

# Light-O-Rama



## CF2D DMX

## Cosmic Color Flood

Includes controller and power supply in a weather-resistant plastic box

User Manual  
January 10, 2012  
V1.0

Copyright © Light O Rama, Inc. 2012

## Table of Contents

Introduction.....	3
What's in the Box.....	4
Hardware Utility Version .....	4
Firmware Version .....	4
Flood Head Description .....	5
Important Considerations .....	5
Hardware Configuration.....	6
Assigning a Unit ID / DMX address.....	6
Software Control.....	8
LOR Channels .....	8
DMX Channels.....	8
Slaving Flood 2 to Flood 1 .....	9
Strobe Channels .....	9
Stand Alone Operation .....	10
Hardware Description.....	11
Status LED.....	12
Reset Button .....	12
Flood Connectors.....	12
Network Jacks.....	12
Input Header .....	13
Connecting the CCF to a PC.....	13
Connecting to a Show Director .....	14
Connecting to another Controller .....	15
Updating the CF2D Firmware.....	15
Appendix A.....	18
LOR Unit ID to DMX Address Table.....	18
Specifications .....	19

## Introduction

The Light-O-Rama (LOR) Cosmic Color Flood (CCF) is an LED lighting system that includes the controller (CF2D) and power supply. The system is available with one or two flood heads. The controller understands and automatically detects both LOR and DMX protocols.

Each flood head has three red, three green and three blue high power LEDs, and is capable of producing sixteen million colors. The flood heads can be controlled individually or slaved together. The entire system is weatherproof and UV resistant.

The controller has ten channels, R, G & B for each flood and two strobe effect channels per flood. The strobe effect channels give precise control over strobing with the RGB channels permitting any color or intensity to be strobed.

The Windows Showtime software is used to design and build *Sequences* (controller commands that may be choreographed to audio/music.) These user created sequences and/or pre-programmed musical sequences available from LOR and other companies are then arranged into *Shows*. These shows are played by your PC or one of the LOR Show Directors.

## What's in the Box

- One or two flood heads with 20' cables
- 10 channel controller with power supply in a weather-resistant plastic box
- User manual

The only item needed to daisy chain the flood controller into your network is a Cat5e cable.

This manual is also available at [www.lightorama.com](http://www.lightorama.com) ► Support ► Downloads ► CF2D User's Manual.

## Hardware Utility Version

The version of the Hardware Utility appears in the title bar to the right of "Light-O-Rama Hardware." If the version number is less than 3.1.xxx, then you should download a new Hardware Utility if your license permits. Download the latest version of the Showtime software from this location:

<http://www.lightorama.com/SoftwareDownloadPage.html>

This is a full ShowTime Software download that includes the latest Hardware Utility.

## Firmware Version

This document reflects CF2D firmware version 1.01. The firmware version is determined by using the Refresh button in the Hardware Utility.

## Flood Head Description



The flood head is extruded aluminum with a glass front. It is 10"l x 2"w x 1"h (without brackets). The mounting hardware is stainless steel.

There are three groups of red, green and blue LEDs. The flood does not produce a hot spot, just a very uniform, rectangular band of light.



This is a close up of one of the mounting brackets. The flood can be rotated and locked in place using the large nut around the cord and its mate on the other side.

## Important Considerations

The weatherproof box must be mounted with the cables downward and no forced water spray toward the box or cables is permitted.

The flood heads dissipate a fair amount of heat so care should be taken when handling lit floods.

## Hardware Configuration

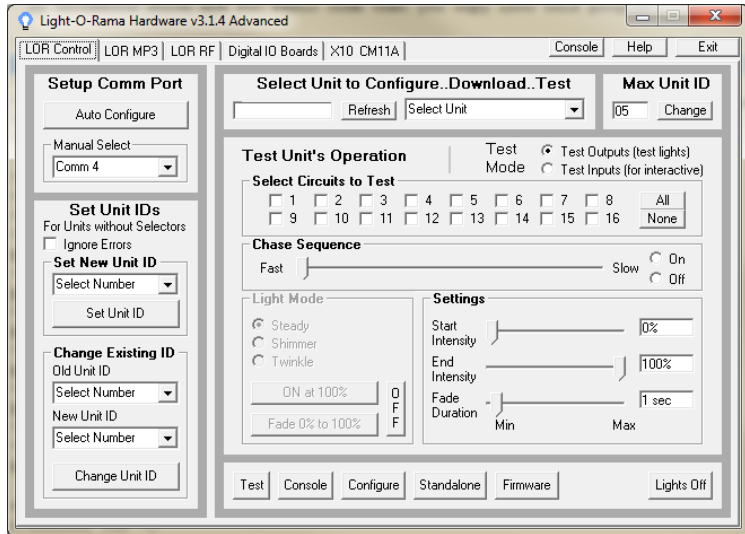
### **Assigning a Unit ID / DMX address**

The Unit ID you set also sets the DMX address. See *Appendix A* for the mapping of LOR Unit IDs to DMX addresses.

If you have not installed the Light O Rama Windows Showtime Software, do it now. You will also need one of the USB RS485 adapters installed. See the *Connecting the CCF to a PC* section for more information.

Plug the CCF controller into AC power. The Status LED will blink about twice/second. This means that the controller has booted and is waiting for the PC or Show Director to talk to it.

Start the Hardware Utility – click **start ► All Programs ► Light-O-Rama ► Light-O-Rama Control Panel**. There will be a light bulb with a red halo on the right side of the task bar at the bottom of the screen. Right-click the light bulb and select *Hardware Utility* from the menu. Make sure the *LOR Control* tab is selected. You will see this window:.



Click the *Auto Configure* button in the *Setup Comm Port* section. The Hardware Utility will search for the COM port that your RS485 adapter is plugged into and select it.

When assigning a unit ID, only one controller may be plugged into the RS485 adapter on the PC. Be sure you do not have more than one controller connected.

Steps to set/change unit ID:

1. In the *Change Existing ID* section, use the *Old Unit ID* drop-down menu to select *Any Unit*, then click *OK* in the warning box for changing all unit IDs, there should only be one unit attached.
2. Use the *New Unit ID* drop down menu to select "01" or whatever Unit ID you want.
3. Click the *Change Unit ID* button to set your CCF unit ID. You will see a *Unit ID Changed* box – click *OK*.

## Software Control

The CCF appears in a LOR Network at the address set by the Hardware Utility. It is configured in the Sequence Editor as 10 regular channels or an RGB channel and 2 strobe channels for flood 1 and an RGB channel and 2 strobe channels for flood 2.

The following tables show the channel assignments on a LOR network or in a DMX universe.

<b>LOR Channels</b>	<b>Controls</b>
1, 2, 3	R, G, B flood 1
4	Strobe 1 on time
5	Strobe 1 off time
6, 7, 8	R, G, B flood 2
9	Strobe 2 on time
10	Strobe 2 off time

<b>DMX Channels Offset from start address</b>	<b>Controls</b>
0, 1, 2	R, G, B flood 1
3	Strobe 1 on time
4	Strobe 1 off time
5, 6, 7	R, G, B flood 2
8	Strobe 2 on time
9	Strobe 2 off time

For more detailed information on DMX use of LOR controllers see:

<http://lightorama.com/Documents/DMX-DOC.pdf>

### **Slaving Flood 2 to Flood 1**

Setting the “Strobe 2 on time” channel to 100% intensity slaves flood head 2 to flood head 1. This means that the 5 channels controlling flood head 1 will also control flood head 2. The R, G, B and strobe off time channels for flood 2 are ignored.

### **Strobe Channels**

The “Strobe n on time” channels select the amount of time the flood head is turned on while strobing. This on time varies from 8.33ms to 83.3ms. Higher intensities result in a longer flash.

The “Strobe n off time” channels select the amount of time the flood head is off while strobing. This off time varies from 2 seconds to 8.33ms. Higher intensities result in a faster flash.

Setting the “Strobe n off time” channels to 1% intensity is a special case. This puts the flood head in strobe mode but does not allow it to flash. Using this feature allows the RGB channels and strobe on time channel to be set without an uncontrolled flash occurring. This can be useful to create realistic lightning by varying the “strobe n off time” channel from 1% intensity to 2% intensity and back to 1% intensity to get a single flash.

Remember to set the “strobe n off time” to 1% at least 1/20<sup>th</sup> of a second before manipulating the other flood control channels to avoid an unwanted flash.

## **Stand Alone Operation**

A standalone animation sequence (sequence with no accompanying audio) can be downloaded into the flash memory of the CF2D controller.

Stand-alone memory is external to the microprocessor and survives power cycling.

Stand-alone sequence storage can hold approximately 10,000 commands. These commands can also be for controllers other than this controller, so this controller can direct a network of controllers. There are no restrictions on the types of LOR controllers in this network.

The sequence is designed and tested using the Showtime Software Sequence Editor. When you are happy with the sequence, save it and stop the Sequence Editor.

Start the Hardware Utility and click the *Refresh* button to find the CF2D. Use the drop down menu next to the *Refresh* button to select the controller.

Click the *Standalone* button at the bottom of the window. Select one of “Run when power is on,” “Input (norm open switch)” or “Input (norm closed switch.)” Click the *Send Trigger info to Unit* button.

Finally, Use the *Open* button to browse to your sequence and click the *Download* button. If the last character in the sequence file name is a number between 1 and 8, the sequence is loaded a sequence n, otherwise it is loaded as sequence 1.

You also use this screen to remove downloaded standalone sequences. Note that all downloaded sequences are removed. You can also remove

standalone sequences by turning the controller off, and holding the reset button when powering it up.

## Hardware Description

The following picture shows the inside of the flood controller. The power supply is on the left, the constant current controller on the right.

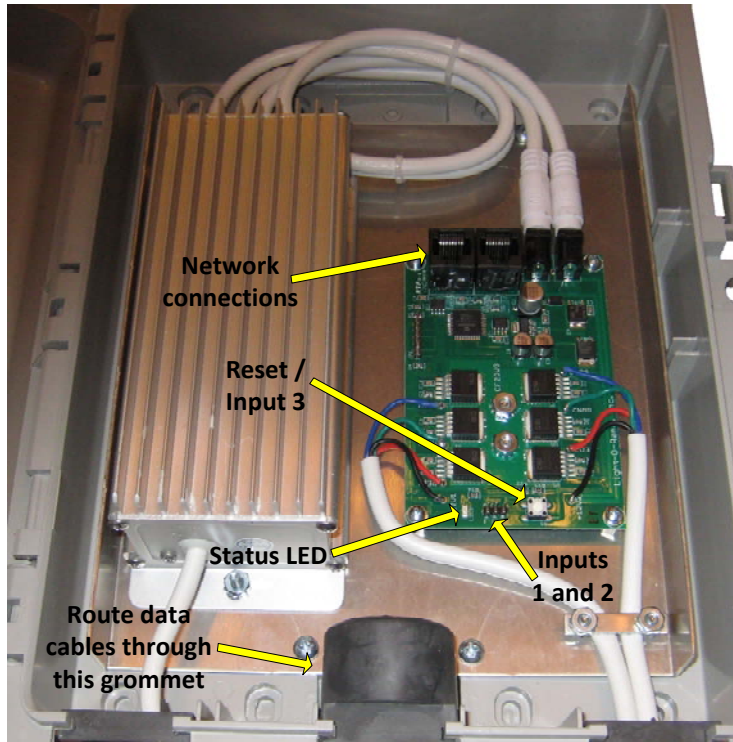


Figure 1

The controller is normally shipped with the second flood cable inside the case. These are the white cables shown on the lower right. If you have two flood heads, route the second cable through the same hole as the first as shown above.

## Status LED

- Blinks twice per second if the CF2D has booted correctly
- Solid on if the CF2D sees a network director – either a PC or Show Director
- Blinks one long on and a short off repeatedly if in the bootloader. This means that the firmware is not loaded or corrupted. See the *Updating the CF2D Firmware* section to load firmware
- Flashing rapidly indicates resetting because you are holding the reset button during power up

## Reset Button

Press and hold this button when powering up the controller to reset it. This will also remove any standalone sequence. After resetting, the controller will run a simple pattern on the flood heads.

Press this button after the controller has booted to activate input/trigger 3.

## Flood Connectors

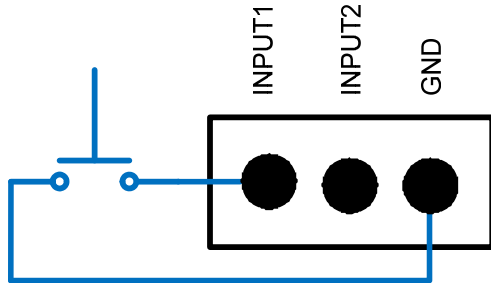
The flood head connectors have arrows on the outside and a notch on the inside to insure proper alignment when connecting.

## Network Jacks

Two RJ45 jacks used to daisy chain this controller into a LOR or DMX network.

## Input Header

The input header provides two inputs that can be sensed by the PC or used to trigger a standalone sequence. It is the small three pin header near the bottom, center of the controller circuit board. The following diagram shows how to wire a switch to input 1:



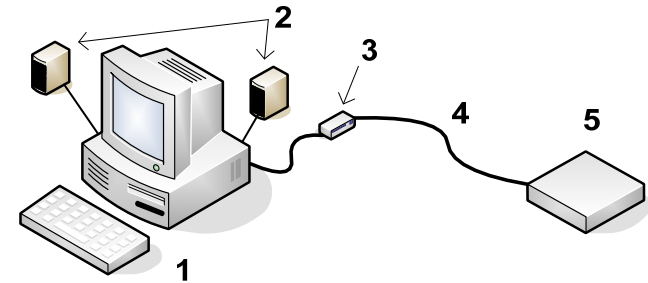
## Connecting the CCF to a PC

You will need the following to connect your CCF controller to a PC:

- Showtime Windows Software
- USB RS485 Adapter
- CAT5e LAN cable
- Your CCF controller
- Windows PC running Windows XP, Vista or Win7

The first three items are available in the LOR SPK-ST Generic Starter Package. [www.lightorama.com](http://www.lightorama.com) ► *On-line Store* ► *Components*. You will have to choose an RS485 adapter type. Choose the USB485 if you have no intention of going wireless from your PC to the controller. If wireless is desired, get the USB485B.

The following diagram shows how the pieces fit together:



1. Your PC running the Showtime Windows Software
2. Your PC speakers to play the music
3. RS485 Adapter to convert short distance USB to long distance RS485
4. CAT5e LAN cable
5. CCF controller

If your USB adapter has more than one jack, you can use either.

Open the controller case. Use a Cat5e LAN cable routed through the large rubber grommet to connect your RS485 adapter to the CCF controller. You can use either jack on the CCF.

## Connecting to a Show Director

You will need the following to connect your CCF controller to a Show Director:

- LOR1602MP3 Show-in-a-Box controller (has an internal DC-MP3 Show Director), mDM-MP3 Show Director or DC-MP3 Show Director
- CAT5e LAN cable

- Your CCF controller

You can use either of the larger jacks on the show director and either jack on the CCF.

### Connecting to another Controller

You can go from either large jack on one controller to either large jack on the other controller.

### Updating the CF2D Firmware

You must have:

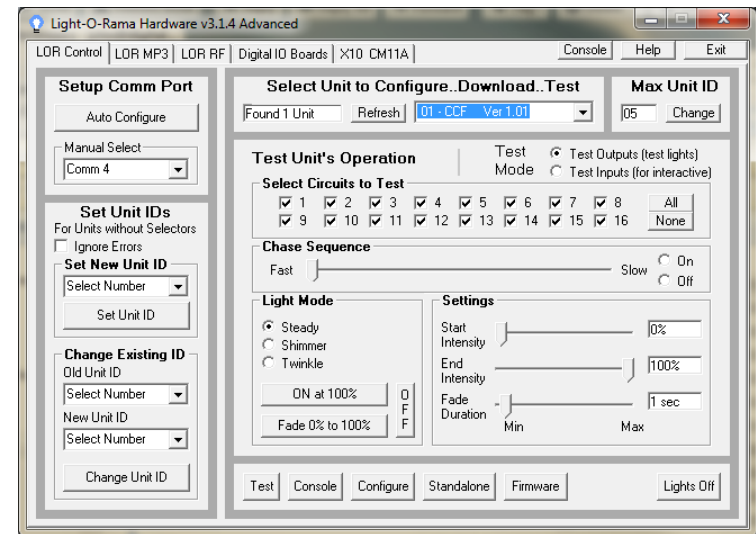
- Hardware Utility version 2.3.6 or later, see the section *Hardware Utility Version*
- The CCF powered and connected to the PC via one of the RS485 adapters – Do not use wireless

Get the latest firmware. [www.lightorama.com](http://www.lightorama.com) ► *Support* ► *Firmware* section. Click the **Firmware** button in the CF2D line and save the firmware file on your PC. Note the name of the firmware .lhx file. The normal location of firmware files is C:\Program Files\Light-O-Rama\Firmware.

Start the LightORama Control Panel if it is not running by clicking **start** ► **All Programs** ► **Light-O-Rama** ► **Light-O-Rama Control Panel**. The Light-O-Rama light bulb icon will appear in the system tray on the lower right of your screen.

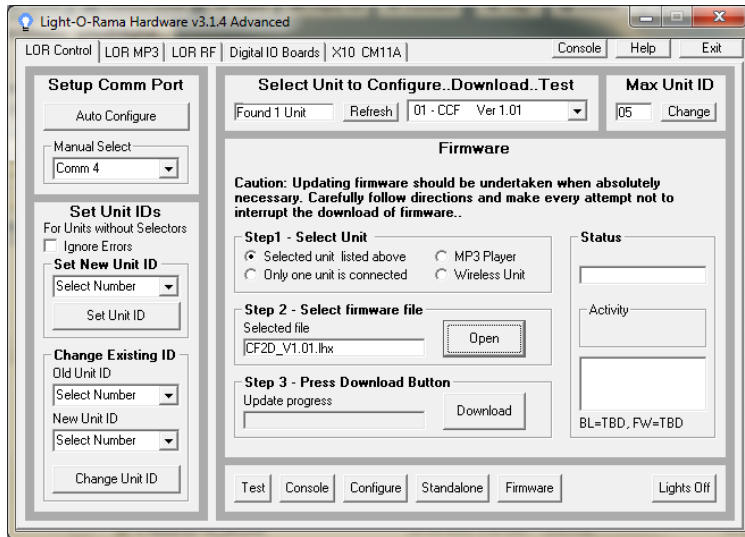
Start the **Hardware Utility** by right-clicking the Light-O-Rama Control Panel light bulb and selecting **Hardware Utility** from the menu. You can click the **Refresh** button to search for connected controllers. Select the CF2D controller.

Click the **Firmware** button in the **LOR Control** tab and you will see this window:



In **Step 1 – Select Unit**, Choose *Selected unit listed above* or *Only one unit is connected* as appropriate.

In **Step 2 – Select firmware file**, click the **Open** button. Use the *Open* file box to select the firmware file. This is the .lhx file you saved in the Firmware folder. Click the **Open** button. The window will look like this:



In **Step 3 – Press Download Button**, click the **Download** button – the firmware download will start automatically.

The *Update progress* bar will fill from left to right. When the new firmware is loaded, the *Status* will change to “Successful” and the CF2D will reboot.

## Appendix A

### *LOR Unit ID to DMX Address Table*

The Hardware Utility is used to set the Unit ID of the controller. See the section *Assigning a Unit ID* for more information. The controller must be set to one of the LOR Unit IDs listed in the following table to recognize DMX protocol. E.g. setting the LOR Unit ID to “06” will result in the first DMX address for the controller being 51.

LOR Unit ID	DMX Address	LOR Unit ID	DMX Address
“01”	1	“0E”	131
“02”	11	“0F”	141
“03”	21	“10”	151
“04”	31	“11”	161
“05”	41	“12”	171
“06”	51	“13”	181
“07”	61	“14”	201
“08”	71	“15”	211
“09”	81	“16”	221
“0A”	91	“17”	231
“0B”	101	“18”	241
“0C”	111	“19”	
“0D”	121		

## Specifications

Configuration	Controller with 1 or 2 flood heads
Control channels	5 per flood, R, G, B and 2 strobe control channels
Power	36 watts @ 120 VAC
Operating temperature	-20° F to 140° F
Operating environment	Outdoor, UV resistant
Power adapter	120 VAC or 240 VAC 0.3 amp @120 VAC 0.15 amp @240 VAC
Flood head dimensions	10"l x 2"w x 1"h (without brackets)
Flood head cable length	20 feet
Controller dimensions	11½"h x 9½"w x 3½"d

Light-O-Rama, Inc.  
 Tel: (518) 539-9000  
 Fax: (518) 538-0067  
[info@lightorama.com](mailto:info@lightorama.com)