

Custom Marine Products Wire Size Worksheet

Wire Size Voltage Drop Allowed in 12 volt Systems

2% Voltage Drop Chart For 12 volt Systems

Maximum distance in feet of various gauge two conductor copper wire from power source to load for 2% voltage drop in a 12 volt system. Do not exceed the 2% drop for wire between PV modules and batteries. A 4 to 5% loss is acceptable between batteries and lighting circuits in most cases, however the cost of the next larger wire size is usually insignificant and increases efficiency.

Amps	#14	#12	#10	#8	#6	#4	#2	#1/0	#2/0	#4/0
1	45	70	115	180	290	456	720			
2	22.5	35	57.5	90	145	228	360	580	720	1060
4	10	17.5	27.5	45	72.5	114	180	290	360	580
6	7.5	12	17.5	30	47.5	75	120	193	243	380
8	5.5	8.5	11.5	22.5	35.5	57	90	145	180	290
10	4.5	7	11.5	18	28.5	45.5	72.5	115	145	230
15	3	4.5	7	12	19	30	48	76.5	96	150
20	2	3.5	5.5	9	14.5	22.5	36	57.5	72.5	116
25	1.8	2.8	4.5	7	11.5	18	29	46	58	92
30	1.5	2.4	3.5	6	9.5	15	24	38.5	48.5	77
40			2.8	4.5	7	11.5	18	29	36	56
50			2.3	3.6	5.5	9	14.5	23	29	46
100					2.9	4.6	7.2	11.5	14.5	23
150							4.8	7.7	9.7	15
200							3.6	5.8	7.3	11

Maximum Ampacity for Copper and Aluminum Wire

Wire Size	Copper	Aluminum
14	25	
12	30	25
10	40	35
8	55	45
6	75	60
4	95	75
2	130	100
1	150	115
1/0	170	135
2/0	265	150
4/0	360	205