

# Chroma-Q™

## Color Block 2™

User Manual



**Chroma-Q™**  
BRILLIANT SOLUTIONS

Version 1.1 September 2012

PN: 603-0500



## 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 12 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, willful 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 purchasers 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 A.C. Entertainment Technologies Ltd. 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. A.C. Entertainment Technologies Ltd. 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.

A.C. Entertainment Technologies Ltd. reserves the right to change or make alteration to devices and their functionality without notice due to our on going research and development.

The Chroma-Q™ Color Block 2™ system 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@ac-et.com](mailto:support@ac-et.com). If the selling dealer is unable to satisfy your servicing needs, please contact the following, for full factory service:

**Outside North America:**

A.C. Entertainment Technologies Ltd.  
Centauri House  
Hillbottom Road,  
High Wycombe,  
Buckinghamshire,  
HP12 4HQ.  
United Kingdom  
Tel: +44 (0)1494 446000  
Fax: +44 (0)1494 461024

**North America:**

A.C. Lighting Inc.  
Unit #1  
435 Horner Avenue,  
Toronto,  
ON.  
M8W 4W3  
Canada  
Tel: 416-255-9494  
Fax: 416-255-3514

For further information please visit the A.C. Entertainment Technologies website at [www.ac-et.com](http://www.ac-et.com).

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## 1. Product overview

### 1.1 Chroma-Q Color Block 2

Following the enormous success of the Chroma-Q Color Block™ LED fixture with rental companies and end users alike, the manufacturer has combined the product's core elements of modularity and versatility with new single color RGBA optics, 530 lumens output (almost double the original model) and theatrical grade dimming to create the exceptional feature set of the Color Block 2 fixture.

With its radically increased color palette and high CRI of 90, the Color Block 2 fixture is a master at creating vibrant bold colors and subtle theatrical hues. Combined with its built-in variable color temperature capability, even flesh tones look natural, satisfying all but the most critical eye.

The four large, camera-friendly LED cells offer performers less glare and mix beautifully for single color output, virtually eliminating the frustrating color separation shadows normally synonymous with LED lighting. The beam optics have a soft asymmetrical quality carefully crafted to give an immediate perfect color blend for uplighting surfaces, yet retain a soft Fresnel-like edge for direct illumination. At close to twice the output of its predecessor, the Color Block 2 fixture is bright enough to uplight a 6m / 20 foot set and then some.

Each Color Block 2 fixture features 48 high output LED set into 12 single optic RGBA clusters that are grouped into 4 cells which produce an intense, powerful light and vibrant colours across the spectrum.

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, and a dynamic Variable Effects Engine integrated in the software which gives the lighting designer full control over colour and effects combinations.

The product's lightweight yet robust, heavy gauge aluminium extruded construction houses a discreet cable management system and additional protection is built around the LED lenses for a truly road proof fixture.

A range of DMX controlled power supplies are available to accommodate most applications. Each Color Block Power Supply features XLR4 outputs with a maximum capacity of 5 Color Block 2 fixtures daisy chained together. See separate PSU user manual for control details.



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

## 1.2 Chroma-Q Color Block Power Supply Units

Two DMX controlled power supply models are available to accommodate most applications or operate independently as a standalone system. Each Color Block Power Supply features outputs via XLR4. The unit can be controlled remotely via ANSI E1.11 USITT DMX 512-A (XLR-5 pin).

The Color Block PSU-05B delivers power and data via 1 XLR4 output. A maximum of five daisy-chained Color Block 2 fixtures can be connected to the PSU-05B. Return lines are not required. The total cable length of each chain must not exceed 60m/200ft. Two in/out ethernet RJ45 connectors are available for synchronisation.



The Color Block PSU-30 delivers power and data via 6 XLR4 outputs. A maximum of five daisy-chained Color Block 2 fixtures can be connected to each XLR4 output. Return lines are not required. The total cable length of each chain must not exceed 60m/200ft. Two in/out ethernet RJ45 connectors are available for synchronisation.



## 2. Operation

### 2.1 Unpacking the units

The Color Block 2 package includes 1 unit Color Block 2 fixture and a Quick Start Guide. We recommend that you keep the original packaging in case item needs to be returned.

### 2.2 Cabling

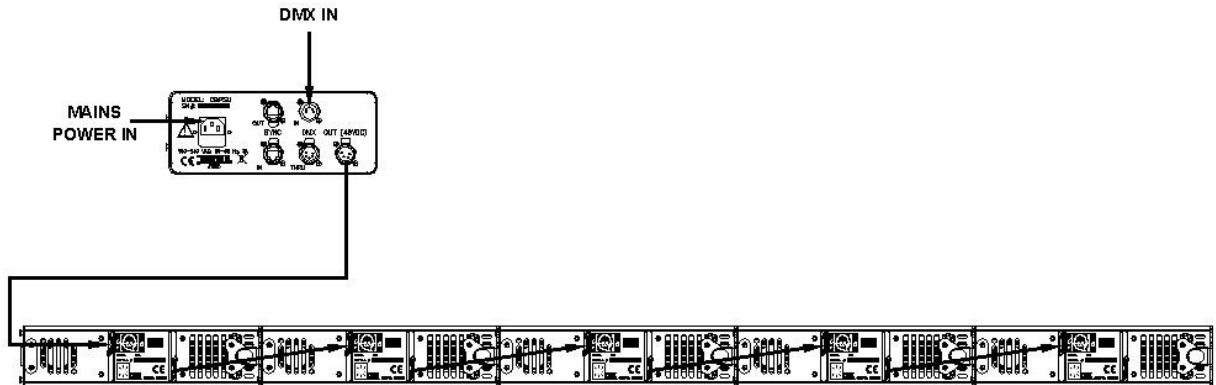
The Color Block 2 system utilises an XLR 4-pin cable system. This is used to supply power and control data. Pin 1 = 0VDC, pin 2 = control minus, pin 3 = control plus, pin 4 = +48VDC. The drain wire should be connected to the chassis of the XLR.

Pin #	Pin #	Minimum Cable size
1	Ground (-ve)	2.50mm <sup>2</sup> (14 AWG)
2	Control data minus (-)	0.35mm <sup>2</sup> (22 AWG)
3	Control data plus (+)	0.35mm <sup>2</sup> (22AWG)
4	24V DC (+ve)	2.50mm <sup>2</sup> (14 AWG)
Chassis	Cable shield/drain wire	0.25mm <sup>2</sup> (24 AWG)

Only genuine Tourflex Datasafe cable is recommended for use with the Color Block 2 system. Damage will occur if power connections short-circuit to data or ground shield connections. When assembling XLR4-pin cables, heat shrink should be used on each individual data pin and the drain wire to prevent short circuits.

The Color Block 2 power supplies deliver power and data via XLR4. A maximum of five daisy-chained Color Block 2 fixtures can be connected to one cable. Return lines are not required. The total cable length of each chain must not exceed 60 meters (200ft).

It is recommended that a maximum of 20m XLR4 cable length should separate adjacent units as to avoid signal deterioration.



**Note:** Maximum of 5 Color Block 2 fixtures per cable. No return cables required.

## 2.3 Fixings

One of the strengths of the Color Block 2 fixture is its flexible fixing possibilities. The Color Block 2 fixture is supplied with an integral M10 clinch nuts at each end. These can be used to attach the Color Block 2 fixture to a standard hook clamp or the wide range of Color Block accessories listed below.

**Note:** Damage may occur if the bolt is too long (M10x16 maximum). In addition, both sides of the fixture feature a fixing slot designed to accept an M6 bold head.

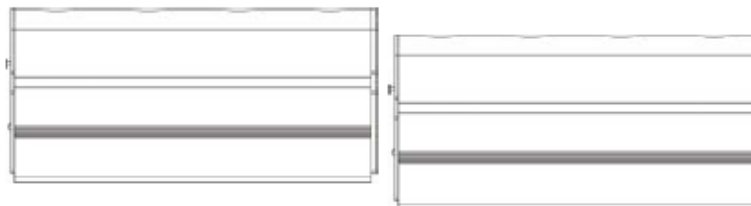
The Color Block 2 fixture also features an integral connection system to enable up to five units to be locked together as a batten (see below).

**Note:** it is important to ensure that each fixture is also secured with a safety bond. The end plate of each fixture has a fixing hold to facilitate secondary fixings.

### a. Integrated connection system

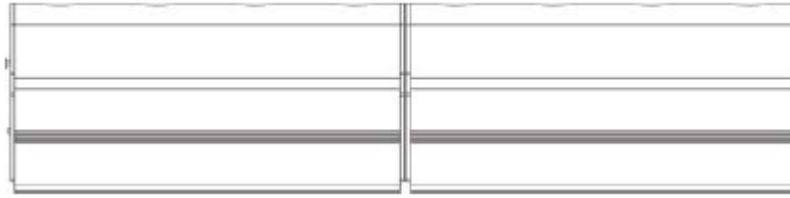
One end of the Color Block 2 fixture features two protruding locating pins and a catch plate, the other end has two keyhole slots and a butterfly latch.

1. To connect two fixtures together, firstly mate the two protruding pins from one fixture into the keyhole slots of the other.

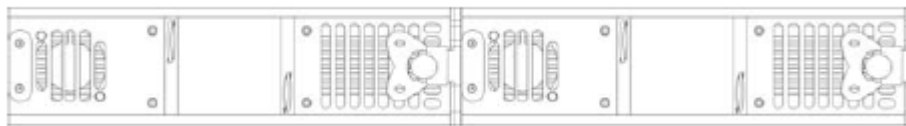


2. Then slide the fixtures together so that they are aligned correctly, taking care to get past the extended catch plate.

**Note:** This will be stiff on new fixtures and a twisting action may ease assembly.



3. Finally use the butterfly latch to secure the fixtures together tightly (max 5 units together).



**Note:** It is important to ensure adequate ventilation to the rear of all Color Block fixtures. Never place the fixtures directly on the floor pointing upwards when configured as a batten.



The Color Block 2 fixture is supplied with an integral M10 clinch nuts at each end. These can be used to attach the Color Block 2 fixture to a standard hook clamp.

**Note:** damage may occur if the bolt is too long. (M10x16 maximum)

#### b. Batten bracket kit for up to five fixtures

The batten bracket set is supplied as a pair of brackets with fibre washers and thumb wheels.

The batten bracket set can be used for floor mounting (see photo), direct wall mounting and truss mounting when used in conjunction with hook clamps or half couplers.





### c. Yoke kit for single fixture

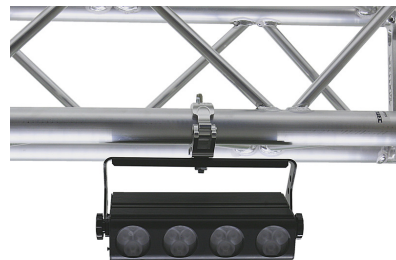
The yoke kit for single fixture is supplied as a yoke bracket with fibre washers and thumb wheels.

The yoke kit can be used for floor mounting (see photo), direct wall mounting and truss mounting when used in conjunction with hook clamps or half couplers.



### d. Dual mode yoke kit for single fixture

The dual mode yoke kit for single fixture is supplied with fibre washers and thumb wheels. The dual mode yoke combines the function of the single yoke and the batten bracket.



### e. Blinder frame for four fixtures

The blinder frame is supplied as a yoke bracket, side plates, fibre washers, thumb wheels and eight M10 bolts.

The blinder frame is designed to truss mount with the use of a half coupler.

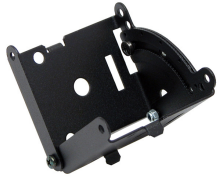
The end plates feature two complete sets of fixture fixing holes. Set one hold the fixtures closely together ensuring equal centres for all sixteen cells. Sets two are adjustable and allow the Color Block 2 fixtures to be splayed out at varying angles.



### f. Hinge kit

The hinge kit is supplied as one complete hinge with fibre washers and M10 bolts.

The hinge kit fits between two Color Block 2 fixtures and offers an angle adjustment of 180 deg. If used in multiples, unique shapes can be achieved, such as hexagons, octagons etc.



#### g. Wall bracket for single fixture

The Wall bracket for single fixture is a discreet fixing suitable for fixing a single Color Block 2 to a wall or set piece. Keyhole slots are provided to for vertical or horizontal fixing.



## 2.4 Control

The Chroma-Q Color Block 2 is controlled via two models of addressable ANSI E1.11 USITT DMX512-A power supply units, the 5 way Color Block PSU-05B and the 30 way Color Block PSU-30.

The Color Block power supply units can be set to operate in 16 modes by selecting “CB2” under “System” in the control menu. Single cell, block-grouped and all-grouped outputs are available in 5 control options: HSIFX, HSI, RGBA, RGB (with \*Magic Amber), RGBI (with \*Magic Amber), pre-programmed looks and standalone effects. See relevant power supply user manual for full details.

Color Block PSU-05B Power Supply			
Mode	Channel	Group	Description
1	67	Variable by Ch 1	7FX + 20 x HSI
2	60	Cell	20 x HSI
3	60	Cell	20 x RGB (with *Magic Amber)
4	21	Block	6FX + 5 x HSI
5	15	Block	5 x HSI
6	15	Block	5 x RGB (with *Magic Amber)
7	9	All	6FX + HS
8	3	All	HSI
9	3	All	RGB (with *Magic Amber)
10	80	Cell	20 x RGBA
11	80	Cell	20 x RGBI (with *Magic Amber)
12	20	Block	5 x RGBA
13	20	Block	5 x RGBI (with *Magic Amber)
14	4	All	RGBA
15	4	All	RGBI (with *Magic Amber)
16	1	Any	Look Select

Color Block PSU-30 Power Supply			
Mode	Channel	Group	Description
1	367	Variable by Ch 1	7FX + 120 x HSI
2	360	Cell	120 x HSI
3	360	Cell	120 x RGB (with *Magic Amber)
4	96	Block	6FX + 30 x HSI
5	90	Block	30 x HSI
6	90	Block	30 x RGB (with *Magic Amber)
7	9	All	6FX + HSI
8	3	All	HSI
9	3	All	RGB (with *Magic Amber)
10	480	Cell	120 x RGBA
11	480	Cell	120 x RGBI (with *Magic Amber)
12	120	Block	30 x RGBA
13	120	Block	30 x RGBI (with *Magic Amber)
14	4	All	RGBA
15	4	All	RGBI (with *Magic Amber)
16	1	Any	Look Select

### 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. Color is mixed by adjusting the levels of each of the four colors. White is achieved with all channels at full.

**Internal FX engine:** modes 1, 4, and 7 incorporate a comprehensive internal FX engine with seven variable parameters to create an unlimited amount of unique lighting effects.

Descriptions for the effects channels included in the following modes:

**Mode 1:**

- Ch1 – Grouping, variable grouping facility to run FX / within groups
- Ch2 – Colour Speed, variable speed of colour scrolling
- Ch3 – Colour Fan, variable fan of colour between / within groups
- Ch4 – Colour Range, variable limit of spectrum range for colour scrolling
- Ch5 – Colour Step, variable control of smoothness of colour scrolling
- Ch6 – Intensity Effects, wide selection of intensity fading and snapping effects
- Ch7 – Intensity Fan, variable fan of intensity effects

**Mode 4 and 7:**

- Ch1 – Colour Speed, variable speed of colour scrolling
- Ch2 – Colour Fan, variable fan of colour between / within groups
- Ch3 – Colour Range, variable limit of spectrum range for colour scrolling
- Ch4 – Colour Step, variable control of smoothness of colour scrolling
- Ch5 – Intensity Effects, wide selection of intensity fading and snapping effects
- Ch6 – Intensity Fan, variable fan of intensity effects

All internal FX are referenced back to the group base HSI colour and intensity levels.

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

### 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 advice 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.	PSU set to wrong or different DMX address. Bad cable connecting DMX control and PSU. Bad cable connecting PSU and the fixture. Bad in/thru connection between adjacent fixtures. Fan not working.	Check DMX address and Mode settings. Check/replace DMX run from the console. Check/replace cable from PSU to fixture or in/thru connections. Call selling dealer if fan is not working.
Intensity levels of LED are fluctuating.	Signal deterioration, cable lengths connecting adjacent fixtures are too long.	Check the cable length and configuration.
Fixture does not respond to DMX control but PSU and all cable connection are good.	Electronics fault in the fixture unit.	Call selling dealer.
Noise from fixture unit.	Fan malfunction.	Check fan and call selling dealer.

## 4. Specification

### 4.1 Technical specifications

Product Code:	CHCB4M2
Dimensions:	250mm x 62mm x 117mm 9.8" x 2.4" x 4.6"
Weight:	1.3kg / 2.8lbs
Power input rating:	48V DC
Control protocol:	ANSI E1.1 DMX-512A
Connector in/out:	XLR4
Maximum cable run:	60m / 200'
Cooling system:	1 x fan
Construction:	Anodised aluminium extrusion
Colour:	Black
LED cells:	4
LED per cell:	12 RGBA
Total LED:	48
Optics:	Specialised close focus lens
Beam angle:	25° (approx.)
Beam dispersion:	Symmetrical direct illumination
CCT:	Adjustable 1000 – 10000K
Lamp life:	L70 up to 50,000 hours
Operating temperature:	0°C to +40°C
IP rating:	IP20
Approvals:	EN55103-1, EN55103-2, IEC60950



## 4.2 Photometric Performance

Photometric data for colour white

	3'/1m	6'/2m	9'/3m	12'/4m	15'/5m
FC	182	49	23	14	8
Lux	1960	526	246	146	88

Photometric data for colour red

	3'/1m	6'/2m	9'/3m	12'/4m	15'/5m
FC	86	23	11	6	4
Lux	930	247	15	68	41

Photometric data for colour green

	3'/1m	6'/2m	9'/3m	12'/4m	15'/5m
FC	152	41	19	11	7
Lux	1637	438	203	117	76

Photometric data for colour blue

	3'/1m	6'/2m	9'/3m	12'/4m	15'/5m
FC	18	5	2	1	1
Lux	192	51	24	14	9

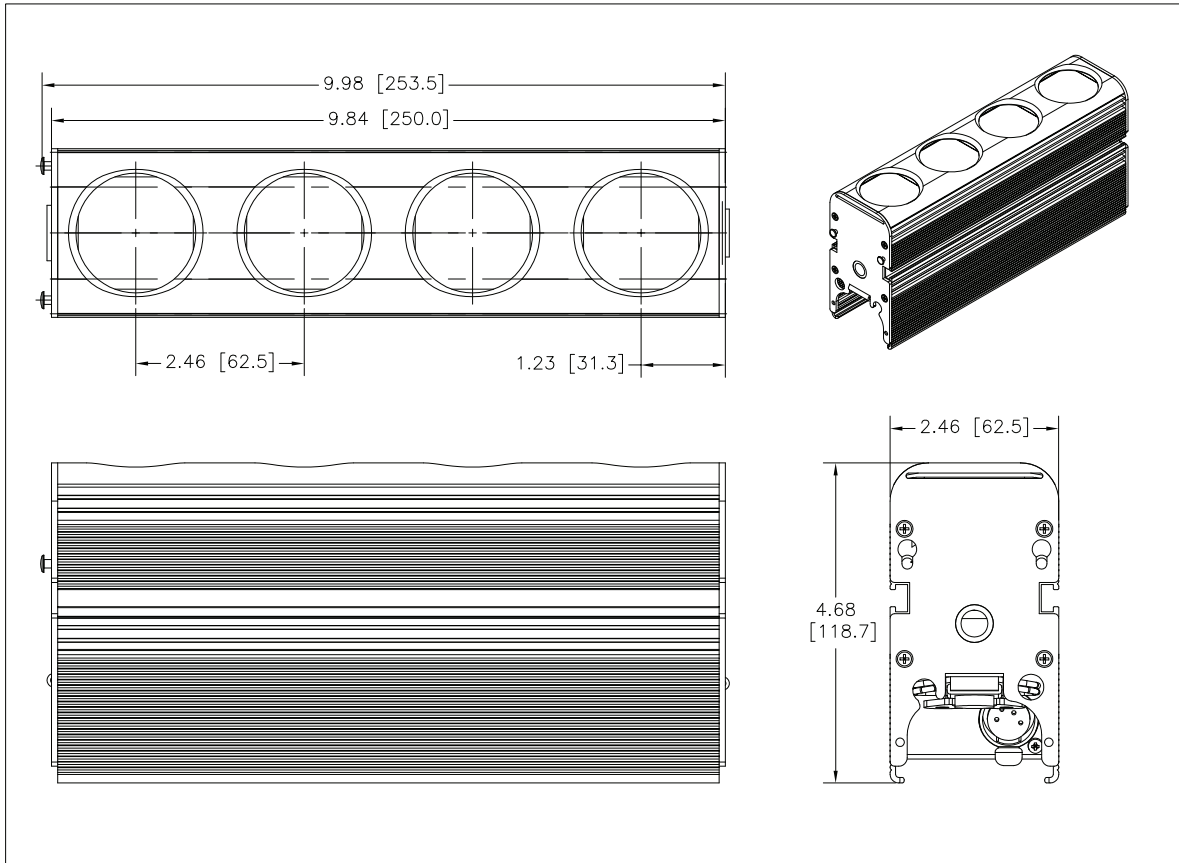
Photometric data for colour amber

	3'/1m	6'/2m	9'/3m	12'/4m	15'/5m
FC	88	24	10	7	4
Lux	952	253	110	72	41

Light Output

Color	White	Red	Green	Blue	Amber
Output	532	266	445	56	242

## 4.3 Drawings



## 5. Maintenance

With care, the Color Block 2 fixture 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.

## 6. Accessories

Model	Part No
Chroma-Q PSU for up to 5 Color Block units	CHCBPSU05
Chroma-Q PSU for up to 30 Color Block units	CHCBPSU30
Yoke kit for single Color Block	CHCBSY
Dual mode yoke kit for single Color Block	CHCBCY
Batten bracket kit for up to 5 Color Block units	CHCBBB
Blinder frame for 4 Color Block units	CHCBBF4
Hinge kit for Color Block	CHCBHP
Wall bracket for single Color Block	CHCBWB
LED pipe for Color Block 1.3m / 4' (5-way batten)	CHCBLP1300
LED pipe for Color Block 0.25m / 9.8" (single)	CHCBLP250
Single link cable for use in batten format	MUCX4SDP-0.22
Other cable lengths available ('x' is length in m)	MUCX4SDP-X

### LED Pipe



The LED pipe is available in 250mm and 1300mm lengths and simply snaps into the fixing slots on the fixture body. The LED pipe blends and diffuses the RGBA LED output of adjacent cells, taking the resulting colour. The LED pipe is particularly effective at linear colour chase effects.