



Flash Track Lighting

The Chase Light Controller Experts

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8 Track Smart Chaser Product Manual (8TSC-18)

Table of Contents

Part 1: General Info about This Product

1. About the 8 Track Smart Chaser and our Services (p2)

- a. About the 8 Track Smart Chaser
- b. Standard Features Included with the 8 Track Smart Chaser
- c. Services Automatically Included with all Purchases from Flash Track Lighting

2. Chase Light Controller Basics (p3)

- a. What is a chase light controller?
- b. Terms and Definitions: Patterns, Sequences, Settings, Modes, and Tracks
- c. What makes this chase light controller a “smart chaser”?

3. Help Choosing the Right Controller for Your Display (p4)

- a. What the 8 Track Smart Chaser Can Do
- b. What the 8 Track Smart Chaser Cannot Do
- c. Call or Email Flash Track Lighting for Help

4. Descriptions of the Sequence Patterns Already Pre-Programmed on the 8 Track Smart Chaser (p 5-8)

- a. A Copy of the Sequence Label that shows each available pattern and the # of tracks it is available in
- b. A Written Description of the effect that each available pattern creates
- c. See www.FlashTrackLighting.com for animated examples of each pattern

Part 2: Directions for Using This Product

5. Parts of the 8 Track Smart Chaser (p9)

- a. Front View (Speed Pot, Hanging Brackets, 3-Prong Plug)
- b. Inside View (Dip Switch to Select Pattern, 2 Fuses)
- c. Bottom View of Receptacles (2-Prong Receptacles)

6. Setting Up and Using Your Smart Chaser (p 10-13)

- a. Testing Your Lights FIRST (p10)
- b. How to Set Your Chase Pattern (p 11-12)
- c. Plugging Your Lights In (p13)
- d. How to Adjust Your Chase Pattern’s Speed (p13)
- e. Mounting Your Controller (p13)

7. About Amperage and Troubleshooting (p 14-16)

- a. What a Maximum Load of 18 amps ON AT ONE TIME means (p14)
- b. How to Calculate Your Amperage (p 14-15)
- c. Troubleshooting (p16)

8. Product Warnings and Safety Precautions (p17)

About the 8 Track Smart Chaser

Flash Track Lighting's 8-Track Smart Chaser is the perfect choice for creating spectacular lighting effects both indoors and outdoors, no matter the application. Use this chase light controller and any of its 130 pre-programmed chase sequences to create stunning Christmas Light Displays, Chase Light Signs, Casino Displays, and animated light shows that use 2, 3, 4, 5, 6, 7 or 8 tracks, and require no more than 18 amps on at one time. This powerful chase light controller is built for commercial use – entire holiday light parks run their displays using Flash Track Lighting's Smart Chasers!

Standard Features of the 8-Track Smart Chaser Include:

- 8-Track Chase Light Controller with 130 different sequences to choose from
 - This includes 15 sequences for 2 track mode, 16 sequences for 3 track mode, 18 sequences for each of the 4, 5, 6, and 7 track modes, and 27 sequences for 8 track mode, all ready to Plug and Play! (See pgs. 5-8 for a detailed description of all the chase sequences included with this controller.)
 - Easily select your chase sequence with the built-in dip switch – no programming or messing with wires! Simply look at the label on the top of the controller, and then flip the dip switch sliders to your desired setting. (See pgs. 11-12 for directions on how to set your chase pattern.)
- Maximum amperage: 18 amps on at one time
 - 18 amps is the maximum load that can be on AT ONE TIME, not per receptacle. (See pgs. 14-15 for more info on this and for help estimating your display's amperage.)
- Variable Speed Control with a Speed Pot on the Outside of the Box that lets you Dial in the Perfect Speed
 - Standard speed range is from 1/20th of a second to 2 seconds per step, while speed range for "slow" patterns is 2 to 6 seconds per step. (See pg 13 for more info on how to change the speed.)
- Durable, Commercial-grade Controllers are Built to Last and Made in the USA
 - Outdoor, weather-resistant, Aluminum Controller Boxes will withstand the harshest environments and are built in the USA with UL Listed Parts, Fuse Protection, and Solid State Circuitry.
- 1 Year Limited Warranty that includes American-based expert technical support, directly from Flash Track Lighting
 - Flash Track Lighting is an independently owned American manufacturer – we design our own controllers, we have them built 100% in the USA, and we handle customer service ourselves. (Just call or email us if you have any questions – you can reach us by email at Nick@FlashTrackLighting.com or by phone, toll free, at 1-877-391-1161.

Services Automatically Included with Your Purchase

When you buy a smart chaser from Flash Track Lighting, our free expert support is automatically included! We ARE the chase light controller experts – we design and manufacture our own products, and we pride ourselves on both the quality of our products and our one-of-a-kind, expert customer service.

If you contact us for assistance, we can help you select the right controller for your display, talk you through exactly how to wire your display's lights into your new controller for your desired chase effect, calculate amperage if needed, set the chase sequence you wish to use, and troubleshoot any issues that arise, all for NO ADDITIONAL CHARGE! Contact us at Nick@FlashTrackLighting.com or at 1-877-391-1161 for assistance.

The Basics of the 8 Track Smart Chaser

What is a chase light controller and how does it work?

- Chase light controllers like this one run animated light displays by turning the power on or off to certain strands of lights at certain pre-programmed intervals, to simulate a specific motion. By having certain strands (aka “tracks”) of lights turn on and off at different intervals, it will look like a wheel is turning, a hand is waving, a word is being spelled out, etc..

Terms and Definitions: What are patterns, sequences, settings, modes, and tracks?

- a. The specific order and timing in which tracks turn on and off is called the chase “pattern”. We use the word “pattern” to refer to the specific motion or visual effect created, and the word “sequence” to mean a specific pattern, set to use a specific number of tracks.
 - i. For example, the “back and forth” *pattern* turns the lights on and off in a back and forth motion, much like ocean waves. That particular *pattern* can be set to run as a *sequence* in 2, 3, 4, 5, 6, 7, or 8 track modes.
 - ii. The 8 track smart chaser includes 27 different patterns that can be used in 130 different sequences. (Back and forth, version one, is 1 of the 27 available patterns. Since it can be run in 2, 3, 4, 5, 6, 7, or 8 track modes, the back and forth version 1 pattern is available in 7 different sequences.)
- b. When we use the word “setting”, we are talking about the specific combination of 1s and 0s found in our Settings Table, that is used to set the dip switch sliders to your desired sequence.
 - i. For example, to set your controller to run an 8 track, version 1 back and forth *sequence*, the *setting* or *setting code* is “00001000”. (See pg 11 of this manual for more information on this.)
- c. Each track corresponds to one of the smart chaser’s receptacles. One “track” refers to all of the lights powered by that one receptacle. (Receptacle 1 is track 1, etc.).
 - i. When setting up your controller, know that each receptacle is one track. Thus, our 8 track smart chaser has 8 receptacles and can run sequences that use up to 8 tracks.
 - ii. When referring to a specific sequence (a given pattern, set to use a specific number of tracks), we will sometimes use the word “mode” to mean tracks. For example, we might say that a certain setting is for “a back and forth pattern in 8 track mode”.
 - iii. Other brands of chase light controllers may also refer to “tracks” as channels or circuits.

Why are our controllers called “Smart Chasers” instead of just chase light controllers?

Our chase light controllers are “smart chasers” because of their logical, naturally intuitive, easy to use design that includes many pre-programmed chase sequences.

- 1) Our 8-Track Smart Chaser includes 130 pre-programmed sequences, consisting of 27 pre-programmed patterns, with most of them available in 2, 3, 4, 5, 6, 7, and 8 track modes!
- 2) Our smart chasers were designed intuitively, for your ease of use. To change sequences on our smart chasers, all you have to do is flip the sliders on the dip switch up or down. No pliers needed and no having to mess with confusing wires!*

Is This the Right Controller for My Display?

When choosing a controller, keep in mind that this 8 Track Smart Chaser can run 2, 3, 4, 5, 6, 7, or 8 track displays, in the sequences listed on the sequence label, with a maximum of 18 amps on at one time.

- If you need less than 7 tracks, review the specs for our 3, 4, and/or 6 track smart chasers.
- If you need more tracks, more amps, or a custom sequence, check out our programmable controllers.

What This Controller Can Do:

- There are 130 different chase sequences built into this smart chaser, all ready to plug and play. They are based on 27 different patterns, most of which can be run in 2, 3, 4, 5, 6, 7, or 8 track modes.
 - Look at the Sequence Label and the detailed descriptions of what each available pattern does on pgs. 5-8 to see if the sequence you need is available with this controller.
- You CAN adjust the speed of your sequence pattern with this smart chaser by turning the speed pot left or right, to dial in the perfect speed. (The speed pot is located on the bottom, right end of the controller, centered between the two receptacles.)
 - For most of the available sequences, the speed pot will let you adjust the speed from as fast as 1/20th of a second per step to as slow as 2 seconds per step.
 - For sequences labeled “slow”, the speed pot will let you adjust the speed from as fast as 2 seconds per step to as slow as 6 seconds per step.
 - *Note: A “step” is defined as each stage of the changes of the lights, as they move through a pattern. When any light turns on or turns off in one moment, that is a “step”. When another light turns on or off after that, that is the next “step”.*
- All of Flash Track Lighting’s controllers, INCLUDING this one, CAN be used outdoors.

What This Controller CANNOT Do:

- This smart chaser is limited to 8 separate tracks of lights and can only run up to 18 amps ON AT ONE TIME. (Look at our programmable controllers if you need more than 8 tracks or more than 18 amps.)
- This smart chaser cannot be custom-programmed to run any sequences that are not already built in.
 - Talk to us if you think your display requires a custom sequence. There is a good chance that one of the 130 sequences pre-programmed on this controller will meet your needs, but if not, we can look at whether or not one of our programmable controllers, with a custom-built sequence, would be the right fit for your display.
- This controller does not work with music input.
 - We have seen many amazing holiday light park displays and home displays run on this controller with music playing along, but Flash Track Lighting’s controllers are not capable of responding to music input or being custom-programmed to move “in step” with music.

If you are having trouble deciding if this is the right product for you, call us at 1-877-391-1161 or email us at Nick@FlashTrackLighting.com to let us help make sure you are choosing the right controller for your display.

We are available to talk through your display with you to help make sure that you are choosing the right controller for your needs. (We can also tell you which strands of lights to plug into which receptacles and which sequence to choose to get the effect you want for your display for no additional charge!) Our expert assistance comes free with your interest in our products!

Descriptions of the Sequence Patterns Already Pre-Programmed on the 8 Track Smart Chaser

The 8-Track Smart Chaser comes with 130 different sequences to choose from, including 15 sequences for 2 track mode, 16 sequences for 3 track mode, 18 sequences for each of the 4, 5, 6, and 7 track modes, and 27 sequences for 8 track mode.

This label (which is also printed on the top of your controller box) shows which patterns are available (left column) in which modes (# of tracks listed along the top row).

Pattern - Version 1	2 Track	3 Track	4 Track	5 Track	6 Track	7 Track	8 Track
Negative Chase	01000100	01100100	10000100	10100100	11000100	11100100	00000100
Back and Forth	01001000	01101000	10001000	10101000	11001000	11101000	00001000
Speller	01001100	01101100	10001100	10101100	11001100	11101100	00001100
Chase Delay on 1	01010000	01110000	10010000	10110000	11010000	11110000	00010000
Chase Delay 1 & Last	01010100	01110100	10010100	10110100	11010100	11110100	00010100
Build Up and Down	01011000	01111000	10011000	10111000	11011000	11111000	00011000
Build Up	01011100	01111100	10011100	10111100	11011100	11111100	00011100
Chase	01000000	01100000	10000000	10100000	11000000	11100000	00000000
Multi Sequence	-	01110010	10010010	10100100	11010010	11110010	00010010
Pattern - Version 2	2 Track	3 Track	4 Track	5 Track	6 Track	7 Track	8 Track
Negative Chase	01000000	01100000	10000110	10100110	11000110	11100110	00000110
Back and Forth Slow	01001010	01101010	10001010	10101010	11001010	11101010	00001010
Speller	01001110	01101110	10001110	10101110	11001110	11101110	00001110
Chase Delay on 1	01010011	01110011	10010011	10110011	11010011	11110011	00010011
Chase Delay 1 & Last	01010110	01110110	10010110	10110110	11010110	11110110	00010110
Build Up and Down	01011010	01111010	10011010	10111010	11011010	11111010	00011010
Chase Slow	01000010	01100010	10000010	10100010	11000010	11100010	00000010
Present Throw			00100100	00100101	00100110	00100111	01100001
Bowling			00110100	00110101	00110110	00110111	00000001
8 Track Only	Cannon w/2 Arms	11100001	Tennis w/2 Arms	10100001	Golfer Version 1	01000001	
	Cannon w/3 Arms	00111110	Tennis w/3 Arms	11000001	Golfer Version 2	11000011	
	Snowball Fight	10000001	Fishing w/3 Poles	10100011	Baseball w/6 Balls	00100001	

Here are descriptions of each of the included base patterns.

Visit our website at www.FlashTrackLighting.com and click on Products and Pricing, "See Our Pre-Programmed Chase Patterns" to see animated examples of what each of these patterns can do.

Chase Patterns:

- Chase: Sequentially turns on each track, one at a time
- Chase with Delay on 1: Chase with a 3 times longer delay on step 1
- Chase with Delay on 1st and Last: Chase with a 3 times longer delay on step 1 and last step
- Negative Chase: Reverse of the chase pattern - sequentially turns 1 track off at a time, with all others on

Back and Forth (aka Wave) Patterns:

- Back and Forth: Turns lights on and off in a back and forth motion, like an ocean wave

Build Patterns (Up, Up & Down, Speller):

- Build Up: Sequentially turns each track on, keeping it on until all tracks are on, then turns all tracks off together
- Build Up and Down: A build-up sequence that builds up from track 1 to the last step, and then reverses back down from the last track to track 1, often used for a Jack in the Box display
- Speller: Build up that ends with all tracks flashing on and off together 3 times

Additional Patterns:

- Multi-Sequence: A 20 second loop with 8 different, 1 to 3-second-long chase patterns. See next page for more.
- Version 2 Patterns: The main differences between the version 1 patterns (upper table) and version 2 patterns (bottom table) are that the version 2 patterns often have slower speed ranges than version 1 (2 to 6 seconds per step in version 2 while version 1 is 1/20th of a second to 2 seconds per step), have longer delays, and sometimes have special versions (such as the version 2 build up and down pattern which looks like a slinky pattern instead of a Jack in the Box). See next page for more details.
- Present Throw: A chase pattern with a lock step on step 2. See page 7 for detailed description.
- Bowling: A chase pattern with a lock step on step 1. See page 7 for detailed description.

8 Track Only Patterns - There are 9 additional patterns available for 8 track displays:

- Cannon (with 2 or 3 arms), Snowball Fight, Tennis (with 2 or 3 arms), Fishing with 3 Poles, Golfer (version 1 and version 2), and Baseball with 6 Balls. See page 8 for descriptions.

Sequence Pattern Descriptions for Specialty Patterns on the 8 Track Smart Chaser

Version 2 Patterns:

- **Negative Chase:** While version 1 Negative Chase turns 1 track off at a time with all others on, this pattern turns 2 tracks off at a time, while all others remain on
- **Back and Forth Slow:** While version 1 Back and Forth turns the lights on in a basic back and forth motion, version 2 adds delays on the 1st and last steps
- **Speller:** A speller pattern with extra flashes and a longer delay at the end
- **Chase with Delay on 1:** A slower speed range chase pattern with a delay on step 1
- **Chase with Delay on 1st and Last:** A slower chase pattern with a delay on step 1 and on the last step
- **Build Up and Down:** A build-up sequence that builds up/ turns on from track 1 to the last track, and then builds down/ turns off from track 1 to the last track, much like a slinky
- **Chase Slow:** A slower chase pattern, with a speed range of 2-6 seconds per step

Multi-Sequence Pattern:

- *Basic Description:* A 20 second loop with 8 different, 1 to 3-second-long chase patterns
- *What Multi-Sequence Does:* Multi-Sequence goes through all of the following patterns, in this order, in a total of about 20 seconds (approx. 1-3 seconds per pattern), on a continuous repeating loop.
 - 1) Performs a basic chase, with all tracks chasing to the right, 6 times, at a fast speed
 - 2) Performs a chase, with all tracks chasing in the opposite direction to the left, 6 times, at a fast speed
 - 3) Alternating tracks flash on and off together, at a very fast speed, 32 times
 - a. This means that all of the even tracks will flash on together once, then all of the odd tracks will flash on together once, and this will repeat until both sets of tracks have each flashed on and off 16 times. This creates a shimmering or glitter-like effect.
 - 4) All of the tracks build up, and then turn off. This repeats 4 times.
 - 5) All of the tracks turn on together, and stay on together for a 3 second hold
 - 6) All of the tracks flash off together, and then flash on together, 3 times
 - 7) All of the tracks turn on, and stay on together for a 2 second hold
 - 8) All of the tracks chase back and forth, at a fast speed, 6 times

At this point, the cycle goes back to step 1 and repeats.

- *How You Can Use Multi-Sequence*

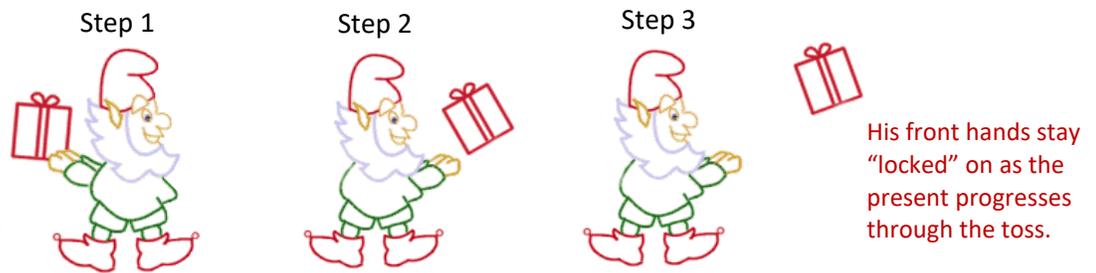
Multi-Sequence can be used for MANY different types of displays. It looks best in the 4, 6, and 8 track modes. It can be used to animate any group of shapes, including bushes, trees, stars, snowflakes, poles, posts, tree trunks, fence sections, parallel strands of lights across a roof, parallel strands of lights on the ground, arched tunnel displays, chase lights, and more.

One of our smart chasers can handle up to 45,000 LED mini lights, using only 15 amps. Thus, many different displays could be wired to run a multi-sequence pattern at the same time, using the same controller. (Some of our customers wire their entire house and yard, with many of the above displays, to run the 4 Track Multi-Sequence pattern, all at the same time, with just 1 controller.)

See our website, www.FlashTrackLighting.com, for animated examples.

Present Throw Pattern:

- **Basic Description:** A lock-step pattern where two tracks come on with step 2, and then one track stays on while the other track(s) continues to chase through a basic chase pattern.
- **How You Can Use Present Throw and How it Works:**
 - To use this pattern, your display must need between 4 and 8 tracks.
 - This sequence is called “present throw” because it can be used to animate any sort of “tossing” motion.
 - We often see it used to animate an elf throwing presents into Santa’s sleigh, but it could also be used to animate a ball player, or any character throwing anything.
 - On step 1, the arm with the hand holding the ball, present, or item to be tossed lights up in a position behind the character. On step 2, the back arm turns off and an arm holding the present in front of the character lights up (making it look like the arm moved forward to begin to “toss” the item). For all the additional steps, the front arm stays on, in its position in front of the character, as the item that was tossed lights up along an arc. The item then moves through the remaining steps, as it is “tossed”, until it reaches its end position.



See www.FlashTrackLighting.com for all of the animated steps and for how this works with only 4-7 tracks.

Bowling Pattern:

- **Basic Description:** A reverse lock-step pattern where the last track (the upright bowling pins), comes on with step 1, and locks on as the other tracks go through a basic chase, until the last step (when the upright bowling pins turn off and the knocked over bowling pins light up)
- **How You Can Use Bowling and How it Works:**
 - To use this pattern, your display must need between 4 and 8 tracks.
 - Although this display is called “Bowling” because that is a very accurate description of the steps the lights will go through, it can be used for MANY displays:
 - A character sledding downhill into a snowman, that falls apart when the character hits it
 - A kicker kicking a football towards a goal post, and when the ball goes over the goal post, the crowd stands up and cheers
 - A horse or a runner going over a finish line, breaking the finish line or causing an action
 - In the example of the bowler, here is how this pattern works:
 - 1) Step 1: bowler is lit up as well as the pins. The bowler is holding the ball behind him, with a 3x delay.
 - 2) Step 2: bowler’s arm moves in front of him, while holding the ball, with pins lit.
 - 3) Step 3: the ball continues to advance down the lane. (Pins stay lit.)
 - 4) Step 4 – Second to Last Step: ball continues to move down the alley, lighting up in different positions, until it reaches the last step.
 - 5) Last Step: Ball is in its final position, and stays on while pins light up in the air, from being knocked over. See www.FlashTrackLighting.com for more detail and animated examples.

8 Track Only Patterns

Here are descriptions for the 9 additional, 8-track patterns included with this smart chaser.

These patterns can ONLY be run in 8 track mode. These are just basic descriptions of what each pattern does.

For more details and to see exactly how each of these patterns work, look at our website, www.FlashTrackLighting.com, then click on “Products and Pricing”, “See our Pre-Programmed Chase Patterns”, and then click on “Descriptions and Examples of Available Patterns” on the left menu. All of these patterns can be viewed by clicking the corresponding links at the bottom of the page.

1) Cannon with 2 Arms

- A character (such as a soldier) moves his arm from an upward position (step 1 with a 4x delay), to a downward position (step 2 with a 4x delay). After the delay, the character’s arm goes back to its upward position, as the cannonball lights up (step 3). The cannonball is then released and moves through an arc of positions (steps 4-7), until the last step. On the last step (step 8), the cannonball disappears, and fireworks light up and stay on for a 2x delay.

2) Cannon with 3 Arms

- The Cannon with 3 arms works almost the same way as the cannon with 2 arms. The main difference is that instead of just an upward and downward position for the character’s “firing” arm, there is a third, middle arm position in between them.

3) Snowball Fight

- Two characters (like snowmen), positioned on opposite ends of the display, throw a ball (or in this example, snowball), back and forth at each other. The left character’s right arm lights up as the ball is tossed. The ball then goes through a 4-step arc, until it hits the other character. The other character then grabs the ball and throws it back, hitting the other character.

4) Tennis with 2 Arms

- Two characters, positioned on opposite ends of the display, hit a ball back and forth, in an underhand tennis-style. Each character has 2 arm positions, one that is a lower, resting position, and one that is slightly raised for an underhand swing.

5) Tennis with 3 Arms

- This is the same as tennis w/2 arms, except in this version, each character has 3 arm positions.

6) Fishing with 3 Poles

- A fisherman with 3 arm positions casts his line and gets a fish (steps 1 and 2). He then pulls the fish up, out of the water (step 3) and brings the fish through the air, over his head, and behind him. On the last step, he lands the fish in the bucket behind him.

7) Golfer, Version 1

- A golfer, with 3 arms positions, pivots the golf club back and forth twice. He then pulls the club back a third time, swings the club forward, and hits the ball, with the middle club. The ball then arcs through the air, and back down to the ground.

8) Golfer, Version 2

- This is very similar to Golfer, Version 1, except in this version, all of the arm positions remain behind the tee.

9) Baseball with 6 Balls

- Two characters are playing a game of baseball – the right character throws the ball, the ball arcs through the air to the batter, who then hits the ball back to the pitcher.

Setting Up and Using Your 8 Track Smart Chaser (8TSC-18)

Always test your lights first, BEFORE plugging them into the controller!

Parts of the 8 Track Smart Chaser

Front View



Mounting Holes

There is an identical flange on the left side of the controller.

Bottom View of Receptacles



Speed Pot Dial

Turn the dial left to slow down your pattern and right to speed it up.



3-Prong Plug

8 Receptacles (2-Prong Receptacles)

Inside View

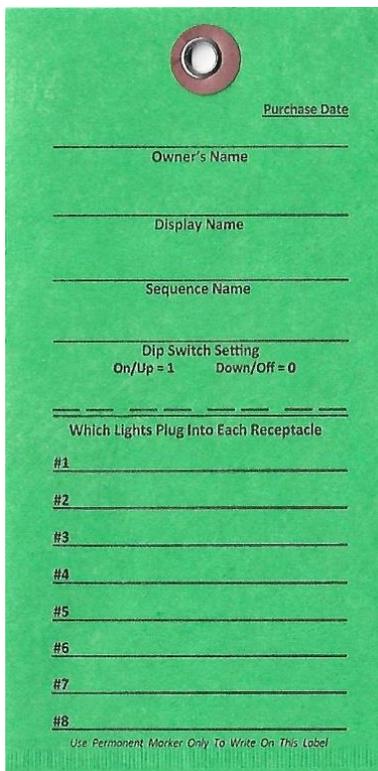


2 Fuses

Dip Switch

Flip the 8 sliders up or down to select your chase sequence.

Sequence Tag



Purchase Date _____

Owner's Name _____

Display Name _____

Sequence Name _____

Dip Switch Setting
On/Up = 1 Down/Off = 0

Which Lights Plug Into Each Receptacle

#1 _____

#2 _____

#3 _____

#4 _____

#5 _____

#6 _____

#7 _____

#8 _____

Use Permanent Marker Only To Write On This Label

This green Sequence Tag is included with all of our controllers and comes zip-tied to the power cord.

You can use this to tag to write down which display this controller goes with, what sequence you used, and which lights you plugged into which receptacles to achieve your desired effect. Then, when you get the controller back out next year, it will be easy to set-up your display again, exactly the way you want it.

You can write on this tag with any permanent marker. The back of the tag is blank for additional notes.

Using Your Smart Chaser: Testing the Lights First

Always test your lights for shorts before plugging them into the controller. To do this, plug each set of lights into an outlet or extension cord other than the controller. If any lights cause the breaker to pop or produce significant sparks, make the necessary adjustments, then test the lights again. Once there are no issues or sparks, the lights may be plugged into the controller. This step is necessary to protect the controller. Although the controller is protected by a fuse, it can be damaged by a severe short under the right conditions. Damages caused by shorts within a light bulb or caused by shorts within the wires to the lights (which can happen when wires are smashed between the display's frame and the support poles), are not covered under the controller's warranty.

If, while testing your lights, you are experiencing significant sparking at the plugs OR you are having a difficult time finding the cause of a short, look for the following possible causes:

(Note: Having empty light sockets will NOT cause a short.)

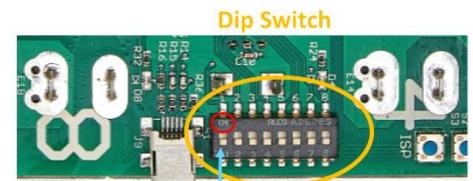
- ✓ Are you experiencing a lot of sparking when plugging in the lights OR did a fuse blow?
 - Excessive sparking at the plug that occurs when plugging lights into a power source can be caused by having too many bulbs on the line. When there are too many bulbs on the line, this can also cause the fuse to blow at the controller or at the fuse box. (See pages 14-15 for directions on how to calculate your amperage.)
 - If you have not exceeded your amperage by having too many bulbs on the line, then a short is the most likely cause of the sparking and can be corrected by reviewing the following questions.
- ✓ Are any of the glass bulbs broken?
 - If so, remove all broken bulbs from the sockets and install new bulbs while the lights are NOT plugged in.
- ✓ Have any of the glass bulbs loosened from their bulb bases?
 - Glass bulbs that have loosened from the base are the most common cause of shorts. Bulbs can loosen from the base while they are being removed, while they are being installed, or even simply as a result of time. If you notice a bulb has loosened from its base, EVEN IF the bulb is still working, you MUST turn off the power IMMEDIATELY and then you MUST replace the loosened bulb and remove the base from the socket.
 - Turning off the power before attempting to turn, loosen or move a loose bulb is critical. If you do not turn off the power first, then when you go to turn the bulb, the two wires inside the base will touch each other while electricity is running through them, causing a dead short.

Using Your Smart Chaser: How to Set Your Chase Sequence

Important: Anytime that you change the sequence you MUST unplug the controller box and then plug it back in AFTER you have set the dip switch sliders to the new sequence code for the change to take effect.

- To set your chase sequence, first look at the chase sequence label (printed at the bottom of this page and on the top of your controller box) to see which pattern you would like to use (left column).
 - If you are not sure, see pages 5-8 of this manual for descriptions of the effect each available pattern creates. For more detail, go to our website at www.FlashTrackLighting.com, to see animated examples of each available pattern. IF you are still not sure, contact us and we can help you figure out which sequence to use for your display.
- Then, decide how many tracks you want to use (top row), and find the corresponding setting (the associated sequence of 0s and 1s in the table).
 - When looking at the code setting (the sequence of 1s and 0s), 1 represents up/on and 0 represents down/off. Be sure to find the correct code setting for both the pattern you want to run AND the number of tracks you want that pattern to go through or use, as it runs.
- Once you have found the setting for the chase sequence you want to run, open the controller box and set the dip switch to your desired sequence.

- To locate the dip switch, open the top cover of the box. The dip switch has 8 sliders located in the bottom right end inside the box. You may need a pen or other small item to change the positioning of the individual slides, since they are rather small.
- To set the dip switch to your desired setting, simply adjust the 8 sliders on the dip switch to the up-on-1 positions and down-off-0 positions that correspond with the sequence you want to run.
- For example: To select the Version 1, Back and Forth Pattern, for an 8 Track Sequence, the setting is "00001000". Adjust the 8 sliders on the dip switch, going from left to right, to correspond to that setting. The first slider should be in a downward/off position (flipped down), to turn it "off" as indicated by the "0" in the setting. (The first slider is located at the left end of the dip switch.) Do the same thing with the next 3 slides, since the first four digits in the code sequence are "0"s. Move the fifth slider into an upward/on position by flipping it up (upwards, towards the red circle around the word "on" in the photo above), as indicated by the "1" in the code setting. Then, leave the last 3 slides in a downward/off position. This setting will program the lights to move in an 8-track back and forth sequence.



Flip the 8 sliders Up (on) or down (off) to select your sequence. Slider 1 is the first slider on the left.

Pattern - Version 1	2 Track	3 Track	4 Track	5 Track	6 Track	7 Track	8 Track
Negative Chase	01000100	01100100	10000100	10100100	11000100	11100100	00000100
Back and Forth	01001000	01101000	10001000	10101000	11001000	11101000	00001000
Speller	01001100	01101100	10001100	10101100	11001100	11101100	00001100
Chase Delay on 1	01010000	01110000	10010000	10110000	11010000	11110000	00010000
Chase Delay 1 & Last	01010100	01110100	10010100	10110100	11010100	11110100	00010100
Build Up and Down	01011000	01111000	10011000	10111000	11011000	11111000	00011000
Build Up	01011100	01111100	10011100	10111100	11011100	11111100	00011100
Chase	01000000	01100000	10000000	10100000	11000000	11100000	00000000
Multi Sequence	-	01110010	10010010	10110010	11010010	11110010	00010010
Pattern - Version 2	2 Track	3 Track	4 Track	5 Track	6 Track	7 Track	8 Track
Negative Chase	01000000	01100000	10000110	10100110	11000110	11100110	00000110
Back and Forth Slow	01001010	01101010	10001010	10101010	11001010	11101010	00001010
Speller	01001110	01101110	10001110	10101110	11001110	11101110	00001110
Chase Delay on 1	01010011	01110011	10010011	10110011	11010011	11110011	00010011
Chase Delay 1 & Last	01010110	01110110	10010110	10110110	11010110	11110110	00010110
Build Up and Down	01011010	01111010	10011010	10111010	11011010	11111010	00011010
Chase Slow	01000010	01100010	10000010	10100010	11000010	11100010	00000010
Present Throw			00100100	00100101	00100110	00100111	01100001
Bowling			00110100	00110101	00110110	00110111	00000001
8 Track Only	Cannon w/2 Arms	11100001	Tennis w/2 Arms	10100001	Golfer Version 1	01000001	
	Cannon w/3 Arms	00111110	Tennis w/3 Arms	11000001	Golfer Version 2	11000011	
	Snowball Fight	10000001	Fishing w/3 Poles	01000011	Baseball w/6 Balls	00100001	

Anytime that you change the sequence you MUST unplug the controller box and then plug it back in AFTER you have set the dip switch sliders to the new sequence code for the change to take effect.

It is also critical that you unplug the controller BEFORE touching the board to avoid shock. There are multiple pieces on the board that will shock you if you handle them while the controller is running.

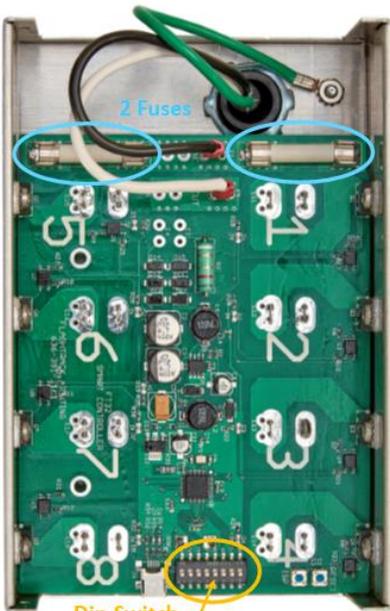
Using Your Smart Chaser: How to Set Your Chase Sequence Cont.

Larger, Easier to Read View of the 8TSC-18 Sequence Settings Label and Dip Switch

8TSC-18 Sequence Label (Full View)

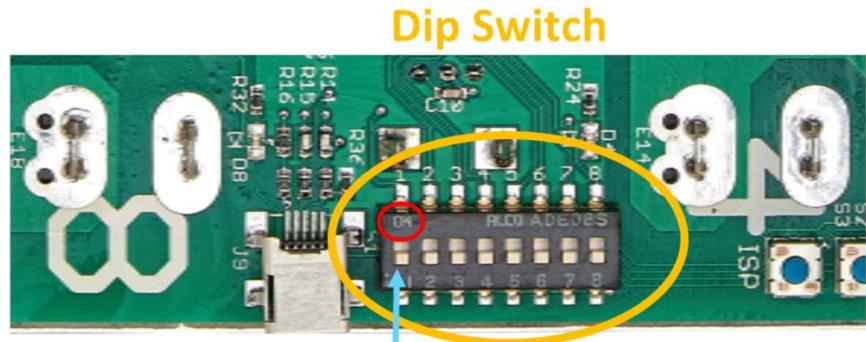
Pattern - Version 1	2 Track	3 Track	4 Track	5 Track	6 Track	7 Track	8 Track
Negative Chase	01000100	01100100	10000100	10100100	11000100	11100100	00000100
Back and Forth	01001000	01101000	10001000	10101000	11001000	11101000	00001000
Speller	01001100	01101100	10001100	10101100	11001100	11101100	00001100
Chase Delay on 1	01010000	01110000	10010000	10110000	11010000	11110000	00010000
Chase Delay 1 & Last	01010100	01110100	10010100	10110100	11010100	11110100	00010100
Build Up and Down	01011000	01111000	10011000	10111000	11011000	11111000	00011000
Build Up	01011100	01111100	10011100	10111100	11011100	11111100	00011100
Chase	01000000	01100000	10000000	10100000	11000000	11100000	00000000
Multi Sequence	-	01110010	10010010	10110010	11010010	11110010	00010010
Pattern - Version 2	2 Track	3 Track	4 Track	5 Track	6 Track	7 Track	8 Track
Negative Chase	01000000	01100000	10000110	10100110	11000110	11100110	00000110
Back and Forth Slow	01001010	01101010	10001010	10101010	11001010	11101010	00001010
Speller	01001110	01101110	10001110	10101110	11001110	11101110	00001110
Chase Delay on 1	01010011	01110011	10010011	10110011	11010011	11110011	00010011
Chase Delay 1 & Last	01010110	01110110	10010110	10110110	11010110	11110110	00010110
Build Up and Down	01011010	01111010	10011010	10111010	11011010	11111010	00011010
Chase Slow	01000010	01100010	10000010	10100010	11000010	11100010	00000010
Present Throw			00100100	00100101	00100110	00100111	01100001
Bowling			00110100	00110101	00110110	00110111	00000001
8 Track Only	Cannon w/2 Arms	11100001	Tennis w/2 Arms	10100001	Golfer Version 1	01000001	
	Cannon w/3 Arms	00111110	Tennis w/3 Arms	11000001	Golfer Version 2	11000011	
	Snowball Fight	10000001	Fishing w/3 Poles	01000011	Baseball w/6 Balls	00100001	

Inside View



Dip Switch
Flip the 8 sliders up or down to select your chase sequence.

Close-Up of the 8TSC-18 Dip Switch



Flip the 8 sliders **Up (on)** or down (off) to select your sequence.
Slider 1 is the first slider on the left.

Using Your Smart Chaser: Plugging Lights In, Setting Speed, and Mounting the Controller

Plugging your Lights in

Always plug your lights into a separate outlet or extension cord first to test them, THEN, once you are sure that there are no shorts, plug the controller box in. Next, plug the lights into the receptacles on the bottom of the controller box. This controller has no power on/off switch, so if your lights are plugged into the controller's receptacles, and your controller is plugged in, then your lights should turn on and off according to the chase sequence that is set.

Once you plug your lights into the controller receptacles, if you are looking inside the controller box, you should see a few red lights turn on inside the box. Each light indicates that the associated track has power and is turned on. Each receptacle is one track. If you would like your lights to chase in the same pattern but in the opposite direction, simply reverse the plug-in order of your lights.



Keep in mind that a typical household circuit and receptacle is only rated at 15 amps. (Although the 8 Track Smart Chaser is rated for up to 18 amps, your household outlet may only be able to handle 15 amps. If this turns out to be a problem for your display, it will not harm the controller box but could trip your house's breaker.)

How to Adjust Your Chase Pattern's Speed

For most chase patterns, the speed range can be adjusted from 1/20th of a second to 2 seconds per step. Slow patterns can usually be adjusted to select a speed between 2 and 6 seconds per step.

To adjust the speed, twist the speed pot dial, located on the underside of the controller box, at the center right end. Twisting the dial left will slow the speed down while twisting the dial right will make your lights chase faster. If you lift the cover of your controller, you will see red LED track indicator lights flashing inside the box. The speed at which the red lights flash on and off is the speed at which your chase lights are currently set.

Mounting the Controller

When mounting the controller, the controller must be in an upright position.

The receptacles should be facing downward and the Sequence Label should be on top.

The controller must be mounted off of the ground. While the controller can withstand rain or snow, it cannot sit in a puddle of water.



Use the mounting holes to secure the controller off the ground, in an upright position.

You can do this with screws or wire ties. Make sure the controller is at least 12 inches off the ground.

About Amperage

About the Maximum Load: What 18 Amps ON AT ONE TIME Means

The maximum load for the 4, 6, and 8 track smart chasers is 18 amps ON AT ONE TIME, *not necessarily per receptacle*. This means that you have to pay attention to which pattern you choose when determining how many amps you can run per receptacle, since different patterns have different numbers of tracks on at one time, and 18 amps is the maximum load that this controller can handle at any one time.

For most of the sequences available on the 4, 6, and 8 track smart chasers, only 1 receptacle is turned on at any given moment. This means that *for most of the available sequences, you can run up to 18 amps per receptacle*.

However, in *some* of the available sequences, there are times in the pattern where ALL of the receptacles turn on at the same time. This means that if you are running a sequence that includes an “all on” step, your display’s TOTAL amperage, for all the receptacles that you are using combined, must be 18 amps or less. *Patterns that include an “all on” step are Speller, Build Up, Build Up and Down, Multi-Sequence, and Negative Chase. In order to use ANY of these patterns, both version 1 and version 2, your total amperage for ALL of the tracks in your display cannot be over 18 amps – if your display’s total amperage is over 18 when using any of these patterns, you will probably blow a fuse.*

Additionally, for the Present Throw and Bowling patterns, there are times in the patterns where 2 receptacles are turned on at the same time. In these displays, the two receptacles that are turned on at the same time must have a load of less than 18 amps total.

How to Estimate Your Amperage

To estimate amperage, you can use the table below for a quick reference estimate OR you can use the formula on the next page for a more exact figure.

Keep in mind that the maximum load (either 18 amps per receptacle OR 18 amps total for the receptacles that will be on at the same time) only applies to the load of the lights that you will be plugging into your controller. You do NOT need to include the lights for the rest of the display (that you will NOT be plugging into the controller) in these calculations.

Which pattern are you choosing? For Present Throw or Bowling, add up the bulbs for the 2 receptacles that will be turned on at the same time. If it is a pattern with an “All On” step (Speller, Build Up, Build Up and Down, Multi-Sequence, or Negative Chase), add up all of the bulbs. For any other patterns, just count the bulbs per receptacle.

To estimate the number of bulbs that may be turned on per amp (amperage load), see the following chart.

Quick Reference Amperage Load Chart

Type of Light	# = 1 amp	# = 3 amp	# = 5 amp	# = 10 amp	# = 15 amp
C9 Incandescent 9 watt	14 bulbs	42 bulbs	70 bulbs	140 bulbs	210 bulbs
C7 Incandescent 7 watt	18 bulbs	54 bulbs	90 bulbs	180 bulbs	270 bulbs
C7 Incandescent 5 watt	21 bulbs	63 bulbs	105 bulbs	210 bulbs	315 bulbs
Rope Light, Incandescent	21 feet	63 feet	105 feet	210 feet	315 feet
C9 LED	140 bulbs	420 bulbs	700 bulbs	1,400 bulbs	2,100 bulbs
C7 LED	180 bulbs	540 bulbs	900 bulbs	1,800 bulbs	2,700 bulbs
Mini Lights Incandescent	300 bulbs	900 bulbs	1,500 bulbs	3,000 bulbs	4,500 bulbs
Mini Lights LEDs	3,000 bulbs	9,000 bulbs	15,000 bulbs	30,000 bulbs	45,000 bulbs

How to Estimate Your Amperage Continued

To calculate a more exact estimate of your amperage, use the formula below.

To calculate your amperage, use the maximum number of bulbs that will be on at 1 time as follows:
 $(\# \text{ of bulbs} \times \text{bulb wattage}) \div 110 = \text{Amps Needed.}$

Example:

If 250, 7 watt bulbs will be on at 1 time, solve $(250 \times 7) \div 110 = 16$ amps.

This example would work for a 4, 6, or 8 track smart chaser, since 16 is less than 18 amps.

**If you find yourself in need of more than 18 amps, contact us to discuss your options.*

*We can help you make sure your calculations are correct, and if your display does require more than 18 amps, we can help you evaluate if a programmable controller (which can handle more than 18 amps on at one time) is the best choice for your display.**

Troubleshooting

- What to do if your controller won't turn on
 - 1) First, make sure your controller is plugged in to a working outlet. (Plug something else into the outlet to make sure the outlet works.)
 - 2) Next, take the cover off the controller using a screwdriver, and look at the board. If the controller is getting power, you will be able to see a red light turned on.
 - If you see the red light, you probably accidentally set your controller to a blank setting.
 - Turn all of the dip switches to the "off" position. Then, unplug the controller to re-set the sequence, and then plug it back in. With the cover off, while looking at the board, you should be able to see red lights chasing through all 8 tracks. If you see the red lights chasing, then your controller should work properly once you set the dip switch to your desired setting.
 - If you do not see the red light, check that both fuses are working and not blown. (See next section for more about how to change a fuse.)
 - If both fuses are working, and the controller is plugged into a working outlet, but has no red light coming on, contact us for assistance and possible repairs.
- What to do if you need to replace your fuse:
 - 3) The fuse is a common ¼ inch by 1 ¼ inch round glass fuse that can be replaced with any 20 amp or less, 32 volt fuse.
 - 4) This is a VERY common fuse that can usually be purchased for less than a dollar in any hardware, automotive, general merchandise, or even grocery store.
 - 5) In order to replace one of the 2 fuses on the board, open the controller box with a screwdriver. If you think one of the fuses is bad, pry the damaged fuse out of its clips and push in the new fuse. You should be able to do this by hand.

Troubleshooting Continued

- What to do if your controller stops working after it had started running:
 - 1) First, determine whether or not the receptacle has power.
 - If the receptacle does NOT have power, you could have tripped the breaker in the fuse box OR you could have tripped the GFI receptacle.
 - First, check to see if you tripped a breaker in the fuse box. If you did, flip the breaker back on AND check the amperage load of EVERYTHING you have plugged into all of the outlets on that circuit. Most household circuits can only handle up to 15 amps for ALL of the receptacles wired to that 1 breaker.
 - If you did NOT trip a breaker in the fuse box and you still don't have power to the receptacle, you need to see if you tripped the GFI receptacle. Every outdoor receptacle and garage receptacle is protected by a GFI circuit. One GFI receptacle can turn off the power to all of the receptacles it protects. You will need to find your GFI receptacle in order to check whether or not it has been tripped.
 - If the receptacle DOES have power, but the controller has stopped working, unplug the controller to see if a fuse is blown. Although the board has 2 fuses, it can stop working if either one of the fuses is blown. Replace a fuse if needed. (See the previous page for directions on how to replace the fuse.)
- What to do if you short out a track:
 - 1) If you test your lights prior to plugging them into the smart chaser, it is extremely unlikely that you will short out any tracks.
 - 2) If you do short out one or more tracks on your smart chaser:
 - Option 1: Depending on which track(s) are out, you may still be able to use the working tracks for a different display.
 - Option 2: IF you have ANY 2, 3, 4, 5, or 6 tracks still working, we have coded alternate sequences into the controller that will allow you to 2, 3, 4, 5, or 6 track chase with whichever tracks are working. We call this feature "Re-Purposing" your controller. See the "Instructions" tab on our website, www.FlashTrackLighting.com, for more information on how to use this feature.

If you have any problems with your smart chaser, you are always welcome to email us at Nick@FlashTrackLighting.com or call us toll free at 1-877-391-1161.

- When you contact us, you will be talking directly to our chase light controller expert, the designer of your product! We can walk you through troubleshooting to help you find the problem, and we can advise you on your repair and/or replacement options.
- If you call and we do not answer, please DO leave us a voicemail and we will get back to you promptly. Our office hours vary, but are generally from 9am – 5pm, Monday-Friday, excluding holidays. We are often available after hours, and typically work longer hours during the Christmas holiday lighting season, so if you have a question on the weekend or after hours, please feel free to call us anytime.

Product Warnings and Safety Precautions

Keep in mind that this chase light controller runs on electricity, so you DO need to take all of the necessary safety precautions when handling this controller that you would when handling any electrical device.

- Always unplug the controller before removing the cover and before adjusting the dip switch settings.
- When using the controller outside, always mount it at least 12 inches off the ground.
 - This controller cannot sit in a puddle of water.
 - If water gets inside the controller box, it could not only damage the controller, but could also result in electrocution IF you handle the box before unplugging it.
 - Make sure you are standing on a dry surface when handling the controller while it is plugged in.
- Always plug the controller into a 3-prong outlet that is on a GFI protected circuit.
 - Do not plug the controller into a receptacle on a rip cord.
 - Do not remove the safety ground pin from the controller's plug.
- If the inside of the controller gets wet, unplug the controller, remove the cover, and let it dry out. (You can use a heating vent or hair dryer.)
 - Do NOT run the controller while the inside is wet – this can result in permanent damage to the controller's circuit board.