

Wire Size in the US and Around the World

The American Wire Gauge (AWG) wire sizes are set up so that a decrease of three sizes doubles the cross sectional area and divides the wire resistance in half. For example, AWG 16 wire has about 4 Ohms of resistance in 1000 feet of wire, while AWG 13 wire has about 2 Ohms of resistance in the same length of wire.

Please use this chart to calculate resistance of copper wire per length for common AWG wire sizes.

<u>AWG</u>	<u>Diameter (mm)</u>	<u>Ohms/foot</u>	<u>Ohms/meter</u>
8	3.264	0.000628	0.002060
10	2.588	0.000999	0.003277
12	2.053	0.001588	0.005209
14	1.628	0.002525	0.008282
16	1.291	0.004016	0.013172
18	1.024	0.006390	0.020959
20	0.8118	0.010152	0.033299
22	0.6438	0.016142	0.052946

To calculate the resistance of a length of wire, simply multiply the “Ohms/foot” value in the above chart times the length of wire you are using in feet. For example, if you were using 100 feet of AWG 12 wire, the resistance would be:

$$100 \times 0.001588 = 0.1588 \text{ Ohms}$$

When running wire for cinema stage or surround speakers, choose a wire gauge that results in less than 0.5 Ohms of resistance for the length of wire needed for the run.