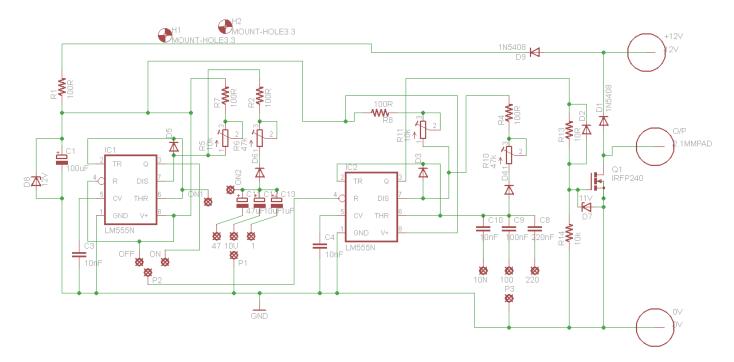
### **DAVE LAWTON PWM KIT INSTRUCTIONS**

## **Parts List**

R1	100R/ 2W	1off
R2, R4, R7 & R8	100R/ 0.25W	4off
R5 & R11 R6 & R10	10k pot 47k pot	2off 2off
R13	47R	1off
R14	10k	1off
C1 C3, C4 & C10 C8 C9 C11 C12 C13	100uF 10nF 220nF 100nF 47uF 10uF 1uF	1off 3off 1off 1off 1off 1off
D1 & D9 D2-D6 D8 D7	1N5408 1N4148 12V zener 11V zener	2off 5off 1off 1off
Q1	IRFP240	1off
IC1 & IC2 DIL sockets	555 8 pin	2off 2off
Meter Terminal Post (Red) Terminal Post (Black) 4P3W switch DPDT min toggle SPST (10A) Fuse holder 6A fuse Switch Knob (pointy one) Pot Knob (round one) PCB Box Blue crimp receptacle cond Blue piggy back crimp cond 3mm x 12mm bolt 3mm nut 4mm solder ring terminal Insulating washer		1 off 2 off 2 off 2 off 1 off 1 off 1 off 4 off 1 off 4 off 4 off 9 off 4 off 1 off
	Dave Lawton Kit Ind	

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#### **Circuit Diagram**



Please excuse the symbolisation of the switches, the EagleCad programme doesn't have any appropriate devices

The above addition to the original circuit diagram has been found to cure a problem experienced by some customers when using this PWM. This modification takes the gating side of the circuit fully 'out of the loop' by adding an extra set of contacts and switch to the existing circuit.

The previously crudely modified PCB has now been superceded by a new custom made one to accommodate all the problems found with these units in the field. The following photo's show how things look when installed.



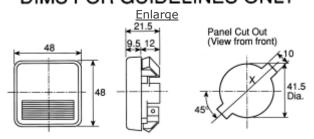
This photo shows the original SPDT gating switch changed for a DPDT version allowing the normally 'open' part of the circuit to be bridged and the gating side of the circuit to function as normal.

#### **Instructions**

- 1. As with any kit first check and identify all components are present. The picture below is of a prototype board and the currently supplied components may differ.
- 2. I'm sure most people will be readily able to assemble the PCB. I normally start with the resistors/ diodes etc and work my way up in terms of component size. Always check diode and capacitor polarity against the screen print.
- 3. Next wire up the various switches/ potentiometers. I use lengths of heatshrink to keep things tidy. Note you do not need to connect up three wires to the potentiometers. Connect one end of the potentiometer to the track at the potentiometer. I used the trimmer symbol on the PCB simply because it was convenient.
- 4. The second picture shows how we lay out the controls in the box we supply and the details immediately below show the details of the hole you'll need to cut out to accommodate the meter.
  - Note you'll need to adjust the position of the tab washer on the 3P4W switch to limit the rotation to just three positions. We wire up Tab A and tabs 1,2 & 3.

Snap in fixing		
Panel Thickness	'X' mm	
0.6 to 0.9	50.0	
1.0 to 1.4	51.0	
1.5 to 1.9	51.5	
2.0 to 2.4	52.5	
2.5 to 3.0	53.5	

# DIMS FOR GUIDELINES ONLY







5. We supply a number of crimp connectors and solder ring terminals with the kit. We prefer to connect to the 4mm input/ output terminals using the 4mm ring terminals, you can equally solder direct to these if you wish.





6. The next picture shows the PCB mounting arrangement. This consists of 2off 3mm bolts secured with 2off nuts each to act as spacers.



7. Finally connect a piece of aluminium sheet (not supplied) to the MOSFET using 1off 3mm bolt and washer c/w insulating washer. As can be seen from the next picture we fold this piece of aluminium around and secure the free end using a 3mm bolt secured with a nut acting as a spacer and then the aluminium strip and then secured with another nut. This keeps the strip off the plastic to allow better cooling.



These are our MkIII set of instructions. If you feel they need adding to in any way please feel free to contact us at  $\underline{sales@courtiestown.co.uk}$