ATtiny Punk Console v4

## * Quick Guide *

1. Read the manual

Please **read this guide** before using the instrument and **keep it for future reference**. Here you find short instructions for the build of the solder kit and links for the initial use of the synthesizer. For comprehensive instructions, detailed information can be found on the webpage **https://noisio.de/boards/attiny-punk-console.**

2. About

The ATtiny Punk Console (short ATPC) is an **experimental musical synthesizer kit** designed around the ATtiny85 microprocessor. Once started as an 8-bit equivalent of the famous DIY entry-level Atari Punk Console, it has developed into a minimalistic but feature-rich synth box over the years.

Version 4 now offers a choice of 10 synth algorithms at startup, CV Input, a new housing and the option of powering the device with USB-C.

3. Overview
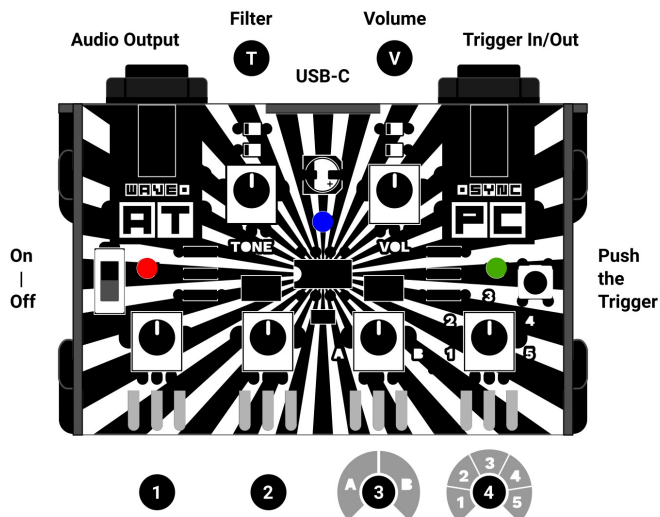
4. Howto

Powering the ATPC by connecting the synthesizer to a **USB-C plug** or by inserting 3xAAA batteries. Turn the "VOL" knob to the left for a low output volume and plug a **phone connector cable to the output** labeled "WAVE".

On startup, you can **select different sound synthesis algorithms**, ranging from sine waves to chaotic noise. To achieve this, choose a combination with potentiometers 3 and 4 (see table on the underside of the synthesizer) and **press and hold the trigger button for 3 seconds when switching on**. Some of the algorithms can either synchronize with external gate or trigger events or send out pulses themselves.

Four potentiometers are used to set parameters that change the behavior of the respective synth. The values can be slightly bended with the body contacts in front of them. Three of those can be overwritten by external **5V Control Voltage (CV)** sources when connected to the red jacks on the front panel. This red TRS jacks uses a special scheme to simultaneously provide 5V as a power source, which is depicted on the bottom site.

Adjust the volume with the VOL knob and **cut output highs** with the low-pass filter labeled TONE.

5. Specifications

Mechanical
Size: 92 x 65 x 45 mm
Weight: 92g

Powering
* 5V with USB-C
* 3x AAA batteries, preferably rechargeable to protect the environment

Audio Output
1x TR Mono Phone Connector 6.35mm
1x TS Mono Phone Connector 3.5mm
* Both are connected and can be used simultaneously

Trigger In-/Output (depending on the algorithm selected)
1x TR Mono Phone Connector 6.35mm
1x TS Mono Phone Connector 3.5mm
* Both are connected and can be used simultaneously
* Trigger threshold is 2.5V with 5V supply voltage (USB-C)
* TRIG input is protected against over- and undervoltage.

Powered CV Inputs (replace potentiometers 1 to 3)
3x Red TRS Jacks, **Tip is 5V DC out, Ring is CV in, Sleeve is GND**
* Voltage range 0 to 5V
* CV input is **NOT protected** against over- and undervoltage

6. Package Contents

4x Schottky-Diode Bat85
3x Resistor 2.7 kΩ — RD VT BK BR BR
1x Resistor 10 kΩ — BR BK BK RD BR
1x Resistor 220 Ω — RD RD BK BK BR
1x Resistor 22 Ω — RD RD BK GD BR
3x LED (Red + Blue + Green)
1x Ceramic-Capacitor 100nF (104)
2x Film-Capacitor 1µF (105)
1x SMD Elektrolyt-Capacitor 220µF
1x IC-Socket 8-Pin
1x Microcontroller ATtiny85
1x Mini-Button TACT
1x Slide Switch
1x Potentiometer 1 kΩ (102 marked with color)
5x Potentiometer 10 kΩ (103)
2x Audio-Jack TRS 3.5 mm black
3x Audio-Jack TRS 3.5 mm red
2x Audio-Jack TR 6.35 mm black with nut
1x USB-C connector module, assembled
1x Battery-Holder 3x AAA **(no batteries included** in the kit)
1x Main PCB ATPC
5x Panels for front, bottom and side of the case

7. Build the Kit

Comprehensive and **detailed soldering instructions** can be found at: **https://www.noisio.de/docs/ATPC_v4_Bauanleitung_en.pdf**

Solder in this order:
1. Diodes - pay attention to the direction
2. Resistors - assign them to their values
3. IC socket - with the marking to the left
4. 104 & 105 Capacitors
5. LEDs from left to right: RED − BLUE − GREEN - short leg is minus
6. 220µF SMD Cap on top, mind the right direction
7. Slide and TACT switch
8. 3.5mm TRS jacks - black ones on top, red to the bottom
9. USB-C adaptor board - ensure exact alignment
10. Potentiometers - pay attention to the assignment of the 1kΩ value
11. 6.35mm TR jacks - from bottom, soldered on top
12. Battery holder - shorten the cables to 2-3cm and solder RED to the (+) pad on the bottom side and BLACK to (-)

Assemble the housing parts by sliding them into each other. For the front panel, the side parts must be bent apart slightly. Finish it by tightening the nuts on the audio sockets.

8. Safety

* Keep these operating instructions in a safe place for later use! It contains important information.

* The unit is intended to be used in dry places within a temperature range between 10°C/50°F and 70°C/158°F.

* CAUTION: Never connect the kit to mains voltage! There is an absolute danger to life!

* ATTENTION: Suitable for children under the age of 14 only under the supervision of an adult or qualified instructor. Not suitable for children under 5 years of age. Danger of suffocation due to small parts that can be swallowed.

* When soldering, the soldering iron, the solder and the components being soldered become very hot.

* ALWAYS wear safety goggles when soldering and assembling the kit.

* Always use a fireproof base when soldering! This prevents the components from slipping.

* To store the soldering iron safely during assembly, always use a suitable soldering stand.

* At the end of its service life, please dispose of the device at a certified waste disposal facility. This is good for the environment and ensures correct disposal.

* Subject to technical changes, errors and misprints.

* The product/system described in this documentation may only be used for the respective task by qualified personnel.

9. Disposal

This device is labeled in accordance with the European Directive 2012/19/EU on waste electrical and electronic equipment (WEEE). The directive provides the framework for an EU-wide take-back and recycling of old appliances.

Packaging: The packaging is made of environmentally friendly materials and is therefore recyclable. Dispose of any packaging materials that are no longer required.

Old appliance: Old appliances often still contain valuable materials. You should therefore return your old appliance to your dealer or a recycling center for recycling. Please ask your dealer or local authority for the latest disposal routes.

noisio.DE

Email: support@noisio.de
Steffen Koritsch | PF 100110 | 01071 Dresden | GERMANY