# Wire Sizing Tables

Use these tables to determine the appropriate wire size for charging circuits in your PV power system. These tables will show you the maximum one way wire distance the conductor will pass current at the rated voltage drop. Resistance in wiring has been calculated for the round trip based on one way distance. Cross-reference by wire gauge and current (amps) to find length. For example, on the 12V table, 30A with #6 wire will run a maximum distance of 12.2 feet. This is based on 3% voltage drop and maximum temperature of 75°C. R=Resistance in Ohms per 1000 feet of wire.

**System Voltage: 12V** **Voltage Drop: 3.00%** **Temperature (°C): 75**

| R | 3.14 | 1.98 | 1.24 | 0.778 | 0.491 | 0.308 | 0.245 | 0.194 | 0.154 | 0.122 | 0.0967 | 0.0766 | 0.0608 | 0.0515 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Wire Gauge | | | | | | | | | | | | | |
| **Amps** | **#14** | **#12** | **#10** | **#8** | **#6** | **#4** | **#3** | **#2** | **#1** | **#1/0** | **#2/0** | **#3/0** | **#4/0** | **250MCM** |
| 1.00 | 57.32 | 90.91 | 145.16 | 231.36 | 366.60 | 584.42 | 734.69 | 927.84 | 1168.83 | 1475.41 | 1861.43 | 2349.87 | 2960.53 | 3495.15 |
| 2.00 | 28.66 | 45.45 | 72.58 | 115.68 | 183.30 | 292.21 | 367.35 | 463.92 | 584.42 | 737.70 | 930.71 | 1174.93 | 1480.26 | 1747.57 |
| 4.00 | 14.33 | 22.73 | 36.29 | 57.84 | 91.65 | 146.10 | 183.67 | 231.96 | 292.21 | 368.85 | 465.36 | 587.47 | 740.13 | 873.79 |
| 6.00 | 9.55 | 15.15 | 24.19 | 38.56 | 61.10 | 97.40 | 122.45 | 154.64 | 194.81 | 245.90 | 310.24 | 391.64 | 493.42 | 582.52 |
| 8.00 | 7.17 | 11.36 | 18.15 | 28.92 | 45.82 | 73.05 | 91.84 | 115.98 | 146.10 | 184.43 | 232.68 | 293.73 | 370.07 | 436.89 |
| 10.00 | 5.73 | 9.09 | 14.52 | 23.14 | 36.66 | 58.44 | 73.47 | 92.78 | 116.88 | 147.54 | 186.14 | 234.99 | 296.05 | 349.51 |
| 12.00 | 4.78 | 7.58 | 12.10 | 19.28 | 30.55 | 48.70 | 61.22 | 77.32 | 97.40 | 122.95 | 155.12 | 195.82 | 246.71 | 291.26 |
| 14.00 | 4.09 | 6.49 | 10.37 | 16.53 | 26.19 | 41.74 | 52.48 | 66.27 | 83.49 | 105.39 | 132.96 | 167.85 | 211.47 | 249.65 |
| 16.00 | 3.58 | 5.68 | 9.07 | 14.46 | 22.91 | 36.53 | 45.92 | 57.99 | 73.05 | 92.21 | 116.34 | 146.87 | 185.03 | 218.45 |
| 18.00 | 3.18 | 5.05 | 8.06 | 12.85 | 20.37 | 32.47 | 40.82 | 51.55 | 64.94 | 81.97 | 103.41 | 130.55 | 164.47 | 194.17 |
| 20.00 | 2.87 | 4.55 | 7.26 | 11.57 | 18.33 | 29.22 | 36.73 | 46.39 | 58.44 | 73.77 | 93.07 | 117.49 | 148.03 | 174.76 |
| 25.00 | 2.29 | 3.64 | 5.81 | 9.25 | 14.66 | 23.38 | 29.39 | 37.11 | 46.75 | 59.02 | 74.46 | 93.99 | 118.42 | 139.81 |
| 30.00 | 1.91 | 3.03 | 4.84 | 7.71 | 12.22 | 19.48 | 24.49 | 30.93 | 38.96 | 49.18 | 62.05 | 78.33 | 98.68 | 116.50 |
| 35.00 | 1.64 | 2.60 | 4.15 | 6.61 | 10.47 | 16.70 | 20.99 | 26.51 | 33.40 | 42.15 | 53.18 | 67.14 | 84.59 | 99.86 |
| 40.00 | 1.43 | 2.27 | 3.63 | 5.78 | 9.16 | 14.61 | 18.37 | 23.20 | 29.22 | 36.89 | 46.54 | 58.75 | 74.01 | 87.38 |
| 45.00 | 1.27 | 2.02 | 3.23 | 5.14 | 8.15 | 12.99 | 16.33 | 20.62 | 25.97 | 32.79 | 41.37 | 52.22 | 65.79 | 77.67 |
| 50.00 | 1.15 | 1.82 | 2.90 | 4.63 | 7.33 | 11.69 | 14.69 | 18.56 | 23.38 | 29.51 | 37.23 | 47.00 | 59.21 | 69.90 |
| 55.00 | 1.04 | 1.65 | 2.64 | 4.21 | 6.67 | 10.63 | 13.36 | 16.87 | 21.25 | 26.83 | 33.84 | 42.72 | 53.83 | 63.55 |
| 60.00 | 0.96 | 1.52 | 2.42 | 3.86 | 6.11 | 9.74 | 12.24 | 15.46 | 19.48 | 24.59 | 31.02 | 39.16 | 49.34 | 58.25 |
| 65.00 | 0.88 | 1.40 | 2.23 | 3.56 | 5.64 | 8.99 | 11.30 | 14.27 | 17.98 | 22.70 | 28.64 | 36.15 | 45.55 | 53.77 |
| 70.00 | 0.82 | 1.30 | 2.07 | 3.31 | 5.24 | 8.35 | 10.50 | 13.25 | 16.70 | 21.08 | 26.59 | 33.57 | 42.29 | 49.93 |
| 75.00 | 0.76 | 1.21 | 1.94 | 3.08 | 4.89 | 7.79 | 9.80 | 12.37 | 15.58 | 19.67 | 24.82 | 31.33 | 39.47 | 46.60 |
| 80.00 | 0.72 | 1.14 | 1.81 | 2.89 | 4.58 | 7.31 | 9.18 | 11.60 | 14.61 | 18.44 | 23.27 | 29.37 | 37.01 | 43.69 |
| 85.00 | 0.67 | 1.07 | 1.71 | 2.72 | 4.31 | 6.88 | 8.64 | 10.92 | 13.75 | 17.36 | 21.90 | 27.65 | 34.83 | 41.12 |
| 90.00 | 0.64 | 1.01 | 1.61 | 2.57 | 4.07 | 6.49 | 8.16 | 10.31 | 12.99 | 16.39 | 20.68 | 26.11 | 32.89 | 38.83 |
| 95.00 | 0.60 | 0.96 | 1.53 | 2.44 | 3.86 | 6.15 | 7.73 | 9.77 | 12.30 | 15.53 | 19.59 | 24.74 | 31.16 | 36.79 |
| 100.00 | 0.57 | 0.91 | 1.45 | 2.31 | 3.67 | 5.84 | 7.35 | 9.28 | 11.69 | 14.75 | 18.61 | 23.50 | 29.61 | 34.95 |
| 125.00 | 0.46 | 0.73 | 1.16 | 1.85 | 2.93 | 4.68 | 5.88 | 7.42 | 9.35 | 11.80 | 14.89 | 18.80 | 23.68 | 27.96 |
| 150.00 | 0.38 | 0.61 | 0.97 | 1.54 | 2.44 | 3.90 | 4.90 | 6.19 | 7.79 | 9.84 | 12.41 | 15.67 | 19.74 | 23.30 |
| 175.00 | 0.33 | 0.52 | 0.83 | 1.32 | 2.09 | 3.34 | 4.20 | 5.30 | 6.68 | 8.43 | 10.64 | 13.43 | 16.92 | 19.97 |
| 200.00 | 0.29 | 0.45 | 0.73 | 1.16 | 1.83 | 2.92 | 3.67 | 4.64 | 5.84 | 7.38 | 9.31 | 11.75 | 14.80 | 17.48 |
| 225.00 | 0.25 | 0.40 | 0.65 | 1.03 | 1.63 | 2.60 | 3.27 | 4.12 | 5.19 | 6.56 | 8.27 | 10.44 | 13.16 | 15.53 |
| 250.00 | 0.23 | 0.36 | 0.58 | 0.93 | 1.47 | 2.34 | 2.94 | 3.71 | 4.68 | 5.90 | 7.45 | 9.40 | 11.84 | 13.98 |
| 275.00 | 0.21 | 0.33 | 0.53 | 0.84 | 1.33 | 2.13 | 2.67 | 3.37 | 4.25 | 5.37 | 6.77 | 8.54 | 10.77 | 12.71 |
| 300.00 | 0.19 | 0.30 | 0.48 | 0.77 | 1.22 | 1.95 | 2.45 | 3.09 | 3.90 | 4.92 | 6.20 | 7.83 | 9.87 | 11.65 |
| 400.00 | 0.14 | 0.23 | 0.36 | 0.58 | 0.92 | 1.46 | 1.84 | 2.32 | 2.92 | 3.69 | 4.65 | 5.87 | 7.40 | 8.74 |