

Conductor

Table 1: Solid Copper Wire, American Wire Gage

Gage (AWG)	Nominal OD			Nominal Circular MIL Area	Nominal Weight		Nominal Resistance @ 68°F (20°C)	
	inch	mm	mm ²		lbs./1000 ft.	kg/km	/1000 ft.	/km
40	0.0031	0.079	0.005	9.61	0.02993	0.04	1080.0	3542.40
39	0.0035	0.089	0.006	12.20	0.03774	0.06	847.8	2780.78
38	0.0040	0.102	0.008	15.72	0.04759	0.07	648.6	2127.41
37	0.0045	0.114	0.010	19.83	0.0613	0.09	512.1	1679.69
36	0.0050	0.127	0.013	25.00	0.07568	0.11	414.8	1360.54
35	0.0056	0.142	0.016	31.52	0.09542	0.14	331.0	1085.68
34	0.0063	0.160	0.020	39.75	0.1203	0.18	260.9	855.75
33	0.0071	0.180	0.025	50.13	0.1517	0.23	206.9	678.63
32	0.0080	0.203	0.032	63.21	0.1913	0.28	164.1	538.25
31	0.0089	0.226	0.040	79.7	0.2413	0.36	130.1	426.73
30	0.0100	0.254	0.051	100.5	0.3042	0.45	103.2	338.50
29	0.0113	0.287	0.064	126.7	0.3836	0.57	81.83	268.40
28	0.0126	0.320	0.080	159.8	0.4837	0.72	64.90	212.87
27	0.0142	0.361	0.102	201.5	0.6100	0.91	51.47	168.82
26	0.0159	0.404	0.127	253.0	0.7692	1.14	40.81	133.86
25	0.0179	0.455	0.163	320.4	0.9699	1.44	32.37	106.17
24	0.0201	0.511	0.203	404.0	1.223	1.82	25.67	84.20
23	0.0226	0.574	0.259	511.5	1.542	2.29	20.36	66.78
22	0.0253	0.643	0.322	640.4	1.945	2.89	16.14	52.94
21	0.0285	0.724	0.412	812.1	2.452	3.65	12.80	41.98
20	0.0320	0.813	0.514	1020.0	3.092	4.60	10.15	33.29
19	0.0359	0.912	0.653	1200.0	3.899	5.80	8.051	26.41
18	0.0403	1.02	0.816	1620.0	4.917	7.32	6.385	20.94
17	0.0453	1.15	1.039	2050.0	6.200	9.22	5.064	16.61
16	0.0508	1.29	1.300	2583.0	7.818	11.63	4.016	13.17
15	0.0571	1.45	1.651	3260.0	9.858	14.67	3.184	10.44
14	0.0641	1.63	2.070	4107.0	12.43	18.49	2.525	8.28
13	0.0720	1.83	2.630	5178.0	15.68	23.33	2.003	6.57
12	0.0808	2.05	3.290	6530.0	19.77	29.41	1.588	5.21
11	0.0907	2.30	4.155	8234.0	24.92	37.08	1.260	4.13
10	0.1019	2.60	5.230	10380.0	31.43	46.76	0.9989	3.28

* AWG 10 through 30 per UL Subject 13.

Information from National Bureau of Standards Copper Wire Tables – Handbook 100.

Unparalleled Performance

Belden is one of only a very few cable manufacturers to draw and anneal its own conductors. This is a time-consuming process, but it allows us to ensure signal integrity, as well as proper physical characteristics.

In addition, the standards under which we design and manufacture our fiber optic cabling are among the strictest in the industry. The result is a comprehensive offering of products which give unparalleled performance and can satisfy your most demanding operating and environmental challenges.

Conductor

Table 2: Stranded Copper Wire, American Wire Gage

Gage (AWG)	Stranding (Nom. AWG)	Min. Average CD of Strand	Approximate OD			ASTM Min. Circular MIL Area	Min. Weight		Max. Resistance @ 68°F (20°C)	
			inch	mm	mm ²		lbs./1000 ft.	kg / km	/1000 ft.	/ km
36	7x44	0.0019	0.006	0.152	0.014	25	0.076	0.11	414.8	1360.54
34	7x42	0.0024	0.0075	0.191	0.022	39.7	0.121	0.18	260.9	855.75
32	7x40	0.0030	0.0093	0.236	0.034	64	0.195	0.29	164.1	538.25
	19x44	0.0018	0.010	0.254	0.039	64	0.195	0.29	164.1	538.25
30	7x38	0.0038	0.012	0.305	0.056	100	0.304	0.45	112.0	367.36
	19x42	0.0023	0.012	0.305	0.060	100	0.304	0.45	112.0	367.36
28	7x36	0.0048	0.015	0.381	0.071	159	0.484	0.72	70.7	231.90
	19x40	0.0029	0.016	0.406	0.093	159	0.484	0.72	70.7	231.90
27	7x35	0.0054	0.017	0.432	0.111	202	0.614	0.91	55.6	182.37
26	7x34	0.0060	0.019	0.483	0.140	253	0.770	1.15	44.4	145.63
	10x36	0.0050	0.021	0.533	0.127	253	0.770	1.15	44.4	145.63
	19x38	0.0036	0.020	0.508	0.153	253	0.770	1.15	44.4	145.63
24	7x32	0.0076	0.024	0.610	0.226	404	1.229	1.83	27.7	90.86
	10x34	0.0064	0.024	0.610	0.200	404	1.229	1.83	27.7	90.86
	19x36	0.0046	0.024	0.610	0.239	404	1.229	1.83	27.7	90.86
	42x40	0.0031	0.023	0.584	0.201	404	1.229	1.83	27.7	90.86
22	7x30	0.0096	0.030	0.762	0.352	640	1.947	2.90	17.5	57.40
	19x34	0.0058	0.031	0.787	0.380	640	1.947	2.90	17.5	57.40
	26x36	0.0050	0.030	0.762	0.327	640	1.947	2.90	17.5	57.40
20	7x28	0.0126	0.038	0.965	—	1020	3.103	4.62	10.9	35.75
	10x30	0.0101	0.037	0.940	0.612	1020	3.103	4.62	10.9	35.75
	19x32	0.0073	0.037	0.940	0.612	1020	3.103	4.62	10.9	35.75
	26x34	0.0063	0.036	0.914	0.520	1020	3.103	4.62	10.9	35.75
	42x36	0.0049	0.038	0.965	—	1020	3.103	4.62	10.9	35.75
18	7x26	0.0152	0.048	1.22	0.891	1620	4.93	7.33	6.92	22.70
	16x30	0.0101	0.047	1.19	0.808	1620	4.93	7.33	6.92	22.70
	19x30	0.0092	0.049	1.24	0.957	1620	4.93	7.33	6.92	22.70
	42x34	0.0062	0.047	1.19	0.819	1620	4.93	7.33	6.92	22.70
	65x36	0.0050	0.047	1.19	—	1620	4.93	7.33	6.92	22.70
16	7x24	0.0192	0.060	1.52	1.420	2580	7.85	11.68	4.35	14.27
	19x29	0.0117	0.058	1.47	1.216	2580	7.85	11.68	4.35	14.27
	26x30	0.0100	0.059	1.50	1.310	2580	7.85	11.68	4.35	14.27
	65x34	0.0063	0.059	1.50	1.300	2580	7.85	11.68	4.35	14.27
	105x36	0.0050	0.059	1.50	1.365	2580	7.85	11.68	4.35	14.27
14	7x22	0.0242	0.076	1.93	—	4110	12.50	18.60	2.73	8.95
	19x26	0.0147	0.071	1.80	—	4110	12.50	18.60	2.73	8.95
	42x30	0.0099	0.075	1.91	—	4110	12.50	18.60	2.73	8.95
	105x34	0.0063	0.075	1.91	—	4110	12.50	18.60	2.73	8.95
12	7x20	0.0305	0.096	2.44	3.610	6530	19.86	29.55	1.71	5.61
	19x25	0.0185	0.093	2.36	3.070	6530	19.86	29.55	1.71	5.61
	65x30	0.0100	0.095	2.41	3.270	6530	19.86	29.55	1.71	5.61
	165x34	0.0063	0.095	2.41	3.300	6530	19.86	29.55	1.71	5.61
10	37x26	0.0167	0.115	2.92	4.710	10380	31.58	46.98	1.08	3.54
	65x28	0.0126	0.120	3.05	—	10380	31.58	46.98	1.08	3.54
	105x30	0.0099	0.118	3.00	—	10380	31.58	46.98	1.08	3.54

* AWG 10 through 30 per UL subject 13.

Belden has standardized on the stranded conductors used in the design of all Belden products.

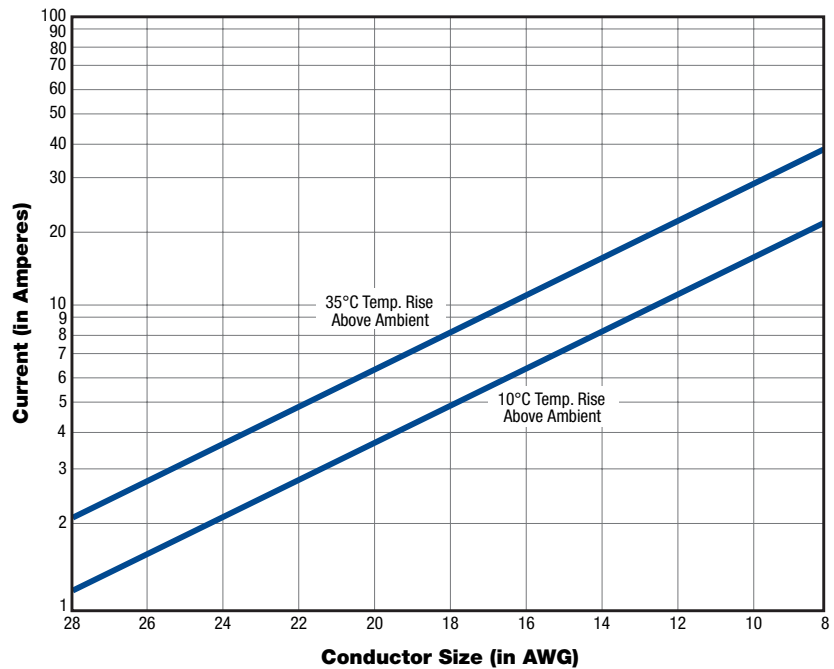
Conductor

Table 3: Current Ratings for Belden Electronic Cables

The maximum continuous current rating for an electronic cable is limited by conductor size, number of conductors contained within the cable, maximum temperature rating of the cable, and environmental conditions such as ambient temperature and air flow. To use the current capacity chart, first determine conductor size, temperature rating, and number of conductors from the applicable product description for the cable of interest.

Next, find the current value on the chart for the proper temperature rating and conductor size. To calculate the maximum current rating/conductor, multiply the chart value by the appropriate conductor factor. The chart assumes cable is surrounded by still air at an ambient temperature of 25°C. Current values are in RMS amperes and are valid for copper conductors only. For conditions other than specified, contact Belden technical support at +31-77-3875-414.

Note: Current ratings are intended as general guidelines for low power electronic communications and control applications. Current ratings for power applications generally are set by regulatory agencies such as UL, CSA, NEC, and others.



Current Rating

No. of Conductors*	Factor
1	1.6
2 to 3	1.0
4 to 5	0.8
6 to 15	0.7
16 to 30	0.5

* Do not count shields unless used as conductor.

Conductor

Table 4: Metric/Imperial/AWG Equivalents
(Square Millimeters/Square Inches/Circular Mils/AWG)

mm ²	sq. in.	Circular mils	AWG	mm ²	sq. in.	Circular mils	AWG	mm ²	sq. in.	Circular mils	AWG
1000	1.550	1974000		55	0.0853	108570		5.00	0.00775	9870	
975	1.511	1924700		—	—	105600	1/0	4.75	0.00736	9377	
950	1.472	1875300		50	0.0775	98700		4.50	0.00698	8883	
925	1.434	1826000		45	0.0698	88830		4.25	0.00659	8390	
900	1.395	1776600		—	—	83690	1	—	—	8230	11
875	1.356	1727300		40	0.0620	78960		4.00	0.00620	7896	
850	1.317	1677900		35	0.0542	69090		3.75	0.00581	7403	
825	1.279	1628600		—	—	66360	2	3.50	0.00542	6909	
800	1.240	1579200		30	0.0465	59220		—	—	6530	12
775	1.201	1529900		—	—	52620	3	3.25	0.00504	6416	
750	1.163	1480500		25	0.0388	49350		3.00	0.00465	5922	
725	1.124	1431200		—	—	41740	4	2.75	0.00426	5429	
700	1.085	1381800		20.0	0.0310	39480		2.63	—	5180	13
675	1.046	1332500		19.5	0.0302	38490		2.50	0.00388	4935	
650	1.008	1283100		19.0	0.0294	37510		2.25	0.00349	4422	
625	0.969	1233800		18.5	0.0287	36520		—	—	4110	14
600	0.930	1184400		18.0	0.0279	35530		2.00	0.00310	3948	
575	0.891	1135100		17.5	0.0271	34550		1.75	0.00271	3455	
550	0.853	1085700	1000 MCM	17.0	0.0264	33560		1.65	—	3260	15
525	0.814	1036400		—	—	33090	5	1.50	0.00233	2961	
500	0.775	987000		16.5	0.0256	32560		—	—	2580	16
475	0.736	937700		16.0	0.0248	31580		1.25	0.00194	2468	
450	0.698	888300		15.5	0.0240	30600	6	—	—	2050	17
425	0.659	839000		15.0	0.0233	29610		1.00	0.00155	1974	
400	0.620	789600	750 MCM	14.5	0.0225	28620		0.90	0.00140	1777	
375	0.581	740300		14.0	0.0217	27640		—	—	1620	18
350	0.542	690900		13.5	0.0209	26650		0.75	0.00116	1481	
325	0.504	641600	600 MCM	—	—	26420		0.70	0.00109	1382	
300	0.465	592200		13.0	0.0201	25660		0.65	—	1290	19
275	0.426	542900	500 MCM	12.5	0.0194	24680		0.60	0.00093	1184	
250	0.388	493500		12.0	0.0186	23690		—	—	1029	20
225	0.349	444200	350 MCM	11.5	0.0178	22700		0.50	0.000775	987	
200	0.310	394800		11.0	0.0171	21710					
185	—	—		—	—	20820	7				
175	0.271	345500	300 MCM	10.5	0.0163	20730					
150	0.233	296100		10.0	0.0155	19740					
125	0.1938	246800		9.5	0.01472	18753					
120	—	211600	4/0	9.0	0.01395	17766					
100	0.1550	197400		8.5	0.01317	16779					
95	0.1472	187530		—	—	16510	8				
90	0.1395	177660		8.0	0.01240	15792					
—	—	167800	3/0	7.7	0.01163	14805					
85	0.1317	167790		7.0	0.01085	13818					
80	0.1240	157920		—	—	13090	9				
75	0.1163	148050		6.5	0.01008	12831					
70	0.1085	138180		6.0	0.00930	11844					
—	—	133100	2/0	5.5	0.00853	10857					
65	0.1008	128310		—	—	10380	10				
60	0.0930	118440									

To Convert:	Multiply by:
Inches to millimeters	25.4
Millimeters to inches	0.03937