POWERUP!

PowerUP! 64W PRO – VERSION 1.0

C64 PSU UPGRADE BOARD

USER MANUAL

POWERUP!

The POWERUP! 64W PRO is a modern and safe upgrade for the voltage regulation boards in C64 PSUs. It replaces the original which is infamous for damaging the computer, when failing, due to overvoltage.

INSTALLATION

1. **Remove the PSU bottom plate** by first knocking with a hammer, using **moderate** force, at areas marked in blue **(see ill. 1)**.

   Secondly, insert the tip of a thin and broad flatheaded screwdriver in the gap between the plate and PSU housing and bend up the plate **gently**. Pull out the tip and move it a few centimeters and repeat. Repeat above procedures multiple turns until plate releases*.

   *If the plate is still stuck after repeating the procedures above, insert the screwdriver in the gap flush to the plate and aim for the L-shaped support **(see 1a)** and increase bending force. Make sure to not use excessive force as it may damage/crack the plate.

2. **Disconnect the original board** when the plate is finally removed. First document the position of colored cables at **2b**. Then **desolder** (do NOT cut) the wires **(see 2a and 2b)** from the board.

   Next step is desoldering the linear regulator or cutting its legs **(see 2c)** under the PCB using a narrow cutter. Remove the board and trim the legs flush to the surface of the epoxy.

3. **Place the PowerUP! board in the PSU** and solder the wires to the pads or through the holes, cable ends facing the pad areas. Verify colored wires position. Measure output voltage at 5V pads **(2b)**.

4. **Reattach the bottom plate** using small dabs of super glue or tape.

Fuse(s) side

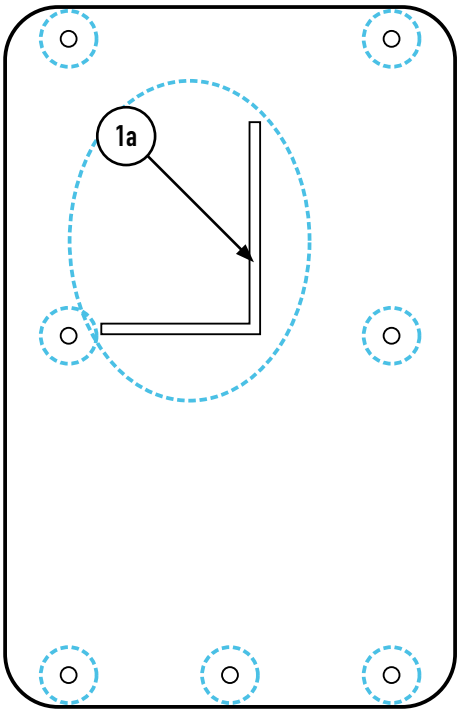

Illustration 1 - PSU bottom view

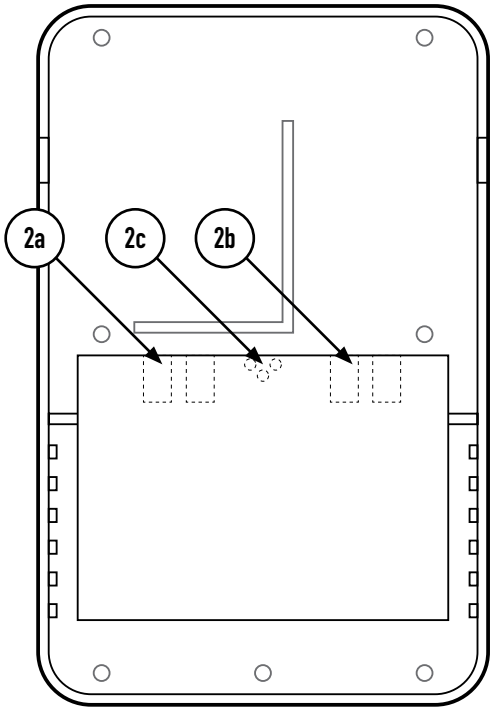

Illustration 2 - PSU interior bottom view

FEATURES

The PowerUP! 64W PRO is a **drop-in replacement** and upgrade for the voltage regulating board found in the wedge shaped C64 PSUs. The original board converts 9 VAC to 5 VDC using a linear voltage regulator which produces alot of heat and is also prone to deliver overvoltage when failing.

The replacement board utilizes **highly efficient switching DC-DC conversion** with minimal heat release and multiple protection features built-in. The output voltage is filtered by multiple capacitors to deliver clean power to your C64.

The board has an **option for external power LED**; solder a THT or SMD resistor* at R1 and add cables or pin header to solder pads marked 'JP1' (5.2 VDC output) on the PCB **(3a)**.

* A 220 ohm resistor fits most LEDs. Increase the value to dim the light output. SMD resistor size should be 1206.

SPECIFICATIONS

Supported PSUs	Commodore part no. 902503-06 and 902503-11 (see ill. 4)
Output voltage	5.2VDC default voltage, adjustable via R4 (see 3b) between 5.05-5.25VDC, +/-0.05V)
Output current	3A** max (orig.: 1.5A max)
Efficiency	85-90% (orig.: <50%)
Protection	Overcurrent, overheating and short circuit protection
Dimensions	70×50×22mm (W×D×H)

****IMPORTANT – HIGH LOADS!** Due to internal resistance in the computer and the thin copper stock power cable, there will be a slight voltage drop and the 5V line measured in the computer can be less than 4.9V under heavy (1.5A+) load. Therefore it's **highly recommended to replace the power cable** between the PSU and the C64 with thicker conductors (min. 1mm²/AWG18) if the PSU is going to be used over long periods of time with high loads. **Also, drawing 3A from the stock transformer is pushing things to its absolute limits.**

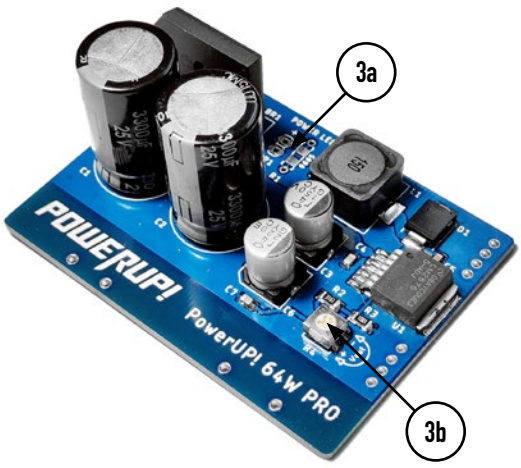

Illustration 3 - Board layout

Illustration 4 - Wedge shaped C64 PSU