

Re: How to clean up mains power?

Source: <http://sci.tech-archive.net/Archive/sci.electronics.equipment/2007-08/msg00050.html>

- *From:* bud-- <remove.BudNews@xxxxxxx>
 - *Date:* Fri, 17 Aug 2007 12:07:17 -0500
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w_tom wrote:

In another post, you complained about a post too long. Why was it long? Because it provided numerous reasons why. A post without 'why' would be useless. Still that post was a very abridged discussion.

AC receptacle safety ground is maybe 0.2 ohms resistance to the breaker box; that same wire is maybe 130 ohms impedance to a surge. Even a trivial 100 amp surge earthed by that AC electric wire would put the receptacle at 13,000 volts.

No explanation of how you get 100A surge current on a branch circuit where the impedance is 130 ohms. At about 6000V there will be arc-over at panels and receptacles limiting the voltage available.

Specs? Show me where a plug-in protector manufacturer – selling a complete layer of protection – cites each type of surge and numbers for the protection. Why do they never make numeric claims? Why does Bud never cite those numbers? Because the manufacturer cannot claim in writing – with numbers – to provide protection that does not exist.

Specs? Show me where w_ s favored service panel surge suppressor manufacturer SquareD:

<<http://ecatalog.squared.com/pubs/Electrical%20Distribution/Surge%20Protective%20Devices/OEM%20Panel%20M>

or

<http://tinyurl.com/yuekdo>

selling a complete layer of protection – cites each type of surge .

Why does SquareD never make numeric claims? Because each type of surge is bullcrap from w_, an invention because he has no valid technical arguments.

Plug-in suppressors have MOVs from H-G, N-G, H-N. That covers all surge modes.

In addition, at the SquareD link, literature for the best service panel suppressor says "electronic equipment may need additional protection by installing plug-in TVSS [surge suppressor] devices at the point of use."

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For the next best service panel suppressor, the connected equipment warranty \$ does not include "electronic devices such as: microwave ovens, audio and stereo components, video equipment, televisions, and computers."

Have I read Bud's documents? How many times do I correct his interpretation?

How many times does w_ twist documents to say the opposite of what they really say?

But poor w_ has twist, because everyone says plug-in suppressors are effective, and w_ s religious belief in earthing is threatened.

Did you understand an IEEE paper from van der Laan and van Duersen?
Or the many papers co-authored by Uman?

Perhaps w_ could post a link to a source that says plug-in suppressors are not effective. Perhaps cows will give beer.

Bud's objective is to muddy the waters – protect those sales.

To quote w_ "It is an old political trick. When facts cannot be challenged technically, then attack the messenger."

With no technical arguments, w_ has to discredit anyone that opposes him.

Bud is the troll who follows me everywhere 'cut and pasting' the same posts – maybe 300 times.

w_ is a religious fanatic that trolls google-groups for surge to cut and paste his religious tract about plug-in suppressors to convert the heathens. But some in this newsgroup are remaining pagans.

And w_ exaggerates 10E6 times.

MOVs adjacent to the appliance may only create damage such as Page 42 Figure 8.

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The lie repeated. Several times.

Recently, a neighborhood suffered what may have been a 33k or 69k volt transmission line falling on their distribution. Hundreds of electric meters were literally exploded from their bases. Many meters were found in pieces 30 feet away. Many homeowners lost computers, stereos, TVs, and plug-in protectors. My friend had no plug-in protectors, one properly earthed 'whole house' protector, AND no damage – except to his meter.

As covered in a post to Eric, MOVs are rapidly destroyed by temporary overvoltage . Service panel suppressors will be destroyed and disconnect. Although plug in suppressors are not intended to protect from overvoltage, if the protected load is connected across the MOVs, the load will likely be protected when the MOVs disconnect.

I provided a *link* to Jerry Pournelle, who reported that most of his equipment connected to plug-in suppressors survived a cross to high voltage. His equipment connected to a UPS not only survived, it kept functioning.

Damning are those other failed plug-in protectors. Why? The protector must be properly sized so as to remain functional after the surge.

A high voltage line dropping on 120V lines is not a surge. The long duration of the event will rapidly exceed the energy ratings of any MOV, service panel or plug-in.

The 'whole house' protector was. But plug-in protectors were also so grossly undersized (as well as overpriced) as to fail prematurely.

Neither service panel or plug-in suppressors will survive a crossed power line. Failure of either is not premature . This really sounds like a w_ hallucination.

Grossly undersized" is a red herring. Suppressors with high ratings are readily available for relatively low cost.

w_ thinks plug-in suppressors are overpriced because he buys only Monster products.

And then we have this other problem with protectors that are grossly undersized.

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Repeating:

In w_ s mind, plug-in suppressors have miniscule ratings, service panel suppressors have mega ratings. But plug-in suppressors are readily available with very high ratings for relatively low cost.

Just

another problem with plug-in protectors – the 'scary pictures'.

<http://www.hanford.gov/rl/?page=556&parent=554>

w_ can't understand his own hanford link. It is about "some older model" power strips and says overheating was fixed with a revision to UL1449 that requires thermal disconnects. That was 1998.

But with no valid technical arguments all w_ has is pathetic scare tactics.

Bottom line simple fact: the protector is only as effective as its earth ground.

The statement of religious belief in earthing. Unfortunately for w_ s religious belief, the IEEE guide explains that plug-in suppressors work primarily by CLAMPING the voltage on all wires to the common ground at the plug in suppressor. The guide explains plug-in suppressors do not work primarily by earthing. And that earthing occurs elsewhere.

Getting 'defense in depth' using a plug-in protector: assumes the plug-in protector operates in series mode – stops or blocks surges.

Only w_ assumes plug-in suppressors stop or block surges. If he could only think he could read the IEEE guide and discover how plug-in suppressors work.

Other than Eric, who recommends defense in depth ?

The NIST:

"Q – Will a surge protector installed at the service entrance be sufficient for the whole house?

A – There are two answers to than question: Yes for one-link appliances, No for two-link appliances [equipment connected to power AND phone or CATV or....]. Since most homes today have some kind of two-link appliances, the prudent answer to the question would be NO – but that does not mean that a surge protector installed at the service entrance is useless."

The IEEE:

"The previous sections have shown, in general, how to protect electronic systems in houses:

- 1) Proper grounding and bonding, especially at the service entrance.
- 2) AC panel and primary signal surge protection at or near the service entrance.

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3) Multi-port plug-in protectors near the equipment to be protected."

So many words and w_ doesn't answer:

- Why do the only 2 examples of protection in the IEEE guide use plug-in suppressors?
- Why does the NIST guide say plug-in suppressors are "the easiest solution"?
- How would a service panel suppressor provide any protection in the IEEE example, pdf page 42?
- Why does SquareD say in addition to their "whole house" suppressors "electronic equipment may need additional protection" from plug-in suppressors.
- Why do SquareD "whole house" suppressors not have those critical numbers for "each type of surge"?
Where is your source that HDTVs must work at 95V?

So many words and still no link to a source that agrees with w_ that plug-in suppressors do NOT work.

But both the IEEE and NIST guides say plug-in suppressors are effective.

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bud--

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