

The Grand Finale of the Kastle 2/Citadel Trilogy

Press release: Citadel Alchemist, DIY Kits, Open-sourcing

We've built a fantasy world of magical music machines – the FX Wizard multi-effect, the Wave Bard sample player, and the Alchemist synth – all living as the battery-powered Kastle 2 format or in the Eurorack realm as the Citadel series.

We're excited not only to welcome the long-awaited Citadel Alchemist Eurorack module to the party, but also to share that every one of these instruments is now available as a DIY kit.

And because we want this world to grow far beyond what we can build alone, we're partially open-sourcing the platform so others can expand it in their own ways. You're welcome to join!

DIY Kits and Faceplates

We're going back to our roots and re-introducing DIY Kit versions of both the Kastle 2 and the Citadel. Each kit includes a factory-tested SMT-assembled PCB, all necessary hardware components (pots, jacks, etc.), and the enclosure/faceplate – ready for you to assemble at home.

These kits are now available exclusively in our **B-shop** and come at a lower price than the fully assembled units:

Kastle 2 DIY kit (FX Wizard/Wave Bard/Alchemist) **128 EUR** (excl. VAT)

Citadel DIY kit (FX Wizard/Wave Bard/Alchemist) **194 EUR** (excl. VAT)

We're also offering standalone **faceplates** for both Kastle 2 and Citadel:

Kastle 2 Faceplate (FX Wizard/Wave Bard/Alchemist) **20 EUR** (excl. VAT)

Citadel Faceplate (FX Wizard & Wave Bard or Alchemist & Blank) **25 EUR** (excl. VAT)

DISCLAIMER: We do not provide technical assistance or remote troubleshooting for DIY Kits. All PCB boards are fully tested before leaving our factory.

If you need help after assembly, we offer a paid repair service called Come to Daddy. Shipping costs are the customer's responsibility.

Come to Daddy (Kastle 2/Citadel) **30 EUR** (excl. VAT)

[Link to B-shop](#)

[Link to DIY section](#)

[Link to K2 DIY press kit](#)

[Link to Citadel DIY press kit](#)

Open Sourcing

As we've always learned from countless open-source projects, we want to give back to the community and invite anyone to expand the world we've outlined. Our goal is to share as much as we can without compromising our business model – enough for people to learn from the designs, repair the hardware, or hack new functions into it. Both Kastle 2 and Citadel run on the popular RP2040 chip and use our optimized fixed-point DSP library, complete with ready-made templates, all written in modern C++.

What **is** going to be open sourced:

- Most of the code (core, Wave Bard and FX Wizard apps, DSP library, V/Oct calibration) – MIT
- Schematics as PDF (Kastle 2, Citadel), Documentation – CC-BY-SA
- Panel templates (without proprietary fonts and graphics) – CC-BY-SA
- 3D case (without graphics), pin header holder – CC-BY-SA
- TTS Voice recordings (Version, Calibration, Test Mode) – CC0
- Web Editor apps source code – MIT License

What **is not** open sourced (= proprietary):

- Alchemist app (at least for now – reserved for future projects)
- Board layout, production gerber files (we make a living by selling the HW)
- Test jig & production procedures
- final graphics, our custom fonts including anything that incorporates them
- Factory sample banks (available for download, but not licensed for redistribution in derivative products etc).

[Link to the platform public repository](#)

CITADEL ALCHEMIST

Fortress of Modular Magic

The CITADEL ALCHEMIST is a Eurorack reimagination of the popular Kastle 2 Alchemist semi-modular desktop device and it joins the Citadel Wave Bard and Citadel FX Wizard to run on the Citadel Eurorack Module - cross compatible and user flashable via USB. It comes with a full 3.5mm patch bay that offers the flexibility needed in the eurorack format while maintaining the strengths of the Kastle 2 allowing it to stand on its own, and yet let it truly shine when patched with other modules. We've also added switches for hands-on control of the pattern generator.

The Citadel platform provides the basic infrastructure needed to integrate eurorack systems within the context of electronic music making: headphone output, TRS MIDI input and sync, tempo generator with divider/multiplier, USB MIDI (from the back of the module), stereo mixing, integrated LFO and Pattern generator and effects. All that makes it the perfect module for smaller and beginner systems while the fun and unique creativity of the Kastle 2 firmwares: the FX WIZARD multi-effect processor and WAVE BARD sample player will earn its place in larger setups. Now there is a third player in the game: the ALCHEMIST hybrid-synthesis instrument.

Citadel Alchemist is available now for **235 EUR** (excl. VAT)

Approximately 280 EUR with VAT (based on your location).

The Bastl Citadel Alchemist is available now through our [B-Shop](#) and our net of [retailers](#).

[Bastl Citadel ALCHEMIST Product Page](#)

[Bastl Citadel ALCHEMIST Press Kit](#)

[Bastl Citadel ALCHEMIST Release Video + Demos](#)

[Bastl Citadel ALCHEMIST SoundCloud Playlist](#)

As with the other Citadel modules the Alchemist has a double sided panel that contains blank panel ready for handwritten labels, making it flexible to be adapted to any other Citadel module or to be a basis for custom firmware that would be now possible with the open-sourced code. We also now sell the individual Citadel (and Kastle) panels on our webstore. The Citadel comes with our custom designed tool to make the panel switching as seamless as possible. You can load and try different Citadel/Kastle 2 present and future firmwares and updates with a USB port (on the back).

The Citadel might break a few rules of standard Eurorack design, but it does so in the name of instant musicality, fun, and effortless integration of Eurorack with other gear. All Citadels come factory-calibrated, and there's even dedicated calibration software to ensure a perfect match with your source.

5 synthesis modes

The Alchemist features a carefully tuned wide timbral range spanning across 5 synthesis modes (FILTER, FM, SUPERSAW, HYPERSINE and GLITCHNOISE) accessed by main TIMBRE sweep that is refined by the RATIO control.

- The ENV macro knob affects different parts of the synth and sequencing engine to maximize musicality and it even lets you continually morph between the synthesis modes and access truly unique sounds.
- The timbral palette is further extended by the dual FX section which offers either a wide delay that will smear the arpeggios into echoed harmonies or a chorus-flanger-distortion-combfilter macro custom tuned for each synth mode.
- You can also access gliding rubber textures with the PITCH SLIDE macro that applies pitch envelope and portamento.
- You can customize its Rhythms and Scales with the [web-based editor](#).

CITADEL ALCHEMIST FEATURES

- **5 synth modes**
 - FILTER
 - FM
 - SUPERSAW
 - HYPERSINE
 - GLITCHNOISE
- **Hybrid synthesis**
 - 4 oscillators
 - FM with feedback
 - Raw Waveform mixing
 - Ring mod
 - Track and Hold
 - Stereo noise with Track and Hold
 - Stereo Filter
 - Transient Shaper
- **Dual FX section**
 - Delay to the left
 - Chorus/Flanger/Distortion to the right
- **stereo audio processing** at 44kHz/16-bits

- **PITCH knob** with range of ± 3 octaves from base note
- **PITCH MOD attenuverter knob** for modulating pitch
- NOTE input: quantized pitch with selectable scales (updates on trigger)
- ►PLAY input: 3rd, 5th and octave above NOTE – triggers envelope on change, time quantized to PLAY GRID – great for arpeggios!
- user-defined scales ([via web app](#))
- BANK+PITCH MOD to change quantizer scale
- BANK+TIMBRE MOD for root note adjustment
- BANK+LFO MOD for fine tuning
- BANK+PITCH to change and preview octave
- **TIMBRE knob for main timbral sweep**
- refine TIMBRE sweep with RATIO (oscillator detune ratios and wave mixing ratios)
- hit the SHIFT button to trigger the sound
- TRIGGER input to trigger sound
- TIMBRE MOD input with attenuverter
- **MODE input** with attenuation to change synth MODE with CV
- **ENV knob**
- turn right to set decay and focuses TIMBRE on transients
- turn left to add attack and decay and focuses TIMBRE on BODY
- fully left and right enters DRONE mode
- slows down arpeggio at long envelopes
- MODE MORPHING to the left
- ENV MOD input with attenuverter
- ENV MOD updates only at trigger
- patchable ENV output of the envelope
- **LFO** with triangle and pulse output, reset input, attenuverting modulation, synced or free
- **Tempo generator** with tap tempo, divider, and external clock input
- **Pattern generator** (tempo synced) with GATE and CV output, patch-programmable
- **GATE generator** contains user-programmable RHYTHM patterns ([via web app](#))
- **stereo input** with input gain (up to +12db), accepts up to 6 Vpp signal
- input can be mixed at the output or run thru the built-in effects
- **stereo output** capable of driving headphones up to 250 Ohm
- analog sync input
- analog sync output
- **modular I/O connections** via right channel of the sync jacks
- **USB MIDI Input** (clock, notes, CCs, pitch bend)
- **USB MIDI Output** to use as a MIDI controller/sequencer (clock, notes, CCs)
- stereo eurorack-level DC coupled input with input gain (up to +6db), up to -10V to + 10V
- input can be mixed at the output or run thru the built in effects
- DC coupled stereo eurorack-level output, -5V to +5V
- stereo headphone output capable of driving headphones up to 250 Ohm
- analog sync input
- analog sync output
- **TRS MIDI Input** (clock, notes, CCs, pitch bend)
- **USB-C** on the back of the module (firmware updates, USB MIDI in/out, uploading samples)

CITADEL TECHNICAL DETAILS

- 16 HP
- PTC fuse and diode protected 10 pin power connector
- 24 mm deep
- current consumption: +12 V: <60 mA (w/o headphones), <90 mA (w/headphones to max); -12 V: <20 mA
- Input Ranges:
 - PITCH: PLAY IN and NOTE IN: -0.2V to 7V
 - CLK IN, RESET IN, C IN, G IN 0V to 5V
 - LFO MOD, MODE IN, TIMBRE IN, ENV MOD IN, LFO RESET, TRIG IN: -5V to +5V
 - L/R IN: -10V to +10V
- Output Ranges:
 - CLK OUT, ENV OUT, CV OUT, LFO TRI OUT, LFO PULSE OUT: 0V to +5V
 - L/R OUT -5V to +5V
- Headphone output 2Vpp (line level compatible)