RADIANCE RGB + IC SERIES TAPE

Low-Voltage Tape Guideline

Three limits decide how you design a low-voltage tape system: tape length, power supply capacity, and wire distance. Stay inside all three and the tape stays evenly lit from end to end.



Radiance RGB

R-RGB Tape

3x the power of IC

Max continuous run	16 ft
Load at that length	70 W
Max on one 200 W supply	43 ft
16 AWG wire feed	50 ft



IC Series

IC Tape

Max continuous run	33 ft
Load at that length	50 W
Max on one 200 W supply	133 ft
16 AWG wire feed	70 ft

The three limits

1

Maximum Tape Length

The longest uninterrupted run of tape on one power connection. Past it, the far end dims.

2

Power Supply Maximum

Total feet of tape one 200 W power supply and controller can drive, all segments added up.

3

Wire Distance

How far 16 AWG wire can run to the tape. The longer the wire, the less power it delivers.

Simple-to-Select Solutions Designed for Easier Installations

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1 Maximum Tape Length (Continuous)

The maximum length of an uninterrupted section of tape on a single power connection. This limit prevents excessive voltage drop, which would cause the tape to dim progressively toward the end.

Tape Type	Max Length	Associated Load (total watts)
R-RGB Tape	16 feet	70 Watts
IC Tape	33 feet	50 Watts

R-RGB: 16 ft max, 70 W



IC: 33 ft max, 50 W



2 Power Supply Maximum (Capacity Limit)

The total tape-length load, based on the tape's watts per foot, that a 200 W power supply can handle. This is the cumulative length of all tape segments powered by that single power supply and controller.

Tape Type	Power Supply	Max Total Feet
R-RGB Tape	200 Watts	43 feet
IC Tape	200 Watts	133 feet

R-RGB: 43 ft max on one supply, fed every 16 ft or less (3 feeds)



IC: 133 ft max on one supply, fed every 33 ft or less (5 feeds)



Bars are drawn to scale within each section. Gold marker = power feed. Past the max continuous length, add a feed at each limit.

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3 16 AWG Wire Distance Limit (Power Feed)

This is the underlying electrical constraint. The longer the wire, the less power it delivers. Two factors set the limit.

FACTOR 1

Wire gauge (resistance)

How much current the wire can carry before you lose too much voltage, based on how long the run is.

Longer runs = more resistance = more loss

FACTOR 2

Load (watts)

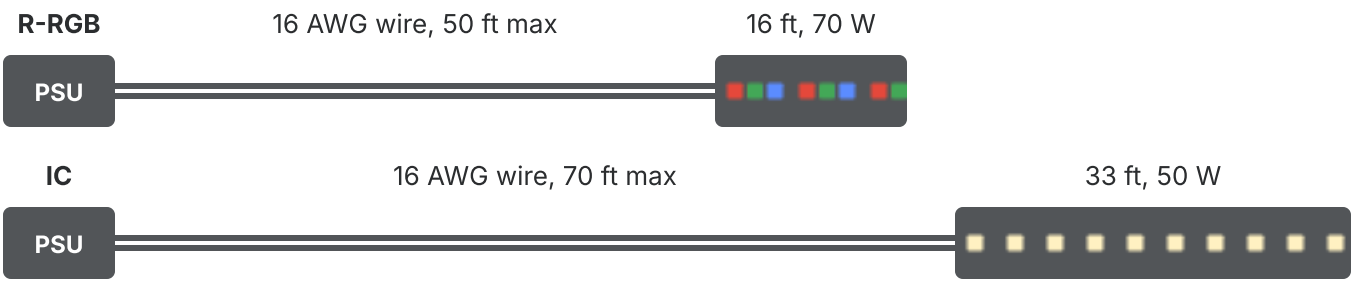
How much power you are asking the wire to carry: the strip's watts per foot times the total feet of tape on that run.

Longer tape = higher load = shorter wire needed

Ohm's Law at work: voltage drop = current × wire resistance (V = I × R). More feet of wire means more resistance. More watts means more current. Either one raises the drop.

16 AWG at maximum tape length

Tape Type	Tape Feet	Load / Watts	Max Wire Feed
R-RGB	16 feet	70 watts	**50 feet**
IC	33 feet	50 watts	**70 feet**



Drawn to scale (6 px = 1 ft). PSU = 200 W power supply and controller.

R-RGB tape consumes three times the power of IC, making it the primary power concern.

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When the numbers do not fit

If the wire run is too long or the load is too high for the wire length, you have three fixes.

1. Shorten the wire run

Get the tape closer to the power source.

2. Lower the load

Shorten the tape length. Split one longer tape into shorter, separately power-fed sections.

3. Step up the wire gauge

Go to a thicker wire. A lower AWG number means a thicker wire and less resistance.

Example: split one long run into separately fed sections

One feed, 30 ft of R-RGB: over the 16 ft limit



Two feeds, two 15 ft sections: each under the 16 ft limit



Drawn to scale (16 px = 1 ft). Gold marker = power feed.

Longer tape: the parallel solution

To run tape past the maximum continuous length, or to use the full capacity of the power supply, use parallel wiring and power injection.

THE GOAL

Run a total length up to the 200 W power supply limit: 43 ft of R-RGB or 133 ft of IC.

THE METHOD

Power each segment separately in parallel. Keep each segment no longer than the maximum continuous length: 16 ft for R-RGB, 33 ft for IC.

INSTALLATION NOTE

Butt the segments together so they look like one continuous strip, even though separate wires run back to the controller.

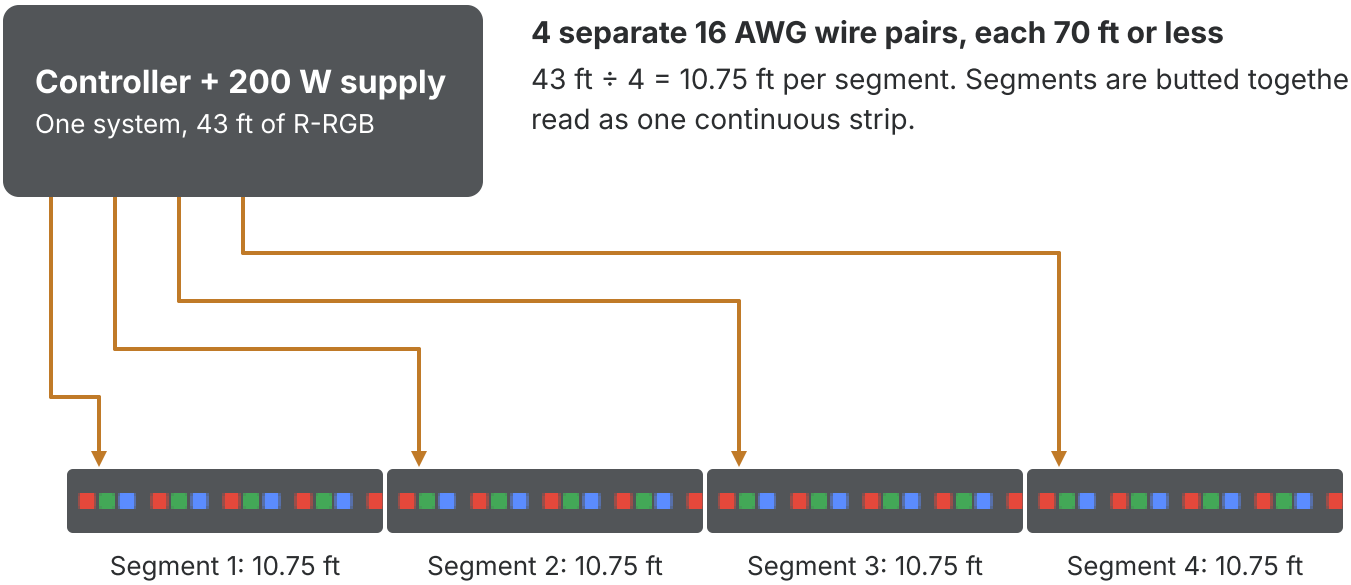
EQUALIZE LENGTHS

Use similar wire and tape lengths so every section gets the same power. This prevents uneven lighting.

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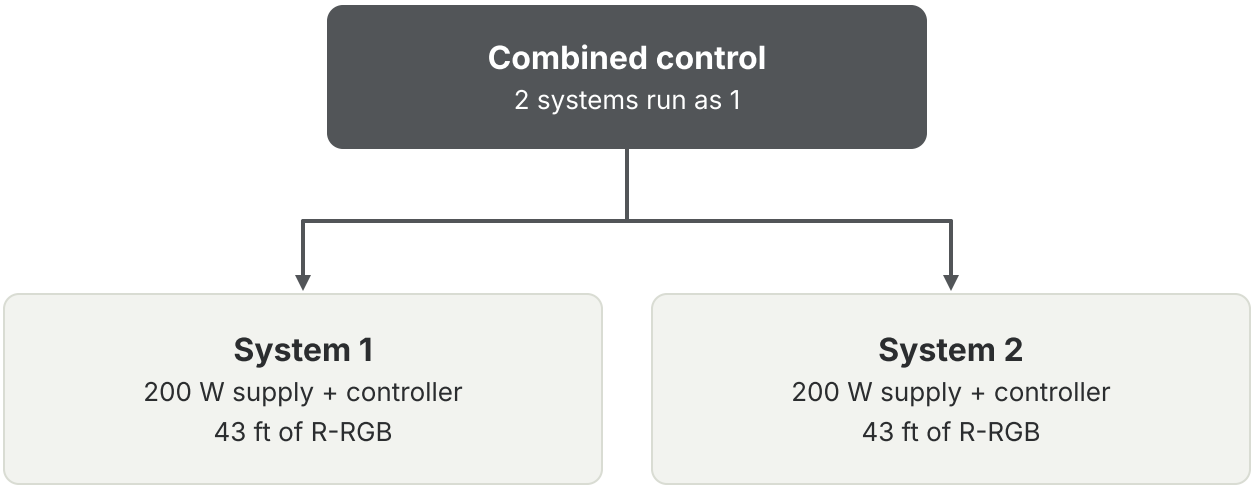
Example: 43 ft of R-RGB

A 200 W power supply handles up to 43 ft of R-RGB, but the maximum continuous length is 16 ft. That means 3 to 4 segments, preferably of equal length: 43 ft ÷ 4 = 10.75 ft each. Run a separate 16 AWG wire pair from the controller to the start of each segment. Each of those runs can be up to 70 ft.



Example: 86 ft of R-RGB

Double the example above by using 2 separate systems, each with its own 200 W power supply and controller, combined as 1 control.



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