

Re: Variable Bench Switch Mode Power Supply

Source: <http://sci.tech--archive.net/Archive/sci.electronics.design/2008-06/msg04512.html>

- *From:* "Scrim" <spam@xxxxxxx>
 - *Date:* Wed, 25 Jun 2008 18:08:06 +0100
-

"legg" <legg@xxxxxxxxxxxxxxxx> wrote in message
news:6sq464h7bpmlsj03p71bqti1ubih0et4c0@xxxxxxxxxxx

On Wed, 25 Jun 2008 06:04:52 +0100, "Scrim" <spam@xxxxxxx> wrote:

That'll be a 'no' then, I guess!
What about less ambitious but still widely variable switch mode designs?

Scrim

"Scrim" <spam@xxxxxxx> wrote in message
[news:rBN7k.62343\\$Nn.14877@xxxxxxxxxxxxxxxx](mailto:news:rBN7k.62343$Nn.14877@xxxxxxxxxxxxxxxx)

Have any designs for widely variable switch mode power supplies suitable for use as bench power supplies been published? I've been looking at some commercially available supplies but they're still way too pricey. Ideally I'd like a supply that does 0-100V at 20A or 2KW with a constant current mode. Going right down to 0V isn't essential and a maximum of 60V and 1KW would still be great.

Scrim

By the time you get involved in designing at the 2KW power level, you should have enough sense to realize that it's a lot easier, and makes more sense, to address the specific requirement. At that power level, the power supply itself is a major portion of the design.

There's nothing to stop you hacking into the control circuitry of fixed-output designs, to produce output variations that are either

Re: Variable Bench Switch Mode Power Supply

voltage or current regulated. You will discover the limitations of the devices involved, when you do.

These limitations are sometimes addressed commercially through modularization – where for a specific application, modules with varying characteristics are selected and applied in series or parallel. For example, flyback converters give good voltage range compliance, forward converters give good current range control and linear variations can provide noise-critical performance.

Switchers are generally not good at regulating around zero voltage or zero current, unless they are configured for bipolar output voltage/current or can dissipate/store returned load energy.

RL

Thanks for that. I'm really after a variable supply though for general lab use where I need from milliamps to tens of amps. Usually an amp or two suffices but recently I wanted to test several Peltier devices and needed a supply of unknown high current capability at between 8 and 28 volts. Mainly I was wondering if any of the hobby magazines had published a switch mode bench supply design.

Scrim