

The schematic shows a 220VAC input connected to a motor (M) and a speed control circuit. The speed control circuit includes a TRIAC (T1, 400V-10A), a DIAC (D1), a potentiometer (P1), and several resistors (R1, R2, R3, R4, R5, R6, R7, R8, R9, R10, R11, R12, R13, R14, R15, R16, R17, R18, R19, R20, R21, R22, R23, R24, R25, R26, R27, R28, R29, R30, R31, R32, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, R45, R46, R47, R48, R49, R50, R51, R52, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99, R100). The motor is connected to the output of the TRIAC.

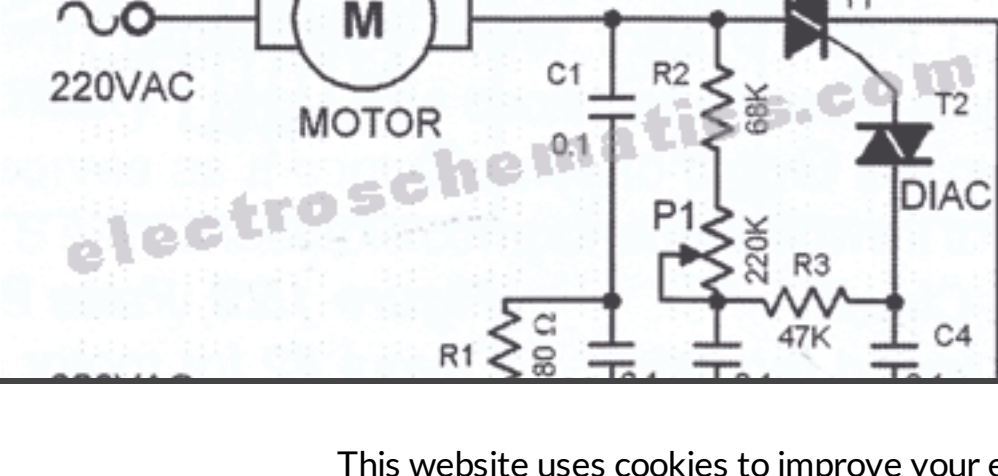
## AC Motor Speed Controller Circuit

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motor controllers   triac

This triac-based 220V AC motor speed controller circuit is designed for controlling the speed of small household motors like drill machines. The speed of the motor can be controlled by changing the setting of P1. The setting of P1 determines the phase of the trigger pulse that fires the triac. The circuit incorporates a self-stabilizing technique that maintains the speed of the motor even when it is loaded.

### 220VAC Motor Speed Controller Schematic



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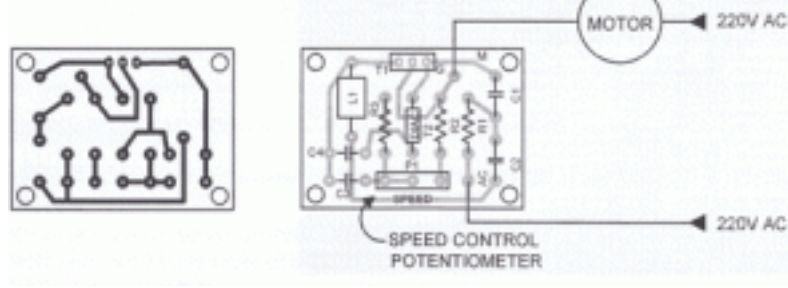
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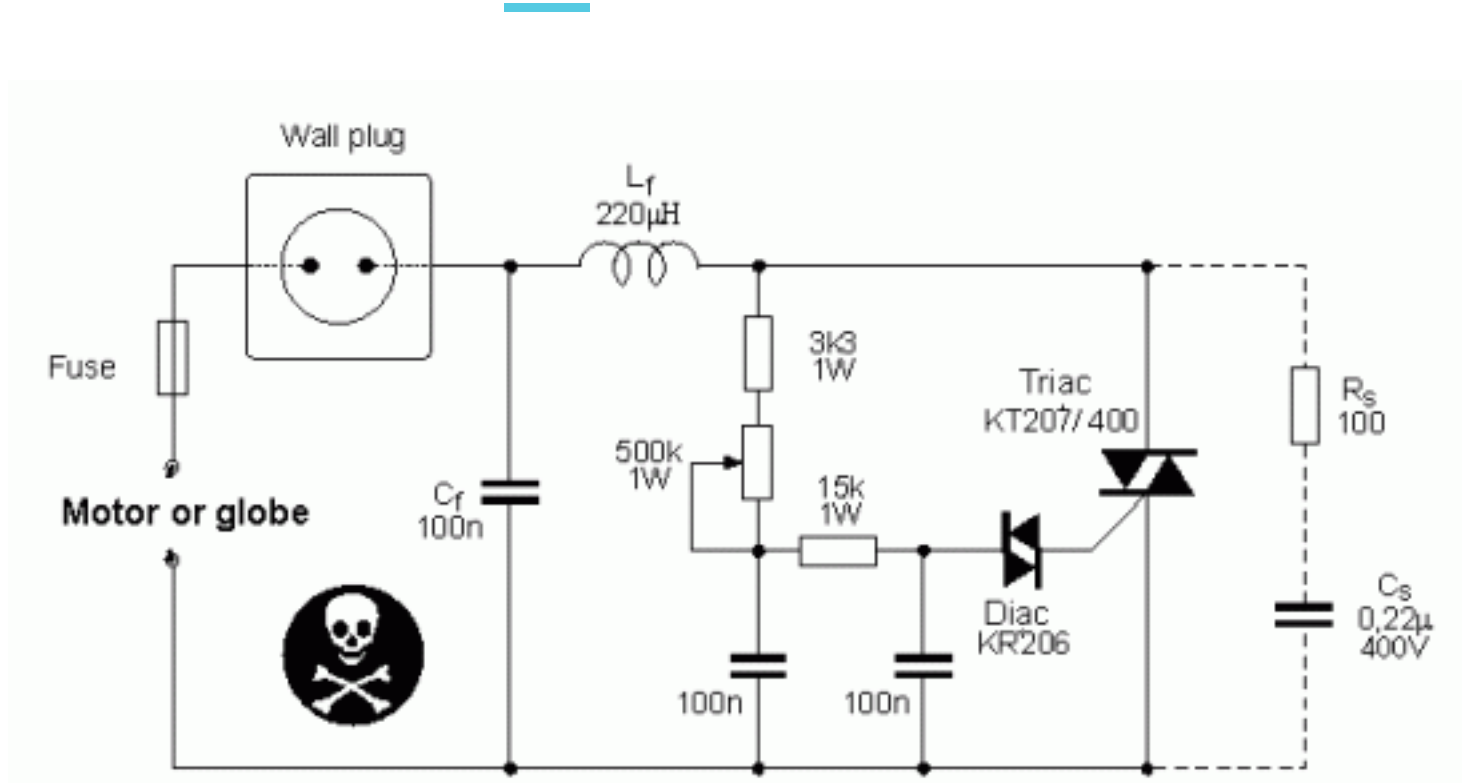
For example, when the motor of the drill machine is slowed down by the resistance of the drilled object, the counter-EMF of the motor also decreases. This results to a voltage increase in R2-P1 and C3 causing the triac to be triggered earlier and the speed increases accordingly.

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### Printed circuit board layout of the motor speed controller



Another version found [here](#).



If the main use for this circuit is to control the brightness of a light bulb, RS and CS are not necessary.

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systematic diagram is needed

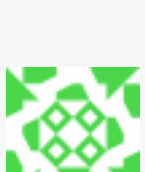
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vougiouklis

I would like to congratulate and thank you for your WWW.

Please forgive my naivety for my questions.

- I hope to use the SC to slow down a fan 45 Watts, may I use the ordinary small parts used by amateurs?
- I found a discrepancy between the diagrams of the main 2 similar images and the small one #4 image.

In the main image L1 on the left is connected with C2 and R1 in the small image is connected with C3 and C4, am I right? what I have to do?

- In the small image R3 ends unconnected.
- I suppose that I have to connect the line to R3, am I right?

Posted on December 17th 2017 | 3:22 pm

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agustindazagmail-com

Has anyone else noted the noise generated by the AC motor when controlling using a Triac with phase shift?

Has anyone experimented with the Snubber circuit (C1, C2 and R1 in the original circuit above) to try to minimize the electrical noise on the motor?

Any success?

Posted on March 14th 2017 | 7:24 pm

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shinekprabymail-com

Dear Sir,

Happy new year

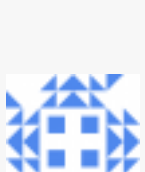
I used this circuit in my washing machine, it gets desirable speed for spin but for wash (when I reduced and set the speed in potentiometer) it is not starting as it does not get the required surge. When I move the potentiometer, it runs in more speed then I reduced the speed by turning the potentiometer and switched off the motor. Now the position of the potentiometer is perfect as per the speed I required but when I start it again it does not start as it does not gets enough surge. I have used 500K potentiometer. Can you please suggest, which components should I used to get enough surge in more resistance.

Thanks,

Shine

Posted on December 30th 2016 | 9:01 am

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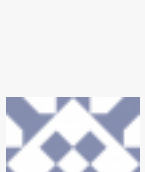


haythem

Hi My Dear I need to control this with Arduino with time can you help me ?

Posted on December 27th 2016 | 9:27 pm

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jon-matiszyahoo-ca

just wondering what the values would be for 120v mains and 1hp motor?

I'm going to try to convert a washing machine universal motor to a wood lath drive.

thanks

Posted on July 28th 2016 | 4:09 am

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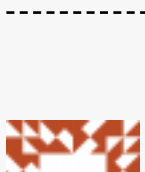


ArBiNd

if my P1 is set to a fixed resistance R, will the motor speed be the same for different ac input e.g 220V & 190V?

Posted on January 16th 2016 | 9:59 am

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Nikhil

which triac and diac should I use for 2000W heater load, and also value of capacitor. provide ckt if possible

Posted on January 15th 2016 | 11:36 am

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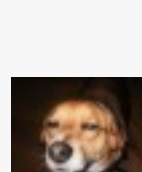


suleiman

Why the diac , what is the function,

Posted on December 22nd 2015 | 5:57 am

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Jim Keith

The DIAC is a triggering device – it blocks until the voltage across it exceeds about 28V – at this point, it breaks over and dumps the charge stored in C4 into the TRIAC gate.

This provides a high current, fast rise time gate pulse.

Posted on December 22nd 2015 | 6:05 am

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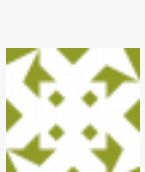


pasan

hi sir .....! this circuit can be drive 1hp or 2hp motors ...?

Posted on December 01st 2015 | 7:15 pm

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Hossam Zayed

I'm building a project that requires a device to control a 3 phase induction AC motor 1.5 kw and 1400 rpm to do the following

1-reverse Motor direction

2-switch motor on/off (frequency up to 1 time per second)

3- Can be controlled by a micro controller (i.e accepts digital signal)

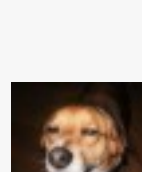
No need for controlling motor speed

does your circuit design provide the control device I'm looking for?

thanks and waiting for your kind reply

Posted on September 12th 2015 | 7:48 am

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Jim Keith

This circuit is for single phase applications only. I will soon post a circuit that will control a 3phase motor.

Posted on September 14th 2015 | 2:27 pm

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