Instructions for Your 4, 6, or 8 Track Smart Chaser

Call Flash Track Lighting at (636) 391-1161 or email Nick@FlashTrackLighting.com with any questions or issues.

1. The Basics of the 4, 6, and 8 Track Smart Chaser Controllers

   Although the following pictures show 6 Track Smart Chasers, all of the parts and positions are the same for both the 4 and 8 Track Smart Chasers with the only exception being the number of receptacles.

Inside View

2 Fuses

(Receptacles are numbered inside the box as shown with the white numbers)

Dip Switch

Mounted View of the Labeled Top

Bracket for Hanging   Bracket for Hanging

Angled View of Bottom Receptacles And Left Side Plug Label

Receptacle 1   Receptacle 5
Receptacle 2   Receptacle 6
Receptacle 3
Receptacle 4

Speed Pot

2. Testing your Lights First

   Always test your lights for shorts before plugging them into the controller. To do this, plug each set of lights into a power source 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 are not covered under the controller's warranty.
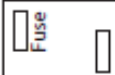
   If, while testing your lights, you are experiencing significant sparking at the plugs OR you are having a difficult time finding the cause of a short, look for the following possible causes:
   (Note: Having empty light sockets will NOT cause a short.)

   ✓ Are you experiencing a lot of sparking when plugging in the lights?
      o 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 this is the cause, there will NOT be a short as a result.
      o 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?
      o 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?
      o 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 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.
      o Loose bulbs that are still working must be replaced immediately because if the bulb is loose already, it is inevitable that the bulb will short out eventually.
      o 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.

To set your chase pattern, simply adjust the 8 sliders on the dip switch to an up-on-1 position or a down-off-0 position. To locate the dip switch, open the front cover of the box. The dip switch has 8 sliders located in the bottom right corner 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. Anytime that you change the sequence you MUST unplug the controller box and then plug it back in with the new sequence code for the change to take effect.

All of the following patterns can be used on the 4, 6, or 8 track controllers with anywhere from 3 – 8 tracks. A few special patterns are also included on the label that can only be used on an 8 track controller. Many of the patterns are available in the version 1 settings (upper table) and the version 2 settings (lower table). The main difference between version 1 and version 2 is that the version 2 patterns are often slower than version 1 (2 to 5 seconds per step in version 2 while version 1 is ½ to 1 second per step) and sometimes have special features (such as the version 2 back and forth pattern which looks like a slinky pattern instead of the straight-forward back and forth pattern in version 1).

1. **Chase**: Sequentially turns 1 track on and 2 tracks off from 1/10th to 2 seconds per step
2. **Negative Chase**: Reverse of the chase pattern; sequentially turns 2 tracks on and 1 track off
3. **Back and Forth (Wave)**: Turns lights on and off in a back and forth movement from 1/10th to 2 seconds per step
4. **Slow Chase**: Chase pattern with speed range up to 6 seconds per step
5. **Slow Wave**: Wave pattern with speed range up to 6 seconds per step
6. **Chase with Delay**: Chase with a 3 times longer delay on step 1
7. **Wave with Delays**: Wave with a 3 times longer delay on steps 1 and 3
8. **Build Up**: Sequentially turns each track on, keeping it on until all tracks are on, then turns all tracks off together
9. **Speller**: Build up that ends with all tracks flashing on and off together 3 times
10. **Multi-Sequence**: A 20 second loop combining 7 different 3 second long chase patterns

Fuse | Dip Switch | UP = 1 DOWN = 0 | Dipswitch Large View | Ex. Neg Chase - 2 Track - Ver 1 Would be Setting: 01000100

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
Multi Sequence	01011011	01111011	10011011	10111011	11011011	11111011	00011011
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

Use the sequence label above to select the chase sequence you would like to run. When looking at the code setting, 1 represents up/on and 0 represents down/off. Be sure to select not only the pattern you want, but also the right pattern with the right number of tracks. This Sequence Label is also printed on the top of the controller box.

Example: To select the version 1 back and forth sequence for 4 tracks, use the dip switch inside your controller box and adjust the sliders going from left to right. Since the setting is listed as 10001000, move the first slide into an upward position as indicated by the "1", leave the next 3 slides in a downward position as indicated by the next three "0"s in the code setting, move the fifth slide into the upward/on position, and leave the last 3 slides in a downward/off position as indicated by the zeros. This will program the lights to move in a 4 track back and forth sequence.

4. Maximum Load and Calculating Amperage

    The maximum load for the 4, 6, and 8 track smart chasers is 18 amps. The maximum amps per receptacle can vary depending on the sequence you choose because different sequences have different maximum numbers of receptacles that are turned on at any one time.

    To calculate your amperage, use the maximum number of bulbs that will be on at 1 time as follows:
    (# of bulbs x bulb wattage) ÷ 110 = Amps Needed.

    Exp: If 250, 7 watt bulbs will be on at 1 time, solve (250 x 7) ÷ 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, call us for possible remedies.

    To calculate the number of bulbs that may be turned on per amp (amperage load) for any given receptacle, see the following chart.

Amperage Load Chart (based on amps per receptacle)

Type of Light	# = 1 amp	# = 3 amp	# = 5 amp	# = 10 amp
C9 Incandescent 9 watt	14 bulbs	42 bulbs	70 bulbs	140 bulbs
C7 Incandescent 7 watt	18 bulbs	54 bulbs	90 bulbs	180 bulbs
C7 Incandescent 5 watt	21 bulbs	63 bulbs	105 bulbs	210 bulbs
Rope Light, Incandescent	21 feet	63 feet	105 feet	210 feet
C9 LED	50 bulbs	150 bulbs	250 bulbs	500 bulbs
C7 LED	70 bulbs	210 bulbs	350 bulbs	700 bulbs
Mini Lights Incandescent	300 bulbs	900 bulbs	1,500 bulbs	3,000 bulbs
Mini Lights LEDs	1,200 bulbs	3,600 bulbs	6,000 bulbs	12,000 bulbs

5. Plugging your Lights in
    Always plug in your lights first to test them, THEN, once you are sure that there are no shorts, connect the controller to a power source. 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 in, then after a short delay, they should turn on. (Do not be alarmed if there is a slight delay before the lights start chasing as this is normal.)

    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.

6. How to Adjust Your Chase Pattern's Speed
    For most chase patterns, the speed range can be adjusted from 1/10 of a second to 2 seconds per step. Slow patterns can usually be adjusted to range in speed 1 to 6 seconds.

    To adjust the speed, twist the speed pot dial, located at the bottom right front corner, outside of the box. 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 speed 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.

7. <u>Mounting the Controller</u>
   - 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 continually sit in a puddle of water. You have two options for how to mount the controller. You may want to use zip ties to secure it.
     - 1: Mount the controller to the display itself, at least 12 inches off the ground.
     - 2: Drive 2 stakes into the ground and mount the controller to the stakes.

8. <u>Troubleshooting</u>
   - What to do if you short out your controller:
     - If you test your lights prior to plugging them into the controller, it is extremely unlikely that you will short out your controller. If you do short out your controller, we can make the necessary repairs for a small fee.
   - What to do if you need to replace your fuse:
     - The fuse is a common ¼ inch by 1 ¼ inch round glass fuse that can be replaced with any 10 amp or less, 32 volt fuse available for a few dollars at almost any automotive store or gas station.