



C-200 TRACK C-200 SECURITY USER GUIDE

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MODEL# C-200T/C-200S

U.S. PATENT 6,016,038
OTHER PATENTS PENDING

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MAN-0007 Rev 01

GETTING STARTED

Congratulations on your purchase, not to mention your good taste. Welcome to a more colorful world brought to you by Color Kinetics and Chromacore™, our patent-pending technology that generates colored light and effects using a microprocessor to control red, green and blue LEDs. This guide contains important information not only on operating your new C-Series fixture, but also on using it safely. For your protection, please read it carefully before you embark on your colorful adventure. There are very few rules, but those that exist are there for your safety.

TALK THE TALK

For the most part, the language of Color Kinetics and Chromacore is oriented around three categories: Control, Effects, and Variations.

Control

“Control” refers to input; how the user chooses to control the C-Series in order to produce the desired Shows. The C-Series can operate via either of these control methods:

- Networked Control (externally directed) or
- Stand Alone Control (“on-board” or built-in)

You can set the C-Series to take external signal via either of the following methods of Networked Control:

- DMX512 Control
- PC Control

Effects (For Stand Alone operation only)

“Effects” refer to what type of output, or displays, are produced. With the C-Series you can select any of the following Effects in Stand Alone operation:

- Fixed Color
- Random Color
- Color Wash
- Fixed Color Strobe
- Cross Fade
- Variable Color Strobe

Variations (For Stand Alone operation only)

Once you have chosen the desired Effect, you can then choose different Variations which will further modify the Effect by adjusting factors such as:

- Color
- Saturation
- Speed
- Strobe Rate
- Brightness
- Cycle Direction

Not every Variation is available with every Effect. Each Effect has a unique combination of variables. But if you follow The Color Kinetics Easy Step Program you can start experimenting to your heart’s content:

1. Choose a method of Control.
2. If using Stand Alone Control, pick a desired Effect.

3. If using Stand Alone Control, customize the Effect within the existing range of Variations.

4. Sit back and enjoy the compliments—the C-Series isn’t the only thing with a brain!

IN THE BEGINNING

Setting Up Your New System

This section examines how to find your way around the C-200 Track and C-200 Security and how Chromacore tells them to “think.”

If you are using an external controller with the C-200 Track, the data signal must be sent to the Data Masseuse in order to be transmitted to the track. For power and data wiring instructions for the Data Masseuse and track power feed, see the separate Data Masseuse Wiring Guide sheet, included with Data Masseuse.

Lay of the Land

The following illustrations indicates the components of the Track C-Series and C-200 Security fixture.

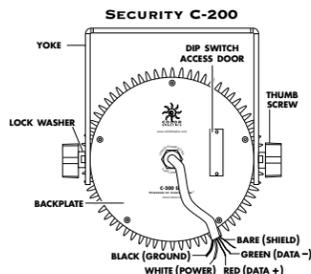
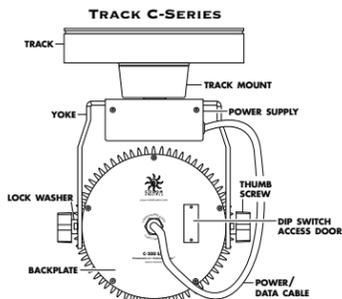


Fig. 3

Terminal	Wire Color
1	Black (Ground)
2	White (+24VDC)
3	Red (Data +)
4	Green (Data -)
5	Bare (Shield)

Each Professional Multi Output Power Supply has the ability to run twelve (12) C-Series units.

To power the C-200 Security fixture using the C-Series Universal Power Supply or Multi Output Power Supply, you will need a Power/Data Adapter, available from Color Kinetics. Connect the five color-coded wires at the end of the power/data cable to the Power/Data Adapter screw terminals in the order shown in Fig. 3. To connect the Power/Data Adapter to the power supply, insert the BNC connector into its mate and twist to lock it. The C-Series Universal Power Supply can power two (2) C-200 units.

Color Kinetics power supplies can accommodate 100–240VAC. The C-Series Universal Power Supply adjusts automatically if the voltage is within this range. Multi Output Power Supplies can be set for different input voltages by moving a switch. Users outside the United States may need to provide the appropriate adapters and/or power cords.

Color Kinetics power supplies require a 3-wire grounding plug for safety. DO NOT defeat the purpose of this safety precaution by cutting the grounding pin off the plug. If your outlet does not conform to the pin configuration, contact a licensed electrician to replace it with a properly grounded one.

Do the Dip

Your C-Series light fixture has been pre-programmed with an assortment of Shows. The back of each C-Series light holds the key to setting your colorful world. Control, Effects and Variations are all determined by setting the dip switches. To set the dip switches, you must first remove the access door by removing the two door retaining screws. We suggest you reposition dip switches with a blunt object such as a stylus or pen cap, not with a sharp object which may damage the units.

Note: In order to select or change the Control, Effects or Variations, you must disconnect the power to the C-Series unit, configure the dip switches according to the desired Show, and then re-power the unit. New Shows will not be displayed until the unit is re-powered.

THE WORLD ACCORDING TO COLOR KINETICS

If you look at nothing else in this guide, don’t miss Table One: Settings Table below. This table is the key to what each dip switch setting governs. You’ll see from this table that dip switches #10–12 determine the method of Control and the Effect. Dip switches #1–9 govern the Variations.

Control

Your C-Series can be set to either control itself or be controlled via an external source. If it controls itself (Stand Alone operation), it will repeat the same Show for as long as it is being powered. If externally controlled (Networked operation), it will run according to the data fed to it from the external controller.

• Networked Control

If you are using a DMX512 Controller or a PC to control the C-Series, you need to set each C-Series unit to Networked mode. If this is your method of Control, you can skip directly to the “Wired” section on the other side of this sheet.

• Stand Alone Control

If you’re using Stand Alone Control, proceed directly to the next section to choose the desired Effect.

Effects

Effects work in Stand Alone Control only. See the previous section on Control if you are externally directing the C-Series units from a

TABLE ONE: SETTINGS TABLE

SWITCH #	1	2	3	4	5	6	7	8	9	10	11	12
FIXED COLOR	Add levels of Red		Add levels of Green			Add levels of Blue			On	On	On	
COLOR WASH	Speed .5 sec - 2 hrs					Satura- tion	Bright- ness	Cycle Direction	On	On		
CROSS FADE	Ending Color red, green, blue, cyan, magenta, yellow, white, black		Starting Color red, green, blue, cyan, magenta, yellow, white, black		Speed from starting color to ending color and back again				On			
RANDOM COLOR	Speed .05 sec - 3 min			Satura- tion	Starting Color red, green, blue, cyan, magenta, yellow, white, black					On		
FIXED COLOR STROBE	Color red, green, blue, cyan, magenta, yellow, white, black				Strobe Rate 20/sec - 2/sec					On		
VARIABLE COLOR STROBE	Speed (color advance)			Cycle Direc- tion	Strobe Rate 20/sec - 2/sec				On		On	
PC-DMX	PC Address										On	
DMX512	DMX512 Address											

Fig. 2



Networked Controller.

There are six types of Effects possible in Stand Alone operation:

- Fixed Color
- Random Color
- Color Wash
- Fixed Color Strobe
- Cross Fade
- Variable Color Strobe

FIXED COLOR

Fixed Color allows the static display of any one of 512 possible colors. A Fixed Color Effect is generated by blending the primary colors of red, green and blue.

To select Fixed Color, first set the switches for the Fixed Color Effect (Note: ON is the UP position).

CHOOSE THE EFFECT: FIXED COLOR
Switches #10, 11 and 12: ON



CHOOSE THE VARIATION: FIXED COLOR

The Variation on Fixed Color is choosing one of 512 discrete colors.

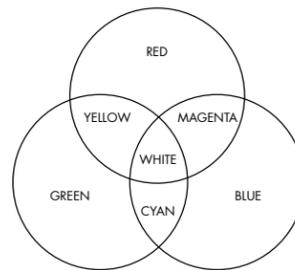
• Discrete Color

Switches #1–3 control hues of red. Switches #4–6 control hues of green. Switches #7–9 control hues of blue. To illustrate the principles behind the dip switch configurations let’s look at blue (display of reds and greens follow similar principles). In general, the fewer switches in the ON position, the lighter the shade of color which is displayed. So, to get a very light “sky blue”, turn ON only switch #7. The next hue would be switch #8 only and so on.

SWITCH#	7	8	9
0	No blue		
1	Lightest blue	■	
2	A little more	■	■
3	A bit more	■	■
4	Still more	■	■
5	Even more	■	■
6	More intense	■	■
7	Most intense	■	■

(Note: Throughout this guide, this symbol ■ indicates the switch should be ON.)

With additive color mixing (thanks to Chromacore technology’s ability to think), you can mix reds, greens and blues to produce secondary colors. The following illustration shows how secondary colors are produced:



In other words, if you want:

Desired Color

- Red
- Blue
- Green
- Yellow
- Magenta
- Cyan
- White

Mix

- Red
- Blue
- Green
- Green, Red
- Blue, Red
- Green, Blue
- Red, Green, Blue

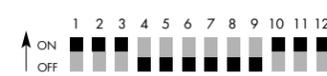
(Remember additive color mixing!)

Let’s look at one more example before we move on to the next Effect. If you’d like to produce purple (or “magenta”) hues, you’ll need to mix red (switches #1–3) and blue (switches #7–9). That means that switches #4–6 (the greens) should remain in the OFF position.

SWITCH#	1	2	3	7	8	9
0	No magenta					
1	Lightest	■				
2	A little more	■	■			
3	A bit more	■	■			
4	Still more	■	■			
5	Even more	■	■			
6	More intense	■	■			
7	Most intense	■	■			

SAMPLE FIXED COLOR EFFECT

Full Intensity Red

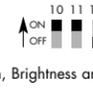


COLOR WASH

The Color Wash Effect moves sequentially around the spectrum of colors in either clockwise (ROYGBIV) or counterclockwise (VIBGYOR) direction, repeating the same cycle over and over, at user-definable speeds. The Color Wash differs from Random Color which has no distinct or sequential pattern of color generation.

To select Color Wash, first set the switches for the Color Wash Effect (remember that ON is the UP position).

CHOOSE THE EFFECT: COLOR WASH
Switches #10 and 11: ON Switch #12: OFF



CHOOSE THE VARIATION: COLOR WASH

The Color Wash can be varied by Speed, Saturation, Brightness and Cycle Direction.

• Speed

In Color Wash, speed is defined as the amount of time which elapses between the initial display of the Starting Color in Cycle One (red in ROYGBIV, or violet in VIBGYOR), and its next display which begins Cycle Two. There are 64 different speeds which can be set in the Color Wash Effect, ranging from as fast as .5 seconds to as long as 2 hours to complete a single cycle. Switches #1–6 control the speed options. For the fastest speed (.5 sec.), all switches between #1–6 are OFF. For the slowest speed (2 hrs.), all switches between #1–6 are ON. Table 2: Color Wash Speed below illustrates the available options, switch settings and their binary equivalents.

TABLE TWO: COLOR WASH SPEED

SWITCH#	1	2	3	4	5	6
0	0.5 sec					
1	0.6 sec	■				
2	0.7 sec	■	■			
3	0.8 sec	■	■	■		
4	0.9 sec	■	■	■	■	
5	1.1 sec	■	■	■	■	■
6	1.2 sec	■	■	■	■	■
7	1.4 sec	■	■	■	■	■
8	1.6 sec	■	■	■	■	■
9	1.9 sec	■	■	■	■	■
10	2.2 sec	■	■	■	■	■
11	2.5 sec	■	■	■	■	■
12	2.9 sec	■	■	■	■	■
13	3.3 sec	■	■	■	■	■
14	3.8 sec	■	■	■	■	■
15	4.4 sec	■	■	■	■	■
16	5 sec					■
17	5.8 sec	■				■
18	6.7 sec	■	■			■
19	7.7 sec	■	■	■		■
20	8.8 sec	■	■	■	■	■
21	10.2 sec	■	■	■	■	■
22	11.7 sec	■	■	■	■	■
23	13.4 sec	■	■	■	■	■
24	15.4 sec	■	■	■	■	■
25	18 sec	■	■	■	■	■
26	20 sec	■	■	■	■	■
27	24 sec	■	■	■	■	■
28	27 sec	■	■	■	■	■
29	30 sec	■	■	■	■	■
30	35 sec	■	■	■	■	■
31	40 sec	■	■	■	■	■
32	45 sec	■	■	■	■	■
33	50 sec	■	■	■	■	■
34	1 min	■	■	■	■	■
35	1.1 min	■	■	■	■	■
36	1.3 min	■	■	■	■	■
37	1.5 min	■	■	■	■	■
38	1.8 min	■	■	■	■	■
39	2 min	■	■	■	■	■
40	2.3 min	■	■	■	■	■
41	2.7 min	■	■	■	■	■
42	3 min	■	■	■	■	■
43	3.5 min	■	■	■	■	■
44	4 min	■	■	■	■	■
45	4.5 min	■	■	■	■	■
46	5 min	■	■	■	■	■
47	5.5 min	■	■	■	■	■
48	6 min	■	■	■	■	■
49	6.5 min	■	■	■	■	■
50	7 min	■	■	■	■	■
51	8 min	■	■	■	■	■
52	9 min	■	■	■	■	■
53	10 min	■	■	■	■	■
54	12 min	■	■	■	■	■
55	15 min	■	■	■	■	■
56	20 min	■	■	■	■	■
57	25 min	■	■	■	■	■
58	30 min	■	■	■	■	■
59	40 min	■	■	■	■	■
60	50 min	■	■	■	■	■
61	1 hr	■	■	■	■	■
62	1.5 hrs	■	■	■	■	■
63	2 hrs	■	■	■	■	■

• Saturation

In the Color Wash Effect, you can vary the saturation by choosing light saturation (pastels) or full saturation. Switch #7 controls saturation. For light saturation, set switch #7 OFF. Full saturation is achieved by setting switch #7 ON.

• Brightness

In the Color Wash Effect, switch #8 controls the level of brightness. The brightness, or intensity, of the light can be set to either half intensity or full intensity. For half intensity, set switch #8 OFF. For full intensity, set switch #8 ON.

• Cycle Direction

The direction of the sequential flow of colors can be controlled in the Color Wash Effect through switch #9. When switch #9 is OFF, the

A GLOSSARY OF TERMS

BRIGHTNESS: aka [that’s detective talk for also known as] “intensity” or “luminance” of light. A measure of the rate of flow of light energy (luminous flux) per unit area leaving a surface in a particular direction. (For the purpose of this guide, a lower level of Brightness has nothing to do with being intellectually challenged.)

COLOR: Color specification can be described in many ways, but in general three qualities describe color: brightness (the intensity of the color), hue (the wavelength which determines how similar it is to one or a combination of the perceived colors red, yellow, green or blue), and saturation (the amount of white light mixed in). We can see approximately 200 hues with the naked eye. The other colors we can identify are due to variations in brightness and saturation.

COLOR WASH: A Color Wash Effect moves sequentially around the spectrum of colors in either clockwise (ROYGBIV) or counterclockwise (VIBGYOR) Cycle Direction at user definable speeds. Color Wash differs from the Random Color Effect which has no distinct or sequential pattern of color generation.

CROSS FADE: Cross Fade Effects slowly increase the intensity of one color of light while simultaneously reducing the intensity of another color. A Cross Fade Effect differs from a Color Wash Effect in that a Cross Fade alternates between only two colors while the Wash cycles through the color spectrum. In Cross Fades, users will select a Starting Color and an Ending Color (don’t choose the same color!) and then select the desired Speed to go from the first to the second and back again.

CYCLE DIRECTION: The sequence in which colors move through the spectrum. The sequence can be in either clockwise (ROYGBIV) or counterclockwise (VIBGYOR) direction.

DMX AND DMX512: DMX is a shortened form of “digital multiplex.” It describes a standard method of data transmission that makes possible the interconnection of lighting control equipment by different manufacturers. The DMX512 protocol was developed in 1986 by a committee of the USITT (United States Institute for Theater Technology) to provide a standard interface with which to control dimmers from lighting consoles. In DMX512, each data link supports up to 512 dimmers (hence the name and number – clever, no?).

DIP SWITCH: Dip switches are tiny binary devices located on the back of each C-Series lighting fixture in banks of 12, signaling either ON or OFF. With a single dip switch there are two possible combinations or settings; with two

dip switches there are 2² or 4 possible settings, and so on. With nine switches, a total of 512 (remember DMX512), or 2⁹, combinations are possible. Color Kinetics products use a “base zero” address where a given setting is determined by the sum of the value of the switches in the ON (or “up”) position, plus one.

ENDING COLOR: This Variation allows the user to define the Ending Color of the Cross Fade Effect. For instance, if a Cross Fade goes from red to blue, the Starting Color Variation would be set to red and the Ending Color would be set to blue.

FIXED COLOR: [aka, Constant Color] The Fixed Color Effect allows the static display of any ONE of 512 possible colors. Fixed Color is generated by blending (or independently displaying) any of the primary colors (red: 8 shades of red, green: 8 shades of green, and blue: 8 shades of blue). White light will be produced when all colors (red, green and blue) are added together (remember additive color mixing, where all colors combine to white!).

LED: [Light Emitting Diode] The source of light used by the Color Kinetics™ C-Series and the secret to its ultra-long source life, LEDs have a predicted source life rated at 100,000 hours under normal operating conditions – that’s 11.4 years of continuous use! An LED is a p-n junction, solid-state diode that emits light through the combination of specially prepared high purity semiconductor material and two additives. One additive produces negatively charged output (excess electrons) and the other produces positively charged material (a shortage of electrons, or holes, which act as positive charges). Please forgive this foray into tech-speak, we had to use it somewhere in the manual.

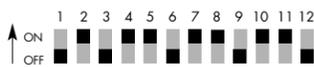
NETWORKED: Refers to a method of control. Networked control utilizes the C-Series data interface parts for external direction of the units. Information is perceived from an external source such as a DMX512 controller or PC instead of from the on-board microprocessor.

direction of the flow of colors is clockwise from red to violet (ROYGBIV). When switch #9 is ON, the direction of the flow of colors is counterclockwise from violet to red (VIBGYOR).

AUTOMATIC TRICK OF THE TRADE: YOU CAN ACHIEVE A UNIQUE CONVERGING DISPLAY WHEN TWO C-SERIES UNITS ARE SET TO THE SAME SPEED BUT DIFFERENT CYCLE DIRECTIONS, ONE GOING CLOCKWISE, THE OTHER COUNTERCLOCKWISE.

SAMPLE COLOR WASH EFFECT

Speed of 20 seconds, Full Saturation, Full Brightness, Clockwise Direction (ROYGBIV)



CROSS FADE

The Cross Fade allows you to set the C-Series to smoothly move from one color to another. The Cross Fade differs from a Color Wash in that it alternates between only two colors while the Color Wash cycles through the entire spectrum of colors. The Cross Fade slowly increases the intensity of one color of light while simultaneously reducing the intensity of another color. For example, a Cross Fade set to begin with red and end in blue will first display a fully intense red, then mix in a bit of blue (producing pinkish hues), then mix more blue (to produce magenta hues), then display fully intense blue, and reverse the process (magenta, pink, red) before beginning the next cycle (red-pink-magenta-blue-magenta-pink-red).

CHOOSE THE EFFECT: CROSS FADE

Switch #11: ON Switches #10 and 12: OFF



CHOOSE THE VARIATION: CROSS FADE

The Cross Fade can be varied by choosing one of eight Starting Colors and one of eight Ending Colors at one of eight different Speeds.

Starting Color

In the Cross Fade Effect, switches #4-6 govern which color begins the fade. Choose one of the following eight colors: black, red, green, yellow, blue, magenta, cyan or white.

STARTING COLOR	SWITCH#	4	5	6
0	Black			
1	Red	■		
2	Green		■	
3	Yellow	■	■	
4	Blue			■
5	Magenta	■		■
6	Cyan		■	■
7	White	■	■	■

Ending Color

In the Cross Fade Effect, switches #1-3 govern which color to fade to before it reverses back to the Starting Color. Choose one of the following eight colors: black, red, green, magenta, blue, yellow, cyan or white.

ENDING COLOR	SWITCH#	1	2	3
0	Black			
1	Red	■		
2	Green		■	
3	Yellow	■	■	
4	Blue			■
5	Magenta	■		■
6	Cyan		■	■
7	White	■	■	■

AUTOMATIC TRICK OF THE TRADE: SINGLE COLOR FADE. TO SET A C-SERIES UNIT TO A SINGLE COLOR (NO SATURATION/DARKNESS TO FULL SATURATION), SET THE STARTING COLOR TO BLACK. IF YOU WANT TO GO FROM WHITE LIGHT THROUGH PASTEL SHADES TO FULL SATURATION, SET YOUR STARTING COLOR TO WHITE.

Do not set your Starting Color and Ending Color to the same color. If you want a static color display, choose the Fixed Color Effect.

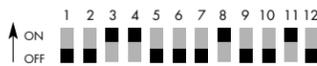
Speed

In Cross Fade, speed is defined as the amount of time which elapses between the initial display of the Starting Color to the Ending Color and back again. There are eight different speeds which can be set for the Cross Fade Effect, ranging from as fast as 5 seconds for the round trip to as long as 1 hour to complete the round trip. Switches #7-9 control the speed options. For the slowest speed (1 hr.), all switches between #7-9 are OFF. The table below illustrates all available speed options and their binary equivalents:

SPEED	SWITCH#	7	8	9
0	5 sec			
1	10 sec	■		
2	30 sec		■	
3	1 min	■	■	
4	2 min			■
5	15 min	■		■
6	30 min		■	■
7	1 hr	■	■	■

SAMPLE CROSS FADE EFFECT

Start at Red, Fade to Blue, Speed of 30 seconds round trip



RANDOM COLOR

Random Color or "step" produces a randomly generated set of colors at user definable speeds. Colors step in discrete increments from one hue to the next. This differs from a Color Wash which sequentially and more gradually moves through the color spectrum.

CHOOSE THE EFFECT: RANDOM COLOR

Switches #10 and 11: OFF Switch #12: ON



CHOOSE THE VARIATION: RANDOM COLOR

The Random Color Effect can be varied by Speed, Saturation and Starting Color.

Speed

In Random Color, speed is defined as the amount of time a single color is displayed before it "jumps" to the next color. There are 32 different speeds which can be set for the Random Color Effect, ranging from as fast as .05 seconds to as long as 3 minutes before jumping to the next color. Switches #1-5 control speed. For the fastest speed (.05 sec.), all switches between #1-5 are OFF. For the slowest speed (3 min.), all switches between #1-5 are ON. Table 3: Random Color Speed below illustrates the available options, switch settings and their binary equivalents.

TABLE THREE: RANDOM COLOR SPEED

SWITCH#	1	2	3	4	5
0	0.05 sec				
1	0.06 sec	■			
2	0.08 sec		■		
3	0.12 sec	■		■	
4	0.15 sec				■
5	0.21 sec	■		■	
6	0.25 sec	■	■	■	
7	0.3 sec	■			■
8	0.4 sec				■
9	0.5 sec	■			■
10	0.75 sec		■	■	■
11	1 sec	■			■
12	1.2 sec		■		■
13	1.5 sec	■		■	
14	2 sec		■		■
15	2.5 sec	■	■	■	
16	3.5 sec				■
17	4.5 sec	■			■
18	5 sec		■		■
19	7.5 sec	■	■	■	
20	10 sec				■
21	12 sec	■			■
22	15 sec		■		■
23	20 sec	■		■	
24	25 sec				■
25	30 sec	■			■
26	45 sec		■		■
27	1 min	■			■
28	1.5 min			■	■
29	2 min	■			■
30	2.5 min		■		■
31	3 min	■	■	■	■

Saturation

In the Random Color Effect, you can vary the saturation by choosing light saturation (pastels) or full saturation. Switch #6 controls the amount of saturation. For light saturation, set switch #6 OFF. Full saturation is achieved by setting switch #6 ON.

Starting Color

You can choose from one of eight different starting colors in the Random Color Effect. From these eight different starting points it will cycle through a set of 128 colors which step in discrete increments of at least 25% of the color spectrum so no two colors in a row will have similar values. Switches #7-9 govern the Starting Color. The table below illustrates all available options and their binary equivalents:

STARTING COLOR	SWITCH#	7	8	9
0	starting color 1			
1	starting color 2	■		
2	starting color 3		■	
3	starting color 4	■	■	
4	starting color 5			■
5	starting color 6	■		■
6	starting color 7		■	■
7	starting color 8	■	■	■

AUTOMATIC TRICK OF THE TRADE: FOR AN ASYNCHRONOUS DISPLAY OF COLORS IN C-SERIES UNITS, SET THE UNITS TO THE SAME SPEED BUT DIFFERENT STARTING COLORS.

SAMPLE RANDOM COLOR EFFECT

Speed of every 2 seconds, Fully Saturated, Starting with Color 1



If a second C-Series is set to the same settings as the preceding example except for Starting Color, each would change colors at the same rate but not follow the same color display.

FIXED COLOR STROBE

Strobes are a "stop action," or rapid series of very short intense light flashes which can make actions seem intermittent. In the Fixed Color Strobe Effect, the same color is strobed at each flash.

CHOOSE THE EFFECT: FIXED COLOR STROBE

Switch #11: ON Switches #10 and 12: OFF



CHOOSE THE VARIATION: FIXED COLOR STROBE

The Fixed Strobe Effect can be varied by Color and Strobe Rate.

Color

In the Fixed Color Strobe Effect, switches #1-3 AND #4-6 govern which single color will be displayed during the flash. Choose one of the following eight colors: black, red, green, yellow, blue, magenta, cyan, or white. (User contest: if you find a good use for a black strobe, let us know!) Both switches #1-3 AND #4-6 must be configured in exactly the same way. The following table illustrates the available colors and their settings:

SWITCH#	1	2	3	4	5	6
0	Black					
1	Red	■			■	
2	Green		■			■
3	Yellow	■		■		
4	Blue					■
5	Magenta	■		■		■
6	Cyan		■		■	■
7	White	■	■	■	■	■

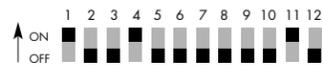
Strobe Rate

In the Fixed Color Strobe Effect, switches #7-9 govern the strobe rate which can be set from as fast as 20 flashes per second to as slow as 2 flashes per second. For the fastest speed (20/sec.), all switches between #7-9 are OFF. For the slowest speed (2/sec), all switches between #7-9 are ON. The table below illustrates all available options and their binary equivalents:

SWITCH#	7	8	9	
0	20/sec			
1	13/sec	■		
2	10/sec		■	
3	7.5/sec	■	■	
4	5/sec			■
5	4/sec	■		■
6	3/sec		■	■
7	2/sec	■	■	■

SAMPLE FIXED COLOR STROBE EFFECT

Strobing Red at a rate of 20 flashes/second



VARIABLE COLOR STROBE

Strobes are a "stop motion," or rapid series of very short intense light flashes which can make actions seem intermittent. The Variable Color Strobe Effect cycles through a sequence of colors, generating strobes of different colors.

TABLE FOUR: VARIABLE STROBE SPEED

SWITCH#	1	2	3	4	5
0	0.07%				
1	0.13%	■			
2	0.20%		■		
3	0.26%	■		■	
4	0.33%				■
5	0.39%	■		■	
6	0.46%		■		■
7	0.52%	■	■	■	
8	0.65%				■
9	0.78%	■			■
10	1.00%		■		■
11	1.20%	■			■
12	1.40%			■	■
13	1.60%	■			■
14	2.00%		■		■
15	2.30%	■	■	■	
16	2.90%				■
17	3.60%	■			■
18	4.20%	■	■	■	
19	4.90%				■
20	5.90%	■		■	■
21	7.20%		■		■
22	8.50%	■	■	■	■
23	10%				■
24	12%	■			■
25	15%		■		■
26	18%	■			■
27	22%			■	■
28	26%	■			■
29	33%		■		■
30	38%	■	■	■	■
31	49.9%	■	■	■	■

CHOOSE THE EFFECT: VARIABLE COLOR STROBE

Switches #10 and 12: ON Switch #11: OFF



CHOOSE THE VARIATION: VARIABLE COLOR STROBE

The Variable Color Strobe Effect can be varied by Speed, Cycle Direction and Strobe Rate.

Speed

In the Variable Color Strobe Effect, switches #1-5 govern the pattern of colors displayed during the flash of the strobe. The pattern of colors displayed depends on how fast the colors are advancing through the spectrum. This advance is measured as a percentage around the spectrum. At the lower speeds, each strobe will flash sequential colors since it is slowly advancing through the spectrum. Faster speeds will flash colors further apart in the spectrum, with the fastest speed flashing complementary colors. (See Table 4: Variable Strobe Speed)

Cycle Direction

The direction of the flow of colors can be controlled in the Variable Color Strobe through switch #6. When switch #6 is OFF, the direction of the flow of colors is clockwise from red to violet (ROYGBIV). When switch #6 is ON, the direction the flow of colors is counterclockwise from violet to red (VIBGYOR).

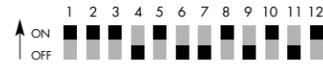
Strobe Rate

In the Variable Color Strobe Effect, switches #7-9 govern the strobe rate which can be set from as fast as 20 flashes per second to as slow as 2 flashes per second. For the fastest speed (20/sec.), all switches between #7-9 are OFF. For the slowest speed (2/sec), all switches between #7-9 are ON. The following table illustrates all available options and their binary equivalents:

SWITCH#	7	8	9	
0	20/sec			
1	13/sec	■		
2	10/sec		■	
3	7.5/sec	■	■	
4	5/sec			■
5	4/sec	■		■
6	3/sec		■	■
7	2/sec	■	■	■

SAMPLE VARIABLE COLOR STROBE EFFECT

Speed of 10% advance*, Clockwise Direction, Strobe Rate of 10/sec



* this speed will display advancing complementary colors.

WIRED

The C-200 Track and C-200 Security can be operated via either Stand Alone or Networked Control. Networked Control will allow you to utilize either a DMX512 Controller or a PC to operate any connected units. If you are using an external control source such as a PC or DMX512 board, you must set the dip switches to receive external data. Also, the data signal must be sent to the Data Masseuse when using the C-200 Track.

PC

To make the C-Series units take external direction from a PC, set switch #10 to ON and switches #11 and 12 to OFF.



DMX512

To make the C-Series units take external direction from a DMX512 controller, switches #10, 11 and 12 should be in the OFF position.

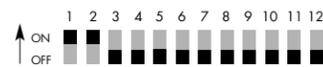


PC control operates at 115,200 baud while DMX512 operates at 250,000 baud. C-Series use a base zero system to set the channel address. Switches #1-9 set the starting channel address. Switch #9 is the most significant bit and controls the highest binary digit (256). The C-Series requires three channels corresponding to red, green and blue channels. For example, DMX address #1 corresponds to all switches off.

- DMX Address #1 [binary #0]

When set to DMX address #1, the unit's red channel corresponds to DMX address #1 while the green and blue channels correspond to DMX address #2 and DMX address #3 respectively. The next unit would have a DMX address of #4 and would respond to channels #4, #5 and #6. Subsequent units would be addressed at #7, #11, #14 and further units of three.

- DMX ADDRESS #4 (binary #3)



Connections

Refer to the Recommended Practice for DMX512 guide for additional wiring configuration guidelines. This guide is available from PLASA and USITT.

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USITT Inc.

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USA
Tel 800 93 USITT
(800 938 7488)
Fax 315 463 6525
www.ffa.ucalgary.ca/usitt

C-200 TRACK/ C-200 SECURITY SPECIFICATIONS

COLOR RANGE	16.7 million (24bit) additive RGB colors; continuously variable intensity output range	
SOURCE	Variable intensity colored LEDs	
BEAM ANGLE	22°	
DATA INTERFACE	DMX512 (RS485) compatible; serial port compatible with Smart Jack Adapter	
CONTROL	Stand Alone or DMX512 (RS485)	
PACKAGING	Black anodized aluminum housing	
POWER REQUIREMENT	975 mA@24VDC (24w)	
LISTINGS	UL	
OPERATING TEMP. RANGE:	-20°C(4°F) to +40°C(+104°F)	
WEIGHT	3lbs. 5oz. (1.5kg)	2lbs. 12oz. (1.2kg)
DATA	Input via Data Masseuse	Integrated power/data input cable
POWER CONNECTOR	Input via Track Mount	10' unterminated pigtail
DIMENSIONS	TOP OF YOKE TO CENTER OF FIXTURE	
	5.3" (1135 mm)	5.0" (127mm)
DIAMETER	5.9" (150 mm)	5.9" (150 mm)
DEPTH	4.1" (104 mm)	4.1" (104 mm)
TOP OF YOKE TO BOTTOM OF FIXTURE	8.9" (226 mm)	8.2" (208 mm)
THUMB SCREW TO THUMB SCREW		