

VOLTAGE DROP

Max. voltage drop 5% Per Canadian Electrical Code (wiring distance in feet)

VOLTAGE	#Wire	WATTS																					
		4	6	8	10	12	13	16	18	20	24	25	28	35	44	50	75	100	150	200	250	300	400
6 Volts	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	-	-
12 Volts	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	-
24 Volts	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
32 Volts	12	-	-	-	-	-	1170	-	940	-	-	600	543	435	345	300	200	150	75	60	50	42	21
	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