Re: Digital Control of an SCR (Thyrister) DC Motor Control Board?

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- *From*: default <default@xxxxxxxxxxxxx>
- *Date*: Wed, 28 Nov 2007 10:13:16 −0500

On Wed, 28 Nov 2007 05:48:33 −0800 (PST), paragon36@xxxxxxxxxxxxxx
wrote:

> Dear Group,
>
> I currently have a 120/220VAC SCR DC motor controller to power a 90VDC
> motor which is connected to a milling machine spindle.
> It uses a varible resister / pot to ajust motor RPM.
>
> I wish to control this motor via this board digitaly from the parallel
> port of a PC possibly using PWM and Linux EMC2 CNC Software.
> How / what could I use to replace the Varible resister / pot?
> Also I beleive the pot connection are floating.
>
> Any advice / pointers would be very much appreciated :−)
>
> Regards
> SRG

The motor probably already has a PWM controller − more efficient,
lighter, and less costly than other types.

You have three options, ditch the controller altogether and add a
switching transistor to modulate power using your PWM signal from the
computer. (switching transistor plus other parts)

Or you can convert the PWM to a voltage level and use that to set the
speed through the original pot input. AND if it is reliable that's
what I would do − having seen what happened to a coil winding lathe
where the speed control shorted and the out of balance mandrel flew
out of it.

Or find some software and D to A board that will output a DC level
then use that to directly control a resistive output optical coupler.
http://www.fairchildsemi.com/ds/H1%2FH11F1M.pdf (One such coupler)

This guy shows his circuit for controlling a light using a PWM signal
from a controller:
http://www.epanorama.rackhost.net/schematicsforfree/Lights/An_AC_Dimmer_for_Use_with_the_Stamp.PDF

The pwm is converted to a voltage level which is used to adjust the
output resistance of an optical coupler which sets the speed (in his
case light intensity).

You'd want that sort of isolation to keep from having ground loop
problems between the mill and computer.