

GRP Eurorack – a surprising variety of musical expression

Those working in the field of music electronics generally follow trends – in music production, for example, or in instrumental development. Many synthesizer manufacturers have jumped on to the popular Eurorack Modular bandwagon. GRP – specialist for semi-modular synthesizers (A2, A4, A8) – have since followed the trend as well, albeit with a slight delay.



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For those familiar with GRP synthesizers at least two questions come to mind. First: *Why Eurorack? We already have the GRP A2 and GRP A4.* Secondly: *How can we evaluate the rather modest range of GRP Eurorack modules musically and artistically?*

Let's start with question two, which is easier to answer since GRP has already put its test package with Eurorack modules into circulation. Not strange in itself, but the package actually consisted of 12 modules – one of each type. Which gave rise to amusement because – hand on heart – how many tonal possibilities do you have with just “one” oscillator?



Putting it another way: How comprehensive can musical expression be with just a handful of building blocks? Within some weeks, this special situation (“one” exemplary module only) essentially answered our question concerning quality: Amazing, how far you can get with a limited number of modules. Astonishing what can be done with a single VCO, a single 24db VCF, etc.

This isn’t really new, of course. Quite the contrary, it is really old hat that creative potential is limited only limited by the musician’s inherent abilities and not by the instrumentation. Strange, this has been long forgotten: Hundreds of modulation possibilities, thousands of sound options, entire rooms full of switches and cables obstruct our view to the fact that creativity is solely dependent on the musician.



But focused musicians have their own priorities. A single VCO, an expressive filter, a jagged envelope and a powerful VCA don't sound like much, but they can be a lot! Some of the attached music files were created with only 3 GRP modules: VCO – fixed filter bank – VCA, or VCO – 12db SVF – VCA, to mention just a few examples ...

This looks like the right moment to look at the technical details of the GRP Eurorack modules ...

The Modules

VCO



VCO

Oscillator with Sine, Triangle, Saw, Pulse

Sub Oscillator with octave select switch (-1/-2)

Frequency range 64'-2', three CV In; PW/PWM with CV in
Hard Sync, FM2 bus Exp/Lin

Panel Width: 10 HP

+12V = 60mA

-12V = 50mA

+5V = 0mA

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Specialties: Wide frequency range (adjustable at more than 7 octaves), all waveforms available simultaneously, sub-oscillator.

Voltage Controlled Oscillator

Waveforms: Sine, Triangle, Saw, Pulse

Sub Oscillator: -1/-2 Oct. beneath main signal

Scaling: 6-stage (64'-2')

Tune: +/- 1 octave

Fine Tuning: +/- 1 semi tone

3x CV-IN, FM2 input, Exp/Lin switchable

PWM-IN, PW/PWM

Hard Sync

Width: 10 HP

VCF 24db



VCF 24db

Transistor Ladder Filter with 1-4 poles Low Pass outputs and additional SELECT output
Two audio in (one adj) and two CV In (one adj)
Cutoff, Res, Automatic Gain Change and ext CV in
Distortion, Amt Resonance (!) CV In

Panel Width: 10 HP

+12V = 90mA
-12V = 60mA
+5V = 0mA

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Specialties: All filter modes available simultaneously (“plus” the currently SELECTed mode), extreme tonal range of filter resonance (AGC to reduce the effect), voltage controlled resonance.

LowPass Filter

6 / 12 / 18 / 24db

Voltage Controlled Resonance (!)

AGC / Automatic Gain Change

Distortion-Effect

2x Audio-IN, 2x CV-IN (filter frequency),

1x CV-IN (resonance)

Width: 10 HP

VCF 12db



VCF 12db

State Variable Filter (12db HP: two pole high pass / 6db BP: one pole band pass / 12db LP: two pole low pass and NOTCH: one pole band reject filtering)

Frequency, Resonance and Distortion fully adjustable

Two Audio Input (one full level)

Three CV Inputs (one attenuated)

Individual Filter Outputs plus auxiliary Select Out

Panel Width: 10 HP

+12V = 40mA

-12V = 22mA

+5V = 0mA

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Specialties: All filter modes available simultaneously (“plus” the currently SELECTed mode), huge tonal flexibility, Notch sounds extraordinary good.

MultiMode Filter

12db HighPass / 6db BandPass / 12db LowPass / Notch
Distortion-Effect

2x Audio-IN, 3x CV-IN (filter frequency)

Width: 10 HP

VCA



VCA

Amplifier with selectable Lin/Exp responsibility

Audio Input with adjustable level, Initial Gain and CV1 attenuator

Two CV Ins, two Outs (standard and inverted polarity)

Panel Width: 6 HP

+12V = 10mA

-12V = 12mA

+5V = 0mA

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Specialties: Positive and negative output; Very strong VCA.

Monophonic VCA

Exponential / linear characteristic

1x Audio-IN, 2x CV-IN

+/- Outputs

Width: 6 HP

ADSR



ADSR

4-stage Envelope Generator with 3 selectable ranges
Gate In and Trig In, Gate In routed to extra Thru Output
Two ADSR outputs (standard and inverted CV polarity)

Panel Width: 6 HP

+12V = 12mA
-12V = 10mA
+5V = 0mA

Specialties: 3 speed ranges, redirection of incoming Gate signal.

ADSR Envelope

3 ranges of speed – slow / medium / fast
Gate-IN is routed to THRU
Gate-IN / Trigger-IN
+/- Outputs

Width: 6 HP

DUAL LFO



DUAL LFO

Two Low Frequency Oscillators
Each with 3 selectable freq ranges
Dedicated outs for ramp-triangle-saw and pulse-square waveforms

Panel Width: 6 HP

+12V = 12mA
-12V = 10mA
+5V = 0mA

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Specialties: Twin LFOs, 3 frequency ranges.

Dual LFO

3 frequency ranges each
(slow / medium / fast – up to audio range)
Shape adjustment

2x TRI/SAW Outputs
2x SQR/PLS Outputs

Width: 6 HP

S&H-NOISE



S&H-NOISE

Sample&Hold and Noise Generator with Int/Ext clock source
Input Level, Glide Amount and Internal Clock Rate
Noise Generator: White, Pink and Low Freq Noise

Panel Width: 6 HP

+12V = 15mA
-12V = 12mA
+5V = 0mA

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Specialties: 3 types of noise; Socket labelled “STEP” is the S&H output.

Sample&Hold and Noise Module

White / Pink / Low Noise
Glide (Slew) for S/H Effekt
Int / Ext Clock

Width: 6 HP

MIXER



MIXER

3-channel Audio-/CV-Mixer

Each Input with its own Level adjustment, Main Output Level

Two outputs - standard and inverted polarity

Panel Width: 6 HP

+12V = 10mA

-12V = 10mA

+5V = 0mA

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Audio / CV Mixer

3x Audio / CV IN

+/- Output

Width: 6 HP

ENVELOPE FOLLOWER



ENV FOLL

CV- and Gate-conversion from audio signal (Env Out / Gate Out)
Pre-amped audio signal output
Selectable Line/Mic level

Panel Width: 6 HP

+12V = 18mA
-12V = 20mA
+5V = 0mA

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Envelope Follower

Audio IN, Pre Amplified (Audio) Out
Gate OUT, ENV OUT
Line / Mic Input

Width: 6 HP

MULTIPLES



MULTIPLES

Three multiples with 4, 6 and 4 connections
Passive module

Panel Width: 4 HP

+12V = 0mA

-12V = 0mA

+5V = 0mA

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Multiples (2×4 / 1×6)

Width: 4 HP

FIXED FILTER

FIXED FILTER

Twelve BP filters, one HP,
one LP at spaced cutoff frequencies

Panel Width: 16 HP

+12V = 62mA

-12V = 60mA

+5V = 0mA



Fixed Filter Bank

12 bands + manual LP / HP filter

Audio IN / Audio OUT

Width: 16 HP

STEREO OUT MODULE



STEREO OUT

Four Channel Output Mixer

Ins 1,4 freely pannable L-R

Ins 2,3 hard panned full L / full R

Stereo Main Out w sep Levels and VU-Meters.

Two Phones Out with adjustable Volume

Panel Width: 16 HP

+12V = 90mA

-12V = 80mA

+5V = 0mA

Specialties: Illuminated VU-Meters (Output Volume), channel 2 / 3 routed to R / L, channel 1 / 4 with pan regulation, doubled headphones output.

4-Channel Audio Mixer

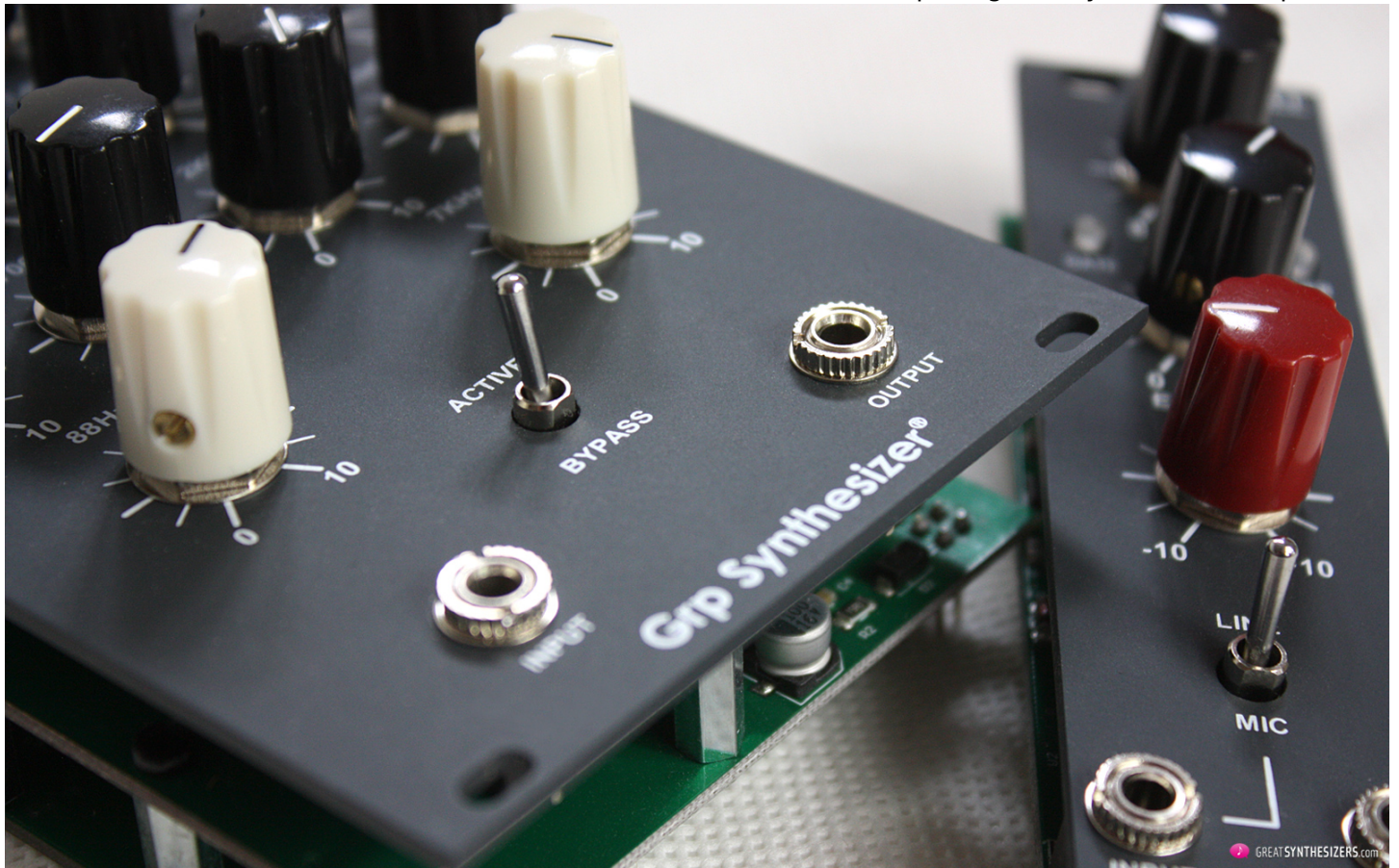
Independent volume / pan

Headphones-Amplifier (with 2 outputs)

4x Audio IN, 2x Audio OUT

2x Phones OUT

Width: 16 HP

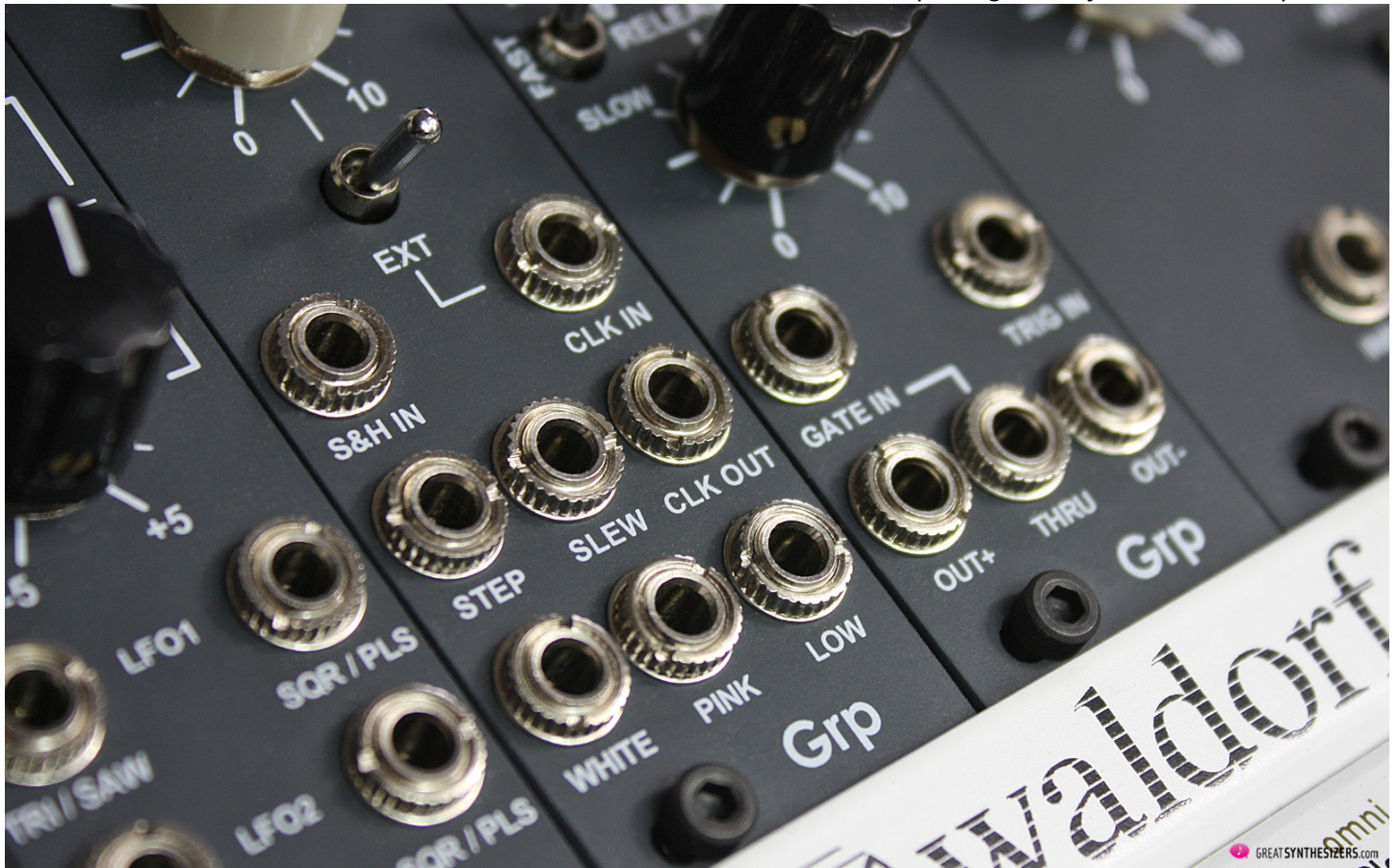


About high quality workmanship ...

The GRP Eurorack modules are of excellent quality, which of course they should be, since we're not moving in the low-price. A VCO for 333 Euros or a VCF for 380 Euros – these modules must be valuable on their own! The construction is well done – solid switches and pots (yes, that's still not a given in the Eurorack area ...), high-quality jacks – all the best.

... and small additional wishes

There are small improvements on the wish list, of course. Improvements concerning layout and the conception of a few modules. MIXER, ADSR, VCA: OUT+ is placed on the left and OUT- on the right, which seems a bit irrational. The other way round would be better (in which case standard patching could simply follow the shortest left-to-right signal flow throughout the system).



It's a pity that MIXER and ADSR only have "one" OUT+, even though there's plenty of room for two positive outs. As soon as the same envelope is routed to VCF and VCA, for example, you are dependent on the use of multiples. It's not a big deal, but just a little suggestion for optimization.

The VCA, on the other hand, would have profited from a second input. Why waste "empty space" in the panel area? But again, this is peanuts. The VCA sounds great, which is of more importance.

Musical strengths

In a nutshell: The outstanding GRP Eurorack modules are **VCO**, **24db VCF** and **12db VCF**. We find the MULTIPLES, MIXER and the STEREO OUTPUT MODULE particularly useful as well (more on that later).



The oscillator – with or without the use of its sub-oscillator – provides that powerful, creamy analog sound typical for GRP, and the filters bring a myriad of tonal nuances into the sound picture.

The choice between 24db LowPass VCF and 12db MultiMode VCF (SVF) is difficult. Spontaneously, we would opt for the State Variable Filter, but the extreme resonance of the 24db VCF is also in a world of its own. Especially in lower filter slope mode – at 6db or 12db – the colorful filter sweeps and experimental sounds that flood the studio are unbelievable.

We could define the following combination of modules as the smallest *secret weapon* of GRP:

- VCO
- VCO
- 24db VCF
- 12db VCF



The sound of these 2 VCOs and 2 VCFs is meaty and strong, and it probably doesn't much matter where the rest of the components – ADSR, LFO, VCA, etc – come from (GRP or any other Eurorack manufacturer).

Musically, the VCO and both VCFs recommend themselves to every studio. And maybe even the ADSR module as well (since GRP manages to create this extremely short – and sonically so irresistible – “Zapp” with minimal attack times). With this compact instrument (VCO-VCF-ADSR and VCA) we have created nearly all attached sound examples by means of multitrack recording.

It doesn't need a lot, but the few modules you *do* use have to be of appropriate quality.



In Practise

In addition to the strong VCO and VCFs, the MIXER, the STEREO OUT MODULE and even the MULTIPLES have proven in practice to be of great value. The STEREO OUT is a terrific 4-channel mixer with volume / pan settings and doubled headphone output.

Then there's the FIXED FILTER bank. An easy-to-operate tool for experimental and vocal sounds. It's a pity, of course, that the module – just like the famous Moog Fixed Filter Bank – offers no CV access to its individual bands. All you can do is manually change the frequency ranges.

S&H NOISE and ENV FOLLOWER further increase the experimental possibilities of GRP Eurorack. They do exactly what you'd expect them to do. To be honest, there are hundreds of exciting (sometimes weird) Eurorack modules out there. You have the choice ...

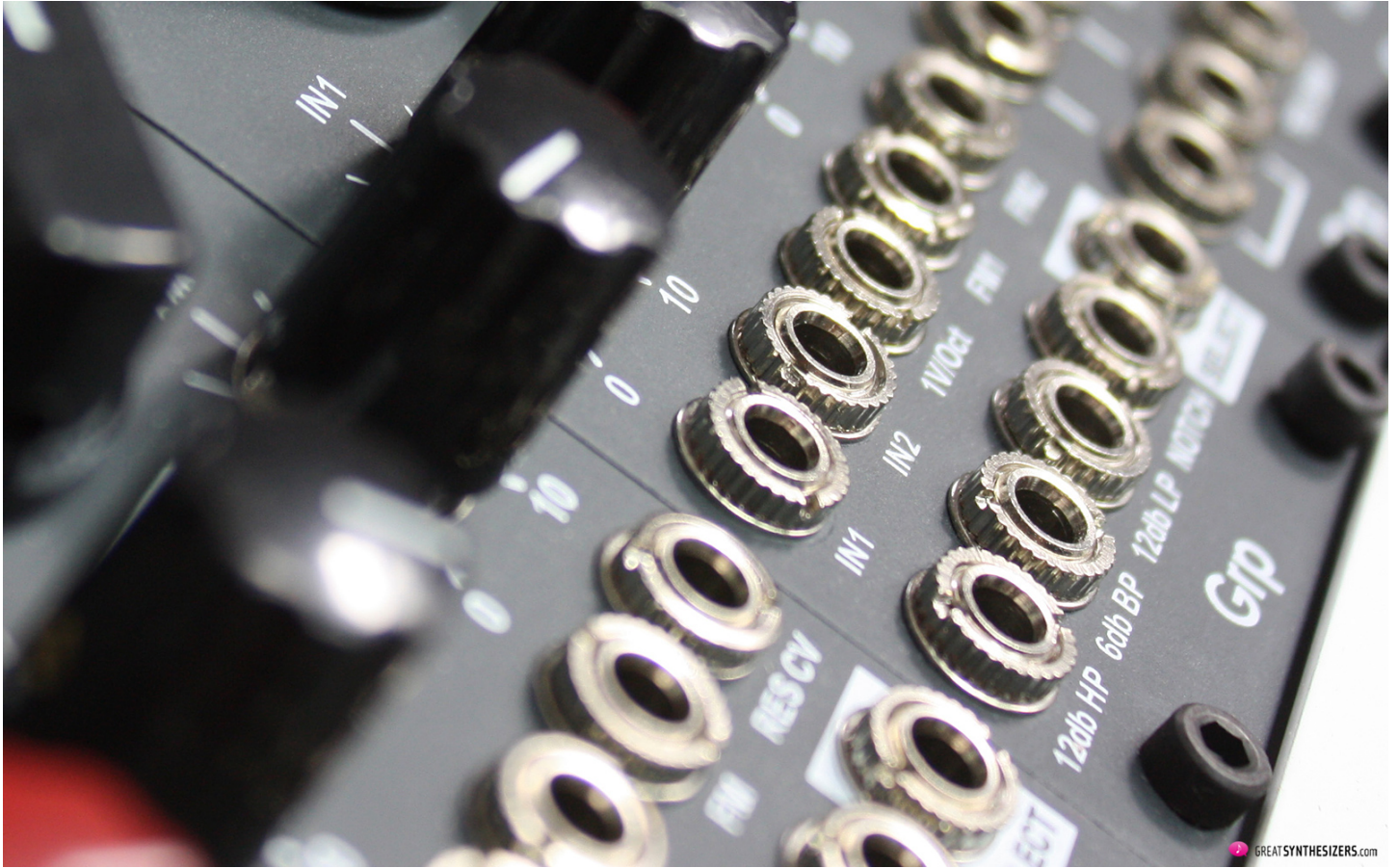


The DUAL LFO seems a bit of a compromise to us. Although the module offers 4 CV outputs, there's no VC speed, no reset-IN, etc. It's rather basic, but it's OK.

GRP Eurorack compared with GRP A4 / A2

Now, returning to question number ONE. *Why Eurorack, where there is the GRP A2 (or A4)?* First: *"Because it's Eurorack!"* The GRP A4 is a bulky instrument (20 kilos) and it is – just like the GRP A2 – only semi-modular. Actually, both aren't even semi-modular, but heavily pre-wired synths with a few extra CV-ports (for VCF, VCA, ...).

GRP Eurorack on the other hand, means it can be combined with any other Eurorack module worldwide, giving it an edge over GRP A4 / GRP A2. It's as simple as that.



Second: “GRP Eurorack is modular”. Sounds like a joke, but no kidding: As long as you’re performing traditional, long-established electronic music (standard VCO-to-VCF-to-VCA sound paths, classic modulations routings, etc.), there won’t be any need for a GRP Eurorack. Go buy an A2 instead (it offers heaps of modulation options without the need of a single patch cord), or anything else.

The modular aspect of GRP Eurorack focuses, on the other hand, on the inner core of sound aesthetics, concentrating on two main aspects: “Open System / Everything is possible” and “Less is more” ...



Route the VCO directly to the VCA. Experience the plain, unfiltered waveform. What's the sound of a SINE wave? Explore the tonal bandwidth of PULSE width millimeter by millimeter. Bend the unfiltered sawtooth all the way down into sub-audio range. Great numbers of sound impressions – realized with just 2 modules: VCO – VCA.

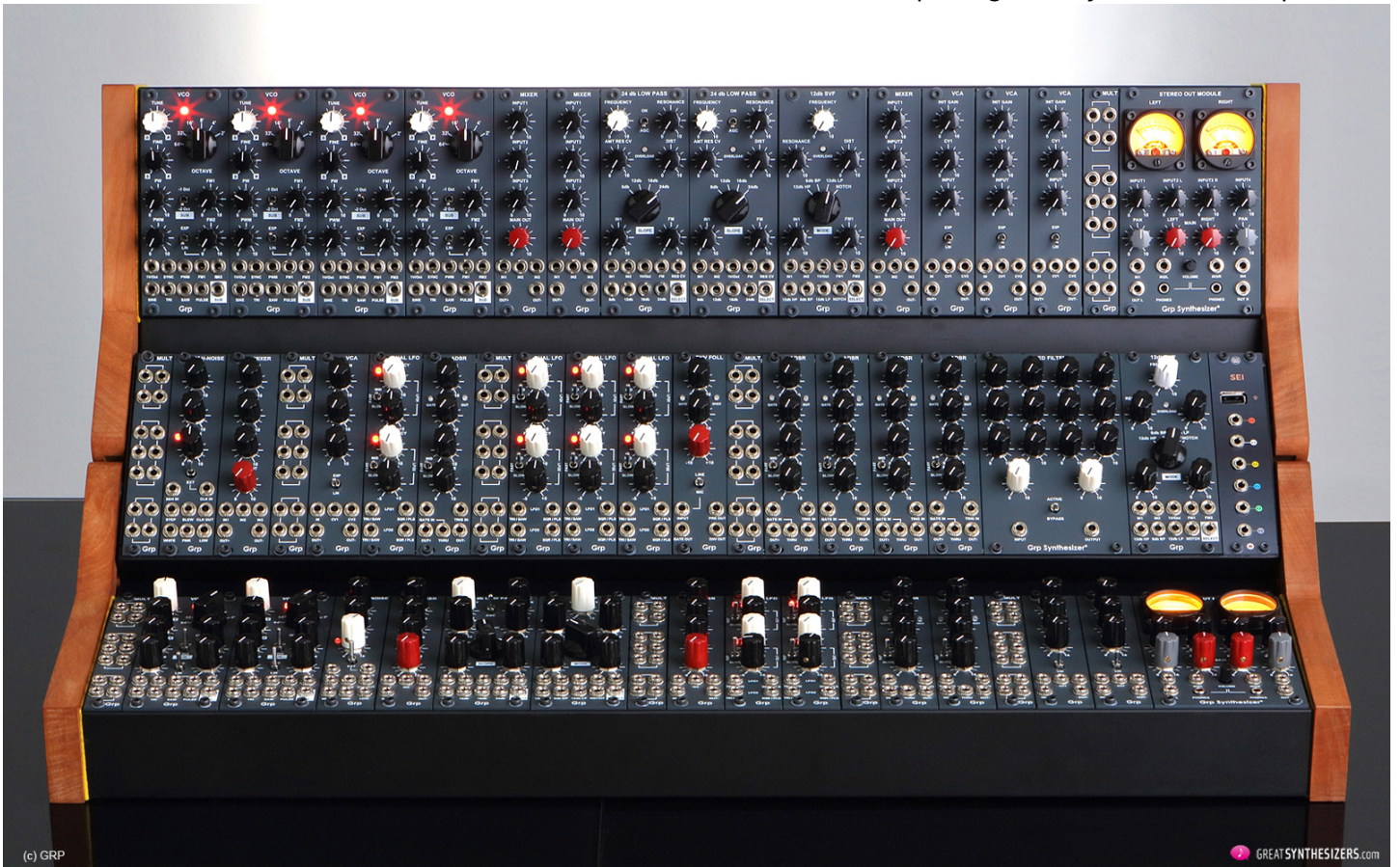
Next move: Send the VCO waveform through the FIXED FILTER bank. Create new sound spectra, transform a static sound into a *living piece of music* by manually modifying the frequency bands (and using MultiTrack recording). Giving you great numbers of sound impressions – realized with just 3 modules: VCO – FIXED FILTER – VCA.



Then route the VCO through the LowPass VCF (6db mode), delve into its resonance behaviour and discover hundreds of new timbres.

Finally, turn the filter to self-resonance and use it as an independent sound source, while modulating filter frequency by the VCO. How does Filter FM perform with a Sawtooth waveform? How with a Sine waveform? What happens in the grey area of self-resonance? Again, a hundredfold of sound impressions, realized with 3 modules: VCO – 24db VCF – VCA.

These and similar examples can be extended indefinitely. Fact is: Impressive, versatile musical results often require only a few (outstanding) modules. Less is more!



Summary

Not surprisingly, if you are looking for high-quality GRP analog sound *with* modular possibilities, you'll find it here. The sound is enormously powerful and colorful, the dynamics impressive, even though the GRP Eurorack remains a manageable system (the portfolio consists of a modest 12 modules). We could get along with just the VCO and VCF as the "innermost core of this outstanding sound" in most cases. Preferably, of course, with double placement (2x VCOs, 2x VCF), preferably again with doubled filters (2x VCO, 2x 24dbVCF, 2x 12dbSVF). Stereo sound of the luxury class.

Since nowadays many studios have at least *one* Eurorack system, it seems like a good idea to get the GRP sound on board, with at least those *inner core* GRP modules, incorporating the already existing modular system (including its ADSRs, LFOs, VCAs, etc.). And for those of you valuing optical unity, there's probably no alternative to a "complete" GRP Eurorack system.



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In addition to the outstanding sound of the GRP oscillators and filters, it is primarily the *modular* principle as such that is responsible for the high musical output of GRP Eurorack. While an A2 or A4 sounds no less excellent, you now have the opportunity to focus, reduce or expand the sound more clearly (depending on how you handle the modules).

Commitment to the GRP modules is thus a fundamental commitment to all Eurorack modules. Their potential for “unrestricted” and completely free sound exploration (for example in a very simple way – two Modules: VCO – VCA) brings a beneficial reduction of one of the most important aspects within electronic music – the concentration of the simplest acoustic parameters. The basic parameters – frequency, volume, timbre, beat, resonance (including their fringe ranges) – enable a staggering variety of musical expression.

Which is a specialty of GRP Eurorack ...



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We've attached **40+ minutes** of audio material. **GRP Eurorack Modules**, GRP A8, Technosaurus Selector, Waldorf Quantum, Studiologic Sledge, Roland D-70, Yamaha CS-60 and OSCar were used.

1. [24db LP VCF](#)
2. [12db Notch](#)
3. [Demo 1](#)
4. [Demo 2](#)
5. [Demo 3](#)
6. [Demo 4](#)
7. [Demo 5](#)
8. [PWM 1](#)
9. [PWM 2](#)
10. [Osc Sync](#)
11. [Fixed Filter Bank](#)
12. [SubOsc CrazySolo](#)
13. [Studiologic Sledge 1](#)
14. [Studiologic Sledge 2](#)
15. [Studiologic Sledge 3](#)
16. [Roland D-70](#)
17. [Simple FM](#)
18. [GRP A8](#)
19. [Bass 24db VCF](#)
20. [Bass 12db](#)

GRP Eurorack

Modular System Components

Prices in Euros (as of 09/2021):

GRP Eurorack – a surprising variety of musical expression

VCO € 299,00 (+ VAT), **24db LowPass VCF** € 339,00 (+ VAT), **12db MultiMode VCF** € 299,00 (+ VAT), **VCA** € 139,00 (+ VAT), **ADSR** € 129,00 (+ VAT), **DUAL LFO** € 149,00 (+ VAT), **S&H-NOISE** € 169,00 (+ VAT), **ENV FOLL** € 149,00 (+ VAT), **MIXER** € 129,00 (+ VAT), **MULTIPLES** € 59,00 (+ VAT), **FIXED FILTER BANK** € 329,00 (+ VAT), **STEREO OUT MODULE** € 349,00 (+ VAT)

Update 01/2024: While some of the GRP Eurorack Modules are out of stock now, some modules remain in production ... such as the VCFs, for example.

Website manufacturer:

www.grpsynthesizer.it

Where to buy / order:

<http://www.grpsynthesizer.it>

<https://schneidersladen.de>

<https://www.hieber-lindberg.de>

Further links:

[GRP A1 Review](#)

[GRP A2 Review](#)

[GRP A4 Review](#)

[GRP A8 Review](#)

Open / download:

[GRP Eurorack / Waldorf KB37](#) (3000 x 1800px)