

# AC MOTOR DIMMER FK420

Wow! Now for any project with a AC motor in it you can add this cool speed controller. With only a handful of components. **MAX 1000W**  
Suits **age 15+ SUPERVISED**



The main component in this basic circuit is the TRIAC, which acts as a switch. It allows Mains current (230V AC) to flow through it only when there is current on its gate pin (30-32V).

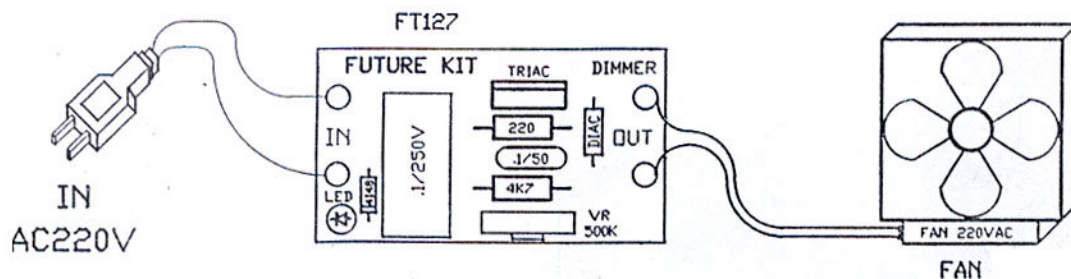
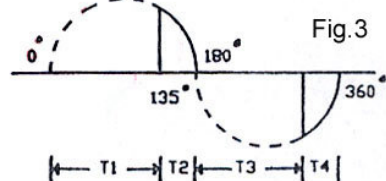
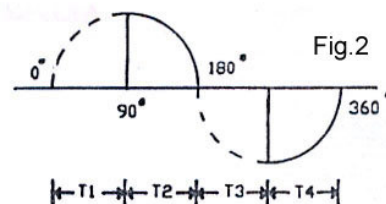
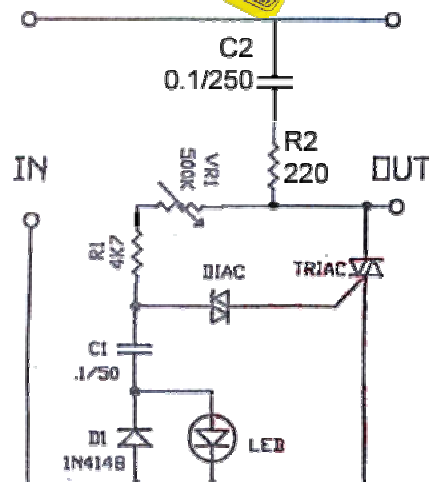
The other components deal entirely with this lower voltage in order to establish and control a frequency or duty cycle for the TRIAC to switch. Below in Fig 2 and 3, you can see that by switching on and off the phase current, it affects the Potential of that current.

The end result is that not all the electrical energy in the current gets to the Load (i.e. a Fan) In Fig.2 the fan will turn faster than in Fig.3 On the time line below each diagram you see the parts of the Duty cycle denoted as T1 – T4. In both Fig.2 & 3 the output has only got energy whilst it is T2 & 4

The speed of this switching is controlled by VR1 which alters the charge time of C1 and hence the gate voltage of the TRIAC.

In the assembly of this kit, like most others in the "Future Kit" range, it is best to start by first checking that you have all the components. Then attach them in order of their height from the board. i.e. resistors first and so on. The last items that should be attached however should always be any semiconductors including transistors. This avoids unnecessary heat on sensitive components.

The PCB or 'printed circuit board' will be marked already for the components. If polarity is essential then this is marked also. Values of components marked are brief and because of the translation are sometimes incorrect, therefore it is best to double check before placing.



## Component list:

- R1** 4k7 (4,700 ohm)
- C1** 0.022µF 50v green cap
- C2** 0.1 µF 50v polyester
- D1** 4148 signal diode
- LED** Rectangle 5/2mm green
- TRIAC** BTA12 500b

- DIAC** DB3
- VR1** Potentiometer (variable res.)

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