

Re: "54Vac Three Phase" means what?

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From: Scrim (*none_at_none.com*)

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"Zak" <jute@zak.invalid> wrote in message
news:4hE1c.1857\$VH5.896@amstvist00...

> *Scrim wrote:*

>

>> *I don't plan to try running the turbo pump beyond short tests until it's
>> under vacuum.*

>

> *Don't run it in air. It doesn't run very much at all in that case, and
> a good enough starting vacuum will not be that hard to reach.*

>

>> *Yes, I'm trying to build a power supply for it. I really want to try to
keep*

>> *it as low cost and easy to build as possible, but I don't mind spending
time*

>> *on the design and I'm patient. My original plan was to use the 3 phase
>> variable frequency digital sine wave generator I've designed (with help
from*

>> *this group – see thread: Digital Sine Wave Generation) to drive three
audio*

>> *ic power amps. Unfortunately I now realise that the required 3 phase
54Vac*

>> *means I'll need an 88V output swing, which is beyond the IC's I've been
able*

>> *to track down. There are plenty of high power audio amp chips and power
op*

>> *amps able to provide far more than the 35W max I'll demand from each,
but*

>> *none at sensible prices that will work with 90V–100V supplies :-(I'm a*

>> *little concerned too about how these devices would behave when driving a
3*

>> *phase induction motor anyway.*

>>

>> *The alternative idea I've been considering is to use some logic to
produce*

>> *3 square wave signals which overlap in the required 120 degrees (3
phase)*

>> *fashion. I'd connect these to something like the HIP4086 3-Phase Bridge*

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- > > *Driver and 6 FETS.*
- >
- > *This would be a whole lot easier. I'd make high side drivers myself and*
- > *run the whole thing on square waves. Use the desired RMS value as DC*
- > *power voltage. 31 V RMS to neutral means + and - 31 volt power.*
- >
- > *To drive you could even use optocouplers. 3 phase can be generated with*
- > *a 4017...*
- >
- > *But run the thing in vacuum only or the motor will burn out. You may be*
- > *able to find data sheets on line of these pumps - I found them at least*
- > *for Alcatel pumps.*
- >
- >
- > *Thomas*

Thanks Thomas. Unfortunately Varian don't play ball. They won't even give advice on cleaning your pump! It's a full on case of 'No User Servisable Parts'. Some of the other sellers of turbomolecular pumps are very helpful, but Varian systems are strictly suited to users who don't want to touch the system themselves. You have to work hard to glean information from the sparse available sources.

Scrim