



Lightblade LB800 User Guide

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Welcome to LB800 from NBCUniversal and Cineo

NBCUniversal

LIGHTBLADE

LB800

NBCUniversal and Cineo have developed the next generation of large, soft digital lighting: the Lightblade LB800. The LB800 delivers up to 50,000 lumens of beautiful, easily controllable, full-gamut light across a diffused 2' x 4' aperture. With built in power supply and silent operation, the LB800 delivers 800 watts of power in a package that weighs 55 lbs and is less than 5.5 inches deep.

In addition to Cineo's proprietary phosphor-converted white light LEDs, the LB800 uses phosphor-converted saturated color LEDs. The phosphor-converted LEDs use the exact same dies as the white LEDs, so all light emitting elements of the LB800 carry identical thermal stability, and perform over time with identical differential aging. So after years of service, color stability remains consistent.

The LB800 is the first of the Lightblade products to operate on a Linux OS, providing the platform to support future smart stage innovations. The LB800 incorporates an intuitive control strategy that allows predictable, repeatable results, either using the graphic on-board control panel or remotely with wired DMX/RDM or built-in wireless CRMX control.

The Lightblade LB800 is built on a multi-zone architecture, i.e. the fixture can be operated as a single, 2' x 4' soft source, or it can be operated as 10 individual fixtures in a single chassis, capable of generating dynamic lighting effects.

The unit is remotely controllable using DMX/RDM and network protocols including sACN and ARTNet (coming Q2 2019). Remote operations include a variety of Personalities, including HSIC, RGBC and BiColor (white-only). DMX resolutions include both 8-bit and 16-bit operation.

The LB800 is passively cooled for completely silent operation, ruggedly built, water resistant and includes an integrated power supply for easy setup.

General Notes

1. Please read through this manual carefully before operating the LB800, and keep this manual for future reference.
2. There are numerous safety instructions and warnings that must be adhered to for your own safety.
3. The LB800 is not intended for residential use. It is intended for use in a professional studio.
4. The LB800 must be serviced by a qualified technician.
5. The LB800 is rated as IP22 – for damp environments.
6. Lightblade products are not certified for use in hazardous locations.
7. The LB800 has a typical operating temperature of 50°C (122°F).

Fixture Set Up

Read these safety instructions carefully to ensure fixture and accessories are used safely.

Ensure the Junior Pin adapter is correctly mounted onto the yoke before rigging.

Always use secondary safety cables of suitable length when hanging LB800 units.

The LB800 weighs 55 lbs. (25 kg) excluding accessories. The combined weight should be considered when choosing a suitable safety cable.

Safety cables must securely be attached to the yoke on LB800 and be as short as possible to reduce travel distance if primary hanging accessory fails.

Ensure that the yoke lock is correctly tightened when manipulating LB800 in the required orientation for safety purposes.

Ensure the LB800 is operated within an ambient temperature range of -20 to +40°C (-4 to 104°F).

System Components, Connections and Controls

All connectors and system controls for the LB800 are located on the back of the unit. In addition to its full color heads-up display, optically encoded rotary knobs give access to menu selections and local control inputs. Hard power connections and switches allow for easy set up and strike. The 5 pin DMX connections, RJ45 Ethernet port, embedded wireless receivers, RDM responders and powered USB ports support many options for external control.

Power

The LB800 unit is controlled by an internal power supply. 110 – 220VAC is provided to the unit via a locking PowerCon connector, located on the back control panel.

NOTES:

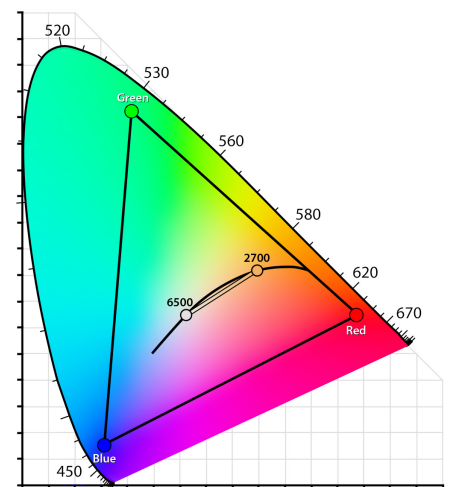
1. Ensure the power cable is disconnected before servicing.
2. Do not connect to a variable supply, such as a dimmer rack.
3. The power cable should be plugged into the power supply before switching the power ON. The power supply should be switched OFF before removing the power cable.
4. A self-resetting circuit breaker is located near the power connection, which requires no user interaction. If the breaker trips, it will reset within one minute of tripping.

Displays Screen

A full-color screen displays the status of each DIM, CCT, SATURATION and HUE control value at all times. The color ribbons on the top and bottom of the display give a visual reference for both the CCT and the HUE. DIM value and SATURATION are represented as a percentage. In DMX mode, this display reflects the current DMX channel assignment as well as the current personality and communication bitrate.

Color Space

The Lightblade Edge uses two separate LED engines to independently generate accurate white light, variable from 2700K to 6500K, and an extended RGB gamut for broad saturated color space. The CIE 1931 diagram illustrates the Lightblade Edge color space.



Controls

Setup of the LB800 is can be accomplished either using the large knob with the color display, or remotely using RDM.

Accessing the Setup Menu

The fixture can be set up via the control panel as follows:

1. Push and hold the large knob for approximately 3 seconds. The status display will now show the top level menu options.
2. Turn the large knob until the desired control selection is highlighted: LOCAL, DMX, PRESETS or SETTINGS.
3. Push the knob again to select menu category. **The menu advances to display various options for the selected function.**

Note that in any menu, press and holding the large knob for 3 seconds will return you to this root menu.

LOCAL Mode

When LOCAL mode is selected, all functions of the fixture are managed through the 4 rotary encoders; feedback and functions are shown on the display screen.

Lower left knob (Large) Photo-Accurate Dimming

The dimming curve on the LB800 follows a strategy that provides relative output levels that correspond to image capture. Both DMX values and local control levels directly correlate to camera stops in a meaningful way. The result is extremely predictable light levels within the full output range of the fixture.

0-100% dimming is controlled by turning the large knob. Pushing the knob cycles the output at these levels: 20%, 40%, 60%, 80% and 100%.

The following table shows the relationship between LOCAL values as they relate to camera stops:

DMX Value	% Output increase	Stop Increase
(0-100)		
20%	100	0
40%	200	1
60%	400	2
80%	800	3
100%	1600	4

Here are examples of how to accurately match camera stops to dimming levels in Local Mode:

Local Dimming: The Rule of 20 (0-100 scale)

Increase output 1 Stop: Add 20 units (fc/lux is doubled)

Decrease output 1 Stop: Subtract 20 units (fc/lux is reduced 50%)

Adjust ½ Stop = 10 Units (0-100)

Adjust ¼ Stop = 5 Units (0-100)

Lower right knob: CCT Adjustment

The color temperature (CCT) of the fixture is controlled by turning the lower right knob in a continuously variable range of 2700K to 6500K. Pushing the lower right knob cycles the CCT of the fixture between popular settings: 2700, 3200, 4300, 5600 and 6500K.

Upper left knob: Color Saturation

The SATURATION of color added to the base white light is controlled by the upper left knob, which has presets at 0%, 10%, 20%, 50%, 80% and 100%. Note that the addition of saturated color does not change the base CCT of the white light; these are completely independent functions.

Upper right knob: Hue Control

The upper right knob adjusts the saturated color hue, in 256 increments, and the approximate hue is displayed on the color ribbon. Pushing this knob cycles between the primary and secondary colors: Red, Yellow, Green, Cyan, Blue and Magenta. Colors can be fine-tuned anywhere within the color space.

DMX Mode

When DMX is selected from the menu, operation of the fixture is controlled remotely on four DMX slots in the address range of 001 to 512. Also, various parameters can be selected for the remote operation of the unit. To continue to change the DMX parameters, select DMX SETTINGS and push the knob; otherwise select EXIT TO DMX to return to the previous menu.

If DMX SETTINGS is selected, the menu shows different DMX personalities that the fixture can operate with: 8-bit HSI, 16-bit HSI, 8-bit RGB and 16-bit RGB. The following further explains:

8-BIT vs 16-BIT

Standard DMX data structure is 8-bit, which limits the value range between 0-255. This is the preferable operating mode for maximum compatibility with DMX controllers. If more precise control is required, the unit can be operated in 16-bit mode, offering a value range of 0-65,535. On the surface, this sounds more valuable than 8-bit mode; however operating in this mode assigns two DMX channels for each control, working in pairs, requiring twice as many DMX addresses. The first DMX channel in the pair is the COURSE adjustment of the control, while the second channel is the FINE adjustment. The COURSE channels operate identically to 8-bit controls, while the FINE channels in the pair adjust in-between adjacent values of the COURSE control. To further explain, the COURSE channel adjusts values of 0-255 while the FINE channel adjusts between only two control values. If, for example the COURSE channel is set at value 165, the FINE channel adjusts between 165 and 166. Fortunately, most professional lighting consoles allow controls to be set up in 16-bit mode, so a single fader manages the two channels automatically. It is recommended that 16-bit mode only be used when the DMX controller supports 16-bit operation.

HSI vs. RGB Personality modes

HSI, also known as HSIC, stands for Hue, Saturation, Intensity and white value in Kelvin. This is the most common method of control for full-gamut lighting fixtures, and mimics the operation from the LOCAL control panel on the back of the fixture.

In HSIK Mode, the channel assignments are as follows, and are directly related to 8-bit or 16-bit operation:

First Channel (or channel pair for 16-bit): Output level

Second Channel (or channel pair): CCT

Third Channel (or channel pair): Color Saturation

Fourth Channel (or channel pair): Hue

The RGB Personality is technically considered RGBC, where the reference white point can be selected as well as values of the primary Red, Green and Blue channels. This is extremely valuable in correlating RGB operation in context with the white balance selected on the camera.

In RGBC Mode, channel assignments are as follows:

First Channel (or channel pair for 16-bit): RED level

Second Channel (or channel pair): GREEN level

Third Channel (or channel pair): BLUE level

Fourth Channel (or channel pair): CCT

1 ZONE vs. 10 ZONE modes

Once a personality is selected, the large knob is used to choose operation of the fixture in 1 ZONE or 10 ZONE modes. In 1 ZONE mode, the entire fixture operates like a traditional soft light: the aperture of the unit is uniform, based on the DMX settings and controls. In 10 ZONE mode, each of 10 individual sub-fixtures, or zones can be controlled individually by the control system. This allows for unlimited creative control in creating movement within the light source, controlling graduated output across the aperture, or an unlimited number of creative options. With 1 ZONE, either 4 or 8 slots are assigned to control the fixture (depending on 8-bit or 16-bit operation). When using 10 ZONE mode, there are 4 or 8 slots assigned TO EACH ZONE.

After making the zone count selection, set the master DMX address for the fixture; the address range for control of the fixture is displayed, based on the Personality and the Zone selection. Once the master DMX address is selected, push the large knob to finalize the DMX settings.

The display shows the master address of the fixture, as well as the address range being assigned to the fixture, based on the personality selected. When the desired master address is selected, push the large knob to save and enter DMX mode.

*****VERY IMPORTANT: WHEN CHANGING THE LB800 FROM ZONE SETTING, DO NOT TURN OFF THE POWER UNTIL THE PROCESS IS COMPLETE, TYPICALLY 30 SECONDS.**

The fixture needs to completely re-configure its drivers to operate in the new mode, which takes a few seconds. Powering down the fixture during this process can produce unpredictable results. If the system does not properly re-configure to the new ZONE settings, return the fixture to LOCAL mode, then repeat the DMX ZONE selection process.

When complete, master DMX address is shown on the display, along with the selected personality and ZONE count. The screen also shows the status of the DMX signal: DMX LINE, DMX WIFI or DMX NONE.

Cineo PAD™ Dimming

As mentioned earlier, Cineo fixtures use a Photo-Accurate Dimming curve, which offers light output congruent with lens stops on a camera. When operating in DMX mode, each increase of 50 units (8-bit) doubles the light output, or the equivalent of opening the lens 1 f-stop.

DMX Value	% Output increase	Stop Increase
(0-255)		
50	100	0
100	200	1
150	400	2
200	800	3
250	1600	4

Here are examples of how to accurately match camera stops to dimming levels in DMX Mode:

DMX Dimming: The Rule of 50 (0-255 scale)

Increase output 1 Stop: Add 50 DMX values (fc/lux is doubled)

Decrease output 1 Stop: Subtract 50 DMX values (fc/lux is reduced 50%)

Adjust ½ Stop = 25 DMX Values

Adjust ¼ Stop = 12 DMX Values

The following table lists all the 8-bit DMX values for all of the fixture presets:

Dimming		CCT		Saturation		Color	
100%	255	2700	000	0%	000	Red	000/255
-1 Stop	200	3200	034	10%	025	Yellow	043
-2 Stops	150	4300	107	20%	050	Green	085
-3 Stops	100	5600	195	50%	128	Cyan	127
-4 Stops	050	6500	255	80%	204	Blue	170
Off	000			100%	255	Magenta	212

Note that changing the DMX values in sequential steps, as in performing a live dim to zero will add a dimming hysteresis, or smoothing. When switching between DMX values of 5 or greater, the value change is instantaneous, allowing the fixture to be used for dynamic lighting effects, such as strobing.

USER PRESETS

The LB800 can store and recall up to 6 separate groups of settings, which are saved until over-written or a factory reset is performed. To store a group of settings, select the PRESETS menu option. Initially, the system presents 6 storage locations, labeled A-F. Turn the large knob to the desired storage location, push the large knob and the current settings for the fixture will be stored in that location. The unit automatically returns to LOCAL Mode.

To recall a group of settings, scroll to the bottom of the SAVE PRESET list, and select LOAD PRESETS. The menu allows you to load any of the 6 stored presets by selecting it. Again, the unit automatically returns to LOCAL Mode.

SETTINGS

UNLINK RADIO

By selecting the UNLINK RADIO function from the SETTINGS menu, the internal Lumen Radio will UNLINK from its previous transmitter pairing. When complete, the fixture returns to LOCAL Mode.

STATUS

The LB800 uses ten discrete LED drivers, one for each zone. By performing a STATUS from the menu, the drivers are queried for their status and return with their respective unique UID number, which is valuable for programming the LB800 via RDM.

FACTORY RESET

This menu option is designed primary for rental facilities, as it clears all presets and returns the unit to LOCAL Mode, with all values set at 0. FACTORY RESET should be performed only by qualified personnel.

Connections

Wired DMX Connections

LB800 uses industry-standard 5-Pin XLR male and female connectors to receive and forward DMX signals and output RDM signals. The DMX port is self-terminating and does not require external DMX termination when used in a chain. If the unit is the last device on a DMX chain, make sure that there is no cable inserted into the DMX Out connector.

The DMX pin wiring is as follows:

- Pin 1: Signal Common
- Pin 2: Data –
- Pin 3: Data +
- Pin 4: Spare
- Pin 5: Spare

Wireless DMX Control

The LB800 built-in wireless receiver runs on CRMX / Lumen Radio protocol which can receive signals from CRMX and some WDMX transmitters. Please note that each fixture can only be linked to a single network at a time, and maintains the network ID of its previous linking. Therefore, the fixture's linking data must be cleared prior to linking to a new network.

To unlink LB800 fixture, follow these steps:

1. Push and hold the large knob on the control panel for 3 seconds. Release.
2. Rotate the large knob until the display shows SETTINGS highlighted. Push to select.
3. Make sure the UNLINK RADIO menu option is highlighted, and select. The Control Display will flash for 10 seconds, and the Radio is ready for linking to a transmitter, clearing the network memory in the fixture. Optionally the radio can be turned off by selecting the RADIO OFF menu item.

To link to a new transmitter, make sure the fixture is unlinked, in DMX mode and the DMX addresses are set.

If the unit is in DMX Mode and no cable is inserted in the DMX IN port, Wireless DMX is automatically activated and the unit can now be controlled on a linked wireless DMX network. When the unit is ready to receive a signal from a transmitter but is not yet linked, the CONTROL screen will flash "DMX NONE." Once the connection is made the CONTROL Screen will change to "DMX WIFI" and can now be control remotely.

Refer to your wireless DMX transmitter instructions for linking fixtures to a wireless network.

Third party wireless products can be used by plugging the third party wireless antenna into the DMX XLR port. If power is needed for the antenna the powered USB port can provide such up to 500ma@ 5VDC. If a third party wireless device, powered or non-powered, is attached via the 5pin XLR port this connection will take priority over the imbedded wireless receiver.

RDM Support

The LB800 can remotely report unit information to an RDM controller via the RDM Identify command on either wired or wireless DMX. The information provided includes the Unit ID and the firmware revision programmed into each of the ten zones.

Functions that can be programmed remotely include the following: DMX Personality and DMX Master Address.

USB Port

An A-type USB port is included on the control panel for installation of software updates. It can also supply 5 VDC, 500ma power to attached devices. Refer to installation instructions supplied with software upgrade.

Mounting Options

The LB800 comes standard with a fully rotational landscape-oriented yoke with a Junior Pin mount. The standard yoke can be removed, and an optional Portrait-oriented yoke can be attached.

Specifications

Input Power: 110-240VAC, 800 watts max. via locking PowerCon connector

Integrated power supply

Fixture Size: 48"W, 24"H, 5.25" D (1.2m W, .6m H, 133mm D)

Weight: 55 lbs. (25 kg.)

Mounting yoke includes Junior Pin

Variable saturated color with presets at Red, Yellow, Green, Cyan, Blue, Magenta

Variable white/color blending

Local and Remote dimming, 0-100%

5-pin wired DMX/RDM In and Thru

Integrated Lumen Radio™ CRMX bi-directional wireless DMX

Completely flicker-free operation

Silent, passive cooling: no fans

Environmental temperature range: -20°C - +40° C

Max. temperature rise: +45° C

ETL, cETL, CE pending

Made in USA

Warnings, Disclaimers and Warranty

Risk of Electric shock / Risk of Fire

Do not open. To reduce the risk of electric shock, do not remove cover (or back). No user-serviceable parts inside. Refer servicing to qualified service personnel.

Burning Injuries

Be aware of high temperatures in excess of 50°C inside the fixture during and after use. Do not touch the LEDs to avoid burning injuries.

Flammable Materials

Keep flammable materials away from the installation. Insure that the amount of air flow required for safe operation of the equipment is not compromised. Proper ventilation must be provided.

ESD and LED's

LED components used in the Lightblade LB800 are ESD (Electro-Static Discharge) sensitive. To prevent the possibility of destroying LED components do not touch either while in operation or when switched off.

This Equipment MUST be Grounded

In order to protect against risk of electric shock, the installation should be properly grounded. Defeating the purpose of the grounding type plug will expose you to the risk of electric shock.

AC Power Cords

Use only a rated IEC Connector. The user is responsible for ensuring power cables are of adequate condition for each application. If the power cords are damaged, replace them only with new ones.

Environmental: Disposal of Old Electrical & Electronic Equipment

This product shall not be treated as household waste.

CINEO LIGHTING LIMITED WARRANTY

Products from Cineo Lighting are warranted against defects in materials and workmanship for two years from the date the Product is shipped to Customer. Products are guaranteed to perform substantially in accordance with the accompanying written materials within the warranty period under normal use.

If the Product fails to work as warranted, Cineo Lighting will, in its sole discretion, repair or replace the Product with a new or remanufactured Product that is at least equivalent to the original Product. Customer must obtain a Return Material Authorization number from Cineo Lighting before returning any Products under warranty to Cineo Lighting.

Customer shall pay expenses for shipment of repaired or replacement Products to Cineo Lighting's repair facility. Any repaired or replaced Products will be warranted for the remainder of the original warranty period or thirty (30) days, whichever is longer. Cineo Lighting will pay shipping of repaired goods back to the customer. After examining and testing a returned product, if Cineo Lighting concludes that a returned product is not defective, Customer will be notified, the product returned at Customer's expense.

This Limited Warranty is void if failure of the Products has resulted from accident, abuse, misapplication, or use outside of normal operating conditions. Warranty is void if serial number has been defaced or removed.

NO OTHER WARRANTIES. EXCEPT AS EXPRESSLY SET FORTH ABOVE, THE PRODUCTS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, AND NO OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED ARE MADE WITH RESPECT TO THE PRODUCTS, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE OR NON-INFRINGEMENT OR ANY OTHER WARRANTIES THAT MAY ARISE FROM USAGE OF TRADE OR COURSE OF DEALING. ELEMENT DOES NOT WARRANT, GUARANTEE, OR MAKE ANY REPRESENTATIONS REGARDING THE USE OF OR THE RESULTS OF THE USE OF THE PRODUCTS IN TERMS OF CORRECTNESS, ACCURACY, RELIABILITY, OR OTHERWISE AND DOES NOT WARRANT THAT THE OPERATION OF THE PRODUCTS WILL BE UNINTERRUPTED OR ERROR FREE. CINEO LIGHTING EXPRESSLY DISCLAIMS ANY WARRANTIES NOT STATED HEREIN. NO LIABILITY FOR CONSEQUENTIAL DAMAGES. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL ELEMENT AND ITS LICENSORS, DISTRIBUTORS, AND SUPPLIERS (INCLUDING ITS AND THEIR DIRECTORS, OFFICERS, EMPLOYEES, AND AGENTS) BE LIABLE FOR ANY DAMAGES, INCLUDING, BUT NOT LIMITED TO, ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES, EXPENSES, LOST PROFITS, INSTALLATION COSTS, LOST SAVINGS, BUSINESS INTERRUPTION, LOST BUSINESS INFORMATION, OR ANY OTHER DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCTS, EVEN IF ELEMENT OR ITS LICENSORS, DISTRIBUTORS, AND SUPPLIERS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. CINEO LIGHTING'S TOTAL LIABILITY ON ALL CLAIMS, WHETHER IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE OR BREACH OF STATUTORY DUTY), STRICT LIABILITY OR OTHERWISE, SHALL NOT EXCEED THE AMOUNTS PAID BY CUSTOMER FOR THE PRODUCTS.

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NBCUniversal

LIGHTBLADE

Edge Series

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