

# AC amplitude modulation for inductive loads

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I have got a linear pump which needs a sinusoidal excitation.

The pumpflow is controlled by the amplitude of the AC to the coils

The amplitude is controlled via a DC input signal which on itself can change very fast.

So far I have used a 24VAC pump, which is no longer available, the actual pumps have 230VAC (50hz). The rated power is roughly 150W.

My present design is powered from 24V DC and utilises a full (H-) Mosfet bridge.

The bridge is controlled by a MC 33035 which is a PWM motor controller with an analogue input and a direction signal. The analogue input gets a sine wave with variable amplitude, the DIR input sees a 50hz TTL signal in phase with the sinus.

To go on with this design I would have to rectify the 230V, change to a 500V Mosfet bridge and to add some HV photocouplers to feed the hi side Fets of the bridge.

Does anyone have better suggestion how to directly modulate the mains AC instead of synthesising the AC from a DC source?

I probably should mention that the pump wants to see a sinus like (or trapezoid) excitation which limits the use of a triac .

Any ideas are welcome.