Subject: Dedicated Line Voltage Drop
Posted by AudioFred on Tue, 03 Jan 2012 14:44:53 GMT
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Here are a couple of interesting data points for anybody who's considering the installation of a dedicated line for their system. In addition to the advantages of separating your system from noise producing household appliances, using 10ga romex instead of the usual 14ga found in 15 amp circuits, you will see far less voltage drop under heavy loads. 10ga solid conductor wire is the largest that 20 amp receptacles can accommodate.

Using a 1500 watt space heater as the load, I compared the voltage drop with it plugged into a standard 15 amp receptacle (14/2 romex with 15 amp breaker) versus one of my dedicated 20 amp receptacles (10/2 romex with a 20 amp breaker). Both lines are the same 120' distance from the breaker box. Here's the result:

15 amp line: 121.2 volts with no load, 108.5 volts with the 1,500 watt load (10.5% voltage drop).

Dedicated line: 122.0 volts with no load, 119.5 volts with the 1,500 watt load (2.0% voltage drop).