

# L-Series Plus

## USER MANUAL

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## Imprint

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Original version.

### Initial Language

The initial language of this user manual is English. User manuals in other languages are translations from English.

In the event of conflict between the respective languages (i.e. if any translation(s) of present document has/have been prepared for convenience or any other purpose), with regards to the meaning or interpretation of a word or an instruction etc., the contents and provisions of the English language version shall prevail.

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## Document Revision History

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Version	Release	Date	Note
1.0		May 2024	First release
1.1	L04230	August 2024	Changed gateway default to OFF

All directions are given from an operators point of view. For example, device right side refers to the right side of the device when standing behind the device and operating it in a normal fashion.

Connectors are written in all capital letters, for example "USB connector".

Buttons are written in italic typeface capital letters, for example "*PLAY button*".

Menu paths are written in italic typeface, with menu and home in capital letters, for example "*MENU > Display Orientation > Normal*".

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# 1 Introduction

Thank you for selecting an L-Series Plus LED luminaire from ARRI. They are the successors of the well-known L Series luminaires. Equipped with a high precision, micro-processor controlled LED light source, they are much more efficient than light sources with conventional tungsten lamps. They are a perfect and easy replacement for conventional fresnel-luminaires with tungsten or daylight lamps.

## 1.1 Features

### Light Field

The L-Series Plus offer the same functionality as a conventional fresnel light.

### Even Light Field

The L-Series Plus produce a homogeneous, single-shadow light field, delivering natural results.

### Vibrant Colors, Full Spectrum Lighting

True-to-life color rendition is an outstanding feature of the L-Series Plus. The fully tunable white light can be adjusted for different skin tones, camera sensors and mixed light environments. Full gamut color mixing enables the rendition of all color shades. The extensive gel library offers a wide range of familiar colors at the user's fingertips.

### Cool Light Beam

The L-Series Plus do not emit any infrared or UV radiation and thus does not forward heat, making actors feel comfortable in the light beam.

## 1.2 Properties

### Focus Knob

The TRUE BLUE® style focus knobs provide precise adjustment and rapid flood-to-spot with only a few turns. Knobs on both sides of the device ensure easy access from all positions.

### Adjustable Yoke Attachment

The adjustable yoke attachment enables precise compensation for front end accessories.

### Yoke

With an extreme slim profile, the extruded aluminum yoke provides high strength without added weight. An optional, pole operated yoke allows full operation of pan and tilt from the floor and is therefore a popular choice for many studios.

### Tilt Lock

The high strength tilt-lock provides extreme secure locking. It eliminates movement and slippage and ensures that the light beam will stay where you put it.

### Device Menu

For location applications the L-Series Plus is equipped with a device menu for manual adjustment of intensity, color temperature and plus/ minus green as well as hue and saturation.

## 1.3 Control Options

You can set up or control the L-Series Plus with the options listed in the table below.

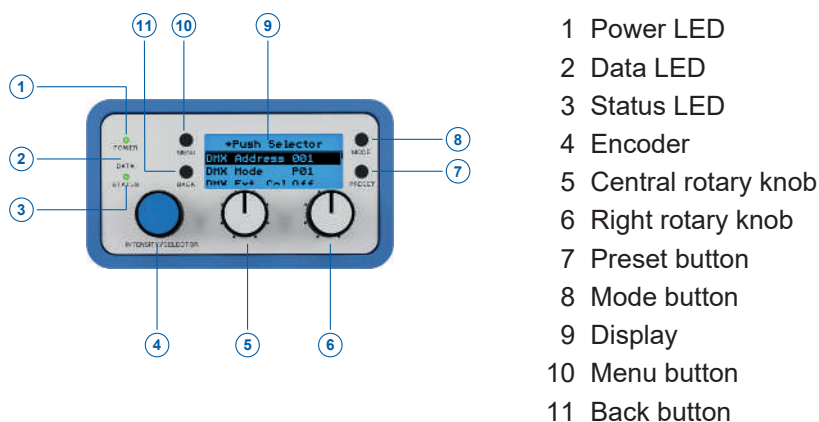
Option	Control	Configuration	Information
Device Menu	Yes	Yes	See section Features of the Device Menu [► 9]
Remote Control Panel	Yes	Yes	See section Features of the Device Menu [► 9]
DMX	Yes	Yes	Please see <i>DMX Protocol Specification</i> (free download from <a href="http://www.arri.com">www.arri.com</a> )
RDM	No	Yes	See section RDM Commands [► 37]
Art-Net and sACN	Yes	No	See section Art-Net and sACN [► 30]
ALSM	No	Yes	See section ARRI Lighting Service Manager [► 31]
Web Portal	No	Yes	See section Web Portal [► 31]
Stellar App	Yes	No	See product page <a href="http://www.arri.com/stellar/">www.arri.com/stellar/</a>



## 2 Device Menu

This section describes the device menu of the L-Series Plus.

### 2.1 Overview of the Device Menu



### 2.2 Features of the Device Menu

#### POWER LED (1)

Color	Indication
Green	Device switched on. No error.
Off / No Color	Device switched off.

#### DATA LED (2)

Color	Indication
Blue	Receiving a valid DMX signal.
Purple	Host mode active
White	Receiving a valid Art-Net signal or communicating via RDM, Gateway active
Green	Receiving a valid Art-Net signal, Gateway not active
Orange	Receiving a valid sACN signal, Gateway active
Cyan	Receiving a valid sACN signal, Gateway not active
Red	No communication between menu board and controller board.
No Light	The device receives no valid control signal.

#### STATUS LED (3)

Color	Indication
Green	No error. Normal temperature.
Red Flashing (0,5s rhythm)	Warning device over temperature (only with fan modes QUIET and HIGH).
Red	Error detected. An error message appears in the display. Calibration data not loaded.

**Display Backlight (9)**

Color	Indication
Blue or Off	No error, normal condition.
Red	The display lights up red when the STATUS LED lights up red (error message).
Orange	The display lights up orange when the POWER LED lights up red.

**Encoder (4)**

The encoder (4) has two functions:

- Device menu closed: Setting the intensity.
- Device menu open: Use the encoder to scroll through the menu, open sub menus and set parameters. Press the knob to open sub menus and confirm settings.

**Central Turn Knob (5)**

Use the turn knob to set the color temperature (CCT) or the color hue (HUE). The current function of the turn knob is shown in the display (9) above the knob.

**Right Turn Knob (6)**

Use the turn knob to set the green/magenta point or the color saturation (SAT) or, dependent on the active color mode, categories or parameters. The current function of the turn knob is shown in the display (9) above the knob.

**PRESET (7)**

To call up a light preset, press the PRESET button briefly to bring up the list of all available presets.

- 1) Turn the encoder (4) to select one of 10 factory presets and 10 user definable presets.
- 2) Press the encoder (4) to activate the preset.

Use the device menu to adjust the settings. To store a light preset:

- 1) Hold PRESET, until the preset save dialog opens.
- 2) Turn the encoder (4) to select a preset memory slot.
- 3) Press the encoder (4) to store the preset.
- 4) Close the dialog with BACK.

To call up a DMX preset, press the MENU and PRESET button simultaneously and briefly to bring up the list of all available DMX presets.

- 1) Turn the encoder (4) to select one of 10 DMX presets.
- 2) Press the encoder (4) twice to activate the preset.

To store a DMX preset, press the MENU and PRESET button simultaneously and > 3 seconds to open the DMX preset list.

- 1) Turn the encoder (4) to select one of 10 DMX presets.
- 2) Select a slot and press the encoder (4) to store the DMX preset. BACK (11) returns to the main screen.

**MODE (8)**

- 1) Press MODE short to swap between CCT, HSI, GEL, Source Matching, RGBW mode and x, y mode of the L-Series Plus.
- 2) Press MODE long (> 3 seconds) to activate the extended color control.

The extended color control feature is not available in RGBW mode unless RGBW Calibrated Color Space is activated.

**DISPLAY (9)**

The display shows the current settings and other information during normal operation. Press MENU (10) to open or close the menu. Use the encoder (4) and BACK (11) to navigate through the menu.

**MENU (10)**

MENU opens the device menu. Press MENU when the menu is open to close the menu and abort an action (Escape). Use the encoder (4) to scroll through the menu, open sub menus and set parameters.

Press MENU long to display the menus which are used most.

**Back (11)**

The BACK button closes a sub menu and aborts an action (Escape). Compared to the MENU button (10) the BACK button only closes the sub menu, but not the fixture menu.

Press BACK long to display the last used menus.

**To lock the device menu**

Use the feature to prevent an accidental change of settings.

- 1) Press the encoder (4) in the home screen for 5 seconds to lock all buttons and knobs.
- 2) The word LOCKED appears on the display when locked.
- 3) Press the encoder (4) in the home screen for 5 seconds again to unlock all buttons and knobs.

**2.3 To Set the Operation Mode**

Press MODE (8) short to switch from CCT to HSI to GEL to Source to RGBW to x, y and back to CCT mode.

In CCT mode the L-Series Plus generates white light with optimized color rendition. In HSI mode the L-Series Plus generates colored light. If saturation is set very low, the L-Series Plus generates white light, but not with optimized color rendition. The GEL mode offers an extensive color gel library. In Source mode the L-Series Plus generates the light of traditional light sources. Use the RGBW mode to generate a RGBW color using the control panel. The x, y mode generates a color defined by its x, y coordinates.

Press MODE (8) long (> 3 sec.) to start the extended color control. The extended color control feature is not available in RGBW mode unless RGBW Calibrated Color Space is started.

**2.4 Remote Control Panel**

The L-Series Plus Remote is connected with an USB cable to the device. It is powered by the L-Series Plus and does not use a battery. The L-Series Plus Remote emulates the L-Series Plus device menu. Each L-Series Plus Remote controls one L-Series Plus.

Use multiple devices in a host / client configuration to control them with one Remote Control.

The L-Series Plus checks the firmware of the Remote Control every time it is connected. If the firmware version of the Remote Control is different to the firmware version of the L-Series Plus, the Remote Control firmware will be synchronized automatically, no matter if it is an upgrade or downgrade.

## 3 Control Modes

The L-Series Plus offers, depending on the model, up to 31 control modes. Use the 8 bit modes with basic controllers like simple fader consoles.

ARRI recommends the use of the 16 bit modes in combination with controllers supporting 16 bit resolution to get best results. The high resolution provides smooth dimming and precise color adjustments.

The coarse / fine modes utilize two channels for most parameters and provide higher resolution compared to the 8 bit modes in combination with controllers that do not support true 16 bit resolution. One channel sets the coarse value between 0 and 255 of the function. Each step is divided in 256 increments using the fine channel. This way it is possible to control the light very precise without using a true 16 bit resolution.

Below is a short overview of the different control modes. Please find a detailed overview of all DMX modes in the document *L Series Plus DMX Protocol Specification* which is available for free download on the ARRI website [www.arri.com](http://www.arri.com).

The CCT mode provides control of intensity, color temperature and green/magenta point.

Additionally the *Extended Color Control* is available to fine tune the beam parameters.

### CCT and RGBW

This mode provides control of intensity, color temperature, green/magenta point and individual channels for controlling the red, green, blue and white color.

### CCT and HSI

Provides control of intensity, color temperature, green/magenta point, hue and saturation (HSI = hue, saturation, intensity). In HSI mode the color and intensity is very even over the devices as it is controlled using color algorithms which take the tolerances of the light engines into account during calculation.

### RGBW

Simple mode for controlling the overall intensity and the red, green, blue and white intensity when only a limited number of channels is available.

### HSI

Simple mode for controlling hue, saturation and intensity.

### GEL

The GEL mode offers an extensive color filter list. The color temperature has two settings, 3.200 K and 5.600 K. The intensity can be controlled as usual.

### x, y Coordinates

The x, y mode determines the color displayed by its xy coordinates in the CIE 1931 diagram. Set the x and y coordinate with 8 bit or 16 bit resolution. One channel determines the transition type when fading from one color to another color.

### Source Matching

Source Matching saves a lot of time when you need a specific illumination. Set the light source which fits best to your demands from 50 different light sources.

### Ultimate DMX Mode

The ultimate DMX mode allows the combination of different control modes. You can set two modes and fade between them. This allows you to quickly set, prepare and crossfade the most suitable control modes for your application.

Please find more information in the *L Series Plus DMX Protocol Specification* which is available for free download on the ARRI web site [www.arri.com](http://www.arri.com).

## 4 Creative Functions

### 4.1 Set Lighting Parameters in CCT Mode

Set the color temperature continuously with the central turn knob (5). Set the green/magenta point continuously with the right turn knob (6). The current setting is displayed above the turn knobs.

### 4.2 Set Color in HSI Mode

Set the hue continuously with the central turn knob (5). Set the saturation continuously with the right turn knob (6). The current setting is displayed above the turn knobs.

### 4.3 Set Lighting Parameters in Gel Mode

Use the central turn knob (5) to set the color temperature 3.200 K or 5.600 K. The right turn knob (6) offers two options: *Best color* displays the gel with optimized color quality, *Brightest* displays the gel with optimized brightness.

- 1) Push the encoder (4) to open the gel library.
- 2) Choose the gel manufacturer (Rosco or LEE) with the central turn knob (5).
- 3) Use the right turn knob (6) to activate a gel category as shown in the table below.
- 4) Turn and push the encoder (4) to call up and set a gel from the gel set.
- 5) Push BACK (11) to close the gel set and set the intensity with the encoder (4).
- 6) Push the encoder (4) again, to re-open the gel set.

Rosco	LEE
Color Correction	Color Correction
CalColor	Color Filters
Storaro Selection	600 Series
Cinelux	Cosmetic
	700 Series

### 4.4 Set the Light Source in Source Mode

Start the source mode and push the encoder (4) to call up a list of the light sources available. Use the right turn knob (6) to set the category (please see *DMX Protocol Specification* for a detailed list). Turn the encoder (4) to set a light source. The L-Series Plus calls up the light source set in real time. Push the encoder (4) to use the light source.

### 4.5 Set the Color in RGBW Mode

The central turn knob (5) has no function in RGBW mode. Use the right turn knob (6) to set the functionality of the encoder (4). Dependent on the right turn knob (6), the encoder (4) is used to set the overall intensity of the red, green, blue and white color. Please note the setting *Direct Control* or *RGBW Color Space*. You can store the RGBW color as a preset.

### 4.6 Set the Color in x, y Mode

The x,y mode defines the color using its x, y coordinates. Use the right turn knob (6) to set the functionality of the encoder (4). Dependent on the right turn knob (6), the encoder (4) is used to set the intensity, the x or y coordinate of the color. The range of both the x and y coordinate is 0.0000 to 0.8000.

## 4.7 Extended Color Control

The extended color control allows the modification of the selected color in an intuitive way. It can be used both via the control panel or DMX (see section *To Use the Extended Color Control via DMX*).

### *To Use the Extended Color Control via the Control Panel*

Press MODE (8) for approximately 3 sec in the home screen to activate the extended color control. If RGBW direct mode is active, the extended color control is not available. Please activate the calibrated RGBW color mode (see section *Calibrated Color Space*) to be able to activate the extended color control. If the extended color control is active, a short press of MODE (8) switches between the operation modes (see section *To Set the Operation Mode*).

If an effect is active, press MODE (8) for at least 3 sec to switch between the color mode, the extended color control screen and the effect parameter screen.

The picture below shows the color control screen.



In the upper left and right corner of the display the active special and operation modes are displayed similar to the home screen (in the picture above HSI operation mode).

- Each parameter available is shown as a slider.
- Neutral parameters are indicated with the solid horizontal line at the middle of the bar.
- The horizontal bar of each slider indicates the value of each parameter.
- The selected parameter is indicated by a small bar under its slider.
- The name of the parameter and its value is shown under the sliders in the display.

From left to right, the bars in the extended color control screen stand for the following parameters:

Description	Parameter	Range
Color temperature	Warmer / Cooler	-1.000 > 0.000 > +1.000
Saturation	Saturate / Desaturate	
Red portion of current color	+ Red / - Red	
Green portion of current color	+ Green / - Green	
Blue portion of current color	+ Blue / - Blue	
Cyan portion of current color	+ Cyan / - Cyan	
Magenta portion of current color	+ Magenta / - Magenta	
Yellow portion of current color	+ Yellow / - Yellow	

Select the parameter using the right turn knob (6). Set the value of the parameter with the encoder (4). Please note:

- The resolution of the encoder (4) adapts dynamically to the moving speed.
- Clockwise turn increments the value of the parameter.
- Counter-clockwise turn decrements the value of the parameter.
- Double press within 800 ms resets the selected parameter to neutral (0).
- Triple press within 1200 ms resets all parameters to neutral (0).

When changing the operation mode the current values of the parameters are stored and restored when activating the operation mode the next time. After a power cycle, the L-Series Plus extended color control parameters are restored for each operation mode.

With activated extended color control:

- A star next to the active operation mode indicates the activated extended color control,
- the parameters are stored with each preset. Presets which contain parameters of the extended color control are marked with a star,
- modifying an extended color control parameter leaves any active preset,
- the calibrated RGBW color space becomes active when the extended color control is activated via DMX,
- the direct RGBW color space is not available,
- the parameters are applied both to the start and end point of a cross fading,
- the parameters are not applied to lighting effects.



## NOTICE

Presets made in Firmware v. 4.0 or higher will not work on previous firmware versions.

### 4.8 Set the Brightness in all Control Modes

Set the brightness in all control modes continuously with the encoder (4). The setting is dynamic: Turning the encoder (4) fast changes the intensity in coarse steps, turning it slow changes the intensity in fine steps.

### 4.9 Set the Dimming Curve

The L-Series Plus offers four dimming curves. The dimming curves are global: They affect both the intensity control via the device menu or DMX, wireless DMX, Art-Net and sACN.

- **Linear:** The intensity changes proportional to the encoder (4) or the channel value.
- **Exponential:** The resolution is high at lower intensity levels and low at higher intensity levels. Use this dimming curve when you need a high resolution at low intensity levels. This is the default setting.
- **Logarithmic:** The resolution is low at lower intensity levels and high at higher intensity levels. Use this dimming curve when you need a high resolution at high intensity levels.
- **S curve:** The resolution is both high at lower and higher intensity levels and low at intensity levels in between. Use this dimming curve, when you need a high resolution at low and high intensity levels.

To set the dimming curve

- 1) Push MENU (10) to open the device menu.
- 2) Turn and push the encoder (4) to open the menu *Light Control > Dimming Curve*.
- 3) Turn and push the encoder (4) to set and start a dimming curve.



## NOTICE

The dynamic of an effect using the intensity is very low, when you choose a basic intensity value in a flat area of the dimming curve. Start a different effect or set another dimming curve to create a more dynamic effect.



## 4.10 Set a Special Control Mode

### 4.11 Set the Host / Client Mode

In Host / Client mode the clients mimic the host without delay. The host generates a DMX signal on the RJ45 connector.

Connect a maximum of 32 L-Series Plus and SkyPanel devices to a DMX data link. Choose one device to be the host.



#### NOTICE

There must not be more than one device in the data link set to host mode.

Setting more than one device to host mode or connecting a DMX controller to the data link causes one or all host devices to stop the host mode.

To set the Host and Client:

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *Light Control > Host / Client Mode*.
- 3) Set all devices in the data link to *OFF* to stop host mode. Set one device in the data link to *ON* to set the device as host.
- 4) Push MENU (10) to close the menu.

All devices in the data link will mimic the host automatically and independent from their settings.

Please note when using the Host / Client mode:

- Art-Net and sACN are stopped on all devices in the data link.
- Changing the mode on the host (CCT, HSI, GEL, Source Matching, RGBW) changes the mode on all clients accordingly.
- Starting the extended color control on the host starts the extended color control on clients supporting extended color control.
- The settings DMX protocol version, DMX address, tungsten mode, low end mode, fans and signal loss behavior are changed accordingly to the settings of the host.
- Connect only C version devices of one type in a data link.
- Presets are not available.

### 4.12 Set the Calibrated Color Space

By default, the L-Series Plus generates colors in a calibrated color space. The calibrated color space Kodak Pro Photo Color Gamut / ESTA standard E1.54 forces the L-Series Plus to generate a calibrated color. The calibrated color space is a global setting and is active in both on-board controls and DMX.

When setting direct RGBW mode, the color is generated with optimized brightness within the specified tolerances. The color in direct mode will not be calibrated, and there can be minor unit to unit differences.

Use the right turn knob (6) to set either the red, green, blue or white channel, and then turn the encoder (4) to adjust the channel. Turn the right turn knob (6) further clockwise to set and adjust the white point and green/magenta point of the current color.

To Start and Stop the Calibrated Color Space

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *Light Control > RGBW Color Space*.
- 3) Set *Direct Control* to generate colors with optimized intensity. Set *Calibrated Color* to generate a calibrated color.
- 4) Push MENU (10) to close the menu.



### 4.13 Set the PWM Frequency

You can change the PWM frequency of the Light Engine in the menu. Change the PWM frequency, when you recognize flicker in the camera picture or by your eyes. The default PWM frequency is the highest frequency. You can change the PWM frequency in 10 steps. Frequency 1 is the highest frequency setting. Frequency 10 is the lowest frequency setting.

To set the frequency:

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *Light Control > Frequency Selection*.
- 3) Turn and push the encoder (4) to set a frequency. The frequency is set immediately.
- 4) Push MENU (10) to close the menu.

### 4.14 Set the Fan Mode

You can set the fan mode to adapt the cooling and noise level to the environment. The table below shows the available options:

Fan Mode	Description
Quiet Mode	The fans operate constantly at low speed (silent).
Variable	The fans operate temperature regulated.
High Temp	The fans run at maximum speed.

To set the Fan Mode:

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *Fan Mode*.
- 3) Turn and push the encoder (4) to set the Fan Mode.
- 4) Push MENU (10) to close the menu.

### 4.15 Set a Lighting Effect

The L-Series Plus offers an effect library with a wide variety of lighting effects used on set or in a TV studio. The L-Series Plus replaces many special effect devices with its unique effect library.

You can call up all effects using the menu or via DMX, Art-Net or sACN. Every effect offers specific parameters. A lighting effect can be stored in a preset slot for quick access at a later point.

To set and start an effect:

- 1) Push the MENU button (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *Lighting Effects > [Desired Lighting Effect]*.
- 3) Push the encoder (4) to start the effect.
- 4) Set the parameters, as described below.

To stop an effect:

- 1) Push the MENU button (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *Lighting Effects*.
- 3) Set the option *Off*. Push the encoder (4) to confirm.

#### *Start / Stop function of the effect*

If an effect is running, push the encoder (4) to stop the effect execution. Push the encoder (4) again to restart the effect from the beginning. While stopped, the device performs a black out and a *P:<Effect>* shows the status in the display. The start / stop function is only available in the effects control screen.

The L-Series Plus provides the following effects in DMX modes 22 (8 bit) and 23 (16 bit):

### *Party*

The Party effect calls up the color spectrum or changes the color temperature from warm to cold and vice versa in an endless loop.

Parameters:

- Saturation
- Speed

If you do not need the effect for shooting, you will need it for the party when the movie is done!

### *Candle*

Low flickering of a warm light, slower than fire and less energetic. The light gently fades in CCT and brightness with periods of static behavior in between. It consists of „flutters“ and static periods.

Parameters:

- CCT range
- Speed

### *Clouds Passing*

Slow variations in intensity and CCT that can be offset. The effect is most useful when using several L-Series Plus that are offset to prevent a simultaneous effect on different devices.

Parameters:

- Offset
- Passing speed
- Sync

### *Club Lights*

Random colors that pulse, flash and fade.

Parameters:

- Color variety
- Speed
- Sync

### *Color Chase*

Creates a color chasing effect over the surface of the L-Series Plus using multiple LED light engines.

Parameters:

- Saturation
- Speed
- Offset
- Sync

### *Cop Car*

Creates an on-board blue and red flashing effect to mimic a police car, an ambulance or a fire brigade. Do not use the effect in public areas without permission.

Parameters:

- Color combination
- Flash pattern

### *Explosion*

A bright flash of light with a fast attack and a semi-slow decay.

Parameters:

- Trigger
- Decay

*Fire*

Creates a flickering fire effect.

Parameters:

- CCT range
- Flicker speed

*Fireworks*

Bright flashes of color and have a quick start and fade to zero intensity.

Parameters:

- Color combination
- Speed

*Fluorescent Flicker*

Fluorescent color with static periods and then periods of the light flickering on and off.

Parameters:

- Speed
- Frequency

*Light Strobe*

Generates a white or colored strobe effect with adjustable speed from 25 flashes / sec to 1 flash / sec.



## DANGER

### **DANGER! Risk of injury or death through epileptic seizure.**

Do not use the effect near stairways, in corridors or near public exits.

Provide advance notice that strobe lighting is in use. Display advisory notices on the set, at the point of ticket sales, on tickets if possible, in the program, and at the entrance(s) to the venue or studio.

Avoid extended periods of continuous flashing, particularly at frequencies of 10 to 20 flashes per second. At flash rates below 5 flashes per second, it is estimated that only 5% of flicker-sensitive persons will be at risk of seizure

Make sure that personnel at the venue are trained in the care of a person who is having an epileptic seizure and able to provide care if necessary.

If strobes are in use and a person has a seizure, switch the strobes off immediately.

Mount strobes as high above head height as practicable.

Parameters:

- CCT
- Green/magenta point
- Cross fade
- Saturation
- Flash speed

*Lightning*

Creates an on-board flashing lightning effect. Intensity, speed and frequency of flashing can be controlled.

Parameters:

- CCT
- Green/magenta point
- Speed
- Frequency
- Sync

*Paparazzi*

Effect that mimics a flash bulb or modern camera flash.

Parameters:

- CCT
- Flash type
- Frequency

*Process*

Fading on and off white light that moves from one light engine to the next.

Parameters:

- Speed
- Direction

*Pulsing*

A pulsing or throbbing effect where the color and speed can be set.

Parameters:

- CCT
- Green/magenta point
- Cross fade
- Color
- Saturation
- Frequency
- Span

*Television*

Creates an on-board TV effect. Cool CCT that changes intensity every few seconds.

Parameters:

- CCT range
- Speed

*Welding*

Quick bright flashes on different light engines with a fast decay.

Parameters:

- Speed
- Minimum brightness

## 4.16 Handle Lighting Effects through the Menu

The turn knobs (5, 6) adjust the effect parameters when an effect is running. For all effects applies:

The effect set is displayed in the left top corner of the display. The encoder (4) adjusts the intensity.

Set effect the parameters:

- 1) Push the encoder (4) to stop the effect (black out).
- 2) Push the encoder (4) again to restart the effect.
- 3) Push MODE (8) long (> 1 sec) to start the parameters described below (column Mode, not available for all effects).
- 4) Push MODE (8) again to close the effect control and regain normal control.

The table below shows the parameters you can adjust with the turn knobs (5, 6) for each effect:

Effect	Mode	Turn Knob	Parameter
Party Effect		Central	Saturation
		Right	Speed
Candle		Central	CCT Range
		Right	Speed
Clouds Passing		Central	Offset
		Right	Speed
Club Lights		Central	Color Range
		Right	Speed
Color Chase		Central	Offset
	X	Central	Saturation
		Right	Speed
Cop Car		Central	Color Combination
		Right	Flash Pattern
Explosion		Press Encoder	Trigger
		Right	Decay
	X		Color Mode
Fire		Central	CCT Range
		Right	Speed
Fireworks		Central	Color Combination
		Right	Speed
Fluorescent Flicker		Central	Speed
		Right	Frequency
	X		Color Mode
Light Strobe	X	Central	Speed
		Central	Normal Functionality
		Right	Normal Functionality
Lightning		Central	Frequency
	X	Central	CCT Range
		Right	Speed
	X	Right	Green-Magenta Point
Paparazzi		Central	Frequency
	X	Central	CCT Range
		Right	Flash Bulb
	X	Right	Green-Magenta Point
Process		Central	Speed
		Right	Direction
	X		Color Mode
Pulsing		Central	Normal Functionality
	X	Central	Span
		Right	Normal Functionality
	X	Right	Frequency
Television		Central	CCT Range
		Right	Speed
Welding		Central	Speed
		Right	Minimum Brightness
	X		Color Mode



## NOTICE

When changing a parameter of a running effect through the menu or via DMX, the internal effect generator recalculates the effect in real time. The effect can stutter, step or be unsmooth for a short period. Do not change parameters of a running effect if the effect needs to run smooth.

---

## 5 Other Functions

### 5.1 Set the Display Behavior

You can set the intensity of the background illumination, the contrast, the behavior of the background illumination and the orientation of the display content.

To set the display behavior:

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *Display Setup* > *[Desired Display option]*.
- 3) Set the desired behavior and push the encoder (4) to confirm the setting.

Please refer to section *Device Menu* for a detailed explanation of the options.

### 5.2 USB Functions

The L-Series Plus has an USB A port. The load capacity is 500 mA at 5V voltage. Do not overload the USB-A port. The device accepts FAT32 formatted USB 1.0 / 2.0 memory sticks. We recommend the use with memory sticks up to 4 GB capacity. Memory sticks with higher capacity might cause inconvenient delays. The following USB functions are available:

- Update the firmware
- Save and load a light preset list
- Save and load a DMX preset list
- Save and load fixture settings
- Save the error and service log

You can update the firmware of the device and the remote control panel through a USB memory stick:

To Update the Firmware:

Copy the L-Series Plus update file to the root of an USB memory stick.

- 1) Connect the USB memory stick to the USB-A connector of the L-Series Plus .
- 2) After a short time the device detects the update file on the USB memory stick.
- 3) Confirm the update with Yes.
- 4) Wait until the update is finished and the device has rebooted with the new firmware.
- 5) Remove the USB memory stick.

To Update a Remote Control

The Remote Control is automatically up- and downgraded by the L-Series Plus connected whenever the firmware versions of the Remote Control and the L-Series Plus are different.



#### NOTICE

Disconnect all DMX cables from the device before using an USB memory stick. The data transfer between the device and the USB memory stick might be disturbed due to interferences.

Do not remove the USB memory stick during an update or data transfer. The file system might be corrupted. You might need to perform a recovery update to return the device to a functional state.

### 5.3 Light Preset List

The light preset list can be saved to an USB memory stick and be uploaded to another L-Series Plus.

To Save a Light Preset List:

- 1) Connect an USB memory stick to the USB-A connector of the L-Series Plus.
- 2) Push MENU (10) to open the menu.
- 3) Turn and push the encoder (4) to open the menu *USB Functions > Save Light Presets*.
- 4) Set *Yes* and push the encoder (4) to confirm the setting. Set *No* to cancel the procedure.
- 5) The light preset list will be saved on the USB memory stick.

Up to 30 light preset lists can be stored in the root directory of the USB memory stick. The file name is *<product serial number>-Presetxx.json*. The L-Series Plus is looking for *Presetxx.json* to identify a light preset list on an USB memory stick. Be sure to keep the string when renaming a light preset list. Otherwise the file will not be found by the L-Series Plus.

To Load a Light Preset List:

- 1) Connect an USB memory stick with one or more preset lists to the USB-A connector of the L-Series Plus.
- 2) Push MENU (10) to open the menu.
- 3) Turn and push the encoder (4) to open the menu *USB Functions > Load Presets*.
- 4) Push the encoder (4) to open the list of the preset lists available in the root directory of the USB memory stick.
- 5) Turn and push the encoder (4), to set and load a preset list. The internal preset list of the L-Series Plus will be overwritten by the preset list.

### 5.4 Save and Load Settings

The device settings can be saved to an USB memory stick and be uploaded to a different L-Series Plus. The file contains all settings except the DMX address and IP settings.

To Save the Settings:

- 1) Connect an USB memory stick to the USB-A connector of the L-Series Plus.
- 2) Push MENU (10) to open the menu.
- 3) Turn and push the encoder (4) to open the menu *USB Functions > Save Fix. Settings*.
- 4) Set *Yes* and push the encoder (4) to confirm the setting. Set *No* to cancel the procedure.
- 5) The settings will be saved on the USB memory stick.

Up to 30 settings files can be stored in the root directory of the USB memory stick. The file name is *<product serial number>-Clonexx.json*. The L-Series Plus is looking for *Clonexx.json* to identify a settings file on an USB memory stick. Be sure to keep the string when renaming a settings file. Otherwise the file will not be found by the L-Series Plus.

To Load Settings:

- 1) Connect an USB memory stick with one or more settings files to the USB-A connector of the L-Series Plus.
- 2) Push MENU (10) to open the menu.
- 3) Turn and push the encoder (4) to open the menu *USB Functions > Load Fix. Settings*.
- 4) Push the encoder (4) to open the list of the settings files available in the root directory of the USB memory stick.
- 5) Turn the encoder (4), to select a settings file.
- 6) Push the encoder (4) to load the settings. The L-Series Plus restarts with the new settings after successful upload.



## 5.5 Save the Error and Service Log

For diagnosis purpose you can be asked to send the error and service log to the ARRI service. The log files can be downloaded to an USB memory stick. The file name contains the date, time and serial number of the device.

To save the log files:

- 1) Connect an USB memory stick to the USB-A connector of the L-Series Plus.
- 2) Push MENU (10) to open the menu.
- 3) Turn and push the encoder (4) to open the menu *USB Functions > Save Error Log*.
- 4) Set *Yes* and push the encoder (4) to confirm the setting. Set *No* to cancel the procedure.
- 5) The log files will be saved on the USB memory stick.

## 5.6 Read out Information and Change Settings

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *Enabled Functions*.

Set an option and push the encoder (4) to change the status.

## 5.7 Factory Reset

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *Factory Reset*.
- 3) Set *Yes* to perform a factory reset. Push BACK (11) to cancel the procedure.

The L-Series Plus reboots with its factory settings.

## 6 DMX

### 6.1 DMX Priorities

**Doesn't work as Ethernet and DMX use the same connectors, except one Ethercon is used for DMX and the other one for network protocol. Clarify!**

The device can be controlled via DMX, sACN or Art-Net. Please observe the priority rules below when using more than one control method at a time:

Control Method	Priority
<b>DMX</b>	DMX commands overwrite sACN and Art-Net commands.
<b>sACN</b>	sACN commands overwrite Art-Net commands, but are overwritten by DMX commands.
<b>Art-Net</b>	Art-Net commands are overwritten by sACN and DMX commands.

### 6.2 DMX Address

When you control the L-Series Plus through DMX, you must assign a DMX address to the device.

To assign a DMX address:

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *DMX Settings > DMX Address*.
- 3) Turn and push the encoder (4) to set the DMX address.
- 4) Push MENU (10) to close the menu.

### 6.3 DMX Mode

The L-Series Plus offers different DMX modes. Please find a detailed overview of all DMX modes in the document L-Series Plus *DMX Protocol Specification* which is available for free download on the ARRI website [www.arri.com](http://www.arri.com).

To set the DMX Mode:

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *DMX Settings > DMX Mode*.
- 3) Turn and push the encoder (4) to set the DMX mode.
- 4) Push MENU (10) to close the menu.

### 6.4 DMX Signal Loss Behavior

You can set the behavior of the device when the control signal is lost. The table below shows the available options:

Option	Description
<b>Hold Last Command</b>	The last received DMX values are used until the device is switched off or valid DMX data is received again.
<b>Black Out</b>	The device douses to 0% intensity immediately.
<b>Hold 2 Min. Fade Out</b>	The last received DMX values are used for 2 minutes. After 2 minutes the device douses to 0% intensity. When valid DMX data is received after less than 2 minutes, these data will be used.

To set the DMX-Signal-Loss Behavior:

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *DMX Settings > DMX Loss Behavior*.
- 3) Turn and push the encoder (4) to set an option.
- 4) Push MENU (10) to close the menu.



## NOTICE

The setting of the DMX signal loss behavior is part of a DMX preset. The setting can change when calling up a DMX preset.

## 6.5 DMX Protocol Version

The L-Series Plus supports different DMX protocol versions. When a channel description is changed or channels are added, a new version of the DMX protocol is published. To ensure compatibility with existing DMX installations, you can set the DMX protocol version that the device should use.

To set the DMX Protocol Version:

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *DMX Settings > DMX Protocol Version*.
- 3) Turn and push the encoder (4) to set the DMX Protocol Version.
- 4) Push MENU (10) to close the menu.

## 6.6 DMX Extended Color

The L-Series Plus applies 8 additional parameters to every DMX mode when the extended color control is started through the DMX settings menu. Depending on the mode, 8 (8-bit modes) or 16 (16-bit modes and Coarse / Fine) additional DMX channels are added per device. Please find more information in the L-Series Plus *DMX Protocol Specification* which is available for free download on the ARRI website [www.arri.com](http://www.arri.com).

## 6.7 DMX Frame Filter

As a default setting, the L-Series Plus checks the integrity of the received control data. If certain parameters of the data stream (e.g. the number of received DMX channels) change, the device displays a warning message and checks the data stream again before accepting it as a valid control signal. If the length of the data stream changes repeatedly, the check may cause unexpected behavior of the device. Therefore this function can be disabled. The device then accepts all received control data without further checking.

To Activate and De-activate the DMX Frame Filter:

- 1) Push MENU (10) to open the menu.
- 2) Turn and push the encoder (4) to open the menu *DMX Settings > DMX Framefilter*.
- 3) Turn and push the encoder (4) to set the option.
- 4) Push MENU (10) to close the menu.

## 6.8 DMX Presets

The L-Series Plus supports 10 user-defined DMX presets with the following parameters:

- DMX Address
- DMX Mode
- DMX ECC Channels
- Artnet / sACN State
- Merge mode
- Art-Net universe (if applicable - Not visible for sACN)
- sACN universe (if applicable - Not visible for Artnet)
- Art-Net Net (if applicable - Not visible for sACN)
- Art-Net Subnet (if applicable - Not visible for sACN)
- DMX Gateway
- DMX Loss Behavior
- DMX Frame filter
- DMX Protocol version
- RDM State

To save a DMX Preset List:

- 1) Push MENU (10) and PRESET (7) long and simultaneously to save a DMX preset list independent from the current page shown on the display.
- 2) Turn and push the encoder (4) to save the DMX preset list in the desired slot.

To activate a DMX Preset List:

- 1) Push MENU (10) and PRESET (7) short and simultaneously to open the DMX preset list independent from the current shown page on the display.
- 2) Turn and double push the encoder (4) to start a DMX preset list.



### NOTICE

If Host / Client Mode was started: Loading a DMX Preset disables the host/client mode as the user expects the new settings.

## 6.9 Save and Load DMX Settings

You can save the DMX preset list to an USB memory stick and upload the list to another L-Series Plus.

To Save a DMX Preset List:

- 1) Connect an USB memory stick to the USB-A connector of the L-Series Plus.
- 2) Push MENU (10) to open the menu.
- 3) Turn and push the encoder (4) to open the menu *USB Functions -> DMX Presets -> Save DMX Preset*.
- 4) Turn and push the encoder (4) to set the DMX preset list. Set *Yes* to confirm the setting. Set *No* to cancel the procedure.
- 5) The DMX settings will be saved on the USB memory stick.

You can save up to ten DMX preset lists in the root directory of the USB memory stick. The file name is `<text>-DMXPres<No>.json`. The L-Series Plus is looking for this string to identify a DMX preset file on an USB memory stick. Be sure to keep the string when renaming a DMX preset file. Otherwise the file will not be found by the device.

To Load a DMX Preset List:

- 1) Connect an USB memory stick to the USB-A connector of the L-Series Plus.
- 2) Push MENU (10) to open the menu.
- 3) Turn and push the encoder (4) to open the menu *USB Functions -> DMX Presets -> Load DMX Preset*.
- 4) Turn and push the encoder (4) to set the DMX preset list. Set *Yes* to confirm the setting. Set *No* to cancel the procedure.
- 5) The DMX preset list will be loaded in the device. It overwrites the DMX settings of the device.

## 6.10 DMX Monitor

When valid control data is received, the L-Series Plus automatically opens page one of the DMX monitor in the display. The top right corner will say DMX, and the top left corner will note any special settings, such as RGBW cal., when they are started.

In addition, there is a second page on the display that shows various values and parameters of the device. DMX values are not listed here, instead, aspects such as intensity and CCT are written as plain text. This is a useful function for troubleshooting in a control network.

Turning the encoder switches between the pages. The length of page two will vary depending on what mode and values are being sent.

*Information displayed on page one:*

- DMX mode and description
- DMX address and channels used
- DMX footprint size

*Information displayed on page two*

The information displayed on page two of the DMX monitor is dependent on the active DMX mode:

DMX mode utilizing...	Information	
<b>All DMX modes</b>	Intensity	
<b>Cross-fade, if active</b>	X-Fade (cross-fade) <i>Note: If the X-Fade is at 0 or 255, only the active color control information will be displayed.</i>	
<b>CCT</b>	CCT	+/- Green
<b>RGBW</b>	Red	Blue
	Green	White
<b>H S I</b>	Hue	Sat
<b>Gels</b>	(Base) CCT	Name
	Color Match	No. (Gel Number)
	Brand	X-Trans (Transition Type)
	Cat. (Category)	
<b>XY</b>	x Value	
	y Value	
	X-Trans (Transition Type)	
<b>Source matching</b>	Cat. (Category)	Source

Up to 7 additional parameters can be displayed, depending on which effect is active. See the L-Series Plus *DMX Protocol Specification* document for more information.

## 7 Network Features

### 7.1 Art-Net and sACN

The L-Series Plus supports Art-Net. Art-Net is a network protocol to control devices.

Here is a brief explanation of some basic terms being used by Art-Net. For more detailed information, please visit the web site of the Art-Net developers: [www.artisticlicence.com](http://www.artisticlicence.com).

The device is capable of processing Art-Net for up to ten universes with one sender and three universes with two senders.

General rules of thumb:

- Maximum of 4 universes of Art-Net Art-DMX unless you really have to,
- All universes of sACN.

Please find more information about sACN in the standard ANSI E1.31. Please observe all information given there to set up a proper network.

#### *Art-Net IP Address*

When setting the IP address manually, please take care the address is in the range 2.0.0.1 to 2.255.255.255 (Network switch off) or 10.0.0.1 to 10.255.255.255 (Network switch on). Any other range is not according to the Art-Net standard and problems might occur.

#### *Art-Net Net*

A group of 16 consecutive Sub-Nets or 256 consecutive Universes is referred to as a net. There are 128 Nets in total.

#### *Sub-Net*

A group of 16 consecutive universes is referred to as a sub-net. (Not to be confused with the subnet mask).

#### *Universe*

A single DMX512 frame of 512 channels is referred to as a Universe.

#### *Art-Net Merge Mode*

The Art-Net protocol allows multiple nodes or controllers to transmit ArtDmx data to the same universe. Merging is limited to two sources. If there are additional sources, merging will be deactivated.

The Merger can act as an LTP or HTP merger (LTP = Latest Takes Precedence, HTP = Highest Takes Precedence).

#### *Art-Net / sACN Gateway*

With enabled Art-Net / sACN gateway the L-Series Plus makes all 512 channels of the used universe available at its DMX connectors.

The menu Art-Net Settings contains all parameters to set up a L-Series Plus in an Art-Net network. Please find a detailed description in the section *Features of the Device Menu*.

The Art-Net / sACN gateway is RDM capable. All RDM compatible devices in a network can be detected by the integrated RDM controller. RDM management over Art-Net / sACN is supported.

### 7.2 Network Settings

The *Network Settings* menu contains various parameters for setting up the L-Series Plus in a network.

*Link* shows if the device is connected to a network.

*IP* displays the IP address of the device when it is connected to a network.

*Mode* sets the IP mode. In DHCP mode, the IP address, gateway, DNS1 and DNS2 are automatically assigned to the fixture by the network. You should use this mode if possible.

Art-Net 2.x.x.x.x and Art-Net 10.x.x.x are used to set up the fixture in an Art-Net network.

AutoIP negotiates an IP address automatically when connected to a PC which is set to AutoIP in the range 169.x.x.x.

Manual enables the assignment of a fixed IP address.

*Mask* shows the network mask.

*Gateway* shows the gateway address.

*DNS1 / DNS2* shows the DNS addresses of the device.

*MAC* shows the MAC address of the device.

*BONJ* The L-Series Plus can be found automatically in a network via the Bonjour application. Start or stop Bonjour in the BONJ menu. You can also set the status via RDM or the Web Portal.

When Bonjour is stopped, the device cannot be automatically detected by ALSM.

*MDNS* displays the MDNS address of the device (ID and serial number).

## 7.3 ARRI Lighting Service Manager

Please find information about the features and the functionality of the ARRI Lighting Service Manager in the user manual for the ARRI Lighting Service Manager. You can download it with the ARRI Lighting Service Manager software-bundle from the ARRI web site [www.arri.com/lightingsoftware](http://www.arri.com/lightingsoftware) free of charge.

## 7.4 Web Portal

The L-Series Plus provides a web page accessible via http, when connected to a network. Type in the IP address of the L-Series Plus in your web browser to open the web portal and change the settings listed below. The web portal can also be found by using a Bonjour service to discover the device and open the web portal without needing to know the IP address.

The web portal features:

- Set the control mode
- Read and modify DMX settings
- Read and modify network settings
- Read and modify device settings
- Read the device state
- DMX Monitor



### NOTICE

Always use the latest version of your web browser. Earlier versions might not be compatible to the web portal of the device. The following browsers have been tested successfully with the ARRI web portal: Safari, Chrome, Firefox, Opera, IE 11 or higher.

Please do not access the web portal during a show. The data exchange with the web portal might cause delayed reaction and cause unexpected behavior of the device.

## 8 Menu Structure

Use the MENU button to open and close the menu. BACK closes a sub menu and aborts an action. Turn the encoder to scroll. Press the encoder to select an item (Default value = **bold**).

Level 1	Level 2	Level 3	Level 4	Explanation (default setting = bold)
DMX Setting	DMX Address	001 – 512		Start address
	DMXMode	P1 – P31		DMX Mode
	DMX Loss Behavior	Hold Last Command		Fixture holds the last received control values
		Black Out		Fixture douses the dimmer
		Hold 2 Min Fade Out	Hold the last received values for 2 min. then douse	
	DMX Protocol Version	Version 3.4		Version of the DMX protocol
		Version 4.0		
		Version 4.1		
		Version 4.2		
		Version 4.3		
		Version 4.4		
	Extended Color	Off		DMX Extended color control stopped
		On		DMX Extended color control started
	RDM State	On		RDM communication started
		Off		RDM communication stopped
	DMX Frame Filter	Off		DMX Frame Filter stopped
		On		DMX Frame Filter started
Fan Mode	Quiet Mode			Fan speed low
	Variable			Fan speed temperature regulated
	High Temp			Fan speed high
Light Mode	CCT			White light, color temperature and green / magenta correction adjustable
	H S I			Colored light, hue and saturation adjustable
	Gel			GEL mode, gel library available, color temperature 3.200 K or 5.600 K
	Source Matching			The device emulates a specific light source.
	RGBW			Color mixing in RGBW mode.
	x, y Coord.			Setting the color via its x, y coordinates
Light Control	Dimming Curve	Exponential		Exponential dimming curve
		Linear		Linear dimming curve
		Logarithmic		Logarithmic dimming curve
		S-Curve		Combination of exponential and logarithmic dimming curve
	Special Modes	Low End Mode	Off	Flicker free light
			On	Optimized dimming at low intensity levels
		Stage Mode	Off	Stage Mode stopped
			On	Stage Mode started
		Tungsten Mode	Off	Color temperature optimized when dimming
			On	Emulates the behavior of a tungsten light
		High Speed Mode	Off	Highspeed mode stopped
			On	Highspeed mode started



Level 1	Level 2	Level 3	Level 4	Explanation (default setting = bold)
Light Control	Host / Client Mode	<b>Off</b>		Host/Client Mode stopped
		On		Host/Client Mode started
	RGBW Color Space	<b>Calibrated Color</b>		The RGBW color is calibrated (optimized hue)
		Direct Color		The color is mixed in RGBW mode direct (optimized brightness).
	Frequency Selection	<b>Default</b>		Default frequency (highest frequency)
		Frequency 1		Adjusted Frequency
		Frequency 2		
		Frequency 3		
		Frequency 4		
		Frequency 5		
		Frequency 6		
		Frequency 7		
		Frequency 8		
		Frequency 9		
		Frequency 10		
Lighting Effects	<b>Off</b>			No effect
	Party Effect			Party Mode
	Candle			Candle
	Clouds Passing			Clouds Passing
	Club Lights			Club Light
	Color Chase			Color Chase
	Cop Car			Cop Car
	Explosion			Explosion Effect
	Fire			Fire
	Fireworks			Fireworks
	Fluorescent Flicker			Fluorescent Flicker
	Light Strobe			Light Strobe
	Lightning			Lightning Strikes
	Paparazzi			Paparazzi
	Process			Process Light
	Pulsing			Pulsing
	Television			Television
	Welding			Welding Light
Display Setup	Display Illumination	<b>Always On</b>		Display illumination always on
		Off After 10 Sec.		Display illumination douses 10 sec. after last menu action
	Display Brightness	0 – <b>10</b>		Brightness of the display illumination
	Display Contrast	01 – <b>03</b> – 10		Contrast of the display content
	Display Orientation	<b>Normal</b>		No rotation of the display content
		Upside Down		Display content 180° rotated
	Display Error Mode	Normal		Show error codes, switch status LED and display illumination to red.
		<b>Hidden</b>		Show error codes. Status LEDs and display illumination off.

Level 1	Level 2	Level 3	Level 4	Explanation (default setting = bold)
USB Functions	Light Preset	Save Light Preset	No	Store light preset list to an USB memory stick
			Yes	
		Load Light Preset	[List]	Load light preset list from an USB memory stick. Select light preset list with the encoder.
	DMX Preset	Save DMX Preset	No	Store DMX preset list to an USB memory stick.
			Yes	
		Load DMX Preset	No	Load DMX preset list from an USB memory stick. Set preset list with the encoder.
			Yes	
	Fixture Setting	Save Fix. Settings	No	Store fixture settings to an USB memory stick.
			Yes	
Load Fix. Settings		[List]	Load fixture settings from an USB memory stick. Select fixture settings with the encoder	
Save Error Log			Store error and service log to an USB memory stick.	
Art-Net and sACN	Art-Net / sACN State	<b>Automatic</b>		Accepts both protocols.
		Art-Net only		Accepts Art-Net only
		sACN only		Accepts sACN only
		Off		Accepts no network protocol
	Art-Net Net	<b>0 – 127</b>		Set Art-Net net
	Art-Net Subnet	<b>0 – 15</b>		Set Art-Net subnet in Art-Net net
	Art-Net Universe	<b>0 – 15</b>		Set Art-Net universe in Art-Net subnet
	Merge Mode	<b>Latest Takes Precedence</b>		Set Merge-Mode „LTP“ (Last Take Precedence)
		Highest Takes Precedence		Set Merge-Mode „HTP“ (High Take Precedence)
	Gateway	On		Gateway started
		<b>Off</b>		Gateway stopped
	sACN Universe	<b>1 ... 65.000</b>		sACN universe
	IP Mode <input type="checkbox"/>			Shortcut to Network settings -> Mode (see below)
Network Settings	Link	Connection OK		Connection started
		<b>No Connection</b>		Connection stopped
	IP	AAA.BBB.CCC.D DD		The fixtures IP address (assigned via DHCP, if active)  If manual mode is started: AAA = 10, 172 or 192 BBB = 0 - 255, 16 - 31 or 168 CCC = 0 - 255 DDD = 0 - 255  If changed, the IP mode is automatically set to „Manual“
	Mode	<b>DHCP</b>		Use DHCP mode
		Art-Net 2.B.C.D		Use Art-Net net 2.B.C.D
Art-Net 10.B.C.D		Use Art-Net net 10.B.C.D		
Manual		Jumps to „IP Address“		

Level 1	Level 2	Level 3	Level 4	Explanation (default setting = bold)
Network Settings	Mode	AutoIP		PC and device negotiate an IP address automatically (169.x.x.x)
	Mask	255.255.255.0		Cannot be changed via the fixture menu.
	GW	x.x.x.x		Cannot be changed via the fixture menu.
	DNS1	x.x.x.x		Cannot be changed via the fixture menu.
	DNS2	x.x.x.x		Cannot be changed via the fixture menu.
	MAC	XX:XX:XX:XX:XX:XX		MAC address
	BONJ	<b>On</b> Off		Bonjour State
	MDNS	Sxx-xxxxxxx-xxxx		Serial number
Enabled Menu	Fan Mode			Shows the settings of each option. Press the encoder (4) to change the setting of the selected option.
	Dimm. Curve			
	Low End			
	Stage Mode			
	Tungsten			
	RGBW C-Space			
	High Speed			
	Frequency			
	Host/Client			
	Effect			
	Art-Net/sACN			
	DMX Ext. Col.			
	RDM State			
	Gateway			
	IP Mode			
	Bonjour			
	USB Mode			
Fixture Info	Fixture Status	System Ready		No error
		Power Data Status -> Clear		Error message (see <i>Safety and Installation manual</i> , available for free download on <a href="http://www.arri.com">www.arri.com</a> )
	Light Engine Temp.	xx.x °C xx.x °F		Recent light engine temperature
	Hour Counter	xxh - Light Engine yyh - System		Working hours of the light engines and of the system since production of the fixture
	Fixture Serial No.	L1.xxxxxxx-xxx		Fixture serial number
	Firmware Versions	FW: x.xx.xx.xxxx CP: x.xx.xx.xxxx		Main firmware version and display firmware version
Fixture Settings	USB Mode	<b>Normal</b>		USB port powered
		Service		USB port not powered. <b>Do not change this setting unless being asked by ARRI service. Risk of damage!</b>
Factory Reset	<b>No</b>			Stop procedure
	Yes			Load factory settings

**Equations CCT and XY**

	<b>CCT</b>	<b>x, y</b>
<b>8 bit Resolution</b>	$DMX_{Value} = (CCT_{Value} - 2.800) / 28.235$	$DMX_{X-Value} = (x_{Coordinate} \times 255) / 0.8$
	$CCT_{Value} = (DMX_{Value} \times 28.235) + 2.800$	$DMX_{Y-Value} = (y_{Coordinate} \times 255) / 0.8$
<b>16 bit Resolution</b>	$DMX_{Value} = (CCT_{Value} - 2.800) / 0.109865$	$DMX_{X-Value} = (x_{Coordinate} \times 65.535) / 0.8$
	$CCT_{Value} = (DMX_{Value} \times 0.109865) + 2.800$	$DMX_{Y-Value} = (y_{Coordinate} \times 65.535) / 0.8$

## 9 RDM Commands

Please find a complete overview of all supported RDM commands for free download on the ARRI website [www.arri.com](http://www.arri.com).

## 10 Error Codes

Code	Error	Remedy
E.003	<b>Controller over temperature. STATUS LED lit up red.</b>	Let the L-Series Plus cool down. Turn the dimmer knob to „0“ or send an intensity value „0“ via DMX to start the light engine(s) again.
E.004	<b>Light engine over temperature</b>	See E.003
E.005	<b>Missing LED supply.</b>	The LED power supply is faulty. Contact the ARRI service.
E.006	<b>Calibration data of light engine faulty or EEPROM error.</b>	WARNING: Loss of calibration data. This error can only be fixed by re-calibrating the light engine. Please contact the ARRI service.
E.007	<b>Invalid PWM value calculation</b>	Notice: The L-Series Plus can be used on. This message is more a notification than an error.
E.008	<b>Invalid values during calculation</b>	See E.007
E.009	<b>Invalid values during calculation</b>	See E.007
E.010	<b>Fan error. The fan speed deviates or the fan doesn't run at all.</b>	All mechanical tests or repairs may only be carried out by a trained service technician.
E.011	<b>Fixture menu not detected.</b>	If the fixture menu is working, error E.011 can be ignored. However, if the fixture menu remains dark (no LED lights up) we recommend to contact the ARRI service. They can then carry out detailed analyses.
E.012	<b>Temperature sensor(s) are defective or deviation within NTC values too high.</b>	One or more temperature sensors are defective or the deviation within the individual NTCs or BNTCs exceeds the variation tolerance of 12° C / 54° F.
E.013	<b>Calibration data faulty.</b>	WARNING: Loss of calibration data. Fixture needs to be re-calibrated.
E.014	<b>Watchdog error</b>	Notice: The L-Series Plus can be used on. This message is more a notification than an error.
E.015	<b>LED channel faulty</b>	Notice: The L-Series Plus can be used on. This message is more a notification than an error.
E.016	<b>Boost over temperature</b>	Let the L-Series Plus cool down. Turn the dimmer knob to „0“ or send an intensity value „0“ via DMX to start the light engine(s) again.
E.018	<b>PWM driver not found</b>	Turn the L-Series Plus off and on again. If the problem persists, please contact the ARRI service.
E.020	<b>Update with errors</b>	This will be seen if the update process has detected an error during the update.
E.021	<b>Flash init error. No filesystem mounted.</b>	This will happen if the flash disc has a problem with its file system.
E.022	<b>Missing Boost</b>	Turn the L-Series Plus off and on again. If the problem persists, please contact the ARRI service.
E.023	<b>12V Missing</b>	The 12V power is missing during startup. Please contact the ARRI service.
E.024	<b>5V Missing</b>	The 5V power is missing during startup. Please contact the ARRI service.
E.025	<b>DMX Data Collision</b>	The fixture detected data on the data line when trying to send data as a gateway or host fixture. It stops the gateway and/or host/client mode to avoid further data collision.

Code	Error	Remedy
E.026	<b>USB Drive not Mountable</b>	USB stick can not be mounted. Remove the USB stick, wait some seconds and reconnect it. If the problem persists, try another USB stick.
E.028	<b>Light Engine Missing</b>	One or more light engines not detected. Increase the intensity a little to identify the light engine not working. Check the cable connection of the light engine. If the problem persists, please contact your ARRI service partner.
E.029	<b>DMX JSON Configuration missing or error by loading</b>	Configuration error. Perform a firmware update.
E.030	<b>New / Old error, only old or new SPD2 and LE allowed</b>	Certain revisions of drivers and light engines are not compatible. Please let the component revisions be checked by your ARRI service partner.
E.031	<b>Problem by Setting Fixture Factory Default</b>	Factory default load error. Default data corrupted. Perform a firmware update or contact your ARRI service partner.
E.032	<b>RDM UID list full</b>	Too many active RDM transmitters in the data line (there must be no more than 50 transmitters in an RDM line).
E.033	<b>DMX frame too short</b>	Incomplete DMX packet detected. The received values are ignored.

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