

VOLTAGE DROP

6V max. voltage drop 5% Per Canadian Electrical Code (wiring distance in feet)

#Wire	WATTS																			
	4	6	8	10	12	13	16	18	20	24	25	28	35	44	50	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	169	135	118	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

12V max. voltage drop 5% Per Canadian Electrical Code (wiring distance in feet)

#Wire	WATTS																		
	4	8	12	13	16	18	24	25	28	35	44	50	75	100	150	200	250	300	
12	534	267	178	165	184	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	475	358	340	307	245	195	170	114	86	57	43	34	28	

24V max. voltage drop 5% Per Canadian Electrical Code (wiring distance in feet)

#Wire	WATTS														
	13	18	25	28	35	44	50	75	100	150	200	250	300	400	
12	660	440	340	305	244	194	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	960	781	680	456	344	228	172	136	112	85	

32V max. voltage drop 5% Per Canadian Electrical Code (wiring distance in feet)

#Wire	WATTS														
	13	18	25	28	35	44	50	75	100	150	200	250	300	400	
12	1170	940	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	1100	873	770	510	385	255	192	154	128	100	
6	-	-	-	2180	1740	1388	1220	815	610	405	305	240	200	163	

VOLTAGE DROP FORMULA

$$CM = \frac{22 \times W \times L}{0.05 \times E^2}$$

$$L = \frac{CM \times 0.05 \times E^2}{22 \times W}$$

CIRCULAR MILS CHART		
AWG	AMP Capacity	C/M
12	20	6.530
10	25	10.380
8	30	16.510
6	50	26.250

CM - Wire size in circular mils

W - Emergency load in watts

L - Length of circuit in feet

E - Line voltage

22 - Constant

0.05 - Factor for maximum allowable voltage drop