

Chroma-Q™ Color Force™

User Manual



Version 1.1 October 2009
Software Version 1.1

PN: 622-0500

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The Chroma-Q Color Force 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:

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1. Product overview

The Chroma-Q Color Force LED batten range is a brute of a light. At up to 12,000 hot lumens output (Color Force 72); the super bright fixture easily washes up to 8m / 26 foot. In addition, the advanced colour mixing and control management technologies together give you a radically increased colour palette, a high CRI of 92 and theatrical grade dimming, all in the same fixture.

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

The Chroma-Q Color Force 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 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.

The Color Force is available in two lengths, the Color Force 72 model which features a total of 288 high powered LEDs (12 x 1000 hot lumen RGBA cells) and the Color Force 48 model which features a total of 192 high powered LED's (8 x 1000 hot lumen RGBA cells).

The control options incorporate a choice of HSI (Hue, Saturation and Intensity), RGBA (Red, Green, Blue, Amber), RGB(A) (Red, Green, Blue, with *Magic Amber), RGBI (Red, Green, Blue with *Magic Amber and Intensity) control modes. The Color Force also features a dynamic Variable Effects Engine integrated in the software, which gives the lighting designer full control over colour and effects combinations.

The product's robust anodised 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 package includes 1 unit Color Force fixture 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 utilises PowerCon connectors for power input and through. The DMX control data input and through connections from an external control console are via two XLR 5-pin connectors. The chassis are ground bonded.

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

XLR 5-pin Cable:

Pin#	Function
1	Ground (Screen)
2	Data Minus
3	Data Plus
4	Spare Data Minus
5	Spare Data Plus

Power Cable:

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

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

2.3 Mounting

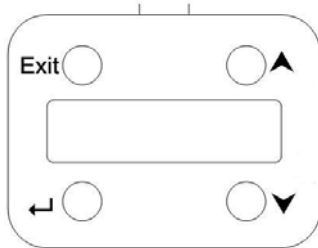
Color Force fixtures are equipped with built-in mounting brackets for floor, wall and truss mounting applications. The mounting brackets feature a pair of quick release levers for easy tilt adjustment.

Note: Secure the fixture with a safety bond. Provision for a fixing hold is built into the brackets.

2.4 Control

Color Force 48 & 72 fixtures can operate as a stand-alone unit or be controlled remotely by ANSI E1.11 USITT DMX512-A. The control functions of both fixture models are identical and can be accessed through the LCD display at the rear of the fixture with 4 push buttons.

Push button operation:



Control	Function
Exit	Back to previous menu
Up Arrow	Increases (+) the mode level or value
Down Arrow	Decreases (-) the mode level or value
Back Arrow	(Enter) Stores the menu choice

Power-Up Display:

On power-up and home position, the display shows the model name 'Color Force', software version 'v1.1', the DMX address 'd001', current assigned mode 'fxHSI' and the number of channels the Color Force is in '43ch'.

Display Mode:

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

Control Options:

3 channel HSI (Hue, Saturation and Intensity) gives 2 colour channels for hue and saturation and a separate 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 colours available and the saturation channel specifies the saturation level of that colour. The saturation channel is fully saturated at full. White is achieved with the intensity channel to full and the saturation channel at zero.

3 channel RGB (Red, Green, Blue with *Magic Amber™) is the more traditional way of controlling colour changing LED fixtures. Each of the three control channels directly affects the intensity of the corresponding LED. Colour is mixed by adjusting the levels of the three primary colours. White is achieved with all channels at full including Magic Amber.

3 channel RGB(A) + 1 intensity channel (Red, Green, Blue with Magic Amber and Intensity) gives 3 control channels directly affecting the intensity of the corresponding LED – Red, Green, Blue with *Magic Amber, and 1 channel affecting the intensity of all RGB(A) channels.

4 channel RGBA (Red, Green, Blue and Amber) gives 4 control channels directly affecting the intensity of the corresponding LED – Red, Green, Blue and Amber. Colour is mixed by adjusting the levels of each of the four colours. White is achieved with all channels at full.

Grouping options: grouping by individual “cell” and “all” cells. A Color Force 72” fixture consists of 12 cells and a Color Force 48” fixture consists of 8 cells. “Cell” grouping allows individual control of each single cell. In “All” grouping, all cells in either the 72” or 48” fixture can be controlled as 1 group.

Internal FX engine: mode 1, 5, 6 and 10 incorporate internal FX engine with variable parameters to create an unlimited amount of unique lighting effects.

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

Control Menu

Use the push buttons (up/down arrows) to scroll through the control menu positions:

➔ **Home / DMX Address**

To set the DMX start address, press Enter, press Up/Down buttons to adjust DMX start address, press Enter for 2 seconds to save settings.

➔ **Control Mode**

The Color Force can be set to operate in 11 DMX controlled modes. 2 grouping options are available (cell-grouped, all-grouped) with 5 control options: HSIFX, HSI, RGB (with Magic Amber), RGBA, RGBI (with Magic Amber), pre-programmed looks and stand-alone effects. Refer to the list below for details. Press Enter, press Up/Down buttons to select control mode, and press Enter for 2 seconds to save control mode settings.

Mode	Group	Ch	Description
1	Variable	43	7fx + 12 x HSI -or- 7fx + 12 x RGB(A) with Ch5 @ Full & Ch2 as Intensity Master
2	Cell	36	12 x HSI
3	Cell	36	12 x RGB (with *Magic Amber)
4	Cell	48	12 x RGBA
5	Cell	49	1s + 12 x RGBI (*Magic Amber)
6	All	9	6fx + 3 x HSI -or- 6fx + 3 x RGB(A) with Ch4 @ Full & Ch1 as Intensity Master
7	All	3	1 x HSI
8	All	3	1 x RGB (with *Magic Amber)
9	All	4	1 x RGBA
10	All	5	1s + 1 x RGBI (with *Magic Amber)
11		1	Look Select
12			Master stand-alone
13			Slave stand-alone

➔ **When DMX is Lost**

If DMX is not detected various output options can be selected: Press Enter, press Up/Down buttons to the selection, press Enter for 2 seconds to save settings.

Off - will snap to off

Hold - will hold the last valid DMX state

Look 1-31 will snap to the **Look** of your choice

➔ **Look Store**

The Color Force has 31 internal preset FX Looks for stand-alone operation, 1-23 are pre-programmed. To replay a Look in stand-alone operation, press Up/Down buttons to select Look Store, press Enter, press Up/Down buttons to select the desired Look and press Enter for 2 seconds to save settings. To replay a Look with a DMX console, press Up/Down buttons to Control Mode 16 and press Enter for 2 seconds. Use the DMX console with the assigned channel to playback the various looks stored. (1-31

looks in 1 single channel)

Note: DMX has priority over internal Looks.

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 Reset is performed. There are two ways to record a look:

Simple, with DMX console.

Set the Color Force to the desired Control Mode. Use a DMX console to adjust channel levels and create the desired look or effect. Press Up/Down buttons to Look Store and press Enter, press Up/Down buttons to the desired Look number and press Enter. Press Enter again for 2 seconds to save Look.

Advanced, stand-alone. (DMX is unplugged)

Press Up/Down buttons to Look Store, and press Enter, press Up/Down button to the desired Look and press Enter to access the memory data. The data is presented as two numbers separated by a letter "c". The number to the left of the c is the channel number and to the right is the channel level. Pressing Up/Down up to the far end will show the Mode at which the selected Look was programmed.

To edit the Mode of a selected Look:

Press Up/Down buttons to Look Store and press Enter, press Up/Down to the desired Look and press Enter to access the memory data. Press Up/Down buttons up to the far end until Mode number is shown and press Enter. Press Up/Down buttons to adjust the Mode number. Press Enter to toggle back to the channel numbers.

To edit the channel numbers and levels of a selected Look:

Press Up/Down buttons to Look Store and press Enter, press Up/Down to the desired Look and press Enter to access the memory data. Press Up/Down buttons and select the channel number. To edit the channel level, press Enter and use the Up/Down buttons to adjust the level (shown as 0-255). Press Enter to toggle back to the channel number. When the desired effect is created press Enter for 2 seconds to save Look.

→ **Display Backlight (Displ. Backlight)**

The LED display can be set to go off after 5 seconds of no activity. Press Enter, scroll wheel to On (permanently) or Off (after 5 seconds) and press Enter for 2 seconds to save settings.

→ **Frequency**

The Color Force has three frequency settings available - 600, 1200, 2400. This allows for the LED scan rate to be synchronised with the video camera and avoid a flickering effect. Press Enter, Up/Down buttons to select the frequency, press Enter for 2 seconds to save settings.

→ **Upload Engines**

Pre-programmed engines can be uploaded to the Color Force from the Chroma-Q Uploader. Press Enter, Up/Down buttons to select 'Upload Engines' and press Enter for 2 seconds to save. Connect to the Chroma-Q Uploader and proceed with the uploading process. See Quick Start Guide of the Chroma-Q Uploader for the uploading connection and operation.

→ **Reset to Default**

Press Enter for 2 seconds to reset all menu items to factory defaults:
DMX address = 001, Control Mode = 1 (43 channels HSI+FX) , DMX Lost = Hold,
Looks = default, Display = On, Frequency = 600

2.5 DMX Protocol

Color Force DMX Personality Mode 1-3.

	In mode 1 grouping is variable & in modes 2-3 each cell is a group		
Color Force (v1.1)	Mode 1 (43ch) 7fx + 12 x HSI	Mode 2 (36ch) 12 x HSI	Mode 3 (36ch) 12 x RGB (with Magic Amber)
Channel 1	Grouping 0-100 Variable grouping range between 1-12 cells with FX running within the group. 102-206 Variable grouping range between 1-12 cells with FX running between the groups. 209-255 Variable grouping range for every 2 nd to every 12 th cells in a group.	Hue for group 1	Red for group 1
Channel 2	Colour Speed 0-255 Variable speed of colour scrolling. From static at 0 to maximum at 255. (Intensity Master when on Mode 7fx + 12 x RGB(A) and Ch5 at Full)	Saturation for group 1	Green for group 1
Channel 3	Colour Fan 0-255 Variable fan of colour between / within groups. All units are the same colour at 0.	Intensity for group 1	Blue for group 1
Channel 4	Colour Range 0 Full spectrum 1-255 Variable limit of spectrum for colour scrolling. Single colour at 1, full spectrum at 255.	Hue for group 2	Red for group 2
Channel 5	Colour Step 0-255 Variable control of smoothness of colour scrolling. Smoothest is at 0. Most coarse is at 250. Rate will vary with scrolling speed. 255 will override effects and switch to RGB. (Mode 7fx + 12 x RGB(A) is activated when this Ch is at Full and Ch2 becomes Master Intensity)	Saturation for group 2	Green for group 2
Channel 6	Intensity Effects 0 Static 1-63 Fade on, fade off. Variable, 63 fastest 64-127 Fade on, snap off. Variable, 127 the fastest 128-191 Snap on, fade off. Variable, 191 fastest 192-255 Snap on, snap off (strobe). Variable, 255 fastest.	Intensity for group 2	Blue for group 2
Channel 7	Intensity Fan 0-255 Variable fan of intensity effect between / within groups. All units at the same intensity at 0. Alternating units on & off at 255.	Hue for group 3	Red for group 3
Channel 8	Hue for group 1	Saturation for group 3	Green for group 3
Channel 9	Saturation for group 1	Intensity for group 3	Blue for group 3
Channel 10	Intensity for group 1	Hue for group 4	Red for group 4
Channel 11	Hue for group 2	Saturation for group 4	Green for group 4
Channel 12	Saturation for group 2	Intensity for group 4	Blue for group 4
Channel 13	Intensity for group 2	Hue for group 5	Red for group 5
	...and so on up to group 12		
Total	43 DMX channels	36 DMX channels	36 DMX channels

Color Force DMX Personality Mode 4-6.

In modes 4-5 each cell is a group & in mode 6 all cells are a group (All)			
Color Force (v1.1)	Mode 4 (48ch) 12 x RGBA	Mode 5 (49ch) 1s + 12 x RGBI (with Magic Amber)	Mode 6 (9ch) 6fx + 3 x HSI
Channel 1	Red for group 1	Intensity Effects 0 Static 1-63 Fade on, fade off. Variable, 63 fastest 64-127 Fade on, snap off. Variable, 127 fastest 128-191 Snap on, fade off. Variable, 191 fastest. 192-255 Snap on, snap off (Strobe). Variable, 255 fastest.	Colour Speed 0-255 Variable speed of colour scrolling. From static at 0 to maximum at 255. (This channel becomes Intensity Master when on Mode 6fx + 12 x RGB(A) and Ch4 at Full)
Channel 2	Green for group 1	Red for group 1	Colour Fan 0-255 Variable fan of colour between groups. All units are the same colour at 0.
Channel 3	Blue for group 1	Green for group 1	Colour Range 0 Full spectrum 1-255 Variable limit of spectrum for colour scrolling. Single colour at 1, full spectrum at 255.
Channel 4	Amber for group 1	Blue for group 1	Colour Step 0-255 Variable control of smoothness of colour scrolling. Smoothest is at 0. Most coarse is at 250. Rate will vary with scrolling speed. 255 will override effects and switch to RGB. (Mode 6fx + 12 x RGB(A) is activated when this Ch is at Full and Ch1 becomes Master Intensity)
Channel 5	Red for group 2	Intensity for group 1	Intensity Effects 0 Static 1-63 Fade on, fade off. Variable, 63 fastest 64-127 Fade on, snap off. Variable, 127 fastest 128-191 Snap on, fade off. Variable, 191 fastest. 192-255 Snap on, snap off (strobe). Variable, 255 fastest
Channel 6	Green for group 2	Red for group 2	Intensity Fan 0-255 Variable fan of intensity effect between groups. All units at the same intensity at 0. Alternating units on and off at 255.
Channel 7	Blue for group 2	Green for group 2	Hue
Channel 8	Amber for group 2	Blue for group 2	Saturation
Channel 9	Red for group 3	Intensity for group 2	Intensity
Channel 10	Green for group 3	Red for group 3	
Channel 11	Blue for group 3	Green for group 3	
Channel 12	Amber for group 3	Blue for group 3	
Channel 13	Red for group 4	Intensity for group 3	
	...and so on up to group 12		
Total	48 DMX channels	49 DMX channels	9 DMX channels

Color Force DMX Personality Mode 7-9

In modes 7-9 all cells are a group (All)			
Color Force (v1.1)	Mode 7 (3ch) HSI	Mode 8 (3ch) RGB (with Magic Amber)	Mode 9 (4ch) RGBA
Channel 1	Hue	Red	Red
Channel 2	Saturation	Green	Green
Channel 3	Intensity	Blue	Blue
Channel 4			Amber
Total	3 DMX channels	3 DMX channels	4 DMX channels

Color Force DMX Personality Mode 10

In mode 10 all cells are a group (All)	
Color Force (v1.1)	Mode 10 (5ch) 1s + RGBI (with Magic Amber)
Channel 1	Intensity Effects 0 Static 1-63 Fade on, fade off. Variable range, 63 the fastest 64-127 Fade on, snap off. Variable range, 127 the fastest 128-191 Snap on, fade off. Variable range, 191 the fastest. 192-255 Snap on, snap off (strobe). Variable range, 255 the fastest.
Channel 2	Red
Channel 3	Green
Channel 4	Blue
Channel 5	Intensity
	5 DMX channels

Color Force DMX Personality Mode 11

Color Force (v1.1)	Mode 11 (1ch) Look Select																																																																								
Channel 1	Channel levels and the corresponding Look numbers: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Channel Level (%)</th> <th>Look</th> <th>Channel Level (%)</th> <th>Look</th> <th>Channel Level (%)</th> <th>Look</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>OFF</td> <td>33-35</td> <td>11</td> <td>69-71</td> <td>22</td> </tr> <tr> <td>1-2</td> <td>1</td> <td>36-38</td> <td>12</td> <td>72-74</td> <td>23</td> </tr> <tr> <td>3-5</td> <td>2</td> <td>39-42</td> <td>13</td> <td>75-78</td> <td>24</td> </tr> <tr> <td>6-9</td> <td>3</td> <td>43-45</td> <td>14</td> <td>79-81</td> <td>25</td> </tr> <tr> <td>10-11</td> <td>4</td> <td>46-48</td> <td>15</td> <td>83-85</td> <td>26</td> </tr> <tr> <td>12-15</td> <td>5</td> <td>49-51</td> <td>16</td> <td>86-88</td> <td>27</td> </tr> <tr> <td>16-19</td> <td>6</td> <td>52-54</td> <td>17</td> <td>89-91</td> <td>28</td> </tr> <tr> <td>20-22</td> <td>7</td> <td>56-58</td> <td>18</td> <td>92-94</td> <td>29</td> </tr> <tr> <td>23-25</td> <td>8</td> <td>59-61</td> <td>19</td> <td>95-97</td> <td>30</td> </tr> <tr> <td>26-27</td> <td>9</td> <td>62-64</td> <td>20</td> <td>98-100</td> <td>31</td> </tr> <tr> <td>29-32</td> <td>10</td> <td>65-68</td> <td>21</td> <td></td> <td></td> </tr> </tbody> </table>	Channel Level (%)	Look	Channel Level (%)	Look	Channel Level (%)	Look	0	OFF	33-35	11	69-71	22	1-2	1	36-38	12	72-74	23	3-5	2	39-42	13	75-78	24	6-9	3	43-45	14	79-81	25	10-11	4	46-48	15	83-85	26	12-15	5	49-51	16	86-88	27	16-19	6	52-54	17	89-91	28	20-22	7	56-58	18	92-94	29	23-25	8	59-61	19	95-97	30	26-27	9	62-64	20	98-100	31	29-32	10	65-68	21		
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2.6 Thermal Performance

The Color Force 72 and Color Force 48 fixtures feature 2 internal fans that drive the internal cooling system.

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

The airflow to and from the fan must not be constricted to maintain the maximum operating capacity of the Color Force.

3. 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. Fans are not working.	Check DMX address and Mode settings. Check/replace DMX run from the console.
Noise from fixture unit.	Fan malfunction.	Check fan.
Low LED output.	Internal temperature is over the limit.	Check fan. Check for airflow - to and from the internal fan. Check area ventilation.

4. Specification

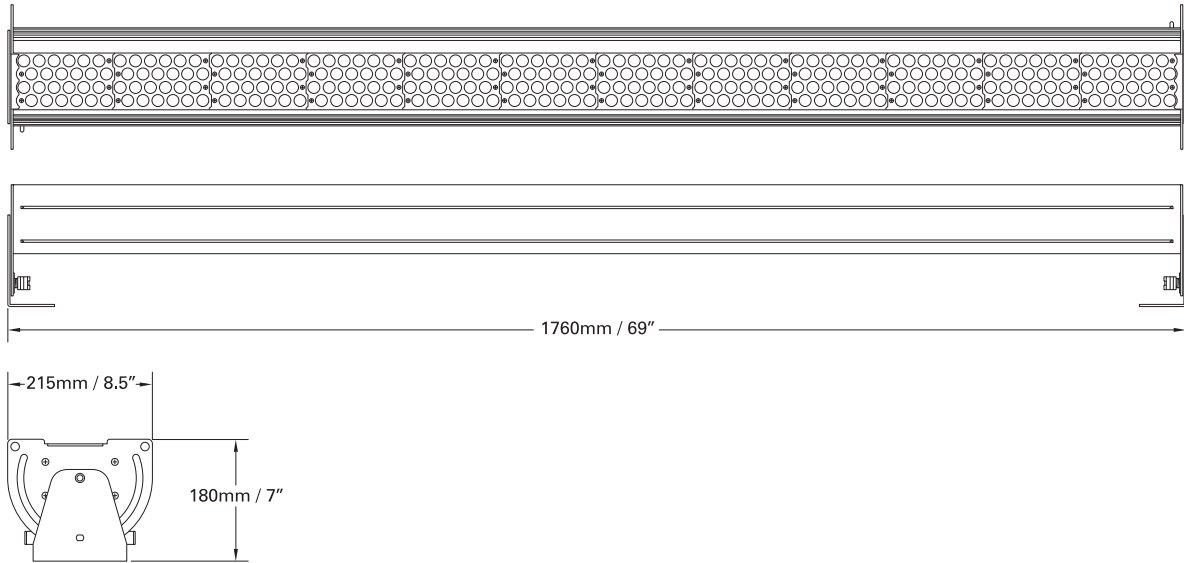
4.1 Technical specifications

	Color Force 72	Color Force 48
Product Code:	CHCF72NRGBA	CHCF48NRGBA
Dimensions:	1760mm x 180mm x 215mm 69" x 7" x 8.5"	1180mm x 180mm x 215mm 46.5" x 7" x 8.5"
Weight:	22kg / 48lbs	15kgs / 33lbs
Power input rating:	100-240VAC, 6A, 50/60Hz	
Power connector in/out:	PowerCon	
Data connectors in/out:	XLR 5-pin	
Control protocol:	ANSI E1.11 USITT DMX 512-A	
Cooling system:	Forced - 2 fans	Forced – 1 fan
Construction:	Anodised aluminium extrusion	
Colour:	Black	
LED cells:	12	8
LED per cell:	24 (6 x RGBA)	24 (6 x RGBA)
Total LED:	288	192
Optics:	Specialised close focus lens	
Beam angle:	12° (provisional)	
Beam distribution:	Symmetrical direct illumination	
CCT:	Adjustable 1000 – 10000K	
CRI:	92	
Lamp Life:	L70 up to 50,000 hours	
IP Rating:	IP20	
Operating temperature:	0°C to 40°C	
Approvals:	Pending	

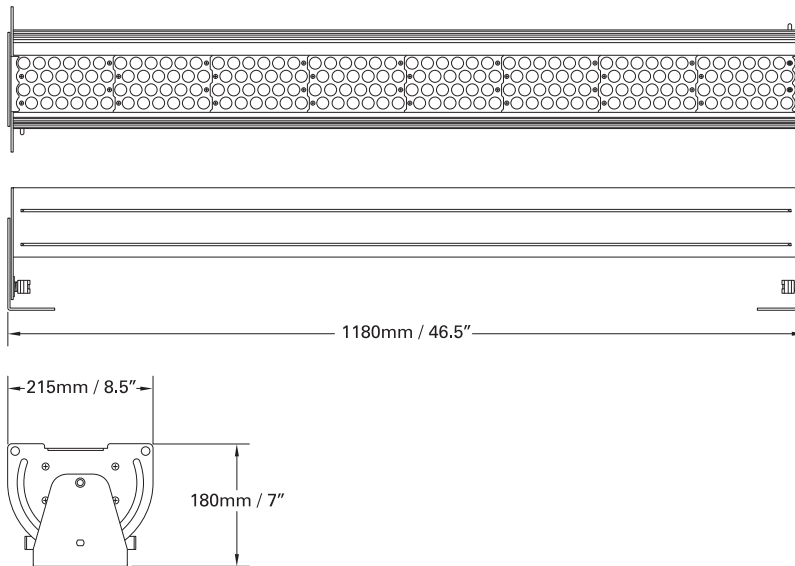


4.2 Drawings

Color Force 72



Color Force 48



5. Maintenance

With care, the Color Force 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 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.