Instruction Manual for UTC Series Controllers
204CH/UTC4, 204CH/UTC6, 204CH/UTC12

Key Features:
- ➢ Universal Power Supply enables operation at 85-265V AC, 50-60 Hz
- ➢ IP66-Rated waterproof, suitable for outdoor use
- ➢ Each controller can drive up to 4 (UTC4), 6 (UTC6), or 12 (UTC12) channels of lighting
- ➢ Each channel can supply up to 5 (UTC12) or 10 (UTC4 and UTC6) amps of current
- ➢ User Replaceable TRIACs, no soldering required (UTC4 and UTC6)
- ➢ Fade control can slow down transitions to make LED lighting look more incandescent
- ➢ 63 Selectable patterns including:
  - o Chases – Forwards, Back/Forth, Progressive, Wipe, Spell
  - o Candle Flame (Effect Per Channel) and Fire (Multi Channel Fire)
  - o Random Pattern – Changes itself automatically
  - o Manual Dimmer and Crossfade functions
  - o 2 User Programmable Custom Patterns
- ➢ No reboot required unlike competing controllers – Switch changes take effect immediately
- ➢ Custom Pattern Support: 2 User-Programmable custom patterns of up to 200 steps
- ➢ Digital Timing Control from Mains: Multiple controllers that have the same speed setting and are powered on together will stay synchronized.
  - o With custom patterns you can gang controllers together to control installations *of any size.*

Applications:
- ➢ Chasing Belt Light
- ➢ Signs and Displays
- ➢ Amusement and Carnival
- ➢ Custom Channel Jobs and Fixtures
- ➢ Outdoor and Weatherproof installations

Installation and Wiring Instructions
UTC Series Controllers

Installation Guidelines:

➢ To maintain weather resistance in outdoor installations, the ends of the cables exiting the controller must be protected from moisture. Otherwise, water can wick into the cables and damage the controller.

➢ The controllers' outputs will be damaged if overloaded or short circuited. A fast-acting fuse in series with each output is highly recommended. Choose the smallest fuse suitable for your application. The outputs of the UTC4 and UTC6 are rated for 10A each and the outputs of the UTC12 are rated for 5A each.

➢ Test your lights for short circuits before connecting them to the controller. Shorted bulbs or sockets will damage the controller.

➢ The combined current for all outputs must not exceed 40 amps. The circuit powering the controller must be fused or breaker protected to no more than 40 amps.

➢ The controller will get hot under heavy and sustained loads. If the average combined current will exceed 25 amps, we recommend mounting the controller to a 5" wide heatsink. If the controller overheats, it will shut down until it cools off.
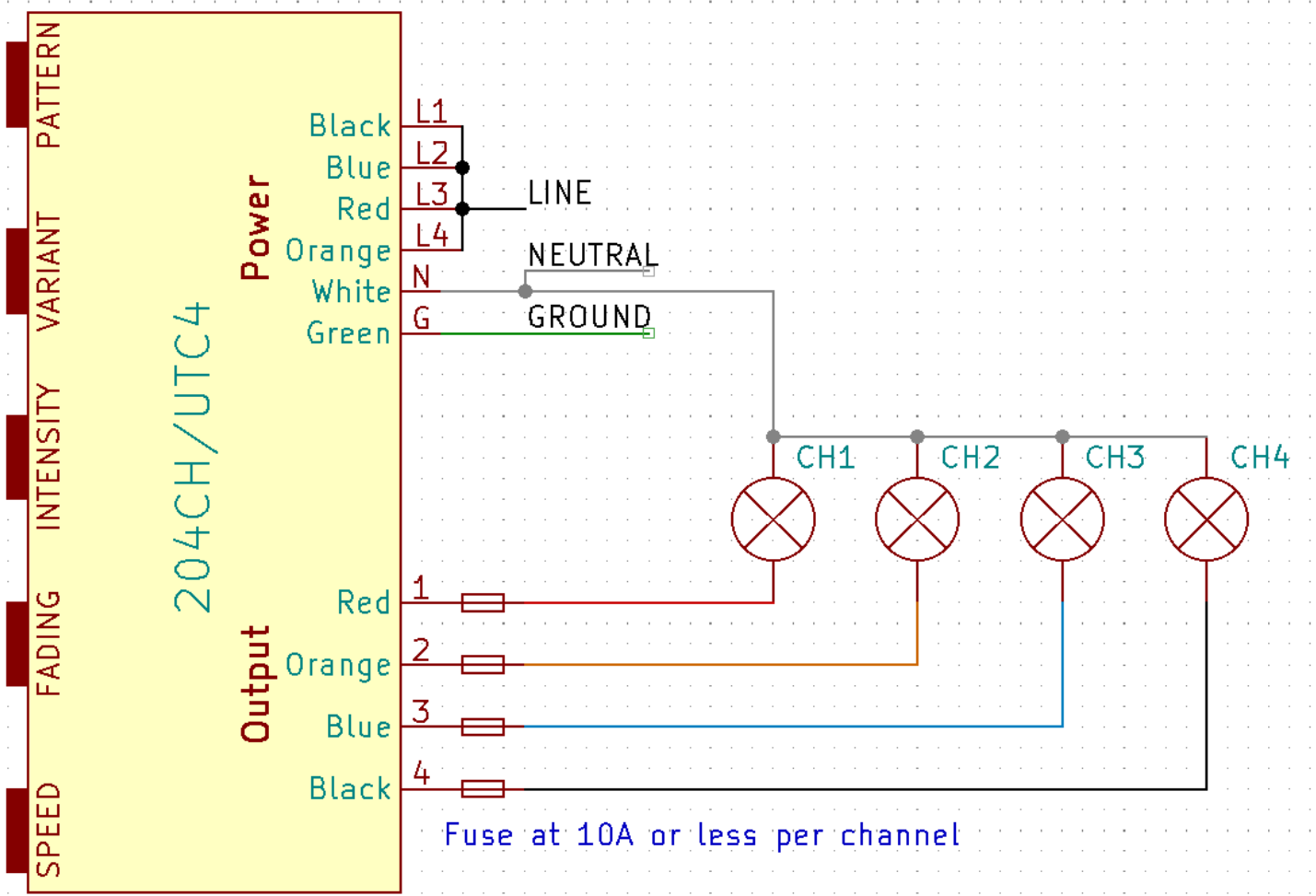
Powering The Controller:

➢ The controller is powered through the cable labeled *Power* (on back)

➢ Connect these wires to an AC mains circuit to supply power.

➢ In the Power cable, the Green wire is Ground and the White wire is Neutral. All other wires (Black, Blue, Red, Orange) are Hot.

➢ To get the full 40A rating, you must connect all 4 Hot wires.

Connecting the outputs:

➢ The UTC4 and UTC6 have one output cable, labeled *Output.*

➢ The UTC12 has two output cables, labeled *Output 1-6 and Output 7-12*

➢ Output wire -> Fuse -> Load (Lights) -> Neutral

➢ For color codes, see the wiring diagrams on the following pages and on the back of the controller.

Wiring Diagram
UTC4 Controller

PATTERN

VARIANT

INTENSITY

FADING

SPEED

204CH/UTC4

Power

Output

Black	L1
Blue	L2
Red	L3
Orange	L4
White	N
Green	G

LINE

NEUTRAL

GROUND

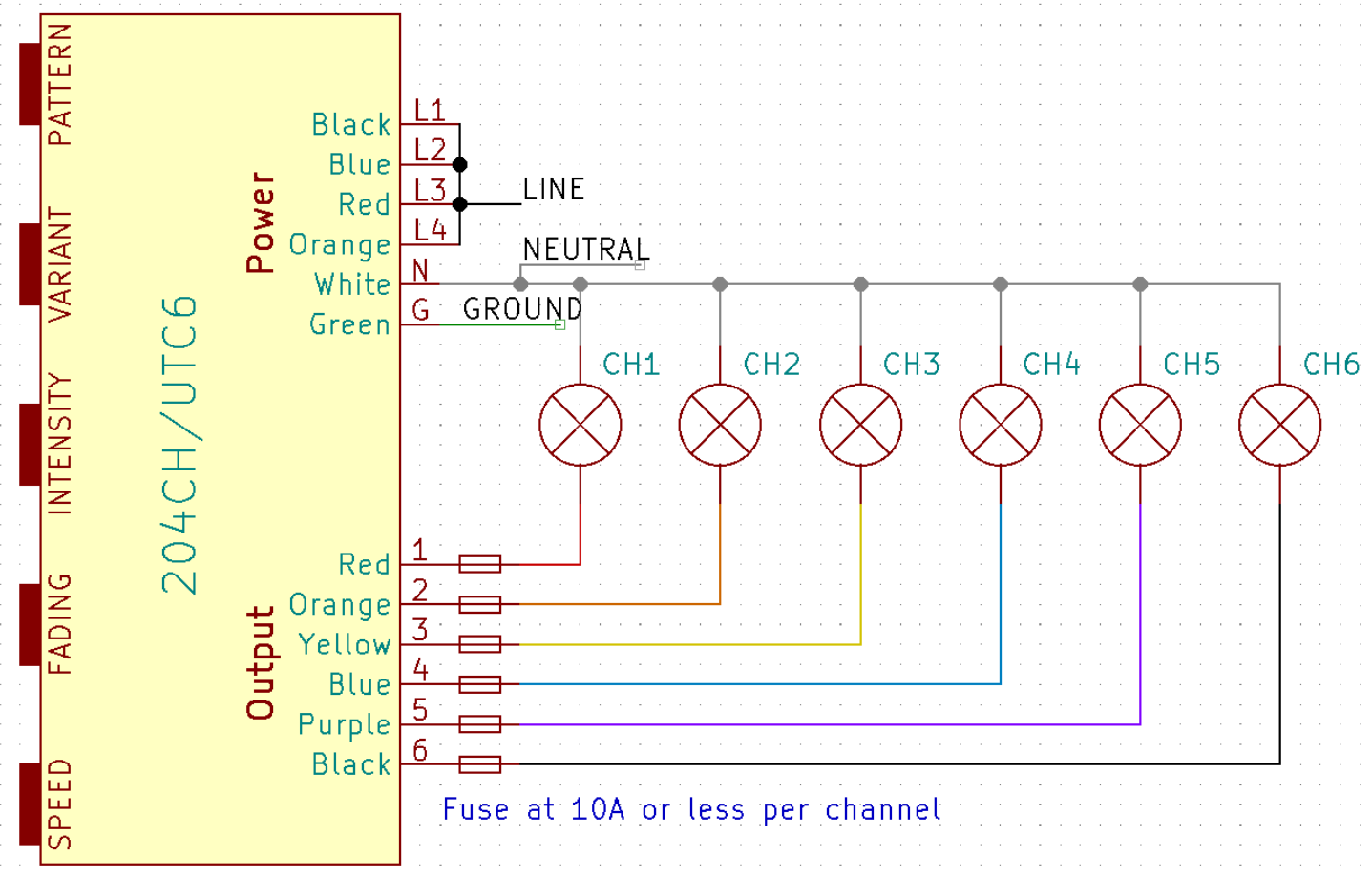|	
Red	1
Orange	2
Blue	3
Black	4

CH1　CH2　CH3　CH4

Fuse at 10A or less per channel

The controller must be installed in compliance with all applicable electrical codes.

Wiring Diagram
UTC6 Controller

PATTERN

VARIANT

INTENSITY

FADING

SPEED

204CH/UTC6

Power

Black	L1
Blue	L2
Red	L3
Orange	L4
White	N
Green	G

LINE

NEUTRAL

GROUND

CH1 CH2 CH3 CH4 CH5 CH6

Output

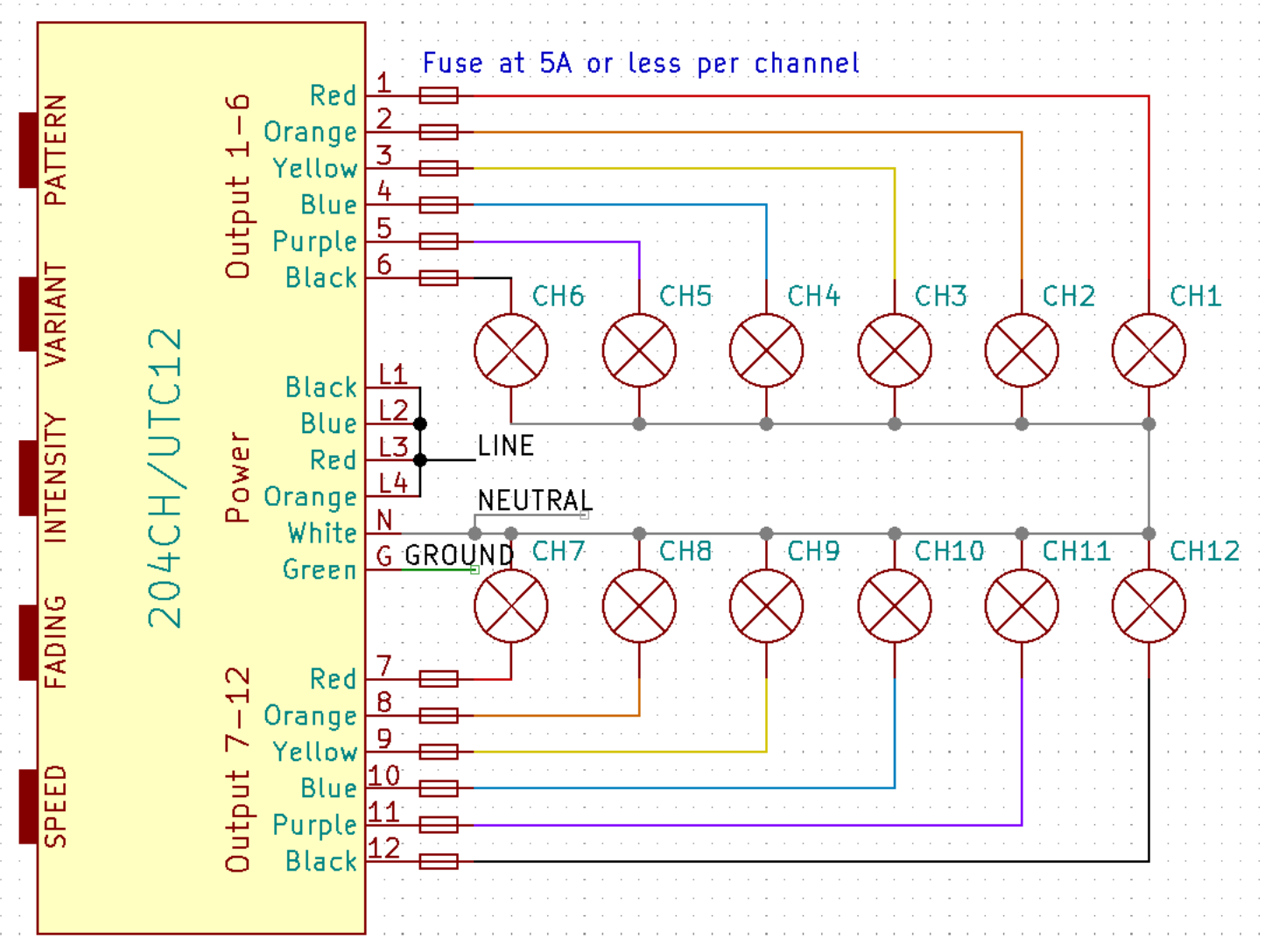|	
Red	1
Orange	2
Yellow	3
Blue	4
Purple	5
Black	6

Fuse at 10A or less per channel

The controller must be installed in compliance with all applicable electrical codes.

Wiring Diagram
UTC12 Controller

Fuse at 5A or less per channel

204CH/UTC12

PATTERN
VARIANT
INTENSITY
FADING
SPEED

Output 1-6

1	Red	
2	Orange	
3	Yellow	
4	Blue	
5	Purple	
6	Black	

CH6 CH5 CH4 CH3 CH2 CH1

Power

L1	Black	
L2	Blue	
L3	Red	LINE
L4	Orange	
N	White	NEUTRAL
G	Green	GROUND

CH7 CH8 CH9 CH10 CH11 CH12

Output 7-12

7	Red	
8	Orange	
9	Yellow	
10	Blue	
11	Purple	
12	Black	

The controller must be installed in compliance with all applicable electrical codes.

Pattern Table
UTC Series Controllers

Switch Positions		
Pattern	Variant	Pattern Description
Forward Chase	1-8	Forwards Chase Variant selects the number of outputs lit simultaneously
Back/ Forth	1-8	Back-N-Forth Chase Variant selects the number of outputs lit simultaneously
Alt Chase	1-3	Forwards chase with 9-11 outputs lit simultaneously
	4-6	Back-N-Forth chase with 9-11 outputs lit simultaneously
	7	Progressive Forwards Chase 1 output lit, then 2, then 3... until all outputs lit, then resets
	8	Progressive Back-N-Forth Chase 1 output lit, then 2, then 3... until all outputs lit, then resets
Scroll	1	Scrolling pattern with 1 on, 2 off
	2	Scrolling pattern with 2 on, 1 off
	3	Scrolling pattern with 1 on, 3 off
	4	Scrolling pattern with 2 on, 2 off
	5	Scrolling pattern with 3 on, 1 off
	6	Scrolling pattern with 1 on, 4 off
	7	Scrolling pattern with 2 on, 3 off
	8	Scrolling pattern with 3 on, 2 off
Wipe	1	Fill Up: Each output turns on, then they all turn off
	2	Fill Up, then flash 1x
	3	Spell Up, then flash 1x (think "open" sign)
	4	Spell Up, then flash 2x
	5	Alternate odd and even
	6	Alternate odd, off, even, off
	7	Wipe On, Wipe off: Each output turns on, then each output turns off
	8	Wipe On, Reverse off: Each output turns on, then each turns off in reverse order

Switch Positions		Continued from Previous Page
Pattern	Variant	Pattern Description
Special FX	1	Twinkle: Each output turns on randomly, then fades out.
	2	Candle Flames: Each output flickers with a realistic flame effect.
	3	Sequential Fire: A fire effect across all outputs. The base of the flame is output 1
	4	Sequential Fire, Coarse: Flame pulses are larger but less frequent
	5	Sequential Fire, Half and Half: Two independent sequential fire effects, each on half the outputs
	6	Sequential Fire, Half and Half, Coarse
	7	Random Point Fill/Empty: One output randomly turns on, followed by its neighbors, until all outputs are on. Then one output randomly turns off, followed by its neighbors, until all outputs are off.
	8	Random Point Fill/Empty, Circular: Same as above but the first and last output are considered neighbors.
Dim/ Custom	1	Single Channel Dimmer, All outputs together
	2	Every Other Crossfade,
	3	Every Two Crossfade
	4	Every Three Crossfade
	5	First Half / Second Half Crossfade
	6	Strobe all channels
	7	User Programmable Custom Pattern #1
	8	User Programmable Custom Pattern #2
Random	1	Repeat each pattern once
	2	Repeat each pattern twice
	3	Repeat each pattern three times
	4	New pattern every 1 minute
	5	New pattern every 2 minutes
	6	New pattern every 5 minutes
	7	New pattern every 10 minutes
	8	*Reserved for future upgrades*

Programming Instructions
UTC Series Controllers
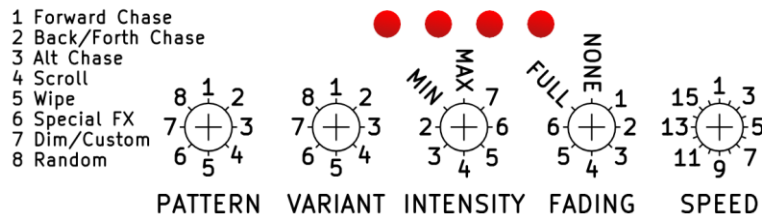
The Output Indicators show the states of the controller's outputs.

The 5 switches (*Pattern, Variant, Intensity, Fading,* and *Speed*) are used to configure the controller for various modes of operation.

- ➢ *Pattern*
    - o *Forward Chase*: Forward pattern with 1-8 outputs lit at once
    - o *Back/Forth Chase*: Chasing pattern that alternates forwards and backwards
    - o *Alt Chase*: Forwards/Alternating chasing patterns for 9-11 outputs, plus a forward and alternating progressive chase (1, then 2, then 3...)
    - o *Scroll*: Various scrolling patterns that scroll across the outputs
    - o *Wipe*: Various fills and wipes
    - o *Special FX*: Special effects such as twinkle, candle flames, and chasing fire
    - o *Dim/Custom*: 5 dimmer effects and 2 user-programmable patterns
    - o *Random*: Changes the pattern randomly at a user-selectable interval
- ➢ *Variant*
    - o The *variant* switch is used to configure the selected pattern.
    - o For example, with the *Forward Chase* pattern, the *variant* switch selects the number of channels lit at once.
- ➢ *Intensity*
    - o This switch controls the brightness of the outputs.
    - o For special effects patterns, this switch controls the intensity of the special effect.
- ➢ *Fading*
    - o This switch controls how much to fade between steps of the pattern.
    - o This switch is often used to make dimmable LED lighting turn on and off more slowly, giving it more of an incandescent vibe.
    - o When set to "None", the controller abruptly switches the outputs on and off.
    - o When set to "Full", the controller crossfades smoothly between different steps of the pattern.

- ➢ *Speed*
    - o This switch controls how fast the pattern runs.
    - o There are 16 different speeds, ranging from 4.25 seconds per step to 60 steps per second.
    - o The controller controls the timing of the pattern by counting pulses from the AC mains. It does not use an internal timer.
    - o If two controllers have the same speed setting and are powered on together, *they will stay in sync forever until powered off*.

Programming the Channel Count

The front panel switches can be used to set the number of outputs and program custom patterns. To prevent accidentally entering programming mode, the switches must be set in the proper sequence.

- ➢ Set all 5 switches to the straight up position.
- ➢ Set the *intensity* switch to the value you want to program
  - o *Max: Channel Count (Number of Outputs)*
  - o *7:* Custom Pattern 1
  - o *6:* Custom Pattern 2
- ➢ Set the *pattern* switch to *Random* (one click counterclockwise)
- ➢ Set the *variant* switch to *8* (one click counterclockwise)
- ➢ Set the *intensity* switch to *MIN*. The controller will flash all outputs once and enter programming mode.

Programming the Channel Count:
- ➢ Use the *Speed* switch to set the number of outputs to enable
  - o The UTC4 supports 2-4 outputs
  - o The UTC6 supports 2-6 outputs
  - o The UTC12 supports 2-12 outputs
- ➢ The enabled outputs will turn on and the corresponding indicators will light.
- ➢ To save and exit, change the value of any other switch.

Programming Custom Patterns
UTC Series Controllers

To program a custom pattern:
- ➢ Instructions for entering the custom pattern programming mode are on the previous page.
- ➢ Use the *Speed* switch to navigate through the pattern. The pattern starts at the first step. Clockwise goes forwards, counterclockwise goes backwards.
- ➢ Each of the other four switches controls a group of 3 outputs. Rotate the switch to cycle through the 8 possible states.
  - o *Pattern* switch = Outputs 1-3
  - o *Variant* switch = Outputs 4-6
  - o *Intensity* switch = Outputs 7-9 (UTC12 only)
  - o *Fading* switch = Outputs 10-12 (UTC12 only)
- ➢ You can use the *speed* switch to preview what the pattern will look like, going back and forth and fixing any mistakes.
- ➢ The custom pattern allows you to set up to 200 steps.
- ➢ Saving the custom pattern
  - o Navigate to the last step of the custom pattern using the *speed* switch.
  - o Move the *speed* switch *back one click, then forwards one click.* Repeat the back-forwards action two more times.
  - o The controller will save the custom pattern to its internal memory, flash all outputs twice, then exit programming mode.
- ➢ Exiting without saving
  - o Navigate to the first step of the custom pattern using the *speed* switch.
  - o Keep turning the speed switch counterclockwise. 16 steps backwards (1 full turn) will exit programming mode.

To use your newly programmed custom pattern, set the *Pattern* switch to *Dim/Custom* and the *Variant* switch to *7* or *8*.