME     12:00AM         ⬆
DAYS     SMTWTFS         ⬇
CONDITIONALS
```

Select a timer, then press ▶ TIME

```
CLEAR TIMER
NORMAL                   ⬆
ASTRO                    ⬇
OPEN/CLOSE
```

Press ▶ NORMAL

```
   TIMER.001
HOUR ◀ 12:00PM           ⬆
MINUTE                   ⬇
```
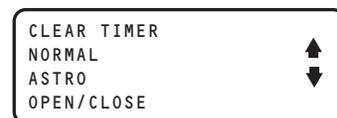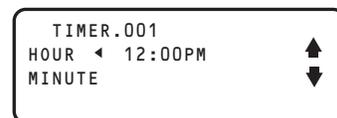
Press ▶ HOUR or MINUTE then scroll to the desired time

Programming

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Astronomical Time Scheduling

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ CONFIGURE TIMERS
4. Press ▲ or ▼ to select 1 of the 128 timers
5. Press ▶ ASTRO
6. Press ▶ SUNRISE or SUNSET
7. Press ▲ or ▼ to adjust any offset desired for the SUNRISE or SUNSET timer
8. Press ▶ to clear any offset programmed

Astronomical Time Scheduling

```
TIMER TIMER.001
TIME    12:00AM
DAYS    SMTWTFS
CONDITIONALS
```

From the CONFIGURE TIMERS screen, press ▶ TIME

```
CLEAR TIMER
NORMAL
ASTRO
OPEN/CLOSE
```

Press ▶ ASTRO

```
  TIMER.001
SUNRISE SR +000MIN
SUNSET
CLEAR OFFSET
```

Press ▶ SUNRISE or SUNSET then scroll to the desired settings

Open-Close-Time Control

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ CONFIGURE TIMERS
4. Press ▲ or ▼ to select 1 of the 128 timers
5. Press ▶ OPEN/CLOSE
6. Press ▶ OPEN or CLOSE
7. Press ▲ or ▼ to adjust any offset desired for the OPEN or CLOSE timer
8. Press ▶ to clear any offset programmed

Open-Close-Time Control

```
TIMER TIMER.001
TIME    UNUSED
DAYS
CONDITIONALS
```

From the CONFIGURE TIMERS screen, press ▶ TIME

```
CLEAR TIMER
NORMAL
ASTRO
OPEN/CLOSE
```

Press ▶ OPEN/CLOSE

```
  TIMER.001
OPEN    OPN+000MIN
CLOSE
CLEAR OFFSET
```

Press ▶ OPEN or CLOSE then scroll to the desired settings

Configure Active Days-of-Week

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ CONFIGURE TIMERS
4. Press ▲ or ▼ to select the timer to program
5. Press ▶ DAYS
6. Press ▶ DAY OF WEEK
7. Press ▲ or ▼ to select the day of week, then Press ▶ DISABLE for the days desired for no action. Press ▶ ENABLE to revert back to enabled.

Configure Active Calendar Daily

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ CONFIGURE TIMERS
4. Press ▲ or ▼ to select the timer to program
5. Press ▶ DAYS
6. Press ▶ CALENDAR-DAILY
7. Press ▲ or ▼ to select the month
8. Press ▶ DATE, then press ▲ or ▼ to select the date
9. Press ▶ EN/ DIS to ENABLE or DISABLE

Configure Timer Conditionals

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ CONFIGURE TIMERS
4. Press ▲ or ▼ to select the timer to program
5. Press ▶ CONDITIONALS See Section 3.5.6 for input conditionals

Configure Active Days-of-Week

```
   TIMER TIMER.001
TIME    UNUSED          ▲
DAYS                    ▼
CONDITIONALS
```
From the CONFIGURE TIMERS screen, press ▶ DAYS

```
   TIMER TIMER.001
DAY OF WEEK
CALENDAR-DAILY
```
Press ▶ DAY OF WEEK
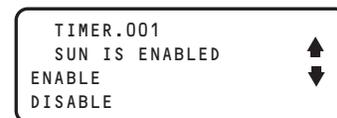
```
   TIMER.001
  SUN IS ENABLED       ▲
ENABLE                 ▼
DISABLE
```
Scroll through the days and press ▶ ENABLE OR DISABLE

Configure Active Calendar Daily
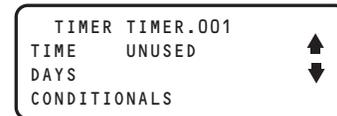
```
   TIMER TIMER.001
TIME    UNUSED          ▲
DAYS                    ▼
CONDITIONALS
```
From the CONFIGURE TIMERS screen, press ▶ DAYS

```
   TIMER TIMER.001
DAY OF WEEK
CALENDAR-DAILY
```
Press ▶ CALENDAR-DAILY
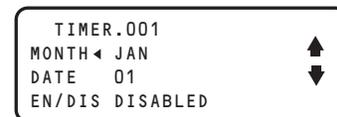
```
   TIMER.001
MONTH◄ JAN              ▲
DATE   01               ▼
EN/DIS DISABLED
```
Scroll to the MONTH and DATE then press ▶ EN/DIS to enable or disable

Configure Timer Conditionals

```
   TIMER TIMER.001
TIME    UNUSED          ▲
DAYS                    ▼
CONDITIONALS
```
Press ▶ CONDITIONALS
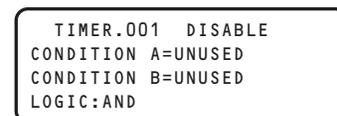
```
   TIMER.001  DISABLE
CONDITION A=UNUSED
CONDITION B=UNUSED
LOGIC:AND
```
See Section 3.5.6 to setup the conditionals

Programming

3.7.3 Timer Mapping Control
Timer mapping assigns the relays being controlled to the timers programmed for the action you require.

Timer to Relay Control
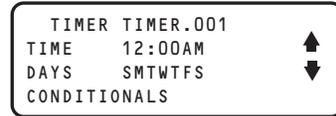
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ TIMER/RELAY CONTROL
4. Press ▶ TIMER/RELAY
5. Press ▲ or ▼ to select the timer that will control the relay
6. Press ▶ RELAY to select the relay, then press ▲ or ▼ to select the relay
7. Press ▶ ACTION to select the action, then ▲ or ▼ to select the action
8. Do the above for each relay being controlled by each timer
9. Press " HOME" to exit to the home screen

Timer to Group Control
See Section 3.3.5 to learn how to configure relay groups

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ TIMER/RELAY CONTROL
4. Press ▶ TIMER/GROUP
5. Press ▲ or ▼ to select the timer that will control the group
6. Press ▶ GROUP to select the group, then press ▲ or ▼ to select the group
7. Press ▶ ACTION to select the action, then ▲ or ▼ to select the action
8. Press " HOME" to exit to the home screen

Timer to Relay Control

```
RELAYS
INPUTS
TIMERS
CLOCK          ⬇
```
Press ▶ TIMERS

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS
OPEN/CLOSE TIMES   ⬇
```
Press ▶ TIMER/RELAY CONTROL

```
TIMER/RELAY
TIMER/GROUP
TIMER/PRESET
```
Press ▶ TIMER/RELAY

```
TIMER◄  TIMER.001
RELAY   RLY:01.01
ACTION  NONE
```
Press ▶ TIMER and scroll to the desired timer
Then press ▶ RELAY and scroll to the desired relay.
Then press ▶ ACTION and scroll to the desired action.

Timer to Group Control

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS
OPEN/CLOSE TIMES   ⬇
```
From the TIMER screen,
press ▶ TIMER/RELAY CONTROL

```
TIMER/RELAY
TIMER/GROUP
TIMER/PRESET
```
Press ▶ TIMER/GROUP
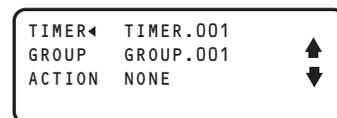
```
TIMER◄  TIMER.001
GROUP   GROUP.001
ACTION  NONE
```
Press ▶ TIMER and scroll to the desired timer
Then press ▶ GROUP and scroll to the desired group.
Then press ▶ ACTION and scroll to the desired action.

LightLEEDer

Timer to Preset Control

See Section 3.8 to learn how to configure relay presets

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ TIMER/RELAY CONTROL
4. Press ▶ TIMER/PRESET
5. Press ▲ or ▼ to select the timer that will control the preset
6. Press ▶ PRESET to select the preset, then press ▲ or ▼ to select the preset
7. Press ▶ ACTION to select the action, then ▲ or ▼ to select the action
8. Press " HOME" to exit to the home screen

3.7.4 OFF Hour Sweeps

You can program the controller to execute OFF sweeps at intervals of 1, 2, or 3 hours after a normal close time to turn lights OFF that have been turned ON by switches and other means. To use this function Close time must be setup in the Open/Close timers. See Section 3.7.5 Open-Close-Time Control. Off Hour sweeps can control relays or groups.

Program the interval time

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ OFF HOURS SWEEPS
4. Press ▶ INTERVAL to toggle from 1, 2, and 3

Program Relays and Groups in the OFF Hour Sweeps

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ OFF HOURS SWEEPS
4. Press ▶ RELAYS or Press ▶ GROUPS (Groups with networked panels are accessed from the Network Controller)
5. Scroll ▲ or ▼ to the relay or group you want included. Press ▶ INCLUDE
6. Press " HOME" to exit to the home screen

Timer to Preset Control

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS        ⬇
OPEN/CLOSE TIMES
```

From the TIMER screen,
press ▶ TIMER/RELAY CONTROL

```
TIMER/RELAY
TIMER/GROUP
TIMER/PRESET
```

Press ▶ TIMER/PRESET

```
TIMER◄   TIMER.001
PRESET   PRESET.001    ⬆
ACTION   NONE          ⬇
```

Press ▶ TIMER and scroll to the desired timer
Then press ▶ PRESET and scroll to the desired preset.
Then press ▶ ACTION and scroll to the desired action.

Program the interval time

```
RELAYS
INPUTS
TIMERS                 ⬇
CLOCK
```

Press ▶ TIMERS

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS       ⬇
OPEN/CLOSE TIMES
```

Press ▶ OFF HOURS SWEEPS

```
 OFF HOURS SWEEPS
INTERVAL   1 HOUR(S)
RELAYS
GROUPS
```

Press ▶ INTERVAL to adjust time

```
 OFF HOURS SWEEPS
 RELAY RLY:01.01       ⬆
INCLUDE:YES            ⬇
```

Scroll to the desired relay or group
and Press ▶ INCLUDE

3.7.5 Program Open and Close Times
This will set the times when your facility opens and closes. Times set for a specific date (or holiday) supersedes the normal times of the week.

Times for Day-Of-Week
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ OPEN/CLOSE TIMES
4. This screen displays today's Open and Close times
5. Press ▶ EDIT
6. Press ▶ DAY OF WEEK
7. Press ▲ or ▼, to select the day
8. Press ▶ OPEN, then Press ▲ or ▼ to adjust the OPEN time
9. Press ▶ CLOSE, then Press ▲ or ▼ to adjust the CLOSE time
10. Press " HOME" to exit to the home screen

Times for a specific date
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ OPEN/CLOSE TIMES
4. This screen displays today's Open and Close times
5. Press ▶ EDIT
6. Press ▶ CALENDAR
7. Press ▲ or ▼, to select the month
8. Press ▶ DATE, then Press ▲ or ▼, to select the date
9. Press ▶ EDIT
10. Press ▲ or ▼, to select the Open time
11. Press ▶ CLOSE then Press ▲ or ▼, to select the close time
12. Press ▶ CLEAR to clear times programming for that date
13. Press " HOME" to exit to the home screen

Reset all Open and Close Times
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Press ▶ OPEN/CLOSED TIMES
4. Press ▶ EDIT
5. Press ▶ RESET ALL TIMES

Times for Day-Of-Week

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS          ⬇
OPEN/CLOSE TIMES
```
From the TIMERS screen, press
▶ OPEN/CLOSE TIMES

```
    TODAY OPEN/CLOSE
      OPEN 08:00 AM
      CLOSE 09:00 PM
EDIT      NOW:OPEN
```
Press ▶ EDIT

```
  OPEN/CLOSE TIMES
DAY OF WEEK
CALENDAR
RESET ALL TIMES
```
Press ▶ DAY OF WEEK. Select the day, Press ▶ OPEN or CLOSE then scroll to the desired time.

Times for a specific date

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS          ⬇
OPEN/CLOSE TIMES
```
From the TIMERS screen, press
▶ OPEN/CLOSE TIMES

```
    TODAY OPEN/CLOSE
      OPEN 08:00 AM
      CLOSE 09:00 PM
EDIT      NOW:OPEN
```
Press ▶ EDIT

```
  OPEN/CLOSE TIMES
DAY OF WEEK
CALENDAR
RESET ALL TIMES
```
Press ▶ CALENDAR

```
  OPEN/CLOSE TIME
MONTH   JAN/01        ⬍
DATE ◀  OP --:-- -M   ⬇
EDIT    CL --:-- -M
```
Scroll to the month and date, then press ▶ EDIT

```
  DATE: JAN/01
OPEN    OP --:-- -M    ⬍
CLOSE ◀ CL --:-- -M    ⬇
CLEAR
```
Press ▶ OPEN or CLOSE then scroll to the desired time

3.7.6 Blink Alerts and Alarms

These internal timing settings will determine how a relay will operate when commanded OFF: Blink Alert, Double Blink, HID Delay, Alarm OFF, Alarm ON, Alarm OFF Pulse, and Alarm ON Pulse.

Blink Alert: The length of time between a blink alert and the execution of an OFF timer, which has not been overridden by a switch closure. The default is 5 minutes and can be adjusted from 2 to 99 minutes.

Override: The length of time a switch closure can be programmed to postpone the execution of an OFF timer (blink alert). The default is 120 minutes and can be adjusted from 2 to 999 minutes.

Alarms: The length of time an alarm or alarm pulse will be activated. The default is 5 seconds and can be adjusted from 1 to 99 seconds.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Scroll ▼ down, then press ▶ BLINK ALERT/ALARM
4. Press ▶ BLINK ALERT, OVERRIDE, or ALARMS
5. Press ▲ or ▼, to adjust the times for each as desired
6. Press " HOME" to exit to the home screen

Default Settings

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▶ TIMERS
3. Scroll ▼ down, then press ▶ BLINK ALERT/ALARM
4. Press ▶ DEFAULT SETTINGS to set all blink alerts and alarms to the default

Blink Alerts and Alarms

```
RELAYS
INPUTS
TIMERS          ▼
CLOCK
```
Press ▶ TIMERS

```
TIMER/RELAY CONTROL   ▲
OFF HOURS SWEEPS
OPEN/CLOSE TIMES      ▼
BLINK ALERT/ALARMS
```
Press ▶ BLINK ALERT/ALARMS

```
BLINK ALERT◄  05MIN
OVERRIDE      120MIN
ALARMS        05SEC
DEFAULT SETTINGS
```

Press ▶ BLINK ALERT, OVERRIDE, or ALARMS, then scroll to the desired settings.
Press ▶ DEFAULT SETTINGS to reset to default.

3.7.7 Configure Timed-On
Timed-on settings are for inputs that are controlling relays ON for a predetermined time (set in the input types) and then turned OFF after that time. This setting determines whether the timer starts when the switch is opened or closed.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ TIMERS

3. Scroll ▼ down to CONFIGURE TIMED-ON

4. Press ▶ CONFIGURE TIMED-ON

5. Press ▶ OPEN to start the timed-on at switch open.
   Or Press ▶ CLOSE to start the timed-on at switch close.

6. Press " HOME" to exit to the home screen

Configure Timed-On

```
RELAYS
INPUTS
TIMERS          ⬇
CLOCK
```

Press ▶ TIMERS and scroll to
CONFIGURE TIMED-ON

```
OFF HOURS SWEEPS     ⬆
OPEN/CLOSE TIMES
BLINK ALERT/ALARMS   ⬇
CONFIGURE TIMED-ON
```

Press ▶ CONFIGURE TIMED-ON

```
    TIMED-ON TIMERS
    START AT: OPEN
OPEN
CLOSE
```

Press ▶ OPEN or CLOSE

3.7.8 Test Programmed Timers

4. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

5. Press ▶ TIMERS

6. Scroll down ▼ to TEST TIMERS

7. Press ▶ TEST TIMERS

8. Press ▲ or ▼ to select the timer to test

9. Press ▶ TEST to activate

10. Press " HOME" to exit to the home screen

Test Programmed Timers

```
RELAYS
INPUTS
TIMERS          ⬇
CLOCK
```
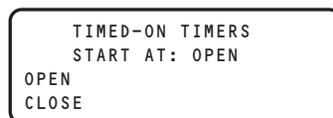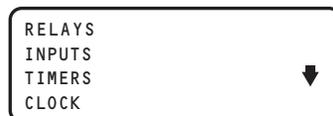
Press ▶ TIMERS and scroll to
TEST TIMERS

```
OPEN/CLOSE TIMES     ⬆
BLINK ALERT/ALARMS
CONFIGURE TIMED-ON   ⬇
TEST TIMERS
```

Press ▶ TEST TIMERS

```
    TEST TIMER
    TIMER  TIMER.001   ⬆
TEST                   ⬇
```
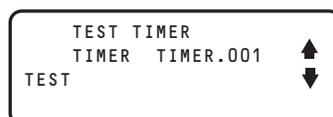
Scroll to the timer to be tested,
then press ▶ TEST

3.8 Configure Relay Presets

Relays can be programmed into preset ON or OFF patterns that can be activated by a timer, switch, or other external command.

3.8.1 Setup Presets
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ to scroll down to PRESETS
3. Press ▶ PRESETS
4. Press ▶ EDIT PRESETS
5. Press ▲ or ▼ to select the preset to program
6. Press ▶ RELAY
7. Press ▲ or ▼ to select the relay
8. Press ▶ ACTION until the desired action is displayed
9. Press ▶ " HOME" to exit to the home screen

3.8.2 Capture Presets
Using this programming method will capture the relays present ON/OFF state in every panel. Use the above method if you want relays to be excluded from the ON/OFF pattern.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ to scroll down to PRESETS
3. Press ▶ PRESETS
4. Press ▶ CAPTURE PRESETS
5. Press ▲ or ▼ to select the preset to program through a Capture
6. Press ▶ CAPTURE
7. Press ▶ " HOME" to exit to the home screen

3.8.3 Activate a Preset and View Status
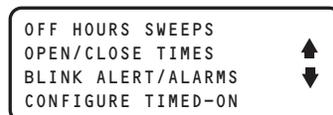**For non-networked panels:**
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ to scroll down to PRESETS
3. Press ▶ PRESETS
4. Press ▶ ACTIVATE PRESETS
5. Press ▲ or ▼ to select the preset to activate (Note: status is shown in this screen)
6. Press ▶ ACTIVATE
7. Press ▶ " HOME" to exit to the home screen

Setup Presets

```
INPUTS
TIMERS          ▲
CLOCK           ▼
PRESETS
```

Press ▶ PRESETS

```
EDIT PRESETS
ACTIVATE PRESETS
CAPTURE PRESETS
```

Press ▶ EDIT PRESETS

```
PRESET ◀ PRESET.001
RELAY    RLY:01.01   ▲
ACTION:NONE          ▼
```

Press ▶ PRESET and scroll to the desired preset. Then press ▶ RELAY and scroll to the desired relay. Then Press ▶ ACTION and scroll to the desired action.

Capture Presets

```
EDIT PRESETS
ACTIVATE PRESETS
CAPTURE PRESETS
```

From the PRESET screen, press ▶ CAPTURE PRESETS

```
CAPTURE A PRESET
PRESET:PRESET.001    ▲
                     ▼
CAPTURE
```

Scroll to the desired preset, then press ▶ CAPTURE

Activate a Preset and View Status

```
EDIT PRESETS
ACTIVATE PRESETS
CAPTURE PRESETS
```

From the PRESET screen, press ▶ ACTIVATE PRESETS

```
ACTIVATE A PRESET
PRESET:PRESET.001    ▲
 STATUS:TRUE         ▼
ACTIVATE
```
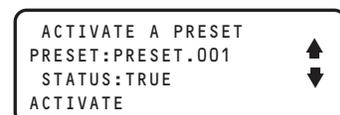
Scroll to the desired preset, then press ▶ ACTIVATE

LightLEEDer

3.9 Controller System Functions

This section will show how to access some of the controller system functions like naming, passwords, firmware revisions, diagnostics, and backup.

3.9.1 Naming Panels, Relays, Groups, Timers, and Presets
Names can be programmed into the system to identify panel location, relay control areas, group functions, and preset functions. This section also describes how to switch between custom and default programming.

Panel Name:
Note: It is suggested that the node number be included in the naming of the panel.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ until SPECIAL FUNCTIONS appears

3. Press ▶ SPECIAL FUNCTIONS

4. Press ▶ EDIT NAMES

5. Press ▶ EDIT PANEL NAME

6. Press ▶ or ◀ to scroll to the space to edit

7. Press ▲ or ▼ to change to the desired letter, number, or character.

8. Press ▶ or ◀ to scroll to the next space to edit

9. Continue until all characters have been edited

10. Press ▶ SAVE to store the programming

11. Press HOME

Naming Panels

```
ILC LIGHTLEEDER
        TUE 01/21/11
        09:46:54 PM
EDIT         NODE 01
```
Press ▶ EDIT

```
PRESETS
OTHER DEVICES        ⬆
REMOTE PANEL
SPECIAL FUNCTIONS
```
Press ▶ SPECIAL FUNCTIONS

```
EDIT NAMES
CHANGE PASSWORDS
FIRMWARE REVISION
```
Press ▶ EDIT NAMES

```
EDIT PANEL NAME
EDIT RELAY NAMES
EDIT GROUP NAMES    ⬇
EDIT TIMER NAMES
```
Press ▶ EDIT PANEL NAME

```
DEFAULT PANEL NAME
◀ ILC LIGHTLEEDER    ⬆
▶ ^                  ⬇
SAVE
```
Press ▶ or ◀ then scroll
to the desired character

LightLEEDer

Relay Name:

Note: It is suggested that the panel node number and relay be included in the naming of the relay.

Example: 04:03 Exterior = panel node 4, relay 3, Exterior

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ until SPECIAL FUNCTIONS appears
3. Press ▶ SPECIAL FUNCTIONS
4. Press ▶ EDIT NAMES
5. Press ▶ EDIT RELAY NAMES
6. Press ▶ EDIT
7. Press ▲ or ▼ to change to the desired relay
8. Press ▶ or ◀ to scroll to the space to edit
9. Press ▲ or ▼ to change to the desired letter, number, or character.
10. Press ▶ or ◀ to scroll to the next space to edit
11. Continue until all characters have been edited
12. Press ▶ SAVE to store the programming
13. Press HOME

Group Names:

Note: It is suggested that the group number be included in the naming of the group.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ until SPECIAL FUNCTIONS appears
3. Press ▶ SPECIAL FUNCTIONS
4. Press ▶ EDIT NAMES
5. Press ▶ EDIT GROUP NAMES
6. Press ▶ EDIT
7. Press ▲ or ▼ to change to the desired group
8. Press ▶ or ◀ to scroll to the space to edit
9. Press ▲ or ▼ to change to the desired letter, number, or character.
10. Press ▶ or ◀ to scroll to the next space to edit
11. Continue until all characters have been edited
12. Press ▶ SAVE to store the programming
13. Press HOME

Naming Relays

```
EDIT NAMES
CHANGE PASSWORDS
FIRMWARE REVISION
```

From the SPECIAL FUNCTIONS screen press ▶ EDIT NAMES

```
EDIT PANEL NAME
EDIT RELAY NAMES
EDIT GROUP NAMES        ⬇
EDIT TIMER NAMES
```

Press ▶ EDIT RELAY NAMES

```
        RELAY 01 NAME
          RLY:01.01      ⬆
EDIT                     ⬇
```

Press ▶ EDIT

```
DEFAULT
◀         RLY:01.01      ⬆
▶             ^          ⬇
SAVE
```

Press ▶ or ◀ then scroll to the desired character

Naming Groups

```
EDIT PANEL NAME
EDIT RELAY NAMES
EDIT GROUP NAMES        ⬇
EDIT TIMER NAMES
```

From the SPECIAL FUNCTIONS screen, press ▶ EDIT GROUP NAMES

```
        GROUP 001 NAME
          GROUP.001      ⬆
EDIT                     ⬇
```

Press ▶ EDIT

```
DEFAULT
◀         GROUP.001      ⬆
▶             ^          ⬇
SAVE
```

Press ▶ or ◀ then scroll to the desired character

Timer Names:

Note: It is suggested that the timer number be included in the naming of the timer.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ until SPECIAL FUNCTIONS appears

3. Press ▶ SPECIAL FUNCTIONS

4. Press ▶ EDIT NAMES

5. Press ▶ EDIT TIMER NAMES

6. Press ▶ EDIT

7. Press ▲ or ▼ to change to the desired timer

8. Press ▶ or ◀ to scroll to the space to edit

9. Press ▲ or ▼ to change to the desired letter, number, or character.

10. Press ▶ or ◀ to scroll to the next space to edit

11. Continue until all characters have been edited

12. Press ▶ SAVE to store the programming

13. Press HOME

Naming Timers

```
EDIT PANEL NAME
EDIT RELAY NAMES
EDIT GROUP NAMES        ▼
EDIT TIMER NAMES
```

From the SPECIAL FUNCTIONS screen, press ▶ EDIT TIMER NAMES

```
     TIMER 001 NAME
        TIMER.001        ▲
EDIT                     ▼
```

Press ▶ EDIT

```
DEFAULT
◀         TIMER.001       ▲
▶             ^           ▼
SAVE
```

Press ▶ or ◀ then scroll to the desired character

Preset Names:

Note: It is suggested that the preset number be included in the naming of the preset.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ until SPECIAL FUNCTIONS appears

3. Press ▶ SPECIAL FUNCTIONS

4. Press ▶ EDIT NAMES

5. Press ▶ EDIT PRESET NAMES

6. Press ▶ EDIT

7. Press ▲ or ▼ to change to the desired preset

8. Press ▶ or ◀ to scroll to the space to edit

9. Press ▲ or ▼ to change to the desired letter, number, or character.

10. Press ▶ or ◀ to scroll to the next space to edit

11. Continue until all characters have been edited

12. Press ▶ SAVE to store the programming

13. Press HOME

Naming Presets

```
EDIT RELAY NAMES        ▲
EDIT GROUP NAMES
EDIT TIMER NAMES        ▼
EDIT PRESET NAMES
```

From the SPECIAL FUNCTIONS screen, press ▶ EDIT PRESET NAMES

```
     PRESET 001 NAME
        PRESET.001       ▲
EDIT                     ▼
```

Press ▶ EDIT

```
DEFAULT
◀         PRESET.001      ▲
▶             ^           ▼
SAVE
```

Press ▶ or ◀ then scroll to the desired character

Switch Between Custom and Default Names:
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ until SPECIAL FUNCTIONS appears
3. Press ▶ SPECIAL FUNCTIONS
4. Press ▶ EDIT NAMES
5. Press ▼ to scroll down
6. Press ▶ SHOW NAMES to toggle between custom and default names for all categories

Set all Names to the Default:
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ until SPECIAL FUNCTIONS appears
3. Press ▶ SPECIAL FUNCTIONS
4. Press ▶ EDIT NAMES
5. Press ▼ to scroll down to DEFAULT NAMES
6. Press ▶ DEFAULT NAMES to set the default names for all categories

3.9.2 Setting up a Password
Passwords are suggested to protect the system programming from inadvertent changes from personnel not trained properly. Two levels of access are available with level 1 allowing full access, and level 2 allowing control and status only.

Note: The default setting is 000000 which allows access without entering a password.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ until SPECIAL FUNCTIONS appears
3. Press ▶ SPECIAL FUNCTIONS
4. Press ▶ CHANGE PASSWORDS
5. Press ▶ CONTROL ONLY (Level 2) or CONTROL/EDIT (Level 1)
6. Press ▶ or ◀ to scroll to the space to edit
7. Press ▲ or ▼ to change to the desired letter, number, or character.
8. Press ▶ or ◀ to scroll to the next space to edit
9. Continue until all characters have been edited (Be sure to record the password)
10. Press ▶ SAVE to store the programming

Switch Between Custom and Default Names

```
EDIT NAMES
CHANGE PASSWORDS
FIRMWARE REVISION
```

From the SPECIAL FUNCTIONS screen, press ▶ EDIT NAMES

```
EDIT TIMER NAMES          ▲
EDIT PRESET NAMES
DEFAULT NAMES
SHOW NAMES:CUSTOM
```

Press ▶ SHOW NAMES to toggle between custom and default

Set all Names to the Default

```
EDIT NAMES
CHANGE PASSWORDS
FIRMWARE REVISION
```

From the SPECIAL FUNCTIONS screen, press ▶ EDIT NAMES

```
EDIT TIMER NAMES          ▲
EDIT PRESET NAMES
DEFAULT NAMES
SHOW NAMES:CUSTOM
```

Press ▶ DEFAULT NAMES

Setting up a Password

```
EDIT NAMES
CHANGE PASSWORDS
FIRMWARE REVISION
```

From the SPECIAL FUNCTIONS screen, press ▶ CHANGE PASSWORDS

```
   CHANGE PASSWORDS
CONTROL ONLY
CONTROL/EDIT
```

Press ▶ CONTROL ONLY or CONTROL/EDIT to select level

```
CLEAR PASSWORD            ▲
◀       000000
▶          ^              ▼
SAVE
```

Press ▶ or ◀ then scroll to the desired number

Programming

3.9.3 Viewing Current Firmware Revision
The internal firmware is what controls the hardware in the panel. This may be updated with new features as time go on. Follow the steps below to view the current firmware revision along with the node address and the number of outputs connected.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ until SPECIAL FUNCTIONS appears
3. Press ▶ SPECIAL FUNCTIONS
4. Press ▶ FIRMWARE REVISION

3.9.4 Diagnostics
Each panel has some built-in diagnostics to help set the system up including relay cycle test, device finder, input tester, and backup and restore.

Cycle Test Relays:
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ until SPECIAL FUNCTIONS appears
3. Press ▶ SPECIAL FUNCTIONS
4. Press ▶ FIRMWARE REVISION
5. Press and hold ▲ and ▼ buttons to enter a hidden menu
6. Press ▼ 7 times
7. Press ▶ DIAGNOSTICS
8. Press ▶ CYCLE TEST RELAYS
9. Press ▶ PERFORM TEST, the relays will cycle OFF-ON-OFF, then go to their previous state
10. Press ▲ or ▼ to scroll through the test results for each relay
11. Press HOME to exit

Find LightSync, Dimmer, or Motor Devices
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ until SPECIAL FUNCTIONS appears
3. Press ▶ SPECIAL FUNCTIONS
4. Press ▶ FIRMWARE REVISION
5. Press and hold ▲ and ▼ buttons to enter a hidden menu
6. Press ▼ 7 times
7. Press ▶ DIAGNOSTICS
8. Press ▶ FIND DEVICES
9. Press ▶ LIGHTSYNC DEVICES, DIMMER DEVICES, or MOTOR DEVICES to initiate a scan
10. Press ▲ or ▼ to scroll through the test results for each scan
11. Press HOME to exit

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Viewing Current Firmware Revision

```
EDIT NAMES
CHANGE PASSWORDS
FIRMWARE REVISION
```
From the SPECIAL FUNCTIONS screen, press ▶ FIRMWARE REVISION

```
    ILC LIGHTLEEDER
  REV 1.50    11/08/10
                RELAYS:08
  LL4 MODE     NODE.01
```

Cycle Test Relays

```
EDIT NAMES
CHANGE PASSWORDS
FIRMWARE REVISION
```
From the SPECIAL FUNCTIONS screen, press ▶ FIRMWARE REVISION

```
    ILC LIGHTLEEDER
  REV 1.50    11/08/10
                RELAYS:08
  LL4 MODE     NODE.01
```
Press and hold ▲ and ▼ buttons

```
CLEAR TIMERS
CLEAR TIMER/RLY MAP    ▲
CLEAR PRESETS          ▼
DIAGNOSTICS
```
Press ▶ DIAGNOSTICS

```
CYCLE TEST RELAYS
FIND DEVICES
TEST INPUT DEVICES
BACKUP/RESTORE DATA
```
Press ▶ CYCLE TEST RELAYS

Find LightSync, Dimmer, or Motor Devices

```
CYCLE TEST RELAYS
FIND DEVICES
TEST INPUT DEVICES
BACKUP/RESTORE DATA
```
From the SPECIAL FUNCTIONS screen, press ▶ FIND DEVICES

```
FIND DEVICES
LIGHTSYNC DEVICES
DIMMER DEVICES
MOTOR DEVICES
```
Press ▶ LIGHTSYNC DEVICES, DIMMER DEVICES, or MOTOR DEVICES. Scroll to see each device.

Test Input Devices

This tool is for verifying that all of the LightSync devices are communicating and working properly. When testing, all programmed commands are ignored. Every input pushed or activated, will activate the associated status LED for each button. Note: This test will run for 4 hours without manually exiting. Devices must be configured prior to test. See section 3.5

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ until SPECIAL FUNCTIONS appears

3. Press ▶ SPECIAL FUNCTIONS

4. Press ▶ FIRMWARE REVISIONS

5. Press and hold ▲ and ▼ buttons to enter a hidden menu

6. Press ▼ 7 times

7. Press ▶ DIAGNOSTICS

8. Press ▶ TEST INPUT DEVICES

9. Press ▶ STOP to end the test

10. Press HOME to exit

3.9.5 Backup and Restore

This gives the programmer an area to backup the system data. It also provides a way to compare data, and restore data.

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ until SPECIAL FUNCTIONS appears

3. Press ▶ SPECIAL FUNCTIONS

4. Press ▶ FIRMWARE REVISIONS

5. Press and hold ▲ and ▼ buttons to enter a hidden menu

6. Press ▼ 7 times

7. Press ▶ DIAGNOSTICS

8. Press ▶ BACKUP/RESTORE DATA

Test Input Devices

```
CLEAR TIMERS
CLEAR TIMER/RLY MAP      ▲
CLEAR PRESETS            ▼
DIAGNOSTICS
```

From the hidden menu,
press ▶ DIAGNOSTICS

```
CYCLE TEST RELAYS
FIND DEVICES
TEST INPUT DEVICES
BACKUP/RESTORE DATA
```

Press ▶ TEST INPUT DEVICES

Backup and Restore

```
CLEAR TIMERS
CLEAR TIMER/RLY MAP      ▲
CLEAR PRESETS            ▼
DIAGNOSTICS
```

From the hidden menu,
press ▶ DIAGNOSTICS

```
CYCLE TEST RELAYS
FIND DEVICES
TEST INPUT DEVICES
BACKUP/RESTORE DATA
```

Press ▶ BACKUP/RESTORE DATA

```
BACKUP ALL DATA
RESTORE ALL DATA
COMPARE ALL DATA
```

Press ▶ BACKUP ALL DATA,
RESTORE ALL DATA, or
COMPARE ALL DATA

Programming

3.10 Programming Examples

3.10.1 Program a local input device to control relays

Program a 2 button LightSync pushbutton switch located in Node 01. The address of the device is 01.04. The inputs on the switch from top to bottom are 01.04.1 and 01.04.2. Input 01.04.1 controls relay 5 and input 01.04.2 controls relays 7, 9. Control is ON/OFF.

1) Configure LightSync device. Refer to section 3.5.1 for more information

1. From the home screen of Node 01 press ▶ EDIT
2. Press ▶ INPUTS
3. Press ▲ until LS DEVICE 04 appears on the screen.
4. Press ▶ CONFIGURE DEVICE
5. Press ▲ until 2 BUTTON appears in the TYPE field
6. Press the BACK button on the keypad.
7. Press ▶ CONFIGURE INPUTS
8. Press ▶ TYPES twice. To begin configuring input 01.04.1.
9. Press ▲ until P.B. ON/OFF appears in the TYPE A field on the screen
10. Press the BACK button twice.
11. Press ▲ to begin configuring input 01.04.2. Then repeat steps 8, 9, 10.
12. Press ▶ " HOME" to exit to the home screen

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The diagram on the right side shows the screen flow:

```
    ILC LIGHTLEEDER
           TUE 01/21/11
           09:46:54 PM
EDIT             NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS
CLOCK
```
Press ▶ INPUTS, then ▲

```
  LS DEVICE: 04 ---
STATUS
CONFIGURE DEVICE
CONFIGURE INPUTS
```
Press ▶ CONFIGURE DEVICE, then ▲

```
  LS DEVICE: 04
TYPE ◀ 2 BUTTON

INPUTS:LOCAL
```
Press BACK

```
  LS DEVICE: 04 2B
STATUS
CONFIGURE DEVICE
CONFIGURE INPUTS
```
Press ▶ CONFIGURE INPUTS

```
  INPUT  IN:01.04.1
TYPES ◀
CONDITIONALS
PILOT
```
Press ▶ TYPES twice, then ▲

```
TYPE A◀ P.B. ON/OFF

TYPE B  DISABLED
```
Press BACK twice, then ▲

```
  INPUT  IN:01.04.2
TYPES ◀
CONDITIONALS
PILOT
```
Repeat steps 8, 9, 10

Continued on next page

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2) Program the relays that are to be controlled by device 01.04 inputs.

1. From the home screen of NODE 01, press ▶ EDIT.
2. Press ▶ RELAYS
3. Press ▶ INPUT MAPPING
4. Press ▶ LOCAL RELAYS
5. Press ▲ until 01.04.1 appears in the DEVICE Field.
6. Press ▶ RELAY
7. Press ▲ until RLY: 01.05 appears in the RELAY field.
8. Press ▶ ACTION
9. Press ▲ until ON-OFF (HHLC) appears in the ACTION field.
10. Press ▶ INPUT
11. Press until ▲ 01.04.2 appears in the DEVICE field.
12. Repeat steps 6-9 for relays 01.07 and 01.09.
13. Press ▶ " HOME" to exit to the home screen

```
 ILC LIGHTLEEDER
           TUE 01/21/11
           09:46:54 PM
EDIT            NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS
CLOCK
```
Press ▶ RELAYS

```
RELAY STATUS
RELAY OPTIONS         ⬍
GROUP RELAYS          ⬍
INPUT MAPPING
```
Press ▶ INPUT MAPPING, then ▲

```
  INPUT MAPPING
LOCAL/RELAYS
LOCAL/GROUPS
NETORK INPUTS
```
Press ▶ LOCAL RELAYS, then ▲

```
DEVICE ◀   IN:01.04.1
INPUT                 ⬍
RELAY      RLY:01.01  ⬍
ACTION     NONE
```
Press ▶ RELAY, then ▲

```
DEVICE     IN:01.04.1
INPUT                 ⬍
RELAY ◀    RLY:01.05  ⬍
ACTION     NONE
```
Press ▶ ACTION, then ▲

```
DEVICE     IN:01.04.1
INPUT                 ⬍
RELAY      RLY:01.05  ⬍
ACTION◀    ON-OFF(HⁱLC)
```
Press INPUT, then ▲

```
DEVICE     IN:01.04.2
INPUT◀                ⬍
RELAY      RLY:01.07  ⬍
ACTION     ON-OFF(HⁱLC)
```
Follow steps 12, 13, 14

3.10.2 Program a network switch to control a relay group

Program a 1 pushbutton switch (addressed as 00.0A.1) that is a device node on the LightSync network to control relay group 003. Relay group 003 is composed of relays 10 and 12 located in Controller Node 01 and relays 25 and 27 located in Controller Node 04.

1) Configure LightSync device.

1. From the Node 01 Home screen press ▶ EDIT. Then press ▼ until REMOTE PANEL appears on the screen.
2. Press ▶ REMOTE PANEL.
3. Press ▶ CONNECT to access the Network Controller (Node 00) home screen.
4. Press ▶ EDIT. Then Press ▶ INPUTS.
5. Press ▲ until 0A appears in the LS DEVICE field.
6. Press ▶ CONFIGURE DEVICE
7. Press ▲ until 1 BUTTON appears in the TYPE field
8. Press the BACK button on the keypad.
9. Press ▶ CONFIGURE INPUTS
10. Press ▶ TYPES twice. To begin configuring input 01.04.1.
11. Press ▲ until P.B. ON/OFF appears in the TYPE A field on the screen
12. Press the BACK button 4 times to access then Node 00 Main Menu.

Continued on next page

2) Map LightSync Switch 00.0A.1 to control Relay Group 003.

1. From the Node 00 Main Menu, Press ▶ RELAYS.

2. Press ▶ INPUT MAPPING.

3. Press ▲ until IN: 00.0A.1 appears in the screen DEVICE field.

4. Press ▶ GROUP. Then Press ▲ until GROUP 003 appears in the GROUP field.

5. Press ▶ ACTION. Then Press ▲ until ON-OFF (HHLC) appears in the ACTION field.

6. Press the HOME button to return to the Node 01 home screen.

```
     ILC LIGHTLEEDER NC
            TUE 01/21/11
            09:46:54 PM
 EDIT
```

Press ▶ EDIT

```
 NETWORK
 INPUTS
 RELAYS            ↓
 TIMERS
```

Press ▶ RELAYS

```
 GROUP STATUS
 INPUT MAPPING


```

Press ▶ INPUT MAPPING, then ▲

```
 DEVICE ◄ IN:00.0A.1
 INPUT
 GROUP    GROUP.001
 ACTION   NONE
```

Press ▶ GROUP, then ▲

```
 DEVICE   IN:00.0A.1
 INPUT
 GROUP  ◄ GROUP.003
 ACTION   NONE
```

Press ▶ ACTION, then ▲

```
 DEVICE   IN:00.0A.1
 INPUT
 GROUP    GROUP.003
 ACTION ◄ ON-OFF(HHLC)
```

Press HOME

```
     ILC LIGHTLEEDER
            TUE 01/21/11
            09:46:54 PM
 EDIT          NODE 01
```

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3) Program Relays 10, 12 in Node 01 into Group 03.

1. From the Node 01 Home screen, Press ▶ EDIT.

2. Press ▶ RELAYS.

3. Press ▶ GROUP RELAYS.

4. Press ▲ until GROUP.003 appears in the GROUP field.

5. Press ▶ RELAY. Then Press ▲ until RLY: 01.10 appears in the RELAY field.

6. Press ▶ INCLUDE until YES appears in the INCLUDE field.

7. Repeat steps 5 and 6 for relay 12 substituting 01.12 into the RELAY field.

8. Press the HOME button to return to the Node 01 home screen

```
  ILC LIGHTLEEDER
           TUE 01/21/11
           09:46:54 PM
EDIT           NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS
CLOCK
```
Press ▶ RELAYS

```
RELAY STATUS
RELAY OPTIONS
GROUP RELAYS
INPUT MAPPING
```
Press ▶ GROUP RELAYS, then ▲

```
 RELAY GROUPS
GROUP:◄  GROUP.003
RELAY:   RLY:01.05
INCLUDE: NO
```
Press ▶ RELAY, then ▲

```
 RELAY GROUPS
GROUP:   GROUP.003
RELAY:◄ RLY:01.10
INCLUDE: NO
```
Press ▶ INCLUDE

```
 RELAY GROUPS
GROUP:   GROUP.003
RELAY:   RLY:01.10
INCLUDE: YES
```
Press ▶ RELAY, then ▲

```
 RELAY GROUPS
GROUP:   GROUP.003
RELAY:◄ RLY:01.12
INCLUDE: NO
```
Press ▶ INCLUDE

```
 RELAY GROUPS
GROUP:   GROUP.003
RELAY:   RLY:01.12
INCLUDE: YES
```
Press HOME

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4) Program Relays 25, 27 in Node 04 into Group 003.

1. From the Node 01 Home screen press ▶ EDIT. Then press ▼ until REMOTE PANEL appears on the screen.

2. Press ▶ REMOTE PANEL

3. Press ▲ until NODE 04 appears then Press ▶ CONNECT to access controller Node 04's Home screen.

4. Press ▶ EDIT. Then Press ▶ RELAYS; then Press ▶ GROUP RELAYS.

5. Press ▲ until GROUP .003 appears in the GROUP field.

6. Press ▶ RELAY. Then Press ▲ until RLY: 04.25 appear in the RELAY field.

7. Press ▶ INCLUDE until YES appears in the INCLUDE field

8. Repeat steps 6 and 7 substituting 04.27 into the RELAY field.

9. Press the Home Button to return to Node 01 Home screen.

```
  ILC LIGHTLEEDER
            TUE 01/21/11
            09:46:54 PM
EDIT            NODE 01
```
Press ▶ EDIT, then ▼ 3 times

```
CLOCK
PRESETS              ▲▼
OTHER DEVICES        ▼
REMOTE PANEL
```
Press ▶ REMOTE PANEL then ▲

```
  REMOTE PANEL
NODE 04              ▲▼
CONNECT              ▼
```
Press ▶ CONNECT

```
  ILC LIGHTLEEDER 04
            TUE 01/21/11
            09:46:54 PM
EDIT
```
Press ▶ EDIT

```
NETWORK
INPUTS
RELAYS               ▼
TIMERS
```
Press ▶ RELAYS

```
RELAY STATUS
RELAY OPTIONS        ▲▼
GROUP RELAYS         ▼
INPUT MAPPING
```
Press ▶ GROUP RELAYS, then ▲

```
  RELAY GROUPS
GROUP: ◄ GROUP.003   ▲▼
RELAY:   RLY:04.25   ▼
INCLUDE: YES
```
Press ▶ RELAY, then ▲

```
  RELAY GROUPS
GROUP:   GROUP.003
RELAY: ◄ RLY:04.25
INCLUDE: NO
```
Press ▶ INCLUDE

```
  RELAY GROUPS
GROUP:   GROUP.003   ▲▼
RELAY:   RLY:04.25   ▼
INCLUDE: YES
```
Repeat for Relay 27, Press HOME

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3.10.3 Set time and date example

In the example the time/date is Wednesday January 5, 2011. The Time is 11:15 AM. The Network controller will sync all the other controller nodes clocks to this time and date.

1. From the Node 01 Home screen press ▶ EDIT. Then Press ▼ until REMOTE PANEL appears on the screen.

2. Press ▶ REMOTE PANEL.

3. Press ▶ CONNECT to access the Network Controller (Node 00) home screen.

4. Press ▶ EDIT. Then Press ▼ until ▶ CLOCK appears as a menu choice.

5. Press ▶ CLOCK. Then Press ▶ TIME/DATE.

6. Press ▶ TIME; then Press ▼ or ▲ until 11 appears in the HOUR field. Be sure that it is 11 AM.

7. Press ▶ MINUTE; then Press ▼ or ▲ until 15 appears.

8. Press ▶ SET.

9. Press ▶ DATE; then Press ▼ or ▲ until 01 appears in the MONTH field.

10. Press ▶ DATE; then Press ▼ or ▲ until 05 appears.

11. Press ▶ YEAR; then Press ▼ or ▲ until 2011 appears.

12. Press ▶ SET WED 01/05/11 appears in the DATE field.

13. Press the HOME button to return to the Node 01 Home screen

```
   ILC LIGHTLEEDER
            TUE 01/21/11
            09:46:54 PM
EDIT           NODE 01
```
Press ▶ EDIT, then ▼ 3 times

```
CLOCK
PRESETS              ⬍
OTHER DEVICES        ⬍
REMOTE PANEL
```
Press ▶ REMOTE PANEL

```
  REMOTE PANEL
NODE 00              ⬍
CONNECT              ⬍
```
Press ▶ CONNECT

```
  ILC LIGHTLEEDER NC
            TUE 01/21/11
            09:46:54 PM
EDIT
```
Press ▶ EDIT, then ▼

```
INPUTS               ⬍
RELAYS               ⬍
TIMERS
CLOCK
```
Press ▶ CLOCK, then ▶ TIME/DATE

```
  SET TIME/DATE      ⬍
TIME     07:04:33  AM
DATE     TUE 01/04/11
```
Press ▶ TIME, MINUTE then ▼ or ▲ to set, then press ▶ SET.

```
  SET TIME/DATE      ⬍
TIME     11:15:00  AM
DATE     WED 01/05/11
```
Press ▶ DATE then ▼ or ▲

```
MONTH    01/04/11    ⬍
DATE                 ⬍
YEAR
SET
```
Follow steps 9-12, press HOME

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3.10.4 Configure Timer example

Configure Timer 001 to turn relays 6, 7, 8 in Node 01 ON at 07:30 AM and Timer 002 to turn them OFF at 06:30PM Monday through Friday. Timers 001 and 002 use normal AM/PM time format.

1) Configure two timers, one for the "on" timer and one for the "off".

1. Access the Network Controller Node 00. See previous examples for details.
2. From the Node 00 Home screen Press ▶ EDIT; then Press ▶ TIMERS

2) Press ▶ CONFIGURE TIMERS

1. Press ▼ or ▲ to select Timer 001
2. Press ▶ TIME
3. Press ▶ NORMAL
4. Press ▼ or ▲ to change the hour to 07AM
5. Press ▶ MINUTE
6. Press ▼ or ▲ to change the minutes until it reads 7:30AM
7. Press the BACK button. Then Press ▶ DAYS
8. Press ▶ DAY OF WEEK
9. Press ▶ DISABLE to remove Sunday from Timer 001 control
10. Press ▼; then ▶ DISABLE to remove Saturday from Timer 001 control
11. Press ▶ the BACK button
12. Repeat steps 1-10 substituting 06:30PM for Timer 002
13. Press the HOME button to return to the Node 01 Home screen.

```
   ILC LIGHTLEEDER NC
            TUE 01/21/11
            09:46:54 PM
 EDIT
```
Press ▶ EDIT, then ▼

```
 NETWORK
 INPUTS
 RELAYS
 TIMERS
```
Press ▶ TIMERS

```
 CONFIGURE TIMERS
 TIMER/RELAY CONTROL
 OFF HOURS SWEEPS
 OPEN/CLOSE TIMES
```
Press ▶ CONFIGURE TIMERS, then ▼ or ▲

```
 TIMER   TIMER.001
 TIME      11:15:00  AM
 DAYS     WED 01/05/11
 CONDITIONALS
```
Press ▶ TIME, then ▶ NORMAL, then ▼ or ▲

```
 TIMER.001
 HOUR  ◀  07:00:00  AM
 MINUTE
```
Press ▶ MINUTE, then ▼ or ▲

```
 TIMER.001
 HOUR     07:30:00  AM
 MINUTE ◀
```
Press BACK, then ▶ DAYS

```
 TIMER   TIMER.001
 DAY OF WEEK
 CALENDAR-DAILY
```
Press ▶ DAY OF WEEK

```
 TIMER.001
   SUN IS ENABLED
 ENABLE
 DISABLE
```
Press ▶ DISABLE

```
 TIMER.001
   SUN IS DISABLED
 ENABLE
 DISABLE
```

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3) Map the timers to control the relays.

1. From the home screen, Node 01 press ▶ EDIT

2. Press ▶ TIMERS

3. Press ▶ TIMER/RELAY CONTROL

4. Press ▶ TIMER/RELAY

5. Press ▲ until TIMER 001 appears in the TIMER field.

6. Press ▶ RELAY, then press ▼ or ▲ until the RLY: 01.06 appears in the RELAY field.

7. Press ▶ ACTION until ON appears in the ACTION field.

8. Repeat steps 6 and 7 for relays 01.07 and 01.08.

9. Press ▶ TIMER then ▲ until Timer 002 appears in the TIMER field.

10. Press ▶ RELAY; then ▲ until RLY:01.06 appears in the RELAY field.

11. Press ▶ ACTION then Press ▼ to select OFF

12. Repeat steps 10 and 11 for relays 01.07 and 01.08.

13. Press the HOME button to return to the Node 01 Home screen.

```
ILC LIGHTLEEDER
            TUE 01/21/11
            09:46:54 PM
EDIT           NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS
CLOCK
```
Press ▶ TIMERS

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS        ▼
OPEN/CLOSE TIMES
```
Press ▶ TIMER/RELAY CONTROL

```
TIMER/RELAY
TIMER/GROUP
TIMER/PRESET
```
Press ▶ TIMER/RELAY, then ▲

```
TIMER ◄  TIMER.001
RELAY    RLY:01.03     ▲
ACTION   NONE          ▼
```
Press ▶ RELAY, then ▼ or ▲

```
TIMER    TIMER.001
RELAY    RLY:01.06     ▲
ACTION   OFF           ▼
```
Press ▶ ACTION

```
TIMER    TIMER.001
RELAY    RLY:01.06     ▲
ACTION   ON            ▼
```
Repeat for relays 01.07 and 01.08.

Follow Steps 9-12 to program relays
01.06, 7 and 8 to turn OFF with Timer 002

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LightLEEDer

3.10.5 Configure Timers Using Astro Time example

Configure Timer 001 to turn relays 6, 7, 8 in Node 01 ON at sunset and Timer 002 to turn them OFF at sunrise every day. The timers use Astro time that adjusts the sunrise and sunset times as they change throughout the year in the location where the controllers are installed. The location is Phoenix, AZ.

1) Set the latitude, longitude, and time zone coordinates for the location of the controllers.

1. From the Node 01 Home screen press ▶ EDIT. Then Press ▼ until REMOTE PANEL appears on the screen.
2. Press ▶ REMOTE PANEL.
3. Press ▶ CONNECT to access the Network Controller (Node 00) home screen.
4. Press ▶ EDIT. Then Press ▼ until ▶ CLOCK appears as a menu choice.
5. Press ▶ ASTRO CLOCK.
6. Press ▶ SET BY CITY. Then Press ▲ until AZ, PHOENIX with its latitude, longitude and time zone appears on the screen.
7. Press ▶ SET to enter these values into the controller memory.
8. Press the BACK Button until you return to Node 00 Main menu.

```
     ILC LIGHTLEEDER
            TUE 01/21/11
            09:46:54 PM
EDIT            NODE 01
```
Press ▶ EDIT, then ▼ 3 times

```
CLOCK
PRESETS
OTHER DEVICES
REMOTE PANEL
```
Press ▶ REMOTE PANEL

```
  REMOTE PANEL
NODE 00
CONNECT
```
Press ▶ CONNECT

```
   ILC LIGHTLEEDER NC
            TUE 01/21/11
            09:46:54 PM
EDIT
```
Press ▶ EDIT, then ▼

```
INPUTS
RELAYS
TIMERS
CLOCK
```
Press ▶ CLOCK, then ▶ ASTRO CLOCK

```
LATITUDE
LONGITUDE
TIME ZONE
SEY BY CITY
```
Press ▶ SET BY CITY, then ▲

```
 AZ, PHOENIX
 LAT:033  LON:112
 TIME ZONE:MOUNTAIN
SET
```
Press ▶ SET, then BACK four times

```
   ILC LIGHTLEEDER NC
            TUE 01/21/11
            09:46:54 PM
EDIT
```

LightLEEDer

2) Configure the timers.

1. From the Node 00 Main Menu Press ▶ TIMERS
2. Press ▶ CONFIGURE TIMERS
3. Press ▼ or ▲ to select Timer 001
4. Press ▶ TIME. Then Press ▶ ASTRO
5. Press ▶ SUNSET
6. Press the BACK Button
7. Press ▼ or ▲ until Timer 002 appears on the screen
8. Press ▶ TIME
9. Press ▶ ASTRO
10. Press ▶ SUNRISE
11. Press the HOME button to return to the Node 01 Home screen.

```
ILC LIGHTLEEDER NC
         TUE 01/21/11
         09:46:54 PM
EDIT
```

Press ▶ EDIT, then ▼

```
NETWORK
INPUTS
RELAYS
TIMERS
```

Press ▶ TIMERS

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS
OPEN/CLOSE TIMES
```

Press ▶ CONFIGURE TIMERS, then ▼ or ▲

```
TIMER    TIMER.001
TIME      07:30:00  AM
DAYS      WED 01/05/11
CONDITIONALS
```

Press ▶ TIME, then ▶ ASTRO

```
TIMER.001
SUNRISE  SS +000MIN
SUNSET
CLEAR OFFSET
```

Press ▶ SUNSET

```
TIMER    TIMER.001
TIME      SS +000MIN
DAYS      _MTWTF_
CONDITIONALS
```

Press BACK, then ▼ or ▲

```
TIMER    TIMER.002
TIME      06:30:00  PM
DAYS      WED 01/05/11
CONDITIONALS
```

Press ▶ TIME, then ▶ ASTRO

```
TIMER.002
SUNRISE  SS +000MIN
SUNSET
CLEAR OFFSET
```

Press ▶ SUNRISE

```
TIMER.002
TIME      SR +000MIN
DAYS      _MTWTF_
CONDITIONALS
```

3) Map the relays to the timers.

1. From the home screen, Node 01 press ▶ EDIT
2. Press ▶ TIMERS
3. Press ▶ TIMER/RELAY CONTROL
4. Press ▶ TIMER/RELAY
5. Press ▲ or ▼ until TIMER 001 appears in the TIMER field.
6. Press ▶ RELAY, then press ▼ or ▲ until the RLY: 01.06 appears.
7. Press ▶ ACTION until ON appears in the ACTION field.
8. Repeat steps 6 and 7 for relays 01.07 and 01.08.
9. Press ▶ TIMER then ▲ until Timer 002 appears.
10. Press ▶ RELAY; then ▲ until RLY:01.06 appears.
11. Press ▶ ACTION then Press ▼ to select OFF
12. Repeat steps 10 and 11 for relays 01.07 and 01.08.
13. Press the HOME button to return to the Node 01 Home screen.

```
   ILC LIGHTLEEDER
              TUE 01/21/11
              09:46:54 PM
EDIT              NODE 01
```
Press ▶ EDIT

```
RELAYS
INPUTS
TIMERS
CLOCK
```
Press ▶ TIMERS

```
CONFIGURE TIMERS
TIMER/RELAY CONTROL
OFF HOURS SWEEPS
OPEN/CLOSE TIMES        ⬇
```
Press ▶ TIMER/RELAY CONTROL

```
TIMER/RELAY
TIMER/GROUP
TIMER/PRESET
```
Press ▶ TIMER/RELAY, then ▲

```
TIMER ◄   TIMER.001
RELAY     RLY:01.03      ⬆
ACTION    NONE           ⬇
```
Press ▶ RELAY, then ▼ or ▲

```
TIMER     TIMER.001
RELAY ◄   RLY:01.06      ⬆
ACTION    OFF            ⬇
```
Press ▶ ACTION

```
TIMER     TIMER.001
RELAY ◄   RLY:01.06      ⬆
ACTION    ON             ⬇
```
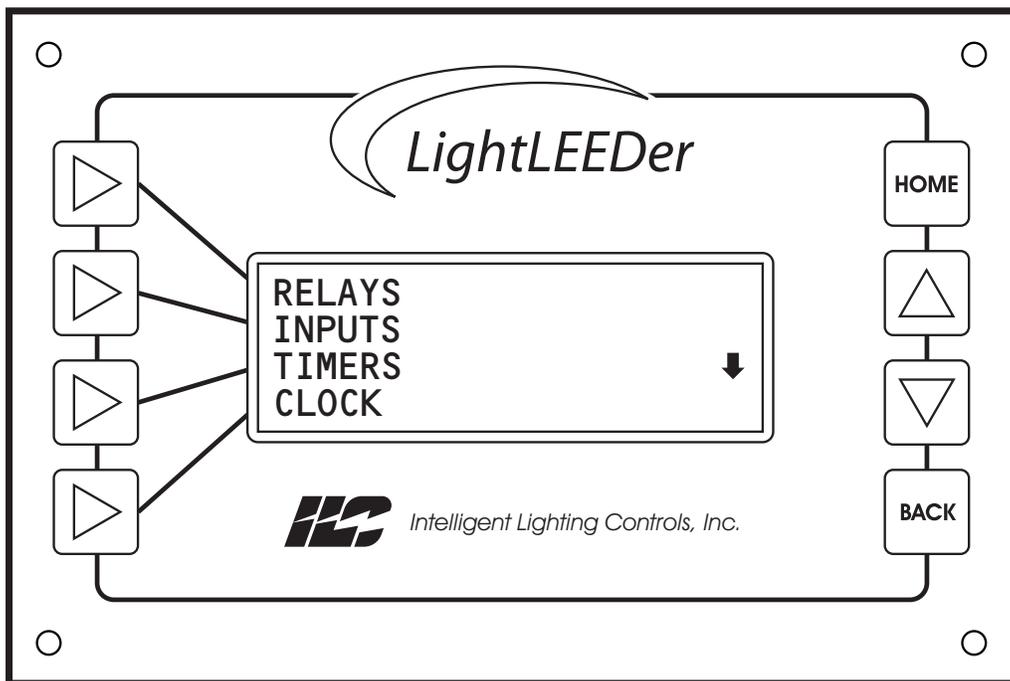Repeat for relays 01.07 and 01.08.

Follow Steps 9-12 to program relays
01.06, 7 and 8 to turn OFF with Timer 002

Section 4
Appendix

```
LightLEEDer

                 HOME
RELAYS
INPUTS              △
TIMERS        ↓
CLOCK               ▽

ILC  Intelligent Lighting Controls, Inc.    BACK
```

LightLEEDer

Section 4 Appendix

LightLEEDer

Dimmer Module
The LightSync Dimming Module is designed for 0 – 10V device control. It is used in conjunction with a photocell controller for programmable daylight harvesting. This module can be installed in the lighting control panel or remotely mounted on the LightSync network. Each of the 4 independent channels can control up to 200 ballasts with 256 steps between 0 and 10V. Outputs are designed to sink voltage, source voltage, or direct drive for monitoring and are adjustable per channel. Each output may be programmed to respond to 16 inputs per channel. The intuitive software provided makes it easy to program or adjust the settings.

Panel Mount

Remote Mount

Node address settings (Each device must be set to a unique node address)

RJ-45 Data connectors to LightSync network

4 independent output channels

Jumpers
A
B
C

Jumpers
A
B
C

3.5"

IN   OUT

2.75"

2.75"

Jumper Settings per Output:
A = Direct
B = Source
C = Sink (default)

LightSync Dimming Module

100mA Maximum per module
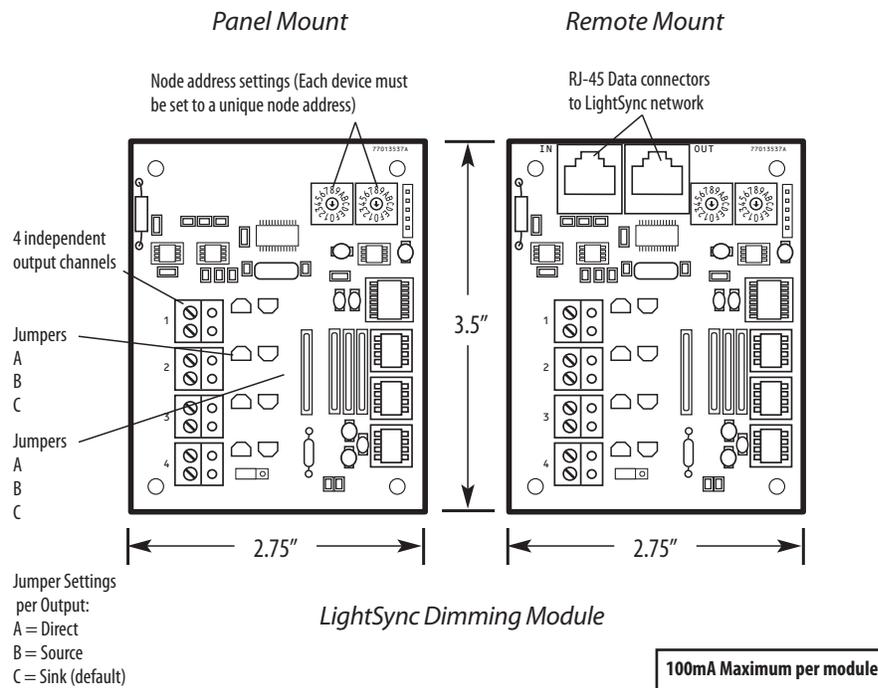
Warning: To prevent electrocution and/or damage to hardware, measure voltage from energized ballast prior to terminating.

LightLEEDer

Dimmer Module Programming

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ until OTHER DEVICES appears

3. Press ▶ OTHER DEVICES

4. Press ▶ DIMMER OUTPUTS

5. Press ▲ or ▼ to select the dimmer address (set with the rotary switches)

6. Press ▼ ACTIVE to enable the device

7. Press ▼ CONFIGURE to to access settings for:

Photocell Tracking:
8. Press ▶ PC TRACKING (Set to Disabled, 2point, 3 point or Set point)

Fade Rate:
8. Press ▶ FADE RATE (Set from 0 to 300 seconds)

Minimum and Maximum Levels:
8. Press ▶ MIN OUTPUT LEVEL or MAX OUTPUT LEVEL (Set from 0 to 100% MIN, 100 to 0% MAX)

Power-On Levels:
8. Press ▼ until POWER-ON LEVEL appears

9. Press ▶ POWER-ON LEVEL (Set from 0 to 100%)

Control Options:
8. Press ▼ until CONTROL OPTIONS appears

9. Press ▶ CONTROL OPTIONS (Set a type of control: Timer, Input, Preset; then a Source and an Action)

DMX Control:
8. Press ▼ until DMX CONTROL appears

9. Press ▶ DMX CONTROL (Track up to 512 channels)

Dimmer Status:
8. Press ▼ until STATUS/CONTROL appears

9. Press ▶ STATUS/CONTROL (Raise or lower Set Points to make equal))

10. Press HOME to exit

Dimmer Module Programming

```
   ILC LIGHTLEEDER
            TUE 01/21/11
            09:46:54 PM
EDIT            NODE 01
```
Press ▶ EDIT, then ▼ twice

```
TIMERS
CLOCK
PRESETS
OTHER DEVICES
```
Press ▶ OTHER DEVICES

```
ADD-ON MODULES
DIMMER OUTPUTS
MOTOR OUTPUTS
```
Press ▶ DIMMER OUTPUTS

```
DEVICE   01
ACTIVE:  YES
OUTPUT:  D:01.01.1
CONFIGURE  (COM)
```
Press ▶ CONFIGURE

```
PC TRACKING
FADE RATE
MIN OUTPUT LEVEL
MAX OUTPUT LEVEL
```
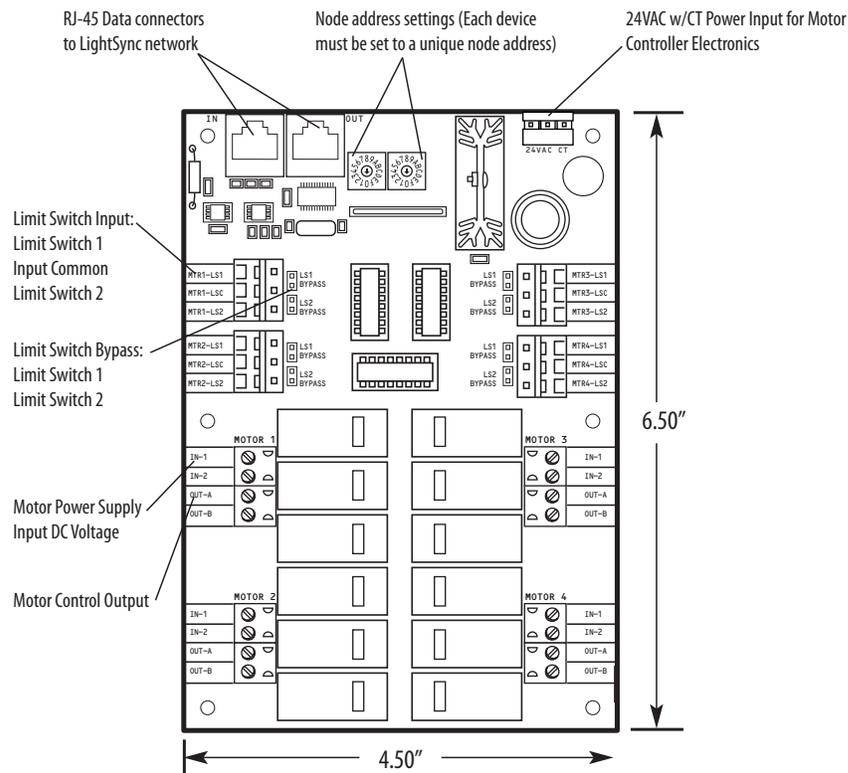Press ▼ to access options

```
POWER-ON LEVEL
CONTROL OPTIONS
DMX CONTROL
STATUS CONTROL
```

LightLEEDer

Motor Controller Module

The LightSync Motor Control Module is designed for DC motor device control. This module can control window shades, louvers, doors, and other DC motor controlled devices. Each output can be programmed to respond up to 16 inputs which include LightSync switches, LightSync Photocell, hardwired switches, and timers. These inputs can be programmed to drive the motor in either direction for a selectable time from .1 to 300 seconds.

RJ-45 Data connectors to LightSync network

Node address settings (Each device must be set to a unique node address)

24VAC w/CT Power Input for Motor Controller Electronics

Limit Switch Input:
Limit Switch 1
Input Common
Limit Switch 2

Limit Switch Bypass:
Limit Switch 1
Limit Switch 2

Motor Power Supply Input DC Voltage

Motor Control Output

6.50"

4.50"

LightSync Motor Controller Module

LightLEEDer

Motor Controller Programming
Setup Device:
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ 2 times to scroll down
3. Press ▶ OTHER DEVICES
4. Press ▶ MOTOR OUTPUTS
5. Press ▲ or ▼ to select the dimmer address (set with the rotary switches)
6. Press ▼ ACTIVE to enable the device

Device Status:
Status of communications can be viewed at the motor output screen and the output state can be viewed from the control screen.

Switch Input Control:
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ 2 times to scroll down
3. Press ▶ OTHER DEVICES
4. Press ▶ MOTOR OUTPUTS (motor output screen)
5. Press ▶ OUTPUT then ▲ or ▼ to select the device channel (1-4)
6. Press ▶ CONFIGURE (control screen)
7. Press ▶ TYPE until "INPUT" appears
8. Press ▶ SOURCE
9. Press ▶ NODE then ▲ or ▼ to select the panel where the switch is located
10. Press ▶ DEVICE then ▲ or ▼ to select the address of the switch
11. Press ▶ INPUT then ▲ or ▼ to select the input number
12. Press ◀ BACK
13. Press ▶ ACTION then Press ▶ ACTION until the desired action appears (see table 3.13)
14. Press ▶ RUN TIME then ▲ or ▼ to adjust the "ON" time required
15. Press HOME to exit

Motor Controller Programming

```
   ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT           NODE 01
```
Press ▶ EDIT, then ▼ twice

```
TIMERS
CLOCK              ⬍
PRESETS            ⬍
OTHER DEVICES
```
Press ▶ OTHER DEVICES

```
ADD-ON MODULES
DIMMER OUTPUTS
MOTOR OUTPUTS
```
Press ▶ MOTOR OUTPUTS

```
DEVICE   01
ACTIVE:  YES       ⬍
OUTPUT:  M:01.01.1  ⬍
CONFIGURE   (COM)
```
Press ▶ CONFIGURE, then TYPE

```
  CONTROL 01
TYPE:INPUT          ⬍
SOURCE              ⬍
ACTION
```
Press ▶ SOURCE, then NODE

```
CONTROL 01
NODE  ◄ IN:01.01.1   ⬍
DEVICE              ⬍
INPUT
```
Press ▶ DEVICE then INPUT THEN BACK

```
CONTROL 01
ACTION              ⬍
DEVICE ◄            ⬍
INPUT
```
Press ▶ ACTION then RUN TIME

```
CONTROL 01
ACTION: RUN-POS     ⬍
RUN TIME=LATCH      ⬍
```
Press HOME

Timer Control:

1. From the home screen, press ► EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ 2 times to scroll down

3. Press ► OTHER DEVICES

4. Press ► MOTOR OUTPUTS (motor output screen)

5. Press ► OUTPUT then ▲ or ▼ to select the device channel (1-4)

6. Press ► CONFIGURE (control screen)

7. Press ► TYPE until "TIMER" appears

8. Press ► SOURCE

9. Press ▲ or ▼ to select the timer to activate the action.

10. Press ► BACK

11. Press ► ACTION then Press ► ACTION until the desired action appears (see table 3.8)

12. Press ► RUN TIME then ▲ or ▼ to adjust the "On" time required

13. Press HOME to exit

Preset Control:

1. From the home screen, press ► EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ 2 times to scroll down

3. Press ► OTHER DEVICES

4. Press ► MOTOR OUTPUTS (motor output screen)

5. Press ► OUTPUT then ▲ or ▼ to select the device channel (1-4)

6. Press ► CONFIGURE (control screen)

7. Press ► TYPE until "PRESET" appears

8. Press ► SOURCE

9. Press ▲ or ▼ to select the preset to activate the action.

10. Press ► BACK

11. Press ► ACTION then Press ► ACTION until the desired action appears (see table 3.13)

12. Press ► RUN TIME then ▲ or ▼ to adjust the "ON" time required

13. Press HOME to exit

Table 3.13: Available Programming Actions

Stop: Upon input contact the the motor output will open or stop.
Run Positive: When contact is made on the input the motor output will go positive with an adjustable output of .1 second to 10 seconds in .1 second increments, 10 to 300 second increments, or latched.
Run Negative: When contact is made on the input the motor output will go negative with an adjustable output of .1 second to 10 seconds in .1 second increments, 10 to 300 second increments, or latched.

Motor Controller Timer Control

```
DEVICE ◄ 01
ACTIVE:  YES
OUTPUT:  M:01.01.1
CONFIGURE  (COM)
```

From the MOTOR OUTPUTS screen, press
► CONFIGURE, then TYPE

```
CONTROL 01
TYPE:TIMER
SOURCE
ACTION
```

Press ► SOURCE then BACK

```
CONTROL 01
TIMER:  TIMER.001
```

Press ► ACTION then RUN TIME

```
CONTROL 01
ACTION: RUN-POS
RUN TIME=000.1
```

Motor Controller Preset Control

```
DEVICE ◄ 01
ACTIVE:  YES
OUTPUT:  M:01.01.1
CONFIGURE  (COM)
```

From the MOTOR OUTPUTS screen, press
► CONFIGURE, then TYPE

```
CONTROL 01
TYPE:PRESET
SOURCE
ACTION        OUT1:OFF
```

Press ► SOURCE then BACK

```
CONTROL 01
PRESET:  PRESET.001
```

Press ► ACTION then RUN TIME

```
CONTROL 01
ACTION: RUN-POS
RUN TIME=000.1
```
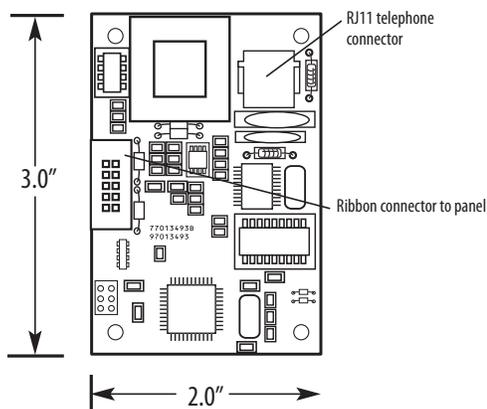
DTMF Module (panel level)

The LightLEEDer Voice Prompted DTMF Telephone Control module provides control from any touch-tone telephone. Voice prompts and telephone DTMF signals (telephone button activations) can control relays, groups, or presets ON or OFF and retrieve current status. Any standard telephone, digital telephone, or cell phone can be used for a switch station.

FCC Part 68 Information

LightLEEDer Voice Prompted DTMF Telephone Control modules comply with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the back plate near the RJ 11 jack of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence (REN) for this equipment. If requested, provide this information to your telephone company.

Setup:

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ 2 times to scroll down

3. Press ▶ OTHER DEVICES

4. Press ▶ ADD-ON MODULES

5. Press ▶ ADD-ON MODULE 1, 2, 3, or 4

6. Press ▲ or ▼ to select the VOICE/DTMF option

7. Press ▶ EDIT to change the access code

8. Press ▲ or ▼ to select the access code number and ▶ to scroll or Press ▶ CLEAR CODE to remove setting

9. Press HOME to exit

LightLEEDer DTMF Telephone Control Module
(Panel level)

DTMF Module Setup

```
ILC LIGHTLEEDER
         TUE 01/21/11
         09:46:54 PM
EDIT          NODE 01
```

Press ▶ EDIT, then ▼ twice

```
TIMERS
CLOCK
PRESETS
OTHER DEVICES
```

Press ▶ OTHER DEVICES

```
ADD-ON MODULES
DIMMER OUTPUTS
MOTOR OUTPUTS
```

Press ▶ ADD-ON MODULES

```
ADD-ON MODULE 1
ADD-ON MODULE 2
ADD-ON MODULE 3
ADD-ON MODULE 4
```

Press ▶ ADD-ON MODULE 1, 2, 3, or 4

```
ADD-ON MODULE 1
TYPE:VOICE/DTMF
EDIT
```
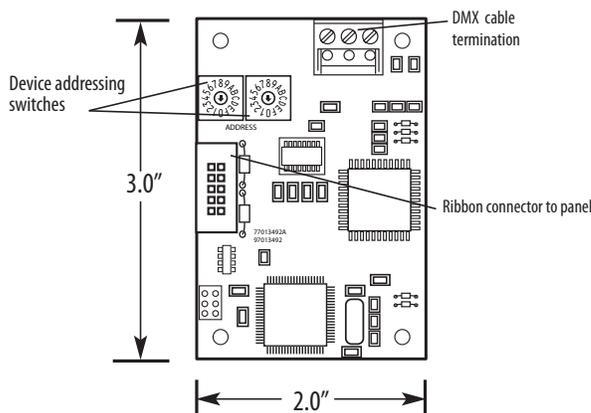
Press ▶ EDIT

```
VOICE/DTMF  REV 0
 ACCESS CODE:0000
▶        ^
CLEAR CODE
```

LightLEEDer

DMX Module (panel level)

The LightLEEDer DMX512 Control Module provides control of relays and 0 – 10V dimming devices. Any channel from the DMX controller can be mapped to control any relay or group of relays On or OFF in the panel. The On and Off set points are adjustable from 1 to 100% and relays may be locked-on or locked-off. An adjustable DMX frame filter is included to prevent switching if a system drops a frame.
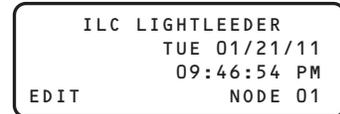
Setup:

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▶ OTHER DEVICES

3. Press ▶ ADD-ON MODULES

4. Press ▶ ADD-ON MODULE 1, 2, 3, or 4

5. Press ▲ or ▼ to select the DMX option

6. Press ▶ EDIT to program control

7. Press ▶ DMX /RELAY MAPPING

8. Press ▲ or ▼ to select the relay to be controlled

9. Press ▶ DMX CH to select the DMX channel that will control the above relay.
   Note: You may auto map the channels one to one by pressing ▶ Auto Map Relays

10. Press BACK

11. Press ▶ ON/OFF LEVELS

12. Press ▲ or ▼ to adjust the DMX on level

13. Press ▶ DMX OFF then press ▲ or ▼ to adjust the DMX off level

14. Press ▶ PRIORITY to change the priority from INPUT to DMX (DMX will lock-on if above the on level and lock-off if below the off level.)

15. Press ▶ BACK

16. Press ▶ DMX STATUS then press ▲ or ▼ to read the present level for each channel

17. Press HOME to exit

LightLEEDer DMX512 Control Module (Panel level)

DMX Module Setup

```
  ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT           NODE 01
```
Press ▶ EDIT, then ▼ twice

```
TIMERS
CLOCK
PRESETS
OTHER DEVICES
```
Press ▶ OTHER DEVICES

```
ADD-ON MODULES
DIMMER OUTPUTS
MOTOR OUTPUTS
```
Press ▶ ADD-ON MODULES

```
ADD-ON MODULE 1
ADD-ON MODULE 2
ADD-ON MODULE 3
ADD-ON MODULE 4
```
Press ▶ ADD-ON MODULE 1, 2, 3, or 4
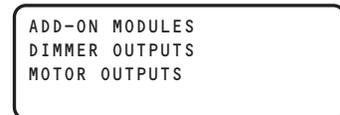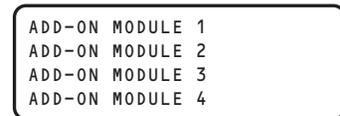
```
ADD-ON MODULE 1
TYPE:DMX
EDIT
```
Scroll to DMX then Press ▶ EDIT

```
DMX        REV 0
DMX/RELAY MAPPING
ON/OFF LEVELS
RELAY STATUS
```
Press ▶ DMX /RELAY MAPPING
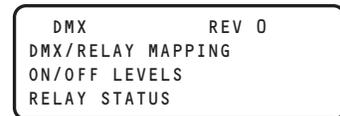
```
DMX/RELAY MAPPING
RELAY    RLY:01.01
DMX CH ---
```
Select DMX channels, levels, and priorities

LightLEEDer

BACnet Module (panel level)

BACnet is an open protocol developed by ASHRAE for building automation and control systems. LightLEEDer BACnet MSTP or IP modules give you direct control of the panel. With the panel module, commands can be sent to the panel to force relays ON and OFF, force relays On and OFF with a timer option (blink, double blink, HID delay, Alarm ON, Alarm OFF, Pulse ON, and Pulse OFF), monitor relay status, monitor input status, and enable/disable inputs.

BACnet Module Setup

Setup:

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

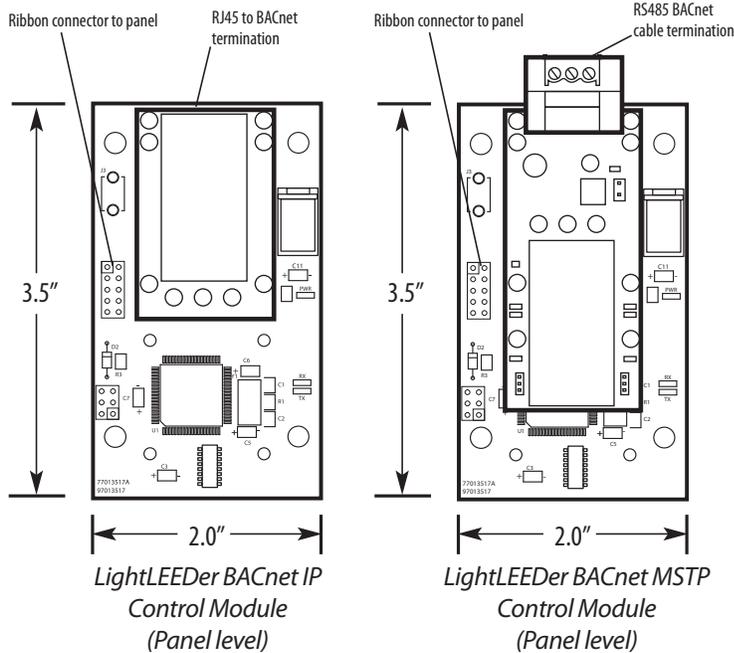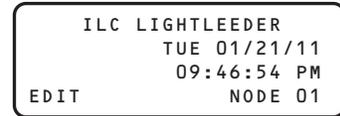2. Press ▼ 2 times to scroll down

3. Press ▶ OTHER DEVICES

4. Press ▶ ADD-ON MODULES

5. Press ▶ ADD-ON MODULE 1, 2, 3, or 4

6. Press ▲ or ▼ and select the PROTOCESSOR option

```
   ILC LIGHTLEEDER
          TUE 01/21/11
          09:46:54 PM
EDIT           NODE 01
```

Press ▶ EDIT, then ▼ twice

```
TIMERS
CLOCK              ▲
PRESETS            ▼
OTHER DEVICES
```

Press ▶ OTHER DEVICES

```
ADD-ON MODULES
DIMMER OUTPUTS
MOTOR OUTPUTS
```

Press ▶ ADD-ON MODULES

```
ADD-ON MODULE 1
ADD-ON MODULE 2
ADD-ON MODULE 3
ADD-ON MODULE 4
```

Press ▶ ADD-ON MODULE 1, 2, 3, or 4

```
  ADD-ON MODULE 1
TYPE:PROTOCESSOR    ▲
EDIT                ▼
```

Press ▲ or ▼ and select the PROTOCESSOR option

Ribbon connector to panel   RJ45 to BACnet termination

3.5"   2.0"

LightLEEDer BACnet IP Control Module (Panel level)

Ribbon connector to panel   RS485 BACnet cable termination

3.5"   2.0"

LightLEEDer BACnet MSTP Control Module (Panel level)

For a LightLEEDer BACnet point map go to:
http://ilc-usa.com/product_detail.php?pid=32

LightLEEDer
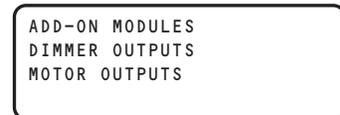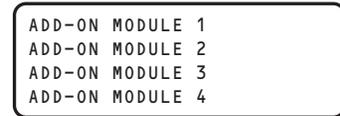
Modbus® Module (panel level)

Modbus protocol is an open protocol developed by Gould-Modicon to integrate industrial PLC's, sensing devices, and other control devices. LightLEEDer Modbus modules can interface either ASCII or RTU type of communications with Baud rates from 4800 to 38,400 and parity of None, Even, or Odd. With the panel module, commands can be sent to the panel to force relays ON and OFF, force relays On and OFF with a timer option (blink, double blink, HID delay, Alarm ON, Alarm OFF, Pulse ON, and Pulse OFF), monitor relay status, monitor input status, and enable/disable inputs.

Setup:

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ 2 times to scroll down
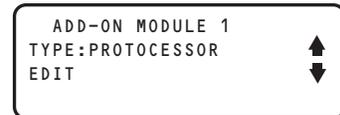3. Press ▶ OTHER DEVICES
4. Press ▶ ADD-ON MODULES
5. Press ▶ ADD-ON MODULE 1, 2, 3, or 4
6. Press ▲ or ▼ and select the MODBUS option

Modbus Module Setup

```
ILC LIGHTLEEDER
        TUE 01/21/11
        09:46:54 PM
EDIT         NODE 01
```
Press ▶ EDIT, then ▼ twice

```
TIMERS
CLOCK
PRESETS
OTHER DEVICES
```
Press ▶ OTHER DEVICES

```
ADD-ON MODULES
DIMMER OUTPUTS
MOTOR OUTPUTS
```
Press ▶ ADD-ON MODULES

```
ADD-ON MODULE 1
ADD-ON MODULE 2
ADD-ON MODULE 3
ADD-ON MODULE 4
```
Press ▶ ADD-ON MODULE 1, 2, 3, or 4

```
ADD-ON MODULE 1
TYPE:MODBUS
EDIT
```
Press ▲ or ▼ and select the MODBUS option

RS 232 termination   RS 485 termination

Modbus cable termination

Device addressing switches

3.0"

Ribbon connector to panel

77013492A
97013492

2.0"
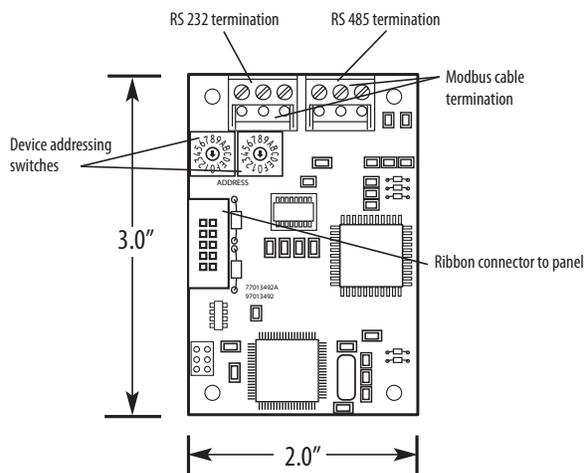
LightLEEDer Modbus Control Module
(Panel level)

Protocol: ASCII or RTU
Baud Rate: 4800, 9600, 19,220, 38,400
Parity & Required Stop Bits:
Even / 1 Stop Bit
Odd / 1 Stop Bit
None / 2 Stop Bits
Supported Commands:
01 Read Coils
02 Read Input Status
05 Force Single Coil
15 Force Multiple Coils

Additional Functions:
Force a Coil (05) with a Timer Option
Switch Input Disable/ Enable (05)

For a LightLEEDer Modbus point map go to:
http://ilc-usa.com/product_detail.php?pid=32

LightLEEDer

LonWorks® Module (panel level)

Devices in a LonWorks network communicate through a control network specific protocol originally created by Echelon. The protocol was ratified as an official standard by a number of national and international standards setting bodies, including ANSI, IEEE, CEN, and EN. In January 2009, the protocol underlying the LonWorks platform was ratified as a global standard for building controls. It is now formally known as ISO/IEC 14908-1. With the panel module, commands can be sent to the panel to force relays ON and OFF, force relays On and OFF with a timer option (blink, double blink, HID delay, Alarm ON, Alarm OFF, Pulse ON, and Pulse OFF), monitor relay status, monitor input status, and enable/disable inputs.

Setup:

1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**

2. Press ▼ 2 times to scroll down

3. Press ▶ OTHER DEVICES

4. Press ▶ ADD-ON MODULES

5. Press ▶ ADD-ON MODULE 1, 2, 3, or 4

6. Press ▲ or ▼ and select the PROTOCESSOR option

LonWorks Module Setup

```
ILC LIGHTLEEDER
         TUE 01/21/11
         09:46:54 PM
EDIT          NODE 01
```

Press ▶ EDIT, then ▼ twice

```
TIMERS
CLOCK                ▲
PRESETS              ▼
OTHER DEVICES
```

Press ▶ OTHER DEVICES

```
ADD-ON MODULES
DIMMER OUTPUTS
MOTOR OUTPUTS
```

Press ▶ ADD-ON MODULES

```
ADD-ON MODULE 1
ADD-ON MODULE 2
ADD-ON MODULE 3
ADD-ON MODULE 4
```

Press ▶ ADD-ON MODULE 1, 2, 3, or 4

```
ADD-ON MODULE 1
TYPE:PROTOCESSOR     ▲
EDIT                 ▼
```
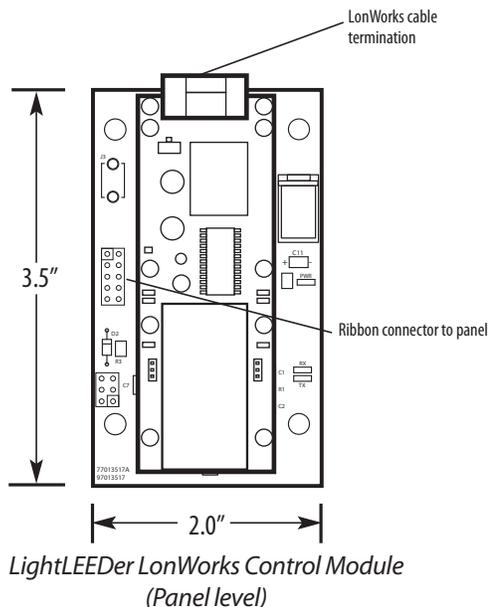
Press ▲ or ▼ and select the PROTOCESSOR option

LonWorks cable termination

3.5"

Ribbon connector to panel

2.0"

LightLEEDer LonWorks Control Module
(Panel level)

For a LightLEEDer LonWorks point map go to:
http://ilc-usa.com/product_detail.php?pid=32

LightLEEDer

N2 Module (panel level)
The LightLEEDer Controller(s) can be integrated into a Building Automation System (BAS) that uses the N2 communications protocol. The host system can then poll the status of the LightMaster Controller inputs and outputs and issue ON/OFF commands to the LightLEEDer 's relay outputs. With the panel module, commands can be sent to the panel to force relays ON and OFF, force relays On and OFF with a timer option (blink, double blink, HID delay, Alarm ON, Alarm OFF, Pulse ON, and Pulse OFF), monitor relay status, monitor input status, and enable/disable inputs.

Setup:
1. From the home screen, press ▶ EDIT **(Networked Panels connect to the Network Controller Node 00 as shown in Section 3.0)**
2. Press ▼ 2 times to scroll down
3. Press ▶ OTHER DEVICES
4. Press ▶ ADD-ON MODULES
5. Press ▶ ADD-ON MODULE 1, 2, 3, or 4
6. Press ▲ or ▼ and select the N2 option

N2 Module Setup

```
ILC LIGHTLEEDER
        TUE 01/21/11
        09:46:54 PM
EDIT         NODE 01
```
Press ▶ EDIT, then ▼ twice

```
TIMERS
CLOCK
PRESETS
OTHER DEVICES
```
Press ▶ OTHER DEVICES

```
ADD-ON MODULES
DIMMER OUTPUTS
MOTOR OUTPUTS
```
Press ▶ ADD-ON MODULES

```
ADD-ON MODULE 1
ADD-ON MODULE 2
ADD-ON MODULE 3
ADD-ON MODULE 4
```
Press ▶ ADD-ON MODULE 1, 2, 3, or 4

```
ADD-ON MODULE 1
TYPE:N2
EDIT
```
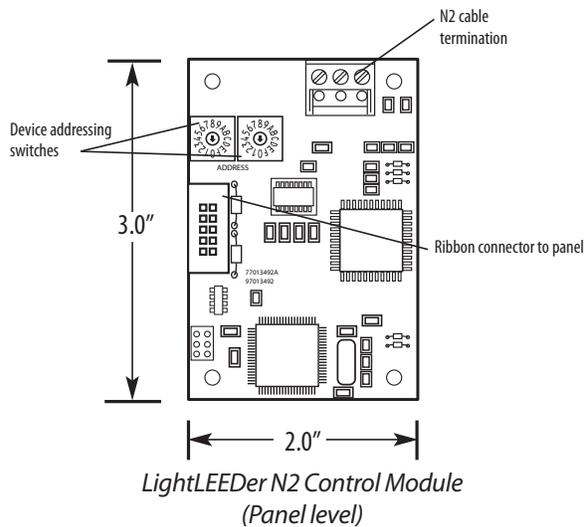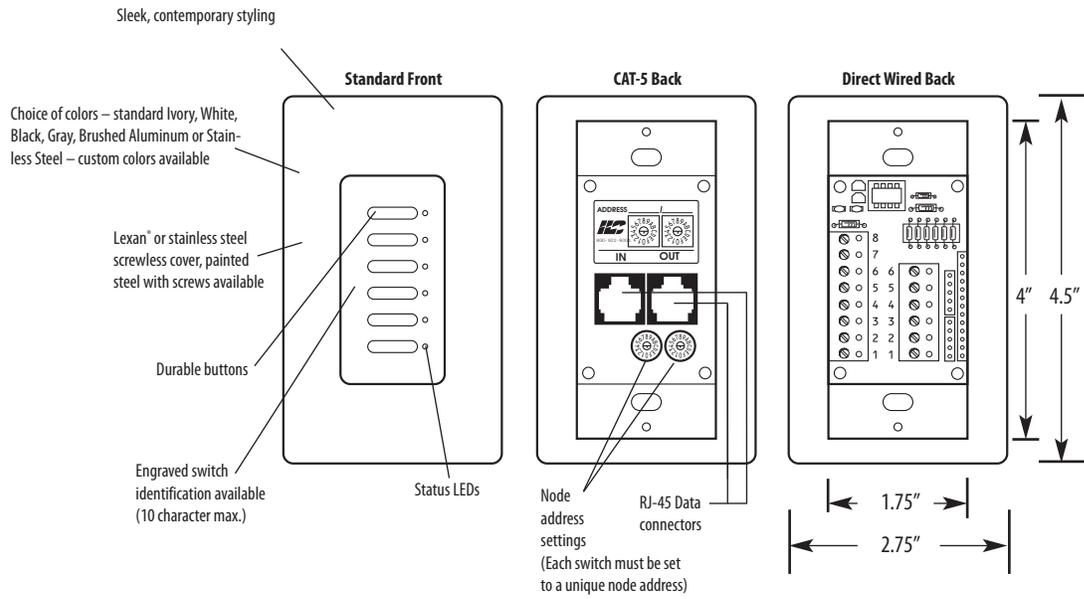Press ▲ or ▼ and select the N2 option

N2 cable termination

Device addressing switches

Ribbon connector to panel

3.0"

2.0"

LightLEEDer N2 Control Module (Panel level)

For a LightLEEDer N2 point map go to:
http://ilc-usa.com/product_detail.php?pid=32

LightLEEDer

Standard Front

CAT-5 Back

Direct Wired Back

Sleek, contemporary styling

Choice of colors – standard Ivory, White, Black, Gray, Brushed Aluminum or Stainless Steel – custom colors available

Lexan® or stainless steel screwless cover, painted steel with screws available

Durable buttons

Engraved switch identification available (10 character max.)

Status LEDs

Node address settings (Each switch must be set to a unique node address)

RJ-45 Data connectors

4"   4.5"

1.75"

2.75"

Classic LightSync Switch

Choice of colors – Ivory or White

Sleek, contemporary styling

Front

Back

Lexan® cover

Location Light LED

Durable buttons

Status LEDs

Node address settings (Each switch must be set to a unique node address)

ADDRESS

Intelligent Lighting Controls, Inc.
5229 Edina Industrial Blvd.
Minneapolis, MN 55439
1-800-922-8004 www.ilc-usa.com

IN   OUT

4.125"   4.875"

1.437"

RJ-45 Data connectors

G2 LightSync Switch

LightLEEDer

Node address settings
(Each device must be set to a
unique node address)

RJ-45 Data
connectors

Remote Mount

Panel Mount

3.5"

3.5"

Switch Inputs and
Pilot Outputs

Switch Inputs and
Pilot Outputs

2.75"

2.75"

LightSync Input Board

Photocell head
input connection

RJ-45 Data
connectors

Node address settings
(Each device must be set to a unique
node address)

5.6"

2.5"

PHOTOCELL

2.5"

Standard 1/2" conduit
thread.

Outdoor   1.3"

1.18"

Adhesive backing

Indoor   1.375"

.375"

.625"

1.0"

3.25"

Remote Mounting Enclosure

Controller

Sensors

LightSync Photocell Controller

LightLEEDer

20- RJ-45 Data connectors
to LightSync devices

77013442 REV A
97013442 REV

IN OUT

24 VAC out

120/277 VAC In

Voltage Divider

Transformer

Network data IN/OUT

LightSync Hub in enclosure

LightLEEDer

Networked Room Controllers and Expansion Panels

LightLEEDer controllers have the capability to control relays remotely from the panel using LightLEEDer-2RC, -4RC, and -4X controllers. These are connected to the local LightSync port on the controller and are controlled as if they were installed in the panel. Up to 16 remote panels can be installed for a total of 64 relays per controller (without any local relays installed). These remote panels can be installed along with output modules/relays in the lighting panel as long as the relay count doesn't exceed 64.

From the panel controller (called an Expansion Controller with no local relay output modules installed), the relays in Room Controllers all appear to be residing locally in the panel.

With the panel connected to the LightLEEDer network, these remote relays can be controlled just like any relay in panels on the network.

Hardware Setup

The hardware must be addressed correctly so the relay numbering aligns properly for the controller. Output modules/relays mounted in the panel are the first relays to be numbered. The Room Controllers must be mapped according to a matrix to continue this relay numbering. See the figure below for the Room Controller relay mapping matrix.

Setup Example; If you have 2 output modules (8 relays per module) installed in a panel along with Room Controllers connected to the local port, outputs 1 – 16 will already be used, so the first remote panel should be addressed to 05. This first remote panel will use relays 17 – 20 if it is a LL-4RC or LL4X, or relays 17 and 18 if it is a LL-2RC. The next remote panel will use address 06 which is relays 21-24, and so on down the line.

Note: Each remote panel must have a different address in succession to work properly.

RC Node	RC Func	Relay	LS Node	Local Port	In 1	In 2	In 3	In 4	In 5	In 6	In 7	In 8	Dim Node	Output	RC
01	Relay 1	nn.01	01	LightSync 01	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	01	nn.01.01	Dim 1
	Relay 2	nn.02	02	LightSync 02	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.01.02	Dim 2
	Relay 3	nn.03	03	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.01.03	Dim 3
	Relay 4	nn.04	04	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.01.04	Dim 4
02	Relay 1	nn.05	05	LightSync 05	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	02	nn.02.01	Dim 1
	Relay 2	nn.06	06	LightSync 06	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.02.02	Dim 2
	Relay 3	nn.07	07	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.02.03	Dim 3
	Relay 4	nn.08	08	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.02.04	Dim 4
03	Relay 1	nn.09	09	LightSync 09	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	03	nn.03.01	Dim 1
	Relay 2	nn.10	0A	LightSync 0A	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.03.02	Dim 2
	Relay 3	nn.11	0B	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.03.03	Dim 3
	Relay 4	nn.12	0C	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.03.04	Dim 4
04	Relay 1	nn.13	0D	LightSync 0D	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	04	nn.04.01	Dim 1
	Relay 2	nn.14	0E	LightSync 0E	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.04.02	Dim 2
	Relay 3	nn.15	0F	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.04.03	Dim 3
	Relay 4	nn.16	10	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.04.04	Dim 4

LightLEEDer

RC Node	RC Func	Relay	LS Node	Local Port	In 1	In 2	In 3	In 4	In 5	In 6	In 7	In 8	Dim Node	Output	RC
05	Relay 1	nn.17	11	LightSync 11	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	05	nn.05.01	Dim 1
	Relay 2	nn.18	12	LightSync 12	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.05.02	Dim 2
	Relay 3	nn.19	13	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.05.03	Dim 3
	Relay 4	nn.20	14	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.05.04	Dim 4
06	Relay 1	nn.21	15	LightSync 15	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	06	nn.06.01	Dim 1
	Relay 2	nn.22	16	LightSync 16	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.06.02	Dim 2
	Relay 3	nn.23	17	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.06.03	Dim 3
	Relay 4	nn.24	18	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.06.04	Dim 4
07	Relay 1	nn.25	19	LightSync 19	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	07	nn.07.01	Dim 1
	Relay 2	nn.26	1A	LightSync 1A	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.07.02	Dim 2
	Relay 3	nn.27	1B	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.07.03	Dim 3
	Relay 4	nn.28	1C	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.07.04	Dim 4
08	Relay 1	nn.29	1D	LightSync 1D	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	08	nn.08.01	Dim 1
	Relay 2	nn.30	1E	LightSync 1E	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.08.02	Dim 2
	Relay 3	nn.31	1F	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.08.03	Dim 3
	Relay 4	nn.32	20	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.08.04	Dim 4
09	Relay 1	nn.33	21	LightSync 21	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	09	nn.09.01	Dim 1
	Relay 2	nn.34	22	LightSync 22	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.09.02	Dim 2
	Relay 3	nn.35	23	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.09.03	Dim 3
	Relay 4	nn.36	24	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.09.04	Dim 4
0A	Relay 1	nn.37	25	LightSync 25	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	0A	nn.0A.01	Dim 1
	Relay 2	nn.38	26	LightSync 26	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.0A.02	Dim 2
	Relay 3	nn.39	27	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0A.03	Dim 3
	Relay 4	nn.40	28	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0A.04	Dim 4
0B	Relay 1	nn.41	29	LightSync 29	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	0B	nn.0B.01	Dim 1
	Relay 2	nn.42	2A	LightSync 2A	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.0B.02	Dim 2
	Relay 3	nn.43	2B	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0B.03	Dim 3
	Relay 4	nn.44	2C	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0B.04	Dim 4
0C	Relay 1	nn.45	2D	LightSync 2D	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	0C	nn.0C.01	Dim 1
	Relay 2	nn.46	2E	LightSync 2E	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.0C.02	Dim 2
	Relay 3	nn.47	2F	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0C.03	Dim 3
	Relay 4	nn.48	30	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0C.04	Dim 4
0D	Relay 1	nn.49	31	LightSync 31	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	0D	nn.0D.01	Dim 1
	Relay 2	nn.50	32	LightSync 32	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.0D.02	Dim 2
	Relay 3	nn.51	33	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0D.03	Dim 3
	Relay 4	nn.52	34	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0D.04	Dim 4
0E	Relay 1	nn.53	35	LightSync 35	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	0E	nn.0E.01	Dim 1
	Relay 2	nn.54	36	LightSync 36	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.0E.02	Dim 2
	Relay 3	nn.55	37	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0E.03	Dim 3
	Relay 4	nn.56	38	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0E.04	Dim 4
0F	Relay 1	nn.57	39	LightSync 39	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	0F	nn.0F.01	Dim 1
	Relay 2	nn.58	3A	LightSync 3A	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.0F.02	Dim 2
	Relay 3	nn.59	3B	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0F.03	Dim 3
	Relay 4	nn.60	3C	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.0F.04	Dim 4
10	Relay 1	nn.61	3D	LightSync 3D	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 1	OS 2	10	nn.10.01	Dim 1
	Relay 2	nn.62	3E	LightSync 3E	LS In 1	LS In 2	LS In 3	LS In 4	LS In 5	LS In 6	OS 3	OS 4		nn.10.02	Dim 2
	Relay 3	nn.63	3F	Photocell 1	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.10.03	Dim 3
	Relay 4	nn.64	40	Photocell 2	PC In 1	PC In 2	PC In 3	PC In 4	PC In 5	PC In 6	PC In 7	PC In 8		nn.10.04	Dim 4

LL-2RC, -4RC, -4X Mapping Matrix

LightLEEDer

Mapping Matrix Key

Column 1 "RC Node" = Room Controller node address

Column 2 "RC func" = Relay number in Room Controller panel

Column 3 "Relay" = Relay number used in Expansion Controller for programming the relays

Column 4 "LS Node" = LightSync node numbers used at this address

Column 5 "Local Port" = Address for programming the 2 local LightSync devices, and 2 onboard LightSync photocell controllers

Column 6 "In 1" = LightSync input 1 , and photocell input 1 for the device in that row

Column 7 "In 2" = LightSync input 2, and photocell input 2 for the device in that row

Column 8 "In 3" = LightSync input 3, and photocell input 3 for the device in that row

Column 9 "In 4" = LightSync input 4, and photocell input 4 for the device in that row

Column 10 "In 5" = LightSync input 5, and photocell input 5 for the device in that row

Column 11 "In 6" = LightSync input 6, and photocell input 6 for the device in that row

Column 12 "In 7" = Onboard hardwired input (Occupancy Sensor Input) 1, 3, and photocell input 7 for the device in that row

Column 13 "In 8" = Onboard hardwired input (Occupancy Sensor Input) 2, 4, and photocell input 8 for the device in that row

Column 14 "Dim Node" = The dimmer node numbers used at this address

Column 15 "Output" = The dimmer address for each output with nn = node number of the Expansion Controller connected to

Column 16 "RC" = The Room Controller dimming output number

Programming

Relays in these remote panels are programmed as if they were installed in the panel.

LightLEEDer-2RC and -4RC panels have LightSync device addresses built into each unit for 2 - 6 button LightSync push button switches (these addresses include the hardwire occupancy sensor inputs), 2 LightSync photocells, and 1 LightSync dimmer. Refer to the mapping matrix to determine the device addresses used in each remote panel address.

Notes:

• Even if the LightSync devices in the Room Controllers are not used, the addresses cannot be used for other external devices on the local network.

• LightSync devices must be configured in the controller as if it is an external device.

• Every remote panel uses 4 relay positions, including the LL-2RC.

• The LightLEEDer-4X panels only use the first 3 columns in the mapping matrix.

LightLEEDer

LightLEEDer Emergency UL 924 Lighting Control

Important Safeguards:

When using electrical equipment, basic safety precautions should always be followed including the following:

• Read and follow all safety instructions

• Do not use outdoors

• Do not mount near gas or electric heaters

• Equipment should be mounted in locations and at heights where it will not be subject to tampering by unauthorized personnel

• The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition

• Do not use this equipment for other than its intended use

• If any Emergency Circuits are fed or controlled from this panel, it must be located electrically where fed from a UPS, generator or other guaranteed source of power during emergency and power outage situations

Introduction:

The LightLEEDer Emergency UL 924 lighting controller provides emergency bypass operation for ILC's R40 relays. The LightLEEDer panel will be provided with UL 924 Relay Bypass Output Modules that will override the relays ON when normal power is lost to the panel. An optional Phase Monitoring Module can be added to the panel to monitor two or three phase power, when EM load relays are on more than one power phase of the emergency system. This configuration is used with a UL 1008 transfer switch operated by an emergency system providing back-up power, (See Figure 5).

Combined with the standard LightSync 0-10V dimmer output module, that will revert to full/non-dim level when the module loses power, creating a complete emergency bypass operation of controlled emergency lighting.

This Appendix is intended to add specific detail and instructions related to the emergency operation of the relay panel. All controller programming along with normal power and control wiring in the LightLEEDer Operation Manual shall apply, in addition to the items listed in this Appendix EM section.

Programming options for relay power-up (3.6.3) and relay conditionals (3.6.4) can be used for setting a return to normal power operation sequence, otherwise the R40 relays will remain in the current state as determined by the RBOM at the start of the power outage.

LightLEEDer

LightLEEDer UL 924 Emergency Relay Bypass Output Module (RBOM) details:

The RBOM mounts in the same location as a standard Relay Output Module, as shown on lighting controller detail 1.3, and uses the same mounting screws and ribbon connections to the R40 relays.

Normal power must be run to the panel power transformer providing the 24VAC CT connection to the RBOM from the power distribution board.

Note: Do not feed the panel processor or transformer from the emergency power source. Only the load relays controlling emergency lighting are fed from the emergency power source.

The RBOM has an LED status indicator for 24V power to the board, and VIO from the ribbon cable. The same standard 24VAC CT 3-wire power connections are used on both the RBOM and the standard Relay Output Module (ROM).

The installer may use relays on only one side of the enclosure for emergency loads, or the entire panel may be emergency loads, (See submittal documents for panel configuration).

Two rows of four jumpers are provided for selection of the emergency operation of each relay output on the odd or even side of the RBOM. These jumpers allow selection of; Force On, Force Off, and No Control for each relay during a power outage to the panel.

Each RBOM has a "TEST" button for triggering the module into the EM state, and a status LED that flashes when the module is triggered. Auxiliary connectors are provided for an optional external test station momentary closure (J4) and normal power status led (J5)
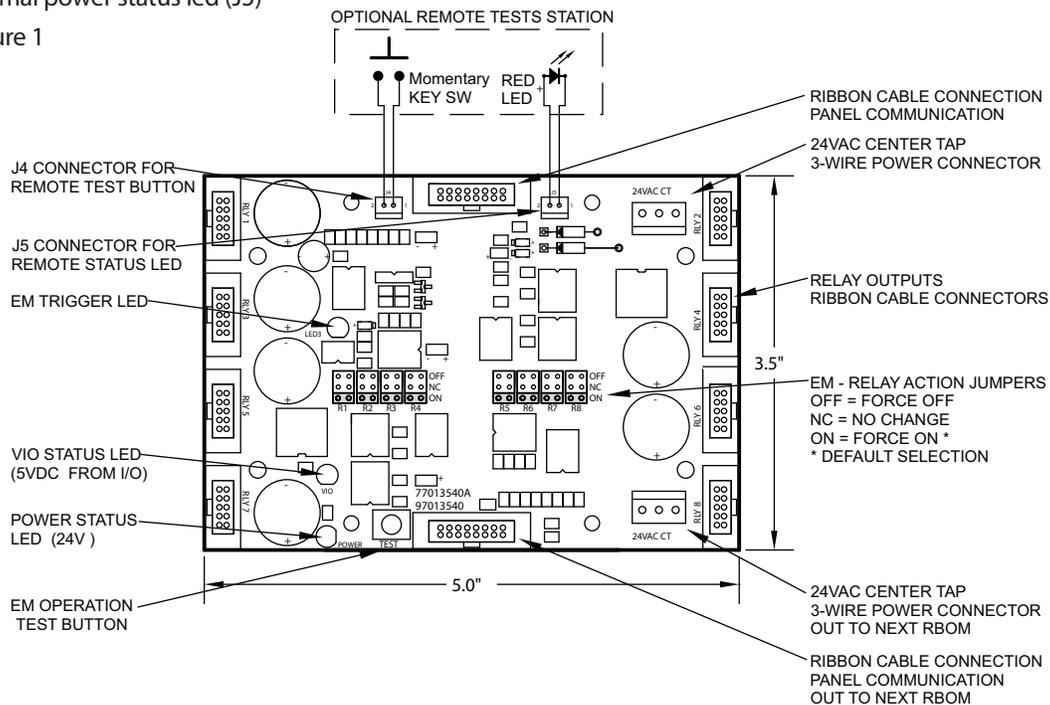
See Figure 1

Figure 1 - Relay Bypass Output Module details

The RBOM module replaces the standard R40 output module used in a LightLEEDer lighting control panel. Typically, these are installed at the factory, but can also be field installed.

If the entire panel is operating emergency powered loads, normal power must be used to power the transformer and LightLEEDer CPU. If the panel controls a combination of normal and emergency loads, the standard layout would have the left side or bottom half of the panel with the emergency load relays. Separation between EM and normal power relays is provided using the steel High Voltage Dividers (HVD) placed between relay sections. Emergency sections are marked with provided labels to designate the EM sections. See Figure 2.
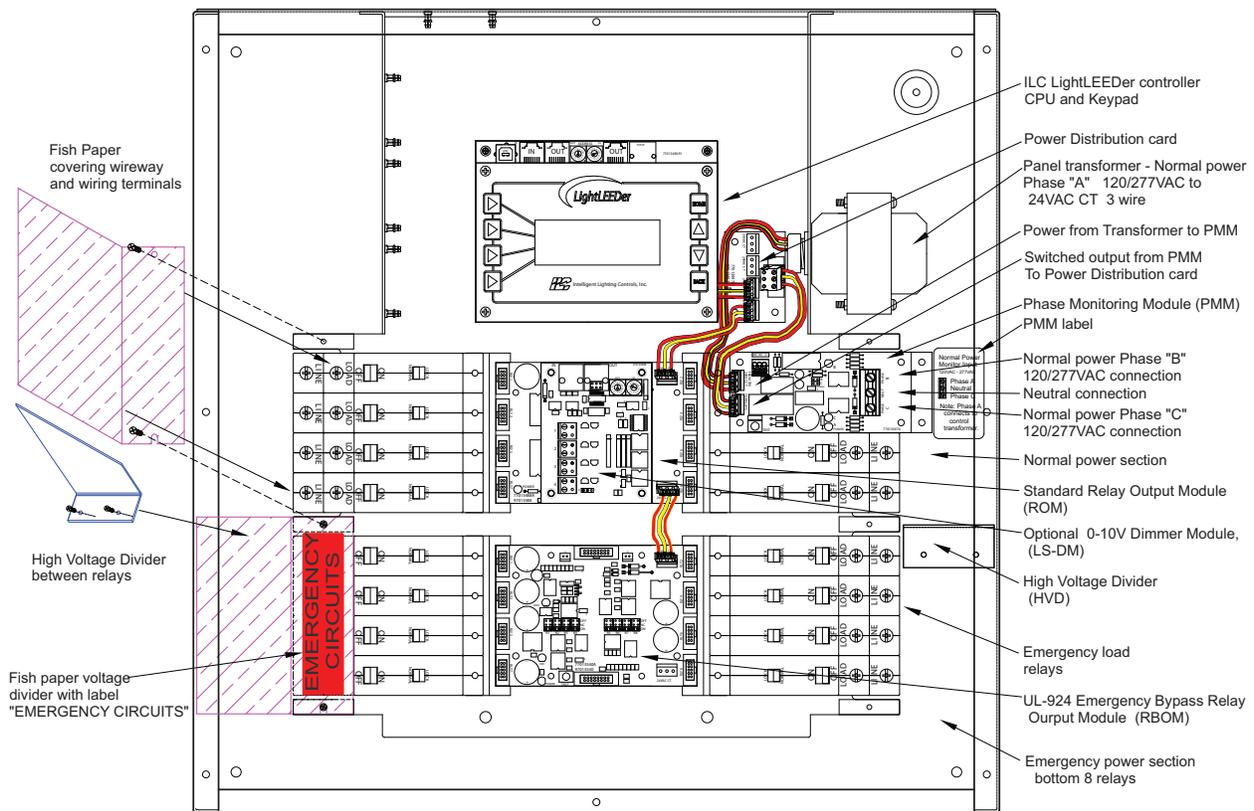

Figure 2 - Emergency UL 924 Lighting controller with RBOM

Panel Installation:

Follow all installation requirements for the LightLEEDer panel listed in the manual. The LightLEEDer panel is configured at the factory for emergency and normal loads, field installation requires landing loads to the relays and making the required connections to the power transformer and PMM.

1. Review submittal documents and confirm the relays to be used for emergency control

2. Land the emergency circuits at the designated relays

3. Verify jumper setting on the RBOM for the EM relays are set to "ON"

4. Verify voltage dividers if required

5. Land the phase "A" un-switched normal power to the panels transformer

* See Figure 3 and PMM information for monitoring all 3 phases of normal power

Optional LightSync 0-10V Dimmer Module:

The Optional LightSync Dimmer Module (LSDM) or (LS-IDM) can be added to an Emergency panel local data line bus CAT-5 connection for remote mounting. This 0-10VDC dimmer control module will revert the dimming output control to a full brightness or 100%-on/non-dim level when local bus power is lost to the dimmer module.

During a normal power outage, the LightLEEDer processor (LL-CPU), being powered by normal power feed, would be off-line, causing any LightSync device on its local bus power to be off. Follow all standard dimmer control module instructions and wiring requirements in Appendix A.

Phase Monitoring Module Option Details:

The Phase Monitoring Module (PMM) can be added to the LightLEEDer Emergency panel for monitoring up to three phases of the normal AC power system. This is used to ensure that when any of the three phases drops, the LightLEEDer emergency relay panel will react as an emergency event. The power from the transformer is run to the PMM, and then to the power distribution card. The PMM will interrupt normal power, with an on board interrupt relay when it senses a loss of any phase.

LED status indicators for all 3 phases, and a test button are provided.

An auxiliary status output relay is provided for signaling others systems. The PMM has connection terminals for the normally open/normally closed auxiliary output, this isolated relay is rated 1 Amp@ 30VDC (See Figure 3).
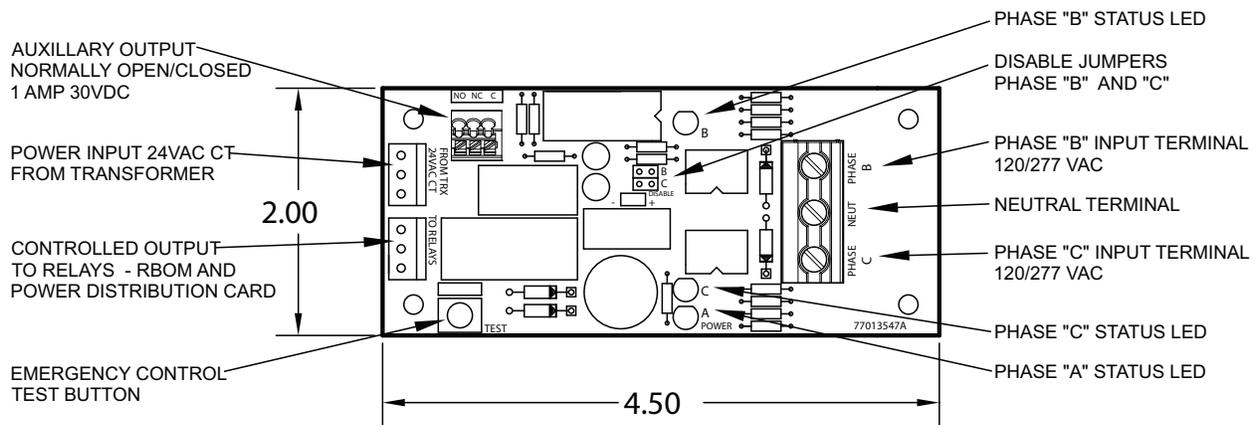
Figure 3 - Phase Monitoring Module detail

Phase Monitoring Module Configuration and Wiring:

The LightLEEDer panel provided with optional Phase Monitoring Module will require field wiring the phase "B" and phase "C" un-switched normal power to the PMM.

1. Verify the PMM is installed and power from the transformer is connected to "FROM TRX 24VAC CT" terminal.

2. The "TO RELAYS" terminal will feed the power distribution card. (See Figure 4)

3. Normal un-switched phase "A" power will feed the panel transformer.

4. Phase "B" and "C" un-switched normal power will connect to the PMM terminals, along with a normal power neutral.

5. Verify the disable jumpers are removed for phase "B" and "C" monitoring operation.

6. Switch on the three circuits to be monitored and verify that the A, B, C phase status LED's on the PMM are lit.

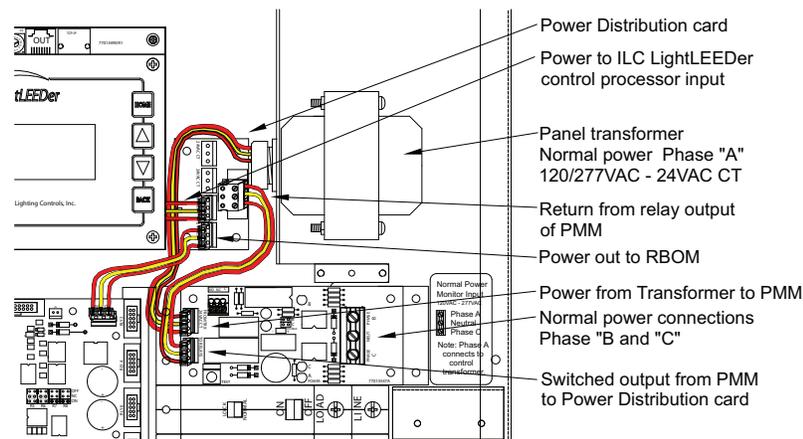7. Test operation using the Test button to trigger the PMM.

Figure 4 - Termination of 24VAC CT wiring to PMM

The Phase Monitoring Module is provided with mounting back plate and barriers for voltage division, along with a monitoring input terminal label for phase B and C connections. When installing the PMM in the panel, it is normally mounted in upper right section taking up relay locations 2 & 4. The PMM can be installed in another area of the panel, but the wiring leads for the 24VAC CT would need to be extended.

Testing Emergency operation:

Test the operation of each RBOM by pressing the test button on the lower left side of module. All relays should fire into the ON state, OFF state, or remain in its current state depending on the selection of the relay action jumpers (See Figure 1).

Testing the entire panel can be done by using the test button on the PMM (See Figure 3).

If a relay does not operate, first test the relay operation using the manual on/off switch at the relay, then using the controller keypad under relay status. If the relay is not switching, you can use a spare relay to test the output or switch the relay control ribbon cable to a confirmed working relay output.

After determining if the relay, relay ribbon cable, or RBOM output point is non-functioning, please contact ILC technical support line (1-800-922-8004) for additional assistance.

Code-Required Testing:

NFPA requires that the testing of emergency lighting equipment be conducted monthly.

ILC recommends following all requirements for monthly testing, and record keeping.

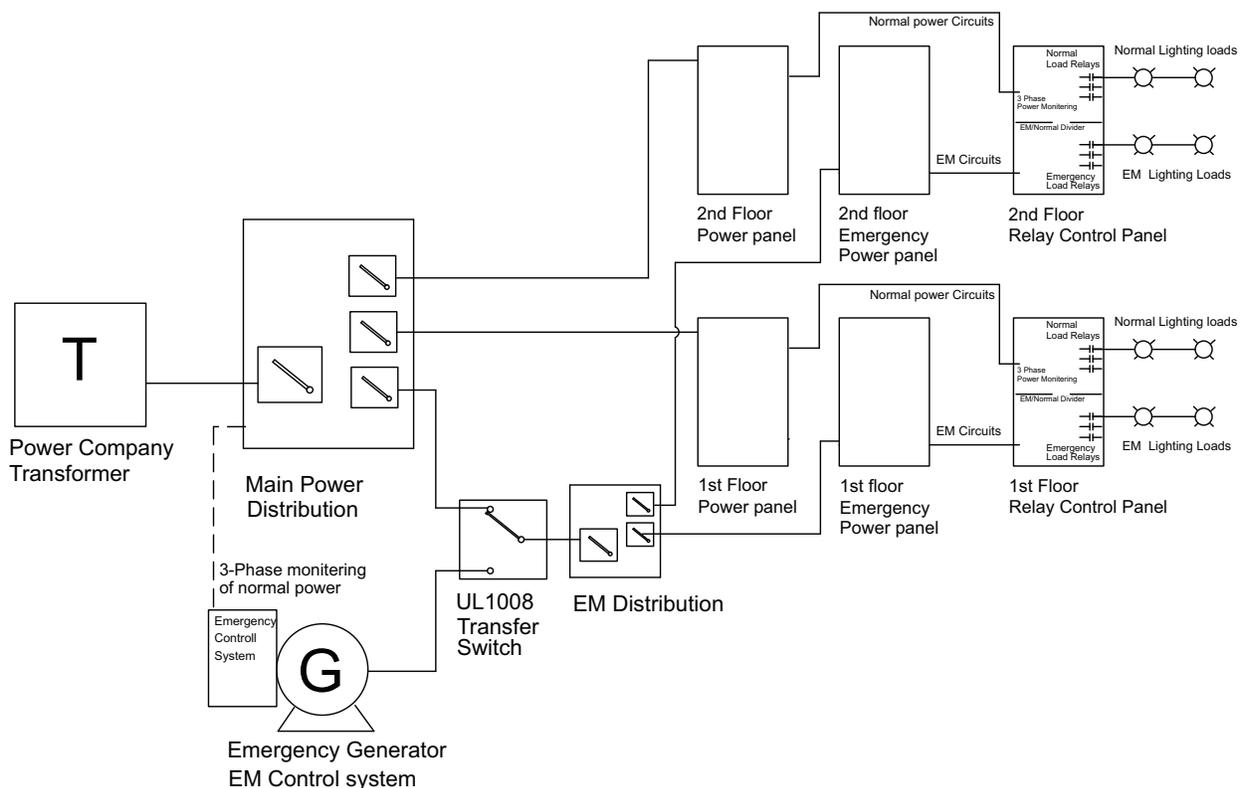Refer to NFPA section 7.9.3. for details and requirements.

Figure 5 - Power Configuration Example Riser

For more information, please contact:

INTELLIGENT LIGHTING CONTROLS, INC.