VOLTAGE DROP CHART

HITLIGHTS
THINK BEYOND THE BULB™

WHAT IS VOLTAGE DROP?

Voltage drop occurs when electricity passes through a length of wire and encounters resistance.
The total resistance is proportional to the length of the wire, and inversely proportional to its size - a longer wire, or a thinner one, will offer more resistance. Resistance results in less voltage at the end of the wire than at the beginning. This is voltage drop, and it results in LEDs that are dimmer than they should be.

To minimize voltage drop, it is important to select the correct gauge of wire appropriate for the load (Watts), length of wire (Feet) and the voltage (Volts). Two charts are given below, one for 12 Volts and one for 24 Volts.
There is no such thing as 'too big' in wire gauge, so if you're unsure, pick a larger one.

Example: 12 Volt Voltage Drop Chart (5% Drop)

1 Calculate total load in Watts. 2 Measure distance from power source to LED strip. 3 Select an appropriate wire gauge.

WIRE GAUGE	12 W	24 W	36 W	48 W	60 W	72 W	84 W	96 W	108 W	120 W
22 AWG	16 ft.	8 ft.	5 ft.	4 ft.	3 ft.	3 ft.	2 ft.	2 ft.	2 ft.	2 ft.
20 AWG	25 ft.	13 ft.	8 ft.	6 ft.	5 ft.	4 ft.	4 ft.	3 ft.	3 ft.	3 ft.
18 AWG	42 ft.	21 ft.	14 ft.	10 ft.	8 ft.	7 ft.	6 ft.	5 ft.	5 ft.	4 ft.
16 AWG	75 ft.	38 ft.	25 ft.	19 ft.	15 ft.	13 ft.	11 ft.	9 ft.	8 ft.	8 ft.
14 AWG	117 ft.	58 ft.	39 ft.	29 ft.	23 ft.	19 ft.	17 ft.	15 ft.	13 ft.	12 ft.

12 Volt Voltage Drop Chart (5% Drop)

WIRE GAUGE	12 W	24 W	36 W	48 W	60 W	72 W	84 W	96 W	108 W	120 W
22 AWG	16 ft.	8 ft.	5 ft.	4 ft.	3 ft.	3 ft.	2 ft.	2 ft.	2 ft.	2 ft.
20 AWG	25 ft.	13 ft.	8 ft.	6 ft.	5 ft.	4 ft.	4 ft.	3 ft.	3 ft.	3 ft.
18 AWG	42 ft.	21 ft.	14 ft.	10 ft.	8 ft.	7 ft.	6 ft.	5 ft.	5 ft.	4 ft.
16 AWG	75 ft.	38 ft.	25 ft.	19 ft.	15 ft.	13 ft.	11 ft.	9 ft.	8 ft.	8 ft.
14 AWG	117 ft.	58 ft.	39 ft.	29 ft.	23 ft.	19 ft.	17 ft.	15 ft.	13 ft.	12 ft.
12 AWG	183 ft.	92 ft.	61 ft.	46 ft.	37 ft.	31 ft.	26 ft.	23 ft.	20 ft.	18 ft.
10 AWG	275 ft.	138 ft.	92 ft.	69 ft.	55 ft.	46 ft.	39 ft.	34 ft.	31 ft.	28 ft.

24 Volt Voltage Drop Chart (5% Drop)

WIRE GAUGE	12 W	24 W	36 W	48 W	60 W	72 W	84 W	96 W	108 W	120 W
22 AWG	73 ft.	37 ft.	24 ft.	18 ft.	15 ft.	12 ft.	10 ft.	9 ft.	8 ft.	7 ft.
20 AWG	117 ft.	58 ft.	39 ft.	29 ft.	23 ft.	19 ft.	17 ft.	15 ft.	13 ft.	12 ft.
18 AWG	183 ft.	92 ft.	61 ft.	46 ft.	37 ft.	31 ft.	26 ft.	23 ft.	20 ft.	18 ft.
16 AWG	300 ft.	150 ft.	100 ft.	75 ft.	60 ft.	50 ft.	43 ft.	38 ft.	33 ft.	30 ft.
14 AWG	475 ft.	238 ft.	158 ft.	119 ft.	95 ft.	79 ft.	68 ft.	59 ft.	53 ft.	48 ft.
12 AWG	750 ft.	375 ft.	250 ft.	188 ft.	150 ft.	125 ft.	107 ft.	94 ft.	83 ft.	75 ft.
10 AWG	1092 ft.	546 ft.	364 ft.	273 ft.	218 ft.	182 ft.	156 ft.	136 ft.	121 ft.	109 ft.