



SceneMasterä

Lighting Control System

Version 2.0

Programming Manual

A guide to program single room or whole-house lighting using the **PCS** SceneMaster Lighting Control System.

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Version Control

Version (Date)	Changes
1.0 (11/03/97)	<ul style="list-style-type: none">• Initial Version
2.0 (5/22/98)	<ul style="list-style-type: none">• Addition of Quick Scene Programming• Updated SceneMaster Programming Flowchart• Entering Smart Switch programming requires pushing top and bottom rockers• The Receive Level Sensitivity is now 50 mV (Setting 4).• Remote Access can be disabled• Remote Access requires Primary Address to be pressed 8 times instead of 5• Lighting Feedback has been modified to reduce unintentional flashing• Setting Scene Levels require Scene Address to be pressed 8 times instead of 5• Green LED indication during Microprocessor Reset Period
2.1 (11/24/98)	<ul style="list-style-type: none">• Relocated two questions to different pages• Added MM2 to pertinent references• Added time period clarification on Warranty.

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1. INTRODUCTION

This document (P/N SPM-2) is designed to provide all information required to program all PCS products which include version 2.0 of the SceneMaster lighting control system. For information on the design and implementation of the SceneMaster lighting control system see the SceneMaster Application Guide (P/N SAG-2).

Powerline carrier technology permits the control of electrical circuits via signals sent over the electrical wiring. The digitally encoded signal is sent from a **transmitter** source and accepted by a **receiver** that reads the signal and controls electrical circuits in accordance with the signal information.

Commands

There is an assortment of commands that is needed to control electrical circuits.

ON/OFF – This command will turn on or off one or more lighting circuits.

BRIGHT/DIM – This command will brighten or dim lighting circuits.

PRESET DIM – This command will set a circuit to a specified level with only one command.

ALL LIGHTS ON – This command will turn on all lights that are on the same House Code (letter code) regardless of the Device Code (number code).

ALL UNITS OFF – This command will turn off all lights and units that are on the same House Code (letter code) regardless of the Device Code (number code).

Standard PCS Lighting Features

Lighting Level Saved

Every **PCS** module remembers its previous dim level when power is inadvertently turned off. In the event of a power outage, the lighting level prior to the failure is returned when power is restored.

Low Voltage Inductive Load Control

All **PCS** products can control low voltage lights powered by magnetic transformers and certain fans and motors. They cannot control what are known as Electronic Low Voltage lighting which uses a capacitor-type, voltage-reducing circuit.

Brighten from Off

The **PCS** line has the ability to brighten gradually from the full Off position. Many existing modules must go to the full On state before dimming down to the desired level. This **PCS** advantage allows a room to increase lighting levels gradually after a period of darkness, such as a multimedia presentation or in a home theater.

Dim to Off

PCS products will go into the Off state if it is dimmed long enough. Most of the other products will look as if it is Off, but would actually remain in the lowest dim level.

SceneMaster System

The SceneMaster Lighting System has the capability to create sixteen lighting scenes for rooms, the whole house, or “pathways”. The term “scenes” in the SceneMaster system means a group of lights that will simultaneously respond to a signal and go to individual pre-set lighting levels. These levels can also be re-programmed very easily to create any lighting effect to enhance “movie viewing”, “romance”, “dining”, etc.

This powerful and versatile system compares with hard-wired systems that cannot be easily retrofitted and costs 3 to 4 times as much as a SceneMaster system. With a four-button transmitter and either 4 SS1s or 2 MM2s or 1 LM4, you can implement a complete single room, four-scene system. Instead of using an expensive central controller, only one transmitter and the appropriate number of **PCS** receivers are necessary.

All new **PCS** products are now designated with “/S” in the part number and incorporate all SceneMaster features and capabilities.

Scene Features

1. Sixteen scenes such as 8 whole house scenes, 4 room scenes, 4 pathway scenes
2. Single X-10 address triggers scene lighting
3. Security mode flashes selected lights automatically
4. Variable scene ramp rates from instant-on to 13 minutes
5. Channel disable feature to remove selected channels from specific scenes
6. Setting or changing scene lighting levels is fast and simple
7. Visual lighting feedback helps installer know if program changes are accepted

Programming Features

The SceneMaster System programming can be performed by two convenient methods. The first is by using the local program button on the PCS product in conjunction with an X-10 compatible transmitter. The second method is using a hand-held transmitter and monitoring the lights that is being programmed. The transmitter must be capable of sending a complete set of X-10 signals, that is, numbers 1 to 16, letters A to P, and transmission of an address separately from an ON, OFF, BRIGHT, AND DIM command.

Ramp Rates

Each lighting scene can be programmed to ramp up or down from an instantaneous change (setting of “1”) to a 13 minute (setting of “15”) rate of change. A ramp rate of “16” creates a flashing condition that turns lights on and off at 2 second intervals.

Setting	Ramp Rate
1	Instantaneous
2 Default	3 seconds
3	6 seconds
4	9 seconds
5	12 seconds
6	15 seconds
7	20 seconds
8	40 seconds

Setting	Ramp Rate
9	1 minute
10	3 minutes
11	5 minutes
12	7 minutes
13	9 minutes
14	11 minutes
15	13 minutes
16	FLASHING CONDITION (1 sec on /1 sec off)

NOTE:

- If a primary address of a light is sent before a scene containing that particular light is completed, the light will respond as programmed and the scene will disregard the programmed ramp rate and revert to the 3-second ramp rate.
- A light starting from Off and going to 50% will take half as long as another light starting from Off and going to full On, if the lights are part of the same scene.
- The flashing mode will make a light flash on and off continuously until the scene is turned off or until another scene is turned on.

Why would I use the flashing mode (Ramp Rate 16)?

If a security scene address is transmitted as a result of an alarm condition or a person pressing “911”, you can have selected lights start flashing. Usually, strategic lights like the front or back outside lights should start flashing to guide emergency personnel to the house or scare away the intruders.

Can I use the flashing mode as an indicator?

Yes. You can use this mode to flash the lights to indicate that the security system has been armed or disarmed. The user can see this from the driveway. To do this you would turn the flashing scene on after the security alarm is set and several seconds later turn the flashing scene off.

Preset Dimming

These single commands contain all the information necessary to set lighting levels. This means that regardless of the previous lighting level, the output can quickly and reliably be set to any new level in one command.

Micro Step

These commands will dim or brighten lighting levels in 1/200 step increments or 0.5% of the total. These commands are programmed similar to normal Bright or Dim commands except the lighting steps are much finer. The very fine lighting levels allow for more believable sunrise or sunset effects.

Channel Enables

Each channel can either be enabled or disabled to respond to any one of the sixteen scene addresses programmed for the **PCS** product. The default is that all channels are enabled for all scenes.

There are several reasons to disable a circuit from a scene. Once the Master Scene Enable is set under Mode 5 Advanced Programming Options all 16 scenes are enabled. You may not, however, want certain circuits to be part of a room or whole house scene. Because all 16 scenes must each have an address (there is no such thing as a BLANK scene address) you must have some way of not using or responding to the address.

Why would I want to disable a channel from a scene?

As an example, an LM4 Lighting Module (four-circuit module) has one channel (CH1) that controls a porch light and the other three channels control three lights in a dining room. If you could not disable CH 1 from the dining room scenes you would have to choose a lighting level for each scene, (ON, OFF, or some middle level). It's clear that we do not wish the porch light to change when we select a dining room scene. A LM4 module has only 16 scenes that affect all four circuits (unless disabled). One or more circuits can be disabled from one or more scenes. See the programming section for Scene Disables.

Another reason to disable scenes is to create what we call **Pathway Scenes**. These are scenes set aside to produce a path of light from one point to another in a house. In addition to selecting which circuits you want to produce a pathway scene you must also remember to disable ALL other modules from that scene or make sure they do not have that scene address as one of their scene addresses.

How would I use a Pathway scene?

As an example, a customer wants a night path from his bed to the refrigerator. You choose Scene 5 (default address is P5) to produce this Pathway scene (Scenes 5-8 are reserved as pathway scenes although any scene can be used for any purpose). If there are 40 circuits in the house and this scene P5 uses only 6 of the circuits, the other 34 must be disabled otherwise they will respond to P5 and would have to change to some predetermined levels.

Multi-Way Control

All **PCS** SceneMaster modules can be controlled directly by one or more remote switches to produce three, four, or five-way lighting circuits.

Powerline Signal Indication

The tricolor LED (green/red/orange) indicates what signals the product is seeing on the electrical line. This is valuable for trouble-shooting as an indication of proper system operation. The table below shows the meaning of the various LED colors.

Action	LED Color
Normal Operation (no transmissions)	Continuous Red
Receive valid X-10 commands including primary address and scene addresses (if Master Scene Enable is on)	Blink GREEN for ½ second
Receive valid X-10 Command with any other address	Blink OFF for ½ second
Receive corrupted X-10 Command or noise	Blink ORANGE for ½ second

Advanced Programming Options

The following options are accessed and set in Program Mode 5.

Ramp Rate Enable

The Ramp Rate Enable option allows the output to gently ramp up or down when being turned on or off. When enabled, the lights will respond with soft-start and programmed ramp rate to its primary and scene addresses, respectively. When disabled, the lights will turn on or off instantly when responding to primary or scene addresses.

All Lights On, All Lights Off, and All Units Off

These options control all lights or units to turn on or off if they are on the same House (Letter) Code regardless of their Device (Number) Code. This allows a local area of devices with different Device Codes, but the same House Code, to be controlled with one command.

Universal All Lights On, Universal All Lights Off, Universal All Units Off

These options control all lights or units to turn on or off regardless of their address (House Code and Device Code). This allows all devices that have these options enabled to be controlled with one command.

Master Scene Enable

This controls the PCS product's ability to respond to any scene address. It is important to remember that the factory default for this option is disabled except for the 2-channel Multi-Module.

What is the difference between Master Scene Enable and a Channel Enable?

The Master Scene Enable capability is accessed in the Mode 5 programming mode and acts as a master enable allowing the entire module to respond or disregard scene control. The Channel Enable (Mode 3) programs a single channel to respond or disregard a single scene address.

Remote Access Enable

The remote programming capability using external controllers can be enabled or disabled. This avoids the SceneMaster products unintentionally going into programming mode in response to inadvertent X-10 signals from external controllers.

Receive Level Sensitivity

The product receive level can be set from 5mV to 350mV. The module settings range from “1” to “16” with the following designations:

Setting	Receive Level
1	5 mV
2	10 mV
3	25 mV
4 Default	50 mV
5	75 mV
6	100 mV
7	125 mV
8	150 mV

Setting	Receive Level
9	175 mV
10	200 mV
11	225 mV
12	250 mV
13	275 mV
14	300mV
15	325 mV
16	350 mV

Why change the receive level?

In a residential noise-free environment where signals may have low voltages, a 12-mV level may be sufficient as a threshold. If there is excessive noise or strong signals from other homes, a 100mV or 200mV setting may help filter out the noise and still accept the signal.

2. QUICK PROGRAMMING

The Quick Programming section is intended to provide the user a quick lesson on how to program scenes into the PCS SceneMaster products. The section will provide two sets of procedures:

- a)** the first is how to set a simple scene using the default scene address “B1”, and
- b)** the second is how to set scenes using the Remote Access to change the Primary Address, Scene Addresses, and the Master Scene Enable.

Equipment Needed:

- A controller is required to program the PCS products. This controller is required to have the full set of numbered keys (1 through 16) capability. We recommend the **X-10 Maxicontroller** since it is simple and inexpensive.

Notes:

- Each of the following procedures sets the factory defaults since the exact settings may not be known. If the user knows the defaults have been previously set, the user does not have to set them again.

a) Creating Simple Scenes Using Default Address “B1”

In this example, the installer will program perhaps the simplest of SceneMaster capabilities. We will set the factory defaults, enable the Master Scene capability and set the scene's lighting level.

STEPS	COMMENTS
SETTING DEFAULTS	
STEP 1: Hold down PROGRAM button (LM4, LM1, and MM2) or rocker switch (SS1) until you see a blinking green LED . Read comments for details.	For LM4s, LM1s or MM2s, press and hold down PROGRAM button until the LED is blinking green . For SS1s, push the switch bottom until the power is disconnected (SYSTEM OFF position). Push the top button until it clicks and a steady green LED is seen. Press and click down the top and bottom of switch (you may have to use two hands) until the LED goes blank. Releasing will get a blinking green LED .
STEP 2: Push ALL UNITS OFF 3 times.	Lights flash, LED will pause a few seconds and then continue with the blinking green LED .
STEP 3: Push ALL LIGHTS ON 3 times.	Lights flash and LED returns to steady red LED .
SETTING MASTER SCENE ENABLE TO ON	
STEP 4: Get PCS product into blinking green LED.	Refer to STEP 1 Comments above.
STEP 5: Advance to Mode 5 by tapping button 4 more times until you get alternating green and orange LED .	On SS1s, keep tapping top rocker switch until you get the alternating green and orange LED .
STEP 6: Press the “8” key.	LED starts slowly alternating green and orange. It may seem you are pressing an address, but the

STEPS	COMMENTS
STEP 7: Press ALL LIGHTS ON.	SceneMaster products will disregard the letter code. Lights flash and LED quickly alternates green and orange.
STEP 8: Press ON to enable the Master Scene feature.	Lights will go to full On.
STEP 9: Press ALL LIGHTS ON.	Lights flash and LED slowly alternates green and orange.
STEP 10: Press ALL LIGHTS ON 3 times.	This action completes the Advanced Programming Options Mode. Lights flash and LED goes back to steady red pattern.
SETTING SCENE LIGHTING LEVELS	
STEP 11: Set lighting levels for the group of lights.	This can be done by physically setting the individual lighting levels using local switch control or X-10 control.
STEP 12: Press the address "B1" eight times without an ON or OFF command.	As explained in Equipment Needed in Section 3, you must use a controller that can transmit an address without an ON or OFF command.
STEP 13: Push ALL LIGHTS ON key.	The lighting circuits flash and the LED will return to a steady red.

After all this, what can I do with my lights?

The sequence of steps above changed the scene lighting levels triggered by transmitting address "B1". By pressing "B1" and an "ON" command, the SceneMaster lights should turn on to the new lighting levels. If the scene levels are not quite correct, repeat steps 11 through 13.

b) Creating Scenes Using Remote Access Programming

The following steps will enable the user to remotely access and change the product's primary and scene addresses. The steps will also show you how to set the lighting levels.

STEPS	COMMENTS
SETTING DEFAULTS	
STEP 1: Hold down PROGRAM button (LM4, LM1, and MM2) or rocker switch (SS1) until you see a blinking green LED . Read comments for details.	For LM4s, LM1s or MM2s, press and hold down PROGRAM button until the LED is blinking green . For SS1s, push the switch bottom until the power is disconnected (SYSTEM OFF position). Push the top button until it clicks and a steady green LED is seen. Press and click down the top and bottom of switch until the LED goes blank. Releasing will get a blinking green LED .
STEP 2: Push ALL UNITS OFF 3 times.	Lights flash, LED will pause a few seconds and then continue with blinking green LED .
STEP 3: Push ALL LIGHTS ON 3 times.	Lights flash and LED returns to steady red LED .
SETTING REMOTE ACCESS TO ON	
STEP 4: Get PCS product into blinking green LED (Mode 1).	Refer to STEP 1 Comments above.
STEP 5: Advance to Mode 5 by tapping button 4 more times until you get a alternating green and orange LED.	You are now in Mode 5.
STEP 6: Press "10" key.	The LED starts alternating green and orange slowly . The SceneMaster product will disregard the letter code.
STEP 7: Press ALL LIGHTS ON.	Lights flash and LED to quickly alternate green and orange .
STEP 8: Press the ON key.	The lights are on.
STEP 9: Press ALL LIGHTS ON key.	Lights flash and LED is slowly alternating green and orange . Remote Access is enabled.
STEP 10: Press ALL LIGHTS ON 3 times.	Lights flash and LED will go back to the steady red pattern.
SETTING MASTER SCENE ENABLE TO ON	
STEP 11: Press address "A1" eight times.	The Primary Address is now used to enter programming mode (Remote Access). LED is steady green .
STEP 12: Press ALL LIGHTS ON.	Lights flash.
STEP 13: Press "5" key.	Lights flash. LED is steady green .
STEP 14: Press ALL LIGHTS ON.	Lights flash. LED is alternating green and orange .

STEPS	COMMENTS
STEP 15: Press "8" key.	Lights flash. LED is alternating green and orange . The SceneMaster product will disregard the letter code.
STEP 16: Press ALL LIGHTS ON.	Lights flash and LED to quickly alternate green and orange .
STEP 17: Press the ON key.	The lights are on.
STEP 18: Press ALL LIGHTS ON key.	Lights flash and LED is slowly alternating green and orange . Master Scene Enabled is on.
STEP 19: Press ALL LIGHTS ON 3 times.	Lights flash and LED will go back to the steady red pattern.
CHANGE PRIMARY ADDRESS FROM "A1" to "C5"	
STEP 18: Press address "A1" 8 times.	
STEP 19: Press ALL LIGHTS ON.	
STEP 20: Press "1" key.	
STEP 21: Press ALL LIGHTS ON.	
STEP 22: Press address "C5".	
STEP 23: Press ALL LIGHTS ON 4 times.	Primary Address is changed to address "C5".
CHANGE SCENE ADDRESS FROM "B1" to "C1"	
STEP 18: Press address "C5" 8 times.	
STEP 19: Press ALL LIGHTS ON.	
STEP 20: Press "2" key.	
STEP 21: Press ALL LIGHTS ON.	
STEP 22: Press "1" key.	
STEP 23: Press ALL LIGHTS ON.	
STEP 24: Press address "C1".	
STEP 25: Press ALL LIGHTS ON 4 times.	Scene Address is changed to address "C1".

STEPS	COMMENTS
SETTING SCENE LIGHTING LEVELS	
STEP 26: Set the lighting level for the group of lights by individually setting each lighting circuit to a particular scene.	This can be done by physically setting the individual lights using local switch control.
STEP 27: Press address "C1" 8 times without an ON or OFF command.	On a Maxi-Controller just press the number button 8 times. <i>You cannot do this on a controller like the <u>Mini-Controller</u> that combines Address and ON/Off commands in one button.</i>
STEP 28: Push ALL LIGHTS ON key.	The lighting circuits flash and the LED will be a steady red .

Now, what did we do and what can the SceneMaster system do after this sequence of steps?

This sequence of steps initially set the defaults and enabled the capability to remotely program the PCS product. Using a hand-held transmitter through Remote Access, we changed the primary address from "A1" to "C5" and changed Scene 1 to have a new scene address from "B1" to "C1". We then set the lighting levels of the group of lights of Scene 1 (new address "C1"). **The bottom line** is that we conveniently created a scene to be triggered by address "C1".

3. PROGRAMMING

A major advantage with **PCS** products is that they can be programmed with a simple transmitter source. The following instructions will describe how to perform SceneMaster programming.

PCS programming differentiates between primary address, scene address, and scene number. All three will be transmitted using the same transmitter source. It is important to understand which of the three is required during the course of the programming session.

- NOTE 1: The factory default for the activation of the Scene System (Master Scene Enable) is off or disabled, except for the MM2s. It is common to forget that the scenes are disabled after setting the products to its factory default settings.
- NOTE 2: If the installer is ever confused about what settings were made or the current place in the programming sequence, turn the module power off and on, and the module will be restored to the normal operating mode.
- NOTE 3: It is good practice to initially set a new module to the factory defaults before proceeding with its operation.
- NOTE 4: The PCS product will revert back to Normal Operation (continuous red LED) after two minutes, if no programming activity is detected.

Programming Transmitter

All **PCS** products are programmed to their default settings at the factory. It is possible in simple configurations that the products can be used with only a little programming. However, re-programming the factory set defaults requires a source such as the X-10 Maxi-Controller capable of transmitting the full set of X-10 signals. You cannot perform all programming steps with a X-10 Mini-Controller.

The Maxi-Controller has the ability to send addresses (the letter and number code) without simultaneously sending an ON or OFF command. SceneMaster programming sometimes require that the address and the ON/OFF command to be sent separately. Some transmitters send the addresses along with the ON command and these transmitters will not work for some of the programming steps.

This **PCS** SceneMaster programming guide will be written as if the X-10 MaxiController is the transmitting source. The only significance of this consideration is that keystrokes may differ between X-10 transmitters other than the MaxiController. The experienced X-10 installer however should be able to use other sources to generate the necessary signals

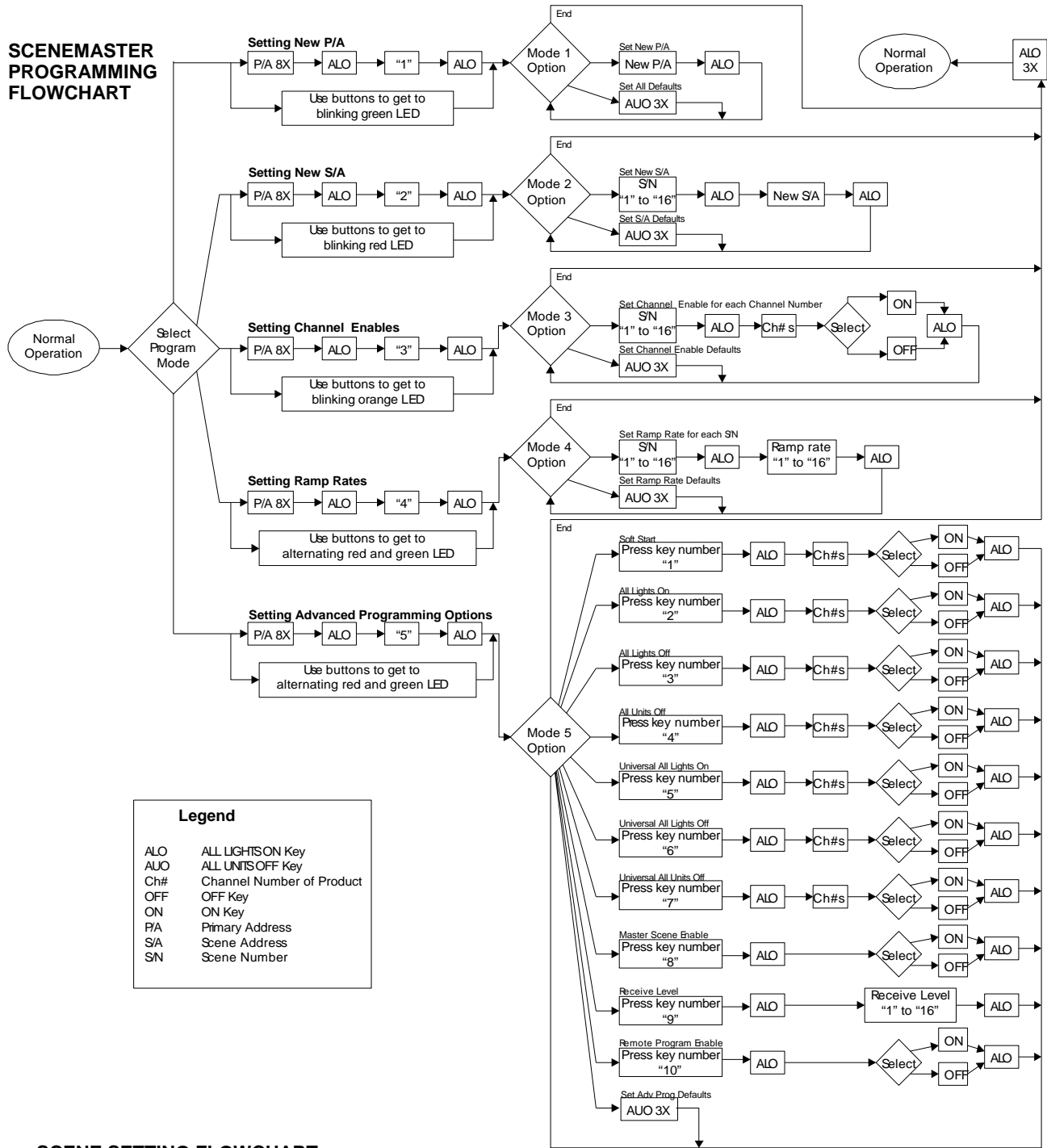
X-10 Maxi-Controller

Programmer Requirements:

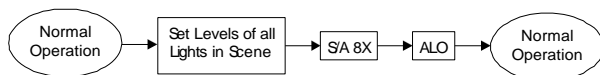


- Numbers and commands can be transmitted separately.
- The Numbers 1 – 16.
- All-Lights-On
- All-Units-Off

SceneMaster Programming Flowchart



SCENE SETTING FLOWCHART



Default Settings

The default settings for the four channel modules (i.e., LM4s, LM1s) are shown in the tables below. Single and dual channel modules (i.e., SS1s, LM1s, MM2s) are the same except for the absence of channels 2, 3 and 4. A section later in the setup guide will explain how to modify these settings.

Primary Address Defaults

	Channel 1	Channel 2	Channel 3	Channel 4
Primary Address	A1	A2	A3	A4

Scene System Defaults

SCENE NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16		
SCENE ADDRESSES	B1	B2	B3	B4	P5	P6	P7	P8	H1	H2	H3	H4	H5	H6	H7	H8		
RAMP RATES	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	16		
CHANNEL 1 ENABLE	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On		
CHANNEL 2 ENABLE	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On		
CHANNEL 3 ENABLE	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On		
CHANNEL 4 ENABLE	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On	On		
XCHAN NO.	CIRCUIT NAME	PRIME ADDR	LIGHTING LEVELS															
Ch 1	Channel 1	A1	100%	70%	40%	20%	100%	70%	40%	20%	100%	70%	40%	20%	100%	70%	40%	100%
Ch 2	Channel 2	A2	100%	70%	40%	20%	100%	70%	40%	20%	100%	70%	40%	20%	100%	70%	40%	100%
Ch 3	Channel 3	A3	100%	70%	40%	20%	100%	70%	40%	20%	100%	70%	40%	20%	100%	70%	40%	100%
Ch 4	Channel 4	A4	100%	70%	40%	20%	100%	70%	40%	20%	100%	70%	40%	20%	100%	70%	40%	100%

Advanced Programming Defaults

CHANNEL ADVANCED PROGRAMMING			1 Soft Start	2 All Lts ON	3 All Lts OFF	4 All Uts OFF	5 Univ Lts ON	6 Univ Lts OFF	7 Univ Uts OFF	8 MstrScn Enable	9 Receive Level	10 Rmt Acs Enable
CHAN NO.	CIRCUIT NAME	PRIME ADDR	OPTION SETTINGS									
Ch 1	Channel 1	A1	On NOTE 1	On NOTE 2	On NOTE 2	On	Off	Off	Off	Off	4	Off
Ch 2	Channel 2	A2	On NOTE 1	On NOTE 2	On NOTE 2	On	Off	Off	Off			
Ch 3	Channel 3	A3	On NOTE 1	On NOTE 2	On NOTE 2	On	Off	Off	Off			
Ch 4	Channel 4	A4	On NOTE 1	On NOTE 2	On NOTE 2	On	Off	Off	Off			

NOTE 1: Advanced Programming Option 1 does not apply to appliance (relay) modules.

NOTE 2: This setting is off for appliance (relay) modules.

Entering Programming Modes

SceneMaster programming utilizes five modes that have been designed into your product. These modes can be accessed by two methods: Local Access or Remote Access.

Local Access

Local access requires the installer to use the PROGRAM button (LM4, LM1, MM2) or the switch rocker (SS1) as a means to enter the different program modes.

STEPS	COMMENTS
<p>STEP 1: Enter Program Mode 1 by holding down the PROGRAM button (LM4, LM1, MM2) or the rocker switch (SS1). Read comments for details.</p> <p>STEP2: To advance to the next program mode tap the button (LM4, LM1, MM2) or rocker top (SS1).</p> <p>FINAL: After Mode 5 the module will return to the Normal Operation.</p>	<p>For LM4s, LM1s or MM2s, press and hold down PROGRAM button until the LED is blinking green.</p> <p>For SS1s, push the switch bottom until the power is disconnected (SYSTEM OFF position). Push the top button until it clicks and a steady green LED is seen. Press and click down the top and bottom of switch (you may have to use two hands) until the LED goes blank. Releasing will get a blinking green LED.</p> <p>As the module steps to the next mode with each button press, the LED will blink the corresponding color pattern, (see next page for blink patterns).</p> <p>LED will be steady red. You must start over to enter programming modes again.</p>

Remote Access

Note: The Remote Access feature is disabled at the factory. To enable this feature the user must initially use Local Access programming to enable the Remote Access feature.

Remote Access programming is preferred for cases when the module is not readily accessible. This allows the installer to program all modes from the location of the loads.

Remote access requires that the **primary address of channel 1 be known and the Remote Access Enable is on**. The **PCS** products are designed to flash the lights when a significant step is completed. The flashing of the lights gives the installer feedback that the step was entered.

STEPS	COMMENTS
<p>STEP 1: Press the channel 1 primary address of the PCS product eight times.</p> <p>STEP 2: Press the ALL LIGHTS ON key.</p> <p>STEP 3: Press the Mode number "1" to "5" that is to be programmed.</p> <p>STEP 4: Press the ALL LIGHTS ON key.</p>	<p>LED changes to steady green.</p> <p>Lights flash and LED is steady green.</p> <p>Lights flash and LED changes to orange.</p> <p>Lights flash and LED blinks as shown in Table 1. You are now in programming mode selected.</p>

LED Programming Patterns

The following table summarizes the modes and blinking color patterns of the LED:

Program Mode	Mode	LED Pattern on PCS Product
Normal	Normal Operation	Steady Red
Mode 1	Primary Address	Blinking Green
Mode 2	Scene Address	Blinking Red
Mode 3	Scene Enables	Blinking Orange
Mode 4	Ramp Rates	Alternating Green and Red
Mode 5	Advanced Programming Options	Alternating Green and Orange

Programming Modes
Table 1

In programming mode, why does the LED-flashing rate change between blinking slowly and rapidly?

There are usually two parts to any programming sequence. For example, when setting the Scene Addresses (Mode 2), one must first choose the Scene Number for that channel, and then choose the X-10 address to assign to the Scene Number. As a feedback indicator, the LED will flash slowly in the first part of the sequence and will flash quickly in the second part of the sequence in the color pattern of Table 1.

Setting Primary Addresses (Mode 1)

This mode programs the primary addresses of the individual lighting circuits.

STEPS	COMMENTS
STEP 1: Enter Program Mode 1.	See the section titled Entering Programming Modes section and LED Programming Patterns for assistance. The LED is blinking green .
STEP 2: Transmit primary address that you want channel 1 of PCS product to have. For products with 4 channels, see NOTE 1.	Lights flash. You can assign any address. For example, if you would like to have "D1" as your primary address, you would then push "D1" on your transmitter source.
STEP 3: Press the ALL LIGHTS ON key.	Lights flash. This key tells the PCS product that the address sent will be the primary address of the channel. This means this particular address is unique to this lighting circuit.
STEP 4: Press the ALL LIGHTS ON key three times.	LED is off briefly then light flash. The module now returns to the normal mode and the LED returns to steady red .

NOTE 1: For **PCS** products with multiple channels, channels 2 and on will obtain the primary addresses increasing sequentially from the primary address chosen for channel 1. Only the address for channel 1 needs to be programmed.

Why does the LED blink Green each time I press a key?

The LED in all PCS products indicates what is happening on the powerline involving X-10 transmissions. When a valid command that applies to the module is received the LED blinks Green. When a transmission is sensed that is valid but doesn't apply to the module the LED blinks off. If it senses an X-10 collision or just plain noise, it blinks orange.

Why do I need to push ALL LIGHTS ON so many times?

The button marked ALL LIGHTS ON is used in the **PCS** SceneMaster design as an ENTER key on a computer keyboard. You would use the ALL LIGHTS ON key as you would an ENTER key to complete an entry.

Why do I need to push ALL LIGHTS ON three times at the end?

The ALL LIGHTS ON key is used to confirm the end of a programming entry. The ALL LIGHTS ON being depressed three times signifies the end of the scene-programming mode.

Setting Scene Addresses (Mode 2)

Now that each lighting circuit has a unique primary address, we can now establish scene addresses that will be able to control a group of the light circuits.

STEPS	COMMENTS
STEP 1: Enter Programming Mode 2.	See the Entering Programming Mode section for assistance. The LED will be blinking red . The product is now ready for the scene number.
STEP 2: Set rotary switch of the transmitter source to the letter code selected for the scene addresses.	This sets the letter code of the scene address. For example, if you select the scene addresses to be any address between "L1" through "L16", then set the rotary switch to "L".
STEP 3: Press the scene number that you would like to program.	If you are starting out, select channel 1 or the key labeled "1". Each PCS product is capable of 16 scenes. Selecting a number between 1 and 16 will determine which scene you are programming. Although you are using the same numbered keys on the transmitter source, this is NOT a scene address you are inputting.
STEP 4: Press the ALL LIGHTS ON key.	Lights flash. This confirms the scene number you are working with. The LED blinks green very quickly. The next step will select a scene address associated with this scene number.
STEP 5: Press the scene address associated with this scene.	Per the comment in Step 1 press address "L1". This action associates the scene address "L1" with scene number 1.
STEP 6: Press the ALL LIGHTS ON key.	Lights flash. This confirms the scene address has been inputted. At this point the lights will automatically go to the lighting level that is currently set. This allows the installer to see the current scene lighting levels.
Repeat STEPS 3 through 6 using another scene number and scene address.	This series of steps associates a unique scene address with a particular scene number. A maximum of sixteen scene numbers and addresses can be programmed.
Final STEP: Press the ALL LIGHTS ON key three times.	Pressing this key 3 times ends scene address programming. You will notice that the LED will be steady red signifying a return to normal mode. The lights will flash also indicating an end to scene programming.

Why do I need to give PCS products so many addresses?

The **PCS** SceneMaster design allows your lights to respond differently to more than one address. A scene is created when its scene address is transmitted. Since the **PCS** products can create up to 16 scenes, then the maximum number of scene addresses is 16.

Setting Channel Enables (Mode 3)

Product programming will be most efficient if the installer has a memory map of the lighting circuits, the primary addresses, scene addresses and scene numbers. The blank worksheet in the Appendix section is designed to provide the memory map for any house.

STEPS	COMMENTS
STEP 1: Set rotary switch of the transmitter source to the letter code selected for the primary addresses.	The installer will be using the primary addresses to program the settings of the individual lights.
STEP 2: Enter Programming Mode 3.	See the Entering Programming Mode section for assistance. The product is now ready for the scene number. The lights should flash and the LED should be blinking orange .
STEP 3: Press the scene number.	Lights flash and LED is blinking orange .
STEP 4: Press the ALL LIGHTS ON key.	Lights flash and LED should be blinking orange very quickly.
STEP 5: Press the channel number.	The channel number corresponds to the channel of the PCS product. For LM4s, select keys "1" through "4" corresponding to channel 1 through 4. For MM2s, select keys "1" or "2". For SS1s, select key "1".
STEP 6: Press the ON key to enable or the OFF key to disable. For multiple channel devices go to step 5 and repeat procedures for other channels. For SS1 go to step 7.	The lighting circuit will indicate if an enable or disable is programmed. In a four-channel device each light will indicate if that channel is enabled (ON) or disabled (OFF).
STEP 7: Press the ALL LIGHTS ON key. Repeat STEPS 3 through 6 using another scene number.	Lights flash and LED is blinking orange .
FINAL STEP: Press the ALL LIGHTS ON key three times.	Lights flash and LED returns to steady red .

Why do I have channel numbers?

If you don't want one light of a multi-light product to be part of the scene, the SceneMaster system allows the installer to disable that channel. To allow for this, the channels must have a number so it can be accessed individually.

Setting Scene Ramp Rates (Mode 4)

The ramp rates can be set for each scene from an instantaneous change to a slow seemingly imperceptible rate of lighting change. In this mode, only the scene number is important, so it does not matter which setting the rotary switch is in.

STEPS	COMMENTS
STEP 1: Get the PCS products into Programming Mode 4.	See the Entering Programming Mode section for assistance. The product is now ready for the scene number. Lights should flash and LED should be alternating green and red .
STEP 2: Press the scene number that you would like to program.	This step accesses the scene number and the lights will automatically go to the lighting level set for that scene.
STEP 3: Press the ALL LIGHTS ON key.	The lights flash and the LED start alternating green and red very quickly.
STEP 4: Press a numbered key between 1 and 16.	Press between "1" for an instantaneous change and "15" for a slow rate of light change. The ramp rate of "16" will cause the lights to continuously flash 2 seconds on and 2 seconds off. The default setting is a ramp rate of "2". Refer to the Ramp Rates section for details.
STEP 5: Press the ALL LIGHTS ON key.	The lights flash and the LED starts alternating between green and red slowly.
Repeat steps 2 through 5 for other scene numbers	Now you can set the ramping rates to other scenes.
FINAL STEP: Press ALL LIGHTS ON three times	This action completes the Setting Scene Ramp Rates programming and the LED will be to steady red LED.

Advanced Programming Options (Mode 5)

PCS products offers advanced programming options that is explained in the Introduction section.

Option Number	Option
1	RAMP RATE ENABLE
2	ALL LIGHTS ON
3	ALL LIGHTS OFF
4	ALL UNITS OFF
5	UNIVERSAL ALL LIGHTS ON
6	UNIVERSAL ALL LIGHTS OFF
7	UNIVERSAL ALL UNITS OFF
8	MASTER SCENE ENABLE
9	RECEIVE LEVEL
10	REMOTE PROGRAM ENABLE

ADVANCED PROGRAMMING OPTIONS

Mode 5, Options 1 through 7, Soft Start and Response Settings

STEPS	COMMENTS
STEP 1: Get the PCS products into Programming Mode 5	See the Entering Programming Modes section for assistance. Lights flash and LED alternates green and orange .
STEP 2: Press the option key between "1" and "7". See the table above for the option description.	The LED starts alternating green and orange slowly .
STEP 3: Press the ALL LIGHTS ON key.	Lights flash and LED is quickly alternating green and orange .
STEP 4: Press the 1,2,3 or 4 key, which is the channel number. (Press 1 for SS1 Switch which only has one channel)	The channel number corresponds to the channel of the PCS product. Lights flash and LED is quickly alternating green and orange . In a single channel device, SS1, press "1".
STEP 5: Press the ON key to enable or the OFF key to disable. For a four channel go to step 5 and repeat for all four channels. For SS1 go to step 6.	In a four-channel device each channel's light will indicate if that channel is enabled (light is on) or disabled (light is off).
STEP 6: Press ALL LIGHTS ON key.	Lights flash and LED is slowly alternating green and orange .
REPEAT STEPS 2 TO 6 WITH OTHER OPTIONS	Select other Advanced Programming Options.
FINAL STEP: Press ALL LIGHTS ON three times.	This action completes the Advanced Programming Options Mode. Lights flash and LED will be back to the steady red pattern.

Mode 5, Option 8, Master Scene Enable

STEPS	COMMENTS
STEP 1: Get the PCS products into Programming Mode 5	See the Entering Programming Modes section for assistance. Lights flash and LED alternates green and orange .
STEP 2: Press the “8” key. See the table above for the option description.	The LED starts alternating green and orange slowly .
STEP 3: Press the ALL LIGHTS ON key.	Lights flash and LED to quickly alternate green and orange .
STEP 4: Press the ON key to enable or the OFF key to disable the SceneMaster Enable.	The lights will be on if enabled and off if disabled.
STEP 5: Press ALL LIGHTS ON key.	Lights flash and LED is slowly alternating green and orange .
FINAL STEP: Press ALL LIGHTS ON three times.	This action completes the Advanced Programming Options Mode. Lights flash and LED will go back to the steady red pattern.

Mode 5, Option 9, Receive Level Sensitivity

STEPS	COMMENTS
STEP 1: Get the PCS products into Programming Mode 5	See the Entering Programming Modes section for assistance. Lights flash and LED alternates green and orange .
STEP 2: Press the “9” key. See the table above for the option description.	The LED starts alternating green and orange slowly .
STEP 3: Press the ALL LIGHTS ON key.	Lights flash and LED to start quickly alternate green and orange .
STEP 4: Press the sensitivity level key between “1” and “16”.	Pressing “1” gives the product a receive level of 5 mV and “16” gives a receive level of 350 mV. See the Receive Sensitivity table for details. The default is #4, 50 mV. Refer to the Receive Level Sensitivity table in the Introduction section.
STEP 5: Press ALL LIGHTS ON key.	Lights flash and LED is slowly alternating green and orange .
FINAL STEP: Press ALL LIGHTS ON three times.	This action completes the Advanced Programming Options Mode. Lights flash and LED will be back to steady red .

Mode 5, Option 10, Remote Program Enable

STEPS	COMMENTS
STEP 1: Get the PCS products into Programming Mode 5	See the Entering Programming Modes section for assistance. Lights flash and LED alternates green and orange .
STEP 2: Press the “10” key. See the table above for the option description.	The LED starts alternating green and orange slowly .
STEP 3: Press the ALL LIGHTS ON key.	Lights flash and LED to quickly alternate green and orange .
STEP 4: Press the ON key to enable or the OFF key to disable the Remote Program Enable.	The lights will be on if enabled and off if disabled.
STEP 5: Press ALL LIGHTS ON key.	Lights flash and LED is slowly alternating green and orange .
FINAL STEP: Press ALL LIGHTS ON three times.	This action completes the Advanced Programming Options Mode. Lights flash and LED will go back to the steady red pattern.

Returning to Factory Default Settings

This section will instruct the user how to reinstall the complete set or a portion of the default settings that were set at the **PCS** factory. The following steps are applicable to any of the five programming modes.

Please be aware that products will be set to the default settings in accordance with the following:

- If you are in Mode 1, the **PCS** product will return to the default settings for the **entire five Program Modes** including the **primary address** which will be set back to **A1**.
- If you are in Modes 2 through 5, the **PCS** product will return to the default settings **only for that Program Mode**.

STEPS	COMMENTS
STEP 1: Get the PCS product into the Program Mode you wish to change.	See the Entering Programming Modes section for assistance.
STEP 2: Push the ALL UNITS OFF key three times.	The lighting circuits flash and the LED will pause and then continue with the same LED pattern. Refer to the LED Programming Pattern in section 3.
STEP 3: Push the ALL LIGHTS ON key three times.	The lighting circuits flash and the LED to return to a steady red LED.

Note: It is very important to remember that setting the module back to the factory defaults will reset the Master Scene Enable to Disabled. You must go to mode five and turn the Master Scene Enable back on.

Setting Scene Lighting Levels

This section describes how the installer sets the levels of the lighting circuits separately and independently for each scene address.

STEPS	COMMENTS
<p>STEP 1: Set the lighting level for the group of lights by individually setting each lighting circuit to a particular scene.</p>	<p>This can be done using a transmitter source to individually set the lighting level or by actively setting the levels using local switch control. In fact, the installer can use any means available to set the lighting levels.</p> <p>If using a transmitter, the installer should send the primary address and push the BRIGHT or DIM button to get to the right lighting level. Then proceed to the next light.</p>
<p>REPEAT STEP 1 FOR ALL LIGHTS IN THIS SCENE.</p>	<p>Now you can set the levels to other light circuits.</p>
<p>NEXT STEP: Press the scene address eight times without an ON or OFF command.</p>	<p>On a Maxi-Controller just press the number button eight times. <i>You cannot do this on a controller like the Mini-Controller that combines the Address and ON/Off commands in one button.</i></p>
<p>FINAL: Push ALL LIGHTS ON key.</p>	<p>The lighting circuits flash and the LED will be a steady red.</p>

Why do the lights flash and lighting levels change while I am programming?

It is advantageous to get confirmation from the **PCS** products that it has correctly accepted inputs from the installer. The lights are designed to flash and the scene levels are designed to change to signify correct acceptance.

What is the difference between a light being OFF in a scene and a light being DISABLED?

If a light is OFF in a scene it means that each time the scene is activated (turned on) that circuit will go to the off state. If a circuit is Disabled from a scene it will not change levels when the scene is turned On or Off. If you change a level of a light and then try to store it to a scene address of which it is disabled it will not be stored.

4. APPENDIX

Definitions

TERM	DEFINITION
ALL LIGHTS ON	The ALL LIGHTS ON key is on the transmitter source and used in the SceneMaster system as an ENTER key on a computer keyboard.
Blinking	The lighting circuits and the STATUS LED on the PCS product will turn on and off momentarily to give the installer confirmation that the programming input has been accepted.
Default Settings	These internal settings are programmed into the PCS products at the factory. The default settings are explained in the programming guide and instructions are included to get the PCS product back into its default settings.
Distribution Panel	Source of electricity providing the circuit breaker protection and source of Line, Neutral and Ground
Flashing	A scene designed for an alert or security mode. The lighting circuits will instantaneously turn on and off every second. The flashing scene is Ramp Rate #16.
House Scene	A group of lighting circuits spanning the entire house that will go to their programmed levels in response to a scene address.
LED	The Light Emitting Diode (LED) on the PCS product.
Maxi-Controller	The transmitter source that the PCS programming guide uses for programming.
Remote Switch	One or more remote switches (PCS model SSR-W,I) controlling the light circuit via the Lighting Module control inputs
Room Scene	A group of lighting circuits within one room that will go to their programmed lighting levels in response to a scene address.
Pathway Addresses	An address used for a whole house scene that defines a specified set of circuits from one location to another.
Pathway Scene	A group of lights illuminating a path between two locations, for example, from the kitchen to the pool house, that will go to their programmed levels in response to a scene address.
Primary Address	The unique address used to control a particular light.
Scene	A grouping of lighting circuits that respond simultaneously to preset levels creating a certain mood or scene.
Scene Address	The address that initiates and generates a certain scene.
Scene Number	A number from 1 to 16 corresponding to a particular scene that contains settings for lighting level and scene address.

SceneMaster Worksheets

I. SCENE NAME AND ADDRESS

Customer _____

Phone _____

Page _____ of _____

Approval _____ Date _____

SCENE NUMBERS															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

HOUSE SCENE ADDRESSES															
	SCENE NAMES														

ROOM #1 ADDRESSES															
ROOM NAME _____ _____	SCENE NAMES														

ROOM #2 ADDRESSES															
ROOM NAME _____ _____	SCENE NAMES														

ROOM #3 ADDRESSES															
ROOM NAME _____ _____	SCENE NAMES														

ROOM #4 ADDRESSES															
ROOM NAME _____ _____	SCENE NAMES														

PATHWAY ADDRESSES															
	SCENE NAMES														

SceneMaster Worksheets
II. PRIMARY ADDRESS AND LIGHTING LEVELS

Customer _____

Phone _____

Page _____ of _____

Approval _____ Date _____

ROOM NAME _____			TYPE: LM4L 0 LM4A 0 LM2L 0 SS1L 0 SS1A 0															
SCENE NUMBER			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SCENE ADDRESSES																		
RAMP RATES																		
CHAN NO.	CIRCUIT NAME	PRIME ADDR	LIGHTING LEVELS															
Ch 1																		
Ch 2																		
Ch 3																		
Ch 4																		

MODULE NO _____			ROOM NAME _____				TYPE: LM4L 0 LM4A 0 LM2L 0 SS1L 0 SS1A 0											
SCENE NUMBER			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SCENE ADDRESSES																		
RAMP RATES																		
CHAN NO.	CIRCUIT NAME	PRIME ADDR	LIGHTING LEVELS															
Ch 1																		
Ch 2																		
Ch 3																		
Ch 4																		

MODULE NO _____			ROOM NAME _____				TYPE: LM4L 0 LM4A 0 LM2L 0 SS1L 0 SS1A 0											
SCENE NUMBER			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SCENE ADDRESSES																		
RAMP RATES																		
CHAN NO.	CIRCUIT NAME	PRIME ADDR	LIGHTING LEVELS															
Ch 1																		
Ch 2																		
Ch 3																		
Ch 4																		

MODULE NO _____			ROOM NAME _____				TYPE: LM4L 0 LM4A 0 LM2L 0 SS1L 0 SS1A 0											
SCENE NUMBER			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
SCENE ADDRESSES																		
RAMP RATES																		
CHAN NO.	CIRCUIT NAME	PRIME ADDR	LIGHTING LEVELS															
Ch 1																		
Ch 2																		
Ch 3																		
Ch 4																		

SceneMaster Worksheets
III. ADVANCE PROGRAM OPTIONS

Customer _____

Phone _____

Page _____ of _____

Approval _____ Date _____

MODULE NO _____			ROOM NAME _____			TYPE: LM4L 0 LM4A 0 LM2L 0 SS1L 0 SS1A 0						
CHANNEL ADVANCED PROGRAMMING			1 Soft Start	2 All Lts ON	3 All Lts OFF	4 All Uts OFF	5 Univ Lts ON	6 Univ Lts OFF	7 Univ Uts OFF	8 MstrScn Enable	9 Receive Level	10 Rmt Prg Enable
CHAN NO.	CIRCUIT NAME	PRIME ADDR	OPTION SETTINGS									
Ch 1												
Ch 2												
Ch 3												
Ch 4												

MODULE NO _____			ROOM NAME _____			TYPE: LM4L 0 LM4A 0 LM2L 0 SS1L 0 SS1A 0						
CHANNEL ADVANCED PROGRAMMING			1 Soft Start	2 All Lts ON	3 All Lts OFF	4 All Uts OFF	5 Univ Lts ON	6 Univ Lts OFF	7 Univ Uts OFF	8 MstrScn Enable	9 Receive Level	10 Rmt Prg Enable
CHAN NO.	CIRCUIT NAME	PRIME ADDR	OPTION SETTINGS									
Ch 1												
Ch 2												
Ch 3												
Ch 4												

MODULE NO _____			ROOM NAME _____			TYPE: LM4L 0 LM4A 0 LM2L 0 SS1L 0 SS1A 0						
CHANNEL ADVANCED PROGRAMMING			1 Soft Start	2 All Lts ON	3 All Lts OFF	4 All Uts OFF	5 Univ Lts ON	6 Univ Lts OFF	7 Univ Uts OFF	8 MstrScn Enable	9 Receive Level	10 Rmt Prg Enable
CHAN NO.	CIRCUIT NAME	PRIME ADDR	OPTION SETTINGS									
Ch 1												
Ch 2												
Ch 3												
Ch 4												

MODULE NO _____			ROOM NAME _____			TYPE: LM4L 0 LM4A 0 LM2L 0 SS1L 0 SS1A 0						
CHANNEL ADVANCED PROGRAMMING			1 Soft Start	2 All Lts ON	3 All Lts OFF	4 All Uts OFF	5 Univ Lts ON	6 Univ Lts OFF	7 Univ Uts OFF	8 MstrScn Enable	9 Receive Level	10 Rmt Prg Enable
CHAN NO.	CIRCUIT NAME	PRIME ADDR	OPTION SETTINGS									
Ch 1												
Ch 2												
Ch 3												
Ch 4												

Warranty

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, 19215 Parthenia St., Suite H, 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 merchantability 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.)

Returns for Repair/Exchange/Refund

You must call for a Return Material Authorization number (RMA #). This number should be written on the package exterior and on any enclosed paperwork. Please include a note explaining the problem so that we may more quickly improve the product design if the problem is caused by something inherent to the design.