

Use these tables to determine the maximum distance one-way in feet of various gauge 2-conductor copper wire from power source to load for 2% voltage drop in 12 volt and 24 volt system wiring. You can go twice the distance where a 4% loss is acceptable. 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.

12 Volt System - 2% Voltage Drop

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	15	22.5	35.5	57	90	145	180	290
10	4.5	7	12	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

24 Volt System - 2% Voltage Drop

AMPS	#14	#12	#10	#8	#6	#4	#2	1/0	2/0	4/0
1	90	140	230	360	580	912	1440			
2	45	70	115	180	290	456	720	1160	1440	2120
4	20	35	55	90	145	228	360	580	720	1160
6	15	24	35	60	95	150	240	386	486	760
8	11	17	30	45	71	114	180	290	360	580
10	9	14	24	36	57	91	145	230	290	460
15	6	9	14	24	38	60	96	153	192	300
20	4	7	11	18	29	45	72	115	145	232
25	3.6	5.6	9	14	23	36	58	92	116	184
30	3	4.8	7	12	19	30	48	77	97	154
40			5.6	9	14	23	36	58	72	112
50			4.6	7.2	11	18	29	46	58	92
100					5.8	9.2	14.4	23	29	46
150							9.6	15.4	19.4	30
200							7.2	11.6	14.6	22



Use these tables to determine the maximum distance one-way in feet of various gauge two conductor copper wire from power source to load for 2% voltage drop in 48 volt and 120 volt system wiring. You can go twice the distance where a 4% loss is acceptable. 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.

48 Volt System - 2% Voltage Drop

AMPS	#14	#12	#10	#8	#6	#4	#2	1/0	2/0	4/0
1	180	280	460	720	1160	1824	2880			
2	90	140	230	360	580	912	1440	2320	2880	4240
4	40	70	110	180	290	456	720	1160	1440	2320
6	30	48	70	120	190	300	480	772	972	1520
8	22	34	60	90	142	228	360	580	720	1160
10	18	28	48	72	114	182	290	460	580	920
15	12	18	28	48	76	120	192	306	384	600
20	8	14	22	36	58	90	144	230	290	464
25	7.2	11.2	18	28	46	72	116	184	232	368
30	6	9.6	14	24	38	60	96	154	194	308
40			11.2	18	28	46	72	116	144	224
50			9.2	14.4	22	36	58	92	116	184
100					11.6	18.4	28.8	46	58	92
150							19.2	30.8	38.8	60
200							14.4	23.2	29.2	44

120 Volt System - 2% Voltage Drop

AMPS	#14	#12	#10	#8	#6	#4	#2	1/0	2/0	4/0
1	450	700	1150	1800	2900	4560	7200	0	0	0
2	225	350	575	900	1450	2280	3600	5800	7200	10600
4	100	175	275	450	725	1140	1800	2900	3600	5800
6	75	120	175	300	475	750	1200	1930	2430	3800
8	55	85	150	225	355	570	900	1450	1800	2900
10	45	70	120	180	285	455	725	1150	1450	2300
15	30	45	70	120	190	300	480	765	960	1500
20	20	35	55	90	145	225	360	575	725	1160
25	18	28	45	70	115	180	290	460	580	920
30	15	24	35	60	95	150	240	385	485	770
40			28	45	70	115	180	290	360	560
50			23	36	55	90	145	230	290	460
100				18	29	46	72	115	145	230
150							48	77	97	150
200							36	58	73	110

