

Wire Gauge Chart

Determining Wire Gauge

Example:

Power supply voltage equals **12 volts**. Load equals 3 electromagnetic locks. Each lock requires **0.280 amps** of current. Total current draw equals (3 x 0.280 = 0.840 amps). Round off current to **1 Amp**. (*Always round off in an upward direction.*) Distance from farthest electromagnetic lock equals **100 feet**. Locate the 1.00 Amp 12V row from the left side of the chart. Select the distance in this row closest to the distance of the farthest lock. The wire gauge required can be found at the top of the column (**#18 AWG**).

Total Amps	Voltage AC or DC	(AWG) American Wire Gauges (minimum)					
		10	12	14	16	18	20
.250A	12V	3000	2000	1200	750	450	300
	24V	6000	4000	2400	1500	900	600
.500A	12V	1500	1000	600	375	225	150
	24V	3000	2000	1200	750	450	300
.750A	12V	1000	600	375	250	150	100
	24V	2000	1200	750	500	300	200
1.00A	12V	800	500	300	200	100	75
	24V	1600	1000	600	400	200	150
1.25A	12V	600	380	240	150	90	60
	24V	1200	760	480	300	180	120
1.50A	12V	500	300	200	125	80	50
	24V	1000	600	400	250	160	100
1.75A	12V	460	275	170	100	70	40
	24V	920	550	340	200	140	80
2.00A	12V	400	240	150	90	60	35
	24V	800	480	300	180	120	70
2.25A	12V	350	200	130	80	50	
	24V	700	400	260	160	100	
2.50A	12V	300	190	120	75		
	24V	600	380	240	150		
2.75A	12V	280	170	100	70		
	24V	560	340	200	140		
3.00A	12V	260	160	100	60		
	24V	520	320	200	120		
		Total distance in feet (maximum)					

Types of Wire:

Hookup wire is available in both solid and stranded wire types. Stranded wire is the accepted standard for system hookup as it is more flexible and less likely to break. It's made of several small-diameter wires twisted together to form one larger-diameter conductor. To prevent the strands from separating, stranded wire is usually tinned (solder applied to ends of wire). This makes connections easier and prevents the wire from fraying.

Wire Composition:

Most electrical hookup wire is copper; some is copper-coated aluminum. Aluminum wire is cheaper, but copper is the preferred wire choice.

Wire Gauge:

Wire is given a gauge number to classify it by its size or thickness. American wire gauge (AWG) is the most common measurement for electrical wire size – the lower the wire gauge number, the larger the wire diameter and the greater the current carrying capability.

Wire Insulation:

The wire insulation should be UL or CSA approved for the maximum voltage to which the wire will be subjected. Normally, the wire rating is three to six times greater than the maximum voltage to be applied to the wire.