CIRCADIAN CABINET INSTALLATION

Version 1.4a

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The Phenome Technologies, Inc. light cabinet comes in a variety of configuration and sizes. All of the cabinets utilize the same electronic interfaces for controlling the lights and recording/monitoring data.

1. CABINET POWER SUPPLIES

1. 1 12 Volt Power Supplies

All circadian cabinets are supplied with two (2) table top power supplies. The larger power supply (5 Amperes) is for powering the lights. The other power supply is for powering the fan. For multiple cabinets that will be stacked vertically, the fan power receptacles for an entire stack can all be connected to a single power supply.

2. SETTING ADDRESS FOR LIGHT CONTROL

2.1 Cabinet Addressing for Clocklab Interfaces

When marked, cabinets come addressed with identifications in groups of 4: 1-4, 5-8, 9-12, etc. These markings are on the side of the cabinet near the black light control boxes. Single cabinets are addressed as 1 and are usually not marked. These ID's refer to the Clocklab light control ports of the Clocklab USB interface. The address for each box is set with the pair of jumpers spanning across the two rows of pins on the light control board indicated by Number 2 in Figure 1 below. When using the ClockLab Data Collection software to control the onset/offset of the lights, the Power Jumper (Jumper 1) **MUST** be off (that is the jumper does not connect the two pins together).
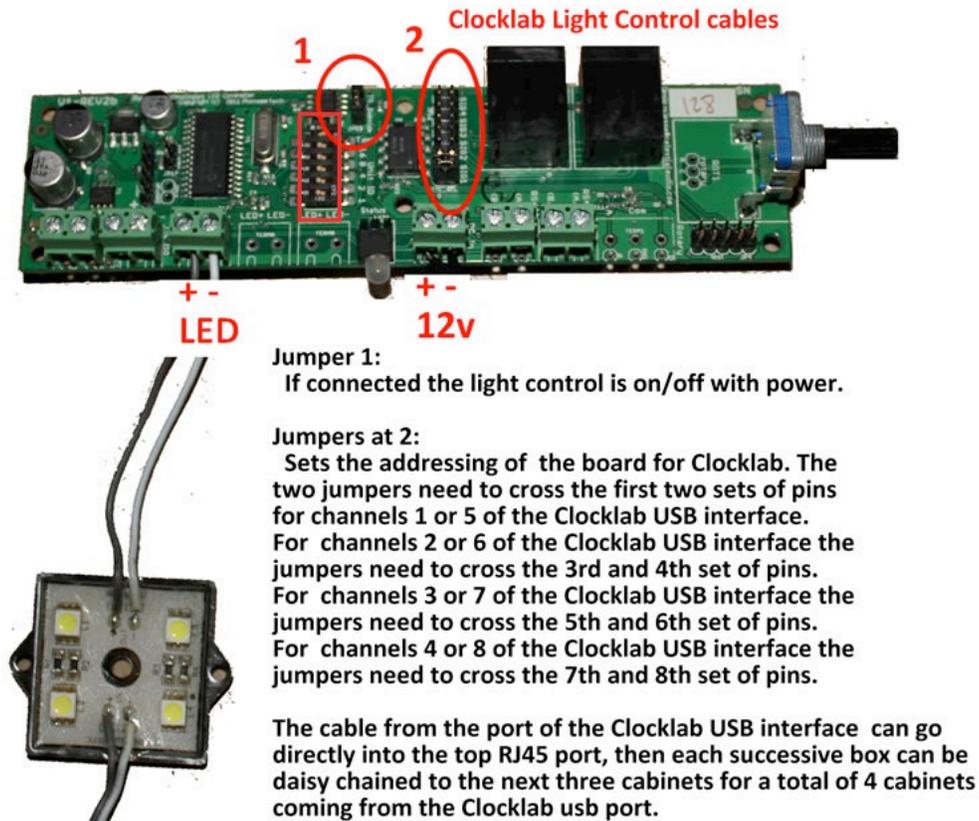

Clocklab Light Control cables

LED + -

12v + -

Jumper 1:
  If connected the light control is on/off with power.

Jumpers at 2:
  Sets the addressing of the board for Clocklab. The two jumpers need to cross the first two sets of pins for channels 1 or 5 of the Clocklab USB interface. For channels 2 or 6 of the Clocklab USB interface the jumpers need to cross the 3rd and 4th set of pins. For channels 3 or 7 of the Clocklab USB interface the jumpers need to cross the 5th and 6th set of pins. For channels 4 or 8 of the Clocklab USB interface the jumpers need to cross the 7th and 8th set of pins.

The cable from the port of the Clocklab USB interface can go directly into the top RJ45 port, then each successive box can be daisy chained to the next three cabinets for a total of 4 cabinets coming from the Clocklab usb port.

FIGURE 1

> **Note:** The connectors on the black control box cover for each box has three connections. The 2.5mm connector with the pin is for the 12 volt power supply, and the two phono plugs are for the RS485 control cabling.

2.2 Cabinet Addressing for RS485 Chamber Control Software

The most recent version of the cabinets now allows light level control using a blue BB Electronics USB to Serial Converter interface (P/N PT2-R485). The Circadian Chamber Control Software from Actimetrics provides the ability to specify the light amplitude as well as the durations to ramp from one light amplitude level to another light amplitude level. This software works in conjunction with the light control boards and sensor boards of the cabinet to provide dawn and dusk lighting events. The Circadian Chamber Control Software also provides the ability to monitor the temperature, humidity, and relative lux level within the cabinet with the addition of Temperature, Humidity, Light Sensor Board (P/N PT2-TH12). Addressing of the light control and sensor boards are done with the small DIP switches on the board using binary addressing, indicated by the red rectangle in Figure 1. NOTE: When using the ClockLab Cabinet Control Software, the power jumper (Jumper 1) **MUST** be on the 2 pins (Refer to Figure 1, Number 1).

2.3. Light Control with a Lamp Timer

If you are not using light controls or sensor boards, lamp timers can be used to control the onset and offset of the lights. These are available at any hardware store or can be purchased on the internet. For the lamp timer to operate the lights, the power jumper **MUST** be on the 2 pins (Refer to Figure 1, Number 1). Also, the light amplitude level can be set by setting all of the smaller DIP switches (refer to Figure 1, red rectangle) must to the OFF position. Once the jumper is in place, the user needs to plug in the power and set the light level **while the green LED is blinking** on the light control board. The light amplitude level must be set within the first two minutes after the board has received power.

3. STACKING CABINETS

3.1. Stacking the Cabinets

When purchasing multiple circadian cabinets, the cabinets will be numbered in groups of 4 (i.e., 1-4, 5-8, 9-12, etc.). Cabinets can be stacked up to four high depending on the ceiling space available. Cabinet 1 is placed upon cabinet 2, cabinet 2 on cabinet 3, and cabinet 3 on cabinet 4. The bottom cabinet 4 will have little blocks or feet that fit into the steel frames. The frames and cabinets are marked as to the setup. The forward part of the frame will have locking wheels.

4. CABLE CONNECTIONS

4.1. Light Control Connections for ClockLab

The data cables and light control cables can be interchanged. The shorter cables are daisy chained from the top to the lower box, and a longer cable cables allow the cabinets to be daisy chained from one stack to the next. The connectors for the lights on the cabinet are on the side of the black, light control box. Each box has two RJ45 connections. Plug the cable coming to the cabinet into the top RJ45 connector, and then daisy chain to the next box by cabling from the bottom connector of one cabinet to the top

RJ45 connector on the next cabinet. Then, using the cable provided, connect the cable from the bottom RJ45 to the top RJ45 connector of the top cabinet of the next stack. (See Figure 2)
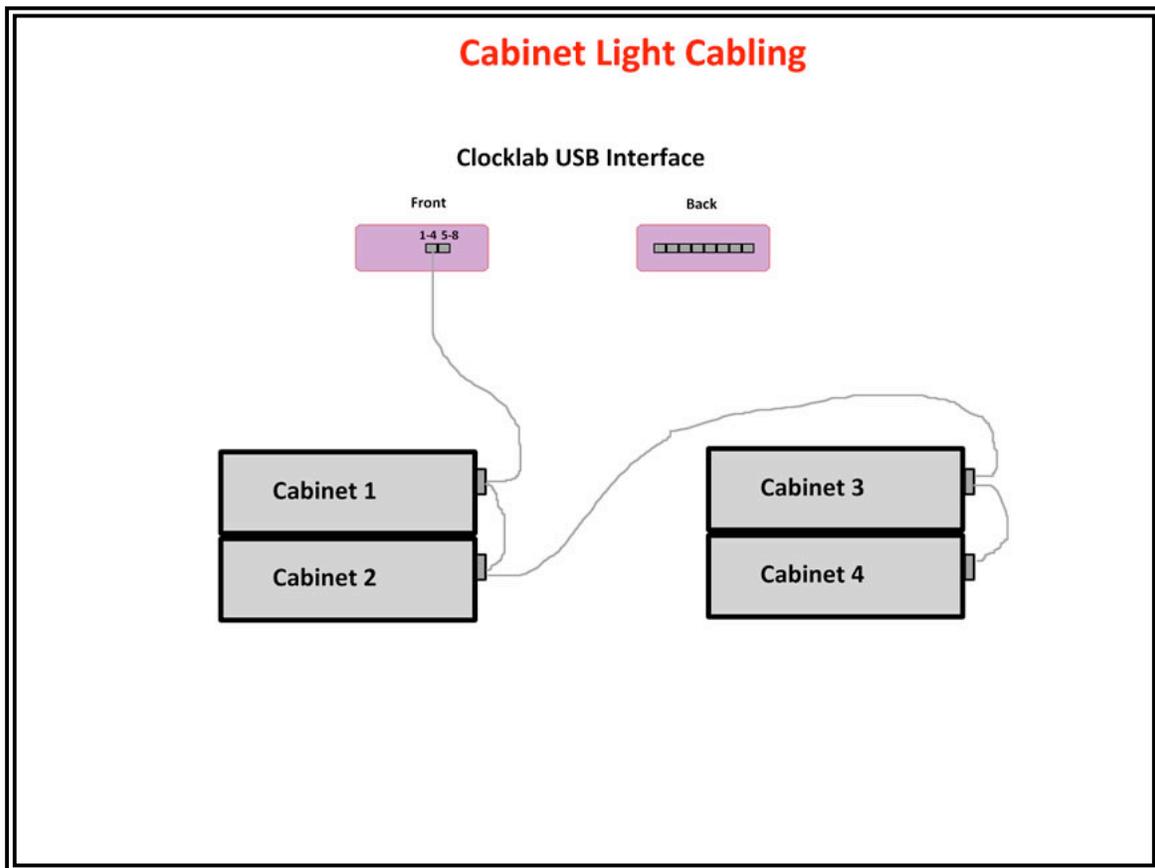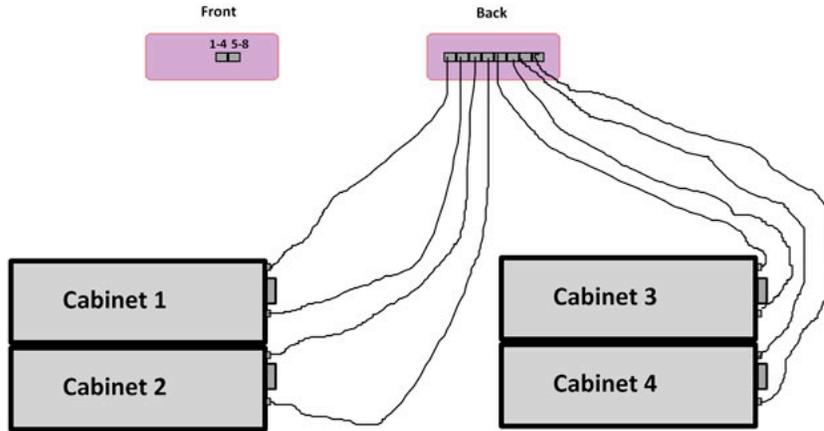

FIGURE 2

4.2 Data Cables

Figure 3 displays the data cable connections to the ClockLab USB CL300 (P/N ACT-556B). Each data port (data ports are the row of eight (8) RJ45 connections) of the ClockLab USB CL300 will be connected directly with a white or beige RJ45 connectors on the side of a cabinet. There are two white RJ45 connectors on each cabinet.

Cabinet Data Cabling