

# 14 GAUGE CABLE Voltage Drop Matrix

## CABLE LENGTH IN FEET

WATTAGE LOAD	CABLE LENGTH IN FEET																
	10'	20'	30'	40'	50'	60'	70'	80'	90'	100'	120'	140'	160'	180'	200'	250'	300'
5	0.02	0.03	0.05	0.07	0.08	0.10	0.12	0.13	0.15	0.17	0.20	0.23	0.27	0.30	0.33	0.42	<b>0.50</b>
10	0.03	0.07	0.10	0.13	0.17	0.20	0.23	0.27	0.30	0.33	0.40	0.47	<b>0.53</b>	<b>0.60</b>	<b>0.67</b>	<b>0.83</b>	<b>1.00</b>
15	0.05	0.10	0.15	0.20	0.25	0.30	0.35	0.40	<b>0.45</b>	<b>0.50</b>	<b>0.60</b>	<b>0.70</b>	<b>0.80</b>	<b>0.90</b>	<b>1.00</b>	<b>1.25</b>	<b>1.50</b>
20	0.07	0.13	0.20	0.27	0.33	0.40	0.47	<b>0.53</b>	<b>0.60</b>	<b>0.67</b>	<b>0.80</b>	<b>0.93</b>	<b>1.07</b>	<b>1.20</b>	<b>1.33</b>	<b>1.67</b>	<b>2.00</b>
25	0.08	0.17	0.25	0.33	0.42	<b>0.50</b>	<b>0.58</b>	<b>0.67</b>	<b>0.75</b>	<b>0.83</b>	<b>1.00</b>	<b>1.17</b>	<b>1.33</b>	<b>1.50</b>	<b>1.67</b>	<b>2.08</b>	<b>2.50</b>
30	0.10	0.20	0.30	0.40	<b>0.50</b>	<b>0.60</b>	<b>0.70</b>	<b>0.80</b>	<b>0.90</b>	<b>1.00</b>	<b>1.20</b>	<b>1.40</b>	<b>1.60</b>	<b>1.80</b>	<b>2.00</b>	<b>2.50</b>	3.00
35	0.12	0.23	0.35	0.47	<b>0.58</b>	<b>0.70</b>	<b>0.82</b>	<b>0.93</b>	<b>1.05</b>	<b>1.17</b>	<b>1.40</b>	<b>1.63</b>	<b>1.87</b>	<b>2.10</b>	<b>2.33</b>	2.92	3.50
40	0.13	0.27	0.40	<b>0.53</b>	<b>0.67</b>	<b>0.80</b>	<b>0.93</b>	<b>1.07</b>	<b>1.20</b>	<b>1.33</b>	<b>1.60</b>	<b>1.87</b>	<b>2.13</b>	<b>2.40</b>	2.67	3.33	4.00
45	0.15	0.30	0.45	<b>0.60</b>	<b>0.75</b>	<b>0.90</b>	<b>1.05</b>	<b>1.20</b>	<b>1.35</b>	<b>1.50</b>	<b>1.80</b>	<b>2.10</b>	<b>2.40</b>	2.70	3.00	3.75	4.50
50	0.17	0.33	<b>0.50</b>	<b>0.67</b>	<b>0.83</b>	<b>1.00</b>	<b>1.17</b>	<b>1.33</b>	<b>1.50</b>	<b>1.67</b>	<b>2.00</b>	<b>2.33</b>	2.67	3.00	3.33	4.17	5.00
55	0.18	0.37	<b>0.55</b>	<b>0.73</b>	<b>0.92</b>	<b>1.10</b>	<b>1.28</b>	<b>1.47</b>	<b>1.65</b>	<b>1.83</b>	<b>2.20</b>	2.57	2.93	3.30	3.67	4.58	5.50
60	0.20	0.40	<b>0.60</b>	<b>0.80</b>	<b>1.00</b>	<b>1.20</b>	<b>1.40</b>	<b>1.60</b>	<b>1.80</b>	<b>2.00</b>	<b>2.40</b>	2.80	3.20	3.60	4.00	5.00	6.00
65	0.22	0.43	<b>0.65</b>	<b>0.87</b>	<b>1.08</b>	<b>1.30</b>	<b>1.52</b>	<b>1.73</b>	<b>1.95</b>	<b>2.17</b>	2.60	3.03	3.47	3.90	4.33	5.42	6.50
70	0.23	0.47	<b>0.70</b>	<b>0.93</b>	<b>1.17</b>	<b>1.40</b>	<b>1.63</b>	<b>1.87</b>	<b>2.10</b>	<b>2.33</b>	2.80	3.27	3.73	4.20	4.67	5.83	7.00
75	0.25	<b>0.50</b>	<b>0.75</b>	<b>1.00</b>	<b>1.25</b>	<b>1.50</b>	<b>1.75</b>	<b>2.00</b>	<b>2.25</b>	<b>2.50</b>	3.00	3.50	4.00	4.50	5.00	6.25	7.50
80	0.27	<b>0.53</b>	<b>0.80</b>	<b>1.07</b>	<b>1.33</b>	<b>1.60</b>	<b>1.87</b>	<b>2.13</b>	<b>2.40</b>	2.67	3.20	3.73	4.27	4.80	5.33	6.67	8.00
85	0.28	<b>0.57</b>	<b>0.85</b>	<b>1.13</b>	<b>1.42</b>	<b>1.70</b>	<b>1.98</b>	<b>2.27</b>	2.55	2.83	3.40	3.97	4.53	5.10	5.67	7.08	8.50
90	0.30	<b>0.60</b>	<b>0.90</b>	<b>1.20</b>	<b>1.50</b>	<b>1.80</b>	<b>2.10</b>	<b>2.40</b>	2.70	3.00	3.60	4.20	4.80	5.40	6.00	7.50	9.00
95	0.32	<b>0.63</b>	<b>0.95</b>	<b>1.27</b>	<b>1.58</b>	<b>1.90</b>	<b>2.22</b>	<b>2.53</b>	2.85	3.17	3.80	4.43	5.07	5.70	6.33	7.92	9.50
100	0.33	<b>0.67</b>	<b>1.00</b>	<b>1.33</b>	<b>1.67</b>	<b>2.00</b>	<b>2.33</b>	2.67	3.00	3.33	4.00	4.67	5.33	6.00	6.67	8.33	10.00
110	0.37	<b>0.73</b>	<b>1.10</b>	<b>1.47</b>	<b>1.83</b>	<b>2.20</b>	2.57	2.93	3.30	3.67	4.40	5.13	5.87	6.60	7.33	9.17	11.00
120	0.40	<b>0.80</b>	<b>1.20</b>	<b>1.60</b>	<b>2.00</b>	<b>2.40</b>	2.80	3.20	3.60	4.00	4.80	5.60	6.40	7.20	8.00	10.00	12.00
130	0.43	<b>0.87</b>	<b>1.30</b>	<b>1.73</b>	<b>2.17</b>	2.60	3.03	3.47	3.90	4.33	5.20	6.07	6.93	7.80	8.67	10.83	13.00
140	0.47	<b>0.93</b>	<b>1.40</b>	<b>1.87</b>	<b>2.33</b>	2.80	3.27	3.73	4.20	4.67	5.60	6.53	7.47	8.40	9.33	11.67	14.00
150	<b>0.50</b>	<b>1.00</b>	<b>1.50</b>	<b>2.00</b>	<b>2.50</b>	3.00	3.50	4.00	4.50	5.00	6.00	7.00	8.00	9.00	10.00	12.50	15.00
160	<b>0.53</b>	<b>1.07</b>	<b>1.60</b>	<b>2.13</b>	2.67	3.20	3.73	4.27	4.80	5.33	6.40	7.47	8.53	9.60	10.67	13.33	16.00
170	<b>0.57</b>	<b>1.13</b>	<b>1.70</b>	<b>2.27</b>	2.83	3.40	3.97	4.53	5.10	5.67	6.80	7.93	9.07	10.20	11.33	14.17	17.00
180	<b>0.60</b>	<b>1.20</b>	<b>1.80</b>	<b>2.40</b>	3.00	3.60	4.20	4.80	5.40	6.00	7.20	8.40	9.60	10.80	12.00	15.00	18.00
190	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>
200	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>	<b>12 ga</b>
250	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>	<b>10 ga</b>
300	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>	<b>8 ga</b>

- 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 lose 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.**