# Daycounter, Inc.

*Engineering Services*

***Custom Firmware, Electronics Design, and PCB Layout***





## AWG - American Wire Gauge

See our other Electronics Calculators.

The AWG is a logarithmic scale, so given an know resistance or diameter for a certain gauge, you can quickly figure out the resistance and diameter of another gauge number, by addition and subtraction.



*Resistance:*

1. AWG 15 is 10 mohm/m.
2. Adding 3 doubles the resistance, and subtracting 3 halves it.
3. Adding 10 multiplies the resistance by 10, and subtracting 10 it divides by 10.

*Diameter:*

1. AWG 18 has a solid diameter of about 1mm
2. Adding 6 halves the diameter, Subtracting 6 doubles the diameter
3. Adding 20 divides the diameter by 10, and subtracting 20 multiplies the diameter by 10.



| *AWG Chart* | | | | |
|---|---|---|---|---|
| **AWG Number** | **[Inch] for Solid Rod** | **[mm] for Solid Rod** | **[mm] for Solid Rod** | **Resistance [Ohm/m] Copper (20 C,68 F)** |
| 4/0 = 0000 | 0.460 | 11.7 | 107 | 0.000161 |
| 3/0 = 000 | 0.410 | 10.4 | 85.0 | 0.000203 |
| 2/0 = 00 | 0.365 | 9.26 | 67.4 | 0.000256 |
| 1/0 = 0 | 0.325 | 8.25 | 53.5 | 0.000323 |
| 1 | 0.289 | 7.35 | 42.4 | 0.000407 |
| 2 | 0.258 | 6.54 | 33.6 | 0.000513 |
| 3 | 0.229 | 5.83 | 26.7 | 0.000647 |
| 4 | 0.204 | 5.19 | 21.1 | 0.000815 |
| 5 | 0.182 | 4.62 | 16.8 | 0.00103 |
| 6 | 0.162 | 4.11 | 13.3 | 0.00130 |
| 7 | 0.144 | 3.66 | 10.5 | 0.00163 |
| 8 | 0.128 | 3.26 | 8.36 | 0.00206 |
| 9 | 0.114 | 2.91 | 6.63 | 0.00260 |
| 10 | 0.102 | 2.59 | 5.26 | 0.00328 |
| 11 | 0.0907 | 2.30 | 4.17 | 0.00413 |
| 12 | 0.0808 | 2.05 | 3.31 | 0.00521 |
| 13 | 0.0720 | 1.83 | 2.62 | 0.00657 |
| 14 | 0.0641 | 1.63 | 2.08 | 0.00829 |
| 15 | 0.0571 | 1.45 | 1.65 | 0.0104 |
| 16 | 0.0508 | 1.29 | 1.31 | 0.0132 |
| 17 | 0.0453 | 1.15 | 1.04 | 0.0166 |
| 18 | 0.0403 | 1.02 | 0.823 | 0.0210 |
| 19 | 0.0359 | 0.912 | 0.653 | 0.0264 |
| 20 | 0.0320 | 0.812 | 0.518 | 0.0333 |
| 21 | 0.0285 | 0.723 | 0.410 | 0.0420 |
| 22 | 0.0253 | 0.644 | 0.326 | 0.0530 |
| 23 | 0.0226 | 0.573 | 0.258 | 0.0668 |
| 24 | 0.0201 | 0.511 | 0.205 | 0.0842 |
| 25 | 0.0179 | 0.455 | 0.162 | 0.106 |
| 26 | 0.0159 | 0.405 | 0.129 | 0.134 |
| 27 | 0.0142 | 0.361 | 0.102 | 0.169 |
| 28 | 0.0126 | 0.321 | 0.0810 | 0.213 |
| 29 | 0.0113 | 0.286 | 0.0642 | 0.268 |

| | | | | |
|---|---|---|---|---|
| 30 | 0.0100 | 0.255 | 0.0509 | 0.339 |
| 31 | 0.00893 | 0.227 | 0.0404 | 0.427 |
| 32 | 0.00795 | 0.202 | 0.0320 | 0.538 |
| 33 | 0.00708 | 0.180 | 0.0254 | 0.679 |
| 34 | 0.00631 | 0.160 | 0.0201 | 0.856 |
| 35 | 0.00562 | 0.143 | 0.0160 | 1.08 |
| 36 | 0.00500 | 0.127 | 0.0127 | 1.36 |
| 37 | 0.00445 | 0.113 | 0.0100 | 1.72 |
| 38 | 0.00397 | 0.101 | 0.00797 | 2.16 |
| 39 | 0.00353 | 0.0897 | 0.00632 | 2.73 |
| 40 | 0.00314 | 0.0799 | 0.00501 | 3.44 |

**Manufacturer Links**

The best way to find electronic parts is to use our free Electronics Component Directory, where a myriad of electronics manufactures are listed.

**Other Electronics Links**

We offer a broad range of electrical engineering calculators and electronics articles and tutorials.

Daycounter specializes in contract electronics design. Do you need some help on your project? Contact us to get a quote.



*Salt Lake City, UT, USA*