

VOLTAGE DROP CHART

FINDING THE CORRECT WIRE

WHAT IS VOLTAGE DROP?

Voltage drop is the amount of voltage loss that occurs through all or part of a circuit due to resistance. Consider voltage drop when specifying your next project.

Use the chart below by first calculating the total wattage load, then selecting the length of wire needed.

24V voltage drop & wire length distance chart (3% drop or 23.28V)*

WIRE GAUGE	5W .2 A	10W .42 A	20W .83 A	30W 1.3 A	40W 1.7 A	50W 2.1 A	60W 2.5 A	70W 2.9 A	80W 3.3 A	90W 3.75 A	100W 4.2 A
22 AWG	107 ft.	52 ft.	27 ft.	17 ft.	13 ft.	10.5 ft.	9 ft.	7.5 ft.	6.8 ft.	6 ft.	5.3 ft.
20 AWG	170 ft.	85 ft.	43 ft.	27 ft.	21 ft.	17 ft.	14 ft.	12 ft.	11 ft.	9 ft.	8 ft.
18 AWG	270 ft.	134 ft.	68 ft.	45 ft.	33 ft.	27 ft.	22 ft.	19 ft.	17 ft.	15 ft.	14 ft.
16 AWG	430 ft.	215 ft.	109 ft.	72 ft.	54 ft.	43 ft.	36 ft.	31 ft.	27 ft.	24 ft.	22 ft.
14 AWG	680 ft.	345 ft.	174 ft.	115 ft.	86 ft.	69 ft.	57 ft.	49 ft.	43 ft.	39 ft.	36 ft.
12 AWG	1090 ft.	539 ft.	272 ft.	181 ft.	135 ft.	108 ft.	90 ft.	77 ft.	68 ft.	61 ft.	56 ft.
10 AWG	1730 ft.	784 ft.	397 ft.	263 ft.	197 ft.	158 ft.	131 ft.	112 ft.	98 ft.	97 ft.	82 ft.

12V voltage drop & wire length distance chart (3% drop or 11.64v)*

WIRE GAUGE	5W .42 A	10W .83 A	20W 1.7 A	30W 2.5 A	40W 3.3 A	50W 4.16 A	60W 5 A
22 AWG	27 ft.	14 ft.	7 ft.	4.5 ft.	3.5 ft.	2.8 ft.	2.2 ft.
20 AWG	43 ft.	18 ft.	9 ft.	6 ft.	5 ft.	4 ft.	3 ft.
18 AWG	68 ft.	34ft.	17 ft.	11 ft.	8 ft.	6 ft.	5 ft.
16 AWG	110 ft.	54 ft.	27 ft.	18 ft.	13 ft.	10 ft.	9 ft.
14 AWG	170 ft.	86 ft.	43 ft.	29 ft.	21 ft.	17 ft.	14 ft.
12 AWG	275 ft.	134 ft.	68 ft.	45 ft.	34 ft.	27 ft.	22 ft.
10 AWG	430 ft.	199 ft.	99 ft.	66 ft.	49 ft.	39 ft.	33 ft.

3% voltage drop rule

This condition causes the load to work harder with less voltage pushing the current. The National Electrical Code recommends limiting the voltage drop from the breaker box to the farthest outlet for power, heating, or lighting to 3 percent of the circuit voltage.