
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).

Subject: Re: Dedicated Line Voltage Drop

Posted by [Wayne Parham](#) on Tue, 03 Jan 2012 16:00:58 GMT

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Good empirical data, Fred. Thanks for posting it. That's a pretty big drop, just for a space heater or hair dryer, isn't it? You can even see lamps dim when you turn one on.

Subject: Re: Dedicated Line Voltage Drop

Posted by [AudioFred](#) on Tue, 03 Jan 2012 23:58:54 GMT

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Forgot to mention the space heater sounds better plugged into the standard socket. The fan slows way down to a quiet whisper

Subject: Re: Dedicated Line Voltage Drop

Posted by [gofar99](#) on Wed, 04 Jan 2012 16:05:23 GMT

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Hi, Good info. This all was brought home to me about 3 weeks ago. My system is on an APC HL-10 power conditioner. One feature is that it will boost or cut the voltage to keep it at the level

set. Also within the % you choose. I have it set for 120 with 5% as the limits. It started boosting one day just before Christmas. It was transparent to the stereo as it apparently has zero crossing switching, but the display indicated the boost. It turns out that the one outlet in another room that had my wife's laser printer on it was dropping the line enough to cause the triggering. In my former stereo room (now taken over by the wife as a media room) I had dedicated power and this never happened.

Subject: Re: Dedicated Line Voltage Drop
Posted by [Shane](#) on Thu, 05 Jan 2012 20:29:55 GMT
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Good info, Fred.

With my Darling amp I had to put a bucking transformer into the mix to bring the line voltage down to within specs on the power tranny (200 series Hammond). We typically see 125VAC + and it was making that PT get really, really hot. Now it sees about 112VAC and doesn't complain.

I like the APC units, Bruce. Should probably look into getting one.

Subject: Re: Dedicated Line Voltage Drop
Posted by [Bill Wassilak](#) on Fri, 20 Jan 2012 04:21:16 GMT
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Heck yea, that's a requirement for me when I have 6000 watts of Crown amps sitting on a 112-115vac 20amp line. I like switching power supply amps, so much power, little ac current draw.
