

Chroma-Q™ Color Block™ PSU30

User Manual



Version 1.2 December 2006

PN: 602-0503

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 on going research and development.

The Color Block PSU30 has been designed specifically for the professional entertainment 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 is a trademark, for more information on this visit www.chroma-q.com/trademarks.

The rights and ownership of all trademarks are recognised.

Table of Contents

| | |
|-----------------------------------|----------|
| 1. Product Overview | 3 |
| 2. Operation | 3 |
| 2.1 Cabling | 3 |
| 2.2 Control | 5 |
| a. Control menu | 5 |
| b. DMX personality mode 1-3 | 7 |
| c. DMX personality mode 4-6 | 8 |
| d. DMX personality mode 7-9 | 9 |
| 2.3 Technical Information | 10 |
| a. Specification | 10 |
| b. Maintenance | 10 |
| c. Battery replacement | 10 |
| d. Installation | 11 |
| e. Wiring | 11 |

1. Product overview

The Color Block PSU-30 is a 2U 19" rack mounted power supply suitable for up to 30 Color Block DB4 LED fixtures. It can be controlled remotely via ANSI E1.11 USITT DMX 512-A in a variety of modes to accommodate most applications or can operate independently as a standalone system.



The Color Block PSU-30 delivers power and data via six XLR4 outputs. A maximum of five daisy-chained Color Block DB4 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.

Color Block DB4

For the purpose of clarification, the Color Block DB4 unit below is known as a Fixture. Each Fixture contains 4 Cells, with each Cell comprising of 3 LEDs.



2. Operation

- 2.1 Cabling
- 2.2 Control
 - a. Control menu
 - b. DMX personality mode 1-3
 - c. DMX personality mode 4-6
 - d. DMX personality mode 7-9
- 2.3 Technical information
 - a. Specifications
 - b. Maintenance
 - c. Battery replacement
 - d. Installation
 - e. Wiring

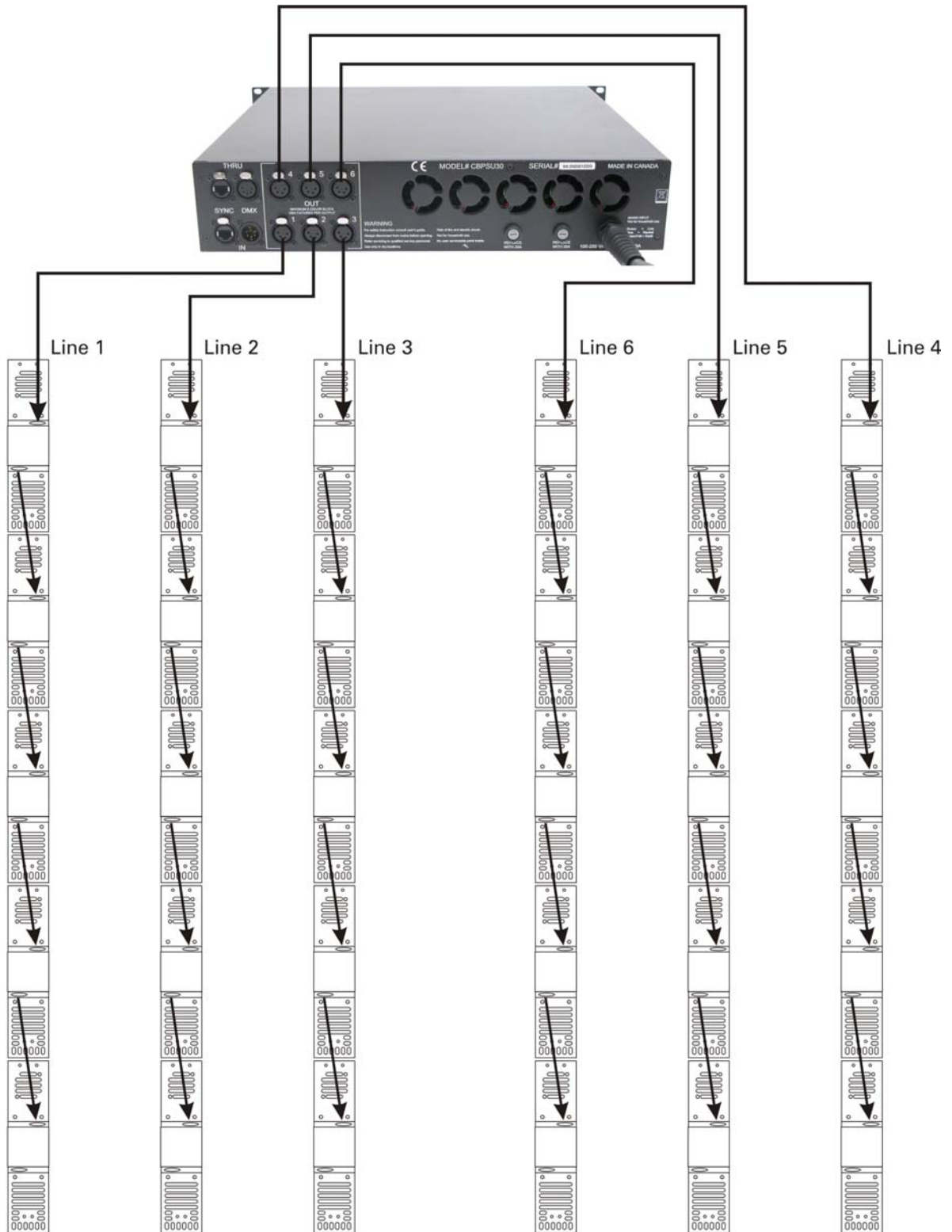
2.1 Cabling

The Color Block utilises an XLR4 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 chassis should be ground bonded.

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

A maximum of five daisy-chained Color Block DB4 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.

Note: Due to the higher levels of leakage current of the PSU-30 it is important that the XLR4 cables used are manufactured only to the specification detailed above. It is also important that the cables are not coupled or uncoupled whilst the PSU is powered and that the PSU is correctly grounded.



2.2 Control

The Color Block PSU-30 menu items are accessed via the LCD display and the following controls:

- Right hand button (red) = Enter (hold for 2 seconds to save)
- Left hand button (blue) = Exit without saving
- Wheel = Adjusts values or scrolls through menu items

The LCD screen shown to the right is currently at the **Home** position. The **Home** position displays; product name, current DMX Address, current Control Mode and Time.

If left unadjusted at a main menu position for 5 seconds the LCD screen will revert to the **Home** position.

The software version number is displayed on power-up.



a. Control menu

Use the wheel to scroll through the control menu positions:

- ➔ **Home / DMX Address**
To set the DMX start address of the PSU-30, press Enter, turn wheel to adjust DMX start address, press Enter for 2 seconds to save.
- ➔ **Control Mode**
The PSU-30 can be set to operate in various DMX controlled modes. We offer 3 grouping options (individual, block, all) with 3 control options on each (FX, HSI and RGB) see below for details. Press Enter, turn wheel to select control mode, press Enter for 2 seconds to save.
Mode 1 (367ch) - Individually grouped, 120 x HSI + FX
Mode 2 (360ch) - Individually grouped, 120 x HSI
Mode 3 (360ch) - Individually grouped, 120 x RGB
Mode 4 (96ch) - Block grouped, 30 x HSI + FX
Mode 5 (90ch) - Block grouped, 30 x HSI
Mode 6 (90ch) - Block grouped, 30 x RGB
Mode 7 (9ch) - All grouped, 1 x HSI + FX
Mode 8 (3ch) - All grouped, 1 x HSI
Mode 9 (3ch) - All grouped, 1 x RGB
- ➔ **When DMX is Lost**
If DMX is not detected various output options can be selected: Press Enter, turn wheel to selection, press Enter for 2 seconds to save.
Off - will snap to off
Hold - will hold last valid DMX state
Trig - will default to **Time Trigger** operation
Look 1-42 - will snap to the **Look** of your choice
- ➔ **Look Store**
The PSU-30 has 42 internal FX Looks for standalone operation, 1-9 are preset. To replay a Look, press Enter and scroll through the Looks.
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 menu 8 Reset is performed. There are two ways to record a look:

Simple, with DMX console.

Set the PSU-30 to Control Mode 1. Use a DMX console to adjust the internal FX

engine to create the desired effect. Scroll to Look Store and press Enter, scroll to desired Look and press Enter. Press Enter again for 2 seconds to save Look.

Advanced, standalone. Set the PSU-30 to Control Mode 1.

Scroll to Look Store and press Enter, scroll to 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. Scrolling the wheel will select the channel number. To edit the channel level, press Enter to toggle to the alternate number and use the scroll wheel 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.



Time Triggers

The PSU-30 has real time triggering of the internal Looks. Press Enter and scroll to desired Time Trigger and press Enter. Press Enter to toggle between Day, Hour (24), Minutes and Look to be triggered, adjusting the setting with the scroll wheel as desired. Press Enter for 2 seconds to save settings. By default Time Triggers will occur on all 7 days unless specified. The triggers will only be activated when the feature "When DMX is Lost" is set to Trig.



Set Day and Time

Press Enter. Press Enter to toggle between Day, Hour (24) and Minutes, adjusting the setting with the scroll wheel as desired. When the Day and Time is set correctly press Enter for 2 seconds to save settings.



Display Backlight (Displ. Backlight)

The LCD backlight 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 setting.



Reset to Default

Press Enter for 2 seconds to reset all menu items to factory defaults. Factory defaults are: DMX address = 001, Control Mode = 1 (367 channels HSI+FX), DMX Lost = Hold, Looks = default, Time Triggers deleted, Display = On. Sync FX = Master.



Sync Mode

In normal operation internally generated FX should stay synchronised between PSU-30's for approx 30 minutes. If better synchronisation is required a timing signal can be run via a RJ45 patch (not crossover) cable between PSU-30's. In order for this to work correctly one PSU-30 must be designated as the Master and all other must be set to Slave.

Press Enter and use the scroll wheel to select Master or Slave. Press Enter for 2 seconds to save setting.

b. DMX personality mode 1-3

| | In modes 1-3 each cell is a group | | |
|---------------------------|--|-----------------------------|-----------------------------|
| PSU-30 (v1.0) | Mode 1 (367ch) 120 x HSI + FX | Mode 2 (360ch) 120 x HSI | Mode 3 (360ch) 120 x RGB |
| Channel 1 | Grouping 0-100 Variable grouping range between 1-120 cells with FX running within the group. 102-206 variable grouping range between 1-120 cells with FX running between the groups. 209-255 Variable grouping range for every 2 nd to every 120 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. | 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. | Saturation for group 2 | Green for group 2 |
| Channel 6 | 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. | 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 and 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 120 | | |
| Total DMX channels | 367 DMX channels | 360 DMX channels | 360 DMX channels |

c. DMX personality mode 4-6

| | In modes 4-6 each Color Block DB4 fixture (4 cells) is a group | | |
|---------------------------|---|---------------------------|---------------------------|
| PSU-30 (v1.0) | Mode 4 (96ch) 30 x HSI + FX | Mode 5 (90ch) 30 x HSI | Mode 6 (90ch) 30 x RGB |
| Channel 1 | Colour Speed 0-255 Variable speed of colour scrolling. From static at 0 to maximum at 255. | Hue for group 1 | Red for group 1 |
| Channel 2 | Colour Fan 0-255 Variable fan of colour between groups. All units are the same colour at 0. | Saturation for group 1 | Green for group 1 |
| Channel 3 | Colour Range 0 Full spectrum 1-255 Variable limit of spectrum for colour scrolling. Single colour at 1, full spectrum at 255. | Intensity for group 1 | Blue for group 1 |
| Channel 4 | 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. | Hue for group 2 | Red for group 2 |
| Channel 5 | 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. | Saturation for group 2 | Green for group 2 |
| Channel 6 | 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. | Intensity for group 2 | Blue for group 2 |
| Channel 7 | Hue for group 1 | Hue for group 3 | Red for group 3 |
| Channel 8 | Saturation for group 1 | Saturation for group 3 | Green for group 3 |
| Channel 9 | Intensity for group 1 | Intensity for group 3 | Blue for group 3 |
| Channel 10 | Hue for group 2 | Hue for group 4 | Red for group 4 |
| Channel 11 | Saturation for group 2 | Saturation for group 4 | Green for group 4 |
| Channel 12 | Intensity for group 2 | Intensity for group 4 | Blue for group 4 |
| Channel 13 | Hue for group 3 | Hue for group 5 | Red for group 5 |
| | ...and so on up to group 30 | | |
| Total DMX Channels | 96 DMX channels | 90 DMX channels | 90 DMX channels |

d. DMX personality mode 7-9

| | In modes 7-9 all PSU-05 output is grouped as one | | |
|---------------------------|---|------------------------|-----------------------|
| PSU-30 (v1.0) | Mode 7 (9ch) HSI + FX | Mode 8 (3ch) HSI | Mode 9 (3ch) RGB |
| Channel 1 | Colour Speed 0-255 Variable speed of colour scrolling. From static at 0 to maximum at 255. | Hue for group 1 | Red for group 1 |
| Channel 2 | Colour Fan 0-255 Variable fan of colour within group. All units are the same colour at 0. | Saturation for group 1 | Green for group 1 |
| Channel 3 | Colour Range 0 Full spectrum 1-255 Variable limit of spectrum for colour scrolling. Single colour at 1, full spectrum at 255. | Intensity for group 1 | Blue for group 1 |
| Channel 4 | 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. | | |
| Channel 5 | 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 6 | Intensity Fan 0-255 Variable fan of intensity effect within group. All units at the same intensity at 0. Alternating units on and off at 255. | | |
| Channel 7 | Hue for group 1 | | |
| Channel 8 | Saturation for group 1 | | |
| Channel 9 | Intensity for group 1 | | |
| | | | |
| Total DMX Channels | 9 DMX channels | 3 DMX channels | 3 DMX channels |

2.3 Technical information

a. Specifications

| | |
|--------------------------|---|
| Product code: | CHCBPSU30 (max 30 DB4s) |
| Dimensions: | 483mm × 368mm × 89mm 19" × 14.5" × 3.5" |
| Weight: | 11.1kg / 24.5lbs |
| Working Voltage: | 100-240VAC 50/60Hz auto-switching |
| Power consumption: | 18A @120VAC; 9A @ 240VAC |
| Output connector in/out: | XLR4 |
| Sync: | Ethercon RJ45 in and through |
| Power connector: | Trailing lead |
| Control: | ANSI E1.11 USITT DMX 512-A |
| Body color: | Black power coated paint |
| IP Rating: | IP20 |
| Fuses: | Both live and neutral are fused 110V - 2 x 20A 1.25" ceramic 220V - 2 x 10A 1.25" ceramic |
| Cooling: | 5 x rear mounted fans, ventilation required front and rear |
| Operating temperature: | 0° C to + 40° C |
| Approvals: | EN55103-1, 55103-2, IEC60950 |

LICENSED BY



b. Maintenance

With care the Color Block PSU-30 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. In addition the internal battery will need to be replaced on a regular basis (see following section).

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

c. Battery replacement

The CR20/32 Lithium battery should last approximately 5 years from the date the battery was made – note that a 4 year life from date of product sale would not be unexpected when delivery and manufacturing times are allowed for.

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the battery manufacturer's instructions and local regulations.

d. Installation

The Color Block PSU-30 must be installed in a 2U rack mounted enclosure and be supported front and rear. Ensure adequate ventilation around the front and rear of the enclosure. Failure to allow adequate ventilation may result in premature failure of the unit.

e. Wiring

Power in, mains voltage

Europe

Live = brown, neutral = blue, earth = green / yellow

North America

Live = black, neutral = white, ground = green

OUT - XLR4

Used to supply power and control data to the Color Block DB4 fixtures. Pin 1 = 0VDC, pin 2 = control minus, pin 3 = control plus, pin 4 = +48VDC. The chassis should be ground bonded.

Note: Due to the higher levels of leakage current of the PSU-30 it is important that the XLR4 cables used are manufactured only to the specification detailed above. It is also important that the cables are not coupled or uncoupled whilst the PSU is powered and that the PSU is correctly grounded.

DMX - XLR5

Pin 1 = ground/shield, pin 2 = control minus, pin 3 = control plus, pins 4 and 5 are not used.

SYNC - RJ45

Used to synchronise the FX running on multiple PSU-30s. A straight wired RJ45 patch cable is suitable to connect units (not a crossover cable).

Note: The SYNC connector on the PSU-30 is not using Ethernet.