

Maximum Ampacities for Wire

The table to the right shows allowable ampacities of conductors (wires) in conduit, raceway, cable, or directly buried based on ambient temperature of 30 degrees C (86 degrees F). NEC allows rounding up cable ampacity to next size standard fuse or breaker. *The national electric code (NEC) specifies that over current protection device not exceed 30A for 10 AWG wire, 20A for 12 AWG and 15A for 14 AWG wire. For ambient temperatures above 30 degrees C (86 degrees F), multiply the allowable ampacities shown at the right by the correction factor listed under the insulation temperature rating below.

Temperature Range		75°F Insulation	90°F Insulation
31-35°C	87-95 F	0.94	0.96
36-40°C	96-104 F	0.88	0.91
41-45°C	105-113 F	0.82	0.87
46-50°C	114-122 F	0.75	0.82
51-55°C	123-131 F	0.67	0.76
56-60°C	132-140 F	0.58	0.71

Wire Size	Copper Conductor	Temp. Rating		
		194°F (90°C)	167°F (75°C)	194°F (90°C)
*14	20	25		
*12	25	30	20	25
*10	35	40	30	35
8	50	55	40	45
6	65	75	50	60
4	85	95	65	75
2	115	130	90	100
1	130	150	100	115
1/0	150	170	120	135
2/0	175	195	135	150
3/0	200	225	155	175
4/0	230	260	180	205

Recommended Inverter Cable and Overcurrent Protection

Use this table to decide cable size and fuse or breaker size for common inverter models. Smaller cable sizes can be used if fused or breaker size is reduced but this can cause problems if the inverter is run near its maximum output wattage. Large cables may be necessary if the distance from the inverter to the battery is greater than 10 feet.

Inverter Voltage	Continuous Watts	Max Inverter Input (Amps)	Fuse Size (Amps)	Circuit Breaker (Amps)	Wire Size (AWG)
12-Volt	600	80	80	80	2
	800	107	110	110	2
	1000	134	200	175	2/0
	1500	200	300	250	4/0
	2400	320	400	250	4/0
	2500	334	400	250	4/0
	2800	382	400	250	4/0
	3000	400	400	250	4/0
24-Volt	600	40	50	50	8
	800	54	75	75	4
	1000	67	80	100	2
	1500	100	110	110	2/0
	2400	160	200	175	2/0
	2500	167	200	175	2/0
	3000	200	300	250	4/0
	3500	230	300	250	4/0
48-Volt	4000	265	300	250	4/0
	3000	76	110	110	2/0
	3600	90	110	110	2/0
	4000	148	200	175	2/0
	5500	185	400	250	4/0