



**L-Series®**

**L10**

**User Manual**

June 2019

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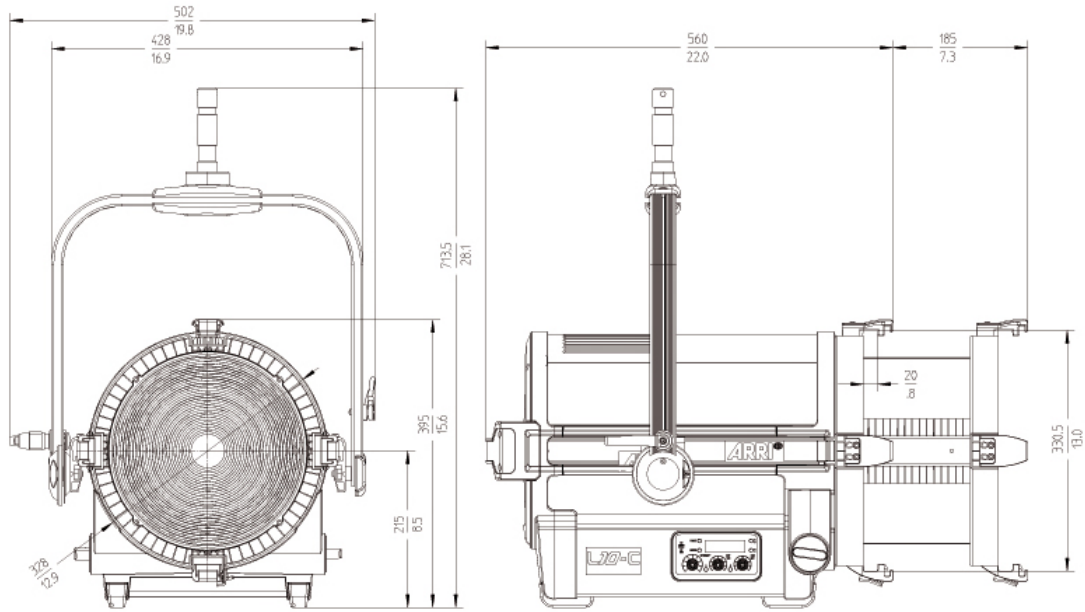
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## Safety Information



*Always follow these instructions to protect against injury to yourself and damage to the product or other objects.*

### Explanations of Warning Signs and Indications



*Possible risk of injury or damage to equipment.*



*Risk of fire or electric shock. Possible risk of injury or damage to equipment.*



*Caution! Hot surface. Possible high surface temperature. Risk of injury through burns.*



*Caution! High intensity light emission. Risk of eye injury.*

Note: Indicates further information.

## General Notes

- This document contains important instructions and notes to handle the product safe.
- Always follow all safety information for your own protection.
- Please contact a trained ARRI® service technician to do any service and maintenance not described in this manual
- Please follow the user manual of accessories and third party accessories, like motorized yokes. They contain important safety and security information.
- Read the user manual and installation manual which are shipped with accessories for the product.
- Retain this user manual and all user and installation manuals shipped with the system for further reference and possible new owners of this product.
- This product is intended for professional use and may only be operated by qualified persons. They are not for household use.
- Help protecting the environment by disposing the package material at your local recycling center.
- All components comply to the guidelines listed below:
  - Low voltage directive 2014/35/EU
  - EMC directive 2014/30/EU
  - RoHS directive 2011/65/EU

## General Safety Information



Read and understand all safety information and operation instructions before you operate or install the product or the system.



Use only genuine spare parts or accessories that have been recommended or approved by ARRI. Other accessories or spare parts may cause hazards, damage the product or invalidate the warranty.



Check all cables and devices for visible damage before you work with the system. Defective electric or electronic devices must not be used. Take special care of the following components:

Component	Possible damage
Housing, lens	Cracks, cuts, deformation
Cables	Cuts, deformation, burns
Connectors	Cracks, deformation, burns
Cable connectors	Damaged
Threads	Damaged



If the product or accessory is visibly damaged, the product or accessory must no longer be used. Replace or repair the respective part. In case of repairs, please contact an authorized ARRI service center.



Never attempt to repair any part of the product on your own. Maintenance and repair work is only to be carried out by an authorized ARRI service center.



Do not operate the product if the ambient temperature exceeds 45° C (113° F). Observe all information given in chapter "Specification" on page 32.



Do not expose the product to rain or moisture. Do not use the product for 2 h when it was exposed to big temperature differences as condensed moisture may damage the product electrically when switched on.



Do not bypass any safety feature of the product.



Do not open the product. There are no user serviceable parts inside. The housing is sealed with an adhesive seal that will break immediately when trying to open the housing. Doing so will invalidate the warranty.



*In addition to regular visible checks ARRI recommends that all electric components are checked for electrical safety by a professional every 12 months. Keep the protocol of the check.*

## Specific Safety Information



*Intensive use can cause the surface and the heat sink to become warm. Let the product cool down completely before you handle it.*



*Never cover air vents and the heat sink during operation. Keep a minimum clearance around the product of 0.5 m (1.65 ft).*



*WARNING! Intense light. Never look directly into the light source.*



*Never point a light beam from another luminaire into the light source. Do not place the product on heat sources. Intense heat causes automatic power off during operation.*



*WARNING! The stirrup must be mounted hanging or standing vertically. Lateral load can cause deformation or breaking of the spigot and the stirrup.*



*Devices and accessories must be secured against fall when mounted above floor level. Always observe common and local safety regulations.*



*Never use the cables for transportation. Never hang the product on its cables.*



*CAUTION! High voltage! Always disconnect the product completely from mains voltage before you connect or disconnect a cable.*



*Always check that the local AC power matches the voltage and frequency range printed on the type label of the product before use. Never use the product when the AC power does not match.*



*The product must not be used on a surface without a skid (accessory) mounted. To do so causes overheating.*



*Never connect the product to a dimmer-system or a dimmer-channel in non-dim mode. To do so will damage the electronics. Damages caused by connecting the product to a not suitable power source are not covered by the warranty.*



*Always keep cables away from the product during operation. Do not tilt the power cable directly after the connector. Water could immerse and cause short circuits and damage the connector.*



*Disconnect all cables prior to transport.*



*Not to observe these safety information or to ignore common sense may cause serious injury or even death. Damage to the product or other devices is possible.*



*Please observe the NEUTRIK PowerCON True1 safety information from November 2017. The safety information is available for free download in the service area of the ARRI website [www.arri.com](http://www.arri.com).*

Please observe the information given in the „Safety leaflet ARRI lampheads“ (L5.40731.E). The leaflet is available for download on our web site [www.arri.com](http://www.arri.com).

## To Replace the Light Source

The light source contained in this luminaire shall only be replaced by the manufacturer or his service agent or a similar qualified person.

## Maintenance Information

- Do not clean the surface of the product with solvents or strong detergents.
- Clean the product with a soft cloth wetted with a mild detergent. Do not rub the surface: lift stuck particles off with a soft repeated press.
- Clean soiled electric contacts with cotton swabs wetted with isopropyl alcohol.
- Keep electric contacts clean and replace corroded parts.

## Intended use

This product is intended to illuminate persons and objects in a dry environment.

Always follow the safety information.

Any usage other than described above is not permitted and can damage the product and lead to associated risks such as short-circuit, fire, electric shock, etc. You are not allowed to modify the product.

This product fulfills European and national requirements.



## Introduction

Thank you for selecting a LED luminaire of the L-Series from ARRI. The L10 is a fresnel-luminaire equipped with a high precision, micro-processor controlled LED light source. LED luminaires are much more efficient than light sources with conventional tungsten lamps. They are a perfect and easy replacement for conventional fresnel-luminaires with tungsten lamps.

The L-Series LED luminaires combine the advantages of the LED technology with the ease of use of a traditional fresnel-luminaire. The L10 integrates seamlessly into established working practice. The optical system offers real fresnel characteristics with an extreme smooth beam and clean shadows. The half peak angle can be adjusted continuously from 15° - 50°.

The L10 emits white or colored light with adjustable color temperature and adjustable green / magenta saturation. Please find more detailed information in the section "Specification" on page 32. The light spectrum is optimized for excellent color rendition and fulfills perfectly the demands of modern, digital cameras. All models of the L10 can be controlled using the common DMX512-A protocol or the fixture menu.

The L10 can be powered by AC power. Please find more detailed information in the section "Power" on page 16.

## Features

### **Focus**

Traditional fresnel-luminaires are able to spot and flood the beam as needed. Whether it is a flood field for a pullback or a tight spot for a bright highlight, the continuous focusability of the L10 performs just as expected.

### **Versatile beam characteristics**

The L10 provides the same ability as conventional fresnel-luminaires to cut set elements and shape the beam with barndoors and flags.

### **Even light field**

Clean, defined shadows have traditionally been a trait of single source tungsten and daylight fixtures. L10 fresnel-luminaires provide the same single shadow properties lighting designers expect, delivering natural results.

### **Vibrant colors, full spectrum lighting**

True-to-life color rendition is an outstanding feature of the L10, comparable to a full spectrum tungsten source. The fully tuneable white light of the L10-C can be adjusted for different skin tones, camera sensors and mixed light environments. Full gamut color mixing enables the rendition of all color shades, making color filters dispensable.

### **Cool light beam**

Like all LED light sources the L10 does emit nearly no infrared or UV radiation and thus does not forward heat, making actors feel comfortable in the light beam.

## 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 fixture ensure easy access from all positions.

### ***Sliding stirrup***

The sliding stirrup design 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.

### ***DMX-control***

All functions of the L10 are controllable through DMX. The L10 is also fully RDM compatible and is equipped with a feedback channel for reporting all set parameters including system status.

### ***Fixture menu***

For location applications the L10 is equipped with a fixture menu for manual adjustment of intensity, color temperature and plus/minus green as well as hue and saturation (functions available depending on type).

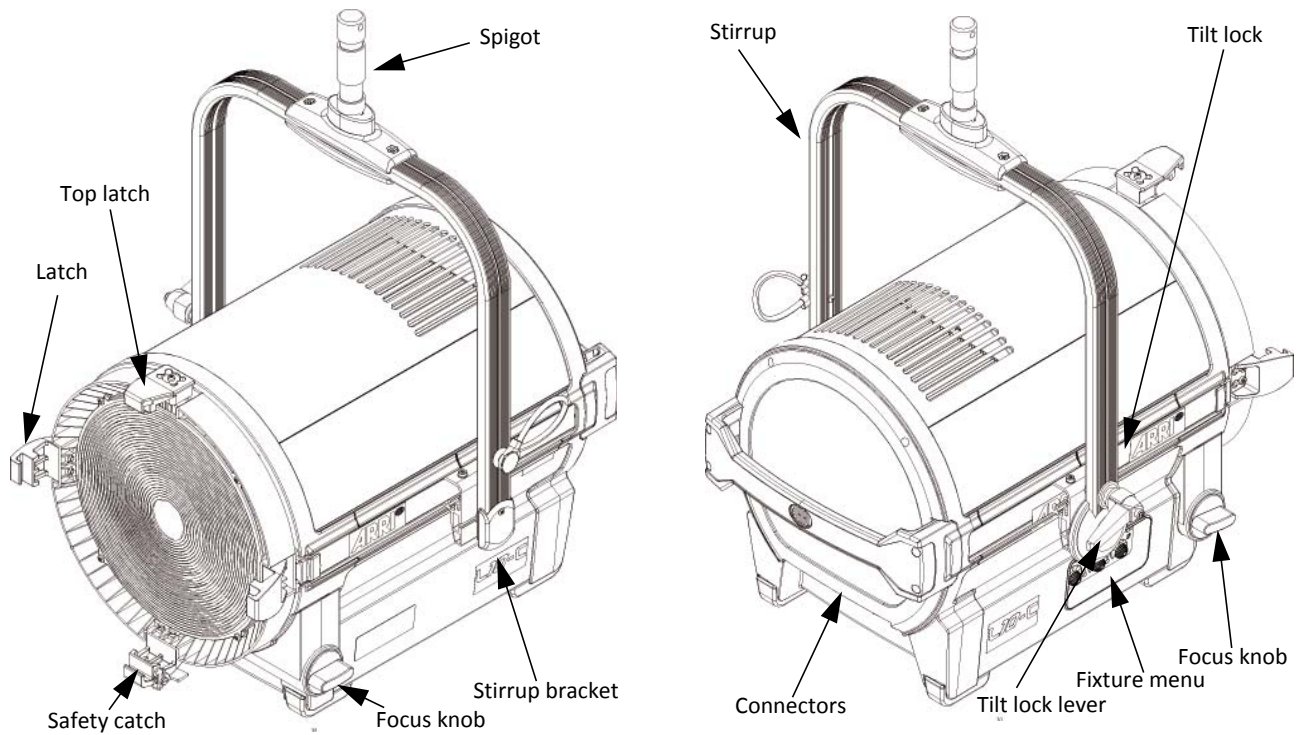
## To Unpack

The L10 is supplied with:

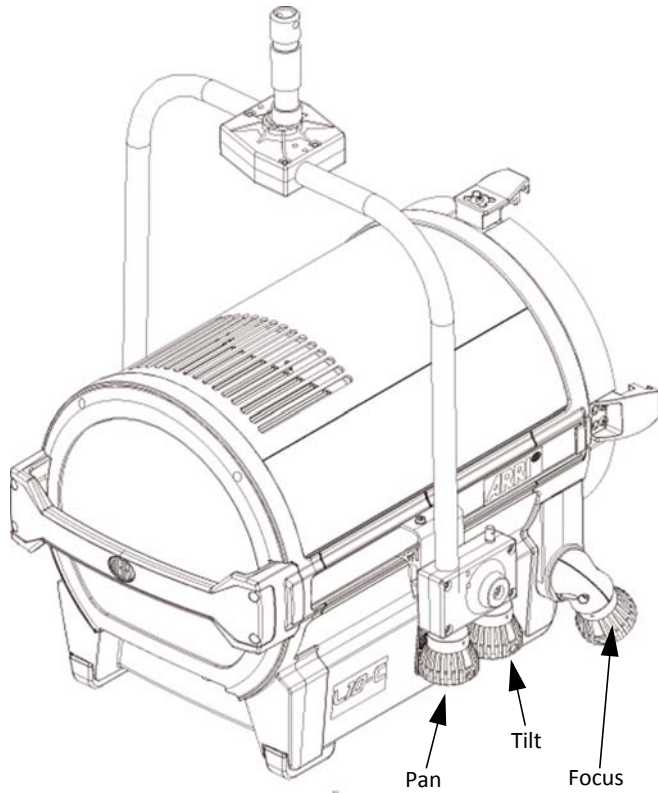
- Power cable with power plug or bare ends
- Stirrup
- 28 mm spigot (mounted on p.o. stirrups)
- Short instruction

Please refer to the section “Accessories” on page 33 for more information about optional accessories.

# Overview



Front view and back view, manual version



Back view, p.o. version

## Physical Installation



**WARNING!** Attach an approved safety-cable to secure the product against clamp or bracket failure. Lead the safety-cable through the stirrup and keep it as short as possible. The safety-cable needs to be approved at least 10 times the weight of the product including all accessories mounted at the product. Secure all accessories mounted at the product with additional safety-cables to protect them from fall down and cause injuries and damages.



**WARNING!** The rigging structure needs to be approved for at least 10 times the weight of all devices, equipment and cables installed on it.



**CAUTION!** Block access below the work area and work from a stable platform whenever installing, servicing or moving the product or accessories.



**IMPORTANT!** Do not illuminate the display and the fresnel-lens by high power light beams from a short distance. The display and the light engine are damaged by high brightness and heat radiation within very short time.

### To adjust the stirrup

You need

- a Torx20 screw driver,
- a 10 mm allen key and
- a torque wrench (37 ft-lbs)

to adjust the stirrup.

On delivery the stirrup is in the basic position (tilted back). Loosen the Torx20 screws on both sides of the stirrup bracket slightly and pull the stirrup bracket towards the rear of the product. Loosen the lever of the tilt-lock and tilt the stirrup upwards.

Slide the stirrup to the point of balance. The point of balance is dependent on the accessories mounted at the product. Tighten both Torx20 screws of the stirrup brackets. Do not overtighten the screws. Tilt the stirrup to the desired position and tighten the tilt-lock by using the lever. For better leverage, press the knob on the tilt-lock-lever and turn the lever to the desired position.

### To mount the spigot

Place the spigot and the distance plate on the 13 mm hole in the middle of the stirrup. Insert the allen screw with washer and spring washer and tighten it with a torque wrench to 37 ft-lbs torque.

### ***To mount the device***

Always observe all safety information listed in section “Physical Installation” on page 13 when you mount the product and accessories:

- Be aware of the maximum tilt angle 90° upwards and 90° downwards.

Ensure that you install all accessories correct when you mount the product above floor level:

- Top latched locked, safety catch snapped in.
- Set up tripods in a stable position. Tripods need to be approved for the load they need to carry.
- Always observe the additional load of cables and accessories!

Please observe the information given in the „Safety leaflet ARRI lampheads“ (L5.40731.E), which is available for download on our web site [www.arri.com](http://www.arri.com).

## **Basic features**

### ***Pan and tilt***

Loose the mounting screw of the tripod or the appropriate fixing screw of the mounting clamp to pan the L10. Tighten the screw to avoid unintended movement. Loose the tilt-lock to tilt the L10 to the desired angle. Tighten the tilt-lock-lever to avoid unintended movement.

### ***To adjust the beam angle***

Turn one of the focus knobs beneath the lens tube to adjust the beam angle continuously. The entire lens tube moves in and out. Two mechanisms protect the product from being damaged:

- A predetermined braking point prevents the product from damage, when the focus knob is turned with too high torque at either end of the focus range.
- The self-impeding focus gear prevents the lens tube to move itself in or out when the product is operated in a tilted position.

### ***Use of accessories for beam shaping and light design***

You can mount accessories such as a barndoor, filter holder or scrim on the front side of the L10:

- Firmly press the button at the side of the top latch to open the top latch.
- Insert the accessory from the upside into the brackets until the safety catch engages. Slightly tilt the safety catch with your finger for support.

- Close the top latch. Make sure that the hook of the top latch engages into the holding ring of the accessory.

### **DMX/RDM-interface**

The L10 has a DMX/RDM-interface. It has 5-pin XLR connectors for DMX/RDM data input and throughput. Please find more detailed information to establish a DMX/RDM data-link in section “DMX data link” on page 23.

### **USB-interface**

The L10 has a mini-USB connector to upload firmware and set parameters. The USB-interface can be used for service purpose like download error reports and set certain data. To do so you need a software tool, the ARRI Lighting Service Manager ALSM.

Download it free of charge from the ARRI web site [www.arri.com](http://www.arri.com).

Please find more detailed information to work with the ALSM in the user manual of the software. The manual is included in the download package.

### **To turn on and use the product**

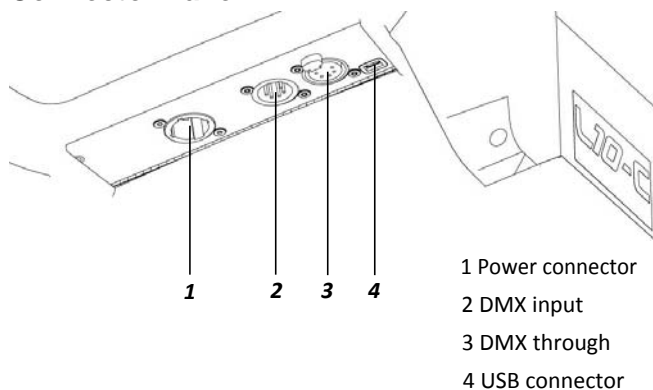
Turn on the power switch or connect the L10 to AC power. The L10 initializes for some seconds and is ready for operation. The L10 will operate with the settings made on the fixture menu or received by DMX. Please observe the following section to use the L10.

## **Control options**

You can set up or control the L10 with the options listed in the table below:

Option	Control	Configuration	Information
<b>Fixture menu</b>	yes	yes	page 17
<b>DMX</b>	yes	no	page 22
<b>RDM</b>	no	yes	page 28
<b>ALSM</b>	no	yes	page 28
<b>Stellar App</b>	yes	no	<a href="http://www.arri.com/stellar/">www.arri.com/stellar/</a>

## **Connector Panel**



## Power



**WARNING!** For protection from electric shock, always connect the product electrically to ground (earth) when connected to AC power. The AC mains power supply must be fitted with a fuse or circuit breaker and ground-fault (earth-fault) protection.



**IMPORTANT!** Ensure that persons do not look at the light emission aperture when the product is connected to AC power. The product can light up suddenly. The high intensity of the product can cause eye irritation or injury when not respecting the safety distance.



**IMPORTANT!** Always connect the product direct to AC power. Do not connect it to a dimmer-system. Doing so will damage the product.

### AC power

The L10 has an auto-sensing switch-mode power supply that automatically adapts to AC power at 90 - 250 V ~, 50 - 60 Hz (nom.).

Before you connect the L10 to AC power, check that:

- the dimmer knob at the fixture menu is set to 0%, and
- no DMX signal is present at the DMX-input of the L10.

You can hard-wire the L10 to a building electrical installation. You can install a power plug that is suitable for the local power outlets on the power cable. Socket outlets or external power switches that supply the L10 with power must be located near the product and easily accessible so that the L10 can easily be disconnected from power.

The L10 requires a power input cable with a Neutrik® PowerCON® True1 NAC3FX-W cable connector. Cable requirements are listed in section “Specification” on page 32. ARRI offers power cables with PowerCON® cable connectors and different plugs or bare ends (see “Accessories” on page 33).

#### **To insert and remove the PowerCON® cable connector**

- Line up the raised key of the connector and the keyway of the input socket. Insert the cable connector without force in the power input socket.

To insert the cable connector:

- Turn it a full quarter-turn clockwise.

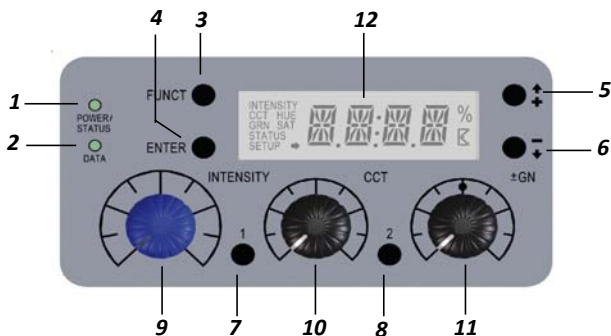
To remove the cable connector:

- Push the connector lock backwards and turn the cable connector counter-clockwise. Pull the cable connector out of the power input socket.



# Fixture menu

## Overview of the fixture menu



## Features of the fixture menu

Status indicator POWER/STATUS (1):

Color	Indication
Green	Fixture switched on. No error.
Red flashing (0,5s rhythm)*	Warning fixture over temperature
Red*	Fixture over temperature
Change from red to green*	Fixture normal temperature
Red flashing (0,25s rhythm)*	Calibration data not loaded
*Display lights up red when STATUS-LED is lit red	

### DATA (2)

The DATA indicator lights blue, when a valid DMX signal is detected on the DMX-input.

### FUNCT (3)

The FUNCT button has two functions:

- Normal operation: Switches between CCT and HSI mode (only ARRI L10-C).
- Fixture menu open: Jump UP one menu level.

### ENTER (4)

The ENTER button has three functions:

- Normal operation: Activate blinking arrow for calling up MEM1 or MEM2.
- Fixture menu open: OPEN next menu level, or
- Confirm a setting.

### + / [up] (5)

The + / [up] button navigates the menu or increases a value. Press the button long to activate the fast-run feature.

### - / [down] (6)

The - / [down] button navigates the menu or decreases a value. Press the button long to activate the fast-run feature.

### INTENSITY (9)

The rotary knob sets the intensity level.

**CCT / HUE (10)**

The rotary knob sets the color temperature (CCT) or the hue (only ARRI L10-C in color mode).

**GN / SAT (11)**

The rotary knob sets the green/magenta saturation or the color saturation (SAT, only ARRI L10-C in color mode).

**MEMORY 1 and MEMORY 2 (7 and 8)**

Activate or store a memory.

During operation the mode and recent values are displayed. On the first menu level the values for INTENSITY, CCT/HUE (only ARRI L10-C) and GN/SAT (only ARRI L10-C) can be retrieved via the + / [up]/- / [down] buttons. The menu STATUS, confirmed with ENTER, calls up the next level which displays information on faultless operation and the temperature of the light engine. To retrieve values for operating hours, DMX-version and firmware-version, press ENTER to call up the third level. The FUNCT button jumps up one menu level.

A detailed overview of the fixture menu is listed in section "Fixture Menu" on page 25.

**To set the operation mode (only L10-C)**

Press the FUNCT button to switch from CCT mode to HSI mode and vice versa.

IN CCT mode the L10 generates white light with optimized color rendition. In HSI mode the L10 generates colored light. If saturation is set very low, the L10 generates white light, but not with optimized color rendition.

**To set the color temperature and green/magenta saturation in CCT mode**

Set the color temperature continuously with the rotary knob CCT/HUE. Set the green/magenta saturation continuously with the rotary knob GN/SAT.

Press the + / [up] or - / [down] button until GRN is displayed left in the display (e.g. +0.23) to retrieve the currently set green/magenta value. The color temperature is always displayed (e.g. 4.150K).

**To set the color in HSI mode (only ARRI L10-C)**

Set the hue continuously with the rotary knob CCT/HUE. Set the saturation continuously with the rotary knob GN/SAT.

Press the + / [up] or - / [down] button until SAT is displayed left in the display (e.g. 45) to retrieve the currently set saturation value. The hue is always displayed (e.g. 118°).

**To set the brightness in both operating modes**

Set the brightness in both operating modes continuously with the rotary knob INTENSITY

Press the + / [up] or - / [down] button until INTENSITY is displayed left in the display (e.g. 24%) to retrieve the currently set brightness value.

**To set the fan mode**

Set the fan mode using the fixture menu:

- Press the + / [up] or - / [down] button, until SETUP is displayed left in the display.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until FAN is displayed.
- Confirm with the ENTER button. The current fan mode is displayed.
- Press the + / [up] or - / [down] button to select the fan mode (see the table below). Confirm the selected mode with the ENTER button. The fan mode is activated immediately.
- Press the FUNCT button two times to leave the menu.

Fan mode	Description
<b>LOW</b>	Fan operates constantly at low speed (silent)
<b>VARI</b>	The temperature of the light engine controls the fan speed. The fan starts running at app. 70% brightness.
<b>HI45</b>	Use this mode for ambient temperatures up to 45° C / 113° F. The fan runs at maximum speed. The maximum brightness is reduced by app. 15%.

**To set the DMX address**

- Press the + / [up] or - / [down] button, until SETUP is displayed left in the display.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until DMX is displayed.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until CHAN is displayed.
- Confirm with the ENTER button. The current DMX address is displayed.
- Press the + / [up] or - / [down] button to select the DMX address. Confirm the selected address with the ENTER button. The DMX address blinks three times for confirmation.
- Press the FUNCT button to leave the menu.

**To set the Signal lost behavior**

Set the signal lost behavior:

- Press the + / [up] or - / [down] button, until SETUP is displayed left in the display.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until DMX is displayed.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until LSIG is displayed.
- Confirm with the ENTER button. The current setting is displayed.

The following options are available:

- **HOLD:** The last received DMX values are used until the L10 is switched off or valid DMX data is received again.
- **BOUT:** The L10 douses to 0% intensity.
- **H2MF:** The last received DMX values are used for 2 minutes. After 2 minutes the L10 douses to 0% intensity. When valid DMX data is received after less than 2 minutes, these data will be used.
- Press the + / [up] or - / [down] button to select the signal lost behavior. Confirm the selected mode with the ENTER button. The option blinks three times for confirmation.
- Press the FUNCT button to leave the menu.

#### ***To set the DMX mode***

Set the DMX mode using the fixture menu:

- Press the + / [up] or - / [down] button, until SETUP is displayed left in the display.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until DMX is displayed.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until PROT is displayed.
- Confirm with the ENTER button. The current DMX mode is displayed.

- Press the + / [up] or - / [down] button to select the DMX mode. Confirm the selected mode with the ENTER button. The DMX mode blinks three times for confirmation.
- Press the FUNCT button to leave the menu.

#### ***To set the display illumination and status indicators***

To switch the display illumination and status indicators on or off:

- Press the + / [up] or - / [down] button, until SETUP is displayed left in the display.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until INDC is displayed.
- Confirm with the ENTER button. The current setting is displayed.
- Press the + / [up] or - / [down] button to select the option ON or OFF. Confirm the selected mode with the ENTER button.
- Press the FUNCT button to leave the menu.

#### **To read out fixture information**

To display fixture information:

##### ***Operating hours***

- Press the + / [up] or - / [down] button, until STATUS is displayed left in the display.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until HOUR is displayed.

- Confirm with the ENTER button. The current operating hours are displayed (e.g. 501h).
- Press the FUNCT button to leave the menu.

### ***Version of the DMX protocol***

To display the version of the DMX protocol:

- Press the + / [up] or - / [down] button, until STATUS is displayed left in the display.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until DMXV is displayed.
- Confirm with the ENTER button. The current version is displayed (e.g. 3.1).
- Press the FUNCT button to leave the menu.

### ***Firmware-version***

To display the firmware-version:

- Press the + / [up] or - / [down] button, until STATUS is displayed left in the display.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until SW is displayed.
- Confirm with the ENTER button. The current firmware version is displayed (e.g. 2.0).

### ***Recent temperature***

To display the recent temperature of the light engine:

- Press the + / [up] or - / [down] button, until STATUS is displayed left in the display.
- Confirm with the ENTER button. Press the + / [up] or - / [down] button until the temperature (e.g. 42,1°) is displayed.
- Press the FUNCT button to leave the menu.

### ***Error status***

To display the error status:

- Press the + / [up] or - / [down] button, until STATUS is displayed left in the display.
- Confirm with the ENTER button.
- If there is no error, OK will be displayed. Otherwise the error code is displayed (see “Error messages” on page 29).
- Press the FUNCT button to leave the menu.

### ***Short cuts***

The demo mode, setting the DMX address and DMX mode can be called up via short cuts in the fixture menu:

- Press and hold the ENTER button, until JUMP is displayed in the display (from every menu).
- Press and hold the FUNCT button to activate the demo mode. Press the ENTER button again to deactivate the demo mode.
- Press the + / [up] button to set the DMX address.

- Press the - / [down] button to set the DMX mode.

The JUMP menu closes 3 sec. after the last key press or after pressing the ENTER button.

### **Demo mode**

In demo mode the L10 calls up an endless loop with all features the L10 supports.

- **ARRI L10-TT and ARRI L10-DT:** Change of the color temperature from warm to cold and vice versa. Set the intensity with the dimmer knob. Set the speed with the CCT knob from 0-100% (60 s - 1 s).
- **ARRI L10-C:** Call up the color spectrum or change the color temperature from warm to cold and vice versa. Set the intensity with the dimmer knob. Set the speed with the CCT knob from 0-100% (60 s - 1 s). The GN knob sets the saturation and changes between color and color temperature sequence. With GN at „0“ the color temperature loop is active. Turn the GN knob clockwise to increase the saturation to 100%.
- Press the JUMP and FUNCT button or the FUNCT button alone to deactivate the demo mode.

As an alternative activate and deactivate the demo mode in the menu Setup -> DEMO.

### **Shift key**

This short cut is only available in the main menu. Press the ENTER button, until a small arrow starts blinking in the display. Memory 1 or memory 2 calls up one of two factory settings.

## DMX control

### DMX mode

The L10 offers, depending on the model, up to 15 DMX modes. Use the 8 bit modes with basic DMX controllers like dimmer consoles. The most common modes for operation via DMX are mode 1 and mode 2.

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

The coarse/fine modes utilize two DMX channels for most parameters and provide higher resolution compared to the 8 bit modes in combination with DMX controllers that do not support 16 bit resolution. One channel sets the coarse value of the function which is divided in 256 increments using the fine channel.

The setting can be changed any time using the rotary knobs of the fixture menu.

### **White and RGBW**

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

### **White**

Simple white-only mode. It is used when the number of available channels of the DMX controller is very limited. It provides control of intensity, color temperature and +/- green.

### **White & HSI**

Provides control of intensity, color temperature, +/- green, hue and saturation (HSI = hue, saturation, intensity). In HSI mode the color and intensity is very even over the fixtures 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 DMX channels is available.

### **HSI**

Simple mode for controlling hue, saturation and intensity when only a limited number of DMX channels is available.

Please find a detailed description of all modes in chapter "Typical CCT values as DMX values" on page 31.

Note: Depending on the selected DMX mode the channels required for each product should be allocated in the DMX controller to provide independent control of all products connected to the controller. Please allocate the maximum number of channels, which is 18 in DMX mode 6.

## **DMX data link**

For controlling the ARRI L10 via DMX you need a DMX data link.

The ARRI L10 has 5-pin locking XLR sockets for DMX and RDM data input and output. The default pin-out of both sockets is:

Pin 1 = Shield

Pin 2 = Data - (cold)

Pin 3 = Data + (hot).

Pins 4 and 5 are not used by the ARRI L10 but are bridged between input and output sockets. These pins can therefore be used as a pass-through connection for an additional data signal if required.

Pin 4 = Data - (cold)

Pin 5 = Data + (hot).

You must not connect more than 32 products per data link. Depending on the channel requirements the address space of a data link (512 channels) may not be enough to control all products connected. You may set more than one product to identical DMX addresses to obtain identical behavior. For independent control every product needs to be assigned an individual address range.

If you need to control more products individual, you need to set up additional DMX data links.

## Tips for a reliable data transmission

- Use shielded twisted-pair cable designed for RS-485 devices or CAT 6 network cables: standard microphone cable cannot transmit control data reliably over long runs. 24 AWG cable is suitable for runs up to 300 meters (1000 ft.). Heavier gauge cable and/or an amplifier is recommended for longer runs.
- To split the data link, use a DMX splitter. Use an RDM compatible splitter when you use the RDM functionality.
- Install a DMX termination plug on the last product of every DMX data link. Terminate the DMX data link on both ends, when you use the RDM functionality. Ask your system specialist for details.

## To connect the data link

- Connect the DMX data output from the controller to the data input (male XLR) of the L10.
- Run the data link from the data output (female XLR) to the data input of the next product.
- Terminate the data link by connecting a 120 Ohm, 0.25 Watt resistor between the data 1 hot (+) and cold (-) conductors (and between data 2 hot and cold if used) at the data output of the last product on the link.



# Fixture Menu

From firmware-version 1.0

**Note:** The small, horizontal arrow in the displays indicates sub-menus. Press the ENTER button to access the sub-menus.

Level 1	Level 2	Level 3	Level 4	Description (Default = bold)
<b>Intensity</b>				Displays the recent intensity level when turning the dimmer knob in %.
<b>CCT</b>				Only in CCT mode: Displays the recent color temperature when turning the CCT/HUE knob in K
<b>HUE</b>				Only in HUE mode (only L10-C): Displays the recent hue when turning the CCT/HUE knob in ° (0-360°)
<b>GRN</b>				Only in CCT mode: Displays the recent green / magenta value when turning the GRN/SAT knob in %
<b>SAT</b>				Only in HUE mode (only L10-C): Displays the recent saturation when turning the GRN/SAT knob in %

## Status Messages

From firmware-version 1.0

**Note:** The small, horizontal arrow in the displays indicates sub-menus. Press the ENTER button to access the sub-menus.

**Note:** In setup and status mode the options keep available until another function is called up. All other modes return to the appropriate mode after 2 sec.

Level 1	Level 2	Level 3	Level 4	Description
STATUS	OK			Product ready for operation, no errors OR Error message (see "Error messages" on page 29)
	ERROR			
	SW			Firmware version
	DMX V	X.X		Version of the DMX protocol
	HOUR	XXXX t		Hours of operation
	XX.X°C			Recent temperature of the light engine

## Fixture Menu

From firmware-version 1.0

**Note:** The small, horizontal arrow in the displays indicates sub-menus. Press the ENTER button to access the sub-menus.

**Note:** In setup and status mode the options keep available until another function is called up. All other modes return to the appropriate mode after 2 sec.

Level 1	Level 2	Level 3	Level 4	Description (Default setting = bold)
SETUP	DMX	PROT	<b>P.001</b> ...P.015	Set the DMX mode
		LSIG	<b>HOLD</b>	<b>The DMX values are held when DMX signal is lost</b>
			BOUT	Product douses when DMX signal is lost
			H2MF	Product douses 2 min after DMX signal is lost
		CHAN	1...512[-Mode]	Set the DMX start address. Max. start address = 512 - channels used by the DMX mode chosen
	FACT	<b>NO</b>	<b>Do not load the factory defaults</b>	
		YES	Load the factory defaults	
	DEMO	ON	Activate the demo sequence (see page 22)	
		<b>OFF</b>	<b>De-activate the demo sequence</b>	
	INDC	<b>ON</b>	<b>The status indicators and the illumination of the display stay ON</b>	
		OFF	The status indicators and the illumination of the display switch OFF	
	FAN	LOW	Fan mode LOW	
		<b>VARI</b>	<b>Fan mode VARI</b>	
		HI45	Fan mode HI45	

## RDM commands

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

## DMX

DMX protocol V3.4 is set as default. Please find a detailed overview of all DMX modes in the document „L-Series DMX Protocol Specification“ which is available for free download on the ARRI website [www.arri.com](http://www.arri.com).

## ARRI Lighting Service Manager

Please find information about the features and the functionality of the ARRI Lighting Service Manager (ALSM) in the user manual for the ARRI Lighting Service Manager, which can be downloaded 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.

## Error messages

From Firmware-version 1.0

Code	Error	Remedy
E.003	Controller over temperature. STATUS lit up red.	Let the product cool down. The STATUS indicator changes to green when the product has cooled down. Turn the dimmer knob to „0“ or send an intensity value „0“ via DMX to activate the light engine again.
E.004	Light engine over temperature	See E.003
E.005	Power supply over temperature	See E.003
E.006	Calibration data of light engine faulty or EEPROM error.	WARNING: Loss of calibration data. This error can only be fixed by re-calibrating the light engine. Please contact the ARRI service.
E.007	Invalid PWM value calculation	Notice: The product can be used on. This message is more a notification than an error.
E.008	Invalid values during calculation	See E.007
E.009	Invalid values during calculation	See E.007
E.010	Fan error. The fan speed deviates or the fan doesn't run at all.	Set the fan to LOW or HI and see if it starts rotating, in order to determine if there is an electrical malfunction. All mechanical tests or repairs may only be carried out by a trained service technician.
E.011	Fixture menu module not be detected.	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	Temperature sensor(s) are defective or deviation within NTC values too high.	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. Check the error log (ALSM) to see which temperature sensors are affected. Contact the ARRI service.
E.013	Calibration data faulty.	WARNING: Loss of calibration data. Fixture needs to be re-calibrated.
E.014	Watchdog error	Notice: The product can be used on. This message is more a notification than an error.
E.015	LED channel faulty	Notice: The product can be used on. This message is more a notification than an error.

Code	Error	Remedy
E.016	Boost over temperature	Let the SkyPanel cool down. Turn the dimmer knob to „0“ or send an intensity value „0“ via DMX to activate the light engine again.
E.018	PWM driver not found	Switch the SkyPanel off and on again. If the problem persists, please contact the ARRI service.
E.020	Update with errors	This will be seen if the update process has detected an error during the update.
E.021	Flash init error. No filesystem mounted.	This will happen if the flash disc has a problem with its file system.
E.024	5V Missing	The 5V power is missing during startup. Please contact the ARRI service.
E.025	DMX Data Collision	The fixture detected data on the data line when trying to send data as a gateway or master fixture. It deactivates the gateway and/or master/slave mode to avoid further data collision.
E.028	Light Engine Missing	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	DMX JSON Configuration missing or error by loading	Configuration error. Perform a firmware update.
E.030	New / Old error, only old or new SPD2 and LE allowed	Certain revisions of drivers and light engines are not compatible. Please let the component revisions be checked by your ARRI service partner.
E.031	Problem by Setting Fixture Factory Default	Factory default load error. Default data corrupted. Perform a firmware update or contact your ARRI service partner.

## Typical CCT values as DMX values

CCT-Value	DMX-Value (8 bit)			DMX-Value (16 bit)		
	TT	DT	C	TT	DT	C
L10-	TT	DT	C	TT	DT	C
3.200 K	153	--	14	39.321	--	3.670
5.600 K	--	102	99	--	26.214	25.493
6.000 K	--	170	113	--	43.712	29.098
6.500 K	--	100%	131	--	65.535	33.685

### To calculate CCT values in DMX % and vice versa

Use the following formulas to transform CCT values in DMX % values and vice versa:

$$CCT_{\text{Target}} = \frac{(CCT_{\text{max}} - CCT_{\text{min}}) \times DMX_{\text{in percent}}}{100} \times CCT_{\text{min}}$$

$$DMX_{\text{in percent}} = \frac{CCT_{\text{recent}} - CCT_{\text{min}}}{CCT_{\text{max}} - CCT_{\text{min}}} \times 100$$

CCT values for the ARRI L10 models:

### L10-TT (Tungsten Tuneable)

CCT<sub>min</sub> = 2.600 K

CCT<sub>max</sub> = 3.600 K

### L10-DT (Daylight Tuneable)

CCT<sub>min</sub> = 5.000 K

CCT<sub>max</sub> = 6.500 K

### L10-C

CCT<sub>min</sub> = 2.800 K

CCT<sub>max</sub> = 10.000 K

## Specification

### Physical

Dimension. . . . . See dimensional drawings on page 3  
 Weight (manual version, w/o accessories) . . . . . 19,7 kg (43.4 lbs.)  
 Weight (P.O. version, w/o accessories) . . . . . 21,3 kg (47 lbs.)

### Light source

Type . . . . . ARRI LED Lightengine  
 Typ. LED lifetime L70 . . . . . 50.000 h  
 White light . . . . . 2.800 K - 10.000 K (ARRI L10-C)  
 . . . . . 2.600 K - 3.600 K (ARRI L10-TT)  
 . . . . . 5.000 K - 6.500 K (ARRI L10-DT)  
 Colored light . . . . . RGBW color mixing (only ARRI L10-C)  
 Color rendering index . . . . . typ. CRI >94  
 Green/Magenta saturation . . . . . +/- 1 (full green to full magenta)

### Optical path

Type . . . . . Fresnel, focussable  
 Lens diameter. . . . . 274 mm / 10 "  
 Half peak angle. . . . . 15° - 50°

### Dynamic functions

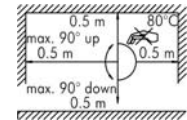
Dimmer . . . . . electronic, 0 - 100%  
 Color mixing . . . . . RGBW color mixing  
 . . . . . (Hue and saturation, only ARRI L10-C)

### Control and Programming

DMX channels . . . . . 3-16 channels, depending on type and mode  
 Setting and addressing. . . . . Fixture menu, RDM, ALSM  
 DMX compliance . . . . . ESTA DMX 512A  
 RDM compliance . . . . . ESTA DMX 512A  
 Firmware update. . . . . USB interface and ALSM

### Construction

Color . . . . . Blue/silver or black  
 Housing . . . . . Composite housing with aluminum frame  
 Protection rating . . . . . IP 20  
 Protection class . . . . . I



### Installation

Mounting. . . . . .28 mm spigot  
 Orientation . . . . . +/- 90°  
 Minimum clearance around fixture . . . . . 0,5 m (19.7 in.)  
 Minimum view distance to light aperture . . . . . 0,5 m (19.7 in.)

### Connectors

AC power input. . . . . Neutrik® PowerCON® True1  
 DMX and RDM data in/out . . . . . 5-pin, locking XLR connector  
 USB connector . . . . . Mini-USB-A



**Electrical**

AC power . . . . . 90 - 250 V ~, 50 - 60 Hz (nom.)  
 Power supply . . . . . Auto-sensing switching-mode power supply

**Typical Power**

230 V, 50 Hz . . . . . 510 W  
 cos φ . . . . . > 0.9  
 Measurements made at nominal voltage with all LEDs at full intensity.  
 Allow for a deviation of +/- 10%

**Noise emission**

Ambient temperature = 35° C (95° F) . . . . . < 20dB(A)  
 Ambient temperature = 45° C (113° F) . . . . . < 30dB(A)

**Thermal**

Minimum ambient temperature (t<sub>a</sub>) . . . . . -20° C (-4° F)  
 Maximum ambient temperature (t<sub>a</sub>) . . . . . 45° C (113° F)  
 Cooling . . . . . Silent, temperature-controlled fan cooling

**Approvals**

**RISK GROUP 1 - No Risk**

*No photobiological hazard under normal behavioral limitations.*  
 EU safety . . . . . EN / IEC 60598-2-17  
 . . . . . EN / IEC 60598-1  
 . . . . . EN / IEC 62471  
 . . . . . EN / IEC 62493  
 EU EMC . . . . . EN 55015  
 . . . . . EN / IEC 61000-3-2  
 . . . . . EN / IEC 61000-3-3  
 . . . . . EN / IEC 61547

. . . . . CISPR 15  
 US safety . . . . . UL1573  
 US EMC . . . . . FCC CFR 47 Part 2  
 . . . . . FCC CFR 47 Part 15  
 Canada safety . . . . . CAN/CSA C22.2 No. 166  
 . . . . . CAN/CSA C22.2 No. 9.0  
 . . . . . CAN/CSA C22.2 NO. 9.0S1  
 Canada EMC . . . . . ICES-003

**Included items**

28 mm spigot  
 Short instruction

**Accessories**

Mains cable 1,5 m, 3G1,5, H05RN-F, HAR, EN PowerCON TRUE1,  
 bare end . . . . . L2.0001485  
 Mains cable 3,0 m, 3G1,5, H05RN-F, HAR, EN, Switch,  
 PowerCON TRUE1, Schuko plug . . . . . L2.0001486  
 Mains cable 7,0 m, 3x16AWG, S(E)OOW, UL, Switch,  
 PowerCON TRUE1, Edison plug . . . . . L2.0001487  
 4-leaf barndoor (344 mm, 13.5 ") . . . . . L2.40950.0  
 4-leaf barndoor (344 mm, 13.5 ", black / silver) . . . . . L2.80951.0  
 8-leaf barndoor (344 mm, 13.5 ") . . . . . L2.40960.0  
 Filter frame (330 mm, 13.0 ") . . . . . L2.80970.0

**Order information**

ARRI L10-C, MAN., blue/silver, Edison (7 m) . . . . . L0.0003381  
ARRI L10-C, MAN., blue/silver, Schuko (3 m) . . . . . L0.0003382  
ARRI L10-C, MAN., blue/silver, bare ends . . . . . L0.0003383  
ARRI L10-C, MAN., black, bare ends . . . . . L0.0003384  
ARRI L10-C, P.O., blue/silver, bare ends . . . . . L0.0003385  
ARRI L10-C, P.O., black, bare ends . . . . . L0.0003386

Specification subject to change without notice. For the latest product specification including photometric data, see [www.arri.com](http://www.arri.com)

In case of technical problems, please visit us at [www.arri.com](http://www.arri.com), to find the next ARRI service center.

[www.arri.com](http://www.arri.com)

**FCC**

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 the instruction manual, may cause harmful interference to radio communications. 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.



**ARRI** 