

WIRING DISTANCE (MEASURED IN FEET)

6 VOLT				TOTAL WATTS ON WIRE RUN	12 VOLT				
12 GA	10 GA	8 GA	6 GA		12 GA	10 GA	8 GA	6 GA	4 GA
89	141	225	357	6	356	566	900	1431	2276
66	106	168	268	8	267	424	675	1073	1707
59	94	150	238	9	237	377	600	954	1517
53	84	135	214	10	213	339	540	859	1366
44	70	112	178	12	178	283	450	715	1138
33	53	84	134	16	133	212	337	536	853
29	47	75	119	18	118	188	300	477	758
22	35	56	89	24	89	141	225	357	569
21	33	54	85	25	85	135	216	343	546
19	31	50	79	27	79	125	200	318	505
17	28	45	71	30	71	113	180	286	455
14	23	37	59	36	59	94	150	238	379
12	20	32	51	42	51	80	128	204	325
11	18	30	47	45	47	75	120	190	303
11	17	28	44	48	44	70	112	178	284
10	16	27	42	50	42	67	108	171	273
7	11	18	28	75	28	45	72	114	182
5	8	13	21	100	21	33	54	85	136
	5	9	14	150	14	22	36	57	91
		6	10	200	10	16	27	42	68
		5	8	250	8	13	21	34	54
			7	300	7	11	18	28	45

KEY TO LONGER WIRE RUNS

THE WIRING DISTANCE CHART GIVES THE MAXIMUM LENGTH OF A GIVEN REMOTE LAMP CIRCUIT, ASSUME THE ENTIRE REMOTE LOAD IS CONCENTRATED AT THE END OF THE WIRE RUN. IF REMOTE LAMP FIXTURES ARE UNIFORMLY SPACED ALONG THE CIRCUIT PATH (EQUAL WATTS SPACED AT EQUAL DISTANCE), THE LENGTHS IN THE TABLE MAY BE INCREASED, BASED ON THE CHART AND FORMULA BELOW:

# OF FIXTURES

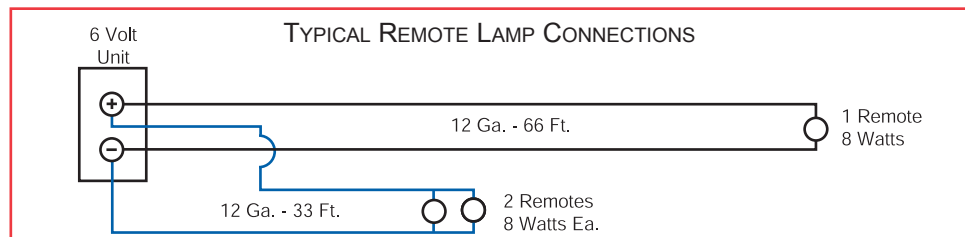
2	3	4	5	6	N
1.33	1.5	1.6	1.67	1.71	$2N/(N+1)$

MULTIPLY FEET BY

FOR EXAMPLE, A 100 FOOT LONG, 12 VOLT, REMOTE LAMP CIRCUIT HAS FOUR 12 WATT FIXTURES SPACED 25 FEET APART. ACCORDING TO THE WIRE DISTANCE CHART, #8 GA. WIRE WOULD BE REQUIRED FOR 48 TOTAL WATTS UP TO 112 FEET, TO ALLOW A 5% VOLTAGE DROP OR LESS. HOWEVER, SINCE THE FIXTURES ARE EQUAL IN WATTAGE AND ARE SPACED EQUALLY ALONG THE CIRCUIT, THE DISTANCE OF 70 FEET FOR #10 GA. WIRE CAN BE MULTIPLIED BY 1.6 (70 x 1.6 = 112), SO IN THIS CASE UP TO A 112 FOOT WIRE RUN WITH #10 GA. WIRE WOULD BE ACCEPTABLE.

NOTE: FOR SYSTEMS OPERATING AT LESS THAN 50 VOLTS, THE SMALLEST PERMISSIBLE WIRE SIZE IS #12 GA. COPPER OR EQUIVALENT PER NFPA70 (NATIONAL ELECTRICAL CODE), ARTICLE 720-4.

MAXIMUM VOLTAGE  
DROP 5%



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