# INSTALLATION INSTRUCTIONS
# eLum RGB Controller



**MODEL NUMBER**

ALS-ELUM-RGB-CNTRL-1

**ADVANCED**
LIGHTING SYSTEMS

A NEXXUS LIGHTING COMPANY

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# 1.0 General Information

This controller is designed to receive DMX512 protocol and to drive a number of Advanced Lighting's LED strips. They use 24VDC power and three 0.5 - 5V analog control signals to vary the intensity of the red, green, and blue LED's. The controller's DMX input is fully opto-isolated and is bi-directional thus allowing the implementation of ESTA's RDM protocol. RDM is implemented to allow remote setting of the interface's DMX address and to gain access to the built-in effects package.  The eLum RGB Controller has four outputs to eLum LED strips.  Each output is capable of powering a combined total of 50 feet of eLum LED strips, power cable, and jumper cables.  The maximum amount of eLum Cove RGB that can be powered by each output junction is 10.3 feet (8-16" RGB Strips).  Below a typical eLum RGB system controlled by a eLum RGB Controller.
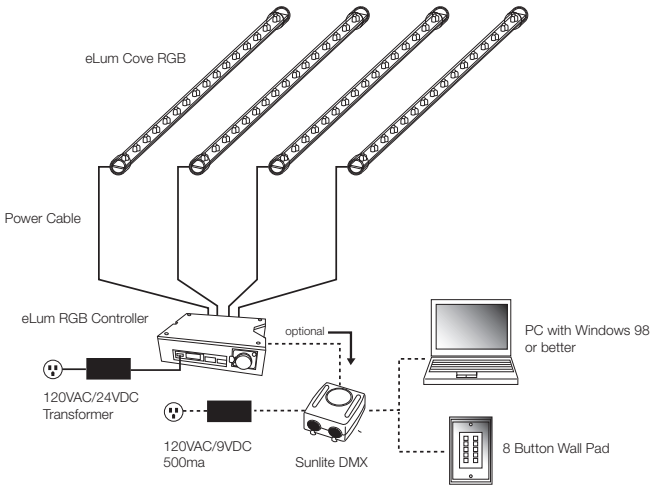


# 2.0 Connections

- J1 is the power input. This connector mates with the existing 24 volt power supply.
- J5, J6, J7, and J8 are the outputs to the LED strips. These mate with existing cables and LED strips. Each output connector can have 8 LED strips and 50 feet of cable (the original design goal). Each output is protected by a 5A self-resetting poly-fuse.
- J3 and TB1 are wired in parallel. They are used for DMX/RDM input. Only one of these should be used at a time. J3 allows for a plug-in signal connection while TB1 is easy for contractors to make field terminations.
- J4 and TB2 are wired in parallel. They are used for DMX/RDM output or "thru" connections to other controllers. Only one of these should be used at a time. J4allows for a plug-in signal connection while TB2 is easy for contractors to make field terminations. These connections are only active if the termination switch is off (see details of the termination switch below).

## 3.0 Switches

**DIP switches 1-9**

The first 9 DIP switches are used to select the DMX address or to select one of the stand-alone special effects. Each switch is assigned a value. By turning on different combinations of switches, any DMX address or effect number may be selected. The switches have values as shown on the effects chart.

Using this chart, an example for setting an address of 237 is: Switches 1, 3, 4, 6, 7, and 8 are turned on.

This equals values 1 + 4 + 8 + 32 + 64 + 128 = 237

**DIP switch 10**

The tenth DIP switch is used to select the local effects mode. When it is on, the first 9 DIP switches are used to select the effect to run. The effect numbers and their functions are shown at the end of this document.

| Switch # | Value |
|----------|-------|
| 1 | 1 |
| 2 | 2 |
| 3 | 4 |
| 4 | 8 |
| 5 | 16 |
| 6 | 32 |
| 7 | 64 |
| 8 | 128 |
| 9 | 256 |

**Termination switch**

Slide switch S2 is used to control the DMX termination on the interface. When in the OFF position, the DMX line is not terminated. The signal is also routed to the DMX "thru" connections (J4 and TB2). When the switch is in the ON position, the terminator resistor is connected and the signal is removed from the DMX "thru" connectors. This system allows multiple controllers to be placed on the DMX line without the possibility of over-terminating it.

Note that when the interface is configured as a master, the termination switch should be off, placed in the "PASS-THRU" position.

## 4.0 Indicators

- Red LED (D1). This is the power indicator. It illuminates when power is on.
- Yellow LED (D2). This indicator illuminates when RDM addressing is active. It shows that the DMX address has been set remotely. This mode can only be active if all 10 DIP switches are off. This LED also blinks slowly while the RDM protocol is identifying the interface.
- Green LED (D3). This is the signal indicator. It illuminates when a DMX input signal is present or if a master controller is sending special effects data. If the interface is generating special effects (it is the master), the green LED will blink slowly.

## 5.0 DMX Operation

The interface uses 5 DMX channels to control the outputs. The starting address is set on the DIP switches or via RDM protocol. The first channel controls the red output, the second channel controls the green output, and the third channel controls the blue output. This is the normal method for DMX control. Channels 4 and 5 are used to access the special effects system. This allows the user to set a single channel to a level to trigger a fade, strobe, or to recall a specific preset color. During normal operation, channels 4 and 5 must be set to 0%. If either of these channels is above 0%, the levels set by channels 1 - 3 will be ignored. Channel 4 gives access to effects 4 - 25. Channel 5 gives access to effects 30 - 82. The mapping of specific DMX values to effect numbers is shown in a chart at the end of this document. Upon loss of the DMX input signal, the green LED will turn off and the outputs will hold the last levels received.

## 6.0 RDM Operation

The interface uses ESTA's RDM protocol to remotely set the start address. In order to enable the RDM protocol, all 10 DIP switches must be in the OFF (down) position. When this is done, the yellow RDM ACTIVE LED will turn on. This indicates that the DMX address is set by RDM and can not be determined by examining the DIP switches. Using a Doug Fleenor Design RAD or similar device, the interface can be identified, its current DMX address can be found, and its DMX address can be changed.

**To use a RAD, do the following:**
- Connect a RAD to the interface (all 10 DIP switches must be OFF).
- Turn on the RAD.
- Push the NEXT button on the RAD. This causes the RAD to attempt to discover an RDM device. The interface will identify itself by flashing the yellow RDM indicator and by flashing the red outputs at the same time. The RAD will display the current DMX address programmed into the interface. Note that the identify mode times out in about 30 seconds. Any changes to the address should be made within this time.
- Set a new DMX address using the buttons below each digit on the RAD. When the desired address is displayed, push the NEXT button on the RAD. The new address will be saved to the interface and the system will go back to normal operation. If more than one controller is on the line, pushing the NEXT button will cause the RAD to discover another device. Note that the discovery process will find devices based on their serial number; not by the order in which they are wired.

The RAD is normally used to set the DMX address for the interface. It can also access the special effects if desired. This is done by setting the address to values in the 600 series of addresses. For example, setting the address to 601 will access effect 1 and setting the address to 630 will access effect 30.

# 7.0  Manufacturers Note

After initial programming, the interface will be programmed with a default serial number. This electronic serial number must be changed from the default to a unique number for the interface to function in an RDM environment. The interface will not operate until this has been done. It will power up with the red output on at full intensity. No control of any sort is possible until the serial number is set. Once set (using the ID'ER), the interface will function normally. The serial number only needs to be set once. The new value is held in the microcontroller's non-volatile memory.

# 8.0 Stand Alone Settings

| Effect # | Switch Position | | | | | | | Description |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | Static red |
| 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | Static blue |
| 3 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | Static green |
| 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | Static magenta |
| 5 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | Static yellow |
| 6 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | Static cyan |
| 7 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | Static warm white |
| 8 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | Static cool white |
| 9 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | Static blue magenta |
| 10 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | Static red magenta |
| 11 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | Static turquoise |
| 12 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | Static orange |
| 13 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | Static light blue |
| 14 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | Static light yellow |
| 15 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | Static warm piink |
| 16 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | Static light green |
| 17 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | Static light salmon |
| 18 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | Static light amber |
| 19 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | Static light lavender |
| 20 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | Fade red, blue, green 30 sec |
| 21 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | Fade red, blue, green 20 sec |
| 22 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | Fade red, blue, green 15 sec |
| 23 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | Fade red, blue, green 10 sec |
| 24 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | Fade red, blue, green 5 sec |
| 25 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | Fade red, blue, green 1 sec |
| 30 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | Fade rmy, 30 sec |
| 31 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | Fade rmy, 20 sec |
| 32 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | Fade rmy, 15 sec |
| 33 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | Fade rmy, 10 sec |
| 34 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | Fade rmy, 5 sec |
| 35 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | Fade rmy, 1 sec |
| 40 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | Snap color sequence 10 sec |
| 41 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | Snap color sequence 5 sec |
| 42 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | Snap color sequence 2 sec |
| 43 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | Snap color sequence 1 sec |
| 44 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | Snap color sequence 0.5 sec |
| 45 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | Snap color sequence 0.25 sec |
| 50 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | Strobe red 0.5 sec |
| 51 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | Strobe red 0.25 sec |
| 52 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | Strobe red 0.1 sec |
| 60 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | Strobe blue 0.5 sec |
| 61 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | Strobe blue 0.25 sec |
| 62 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | Strobe green 0.1 sec |
| 70 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | Strobe green 0.5 sec |
| 71 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | Strobe green 0.25 sec |
| 72 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | Strobe green 0.1 sec |
| 80 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | Strobe white 0.5 sec |
| 81 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | Strobe white 0.25 sec |
| 82 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | Strobe white 0.1 sec |

# 9.0 Effect Chart

| Effect Number | Description | DMX Channel | DMX Level Range | RDM Address |
|---|---|---|---|---|
| 1 | static red | N/A | N/A | 601 |
| 2 | static blue | N/A | N/A | 602 |
| 3 | static green | N/A | N/A | 603 |
| 4 | static magenta | 4 | 11 - 21 | 604 |
| 5 | static yellow | 4 | 22 - 32 | 605 |
| 6 | static cyan | 4 | 33 - 43 | 606 |
| 7 | static warm white | 4 | 44 - 54 | 607 |
| 8 | static cool white | 4 | 55 - 65 | 608 |
| 9 | static blue magenta | 4 | 66 - 76 | 609 |
| 10 | static red magenta | 4 | 77 - 87 | 610 |
| 11 | static turquoise | 4 | 88 - 98 | 611 |
| 12 | static orange | 4 | 99 - 109 | 612 |
| 13 | static light blue | 4 | 110 - 120 | 613 |
| 14 | static light yellow | 4 | 121 - 131 | 614 |
| 15 | static warm pink | 4 | 132 - 142 | 615 |
| 16 | static light green | 4 | 143 - 153 | 616 |
| 17 | static light salmon | 4 | 154 - 164 | 617 |
| 18 | static light amber | 4 | 165 - 175 | 618 |
| 19 | static light lavender | 4 | 176 - 186 | 619 |
| 20 | fade red, blue, green 30 sec | 4 | 187 - 197 | 620 |
| 21 | fade red, blue, green 20 sec | 4 | 198 - 208 | 621 |
| 22 | fade red, blue, green 15 sec | 4 | 209 - 219 | 622 |
| 23 | fade red, blue, green 10 sec | 4 | 220 - 230 | 623 |
| 24 | fade red, blue, green 5 sec | 4 | 231 - 241 | 624 |
| 25 | fade red, blue, green 1 sec | 4 | 242 - 252 | 625 |
| 30 | fade rmy, 30 sec | 5 | 10 - 19 | 630 |
| 31 | fade rmy, 20 sec | 5 | 20 - 29 | 631 |
| 32 | fade rmy, 15 sec | 5 | 30 - 39 | 632 |
| 33 | fade rmy, 10 sec | 5 | 40 - 49 | 633 |
| 34 | fade rmy, 5 sec | 5 | 50 - 59 | 634 |
| 35 | fade rmy, 1 sec | 5 | 60 - 69 | 635 |
| 40 | snap color sequence 10 sec | 5 | 70 - 79 | 640 |
| 41 | snap color sequence 5 sec | 5 | 80 - 89 | 641 |
| 42 | snap color sequence 2 sec | 5 | 90 - 99 | 642 |
| 43 | snap color sequence 1 sec | 5 | 100 - 109 | 643 |
| 44 | snap color sequence .5 sec | 5 | 110 - 119 | 644 |
| 45 | snap color sequence .25 sec | 5 | 120 - 129 | 645 |
| 50 | strobe red 0.5 sec | 5 | 130 - 139 | 650 |
| 51 | strobe red 0.25 sec | 5 | 140 - 149 | 651 |
| 52 | strobe red 0.1 sec | 5 | 150 - 159 | 652 |
| 60 | strobe blue 0.5 sec | 5 | 160 - 169 | 660 |
| 61 | strobe blue 0.25 sec | 5 | 170 - 179 | 661 |
| 62 | strobe green 0.1 sec | 5 | 180 - 189 | 662 |
| 70 | strobe green 0.25 sec | 5 | 190 - 199 | 670 |
| 71 | strobe green 0.5 sec | 5 | 200 - 209 | 671 |
| 72 | strobe green 0.1 sec | 5 | 210 - 219 | 672 |
| 80 | strobe white 0.5 sec | 5 | 220 - 229 | 680 |
| 81 | strobe white 0.25 sec | 5 | 230 - 239 | 681 |
| 82 | strobe white 0.1 sec | 5 | 240 - 249 | 682 |

## LIMITED WARRANTY

Nexxus Lighting, Inc. warranties its products, excluding lamps, to be free from defects in material and/ or workmanship, under normal condition, use and service, for a period of two (2) years from the original invoice date (Five (5) Years for Red, Amber and Orange FlexLED and Border Light LED products and one (1) Year for Non-UL Listed Power Supplies). If proof of purchase is provided, Nexxus Lighting will warranty the product for two (2) years from date of the purchase (Five (5) Years for Red, Amber and Orange FlexLED and Border Light products and one (1) Year for Non-UL Listed Power Supplies).

### TERMS AND CONDITIONS:
This warranty only applies when Nexxus Lighting products are properly wired and installed together as a system; and operated within the electrical values shown on the Nexxus Lighting specification sheets; used in lighting equipment designed and approved for the application and environmental conditions (temperature, humidity) within the normal specified operating range of the system. This warranty does not apply to any abnormal use in violation of any applicable standard, code or instructions for use in installations including those contained in the latest National Electrical Code (NEC), the Standards for Safety of Underwriters Laboratory, Inc. (UL), Standards for the American National Standards Institute (ANSI), in Canada, the Canadian Standards Association (CSA), Europe (CE), Australia (C-Tick). This warranty will not apply in the event of conditions demonstrating abnormal use or stress, including under/ over voltage conditions, excessive switching cycles, excessive operating hours, alterations, accident, theft, misuse, abuse and damaged caused by negligent installation, improper maintenance or where adequate care has not been taken to prevent damage to the lighting system. Replacement of Nexxus Lighting components with any other manufacturer will void the entire warranty.

### WARRANTY SERVICE CLAIMS:
Nexxus Lighting must issue a Return Material Authorization (RMA) number for all requests for warranty review. To expedite service, please contact Nexxus Lighting Customer Representative: 407-857-9900. If you are unsure whether a situation exists that is covered by this warranty, please contact Nexxus Lighting Customer Service for assistance. In the event of a defect in material or workmanship during the warranty period, Nexxus Lighting will repair or replace (at its own discretion) its products under the conditions of the warranty.

### RETURN OF DEFECTIVE PRODUCT:
After contacting Nexxus Lighting, Inc. and receiving the RMA#, the purchaser / user shall promptly return the product after receiving instructions regarding if, when and where to ship product. Product must be returned within 30 days of receiving RMA#, Shipping box must be clearly marked with RMA#. Failure to follow this procedure shall void this warranty. Nexxus Lighting will cover expenses for material but will not cover shipping costs. Products returned without an RMA# will be refused and returned to sender at the senders expense.

### REPLACEMENT OF PRODUCT, LIMITS OF LIABILITY:
The foregoing shall constitute the exclusive remedy of the purchaser and the sole liability of Nexxus Lighting, Inc. regarding its products and component warranty. NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE OR IS TO BE IMPLIED. In no event shall Nexxus Lighting, Inc. be liable for any other costs or damages including labor charges, lost profits or revenues, incidental, special or consequential damages. Total liability shall not exceed the total extended purchase price for the product. Nexxus Lighting, Inc. reserves the right to examine all failed Nexxus Lighting, Inc. products and components to determine the cause of failure and patterns of usage and reserves the right to be the sole judge as to whether any product or component is defective and covered under this warranty.