DRUM SERIES POWER SUPPLY UNIT (PSU) AND DRUM SYSTEM CASE ASSEMBLY MANUAL

If you have built **mki x es.edu Drum modules and BBD delay module**, you might consider assembling a complete mki x es EDU Drum System in a dedicated, compact eurorack enclosure.

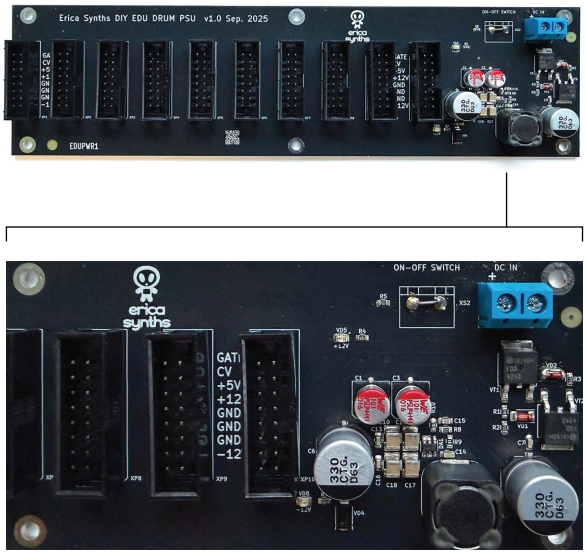
The mki x es EDU Drum System comes with prebuilt **eurorack PSU and power distribution board based on a DC/DC converter**. It turns +12VDC from a wall wart AC/DC adapter into eurorack standard bipolar +-12V. This ensures the voltage in your eurorack system never exceeds 12V and any area in your eurorack case is safe to touch.

The mki x es EDU Drum System case/PSU DIY kit contains:

- Drum System eurorack case,
- AC/DC wall wart adapter with 12VDC output, max current is 1A,
- DC socket and power switch,
- Partly assembled mki x es.edu PSU and power distribution board PCB,
- 8 2x8 pin sockets for eurorack power cables,
- All components to complete the Drum System case.

Please note that in order to reduce the overall cost of the case we do not use eurorack rails with threaded inserts or sliding nuts, instead, there are pre-drilled, threaded holes to accommodate the modules of the **mki x es EDU Drum System in a specific order**. If you intend to use this case for other modules than mki x es.edu series, make sure you have a 2.5mm drill and a tap for an M3 screw thread, so you can drill threaded holes for modules of various widths.


KICK DRUM
DECAY
PITCH
PITCH CV
TUNE DEPTH
TUNE DECAY
TONE
DISTORTION
TRIGGER
ACCENT
PITCH CV
OUTPUT
mki x es.edu
SNARE DRUM
TUNE
ATTACK
DECAY
TUNE CV
SNAPPY
ACCENT
TUNE CV
SNAPPY CV
TRIGGER
OUTPUT
mki x es.edu
FM DRUM
TUNE 1
TUNE 2
TUNE DEPTH
TUNE DECAY
TUNE CV LVL
DECAY
ON
OFF
SINE
PULSE
CLASSIC KICKS AND TOMS
METALLIC BELL AND GONG SOUNDS
CYMBAL-LIKE SOUNDS
ABSTRACT METALLIC SOUNDS
TRIGGER
ACCENT
TUNE CV
DECAY CV
OUTPUT
mki x es.edu
HI-HAT
TUNE
TUNE CV LVL
TONE
DECAY
ACCENT
TUNE CV
DECAY CV
TRIGG
OUTPUT
mki x es.edu
BBD
TIME
TIME CV LVL
FEEDBACK
IN GAIN
DRY/WET
RANGE
LONG
SHORT
TIME CV
INHIBIT CV
AUDIO IN
WET OUT
MIX OUT
mki x es.edu
DRUM SEQUENCER
CLOCK IN
EIGHTH OUT
GATE
LFO
CLOCK OUT
QUARTER OUT
CV
LFO FREQ
TEMPO
HALF TIME
ON
OFF
LENGTH
12
7
16
LFO DEPTH
TRIG 1
TRIG 2
TRIG 3
TRIG 4
CLEAR
LFO SYNC
QUARTER
HALF
OFF
mki x es.edu
OUTPUT MIXER 2
IN 1
IN 2
IN 3
IN 4
IN 1 LVL
IN 2 LVL
IN 3 LVL
IN 4 LVL
FX 1 SEND
FX 2 SEND
FX 3 SEND
FX 4 SEND
FX RETURN
PHONES OUT
DRIVE
FX SEND
FX RETURN
INS FX OUT
INS FX IN
LINE OUT
mki x es.edu
COMPRESSOR
AUDIO IN
SIDE IN
IN GAIN
MAKEUP
TRESHOLD
RATIO
ATTACK
RELEASE
S ATTACK
AUDIO OUT
mki x es.edu

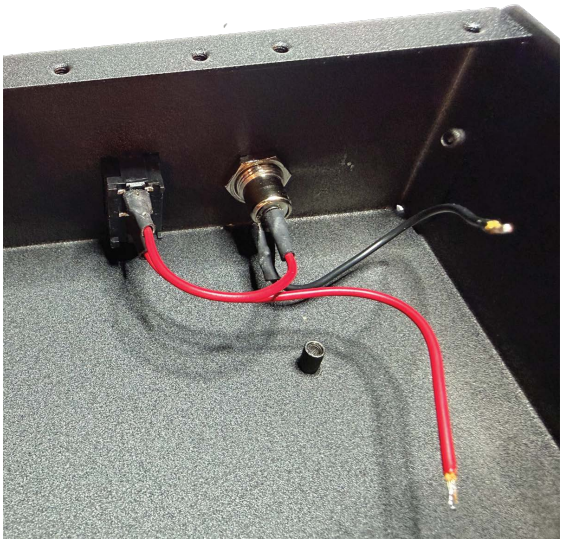


Now, let's start assembling the PSU and the mki x es EDU Drums System case! The PSU assembly is straight-forward – just solder eight 2x8 pin sockets and use a wire jumper to connect both pins of the SWITCH connector. Also, solder the blue DC IN connector so that wire connectors are facing out of the PCB. Once completed, your PCB should look like this:

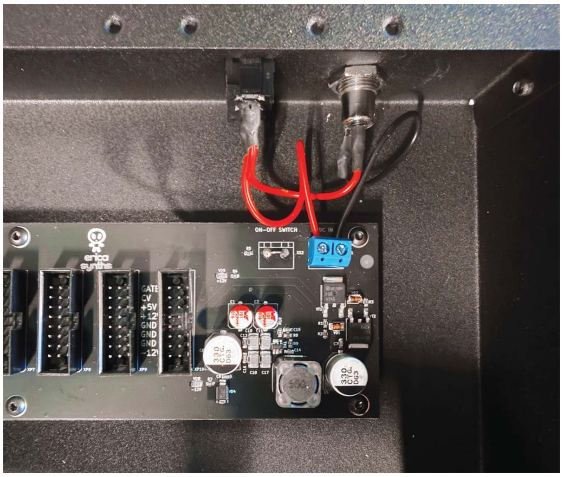
Now, turn the PCB around and **check the quality of your soldering**. Make sure there are no accidental shorts and that all solder joints are nice and clean.

Next step – **prepare a DC socket and a power switch**. For a better solder joint, use a file to clean the chromium coating from the socket lugs and increase the temperature setting on your **soldering iron to 400°C**. For safety, use small pieces of **heat shrink tubes to insulate solder joints** and heat them with a lighter to make them shrink around the lugs.

Both components have to look as on the picture below:



Next, fix the socket into the case and use pliers to tighten the hex nut. Also, insert a **power switch** in the rectangular hole. Then solder the longer wire to the bottom lug of the switch, put a heat shrink tube on the shorter wire and solder its end to the top lug of the switch. Now, use a lighter to heat the tubes, so they **shrink around the switch lugs**.



Insert the PSU board in the case and fix it with 6 screws. Connect two wires to the socket XS1. Mind the connection polarity – the wire from the switch goes to the **+VIN lug** and the wire from side lug of the DC socket goes to the **GND lug.**

Congratulations!
You have completed the assembly of the DIY case! Connect an AC/DC adapter to the DC socket and flip the ON switch. Both LEDs should light up. If they do, **measure voltage between the GND pins on the eurorack power connector and the -12V pins**. Make sure you read about -12V. **Then continue with +12V**. If the readings are ok, you can start populating your newly built eurorack case with modules!