Instruction Manual for UTC Series Controllers 204CH/UTC4, 204CH/UTC6, 204CH/UTC820, 204CH/UTC12

Key Features:

- Universal Power Supply enables operation at 24-265V AC, 50-60 Hz
- > IP66-Rated waterproof, suitable for outdoor use
- Daisy Chaining Support (UTC8) to run one pattern across multiple controllers. You can also mirror the same outputs across multiple controllers.
- Each channel can supply up to 5 (UTC12), 10 (UTC4 and UTC6), or 20 (UTC820) amps of current
- User Replaceable TRIACs, no soldering required (UTC4, UTC6, UTC8)
- > Fade control can slow down transitions to make LED lighting look more incandescent
- 63 Selectable patterns including:
 - Chases Forwards, Back/Forth, Progressive, Wipe, Spell
 - Candle Flame (Effect Per Channel) and Fire (Multi Channel Fire)
 - Random Pattern Changes itself automatically
 - Manual Dimmer and Crossfade functions
 - 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.
 - 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 installing a fan to cool the controller. 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.
- > The UTC820 has a standard 3 prong mains plug. Just plug it in.

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



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

Wiring Diagram UTC6 Controller



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

Wiring Diagram UTC12 Controller



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/	1-8	Back-N-Forth Chase	
Forth		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	
	1	Scrolling pattern with 1 on, 2 off	
	2	Scrolling pattern with 2 on, 1 off	
	3	Scrolling pattern with 1 on, 3 off	
Scroll	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	Scintillating Pattern (Controllers purchased after Mar 20, 2025)	
		Scrolling pattern with 3 on, 2 off (older controllers)	
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.		
	1	Single Channel Dimmer, All outputs together		
Dim/ Custom	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	Slave Mode (for Daisy Chaining)		



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
 - *Back/Forth Chase*: Chasing pattern that alternates forwards and backwards
 - *Alt Chase*: Forwards/Alternating chasing patterns for 9-11 outputs, plus a forward and alternating progressive chase (1, then 2, then 3...)
 - Scroll: Various scrolling patterns that scroll across the outputs
 - Wipe: Various fills and wipes
 - 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
 - The *variant* switch is used to configure the selected pattern.
 - For example, with the *Forward Chase* pattern, the *variant* switch selects the number of channels lit at once.
- Intensity
 - This switch controls the brightness of the outputs.
 - For special effects patterns, this switch controls the intensity of the special effect.
- Fading
 - $\circ~$ This switch controls how much to fade between steps of the pattern.
 - This switch is often used to make dimmable LED lighting turn on and off more slowly, giving it more of an incandescent vibe.
 - When set to "None", the controller abruptly switches the outputs on and off.

- When set to "Full", the controller crossfades smoothly between different steps of the pattern.
- > Speed
 - This switch controls how fast the pattern runs.
 - There are 16 different speeds, ranging from 4.25 seconds per step to 60 steps per second.
 - The controller controls the timing of the pattern by counting pulses from the AC mains. It does not use an internal timer.
 - 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

UTC Series Controllers

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
 - *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
 - The UTC4 supports 2-4 outputs
 - The UTC6 supports 2-6 outputs
 - The UTC8 supports 2-8 outputs
 - 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.
 - *Pattern* switch = Outputs 1-3
 - *Variant* switch = Outputs 4-6
 - Intensity switch = Outputs 7-9 (UTC12 only)
 - *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
 - Navigate to the last step of the custom pattern using the *speed* switch.
 - Move the *speed* switch *back one click, then forwards one click.* Repeat the back-forwards action two more times.
 - The controller will save the custom pattern to its internal memory, flash all outputs twice, then exit programming mode.
- Exiting without saving
 - Navigate to the first step of the custom pattern using the *speed* switch.
 - 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.

Troubleshooting

UTC Series Controllers

Problem	Cause	Solution
Controller does not power on	Controller wired incorrectly	Ensure the HOT and
		NEUTRAL wires are
		connected to an AC power
		source
	Controller defective or	Contact Action Lighting
	damaged from power surge	
Indicator light illuminates,	Controller wired incorrectly	Ensure the output lighting is
output channel stuck off		connected between the
		output and the NEUTRAL
		wire
	Output Triac socket screws	Remove controller from case
	loose (UTC4 or UTC6)	and tighten Triac screw
		terminals
	Output Triac failed due to a	Replace failed Triac (UTC4 /
	short circuit	UTC6) or contact Action
		Lighting
Output channel stuck on	Output Triac failed due to an	Replace failed Triac (UTC4 /
regardless of indicator light	overload or short circuit	UTC6) or contact Action
status		Lighting
Output channel still	Triac drive circuit blown	Contact Action Lighting
malfunctions after replacing		
Triac		

Warranty Notice: These controllers come with a one-year warranty against manufacturing defects. If your controller is still under warranty, please note that damage to the controller due to user disassembly is not covered under warranty. To maintain your warranty, we recommend returning your controller to Action Lighting if it fails during the warranty period.