

AC & DC circuits – Allowable Amperage of Single Conductors Not Bundled, Sheathed, or in Conduit (ABYC)



		Temperature Rating of Conductor Insulation												
		60°C (140°F)		75°C (167°F)		80°C (176°F)		90°C (194°F)		105°C (221°F)		125°C (257°F)		200°C (392°F)
		Outside engine spaces	Inside engine spaces	Outside engine spaces	Inside engine spaces	Outside engine spaces	Inside engine spaces	Outside engine spaces	Inside engine spaces	Outside engine spaces	Inside engine spaces	Outside engine spaces	Inside engine spaces	Outside or inside engine spaces
Conductor Size (AWG)		not permitted	10	7.5	15	11.7	20	16.4	20	17	25	22.3	25	
18	10		15	11.3	20	15.6	25	20.5	25	21.3	30	26.7	35	
16	15		20	15	25	19.5	30	24.6	35	29.8	40	35.6	45	
14	20		25	18.8	35	27.3	40	32.8	45	38.3	50	44.5	55	
12	25		40	30	50	39	55	45.1	60	51	70	62.3	70	
10	40		65	48.8	70	54.6	70	57.4	80	68	90	80.1	100	
8	55		95	71.3	100	78	100	82	120	102	125	111.3	135	
6	80		125	93.8	130	101.4	135	110.7	160	136	170	151.3	180	
4	105		145	108.8	150	117	155	127.1	180	153	195	173.6	210	
3	120		170	127.5	175	136.5	180	147.6	210	178.5	225	200.3	240	
2	140		195	146.3	210	163.8	210	172.2	245	208.3	265	235.9	280	
1	165		230	172.5	245	191.1	245	200.9	285	242.3	305	271.5	325	
0	195		265	198.8	285	222.3	285	233.7	330	280.5	355	316	370	
00	225		310	232.5	330	257.4	330	270.6	385	327.3	410	364.9	430	
000	260		360	270	385	300.3	385	315.7	445	378.3	475	422.8	510	
0000	300													

not permitted

Derating Factors for Bundles

Number of Cables per Bundle	Multiply the Ampacity by:	
2-3	0.7	0.7
4-6	0.6	
7-24	0.5	
25+	0.4	
	...for AC circuits	...for DC circuits

Courtesy ABYC, E-11, Table 6A. Used with permission.

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Conductor Sizes for 10% Drop in Voltage in 12 Volt Systems (ABYC)



		Length of Conductor from Source of Current to Device and Back to Source																		
feet		10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
meters		3	4.6	6	7.6	9.1	12.2	15.2	18.3	21.3	24	27.4	30.5	33.5	36.5	39.6	42.6	45.7	48.1	51.8
Current on Circuit (amps)	5	18	18	18	18	18	16	16	14	14	14	12	12	12	12	12	10	10	10	10
	10	18	18	16	16	14	14	12	12	10	10	10	10	8	8	8	8	8	8	6
	15	18	16	14	14	12	12	10	10	8	8	8	8	8	6	6	6	6	6	6
	20	16	14	14	12	12	10	10	8	8	8	6	6	6	6	6	6	4	4	4
	25	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
	30	14	12	12	10	10	8	8	6	6	6	6	4	4	4	4	2	2	2	2
	40	14	12	10	10	8	8	6	6	6	4	4	4	2	2	2	2	2	2	2
	50	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1
	60	12	10	8	8	6	6	4	4	2	2	2	2	2	1	1	1	0	0	0
	70	10	8	8	6	6	6	4	2	2	2	2	1	1	1	0	0	0	2/0	2/0
	80	10	8	8	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	2/0
	90	10	8	6	6	6	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0	3/0
	100	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0	3/0	3/0

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Conductor Sizes for 10% Drop in Voltage in 24 Volt Systems (ABYC)



		Length of Conductor from Source of Current to Device and Back to Source																		
feet		10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
meters		3	4.6	6	7.6	9.1	12.2	15.2	18.3	21.3	24	27.4	30.5	33.5	36.5	39.6	42.6	45.7	48.1	51.8
Current on Circuit (amps)	5	18	18	18	18	18	18	18	18	16	16	16	16	14	14	14	14	14	14	12
	10	18	18	18	18	18	16	16	14	14	14	12	12	12	12	12	10	10	10	10
	15	18	18	18	16	16	14	14	12	12	12	10	10	10	10	10	8	8	8	8
	20	18	18	16	16	14	14	12	12	10	10	10	10	8	8	8	8	8	8	6
	25	18	16	16	14	14	12	12	10	10	10	8	8	8	8	8	6	6	6	6
	30	18	16	14	14	12	12	10	10	8	8	8	8	8	6	6	6	6	6	6
	40	16	14	14	12	12	10	10	8	8	8	6	6	6	6	6	6	4	4	4
	50	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
	60	14	12	12	10	10	8	8	6	6	6	6	4	4	4	4	4	2	2	2
	70	14	12	10	10	8	8	6	6	6	6	4	4	4	4	2	2	2	2	2
	80	14	12	10	10	8	8	6	6	6	4	4	4	4	2	2	2	2	2	2
	90	12	10	10	8	8	6	6	6	4	4	4	4	2	2	2	2	2	2	1
	100	12	10	10	8	8	6	6	4	4	4	4	2	2	2	2	2	1	1	1

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Conductor Sizes for 3% Drop in Voltage in 12 Volt Systems (ABYC)



		Length of Conductor from Source of Current to Device and Back to Source																		
feet		10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
meters		3	4.6	6	7.6	9.1	12.2	15.2	18.3	21.3	24	27.4	30.5	33.5	36.5	39.6	42.6	45.7	48.1	51.8
Current on Circuit (amps)	5	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
	10	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
	15	12	10	10	8	8	6	6	6	4	4	2	2	2	2	2	1	1	1	1
	20	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0
	25	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0
	30	10	8	6	4	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0
	40	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
	50	6	6	4	2	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				
	60	6	4	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0	4/0						
	70	6	4	2	2	1	0	2/0	3/0	3/0	4/0	4/0								
	80	6	4	2	2	1	0	3/0	3/0	4/0	4/0									
	90	4	2	2	1	0	2/0	3/0	4/0	4/0										
	100	4	2	2	1	0	2/0	3/0	4/0											

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Conductor Sizes for 3% Drop in Voltage in 24 Volt Systems (ABYC)



		Length of Conductor from Source of Current to Device and Back to Source																		
feet		10	15	20	25	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170
meters		3	4.6	6	7.6	9.1	12.2	15.2	18.3	21.3	24	27.4	30.5	33.5	36.5	39.6	42.6	45.7	48.1	51.8
Current on Circuit (amps)	5	18	18	18	16	16	14	12	12	12	10	10	10	10	10	8	8	8	8	8
	10	18	16	14	12	12	10	10	10	8	8	8	6	6	6	6	6	6	6	6
	15	16	14	12	12	10	10	8	8	6	6	6	6	6	4	4	4	4	4	2
	20	14	12	10	10	10	8	6	6	6	6	4	4	4	4	2	2	2	2	2
	25	12	12	10	10	8	6	6	6	4	4	4	4	2	2	2	2	2	2	1
	30	12	10	10	8	8	6	6	4	4	4	2	2	2	2	2	1	1	1	1
	40	10	10	8	6	6	6	4	4	2	2	2	2	1	1	1	0	0	0	2/0
	50	10	8	6	6	6	4	4	2	2	2	1	1	0	0	0	2/0	2/0	2/0	3/0
	60	10	8	6	6	4	4	2	2	1	1	0	0	0	2/0	2/0	3/0	3/0	3/0	3/0
	70	8	6	6	4	4	2	2	1	1	0	0	2/0	2/0	3/0	3/0	3/0	3/0	4/0	4/0
	80	8	6	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	3/0	4/0	4/0	4/0	4/0
	90	8	6	4	4	2	2	1	0	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0	4/0	4/0	
	100	6	6	4	4	2	2	1	0	2/0	2/0	3/0	3/0	4/0	4/0	4/0				

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