12 GAUGE CABLE Voltage Drop Matrix

CABLE LENGTH IN FEET

WATTAGE LOAD	10'	20'	30'	40'	50'	60'	70'	80'	90'	100'	120'	140'	160'	180'	200'	250'	300'
5	0.01	0.02	0.03	0.04	0.06	0.07	0.08	0.09	0.10	0.11	0.13	0.16	0.18	0.20	0.22	0.28	0.33
10	0.02	0.04	0.07	0.09	0.11	0.13	0.16	0.18	0.20	0.22	0.27	0.31	0.36	0.40	0.44	0.56	0.67
15	0.03	0.07	0.10	0.13	0.17	0.20	0.23	0.27	0.30	0.33	0.40	0.47	0.53	0.60	0.67	0.83	1.00
20	0.04	0.09	0.13	0.18	0.22	0.27	0.31	0.36	0.40	0.44	0.53	0.62	0.71	0.80	0.89	1.11	1.33
25	0.06	0.11	0.17	0.22	0.28	0.33	0.39	0.44	0.50	0.56	0.67	0.78	0.89	1.00	1.11	1.39	1.67
30	0.07	0.13	0.20	0.27	0.33	0.40	0.47	0.53	0.60	0.67	0.80	0.93	1.07	1.20	1.33	1.67	2.00
35	0.08	0.16	0.23	0.31	0.39	0.47	0.54	0.62	0.70	0.78	0.93	1.09	1.24	1.40	1.56	1.94	2.33
40	0.09	0.18	0.27	0.36	0.44	0.53	0.62	0.71	0.80	0.89	1.07	1.24	1.42	1.60	1.78	2.22	2.67
45	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	1.00	1.20	1.40	1.60	1.80	2.00	2.50	3.00
50	0.11	0.22	0.33	0.44	0.56	0.67	0.78	0.89	1.00	1.11	1.33	1.56	1.78	2.00	2.22	2.78	3.33
55	0.12	0.24	0.37	0.49	0.61	0.73	0.86	0.98	1.10	1.22	1.47	1.71	1.96	2.20	2.44	3.06	3.67
60	0.13	0.27	0.40	0.53	0.67	0.80	0.93	1.07	1.20	1.33	1.60	1.87	2.13	2.40	2.67	3.33	4.00
65	0.14	0.29	0.43	0.58	0.72	0.87	1.01	1.16	1.30	1.44	1.73	2.02	2.31	2.60	2.89	3.61	4.33
70	0.16	0.31	0.47	0.62	0.78	0.93	1.09	1.24	1.40	1.56	1.87	2.18	2.49	2.80	3.11	3.89	4.67
75	0.17	0.33	0.50	0.67	0.83	1.00	1.17	1.33	1.50	1.67	2.00	2.33	2.67	3.00	3.33	4.17	5.00
80	0.18	0.36	0.53	0.71	0.89	1.07	1.24	1.42	1.60	1.78	2.13	2.49	2.84	3.20	3.56	4.44	5.33
85	0.19	0.38	0.57	0.76	0.94	1.13	1.32	1.51	1.70	1.89	2.27	2.64	3.02	3.40	3.78	4.72	5.67
90	0.20	0.40	0.60	0.80	1.00	1.20	1.40	1.60	1.80	2.00	2.40	2.80	3.20	3.60	4.00	5.00	6.00
95	0.21	0.42	0.63	0.84	1.06	1.27	1.48	1.69	1.90	2.11	2.53	2.96	3.38	3.80	4.22	5.28	6.33
100	0.22	0.44	0.67	0.89	1.11	1.33	1.56	1.78	2.00	2.22	2.67	3.11	3.56	4.00	4.44	5.56	6.67
110	0.24	0.49	0.73	0.98	1.22	1.47	1.71	1.96	2.20	2.44	2.93	3.42	3.91	4.40	4.89	6.11	7.33
120	0.27	0.53	0.80	1.07	1.33	1.60	1.87	2.13	2.40	2.67	3.20	3.73	4.27	4.80	5.33	6.67	8.00
130	0.29	0.58	0.87	1.16	1.44	1.73	2.02	2.31	2.60	2.89	3.47	4.04	4.62	5.20	5.78	7.22	8.67
140	0.31	0.62	0.93	1.24	1.56	1.87	2.18	2.49	2.80	3.11	3.73	4.36	4.98	5.60	6.22	7.78	9.33
150	0.33	0.67	1.00	1.33	1.67	2.00	2.33	2.67	3.00	3.33	4.00	4.67	5.33	6.00	6.67	8.33	10.00
160	0.36	0.71	1.07	1.42	1.78	2.13	2.49	2.84	3.20	3.56	4.27	4.98	5.69	6.40	7.11	8.89	10.67
170	0.38	0.76	1.13	1.51	1.89	2.27	2.64	3.02	3.40	3.78	4.53	5.29	6.04	6.80	7.56	9.44	11.33
180	0.40	0.80	1.20	1.60	2.00	2.40	2.80	3.20	3.60	4.00	4.80	5.60	6.40	7.20	8.00	10.00	12.00
190	0.42	0.84	1.27	1.69	2.11	2.53	2.96	3.38	3.80	4.22	5.07	5.91	6.76	7.60	8.44	10.56	12.67
200	0.44	0.89	1.33	1.78	2.22	2.67	3.11	3.56	4.00	4.44	5.33	6.22	7.11	8.00	8.89	11.11	13.33
250	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga	10 ga
300	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga	8 ga

- How to use this Matrix: Find the load and length of the planned run. In the intersecting box is the voltage drop for that section of cable.
- To find the total voltage drop of a run, add up the individual sections voltage drop (from transformer to 1st lite + 1st lite to 2nd lite + 2nd to 3rd + etc).
- The goal is to have the voltage drop at any light on the run be within the white zone — you should loose at least .50 volts but no more than 2.50 volts to have the system perform safely and properly. Low voltage lamps are designed to operate between 10.5 - 11.5 volts. Use the voltage tap on the PX transformer that will provide each lamp 10.5 - 11.5 volts.

NOTE: Shaded Areas Not Recommended. Use Next Gauge Cable Size or Increase/Reduce Load.