Chroma-Q®
Color Force II 72™
Color Force II 48™
Color Force II 12™

User Manual

Part Number: CHCF272RGBA, CHCF272RGBAW, CHCF272RGBALR, CHCF248RGBA, CHCF248RGBAW, CHCF248RGBALR, CHCF212RGBA, CHCF212RGBAW, CHCF212RGBALR
(**Model**: 641-3000, 641-3100, 641-3500, 641-2000, 641-2100, 641-2500, 652-1012, 652-1100, 652-1500)

Software Version: Addressing 1.12, Engine 2.7

Manual P/N: 641-0701 V2.3

Warranty Statement

Chroma-Q® warrants to the original purchaser, with proof of purchase, that its delivered products shall be free from defects in material and workmanship under normal use for a period of 24 months from date of shipment.

Chroma-Q® will repair, or at its option, provide an equivalent item or replace, the defective product during the stated warranty period. This warranty applies only to the repair or replacement of the product and only when the product is properly handled, installed and maintained according to Chroma-Q® instructions. This warranty excludes defects resulting from improper handling, storage, installation, acts of God, fire, vandalism or civil disturbances. Purchaser must notify Chroma-Q® in writing within 14 days of noticing the defect. This warranty excludes field labour or service charges related to the repair or replacement of the product.

The warranty contained herein shall not extend to any finished goods or spare parts from which any serial number has been removed or which have been damaged or rendered defective (a) as a result of normal wear and tear, wilful or accidental damage, negligence, misuse or abuse; (b) due to water or moisture, lightning, windstorm, abnormal voltage, harmonic distortion, dust, dirt, corrosion or other external causes; (c) by operation outside the specifications contained in the user documentation; (d) by the use of spare parts not manufactured or sold by Chroma-Q® or by the connection or integration of other equipment or software not approved by Chroma-Q® unless the Customer provides acceptable proof to Chroma-Q® that the defect or damage was not caused by the above; (e) by modification, repair or service by anyone other than Chroma-Q®, who has not applied for and been approved by Chroma-Q® to do such modification, repair or service unless the Customer provides acceptable proof to Chroma-Q® that the defect or damage was not caused by the above; (f) due to procedures, deviating from procedures specified by Chroma-Q® or (g) due to failure to store, install, test, commission, maintain, operate or use finished goods and spare parts in a safe and reasonable manner and in accordance with Chroma-Q®'s instructions (h) by repair or replacement of engines without factory training.

The warranty contained herein shall not apply to finished goods or spare parts which are sold "as is", as "second-hand", as used", as "demo" or under similar qualifications or to Consumables ("Consumables" is defined as any part(s) of goods or part(s) for use with goods, which part(s) of goods or part(s) for use with goods are consumed during the operation of the goods and which part(s) of goods or part(s) for use with goods require replacement from time to time by a user such as, but not limited to, light bulbs).

The warranty contained herein shall not apply, unless the total purchase price for the defective finished goods or spare parts has been paid by the due date for payment.

The warranty contained herein applies only to the original purchaser and are not assignable or transferable to any subsequent purchaser or end-user.

This warranty is subject to the shipment of the goods, within the warranty period, to the Chroma-Q® warranty returns department, by the purchaser, at the purchaser's expense. If no fault is found, Chroma-Q® will charge the purchaser for the subsequent return of the goods.

Chroma-Q® reserves the right to change the warranty period without prior notice and without incurring obligation and expressly disclaims all warranties not stated in this limited warranty.

Disclaimer

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that Chroma-Q® products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent. Chroma-Q® sole warranty is that the product will meet the sales specifications in effect at the time of shipment. Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

Chroma-Q® reserves the right to change or make alteration to devices and their functionality without notice due to our ongoing research and development.

The Chroma-Q® Color Force II™ has been designed specifically for the lighting industry. Regular maintenance should be performed to ensure that the products perform well in the entertainment environment.

If you experience any difficulties with any Chroma-Q® products please contact your selling dealer. If your selling dealer is unable to help, please contact support@chroma-q.com. If the selling dealer is unable to satisfy your servicing needs, please contact the following, for full factory service:

Outside North America:
Tel: +44 (0)1494 446000
Fax: +44 (0)1494 461024
support@chroma-q.com

North America:
Tel: 416-255-9494
Fax: 416-255-3514
support@chroma-q.com

For further information please visit the Chroma-Q® website at www.chroma-q.com.
Chroma-Q® and Color Force II™ are trademarks, for more information on this visit www.chromaq.com/trademarks. The rights and ownership of all trademarks are recognized.

Important Notice:
As per the requirements in the Occupational Safety and Health Administration standards for product approval, please refer to the OSHA web pages http://www.osha.gov/dts/otpca/nrtl/ for information on the list of Nationally Recognized Testing Laboratories (NRTLs) and the scope of recognition.

Safety information

WARNING!
Read the safety precautions in this section before installing, powering, operating or servicing this product.

The following symbols are used to identify important safety information on the product and in this document:

Warning!
Safety Hazard.
Risk of severe injury or death.

Warning!
Fire Hazard.

Warning!
Hazardous Voltage.
Risk of severe lethal electric shock.

Warning!
Refer to User manual.

Warning!

Read the user manual before installing and operating the Chroma-Q® Color Force II™. For future reference, keep and use the manual.
Safety precautions given in user manual must be followed at all times and the manuals of all the devices you connect it to. Observe all the warnings printed on product and in manuals. Make sure whoever is involved in working on or using the Chroma-Q® Color Force II™ has carefully read and understood all the safety precautions and listed warnings.
Install, connect, operate and service devices only as described in this manual and in connected devices' manuals and only in accordance with local laws and regulations. All Chroma-Q® manuals are available for download from www.chroma-q.com.
Chroma-Q® Color Force II™ does not have user-serviceable parts. Refer any operation not described in this manual to support@chroma-q.com.

If you experience difficulties with any Chroma-Q® products please contact your local dealer. If your local dealer is unable to help then please contact support@chroma-q.com.

If you are having trouble finding what you are looking for on our website, then contact our Chroma-Q® marketing department by sending an email to marketing@chroma-q.com.

PROTECTION FROM ELECTRIC SHOCK

- Use only the cables specified in this manual and on the Chroma-Q® website at www.chroma-q.com to interconnect devices in the installation. If the specified cables are not long enough for an intended cable run, consult Chroma-Q® for assistance in finding or creating a safe alternative solution.
- Provide a means of locking out AC mains power that allows power to the installation to be shut down and made impossible to reapply, even accidentally, during work on the installation.
- Shut down power to the installation during service and when it is not in use.
- Before applying power to the installation, check that all power distribution equipment and cables are in perfect condition and rated for the current requirements of all connected devices.
- Isolate the installation from power immediately if any product, power cable or power plug is in any way damaged, defective or wet, or if it shows signs of overheating.
- Do not immerse a Chroma-Q® Color Force II™ fixture in water or expose it to high-pressure water jets.

PROTECTION FROM BURNS AND FIRE

- The Color Force II™ is fan cooled. Provide free airflow around the fixture and a minimum clearance of 10 mm (0.4 in.) in all directions.
- Do not operate the Color Force II™ if the ambient operating temperature exceeds 40° C (131° F).
- Do not modify the Color Force II™ in any way not described in this manual or install other than genuine Chroma-Q® parts. Use only accessories approved by Chroma-Q®.

PROTECTION FROM INJURY

- Ensure that the installation hardware and supporting surface or structure can hold at least 10 times the weight of all the devices they support.
- Block access below the work area and work from a stable platform whenever installing, servicing or moving the Color Force II™.
- As soon as work is completed, check that all hardware and components are securely fastened to supporting structures.
- Make sure there are no flammable materials close to the product during operation.
- Make sure the power cord is not crimped or damaged.
- Avoid direct eye exposure to the light source while the product is on.
- Never try to repair the product. Repairs carried out by unskilled people can lead to damage or malfunction and/or invalidate your warranty. Please contact the nearest authorized dealer or contact support@chroma-q.com.

Keep this User Manual for future consultation. If this product is used by another user, be sure that they also receive this document.

Table of Contents

1. Product overview 1
2. Operation 2
   2.1. Unpacking the units 2
   2.2. Cabling 2
   2.3. Mounting 2
   2.4. Orientation 3
   2.5. Cyc & Border Lens 3
   2.6. Control 4
3. Main Menu 5
   3.1. DMX 6
4. Mode 7
   4.1. Mode Select Options 7
   4.2. Grouping Options 8
   4.3. Flip Options 9
   4.4. Strobe Options 9
   4.5. Look Select 11
   4.6. Master Mode 12
   4.7. Set up Menu 13
   4.8. CF I Matching 14
   4.9. ETC Compatible 14
   4.10. DMX Data 14
   4.11. Fan Speed 15
   4.12. Rotate Display 15
   4.13. PWM Frequency 15
   4.14. DMX Lost 16
   4.15. Lock 16
   4.16. Reset and Factory Defaults 17
   4.17. Upload Engine 18
   4.18. Firmware Version 18
   4.19. DMX Source 18
   4.20. Engine Temp 18
   4.21. Look Store 19
5. Thermal Performance 20
6. Troubleshooting 20
7. Maintenance 20
8. Technical specifications 21
   8.1. Technical specification 21

8.2. Technical Drawings 23
9. Menu Tree: 26
10. DMX MAP 27
11. CCT 28
12. RDM Functions 30
12.1. Frequency, Grouping and Fan_Speed 30

1. Product overview

The Chroma-Q® Color Force II™ LED batten range is a powerful lineup of professional cyc and wash lights. With up to 18,600 hot lumens output from the Color Force II™ 72, these super bright fixtures easily wash up to 12m / 39 ft. walls or cycloramas. In addition, the advanced color mixing and control management technologies together give you a radically increased color palette, a high CRI and theatrical grade dimming, all in the same fixture.

Optional slide-in "Cyc Light" and "Border Light" optical lens accessories are available to adjust the light output to suit a wide range of applications.

The Chroma-Q® Color Force II™ lighting fixture is designed specifically for professional indoor entertainment lighting. The fixture can be wall or floor mounted with the adjustable quick-release end-plate fixing system. For hung bar or truss mounting, additional bar clamp hardware is required.

The Color Force II™ features built-in power supplies and can operate as a stand-alone unit or be remotely controlled through ANSI E1.11 USITT DMX 512-A protocol via a cable or a Lumen Radio wireless connection when using the optional radio module.

The Color Force II™ is available in three lengths, the Color Force II 72™ model which features a total of 24 high output RGBA cells (or pixels), the Color Force II 48™ model which features a total of 16 high output RGBA cells (or pixels) and the Color Force II 12™ model which features a total of 4 high output RGBA cells (or pixels). Each cell provides a homogenized color output with no unsightly color shadowing like fixtures using traditional individual-colored emitters.

The control options incorporate a choice of RGBA (Red, Green, Blue, Amber), RGB (Red, Green, Blue, with *Magic Amber) and HSI (Hue, Saturation and Intensity) control modes.

The product's robust anodized aluminum extruded construction houses a discreet cable management system. Additional protection is built around the lenses for a truly road proof fixture.

2. Operation

2.1. Unpacking the units

The Color Force II™ package includes the fixture, power cord, mounting bracket, safety chain and a Quick Start Guide. We recommend that you keep the original packaging in case the item needs to be returned.

2.2. Cabling

The Color Force II™ utilizes Neutrik powerCon true1 connectors for power input and through. The DMX control data input and through connections from an external control console are via two Neutrik XLR 5-pin connectors. The chassis are ground bonded.

Note: To avoid overloading the input cable, the maximum length of Color Force II™ fixtures for a single power cable run is 3.6m (12') at 110VAC or 7.2m (24') at 220VAC.

XLR 5-pin Cable: Typical power & data connections

	Function
1	Ground
2	Data Minus
3	Data Plus
4	Spare Data
5	Spare Data

Power Cable:

International Colour Code	Connections	North American Colour Code	Connections
Green and Yellow	Earth (E)	Green	Ground (Green)
Blue	Neutral (N)	White	Neutral (Silver)
Brown	Live (L)	Black	Hot (Gold)

Important Notice:
The use of an optically splitters for DMX signal distribution are highly recommended when several fixture units are not plugged into the same power source.

Maximum Number of fixtures connected in a series:
Important Notice: Actual number of fixtures connected in series may be lower based on your branch circuit inrush rating.

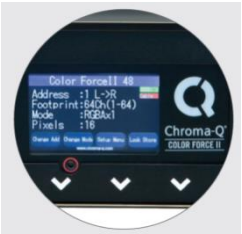
Fixture	Wattage	@110V	@220V
CF II 72	800W	2 x CF II 72	4 x CF II 72
CF II 48	533W	3 x CF II 48	6 x CF II 48
CF II 12	135W	12 x CF II 12	22 x CF II 12

2.3. Mounting

The Color Force II™ fixtures are equipped with built-in mounting brackets or trunnions for floor mounting. The mounting brackets feature a pair of quick release levers for easy tilt adjustment. Wall and truss mounting applications may require additional hardware not included.

Note: Secure the fixture with a safety bond. Provisions for fixing holes are built in to the endplates and fixture brackets.

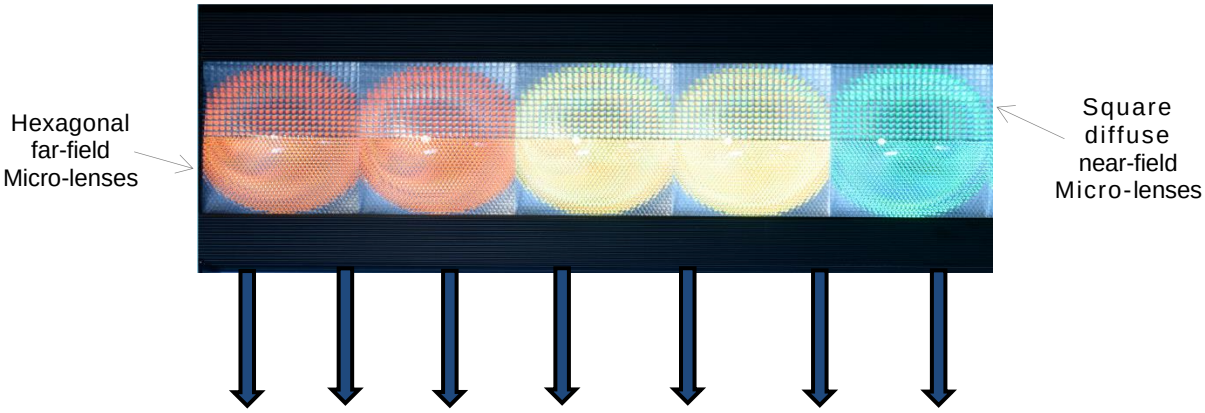
2.4. Orientation



The Color Force II™ fixtures are built with lenses that optimize the beam spread when used on a wall or cyclorama. The side with square diffuse near-field micro lenses is also indicated by silk screened arrows on the fixture bottom edge border, which should be adjacent to the wall or cyclorama. The side with hexagonal far-field micro lenses is indicated should be facing away from the wall or cyclorama.

Silk screened arrows near the touch screen should point towards the cyc or wall.

Wall or Cyclorama



Audience

2.5. Cyc & Border Lens

"Cyc Lens" and "Border Lens" are optional slide-in optical accessories available to adjust the light output of the Color Force II™ fixtures to suit a wide range of applications. One accessory slot is provided on the front of the fixture to hold a slide-in lens accessory. Matching indentations on both ends of lens are provided for locking the lens in place.

Spring Plungers are pre-installed at the far ends of the accessory slot to lock in-place the slide-in panels. The heights of the spring plungers are preset at the factory do not need adjustment.

2.6. Control

Color Force II™ fixtures can operate as a stand-alone unit or be controlled remotely via ANSI E1.11 USITT DMX 512-A protocol. The control function settings can be accessed through the touchscreen LCD display at the rear of the fixture.

Power-up Screen:

During the short time while the fixture powers on, you can see the fixture type and firmware version. The firmware version is also viewable from the Setup Menu.

No Power Menu Access: Insert a small blunt object, such as a paperclip, into the hole to turn the display on and configure the fixture when it is not connected to line power.

3. Main Menu

Once the unit is powered up, the display shows the Main Menu with:

- The model name.
- The DMX starting address and orientation.
- Footprint: number of DMX slots used in the current configuration.
- Mode: current assigned control mode and current dedicated pixels (or grouping) as per selected grouping & control mode.
- Current input status (DMX cable/DMX wireless/No data cable/No data Wireless).

Operational and control changes can be made by selecting any of the four configuration option buttons shown in the picture above to access DMX (address), Mode, Setup and preset Looks operation.

L→R shows LED pixels will be controlled beginning at left, going towards right. This can be reversed by choosing R→L in the Mode Menu options. Note: The “Left” side of the fixture is where power and data enter; the “Right” side is where they exit.

The LCD is backlit when you access the menu. This will turn off when left undisturbed for 5 seconds.

Data Signal Indicator:	**Shows the presence and status of DMX signal.**
No Data	- appears when the fixture is set at RGB, HSI or RGBA mode and not connected to an external DMX control console.
> > >DMX	- appears when the fixture is set at RGB, HSI or RGBA mode and receiving a DMX signal from an external DMX control
DMX > > >	-appears when the fixture is set at Master and outputting a DMX data

3.1. DMX

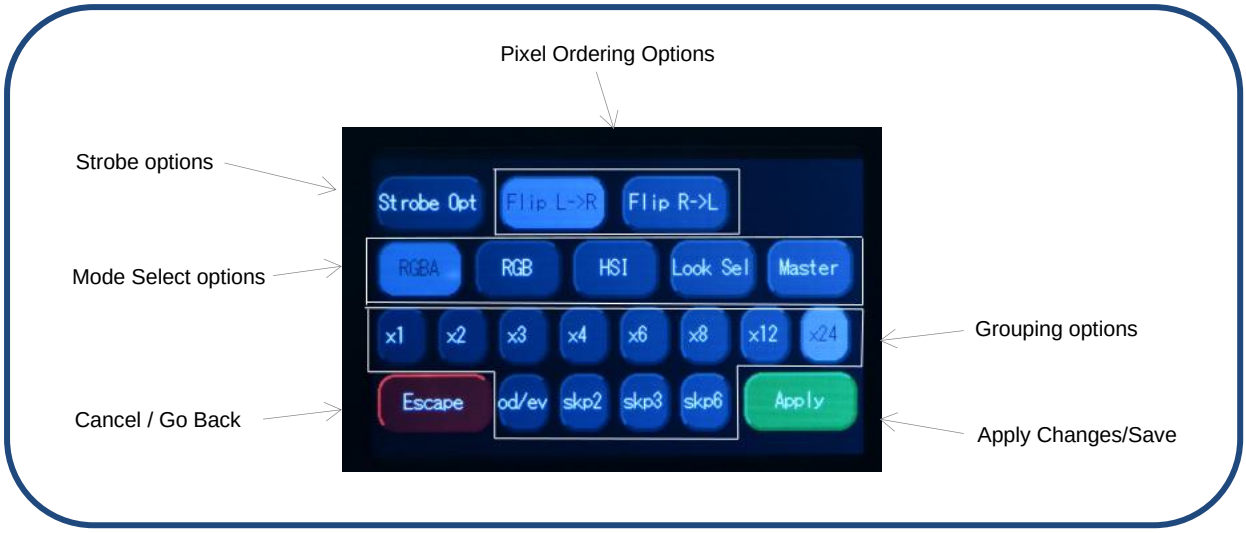
The factory default address is 1. The screen shows the current DMX start address and the new DMX start address. In this screen, the numeric command buttons can be tapped to set the new DMX start address.

Command Button	Description
0 – 9	Button numbers 0 to 9 for typing the new DMX start address.
Apply	Save the new DMX address.
Escape	Exit the screen without saving.

To set/change the DMX start address,

1. Main menu, press DMX
2. You will be directed to “Change DMX Address” screen
3. Directly enter new DMX start address by tapping buttons 0-9, e.g. press button 3 twice to select address 33
4. Press Apply to save, display goes back to the main menu with the new DMX start address
5. Press Escape anytime to cancel

4. Mode



4.1. Mode Select Options

RGBA (Red, Green, Blue and Amber) provides 4 control channels that directly affect the intensity of each color within a group. Color is mixed by adjusting the levels of each of the four channels. The DMX footprint will be determined by the grouping option selected. White (of about 4,000K) is achieved with all channels at full. Refer to the table below for detail on grouping and DMX footprints. This mode assigns 4 DMX channels to set Red, Green, Blue and Amber levels in each cell, or group of cells.

To set the fixture to RGBA mode,

1. On the Main Menu, tap Mode
2. On the Mode screen, tap RGBA
3. Tap Apply to save or Escape to cancel

RGB (Red, Green, Blue with *Magic Amber™) gives 3 control channels directly affecting the intensity of the corresponding group. Color is mixed by adjusting the levels of the three primary colors in each group. The DMX footprint will be determined by grouping option selected. White is achieved with all channels at full including Magic Amber.

To set the RGB mode,

1. On the Main Menu, tap Mode
2. On the Mode screen, tap RGB
3. Tap Apply to save or Escape to cancel

HSI (Hue, Saturation and Intensity) gives 3 control channels to each group; 2 color channels for hue and saturation and one intensity channel. A separate definable intensity channel is particularly useful when creating intensity chases or when the grand master is used. The hue channel has 255 different colors available and the saturation channel specifies the saturation level of that color. The saturation channel is fully saturated at full. White is achieved with the intensity channel to full and the saturation channel at zero.

*Magic Amber is the term used for the unit's ability to bring in amber when mixing colors that require it.

Look Sel (Look Select) gives 1 control channel to select a preset look based on the DMX value. Refer to the table below for factory presets.

MASTER sets the fixture to output a DMX stream for control of any fixtures connected “downstream”.

4.2. Grouping Options

Color Force II™ offers a powerful, wide variety of grouping options for the individual cells (or pixels) within each fixture. Grouping is independent of control Mode selection. A Color Force II 72™ fixture consists of 24 cells, a Color Force II 48™ fixture consists of 16 cells and a Color Force II 12™ fixture consists of 4 cells. “Cell” or pixel grouping allows individual control of each single cell or various grouping of cells as defined in the tables below. In “x24/x16/x4” grouping, all cells in the Color Force II™ 72/48/12, the fixtures will be controlled as 1 group. In x1 each cell is being controlled independently for a total of 24, 16 or 4 individual cells for the Color Force II™ 72, 48 or 12 respectively. See tables below where the number in the table indicates the group number. In RGBA Mode each group uses 4 DMX slots; in RGB & HSI Modes each group uses 3 DMX slots.

Od / Ev: Controls every other cell (pixels) in two groups of control – odd cell and even cells.

Skp2: Provides control of three groups comprising every third cell (pixel) on the fixture.

Skp3: Provides control of four groups comprising every forth cell (pixel) on the fixture.

Skip6: Provides control of six groups comprising every sixth cell (pixel) on the fixture.

Grouping & DMX Addressing

Grouping: Color Force II 72™	Flip: L→R																							
Group Selected	Group Number(s)																							
x24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
x12	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2
x8	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	3
x6	1	1	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	3	4	4	4	4	4	4
x4	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4	5	5	5	5	6	6	6	6
x3	1	1	1	2	2	2	3	3	3	4	4	4	5	5	5	6	6	6	7	7	7	8	8	8
x2	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	10	11	11	12	12
x1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Od/Ev	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Skp2	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Skp3	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Skp6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6

Grouping: Color Force II 48™	Flip: L→R															
Group Selected	Group Number(s)															
X16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
x8	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2
x4	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4
x2	1	1	2	2	3	3	4	4	5	5	6	6	7	7	8	8
x1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Od/Ev	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2
Skp3	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Skp7	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8

Color Force II 12 ™			L→R	
Group Selected	Group Number(s)			
x4	1	1	1	1
x2	1	1	2	2
x1	1	2	3	4
Od/Ev	1	2	1	2

Group DMX address examples:
Group 1: Fixture DMX address
Group 2: Fixture DMX address + 4 (RGBA) or +3 (RGB or HSI)
Group 3: Fixture DMX address + 8 (RGBA) or +6 (RGB or HSI)
Group X: Fixture DMX address + (X - 1) x 4 (RGBA) or + (X - 1) x3 (RGB or HSI)
Group 24: Fixture DMX address + 92 (RGBA) or + 69 (RGB or HSI)

4.3. Flip Options

The starting DMX address can be selected to be on the right or left of the fixture as indicated on the display. "Left" is defined as the side where the power & data enter the fixture, "right" is the side where power and data exit. Shown below is the example of address ordering for a Color Force II 72™ with x1 Grouping selected.

L→R	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
R→L	24	23	22	21	20	19	18	17	16	12	14	13	12	11	10	9	8	7	6	5	4	3	2	1

4.4. Strobe Options

These options allow LEDs to flash at different frequency, duration and density depending on the selection and application requirements. All these factors can be varied using a DMX console. Current mode on Main Screen will display sRGBA or sRGB / sHSI, where the "s" indicates a Strobe function is ON. Multiple strobe options can be selected at the same time.

OFF: Select this and the Press Apply to disable strobe option.

Strobe On: Press this button and then select Apply to enable strobe options. This will add 2 control channels at the beginning of the current channel footprint; first channel for flash frequency and second channel for flash duration. This setting will be indicated on Main menu touch screen.

ON TOP: Selecting Strobe On with On Top option will add 5 or 6 channels at the beginning of the fixture DMX footprint based on current mode selected. For RGBA – 6 extra channels and for RGB/HSI – 5 extra channels as follows: flash, frequency, flash duration, On Top strobe color. On Top color will be 3 or 4 channels depending on control mode.

RANDOM: Choosing this option LED's flashing frequency and duration can be randomized allowing unit to have a base color with strobe enabled adding another 1 extra channel for density (how may pixels are flashed at a time). Lowest density value is 1, highest is all 24 pixels.

Strobe Summary

Strobe Mode	Additional Channels	Notes
On	Frequency, Duration	Color of strobe flash determined by DMX values following control channels and Mode & Grouping selected by user
On Top	Frequency, Duration, Color	Color of strobe flash On Top determined by color selected in Additional Channels, base color determined by DMX values following and Mode & Grouping selected
Random	Frequency, Duration, Density	Color of strobe flash determined by DMX values following Additional Channels and Mode & Grouping selected by user
On Top + Random	Frequency, Duration, Density, Color	Color of strobe flash On Top determined by color selected in Additional Channels, base colour determined by DMX values following and Mode & Grouping selected

DMX Footprints - *Number of DMX Channels used in Mode/Grouping Combinations*

Color Force II 72™												
	Strobe Off			Strobe On			Strobe on Top			Strobe Random		
Control Mode	RGBA	RGB	HSI	RGBA	RGB	HSI	RGBA	RGB	HSI	RGBA	RGB	HSI
Grouping												
x24	4	3	3	6	5	5	10	8	8	11	9	9
x12	8	6	6	10	8	8	14	11	11	15	12	12
x8	12	9	9	14	11	11	18	14	14	19	15	15
x6	16	12	12	18	14	14	22	17	17	23	18	18
x4	24	18	18	26	20	20	30	23	23	31	24	24
x3	32	24	24	34	26	26	38	29	29	29	30	30
x2	48	36	36	50	38	38	54	41	41	55	42	42
x1	96	72	72	98	74	74	102	77	77	103	78	78
Od/Ev	8	6	6	10	8	8	14	11	11	15	12	12
Skp2	12	9	9	14	11	11	18	14	14	19	15	15
Skp3	16	12	12	18	14	14	22	17	17	23	18	18
Skp6	24	18	18	26	20	20	30	23	23	31	24	24
Look Sel	1											

Color Force II 48™												
	Strobe Off			Strobe On			Strobe on Top			Strobe Random		
Control Mode	RGBA	RGB	HSI	RGBA	RGB	HSI	RGBA	RGB	HSI	RGBA	RGB	HSI
Grouping												
X16	4	3	3	6	5	5	10	8	8	11	9	9
X8	8	6	6	10	8	8	14	11	11	15	12	12
X4	16	12	12	18	14	14	22	17	17	23	18	18
X2	32	24	24	34	26	26	38	29	29	39	30	30
x1	64	48	48	66	50	50	70	53	53	71	54	54
Od/Ev	8	6	6	10	8	8	14	11	11	15	12	12
Skp3	16	12	12	18	14	14	22	17	17	23	18	18
Skp7	32	24	24	34	26	26	38	29	29	39	30	30
Look Sel	1											

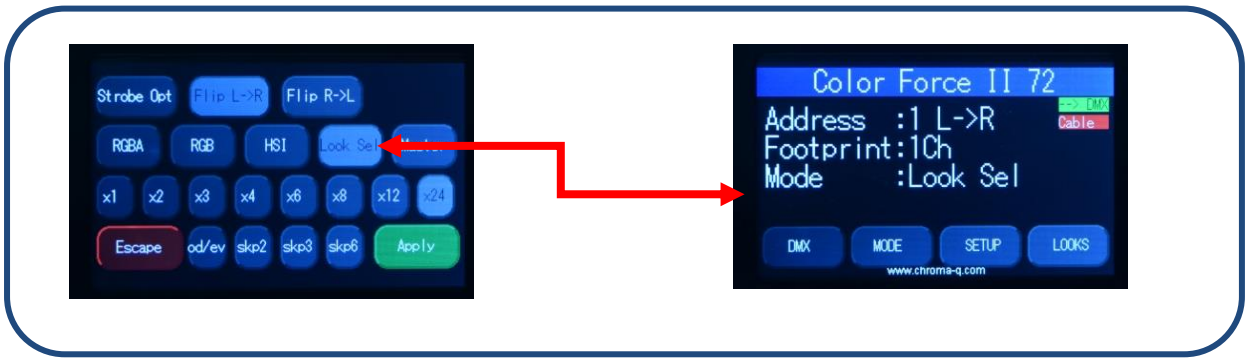
Color Force II 12™												
	Strobe Off			Strobe On			Strobe on Top			Strobe Random		
Control Mode	RGBA	RGB	HSI	RGBA	RGB	HSI	RGBA	RGB	HSI	RGBA	RGB	HSI
Grouping												
X4	4	3	3	6	5	5	10	8	8	11	9	9
X2	8	6	6	10	8	8	14	11	11	15	12	12
x1	16	12	12	18	14	14	22	17	17	23	18	18
Od/Ev	8	6	6	10	8	8	14	11	11	15	12	12
Look Sel	1											

4.5. Look Select

The Color Force II™ has 31 internal preset Looks for recall using the Look Sel mode. Looks can also be used for the stand-alone Master mode, or for recall in the event of loss of DMX described elsewhere in this manual. Looks can be recorded to the internal flash memory and will be preserved on power down. Note that looks will be returned to factory default settings if a Default Reset is performed.

The Look Sel mode assigns 1 DMX channel to access the saved Looks. To access a look using the Look Sel mode,

1. From the Main Menu, tap Mode.
2. From Mode screen, tap Look Sel.
3. Tap Apply to save or Escape to cancel.
4. If enabled, the user can then select one of the stored looks using a DMX value from an external DMX console. The DMX values and associated looks are shown on the table below. Note that transitions between looks are “bumps” not fades.



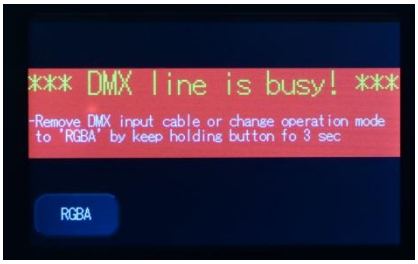
Color Force II™: Channel levels and the corresponding Default Look numbers:

Channel	Loo	Description
0	OF	OFF
1–2	1	Red Full
3–5	2	Pink Full
6–9	3	Orange Full
10–11	4	Light Orange Full
12–15	5	Yellow Full
16–19	6	Light Yellow Full
20–22	7	Green Full
23-25	8	Light Green Full
26–27	9	Cyan Full
29-32	10	Light Cyan Full
33–35	11	Blue Full
36-38	12	Light Blue Full
39-42	13	2800 White
43-45	14	3200 White
46-48	15	4000 White
49-51	16	5600 White
52-54	17	Empty
56-58	18	Empty
59-61	19	Empty
62-64	20	Empty
65-68	21	Empty
69-71	22	Empty
72-74	23	Empty
75-78	24	Empty
79-81	25	Empty
83-85	26	Empty
86-88	27	Empty
89-91	28	Empty
92-94	29	Empty
95-97	30	Empty
98-100	31	Empty

4.6. Master Mode

Color Force II™ fixtures can operate without DMX input and can act as a standalone master control for other fixtures. Once master mode is selected, Color Force II™ fixtures will transmit DMX data so other connected units can be controlled by the master Color Force II™ fixture.

Note: The connection of a DMX console is not allowed for this mode of operation. If a DMX source connection is detected, the following screen appears:

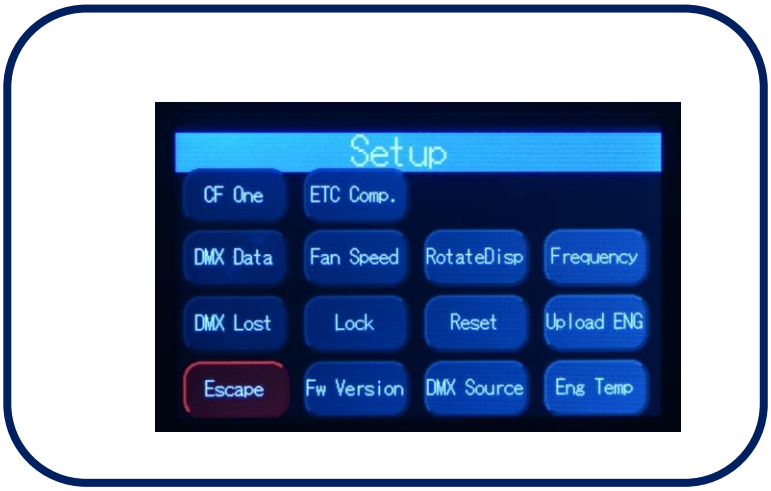


- Remove the DMX cable.
- Change the mode to Master.

When the warning screen appears, follow the display text prompts.

4.7. Set up Menu

Color Force II™ technical operation can be changed and viewed using the Setup menu options.



Command	Description
CF One	Reduces the intensity of CF II to match the original Color Force II™.
ETC Comp	Fixture can be set for compatibility with the ETC Color Picker when using ETC consoles.
DMX Data	Displays the incoming DMX levels for the assigned channels.
Fan Speed	4 Fan Speed options are accessed through the Fan Speed screen: Quiet – internal fan is off. (Intensity reduced to 80%) Studio – internal fan is at low speed. Live – internal fan is on. Live-Quiet – internal fan is automatically switched on when light output is on and automatically switched off when light output is off.
Rotate Disp	This button rotates the orientation of the Touch Screen Display 180 degrees
Frequency	Frequency options are viewed and selected using the PWM Frequency screen: 750 Hz, 1500 Hz, 3000Hz, 6000 Hz, 12000Hz, 24000Hz.
DMX Lost	The fixture can be set with 3 options when DMX data is lost: Last data – holds the last valid DMX state No Output – the fixture switches to off Look – select a prerecorded Look to execute
Lock	The Touch Screen Display can be set to lock or unlock in the Lock Future screen.
Reset	Reset Settings options are accessed through the Reset Setting screen: Default – Factory default settings User – User defined settings
Upload ENG	The fixture can be set for light engine software uploads through this screen.
FW Version	Displays current software version.
DMX Source	Displays current DMX source – cable or wireless
Eng Temp	Tells LIVE value for temperature of all the engines in fixture.
Escape	Exit the screen without saving

4.8. CF I Matching

This feature allows side-by-side mixing of the original Color Force™ and Color Force II™. Enabling this option reduces the intensity of Color Force II™ to match Color Force™, so they are visually similar at the same DMX values.

Tap to enable the matching mode then press Apply

4.9. ETC Compatible

Color output of the Color Force II™ fixture can be set to match the Color Picker feature in the ETC Eos consoles.

Tap to enable the compatibility mode then press Apply

4.10. DMX Data

This option allows user to see the DMX channel intensities being received by the fixture. This display will be formatted based on selected mode and grouping. The values read from 0 to 99 (as full).

To show DMX Data,

1. On the Main Menu, tap SETUP
2. Then tap DMX Data
3. The display shows the DMX start channel and the values (0-99) of the DMX channels
4. Tap Escape to go to back

4.11. Fan Speed

The internal fan of the fixture can be set to four speed options to regulate noise levels and the cooling process.

Quiet	The internal fans are off and light output is reduced by 20%.
Studio	The fan speed is at low velocity and light output is at 100%.
Live	The fan speed is at high velocity and the light output at 100%
Live-Quiet	Internal fans are turned off when all DMX values are at 0%.

Note: Color Force II™ unit is internally temperature protected at all times.

To set the Fan Speed Mode,

1. On the Main Menu, tap Setup
2. Then tap Fan Speed option
3. On the Fan Speed screen, select a Fan Speed option, and then tap Apply to save

4.12. Rotate Display

Display screen menu can be rotated 180° (upside down) by tapping on this button.

To set the orientation of the display,

1. On the Main Menu screen, tap Setup Menu.
2. On the Screen Setup screen, tap RotateDisp
3. The display screen rotates by 180 degrees

4.13. PWM Frequency

The Color Force II™ has four frequency settings available -750 Hz, 1500 Hz, 3000Hz, 6000 Hz, 12000Hz, 24000Hz. This allows for the LED scan rate to be synchronized with the video camera and avoid a flickering effect.

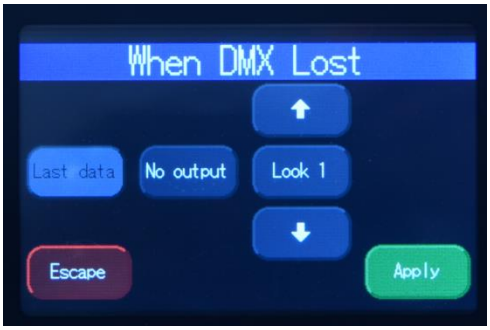
Tradeoff: Better dimming is achieved at lower frequencies; flickering effect is minimized at higher PWM frequencies.

To set the Frequency,

1. On the Main Menu, tap Setup Menu
2. On the Setup screen, tap Frequency
3. On the Frequency screen, select and tap a Frequency option, then tap Apply to save

4.14. DMX Lost

If DMX is not detected various output options can be selected in this mode:



No	will snap to off
Last data	will hold the last valid DMX
Look 1-	will snap to the Look of your

To set DMX Lost action;

1. On the Main Menu, tap Setup Menu
2. On the Setup screen, tap DMX Lost
3. On the When DMX Lost screen, select and tap an output option, then tap Apply to save

Note: If a Look is selected for playback when DMX is lost, the unit will playback the selected look on power up, so long as DMX is not present.

4.15. Lock

Factory default sets the display screen to turn off and lock when untouched for 30 seconds. A lock symbol appears on the screen when touched. This feature provides protection against accidental user input.

If the Lock feature is enabled, just touch and hold the lock icon and hold for a few seconds to unlock.

Display Lock Icon
Note: The Lock Icon turns green when tapped

To disable or enable the lock,

1. On the Main Menu, tap Setup Menu
2. On the Setup screen, tap Lock
3. On the Lock Future screen, tap Enable or Disable, then tap Apply to save

4.16. Reset and Factory Defaults

In this menu,

- Current user settings can be saved.
- The fixture can be reset to the saved user settings.
- The fixture can be reset to the factory default settings. All recorded Looks are erased.

Factory Default settings:

DMX Address	1
Foot Print	4ch (1-4)
Mode	RGBA x 24
Lock	Disabled
Pixels	1
DMX Lost	Last data
Fan Speed	Live-Quiet
Frequency	750Hz
Reset	Default
CF II	Disabled
ETC Compatible	Disabled

To save the current user settings,

1. Review all settings
2. On the Main Menu, tap Setup Menu
3. On the Setup screen, tap Reset
4. On the Reset Setting screen, press and hold Save User for 10 seconds to save the current settings. (Follow the text prompt that appears on the screen)

To reset the fixture to the saved user settings,

1. On the Main Menu, tap Setup Menu
2. On the Setup screen, tap Reset
3. On the Reset Setting screen, tap User
4. Press and hold Apply for 3 seconds to restore the saved user settings

To reset the fixture to the factory default settings,

1. On the Main Menu, tap Setup Menu
2. On the Setup screen, tap Reset
3. On the Reset Setting screen, tap Default
4. Press and hold Apply for 3 seconds to restore the factory default settings

4.17. Upload Engine

RECOMMENDED ONLY FOR QUALIFIED PERSONNEL.
LED Engine software can be uploaded to the fixture from the Chroma-Q® Uploader II by accessing this menu. See Quick Start Guide of the Chroma-Q® Uploader II™.

Software for LED engines must be uploaded to the Color Force II™ using the Chroma-Q® Uploader II

1. In “Setup”, select “Upload Engines” then press Enter, and the display shows “Ready”
2. Connect an XLR 5-pin cable from the Uploader to the unit
3. Power-up the Uploader - display shows the file name, and “Ready”
4. Press the “ERASE TARGET” button once to clear the target firmware
5. Press the “Start Uploading” button once to execute the uploading
6. An animated progress is displayed on the Uploader and CF unit indicating the upload process
7. “UPLOADING DONE” appears on the Uploader upon completion of a successful upload and the target device resets to the Main Menu
8. Power-cycle the unit
   Note that the Chroma-Q® Uploader II must be purchased separately.

4.18. Firmware Version

This option displays current software version of fixture at address Header. For added versatility, Individual firmware versions of all the engines are also displayed.

4.19. DMX Source

This enables the input connection.

INPUT	DMX from console via cable
WIRELESS	Lumen Radio input

Select the DMX source and press Apply.

4.20. Engine Temp

Tap on this to see individual temperature in degrees Celsius of each engine in the fixture. Each engine drive two cells.

4.21. Look Store

Looks can be recorded to the internal flash memory by users and will be preserved on power down. However, looks will be returned to default setting if Default Reset is performed.

1. Set the Color Force II™ to the desired color and intensity using a DMX console.
2. Go to the Look Store screen as shown above and select the Look number where the Look will be stored.
3. Press Store for 2 seconds to save the Look.

5. Thermal Performance

The Color Force II™ 12, 48 & 72 fixtures feature internal fans that control the internal cooling.

If the internal temperature of the Color Force II™ exceeds 75ºC the output of the fixture will be reduced for automatic protection. This happens on rare and extreme conditions when ambient temperature is over 35ºC or the internal fans are blocked or damaged.

The airflow to and from the fan must not be constricted to maintain the maximum light output of the Color Force II™.

6. Troubleshooting

Troubleshooting is a process of elimination. First, rule out the other field factors (i.e. bad connections, faulty cables and power supplies). For technical support and/or parts, please contact your selling dealer or the offices listed in this manual.

Symptom	Possible Cause	Solution
Fixture does not respond to DMX control.	Set to wrong or different DMX address. Bad cable connecting DMX control and fixture. Bad in/through connection between adjacent fixtures. Console patch is incorrect.	Check DMX address and Mode settings. Check/replace DMX run from the console. Check DMX values in the Setup/DMX Data screen as described above to verify the fixture is "seeing" the DMX data.
Noise from fixture unit.	Fan malfunction.	Check fan.
Low LED output.	Internal temperature is over the limit. Fan is not working.	Verify Engine temperature using the Setup/Eng Temp screen as described above. Check "Fan Control" mode. Check fan. Check for airflow - to and from the internal fan. Check area ventilation.

7. Maintenance

With care, the Color Force II™ will require little maintenance. However, as the unit is likely to be used in a stage environment, we recommend periodical internal inspection and cleaning of any resulting dust and/or cracked oil residue.

Do not spray liquids on the front or rear panel. If the front enclosure requires cleaning, wipe with a mild detergent on a damp cloth.

8. Technical specifications

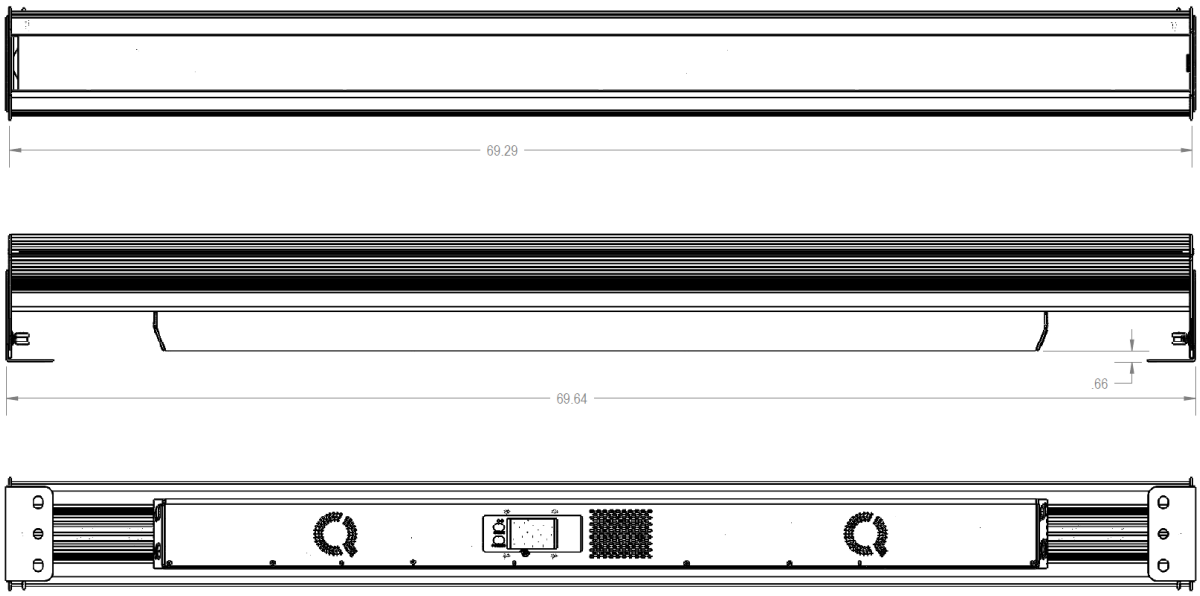
8.1. Technical specification

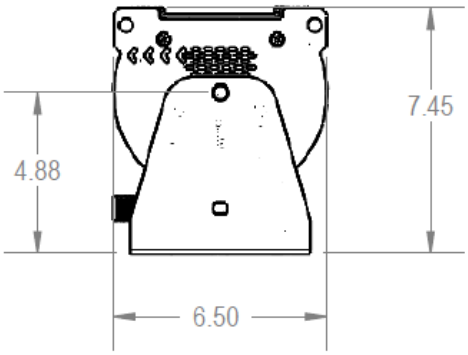
		Color Force II 72™	Color Force II 48™	Color Force II 12™
Product Code:	Black	CHCF272RGBA	CHCF248FRGBAW	CHCF2112RGBALR
	White	CHCF272RGBA	CHCF248FRGBAW	CHCF2112RGBALR
	Black with Lumen Radio	CHCF272RGBA	CHCF248FRGBAW	CHCF2112RGBALR
Net Dimensions:		1,759 mm x 182mm x 177mm 69.25” X 7.25” X 7”	1,181mm x 165mm x 191mm 46.5” X 6.5” X 7.5”	335mm x 190mm x 218mm 13.2” X 7.5” X 8.6”
Net Weight:		24kg / 53lbs	18 Kg / 40lbs	5 Kg / 11.2lbs
Shipping Dimension		1,855mm x 305mm x 320mm / 73" x 12" x 12.5"	1,295mm x 305mm x 320mm 51" x 12" x 12.5"	432mm x 343mm x 279mm 17" x 13.5" x 11"
Shipping Weight		27 kg / 59 lb	21 Kg / 46 lb	7kg / 15.5lb
Power and Connection				
Power Supply		Built in	Built in	Built in
Power Input Rating:		100-240VAC, 800VA, 50-60Hz	100-240VAC, 550VA, 50-60Hz	100-240V AC, 160VA, 50-60 Hz,
Power Factor		0.96 @ 120V AC, 0.99 @ 240V AC	0.97 @ 120V AC, 0.92 @ 240V AC	0.99 @ 120V AC, 0.97 @ 240V AC
Power Consumption		800W @ 120V AC, 800W @ 240V AC	533W @ 120V AC, 533W @ 240V AC	133W @ 120V AC, 133W @ 240V AC
Idle Power Consumption		29W @ 120V AC, 32W @ 240V AC	27W @ 120V AC, 30W @ 240V AC	8W @ 120V AC, 10W @ 240V AC
Typical Power & Current		Measurements done with all LEDs at maximum intensity. Measurements made at nominal voltage. Allow for a deviation of +/- 10%.		
Power Connector In/Out:		Neutrik powerConTRUE1		
Data Connectors In/Out:		Neutrik XLR 5-pin		
Control Protocol:		ANSI E1.11 USITT DMX 512-A		
Construction				
Cooling System:		Forced - 2 fans	Forced - 2 fans	Forced - 1 fan
Construction:		Anodized aluminum extrusion for Black. Powder coated aluminum extrusion for White		
Color:		Black / White		
Built-in Hardware		Quick release lever for tilt adjustment		

Photometrics			
LED Pixels:	24	16	4
Hot Lumen Output (Combined)	18,600	13,500	3,600
Optics:	Specialized close focus lens		
Beam Angle:	~ 22º (approx.)		
Beam Distribution:	Asymmetrical direct illumination		
CCT:	Adjustable 1000 – 10000K		
CRI:	Up to 92		
Lamp Life:	Up to 50,000 hours		
Operating Condition			
IP Rating:	IP20		
Operating Temperature:	0ºC to 40ºC		
Operating Humidity	Dry locations only, non-condensing humidity		
Approvals:	CISPR 22:2006/EN55022:2006 & CISPR 24:1997/EN55024:1998 ICES-003:2004 & FCC Part 15 Sub-part B:2007 CSA C22. No. 166-M1983:R2008 UL 1573:2003; UL 8750		

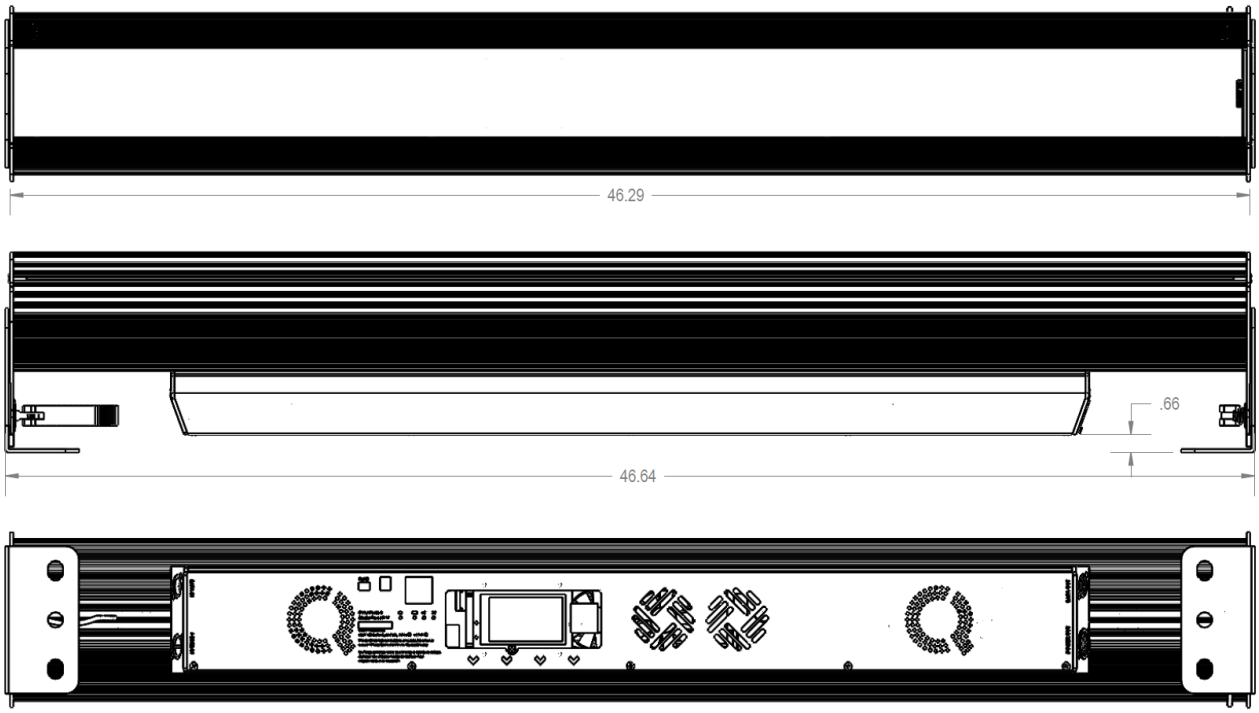
8.2. Technical Drawings

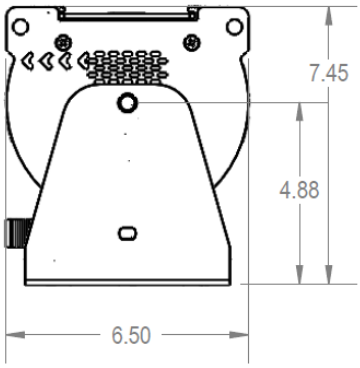
Color Force II 72™

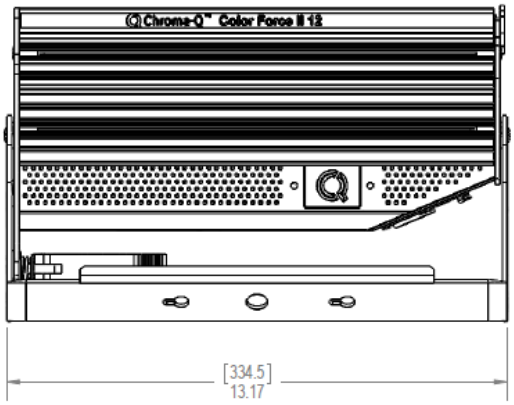


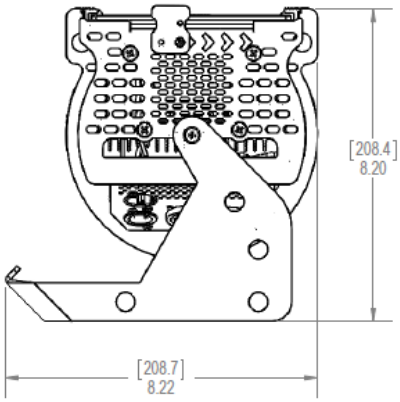


Color Force II 48™

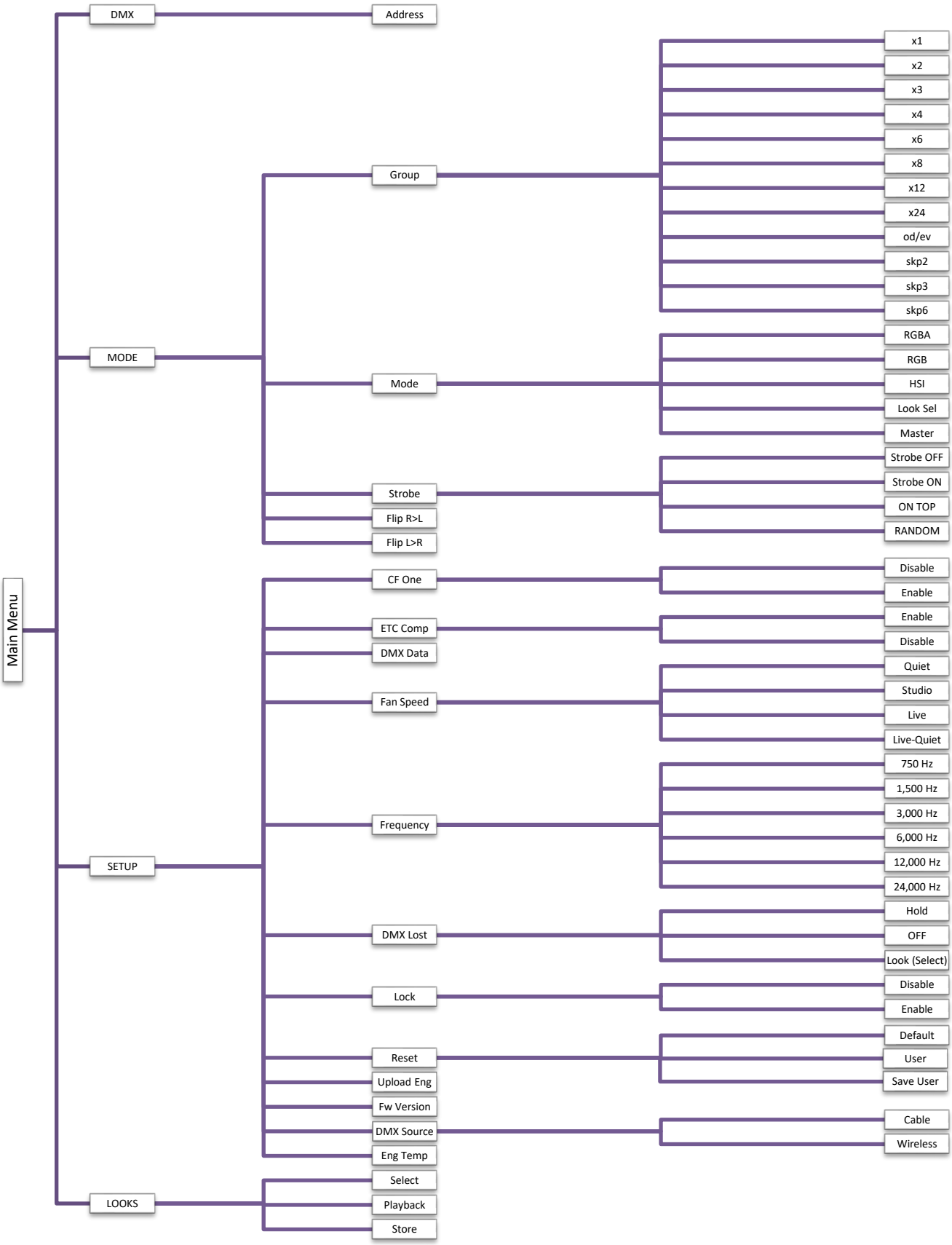





Chroma-Q™ Color Force II 12
[334.5]
13.17


[208.4]
8.20
[208.7]
8.22

9. Menu Tree:


Main Menu
DMX
Address
MODE
Group
x1
x2
x3
x4
x6
x8
x12
x24
od/ev
skp2
skp3
skp6
Mode
RGBA
RGB
HSI
Look Sel
Master
Strobe
Strobe OFF
Strobe ON
ON TOP
RANDOM
Flip R>L
Flip L>R
SETUP
CF One
Disable
Enable
ETC Comp
Enable
Disable
DMX Data
Fan Speed
Quiet
Studio
Live
Live-Quiet
Frequency
750 Hz
1,500 Hz
3,000 Hz
6,000 Hz
12,000 Hz
24,000 Hz
DMX Lost
Hold
OFF
Look (Select)
Lock
Disable
Enable
Reset
Default
User
Save User
Upload Eng
Fw Version
DMX Source
Cable
Wireless
Eng Temp
LOOKS
Select
Playback
Store

10. DMX MAP

Color Force II™ Generic DMX Map for RGBA Control Mode

Color Force II DMX Map

	Mode = RGBA									
	Strobe Off		Strobe On		Strobe On Top		Strobe Random		Strobe On Top + Random	
DMX		Pixel/Cell		Pixel/Cell		Pixel/Cell		Pixel/Cell		Pixel/Cell
1	R	Repetition based on Grouping Selected <<<<	Strobe Frequency		Strobe Frequency		Strobe Frequency		Strobe Frequency	
2	G		Strobe Duration		Strobe Duration		Strobe Duration		Strobe Duration	
3	B		R	Repetition based on Grouping Selected <<<<	R - Intensity Strobe		Strobe Randomization		Strobe Randomization	
4	A		G		G - Intensity Strobe		R	Repetition based on Group Selected <<<<	R - Intensity Strobe	
5			B		B - Intensity Strobe		G		G - Intensity Strobe	
6			A		A - Intensity Strobe		B		B - Intensity Strobe	
7					R	Repetition based on Grouping Selected <<<<	A		A - Intensity Strobe	
8					G				R	Repetition based on Grouping Selected <<<<
9					B				G	
10					A				B	
11									A	

11. CCT

The following tables contain the DMX values of Red, Green, Blue and Amber for the maximum brightness and best color rendering.

Color Force II RGBA mix for maximum output at individual CCTs

CCT	R	G	B	A
1600	255	138	20	255
2000	255	178	52	255
2400	255	209	77	255
2800	255	229	105	255
3200	255	244	128	255
3600	247	255	152	255
4000	232	255	169	255
4400	221	255	184	255
4800	210	255	199	255
5200	198	255	208	255
5600	185	255	214	255
6000	168	255	214	255
6400	159	255	217	255
6800	149	255	220	255
7200	142	255	223	255
7600	136	255	226	255
8000	130	255	227	255
8400	126	255	230	255
8800	121	255	232	255
9200	115	255	232	255
9600	112	255	233	255
10000	107	255	235	255

Color Force II RGBA mix for best color rendering at individual CCTs

CCT	R	G	B	A
1600	177	88	18	255
2000	159	113	42	255
2400	156	138	62	255
2800	153	157	90	255
3200	137	163	107	255
3600	127	170	125	255
4000	123	182	136	255
4400	119	189	147	255
4800	114	198	157	255
5200	110	207	167	255
5600	106	211	174	255
6000	102	215	180	255
6400	98	219	186	255
6800	94	221	190	255
7200	90	223	194	255
7600	86	222	196	248
8000	82	224	199	248
8400	78	225	202	248
8800	76	226	204	248
9200	74	227	206	248
9600	70	228	208	248
10000	70	228	211	248

12. RDM Functions

Color Force II™ RDM Supported parameters are:

DEVICE_INFO
IDENTIFY_DEVICE
DMX_START_ADDRESS
SOFTWARE_VERSION_LABEL
DEVICE_LABEL
SENSOR_DEFINITION
PARAMETER_DESCRIPTIOON
DMX_PERSONALITY
DMX_PERSONALITY_DESCRIPTION
DEVICE_MODEL_DESCRIPTION
MANUFACTURER_LABEL
DEVICE_LABEL
SENSOR_DEFINITION
SENSOR_VALUE
REST_DEVICE

12.1. Frequency, Grouping and Fan_Speed

RDM Values for Frequency are as follows

Byte Value	Frequency
0x01	750Hz
0x02	1500Hz
0x03	300Hz
0x04	6000Hz
0x05	12000Hz
0x06	24000Hz

RDM Values for Fan Speed Modes are as follows

Byte Value	Fan Speed
0x01	Quiet
0x02	Studio
0x03	Live
0x04	Live-Quiet

RDM Values for Grouping are as follows

Grouping for CFII 12

Byte Value	Grouping
0x01	X1
0x02	X2
0x03	X4
0x04	Od/Ev

Grouping for CFII 48

Byte Value	Grouping
0x01	X1
0x02	X2
0x03	X4
0x04	X8
0x05	X16
0x06	Od/Ev
0x07	Skip3
0x08	Skip7

Grouping for CFII 72

Byte Value	Grouping
0x01	X1
0x02	X2
0x03	X4
0x04	X8
0x05	X12
0x06	X24
0x07	Od/Ev
0x08	Skip2
0x09	Skip3
0x10	Skip6