

CUSTOMER WARNING – This circuit is designed for use with a current limited source such as a photo-voltaic (PV) solar panels of about 100W (12V batteries) – 200W (24V batteries) maximum or a 16 - 32V/ 5A current limited power supply.

This kit differs slightly from our 5A solar charger kit in that this kit is supplied with 20,000uF/ 63V of input capacitor on the PCB. This allows for the provision of a much cruder power supply to power it. All you need to drive it are a transformer with a 0-15V/ 5A secondary (or two if using it to charge 24V batteries) and a suitably rated FWBR.

You then need to fit a 1R/ 50W (or 2R/ 50W for 24V batteries) resistor in line to limit the current or use car headlamp bulbs.

DO NOT POWER THIS PCB BY A NORMAL POWER SUPPLY WITHOUT A SUITABLE RESISTANCE IN SERIES – YOU WILL DESTROY THE DEVICE.

MkII 12-24V TSW Kit

C1A & C1B	10,000uF	2off
C2	10uF	1off
C3	100uF	1off
C4	100nF	1off
C5	6,800uF	1off
D1	MBR40250	1off
D2	F10UP60S	1off
D3	1N4148	1off
IC1	LM317HVT	1off
LED1	LED5MM	1off
Q1	BCX38C	1off
Q2	SDP55NP06	1off
Q3	FDP047N10	1off
Q4 & Q5	2N5550	2off
R1	22k	1off
R2, R3 & R5	10k	3off
R4, R11 & R14	1k	3off
R6	240R	1off
R7	2k7	1off
R8	330R	1off

R9 & R10	270R	2off
R12 & R15	10R	2off
R13	1R2/ 7W	1off
R16	33R/ 1W	1off
R17	100R	1off
R18 & R19	4k7	2off
RL1	40.31 Finder relay	1off
	Relay base	1off
	Spring clip	1off
U2	78L05	1off
U3	PICAXE-08	1off
	FK219 heat sink	2off
	SK129 heat sink	1off
	M3 x 6mm bolt	2off
	M3 x 12mm bolt	1off
	M3 nut	3off
	PCB	1off

Assembly Instructions

1. Firstly identify all components against the list above.
2. There are no particular special points to note during assembly. I would suggest starting with the smallest components and working your way upwards.
3. Use heat sink paste on all components attached to a heat sink.
4. Exercise care when soldering wires to the push to make switch, it is easy to melt the switch if heat is applied for too long.
5. When all components are soldered to the PCB check for solder bridges and the like before powering the PCB up.
6. The device has two charging states one is 'full power' and the other is a 'trickle charge' state. This user selectable by the push switch. We are hoping to have this function automated at some point in the future.
7. **Prior to powering up a reminder about using a current limited power source. If using a conventional power supply such as laptop power supply you MUST put a resistance between the power supply and this PCB. I use a 1R 50W or even 100W aluminium clad resistor. The likes of a car headlamp bulb will also work. If you connect a normal power supply to this PCB 'unprotected' it will 'suck the life out' of the power supply and burn out.**

8. We do supply a 5A current limited power supply kit.
9. The life of the relay is currently unknown. The manufacturer gives a mean between failure of some 20 million operations. This would give some 230 days of continuous operation. We view the relay as a consumable item and the programme has been written such that the relay opens and closes with minimal current across it. We will supply replacement relays on demand (at minimal cost) and may well supply a spare with kits in future.
10. This device can also be used very successfully on Ni-Cd power tool type batteries. Make sure you use an appropriate rated power supply, I would suggest a 1A one. Do not charge for more than an hour at a time.

H1 MOUNT-HOLE H2 MOUNT-HOLE H3 MOUNT-HOLE H4 MOUNT-HOLE

KK1 SK129-PAD



