



**Strand**

# LEKO LED OUTDOOR, FULL COLOR

USER MANUAL

# INTRODUCTION

## OUR GOAL

---

We are committed to providing you the highest quality in customer service. Our comprehensive resources are available to help your business succeed and ensure you get the full benefit of being a Strand customer.

## TECHNICAL SUPPORT

Our Service and Support team is tasked with online and field support, repair, demo, commissioning, maintenance contracts, and technical training for fixtures and systems. In addition, this team plays a large role in a Systems sales, responsible for administering final commissioning, record-keeping, and organizing services. Refer to the back cover of this User Manual for contacts in your region or visit [www.strandlighting.com/support](http://www.strandlighting.com/support)

## CUSTOMER SERVICE

Customer Service is responsible for boxed goods and spare parts quotations, order entry and fulfilment, project delivery, lead times, and general account management. They also manage all after sales warranty fulfilment, RGA, and repairs invoicing in tandem with our After Sales Service & Support team. Visit our website to find a customer service agent in your region.

## ADDITIONAL DOCUMENTATION

Additional product documentation, including DMX maps, software, and photometric reports, are available for download on our website.

For more information on installing DMX512 control systems, the following publication is available for purchase from the United States Institute for Theatre Technology (USITT), "Recommended Practice for DMX512: A Guide for Users and Installers, 2nd edition" (ISBN: 9780955703522).

USITT Contact Information:

USITT

315 South Crouse Avenue, Suite 200

Syracuse, New York 13210-1844 USA

Phone: 800-938-7488 or +1-315-463-6463

Fax: 866-398-7488 or +1-315-463-6525

Website: [www.usitt.org](http://www.usitt.org)

## ABOUT THIS DOCUMENT

---

Read all instructions before installing or using this product. Retain this User Manual for future reference.

Additional product information and descriptions may be found on the product data sheet(s) which can be downloaded from the Strand website at [www.strandlighting.com](http://www.strandlighting.com).

This User Manual provides necessary information regarding safety, installation, operation and routine maintenance for Strand Leko LED Outdoor. Familiarizing yourself with this information will help you to get the most out of your product.

---

**WARNING:** It is important to read ALL accompanying safety and installation instructions to avoid damage to the product and potential injury to yourself or others.

---

## SAFETY WARNINGS AND NOTICES

---

Read this user manual in full before attempting to install, operate or maintain the fixture to which it relates. This user manual is intended to provide general guidance to such suitably qualified personnel. Installation and operation of the fixture are to be performed by qualified personnel only.

When using electrical equipment, basic safety precautions should always be followed including the following:

### **READ AND FOLLOW ALL SAFETY INSTRUCTIONS.**

- For indoor, dry location use only. Do not use outdoors unless fixture is suitably IP rated.
- Use safety tether when mounting.
- Equipment should be mounted in locations and at heights where it will not be readily subjected to tampering by unauthorized personnel.
- Not for residential use. Do not use this equipment for other than intended use.
- Note distance requirement(s) from combustible materials or illuminated objects. Do not mount near gas or electric heaters.
- Install only in locations with adequate ventilation. Ensure sure that ventilation slots are not blocked.
- Ensure that the voltage and frequency of the power supply match the power requirements of the fixture.
- The fixture must be earthed/grounded to the appropriate conductor.
- Do not operate fixture outside the specified ambient temperature range.
- Do not connect the fixture to any dimmer pack.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition and void warranty.
- Refer service to qualified personnel. This fixture contains no user serviceable parts.
- Prior to first use, carefully inspect fixture to ensure no damage has occurred during shipping.
- Materials used in the manufacturing process can cause strong odors when the product is new. These odors dissipate over time.
- Prior to each use, carefully inspect power cables and replace any damaged cables.
- Exterior surfaces of the luminaire will be hot during operation. Take appropriate precautions.
- Continuous use of the fixture may shorten the lifespan. Power down the fixture when not in use.
- Do not cycle power on and off repeatedly. Disconnect mains power if the fixture is not used for an extended period.
- Clean fixtures regularly, particularly when working in a dusty environment.
- Never touch power cables or wires while the fixture is powered on.
- Avoid entangling power wires with other cables.
- In the event of a serious operating problem, immediately discontinue using the fixture.
- It is hazardous to operate luminaires without lens or shield. Shields, lenses, or ultraviolet screens shall be changed if they have become visibly damaged to such an extent that their effectiveness is impaired, for example, by cracks or deep scratches.
- Original packing materials can be reused for transporting the fixture.
- Do not look directly at the LED light beam while the fixture is on.
- This is a Class A product. In a domestic environment this product may cause radio interference, in which case, the user may be required to take adequate measures.
- The light source contained in this luminaire shall only be replaced by the manufacturer or service agent or similarly qualified person.

### **SAVE THESE INSTRUCTIONS.**

---

**WARNING:** Refer to National Electrical Code® and local codes for cable specifications. Failure to use proper cable can result in damage to equipment or danger to personnel. Caution Against Direct Sunlight Through Front Lens Assembly

---

### CAUTION AGAINST DIRECT SUNLIGHT THROUGH FRONT LENS ASSEMBLY

The design and nature of the front lens assembly in Vari-Lite LLC luminaires is to efficiently focus the light energy from the luminaire's lamp for maximum light output.

- When the front lens assembly is exposed to direct sunlight or intense light from neighboring fixtures, the lens will collect and intensify this light and focus it back into the fixture. Intense sunlight or beams from other fixtures can cause damage to internal assemblies contained within the fixture.
- When fixture is not in use and direct sunlight or other intense light is present, position luminaires so their front lens assembly is not directly exposed to the light source.

### CAUTION AGAINST POWERING LUMINAIRES FROM DIMMER CIRCUITS

It is not recommended to power any Vari-Lite LLC luminaire from a dimmer - even in 'NONDIM' mode. Dimmer and non-dim modules are not suitable sources of power because their output modifies the AC wave form. This may work for a short time, but eventually results in power problems, luminaire mis-operation and/or failure.

- When using a power distribution rack, do not use dimmer or non-dim modules to power any Vari-Lite LLC luminaire. Damage to the luminaire can occur.
- Using a dimmer or non-dim module to power your Vari-Lite LLC luminaire will void your luminaire's warranty.

### CAUTION AGAINST THE USE OF THIRD PARTY PARTS OR ACCESSORIES

- Heat and heat distribution are important factors when operating Vari-Lite LLC luminaires. Vari-Lite LLC luminaires are designed to dissipate heat efficiently and safely. Any blockages or obstructions, such as aftermarket baffles, covers, enclosures, etc. can interrupt the luminaire's ability to dissipate heat properly and can damage the luminaire.
- Vari-Lite LLC cannot be responsible for issues arising from non-approved parts and accessories installed on or used with any Vari-Lite LLC product. Customers of such products should contact the manufacturer directly for assistance and support.

## TRANSPORTING LUMINAIRES

When shipping or transporting luminaires, Vari-Lite LLC recommends that the luminaire(s) be sufficiently protected against any (including, but not limited to) shock, vibration, drops, jarring, exposure to the environment, etc.

Failure to sufficiently protect any Vari-Lite LLC luminaire during shipping or transportation will result in damage and void the luminaire's warranty. Vari-Lite LLC will not be responsible for any shipping damage or breakage of any product under any circumstances. Vari-Lite LLC will not be responsible for any third party case manufacturer's cases.

---

**NOTE:** As with all automated luminaires, proper handling and suitable protective shipping cases should be used when transporting fixtures to reduce the risk of damage.

---

## TRANSPORTATION AND SHIPPING CASE REQUIREMENTS

Cases to transport Vari-Lite LLC luminaires should meet the following loading requirements:

- Luminaire head, yoke, and enclosure sub-assemblies shall be equally supported and constrained where no one sub-assembly (head, yoke, or enclosure) fully supports the entire mass of the luminaire.
- The interior of the case shall be of high quality and uniform density foam. The foam shall be of the same type and density throughout as to equally and uniformly support loading at every contact surface.
- The case shall, when laid on any of its six (6) surfaces, maintain the loading requirements outlined above.
- All cases not meeting the aforementioned loading requirements, with wheels, shall have markings on the exterior of the case that the unit is to be transported on its wheels only (e.g. "Case must be transported and remain [at all times] on its wheels").

## COMPLIANCE NOTICE

---



### FCC DECLARATION OF CONFORMITY

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with Vari-Lite Strand system, service, and safety guidelines, may cause harmful interference to radio communications.

As tested under this standard:

#### **FCC 47CFR 15B cIA\*CEI**

Issued:2009/10/01 Title 47 CFR Part 15 Subpart B Unintentional Radiators Class A

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.



### EU DECLARATION OF CONFORMITY

We, Vari-Lite LLC., 10911 Petal Street, Dallas, Texas 75238, declare under our responsibility for the products contained herein are in conformity with the essential requirements of the following European Directives and harmonized standards:

#### **Low Voltage Director (LVD), 2006/95/EC**

EN 60589-2-17:1984+A1:1987+A2:1990 used in conjunction with 60598-1:2008/A11:2009

#### **Electromagnetic Compatibility Directive (EMC), 2004//108/EC**

EN 55022:2010, EN55024:2010

## HOW TO OBTAIN WARRANTY SERVICE

---

A copy of the Limited Warranty card was included in the shipping package for this product.

To obtain warranty service, please contact customer service at 1-214-647-7880, or **entertainment.service@signify.com** and request a Return Material Authorization (RMA) for warranty service. You will need to provide the model and serial number of the item being returned, a description of the problem or failure and the name of the registered user or organization. If available, you should have your sales invoice to establish the date of sale as the beginning of the warranty period. Once you obtain the RMA, pack the unit in a secure shipping container or in its original packing box. Be sure to clearly indicate the RMA number on all packing lists, correspondence, and shipping labels. If available, please include a copy of your invoice (as proof of purchase) in the shipping container.

With the RMA number written legibly on or near the shipping address label, return the unit, freight prepaid, to:

Vari-Lite Strand  
Attention: Warranty Service (RMA# \_\_\_\_\_)  
10911 Petal Street  
Dallas, Texas 75238  
USA

As stated in the warranty, it is required that the shipment be insured and FOB our service center.

---

**IMPORTANT!** When returning products to Vari-Lite Strand for repairs (warranty or out-of-warranty) from a country other than the USA, "Vari-Lite LLC", must appear in the address block as the Importer of Record (IOR) on all shipping documentation, Commercial Invoices, etc. This must be done in order to clear customs in a timely manner and prevent returns.

---

# 1 DESCRIPTION

## FEATURES

---

- High output IP65 rated LED Profile - modern theatrical profile built for the outdoors.
- High CRI RGBALC Color System with SmartColor Control - wide range of vivid color options that can be programmed using CYM.
- Independent color mixing and temperature controls - match color pallet to color temperature without manual adjustment for simpler programming.
- Independent color mixing and temperature controls - match color palette to color temperature without manual adjustment for simpler programming.
- Cold white (5600 K) version optimized for maximum output - perfect for long distance projection running higher CRI output engine. Cold White version (64506-001) is not available for sale or delivery to any country or state within the European Union.
- Wide range zoom (18° to 30°) and adjustable focus can be controlled manually and/or by DMX - adjust the fixture where and how you need.
- Wire free DMX - integrated Wireless solution WDMX receiver.

For detailed product information, please refer to [www.strandlighting.com/global/products/leko-led-outdoor-profile](http://www.strandlighting.com/global/products/leko-led-outdoor-profile)

## COMPONENTS

---

The document provides installation and operation instructions for the following products:

- Strand Leko LED Outdoor, Full Color

Read all instructions before installing or using this product. Retain this manual for future reference. Additional product information and descriptions may be found on the product specification sheet.

### INCLUDED ITEMS

Each Strand Leko LED Outdoor, luminaire includes the following items:

- Strand Leko LED Outdoor, Full Color
- Quick Start Guide

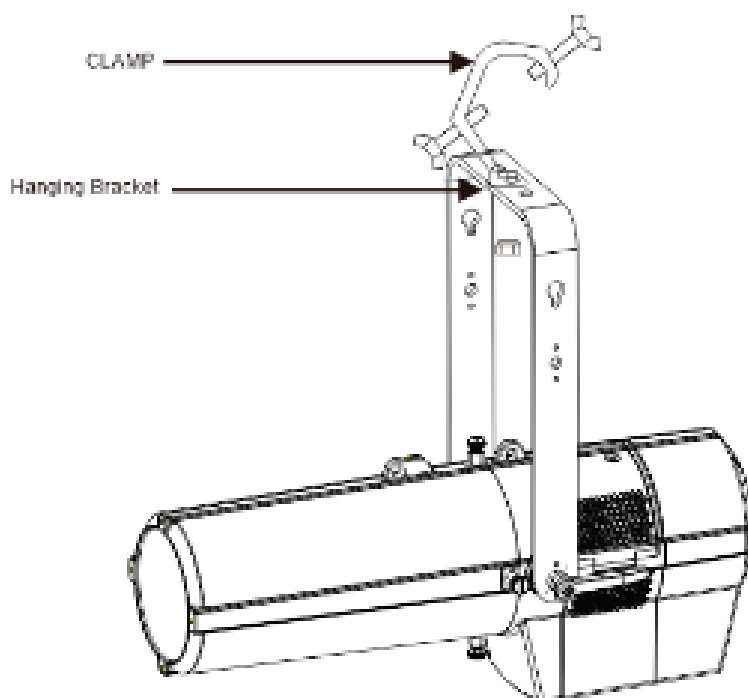
# 2 INSTALLATION

## MOUNTING

---

The unit should be mounted via its screw holes on the bracket. Always ensure that the unit is firmly fixed to avoid vibration and slipping while operating. When installing the fixture, always use a safety cable that is certified to hold up to 12 times the fixture's own weight.

The luminaire must be installed by qualified professionals.

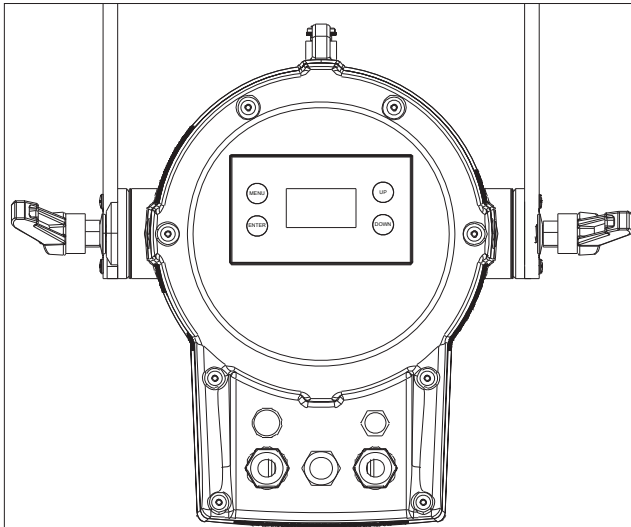




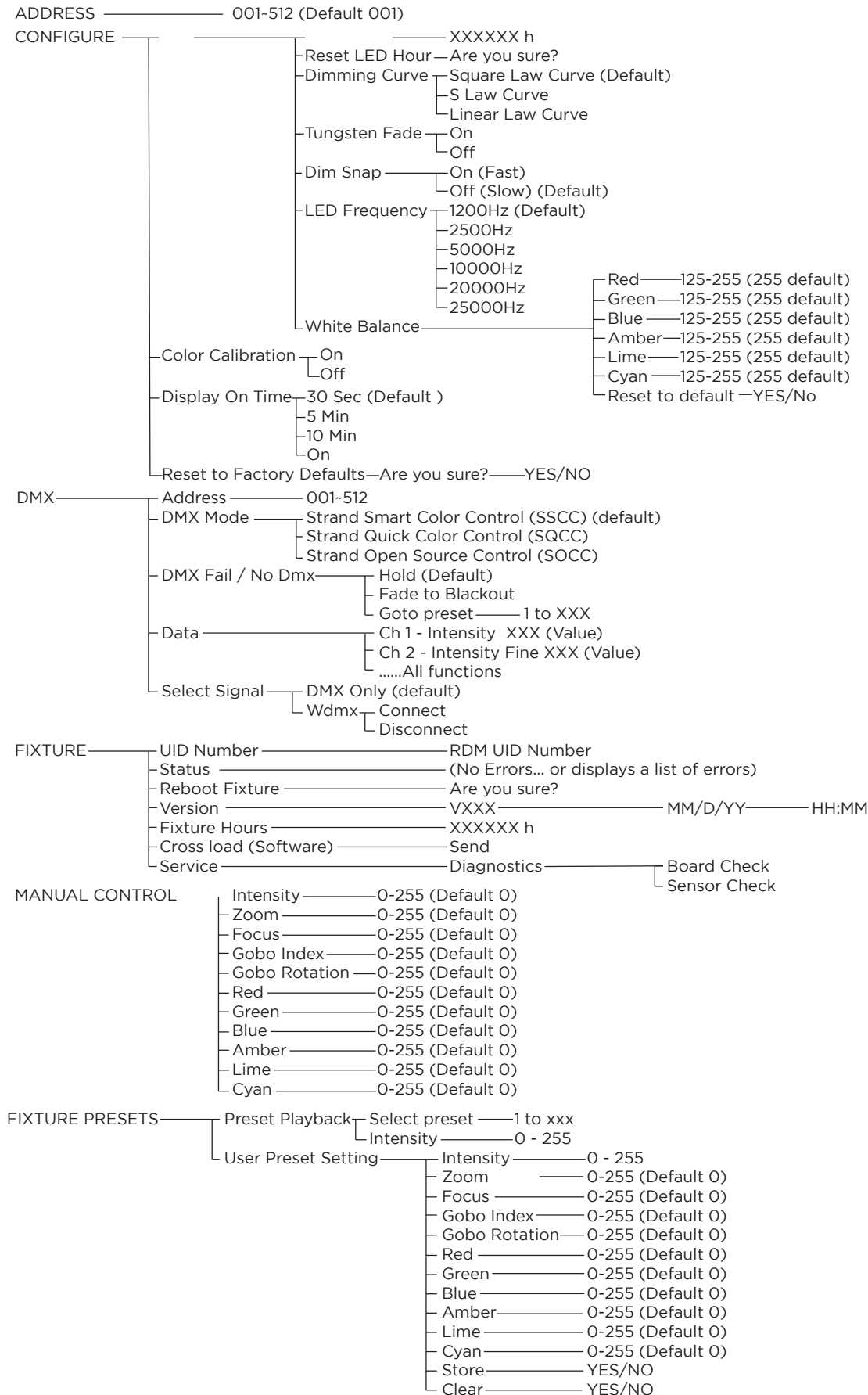
# 3 MENU OPERATION

## CONTROL PANEL

Press the MENU button to select any functions, until the required function is shown in the display. Select the desired function by pressing ENTER, which will cause the display to blink. Use the UP and DOWN button to change the mode. Once the required mode has been selected, press the ENTER button to accept the selection. Press MENU to return to the previous menu or let the unit idle for one minute to exit menu mode automatically.



- ① **LCD display** - shows the menu and selected functions
- ② **Control buttons**
  - MENU - use to select programming functions
  - ENTER - use to confirm selected functions
  - UP - toggle forward through functions
  - DOWN - toggle backward through functions
- ③ **DMX in** - 5-pin XLR cable to link DMX console  
**DMX out** - 5-pin XLR cable to link to next fixture
- ④ **Metal swivel head**
- ⑤ **Power in** - connects to power supply
- ⑥ **Voir valve**



# 4 DMX MAPPING

The fixture can be operated by DMX controller. The following tables assumes a DMX start address of 1. When a different starting address is used, this address becomes channel 1 function and other functions follow in sequence.

**TABLE 1. SSCC**

DMX CHANNEL	PARAMETER	DEFAULTS	RANGE DMX	DESCRIPTION
1	Intensity (High)	0	0 - 65535	16-bit Intensity (Dimmer) Control 0 - 100% Output
2	Intensity (Low)			
3	Strobe	0	0 - 255	Strobe S>>>>F
			0 - 9	No Strobe Function - Shutter open
			10 - 99	Strobe S>>>>F
			100 - 109	No Strobe Function - Shutter open
			110 - 179	Lighting Strobe S>>>>F
			180 - 189	No Strobe Function - Shutter open
			190 - 255	Random Strobe S>>>>F
4	Color Preset	0	0 - 255	Calibrated color presets 01 to 33 User definable color preset 01 to 20
			0 - 10	Channel OFF Color Mixing take priority
			11 - 14	Moroccan Pink
			15 - 18	Pink
			19 - 22	Flesh Pink
			23 - 26	Bright Rose
			27 - 30	Follies Pink
			31 - 34	Fuchsia Pink
			35 - 38	Surprise Pink
			39 - 42	Congo Blue
			43 - 46	Blue
			47 - 50	Virgin Blue
			51 - 54	Midnight Maya
			55 - 58	Double C.T Blue
			59 - 62	Slate Blue
			63 - 66	Regal Blue
			67 - 70	Full C.T Blue
			71 - 74	Steel Blue
			75 - 78	Lighter Blue
			79 - 82	Cyan
			83 - 86	Marine Blue
			87 - 90	Soft Green
			91 - 94	Moss Green
			95 - 98	Green
99 - 102	Fem Green			
103 - 106	JAS Green			
107 - 110	Pale Green			
111 - 114	Spring Yellow			
115 - 118	Yellow			

TABLE 1. SSCC

DMX CHANNEL	PARAMETER	DEFAULTS	RANGE DMX	DESCRIPTION
4	Color Preset continued	0	119 - 122	Deep Amber
			123 - 126	Chrome Orange
			127 - 130	Orange
			131 - 134	Magenta
			135 - 138	Flame Red
			139 - 142	Purple
			143 - 146	User Preset 1 Includes Intensity, Gobo and Edge Data
			147 - 150	User Preset 2 Includes Intensity, Gobo and Edge Data
			151 - 154	User Preset 3 Includes Intensity, Gobo and Edge Data
			155 - 158	User Preset 4 Includes Intensity, Gobo and Edge Data
			159 - 162	User Preset 5 Includes Intensity, Gobo and Edge Data
			163 - 166	User Preset 6 Includes Intensity, Gobo and Edge Data
			167 - 170	User Preset 7 Includes Intensity, Gobo and Edge Data
			171 - 174	User Preset 8 Includes Intensity, Gobo and Edge Data
			175 - 178	User Preset 9 Includes Intensity, Gobo and Edge Data
			179 - 182	User Preset 10 Includes Intensity, Gobo and Edge Data
			183 - 186	User Preset 11 Includes Intensity, Gobo and Edge Data
			187 - 190	User Preset 12 Includes Intensity, Gobo and Edge Data
			191 - 194	User Preset 13 Includes Intensity, Gobo and Edge Data
			195 - 198	User Preset 14 Includes Intensity, Gobo and Edge Data
199 - 202	User Preset 15 Includes Intensity, Gobo and Edge Data			
203 - 206	User Preset 16 Includes Intensity, Gobo and Edge Data			
207 - 210	User Preset 17 Includes Intensity, Gobo and Edge Data			
211 - 214	User Preset 18 Includes Intensity, Gobo and Edge Data			
215 - 218	User Preset 19 Includes Intensity, Gobo and Edge Data			
219 - 222	User Preset 20 Includes Intensity, Gobo and Edge Data			
223 - 255	Channel OFF Color Mixing take priority			
5	Zoom	128	0 - 255	8 Bit Motorized Zoom control 0 - 100% 0 = 15° 100% = 30°
6	Focus (High)	32767	0 - 65535	16-bit Motorized Focus control
7	Focus (Low)			
8	Gobo Index (High)	32767	0 - 65535	Gobo Index / Rotation Switched mode via channel 10
9	Gobo Index (Low)		32780 - 65535	Clockwise Index / Rotation S>>>>>>F
			32754 - 32780	Stop
			0 - 32754	Counter Clockwise Index / Rotation S>>>>>>F
10	Gobo Mode	0	0 - 255	Gobo Index/ Rotation Mode Control
			0 - 50	Gobo Index Mode
			51 - 100	Gobo Rotation Mode
			101 - 255	Reserved Values
11	Control Channel	0	0 - 255	Control Channel used for full fixture settings, lamp controls, and miscellaneous modes. Set discrete value of desired effect, wait >3 seconds, then set value to 0 (Idle). **Function does not require 3 Second rule to active, setting output to value will automatically activate function
			0 - 5	Idle (Default)
			6 - 10	Full Luminaire ReCal - Also Used to Wake fixture up from shutdown

TABLE 1. SSCC

DMX CHANNEL	PARAMETER	DEFAULTS	RANGE DMX	DESCRIPTION
11	Control Channel continued	0	11 - 15	Fixture Shutdown
			16 - 20	Reserved Values
			21 - 25	Display - Menu ON
			26 - 30	Display - Menu OFF
			31 - 35	Tungsten Dimming On**
			36 - 40	Tungsten Dimming Off (Default)**
			41 - 45	Dimming Curve Linear**
			46 - 50	Dimming Curve S-Curve**
			51 - 55	Dimming Curve Square Curve (Default)**
			56 - 60	Reserved
			61 - 65	Dimmer Snap On**
			66 - 70	Dimmer Snap Off (Default)**
			71 - 75	Reserved Values
			76 - 80	Reserved Values
			81 - 85	Reserved Values
			86 - 90	Reserved Values
			91 - 95	Reserved Values
			96 - 100	Reserved Values
			101 - 105	Reserved Values
			106 - 110	Reserved Values
			111 - 115	Reserved Values
			116 - 120	Reserved Values
			121 - 125	Reserved Values
			126 - 130	Reserved Values
			131 - 135	Reserved Values
			136 - 140	Reserved Values
			141 - 154	Reserved Values
			146 - 150	Reserved Values
151 - 155	Record User Color Preset**			
156 - 160	Reserved Values			
161 - 165	Reserved Values			
166 - 170	Reserved Values			
171 - 175	Reset fixture to default			
176 - 255	Reserved Values			
12	Cyan (High)	0	0 - 65535	Cyan Color Level Control 0 - 100% Saturation
13	Cyan (Low)			6 Color LED array auto adjust to meet Cyan / mixed color point of full available color spectrum
14	Yellow (High)	0	0 - 65535	Yellow Color Level Control 0 - 100% Saturation
15	Yellow (Low)			6 Color LED array auto adjust to meet Yellow / mixed color point of full available color spectrum
16	Magenta (High)	0	0 - 65535	Magenta Color Level Control 0 - 100% Saturation
17	Magenta (Low)			6 Color LED array auto adjust to meet Magenta / mixed color point of full available color spectrum

TABLE 1. SSCC

DMX CHANNEL	PARAMETER	DEFAULTS	RANGE DMX	DESCRIPTION
18	CTO	75	0 - 250	Variable color temperature control channel Channel works independent of color mixing channel and will adjust all mixed color from selected color temperature level. Values stated below are a for guidance only channel should be mapped in such away that channel level runs variable from 0 - 250
			0	1800K
			25	2700K
			50	3000K
			75	3200K (Default)
			100	4000K
			125	4500K
			150	5000K
			175	5600K
			200	6500K
			225	8000K
			250	10000K
			250 - 255	Reserved Hold 10000K
19	Green Shift	0	0 - 255	TV Camera Green Shift adjustment Channel works independent of color mixing channel and will adjust all mixed color from to reduce green color for camera use 0 to -100% Minus Green Levels 100% = to Lee Filter Full minus Green 247

TABLE 2. SQCC

DMX CHANNEL	PARAMETER	DEFAULTS	RANGE DMX	DESCRIPTION
1	Intensity (High)	0	0 - 65535	16bit Intensity (Dimmer) Control
2	Intensity (Low)			0 - 100% Output
3	Strobe	0	0 - 255	Strobe S>>>>>F
			0 - 9	No Strobe Function - Shutter open
			10 - 99	Strobe S>>>>>F
			100 - 109	No Strobe Function - Shutter open
			110 - 179	Lighting Strobe S>>>>>F
			180 - 189	No Strobe Function - Shutter open
			190 - 255	Random Strobe S>>>>>F
4	Color Preset	0	0 - 255	Calibrated color presets 01 to 33 User definable color preset 01 to 20
			0 - 10	Channel OFF Color Mixing take priority
			11 - 14	Moroccan Pink
			15 - 18	Pink
			19 - 22	Flesh Pink
			23 - 26	Bright Rose
			27 - 30	Follies Pink
			31 - 34	Fuchsia Pink
			35 - 38	Surprise Pink
			39 - 42	Congo Blue
			43 - 46	Blue
			47 - 50	Virgin Blue
			51 - 54	Midnight Maya
			55 - 58	Double C.T Blue
			59 - 62	Slate Blue
			63 - 66	Regal Blue
			67 - 70	Full C.T Blue
			71 - 74	Steel Blue
			75 - 78	Lighter Blue
			79 - 82	Cyan
			83 - 86	Marine Blue
			87 - 90	Soft Green
			91 - 94	Moss Green
			95 - 98	Green
			99 - 102	Fem Green
			103 - 106	JAS Green
			107 - 110	Pale Green
			111 - 114	Spring Yellow
			115 - 118	Yellow
			119 - 122	Deep Amber
			123 - 126	Chrome Orange
			127 - 130	Orange
			131 - 134	Magenta
135 - 138	Flame Red			
139 - 142	Purple			
143 - 146	User Preset 1 Includes Intensity, Gobo and Edge Data			
147 - 150	User Preset 2 Includes Intensity, Gobo and Edge Data			

TABLE 3. SOCC

DMX CHANNEL	PARAMETER	DEFAULTS	RANGE DMX	DESCRIPTION
1	Intensity (High)	0	0 - 65535	16bit Intensity (Dimmer) Control
2	Intensity (Low)			0 - 100% Output
3	Strobe	0	0 - 255	Strobe S>>>>>F
			0 - 9	No Strobe Function - Shutter open
			10 - 99	Strobe S>>>>>F
			100 - 109	No Strobe Function - Shutter open
			110 - 179	Lighting Strobe S>>>>>F
			180 - 189	No Strobe Function - Shutter open
			190 - 255	Random Strobe S>>>>>F
4	Color Preset	0	0 - 255	Calibrated color presets 01 to 33 User definable color preset 01 to 20
			0 - 10	Channel OFF Color Mixing take priority
			11 - 14	Moroccan Pink
			15 - 18	Pink
			19 - 22	Flesh Pink
			23 - 26	Bright Rose
			27 - 30	Follies Pink
			31 - 34	Fuchsia Pink
			35 - 38	Surprise Pink
			39 - 42	Congo Blue
			43 - 46	Blue
			47 - 50	Virgin Blue
			51 - 54	Midnight Maya
			55 - 58	Double C.T Blue
			59 - 62	Slate Blue
			63 - 66	Regal Blue
			67 - 70	Full C.T Blue
			71 - 74	Steel Blue
			75 - 78	Lighter Blue
			79 - 82	Cyan
			83 - 86	Marine Blue
			87 - 90	Soft Green
			91 - 94	Moss Green
			95 - 98	Green
			99 - 102	Fem Green
			103 - 106	JAS Green
			107 - 110	Pale Green
			111 - 114	Spring Yellow
			115 - 118	Yellow
			119 - 122	Deep Amber
			123 - 126	Chrome Orange
			127 - 130	Orange
			131 - 134	Magenta
135 - 138	Flame Red			
139 - 142	Purple			
143 - 146	User Preset 1 Includes Intensity, Gobo and Edge Data			
147 - 150	User Preset 2 Includes Intensity, Gobo and Edge Data			



TABLE 3. SOCC

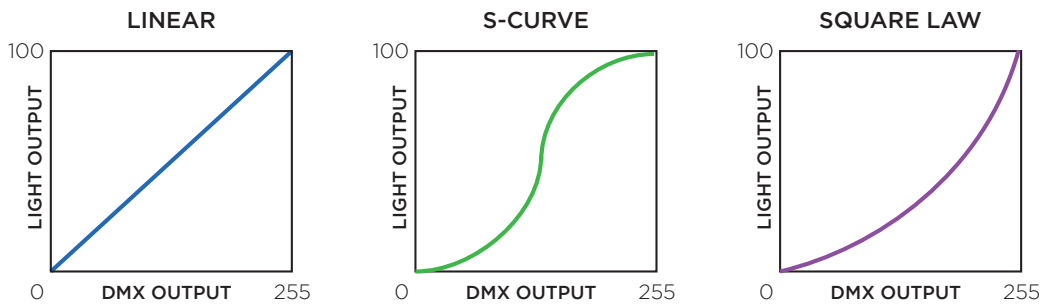
DMX CHANNEL	PARAMETER	DEFAULTS	RANGE DMX	DESCRIPTION
4	Color Preset continued	0	151 - 154	User Preset 3 Includes Intensity, Gobo and Edge Data
			155 - 158	User Preset 4 Includes Intensity, Gobo and Edge Data
			159 - 162	User Preset 5 Includes Intensity, Gobo and Edge Data
			163 - 166	User Preset 6 Includes Intensity, Gobo and Edge Data
			167 - 170	User Preset 7 Includes Intensity, Gobo and Edge Data
			171 - 174	User Preset 8 Includes Intensity, Gobo and Edge Data
			175 - 178	User Preset 9 Includes Intensity, Gobo and Edge Data
			179 - 182	User Preset 10 Includes Intensity, Gobo and Edge Data
			183 - 186	User Preset 11 Includes Intensity, Gobo and Edge Data
			187 - 190	User Preset 12 Includes Intensity, Gobo and Edge Data
			191 - 194	User Preset 13 Includes Intensity, Gobo and Edge Data
			195 - 198	User Preset 14 Includes Intensity, Gobo and Edge Data
			199 - 202	User Preset 15 Includes Intensity, Gobo and Edge Data
			203 - 206	User Preset 16 Includes Intensity, Gobo and Edge Data
			207 - 210	User Preset 17 Includes Intensity, Gobo and Edge Data
			211 - 214	User Preset 18 Includes Intensity, Gobo and Edge Data
			215 - 218	User Preset 19 Includes Intensity, Gobo and Edge Data
219 - 222	User Preset 20 Includes Intensity, Gobo and Edge Data			
223 - 255	Channel OFF Color Mixing take priority			
5	Zoom	128	0 - 255	8 Bit Motorized Zoom control 0 - 100% 0 = 15° 100% = 30°
6	Focus (High)	32767	0 - 65535	16 Bit Motorized Focus control
7	Focus (Low)			
8	Gobo Index (High)	32767	0 - 65535	Gobo Index / Rotation Switched mode via channel 10
9	Gobo Index (Low)		32780 - 65535	Clockwise Index / Rotation S>>>>>>F
			32754 - 32780	Stop
		0 - 32754	Counter Clockwise Index / Rotation S>>>>>>F	
10	Gobo Mode	0	0 - 255	Gobo Index/ Rotation Mode Control
			0 - 50	Gobo Index Mode
			51 - 100	Gobo Rotation Mode
			101 - 255	Reserved Values
11	Control Channel	0	0 - 255	Control Channel used for full fixture settings, lamp controls, and miscellaneous modes. Set discrete value of desired effect, wait >3 seconds, then set value to 0 (Idle). **Function does not require 3 Second rule to active, setting output to value will automatically activate function
			0 - 5	Idle (Default)
			6 - 10	Full Luminaire ReCal - Also Used to Wake fixture up from shutdown
			11 - 15	Fixture Shutdown
			16 - 20	Reserved Values
			21 - 25	Display - Menu ON
			26 - 30	Display - Menu OFF
			31 - 35	Tungsten Dimming On**
			36 - 40	Tungsten Dimming Off (Default)**
			41 - 45	Dimming Curve Linear**
46 - 50	Dimming Curve S-Curve**			

TABLE 3. SOCC

DMX CHANNEL	PARAMETER	DEFAULTS	RANGE DMX	DESCRIPTION
11	Control Channel continued	0	51 - 55	Dimming Curve Square Curve (Default)**
			56 - 60	Reserved
			61 - 65	Dimmer Snap On**
			66 - 70	Dimmer Snap Off (Default)**
			71 - 75	Reserved Values
			76 - 80	Reserved Values
			81 - 85	Reserved Values
			86 - 90	Reserved Values
			91 - 95	Reserved Values
			96 - 100	Reserved Values
			101 - 105	Reserved Values
			106 - 110	Reserved Values
			111 - 115	Reserved Values
			116 - 120	Reserved Values
			121 - 125	Reserved Values
			126 - 130	Reserved Values
			131 - 135	Reserved Values
			136 - 140	Reserved Values
			141 - 154	Reserved Values
			146 - 150	Reserved Values
151 - 155	Record User Color Preset**			
156 - 160	Reserved Values			
161 - 165	Reserved Values			
166 - 170	Reserved Values			
171 - 175	Reset fixture to default			
176 - 255	Reserved Values			
12	Red (High)	0	0 - 65535	Red Color Level Control 0 - 100% Saturation
13	Red (Low)			
14	Green (High)	0	0 - 65535	Green Color Level Control 0 - 100% Saturation
15	Green (Low)			
16	Blue (High)	0	0 - 65535	Blue Color Level Control 0 - 100% Saturation
17	Blue (Low)			
18	Amber (High)	0	0 - 65535	Amber Color Level Control 0 - 100% Saturation
19	Amber (Low)			
20	Lime (High)	0	0 - 65535	Lime Color Level Control 0 - 100% Saturation
21	Lime (Low)			
22	Cyan (High)	0	0 - 65535	Cyan Color Level Control 0 - 100% Saturation
23	Cyan (Low)			

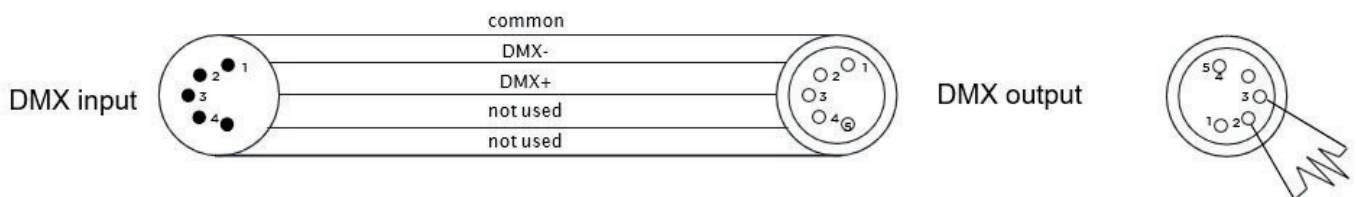
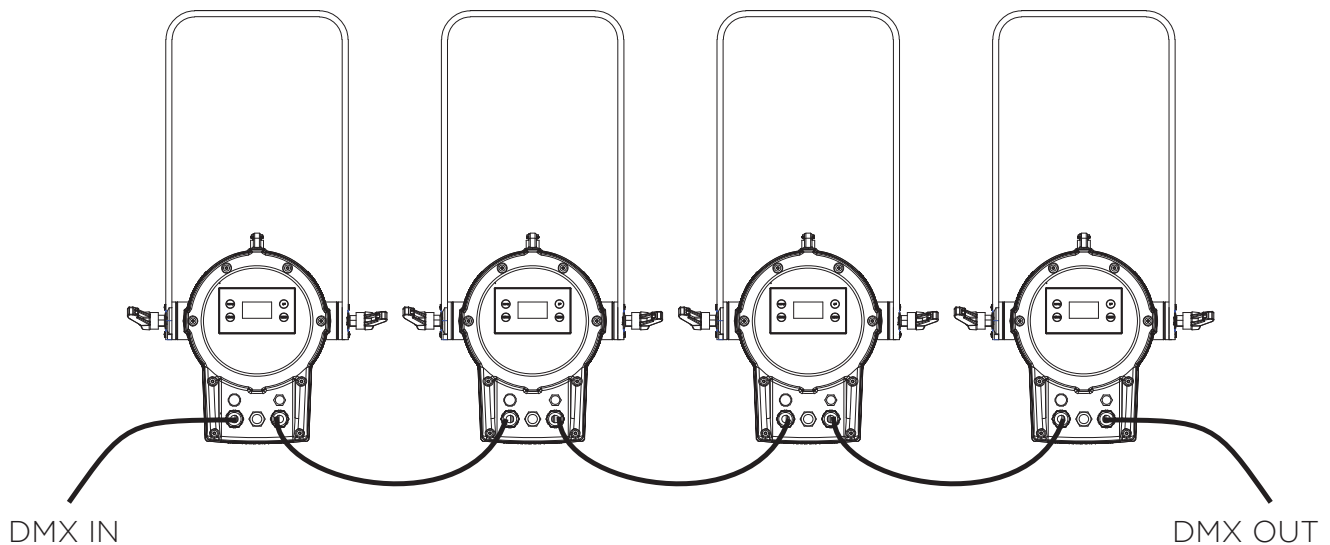
RANGE DMX	ITEMS	DESCRIPTION	POWER CYCLE RULES	FUNCTION SELECTION VIA UI
0 - 255	Control Channel	Used for full fixture settings, lamp controls, and miscellaneous modes. Set discrete value of desired effect, wait >3 seconds, then set value to 0 (Idle). **Function does not require 3 Second rule to activate, setting output to value will automatically activate function.	N/A	N/A
0 - 5	Idle (Default)	Default value used as return point to activate all control functions	N/A	N/A
6 - 10	Full Luminaire ReCal - Also Used to Wake fixture up from shutdown	Recalibrates all mechanical functions and sensor with in the fixture	N/A	
11 - 15	Fixture Shutdown	Shuts down all fixture output and turns off all fans - fixture is activated by power cycle or ReCal command	If fixture is powered down then up fixture will auto wake and not startup in Shutdown Mode	N/A
16 - 20	Reserved Values		N/A	N/A
21 - 25	Display - Menu ON	Switches UI display backlight on remotely - Display will Time out from on after 5 mins	N/A	N/A
26 - 30	Display - Menu OFF		N/A	N/A
31 - 35	Tungsten Dimming On**	Remote switches Tungsten Dimming color shift on	Holds setting on power cycle	Yes
36 - 40	Tungsten Dimming Off (Default)**	Remote switches Tungsten Dimming color shift off	Holds setting on power cycle	Yes
41 - 45	Dimming Curve Linear**	Selects Linear Dimming Curve Also Used to Wake fixture up from shutdown	Holds setting on power cycle	Yes
46 - 50	Dimming Curve S-Curve**	Selects S-Law Dimming Curve	Holds setting on power cycle	Yes
51 - 55	Dimming Curve Square Curve (Default)**	Selects Square -Law Dimming Curve	Holds setting on power cycle	Yes
56 - 60	Reserved Values			
61 - 65	Dimmer Snap On**	Allows for fastest output changes between levels but reduces smoothness dimming LED	Holds setting on power cycle	Yes
66 - 70	Dimmer Snap Off (Default)**	Ensures all fades between output levels remain smooth and flicker free limits fast instant snaps between levels	Holds setting on power cycle	Yes
71 - 75	Reserved Values		N/A	N/A
76 - 80	Reserved Values		N/A	N/A
81 - 85	Reserved Values		N/A	N/A
86 - 90	Reserved Values		N/A	N/A
91 - 95	Color Calibration on	Turns Color calibration on for fixture to fixture color matching on all mixed and preset colors between fixtures limits highest output and max saturation on some colors	Holds setting on power cycle	Yes
96 - 100	Color Calibration off (Default)	Turns Color calibration off fixtures may not match fixture to fixture offers highest output and deepest saturation of color	Holds setting on power cycle	Yes

RANGE DMX	ITEMS	DESCRIPTION	POWER CYCLE RULES	FUNCTION SELECTION VIA UI
101 - 105	Reserved		N/A	N/A
106 - 110	Reserved		N/A	N/A
111 - 115	Standard Mode - Fixture operates at maximum output (Default)	Standard mode - Full LED Output + Full Continuous Fan Spin at top speed (loudest setting) (Fan remain at a constant speed and do not ramp up and down) NC40 *Fans can be switched between On & Auto levels	N/A	N/A
116 - 120	Studio Mode - Reduced output with lower fan settings	Studio Mode - Fan speed reduced to appropriate amount to reduce dB levels >10% of full speed + LED @ max output approximately 80% of Standard output at appropriate level to ensure LED work at optimum temperature and output efficiency (fan speed remains at a constant speed and do not ramp up or down) NC35	Holds setting on power cycle	Yes
121 - 125	Whisper Mode - Reduced output with lower fan settings	Silent Mode - ideally Fans do not spin + output capped at appropriate level to ensure LED work at optimum temperature and output efficiency (Fan should never switch on in this mode or change speed if they are on) NC15 target level	Holds setting on power cycle	Yes
126 - 130	Fan On (Default)	Fans run at continuous speed for either standard or studio mode	Holds setting on power cycle	Yes
131 - 135	Fan Auto	in isolation to the LED operating temperature		
136 - 140	Reserved Values	Fans will reduce / increase speed on demand based on LED operating temperature for either standard or studio mode	Holds setting on power cycle	Yes
141 - 145	Reserved Values		N/A	Yes
146 - 150	Reserved		N/A	N/A
151 - 155	Record User Color Preset	Takes Current Color mixing values and stores to next available blank User color preset - if preset listing are full preset will not record. User will need to clear preset via fixture UI	N/A	N/A
156 - 160	Reserved		N/A	N/A
161 - 166	Reserved		N/A	N/A
166 -170	Reserved		N/A	N/A
171 - 175	Reset fixture to default	Will reset all parameters to default with the exception of the Mx address, fixture mode and Pixel / Zone selection	N/A	Yes - Will reset Dmx address, Mode and pixel group
176 - 255	Reserved		N/A	



## DMX512 CONNECTION

- At last unit, the DMX cable has to be terminated with a terminator. Solder a 120Ω 1/4W resistor between pin 2(DMX-) and pin 3(DMX+) into a 5-pin XLR-plug and plug it in the DMX-output of the last unit.
- Connect the unit together in a `daisy chain` by XLR plug from the output of the unit to the input of the next unit. The cable cannot be branched or split to a `Y` cable. DMX 512 is a very high-speed signal. Inadequate or damaged cables, soldered joints or corroded connectors can easily distort the signal and shut down the system.
- The DMX output and input connectors are pass-through to maintain the DMX circuit, when one of the units' power is disconnected.
- Each lighting unit needs to have an address set to receive the data sent by the controller. The address number is between 0-511 (usually 0 & 1 are equal to 1).
- The end of the DMX 512 system should be terminated to reduce signal errors.
- 5 pin XLR: Pin 1: GND, Pin 2: Negative signal (-), Pin 3: Positive signal (+), Pin 4/Pin 5: Not used.



# APPENDIX A

# CARE AND MAINTENANCE

## TROUBLESHOOTING

---

The following are a few common problems that may occur during operation.

**Luminaire does not work; light and fan do not turn on.**

- Check power connection and main fuse.
- Measure the mains voltage on the main connector.

**Not responding to DMX controller.**

- If DMX LED is not illuminated, verify that the DMX cables are properly connected.
- If the DMX LED is illuminated and there is no response, verify DMX address settings and the DMX polarity.
- If you experience intermittent DMX signal problems, check the pins on the connectors or on the PCB.
- Test with a different DMX controller.
- Check if the DMX cables run near or alongside high voltage cables that may cause interference to the DMX interface circuit.

## CLEANING

---

Cleaning the inside of the luminaire must be carried out periodically in order to optimize the light output. Cleaning frequency depends on the environment in which the fixture operates. Damp, smoky or particularly dusty surroundings can cause greater accumulation of dirt on the fixture's optics.

- Clean with a soft cloth using glass cleaning fluid.
- Dry parts carefully.
- Clean the external optics at least every 30 days.

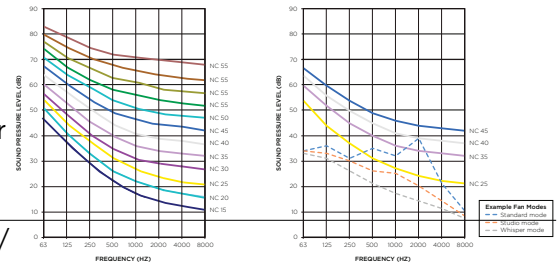
# APPENDIX B

## FAN SPEED AND CONTROL

All Vari-lite and Strand lighting luminaires are governed by the same fan speed versus noise levels and maximum power output rules as detailed below. The noise related to these levels conforms to noise criteria levels detailed within the document.

There are three control parameters that can be selected separately or in conjunction when permitted to manage fan speed versus noise levels and maximum power output.

**NOTE:** Not all fixture have all modes or functions. Refer to DMX map and/or user interface menu tree to verify the modes and functions in your fixture.



### FAN VERSUS OUTPUT PRESET MODES

These modes are selectable at either / or the fixtures DMX control channel or via the fixture user interface screen.

**Boost mode** - LED output boosted to >120% of standard output fan speeds increased manage heat level of LED (may be limited to only run for XXhrs). Fixture will not exceed NC45 - NC55 sound levels in this mode

**Standard mode** - Full LED Output + Fan Spin at top speed (loudest setting). Fixture will not exceed NC40 sound levels in this mode.

**Studio mode** - Fan speed reduced to appropriate amount to reduce dB levels >10% of full speed + LED @ max output approximately 80% of Standard output at appropriate level to ensure LED work at optimum temperature and output efficiency (fan speed remains at a constant speed and do not ramp up or down) NC35.

**Whisper mode** - Fan speed reduced to appropriate amount to reduce dB levels to >30% of the full speed + LED Max output approximately 60% of Standard output at appropriate level to ensure LED work at optimum temperature and output efficiency (Fan speed remains at a constant speed and do not ramp up or down) NC25.

**Silent mode** - ideally Fans do not spin + output capped at appropriate level to ensure LED work at optimum temperature and output efficiency (Fan should never switch on in this mode or change speed if they on) NC15 target level.

MODE	LED OUTPUT	FAN SPEED	NOISE CRITERION	EQUIVALENT SOUND LEVEL DBA (@3M)
Boost Mode	>100%	Boosted fan speed constant	NC45	50
Standard Mode	Full 100%	Full 100% constant	NC40	45
Studio Mode	80%	Appropriate speed to reduce dB levels >10% of full speed	NC35	40
Whisper Mode	60%	Appropriate speed to reduce dB levels >30% of full speed	NC25	35
Silent Mode	TBC	Fan off	NC15	25

NOISE CRITERION	OCTAVE BAND CENTER FREQUENCY (HZ)							
	63	125	250	500	1000	2000	4000	8000
	SOUND PRESSURE LEVELS (DB)							
NC-15	47	36	29	22	17	14	12	11
NC-20	51	40	33	26	22	19	17	16
NC-25	54	44	37	31	27	24	22	21
NC-30	57	48	41	35	31	29	28	27
NC-35	60	52	45	40	36	34	33	32
NC-40	64	56	50	45	41	39	38	37
NC-45	67	60	54	49	46	44	43	42
NC-50	71	64	58	54	51	49	48	47
NC-55	74	67	62	58	56	54	53	52
NC-60	77	71	67	63	61	59	58	57
NC-65	80	75	71	68	66	64	63	62
NC-70	83	79	75	72	71	70	69	68

# TECHNICAL SUPPORT

## GLOBAL 24HR TECHNICAL SUPPORT:

Call: +1 214 647 7880  
entertainment.service@signify.com

## NORTH AMERICA SUPPORT:

Call: 877-VARI-LITE (877-827-4583)  
entertainment.service@signify.com

## EUROPEAN CUSTOMER SERVICE CENTER:

Call: +31 (0) 543 542 531  
entertainment.europe@signify.com

©2022 Signify Holding. All rights reserved.

All trademarks are owned by Signify Holding or their respective owners. The information provided herein is subject to change, without notice. Signify does not give any representation or warranty as to the accuracy or completeness of the information included herein and shall not be liable for any action in reliance thereon. The information presented in this document is not intended as any commercial offer and does not form part of any quotation or contract, unless otherwise agreed by Signify. Data subject to change.

vls\_copyright