

# Light-O-Rama



## LOR1602MP3

**Computerized Light Controller with MP3 Player**  
**[A Complete Musical Light Show in a Box]**

User Manual

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V1.01

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## Introduction

The LOR1602MP3 is a single box containing an LOR1602W 30 amp controller with a DC-MP3 show player. The DC-MP3 (Director Card with MP3 player) is a powerful yet compact light show director. It is designed to control a network of Light-O-Rama (LOR) light controllers while simultaneously playing MP3 music files.

The unit is simple to operate. You insert a SD Memory card and plug it in. It will then run the show.

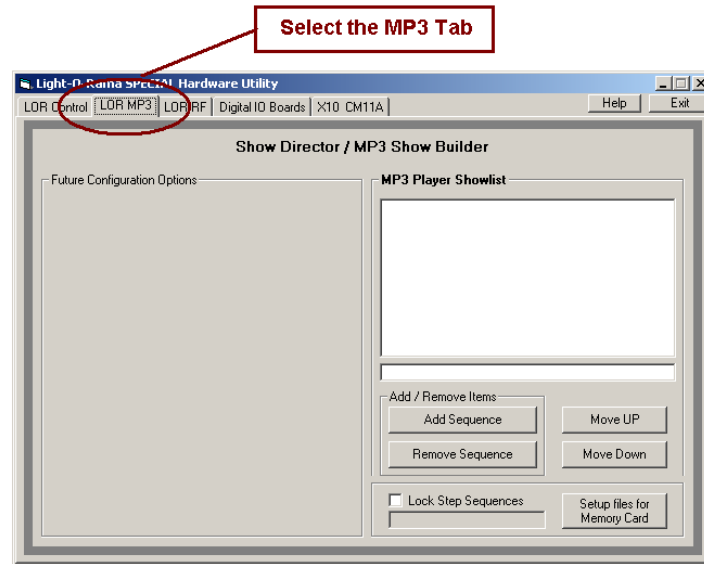
### ***Important Limitations:***

1. If you have a folder named "MP3SHOW" in the Light-O-Rama folder it will be overwritten. That folder name will be used by LOR so rename it if you have one with that name.
2. Use only SD Memory cards formatted FAT16. Before you use a card for the first time, it must be re-formatted to FAT16 (or just FAT.) **Cards supplied by LOR will already be formatted FAT16 and ready to use.**
3. Not all SD cards will work with this unit. A list of certified cards will be distributed. For now we suggest that you purchase your cards from LOR.
4. Individual MP3 songs are limited to 10 minutes. After 10 minutes the song will continue to play but light control sync will not continue. This does not mean that the DC-MP3 can only control a 10 minute musical show, just that no song in your show can be longer than 10 minutes. You can have many songs with their corresponding lighting animation sequences in your show.
5. Animation Sequences can be used BUT "Loops" are not currently supported.
6. It is best to use MP3 files with a **128k** bit rate.

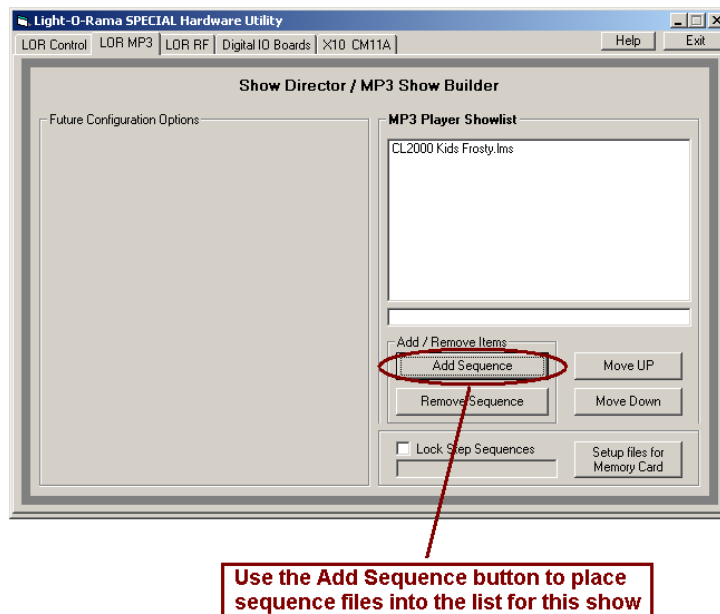
## Creating a Show

To use the DC-MP3 you must first create a show and place that show on a SD memory card. The LOR Hardware Utility program is used to prepare MP3 shows.

A show is a list of sequences. The sequences can be Musical Sequences or Animation sequences. The DC-MP3 player will play this list continuously while it is powered and the SD card is inserted.

**Step 1: Start the Hardware Utility and select the MP3 tab****Step 2: Add sequences to the show**

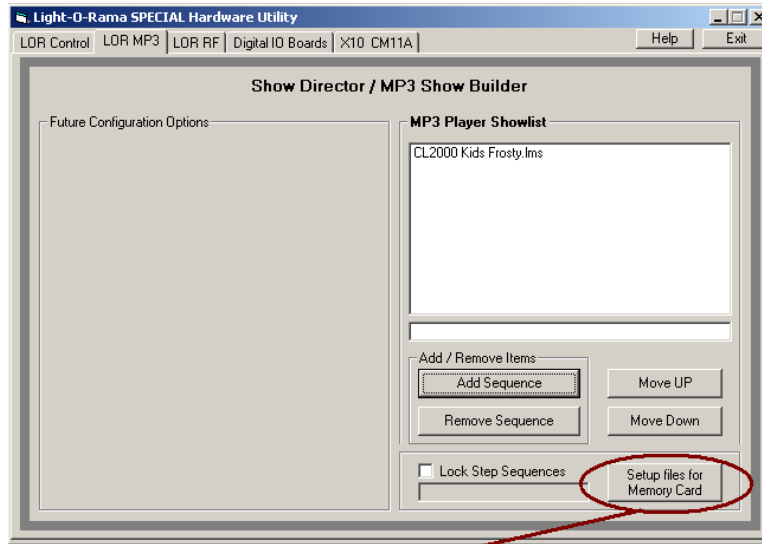
To move a sequence up or down in the list, select the entry to move in the list window then use the MoveUP/MoveDown buttons. To remove a Sequence from the list, select the entry to be removed then use the RemoveSequence button.



### **Step 3: Create the files for the Memory Card**

Once you have the sequences all selected, you must then create the set of files that will be copied to the SD memory card. Click the Setup-files-for-Memory-Card button and a list of animation sequence and music files will be created in the MP3SHOW directory.

Note: The Lock Step Sequence should NOT be checked unless you have version 3.0 firmware or higher in your controllers.



Once you have all the Sequences in the list  
click this button to create the show

### **Step 4: Copy the files to the SD memory card**

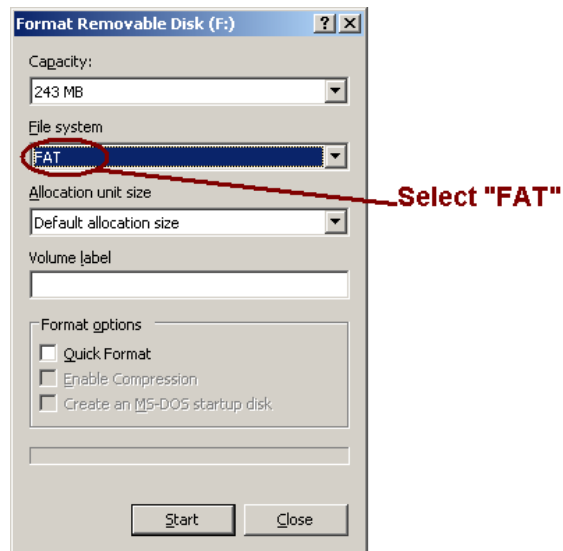
The last step is to copy the Show that you just created to the SD memory card. To do this you need a Card reader attached to your PC.

Important: The SD card must be formatted FAT16 (or just FAT)... The DC-MP3 board currently does not support FAT32.

### Step 4A: Format the Card (optional)

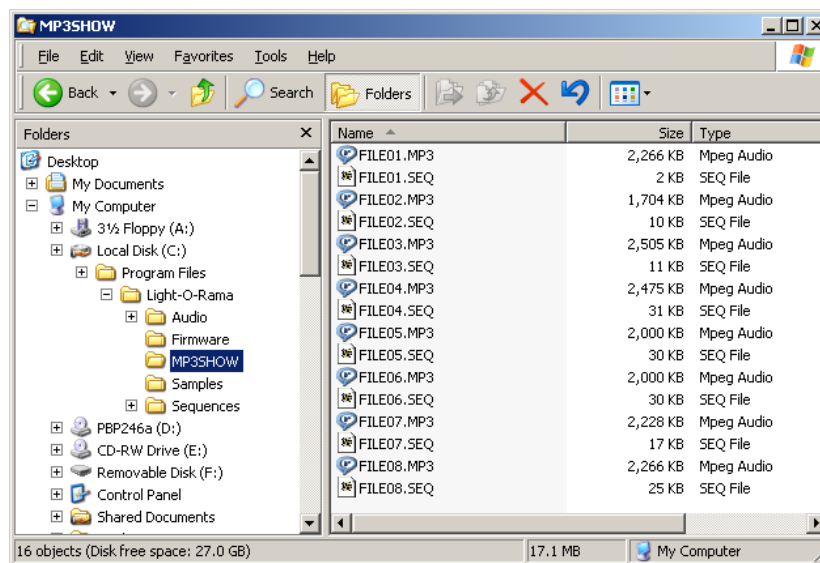
To format the card: (this need be done only once... Not necessary if the card was supplied by LOR)

- Insert the card in the card reader
- Open Windows Explorer and locate the card under “My Computer”
- Right click the drive corresponding to the card and select “Format...”
- Under Format menu select “FAT” not “FAT32” and click “Start”



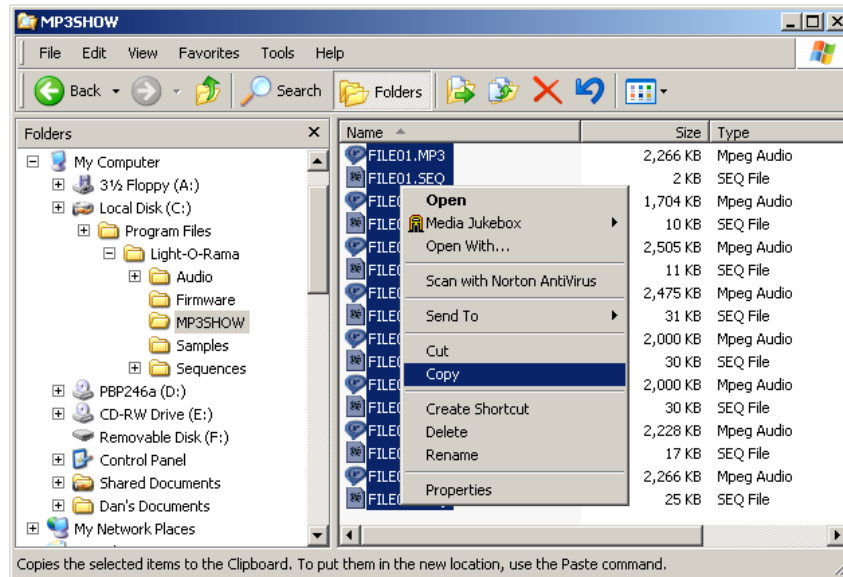
### Step 4B: Locate the files to be copied to the SD Card

When a show is created the files are placed in a folder named MP3SHOW under the Light-O-Rama directory. The folder is usually located in: “C:\Program Files\Light-O-Rama\MP3SHOW”. The folder should look something like this:



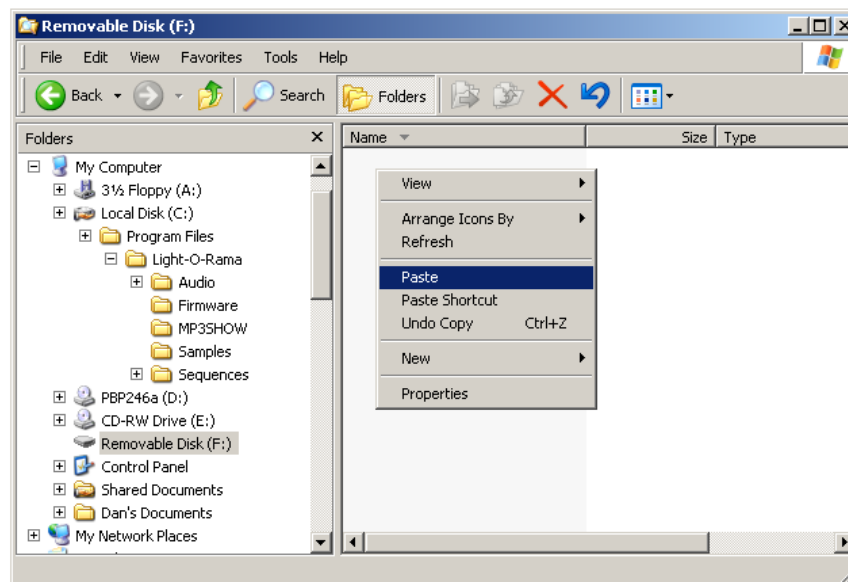
### Step 4C: Copy the files to the clipboard

Select all files, right click and click copy to copy the files to the Clipboard.



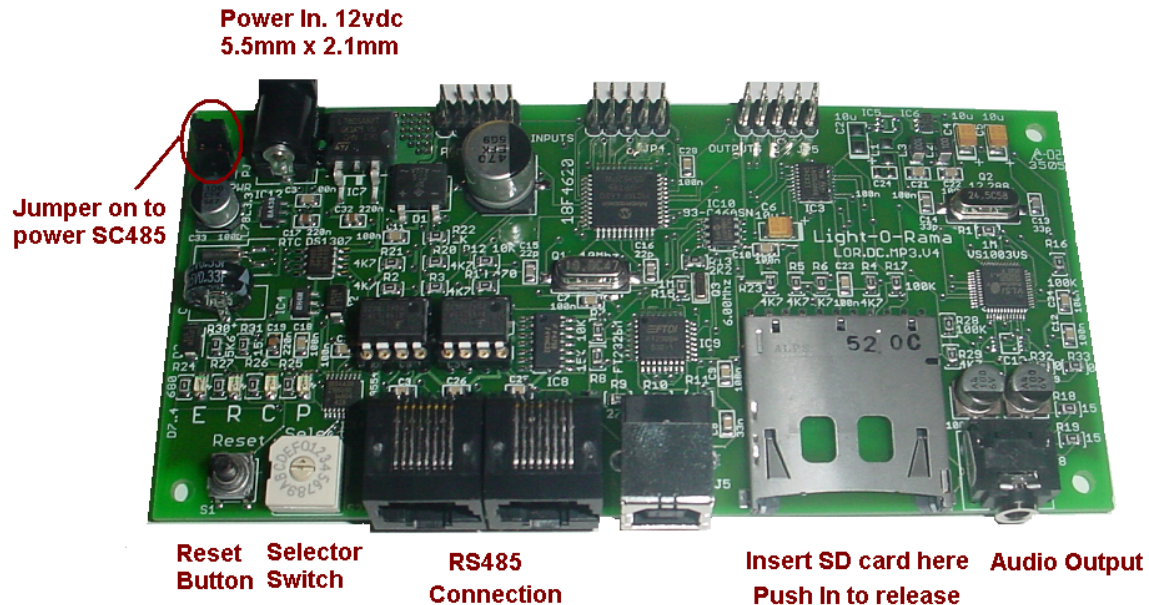
### Step 4D: Paste the files to the SD card

Select the SD card in Windows Explorer and Paste the files that you copied from the previous step onto the SD card.



## Operating the DC-MP3

Push the SD card into the DC-MP3, connect it to a controller via a Cat-5 cable and it will start executing.



### Power:

Usually power is supplied by the RS485 connection and no power brick is required. In some cases the controller may not be able to supply power and a power brick should be added. If the unit fails to run using RS485 connector power, use a 12vdc power brick to power the unit.

### Audio:

Use a standard 1/8 inch stereo jack. This can be fed into the line in of an amp or you can directly connect headphones.

### Selector Switch:

Currently the selector switch controls the output baud rate:  
0=19200, 1=57600, 2=115200. Use the slowest speed that runs your show. If the speed selected is not fast enough for the complexity of your show, the red "E" led will light. This led lights up anytime the unit falls 1/10 second or more behind.

### SD Card:

The SD card is inserted with the gold connectors facing down and into the connector. Press the card into the holder until it "clicks" in. To remove the card PRESS IN and it will spring eject.



### Jumper:

If you power the unit with a power brick and you want to make a firmware upgrade, you must put in the jumper. The jumper allows the unit to power an SC485 adapter attached to the PC.

### ***Attaching to a Timer***

If you want to control your show with a timer you may need to use a power brick to power the unit. If the unit is fed power by the RS485 connection then all controllers in the network need to be powered off to turn off the DC-MP3. As long as a single controller is powered on the unit will attempt to function.

If you use a Power Brick to power the unit then (remove the jumper) and the unit will be detached from the RS485 power source. A timer on the power brick will start and stop the DC-MP3. When the DC-MP3 is powered off, all light controllers will stop and go lights-out.

The DC-MP3 has a built in clock with power backup on the card. **In a future release** of the firmware, a scheduler will be introduced and you can control the on/off times of the show with the onboard clock.

## **LOR1602W Light Controller**

The LOR160xW (Model 2) light controller is a 16 channel light controller that is based on the CTB16D Controlled Triac Card. The CTB16D is available as a component in the Light-O-Rama Hobbyist product line. The LOR160xW is available in a 30 amp version (LOR1602W) and a 15 amp version (LOR1600W).

To operate a LOR160xW Modular Controller you will also need the Light-O-Rama Windows Showtime Software Package and one of the Light-O-Rama RS485 adaptors [SC485, USB485 or USB485B] to communicate with a PC.

## **FOR USE WITH INCANDESCENT LIGHTS ONLY**

### **NEMA 3R ENCLOSURE FOR INDOOR/OUTDOOR USE**

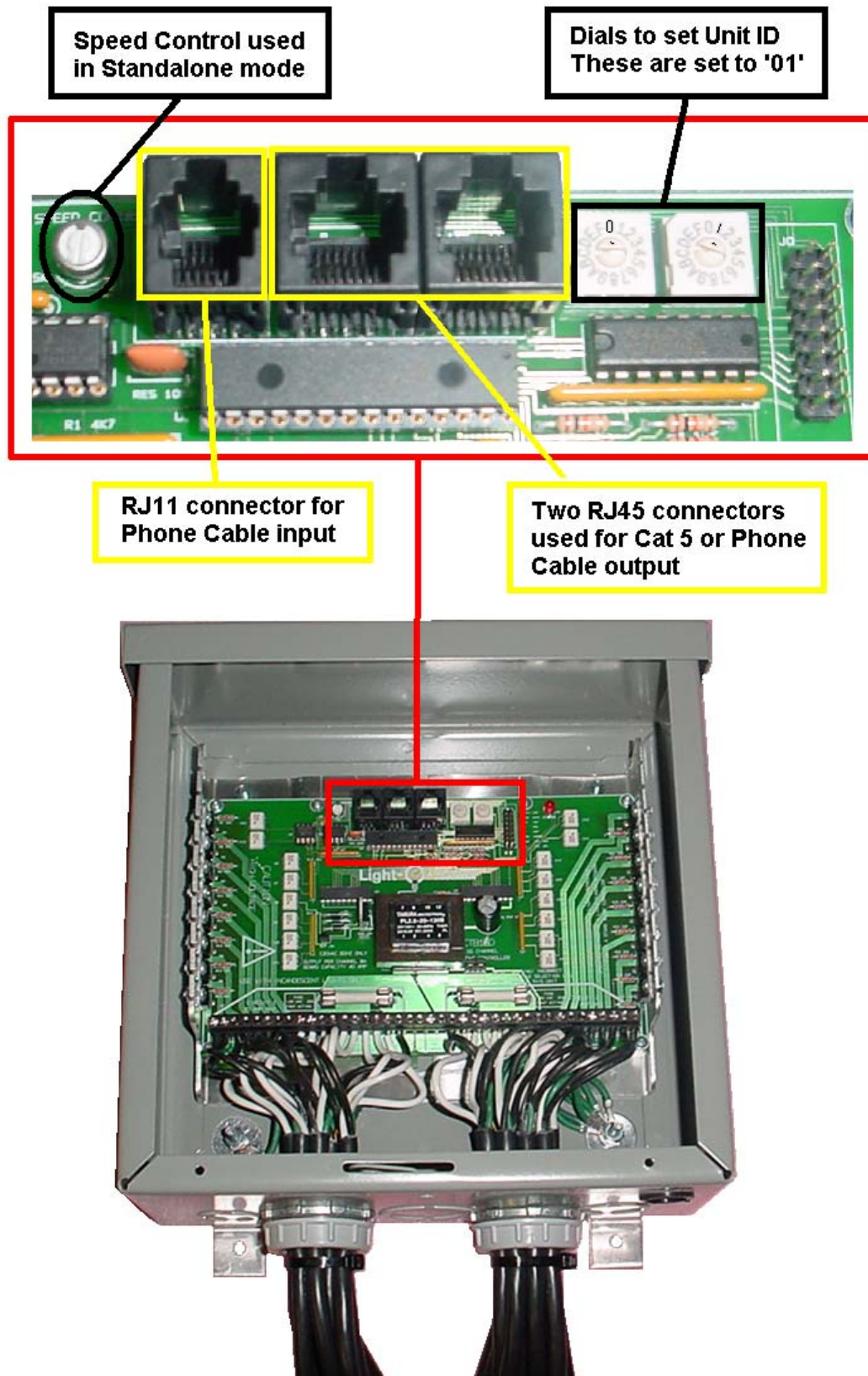
#### ***Safety Considerations***

The NEMA 3R enclosure is water resistant provided that the LOR160xW is mounted with the wires pointing downward. The pigtail outlets must be at least one foot off the ground. Keep the unit away from heavy water splashing and forced water flow such as from irrigation sprinklers.

Anchor communication cables using wire ties to a stable point such as the top mounting tab. Place a small piece of duct tap over the hole in the bottom of the unit once communication cables have been installed. Do not seal entire unit with tape. It needs to breath.

To connect the communications link and to set the Unit Id, you must remove the cover. With the cover removed high voltage connections will be exposed. Make sure that the unit is not plugged in when removing the cover, replacing the cover or when reaching into the unit.

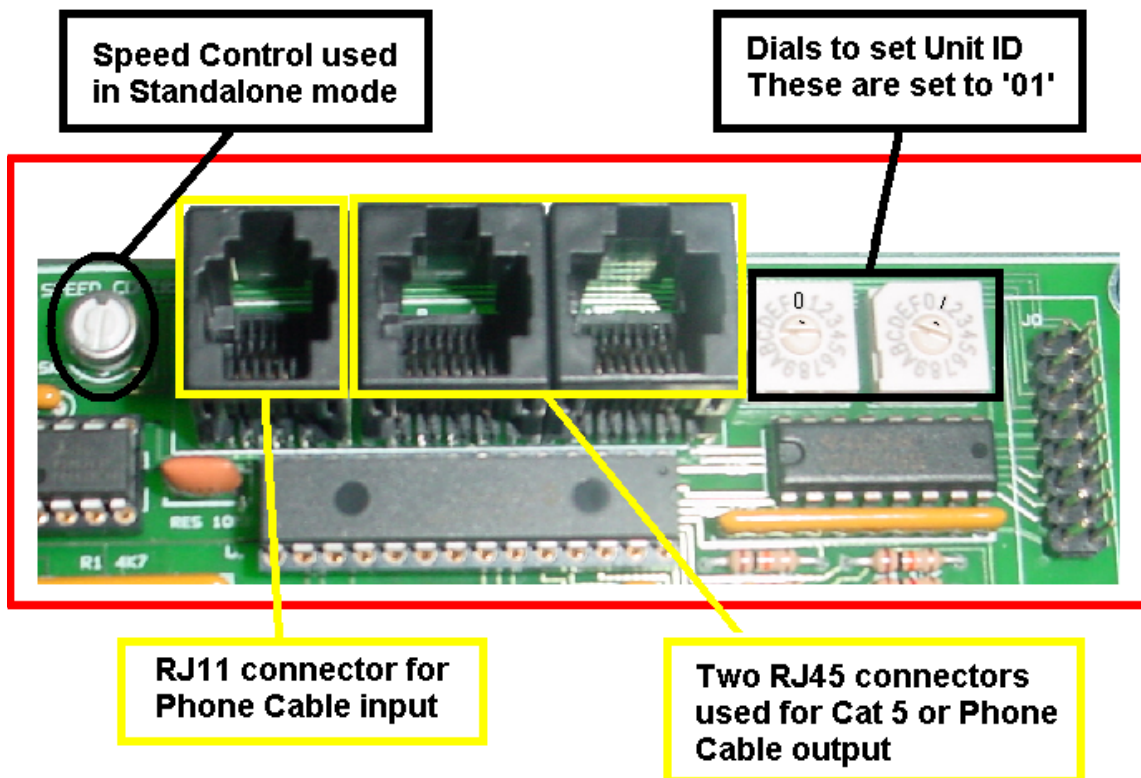
*Inside View of the LOR160xW*



### Using the LOR160xW

1. It must be plugged into an AC power source and light strings must be plugged into one or more of it's 16 circuits.
2. It must be connected to a computer to receive commands.
3. The Light-O-Rama Sequence Editor must be used on your PC to create an animation sequence.

For the PC to talk to the LOR160xW, the LOR160xW must be assigned an **unique Unit ID**. This is accomplished by setting the two hex rotary dip switches to the correct value.



Once AC power has been supplied to the LOR160xW the **red LED** will begin to blink. This indicates that the Unit is functioning and that there is NO COMMUNICATION. Once communication with the PC or another controller is established, the LED will stop blinking and it will light steadily.

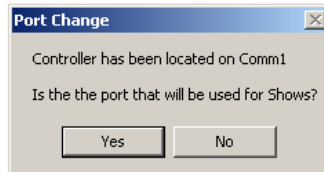
### Configuring the Communications Port

Connect the LOR160xW to a PC using one of the RS485 adapters and a cable. Using the Light-O-Rama *Hardware Utility* click **REFRESH**, verify that the *Hardware Utility* can locate the unit and that the Unit ID is correctly set.

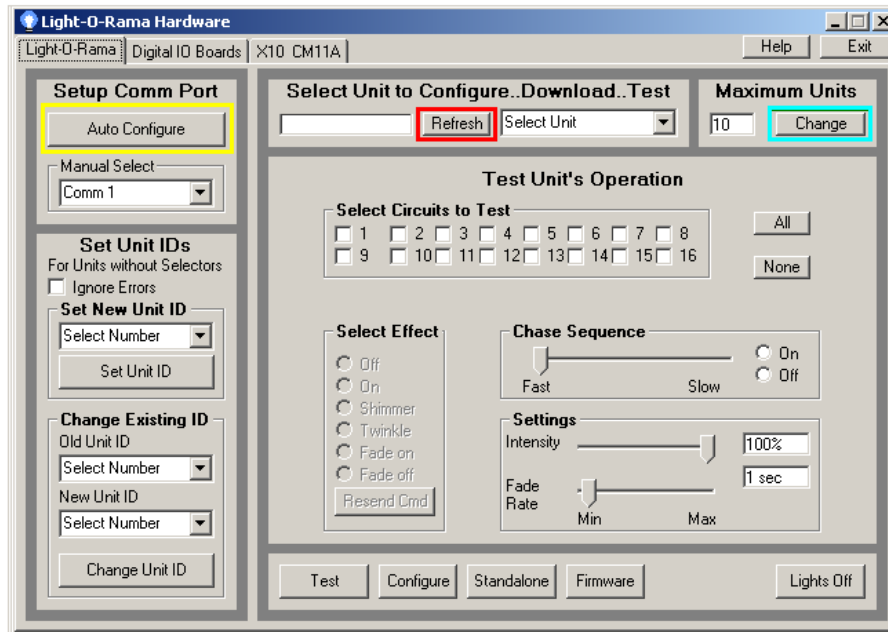
**TIP:** The **REFRESH** command can take a long time scanning for all possibly Unit IDs. To speed things up, set the max units to a number a couple more than the maximum Unit ID you plan on using.

## Configure The Comm Port

After connecting your controller to the PC via the SC485 adaptor, use the **Auto Configure** button to detect the correct port. (if you know the port just use Manual Select).



If you see this message while configuring the port, selecting Yes will permanently set the port so that other programs such as the Sequence Editor and the Show Player will use that port.



## Test Unit

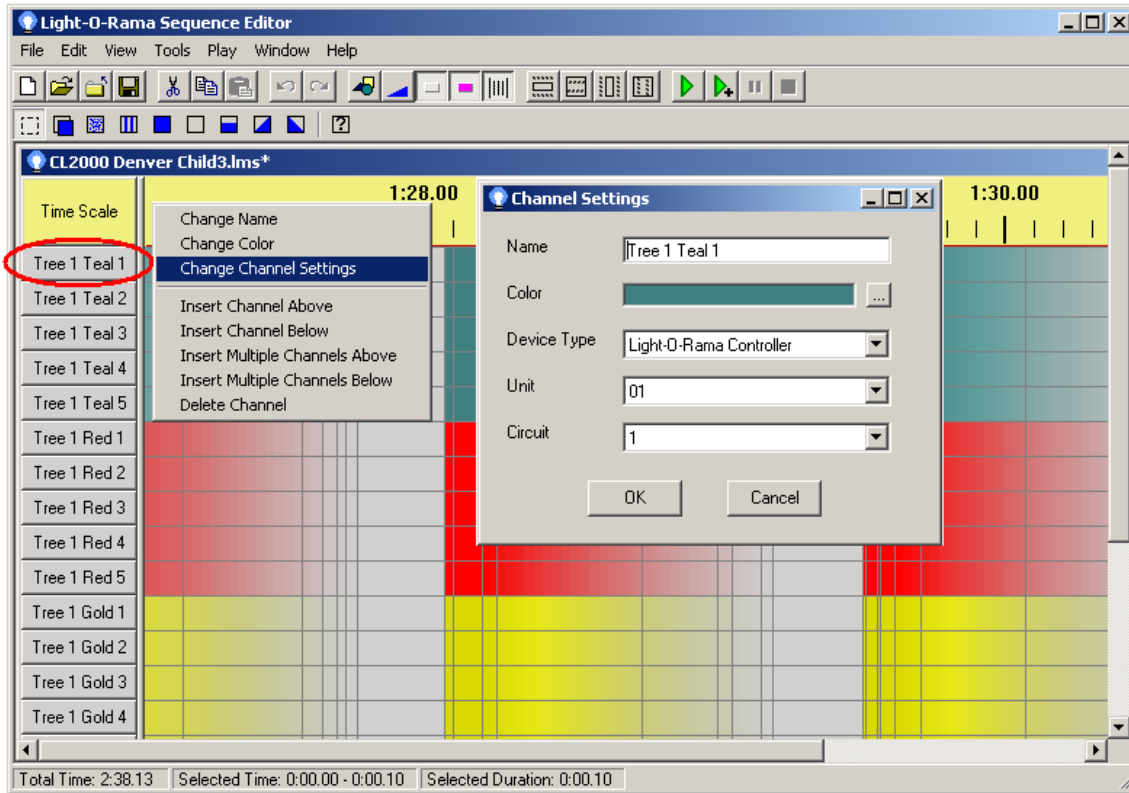
TIP: Use the **Change** button to set Max Units to as low a number as possible. **Refresh** will run faster.

Use the **Refresh** button to scan for the CTB16D. Once you see the Unit listed you can use the test buttons below to verify that all circuits are working correctly on the Unit.

This is a good time to see what different intensity levels look like and how different fade speeds look. You should also check to make sure all circuits are working OK on your Unit.

When using the Sequence Editor to develop a sequence to control the lights, the sequence must refer to the LOR160xW's Unit ID or the lights will not blink. This is true both when sequence is going to be downloaded as a standalone sequence and when the LOR160xW is controlled via the PC.

## The Sequence Editor



In the Sequence Editor, click *File > New > Animation Sequence*, in the box that pops up set the number of channels on your controller, the rest of the options can be left as is and click OK. Then click on a channel box ( on the left of the screen.) In the menu that pops up, select *Change Channel Options*. Set the Device type to Light-O-Rama Controller and the Unit to the Unit ID that you picked for your Unit. You will also notice that you can specify a Circuit Number. Circuit number 1 corresponds to Output Circuit 1 on the controller. When you click OK, the *Autopopulate* box will appear, select the number of channels on your controller and click OK. You now have a blank sequence grid.

Choose an effect from the tool bar (blue boxes in third row) and then click positions in the grid. This applies the selected effect to the selected channel(s) at the selected time.

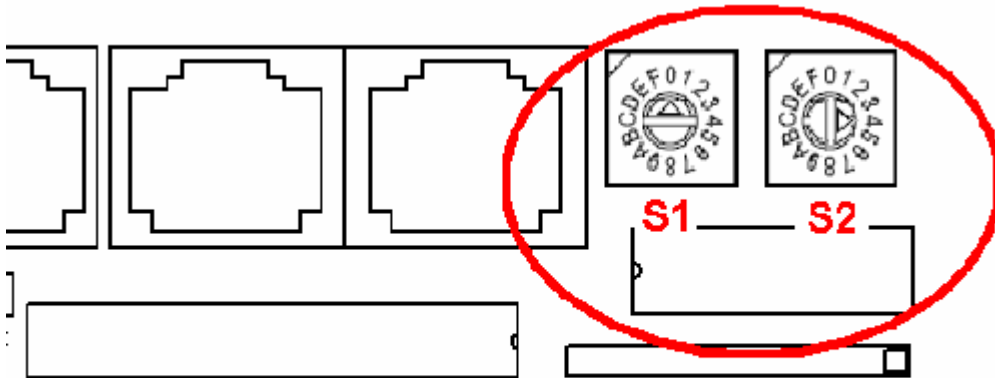
Make sure *Control Lights* in the *Play* menu is checked. Clicking the green play triangle will run your sequence. The red box will stop it.

### ***Identifying the Unit***

Each Light O Rama light controller used in a network must have a unique ID assigned. [If two controllers are given the same unit ID, then they will both perform the same effects.] Every channel that you control in a sequence has to identify a particular channel on a particular Unit.

For example, in a sequence that you construct, channel 32 may be assigned to Unit 03 circuit 10. Because the controllers are daisy chained together, every controller sees every command sent but Unit 03 will only react to commands that are marked “for Unit 03”.

The two hex, rotary dip switches (circled in red) are used to set a controller's Unit Id. Valid Unit Id values are 01-F0... 00 is not a valid Unit Id.

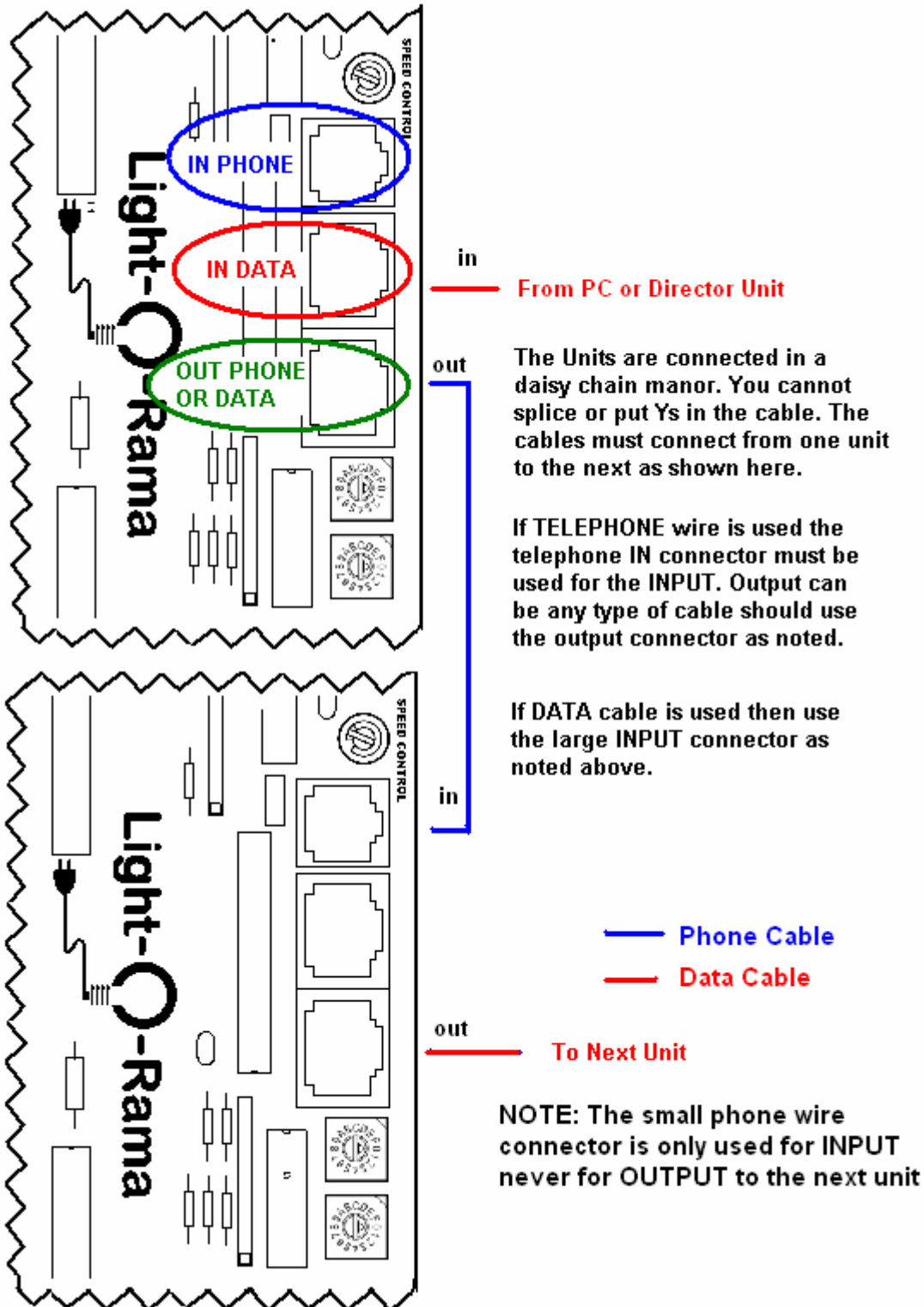


**TO SET UNIT ID TO “04” SET **S1**=0 and **S2**=4**



**LOR160xW Data Connection**

Inside the cover locate the comm (RJ11 & RJ45) connectors





### ***Operating in Standalone Mode***

The LOR160xW can operate without a connection to the PC. To operate in this mode, an animation sequence must be installed on the LOR160xW using the Light-O-Rama *Hardware Utility*. See the HELP files with the *Hardware Utility* for sequence download instructions.

When a standalone sequence is loaded into the controller by the Light-O-Rama *Hardware Utility* it can be set to run whenever the controller is powered or when a switch attached to the controller is closed.

A normally open switch can be attached to the jumper to provide low voltage control of the unit. Once activated (closed connection) the unit will operate for one pass through the downloaded sequence.

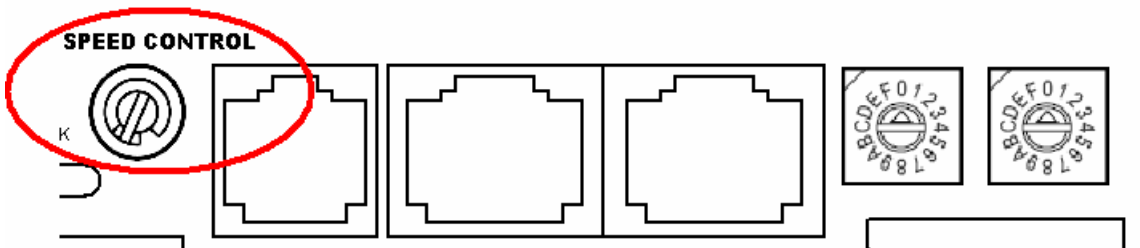
### ***Directing other controllers***

The LOR160xW can direct other controllers as well as itself when running in standalone mode. You could download a 48 channel sequence to the LOR160xW. In this sequence a number of different Units would be identified as being part of the sequence.

When a LOR160xW runs in standalone mode, commands in the sequence that are not addressed to it are broadcast on the daisy chain connection for other controllers to perform.

### ***Speed Control***

The LOR160xW has a speed control that regulates the speed at which a standalone sequence is executed. In the center position the sequence will execute at the rate specified in the sequence. That is 1 second in the sequence will take 1 second to execute. The sequence may pause slightly when adjusting the speed. This is normal operation.



## Triggering ( Starting ) a Sequence

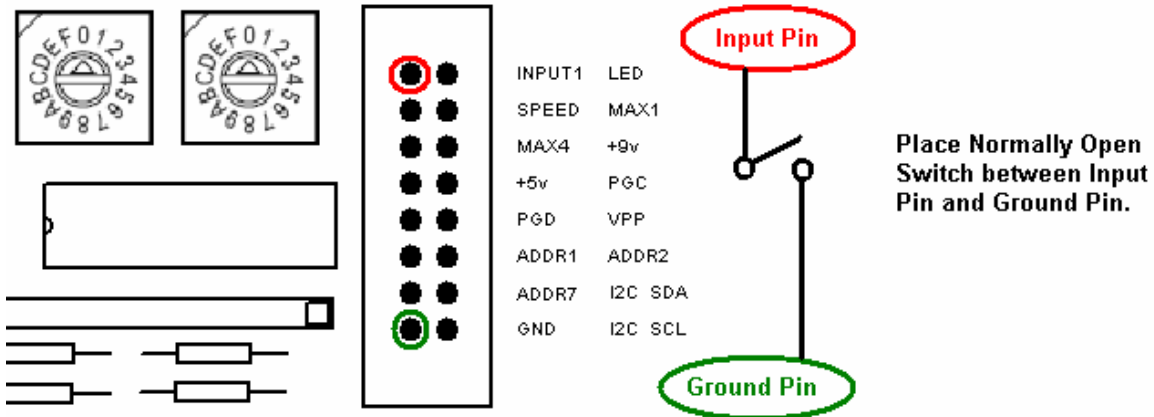
In the *Hardware Utility*, when you download a sequence you can specify what trigger condition will be used to start that sequence. A sequence can be triggered one of two ways: *Power on* and *Input Control*.

### Power On Mode

This means that the sequence will run anytime that power is supplied to the controller. You plug it in and it goes until you unplug it.

### Input Control Mode

This uses an input pin on the controller to determine when the sequence will run. When this pin is connected to the ground pin the sequence will run one time and then check to see if the pin is connected to ground. For more information on trigger conditions see the help for the *Hardware Utility*.



Electrical Specifications	Features
<ul style="list-style-type: none"> <li>• <b>Channel Capacity:</b> 8 amps per channel (16 amp triacs are used.)</li> <li>• <b>Controller Capacity:</b> LOR1600W is 15 amps LOR1602W is 30 amps</li> <li>• <b>Isolation:</b> Opto isolators are used to isolate high and low voltage sides. Triacs are isolated. Parts are UL listed.</li> <li>• <b>Supply Voltage:</b> 120VAC 50/60Hz</li> <li>• <b>Power Connections:</b> NEMA 5-15P NEMA 5-15R</li> <li>• <b>Control Input:</b> RS485 via RJ45 or RJ11 jack</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Director:</b> Unit can control other units as well as its own 16 channels.</li> <li>• <b>Input:</b> Unit can monitor inputs to start a sequence</li> <li>• <b>Addressing:</b> Up to 240 possible addresses. Each address can represent up to 8000 circuits.</li> <li>• <b>Fading:</b> 256 levels used for smooth fading effects. Fades from 0.1 to 25 seconds.</li> <li>• <b>Dimming:</b> 100 levels (0% ... 100%)</li> <li>• <b>Effects:</b> Ramp, Fade, Flicker, Shimmer</li> <li>• <b>Sequences:</b> Multiple internal sequences</li> <li>• <b>Presets:</b> High-burn and low-burn settings.</li> </ul>

**WARNING:** The LOR160xW can pose a dangerous electrical hazard if not used properly. Care should be taken to keep the LOR160xW dry. When the LOR160xW is directly connected to a PC via one of the RS485 adaptors, there is a direct electrical connection between the logic side of the LOR160xW and the PC. If the LOR160xW is physically damaged causing traces to short or the Unit is allowed to get wet either through direct contact with water or condensation, the logic side of the LOR160xW can receive direct 120VAC. In that case damage to any connected hardware such as a PC can occur.

**IN NO EVENT SHALL BUYER BE ENTITLED TO INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES, NOR SHALL LIGHT-O-RAMA'S LIABILITY EXCEED THE PURCHASE PRICE OF THE GOODS.**