

## Re: back-up power supply

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**From:** curious (heyimjustcurious\_at\_yahoo.com)

**Date:** 04/01/04

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roberson@ibd.nrc-cnrc.gc.ca (Walter Roberson) wrote in message  
news:<c4ftq3\$d7t\$1@canopus.cc.umanitoba.ca>...

- > In article <ca3e516b.0403301642.3079c0d4@posting.google.com>,  
> curious <heyimjustcurious@yahoo.com> wrote:  
> :I was thinking to get a back-up power supply for my PC and saw a book  
> :about it (at Fry's). I read a bit to know there are mainly 3 types.  
>  
> That is correct, there are three main types (there's a fourth type  
> that gets used less often.)  
>  
>  
> :I would appreciate any suggestion on which type and in fact which  
> :brand/model to buy as I am pressed with time to do research on that.  
>  
> You first must define which dangers you need to protect your PC against  
> and for how long.

Surge protection (home).

- >  
> The least expensive type of UPS is 'passive'. The mains electricity  
> flows directly through it, getting filtered a -bit-. When the power  
> drops, the equivalent of a solenoid acts and puts the battery into  
> the circuit; the battery goes back out again when the power returns.  
> It takes time for the battery to go online. As a generality, most  
> modern desktop PCs have capacitors big enough to ride over the time  
> required to switch in the battery... provided the UPS isn't being  
> overloaded, provided a bunch of other things don't go wrong, and provided  
> you are actually using a desktop machine with a power supply with  
> meaningfully big capacitors.

I have Dell Pentium IV

- >Could be a problem for laptops, in other words.  
> Could be a problem if you plug your monitor and printer and speakers and  
> everything else into your "really only big enough for the PC itself" UPS.  
> [A good-sized monitor uses 2/3 of the power of the PC itself, so size  
> the UPS appropriately!!!]

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- >
- > *One issue with passive UPSs is that the electricity is not flowing*
- > *through the batteries, and so the batteries tend to drain away. And if*
- > *they are allowed to drain away for significant amounts of time, then*
- > *if they are the typical lead-acid batteries then they lose their capacity*
- > *to store electricity. If you buy a cheap UPS and not much exciting*
- > *happens with the electricity source, then in 1-3 years you are almost*
- > *certain to wake up to the UPS beeping every drives-me-insane number*
- > *of seconds to tell you your batteries are dead beyond repair and must*
- > *be replaced completely, at significant cost.*

I wouldn't want that.

- >
- > *Passive UPSs are usually NOT rated for significant surge filtering.*
- > *The components they use are usually far too small and too slow to*
- > *stop a big surge. The lightning just crosses the miniscule air-gap*
- > *and keeps going.*
- >

Thanks a lot for this explanation..

- >
- > *Let me emphasize: If surge protection is a high priority in selecting*
- > *your UPS, then do NOT get a typical 'passive' UPS!!!*
- >
- >

Got it.

- > *The second major kind of UPS is 'line-interactive'. The electricity*
- > *does keep the batteries trickle-powered for an 'line-interactive' UPS,*
- > *and there's a single-acting convertor that helps make for cleaner power*
- > *than the 'passive' UPS case. 'Line-interactive' UPS's kick into action*
- > *-much-faster than 'passive' UPS's, but [as I recall] possibly with a*
- > *bit of a surge as they do so. I did read about 'line-interactive'*
- > *UPS's, but I must admit that it was not clear to me why one would not*
- > *just continue on to the next and better kind, unless it be for budget*
- > *reasons. But it's better to have a line-interactive than a passive,*
- > *if you can afford the line-interactive.*
- >

I guess..I have to ..

- >
- > *The third major kind of UPS is sometimes called 'double-conversion'*
- > *but more commonly called 'online' (or "true online"). They have*
- > *a double convertor -- the AC is rectified, put into the battery,*
- > *and the battery power is rectified going out again. There's always*
- > *power going through the batteries, which can allow them to last*
- > *a lot longer than the 'passive', particularly if there is smart*
- > *recharging. The surge resistance and other kinds of filtering on*
- > *online UPSs is usually orders of magnitude better than for passive UPS.*
- > *On the other hand, online UPS's are often orders of magnitude more*

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- > *expensive.*
- >
- >
- > *If you have a 'data centre' then don't consider less than a*
- > *line-interactive facility. And make sure you allow lots of spare*
- > *supply for the expansion that is going to happen (and for the*
- > *fact that the vendors themselves often miscalculate the necessary*
- > *loads); and make sure your system is going to keep your equipment*
- > *up for as long as is going to be reasonably needed.*
  
- > *If you are*
- > *seriously thinking in terms of kilowatts of backups, or in terms of*
- > *keeping equipment running for hours, then Research Research Research!*
- >

Not needed to run for hours.

- > *If you have equipment that doesn't run at 108-120V,*

Mine does. Thanks again. Good to know this kind of info too.

- > *or which doesn't*
- > *take a standard US/Canadian 15 amp three-prong plug, then check all*
- > *the specs for all of the equipment \*several\* times, and then have*
- > *someone else check it twice, and then read the specs backwards just in*
- > *case you missed something in other cross-checks -- because the differences*
- > *between various models can be very hard to find and can end up being*
- > *really obscure. For example, we were forced to disqualify one major*
- > *vendor just because they were unable to supply a \*non\*-locking 20-amp*
- > *connector in one of their distribution panels -- they just kept quoting*
- > *the \*locking\* 20-amp connector every time we asked, and we had to push*
- > *the issue with them firmly to find out that it wasn't just a careless typo:*
- > *that they just couldn't provide that one kind of connector we needed.*
- >
- >
- >
- > *To the best of my knowledge, the three UPS manufacturers that have the*
- > *largest North American market share, are APC, Powerware, and Liebert.*
- >
- > *APC does a -lot- of mass-market UPS's, and also has some very quality*
- > *products suitable for E911 centres, operating rooms, and such --*
- > *places where you want redundancy on your redundancy. My observations*
- > *would tend to lead me to believe that there are multiple divisions*
- > *within APC, and that the "put redundancy on redundancy" engineers*
- > *are not actively involved in planning the mass-market UPSs.*
- >
- > *Powerware has a noticeably smaller product line than APC, and,*
- > *their prices sometimes appear suspiciously inexpensive compared to APC's*
- > *prices. If you compare Powerware side by side with APC, you may end*
- > *up with a really nagging feeling that you are missing something important*
- > *as it can be very difficult to find significant differences... if they do*

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- > *the same thing, there must be a catch behind them being so much less*
- > *expensive, right? The differences –are– there, they just take time to*
- > *dig out: they are in matters such as whether the UPS has a 12 year*
- > *MTBF or a 20 year MTBF (Mean time between failure), and whether the*
- > *[hot swappable] logic boards have dual control circuits in case of failure*
- > *or just single control circuits. The fine fine details of the APC specs*
- > *in their high end systems do come out better, so if you need to*
- > *plan in the once–in–50–year scenarios then look very very hard at what*
- > *you get. But if you only need once–in–10–year quality, then powerware*
- > *might prove very interesting. And if you happen to need true online*
- > *UPS's in the fractional–kilowatt playing field (from 700 watts up) then*
- > *powerware makes nearly the only ones I could find.*
- >

So dual control circuits in case of failure or just single control circuits

vs

fractional–kilowatt playing field (from 700 watts up)?

- >
- > *Liebert... well, Liebert probably doesn't want your business. Not unless*
- > *you are building a new building or doing major retrofits. If you're*
- > *in the game of worrying about how to cool and make fire–safe the new*
- > *IBM mainframe or supercomputer you're putting in that's going to take*
- > *half a warehouse floor and punt you a few levels up in the corporate–*
- > *electricity bulk–discount rates, then you'd better talk to Liebert.*
- > *Perhaps think of them as being the equivalent of truck dealers...*
- >
- > *Just as long as you also remember to think of the \$20 UPS you see in*
- > *the local electronics store as not being much better than a toy*
- > *radio–controlled model police–car when it comes to really \*protecting\**
- > *your PC against serious systemic electricity problems.*

AT Circuit city, the 5 mins one (APC) is around \$40 and it goes up with minutes. They are probably passive. I am going to Best Buy – there is a big store here – today.

I don't need it in terms of keeping equipment running for hours, but which situation would require to seriously think in terms of kilowatts of backups? Is it just to be specific? Then I would need to get info on Wattage usage of each piece of equipment?