

Studio Electronics Boomstar 4075 – the ARP substitute?

The desktop synthesizer market is hotly contested. You can choose from dozens of synth models worldwide. Boomstar 4075 is one of them. Studio Electronics released the Boomstar series quite a while ago, but now these are the talk of the day. There are many reasons for this.

First and foremost, Studio Electronics now produces [modular systems](#) on the basis of the Boomstar models. *And* the Boomstar 4075 is often mentioned in connection with the legendary [ARP 2600](#) synthesizer. Whether or not this is justified, will be considered below.



With the SE Boomstar 4075, as with all Boomstar synthesizers, you are in for a surprise. The many advantages are nonetheless offset by a few questionables. The advantages don't really surprise us, considering that US-based Studio Electronics has been one of the most innovative synth manufacturers around the world in the last decades. Let's be clear about this, Studio Electronics knows what it's doing!

Now to those questionables. Well, to cut a long story short: it's just *two* trivial hardware complaints, really, along with a few suggestions for musical improvement.



The Family

Studio Electronics has produced a whole family of "BOOM":

- **Boomstar SE80** (CS-80 VCF)
- **Boomstar SEM** (Oberheim VCF)
- **Boomstar 700** (Korg 700 VCF) – no longer available
- **Boomstar 3003** (TB-303 VCF)
- **Boomstar 4075** (ARP VCF)
- **Boomstar 5089** (Moog VCF)

Now, the catch is this: all those vintage references to the past automatically implicate some association between vintage sound characteristics and the current names (e.g. TB-303 or CS-80).

Roland, but also Dave Smith and Studio Electronics, have flirted with these assumptions for years. Which makes sense, considering the enormous facility of those classic instruments of the past. But – to repeat – that awakes expectations! Who wouldn't like a powerful, wholehearted Yamaha CS-80 in desktop format resting on his studio table? But, of course, a filter does NOT make a synthesizer, as we all know.



Or, as Studio Electronics admits: "[...] *our approach has never been one of exact emulation of the original synthesizers [...]!*" (Boomstar User Manual, page 1)

Let's give them credit for that!

Boomstar 4075

This synthesizer (and all Boomstar models) features the following:

- 2 VCOs
- Sub-oscillator
- XMOD / RINGMOD
- Noise / Ext In
- 2 ADSR
- VCF
- VCA

- LFO
- MIDI
- CV/Gate



The array of sound components doesn't seem at all unusual – just another 2-VCO analog synth, right? But don't be fooled. Studio Electronics knows what matters! A lot of the additional goodies just aren't evident at first sight ...

All those advantages

Let's forget about those misleading names and get down to the nitty-gritty. Boomstar 4075 sounds wonderful! Some positive aspects in detail:

The Oscillators

... are very, very flexible and yield strong sounds. Real VCOs, so to speak.

VCO highlights:

- Powerful sounds
- Mixable waveforms
- Comprehensive PWM possibilities (manual, LFO and ENV 1)
- Wide frequency range (5 octaves and low frequ mode with both VCOs!)
- Osc sync, XMod (VCO 2 modulates VCO 1)
- Switchable sub-oscillator



Little goodie: The raw, unfiltered sound of the oscillators can be tapped directly from the separate OSC OUT socket.

“Send this signal to your DAW or mixer and use liberally or sparingly. The purity, clarity and transparency of all frequencies concerned are quite apparent and lovely. [...] Patching the OSC OUT to the EXT IN will add additional depth, harmonics, and distortion.” (Boomstar Manual, page 11/12)

Routing the raw OSC signal to the (audio) input gives even more power to the sounds, similar to what you get out of a [Moog Sonic Six](#) (with that strange extra VCO-mixer parallel to the regular mixer / signal path).



The Filter

The crux of the matter: the legendary ARP 4075 VCF. Reminiscences of the ARP 2600. Or, in the words of Drew Norman:

“The ARP filter is an integrator cascade – resonance is available over the entire range, and is quite pure sounding (sine going to nearly triangle waves as it overdrives) which is why I like using the 4075 for deep drum and percussion sounds. It's dry sounding and organic, also great for very ethereal and rubbery sounds. It's 24db, but not quite as crisp in the high end as the ladder based designs. That's normal ...” (Boomstar Manual, page 25)

VCF highlights:

- A very strong VCF
- Effective filter resonance (self-oscillation possible)
- Filter modulation by ADSR 1, LFO or VCO 2 (!)

- Filter controllable via MIDI: DYNAMICS routes MIDI velocity of your playing or sequencing to the ENV DEPTH parameter
- External VCF FM input



XMOD and LFO

Crossmodulation has always been a secret weapon (those happy Roland Jupiter-8 owners will nod in agreement here). The specialty of the Boomstar concept is of course that there is a RING MODULATOR *in addition* to XMOD. A goldmine for experimental sounds.

The LFO is a comprehensive module (even if little unfulfilled wishes may lurk here and there).

LFO highlights:

- 9 (!) waveforms
- Direct access to the whole LFO frequency range (without an obnoxious Mid-Hi-Low switch)
- LFO can trigger ENV 2
- MIDI sync possibility

Unfortunately, the LFO is *not* voltage controllable. Speaking of the ARP 2600 and effect sounds, the LFO-speed-control (by one of the envelopes) – here missing – would be a must.



(Ok, ok, this is where VCO 2 could take over. Its LO setting can be employed as a very flexible modulator. But then you're reduced to one VCO only for audio purposes.)

Sample & hold belongs irrefutably to the LFO waveforms. Listen to the attached soundfile “VCF-RandomMod”, demonstrating S/H and filter self-resonance.

As seen in the graphic below, VCO 1 and VCO 2 have their own modulation paths. On the whole, this is very clearly arranged, but the concept is not consistently implemented throughout. LFO-to-VCF modulation, e.g., has been relegated to the filter compartment.

More about that later ...



The Audio-Mixer

A key element of the synth, good for mixing sounds on the spot.

Volume control available for:

- VCO 1
- VCO 2
- RING MOD
- NOISE
- FEEDBACK

In addition, there's EXT (audio) IN, although this comes without a dedicated volume control knob.

Loop Envelope (ADSR 1) and LFO-Trig Envelope (ADSR 2)

Whenever envelopes can be *more* than envelopes, that's a good sign! The bottom line: now we're at the

heart of the Boomstar. To be specific, ENV 1 can function as a ROTOR (self-triggering up to audio range) and – as we have already said – ENV 2 can be triggered by the LFO speed.

All these collected niceties (XMOD, RING MOD, NOISE, LOOP ENV, LFO-Trig-ENV) are a move in the direction of the ARP 2600. The latter may not have a loop envelope at all, but that’s not the point.



Overdrive and Feedback

For even more horsepower: overdrive adds warmth and breadth. Use the feedback function judiciously – a little goes a long way.

Positive and practical

As to the hardware, Boomstar rests in solid housing. The switches and jacks – 1A quality – are mounted directly to the chassis. And praise to the external power supply! The 5-pole plug connects the instrument solidly, reliability guaranteed. This is pure luxury and not always a given, even with expensive instruments.

The adjustment holes on the front are motherboard access points for calibration potentiometers. Careful! No tweaking until you *know* what you’re doing.



And again, several Boomstars can be connected by means of the little OVERFLOW switch on the back. Voilà! A polyphonic synth! A mere 4000 Euros will put you into business. Create your personal “luxury 4-Voice”, “polyphonic ARP” or “four-voice Moog”. Looking at those high prices on the current vintage market, that is not even a lot of money.

“Questionables”

Let’s stick with the hardware for a minute. Considering its price (nearly 1000 Euros per Boomstar), the instrument’s potis are a slight disappointment. They wiggle approx. 1 millimeter in every direction, detracting from the general professionalism of the instrument. That’s a pity. And a power-switch is missing. The synth, plugged in, is automatically ON.

Add to this the geometric panel layout: all functionality, not especially creative. The knobs and switches are all rank and file. All that sameness could be a detriment to your orientation.

Need an example? VCO modulation via LFO is located in the LFO area. So far, so good. But what about LFO-to-VCF modulation? That is located in the filter compartment. Or: pulse-width is adjusted in the oscillator section (VCO 1 only). Good so. But again, PWM *modulation* is to be found in the LFO area and – at the same time – at the bottom of the user panel (ENV 1 > PW 1).



These are not hairy problems. But they do keep you on your toes as to where everything is. If you work with the Boomstar daily, this will be a snap. But if the Boomstar is one of many synthesizers in your studio (and if it sometimes rests without use), you may find yourself having to refresh your orientation again and again.

We do have a few suggestions for musical improvement.

Wider TUNING range for VCO 2 (?)

We don’t understand why the detuning of VCOs via TUNE is so frequently reduced to the range of a fifth or sixth. Way back then, this was also true with the Minimoog (which may be why no one has given it a

thought since). Admittedly, it's the CENTER of the tuning area that's basically important for most of you. Exact FINE tuning and precise adjustments of beatings is what it's all about.

But still, a reduced TUNE area means that many musical possibilities get left behind.



For example: gliding VCO 2 *only* from one octave to the next is *not* possible. Sure, you can switch the octave setting, but gliding with *one* VCO (while the other stays unchanged) would really do the ticket.

And what about ring-modulation? Tuning oscillators in ring-mod mode is one of the most important secrets in electronic music. If both VCOs have the – more or less – same frequency, ring-modulation functions as a subtle, discrete analog effect. But once VCO 2 leaves the center tuning position, heavy ring-mod effects set in until – and here we are – VCO 2 reaches the octave above (or beyond) VCO 1. This alternation from a subtle to a drastic effect (and then back again to “subtle”) is superb! But for that you need a continuously available tuning range of (at least) one octave.

Sub-oscillator volume control (?)

Good, we have to be thankful that there *is* a sub-oscillator. But those of you who own a Roland SH-101, an SH-1/2/5/7/09 or a Juno-6/60/106 know of the advantage of a sub-oscillator with independent volume control. It makes a difference whether the sub-octave is *abruptly* apparent or if it just fades in. With the Boomstar, you have the choice of a half- or full-volume octave-down square wave.



Admittedly, every inch of the Boomstar surface is already in use. There's just not room for an additional sub-osc level control. Studio Electronics would have to have solved the ENV 1 > PW 1 feature differently to create that room. But of course that's just wishful thinking at the moment.

Boomstar 4075 – a pocket-sized ARP 2600, or what?

In any case, the sound character of the filter comes close to the ARP 2600. And yes, the Boomstar 4075 is good for any sort of effect- and percussion-sounds. Something the ARP 2600 is, as we all know, famous for.

But further comparisons wouldn't make sense. The instruments are just too different in concept. The essence of the ARP 2600 is its half-modular concept and, especially, its faders. On the other hand, the Boomstar 4075 has oscillator synchronization and overdrive – two things our vintage ARP classic doesn't offer. Not ideal for meaningful comparisons ...



All in all

The Boomstar 4075 concept yields an *independent*, highly musical synth. Thick VCOs, a colorful & screaming VCF, snappy envelopes – it's all pure ANALOG! We particularly like the wide color range of the VCOs. Their many nuances and diverse sounds (far beyond ordinary sawtooth / pulse impressions) separate the Boomstar from its competitors.

Connecting several Boomstars should do the ticket for those of you who's musical creativity is rooted in *polyphony*. The result would be one of those few real “poly”phonic analog synths (with an independent synth module for each voice). A tantalizing musical thought, perhaps the epitome of what analog technology has to offer.

Whether or not Studio Electronics is willing to eliminate those few weaknesses (potis that wiggle, missing power-switch) only time will tell.



Fact is, the Boomstar is relatively expensive. 1000 Euros is a 1000 Euros! *And*, in this price category there's a lot to choose from on the current synthesizer market.

But the bottom line is quality of sound! We do indeed recommend the Studio Electronics Boomstar as an inspiring, discrete, patchable, American-made analog synthesizer!

We have attached 35 minutes of audio material. Most of the soundfiles were created exclusively with the Studio Electronics Boomstar 4075. Now and then we have also made use of the Roland JD-800, Yamaha CP-70B, Korg Monotribe and Roland TR-808.



Enjoy listening ...

1. [DEMO](#)
2. [Solo 1](#)
3. [Solo 2](#)
4. [Simple Bass](#)
5. [VCF Random Modulation](#)
6. [VCO 2 ADSR control](#)
7. [2 Sub Oscillators](#)
8. [Solo with TR-808](#)
9. [Sync Sequence](#)
10. [Screaming Sync](#)
11. [Overdrive](#)
12. [Nasty Bass](#)
13. [Korg MS-20](#)
14. [Filter Resonance Sequence](#)
15. [Dual Sequence](#)
16. [Yamaha CP70B](#)
17. [3 Voice Polyphony](#)

Studio Electronics Boomstar 4075

Monophonic Analog Synthesizer

Price: approx. 1190 Euros

Website Manufacturer:

www.studioelectronics.com

Download Boomstar User Manual (PDF), worth studying:

www.studioelectronics.com/assets/pdf/manuals/boomstar