



## THE CTB08D LIGHT CONTROLLER

The CTB08D is a one of the components in the Hobbyist line of Light-O-Rama products. The CTB08D must be used in conjunction with the Light-O-Rama software package. This controller generates a number of lighting effects including dimming, ramping and shimmering.

To operate this controller you will also need the Light-O-Rama software package and a Light-O-Rama SC485 RS232/RS485 adaptor to communicate with a PC.



### **FOR USE WITH INCANDESCENT LIGHT ONLY**

**Input:** 120/240VAC 20amp 50/60Hz

**Output:** 8 Independent Channels 120VAC 2amp 60Hz (without heatsink)

**CAUTION:** This product requires that the customer have an understanding of electrical wiring. It requires connections to 120/240 VAC. The board has many exposed high voltage connections which are potentially dangerous. The CTB08D should be placed in a safe enclosure ensuring safety to children and pets.

# GETTING STARTED WITH THE CTB08D

There are three steps to making the CTB08D useful. First: It must be wired to accept an AC power source and to distribute AC through it's 8 circuits. Second: It must be connected to a computer to receive commands. Third: Using the Light-O-Rama Sequence Editor a sequence must be created on the PC.

**For the PC to talk to the CTB08D, the CTB08D 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 CTB08D the **red LED** will begin to blink. This is an indication that the Unit is functioning and that there is NO COMMUNICATION. Once communications is established, the LED will stop blinking and it will light steadily.

Connect the CTB08D to a PC using the SC485 adaptor and a cable. Using the Light-O-Rama Hardware Utility Click **REFRESH** and 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 to speed things up, set the max units to a number less than the maximum Unit ID you plan on using.

**When developing a Sequence to control the lights, the sequence must refer to the CTB08D's Unit ID or the lights will not blink. This is true if the sequenced is going to be downloaded as a standalone sequence as well as if the CTB08D is controlled via the PC.**

In the Sequence Editor, click on a channel box ( on the left of the screen ). In the menu that pops up, select *Change Channel Options*. You can then Set the Device type to Light-O-Rama Controller and the Unit to the ID that you picked for this Unit. You will also notice that you can specify a Circuit Number. Circuit number 1 corresponds to Output Circuit 1 on the board.

Once you have selected a Unit ID, have the lights connected to the CTB08D and have a cable connected to the PC via the SC485, you can control your lights. ( have fun ! )

# WIRING THE CTB08D

## General Information:

Generally HOT wires are BLACK or BROWN and Neutral wires are WHITE or BLUE. If you use lamp cord type wire, usually one of the wires has smooth insulation and the other wire has ribbed insulation. The wire with smooth insulation is HOT.

On a standard grounded outlet, the round hole is ground the short slot is HOT and the longer slot is NEUTRAL.

Wires should be carefully stripped to a length (about 1/3 inch) where the bare conductor can be inserted fully into the connector and no bare conductor is exposed.

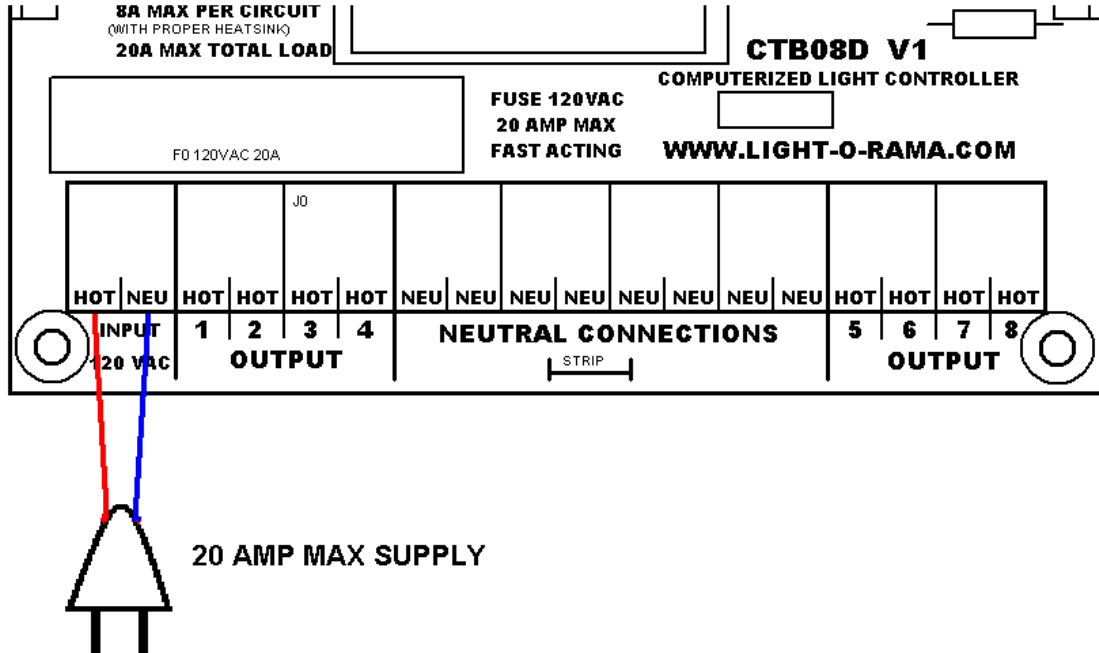
Frayed wires can cause short circuits that will damage the unit and pose a fire hazard. Carefully inspect all connections before applying power to insure that there are no short circuits.

The screw holding the wire in place must be tightened firmly. Pull on connected wires to ensure good mechanical connection. A loose wire can cause overheating and pose a fire hazard.

**CAUTION: SHOCK HAZARD THIS BOARD HAS MANY EXPOSED HIGH VOLTAGE CONTACTS. DISCONNECT POWER WHEN THE BOARD IS BEING WORKED ON. PLACE BOARD IN SAFE OPERATING ENVIRONMENT**

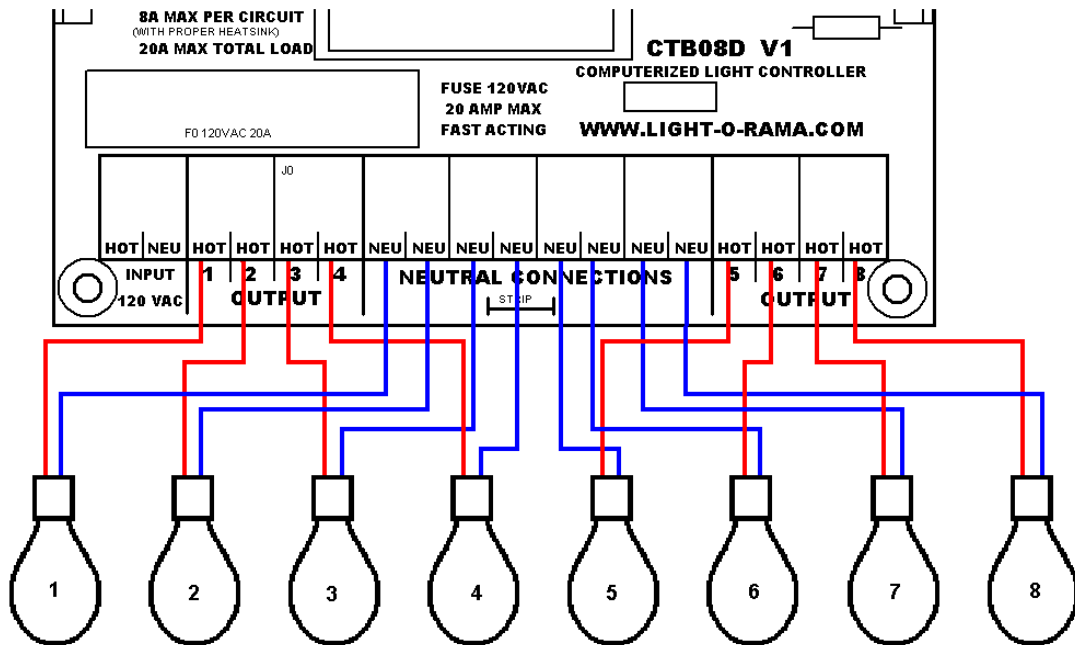
## POWER IN – GETTING POWER INTO THE CTB08D

The CTB08D can be wired to supply up to 20 amps. *The CTB08D is delivered with a 15 amp fast acting fuse. You should it with a 20 amp fast acting fuses if you intend on delivering over 15 amps.*



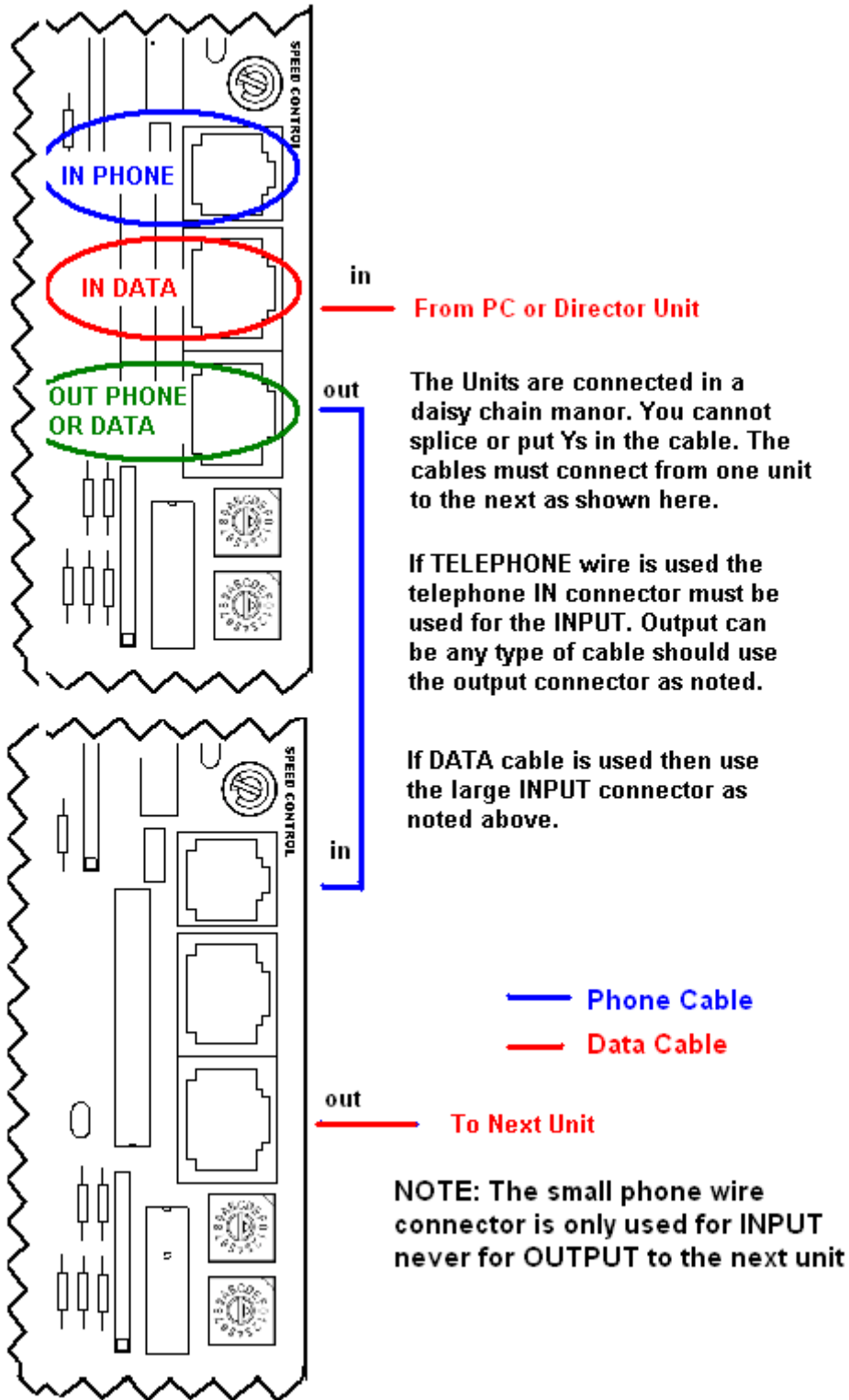
# POWER OUT – OUTPUT CIRCUITS ON THE CTB08D

Each output channel of the CTB08D can handle 2amps without a heat sink. 8 amps with proper heat sinking. There are 8 numbered output channels which are marked HOT and connected to the HOT side of the output wire. There are 8 Neutral terminals where you can conveniently terminate your neutral wires. . Neutrals can be connected off the card if that is more convenient.



**Note: Neutral wires can be placed in any of the 8 neutral connections on this card. Order of placement is not important.**

# CTB08D DATA CONNECTION

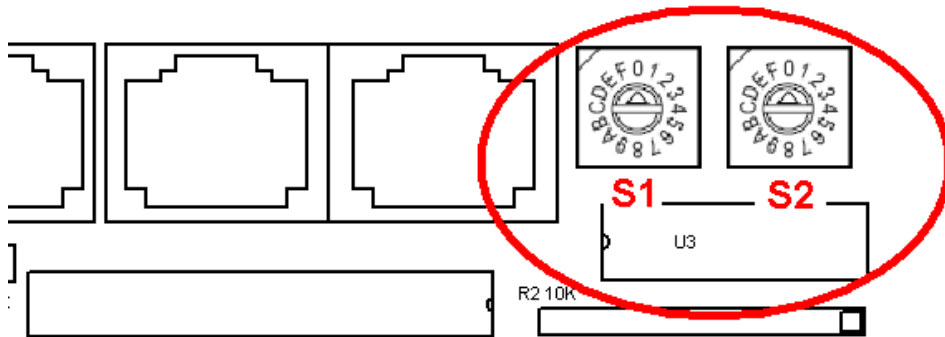


# IDENTIFYING THE UNIT

Each Light O Rama light controller used in a network must have a unique ID assigned. 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 3 circuit 10. Because the controllers are daisy chained together, every controller sees every command sent but Unit 3 will only react to commands that are marked “for Unit 3”.

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 “01” SET **S1=0** and **S2=1****

# OPERATING IN STANDALONE MODE

The CTB08D can operate without a connection to the PC. To operate in this mode, an animation sequence must be installed on the CTB08D using the Light-O-Rama Hardware Utility. See the HELP files with the Hardware Utility for sequence download instructions.

Once a standalone sequence has been loaded by the Light-O-Rama Hardware Utility, the Input connector is used to start and stop the sequence. Generally the supplied jumper will remain in place on the connector. With the jumper in place, the standalone sequence will operate anytime the unit is powered.

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

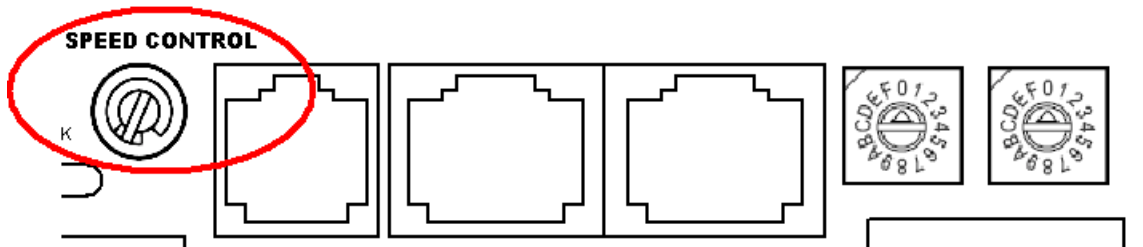
## Directing other controllers

The CTB08D can direct other controllers as well as itself when running in standalone mode. You could for example download a 48 channel sequence to the CTB08D. In this sequence a number of different Units would be identified as being part of the sequence.

When a CTB08D 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 CTB08D 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. You may notice that sequence pause slightly when adjusting the speed. This is normal operation.

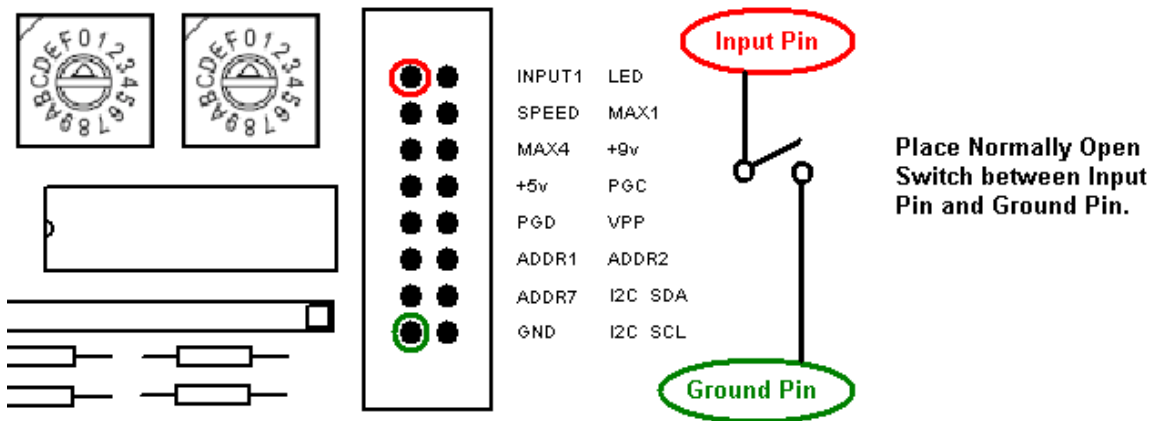


## Triggering ( Starting ) a Sequence

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 simply implies 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 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 with heatsink installed ( 16 amp triacs are used.)</li> <li>• <b>Board Capacity:</b> Board can be wired 20 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> 120/240VAC 50/60Hz</li> <li>• <b>Connections:</b> Terminal Strips – 20amp 12AWG max.</li> <li>• <b>Control Input:</b> RS485 – RJ45 or RJ11</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Director:</b> Unit can control other units as well as its own 08 channels.</li> <li>• <b>Input:</b> Unit can monitor inputs to start sequences.</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 CTB08D can pose a dangerous electrical hazard if not used properly. Care should be taken to keep the CTB08D dry. When the CTB08D is directly connected to a PC via a SC485 adaptor, there is a direct electrical connection between the logic side of the CTB08D and the PC. If the CTB08D 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 CTB08D 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.**