

K8003

DC CONTROLLED DIMMER

Manual

This small but handy circuit is ideal for replacing an existing dimmer or switch, in order to be able to control a lamp, set of lamps or even a motor via an adjustable DC voltage. One obvious application is control via the K8000 interface board, thanks to its optically isolated input.

Specifications :

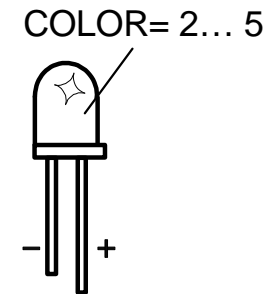
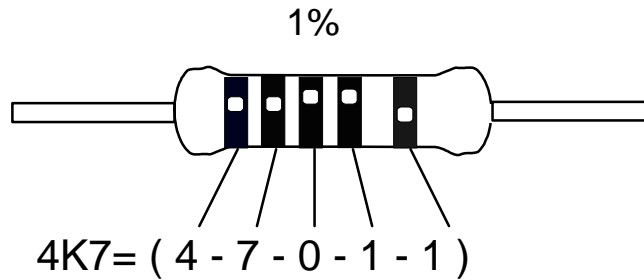
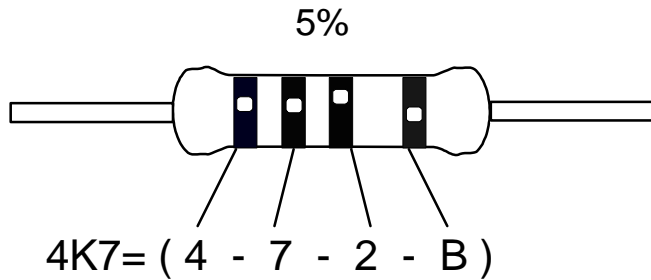
- Operating voltages : 24, 110-125 or 220-240VAC 50/60Hz
- Max. load : 3.5A (750W/220V; 380W/110V; 80W/24V)
- Control voltage : 0 to 10VDC
- Max. control current : 2.25mA at 12VDC
- Control voltage and load are optically isolated
- Isolated triac
- Dimensions : 48x74mm (1.9"x2.9")

modifications reserved

Applications :

- Control power circuits with a safe DC voltage
- Ideal for computer interfacing projects (with K8000)
- Adjust lighting, speed of collector motors, ...
- Your own unique application



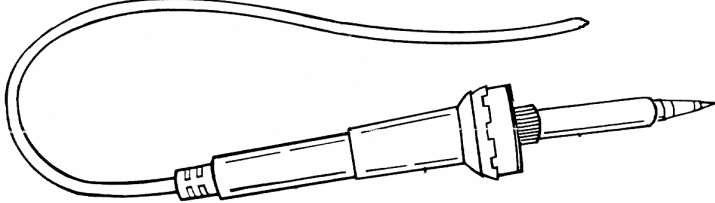
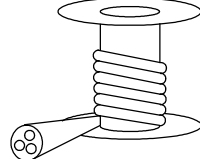
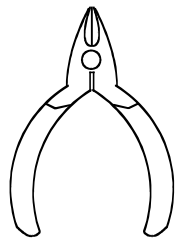
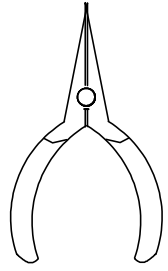



C O D E	I	P	E	SF	S	DK	N	D	GB	F	NL	C O D E
	CODICE COLORE	CODIGO DE CORES	CODIGO DE COLORES	VÄRI KOODI	FÄRG SCHEMA	FARVE KODE	FARGE KODE	FARB KODE	COLOUR CODE	CODIFI- CATION DES COU- LEURS	KLEUR KODE	
0	Nero	Preto	Negro	Musta	Svart	Sort	Sort	Schwarz	Black	Noir	Zwart	0
1	Marrone	Castanho	Marrón	Ruskea	Brun	Brun	Brun	Braun	Brown	Brun	Bruin	1
2	Rosso	Encarnado	Rojo	Punainen	Röd	Rød	Rød	Rot	Red	Rouge	Rood	2
3	Aranciato	Laranja	Naranjado	Oranssi	Orange	Orange	Orange	Orange	Orange	Orange	Oranje	3
4	Giallo	Amarelo	Amarillo	Keltainen	Gul	Gul	Gul	Gelb	Yellow	Jaune	Geel	4
5	Verde	Verde	Verde	Vihreä	Grön	Grøn	Grønn	Grün	Green	Vert	Groen	5
6	Blu	Azul	Azul	Sininen	Blå	Blå	Blå	Blau	Blue	Blue	Blauw	6
7	Viola	Violeta	Morado	Purppura	Lila	Violet	Violet	Violet	Purple	Violet	Paars	7
8	Grigio	Cinzeno	Gris	Harmaa	Grå	Grå	Grå	Grau	Grey	Gris	Grijs	8
9	Bianco	Branco	Blanco	Valkoinen	Vit	Hvid	Hvidt	Weiss	White	Blanc	Wit	9
A	Argento	Prateado	Plata	Hopea	Silver	Sølv	Sølv	Silber	Silver	Argent	Zilver	A
B	Oro	Dourado	Oro	Kulta	Guld	Guld	Guldl	Gold	Gold	Or	Goud	B

1. Assembly (Skipping this can lead to troubles !)

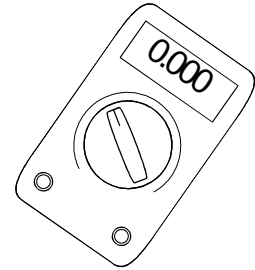
Ok, so we have your attention. These hints will help you to make this project successful. Read them carefully.

1.1 Make sure you have the right tools:

- A good quality soldering iron (25-40W) with a small tip. 
- Wipe it often on a wet sponge or cloth, to keep it clean; then apply solder to the tip, to give it a wet look. This is called 'thinning' and will protect the tip, and enables you to make good connections. When solder rolls off the tip, it needs cleaning.
- Thin raisin-core solder. Do not use any flux or grease. 
- A diagonal cutter to trim excess wires. To avoid injury when cutting excess leads, hold the lead so they cannot fly towards the eyes. 
- Needle nose pliers, for bending leads, or to hold components in place. 
- Small blade and phillips screwdrivers. A basic range is fine. 



For some projects, a basic multi-meter is required, or might be handy

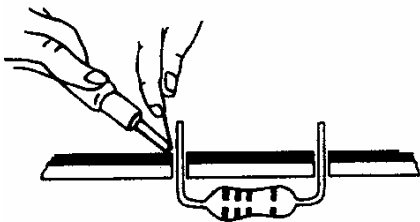


1.2 Assembly Hints :

- Make sure the skill level matches your experience, to avoid disappointments.
- Follow the instructions carefully. Read and understand the entire step before you perform each operation.
- Perform the assembly in the correct order as stated in this manual
- Position all parts on the PCB (Printed Circuit Board) as shown on the drawings.
- Values on the circuit diagram are subject to changes.
- Values in this assembly guide are correct*
- Use the check-boxes to mark your progress.
- Please read the included information on safety and customer service

* Typographical inaccuracies excluded. Always look for possible last minute manual updates, indicated as 'NOTE' on a separate leaflet.

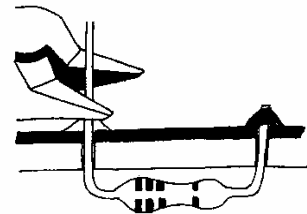
1.3 Soldering Hints :



Mount the component against the PCB surface and carefully solder the leads



Make sure the solder joints are cone-shaped and shiny



Trim excess leads as close as possible to the solder joint

1. RESISTORS

- R1 : 4K7 (4 - 7 - 2 - B)
- R2 : 100K (1 - 0 - 4 - B)
- R3 : 100K (1 - 0 - 4 - B)
- R4 : 470K (4 - 7 - 4 - B)
- R5 : 1M (1 - 0 - 5 - B)

Choose operating voltage :
For 24VAC :

- R6 : 15K (1 - 5 - 3 - B)
- R7 : 39K (3 - 9 - 3 - B)

For 110-125VAC :

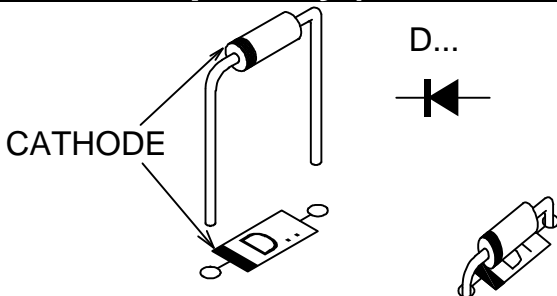
- R6 : 100K (1 - 0 - 4 - B)
- R7 : 220K (2 - 2 - 4 - B)

For 220-240VAC:

- R6 : 220K (2 - 2 - 4 - B)
- R7 : 470K (4 - 7 - 4 - B)

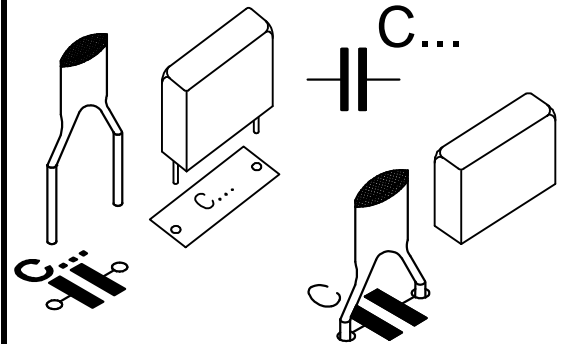
2. DIODES

(Watch the polarity!)



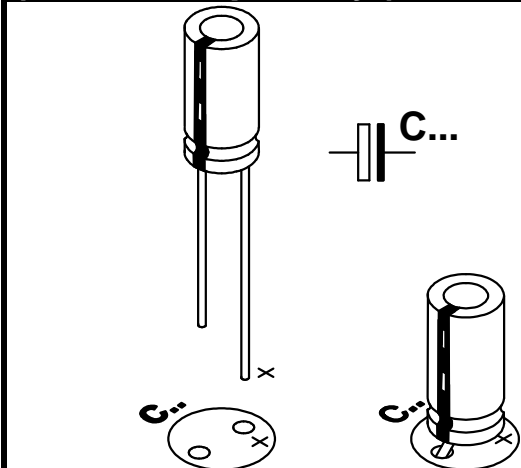
- D1 : 1N4148
- D2 : 1N4148
- D3 : 1N4007

3. CAPACITORS



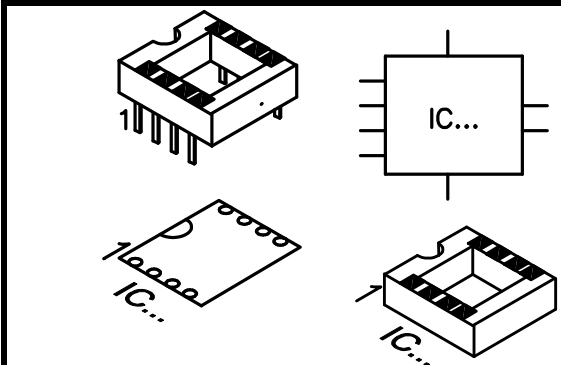
- C1 : 4n7 (472)
- C3 : 100nF/250VAC
(104 - μ 1)
- C4 : 100nF (104 - μ 1)

4. ELECTROLYTIC CAPACITORS (Watch the polarity!)



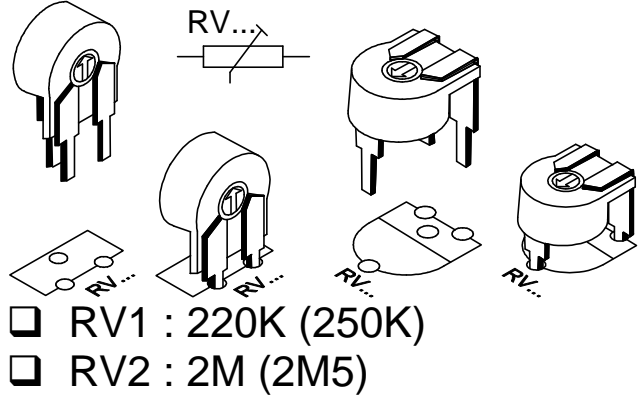
- C2 : 100 μ F

5. IC SOCKETS

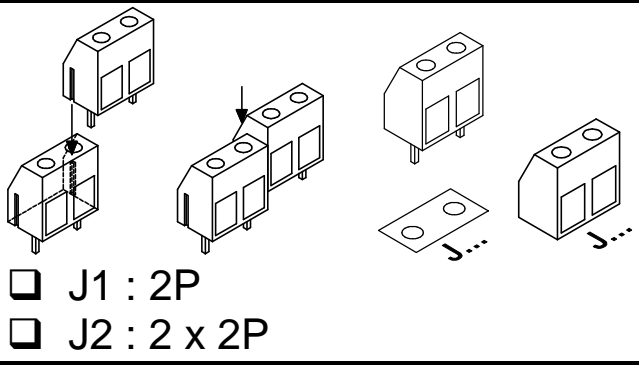


- IC1 : 6P
- IC2 : 8P

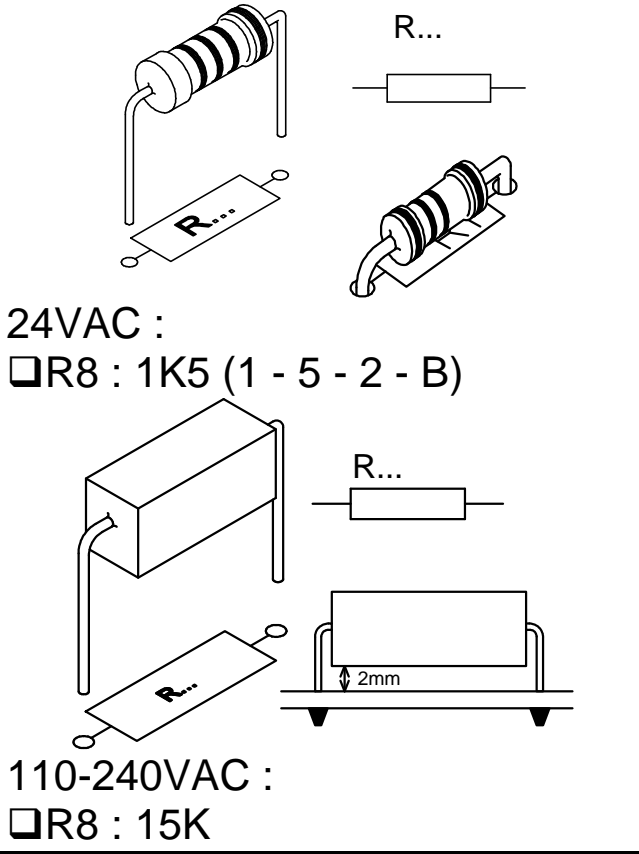
6. TRIM POTENTIOMETERS



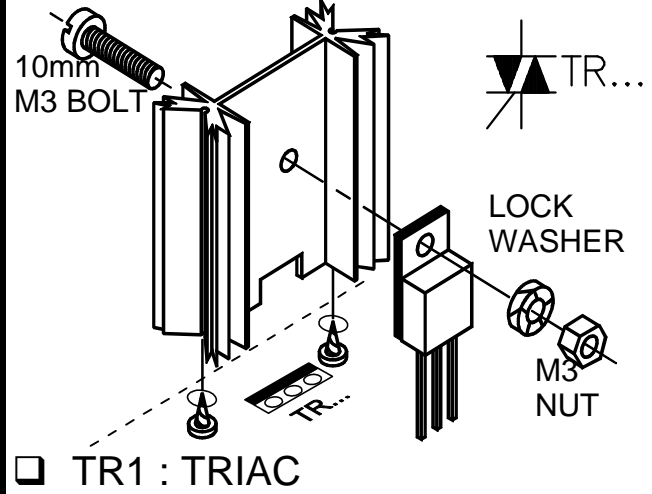
7. SCREW TERMINALS



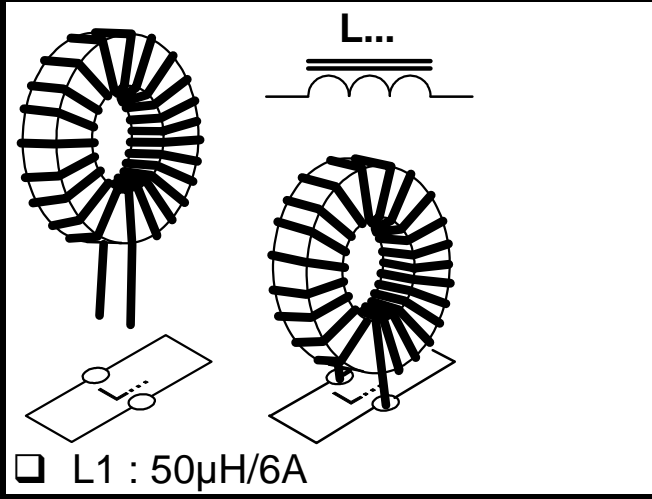
8. POWER RESISTOR



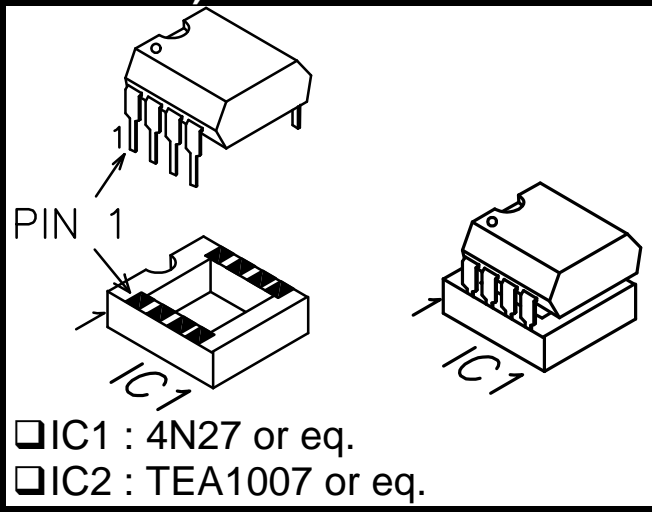
9. MOUNTING OF THE TRIAC



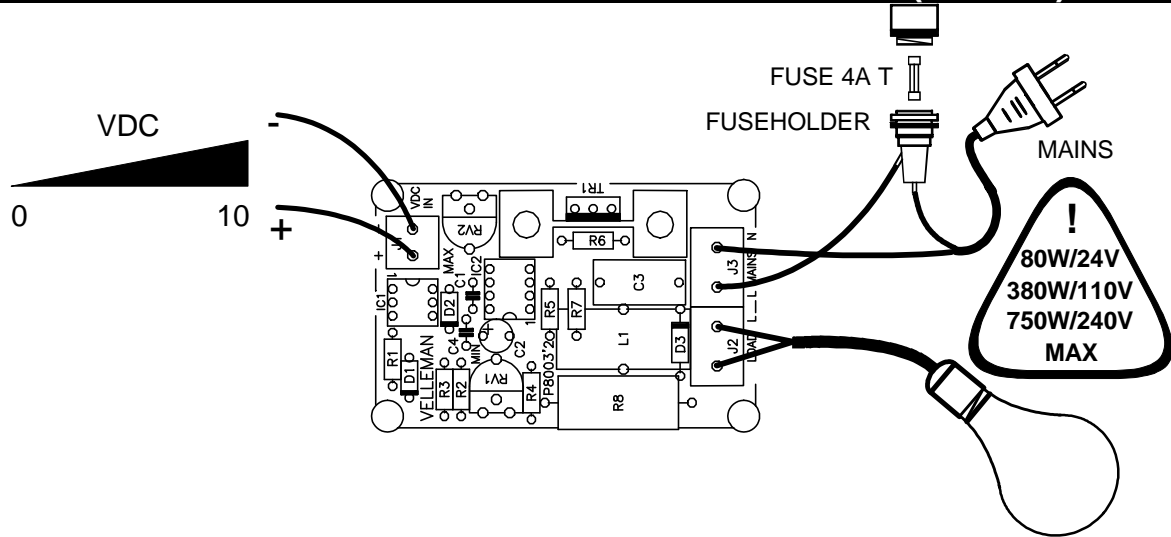
10. COIL



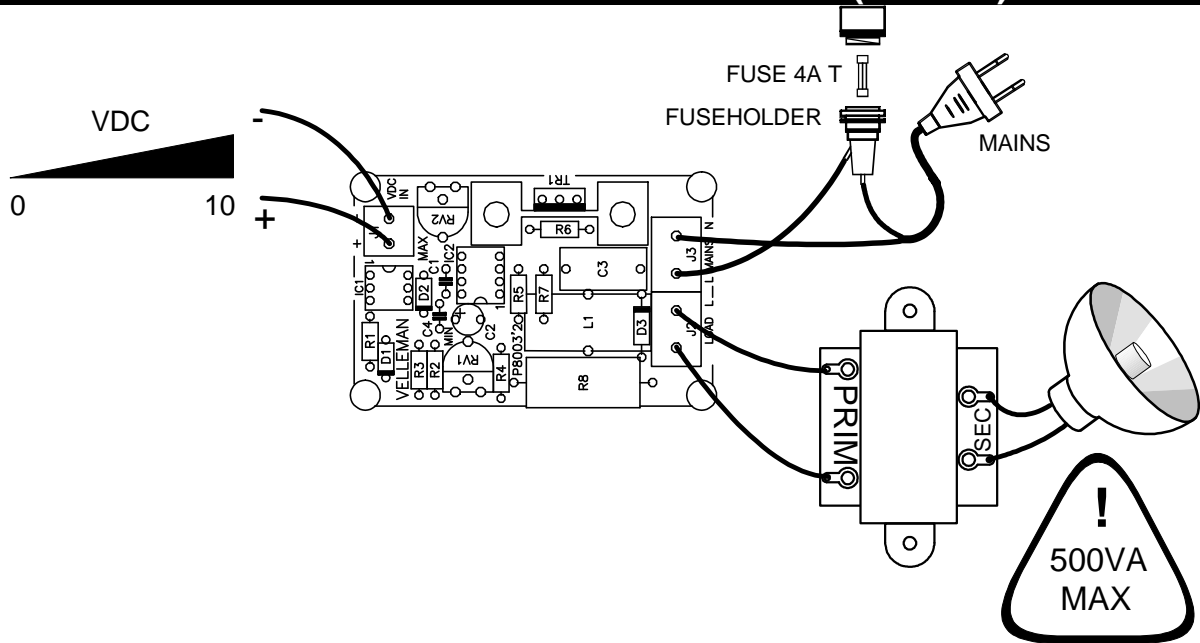
11. IC's (Watch the position of the notch)



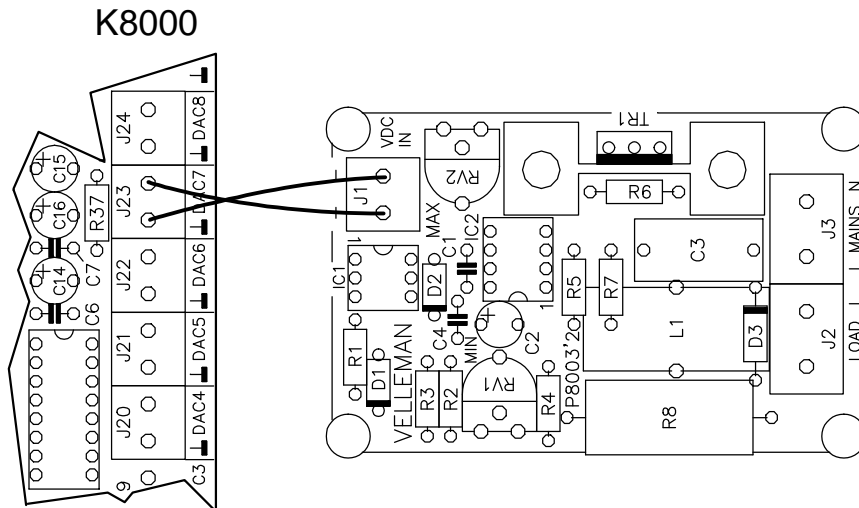
12. CONNECTION EXAMPLE FOR RESISTIVE LOAD (FIG 1.0)



CONNECTION EXAMPLE FOR INDUCTIVE LOAD (FIG 2.0)



CONNECTION EXAMPLE WITH K8000 COMPUTER INTERFACE (FIG3.0)

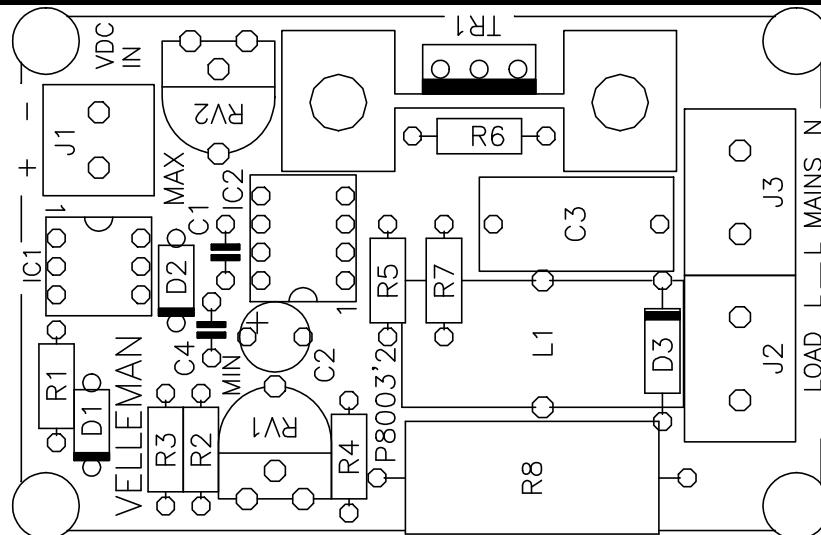


13. SET UP

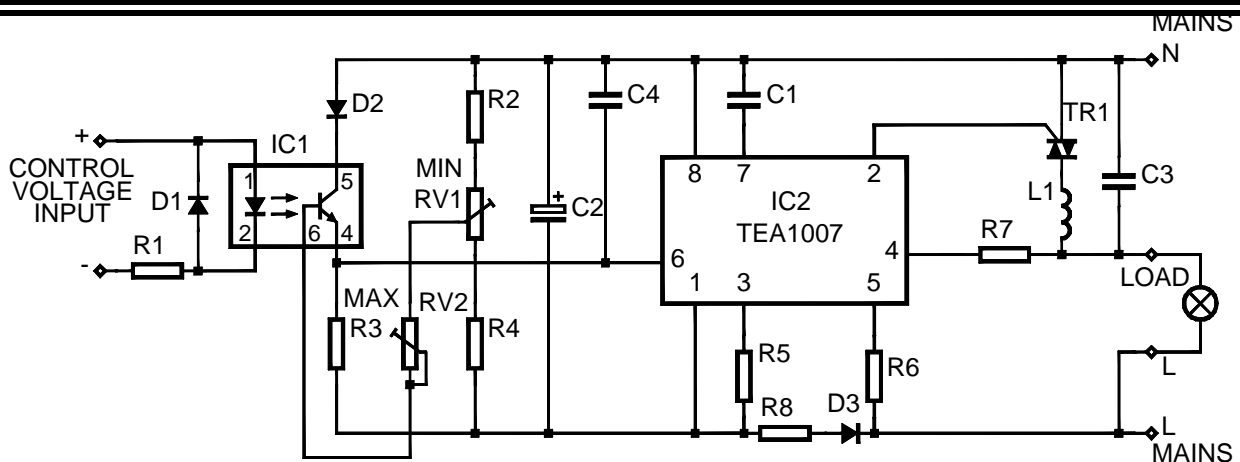
- Connect a digital voltmeter to the PCB in parallel with the load.
- Set both trimpots to the middle of the range of adjustment.
- Switch in the control voltage and the supply voltage.
- Set the control voltage to 0V.
- Adjust RV1 (Min) until the voltmeter reads 0V.
- Set the control voltage to maximum.
- Adjust RV2 (Max) until the voltmeter reads the maximum voltage.
- Repeat both adjustments once again.
- The circuit is now ready for use.

NOTE: In some cases it can be useful to set the minimum level such that there is a small pre-voltage present, such as for example with stage and theatre lighting.

14. PCB LAYOUT



15. DIAGRAM



Modifications and typographical errors reserved
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