THANKS FOR CHOOSING ONE OF OUR KITS!

This manual has been written taking into account the common issues that we often find people experience in our workshops. The order in which the components are placed on the board is meant to make assembly as easy as possible.
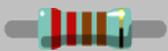
Some steps are not obvious, so even if you're an experienced DIYer please read the steps thoroughly before starting.

If this is your first project, please read this article before you start assembling the kit: www.befaco.org/howto/

GOOD LUCK!

We will be populating both boards at the same time, so instructions will state wich one.

OPEN MAIN BOARD BAG A

RESISTORS

Qty	Value	Code	Name on PCB
MAIN PCB (Bigger one)			
8	10k	Brown, black, black, red, brown	R5, R6, R7, R8, R11, R12, R13, R14
4	1k	Brown, black, black, brown, brown	R1, R2, R3, R4
1	39k	Orange, white, black, red, brown	R9
1	100k	Brown, black, black, orange, brown	R10
4	75R (1/4w)	Purple, green, black, gold	R15, R16, R17, R18 (Place all, then solder all)
CONTROL PCB (Smaller one)			
5	100k	Brown, black, black, orange, brown	R101, R104, R105, R107, R109
3	1k	Brown, black, black, brown, brown	R100, R102, R103
2	39k	Orange, white, black, red, brown	R106, R108

FERRITE

Solder the two ferrite beads by using a recycled resistor leg passed through each ferrite and proceed as if it were a resistor. Ferrite beads don't have polarity.

Qty	Name on PCB
2	FERRITE+, FERRITE-

DIODES

Solder the diodes **observing their polarity**. The black or white line on the diode must match with the white line on the diode symbol on the PCB silkscreen.

Qty	Value	Name on PCB
4	1N4148	D1, D2, D3, D4 (solder at same time)
2	1N5817	D5, D6

IC

First **place the socket** (taking care to orientate them properly – the notch or dot on one end of the IC should match the image on the silkscreen) and solder them into their correct position.

Next place the IC in their respective socket (again taking note of their orientation – the notch or dot on the top of the IC must match that of the socket and silkscreen).

Qty	Value	Name on PCB
1	TL072P	IC100

CAPACITORS

Identifying capacitors can be quite tricky. Codes stated are indicative, please take a look at this guide for help identifying capacitors: http://www.wikihow.com/Read-a-Capacitor

Qty	Value	Code	Name on PCB
MAIN PCB			
9	100nF	104	C1, C4, C6, C7, C8, C9, C10, C14, C15
3	10pF	10	C2, C3, C5
CONTROL PCB			
2	100nF	104	C102, C105
2	10pF	10	C103, C104

ELECTROLYTIC CAPACITORS

Values are written on the side of the capacitor. Mind their polarity (The long leg of the capacitor is the positive (+)).

Qty	Value	Code	Name on PCB
MAIN PCB			
3	10uF	10uF	C11, C12, C13
CONTROL PCB			
2	10uF	10uF	C100, C101

TRANSISTORS

These are to be placed on the **CONTROL PCB.** Be sure they are orientated correctly. The curved and flat sides of the silkscreen outline of the transistor on the PCB must match that of the transistor's body.

Qty	Value	Name on PCB
3	2N3904	T100, T101, T102

OPEN MAIN BOARD BAG B

MALE PIN HEADER

Place and solder the Male Pin Header on the silkscreen side at "CONTROL"

POWER CONNECTOR

Solder the power connector at "POWER", over the silkscreen marking. The small arrow on the connectors must be on the side with the thick white line.

FEMALE PIN HEADER

Place the female pin header over the silkscreen markings at position "MAIN" and solder.

OPEN REMAINING BAG

FRONT PANEL COMPONENTS MOUNTING TIPS:

Now we will proceed to mount the jacks, potentiometers, switch and LEDs. This part of the assembly is CRITICAL. Please take your time and read the following instructions carefully.

These components must **NOT** be soldered until they are placed on the PCB and fully attached to the front panel.

There are three reasons for this:

- The height of the panel components are not all the same. Because of this, if not attached properly before soldering, they will not stay properly seated against the panel. This might cause mechanical stress reducing their life expectancy and in the worst case cause them to break.
- The second reason is that it is very difficult to align the components to the holes if the panel is not positioned prior to soldering. In the case of the LEDs, they are almost impossible to set to the correct height without reference to the front panel.
- **Pay special attention to components placed below potentiometers. Make sure you cut the legs flat of every component beneath pot's footprint, so they will not touch the base of the pots once you place them.**

ON THE CONTROL BOARD:

SWITCH		
Place the switch and a nut(under panel), **but do not solder it yet!**		
Qty	Type	Name on PCB
1	Mini. Two circuits two positions	S1

MINI-JACKS

Place all the mini-jacks onto the PCB ensuring they are on the silkscreen side, but **don't solder yet**.

LEDs

Place the LEDs onto the PCB minding their polarity but **don't solder them** until the front panel is in place. This is the only way to solder them in the right position.

The long leg is the positive and the short the negative. On the PCB the square pad indicates the negative side and there is a + symbol to indicate the positive.

Qty	Name on PCB
3	LED_B1, LED_B2, LED_B3

POTENTIOMETERS

Place the potentiometer on the PCB, making sure it is **NOT** all the way down to the PCB. It will need to lay flat against the panel once finishing the module and...**don't solder it yet!**

Qty	Type	Name on PCB
2	Dual 100k	GAIN_M1, GAIN_M2

FRONT PANEL

Attach the **front panel** to the CONTROL PCB adjusting the parts one by one if necessary until they fit. At this point a pair of fine tweezers can be helpful.

- Once they are tighten to the panel you can finally **solder** them to the PCB.
- Next, adjust the **LEDs** so that they are flush with the panel and solder them.

ON THE MAIN BOARD:

1/4" JACKS AND PCBS ASSEMBLY

- Place the 1/4" jacks over the silkscreen markings but **don't solder them yet.**
- Connect the **MAIN PCB** to the **CONTROL PCB** using the pin headers and screw   the jacks to the panel.
- Secure the parts to the panel and then **solder** them to the PCB.

FINISHING

- Put the **knobs** on the potentiometers.

- Connect the **power ribbon cable**: The red wire (-12V) on the power ribbon cable corresponds to pin number one on the male power connector. The first pin is indicated with a small triangle on the male power connector and a white line on the main PCB. A white or black line (or "-12v") marked on your power bus normally indicates the corresponding polarity.

ENJOY YOUR NEW BEFACO MODULE!