



High Power Lighting Module

INSTALLATION AND OPERATING INSTRUCTIONS

For Models:

XP4LS

XP1LS

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

This booklet covers all X-10 PRO models XP4LS and XP1LS.

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

- a. Be sure that power to the supply circuit has been disconnected 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, remote switch, and transmitter controls.
2. Power should be a 20 circuit directly from a breaker 2x12ga wire and ground.
3. Load, remote switch, and transmitter circuits should each be connected via separate sets of two 14ga wire with ground.
4. Using a voltage tester, identify and mark the "Hot" and the "Neutral" wires.
5. Identify and label each pair of load and control point wires.
6. If setting up an X-10 PRO lighting system enter the appropriate circuit labels and addresses in the programming manual worksheets and on the module labels.
7. 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).
8. Place wires and insert into wall box and screw unit into place with supplied screws. Four gang box uses four or eight 6x32x1/2 screws, Raco 953 box uses four 8x32x1/2 screws.

WIRING CONFIGURATION

The Lighting Module is wired directly to the lighting circuit and can be controlled by one or more Remote switches producing three, four, or five-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.

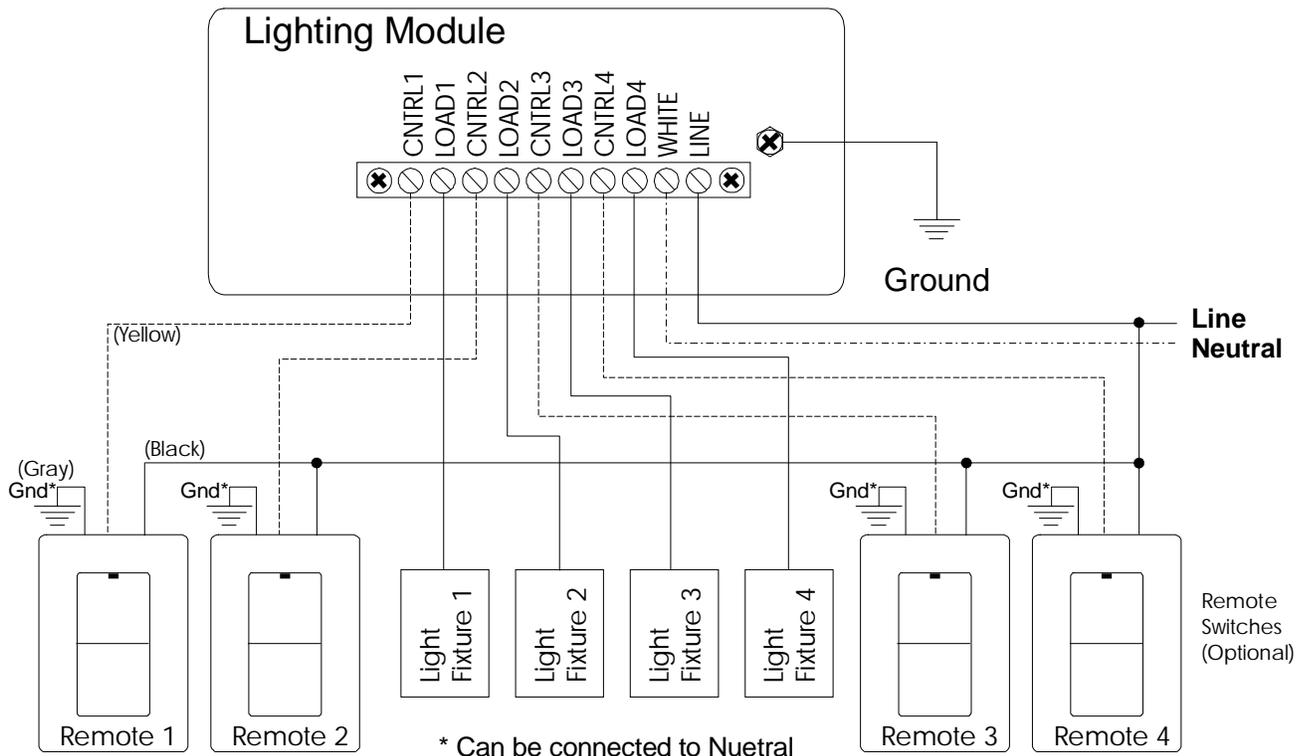
Configuration Definitions:

SERVICE PANEL - Source of electricity providing the Line and Neutral

REMOTE SWITCH - One or more remote switches controlling the light circuit via the Lighting Module control inputs.

Wiring Notes:

- Remote switches require a Line Voltage input (Black) that is always hot. Do not connect to the load (switched) circuit.
- The gray wire on the Remote Switch only serves to light the red LED, which provides 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

PRE-WIRING for X-10 PRO's Lighting Modules

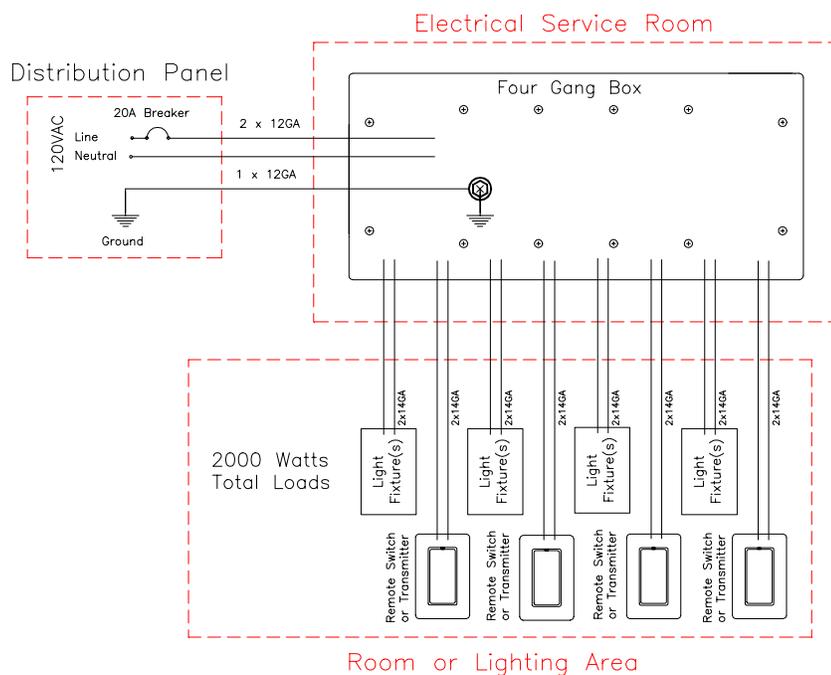
The following is a guide to a "home-run" type wiring configuration that ensures a versatile and reliable system. This configuration costs slightly more in materials and labor to run the 14 gage home-runs for each load and control point. This expense, however, is more than offset by the increase in system reliability having all associated lighting and control points electrically "close" or in the same vicinity. The ease of setup and programming are worth it for simple and inexpensive installation.

The "home-run" wiring scheme is very different than conventional wiring methods. The conventional way typically taps off or "daisy chains" as many fixture/switch sets as possible off of each 20A supply circuit. This method is the least expensive method in getting the required control points/fixtures connected throughout the house but doesn't allow for other methods of control.

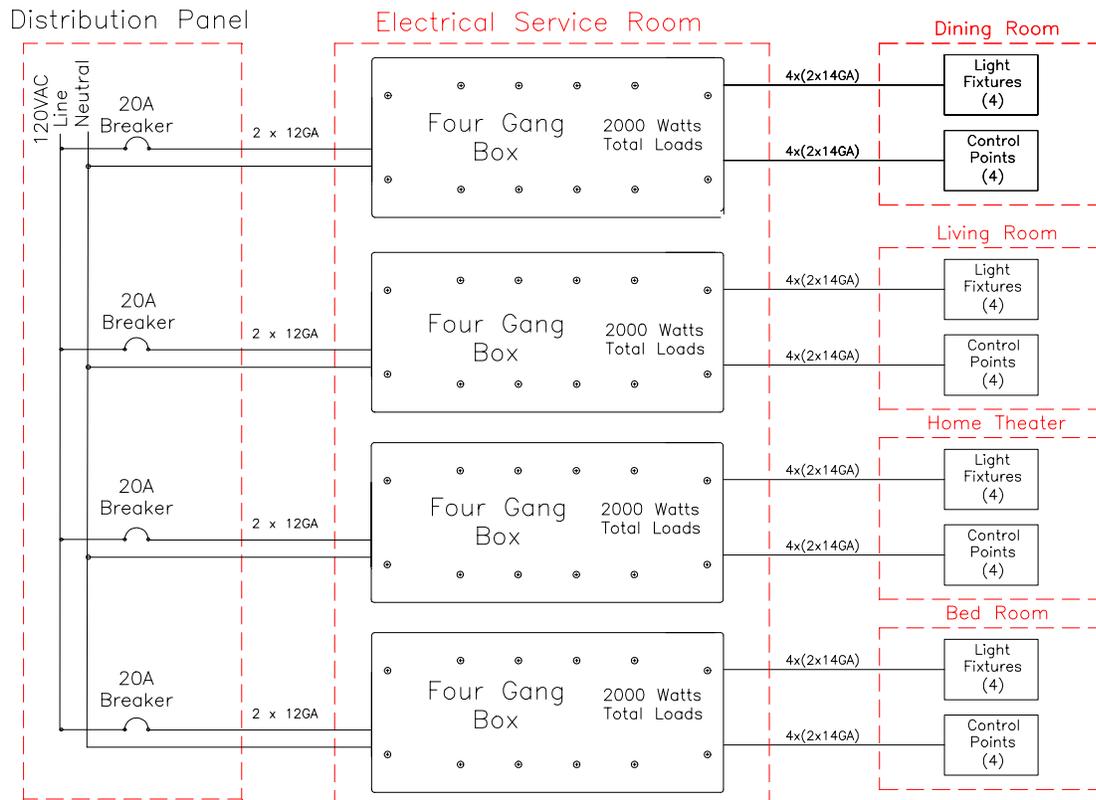
The "home-run" method proposed in this pre-wiring guide cost somewhat more, but is so versatile that anything from complex scene systems to simple switch/fixture arrangements can be easily implemented.

Single Room Wiring

A typical wiring diagram for one room might be as shown in Figure 1.



Whole House Wiring



The three important things to remember when wiring for controlled lighting are:

1. Wire fixture (load) circuits and control (transmitter/switch) circuits separately back to a common location ("home-run" method).
2. Use a deep four gang box or boxes as the junction point for loads, controls and power. This is for the following reasons:
 - a) four gang box is relatively inexpensive
 - b) allows for a very clean wiring arrangement
 - c) allows for the greatest variety of both single gang and four gang control devices including those manufactured by PCS, Lutron, Lightolier, Leviton, X-10, and ACT
 - d) provides ample wiring room for large number of wire nut connections often required
 - e) circuits can be easily rewired to function with no electronic control should it ever be necessary to remove all controls
3. Provide common area or areas for installation of multiple four gang boxes. This area should be relatively cool (not in an attic) and have adequate ventilation to dissipate 1 watt of controller heat for 100 watts of lighting to be controlled. This also allows for simple coupling of different circuits, isolation of noise sources, easy programming and easy repair and replacement, and simple reconfiguration.

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 and Programming Interface

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).

The most cost-effective product to program the Lighting Modules is the X-10 Maxicontroller. This unit is inexpensive and can send the full set of standard X-10 signals.

Modes of Programming

In addition to **Normal Operation**, there are five programming modes used to set the **Primary Address**, the **Scene Addresses**, the **Scene Enables**, **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 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 XP4LS has 4 channels (Channel Numbers 1 to 4) and XP1LS has only 1 channel (Channel Number 1).

NOTE: Elementary programming can be performed using this instruction manual. To fully understand the scene features of the system, please read the **X-10 PRO's Programming Manual** which covers the complete programming of this device. This is available free from the X-10 PRO web site (www.X10PRO.com).

The X-10 PRO lighting system will provide visual feedback while in programming mode. **Lights will flash and the LED pattern will change** during the course of programming to give the installer feedback that his actions are being entered.

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).

LED Color Indicator

Program Mode	Mode Name	LED Pattern
	Normal Operation	Solid Red
Mode 1	Setting New Primary Address	Blinking Green
Mode 2	Setting New Scene Addresses	Blinking Red
Mode 3	Setting Channel Enables	Blinking Orange
Mode 4	Setting Ramp Rates	Alternating Green and Red
Mode 5	Advanced Programming Options	Alternating Green and Orange

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.
- 3) **Press All-Lights-On key.** The product stores new Primary Address 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.** A number representing which channel you want to change. LM4s have channel numbers 1 through 4. MM2s have channel numbers 1 and 2. SS1s have only channel number 1.
- 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.** A number between 1 and 16 representing scene of product.
- 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 the following table. The sequence of programming is different for these options, so we will separate them as follows.

Advanced Programming Options 1 through 7

- 1) **Enter Mode 5.** See To Enter any Mode section.
- 2) **Press Advanced Programming Option number.** A number between 1 and 7 as defined in the following table.
- 3) **Press All-Lights-On key.** Product confirms Option Number is entered.
- 4) **Press all applicable Channel Numbers.** A number representing which channel you want to change. LM4s have channel numbers 1 through 4. MM2s have channel numbers 1 and 2. SS1s have only channel number 1.
- 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 setting into memory.
- 7) **Press All-Lights-On key 3 times.** The product is transferred out of programming mode and 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 following 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 out of programming mode and into normal operation.

Advanced Programming Option 9

- 1) **Enter Mode 5.** See To Enter any Mode section.
- 2) **Press Advanced Programming Option 9.** Press key "9" which is defined in the following 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 out of programming mode and into normal operation.

Numbered Key on Transmitter/Controller	Advanced Programming Option	Default Setting
1	Soft Start	Enabled
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	Remote Access	Disabled

ADVANCED PROGRAMMING OPTIONS

RESET TO DEFAULT SETTINGS

The following steps will return this product to its default settings as given on the next page.

- 1) **Enter Mode 1.** See To Enter any Mode section.
- 2) **Press All-Units-Off key 3 times.** This will reset to factory defaults.
- 3) **Press All-Lights-On key 3 times.** The product is transferred out of programming mode and into normal operation.

Default Settings

The default settings for the four channel modules (XP4LSs) are shown in the tables below. The single channel module (XP1LS) are the same except for the absence of channels 2, 3 and 4.

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.

SPECIFICATIONS

Model Number	XP4LS	XP1LS
Operation	Dimming (Triac)	Dimming (Triac)
Max Total Load	2000 W / 2000 VA	2000 W / 2000 VA
Channels	Four	One
Max Channel Load	1000 W	2000 W
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