



AB528 Assembly guide



Safety warning

The kits are main powered and use potentially lethal voltages. Under no circumstance should someone undertake the realisation of a kit unless he has full knowledge about safely handling main powered devices.

Please read the “DIY guide” before beginning.

Print or open the following documents:

- AB528 Schematics
- AB528 Components layout
- AB528 Parts list

Follow this guide from item number 1 till the end, in this order. The assembly order is based on components height, from low to high profile, in order to ease the soldering process : The component you are soldering is always taller than the previously assembled ones and it is pressing nicely against the work area foam.

Soldering

All the PCB holes are metallized. It means the connections between the top and bottom pads are already made. The parts must be soldered only from below (unless differently stated).

Use only small diameter solder, 0.5 or 0.7 mm, 1 mm maximum. Use the minimum possible amount of solder. Bad joints are almost always caused by too much solder.

If ever, because you have made a mistake, you need to remove a component, DO NOT TRY TO SAVE IT! Instead, cut the pins and remove them one by one. Because this PCB is made of 4 layers and there is a very high risk of breaking the connections between layers if you force a lead out.

Here are two excellent introduction to soldering videos:

<http://www.eevblog.com/2011/06/19/eevblog-180-soldering-tutorial-part-1-tools/>

<http://www.eevblog.com/2011/07/02/eevblog-183-soldering-tutorial-part-2/>

In case of error: component soldered in the wrong place

Do not try to save the component! This will very likely damage the PCB which cost 100 times more than most components.

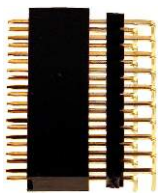
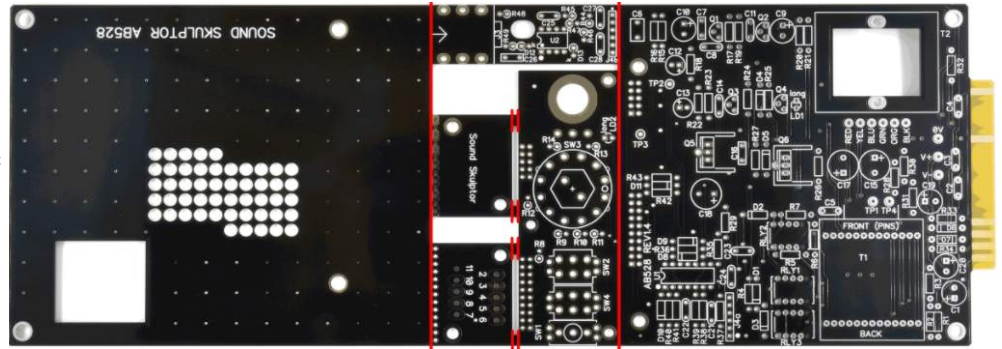
Except for transformers which are also expensive, cut the components pins with cutting pliers in order to be able to remove the pins one by one.

Then empty the holes with a de-soldering pump (this one works great : Jonard Industries DP-100).

AB528 Assembly guide – Main PCB

1. PCB split

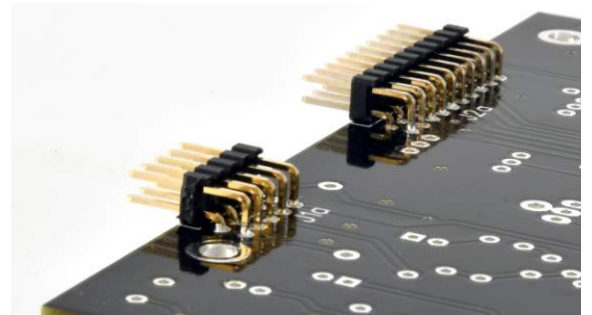
Split the PCB into 6 parts along the grooves and mouse bites. Use extra thin sandpaper to polish all the rough sides.



2. Connector J1a and J2a

Insert the male 2x10 and 2x5 pins connectors into their place at the back of the main PCB. Solder one pin, check that the contacts are perfectly parallel to the PCB then solder the other pins.

Warning : These connectors are inserted at the back of the PCB and soldered on the components side.



3. Resistors

The best method to select and install the resistors is the following:

1. pick a row of resistors in the resistors bag,
2. Measure one of the resistors with your DMM,
3. Look up the parts-list PDF for the closest value,
4. Check the color code and quantity for confirmation,
5. Use the search function on the Layout PDF page with the resistor value: All the corresponding resistors are highlighted,
6. Insert and solder.

(You can use the same method later, for the capacitors)

Add all the resistors of the main PCB (black identifier in the parts list).

Control the resistor values with a digital multimeter. Bend the leads at 0.4" with a lead forming tool.

Warning : It is very important to check the resistors value with a DMM because the color code can sometimes be ambiguous. For example 1k Ω (brown-black-black-brown-brown) can be confused with 110 Ω (brown-brown-black-black-brown).

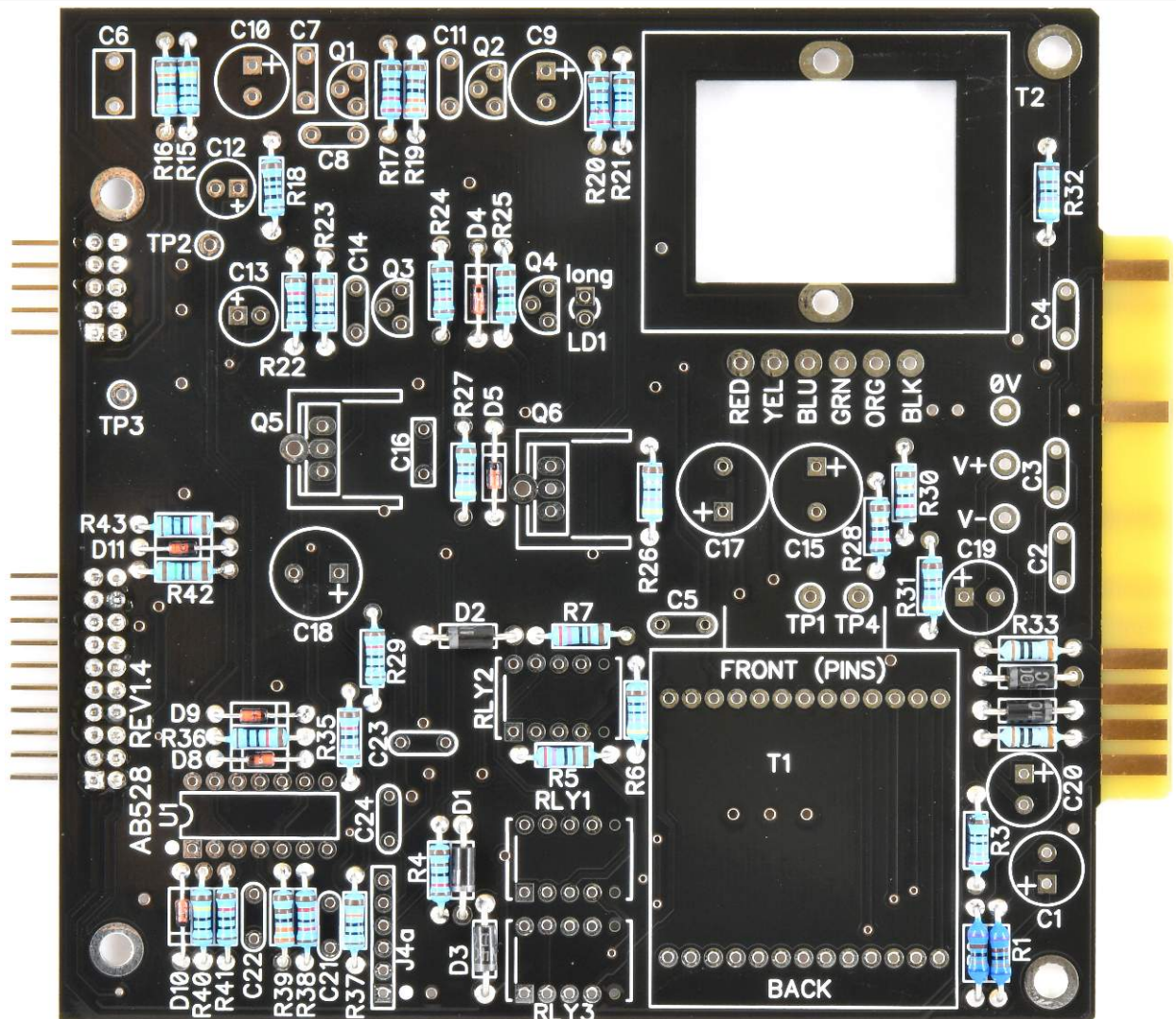


4. Diodes

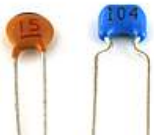
Add D4 (zener diode) then D5, D8, D9, D10, D11 then D1, D2, D3, D6, D7. Use a lead forming tool to bend the leads at 0.4".

Warning : Make sure to respect the direction of the diodes which is marked by a ring on the component and a double line on the PCB marking.

AB528 Assembly guide – Main PCB



5. Ceramic capacitors



Add the ceramic capacitors.

6. Red LED



Insert and solder the red LED LD1.

Warning: The longest lead goes into the top hole marked "long".

7. IC Socket



Insert and solder the 14 pins socket in U1.

Warning: Make sure to respect the socket direction, marked by a notch.

8. Relays



Add RLY1, RLY2 and RLY3.

Warning: Make sure to respect the direction of the relays which is marked by a white line on the component and on the PCB marking.

AB528 Assembly guide – Main PCB



9. Test pins

Solder the 7 test pins TP1, TP2, TP3, TP4, OV, V+, V-.



10. Film capacitors

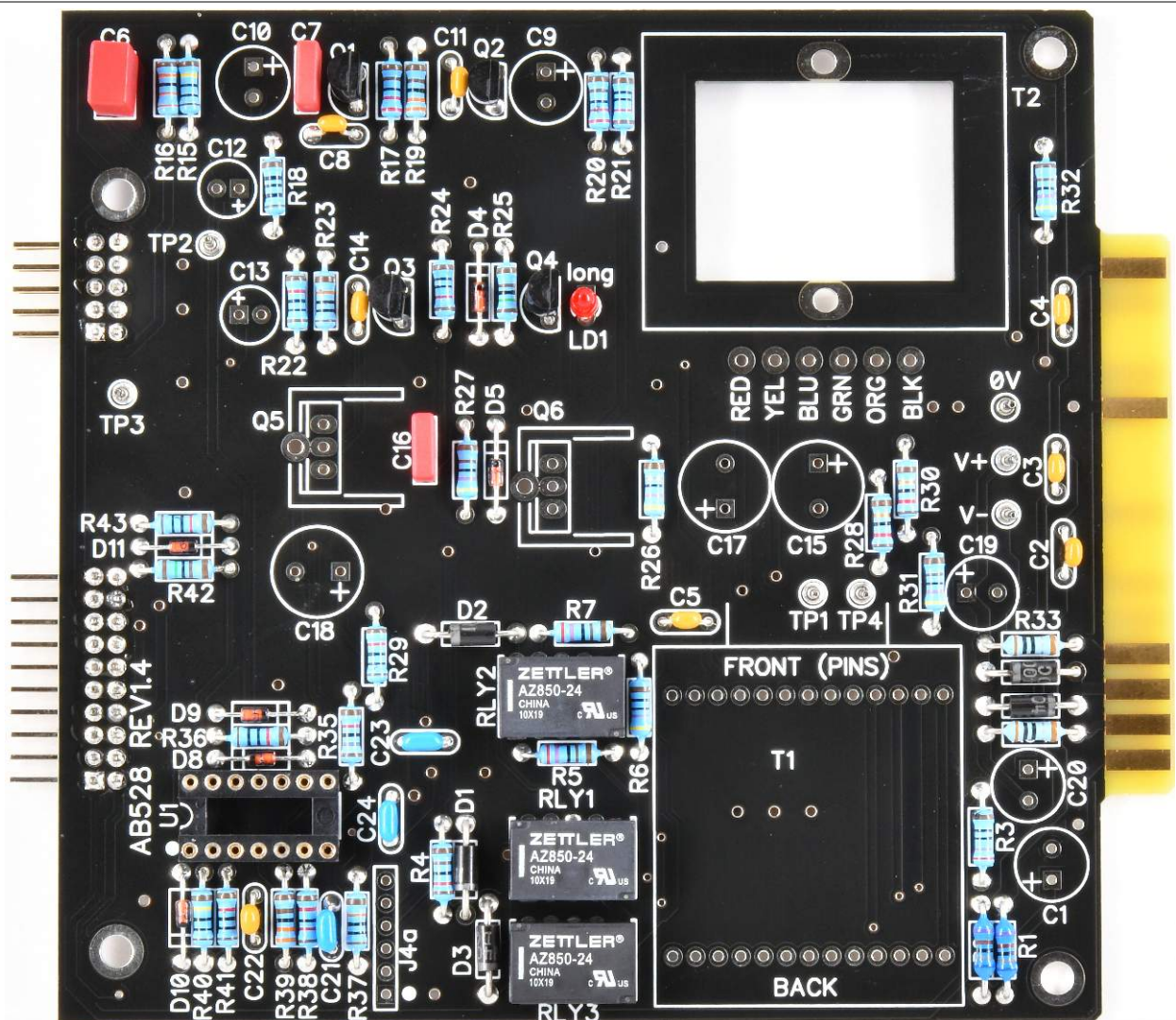
Add the film capacitors C7, C16, C6.



11. Transistors

Add Q1, Q3 and Q2, Q4.

Warning: Watch out the transistors direction. There are 2 types.



12. Connector

Solder the connector socket J4a. Solder one pin first, check verticality, then solder the other pins.

AB528 Assembly guide – Main PCB



13. Small electrolytic capacitors

Add the electrolytic capacitors C12, C13, C9, C10, C19, C20, C1.

Warning : The +lead must go into the +hole. Do not reverse (they may explode!)

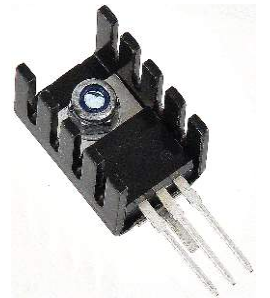


14. Power transistor Q5, Q6

Mount Q5 and Q6 on the 2 heatsinks with a M3x6 mm screw and a self locking nut.

Insert and solder one pin. Check the verticality then solder the other pins.

Warning : The 2 transistors are different. Do not swap.

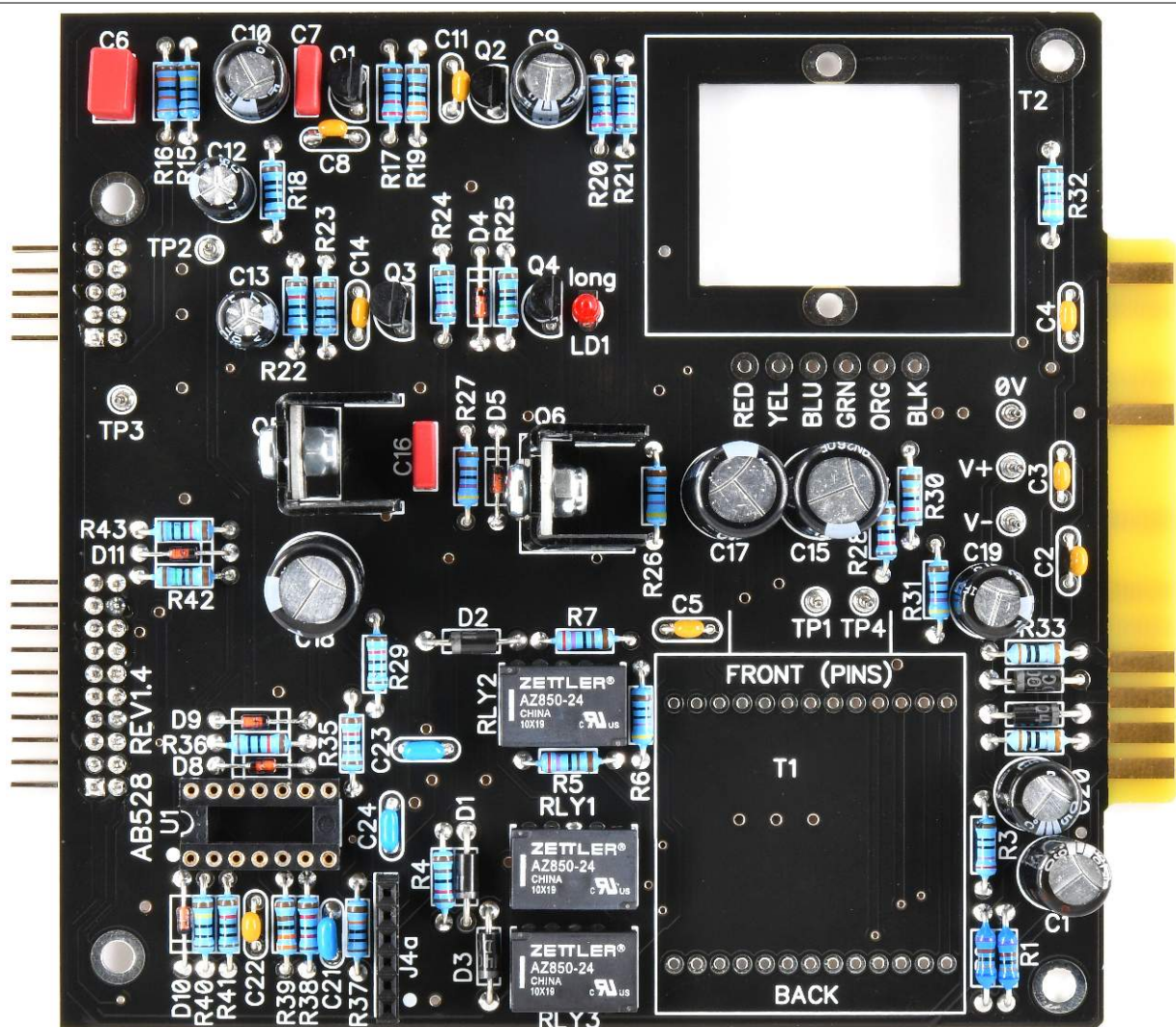


15. Large electrolytics

Add C15, C17, C18.

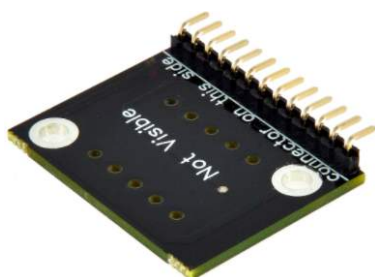
Solder one lead first, adjust verticality then solder the second lead.

Warning : The +lead must go into the +hole. Do not reverse (they will explode !)



AB528 Assembly guide – Main PCB

16. Transformer T1 front PCB



Use the input transformer front PCB, the one with the pin holes and numbers. Insert the 90°, 13 pins headers, long tails first, into the holes, from the bottom side, marked "Not visible".

Use the supplied jumpers to hold the connector in position while you solder one pin. Remove the jumpers and solder the other pins. Cut the straight pins sharp.

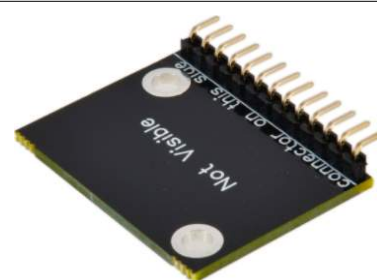


Warning : the pin headers must sit perfectly perpendicular to the PCB surface for a good matching with the main PCB.

17. Transformer T1 back PCB

Insert the 90°, 13 pins headers, long tails first, into the holes, from the side marked NOT VISIBLE.

Solder one pin, adjust the position then solder the other pins. Only one pin out of two are soldered. Cut the straight pins sharp.



18. Transformer T1 assembly



Remove the 2 screws from the transformer pin side and insert the front PCB on top of the transformer, checking the pins number correspondence and with the NOT VISIBLE text hidden. Assemble with the 2 screws. If there is play between the parts, pull the transformer down so that it does not protrude from the PCB top. Solder the transformer pins (pin 11 is not soldered).

Remove the 2 screws from the transformer back side and attach the back PCB with the NOT VISIBLE text hidden. Assemble with the 2 screws.

Insert the transformer into the main PCB and solder the 26 pins.

Warning: the transformer pins look towards C15, C17.



19. Transformer T2



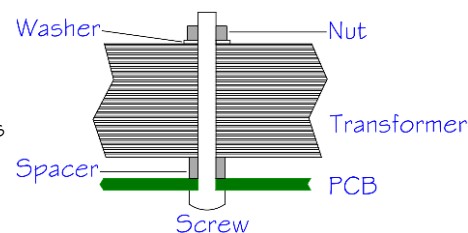
If the transformer is difficult to insert into the PCB cutout, you can trim the bobbin a little on the side with no wires.



20. Transformer T2 mount

The transformer is mounted using two 25mm M2.5 screws inserted from the back of the board. Two 3mm metal spacers are fitted on each screw to raise the transformer. One washer is used before the nut to protect the lams.

Shorten the leads to the necessary length, around 6 cm. Strip on 5mm, insert into the corresponding color pad hole and solder. Cut flush.



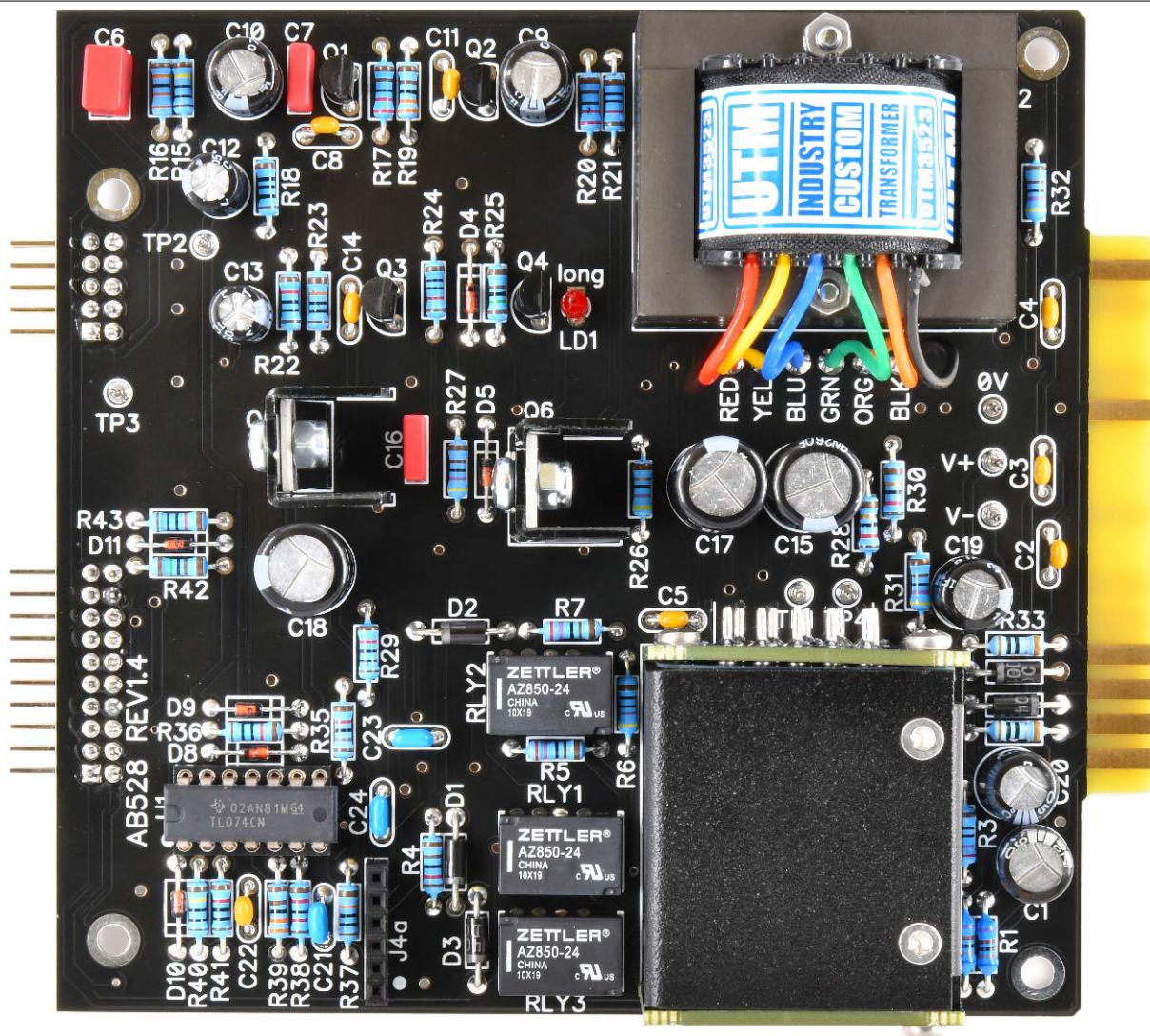
AB528 Assembly guide – Main PCB



21. U1

Insert U1 into its socket.

Warning : The correct direction is identified by a notch or a dot.



22. Visual check

Check that all component leads are cut short, in order not to risk touching the chassis plate. Brush the solder side with a hard tooth brush to remove any remaining solder bits.

Make a full visual check. Any missing component on the board? Any remaining component in the box?

When everything looks correct, proceed with the other boards assembly.

AB528 Assembly guide – Front PCB

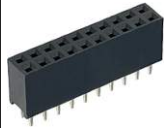


23. Resistors

Add R8 to R14.

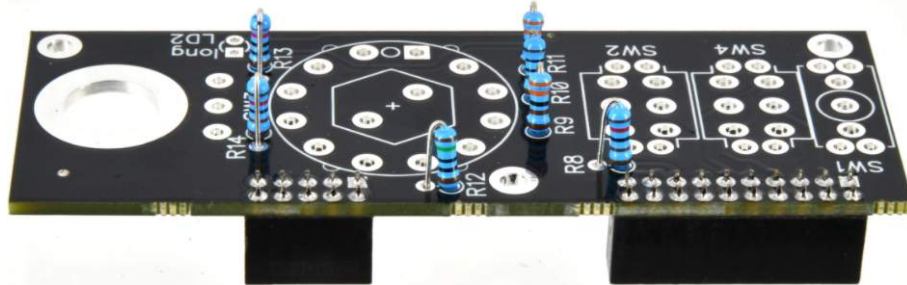
The resistors on the front PCB are installed vertically.

AB528 Assembly guide – Front PCB



24. Connectors J1b, J2b

Insert the 2x5 and 2x10 female connectors at the back of the PCB and solder on the components side.



25. Toggle switches

Add the toggle switches SW1, SW2, SW4.

Warning : The position of the switches is critical for a good front-plate matching. They must sit flat on the PCB. Press firmly the switches on the PCB and solder two opposite pins (housing). Check position then solder the other pins.

Warning : Be very careful not to touch the female connectors with your iron tip while soldering.

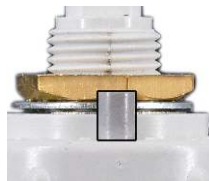


26. Potentiometer

Add P1. Insert the potentiometer into the PCB holes from the back side, fitting the pins into the corresponding pads. Attach with washer and nut, tighten to ensure a perfect perpendicular position and solder.



27. Rotary switch



Cut the anti rotation lug with cutting pliers.

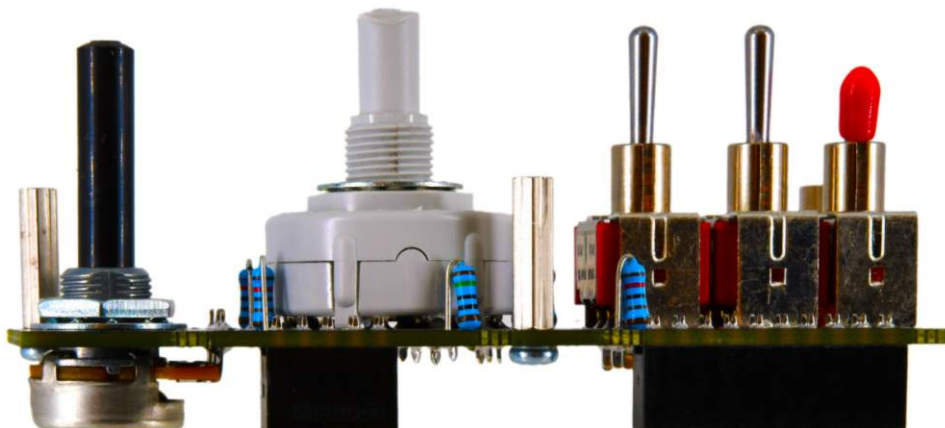
Shorten the shaft of SW3 with large cutting pliers at 10mm from the top of the thread.

Remove the nut but keep the stop washer and lock washer. Solder in place.



28. Spacers

Attach three M2.5x15mm spacers on the components side of the PCB and attach with three M2.5x6mm screws.



AB528 Assembly guide – Front PCB



29. LED

Insert the LED LD2, taking care of the anode/cathode (long/short lead) position. Do not solder yet. Attach the PCB to the front panel with 3 M2.5x6mm black screws. Adjust the LED with the front panel surface and solder.



DI board Assembly guide



1. IC socket

Insert and solder the 8 pins IC socket.



2. Ceramic capacitors

Add the ceramic capacitors C25, C27, C28.



3. Diodes

Add DI2, DI3. These diodes are installed vertically, cathode (black ring) on top.

Warning: Make sure to respect the direction of the diodes which is marked by a ring on the component and a "k" on the PCB marking.



4. Film capacitor

Add C26.



5. Resistors

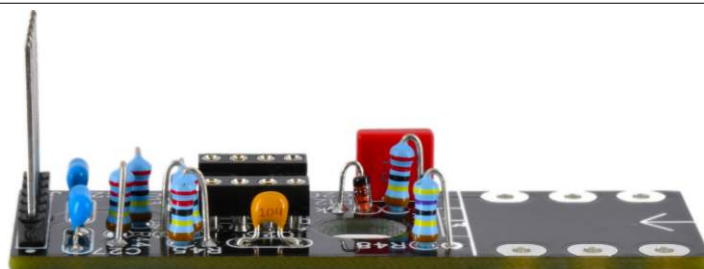
Add the resistors R44 to R49. These resistors are mounted vertically.



6. Connector

Solder the connector J4b on the components side. Solder one pin first, check verticality, then solder the other pins.

Warning: the connector pins must be exactly perpendicular to the PCB to allow proper insertion in the preamp board.





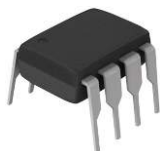
DI board Assembly guide



7. Jack connector

Add J3. The position of the socket is important for a good front-plate matching. It must sit flat on the PCB. Press firmly the socket on the PCB and solder one of the pins. Check position then solder the other pins.

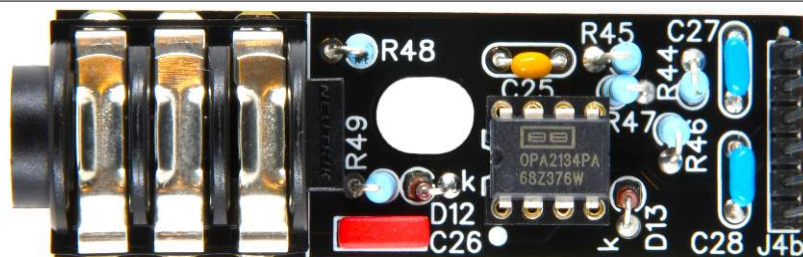
Warning : the hole must face outside the PCB ;-)



8. U2

Insert U2 into its socket.

Warning : The correct direction is identified by a notch or a dot.



AB528 Assembly guide – Final assembly

9. Chassis plate assembly

Attach the chassis plate to the front plate with two M3x6mm black screws.



10. Main PCB assembly

Put the main PCB in place, by inserting its connectors into the front PCB matching connectors.

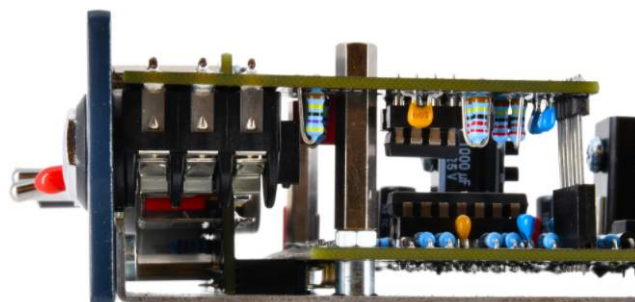
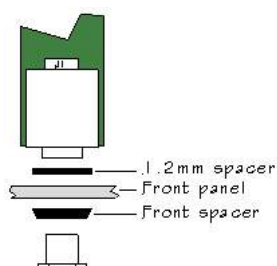
11. Spacers

Screw one nut to each of the four M3x25mm spacers. Use them to attach the main PCB to the chassis. Insert an additional metal washer on the 2 spacers at the back.



12. DI bBoard installation

Place one 1.2mm plastic spacer on the jack sockets and insert into the front panel while fitting the CN2 connector pins into the socket on the preamp PCB. Screw in the front nut through the beveled frontspacer with an M12 socket spanner.





AB528 Assembly guide – Final assembly

13. Knobs

Attach the 2 knobs.

14. Cover

Attach the cover with 4 M3x6mm countersunk screws.

15. Congratulations

You're done!

