

## Re: An actual design question...

---

*Source:* <http://sci.tech-archive.net/Archive/sci.electronics.design/2009-02/msg00045.html>

---

- *From:* JosephKK <[quiettechblue@xxxxxxxx](mailto:quiettechblue@xxxxxxxx)>
  - *Date:* Sat, 31 Jan 2009 19:59:33 -0800
- 

On Sat, 31 Jan 2009 09:37:32 -0800, Joerg <[notthisjoergsch@xxxxxxxxxxxxxxxxxxxxxxxx](mailto:notthisjoergsch@xxxxxxxxxxxxxxxxxxxxxxxx)> wrote:

JosephKK wrote:

On Tue, 27 Jan 2009 17:09:37 -0800, "Joel Koltner" <[zapwireDASHgroups@xxxxxxxx](mailto:zapwireDASHgroups@xxxxxxxx)> wrote:

"Joerg" <[notthisjoergsch@xxxxxxxxxxxxxxxxxxxxxxxx](mailto:notthisjoergsch@xxxxxxxxxxxxxxxxxxxxxxxx)> wrote in message  
[news:UVNfl.14366\\$yr3.4334@xxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:UVNfl.14366$yr3.4334@xxxxxxxxxxxxxxxxxxxxxxxx)

Well, yeah, it'll run. All I can tell you that I ran quite a few smaller motors on modified sine and none of them was too happy about it. Heat wasn't a huge issue but reduced power was.

Do you know why?

Years ago in a power electronics class that I took we did various SPICE designs of motor controllers, and while we just generated "modified" square waves, the inductance of the modeled motors made the output waveforms look \*very\* nice.

AFAIK most motor controllers use modified square waves?

Naw. All the better ones use PWM to induce sinusoidal currents. With all the added circuitry that entails. Especially VFDs.

Re: An actual design question...

The added circuitry actually isn't all that much. You need a half- or full-bridge converter before the commutation bridge anyhow. All you have to do is modulate the pre-converter with a sine. Either from a table or, if the last penny counts, from an oscillator. Of course, to do a thorough job you wouldn't be able to play the usual trick to add the output onto the incoming DC-voltage in order to save a few pennies in copper.

Most significant to serious VFDs are 3-phase input and output. Some of the single phase assumptions don't work for them.