



Lighting Module

LM4L/S, LM1L/S,

SceneMaster
Version 3.0

INSTALLATION AND OPERATING INSTRUCTIONS



For Models:

LM4L/S-2000

LM1L/S-2000

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Congratulations! You have just purchased the best quality powerline carrier lighting module available. Powerline Control Systems' Lighting Module is a high quality, X-10 compatible product that is a low cost alternative to hard-wired lighting systems.

This booklet covers both models LM4L/S-2000 and LM1L/S-2000. Please call with any questions, comments, or suggestions you have on our products.

CAUTION!!

READ AND UNDERSTAND THESE INSTRUCTIONS BEFORE INSTALLING DEVICE.

This device is intended for installation in accordance with the National Electric Code and local regulations. It is recommended that a qualified electrician perform this installation. **Retain these instructions for future reference.**

To reduce the risk of overheating and possible damage to other equipment, do not install dimming versions to control a receptacle, a motor-operated appliance, a fluorescent lighting fixture, or a transformer-supplied appliance. This product is for indoor use only. Connect only copper or copper clad wire to this device.

Pour re'duire le risque d'augmenter la chaleur des diffe'rents equipments, ne pas installer une piece de control, une machine `a moteur, une fixture fluorescente or un transformateur.

INSTALLATION

Installation Notes

Disconnect power to the supply circuit by removing fuse or turning circuit breaker off. Installing the module with power on may expose you to dangerous voltages and may damage the device.

Installation Procedures

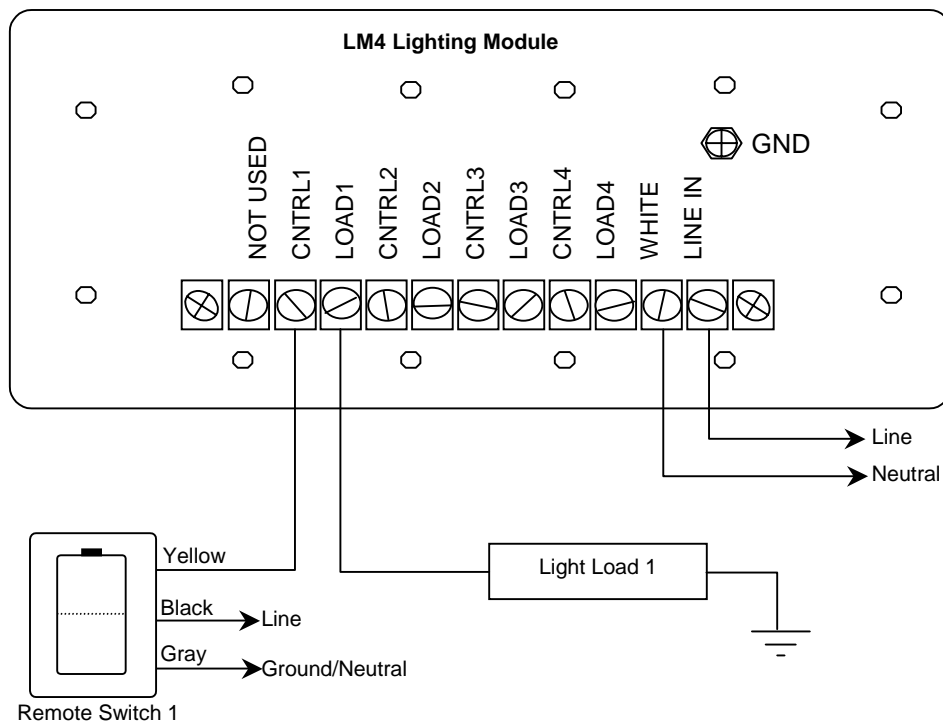
1. Install a standard 4-gang box or RACO 953 box, pre-wire for power, loads, and optional remote switch.
2. Power should be a 20A circuit directly wired from a breaker.
3. Using a voltage tester, identify and mark the "Hot" and the "Neutral" wires.
4. Identify and label each pair of load and control point wires.
5. After all connections have been made, be certain all wire connectors are firmly attached and there are no exposed wires (except the bare ground wire).
6. Gently place wires and insert into wall box and screw unit into place with supplied screws. 4-gang box uses four or eight ½" 6/32 screws, RACO 953 box uses four ½" 8/32 screws.

WIRING CONFIGURATION

The Lighting Module is wired directly to the lighting circuit and can be controlled by one or more Slave switches producing three- or four-way circuits. Multiple-way circuits make it possible for a group of switches to control the same set of lights. This section will illustrate how to hook-up the connections.

Wiring Notes:

- Remote switches require a Line Voltage input (Black) that is always hot, not a load (switched) circuit.
- The gray wire on the Remote Switch (PCS P/N SSR) only serves to light the red LED, which serves as a night light and power indicator. It does not indicate the state of the load. This wire can be tied to neutral or earth ground.



Wiring Diagram

REMOTE SWITCH OPERATION

Turning the Lighting Circuit On	Tap the Rocker Top once.
Turn On to Full Bright	Tap the Rocker Top twice.
Brightening the Lighting Circuit	Hold Top down until lighting level is achieved.
Turning the Lighting Circuit Off	Tap the Rocker Bottom once.
Dimming the Lighting Circuit	Hold Bottom down until lighting level is achieved

LIGHTING MODULE PROGRAMMING

X-10 Addressing

The X-10 protocol allows units to have a unique address made up of any combination of a House Code (a letter from A to P) and a Device Code (a number from 1 to 16). Usually X-10 controlled devices within one area (, i.e. a room) are given the same House Code, but different Device Codes.

Modes of Programming

In addition to **Normal Operation**, there are five programming modes used to set the **Primary Address**, the **Scene Addresses**, the **Enabled Scenes**, **Scene Ramp Rates** and the **Advanced Programming Options**.

Normal Operation - this is the normal operating state of the Lighting Module.

Mode 1 - mode used to set primary address of the channel(s).

Mode 2 - mode used to set scene addresses to the scene numbers.

Mode 3 - mode used to enable or disable individual channels to scenes.

Mode 4 - mode used to set ramp rates to the scene numbers.

Mode 5 - modes used to set the Advanced Programming Options.

Scene Number - A number from 1 to 16 representing each scene and holds settings for scene address, channel enable, ramp rate and lighting level.

Channel Number - A number representing the lighting channel of product. The LM4s have 4 channels (Channels 1 through 4). The LM1 has 1 channel (Channel 1).

NOTE:

Elementary programming can be performed using this instruction manual. To fully understand the scene features of the PCS system, please read the **SceneMaster Programming Manual (SPM-2)**, which covers the complete programming of this device. This is available free from the PCS web site (www.pcslighting.com).

To Enter any Mode:

- 1) **Press and hold down the PROGRAM button and release it when the LED starts blinking green.** You are now in Mode 1 (Setting New Primary Address).
- 2) **Tap the PROGRAM button once. The LED is blinking red.** You are in Mode 2 (Setting New Scene Addresses).
- 3) **Tap the PROGRAM button once. The LED is blinking orange.** You are in Mode 3 (Setting Channel Enables).
- 4) **Tap the PROGRAM button once. The LED is alternating green and red.** You are in Mode 4 (Setting Ramp Rates).
- 5) **Tap the PROGRAM button once. The LED is alternating green and orange.** You are in Mode 5 (Setting Advanced Programming Options).

RESET TO DEFAULT SETTINGS

The following steps will return this product to its default settings.

- 1) **Enter Mode 1.** See To Enter any Mode section.
- 2) **Press All-Units-Off key 3 times.** This will reset to factory defaults.

Press All-Lights-On key 3 times. The product is transferred out of programming mode and into normal operation.

Mode 1 Programming - Setting the Primary Address

- 1) **Enter Mode 1.** See To Enter any Mode section.
- 2) **Transmit X-10 address.** This address will be the new Primary Address for channel 1. The next sequential addresses will automatically be assigned to channels 2~4.
- 3) **Press All-Lights-On key.** The product stores new Primary Addresses into memory.
- 4) **Press All-Lights-On key 3 times.** The product is transferred out of programming mode and into normal operation.

Mode 2 Programming - Setting Scene Addresses

- 1) **Enter Mode 2.** See To Enter any Mode section.
- 2) **Press Scene Number.** A number between 1 and 16 representing scene of product.
- 3) **Press All-Lights-On key.** Product confirms Scene Number is entered.
- 4) **Transmit X-10 address.** Address will be the address of the scene number selected.
- 5) **Press All-Lights-On key.** The product stores new Scene Address into memory.
- 6) **Press All-Lights-On key 3 times.** The product is transferred out of programming mode and into normal operation.

Mode 3 Programming - Setting Channel Enables

- 1) **Enter Mode 3.** See To Enter any Mode section.
- 2) **Press Scene Number.** A number between 1 and 16 representing scene of product.
- 3) **Press All-Lights-On key.** Product confirms Scene Number is entered.
- 4) **Press all applicable Channel Numbers.**
- 5) **Press the ON key or OFF key.** Pressing ON or OFF key will determine if the channel will respond or not respond to the Scene Address.
- 6) **Press All-Lights-On key.** The product stores new Channel Enables into memory.

- 7) **Press All-Lights-On key 3 times.** The product is transferred out of programming mode and into normal operation.

Mode 4 Programming - Setting Ramp Rates

- 1) **Enter Mode 4.** See To Enter any Mode section.
- 2) **Press Scene Number (keys 1 to 16) or Primary Address (OFF button).**
- 3) **Press All-Lights-On key.** Product confirms Scene Number is entered.
- 4) **Press Ramp Rate number.** A number between 1 and 16 representing the ramp rate duration. The "1" key is an instant-on, "2" is 3 seconds, "3" is 6 seconds, "7" is 20 seconds, "12" is 7 minutes, "15" is 13 minutes, "16" is the security flashing mode.
- 5) **Press All-Lights-On key.** The product stores new Ramp Rate into memory.
- 6) **Press All-Lights-On key 3 times.** The product is transferred out of programming mode and into normal operation.

Mode 5 Programming - Setting Advanced Programming Options

The Advanced Programming Options are given in the following table. The sequence of programming is different for these options, so we will separate them as follows.

Numbered Key on Transmitter/Controller	Advanced Programming Option	Default Setting
1	Soft Start	On (Note 1)
2	All Lights On	Enabled
3	All Lights Off	Enabled
4	All Units Off	Enabled
5	Universal All Lights On	Disabled
6	Universal All Lights Off	Disabled
7	Universal All Units Off	Disabled
8	Master Scene Enable	Disabled
9	Receive Level	4
10	Remotes Access	Disabled
11	Dimming Setting	On (Note 2)

Note 1: Advanced Programming Option 1 does not apply to switches in non-dimming setting.

Note 2: This setting is unaffected when defaults are reset

ADVANCED PROGRAMMING OPTIONS

Advanced Programming Options 1 through 7 or 11

- 1) **Enter Mode 5.** See To Enter any Mode section.
- 2) **Press Advanced Programming Option number.** A number between 1 through 7 or 11.
- 3) **Press All-Lights-On key.** Product confirms Option Number is entered.
- 4) **Press all applicable Channel Numbers.**
- 5) **Press the ON key or OFF key.** This will determine if option is enabled or disabled.
- 6) **Press All-Lights-On key.** The product stores new setting into memory.
- 7) **Press All-Lights-On key 3 times.** The product is transferred into normal operation.

Advanced Programming Options 8 and 10

- 1) **Enter Mode 5.** See To Enter any Mode section.
- 2) **Press Advanced Programming Option number.** Number 8 or 10 as defined in the table.
- 3) **Press All-Lights-On key.** Product confirms Option Number is entered.
- 4) **Press the ON key or OFF key.** Pressing ON or OFF key will determine if the channel will respond or not respond to this option.
- 5) **Press All-Lights-On key.** The product stores new setting into memory.
- 6) **Press All-Lights-On key 3 times.** The product is transferred into normal operation.

Advanced Programming Option 9

- 1) **Enter Mode 5.** See To Enter any Mode section.
- 2) **Press Advanced Programming Option 9.** Number 9 is defined in the table.
- 3) **Press All-Lights-On key.** Product confirms Option Number is entered.
- 4) **Press the Receive Level.** A number between 1 and 16 representing the voltage receive level of the product. The default is "4" (50mV). The "1" key is 5mV, "7" is 125mV, "11" is 225mV, "14" is 300mV, and "16" is 350mV.
- 5) **Press All-Lights-On key.** The product stores new setting into memory.
- 6) **Press All-Lights-On key 3 times.** The product is transferred into normal operation.

SPECIFICATIONS

Model Number	LM4/L/S-2000	LM1/L/S-2000
Operation	Dimming (Triac)	Dimming (Triac)
Max Total Load	2000 W / 2000 VA	2000 W / 2000 VA
Standard Load Types	Incandescent, Magnetic Low Voltage	Incandescent, Magnetic Low Voltage
Input Power	125 VAC	125 VAC
Min Load	60 W	60 W
Min Receive Level	5 mV	5 mV
Max Noise Rejection	350 mV	350 mV
Connections	16 AWG	16 AWG
LED Indicator	Yes	Yes
Dimensions	11.0 X 5.0 X 1.63 in ³	11.0 X 5.0 X 1.63 in ³
Weight	1.25 lb.	1.25 lb.
Mounting	Std 4 gang J box	Std 4 gang J box
Operating Temp	-40 °F to 104 °F	-40 °F to 104 °F

LIMITED WARRANTY

Seller warrants this product, if used in accordance with all applicable instruction, to be free from original defects in materials and workmanship for a period of five years from the date on serial number or purchase date if no S/N date is given. If the product should prove defective in material or workmanship within that period, Seller will repair or replace the product, at its sole discretion. Service under this warranty can only be obtained by delivering or shipping the product (with all shipping or delivery charges prepaid) to: Powerline Control Systems, 19201 Parthenia St., Suite J, Northridge, CA 91324. Seller will pay return shipping charges.

This warranty does not apply to normal wear or to damage resulting from accident, misuse, abuse or neglect. Seller makes no express warranties other than those expressly set forth herein. Except to the extent prohibited by applicable law, all implied warranties, including all warranties of merchant-ability or fitness, are limited in duration to the warranty period set forth above; and this warranty expressly excludes all incidental and consequential damages. (Some states do not allow limitations on how long an implied warranty lasts, and some states do not allow the exclusion or limitations of incidental or consequential damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may have other rights, which vary from jurisdiction to jurisdiction.)