

Beat

224 | 09-2024

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FULL VERSION:
TONE2 ULTRASPACE*
REVERB & DELAY IN PERFECTION



► **KUASSA EFEKTOR**
MODULATION BEAT*
SWEET-SPOT FOR DRUMS & VOX

► **WAVE RUNNER II***
60 GALACTIC SOUNDSCAPES FOR
AMBIENT & SYNTHWAVE

TO THE MAX:

4 GB Loops, Guitars & Presets

for Chillout, Pop & Tech House

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EPISODE #38
WITH YOUNGR

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32 MODELS IN COMPARISON



TEST: SEQUENTIAL TEO-5
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SPECTRAVOX
VOCODER, SYNTH
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INTERVIEW
IN TALK WITH
EMIKA





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SOFTWARE HIGHLIGHTS



Reverb & delay in perfection Tone2 UltraSpace

Tone2 UltraSpace combines a flexible reverb effect and an equally versatile multitap delay, complemented by gating and ducking options. The plug-in masters dense, epic reverb effects and realistic room simulations as well as rolling echoes, ducking delays, gated reverbs and even chorus and flanger-like effects. Have fun experimenting.

Download: [see page 9](#) | Info: [tone2.com](#)

win | mac



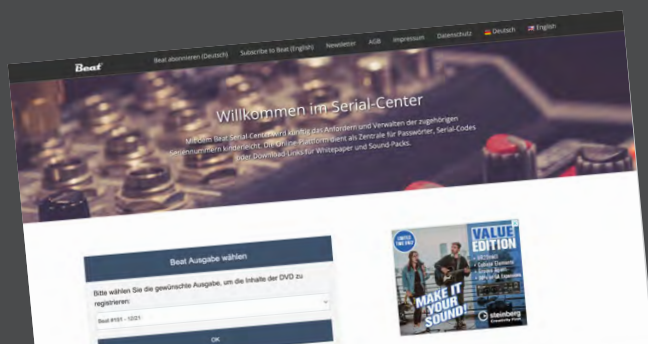
Sweet spot for drums & vox

Kuassa Efektor Modulation Beat

Chorus, flanger, phaser and tremolo in one plug-in? That's four wishes at once! That's really not possible, is it? Of course it is! Our software high-light Kuassa Efektor Modulation Beat combines all four modulation effects in one appealing interface. A real sweet spot effect for instruments, synths, drums, vocals and much more.

Download: [see page 9](#) | Info: [kuassa.com](#)

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All serial numbers safely accessible: The Beat Serial Center

To ensure that none of your serial numbers are lost in the future (for instance, in the event of a new installation, Outlook crash or disk crash), you can now conveniently manage them online. The advantages are obvious: The editorial team can send you targeted software updates, you have access to all serials at any time and from anywhere, and everything is managed and stored in a central location. The Serial Center thus becomes your personal password archive on the web.

[www.serialcenter.de](#)



60 Soundscapes for Ambient & Synthwave Wave Runner II

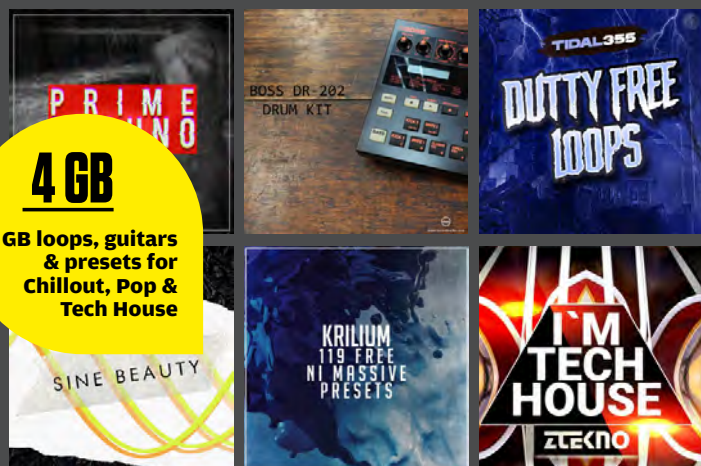
Create your own universe of sound! After the overwhelming success of our Wave Runner soundbank, we're taking it one step further with part 2, bringing you 60 freshly baked basses, synths and soundscapes to start your own journey through the galaxy. Gently drifting pads, endless textures, smooth analogue subs and hard pushing basslines provide finest material to start your next Ambient, Vaporwave or Synthwave track in seconds.

Download: [see page 9](#) | More packs: [zampersounds.com](#)

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Beat #224 – Exclusive software

More than 11 GB of valuable plug-ins and samples to download



4 GB

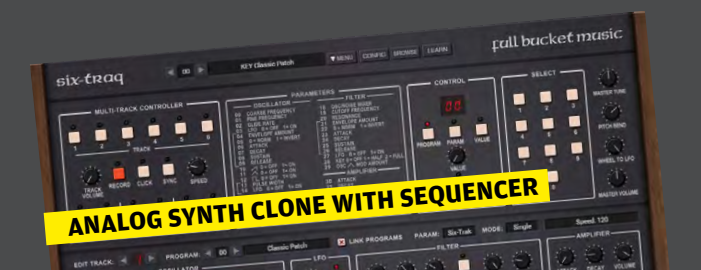
4 GB loops, guitars & presets for Chillout, Pop & Tech House

Our full version of Tone2 UltraSpace promises no more boredom with effects. The flexible multi-effect is a pure creative weapon for mixing and sound design - from echoes and ducking delays to gated reverbs and modulation effects, you'll find everything here. You can also combine other effects with our Kuassa "Efektor Modulation Beat".

Fans of ambient, vapor or synthwave will get their money's worth with the great Expansion Wave Runner II for the Zampler and Akai's MPC series. Crisp basses, gripping synths and soundscapes from distant galaxies will sweep you away.

Our sample archive is primarily focused on techno and tech house. Here you can expect fat technoid packs from ZTEKNO that will give you the next club banger. But that's not all. There is also a great preset pack for massive producers and an 8-bit retro sound package. If that's not enough, you should definitely try out the Spanish guitars or the thumping Boss drums!

Contents compiled by the Beat editorial team



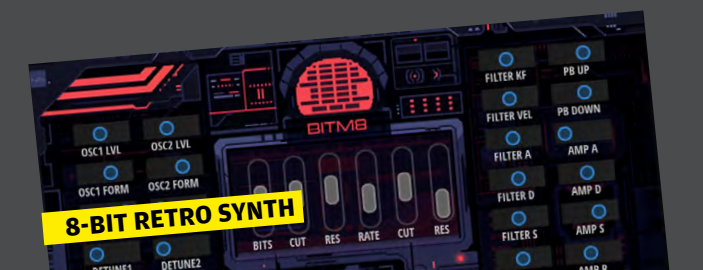
ANALOG SYNTH CLONE WITH SEQUENCER

Full Bucket Music Six-Trak

As a clone of the six-voice analog synthesizer Six-Trak from 1984, Six-Trak delivers beautiful pads and basses that invite you to synthwave, ambient and also house and deep house. An oscillator + noise generator provide the sound, which can be celebrated with filter, sequencer and arpeggiator. Numerous superb presets are included.

Download: [see page 9](#) | Info: fullbucket.de

win | mac



8-BIT RETRO SYNTH

MeinHomestudio.de BitM-8

This month we have a very special surprise from our colleague Paul Marx aka Meinhomestudio.de: Beat readers get his new BitM8 synth for free! Just like that. BitM8 delivers concise 8-bit synth sounds with distortion, noise and artifacts through creative bitcrushing. In short: the charmate synth is simple, fun and simply sounds great!

Download: [see page 9](#) | Info: meinhomestudio.de

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Exclusive download: The Beat Studio

2,67 GB

**Wave Runner II
for Zampler &
Akai MPCs**



Apsonic Speedrum BE

Powerful drum sampler with 16 MPC-style pads



Acon Dynamics BE

All-rounder with Compressor, Expander and Gate



Thorn Solo

One of the best and most flexible monosynths out there



Zampler//RX

REX/SFZ Player with mod-matrix & param sequencer



Halls Of Fame 3 Beat

Luxury convolution reverb with Lexicon, Bricasti & EMT

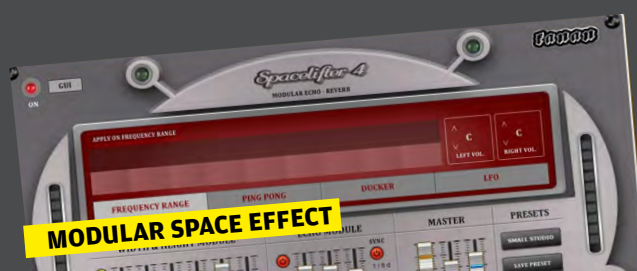


Sjoerd van Kreeel Firefly Synth

Four oscillators and a synthesis variety par excellence (Karplus-Strong, AM and FM synthesis) make the Firefly Synth an indispensable companion for emulated string instruments and floating pads.

Download: see page 9 | Info: github.com/sjoerdvankreeel

win | mac | linux



Fanan Team Spacelifter 4

Pompous, large, dramatic echo reverb provides the right spatiality in your mix. There are three well-known 3D room modules, as well as modulation effects that can be limited to specific frequency ranges.

Download: see page 9 | Info: fananteampro.com

win

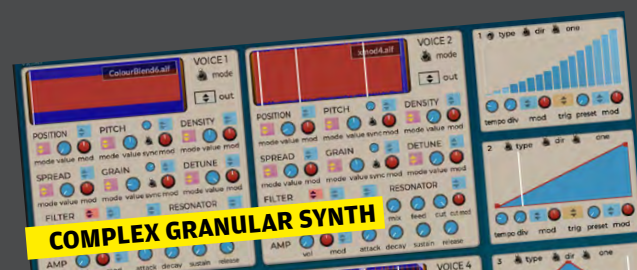


FKFX Influx 15

Never again unimaginative rhythms! Influx 15 lets you create unique rhythmic effects. Numerous presets invite you to browse. The tube distortion module also provides subtle distortions.

Download: see page 9 | Info: fkfxaudio.com

win | mac



Oi, Grandad v2

Grandad is a four-voice granular synth that invites sound designers in particular to get creative. There are 12 different modulation sources and even a delay.

Download: see page 9 | Info: github.com/publicsamples/Oi-Grandad

win | mac



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When should I use a dynamic microphone, when should I use a condenser microphone? How do you optimize the room sound for recording? From comprehensive buying advice and reviews of all models, to technical details and practical microphone tips - this special gives you all the answers you need for the perfect recording of vocals, instruments and podcasts. Benefit from the experience of renowned musicians and producers and find the perfect mic for you in the comparison overview with over 30 candidates. **From page 16**

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Make your studio more valuable! This month there's more than 11 GB of plug-ins, sounds and samples for your tracks.
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Beat 10|2024 will be out 06.09.2024

Discovered: Emika

Emika's love of music doesn't stop at future garage. But it definitely started there. „Haze“ feels like a deeply spiritual album, meditative bass pulses brimming underneath floating vocals and delicate piano melodies. To get there wasn't easy - for Emika, only perfect is good enough.

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- 010 **Magazine - Facts, interviews, products**
- 038 **Portrait: Kiasmos**
With Kiasmos, Ólafur Arnalds and Janus Rasmussen consciously leave their main genres of piano music and electro-pop behind to combine club sounds with neo-classical music.
- 040 **Digital Culture: The violence of taste**
Can't argue about taste? The greed for best lists seems to disprove this assumption. Fans and critics alike agree that hardly any of them are any good. But that doesn't stop them from pouncing on the next one.



Test: Sequential TEO-5

TEO-5 offers five polyphonic voices in a Sequential Take 5 housing. At around 1,700 euros, it is the most affordable Oberheim synthesizer - is it worth buying? **Page 68**

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Powerful reverb and delay with gating and ducking options. **Page 42**



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This time with Lay Bankz and Tommy Richman. **Page 56**



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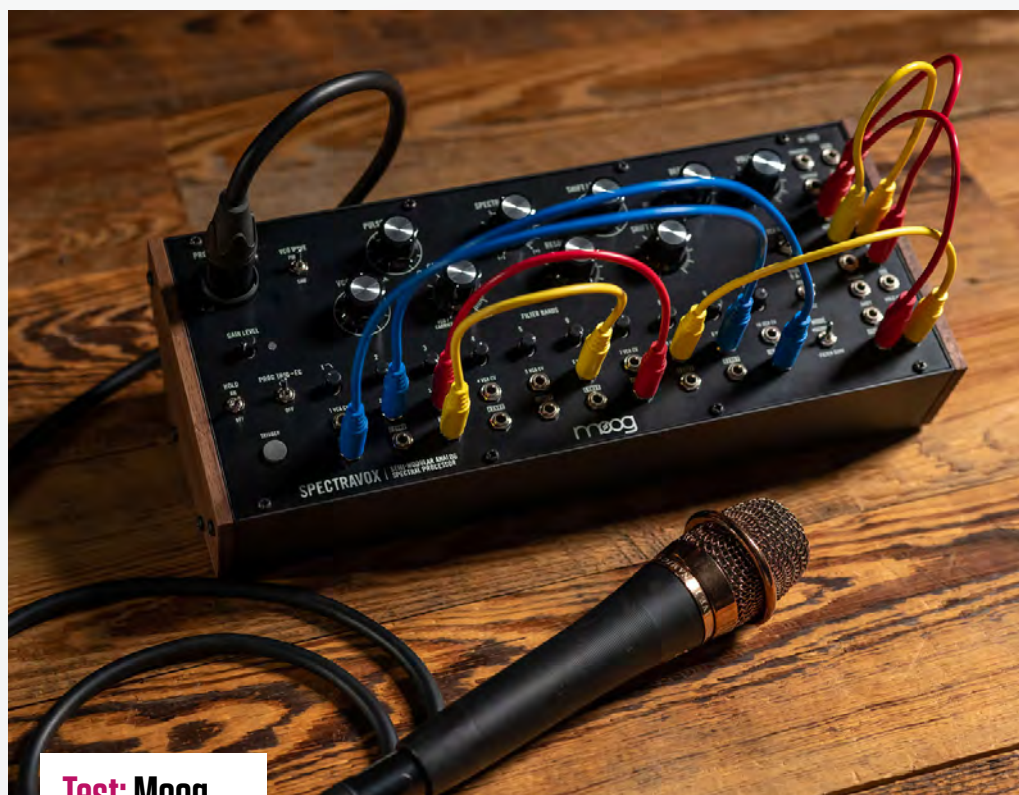
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Latest news on

www.beat.de



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Test: AnalogFX Vocoder

The VCX-2220 could be every modular electro producer's dream come true and a must-have for anyone who loves working with vocoders.
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The common thread: Beat issue 09/2024

For many years, Beat has been inspiring its readers not only with practical and musical topics, but above all with the tight integration of editorial content. From the very beginning, Beat has been about creating, about the structured building of ideas and the common thread – in the magazine as well as in the tracks. This navigator shows you the highlights of this issue and allows you to see the big picture.



Portrait: Kiasmos

It was in 2009 when Ólafur Arnalds and Janus Rasmussen first made music together. For Kiasmos they deliberately wanted to leave their main genres of piano music and Electro-Pop behind to combine club sounds with neo-classical music instead. In 2014 their debut „Kiasmos“ was released, followed by a few EPs, and ten years later they are back with their new joint album „II“. They spoke to us about the challenges and developments that led to the creation of the record, their preferred instruments and effects in their creative process. **Page 38**

Test: Sequential TEO-5

TEO are the initials of synthesizer pioneer Thomas Elroy Oberheim, and the 5 stands for the number of voices of the polyphonic analog synthesizer. Packed in the housing already known from Sequential Take 5, TEO-5 is no bargain at just under 1,700 Euros, but it is by far the cheapest Oberheim synthesizer currently available and definitely worth the purchase. Or? **Page 68**

Plug-in highlight: Tone2 UltraSpace

Reverb & delay in perfection: Tone2 UltraSpace combines a flexible reverb effect and an equally versatile multitap delay, complemented by gating and ducking options. The plug-in masters dense, epic reverb effects and realistic room simulations as well as rolling echoes, ducking delays, gated reverbs and even chorus and flanger-like effects. **Page 42**

Test: Moog Spectravox

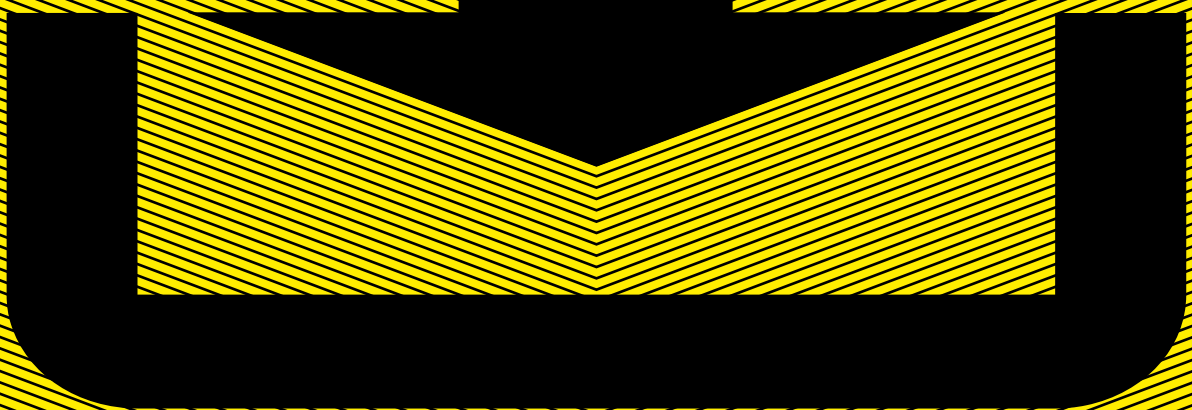
Moog continues its series of Eurorack-compatible desktop synthesizers with the Spectravox. The new playmate of Mother-32, DFAM and Subharmonicon also offers an innovative concept and combines a mono synthesizer with a filter bank and vocoder. **Page 66**

Digital Culture: The violence of taste

There's no accounting for taste? The ongoing demand for album rankings seems to disprove this assumption. Overviews of the „250 best songs of the 90s“ or „500 best albums of all time“ have become a staple for online magazines. Fans and critics alike agree that hardly any of them are any good. But that doesn't stop them from jumping at the next one to get published. One thing is certain: none of this has anything to do with music anymore. **Page 40**

Beat

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Magazine

by Carl-Philipp Schmöller

Condenser microphone with 9 polar patterns

Saturn 2 is the latest studio microphone from Sontronics, which stands out visually thanks to its striking aluminum ring on which the capsule is suspended. Following its debut, which was discontinued in 2015 due to component availability, the successor model is now said to have an improved circuit. The large-diaphragm condenser microphone demonstrates its flexibility by allowing you to switch between the nine polar patterns of omnidirectional, wide cardioid, cardioid, hypercardioid and figure-of-eight, plus the four intermediate positions, using the large rotary control. The main applications include recording acoustic instruments, vocals and surround sound. A pre-attenuation of -10 dB or -20 dB can be used to attenuate loud signal sources. A three-stage high-pass filter (flat, 75 Hz or 125 Hz) can be activated to reduce low-frequency interference signals. According to the manufacturer, the microphone also boasts high sensitivity with a low noise level and a pleasantly soft treble range.

The Saturn 2 condenser microphone is now available from specialist retailers for 1785 Euros.



More info

sontronics.com | audiowerk.eu

Studioszene 2024 – Save your tickets now

All audio engineers, producers and home recorders should make a note of October 22-24, 2024. Studioszene 2024 will present a diverse selection of topics relating to recording, mixing, mastering and producing. It is part of LEaT con, the networking event for the live, entertainment and event industry. This event is held at the Hamburg Messe exhibition center. In addition to national and international manufacturers who will be presenting their new products at Studioszene 2024, there will also be plenty of workshops and masterclasses with renowned speakers from the recording, live audio and musician scene. The product specialists will explain the latest studio equipment and answer your questions. There will also be a DIY area where you can tinker yourself.

The basic day ticket costs 33 euros, two days cost 59 euros and three days 89 euros. For participation in the Masterclasses as an upgrade, the day ticket costs 69 euros, 99 euros (two days) or 129 euros (three days). All prices plus VAT. A catering upgrade with a hot lunch is available for an additional 16 Euros per day.



More info

studioszene.de

Dynamic studio headphones for streamers and musicians

Sennheiser is expanding the popular HD 600 series with the HD 620S closed headphones. The central element of the HD 620S is a specially tuned 42 mm dynamic transducer. This transducer combines the smooth sound of the open 600 series with a modern, airy touch and offers a balanced blend of clarity and deep bass. The 150 Ohm aluminum coil provides a high damping factor for fast transients and clear instrument reverberation, which ensures high dynamics across the entire frequency spectrum. In addition, long wearing comfort during music sessions, gaming and streaming is promised, as well as precise localization in the stereo field. The steel earcup covers not only offer a high-quality feel, but also act as an effective insulator against external noise. The HD 620S also scores points with a steel-reinforced headband and durable ear cup covers. A carrying bag and a detachable 1.8 m cable, which is equipped with a 3.5 mm jack plug and a 6.3 mm adapter, are included in the delivery.

The HD 620S is now available for 349.90 Euros.



More info

sennheiser.com





USB desktop reverb with 100 presets from Erica Synths

Anyone who was already a guest at this year's Superbooth24 had the chance to spot the new Nightverb creative reverb unit at the Erica Synths stand. The manufacturer has finally announced the delivery of the compact desktop effects unit. The integrated musical stereo reverb algorithm of 122dB is said to be ideal for voluminous, long reverb tails without losing harmonic integrity. For ambient textures or drones, this should be of particular interest to sound designers. There are 12 parameters in total, including the obligatory ones such as pre-delay, size, shape, feedback and hi-/low-damp, but there is also a freeze function for creative pitch shifts. Several parameters can also be changed simultaneously. Although the effects unit already has 30 presets on board ex works, there are still 70 memory locations available for your own creations. The presets can also be exported via USB if required. In addition to two mono jack inputs, the MIDI and USB interface, there is also a footswitch input.

Nightverb can be purchased from specialist retailers from July 28 for 490 Euros plus VAT.



More info

ericasynths.lv



Ambient synth generator with wavetables from Sonicware

Sonicware is expanding its Liven synthesizer series with the Ambient Ø model. With its newly developed blendwave modulation synthesis, the sound generator is predestined above all for ambient, dark ambient and experimental music. This new wavetable-based synthesis engine combines six structures (two each of drones, pads and atmos) with 32 waves that provide powerful, deep drones and lush pads. The 32 waves each comprise 128 different overtone structures that can be combined to create exciting soundscapes. The flexibility of the sound design is further enhanced by the ring and FM modulation. There is also a fine effects section with several reverb types and delays, as well as EQ and chorus. In addition, there are noise and sampling layers with eight natural sounds, but it is also possible to sample up to eight seconds in stereo. An ambient pattern library and a sequencer are also included. Last but not least, the portable sound generator also has an integrated loudspeaker.

Ambient Ø to be delivered at the end of July 2024 at a price of 239 US Dollars plus VAT.



More info

sonicware.jp



FL Studio 2024 - Now with new vintage synth and CLAP support

With the new FL Studio 2024.1 update, Image-Line has not only made a technical enhancement to its DAW possible, but has also changed the version name. In future, the DAW FL Studio 2024, which was previously only available for testing in the beta version, will be named after the calendar year. The most important technical features include support for the efficient CLAP plug-in format. The FL Cloud now includes 10 plug-ins in the free edition and over 65 in the Pro version with tools from renowned manufacturers. In addition, Kepler EXO is a new vintage synth that is ideal for synthwave. Another highlight is the Edison audio editor, which can be used to extract vocals from a mix. De-clipping has also been improved to correct clipping. The bass enhancer Low-Lifter and the stereo widening tool Spreader are two new effects. Chord Progression helps you to create automatic chords.

FL Studio 2024 can now be purchased for 99 Euros (Fruity Edition), 229 Euros (Producer Edition) or 319 Euros (Signature Bundle).



More info

image-line.com

Granular scrubbing for Beetlecrab Tempera thanks to update

The Beetlecrab Tempera granular instrument has so far generated a lot of enthusiasm thanks to its touch user interface. Now the manufacturer has presented the firmware update 2.0, which opens up even more flexible possibilities. The eight parallel sample tracks (also known as emitters) have now been equipped with an effects path and the number of modulators has been doubled to ten. The editing of the granulatable samples is not limited to the parameters grain size, density, jitter and spray, but can also be "run through" by scrubbing the sample with a finger on the touchpad. If desired, the samples can also be detuned at random. Other new features include a color selection for the emitters and the optimization of the reverb effect, which now offers more detailed settings. Last but not least, synchronization via MIDI clock should now work more reliably with the sound designer instrument.

The firmware update 2.0 is available to download free of charge. Beetlecrab Tempera can be ordered from the manufacturer for 797 Euros plus VAT.



More info

playtempera.com



Editorial

BEAT introduces itself



Jan Wilking

Synthesizers, samplers and drum machines have defined his life for a good four decades. Inspired by the emerging Synth Pop of the early 80s, particularly the first concerts as a budding teenager like Depeche Mode, Nitzer Ebb and Shock Therapy shaped his further development, which led to the founding of the EBM/Industrial project STERIL in 1990, which was successful mainly in the USA. From the simple cassette recorder, Casio keyboard and mono sampler with mini-memory to the modern DAW with almost unlimited possibilities, Jan has witnessed the development of electronic music production, with his personal conclusion: Less is often more!



Sascha Blach

Passionate music nerd who likes variety as a listener, as well as a singer, musician and producer, because he thinks variety is what makes life interesting - from melancholic Folk to Pop, Electronica and Techno to Indie Rock and Metal, there's a lot here. Busy songwriter. Besides his own various projects, he also makes production music. Convinced Apple and Logic user. Loves guitar pedals. Likes to work on a mix for months and still claims to work effectively. Prefers profundity to small talk. That's why he's also doing extensive interviews at BEAT. In short: Somehow damn versatile, our Sascha!



Marco Scherer

Producer, Sound Designer, DJ and Gear Nerd with a big soft spot for samplers. Marco has been making music for as long as he can remember, loves his studio and even runs around outside with microphones and recorders to find and bend the best sounds. Produces Psytrance under Datacult, Techno under the name Villa Violet and creates with his „Drum Depot“ kits for current drum samplers. At BEAT, he is the contact person for (almost) everything and puts his heart and soul into it.



Mario Schumacher

Mario has been on board since the first issue. His musical output is as versatile as his contributions to BEAT: While his Edge Of Dawn explores the field of tension between Synth Pop and Electro, Mario produces Cinematic Electronic Music for Film, TV and Advertising under the name Raging Silence for, among others, Mercedes Benz, Porsche, Audi, Philips and Puma.



Maya Consuelo Sternel

Maya Consuelo Sternel, a.k.a. Donna Maya, is a musician, producer and sound artist. She plays Theremin and releases Underground Techno. After earning her Audio Engineer degree, she worked in New York at Unique Recording in Times Square, overseeing productions from Run DMC to Joe Lynn Turner. She is an Ableton Certified Trainer, runs Upstart Electronic Music Education and is co-founder of the Ableton User Group Berlin.

Tobias Fischer

Journalist, author, label owner, listener. Tobias has been writing about music for almost 20 years; 15 of them for BEAT. In doing so, he prefers to go deep below the surface. This is also the case in his „Behind the Beat“ podcast. As long as there is music, Tobias will ask questions - either for new book projects or, in the meanwhile, for the almost 4000 interviews for his project „15 Questions“.

Daniel Bock

New addition to the BEAT team. Actually a guitarist and actually plays Funk, Rock, Alternative & Metal, but secretly always squinted to the synths and Electronic Music. Tells himself that jamming is actually the real music making and producing tracks is not really necessary. Loves gear and creative gear. What would be better for this than a modular system? Consequently, therefore, also responsible for the Eurorack corner of the BEAT.



Carl-Philipp Schmeller

Carl-Philipp has been with Beat since issue 1. His home is Commercial Electronic Music, which he has been passionate about since the 90s and also produces in his own home studio. He also conducts seminars in the field. At Beat, he is responsible for News, Workshops, Reviews and Tests; especially for the last two years now for the English edition and for Beat.de.



Ricarda Becker

Good Fairy, Layout Fairy or simply Graphic Designer... Ricarda has many titles, but only one task: to make the magazine as beautiful as possible. The graphic design is analogous to music: underneath the final result lies a lot of work, sweat and technology that you don't even see when you just look at it. We are all the more pleased to have her!



Dagmar Pawlowsky

Responsible for sales and co-operations. Dagmar loves Berlin, her dog Leo and BEAT magazine. She enjoys listening to Electro Punk and always likes to be at the front at concerts. In her spare time, she organises small concerts and other events.

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Das Magazin erscheint ab sofort im falkemedia Verlag und um das zu feiern, gibt's die erste Ausgabe 2024 gratis! Also, holt Euch Euer Exemplar. Wir wünschen gute Unterhaltung!



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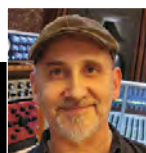
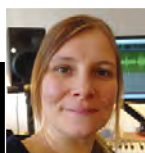
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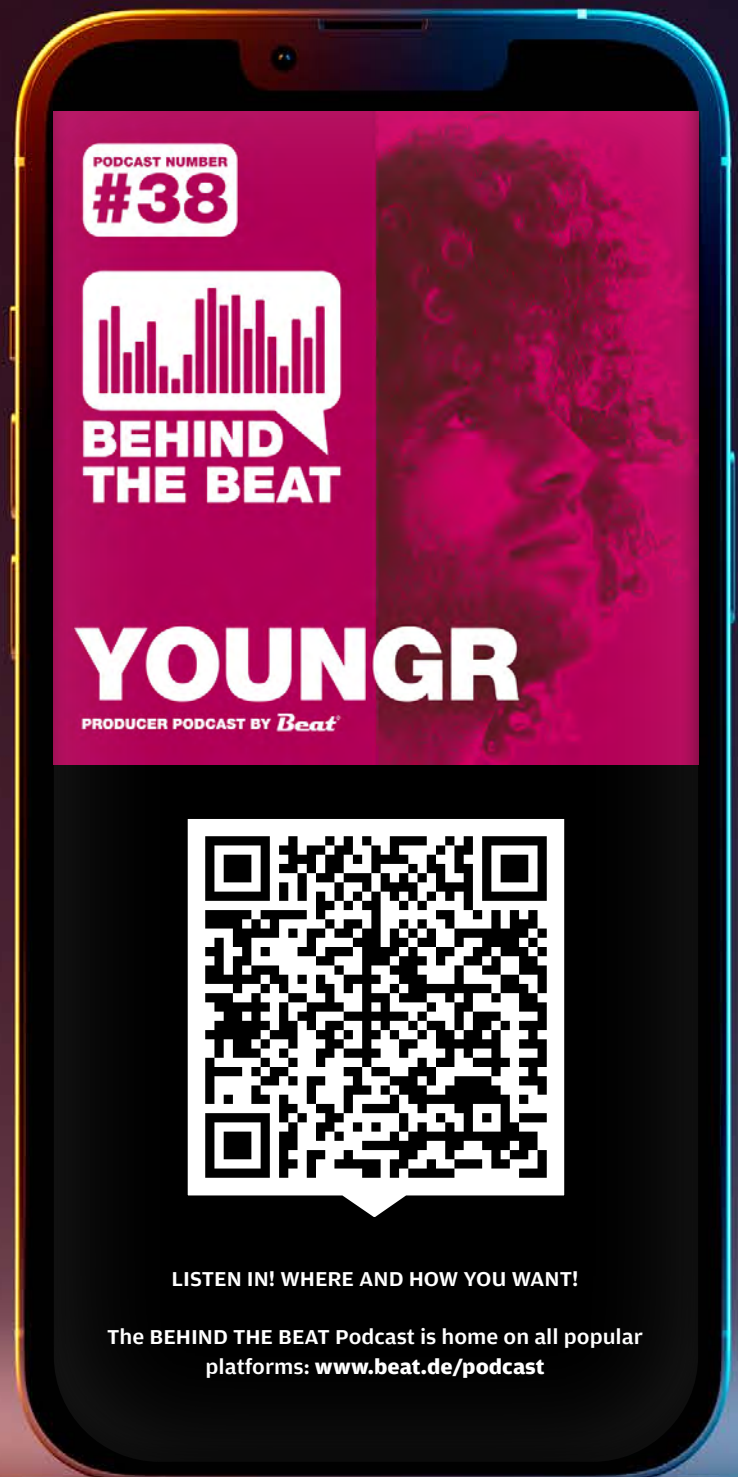
Episode #38 with Youngr

Hard work pays off

Tobias Fischer is your host for the Behind the Beat Podcast. Each episode features one of the most exciting producers of our time for an in-depth exchange. This episode is all about multi-instrumentalist Youngr, whose new album replaces his radical live production philosophy with meticulous attention to detail.

Restricting yourself doesn't exactly sound like fun. Nevertheless, most of us depend on it in some form. To avoid getting lost in the production process, for example, or to actually finish the tracks we started. With Dario Darnell aka Youngr, however, all categories, limitations and dividing lines melt away.

Already as a kid, Dario simply wanted to play. For years, he developed his talents as a musician in countless bands, channelling his passion for alternative rock, crossover and the notorious nu metal of the 90s. The pure energy and sound explorations he heard in songs by Radiohead, Korn, Limp Bizkit or the Smashing Pumpkins ignited his passion, and the proximity of all these bands to electronics and hip-hop led him to the drums. It was therefore only a matter of time before he would eventually enter the dancefloor.



Anyone watching Youngr in his live studio sessions, during which he magically conjures up a complete arrangement on various instruments in a live setting, will instantly understand that the process is all about the pure joy of creation and an uncompromising focus on songwriting. The record button is never not on, there is no jamming, just an endless loop of composing in the moment. You can feel the tension, the risk of failure.

Youngr blurs the boundaries between rock and dance, between the roles of a performer and a producer. He never wants to pick between playing a cover version or writing a new original, either, instead

exploring the fruitful field between these two poles. This „sampling at songwriting level“ has now become his trademark.

Getting into the nitty gritty, on the other hand, was not one of Dario's favourite pastimes. For his new album *Let the Music Guide Us*, however, he decided to go deep and put every beat, and every sound under the microscope. It may sound like hard work and it most definitely was - but it certainly paid off, as Youngr tells us in this expansive interview!

www.beat.de/podcast



 @youngr_music

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MICROPHONE TOTAL

HOW TO FIND THE PERFECT ONE FOR YOU

32 MODELS IN COMPARISON

When should I use a dynamic microphone, when should I use a condenser microphone? How do you optimize the room sound for recording? From comprehensive buying advice and reviews of all models, to technical details and practical microphone tips - this special gives you all the answers you need for the perfect recording of vocals, instruments and podcasts. Benefit from the experience of renowned musicians and producers and find the perfect mic for you in the comparison overview with over 30 candidates.

by **Stefan Hofmann, Carl-Philipp Schmeller, Marco Scherer**



The world of microphones is fascinating and diverse - and high-quality microphones are indispensable for anyone who wants to get the best out of their voice, instrument or podcasts. But with the multitude of microphone types, technical specifications and practical application tips, getting started can be overwhelming. In our comprehensive buying guide, we shed some light on the subject and accompany you on the way to your perfect recording.

Dynamic or condenser? The first big decision

Choosing the right microphone often starts with the basic question: dynamic or condenser microphone? This decision has a significant impact on the sound quality and the area of application of the microphone. Dynamic microphones are known for their robustness and their ability to handle high volumes. They are ideal for live performances and recording loud sound sources such as guitar amps. A well-known example is the legendary Shure SM58, which can be found in many studios and on stages due to its durability and warm sound.

Condenser microphones, on the other hand, are characterized by their high sensitivity and wide frequency range. They capture the finest nuances and details, making them the first choice for studio recordings of vocals and acoustic instruments. An example of an outstanding condenser microphone is the sE4400, which impresses with its double diaphragm and variable polar pattern.

Correct microphone positioning - more than just alignment

The positioning of the microphone is just as important as the choice of model itself. The best microphone position depends on many factors: the singer or instrument, the desired sound and even the room sound. A good starting point is about a hand's width away when recording vocals to take advantage of the so-called proximity effect, which amplifies low frequencies and creates a warmer sound. But experimenting with different positions and distances can make the difference between an average and an outstanding recording.

For backing vocals, for example, a greater distance from the microphone could achieve the desired effect to bring them back in the mix and create depth. The sE4100 shows its strengths here with a balanced and detailed sound reproduction, which is particularly noticeable with acoustic instruments and vocals.

Care and protection of your valuable tools

Microphones are sensitive devices that require care and protection to ensure high sound quality in the long term. A sturdy microphone stand or, even better, a permanently mounted microphone arm can help prevent unwanted impacts. Store your microphones in their carrying cases when not in use and keep them away from moisture and extreme temperatures. Particularly high-quality microphones often come with special carrying cases that offer additional protection.

A pop filter is a small but effective tool to protect the microphone membrane from moisture while reducing unwanted popping noises. Here, too, the Sennheiser Profile Streaming Set, for example, shows us how a well-thought-out design makes everyday use easier, be it through ease of use or robust materials.

The finer points of polar pattern - which one is right for your project?

The polar pattern of a microphone plays a key role in choosing the right model for different recording situations. An omnidirectional microphone picks up sound from all directions evenly and is ideal for surround sound recordings such as orchestras. Cardioid microphones, on the other hand, are most sensitive to sound from directly in front and largely block out noise from the sides and rear. This pattern is perfect for vocal recordings where background noise needs to be minimized.

For more specific applications, supercardioid or hypercardioid microphones can be chosen, which have an even narrower directivity and are particularly resistant to feedback. And figure-8 microphones, such as the sE4400

mentioned above, are ideal for stereo recordings or interview situations, where sound from the front and back is recorded evenly while noise from the sides is ignored.

Leveling and sound check - the key to the perfect recording

Correct leveling is crucial to achieving optimal sound quality and avoiding distortion or clipping. Start by setting the bit rate in your DAW to at least 24 bits and make sure that all devices are correctly connected and ready to use. The gain control on the microphone preamp should be turned slowly to the right while the singer performs the loudest part of the song. Make sure that the signal never goes into the red zone to leave enough headroom for post-production.

This is where the Sennheiser Profile Streaming Set shows its strengths with its user-friendly plug-and-play functionality and the simple controls for input level, balance and headphone volume. This makes leveling child's play and allows you to focus on the creative work.

Let's get started

Our comprehensive buying guide and the recording chains of renowned musicians and producers will help you find the perfect microphone for your needs. Whether dynamic or condenser, cardioid or omnidirectional, for studio or live - with the right tips and tools, your future recordings will benefit. In our comparison overview with over 30 candidates, discover the microphone that best supports your creativity. Immerse yourself in the fascinating world of microphones and find the perfect model for your voice, your instrument or your podcast.



Recording correctly saves mixing work

by Paul Marx, MeinHomestudio.de

The better the recordings, the less there is to do later in the mix. This not only saves time, but also makes the vocals sound more authentic and natural. The influence of the positioning of the microphone is often underestimated. For example, a large proportion of the high frequency ranges come from the singer's nose. For genres with loud highs in the vocals, for example in Pop, these parts are indispensable in the recording. Therefore, I always point the microphone at both: mouth and nose.

Especially when recording several vocal tracks, the distance to the microphone can be used to create a natural depth layering: I like to record the central vocal part a little closer to the microphone, as the voice is far ahead in the mix due to the relatively loud highs and lows. Doubling or harmony voices blend into the background as if by themselves if they are recorded from a greater distance. This saves a lot of intervention in the equalizer and creates an authentic spatial impression all by itself.

Market check:
Microphones for
every budget

Find the perfect microphone for you!

The range of microphones is as diverse as the range of applications and personal preferences regarding design. In our comprehensive market check, you will find out which model best suits your individual requirements and budget.

	 <p>Shure SM57 LC</p>	 <p>Rode NT-USB</p>	 <p>Shure SM58 LC</p>	 <p>Sennheiser Profile</p>
Converter principle	Dynamic	USB condenser microphone	Dynamic	USB condenser microphone
Directional characteristics	Cardioid	Cardioid	Cardioid	Cardioid
Phantom power	No	No, because USB	No	No, because USB
Transmission range	40 - 15.000 Hz	20 - 20.000 Hz	50 - 15.000 Hz	20 - 18.500 Hz
Sensitivity	-54,5 dBV/Pa (1,88 mV)	not specified	-56 dBV/Pa (1,85 mV)	not specified
Maximum sound pressure	not specified	110 dB SPL	not specified	125 dB SPL
Signal-to-noise ratio	not specified	not specified	not specified	not specified
Dynamic range	not specified	96 dB	not specified	not specified
High pass filter	non-existent	non-existent	non-existent	non-existent
Pad (dB)	non-existent	non-existent	non-existent	non-existent
Particularly suitable for ...	Drums, percussion, e-guitar	Speech, singing	Live vocals	Speech, podcasts and streaming
Special feature	Very robust, feedback-proof	integrated audio interface, iPad compatible	integrated filter that reduces breathing and wind noise	adjustable tilt function
Scope of delivery	Microphone clamp	Metal pop filter, tripod table stand	Microphone clamp	Table stand, USB cable
Weight	284 gram	520 gram	298 gram	350 gram
Price (Thomann)	105 Euro	107 Euro	109 Euro	115 Euro

Affordable microphones for beginners in the home studio

Having your own home studio is a dream for many musicians, podcasters and streamers. But the question often arises as to whether you can build a good setup with a limited budget. We would like to introduce you to two microphones from Mackie's Element series, which offer good audio quality despite their low price.

www.mackie.com

Mackie EM-91C – large diaphragm condenser microphone

The Mackie EM-91C is a large diaphragm condenser microphone that is available in stores for under 50 euros and comes without a lot of frills. Equipped with a fixed cardioid and a frequency range of 20 Hz to 18 kHz, good recordings of voices and instruments are no problem. The scope of delivery consists of an elastic microphone spider and a microphone cable. There is nothing to complain about in terms of the quality of workmanship and the housing is also very robust.

Technical data:

Directional characteristic: Cardioid
Frequency response: 20Hz to 18 kHz
Impedance: 150 Ohm
Maximum sound pressure level: 134 dB
Weight: 0,21 kg
Color: black






Mackie EM-89D – Dynamic handheld microphone

The Mackie EM-89D is an affordable dynamic handheld microphone that offers good audio quality. Thanks to its robust construction, you can also use the microphone live without any problems. The scope of delivery includes a microphone clip, an XLR cable (5m) and a carrying case. Despite the low price, the transducer impresses with its great workmanship and the mic is also a real eye-catcher visually with its Mackie-typical neon green highlights. Well thought-out features such as edges on the stabilizing ring of the wire mesh basket, which prevent it from rolling away, are also worth highlighting.

Technical data:

Directional characteristic: Cardioid
Frequency response: 50Hz to 16 kHz
Impedance: 600 Ohm
Weight: 0,30 kg
Color: black



	 Audio-Technica AT 2020 USB-X	 Universal Audio SD-3	 Lewitt LCT 040 Stereo Pair	 Shure Beta 58 A
Converter principle	USB condenser microphone	Dynamic	2 Small diaphragm condenser microphones	Dynamic
Directional characteristics	Cardioid	Cardioid	Cardioid	Supercardioid
Phantom power	No, because USB	No	Yes	No
Transmission range	20Hz - 20kHz	40 - 15.000 Hz	20 - 20000 Hz	50 - 16.000 Hz
Sensitivity	not specified	-58 dB	18.8 mV/Pa	-51,5 dBV/Pa (2,66 mV)
Maximum sound pressure	not specified	not specified	135 dBSPL	140,5 dB SPL
Signal-to-noise ratio	not specified	not specified	not specified	not specified
Dynamic range	not specified	not specified	115 dB (A)	not specified
High pass filter	non-existent	non-existent	non-existent	non-existent
Pad (dB)	non-existent	non-existent	non-existent	non-existent
Particularly suitable for ...	Vocals, streaming, podcasting	Percussion, drums, brass, guitar amps	acoustic guitar, drums	vocals
Special feature	Internal headphone amplifier with connection	Hemisphere modeling	Stereo pair	Feedback safety and air-sprung shock absorber
Scope of delivery	Tripod, USB cable, USB adapter	Microphone clamp	Microphone clamp	Microphone clamp
Weight	373 gram	214 gram	44,6 gram	278 gram
Price (Thomann)	129 Euro	134 Euro	166 Euro	175 Euro

Recording techniques

Hardly any other sound source is perceived as intensely by the listener as the human voice. This is no wonder, as our hearing is fully sensitized to the frequencies that dominate here. Singing must therefore be treated with particular care. In addition to the selection and setup of the equipment, the style of music and intention also determine whether a recording is perfect or ends up in the trash. A step-by-step guide is therefore impossible. However, there are a whole range of tips and information that make life easier for beginners.

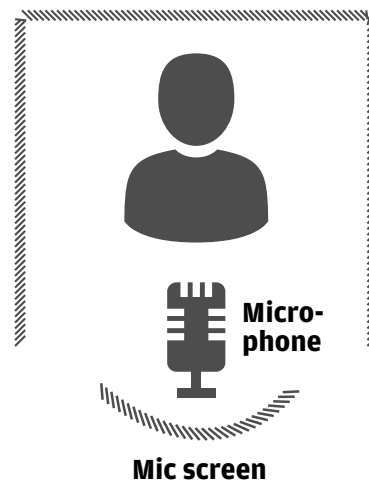
Choosing the microphone

In the studio, large-diaphragm condenser microphones are mostly used for voice and vocal recordings. With a wide frequency response and high resolution, these can also reproduce small nuances in the sound. Typical vocal microphones are characterized by extensive linearity, only the highs are often raised a little for greater conciseness. In

addition, there is occasionally a slight reduction in the lower mid-range, which removes muffled sound components. In addition to the frequency response, the design must be taken into account. While microphones with transistor technology enjoy a neutral reputation, tube microphones sound rounder thanks to the addition of overtones and sometimes cover up small inaccuracies. Small-diaphragm microphones are similarly well suited, but are rarely used in practice.

The most important accessory for a condenser microphone is the pop filter. In addition to filtering out P and S sounds, it has another function: protecting the membrane. Because of its thinness, this can be damaged by even the smallest droplets of saliva, which inevitably appear when singing. To protect against impact noise, a spider is recommended to compensate for floor vibrations. Many devices also offer a high-pass or impact sound filter that blocks out low-frequen-

Partition walls



Sound walls and mic screen: The sound walls should be set up so that the entire area next to and behind the singer is muffled. A mic screen helps against background noise.



Sennheiser
E 906



Røde
NT1-A



Shure
MV88+Stereo
USB Mic



Røde
PodMic USB

Converter principle	Dynamic	Large diaphragm condenser microphone	Digital stereo condenser microphone	Dynamic, USB
Directional characteristics	Supercardioid	Cardioid	Mono, stereo, bidirectional & center/side	Cardioid
Phantom power	No	Yes	No	No
Transmission range	40 - 18.000 Hz	20 - 20.000 Hz	20 - 20.000 Hz	20 - 20.000 Hz
Sensitivity	not specified	not specified	not specified	not specified
Maximum sound pressure	not specified	137 dB SPL	120 dB SPL	not specified
Signal-to-noise ratio	not specified	not specified	not specified	not specified
Dynamic range	not specified	not specified	not specified	not specified
High pass filter	non-existent	non-existent	non-existent	non-existent
Pad (dB)	non-existent	non-existent	non-existent	non-existent
Particularly suitable for ...	Electric guitar, snare drum, brass	Acoustic guitars, pianos, vocals, drums	Vocals, instruments	Speech
Special feature	Three selectable sound characteristics	very low inherent noise	ShurePlus MOTIV Mobile App	integrated DSP for Aphex Audio
Scope of delivery	Microphone clamp	Shock mount with fabric pop filter	Windscreen, clamp, USB cable	Pop filter and USB cable
Weight	140 gram	326 gram	79 gram	896 gram
Price (Thomann)	175 Euro	179 Euro	198 Euro	199 Euro

cy noise. Closed headphones are recommended for monitoring purposes, as they prevent crosstalk into the microphone.

Overhead

To minimize breathing noise, the vocal microphone is not aimed directly at the artist's mouth. Instead, it is set up overhead, with the membrane pointing diagonally from above at the area between the mouth (full sound) and the nasal bone (less mid and low range). Since vocals are often given large amounts of artificial reverb, a recording environment that is as dry as possible is recommended. In addition to expensive recording booths, sound-absorbing partitions and mic screens also bring significant improvements. A good price tip is thick molleton (300g/m²), which is also quick to hang up and not very bulky. Cardioid is usually used as a directional characteristic, which blocks out background noise well. Supercardioid and hypercardioid offer an even narrower recording range, but are not available everywhere. An exception is when recording several singers with one

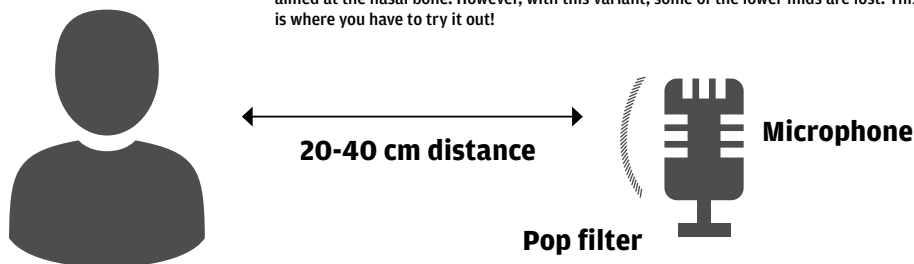
microphone: Here, an omnidirectional characteristic is used and the artists are positioned around the microphone.


Dynamic microphones are mostly found on stage. They are a good choice thanks to their low susceptibility to interference, but their rough sound also makes them an interesting alternative for studio recordings. Especially in Rock productions, the sound often blends in better than with a high-resolution condenser device.

Near and far

The distance between the singer and the microphone should normally be around 20 to 40 centimeters. Shorter distances lead to an increase in low frequencies, the so-called proximity effect. This is useful for haunting passages and can be created with both dynamic and condenser microphones.

Distance and alignment: The microphone should be positioned just above the mouth at a distance of 20 to 40 centimeters. For loud popping and breathing noises, it can also be aimed at the nasal bone. However, with this variant, some of the lower mids are lost. This is where you have to try it out!



	 Austrian Audio MiCreator Studio	 Universal Audio SD-5	 Rode NT1 5th Generation	 Apogee MiC+
Converter principle	USB condenser microphone	Dynamic	Large diaphragm condenser microphone	USB condenser microphone
Directional characteristics	Cardioid	Supercardioid	Cardioid	Cardioid
Phantom power	No because USB	No	Yes	no because USB
Transmission range	20 - 20.000 Hz	20 - 15.000 Hz	20 - 20.000 Hz	not specified
Sensitivity	-35 dBFS/Pa	-64 dB (0 dB = 1V)	-32 dB re 1 Volt/Pascal (25 mV @ 94 dB SPL)	-36 dBfs (94 dB SPL, 1 kHz)
Maximum sound pressure	130 dB SPL	not specified	142 dB SPL	130 dB
Signal-to-noise ratio	not specified	not specified	not specified	-108dBfs (A)
Dynamic range	not specified	not specified	not specified	not specified
High pass filter	non-existent	non-existent	yes	non-existent
Pad (dB)	non-existent	non-existent	non-existent	non-existent
Particularly suitable for ...	speech, live streams, instruments	kick drums, bass amplifier, low frequency instruments	vocals, speech, guitar, piano, drums	acoustic instruments, vocals
Special feature	integrated audio interface, input for connecting a second device	Hemisphere modeling	Dual-connect port (XLR and USB-C)	Sound quality with up to 24 bit/96 kHz thanks to PureDIGITAL
Scope of delivery	USB and instrument cables, adapters	Tripod mount	Microphone holder with pop filter, USB cable	Tripod, USB-CC cable
Weight	370 gram	727 gram	311 gram	200 gram
Price (Thomann)	199 Euro	209 Euro	222 Euro	289 Euro

Mic & recording basics

Key answers from:

What factors play a role in the positioning of the microphone when recording instruments?

Vasili / That of course depends on which instrument is to be captured and where it is later to be spatially located in the mix. Unless you have a huge amount of experience with miking, it's never a bad idea to place the microphone where it sounds best or „right“ to your own ear. This can be a certain spot in the room or the one particular speaker in the guitar cabinet that is much better suited for the close mic than the others. (Please always think of the eardrum.) The fine tuning can be done afterwards via headphones. The dynamic TM-82 is excellent directly in front of the amp and also as a snare or drum mono sum mic in the so-called „sausage“ position. There, a dynamic mic is positioned centrally in front of the drummer so that its capsule is as close as possible to the centers of all heads (snare, bass drum, toms).



Vasili Asmanidis

TEAC EUROPE GMBH
TECH SUPPORT TASCAM DIVISION

www.teac.eu | www.tascam.eu

Does a dedicated preamp or channel strip make sense for vocal recordings, or is an audio interface with high-quality mic preamps enough?

Vasili / The same applies here as for microphones. The Tascam interfaces, for example, sound neutral, musical and absolutely suitable for the studio. For appropriate purposes, however, a luxurious or particularly characterful preamp will be more suitable. Special vocal channel strips such as our TA-1VP also offer useful functions such as adjustable de-essers, input compression, real-time pitch correction or autotune effects.



	 Universal Audio SD-1	 Shure MV7 Plus	 Lewitt RAY	 Lewitt LCT 441 FLEX
Converter principle	Dynamic	Dynamic	Large diaphragm condenser microphone	Large diaphragm condenser microphone
Directional characteristics	Cardioid	Cardioid	Cardioid	Omnidirectional, cardioid, supercardioid, figure-8, etc.
Phantom power	No	No	Yes	Yes
Transmission range	15 - 16.000 Hz	50 - 16.000 Hz	20 - 20.000 Hz	20 - 20.000 Hz
Sensitivity	-58 dB (1.3 mV)	-55 dBV/Pa (1,78 mV)	-32,9 dBV/Pa	-35,3 dBV/Pa
Maximum sound pressure	not specified	128 dB SPL	131 dB SPL	144 dB SPL
Signal-to-noise ratio	not specified	not specified	not specified	87 dB (A)
Dynamic range	not specified	not specified	not specified	137 dB (A)
High pass filter	Yes	non-existent	non-existent	non-existent
Pad (dB)	non-existent	non-existent	non-existent	non-existent
Particularly suitable for ...	Speech, singing, instruments	Podcasts	Speech, live streams, podcasts	Vocals and instruments
Special feature	Hemisphere Mic Modeling	ShurePlus MOTIV Desktop-App	automated muting and leveling and autofocus of the voice	Eight directional characteristics
Scope of delivery	Microphone clamp and pop filter	USB-C cable	Microphone shock mount, pop filter, windscreen	Microphone shock mount, pop filter, windscreen
Weight	735 gram	573 gram	330 gram	325 gram
Weight (Thomann)	299 Euro	319 Euro	339 Euro	365 Euro



What should be considered when choosing a microphone for recording vocals?

Vasili / Choosing the right microphone depends on various parameters, such as the the idiosyncrasies of the voice, the singing and musical style, the desired production and aesthetics, etc. Most importantly, the mic must fit the voice, capture and bring out its character. In most cases, a large-diaphragm microphone with a pleasing treble is used, but sometimes a cheap dynamic microphone can be just the thing.



Do you recommend using compressors, de-essers and EQs during the recording process or should you do this later in the DAW?

Vasili / If the desired sound aesthetic is already clear in advance, you can save a lot of time with such measures and already give the later mix a certain direction, especially if analog devices are used. Less risky is the subsequent processing.



In your opinion, is there a microphone that is ideal for every situation?

Vasili / No. But there are very versatile workhorses that have become classics for a reason. Experimenting with different microphone types and positions is fun, trains the ear and can lead to unexpected and great results.

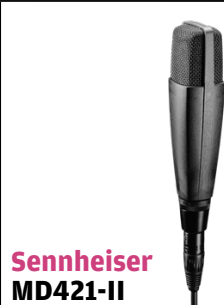


How should one proceed when recording acoustic instruments?

Vasili / Here, attention should be paid to a quiet environment and undesirable room reflections, since it is difficult to correct for disturbing noises and room components afterwards. More sensitive condenser microphones are often used for such purposes, which are able to reproduce the harmonic multiples characteristic of the respective instrument. Large-diaphragm microphones such as our TM-80 are usually the first choice. Often two or more mics are used to capture, for example, the full frequency spectrum of a grand piano or the nuances and higher harmonics of a guitar neck. It may be necessary to consider the phasing of the microphones used, especially if they are positioned at different distances from the sound source or even face each other, e.g. with simultaneous recording of the snare head from above and the snare carpet from below.



Rode
Wireless PRO



Sennheiser
MD421-II



Shure
SM7B



Audio-Technica
AT4040

Converter principle	Dynamic	Dynamic	Dynamic	Large diaphragm condenser microphone
Directional characteristics	Omnidirectional	Cardioid	Cardioid	Cardioid
Phantom power	No	No	No	Yes
Transmission range	20 - 20.000 Hz	30 - 17.000 Hz	50 - 20.000 Hz	20 - 20.000 Hz
Sensitivity	not specified	not specified	-59,0 dB	-32 dB (25,1 mV)
Maximum sound pressure	123,5dB SPL	not specified	not specified	145 dB SPL
Signal-to-noise ratio	not specified	not specified	not specified	not specified
Dynamic range	not specified	not specified	not specified	133 dB
High pass filter	non-existent	non-existent	Yes	non-existent
Pad (dB)	non-existent	non-existent	non-existent	Yes (10 dB)
Particularly suitable for ...	Broadcasting	Speech, guitar, brass, drums	Speech and singing, kick, guitar and bass amplifier	Vocals, acoustic instruments
Special feature	Wireless microphone set	5-stage bass switch	Bass roll-off switch	Soft, natural sound
Scope of delivery	2 clip-on transmitters, 1 receiver, 2 lavalier microphones, cable	Microphone clip	Wind protection	Microphone shock mount
Weight	36 gram	385 gram	766 gram	360 gram
Price (Thomann)	370 Euro	387 Euro	389 Euro	419 Euro

Vocal sound everywhere with the Tascam TA-1VP

At a time when many musicians and producers usually do their vocal processing directly in the DAW, the question arises as to why a vocal processor with Auto Tune makes sense. But despite advanced software solutions, there are several reasons for using an external device.



With an external vocal effects device such as the Tascam TA-1VP, artists always have their individual vocal sound at hand, whether in the studio or on stage. This flexibility ensures that the voice sounds the same anytime and anywhere - live and on record. In addition, external devices often offer lower latency and more stable performance than software-based solutions, which is a great advantage, especially in live situations.

The Tascam TA-1VP is a powerful and versatile vocal editing tool in 19-inch rack format that is suitable for both live and studio applications. Auto-Tune has become a standard tool when it comes to editing vocals. Many artists also like to use the effect audibly to create a special vibe. The TA-1VP is equipped with Auto-Tune EVO from Antares, which is particularly useful for live performances, but also in the studio to perform directly with the effect. In

addition to Auto-Tune, the TA-1VP offers other exciting features such as microphone modeling, compressor, gate, de-esser, EQ and analog tube modeling. You can also automatically create a duplicate track that is mixed into the master signal, or route it to a separate output for further processing and mixing. A large selection of presets of vocal styles is also available. You can also easily save your own sound presets. Thanks to its robust housing, the TA-1VP is the perfect companion on tour. The clear and well thought-out positioning of the controls is also impressive.

The Tascam TA-1VP combines advanced technology with user-friendliness and robustness, making it an indispensable tool for musicians and sound engineers. Its versatile functions and high-quality workmanship make it an ideal choice for professional applications both in the live area and in the studio.

www.tascam.eu



**Shure
SM 7 dB**



**Slate
Digital ML-1**



**Lewitt
PURE TUBE**



**AKG
C414 XLII**

Converter principle	Dynamic	Large diaphragm condenser microphone	Large diaphragm tube microphone	Large diaphragm condenser microphone
Directional characteristics	Cardioid	Cardioid ML-1	Cardioid	Cardioid, hypercardioid, omnidirectional, figure-8, etc.
Phantom power	No	No	Yes	Yes
Transmission range	50 - 20.000	not specified	20 - 20.000 Hz	20 - 20.000 Hz
Sensitivity	-59,0 dB (1,12 mV)	not specified	-31 dBV/Pa	23 mV/Pa
Maximum sound pressure	not specified	not specified	132 dB SPL	140 dB SPL
Signal-to-noise ratio	not specified	not specified	87 dB (A)	88 dB
Dynamic range	not specified	not specified	125 dB (A)	152 dB
High pass filter	non-existent	non-existent	non-existent	Yes
Pad (dB)	non-existent	non-existent	non-existent	Yes
Particularly suitable for ...	Speech, vocals	not specified	Speech, vocals	Vocals and instruments
Special feature	Preamplification switchable between +18 dB or +28 dB	large selection of classic vintage microphones	hand-selected tube	9 switchable characteristics, 3 bass filters
Scope of delivery	Wind protection	Microphone shock mount, suitcase, Software	Microphone shock mount	Microphone shock mount, wind protection, Pop filter
Weight	837 gram	2,6 kilogram	692 gram	300 gram
Price (Thomann)	523 Euro	539 Euro	845 Euro	999 Euro

Editor's recommendation

Sennheiser Profile Streaming Set

The Sennheiser Profile USB microphone can be purchased either individually including a table stand or in the slightly more expensive streaming set including a microphone arm and a longer USB-C cable. It impresses with its great workmanship, ease of use and plug-and-play functionality. The compact transducer has a neutral sound and offers excellent speech intelligibility.

The Sennheiser Profile is equipped with a condenser capsule with a cardioid characteristic, covers a frequency range of 20 Hz to 20 kHz and was specially developed for podcasters and streamers. Three controls on the front are responsible for operation. The top control can be used to adjust the input level of the microphone, control two is responsible for the balance between the microphone signal and the signal from the connected device - keyword: zero latency. You can use the third control to adjust the volume of the headphones. Thanks to the „mute“ button, the microphone can be muted very easily at the touch of a button. The 3-point microphone arm included in the streaming set is perfectly matched to the microphone and is easy to handle. In addition, a notch with clips for cable

routing has been incorporated into the side. The power supply is provided via the USB-C cable.

Whether for podcasters or streamers, as a fixed setup or for mobile use - the Sennheiser Profile Streaming Set is impressive, also thanks to its excellent price-performance ratio.

Plus:

- Plug-and-play functionality
- Excellent workmanship
- Easy to use
- Neutral, calm sound
- Very good price-performance ratio

www.sennheiser.com



Thanks to the integrated tilt function, the Sennheiser Profile can be precisely aligned to the respective sound source.



**Neumann
KM 184 Stereo-Set**



**Sontronics
Saturn 2**



**Neumann
U87 Ai**

Converter principle	Small diaphragm condenser microphone	Large diaphragm condenser microphone	Large diaphragm condenser microphone
Directional characteristics	Cardioid	Omnidirectional, wide cardioid, cardioid, hypercardioid and figure-8 etc.	Omnidirectional, Cardioid, Figure 8
Phantom power	Yes	Yes	Yes
Transmission range	20 - 20000 Hz	20 - 20.000 Hz	20 - 20.000 Hz
Sensitivity	15 mV/Pa ffl 1 dB	not specified	not specified
Maximum sound pressure	138 dB SPL	130 dB SPL	127 dB
Signal-to-noise ratio	not specified	not specified	not specified
Dynamic range	not specified	not specified	not specified
High pass filter	non-existent	Yes	Yes
Pad (dB)	non-existent	Yes	Yes
Particularly suitable for ...	acoustic instruments, stereo microphones	Vocals, choir, guitars, strings, woodwinds, room ambience	Speech and vocals
Special feature	Stereo set	Damper and ring design, 9 characteristics	Very low inherent noise
Scope of delivery	Clamp and wind protection (2x)	Microphone shock mount, suitcase	Wooden case
Weight	80 gram each	540 gram	500 gram
Price (Thomann)	1.375 Euro	1.690 Euro	2.699 Euro

Live and in the studio

Advantages of dynamic microphones



Yamaha
YDM707



Yamaha
YDM-Series

Dynamic microphones are an indispensable tool for musicians, sound engineers and producers. Their robustness and versatile applications make them a reliable companion on stage and in the studio.

Advantages of dynamic microphones

- **Robustness and durability:** Dynamic microphones are known for their robust construction. They can withstand the harsh conditions on stage, including shock, humidity and high volume levels.
- **Feedback resistance:** Microphones of this type are less susceptible to feedback, which is particularly advantageous in noisy stage environments.
- **High volumes:** Dynamic microphones can handle very high sound pressure levels without distortion. This makes them ideal for loud vocal performances and instruments such as guitar amps or drums.
- **Easy to use:** They do not require an external power supply (phantom power), which simplifies setup and use.
- **Versatility:** They are great for a variety of applications, including vocal recordings, miking guitar amps, drums, and other instruments. Podcasts and live streams can also be easily recorded.

OUR RECOMMENDATION

YAMAHA YDM707



The microphone is very well made. The housing is made of metal, which makes it very robust. This makes the microphones in the YDM series the perfect companion on stage and in the studio.

The built-in proprietary isolator reduces vibrations and handling noise to a minimum. The dynamic transducer also looks great. The flowing curves of a wind instrument were taken up when developing the housing. In addition, the top and bottom of the handle are accentuated with silver rings – stylish.

In addition to the microphone holder, a 5/8" to 3/8" thread adapter and a microphone bag are also included. Incidentally, the microphone is available in either black or white.

Technical data:

Microphone type: Dynamic
Directional characteristic: Supercardioid
Frequency response: 60 Hz to 18 kHz
Sensitivity: 1.8 mV/Pa (-54 dB)
Dimensions: Ø51 x 184 mm
Weight: 285g

Plus:

- ▲ Supercardioid characteristic
- ▲ Excellent workmanship
- ▲ Great haptics
- ▲ Isolator to reduce handling noise
- ▲ Crystal clear sound

Microphone FAQ

3 questions
about microphones
answered simply

No one is born an expert and there is a lot to learn, especially in the field of sound engineering. But everyone starts small and often even rudimentary knowledge is enough to understand and use certain things. In this article, we would like to answer three of the most frequently asked questions about microphones as simply as possible.

1 Condenser or dynamic

What properties do these types of microphones have?

Condenser or dynamic microphone? This is probably one of the first questions you ask yourself before buying a new sound transducer. The good news is that you don't need much technical knowledge to understand the properties of each type of microphone. A condenser microphone has a large frequency range and is particularly suitable for detailed, clean and clear recordings. It is more sensitive than dynamic microphones and is usually less suitable for (extremely) loud sound sources such as a bass drum. Phantom power is required for operation. Most interfaces and mixers are equipped with this function. Condenser microphones are perfect for recording vocals, acoustic guitars and strings.

Dynamic microphones can handle quite high volumes and are ideal for recording guitar amps and for live use. They are usually very robust and can survive falls without breaking. Phantom power is also not required to operate a dynamic mic. In contrast to condenser microphones, however, they are less detailed.

2 Directional characteristics – what is that actually?

The directional characteristic of a microphone defines how sensitively it reacts to sound from different directions. This property is crucial for choosing the microphone for different applications. Below we explain the most important directional characteristics.

- **Omnidirectional:** An omnidirectional microphone picks up sound from all directions evenly. It is ideal for recordings where ambient sound is important, such as orchestral recordings or recording interviews in quiet environments. The disadvantage is that it is also quite susceptible to feedback.
- **Cardioid:** Cardioid microphones are most sensitive to sound coming from the front, while sound coming from the sides and back is increasingly attenuated. This pattern is ideal for recording vocals and in situations where you want to minimize unwanted background noise, and is also less susceptible to feedback. It is the most commonly used polar pattern for vocal and speech recordings. Super and hypercardioid have a stronger directivity and are more sensitive to sound coming from behind.
- **Lobar:** Lobar has a narrow directivity, is particularly sensitive to sound from the front and has a lower, but still present, sensitivity to sound from the rear, but less so from the sides. They are extremely resistant to feedback. This directional characteri-

stic is perfect for recordings for film and television or outdoor interview situations.

• **Figure-eight:** A figure-eight microphone picks up sound from the front and back, while largely ignoring sound from the sides. This pattern is often used when recording duets or interviews where two speakers sit facing each other. It is also useful for certain stereo recording techniques such as M/S.

3 How do I manage to find the right recording level?

Setting the level of audio signals is a crucial step in audio recording to ensure optimal sound quality and avoid distortion/clipping and minimize background noise. Before you start setting the level, it is important that all devices are connected and switched on correctly. Also check that all cables and connections are working properly. Also make sure that you have set a bit rate of at least 24 bits in your DAW.

If you are recording in the same room as your studio monitors, make sure that they are not playing anything. Let's now move on to setting the level using the example of a singer. Go to the point in the arrangement where the singer is singing the loudest. It is important that the vocalist has warmed up properly beforehand. Now slowly turn the gain control on the microphone preamp to the right while the singer performs his part. Watch the level meter and make sure that the signal never goes into the red zone. Ideally, the maximum deflection should be in the range of +/- -6 dB to leave enough headroom.

The little helpers

3 tips for microphones in the studio



A well-equipped recording studio also includes a good selection of microphones. Choosing the right microphone and using it can make the difference between an average and a professional recording. We have put together three tips for you to help you get the most out of your microphones.

1 Position the microphone correctly

The position of the microphone has a big influence on the quality of your recording. It's not just about which microphone you use, but also how you use it. You should always keep the sound you want in mind and try to achieve this before recording by choosing a suitable microphone and the right positioning. Every singer, every instrument is different and just because something worked once doesn't mean it will work for the next song. It is therefore important to think about the sound of the song before recording and, for example, to think about how the vocals should sound in the context of the other instruments. There is no right or wrong here, but with a little know-how you can easily create a good starting point for your recordings.

Let's take a vocal recording as an example. A hand's width away from the microphone is a good starting point. With pressure gradient microphones, the so-called proximity effect occurs. It doesn't matter whether it's a cardioid, supercardioid, hypercardioid or figure-8 pattern (or anything in between). The closer you are to the microphone, the more present the low frequency components become, which can create a warmer sound. When recording backing vocals, for example, you can place the microphone further away from the sound source. Experiment with different positions and distances to find the optimal sound for your song.

2 Protect and care for your microphones

Microphones are sensitive devices and require careful care. It doesn't matter whether you use your mics often or rarely. I always have my vocal microphone on a sturdy microphone stand with a heavy cast base next to my studio table, ready to hand. You never know when the muse will kiss you.

One moment of inattention is enough for my chair to hit the stand. If the stand is stable, the likelihood of a disaster is reduced. Particularly sensitive microphones, such as large-diaphragm condenser mics, often do not survive a free fall from table height unscathed. An even better solution for fixed setups is a microphone arm that is firmly screwed to the table. Since I don't use the microphone every day, I've gotten into the habit of immediately putting the included carrying case over the microphone after use. My black studio speakers are often covered with a small layer of dust just a few days after cleaning the studio. I want to keep this dust away from my microphone as much as possible.

You should also think about how to store microphones that are kept in a drawer. Store your treasures in their cases and keep them away from moisture and extreme temperatures. Particularly high-quality microphones are often delivered in sturdy transport cases - use these too. When recording vocals, you should also use a pop filter to cre-

ate a small protective barrier against saliva. If you want to clean your microphones, I recommend that you contact the manufacturer and find out how to do it correctly. Most manufacturers provide detailed instructions on their websites to help you restore your treasures to their former glory.

3 Get to know your microphones

Every microphone has its own sound characteristics and areas of application. Over the years I have put together a small but fine collection of mics. Unfortunately, I use many of them far too rarely, as I mostly rely on the mics that I know well and have used more often.

Microphones are like dating. The more time you spend together, the better you get to know each other. However, time in the studio is often used to work on new songs and not to get to know your own equipment better. Take a few hours now and then and spend them with your mics.

Experiment with different settings, listen to recordings and find out which mics you think are best suited to which instruments and voices. This not only helps you get to know your equipment, but also trains your ear and your skills in terms of positioning your mics. Another positive side effect is that you save a lot of time finding the right microphone in recording situations, because you know exactly which of your darlings is suitable for the respective application.

Thanks to USB microphones

Streaming and podcasting made easy

Streaming and podcasting have been very popular for years. A key element for successful content is good audio quality. USB microphones in particular have established themselves in these segments due to their all-in-one concept.



USB microphones offer a range of features that make them the ideal choice for streamers and podcasters. Designed as plug-and-play devices, they do not require any additional audio devices such as mixers or audio interfaces. Simply plug them into your computer's USB port and you're ready to go. In addition, many models are specifically designed for recording voices, making them perfect companions for streaming and podcasting.

USB microphones: What you should look out for

USB microphones offer a number of advantages over traditional microphones. They have integrated preamplifiers and an internal converter, which are usually perfectly matched to the microphone. When buying a USB microphone, you should make sure that it also has a headphone jack and amplifier. This way you can create an economical setup for mobile applications and save money.

For the most part, USB microphones work with both Windows computers and Mac systems. In some cases, iOS devices such as iPhones or iPads can also be used. You should find out in advance which devices the respective microphone is compatible with.

It is also an advantage if the controls are clearly positioned and can be adjusted from the front. A large mute button is also a great feature for quickly turning off the sound, for example in the event of a coughing fit.

USB microphones: Our conclusion

USB microphones are an excellent choice for streamers and podcasters who want easy handling and

good audio quality. They offer an uncomplicated entry into the world of audio production and enable you to achieve professional results without much technical know-how. With the right USB microphone, you can make your voice clear and audible, significantly increasing the quality of your content.

www.zoomcorp.com

OUR RECOMMENDATION

ZOOM ZUM-2



The ZUM-2 from Zoom is a USB microphone with plug-and-play functionality that offers an excellent price-performance ratio. For less than 70 euros, you get a sound transducer that enables recordings at 96 kHz at 24 bits.

The mic also has a supercardioid characteristic, ensuring clear and distinct voice recordings while minimizing room sound and other noise. The ZUM-2 can be used on Mac and PC without installing drivers. The integrated headphone output allows you to listen to the input and computer signal at the same time. You can easily adjust the headphone level using the prominent volume control on the front.

In addition to the microphone, the delivery includes the TPS-4 tripod table stand, a swiveling microphone holder, a foam windshield and a USB-C to USB-A cable (2m). The ZUM-2 from Zoom is a very good choice for podcasters, YouTubers, streamers, musicians and dubbing actors due to its great sound characteristics and low purchase price.

Technical data:

Type: electro-condenser
Directional characteristic: supercardioid
Frequency response: 20 Hz to 20 kHz
Max. sound pressure level: 135 dB SPL
Samplers: 44,1/48/88,2/96 at up to 24 Bit
Dimensions: ø54 x 150 mm
Weight: 422g

Plus:

- ▲ Warm sound in broadcast quality
- ▲ Recordings possible at 96 kHz at 24 bits
- ▲ Integrated headphone output with separate volume control
- ▲ Plug-and-play functionality
- ▲ Very good price-performance ratio

All-round microphone for streaming musicians

Versatility for instruments, speech and more

For musicians who want to share their creativity live with an audience, a versatile microphone is essential. A mic that is ideal for many applications is the sE4100. In this article, we will introduce the microphone in more detail and show why it is the ideal choice for streaming musicians.

An all-round microphone makes it possible to record both instruments such as acoustic guitar and vocals in outstanding quality. In addition, it ensures clear and distinct speech transmission in the stream. This versatility is particularly valuable because it allows musicians to seamlessly integrate musical interludes into their streams without the audio quality suffering.

The sE4100 is a large-diaphragm condenser microphone with a double diaphragm that not only looks pretty chic, but also has all sorts of practical features such as pad and low-cut switches. It impresses with its modern look and comes in a sturdy die-cast all-metal housing. The switches are also made of metal and the robust basket made of spring steel wire ensures that the capsule is well protected even in the tough everyday studio use.

The SH21 microphone spider, which is included in the delivery, along with replacement rubber bands for the suspension, is also made of metal. I particularly liked the compact design of the elastic suspension. In combination with the fairly thin microphone and flat, rounded housing design, it is easy to achieve close miking, for example in front of a guitar amp, without the spider getting in the way. The controls on the front are also easy to reach at all times.

The sE4100 has a cardioid polar pattern. Its slightly more expensive big brother, the sE4400, has four polar patterns. Otherwise, there is no difference between the two versions. The capsule is gold-plated. This is the difference to the sE T2, which has a titanium coating. According to the ma-

nufacturer, this is what ensures that the T2 has a slightly different sound.

The sE4100, like its siblings, can be purchased individually or as a coordinated stereo pair. The version with two transducers also comes with a matching stereo rail, which makes it easy to implement common stereo microphone setups.



The sophisticated microphone spider in combination with the slim design of the mic also allows for "tight" microphone placement.

The respective symbols for the controls are clearly visible and self-explanatory and can be found under the switches.



All built-in functions such as the two-stage pad (-10/-20 dB) and the two-stage low-cut (40 Hz/80 Hz) can be activated using the slide switches on the front. The practical test shows that the sE4100 is a real all-rounder. The sound transducer is fairly neutral and unexcited across the entire frequency range from 20 Hz to 20 kHz. I could hear a slight emphasis in the highs when recording an acoustic guitar.

I produce a lot of tutorial videos with voiceovers. I really liked the recording of my voice with a pop filter and a low cut at 80 Hz without any further editing. Voices are recorded with enough low end and a great presence. The raw recording is a perfect starting point for further editing due to its neutrality. This makes this microphone perfect for streamers and podcasters - a real all-rounder.

Plus:

- ▲ Balanced and detailed sound
- ▲ Easy to use
- ▲ Very good workmanship
- ▲ Good value for money



Innovations in the field of microphone technology

Autofocus
for the voice

In the field of music production, there are always innovations that change everything. Melodyne, Auto-Tune and the Kemper Profiling Amp are among them. In the field of microphone technology, there are always improvements, but real innovations are rare. „Hold my beer,“ the developers at Lewitt must have said when they brought the RAY microphone onto the market. The first mic with autofocus for the voice... www.lewitt-audio.com



The Lewitt RAY is a mic that sets new standards in the world of microphones. The innovative transducer combines several technological innovations that set it apart from conventional microphones.

RAY is the first microphone with sensor-based AURA technology. The sensor detects your distance from the mic, which opens up new possibilities that make recording easier than ever before. The Lewitt RAY can independently balance the level and sound of the recording source. The AURA sensor knows your distance from the microphone at all times and adjusts your sound accordingly.

This feature is groundbreaking, especially for those working alone in the studio. This allows you to concentrate on your performance and create ideal recordings for podcasts, live streaming and your music productions without having to constantly pay attention to the sound and level.

Another great function is MUTE by Distance. The microphone mutes itself as soon as you move away from it. When you get closer again, it activates itself. If you want to mute the microphone yourself, you can simply press the mute button, which also works when MUTE by Distance is activated.

Since the RAY is based on the LCT 440 PURE, it also has high-end specifications - and at a price that initially leaves us incredulous. The smart sound transducer costs just 349 euros (RRP). The scope of delivery includes a microphone spider that reduces low-frequency rumble and structure-borne noise. The camera-compatible pop filter is magnetically attached to the spider and thus stays securely in place.

With products like the RAY, Lewitt shows that microphone technology is far from being at the end of its development. With its innovative fea-

tures and high level of adaptability, it sets new standards and gives us a glimpse of how modern microphones can meet the increasing demands for sound quality and flexibility.

You can easily operate the microphone using two buttons on the front.



The Lewitt RAY is also the perfect companion for podcasts and live streams.

Plus:

- ▲ Sensor-based AURA technology
- ▲ MUTE by Distance feature
- ▲ Analogue signal path
- ▲ 1-inch true condenser capsule
- ▲ Very good price-performance ratio

Technical data:

Microphone type: condenser, externally polarised

Directional characteristic: cardioid

Self-noise: 8 dB (A)

Maximum sound pressure level: 131 dB SPL

Weight: 330 g

Scope of delivery: leather case, microphone spider, magnetic pop filter, windscreens



Recording-Chains: Efe

Flexible setup for all singers



Since the mid-nineties, music has been the focus of music producer Efe. In the meantime, the Frankfurt native has been able to make a name for himself far beyond the borders of his hometown. He has worked with national and international artists such as Moses Pelham, No Doubt and Summer Cem. Exclusively for Beat, Efe opens his studio door and shows us what equipment he uses for vocal recordings.



1 When it comes to microphones, I have three mics that I actually always try out with each artist. The Sony C 800G, the Telefunken Ela M 251 and the Audio-Technica AT4060. In addition, the Tube Tech PM 1A is in my analog chain as a pre amp and the CM 1A as a compressor - although I set the compression very moderate. ✨



2 At the beginning of my chain is the Slate Virtual Mix Rack. Here I add a desk emulation if necessary and do a suitable low cut. For surgical procedures, the FabFilter Pro-Q 3 is my scalpel. It works really well for me and, by the way, is perfect for filtering out unwanted resonances. ✨



3 For vocal recordings, you have to be flexible. If I need a fast compressor to catch the peaks, I use the 1176 from Universal Audio. This is a very fast compressor. After that comes the LA2A, a slow compressor. But sometimes it sounds too harsh for me, and then I use the Summit Audio TLA-100A. ✨



4 For de-essing I use the UAD Precision Multiband, the T-Racks De-Esser, the FabFilter Pro-Q3 and the Pro-DS. Here I'm mainly concerned with processing the highs from 8 kHz and getting the high mids under control. So I use the EQ around 4 kHz quite broadband. A good de-essing is a combination of several plugins. ✨



5 At the end of my digital chain is the Slate Virtual Mix Rack again. Now it's time to shape the sound. I use various Eqs here to bring out the strengths of the respective voice and to achieve a certain sound image. My approach varies depending on the artist. If necessary, I then add a compressor. ✨



6 I use various effects to emphasize a song atmospherically. The Waves H-Delay and the Echoboy from Soundtoys are often used. As a reverb I can recommend the Slate Verbsuite. Here you get many well-known reverb classics. But it doesn't always have to be third party reverbs. For example, I also use the Chorus from Logic. ✨

Recording-Chains: Juh-Dee

Tubes, tape and overdrive



If anyone knows how to record Rap vocals, it's Juh-Dee. As early as 2008, he was represented with two tracks on Farid Bang's successful album "Asphalt Massaker". In the meantime, the Duisburg native has collaborated with Kollegah, Massiv, and Azad, among others. Exclusively for Beat, Juh-Dee shows which six products he wouldn't want to do without when recording vocals.



1 The Sony C 800G is a classic for vocal recordings. But it is also suitable for Rap vocals. The microphone has its own character, which is demonstrated by a high presence and crispy highs. At the same time, the tube gives you a warm sound in the lower frequency range. Thus, this mic is also perfect for Rap vocals. ✨



2 In combination with the Neve 1073, the Sony C 800G sounds even better. Artists like Mariah Carey and Drake rely on this combination for recordings. But this chain can also be heard on countless other productions. The Neve delivers a warmth and distortion all its own. These characteristics are a great starting point for Rap vocals. ✨



3 Let's move on to plug-ins from my digital vocal chain that I almost always use. I use the Waves R Channel a lot, but I only use the EQ here. It really delivers great presence and very good highs. The low-cut also works great. All in all, I can confidently recommend the R Channel. ✨



4 The Waves CLA-3A is my first choice when it comes to compression. I've been using it for a long time and I love the way it works. It has only two controls, gain and peak reduction, and is very easy to use. At the same time, it delivers a stable compression that is perfect for Rap vocals. It has a permanent place in my chain. ✨



5 Since I work in Cubase, I came across the Steinberg Magneto II - and I don't want to miss it anymore. It simulates tape saturation effects that occur when recording with analog tape machines. I like the sound of the distortion and the subtle warmth. Most of the time I use the distortion rather cautiously, but now and then it may be more. ✨



6 After de-essing, the vocal signal often sounds dull. That's why I always use the Soundtoys SIE-Q at the end of my chain to turn the treble back in. This enhances the signal immensely and provides the final touch. Of course, I also use other plugins in my chain, but I would not want to do without the above-mentioned. ✨

Tripods, pop killers and more

Accessoires for musicians, streamers and DJs

König & Meyer (K&M) has been a synonym for first-class quality and durability in the world of music production and event technology for decades. The product range includes microphone stands, smartphone and tablet holders, microphone arms, music stands, mobile DJ tables with matching laptop holders and special solutions for microphones, speakers and instruments.

Decades of reliability on the stages of the world

K&M products are particularly impressive due to their durability. One example of this are microphone stands and music stands that have been used on the stages of the world for decades. These practical accessories survive countless stage performances and the tough everyday life in the rehearsal room without their functionality or appearance suffering. This speaks for the high quality of the materials used and the excellent workmanship - made in Germany.

The Popkiller 23956 from K&M is a proven classic and can be found in many studios worldwide.



Wide range of solutions for musicians, streamers and DJs

K&M not only offers classic microphone stands and music stands, but also a variety of practical accessories for musicians, streamers and DJs:

- **Smartphone and tablet holders:** These holders are ideal for musicians who need to access digital sheet music or set lists while playing. Such solutions are also perfect in the studio to provide text support for the artist or streamer.
- **Microphone arms:** In recent years, the field of streaming has become increasingly professional. Good audio quality is now important in order to be able to keep up with established streamers. More and more creative people are relying on professional studio microphones to offer their audience the highest quality not only in terms of content but also in terms of sound. Microphone arms are a perfect solution for holding the transducer securely. With the 23865, K&M has a stable microphone arm in its range that can hold microphones up to 1.5 kg.
- **Solutions for speakers and instruments:** Whether speaker stands or mounts for speakers, guitars and other instruments as well as outboard gear - K&M has the right solution for every requirement.
- **Mobile DJ tables:** These are not only stable and easy to transport, but can also, if desired, be equipped with suitable laptop holders, which make everyday DJ life on the road much easier.

Quality that convinces

K&M products are not only robust and durable, but also visually appealing. Incidentally, the products come with a five-year guarantee and spare parts are available for up to ten years.

www.k-m.de



K&M's microphone arm (23865) can accommodate microphones weighing up to 1.5 kg.



The K&M 210/9 is a true classic among microphone stands.

Not all cables are the same

Expert knowledge: Why shielding?

Because of their much better shielding, symmetrical cables are a must for microphones, that much is clear. But what is behind it? What types of shielding are there and where and when should you use them? We asked the expert Pascal Miguet from Sommer Cable and got the answers ad hoc. But beware: this is going to be deep!



Pascal Miguet
Product & Salesmanager / Authorised
Signatory at Sommer Cable



Microphone cable Stage 22 Highflex,
2 x 0.22 mm² | XLR / XLR, HICON (Spiral helix)

Spiral helix shield

The copper shield, known in cable technology as a „D shield“, was previously considered insufficient for optical shielding. This was because it was complicated to manufacture and the shield could not be placed very tightly. This often led to manufacturers demonizing this shield because it was difficult for them to produce. You can easily imagine this: it is very easy to braid hair, but try laying hundreds of hairs parallel to each other... that is almost impossible.

Thanks to the new gas-foamed insulators, this type of shielding has become important again because the spiral shield does not rub or damage the fragile foamed insulation when moving, bending or kinking. Many simple, cheap cables are only insulated with solid, hard PE, so this cannot happen, but the electrical values of these cables are of course less favorable.

Our cable production uses modern transposition techniques that achieve a shielding density of 99%, which is quite exceptional. In comparison, the maximum shielding density for a braid is a maximum of 95% optical coverage. Even with the relatively inexpensive cable model „The Stage“ we can guarantee a clean layer and 99% optical coverage.

The spiral helix shield can be combined with a carbon shield, which then, together with the spiral helix, achieves 100% coverage. The advantage of the spiral shield is the flexibility of the cable and the ease of further processing, since you only have to twist the shield with your thumb and middle finger when soldering and do not have to unravel it.

The carbon shield is conductive („semi-conductive“) and it ensures that the spiral shield in a guitar cable remains compact even when there is a lot of movement and that it does not cause any noise such as impact noise or crosstalk.



Microphone cable SC-Galileo 238, 2 x 0.38 mm² | XLR / XLR,
NEUTRIK® (double helix shield)

Double-D shield

Then there is the double or double spiral helix - the double-D shield - in which two shields lie on top of each other, or are separated by an insulating foil so that the two shields can be insulated from each other and also placed on the contact carrier of the connector. The carbon shield can be combined with all kinds of other copper shields, but should be applied in such a way that it can be easily removed with fingernails when assembling the cable.

The disadvantage of double-D shields is that the shields slip and these cables can easily become knotted if they are embedded under an outer sheath that is too thin.



Instrument cable The Spirit XXL, 1 x 0.75 mm² | Jack / Jack,
HICON (braided shield + carbon shield)

Braided shield

This shield is one of the most common types of shield. It is easy to produce, inexpensive and robust. It can be combined with a carbon shield and with an AL/PT foil, which in this design provides very good protection against NF and HF interference. The AL/PT foil is coated on one side with conductive aluminum and on the other side with stretchable polyester so that the foil does not tear when moved.

A better option is the combination of a weakly conductive fleece and the braid. The fleece makes the cable more flexible, thinner and smoother. The shield density and the pitch angle of the braid are adapted to the area of application of the cable. With flexible cables, the pitch angle of the braid is not as high as with cables for fixed installation.

The disadvantage of the copper braid shield is that it can fray the foamed wire insulation when it moves or bends, and it is very difficult to process in the cable assembly. If the outer jacket is too thin, it can make the cable very stiff and stubborn.

It is often falsely claimed that the combination of copper braid and AL/PT foil provides excellent shielding against electromagnetic interference. But that is not the case in reality. The best EMC shielding is a foil made of MU metal, but this is not often stranded because it is too stiff and too hard and wears out the tools used in the cable extrusion. For this purpose, special cable ducts or MU metal banding are now used in the installation.

www.sommmercable.com

Discovered: Emika

Working with wind, working with water



Emika's new studio is a dream come true – and the music reflects that.

Emika's love of music doesn't stop at future garage. But it definitely started there. For her new full-length album, she brought the first chapter of her career to a close, moved her studio from Berlin to the Black Forest and vowed to renounce all spirituality in music. Curiously, „Haze“ feels like a deeply spiritual album, meditative bass pulses brimming underneath floating vocals and delicate piano melodies. To get there wasn't easy – for Emika, only perfect is good enough. **by Tobias Fischer**

Beat / How has your perspective on Future Garage changed as you have now moved to the Black Forest and left the big city behind?

Emika / I have met many people now who love Burial and don't live in a big city. Even when I lived in Berlin, his music always felt to me to be more about solitude - the distance to a city. It's abstraction. I hope I have added and contributed something new to this and re-inspired people's love for this mood of music.

Beat / What drew you into Future Garage originally?

Emika / When I first fell in love with Burial - everything about this project, the logo, his privacy, the sound - I remember thinking; wow, imagine if this were songs, a singer, with pianos, with a live-music feel. I then also followed Thom Yorke and his solo work. Often thinking; wow, imagine how this would be as a woman. How would she exist, how would she feel. I then also listened to a lot of the 'new' piano music that has been coming out since my first album „Klavirni“ and asking myself; why are people making this - because they truly love it, or do they want to be loved through making something popular?

Beat / What are your new surroundings like?

Emika / I searched all through the area to find a space, with windows, with light, with as much nature and quiet as possible. Luckily I found a great spot in this sort of mini-Berlin-type area. Being in my music studio, it's achingly beautiful here. The forest, the vast endless sky. My studio sits in a valley, the river is gushing by my building, and all around me are small, self-owned businesses and many 'handwerker' [craftsmen]. When I look outside, I look at the trees going

upwards, to the top of the hills. There's a huge techno club next to us, and a lot of small independent business, other artists too. It's really like a dream come true and I can't wait to share the space with more artists that might like to come here to record or work on their new ideas, AV projects, build music apps etc.

Beat / How does the experience of nature influence the music?

Emika / I think it just helps me to feel good and not live in a detached bubble. So when I come to the studio I am free to make what I want. I think everyone feels good after a lovely walk or bike ride through the forest or by a river. There will always be something - a little butterfly, or a dead baby bird who didn't manage to learn to fly ... there is always something that will make me think about life. I prefer this to looking at Instagram, emails, and then having a small crisis before turning on my music software.

Beat / What does the studio look like?

Emika / We have a big room with my synths, Genelec setup, piano, it's all acoustically treated. And also an adjacent smaller room for recording drums, vocals, or guest sleep-overs. It's clean enough to produce great sounding work, but also feels like a stage. We have a range of different lighting options. It's somewhere in-between a live room and a studio. And you can take a break in the kitchen, we built a little bar café area. I love it here so much. No posters, no adverts, no S-bahn.

Beat / It sounds like you don't miss Berlin at all?

Emika / I like it very much to be away from Berlin. I was in what felt like the heart of Berlin for

15 years. But I am so incredibly grateful to have made the step away from big city life. I am no longer living inside my work, or inside any sort of creative industry. All the marketing to artists in Berlin really got too much for me. I needed a clean space. It hurt me so bad to move. But I wasn't able to let myself get lost in this pain. I had to find some love, something I loved, and create from these little pieces of love. The only ones that were left at that time were those memories of Burial and Thom Yorke. So I held on to them and started to record myself improvising on the piano with my voice memos app and phone mic ...

Finding Color Again

Beat / What is „Haze“ about?

Emika / Finding color again. The way we all suffered through the pandemic. Together, yet alone. Individual loss, forced sacrifice, the same, yet so different to each of us personally. It's hard to explain, other than „Haze“ is my record of how I sewed myself back together again through my love of making music. It is like a jigsaw puzzle of beautiful melodies and textures and future garage rhythms. It's all of my favorite things ... Of course, loads of deep sub bass which I am sort of known for loving by now ... I went back to all of my favorite sounds and my voice, most of which I

recorded on my phone as my life was packed up in boxes after leaving Berlin. I had no studio at that time. And my mind was in pieces.

Beat / Is there an element of spirituality to what you do?

Emika / „Spirituality“, the pursuit of this through music, came with a heavy price; my sanity. I don't pursue anything spiritual anymore. I am happy that 'just' the music is right for me and I no longer feel the need to search beyond my soul enjoying a good song.

Beat / Can you briefly reflect on „Klavirni Temna“ and „In Parallel“? I love those records. To me, they are distinctly different from your other work and yet, to me, they somehow seem to almost lead up to „Haze“.

Emika / Yes I love those records too, thank you. And yes, they are completely different in terms of how they are made to „Haze“. But they are still created from recording improvisations. „Klavirni Temna“ I made while I was heavily pregnant with my daughter. She heard all the music first from the inside. And also recognised it after she was born ... many years later, after I recorded it and was checking the vinyl test pressing. She was still little and heard it again for the first time. She came to me and touched my belly and said 'mama.' I am certain she recognised this music from her time inside.

„In Parallel“ started from my generative MAX/MSP work, patterns that play themselves. I also manipulate them in real-time while recording and then I collaborated with Paul Frick who also put the MIDI files I made through a special vibraphone which plays on its own.

Executing ideas

Beat / How do you weigh the relative importance of gear versus a deep understanding of how to work with sound?

Emika / You definitely need a mix of both. Not loads of everything. Some good basic tools, some truly interesting ideas, the deep desire to create music, and an open-minded-ness to work with sound. It's like working with wind or with water. It's such a strange material to work with. You also need to understand how we hear and feel on a deeper level. Like a decent cook has a good knife, knowledge for taste, ingredients, how plants grow, how heat changes the cooking process. This kind of thing.

Beat / Contrary to many other producers I've spoken to, you have a very positive take on “perfection.” How so?

Emika / Music production for me has always been about executing an idea. If you manage to execute an idea in the way you imagined, using creativity to solve problems, find solutions, give birth to new ideas. There are endless ways to improvise around an arpeggio in D minor on the piano, for example. But only one of those played moments will be executed perfectly. If you are lucky, it will be the perfect mix of soul, time and decoration.

My dream has always had all of the complications and challenges as part of it. My dream is to feel and experience as much as I can through the language of music before I die. Because it is the most beautiful thing I have discovered. More than a painting, a photo, a poem.

Beat / In an earlier interview, you told me: “My good ideas are shrouded in self-doubt. But I am getting better at playing them and not questioning them.” What does that mean?

Emika / If I have a melody in my head for example, often I am scared to play it on the piano or to sing it out-loud. Because in my mind I have everything, a symphony, it's so beautiful. And then, when you start to try to record it bit by bit, it all falls apart. Sometimes you hit the wrong chord, it's a minor chord inside but you play a major harmony and then you hear it all as a major key. It's such an uncomfortable process. And it's very easy to immediately think: this sucks!!! And then before you know it ... all of the original musical beauty inside has vanished. So I try to play the ideas live and think less about them.

emikarecords.com

[instagram.com/emika_is_a_sound](https://www.instagram.com/emika_is_a_sound)

DISCOGRAPHY:

- // Emika / 2011
- // Dva / 2013
- // Klavirni / 2015
- // Drei / 2015
- // Melanfonie / 2017
- // Falling in Love with Sadness / 2018
- // Klavirni Temna / 2020
- // In Parallel / 2021
- // Haze / 2024

Portrait: Kiasmos

Technology & nature

It was in 2009 when Ólafur Arnalds and Janus Rasmussen first made music together. Arnalds is an Icelandic multi-instrumentalist and composer, known for his neo-classical works and electronic projects, Rasmussen is a Faroese solo musician and producer, also known as part of the band Bloodgroup. For Kiasmos they deliberately wanted to leave their main genres of piano music and Electro-Pop behind to combine club sounds with neo-classical music instead. In 2014 their debut „Kiasmos“ was released, followed by a few EPs, and ten years later they are back with their new joint album „II“. They spoke to us about the challenges and developments that led to the creation of the record, their preferred instruments and effects, and the special role of nature recordings and live performances in their creative process. **Interview: Sascha Blach, Pictures: Maximilian König**

Beat / Your debut is now ten years old and a lot has happened in the time since then. How do you feel about the album in retrospect?

Janus / I'm very proud of it. I feel like it has stood the test of time. We didn't follow any trends when we were making that album, which I feel is one of the reasons it still feels current today. Some of the production I would probably do a bit differently now, but you'd say that about anything you made a decade ago.

Beat / The first album was produced in a very short time. This time it took ten years. Why?

Janus / The simple reason is that life happened. We both have our solo careers and do a lot of production for various projects when we're not working on Kiasmos. After we finished touring in 2018, we needed a little bit of a break to refresh our ears and minds. Touring the first album and EPs was pretty intensive, so it was a much-needed break. The oldest track from the album is from 2017, and then there was a considerably long break. Maybe since 2021, we worked pretty consistently on the album. Especially in the last year, we finished most of the songs in a few months.

Beat / Did you have a vision for the second album beforehand? Were there things you consciously wanted to change? I read that the album was a rather difficult birth...

Janus / There was no vision other than to write good music. We tried a few times to write this album, but each time we left feeling that the timing wasn't right for us. The songs we wrote didn't resonate with us as we wanted them to. I wouldn't say the album had a difficult birth; it took time to find that sound and feel we were searching for. This is our sophomore album, which is often said to be tricky to write.

Beat / How does the approach to Kiasmos differ from your other projects?

Ólafur / I think most of the differences just have to do with the fact that it's a collaboration. So it's more about bouncing ideas back and forth and less obsessing with the same few bars for several days on end.

Beat / Your sound design sounds very exciting and demanding. How difficult is it to create such elaborate sounds?

Ólafur / A lot of it is actually fairly simple. We are quite particular about the sounds we choose and spend a lot of time in the beginning stages of songs finding the right instrument or sound. Other tracks are more layered, more complex, and honestly, I feel with those all you need is time. You just need to sit in front of it for a few days and you'll always get there in the end.

Beat / What were your favorite instruments in this production?

Janus / Our new favorite instrument is the C15 by Nonlinear Labs. It's a very interesting synth, and it's completely different from what we've used in our music before. We primarily used it for expressive melody lines and textured pad sounds. You can hear it pretty much all over the album. Because it's so organic and lively sounding, you must ensure it has enough space in the song. It can quickly take over the production. But once you have the balance just right, it's pretty magical.

Beat / Ólafur, you are very successful as a pianist. What role does the piano play in Kiasmos?

Ólafur / I tend to be the "keyboardist" in the band. So it more often falls into my hands to make those elements come to life. There is, of course, a

lot of piano on the album, although I would not really consider myself a pianist.

Beat / And what about effects? The songs sound like there is a lot of effect stuff going on...

Janus / It's a mix between software and hardware effects. The hardware reverb units we used are the EMT 240 and 246 reverbs, and the delays are coming from a stereo pair of Roland Space Echo RE-555. Those are used on every track in some form or another. They're a big part of the Kiasmos sound. As for plugins, we use almost everything. Our effect chains are sometimes quite long and extensive. One plugin that we used a lot was Audio Thing's Wires. We used it at the end of reverb aux channels to make the tails of drum hits more super grainy and ghostly sounding. We love that thing.

Beat / Did you record real strings or did you use a sampler?

Ólafur / It's all real strings. We did several sessions with a string quartet in my studio for the more intimate and textural stuff. For the orchestral stuff, we spent a day with Sinfonia Nord in Akureyri, north of Iceland. That was a lot of fun!

Beat / Part of the production took place in your studio in Bali, Ólafur. Do you always meet up to make music or do you send a lot of ideas back and forth over the internet?

Ólafur / We prefer to do it all together in the same room - at least in the beginning stages of songs. So our time in Bali was spent writing together. I believe maybe four of the album tracks originated there.

Beat / If you listen carefully, you can also hear a lot of field recordings from nature. How did these come about?



» It took time to find that sound and feel we were searching for. « (Janus Rasmussen)

Beat / Are you planning more albums together? What happens when the tour is finished in autumn?

Janus / I think it's too early to say, but I would like to believe that there's another album in us somewhere in the future, but who knows. After our tour in the autumn, there's more touring next year. So there's always more to do. ❖

www.kiasmos.is

Janus / The field recordings are primarily recorded in Bali. I brought my Zoom field recorder in hopes of capturing some ambiences while we were there. One of them was recorded on a dewy morning up in the mountains, where it was quiet, but you could still hear some morning birds chirping away. There's so much life everywhere on the island. Wherever you look or listen, you'll find something to record and incorporate into your music. It's a very inspiring place to write music.

Beat / You are currently on tour. What does your live setup look like?

Ólafur / We are running almost everything from within Ableton Live: a bunch of soft synths, effects, and samples. And we have a few MIDI keyboards and controllers we use to control these in-

struments. But we also use a couple of hardware things such as the Elektron Analog Rytim, KaosPad, and a Granular Synthesizer.

Beat / At least on tour, you spend a lot of time together. What is your relationship like?

Ólafur / We are good friends, have similar interests, so are always happy to spend some time together.

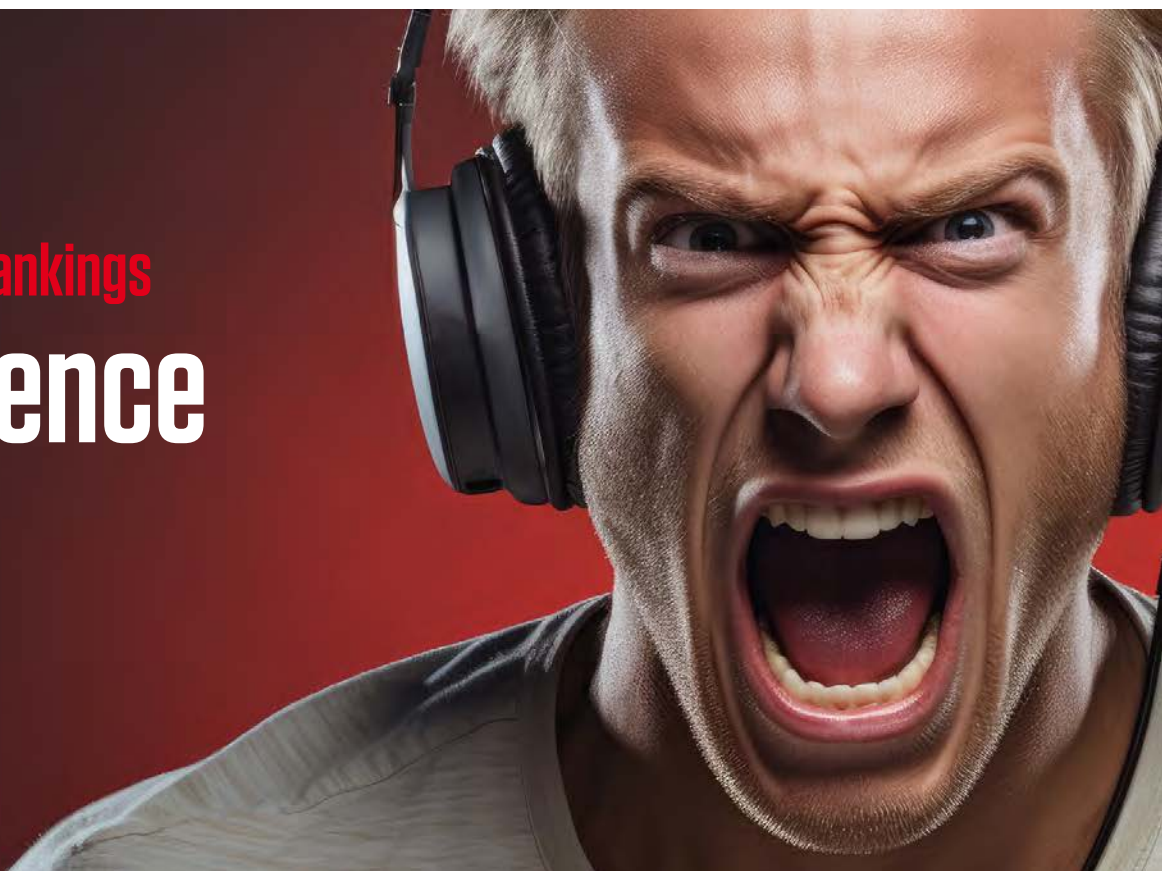
Beat / What role does Kiasmos play in your lives? Is it more than a side project?

Janus / Of course, it's a big part of our lives. Especially around an album release cycle, it's a commitment to touring and all sorts of promo for quite some time, so right now, it takes up quite a big part of our lives.



Digital Culture: Rankings

The violence of taste



There's no accounting for taste? The ongoing demand for album rankings seems to disprove this assumption. Overviews of the „250 best songs of the 90s“ or „500 best albums of all time“ have become a staple for online magazines. Fans and critics alike agree that hardly any of them are any good. But that doesn't stop them from jumping at the next one to get published. One thing is certain: none of this has anything to do with music anymore.

by Tobias Fischer

It was the biggest topic in the music industry for months, perhaps even the entire year: Apple's list of the 100 best albums of all time. The IT giant had done everything in its power to stage the announcement as a solemn and dignified event. However, with a few exceptions, the general feeling about the results was one of disappointment, disenchantment and doom, with feedback consisting mainly of bitter comments and angry reviews. The Apple Top 100 is neither a first nor an isolated case. Rather, it looks as if these kinds of lists are virtually predestined to trigger a particularly emotional reaction in music fans. Why is that?

There has been a veritable list mania for years

Well into the 80s and 90s, overviews of the best albums and songs would appear at most once a year in select newspapers and magazines. Radio broadcasts of these lists were often an event of considerable local or even nation-wide significance: in 1989, for example, major German media company SWR

compiled its listeners' „Top 1000“, then broadcast it non-stop for five days, interrupted merely by hourly news bulletins. The Top 20 was announced at a spontaneous party in front of a crowd of 10,000 people. [1] As impressive as the celebration may have been, the musical results were highly predictable: „Stairway in Heaven“ and „Bohemian Rhapsody“ had essentially reserved their seat in the pantheon.

In the 90s, music journalism increasingly moved online. Almost every new webzine and blog felt compelled to publish its own year-end list. What began tentatively soon became a global phenomenon. For the operators of these sites, publishing their list in December was the medial equivalent to the Christmas sales in the retail sector and responsible for a large portion of their annual traffic. The upside was a much-needed enrichment to the canon, with smaller acts and beloved fan favourites making appearances in the upper echelons, disrupting the calm at the top. However, the inflationary growth of these lists soon rendered them worthless. In 2021, music site „Headphone Com-

mute“ published not just one, but 12 end-of-year lists with titles such as „Music for your stationary travels“, „Music For Walking And Not Crying In The Autumn Rain“ or even „Music For Synergising The Synapse Of Ideas“. [2] These titles, artful and capricious at the same time, were a clear sign that the market had begun to overheat and had now entered a phase of refinement, ornamentation and, frankly, navel-gazing.

This, in itself, however, was not the actual issue at hand.

Pure overload

Last year, I watched several end-of-year lists on YouTube. Most were presented by individual video bloggers, others by small teams. My main impression was that this was no longer a case of dedicated music obsessives sharing their favourite songs with others or tipping their hats to those who deserved it. Rather, completely overwhelmed listeners were fighting their way through a flood of releases, all of which they had briefly dipped into and

Political correctness is not the driving force behind album ranking. The law of large numbers is. «

sifted, the selection criteria are stricter, the exclusion criteria more obvious. Put simply, they are first and foremost complexity reducers and a last, desperate attempt to inject a sense of order into the chaos - both positive and negative - that digitalisation has brought to the music industry.

They are also a godsend for the media landscape

Lists can be created quickly and easily, make use of largely recycled content and, if skilfully presented, can generate an enormous response and a lot of attention. So anyone who accuses Apple of wilful provocation when compiling its Top 100 is of course correct. But then, the same can be said for most of the articles and features that go viral in the online space.

Until recently, the most important of these lists were the „500 Greatest Albums of All Time“ curated by Rolling Stone magazine at irregular intervals. [3] To this day, these 500 albums reflect changing times and tastes in music. The evolution of this overview is quite subtle and slow: the current version - which, as always, was as frequently viewed and shared as it was heavily criticised - was another rather gentle update. Compared to the first issue in 2012, there are now more hip-hop and rap albums, more women, emphatically less rock, grunge and metal. The 50s and 60s in particular saw a reduction in entries, while the 70s largely retained their dominant position. With the Apple 100, however, there is now an open break with the past: Catchy pop can suddenly be found high up in the ranking and some of the gods have considerably depreciated: only two albums by the Beatles and Prince are included here, only one by the Rolling Stones (at number 55!), and Radiohead did not even manage a single entry in the top 10.“ [4]

Many were outraged by these changes. Here's a question, though: Why get upset about a judgement on creativity by a company that clearly has next to no clue about music? The reason for the frustration is obvious: the „reach“ of this list is enormous. To be sold below value or to not even get included here at all is tantamount to a public humiliation. Or, worse still, it feels like a kind of erasure. The arguments brought up by the critics are highly insightful in this regard. The three words which were used most often were „respect“, „representation“ and „influence“: this list, they argued, did not pay enough respect to certain gen-

res, for example, did not include enough entries by non-Western artists and ignored the influence some musicians have had on the development of particular scenes or music as a whole. Where were the pioneers of the blues? What about music from Brazil, Africa and Asia? Why were there so few LPs from RnB, jazz, electronic music and metal?

The contrarians may well be right. But of course, this hardly relates to the actual question at hand what constitutes the best albums of all time?.

Is it all just politics?

Music has always been political, if not in terms of lyrics, then certainly with regards to its societal impact and the way we deal with it. This is certainly more true today than ever before. That's why there is less and less space for subjectivity when curating these lists. It also explains, for example, the unstoppable rise of *The Miseducation of Lauryn Hill*. Long regarded as excellent, albeit rather mainstream-orientated, the work is now considered a stone-cold classic. It is the number one on the Apple 100 and an almost guaranteed Top 20 entry in similar rankings. Maybe it really does belong there. Or maybe it simply represents the ultimate common denominator in a time when consensus has become scarce. Even the year in which *Miseducation* was released - 1998 - is at the highly satisfying cusp between the 90s generation and the Millennials.

Nevertheless, I would argue against a lot of common wisdom, that exaggerated political correctness is not actually the driving force behind these trends in current music journalism. The law of large numbers is. Sales, streams and influence are the only gauges left in an era where practically no one dares to rely on their own taste anymore. These numbers can be measured fairly accurately and can also be used to refute accusations of arbitrariness. Does Rihanna's *Anti* really belong in this top 100, and ahead of Portishead's *Dummy* or *The Downward Spiral* by Nine Inch Nails at that? The music may not provide a definitive answer. But perhaps the almost 5-6 billion streams that the album has accumulated over the years will.

It is telling that none of these lists include any of the extremely successful albums by Whitney Houston, Mariah Carey, the Eagles, AC/DC or Shania Twain, and only one Taylor Swift full-length. Conversely, influential but commercially insignificant LPs with negligible sales figures are also conspicuously absent. When online magazine „Pitchfork“ declared Mariah Carey's „Fantasy“ to be the best song of the 90s, this was of course an absurd and calculated move. But at least it had some guts. In comparison, the blatant lack of courage and surprises at Apple makes the ice-cold logic of today's lists all the more apparent. It is an attempt to appropriate taste and history and to make them subservient to the multinationals' own, entirely commercial goals. No wonder music fans feel aggravated. Over and over and over again. ❄️

only very few of which they'd had the time to explore in depth. Their task had been reduced to separating the wheat from the chaff within fractions of a second, like a tester at an assembly line. Quality was still a valid criterium and these experts certainly have the necessary experience to arrive at an acceptable judgement in most cases. But that's where their time budget ended.

This superficial scanning on a journalistic level contrasts with the unconditional devotion and „Easter egg search“ of fanatical fans, who now delve deeper into the lyrics and music of their idols than ever before in forums and on social media. No matter how carefully a journalist with a wide range of interests researches Taylor Swift's 1989 - compared to a Swiftie, her level of knowledge is always going to be similar to that of a first-grader compared to a university professor. And who, apart from true specialists, can really claim to be sufficiently informed about current developments in abstract hip-hop, the dynamic London jazz scene or technical progressive death metal? Lists are usually compiled by generalists - which is why nobody really takes them seriously in the end. At best, they are useful - as a starting point for finding out which albums you may have missed over the last months in order to add them to your personal playlist.

The relative devaluation of annual lists directly explains the sudden, explosive increase in lists presenting the „best of all time“. These are more finely

[3] www.rollingstone.com/music/music-lists/best-albums-of-all-time-1062063/

[4] 100best.music.apple.com/us

More info:

Info at: www.tone2.com

License & password: www.serialcenter.de

Software Highlight: Tone2 UltraSpace

Reverb & delay in perfection

Tone2 UltraSpace combines a flexible reverb effect and an equally versatile multitap delay, complemented by gating and ducking options. The plug-in masters dense, epic reverb effects and realistic room simulations, as well as rolling echoes, ducking delays, gated reverb and even chorus and flanger-like effects. Have fun experimenting! **by Mario Schumacher**

Browser and routing

The UltraSpace browser gives you access to 150 inspiring presets. You can also save your own creations here. Be sure to try out the **Route** button, which allows you to switch between serial and parallel routing.

In the mix

In the **Mix** Section, you determine the effect level and the output amplification. You can use the **Surround** control to adjust the stereo width, from mono to an ultra-wide sound image.

Gate to greatness

The **Gate** is very versatile. You can use it not only for noise reduction, but also for creative applications such as gated room or reverse reverb effects.



Duck tales

The integrated **Ducker** lowers the effect level when the dry signal is active. This allows you to create lush delays and epic reverb tails without the original signal losing clarity.

Reverb magic

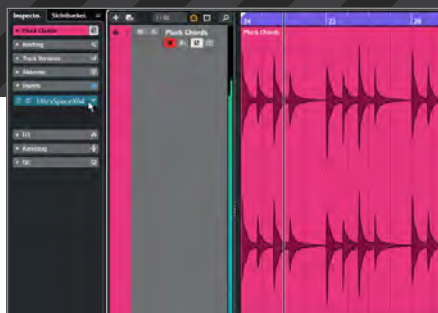
In the **Reverb** section of UltraSpace, you can flexibly shape the reverb effect - from clear initial reflections to dense, long reverb tails. The swirl function, which modulates the reverb tail for a livelier sound, is particularly exciting.

Delay delight

In addition to classic delay and echo effects, creative rhythmic textures are also possible with this **module**. In the multitap window, you can precisely draw in the repetitions to create ping-pong delays, rolling echoes and much more.

REGISTRATION & INSTALLATION

The registration of **Tone2 UltraSpace** takes place - as usual with our software highlights - via our www.serialcenter.de. After registering the data of the current Beat edition, you will receive an e-mail containing the password for the archive with the installation files in various formats, as well as the key file **UltraSpace.t2k**. Place these in the same folder where you install **UltraSpace.dll**.



1 Pimp your plucks!

You won't attract anyone to the floor with dry chords from a pluck sound. It's a completely different story when the right effects come into play! Select an appropriate sound for the synth of your choice or import the **Pluck Chords** file from the issue data to an audio track in your DAW. Then, load Tone2 UltraSpace as an Insert effect. ✨



2 Ping-Pong delay

Switch to one of the free user memory locations in the browser. We want to add a combination of reverb and ping-pong delay to our pluck sound. Set the global **Mix** control to around 28% and keep the parallel routing. Then, adjust the **Reverb** parameters for a dense but not too long reverb effect as shown. ✨



3 Set taps

Now the **Delay** comes into play, with a **Mix** value of 86% and a **Time** of **1/2 beats**. Set the taps for the desired Ping-Pong Delay as shown. Experiment with more complex Multitap Patterns and the **Time** and **Feedback** values. UltraSpace is also helpful for fat gated reverb snares for your Synthwave track. ✨



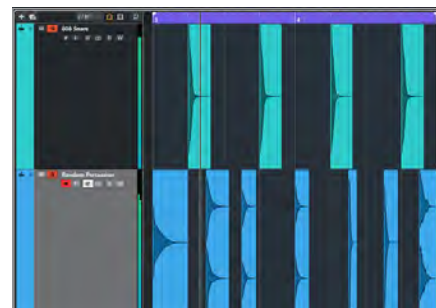
4 Gated reverb

First load a dry snare, such as from Roland's TR-808, onto an audio track and then load UltraSpace as an Insert effect. Set the global **Mix** parameter and the **Reverb Mix** to 50%. We don't need the Delay here. Start with a **Size** of **11 m**, a **Decay** of **68 %** and a **Pre-Delay** of **12.0 ms**. Adjust the attenuation and the filters as desired. ✨



5 Set gate

Turn the **Diffusion** up fully. Now the reverb tail sounds long, which quickly makes a snare rhythm sound washed out. Curtain up for the **Gate** effect! Set **Threshold** to **-16.0 dB** and adjust the other **Gate** controls as shown in the picture. If necessary, increase **Hold** and **Release** if you want the reverb tail to decay longer. Want some reverse reverb effects? ✨



6 Reverse reverb

Simply turn up the **Attack** control of the UltraSpace **Gate** Module accordingly. How about turning a few randomly placed percussion samples on the grid into a rolling rhythm? First, set a short room effect in the **Reverb** module. Then, define a time of **1 beat** in the **Multitap** section. ✨



7 Rolling echoes

Then, draw patterns like the one shown in the Multitap window and turn up Mix. For more complex rhythms, it is also worth trying out **Time** values such as **1/3**, **2/3**, **3/4** or **3/2**. You can also use UltraSpace to create simple chorus effects, for example, to make dry synth sounds like our Loop **80s Brass** more lively. ✨



8 Chorus effects

To do this, set a high global **Mix** value and turn the **Mix** control in the **Multitap** section all the way up. Turn **Time** and **Feedback** all the way to the left and **Detune** all the way up. Set the multitaps for a wide stereo chorus as shown in the picture. Imagine you want to give vocals a really long reverb, but the vocals sound washed out. ✨



9 Duck reverb tails

This can be achieved with a combination of reverb and compressor or automation or a plug-in such as UltraSpace, which integrates a ducker. First, set a rich reverb and then experiment with the **level** of the **Duck** module. The higher the value, the more the reverb effect is reduced as soon as the vocals are heard. ✨

Power Producer: FL Studio

How to master the low end

You don't have to be a weekly visitor in the clubs to understand that the quality of the low end has a significant influence on the listening experience. But it seems to be so tricky to get a grip on it when mixing and mastering. But all the hurdles can be overcome with a little practice and the right know-how, which is what this workshop is all about. **by Ruben Mantel**

Project Info

Material: Fruity Loops Studio 21

Time Required: 40 minutes

Content: Precise Mixing and Mastering for a clean low-end

Difficulty: Advanced



1 Preparation

The most important thing is to be sure that you can hear the bass frequencies (**below 150Hz**) at all. If the listening room has not been acoustically treated, it is better to switch to **headphones**. It also identifies which sounds should be present in the low end. For all other sounds, a **Low Cut** is set at **150Hz**. ✨



2 Equalizing

Use the **Fruity Parametric EQ 2** to balance the **Kick** and **Bass**. Boost the **main frequency** of the Kick, which is usually between **70** and **140Hz**, and cut **overlapping frequencies** in the Bass. Also **remove** frequencies below **20Hz**, as these waste energy without providing audible benefits. ✨



3 Compression

Use the **Fruity Limiter** or **Fruity Compressor** to control the **dynamics** of the Kick and Bass. An Analysis plug-in that displays the Peak Factor can be helpful here. **Sidechain Compression** of the Bass is also important for a clean low end, as this reduces unwanted interference from low frequencies. ✨



4 Multi-band compression

As low frequencies are perceived as **quieter** by the human ear, the low end is primarily responsible for the **loudness** of the song. This means that Compressors and Limiters react almost exclusively to the **low end**. Therefore, we use the **Maximus Multi-Band Compressor** during Mastering to process the low frequencies **separately**. ✨



5 Mono-compatibility

As many may know, one of the goals of Mastering is to ensure that the song sounds good on **any** playback medium. Mono compatibility is an **important factor** in checking this. So, use the **Stereo-Mono** control integrated in the FL Studio mixer to check whether the song and, in particular, the low end still sounds good and **powerful** in mono. ✨



6 Final touches

However, mono compatibility is only one factor that indicates that the song will sound good on any playback medium. The best thing to do is to **try it out** for yourself and play the song in your **car**, for example, to hear the low end. You can also use **Analysis plug-ins** to compare your low end with that of other songs. ✨

Power Producer: Logic Pro X

Easy remixing w/ Stem splitter

Apple recently gave Logic Pro a comprehensive update that brings all kinds of exciting new features. In this episode of our workshop, we'll show you how to use the Stem Splitter and the master of a track of your choice to create the perfect starting point for exciting remixes. by Stefan Hofmann

Project info

Material: Logic Pro X (Version 10.8.1)

Time required: 60 minutes

Content: Working with the Stem Splitter.

Difficulty: Advanced



1 Stem Splitter

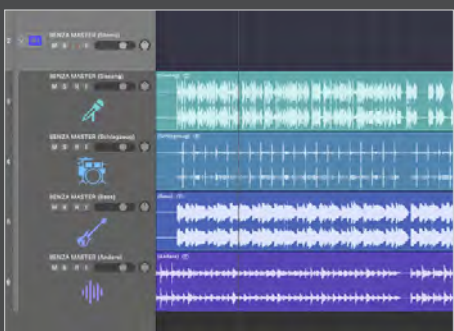
Logic's latest update to Version 11 brings an exciting tool for remixes to our digital music studio in the form of the Stem Splitter. This feature allows you to drag a finished song into your session and split it into its components afterwards. This allows you to easily extract elements from a song and edit them further. ✨

2 Create stems

First, we drag an already mixed song into our session. We want to extract the vocal track to put another instrumental under the vocals and produce a cool remix that has a different vibe to the original. We click on the song while holding down the Control key and select the „Stem Splitting“ tab. ✨

3 Stem division

The „Stem Division“ menu now opens. Here, you can select the four stem variants vocals, drums, bass and other. If tracking works, the latter includes instruments such as synths, piano, strings and guitar. Although we only need the Vocal track, we select all four options - you never know. ✨



4 The summing stack

We click on „Split“ and, after a few seconds, Logic makes a summing stack available, which provides the components of the song as individual stems. The main track is automatically muted. We can now use the Solo button to listen to the individual stems and use them as required. As we are working with a master, the level of the tracks is quite high. ✨

5 The result

Admittedly, the result is not perfect, but it is good enough that we can use the vocal track. Sometimes more, sometimes less artifacts can be heard in all stem groups. This is probably unavoidable, at least with today's technology. To get an idea, you can find the song and the individual stems in the download files. ✨

6 Our remix

We can remove some of the artifacts from the Vocal Track with a Lowcut at 108 Hz. The result is not perfect and a dry track offers more possibilities for editing, but this feature is great for a remix or to try out a song with a different beat. You can listen to our remix in the Download Files. ✨

Power Producer: Cubase

Free sounds for new tracks

Are you looking for new inspiration and fresh color for your tracks? Then you're sure to find it with Steinberg's free HALion instruments! Here, you'll find expressive acoustic and electric pianos, as well as electric guitar, harp and Glockenspiel sounds and the wonderful hybrid Colors Free instrument. We bet you'll find inspiration for a new track! by Vera Schumacher

Project info

Material: Cubase Elements, Artist, Pro
Time required: From 30 minutes
Content: Start a track with the hybrid sounds of Steinberg's free HALion instruments.
Difficulty: Beginner and Advanced



1 Electric piano as bass

First, install Steinberg's free HALion Instruments [1]. Then, load **HALion Sonic** as a VST Instrument and click on the **Taped Vibes** library in the HALion Sonic **Mediabay**. The virtual Electric Piano is ideal for adding a powerful bass foundation to a track. Select the **Jazz Club Vibes** program and deactivate the **Modulation** effect. ✨



2 Vintage vibe

Under **Sound**, select the **Tape** option for a slightly distorted sound. Then turn up **Distortion** slightly in the **Character** section and set **Vibrato** to **0**. Now you can use the Electric Piano to record a bassline. One of the highlights of the free HALion instruments is Colors Free, which combines synthesizer and vintage keyboard sounds. ✨



3 Do-It-Yourself pad

Switch to Slot 2 of HALion Sonic and load the **Colors Free** program from the library of the same name. Select the **Vintage Strings** preset for a Pad sound on the instrument's **Patches** page. Play a chord sequence for the Pad sound on MIDI Channel 2. You can adjust this on the **Easel** page. Each Colors Free program has three slots. ✨



4 Layer sounds

You can now equip these with different sound sources. We opt for the **Prophecy**, **Solina Strings** and **RS09 Strings** sounds. You can place the layers individually in the stereo panorama or tune them as you wish. You can use the LFO to modulate the volume of a layer. Then, switch to the **Tone** page of the three layers. ✨



5 Arpeggio

We filter out the low frequencies with the highpass filter. On the **Master** page, you can add effects to the overall sound. How about an arpeggio that picks up the chords? Load **Colors Free** into Slot 3 of HALion Sonic and click Reset on the **Easel** page. Use **Vintage Rhodes** as the first sound source and **OP1 New Day** as the third. ✨



6 Handpan melody

Then, activate the **Arpeggiator** for **Sound Source 1** with the settings shown in the last step and animate the second one slightly with the **LFO**. Now the chords are transformed into a pulsating arpeggio. Want another little melody? Load the **It's A New Day** preset in Slot 4 and try out the combination of sound sources shown. ✨

Power Producer: Ableton Live

No more monotonous beats

So, you like the driving four-four kick, but the typical snare pattern on every other kick gets monotonous, and hi-hats and percussion could use more groove and variation? Live 12 provides you with numerous new tools and generic tools. This workshop introduces some of these innovative tools and shows you how to use them to transform simple beats into lively and exciting rhythms. by Maya C. Sternel

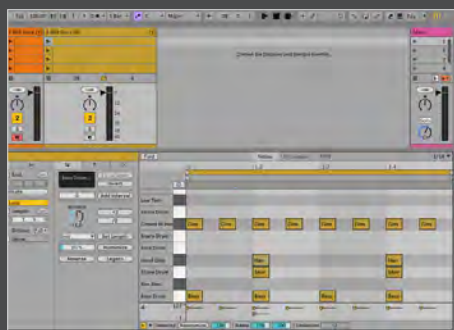
Project info

Material: Ableton Live 12

Time required: 30 minutes

Content: Redesigning four-on-the-floor beats using transformation and generative tools, dynamic and random-based variation of velocity values, changing beat patterns with Time Warp, creating drum patterns with rhythm, generating hi-hats generatively.

Difficulty: Beginner to advanced



1 Program a beat

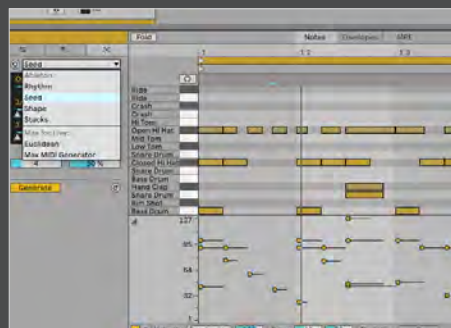
Load a Drum Rack. Program a simple 4-on-the-floor beat with a continuous Kick on every quarter beat, a Snare and/or Clap on the second and fourth beat and a continuous 1/8th Hi-Hat. First of all, the velocity values of the Hi-Hats should vary constantly. To do this, select all the Hi-Hats except the first one. ✨

2 Dynamic hi-hats

Set **Deviation** to -30 so that the maximum random deviation can be -30 below the programmed value. Set the initial value for **Ramp** to 91 so that a slight increase in velocity is noticeable towards the end. Next, the Snare and Hi-Hats do not always have to appear statically on the full beats. ✨

3 Restructure beat

Select all Hi-Hats, Snare/Claps, but not the Kick because it should keep the 4-on-the-floor beat. Select the Transformation Tools and choose **Time Warp** from the drop-down menu. Activate **Quantize On**, **Range Fit**, **Note End Include** and **Transform**, but deactivate the second breakpoint. Move both breakpoints until it grooves. ✨



4 Set pattern

To make the Hi-Hat even more interesting, select **Rhythm** from the Generative Tools and activate **Generate**. Select closed Hi-Hat from the drop-down menu. Set **Step Duration** to 1/16 and use **Steps**, **Pattern** and **Density** to define the number of steps, the pattern number and the number of notes. Vary these until you find a suitable pattern. ✨

5 Generic beats

Use **Freq** to determine after how many notes an accent is played. Then, set Shift to 6, for example, so that the Hi-Hat figure is shifted by the corresponding value. Next, insert a generically created Open Hi-Hat. Select the generative tool **Seed**. Move the top **Pitch** Slider so that the open Hi-Hat is displayed there. ✨

6 Insert percussion

Activate **Generate**. Set **Duration** from 1/32nd to 1/8th and **Velocity** from 18 to 82nd and vary the **Density**. Higher values can lead to a note repetition that sounds almost like a decaying delay effect. Optionally, add more percussion instruments to your beat and process them with the tools shown above. ✨

Power Producer: Bitwig Studio

Creative push with multiband FX

Multiband effects are becoming increasingly popular. Where compressors were initially mainly divided into three or more frequency bands, today distortion effects and delays are also being added. As is so often the case, Bitwig Studio doesn't just go one step further, it goes a whole leap ahead. How? Because here you can build your own multiband effects – for sound design that's simpler and wackier than anywhere else. by Laura Emiliano

Project info

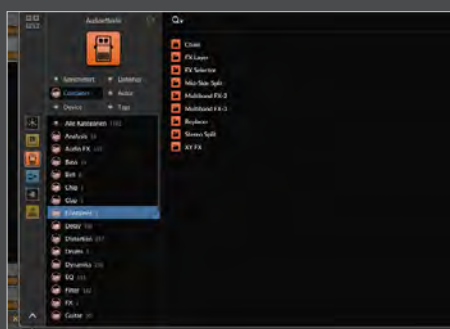


Material: Bitwig Studio 5

Time required: 30-60 minutes

Content: Build your own multiband effects

Difficulty: Beginner to Advanced



1 Multiband? What for?

Compressing the mids differently than the highs, distorting the bass range differently than the mids - you can do this with the appropriate multiband plug-ins. Like so many other things, you can also build them yourself in Bitwig - and much more creatively. Distort the lows, compress the mids and change the highs with EQ - that's how it works! ✨

2 FX-2 or FX-3

Custom multiband devices are also possible in other DAWs - but no software makes it as easy and accessible as Bitwig. Two pre-configured devices are included here: Multiband FX-2 and multiband FX-3. According to the name, the former allows you to assign effects to high and low bands separately, while the latter has another one in between. ✨

3 The Bitwig workflow

Very important: You load effects in the multiband device using the small blue Plus, **not** the White one. This, in turn, adds new effects **behind** your multiband effect, not inside it. So select the band, click on the blue Plus, select the effect - and start again. The chain of each band can contain any number of effects and modulations. ✨



4 Drum Loops

Just using the multiband FX-3 to distort the bass range of a drum loop with Distortion, squeezing the mids with the compressor and then enchanting them with a delay and finally blurring the highs with a chorus effect gives you an idea of the sound design possibilities - a lot of effect helps a lot! ✨

5 Modulate this

It gets even crazier when you work with Bitwig's modulators. For example, you can modulate the Crossover Frequency Parameter with an LFO on multiband FX-2. This changes the crossover frequency between the low and high range - and depending on which effects affect which range, the sound changes completely! ✨

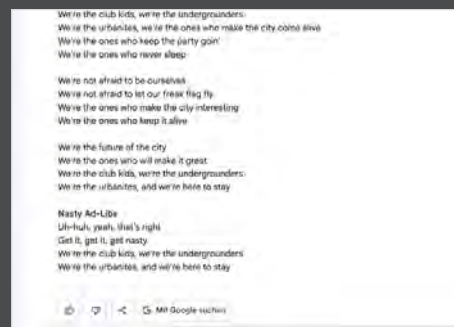
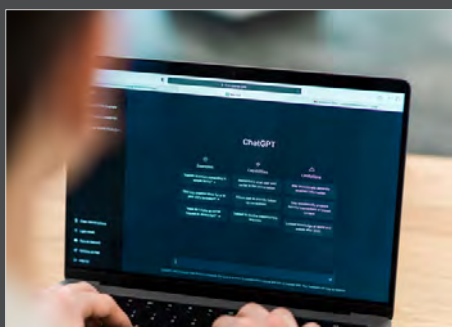
6 Multi-spectral and more

If you're still not „fed up“, you can use the FX Layer tool to create an infinite number of frequency bands with different effects in each band. There are also four spectral devices that separate the signal according to harmonics, transients, volume and frequencies, including multiples, for even wackier sound design. ✨

Hands-on: Create vocals with AI – Step 1 of 4

Find inspiration & lyrics with AI

ChatGPT is very popular at the moment and Google's Bard is the next „questionable encyclopedia“. But the AIs not only know clever answers to all kinds of questions, they can also - as in our Melody Masterclass special in the last issue - compose melodies or entire works that can then be loaded into the DAW as MIDI files. But even this is not the end of the story, because the helpers can also write entire song lyrics and give inspiring tips when you're running out of ideas. by Marco Scherer



1 Text from AI

Let's start with the lyrics: Sometimes it's time pressure, sometimes a lack of enthusiasm or just Monday - the reasons why no lyrics come about are variable. But the cool thing is: it doesn't matter! Because sometimes others can work for you - in this case the AI. Whether you prefer to use ChatGPT or Google Bard doesn't matter for this purpose. ✨

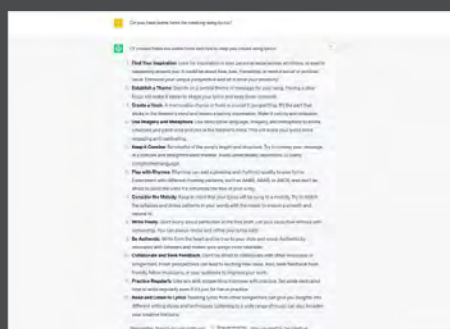


4 Rap à la Snoop?

Or would you prefer the lyrics to be based on your favorite singer or rapper? Even wishes like „Change the lyrics so they sound like Snoop Dogg“ are fulfilled. The AI then builds a new lyric with the aesthetics and expression of the desired act. In this case a more explicit touch and phrases typical for Snoop. ✨

2 Few words lots of output

Log in to the appropriate platform in your browser (chat.openai.com or bard.google.com) and start directly with your request to the AI. This could be a simple request like „Create hip-hop lyrics for a song about clubs, underground and urban culture“. So just a few keywords are enough, although more details always help. ✨

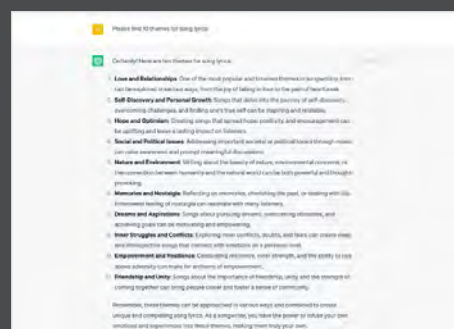


5 Write your own lyrics?

In our experience, ChatGPT delivers better results when corrections like this are required. And what if you'd rather write your own text, but don't have an idea right now? Even then the AI can help. Just ask it for some „tips for writing song lyrics“. You'll get a list of inspiring ideas. ✨

3 Cool or not?

Both AIs deliver a result within a few seconds. And that is - unless otherwise requested by you - a complete song text with quatrains, practically divided into sections like chorus, verse and bridge. Is that cool or is that cool? And if the lyrics are not cool, a prompt like „Make it more dirty and nasty“ will do. ✨



6 Song theme machine

And if that doesn't help either, prompts like „name me 10 topics for a song“ provide the ordered number of possible song contents, which you can copy again as needed, along with instructions to the AI to create song lyrics from them. Once the lyrics are ready, you can continue with step 2 of the 4-point plan. ✨

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ReallPC 6 captures the legendary sound of a Gibson Les Paul Custom with outstanding quality and a wide range of articulations. A real weapon for rhythm playing and expressive solos. Thanks to the Song Mode, lively guitar grooves can be created from 1250 rhythm patterns and chords and exported to your DAW via drag & drop.

www.musiclab.com

Gift ID: F1585

no additional costs



SAVE 69 €



TAL-SOFTWARE TAL-U-NO-LX*

TAL-U-NO-LX is a must-have for fans of the warm vintage sound of the legendary Roland Juno-60. Whether you're looking for basses, leads, pads, arpeggios, or effect sounds, the software emulation faithfully captures the musical sound of the polyphonic analogue cult synth and scores with an intuitive user interface and low resource consumption.

www.tal-software.com

Gift ID: F904

no additional costs



SAVE \$119



HEAVYOCITY MOSAIC NEON*

Mosaic Neon offers an innovative sound palette that combines vintage synth sounds, glowing textures, and dynamic sequences for atmospheric tracks and retro-futuristic productions. This flexible Kontakt instrument allows you to layer three sound sources and edit and animate them in various ways to give your music a neon glow.

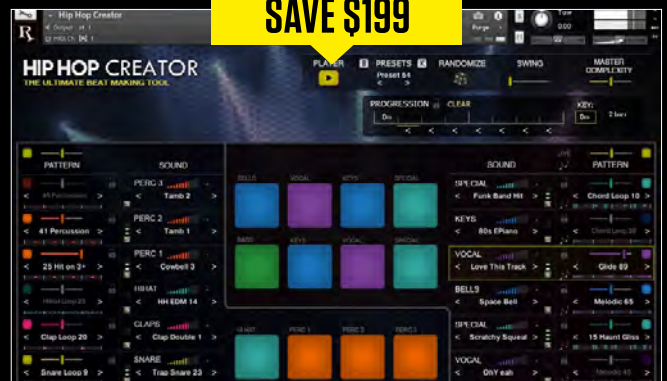
www.heavyocity.com

Gift ID: F1576

no additional costs



SAVE \$199



REALITONE HIP HOP CREATOR*

This Kontakt instrument has everything you need to produce modern and old-school hip hop. Hip Hop Creator runs in the free Kontakt Player and comes with hundreds of inspiring loops on the one hand and a large pool of stylish samples on the other. On board are drums, bass and instrument sounds and even vocals.

www.realitone.com

Gift ID: F1512

no additional costs



Test: Cherry Audio PS-3300

With the PS-3300, Cherry Audio has created a virtual monument to the rare Korg synthesizer of the same name. With its semi-modular structure and three individual synthesizer strings, it promises the ultimate polyphonic sound power. Is this plug-in also convincing in practice? **by Vera Schumacher**

Features

Detailed emulation of the Korg PS-3300

Semi-modular design

Up to 24x polyphony

Three independent synth panels

High-quality effects

Master signal mixer

Flexible MIDI mapping

Over 360 presets

VST2, VST3, AU, AAX, Standalone

Windows and macOS: 64 Bit

Facts

Developer: Cherry Audio
Web: cherryaudio.com
Distribution: Download
Price: Intro price: \$49 US Dollars, Current: \$39 US Dollars

- ▲ Lush, vital sound
- ▲ Flexible semi-modular design
- ▲ Patch system
- ▲ Extended feature set
- ▲ Intuitive operation
- ▲ Low resource requirements
- ▲ Favorable price
- ▼ 24x instead of 48x polyphony
- ▼ No highpass filter
- ▼ No noise generator

Sound: ■ ■ ■ ■ ■
Operation: ■ ■ ■ ■ ■
Price/Perf: ■ ■ ■ ■ ■
Total: ■ ■ ■ ■ ■

Alternatives

UVI UVS-3200
 79 Euro
uvi.net

Full Bucket Music FB-3300
 Freeware
fullbucket.de

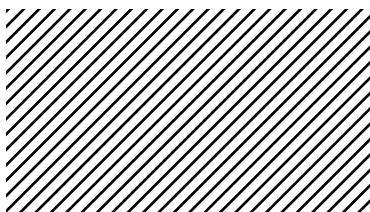


Whether it's shimmering polyphonic sounds such as pads or keys that are required or it's complex textures: the emulation of the semi-modular Korg PS-3300 is a real sound giant.

Before the release of the well-known MS Monosynth series, Keio Electronic Laboratories released the Polyphonic Series of analog synthesizers under the brand name KORG. The largest and most expensive was the PS-3300, a legendary instrument that was produced between 1977 and 1981. With only around 50 units produced, it is considered one of the rarest analog synthesizers ever. The PS-3300 was not only expensive, but also extremely powerful and revolutionary for its time and was used by artists such as Jean-Michel Jarre, Vangelis, Kraftwerk and Aphex Twin. If you like hardware, you can put an official replica of KORG in your studio from the end of 2024.

Unique synth giant

The virtual version, the PS-3300, faithfully reproduces the original, including its layout. Like its role model, it offers three independent polyphonic synthesizer sections, each featuring a VCO with selectable waveform and the option of Pulse Width Modulation and a resonant



12dB Lowpass Filter. There is also a modulatable resonator with three Bandpass Filters, which you can use to create great vocal-like sounds. An ADSR Envelope and two LFOs that can be synchronized to the host tempo are available for modulation. Another great feature is the ability to detune the individual notes of the synthesis sections up or down by up to a semitone. Although the plug-in does not have a Noise Generator, you can also generate noise using the Sample & Hold module as a modulator. The signals from the three synthesizer sections can be mixed in the Master Signal Mixer. This section also features a Sample & Hold module, a global Envelope Generator and two CV processors.

Modern features

Cherry Audio has not only created a faithful reproduction of the original, but has also added modern improvements. You can switch between the original filter model of the PS-3300 and a type in the style of the MS-20, which thins out the bass less and is also particularly suitable for screaming and aggressive sounds. It's just a shame that no Highpass Filter is provided.

The modulation possibilities and patch options have been significantly expanded and the LFOs can be synchronized to the project tempo. The high-quality Chorus, Echo and Reverb effects for additional sound shaping are also an en-

hancement. The user interface, which is bursting with knobs and virtual sockets, can seem overwhelming, but with features such as Undo and Redo, as well as the practical Focus-Zoom function, this synthesizer is easy to use.

Sound and use

While the original PS-3300 doesn't have as much punch in the low frequency range, the MS filter modes also produce crisp bass. PS-3300 masters Lead and Effect sounds, as well as all conceivable polyphonic sounds such as Pads, Strings, Brass, Keys, Bells and Plucks very convincingly.

Thanks to the powerful structure, very lively and multi-layered sounds are child's play, which also makes the synthesizer perfect for Ambient & the like. Even pulsating monophonic textures are easy to create with the PS-3300. If you place the three oscillators individually in the panorama and modulate the Filter Frequencies with LFOs, everything will light up! As modulations are also possible in the audio range, you can also use the synthesizer to create screeching filter FM and pithy AM sounds.

Verdict

With the PS-3300, Cherry Audio has created an outstanding emulation that is also affordable. This virtual semi-modular beast is remarkably flexible and versatile and impresses with its impressive depth of sound. The three synthesis sections allow you to create very complex, lush and lively sounds with vintage charm; and the extensive modulation options make this instrument an excellent choice for sound experimentation. This is a true synthesis monster! 🚀



Test: Baby Audio Humanoid

„Produce vocals from the future“ is the promise of the new plug-in from Baby Audio. Humanoid combines a Hard Tuner and a Vocal Transformer. Old wine in new bottles or the future of vocal manipulation? **by Vera Schumacher**

Creative effects to manipulate vocals are extremely popular, whether it's in Hip Hop, Trap, Deep House or Pop. And shooting video selfies and memes through the effects mangle has long been a trend on TikTok. So it was an obvious idea for Baby Audio to develop a plug-in dedicated entirely to the creative transformation of voices and vocals.

Singing replicants

The pitch correction offers four pitch modes: Scale, note, MIDI and lock. In Scale mode, the target pitch and scale can be selected to automatically correct incoming tones, while Note mode allows the pitch to be set manually. Of particular interest is the MIDI mode, in which you can play the Humanoid polyphonically with your MIDI keyboard. As with Auto-tune, there is a slider (here: Quantize) that determines how quickly the correction is made. The robotify control gives the input signal a more synthetic sound, which is particularly noticeable when playing polyphonically. For some parameters, you will find further setting options on subpages. Of course, there is also a formant shift function, although it does not work as drastically as MeldaProduction MAutoPitch, for example.

Need some fine-tuning? In the utility section, you will find the appropriate tools: a de-esser, a gate to reduce background noise and a Smoothing function for a softer sound. You can use the Sharpen control to equalize the voice to give it more clarity and presence. This is particularly useful if, for example, you want to transform a WhatsApp message into a melodic vocal line for a piece of music.

Cyber Chipmunk?

Things get even more electronic in the synthesize section: a wavetable synthesizer awaits you here, which tracks the pitch



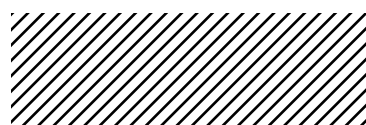
Do you want to transform voices into synthetic vocals or creatively put vocals à la Imagine Dragons, AJR or The Chainsmokers through the wringer? Then you and Humanoid are sure to become best friends.

of the incoming signal and re-synthesizes it with selectable waveforms. There is a large selection of wavetables, but you can also import your own audio files. This section also contains mix, note shift and stretch parameters for fine-tuning the effect. The Transform knob morphs seamlessly between the pitch-corrected vocals and the synth sound, and the note shift and octave knobs can be used to add additional harmonic voices to the signal. Downward octaving makes voices sound much fatter. The shape and stretch functions also allow you to bend the oscillator waveform.

Clear the stage for robo-singers!

For further processing, Humanoid offers a Filter section with highpass, lowpass and a mid band, as well as three effects: Widen (chorus), warble (spectral vibrato) and freeze (repeater). Freeze can be used for tempo-synchronized stuttering vocals, for example.

The sonic results of Humanoid are partly reminiscent of Devious Machine's The Manipulator. The Manipulator has the edge when it comes to MIDI control of parameters in real time and also offers modulators such as a sequencer. On the other hand, the plug-in from Devious Machines comes without comparable pitch correction and an



integrated wavetable synthesizer. The sound is very good in both cases, but this is a matter of personal preference.

Verdict

Humanoid delivers very convincing sound results with good speech intelligibility for many creative applications. The plug-in specializes in extreme pitch correction and radical voice manipulation; natural intonation correction is not its core competence. What sets Humanoid apart is its versatility in creating futuristic vocal effects. The spectrum ranges from subtle electronic accents to completely synthetic voices. It is worth using the plug-in to transform the sound of instruments such as piano or acoustic guitar into vocal textures or synthetic sounds. The successful effects and ease of use are also worth highlighting. **++**



Features

- Vocal Transformer and Hard Tuner
- FFT-based retuning engine
- Wavetable synth with 64 wavetables
- Manual control via automation or MIDI
- Filter duo and effects
- Over 180 presets
- VST2, VST3, AU, AAX
- Win, Mac

Facts

Developer: Baby Audio
Web: babyaud.io
Distribution: Download
Price: 129 US Dollars

- ▲ Impressive sound
- ▲ Versatile sound design
- ▲ Good effects
- ▲ Import your own wavetables
- ▲ Well-designed presets
- ▲ User-friendly operation
- ▲ Speech intelligibility
- ▲ Playability via MIDI
- ▼ Slightly unnatural sound with subtle intonation correction
- ▼ No MIDI learn function

Sound: ■■■■■■
Operation: ■■■■■■
Price/Perf: ■■■■■■
Total: ■■■■■■

Alternatives

Polyverse Music The Manipulator
\$149 US Dollars
polyversemusic.com

Waves OVOx
149 Euro
waves.com

iZotope VocalSynth 2
219 Euro
izotope.com

Test: Arturia FX Collection 5

There are four new effects to marvel at in Version 5. While the Motions and Refract creative effects have been available separately for some time, the Exciter-104 and Peak bus effects were introduced for the first time with the delivery of FX Collection 5. **by Jan Wilking**

Features

Collection of 34 effects
Over 1,000 presets
New bus effects: Exciter, Limiter
New creative effects: Motions, Refract
VST3 / AU / AAX
From Win10, Mac OSX 10.13
Copy protection: online activation



Peak combines tone control, clipper and limiter and is recommended for the master bus with its transparent sound.

Facts

Developer: Arturia
Web: arturia.com
Distrib: Tomeso
Price: 499 Euro, individual update prices

- ▲ Combination of classic and modern FX
- ▲ Suitable for almost any application
- ▲ Useful additional functions
- ▲ Standardized operation
- ▲ Many good presets
- ▲ Built-in tutorials

Sound: ████████
Operation: ████████
Price/Perf: ████████
Total: ████████

Alternatives

UAD Signature Edition
325 Euro
uaudio.de

Softube Volume 6
449 Euro
softube.com

iZotope Music Production Suite
599 Euro
izotope.com

Even though the trend with Arturia effects is more towards self-developed effects, there is also an emulation of classic vintage hardware with Exciter-104: the Aphex Aural Exciter C2-104, which was found in many studio racks, especially in the 90s. An Exciter boosts the high frequencies and creates new overtones. This creates more transparency and three-dimensionality. The C2 version can also boost the lower frequencies („Big Bottom“). Exciter-104 takes over the parameters of the hardware, with the visualization making it easier to find the right settings. A practical feature is the WetOnly button, which only lets you hear the audio signal added by the Exciter when activated. This is because an Exciter can easily deceive the ear and tempt you to overdo it with the effect.

The Arturia version captures the signature sound very well, but offers a wider control range for most parameters and can, therefore, be used not only on bus and master tracks for subtle refreshing, but also as a creative effect on individual tracks.

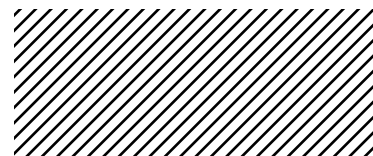
Modern limiter

Peak is a Clipper/Limiter that combines proven techniques with a modern user interface and features and is reminiscent of Softube's emulations of Weiss hardware. Peak allows the volume to be increased with pinpoint accuracy without colo-

ring the sound. Peak thus complements the emulations of various vintage compressors already available in the collection. Visualization and precise metering make Mastering easier, as do tone control for low and high frequencies, separate solo monitoring of clipper and limiter and automatic volume adjustment to avoid deceiving your ears with the „louder=better“ effect. And as with the Exciter-104, the wide control range also allows creative and experimental use if you push peak to its limits.

Multi-effect with movement

Motions is a multi-effect and complements the granular processor, fragments, both plug-ins are primarily specialized in creative and experimental sound design. Motions combines filter, noise (with sample import), distortion, volume, panning with looper/repeater and two further multi-modules that offer a selection of classic FX such as reverb, delay and chorus. The combination of the various effects and their flexible trigger and modulation options ensure plenty of movement and exceptionally lively effects. For each module, you can set the frequen-



cy range of the incoming audio signal to be processed. We would like to see separate Mid/Side processing in an update.

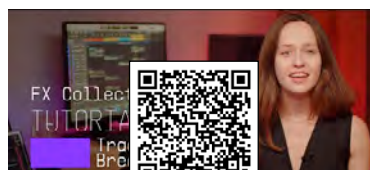
The effect can be triggered by a clock, the transients or dynamics of the audio signal, a sidechain signal or a Euclidian sequencer. The effects can also be triggered using MIDI notes. It gets exciting when using the motion envelope, as this allows you to influence the course of the effect using an envelope curve, either with predefined patterns or drawn in by yourself. Here, Motions is influenced by effects such as the popular ShaperBox from Cableguys. The sound design possibilities are almost endless and it's fun to create moving effect chains with Motions.

Unison Effect

Refract is a unison effect with creative visualization that allows you to flexibly fatten and widen the audio signal. This is supplemented by filters, bitcrushers, distortion and a harmonizer to further enhance the sound.

Verdict

The FX Collection 5 is more modern than its predecessors. Although Exciter-104 is a new classic hardware emulation, it brings a rarely recreated effect from the 90s into your plug-in folder. Peak also uses tried and tested technology, but with modern features and precise, unadulterated sound. This is complemented by creative new effects for flexible sound design, with the Motions multi-effect, in particular, standing out as the new flagship of the collection. 🚀



More info

Test: Dawesome Myth

In recent years, Peter Vorländer has developed some interesting synthesizer plug-ins that use innovative digital sound generation to offer a refreshing alternative to the emulations of analog circuits. With Myth, Resynthesis is celebrating a comeback. **by Jan Wilking**

I personally heard about resynthesis for the first time in 1987 when the Techno Axcel was launched. Later, Axel Hartmann also adopted this technology for the Neuron. Unfortunately, neither hardware synthesizer was a great success; and this technology has also been rather neglected in virtual synthesizers, even though Steinberg, for example, uses a comparable approach with the Spectral Oscillator in Padshop and Halion.

Audio import, but no Sampler

With Resynthesis, an audio file is analyzed and can then be played like an Oscillator. To do this, you can simply drag and drop an audio file (Wav, AIF, MP3 etc.) into one of the two Oscillators (here called IRIS), whereby longer loops are also processed. Unlike a classic sampler, however, the playback does not sound true to the original, but a new waveform is generated based on the sound and rhythm. Like with a wavetable synthesizer, this waveform can then be „run through“ at variable speeds using an LFO or Envelope. The result is organic sonic structures that range from Ambient Drones to ice-cold Digital Leads and Pads to hard-hitting EDM Bases.

Modular design

There are various modules for additional processing. Here you will find transformers such as Sync, Dirt and Smooth, which influence the oscillator directly. Or modulators such as FM, Ring and Amplitude Modulation. However, there is also a complete subtractive post-processing function, which not only offers various filter types to choose from, but even features additional classic oscillators for supplementing the two Resynthesis Oscillators with Sawtooth, Square and the like. Distortion and effects such as Cloud Reverb, Granular Delay and Juno Chorus are also onboard.

The developer of Myth has done everything to make the complex digital sound generation as accessible as possible. All parameters can be accessed via a single



There are various flexibly combinable modules for post-processing the sounds generated by Resynthesis.

Features

Software synthesizer

Organic resynthesis

Sample import

Various sound and FX modules

Virtual analog filters

Over 700 presets

VST3, AU

From Windows 10, macOS 10.11

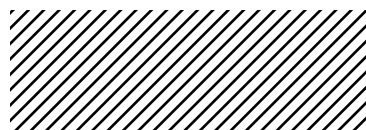
page and numerous graphics and pictograms illustrate the functions and effects of the individual modules and sound parameters. Nevertheless, you will need some time to familiarize yourself with Myth before you can master it in detail and can consciously program your own sounds. On the other hand, you are guaranteed to create surprising sounds again and again with Myth.

Presets for more development

Fortunately, there are also hundreds of very successful presets to get you started. These are sensibly categorized and, thanks to suitable macro parameters, can be changed from subtly to spectacularly even without a deeper introduction to sound generation. You can also use the Random function to create new sounds based on a preset, whereby individual areas can be conveniently excluded from the mutation. Alternatively, new variations can be hatched or bred, which is reminiscent of the similar function in Sonic Charge Synplant.

Another practical feature is that played notes can be dragged and dropped as an audio file directly into a DAW track or a Sampler/Drum Machine, without the hassle of exporting or rendering/bouncing in your DAW!

In terms of sound, Myth impresses with a very transparent and punchy sound, with clearly defined highs and plenty of power in the bone-dry (low)



bass range. Myth sounds very sophisticated, expensive and HiFi-like, but can also be taken in a dirtier LoFi direction using the various modules. Conventional electronic sounds are also possible, but the strengths undoubtedly lie in digital textures, whether it's atmospheric, cold, hard and metallic or weird and experimental, from dreamy to disturbing.

Verdict

Myth is an impressive synthesizer! The first time we played the presets, we were impressed by the outstanding basic sound. Turn the macro controls a little or create new variations at the touch of a button and marvel at the digital and, at the same time, very organic signature sounds that enhance every track. If you want to delve deeper into Resynthesis and the downstream modules, you will need some time to get used to it, but you will enjoy this exceptional synthesizer for a long time. 🍷



More Info

Facts

Developer: Tracktion

Web: tracktion.com

Ref: Download

Price: 179 US Dollars

- ▲ Unique digital sound
- ▲ Flexible resynthesis
- ▲ Modular design
- ▲ Many good presets
- ▲ Random functions
- ▲ Sophisticated operation

Sound: ██████████

Operation: ██████████

Price/Perf: ██████████

Total: ██████████

Alternatives

Steinberg Halion/Padshop

From 129 Euro
steinberg.com

Sonic Charge Synplant2

149 Euro
soniccharge.com

Newfangled Audio Generate

99 US Dollars
newfangledaudio.com

Hands-on: Recreate Top-Ten Sounds

Dope Tracks #224

The desire to have the ONE sound at home, the one track that you can't get out of your ear, unites us producers. Listen once, turn the knobs, done. But transferring what you hear to the right parameters with the right values takes training. Every month on Dope Tracks, we present two sounds from current hot songs - this month „Tell UR Girlfriend“ by Lay Bankz and „Million Dollar Baby“ by Tommy Richman. **by Julian Schmauch**



Lay Bankz



Tommy Richman

Project info:

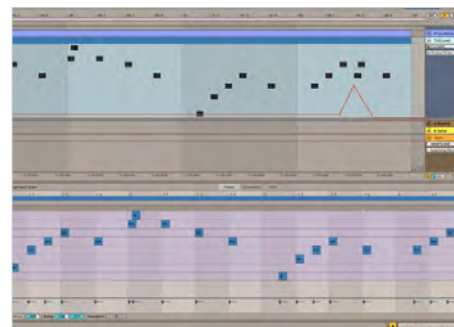
Material: DAW, diverse plug-ins

Time required: 1 - 2 hours

Content: Reconstruct the sounds of popular Pop & EDM tracks.

Difficulty: Advanced to Pro

Lay Bankz - Tell Ur Girlfriend: Lead w/ Minimal Audio Current



1 RnB meets Rap

Lay Bankz, real name Layia Watkins, was born and raised in Philadelphia and started rapping and singing RnB so early that she released her first single at the age of 15. That was in 2019 and Lay has been developing her style ever since. She went viral in the USA with „Tell Ur Girlfriend“ in early 2024; and then here, too, in the Spring. ❖

2 Johnny Goldstein

Lay Bankz produced the song with songwriter Aita Boggs and producer Johnny Goldstein. The latter is responsible for the sounds and arrangement - because of Lay's home, the genre is referred to as „Philly Club“, a mixture of House, Breakbeats and Soul. In addition to the lead synth, the sample from Ginuwine's hit „Pony“ stands out in particular. ❖

3 Funky Melody

The four-bar melody in D minor contains a stumbling block in two places, if you program it. Two notes overlap in the second and fourth bars; however, the first note jumps to the second at the first overlap, while it glides at the second - legato. This can be achieved by automating the glide parameter. ❖



4 Current with Unison

Oscillator A with a Saw Wave and slight **Unison** (4x with 22 percent width) and Osc B with **Square Wave** are the basic ingredients. In addition, load the included White Noise Sample in the sample module and set its volume to -7.4 dB. Set Current to **mono** at the bottom left for monophonic operation. Now activate Filter 1 at the top right. ❖



5 Envelope and Filter

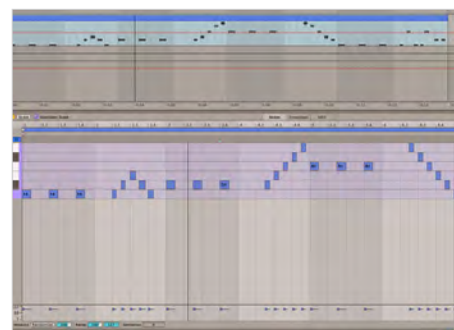
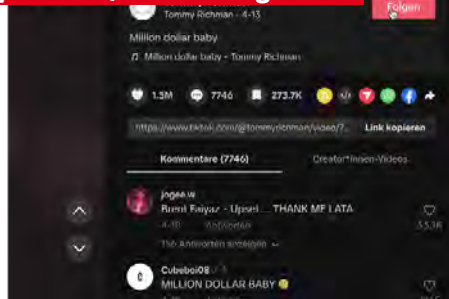
Set the Filter Type to **LP 24** and the **Cutoff** to 4.5 kHz. Then, route **OSC B** into the Lowpass Filter in the Filter on the left, but not the Sample Module with White Noise, which we need unfiltered for the effects. For the Amp Envelope at the bottom left, only adjust the **Release** to 75ms; the rest can remain as preset. ❖



6 Ripple Phaser!

A modulation effect helps to prevent the white noise in the signal from sounding too scratchy and to give the sound a more analog feel. Use the **Ripple Phaser** in Current for this slight washiness in the sound. However, this must be reduced with smaller values for **Mod Depth** (18%), **Feedback** (14%), **Spread** (~30%) and **Center** (3.23 kHz). ❖

Tommy Richman - Million Dollar Baby: Bass w/ Arturia Pigments



1 Already an old hand

Tommy Richman has been releasing songs since 2016. Initially on Soundcloud, later on Spotify, Richman's penchant for mixing and merging a wide variety of genres quickly attracted attention. In 2019, he landed his first minor hit with Pleasantville. His debut album Alligator in 2022 garnered plenty of critical acclaim, but remained under the mainstream radar. ❖

2 It's Tik Tok time

So, at the beginning of 2024, Richman starts publishing small snippets of his next songs on Tik Tok. And, bang, his song goes viral. More and more people want to know what kind of track it is, which somehow sounds a lot like Jack Harlow's „Lovin on me“, but somehow different - less robotic, more from the hip. On April 26, 2024, the time had come. ❖

3 5 for 1

Max Vossberg, Jonah Roy, Kavi, Mannyveli and Sparkheem are listed as producers on „Million Doller Baby“. Who exactly produced and arranged what is barely comprehensible - we'll concentrate on the hypnotic bass line that kicks off the track and never lets go. F sharp minor, eight bars, funky to the moon. ❖



4 Pigments time

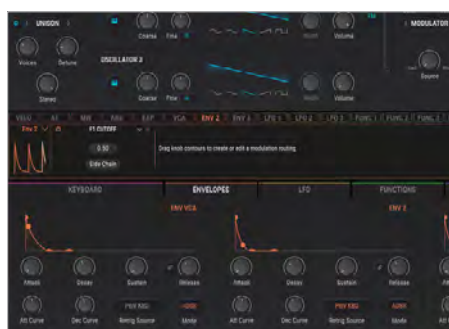
Start in Arturia Pigments with the Analog module in Engine 1 and set **coarse to -12**. Engine 2 and the utility engine are not required. In addition, set **voices to 3.00** and detune to **1.50%** in **unison** at the bottom left of the module. Although a bass needs a mono base, it sounds a little wider at the top - just like the original sound. ❖

5 Square, Saw and PWM

The basic ingredients for the sound are a square wave in oscillator 1 and a saw wave in Oscillator 2. Turn **Width** for the square wave to **0.6**. This makes the square wave sound a lot scratchier - keyword Pulse Width Modulation. Modulate this parameter with envelope 3 and a very short envelope 0ms attack, 53ms decay. ❖

6 Mono and Envelope

Speaking of envelopes: you can also set the VCA Envelope without Sustain: **0ms decay, 600ms sustain and 360ms release**. This makes the sound percussive and gives the fast notes the „funk“ they need. Also essential for bass sounds: monophonic operation (**Play Mode** at the bottom right) so that notes don't overlap. ❖



7 Matrix 12 Filter

However, we still aren't really close to the original sound - a Lowpass Filter with Envelope Modulation helps with this. In Pigments, when it comes to analog sounds, I always end up using the **Matrix 12 filter**, where less bass is lost during filtering than with the Moog emulation. Set the cutoff to **250 Hz** and the **Resonance** to **0.3**. ❖

8 Envelope, Baby!

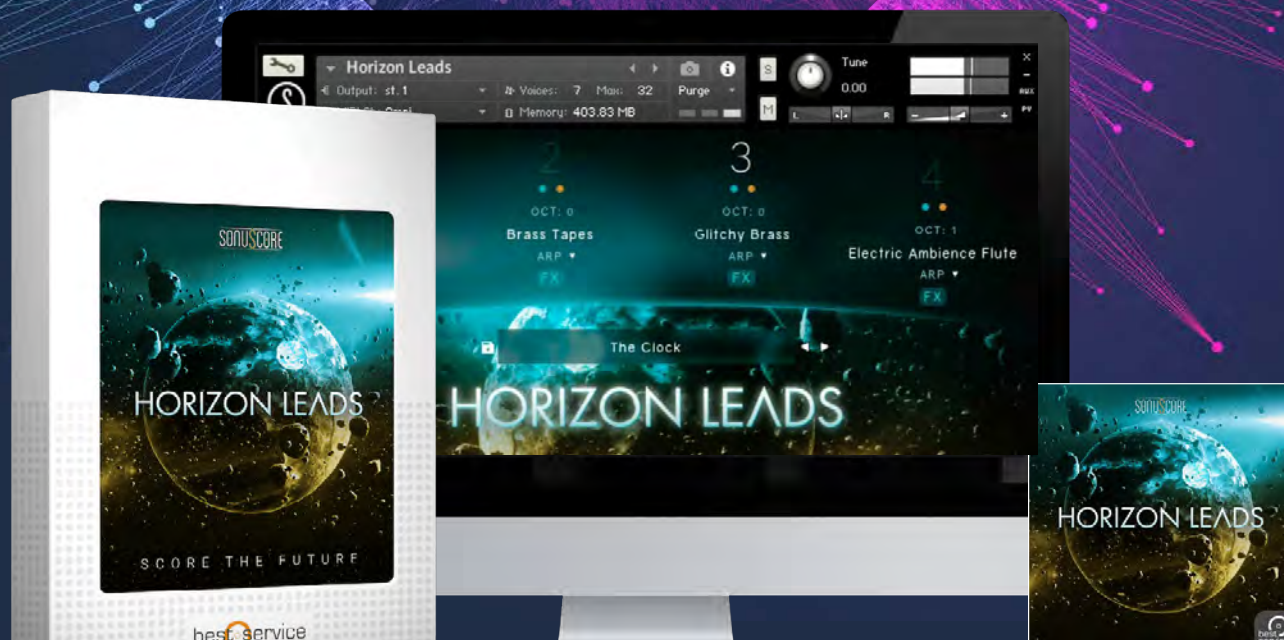
The central ingredient of the sound, the smacking sound, is an envelope that modulates the cutoff. For it to sound exactly like this, the initial work with PWM and Matrix-12 filter was necessary. So, use **Envelope 2** with **0ms Attack, 170ms Decay, 0.00 Sustain and 430ms Release** for modulation. Modulate the cutoff in **Filter 1** with a strength of about **0.50**. ❖

9 Internal effects

Finally, use the Super Unison effect (2 voices, **3% Detune, 50% Dry/Wet**) supplied with Pigments to make the sound a little wider so that the small peak at the beginning of the sound can be heard more clearly. Then, use a multi-filter effect to attenuate the now scratchy highs - with the cutoff at around **2000 Hertz**. ❖

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for Melodic Techno



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Horizon Leads' lead sound presets immerse you in a world of expressive melodies. Each preset collection is designed to add emotion and character to your compositions. From impressive synth leads to atmospheric textures - every preset is instantly playable and brings your musical ideas straight to life.

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Hollywood scoring aesthetic for powerful cinematic Synth Leads

Sonuscore Ensemble Engine for pulsating rhythms and animated themes

Play complex patterns with simple chords

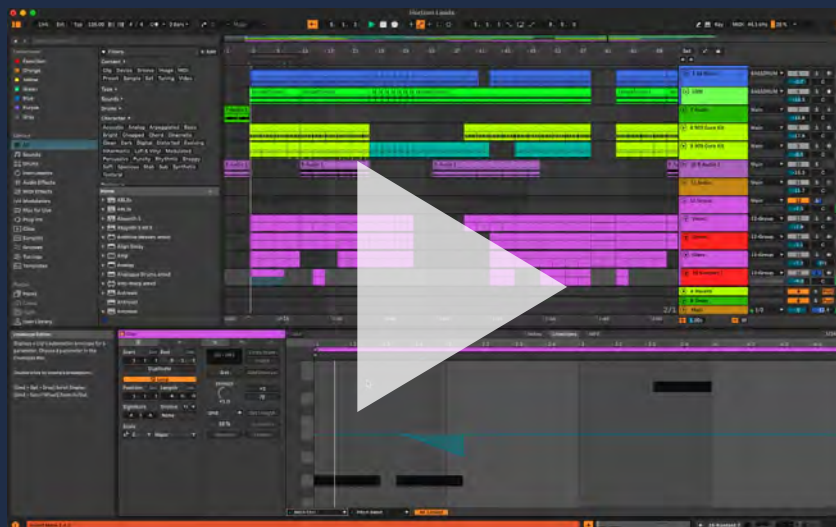
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www.youtube.com/@BeatMagazin



THE AUTHOR

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Zampler & MPC Expansion: Wave Runner II

Synthwave sounds and Drill pads

Majestic synth pads, meandering arps, dreamy lead flutes and creaky staccato basses - Wave Runner II has fantastic sounds for Synthwave, dark Trap and Drill, as well as Tech House. In this workshop, we'll show you how to find your way to your next track with the sounds from Wave Runner II using three loops. **by Laura Emiliano**



Audio Demo
Drill Pad



Audio Demo
Synthwave



Audio Demo
Tech House



Facts

WAVE RUNNER II for Zampler:

- ▲ 2.67 GB Soundbank
- ▲ 60 Pads
- ▲ 10 Basses
- ▲ 12 Leads & Synths
- ▲ 38 Pads & Textures
- ▲ 1,536 Samples
- ▲ Suitable for Ambient, Chillout, Vaporwave and Synthwave

WAVE RUNNER II for Akai MPCs:

- ▲ 2.67 GB Expansion (optimized for MPCs)
- ▲ 60 Pads
- ▲ 10 Basses
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- ▲ 1,536 Samples
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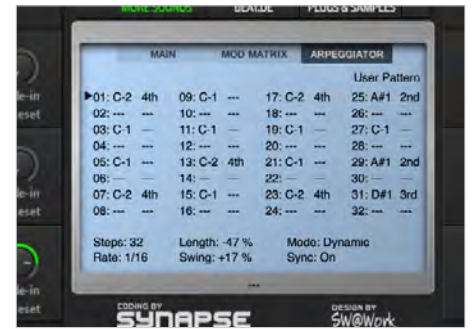
1 Drums and bass

The drum sounds today come from the ingenious drum plugin, Triaz, from Wave Alchem. I highly recommend it! The first sound from Wave Runner II is the Bass sound **BS Bass Bed**. It fits so well that I only had to lower the volume a little. Rhythmically, the bass plays simple offbeat eighths alternating with the kick with a little „stumble“ at the end. ✨



2 Broken pad

Musically, this could still go in too many directions, an atmospheric pad takes us into the Tech House underground. The **PD cultism** sound delivers exactly the right mood here. Turn the filter cutoff to **66%**, activate the **Drive** effect and turn the Amount control on the reverb to 90% to adjust the sound and bring it into the background. ✨



3 Arp, Arp, Arp

We round off the Tech House loop with an Arpeggio sound. In this case, I chose the sound with the most appropriate name, **BS This Fits Everywhere** - and it does! Here, you tame the Arpeggiator in Zampler a little by setting it from 1/32 to 1/16. Add a pinch of Swing and the squeaky arp for the loop is ready! ✨



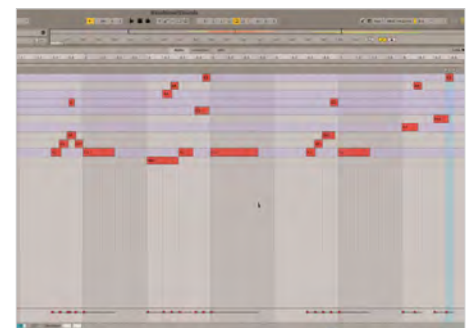
4 Pumping Drill pad

Dark Drill tracks live from whipping 808 glide basses and dark pumping pads, next to the typical, slightly dancehall-influenced Beat. For the pad, select the **AT Universe Creator** sound and set the cutoff to 65 %. For the pump, use LFO 1 to modulate the volume parameter at 1/4 speed using a sine wave. ✨



5 Gliding 808

You won't find any 808s in this pack, it's too much in the direction of Synthwave for that. But the bass sound **BS Praise Your Emu** comes pretty close to a glide 808, as you can hear in the audio example. Important for the glides (see next step): Zampler II must be set to **Mono** top right and Glide at about 50 percent. ✨



6 MIDI Sequence

The secret of the 808 lies in the short, high notes that overlap the long bass notes. Depending on your DAW, you may have to experiment longer to perfect the right timing and the right length of the high notes to which the Bass glides. The Drum Beat has to leave enough space in the arrangement; kick and snare play very reduced. ✨



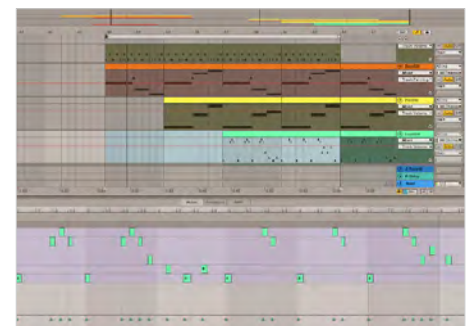
7 Synthwave bass

110 bpm, Linn drum, spherical sounds and VHS vibes - that's Synthwave. And underneath is usually a deep, humming Synth Bass consisting of just a few notes. It's allowed to push. **BS Beefy** does this so well that I only had to reduce the volume a little. There should be a lot of movement in the arrangement above it, a stable Bass provides the foundation. ✨



8 Soft pad

With the **PD Day Ends Pad** preset, both LFOs ensure that the sound stumbles a little too much at the beginning of the arrangement and creates rhythmic unrest rather than nostalgia. Set LFO 1 and LFO 2 to even eighth notes (1/8), turn **Skew** all the way down on both and activate **Reset**. This way the sound wanders and meanders gently in the background. ✨



9 Play me a lead

As far as the **SY Dreaming of You** lead sound is concerned, it sets the mood so well that you don't have to change anything - apart from slightly adjusting the volume. As far as the MIDI notes are concerned, the same rule applies here: leave space! Give the individual notes time to unfold their effect. And it will be a dark and beautiful Synthwave dream. ✨

Test: IK Multimedia ARC Studio

The ARC4 software can analyze the acoustic weaknesses of the room in interaction with the speakers and compensate for them by adjusting the frequency response and phases, which now also works using hardware without a plug-in. **by Jan Wilking**

Features

- Room correction via software/hardware
- Frequency response and phase correction
- Can be stored on the ARC Studio processor
- Zero latency monitoring
- Incl. measuring microphone and ARC4 software
- From Windows 10, Mac OS 10.15
- Dimensions: 144 x 120 x 45 mm
- Weight: 0.47 kg

Facts

Manuf: IK Multimedia
Web: ikmultimedia.com
Distribution: Retailer
Price: 333 Euro

- ▲ Hardware processor
- ▲ Significant sound improvement
- ▲ Uncomplicated setup
- ▲ Extended customization options
- ▲ Incl. measuring microphone and software

Operation: ██████████
Sound: ██████████
Price/Perf: ██████████
Total: ██████████

Alternatives

Sonarworks Reference
From 249 Euro
sonarworks.com

DSPeaker Anti-Mode
From 399 Euro
dsppeaker.com

Genelec GLM Set
315 Euro
genelec.com

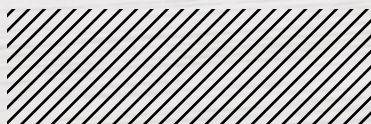


The hardware has a signal display and a button for activating/deactivating the correction

ARC stands for Acoustic Room Correction. To do this, the room is first measured with the help of your studio monitors, a microphone and the appropriate software and a correction of the frequency response and phase is calculated from this. As with the old version, this sound correction can be integrated into your DAW using a plug-in; however, you have to make sure that the plug-in is switched off when exporting the audio file or when listening via headphones, as the frequency correction should not be included in the recording and should not affect the headphone sound. If possible, the plug-in should, therefore, only run on a separate monitor channel of your DAW. Another disadvantage of this software solution is that the plug-in only influences the output signal of the DAW and has no effect when listening to music or watching videos.

Hardware Processor

ARC Studio, therefore, offers an alternative to integration with a plug-in. In addition to the measuring microphone, the scope of delivery includes an inconspicuous little metal box with a built-in processor into which you can load the correction curve via USB. This box is connected by an XLR cable between the audio output of the sound card and the input of the



monitor speakers. All audio signals sent to the speakers are corrected accordingly, including music played outside the DAW without audible latency. The sound of the headphones remains unaffected and there is no need to run a plug-in or the ARC software on your computer. The hardware doesn't even have to be connected via USB, this is only necessary for editing and subsequent transfer of the profile. Overall, this is almost as convenient as monitor speakers with built-in DSP correction and more flexible because it can be used with any speaker.

Simple measuring process

After adjusting the volume, the supplied microphone must be placed at various points in the room and the software plays the corresponding signals for measurement via the speakers. To ensure that the improved algorithm for room correction receives sufficient material, the measurement covers seven points in the room at three different heights. You need to allow around 15 minutes for the measurement process, whereby a microphone stand and a marker for the seven points on the floor make it easier to save the measurement.

ARC4 Software

You can load this profile into the ARC4 software, view the corrections, make A/B comparisons between the unprocessed and adjusted output signal and also make adjustments yourself. There are various

profiles, such as increasing the bass while slightly lowering the treble, generally more treble or bass or, of course, a linear adjustment. And you can also use the virtual monitor profiles supplied for over 20 models.

Significant sound improvement

We tested the system in two rooms, a larger and acoustically very difficult room with bass waves and holes and overall large sound differences with the smallest movements, and a fairly unproblematic small desktop studio with near-field monitoring. When the correction was applied, the monitor speakers sounded more balanced and spacious, the bass range was tidier and the separation between bass and sub-bass was more defined. In the high frequencies and upper mids, the correction provided a more transparent sound. Compared to ARC3, the algorithms of the new version were once again significantly improved. The improvements were significant in the acoustically difficult room, but even in the second room the corrected sound was significantly wider and more open and the bass was crisper.

Verdict

Although software cannot completely replace the acoustic optimization of a room through insulation and so forth, it can still provide helpful services. And in the new Version 4, the Acoustic Room Correction System not only offers improved sound quality, but also allows for advanced customization. The highlight, however, is the straightforward integration via hardware in the signal path directly in front of the speakers: once set up appropriately, you no longer have to worry about anything. 🟢



More Info



ESI Audio Xkey 25/37

The Xkey are very compact controller keyboards with some interesting extras. Xkey is available in 25 and 37-key versions. The very narrow edges are striking, so that despite the compact dimensions of approximately 13 x 39 (25) or 13 x 55 cm (37), the individual keys are hardly any smaller than on a standard keyboard. As the USB-C sockets for connecting a computer and the adapter cable for sustain and expression pedal input, as well as MIDI output are recessed at the side, Xkey can be placed directly in front of the computer keyboard or laptop to save space, with the chic design matching Apple devices in particular. The Xkeys are also extremely flat, with a height of just 1.6 cm even at the rear of the slightly slanted housing. As a normal key stroke is not possible with such a low height, the individual keys are designed more like a computer keyboard. Nevertheless, they process velocity and can be played in a fairly nuanced way with a little practice. The keyboard can send aftertouch, even polyphonically (for example, vibrato only on individual notes of a chord). However, this function is somewhat limited by the fact that velocity and aftertouch probably share a sensor. At least we weren't able to play a key with high velo-

city but without aftertouch during the test. However, when the key was held down, aftertouch was sent as usual and higher pressure opened the filter or activated the LFO, depending on how the connected instrument/plugin was programmed. This is because the Xkey doesn't have its own sound generation.

The buttons for modulation and pitch bend are also pressure-sensitive. In contrast to other compact keyboards without a pitch bender or modulation wheel, modulation and pitch bend can not only be switched on and off, but can also be controlled with fingertip sensitivity. A sustain button allows notes to be held, and the octave position can be changed with two additional buttons. The Xkeys are class-compliant, so they also run on iPads and the like without drivers.

Verdict

The Xkey offers some special features compared to the numerous compact controller keyboards on the market. The keys are quite large given the small dimensions and send both velocity and poly aftertouch; and modulation and pitch bending can also be controlled by pressing them. MIDI output and pedal inputs are also rarely found on such compact keyboards, and the flat design makes Xkey an eye-catcher in the studio or on the go.

However, it will take some time to get used to the special playing feel, and the Xkey is not really suitable for classic keyboard players.

Manufacturer: ESI

Web: esi-audio.com

Distrib: Hyperactive

Price: 149 Euro (Xkey 25) ; 249,- Euro (Xkey 37)

Rating: ■■■■■■■■■■

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"Best possible sound quality and solid clock for the studio."

Beat 06/24



Test: Zoom R4 MultiTrak

Zoom praise the R4 MultiTrak as a recorder by musicians for musicians. Four tracks, no noise thanks to being 32 bit; and this 287 gram, mobile phone-sized device can even be used as an audio interface. So let's dive into the test with curiosity. **by Sascha Blach**

Features

- 4 recording tracks & a bounce track
- Recordings in 32-bit float / 48kHz
- 48V Phantom power
- Metronome and tuner
- Micro SD card up to 1 TB usable
- Power supply via batteries or USB
- 2 XLR/jack combo inputs

Facts

Manufacturer: Zoom
Web: zoomcorp.com
Distrib: Sound Service
Price: 219 Euro

- ▲ Sophisticated controller concept
- ▲ High-quality feel
- ▲ Excellent sound
- ▲ UADx/Fabfilter compatible
- ▲ Undo/Redo/Snapshots
- ▲ DAW integration
- ▼ Higher price

Workmanship: ■ ■ ■ ■ ■
Features: ■ ■ ■ ■ ■
Price/Perf: ■ ■ ■ ■ ■
Total: ■ ■ ■ ■ ■

Alternatives

Zoom H6
199 Euro
zoomcorp.com

Zoom H8
339 Euro
zoomcorp.com

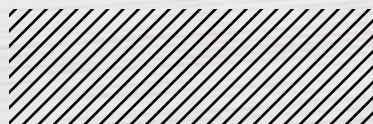
Tascam DP-006
168 Euro
tascam.eu



Four tracks. This is reminiscent of the tape recorders of yesteryear, when we tried to record our first musical steps with a 4-track cassette recorder. And the principle is not all that dissimilar, except that, here, an SD card is used instead of a tape and the four tracks can be combined on one bounce track. So you can, theoretically, record tracks for all eternity. And in high 32-bit floating resolution with 48 KHz and with numerous internal effects.

Fast and mobile

The R4 is aimed at those who want to record their ideas as quickly as possible. And starting up the DAW with all the trimmings simply takes longer than recording with a device that is ready to use within a few seconds. Rather than „either or“, the answer should be „why not combine the two? This is because you can import the tracks from the SD card into your DAW (the individual tracks from the bounced and overwritten takes are still available! Using the USB-C connection, the device can also be used as an interface with two inputs and two outputs for a computer or smartphone. The R4 is also ideal for live recording directly from the console or outdoors, as well as for mobile use.



Recording is child's play

First of all, it should be noted that the micro SD card is not included in the scope of delivery. However, this makes it flexible when it comes to the amount of storage space - up to a limit of 1 TB. Two tracks can be recorded simultaneously, for which two XLR/TRS combo inputs with built-in microphone preamps are available, which also have +48V phantom power. Leveling is not absolutely necessary thanks to the 32-bit resolution, as there is plenty of headroom here. The noise floor is very low at -120dB ON, so that the recordings are (almost) noise-free. If you want to go even faster and don't have enough time to connect a cable, the built-in mono microphone with omnidirectional polar pattern can help. This means that the R4 is also well suited as a dictation machine, for field recordings or for recording interviews and podcasts if these do not have to be in stereo. Monitoring is by way of a mini jack headphone output. It is powered either by four AA batteries or a USB-C cable (not supplied) connected to a power bank or socket.

Very versatile

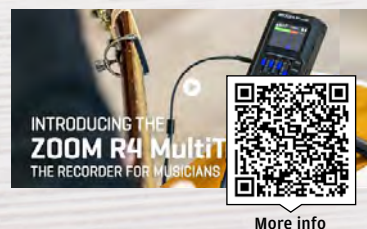
The operation is quite simple, because in addition to the usual buttons such as play, record, stop, forward and reverse, there is also bounce and undo (to undo the bounce). Each channel has a haptic volume control, as well as a virtual 3-band EQ, pan control, delay and reverb. There is also an amp simulator, delay and distortion for channel A, so that you can process the clean guitar directly in R4. A Metronome, which can also play pre-programmed rhythms for different genres, helps with recording. The R4 also makes it easy to practice guitar. And to ensure that this is done with a tuned guitar, there is a tu-



ner on board. Everything is displayed on the 2-inch color display with a clear layout. Fortunately, there are no complicated submenus. However, the digital controls and buttons here are so small that it can quickly become fiddly. A multifunctional haptic controller would have been more useful here.

Verdict

The Zoom R4 is a compact mini studio for your pocket that can also be used as an audio interface. The 32-bit resolution makes leveling superfluous, the bounce function provides a workaround to expand the integrated four tracks and the integrated effects are also impressive. Although not everything reaches DAW quality and the operation of the 2-inch display is sometimes small, this is only whining at a high level in view of the price, because Zoom really does offer a practical helper here - and not just for musicians. ■ ■



More info



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Test: Moog Spectravox

Moog continues its series of Eurorack-compatible desktop synthesizers with the Spectravox. The new playmate of Mother-32, DFAM and Subharmonicon also offers an innovative concept and combines a mono synthesizer with a filter bank and vocoder. **von Jan Wilking**

Features

Analog spectral processor
1 oscillator (saw/pulse)
10-band filter bank / vocoder
semi-modular
Audio input with preamplifier
Eurorack compatible (60 HP) OLED display
Dimensions 326 x 107 x 143 mm

Facts

Manufacturer: Moog
Web: moogmusic.com
Distrib.: inMusic Brands
Price: 699 Euro

- ▲ Analog Moog sound
- ▲ Vocoder with mic input
- ▲ 10-band filter bank
- ▲ Individual envelope followers
- ▲ Direct operation
- ▲ Flexible concept
- ▲ Semi-modular
- ▲ Eurorack compatible
- ▼ No mix control for input

Sound:
Processing:
Price/perf.:
Total:

Alternatives

Verbos Bark Filter
965 Euro
verboselectronics.com

Frap Tools Fumana
979 Euro
frap.tools

AnalogFX - VXC-2220
515 Euro
analogfx.com

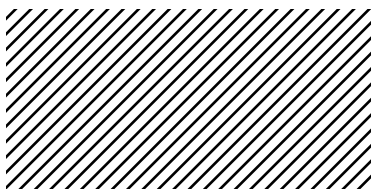


Spectravox can be perfectly combined with external equipment, e.g. from the Moog series.

Moog presented Spectravox 5 years ago as a strictly limited kit at the Moogfest 2019, and it is now freely available in stores as a fully assembled model. Compared to the previous DIY version, the faders for mixing the 10 filters have been replaced by small controls and the space thus freed up has been used for 20 additional patch sockets, which sensibly expand the possibilities of Spectravox. Spectravox is completely analog, so all parameters are directly accessible and the settings you see are also what you hear. The consequence of this is that you cannot save sounds and settings.

For desktop or Eurorack

The Spectravox technology is housed in the same desktop housing as Mother-32, DFAM and Subharmonicon. The wooden



side panels not only look great, but also serve as stands and provide a surface that is angled towards the user for better usability. Like the other models, you can either use Spectravox in a desktop housing or screw it into a Eurorack housing, which then also provides the power supply.

Analog sound generation

The basis of the sound is an analog oscillator that generates a square or sawtooth wave. The pulse width of the square wave is continuously adjustable and can also be modulated using the patchbay on the right-hand side, e.g. with the internal LFO. This is followed by the filter section and thus the special feature of the Spectravox. Spectravox offers a total of 10 filters, starting with a classic low-pass filter (12dB). This is followed by 8 band-pass filters with ascending sequences and at the end there is a high-pass filter. Each filter has its own volume control, an input for the VCA and an output of the envelope follower. The frequencies of the 10 filters can be shifted together with spectral shift, which can also be done automatically using an LFO or a

modulation source looped in via a patchbay. The resonance control regulates the resonance of all filters together.

Flexible amplifier

The amplifier offers various modes. It can be permanently activated, meaning that the sound can be continuously transmitted. This is useful if you use Spektravox as a pure effects device for external signals, for example as a filter bank. Alternatively, the volume curve can be controlled by the internal envelope, which can only be adjusted in the decay phase. Or you can use the envelope follower, which calculates an envelope from the level of the incoming audio signal. This is particularly interesting when used as a vocoder, because then you can only hear something when singing and speaking and not during the signal pauses. And last but not least, you can of course also use an external modulation source such as a slightly more complex envelope from another semi-modular synthesizer such as the Mother-32 or a specialized Eurorack module.

Unique concept

The individual sections appear quite simple and minimalist at first glance, but as with the other models in the series, the whole is more than the sum of its parts. Because when used together, a lot can be adjusted. If you then also include the 36 patch sockets (19 inputs, 17 outputs) in the Eurorack-friendly 3.5mm jack format, which can be used to integrate both internal and external audio and control signals, Spectravox offers quite a few possibilities.



Spectravox is purely analog and cannot be saved, but overlays make it easier to get started.



Thanks to the microphone input, you can use Spectravox as a vocoder without any additional equipment.

Use as a mono synthesizer

First of all, you can use Spectravox as a simple monophonic analog synthesizer. However, since Spectravox does not have a MIDI or USB connection and also no internal sequencer like Mother, DFAM and Subharmonicon, the pitch control and the triggering of the envelope must be done via CV/Gate. You therefore need either a MIDI-to-CV interface or a synthesizer or controller with CV/Gate outputs (e.g. Arturia Keystep). Alternatively, there is also a trigger button directly on the device for manual triggering when tweaking the sound.

Distinctive Moog sound

The oscillator has the well-known rich and robust Moog sound and the low-pass filter (whose resonance hardly thins out the bass) sounds powerful and round, so that simple bass lines or arpeggios with a beautiful analog sound are possible. Since the VCO can be continuously mixed with a noise generator and the envelope is fast, percussive sounds are also no problem. At high resonance, the filter goes into self-oscillation and can be played tonally quite cleanly. And the LFO reaches into the audio range, so it can also provide additional sound enrichment. In this respect, Spectravox is more flexible as a synthesizer than one would assume at first glance.

Vocoder

In general, however, Spectravox will probably be used primarily as a vocoder. For this purpose, the device has an XLR/jack combo socket on the top left, to which you can connect dynamic microphones directly. Your voice then serves as a modulator, which uses the Spectravox's VCO as a carrier and modulates. With 10 bands, you obviously cannot

expect a comparable level of speech intelligibility as with modern vocoders with 20 or more bands. But the whole thing sounds unmistakably analog and has the advantage of direct access to the various bands. You can use the 10 controls to directly control which bands should modulate at what volume, giving you direct access to the sound of the vocoder. The hiss/buzz switch can also be used to amplify vowels, thus increasing intelligibility somewhat, and the hold switch allows you to „freeze“ the current sound.

The only thing we missed was an easy way to mix the unprocessed voice into the vocoder signal without an external mixer.

External carrier/modulator

The Spectravox's sound generation is only monophonic, but you can also loop in polyphonic signals as carriers via the patchbay. With an external polyphonic synthesizer, you can also use string chords or polyphonic pads for the vocoder, which are then modulated in the classic way by your voice.

And the modulator doesn't necessarily have to be a voice either. You can also loop in drums via the audio input and use them to rhythmically modulate the internal synthesizer or an external pad sound - this was already a popular stylistic device in early Techno productions.

10-band filter bank

An external drum loop is also a good way to try out the filter bank function. To get started, we recommend setting spectral shift to neutral, turning down resonance and the volume of all filters, and then turning up just one filter at a time. This way, you can isolate the individual elements such as kick, snare, and hi-hat. And once you know which filter emphasizes which element of the loop, you can use the separate VCA inputs for further emphasis, or use the outputs of the individual envelope followers for modulation. In combination with the other semi-modular Moog sound generators or a modular system, all sorts of exciting sound experiments are possible!



Spectravox can also be built into a Eurorack case, so the connections on the back are limited to an additional audio output and power supply connection.

You will also be surprised at what you can do with simple audio signals such as noise when you tweak or modulate the various filters. A downstream stereo effect such as reverb, delay or chorus works wonders, because Spectravox only has a mono output and the individual filter bands unfortunately cannot be distributed in the stereo panorama.



More info

VERDICT

Moog is adding another innovative product to its desktop/Eurorack series. With just one oscillator and LFO and a rudimentary envelope, Spectravox initially seems quite unspectacular, but in combination with the 10 filter bands and the semi-modular structure, you can do a lot with it. Whether as a simple mono synthesizer with a powerful Moog sound or as a vintage vocoder or filter bank, Spectravox consistently performed well in the test. Subsequent stereo effects provided a significant enhancement. Spectravox shows its full capabilities when used in conjunction with other (semi-)modular devices such as the Mother-32 or a modular system. The frequency-dependent envelope followers are ideal as modulators for other sound generators. In addition to vocals, you can also loop in a guitar or groovebox/synthesizer and process it with Spectravox, either as a modulator or carrier for the vocoder or for direct division into individual frequency bands thanks to the individual controls and sockets for each of the 10 filters. Moog really put a lot of thought into this development. This is also reflected in the price, which we still consider fair and reasonable given the options and Eurorack compatibility. ::

Test: Sequential TEO-5

TEO are the initials of synthesizer pioneer Thomas Elroy Oberheim, and the 5 stands for the number of voices of the polyphonic analog synthesizer. Packed in the housing already known from Sequential Take 5, TEO-5 is no bargain at just under 1,700 Euros, but it is by far the cheapest Oberheim synthesizer currently available and definitely worth the purchase. Or not? **by Jan Wilking**

Features

Polyphonic synthesizer
5 analog voices
44 keys with aftertouch
2 VCOs
X-Mod/Through-Zero FM
SEM multimode filter
Dual digital effect
256 factory/user presets each
Dimensions:
63 x 32 x 11 cm



Facts

Manufacturer: Oberheim
Web: oberheim.com
Distribution: Oberheim
Price: 1.699 Euro
▲ VCOs with Through-Zero FM
▲ SEM multimode filter
▲ Modulation matrix
▲ Very good keyboard
▲ Compact design
▲ Modulable effects
▲ Flexible sound
▼ Rudimentary sequencer

Operation: ■ ■ ■ ■ ■
Sound: ■ ■ ■ ■ ■
Price/perf.: ■ ■ ■ ■ ■
Total: ■ ■ ■ ■ ■

Alternatives

Sequential Take5/OB-6
1.499 Euro
korg.de

Behringer UB-Xa
1.298 Euro
behringer.com

ASM Hydrasynth Keyboard
1.129 Euro
ashunsoundmachines.com

In addition to classic Oberheim elements such as the SEM multimode filter, TEO-5 has some special features such as Through-Zero FM and flexible digital components. While analog oscillators and filters provide vintage sounds, the extensive modulation matrix in conjunction with two digital effects and a polyphonic step sequencer also enables complex and modern sounds.

Modern design

The relatively low price by Oberheim standards was probably also made possible by the fact that this was a secondary utilization. Both the housing and the digital innards such as envelope, LFO, VCA and effects/overdrive were taken from the Take

5, so they did not have to be newly developed and manufactured. Externally, the TEO-5, like the Take 5, does not necessarily look like a classic analog synthesizer, but rather like a modern virtual analog or digital synthesizer. The black and blue design is of course an unmistakable reference to the Oberheim classics.

Many parameters can be accessed directly

With 42 controls and a large number of mostly illuminated buttons, direct access to the sound generation is ensured. The easy-to-grip plastic pots were very stiff at first, but after a few sessions this changed into a pleasant turning resistance. Access to more in-depth functions is available via an easy-to-read OLED display with associated endless controls. Unfortunately, the parameter is not always automatically shown on the display when a control is turned, something we had already criticized with the Take 5.

Compact despite 44 keys

The semi-weighted Fatar keyboard is playable very well, touch dynamics and aftertouch are implemented very well. Due to its compact dimensions, however, the TEO-5 only has 44 keys. The split function is therefore practical, as

it allows only the lower half of the keyboard to be transposed down by one or two octaves and thus to be able to play deep basses, while the upper keys are still available for leads in higher pitches. This means that the entire range of tones can be used even with a 3.5-octave keyboard. Unfortunately, the TEO-5 cannot be split in terms of sound, as the synthesizer is monitimbral and can only play one sound at a time.

Two LFOs (mono/poly)

The user interface is clearly structured and follows the typical structure of old analog classics. On the left is the modulation area with Glide, Unisono and two identically constructed LFOs. The LFOs offer the standard waveforms including sample & hold for random value changes, can be synchronized to the tempo and can modulate various parameters. The assignment is intuitive: press the destination button, select the target parameter by turning the control (e.g. the pleasantly large cutoff control) and use the amount control to select the strength of the modulation. LFO1 is global, so it affects all voices at the same time and is therefore interesting for synchronous tremolo, vibrato or the modulation of effect parameters. LFO2, on the other



Tom Oberheim personally helped develop the synthesizer named after him.

hand, modulates each of the 5 voices individually, which can provide more complex modulations when playing polyphonically.

Vintage controller, unison

The vintage controller, which has now become standard on neo-analog synthesizers (see OB-X8, Take 5, Prophet5/6), is also on board. It ensures subtle to clearly audible changes in the sound of the individual voices, and these fluctuations in pitch, filter frequency, etc. ensure a livelier sound that is often perceived as more „organic“ and „analog“.

The 5 voices can be layered to create a fat unison sound. Or you can use chord memory to save any chord and then play and transpose it on the keyboard with just one key.

Many modulation options

A modulation matrix with 19 slots enables further assignments, with 19 modulation sources (velocity, aftertouch, modwheel, envelope 1, 2, etc.) and a whopping 64 modulation targets currently available. For a polyphonic, essentially analog synthesizer, the modulation options are exceptionally extensive. Voicespread is an interesting modulation source, as the sound can change with each voice played. A simple application would be to combine it with panning to distribute the individual voices in the stereo panorama and thus create the very wide sounds typical of Oberheim. In unison mode, you get ultra-wide leads and basses. You can also use it to modulate the continuously adjustable waveform of the oscillator so that each voice sounds subtly or drastically different. In combination with X-MOD, this brings you into the realm of a modular system.

The assignment of the matrix slots is also intuitive; source and destination can be selected directly by pressing the Source or Destination button and turning the desired control (e.g. LFO1 frequency and cutoff); you set the intensity of the modulation with the Value control below the display.

2 analog oscillators (VCO)

The other sections are arranged from left to right according to the signal flow. Two voltage-controlled analog oscillators (VCO) serve as sound generators. The two VCOs offer triangle, sawtooth and square waveforms (with variable pulse width). Continuous crossfading like with the Take 5 is not



The built-in effects also offer digital replicas of legendary Oberheim effects from the 70s.



In direct comparison: Sequential Take 5, Oberheim TEO-5 and OB-X8.

possible, but the three waveforms can be combined as desired. With the Pulse Width control you set the pulse width for the square wave of both oscillators together, but a separate adjustment is also possible using a shortcut. In addition, each VCO can be adjusted in pitch (in a wide range of 5 octaves) and fine-tuned using a control.

Similar sound to the Take 5

The oscillators sound like a mixture of the Take 5 and the OB-X8, which we fortunately had in the studio for direct comparison. They don't sound quite as round and elegant as the big Oberheim, but also have a bit of the scratchy, mid-range but very assertive sound of the Take 5. But this could also be due to the subsequent sound components such as the digital VCA.

Sub and noise generator

In addition to the two VCOs, there is a sub-oscillator (square wave) coupled to VCO1 and a noise generator with white or pink noise. In combination with the crisp envelopes, percussive sounds are no problem. As usual with Oberheim, there is no classic mixer, but all four elements can be switched on or off using a button. Here, too, there is a shortcut to set individual volumes for VCO1, VCO2, Sub and Noise. Unfortunately, an external audio signal cannot be mixed in, which is a shame considering the very good-sounding analog filter and the built-in modulable effects.

Oscillator modulation

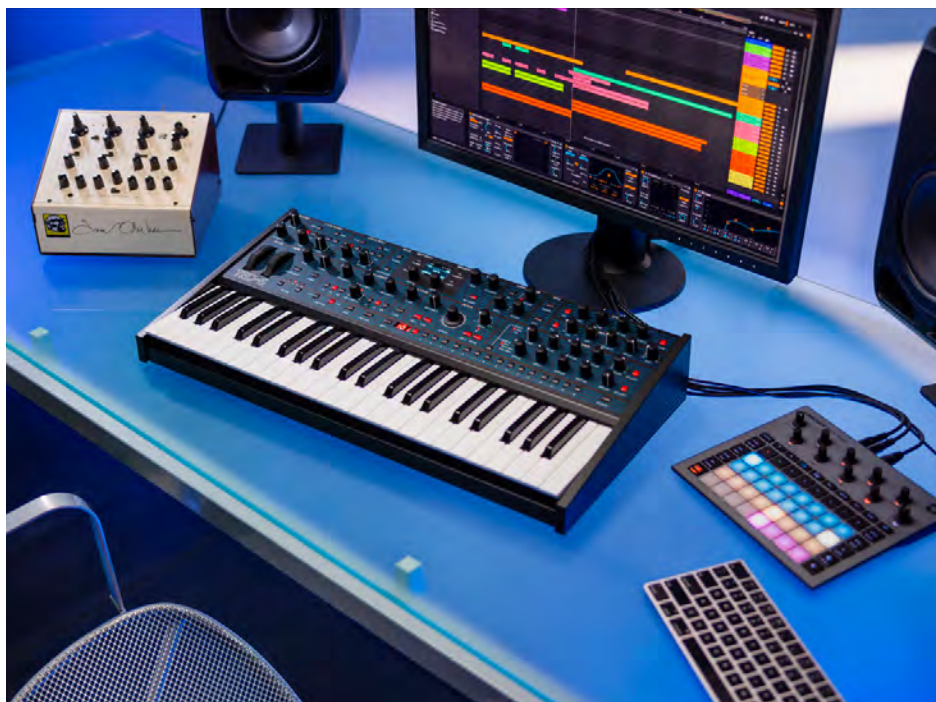
The first highlight of the TEO-5 is OSC MOD. Here, VCO1 can be hard synchronized to VCO2, which produces convincing, sharp leads and basses. Even more exciting is X-MOD for continuously controlling the modulation of VCO1 by VCO2. This then produces the familiar metallic sounds, from weird drones to crisp basses to electric pianos and bell-like sounds. This sounds completely different with analog oscillators than with digital synthesizers.

Through-Zero FM

As a special feature, TEO-5 offers Through-Zero FM. Without going into technical details: With classic X-Mod/FM like in the Oberheim OB-X8 or Take 5, the sounds produced are often out of tune and therefore no longer so easy to play tonally. Through-Zero FM, on the other hand, ensures correct tuning, so that the sounds produced can easily be used to play melodies that fit tonally with the rest of the song without any further effort or retuning of the oscillators. If you combine this feature with the wide frequency range and the mixable waveforms of the two VCOs and the option to filter just one VCO, this results in a variety of different sounds with plenty of charm and character.

Classic Oberheim filter

Another highlight and, alongside Through-Zero FM, the most obvious difference in terms of sound compared to the Take 5 is the filter. It is a 12dB two-pole filter that can be continuously faded between low-pass, notch and high-pass and can also be used as a band-pass filter. It is obviously based on the design of the legendary Oberheim SEM, while the 24dB four-pole filter of the Take 5 is based on the low-pass filter of the Prophet-5. In contrast to the Take 5, the filter of the TEO-5 cannot be set into natural oscillation at high resonance. In our ears, however, it sounds much better suited to the VCO. While



The compact format and robust workmanship also make the TEO-5 ideal for desktop studios and the stage.

controller movements. The arpeggiator does not offer anything extraordinary, but at least like the sequencer, it also sends the notes out via MIDI in order to record them in the DAW or to control external sound generators.

MIDI/USB

On the back, in addition to USB MIDI, there is also the classic MIDI trio in DIN format. CV/Gate control is not provided, but it is also difficult to implement with a polyphonic synthesizer. Unfortunately, there is no audio input, but there is a stereo output (unbalanced, however), a headphone output and connections for foot switches (e.g. for holding down a key or arpeggios or for sustain) and foot pedals (e.g. for controlling the filter frequency when playing with both hands). The built-in power supply with power switch, which is connected to the socket using a standard IEC cable, is a welcome feature.

the Take 5 always overdrives a bit and sounds harsh, which is probably due to the filter starting up quite hot and its reaction to it, this is better compensated for by the creamy Oberheim filter.

The different filter types also make the TEO-5 more flexible in terms of sound. And despite the lower slope, we were able to achieve crisp filter bass and percussion in conjunction with the fast envelopes. We wouldn't have turned down the OB-X8's 24dB filter as an additional option, but that would probably have pushed the price up significantly. As with the Take 5, we missed a controller for keyboard tracking, which can only be set via the menu.

2 fast envelopes

Two ADSR envelopes are available for modulating any parameter. Envelope 1 is connected directly to the filter frequency, but can also be used as an AUX envelope to modulate the pitch, for example. Envelope 2, on the other hand, is primarily intended for volume, but can also modulate the filter, so that Envelope 1 is available for other purposes independently. The assignment can be changed directly via the interface using a button.

The envelopes are very flexible. From crisp percussive zaps to slowly developing pads and drones, everything is possible. The delay function, which can be set via the menu, is interesting; it delays the use of the envelope and can thus provide even more variety in the sound progression.

Dual effect

TEO-5 also has two effects integrated that, despite being digital, interact very harmoniously with the sound generation and exude an analogue flair. In addition to a good-sounding plate reverb effect with

direct access to decay time, damping, tone and first reflection, the multi-effect is particularly interesting. BBD and tape delay provide movement for arpeggios and leads. Chorus, flanger and rotary widen pads and distortion as well as lo-fi (tape emulation) add more dirt to the sound. In addition, there are two algorithms based on Oberheim's vintage effects such as Phasor or Maestro: phaser and ring modulator.

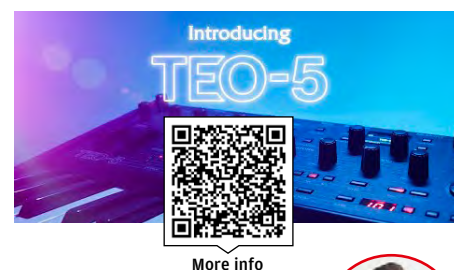
Modulating effect parameters

As the effect parameters are available as a target in the modulation matrix, extensive modulations are possible. This is interesting, for example, with the high-pass filter, which can also be selected as an effect, and whose frequency can be modulated using velocity, envelope and/or LFO, for example. This allows you to combine the SEM low-pass filter with a high-pass filter that follows it.

There is also an adjustable stereo overdrive for the master output, the control for which is located directly below the volume control at the top left.

Rudimentary sequencer

In comparison to the well-equipped sound generation, the sequencer area is unfortunately very rudimentary. There is a polyphonic sequencer with up to 64 steps, but it only has two buttons, Record and Play. Record starts the step input, where chords, rests and tied notes can also be entered. It is not possible to play sequences in real time or to edit them afterwards. We would have liked more here. After all, the 16 illuminated buttons in the lower area would be perfect for using them as a running light and to switch steps on and off. But as with the Take 5, these buttons are only used to switch presets. Unfortunately, it is also not possible to record



More info

VERDICT

TEO-5 undoubtedly has that certain Oberheim charm. With the creamy filter and the stereo options, it can handle almost all the classic sounds for which Tom Oberheim's synthesizers are legendary. Thanks to extras such as Through-Zero FM, a large modulation matrix and modulable effects, TEO-5 also offers modern-sounding assertive leads, round basses, cinematic pads, percussive sounds or weird effects.

The operation is intuitive and the hardware with the very good keyboard feels very high quality, so that the TEO-5 is recommended as a compact all-rounder for stage and studio. In terms of sound, it does not quite come close to the much more expensive OB-X8, which sounds even wider, more elegant and more HiFi-like, but there is not much separating it from the OB-6 in this respect. And in direct comparison to the very similarly constructed Take 5, we personally find the sound results of the TEO-5 more convincing because VCOs and filters with TZFM and multi-mode are more flexible and better coordinated in terms of sound. 🟡

Test: AnalogFX VXC-2220

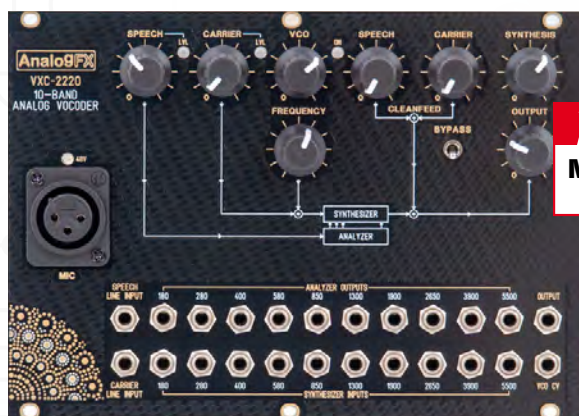
When I first started working with Eurorack synthesizers in 2013, I was researching vocal synthesis for my Master's thesis, and I was wondering when I would find a vocoder in a Eurorack module. Eleven years later at Superbooth24, I finally found one at the AnalogFX booth, and I was completely blown away; it is everything I ever dreamed it would be and more. **by Dr. Chelsea Bruno**

This is the module that all vocoder fanatics have been waiting for: the AnalogFX VXC-2220 10-Band Analog Vocoder. It is based on the classic design of the rare rackmount piece, the Synton Syntovox 222 Analog Vocoder. The vocoded sounds that can be achieved with the VXC-2220 have a pristine quality and a vintage warmth. It is wonderful to experience the sonic joy of analog vocoding in real-time. This is a fantastic module by AnalogFX and notably, it is the first of its kind from a boutique manufacturer for the Eurorack synthesizer format. The VXC-2220 has an elegant design and an ease and simplicity to the layout that allow it to become a catalyst for creativity right from the start. It has a mic input right on the front of the module for dynamic or condenser microphones, and there is a phantom power on the back of the module that needs to be connected for the condenser microphones. The speech line input is used for audio signals and cannot be used at the same time as the microphone input.

Vocoding in real time

There is a precision of tones quantized to 1 semitone that can be utilized with the frequency control knob, saw, pulse and noise. The saw is operating in the range of C1-C6 and in the first section of the knob range. In the middle section of the rotary knob range is the pulse wave which sounds fuller than the saw. Turning the knob all the way to the right will land you in the white noise. The white noise control, with the amount determined by the 'synthesis' knob, allows more emphasis to be placed on the fricative consonants of human speech.

The input labeled 'VCO CV' allows so much to be done with other modules and gear, while patching external CV sources; it can act as a V/Oct input allowing the vocoder to play sequences and can run arpeggiations and connect with keyboard output. Note that the use of this input disables the frequency knob.



Further options can be explored with the 10 analyzer outputs and 10 synthesizer inputs. There are subtle changes in the frequencies that become audible while patching these ins and outs. The block diagram in the manual of the VXC-2220 indicates the functions of all of the analyzer outputs on the bottom of the module, which are labeled on the faceplate in decibels. These outputs offer subtractive synthesis options of lowpass, bandpass (1-8) and highpass.

Like all high quality analog equipment, the VXC-2220 is extremely sensitive and if you are using a mic plugged into the front of the module, high feedback is something you have to be careful with. The gain level of the microphone is set but can be adjusted on the back of the module by turning a small screw on the PCB. It might have to be adjusted slightly to the right level to suit your studio setup on arrival. But with the levels all set right and adjusted to your system, you will get no feedback at all and it will work like a charm. If you have a sense of humor, you will be laughing with fascination at these sounds. As with all modules, always keep an eye on the output level. The speech parameter is where you can choose to hear your own voice and blend it with your vocoded voice.

Speak, sample or sing

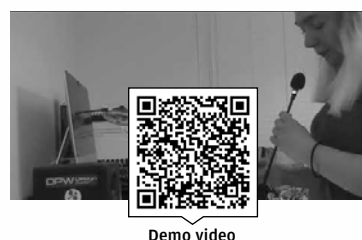
Don't be worried if you think you may have nothing to say through it, because

it sounds amazing pretty much no matter what is being said. And if the speech input

level is turned all the way down, there becomes the mystery of whose voice is actually being vocoded, and what are they saying? We can all agree that pretty much no matter what is being said through a vocoder, it will always have the sci-fi appeal of sophistication. That is definitely the case with the VXC-2220; anything you say through it or any sample processed through it will sound cool, point blank, so be ready for that most of all. Words need not be said at all if you want to just use the voice as a signal for texture and modulate it via the VCO CV input. The mouth acts as a filter in this case and can achieve interesting sounds with oohs and ahhs. Human vocals harmonizing with the VCO sounds impeccable.

Verdict

The AnalogFX VXC-2220 is an electro producer's dream come true and is a must have for anyone who enjoys working with vocoders. Highly recommended for techno, electro, hip-hop and experimental music producers and enthusiasts of analog electronic sound synthesis. 🌟🌟



Features

- 36 HP Eurorack module
- Microphone input for speech signal
- Compressor/Limiter on microphone input channel
- Phantom power
- VCO with 'VCO CV' Input
- Synthesis for 's' and 't' sounds
- 10-Band analyzer outputs
- 10-Band synthesizer inputs
- Line inputs for speech and carrier signals

Facts

Manufacturer: AnalogFX
Web: analogfx.com
Distribution: Website
Price: 495 Euro

- ▲ Classic analogue design
- ▲ Built-in oscillator
- ▲ Ease of frequency tuning
- ▲ Bypass switch
- ▲ Patching flexibility
- ▲ Price

Sound: ██████████
Concept: ██████████
Price / Perf.: ██████████
Total: ██████████

Alternatives

VoIS Modular 15-Channel Vocoder
 499 Euro
 vocoder.hoerold.com

Moog Spectravox
 699 Euro
 moogmusic.com

Test: Klavis Grainity

Granular Synthesis is popular and the corresponding modules are in demand. With Grainity, Klavis is now launching a new one to the market. For the first time, the concept of processing the smallest sound snippets using a filter has been realized. Our test shows how this works and how the innovation from Brussels performs musically from our point of view. **by Daniel Bock**

Features

Fully analog signal path with digital control

Multimode VCF and Granular VCF

Common frequency and resonance slider

Multimode filter types

Analog granular filter

Three output signals

Seven CV-ins for controlling the parameters

Panel available in black and silver

Facts

Manufacturer: Klavis

Web: klavis.com

Distribution: Website

Price: 289 Euro

- ▲ Completely new concept
- ▲ Unique sound
- ▲ Intuitive operation, very few secondary functions
- ▲ Versatile sound design tool
- ▲ Can also be used as a conventional filter
- ▲ Comprehensive, detailed manual
- ▲ Only 10 HP wide
- ▼ Clicks caused by the design

Innovation: ■■■■■■

Fun Factor: ■■■■■■

Price/Perf: ■■■■■■

Rating: ■■■■■■

Alternatives

none

Grainity is inconspicuous at 10 HP. It is home to two parallel filters, both of which have separate outputs, but share frequency and resonance. A third output provides a mixed signal. The mix control acts as a crossfader between the two. Three outputs provide plenty of material for processing in the system - an invitation for complex sound design. However, Grainity can also be used as a conventional filter if less wacky sounds are required. The multi-mode filter offers six options with two lowpass, highpass, bandpass, notch and filter bypass. Its phase can also be rotated by 180°. This demonstrates versatility and saves space.

But granular sounds different! ...and so does a filter!

Granular pads and instant Ambient vibes à la Clouds or comparable digital audio processors: No way! The audio path here is fully analog. If you listen to the granular VCF, it sounds completely different than anything you'd expect. Instead of taming harmonically rich sounds, there's harmonic content on top. My associations with the sound are more along the lines of a complex oscillator or bitcrusher. A good recommendation is, therefore, to approach the matter as impartially as possible and with open ears.

Granular VCF

Grainity uses the input signal and detects ascending crossings of the zero line. Triggers are derived from this crossing, which initiate a defined sequence of filter settings. Since all of this can take place in the audio frequency range, you get complex textures from the smallest, varying sound snippets: Granular Filter Sounds. These pre-programmed sequences of Filter and Phase settings are called „Structures“. There are 57 of them, which differ in length and variation. The recognized trigger cycle can be divided using the Division Control or CV-In. Smaller values tend to lead



results. Simple, cyclical waveforms such as Sine, Sawtooth or Square tend to produce the former, while atonal, complex sounds tend to produce the latter. With drums, voice samples and chords, I had the best results with simple waveforms in the Detect-In.

Verdict

„Innovative“ and „unique“ is probably the best way to describe it. If you break away from the usual ideas of what filters and granular processors deliver, you will find a wide field of experimentation for some interesting sounds. The three outputs and the Filter Bypass are useful features for creating complex textures. The Grainity's best friend is monophonic, simple waveforms. With an analog oscillator plus Grainity, you can create West Coast-style sounds quickly and easily. However, I also had a lot of fun searching for the sweet spot with polyphonic material, samples and percussion. Choosing the right source in the Detect-In and fine-tuning the amount of effect in the mix often made all the difference. Self-oscillation and feedback patching lead to wonderfully weird results. Anyone who likes experimental sounds will find a huge playground here - an absolute recommendation! The fact that the module can also be used as a simple filter is another plus. Sometimes I wished for stereo functions, but this could be compensated for in the rack. Design-related volume differences between the structures, as well as clicks at high resonance could also be tolerated. ::



Demo video

Power Producer: Ableton Push

Extend setup with controllers

Do you prefer to use hardware faders for volume control on stage or do you need a few more knobs to control effect parameters or do you like playing on a keyboard? No problem, Push 3 can easily be combined with one or more MIDI controllers in order to tailor the control options to your individual workflow. You can find out how to expand your setup in this workshop.

by Maya C. Sternel

Project info

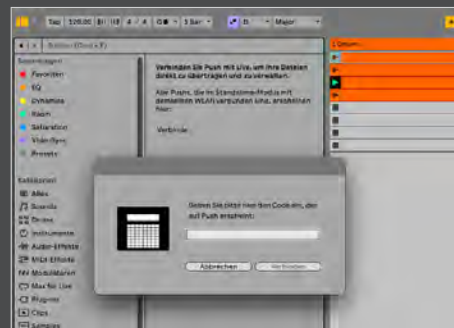


Material: Ableton Live 12, Ableton Push 3

Time required: 30 minutes

Content: Connection of external MIDI controllers to Push 3 for extended parameter control, configuration and parameter assignments, application examples, for example, to control track volume using external faders.

Difficulty: Advanced



1 Connecting a controller

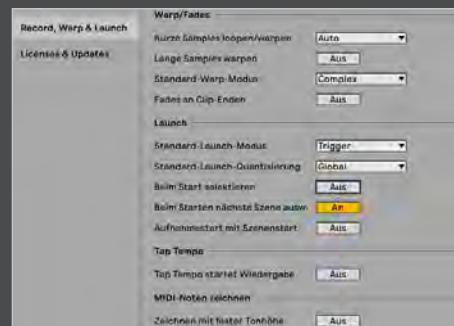
You can easily connect another MIDI controller to Push, even in standalone mode, if you connect it to the USB port on the back of Push. If you want to combine several MIDI controllers with Push, connect a USB hub to Push's USB port instead and then plug your controllers into the hub. ➤

2 MIDI Ports

Press the Push setup button and select the **MIDI** submenu. Scroll down with the rotary control until you see your connected controller. Next, select what you want to control with the connected MIDI controller in the top line of the display: If you only want to play MIDI notes, activate **Track**. ➤

3 Transfer a set

If you also intend to control device parameters, such as filter frequencies or chorus amount, activate **Remote**. Next, the desired parameters must be mapped to the external controller. Unfortunately, MIDI mapping cannot yet be done directly in Push; therefore, you have to send your Live set to Live once. ➤



4 Parameter mapping

Now carry out the MIDI mapping in Live directly: Activate the MIDI Mapping Mode and assign various parameters to different controllers or buttons of the external controller. For example, the sliders of a nanoController or another MIDI controller could be used to access the volume sliders of the first 8 tracks. ➤

5 Keep an overview

This gives you a good visual overview of the volume ratios. Normally, the display always jumps to the track from which a new clip is started. So, if you move a parameter using a rotary control and start a clip in another track at the same time, you would suddenly change a completely different parameter. ➤

6 Customize preset

To prevent the parameter assignment from changing to the knob, go to the Live preferences. Select the record, warp & launch tab and deactivate the **Select at Start** option. Save your setup and then transfer it back to Push so that you can perform in standalone mode. ➤



In Comparison:

Portable monitor for your MacBook

Portable monitors extend the screen on the move and save space in the small Home Office. Our colleagues from MacLife have compared six models for you. **by Thomas Raukamp**

Brave new world of work: Since the lockdowns during the coronavirus pandemic, many companies have been giving their employees the choice of coming to the office or setting up their computers in the comfort of their own home or in a café. The latest trend: Working from a vacation location for a few weeks or even months during a „workation“ and, therefore, combining the beau-

tiful with the useful - after all, your MacBook and a stable internet connection are often all you need to be productive.

Or fixed: Once you've gotten used to an external monitor in your office or home office as a supplement to your MacBook display, you'll soon want to enjoy this luxury on the go. Of course, you probably won't want to lug your 32-inch display

around with you. It's a good thing that various manufacturers are now responding to the trend and offering portable screens that disappear discreetly next to your MacBook in your briefcase or even in your backpack. When set up, they usually look as if someone has removed the screen from a notebook. Visually, they fit in perfectly with the computer.

Not just for on the go

But it's not just laptop nomads who benefit from these slim and lightweight devices. Not everyone can sacrifice their own room for their home office - their desks all too often end up in the living room or bedroom. And there isn't always an abundance of space. So, if you have a small workspace at home, a portable monitor is a viable alternative to its larger stationary siblings due to its smaller dimensions; especially as you can connect and disconnect them quickly and easily as needed and then make them disappear again inconspicuously for their next use.



Dasung E-Ink-Displays

Portable monitors are rarely used as the main screen in the office, but are intended to supplement the internal MacBook display when on the move. The disadvantage: they usually draw their power from the battery of the connected laptop. So what could be more obvious than using E-Ink technology for an external screen? This „electronic paper“, which is particularly well known in e-book readers such as the Amazon Kindle, does not require a constant power supply and, therefore, saves the battery. An E-Ink display only requires energy when it displays new content. The display of the electrophoretic ink is also similar to that of real paper, which is why E-Ink screens are considered to be particularly easy on the eyes and have a constant viewing angle even in direct sunlight.

Probably the largest manufacturer of E-Ink displays comes from China: Dasung's portfolio includes a portable monitor with a screen diagonal of 13.3 inches. On these 34 centimeters, the device displays a resolution of 2,200 x 1,650 pixels - this corresponds to a pixel density of 206 PPI. The „Paperlike HD-F“ monitor can be connected to your laptop either via USB-C or mini HDMI interface. The device is also available in a version with a touchscreen, although this cannot be used with macOS. The workmanship appears to be of high quality: the housing, which is available in silver and gray, is made entirely of aluminum.

However, the E-Ink monitor is not cheap: Dasung charges \$750 US Dollars for the model without a touch display - plus significant freight and customs costs to the European Union. This is because Dasung does not appear to have a German distributor, yet. Although the external display is listed on the online retailer, Amazon.de, it could not be ordered at the time of this writing.

» A portable monitor is an alternative to its stationary siblings because of its smaller dimensions. «

What should you look out for when choosing?

At first glance, the portable monitors currently available on the market only differ in the details. In most cases, the manufacturers rely on a 15.6-inch display with a resolution of 1,920 x 1,080 pixels (Full HD) in the „cinema-standard“ 16-to-9 format - a perfectly adequate display for this diagonal. Only LG's 16MR70 is more lavish: it manages 2,560 x 1,600 pixels - and in a „Mac-like“ 16-to-10 format to offer a slightly larger vertical display area. Do you want to work with the most accurate colors possible? Then you should take a look at the Asus Zenscreen OLED MQ16AH, which offers a breathtakingly good OLED display - but is also easily twice as expensive as the other models in the test.

The portable monitors are usually connected to the Mac or MacBook with a Displayport-capable USB-C port. Make sure that there are at least two of these on the device - particularly inexpensive no-name products tend to be stingy here. The reason: You can connect a 65-watt power supply unit to the second USB-C port to at least temporarily reduce the load on your MacBook battery.

On the other hand, the folding cases of many models are a matter of taste, which on the one hand protect the display while on the move, but at the same time serve as a stand in true origami style. Such a solution is not always stable (or easy to set up). In our opinion, it would be better to have a fold-out stand that rests against the housing during transport and, with the help of which, the monitor doesn't take up too much space even on the narrow ICE (Inter City Express) tables.



Asus Zenscreen OLED MQ16AH

The OLED Zen screen delivers excellent colors and high contrasts not only when you are on the move. It is also suitable as a high-quality monitor in a small home office.

Asus markets a wide range of portable monitors in various performance and price categories under the brand name Zenscreen. The highest-quality variant has a special feature that sets it apart from the competition: it has an OLED display. This screen technology is otherwise only found in high-quality smartphones and tablet computers.

And so the „Zenscreen OLED MQ16AH“ is a useful extension for Mac users who don't often use an external screen but want to enjoy the higher quality of an OLED screen in their home office at a reasonably digestible price. With full coverage of the DCI-P3 color space, it can even be used as a control screen for image processing.

This is precisely the quality delivered by the 15.6 inch (almost 40 centimetre) Zenscreen OLED: the colors and contrasts are brilliant, and the black level is completely beyond reproach. This is because, unlike conventional IPS displays, OLED panels quickly switch off black pixels. A welcome side effect: they consume less power and are, therefore, particularly suitable for mobile use. In this con-



The carrying case is also used to set up the Zenscreen OLED MQ16AH - although it's not very stable; however, Asus does not provide its own stand.

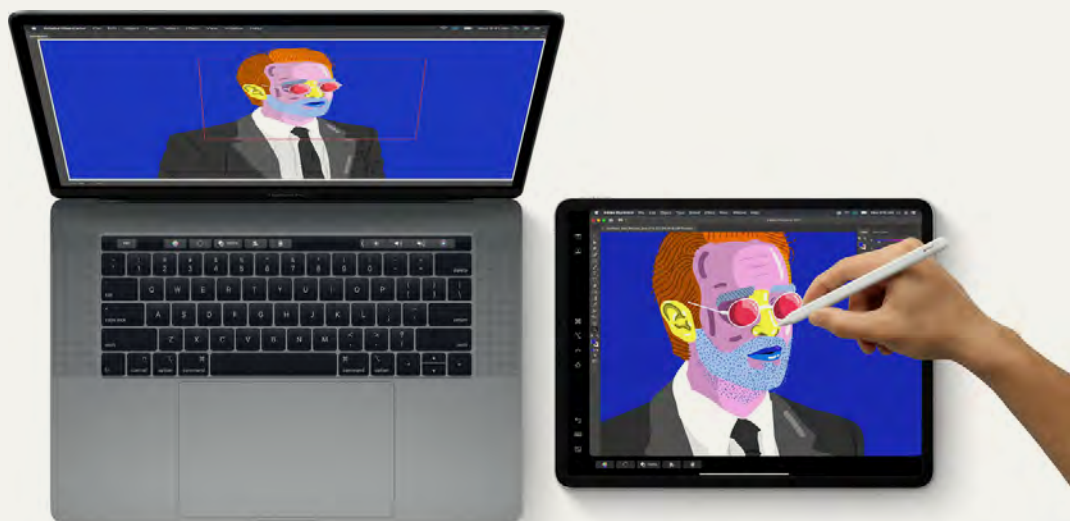
text, it's a bit of a shame that the OLED MQ16AH (unlike some other Zenscreens) does not have a built-in battery - it would probably have achieved good runtimes. Also exemplary: The brightness of the reflective display is a high 400 Lumens per square meter.

Asus has learned from the lack of connectivity of many of their previous models: Two USB-C

connections according to the DisplayPort standard allow connection to the MacBook - the included power supply can stay in your briefcase. If you still want to use it, it can be accessed through a third powered USB-C port. A mini-HDMI port completes the range - it doesn't really get any better than this. This is a verdict that applies to the entire monitor.

Apple Sidecar

If you own an iPad, you already have a portable second display. With Sidecar, Apple provides an operating system function that links any current Mac with the tablet to extend or mirror the screen. The connection is conveniently established using your Apple ID within the Wi-Fi network used by both devices. The solution certainly offers advantages: you can use the Apple Pencil for sketching, writing and signing documents, for example. Do you miss the Touch Bar in the new MacBook Pro models? Sidecar brings it back on the iPad.





HP E14 G4

This portable monitor from HP offers brilliant colors – and its brightness makes it particularly suitable for outdoor use.

For a long time, the E14 G4 was probably the brightest portable monitor on the market – and even three years after its release, it still plays in the top league in this respect: With its 400 Lumens per square meter, this matte HP display is also suitable for the occasional trip to the terrace or the café around the corner.

Elegant external

And you'll look good on this trip: The E14 G4 is finished in elegant silver and, therefore, matches most MacBook models quite well. In any case, the monitor looks as if someone removed the display from an HP laptop and added a few more ports. On the left and right of the housing are the usual USB-C connections in this device class, which are designed according to the DisplayPort standard and, therefore, connect to the MacBook. Like many other portable monitors, the E14 G4 does not have a power supply unit and draws its power directly from the connected computer.

The multifunctional stand is similar to that of its portable colleague from Lenovo: it rests close to the frame for transportation and can be folded out. Although the stand is made of plastic like the rest of the casing, it provides sufficient support for the monitor, which weighs in at only 0.64 kilograms. There are also four easily accessible buttons on the left side of the monitor for navigating the Settings menus – so HP has largely done away with annoying multiple assignments.

Excellent presentation

The Most Important Thing: The picture quality of the HP E14 G4 is consistently impressive. The colors are vivid, the contrasts are high and the portable Full HD monitor knows how to display black levels excellently. If you're looking for a lightweight and elegant portable monitor to complement your MacBook, you can't go wrong with this screen.



Aoc I1601P

Metal at Last: This AOC monitor is particularly solidly built – but, otherwise, only delivers average values.

The Taiwanese company, AOC, has a wide selection of computer monitors in its range, including some portable models. The I1601P, which weighs 800 grams, stands out from the other test candidates with its solid aluminum back, which makes it quite stable in the hand and not very easy to bend – this provides a little more security, especially when on the move.

Small installation angle

Speaking of which, this AOC display comes with a foldable stand that adheres magnetically to the back and can also be used to stand the device upright in Pivot Mode. It serves as soft case protection for transportation – but only for the display surface. Although the stand is relatively secure (and the folding is not as complicated as with the Asus Zenscreen monitors), it does not offer a high viewing angle, especially when set up horizontally. As a result, this monitor is a little too upright. So you always have to move it away from the computer to be able to look at it properly; however, this is not always possible – for example, on the small tables on the ICE (Inter City Express) or in a café.

The I1601P is stingy when it comes to the selection of connections: AOC has only given its portable monitor one USB-C port. Designed as a DisplayPort interface, it is, of course, used to connect to the computer from which the monitor also draws its power. An external power supply unit can, therefore, not be connected.

Solid, but not intoxicating colors

This AOC display has the widest display edges and, therefore, doesn't necessarily look elegant. The matte Full HD display delivers good color values, but is not as bright as the HP and LG displays. For this reason, you'll have to turn the screen brightness all the way up.

Philips 16B3302D

Philips' portable monitor delivers stable image reproduction and a pleasingly wide range of Settings options.

It doesn't always have to be 60 hertz! While this is the refresh rate of choice for all other models in our comparison, the Philips 16B1P3302D manages to achieve a rate of 75 Hertz. At least subjectively, this makes the picture appear somewhat more stable and it scrolls even smoother.

Could be brighter

Otherwise, the monitor adapts to the standard: The display, which has a resolution of up to 1,920 x 1,080 pixels, has a „cinema-standard“ 16-to-9 format. The screen brightness is not particularly impressive, at 250 Lumens per square meter, it may seem comparatively dark to particularly spoiled Mac users. It is, therefore, less suitable for outdoor use than the devices from HP and LG.

The color reproduction, on the other hand, is solid: Despite the matte coating, the colors are clear and the black levels can also be described as good - even if the competition from LG is ahead in this discipline in particular. The illumination of the IPS screen remains constant right into the corners of the display.

Multifunctional stand

Philips used plastic throughout for the frame of the 16B1P3302D. Despite this, the device appears stable, but at just under 1 kilogram, it is the heaviest in the test. The monitor is held in place by a fold-out, infinitely adjustable stand, which has a USB-C port on the left-hand side for connecting the MacBook and for charging external devices. The 16B1P3302D is the only model in the test that has a headphone output.

There are two buttons for the Screen Settings on the back of the stand: The configuration options are extensive, and calling up different color models for different work situations is particularly appealing.



Lenovo L15

With the L15, Lenovo has a solid work monitor for on the go in its portfolio, which impresses with a flexible setup.

Lenovo is regarded as a serious reference in the computer market, not least of all thanks to its ThinkPad laptops, most of which are excellently manufactured. The portable L15 monitor underlines exactly this image: it has a matte display and is, therefore, quite resistant to unwanted reflections. It can also be used in the outdoor area of a café - although the screen brightness of 250 Lumens per square meter could have been higher.

Portable office worker

In any case, the Lenovo incarnation of a „drag-along monitor“ is no particularly creative wonder: The colors appear unexcited to somewhat pale. On the other hand, the viewing angle is flexible. The L15 is, therefore, more suitable for long hours of office work than as an entertainment monster - and that is by no means a bad thing! It's fitting that Lenovo doesn't have built-in speakers from the outset - they usually sound lousy on monitors anyway.

Flexible stand

The designers at Lenovo obviously put a lot of thought into the positioning of the monitor. The hinged stand can be adjusted at an angle of up to 90 degrees without a grid, and an additional foot, which otherwise also disappears from the casing, even allows height adjustment - clever! There are also two USB-C connectors on the left and right of the stand, which are used to connect the Full HD display to the MacBook; however, Lenovo has dispensed with a separate power supply - probably very few people would have used it anyway. Consequently, the L15 does not include a mini-HDMI interface. A nice detail: The USB-C ports loop through a power of 65 watts, which means that a smartphone can be charged on the side. Also nice: the monitor comes with a felt cover for safe transport.



LG
16MR70

16-to-10 format and high resolution:
LG’s portable monitor solution
scores with good results – and
emerges as the recommendation
from our comparison.

Don’t be confused: Although LG advertises its 16MR70 as a supplement for the in-house LG Gram notebook series, this portable monitor also works with any other computer whose USB-C interface supports the Displayport alternative mode - and, therefore, also with the MacBook. The screen itself has two USB-C ports on the left and right side of the casing. But that’s it: You won’t find a mini-HDMI port; and a power supply unit is also not included. LG hasn’t even given its external monitor a power button. Minimalism is the key: connect the computer and off you go - why not?

Great format

This is because the 16MR70 is lush precisely where it matters: in terms of picture quality. It starts with the format: While all other monitors in the test come in a 16-to-9 format, LG has commendably opted for the 16-to-10 size ratio. This should please



Apple users in particular, as it is almost traditionally the format of choice for the MacBook. Although it is not quite as cinematic, it provides more workspace for texts and tables, for example. But that’s not

all: the 16-inch display distributes a lively 2,560 x 1,600 pixels across this 40.6 centimeter display area - a record in our test! This corresponds to a respectable pixel density of 188 PPI. Thanks to the good brightness of 350 Lumens per square meter, the 16MR70 is also ideal for occasional outdoor work. The matte display is not at the expense of color reproduction: the contrasts and viewing angles are pleasantly high, and the LG screen covers 95% of the DCI-P3 color space.

This portable monitor is held in place with a foldable cover, which also serves to ensure gentle transportation and adheres magnetically to the back. We are not usually big fans of these solutions - although the stability is fine. In the office, however, an iPad stand provides more stability.

Settings via macOS app

What we also like is that the Screen Settings are made entirely with a separate macOS application. After all, who hasn’t been annoyed by fiddling with multiple buttons on other monitors? And so the 16MR70 leaves the most well-rounded overall impression in the test. 🍷

	Asus ZS OLED MQ16AH	Aoc I1601P	HP E14 G4	Lenovo L15	LG 16MR70	Philips 16B1P3302D
Display Type	OLED	IPS	IPS	IPS	IPS	IPS
Screen Diagonal	15.6 Inches	15.6 Inches	15.6 Inches	15.6 Inches	16 Inches	15.6 Inches
Aspect Ratio	16:9	16:9	16:9	16:9	16:10	16:9
Native Resolution	1.920 × 1.080 Pixels	1.920 × 1.080 Pixels	1.920 × 1.080 Pixels	1.920 × 1.080 Pixels	2.560 × 1.600 Pixels	1.920 × 1.080 Pixels
Pixel Density	141 ppi	141 ppi	141 ppi	141 ppi	188 ppi	141 ppi
Maximum Brightness	400 Nits	250 Nits	400 Nits	250 Nits	350 Nits	250 Nits
Frequency	60 Hertz	60 Hertz	60 Hertz	60 Hertz	60 Hertz	75 Hertz
Connections	3 x USB-C, Mini-HDMI	1 x USB-C	2 x USB-C	2 x USB-C	2 x USB-C	2 x USB-C, Audio
Weight	0.65 kg	0.80 kg	0.64 kg	0.86 kg	0.67 kg	1.03 kg
Price (MSRP)	479.90 Euro	223 Euro	269 Euro	199 Euro	269 Euro	245.72 Euro
	1.4	3.0	2.5	2.8	1.2	2.3

Monthly music treasures

by Sascha Blach



Eclipse: Kaleidoscope

Eclipse remain true to their line and once again present well-known pieces from Pop, Gothic and Metal in symphonic arrangements. What is particularly interesting for us is that the strings are increasingly accompanied by electronic beats this time, which gives the whole thing a catchy, poppy touch. The selection of cover songs is diverse and ranges from artists such as Olivia Rodrigo, Britney Spears, Harry Styles and Depeche Mode (represented twice with „Stripped“ and „Enjoy The Silence“) to In Flames („Only For The Weak“). There are also two original pieces with guest singers Melissa Bonny (Ad Infinitum) and Aeva Maurelle (ex-Aeverium, ex-Xandria). The four musicians demonstrate their virtuoso playing skills and show that chamber music and pop music can complement each other well. The production by Bengt Jaeschke and Benjamin Mundigler also contributes significantly to making „Kaleidoscope“ an all-round successful album.

Genre: Pop, Classical | Label: Kontor New Music



Mary Ocher: Your Guide To Revolution

A thoroughly radical album. Radical in its uncompromising artistic expression, but also partly musically, as some parts tend to be very shrill. The Berlin artist's music oscillates between Electronica, Melancholic Pop, Piano Salvos, Post-Punk, Cumbia and Folk, as well as expressionist passages that would not be a bad fit for an extravagant artist like Diamanda Galás. The lyrics are no less radical, as they call for civil disobedience. Mary Ocher is also releasing the album together with a small survival manual for artists and other nonconformists entitled „A Guide to Radical Living - A no nonsense guide to living comfortably with little; Why wealth needs poverty and how not to play along“. Interesting and thought-provoking at the same time.

Genre: Avantgarde | Label: Self-release



Rawtekk: Former Electronic Work Pt. 02, 2013-2016

This release is presented here as just one example of the rerelease catalogue of 15 (!) albums of unreleased tracks, revised pieces and remastered songs. Rawtekk is a producer duo from Hamburg who have already explored the most diverse forms of electronic music - whether Drum'n'Bass, Dub, Ambient or IDM. To Stefan Westphal's partly experimental, complex instrumentals, produced with great attention to detail (and distortion), singer Christine Westphal provides an exciting second level with her ethereal, partly childlike, partly pop-inspired voice and her no less experimental approach to music. Memories of Björk are obvious, because much of this fairy-tale electro album sounds like a more accessible version of the Icelandic singer. Due to the large number of releases, the overall work is almost a little confusing for the listener, but it's worth digging through this auditory grab bag.

Genre: IDM, Electronica | Label: Couvade Records



Rosbeh: Fortunate Day

Rosbeh celebrates his album-length debut with „Fortunate Day“. But he is probably not an unknown to many, as his singles have already been streamed millions of times. Rosbeh is an Iranian-German producer and classically trained pianist who has found his adopted home in Ibiza. And he is obviously inspired by the weather there, as his music sounds flooded with sunshine. He mixes his main instrument, the piano, with various electronic sounds and influences from world music, as his Persian roots shine through again and again. Like Moby's „Find My Baby“, „Eternity“ (with Klaverson) contains that striking sample from Boy Blue's „Joe Lee's Rock“. All in all, „Fortunate Day“ is a versatile mix of classical and techno, electronica, ambient and breakbeats. The features with Antonio Blakstad and Al Fredo are also among the highlights of the consistently positive-sounding album.

Genre: Electro, Piano | Label: Good Company



Kalte Nacht: Urge

The name Kalte Nacht is a very fitting description for the sound of the duo from Athens. Instrumentalist Nikos K. and singer Myrto Styliou combine elements from Dark Wave, Synthwave, Cold Wave and New Wave to create a gloomy style that fits into the Gothic category. There is always a bit of retro in the eight tracks. The electronic arrangements are kept relatively minimalistic with sparse drum computer beats and 80s-inspired analog synths, leaving plenty of room for the deep female voice to spread melancholy. Inevitably, memories of similar bands such as Hante. or Minuit Machine come to mind. Kalte Nacht also unleash a certain sadness and coldness in their sound, but also place value on atmosphere and melody. Definitely seductive for fans of dark 80s sounds!

Genre: Dark Wave, Cold Wave | Label: Cold Transmission Music



Nathan Haines: Notes

On his eleventh studio album, the New Zealand producer and saxophonist has increasingly incorporated influences from the fields of Electro, House, Soul and Disco, which complement his very own jazz sound perfectly. He worked with British producer Phil Asher, who produced Nathan's most successful albums „Sound Travels“ (2000) and „Squire For Hire“ (2003). Unfortunately, Phil died during the recordings, so „Notes“ is now his legacy. The result is nevertheless a wonderfully sunny, feel-good cocktail, partly instrumental, partly with vocals. The vocals were provided by British soul diva Vanessa Freeman, Ajuna Oakes, Ruby Cesan, La Coco, EO (NZ) and, in the song „Notes“, Nathan himself. When listening to the 14 tracks, you think of summer landscapes, busy beaches or cocktail bars and feel like you are on an auditory vacation. How lovely.

Genre: Jazz, Soul, Electro | Label: Loop Recordings



RIKAAAR: Ambient Nebula

When the door to the stars opens and soft music bubbles out, there's a good chance that the Belgian duo RIKAAAR are behind it. On their second album „Ambient Nebula“, protagonists Kas and Ringo Arts create a kind of nebulous ambient music that sounds heavy and timeless - the title is actually spelled in a more extravagant way, which we'll leave out for the sake of readability. Dreamy spherical sounds go hand in hand with melancholy, gentle piano sounds and in the end, beats would only disturb this meditative musical landscape, where everything flows together into one big song or maelstrom. It makes you wish that the aforementioned gate could always remain ajar in everyday life to give the world a little more peace.

Genre: Ambient | Label: Triplicate Records



The Radicant: We Ascend (EP)

Behind The Radicant is former Anathema singer Vincent Cavanagh, who hasn't been heard from much since the band disbanded in 2020. But unlike Anathema, there is neither Doom Metal (as in the band's early days) nor atmospheric Alternative/Progressive Rock to be heard here. Instead, Vinnie and his comrade-in-arms, French producer Ténèbre, let off steam in the field of electronica and combine it with influences from Art Rock, Industrial and Noise. However, the emotional vocals for which he was known in Anathema often take a back seat to the music or are heavily alienated. But it's not just a musical oeuvre, as audio-visual and new media are also to be woven into the overall concept of The Radicant. Incidentally, this EP will only be released on 12" vinyl and digitally.

Genre: Electronica | Label: Kscope

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Feature: Studio Acoustics

Booming bass, hissing highs and tiresome mixing – sound problems like these are usually caused by poor acoustic treatment. We show you how to get to grips with the most common acoustic problems in your desktop or home studio. Optimise your room acoustics and find the ideal monitor solution not only for your workflow, but also for your sound. Whether you're a beginner or a pro, we'll help you set up your studio perfectly. And enough with the half-truths about acoustics – here are the facts!

Photo: Riverside Studios Berlin

Test: Arturia AstroLab

With AstroLab, Arturia wants to bring its own V-Collection to the stage. Designed as a stage keyboard, you have direct access to 34 instruments –DAWless, without a computer. From pianos to vintage synthesisers and samplers to modern digital synthesis. Split/layer sounds, arpeggiator, sequencer/looper and the integrated looper complete the performance keyboard, while over 1,300 presets with appropriately assigned macro controls ensure immediate playing fun.



Interview: Galliano

With albums like „The Plot Thickens“ and „A Joyful Noise Unto The Creator,“ the British Acid Jazz band Galliano became a legend. Now the Londoners are back and are announcing their first album in 27 years. We'll talk to them about „Halfway Somewhere“ and, of course, examine the mix of Jazz, Funk, Hip-Hop and Soul from a studio technical perspective.



Photo: Dobie

Test: Pittsburgh Modular Taiga Keyboard

Taiga is a semi-modular paraphonic synthesiser with a completely analogue signal path, equipped with three oscillators, FM and multimode filter for flexible sound design. The keyboard version has been given an additional feature that other manufacturers are welcome to copy: A small Eurorack is located under a removable front panel, into which you can install up to three modules of your choice without additional equipment and integrate them into the Taiga's sound generation.



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