TEDDY WRP

BUILD GUIDE

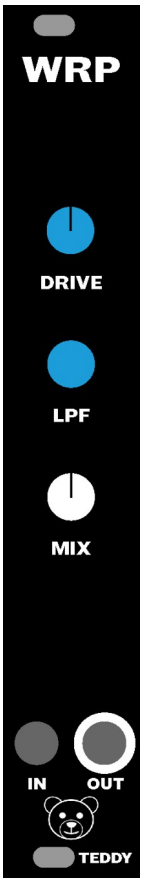
THANK YOU SO MUCH FOR PURCHASING THIS TEDDY KIT!

As with everything we make at TEDDY we try to keep it as simple as possible, but yet useful in relation to music, sound or performance. Oh, and affordable! All keywords when it comes to the main philosophy of TEDDY Modules. And in the process of creation you will learn things about how your modules work or even getting acquainted with the materials you're working with. So yes, we dare to say our modules are fun for beginners as well as advanced builders.

Exploding Shed guides on Synth DIY
https://www.exploding-shed.com/synth-diy-guides

And as a hello and thank you towards our Leipzig friends we would also like to tell you about their great webshop with all kinds of kits, projects, tools and material in case you need some (more) quality products for your (new) hobby. And yes, there are way more places to find info, but we've pointed you to a place where we ourselves are happy about sharing with you.

SO, WHAT'S THIS MODULE ALL ABOUT?

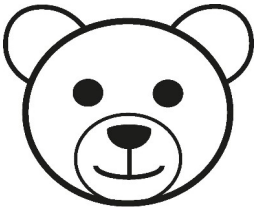


The WRP is our take on a distortion, with its primary goal being not to distort things, but to amplify, overdrive and/or add harmonics to signals. And yes, of course it is also a distortion, but since people think about heavy metal and fully unrecognizable sounds when they hear distortion, we wanted to elaborate a bit on what to expect.

There are many ways how you can distort sounds electronically and for this module we chose to return to the simplest form which people first started using early 1970's. The signal gets amplified with a maximum gain and then it gets softly trimmed into the realm of modular levels.

We added a button to trim some of the high frequencies which get added by this method, which is very usable when you feed it for example field recordings. Another nice TEDDY addition is the MIX knob, through which you can add the distorted signal to the original signal (think: dry-wet). This is very useable when you want to add harmonics to the original signal, but yet still concentrate sonically on your original signal.

Finally: We also added a few extra resistors to the kit so you can choose the maximum distortion. So depending on your needs you can keep it subtle or, well, make is as dirty as you need it to be.



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A FEW GENERAL POINTERS BEFORE WE START ...

Well, it's time we start making this thing. And because you're "building and learning" our Build Guide looks a bit different then ones you possibly already have seen in the past. We haven't labelled the parts for example. It's all in a bag and you will simply need to learn how to read or measure values. This way you will get a better feeling of what you are doing and why. And of course there is a reasonable multimeter in your workplace, right?

REMINDER: If this is all new to you, please take some time to read about Synth DIY. TEDDY Modules do NOT come with a guarantee of a working module if you mess up.

1. The first rule in soldering is you go from low to high, where it is about the height of the components. Reason: It's easier to flip the board when there aren't things sticking out. Really, it is that simple! There might be moments however we will advise you to not follow this first rule because it sometimes gets tricky to solder specific parts if everything else is in its place;
2. The BOM a.k.a. Bill of Materials is the guideline of all the things that have to be soldered. You will find it on the next page(s). Check and double check the values of the components before you solder them;
3. Some components are polar meaning there is a positive and negative side. Or more general, how they work is dependent on their orientation;
4. With diodes, there is ALWAYS one side with a stripe/line. This should match the line on the PCB;
5. Electrolytic capacitors - the big black ones - have one longer leg which is always the positive one. The side of the capacitor where the shorter leg is has a mark (white line). There are also *Non Polar* versions of the electrolytic capacitors, but they miss the marking on the case so it doesn't matter how you solder them, even if one leg is longer than the other one;
6. IC's have a marking at Pin 1, and Pin 1 is always the first pin left of the indent at the PCB Marking. So it's important you align the dent on the IC-holder with the dent on the PCB. Don't ever solder the IC's directly without the holder. It's way easier to replace the IC this way in case you mess things up;
7. For transistors or other three legged elements, always align the flat side of the component to the flat side on the PCB.

This is not a full list of all possible elements, so if there is something extra just as big as a diode, fit it in with them. One of the most important lessons in electronics: Think logically.

Get acquainted with your material and (try to) think logically!

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SOLDERING THE TEDDY WRP MODULE

In this chapter all the specifics about soldering the WRP will be written down. But we're keeping it very to the point because the important stuff is already written in the previous chapter. Which part goes where can be found in the BOM on the next page(s).

But before you start: We have put a few extra resistors in the kit. R13 is labelled as 10k but this is the resistor that actually defines the maximum distortion rate. With 10k the maximum is 100 times (1.000.000/10.000). But this maximum amplification can be changed easily by choosing the 4k7 (amplification=212) or 2k2 (amplification=454) resistor.

1. Resistors and diodes ([1]). The stripe/line on the diodes should match the line on the PCB;
2. Solder the IC-holder. Make sure the dent on the holder aligns with the dent/mark on the PCB;
3. Ceramic capacitors. These are the "yellow drops" and they have their values on them;
4. Electrolytic capacitors. Watch the polarity (long leg is positive, negative side has a white line);
5. Place and solder the boxed header for the power. The gap on the box should match the marking on the PCB.

The first side of the PCB is now finished and we're off to the pots and jacks.

1. Put the four LED's into their spots (It DOES matter which one goes where. Follow the BOM). LED's do also have a polarity, so the long leg is the positive, the short leg is the negative. You can solder these right away as close as possible to the PCB. They are not pushing through into the faceplate;
2. Add the jacks, pots and the button in their place, drop the faceplate over them and loosely tighten the nuts where needed;
3. Turn the PCB over, stabilize it a bit and solder the points that need to be soldered. Please note: Make sure the button is flat to the PCB, so first do 1 pin, push it towards the PCB, reflow that one pin and then do the other pins;
4. Tighten the nuts;
5. Put the knobs on the pots. When the gap is horizontally aligned with the three legs the pot is 'centered';
6. Put the IC's into the holders and make sure the marking on the IC follows the marking /dent on the PCB/holder.

You did it! The module is done!

[1] The diodes used to protect your module from reverse polarity can be labelled 1N4001 to 1N4007 or 1N5817to 1N5819. These all work the same and are within specifications.

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ALMOST THERE ...

There is one final thing you have to put together and that is the power cable ...

1. You will notice that one of the sides of both the headers has a little expulsion. If this expulsion faces you, pin 1 which is standardised to be the red line is on the left. Most headers emphasize this with a little triangular marker, but it's sometimes difficult to see. So the expulsion is a more certain way of identifying the orientation;
2. You just put the end of the cable in the header and make sure the red line is in place;
3. Use pliers (I personally use a small pipe wrench) to squeeze the header evenly and tighten the cable in its place. Do the same with the other header.

Please note: Make sure that on the 16 pin header the cable is properly aligned and the red line is on the position of pin 1 as described earlier. You don't want to short circuit stuff because it might break the power supply or other modules. TEDDY modules are protected for this, but ... Other modules might react differently and we can not (and will not) take responsibility for your mistakes.

DONE !!!

And there we have it, the final words that need to be said. Everything you do is your own responsibility. You are working with voltages, currents and high temperature molten metal. Be careful, be responsible, RTFM and if you are not sure, ask for help.

We *CAN* not (and *WILL* not) take responsibility for *YOUR* mistakes.

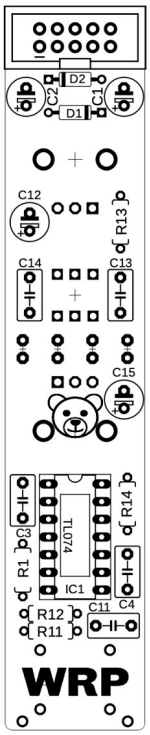
There is a FaceBook group called TEDDY Modules Support which is a community driven 'builders helping builders' and you can find all our contact information below.

CONTACT INFORMATION

website: teddy.modules.nu
mail: teddy@modules.nu
shop: bearmodules.etsy.com
fb support: www.facebook.com/groups/teddymodulessupport

TEDDY WRP

BILL OF MATERIALS



RESISTORS

1k	1	R1
10k (or 4k7 or 2k2)	1	R13
100k	2	R11, R12
1M	1	R14

CAPS

18pF (18 or 180)	1	C14
1nF (102)	1	C13
100nF (104)	3	C3, C4, C11
10uF (elco)	2	C1, C2
10uF (elco, non polar)	2	C12, C15

DIODES

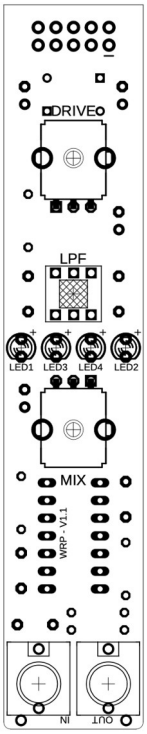
1n4001	2	D1, D2

ICS

TL074	1	IC1

HARDWARE

POWERHEADER	1	



POTMETERS

B100k	1	MIX
A1M	1	DRIVE

HARDWARE

LED (yellow)	2	LED2, LED3
LED (blue)	2	LED1, LED4
SWITCH (latch)	1	LPF
THONKIES	2	IN, OUT