



## Voltage Drop Tables

6 Volt Systems – Maximum voltage drop 5% per National Electric Code – Wiring distance in feet																					
Wire Size	Watts	4	6	8	10	12	13	16	18	20	24	25	28	35	44	60	75	100	150	200	250
#12		111	89	67	53	45	41	33	30	27	22	21	19	15	12	11	8	6	4		
#10		177	141	106	85	71	65	53	47	42	35	32	30	24	19	17	11	9	6		
#8		281	225	106	135	113	110	84	75	68	56	54	48	39	31	27	18	14	9	7	
#6		447	358	268	215	179	165	134	120	107	89	86	77	62	49	43	29	22	15	11	9

12 Volt Systems – Maximum voltage drop 5% per National Electric Code – Wiring distance in feet																				
Wire Size	Watts	4	8	12	13	16	18	24	25	28	35	44	50	75	100	150	200	250	300	
#12		534	267	178	165	134	110	89	85	76	61	49	42	29	21	14	10	8		
#10		849	425	283	260	212	190	142	136	121	97	77	68	45	34	23	17	14	11	
#8		1351	675	450	415	338	300	225	215	193	154	123	108	72	54	36	27	21	18	
#6		2148	1073	716	660	537	485	358	340	307	245	195	170	114	86	57	43	34	28	

24 Volt Systems – Maximum voltage drop 5% per National Electric Code – Wiring distance in feet																
Wire Size	Watts	13	18	25	28	35	44	50	75	100	150	200	250	300	400	
#12		660	440	340	305	244	195	168	116	84	56	40	32	26	21	
#10		1040	760	544	485	388	309	272	180	136	92	68	52	44	34	
#8		1668	1200	860	772	616	491	432	288	216	144	108	84	72	54	
#6		2640	1900	1360	1227	980	781	650	456	344	228	172	136	112	85	

32 Volt Systems – Maximum voltage drop 5% per National Electric Code – Wiring distance in feet																
Wire Size	Watts	13	18	25	28	35	44	50	75	100	150	200	250	300	400	
#12		1170	840	600	543	435	345	300	200	150	100	75	60	50	42	
#10			1340	960	863	690	549	480	320	240	160	120	86	80	63	
#8				1540	1372	100	873	770	510	385	255	192	154	128	100	
#6					2180	1740	1388	1220	815	610	405	305	240	200	163	

### Circular Mill Chart

AWG	AMP Capacity	C/M
12	20	6530
10	25	10380
8	30	16510
6	50	26250

### Formulas

$$CM = \frac{440 \times W \times D}{V^2}$$

- CM = Wire size in circular mills
- W = Load in watts (emergency light load)
- D = Distance (Battery to Load) in feet
- V = Line Voltage ( $V_2 = V \times X$ )
- 440 = Constant including factor for allowable voltage drop 5%

- $V_2$  for 6V = 36
- $V_2$  for 12V = 144
- $V_2$  for 24V = 576
- $V_2$  for 32 = 1024