

Raspberry Pi's and Power Supplies

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1 Raspberry Pi's and Power Supplies

Obsolete - This page has obsolete information that is likely no longer relevant and will be deleted.

While you might not think this important, please think about it some more.

Most of today's power supplies we use are 'switching' power supplies and rely on less on transformers and more on transistor switching. Be quick to notice the light weight from the lack of any copper wound transformer.

A issue will appear when these power supplies get near/over 80% load that may not affect many products much if at all but, in computer/logic systems, it can be detrimental. Computer/logic boards that are based on a 'clock' to carry instruction will be affected by any noise in the power leads (as well as RF).

Spikes from the noise of switching transistors will inherently be seen as either a clock tick or data in these computers, thereby either corrupting memory and/or locking them up.

So, for best practice, use a power supply that is closer to twice as much as the device consumed. Everything will run cooler as well. Heat is not your friend. At a minimum, 50% larger power supply than rated consumption for switching supplies. We call it headroom.

i.e. a Pi3 that consumes 2.6 amp (+add usb devices plugged in) should be on a 4 amp supply to avoid the noise of the transistor switching.

The folks that market and sell power supplies for the Pi are not electronic genius's and simply match the numbers without knowing the whole story or thinking of USB devices plugged in. But now you do. So, when you start having anomalies of problems, do you really want to pull your hair out when it's moreover the noise of a power supply? Think what might be happening when you save data to the SD card and have issues on the next boot and likely blame the SD card after you have tried everything. It simply is an avoidable issue so don't be cheap about it. You pay the price in the end either way.

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