

# Sonic Farm Berliner

## Dual-channel Hybrid Mic Preamp

On testing a vintage Telefunken preamp, Sonic Farm were so impressed they decided to recreate it — adding their own twist along the way...

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I first discovered the intriguing products of Canadian manufacturers Sonic Farm a few years ago, and was both impressed and fascinated by the refreshing design approach adopted by their two founders, Zoran Todorovic and Boris Drazic (if they don't sound like traditional Canadian names, it's because both hail originally from the former Yugoslavia). The Sonic Farm philosophy is to employ any and every technology — transformers, valves, transistors or op-amps — to create a product which is "subjectively remarkable". That's a very good policy in my book! They also enjoy building on the strengths and successes of pedigree vintage equipment, but without going down the clichéd 'cloning' route, using what came before to help move the technology and artistry forward, rather than wallowing in nostalgia.

With that in mind, one of the latest of Sonic Farm's offerings is this two-channel preamp called the Berliner. It is inspired by the Telefunken V76, a self-contained pentode valve-based

gain 'brick' introduced in 1958 — the V-series preamps were designed primarily as standard modular studio components for the German broadcast industry (see box). Apparently, an opportunity arose for the Sonic Farm team to play with an original pristine V76 module, which they compared with their own Creamer pentode preamp (reviewed in SOS May 2013: [www.soundonsound.com/sos/may13/articles/sonic-farm-creamier.htm](http://www.soundonsound.com/sos/may13/articles/sonic-farm-creamier.htm)). The auditioning quickly revealed the V76 to be far more polite-sounding and less coloured than the Creamer, with a huge, open and very detailed character. So impressed were they that they immediately wanted to build something with similar talents and charm.

A large part of any preamp's sound character comes directly from its circuit topology (see box), so the Berliner's front-end gain stage has been fashioned to be pretty similar to that of the original Telefunken V-series design. Specifically, it employs a pair of pentode valves, the second with a large inductor choke-loading the anode supply circuit, and a switched negative feedback path

to control the gain. However, since the EF804S valve used in the original design has long since been discontinued, the Berliner employs current production JJ Electronics EF86/EF806 valves instead (or the equivalent Russian 6J32P valves, which are also used in the Creamer). A more significant change from the original design is that the biasing arrangements have been completely revised to remove all the high-voltage electrolytic coupling capacitors, lowering build cost and improving the distortion performance.

Of the three input options, the mic and line inputs each have Cinemag transformers, while the instrument input feeds the first valve stage directly (and sees a 3.9MΩ input impedance!). The line transformer has a 1:1 ratio, while the mic transformer is a 1:20 type instead of the V76's 1:30. The idea here was to move more of the voltage gain into the valve circuit (instead of the transformer), and the consequent reduction in negative feedback around the valve amplifier results in slightly 'sparklier' transients and







» a frequency response extending between 10Hz and 50kHz (-3dB), and a maximum output level of a whopping +32dBu. Power consumption is a room-warming 50W, and harmonic distortion is given as less than one percent, and very much less when used prudently! For an output level of +24dBu, the minimum line input is -24dBu, and it will accommodate signals of +24dBu without complaint. On the microphone side, the minimum input for +24dBu out is -51dBu, and the maximum is around +18dBu (with the mic pad engaged). With all those transformers, the Berliner is unusually heavy!

### In Use

In comparison with my recollections of the Creamer, the Berliner comes across as its more graceful and demure younger

sister. It has a lovely sound character: immediately larger than life, full and warm, yet still crystal clear, detailed and involving. It's clearly valve-based, but it doesn't force stereotypical 'tubey-ness' on you. It's far more subtle and refined, which is the hallmark of classic vintage preamps.

The Berliner offers plenty of gain for any practical application, and the internal gain structuring means line and DI inputs typically drive the front end relatively hard, benefitting from some nicely judged musical coloration. A little drive is always welcome for bass and guitar DI duties, but it also makes the Berliner ideal as a characterful stereo-bus or mix-processing tool.

Rather than introducing obvious shelving boosts, the main effect of the Fat and Air EQ options seemed to be

**The Berliner features separate inputs on each channel for the mic and line signals, both of which are on XLR connectors.**

to make everything generally louder by four or five decibels at low and medium gain settings, although the Air mode did alter the high-end balance very slightly. Sonic Farm tell me that they generally ship the unit with the EQ's gain trimmers set very conservatively, because the EQ, due to its design and position in the circuit, is more radical than that on their Creamer. Changing the trim settings makes the effects much more noticeable. The effect of the high-pass filter is quite dramatic, with the first position reducing the low end by 3dB at 200Hz (higher than the claimed 160Hz), and the second reached -3dB at 100Hz (higher than the claimed 80Hz). Being able to switch between the ultra-clean solid-state output and the more characterful transistor-driven transformer output brings more tonal options, the former sounding tighter and crisper, the latter slightly softer and with rounder transients.

### Conclusion

The Berliner is a very classy sounding preamp, combining the classic Telefunken V-series sonic footprint with a lot of modern flexibility, providing a range of tonal characteristics. It is a fabulous-sounding valve mic preamp, but it's also a wonderful instrument DI, and I could easily use it every day as a line processor to add some body and life to stereo mixes. This is Sonic Farm's most impressive product yet. **////**

## Telefunken V76: A Technical Overview

The Telefunken V76 was in essence an upgrade of the earlier and smaller V72 gain stage — a design which was widely adopted for use in the earliest sound desks of many pioneering record companies across Europe, and most notably in the early EMI REDD consoles.

Internally, the V76 contained the circuitry of two V72 modules connected in series, to provide up to 76dB of gain (the standard V72 only managed 34dB), and whereas the V72's gain was fixed, the V76 featured a rotary gain switch with 12 steps of 6dB. There were also options for a switchable low-cut shelf filter. Interestingly, the bandwidth of the standard V76 module was deliberately restricted to 40Hz-15kHz, as required in the broadcast world at that time. As a result, the V76 was perceived as sounding a tad duller than the V72 modules, but the practical benefit of a wide user-adjustable gain range outweighed that minor inconvenience. In fact, the unrestricted V76 circuitry is actually capable of a very respectable bandwidth between

10Hz and 35kHz  $\pm 0.5$ dB, and the necessary modification is not complicated.

The original Telefunken circuitry employs an input transformer and two EF804S pentode valves to perform the first stage of amplification. A four-layer rotary switch adjusts an input attenuator for the four lowest gain settings, and the negative feedback between the first two valves for the eight higher gain settings. A switchable filter section connects the first pair of valves to the second gain stage comprising a third EF804S and an E83F to drive the output transformer. As with all the V-series amplifiers, the output stage is a choke-loaded configuration in which a large air-cored inductor carries the power supply to the output valve, instead of passing it through the output transformer. This arrangement, sometimes known as 'parafeed', enables the output valve to perform with much better headroom and linearity, as well as allowing a smaller and lighter output transformer to be used, with much improved bandwidth and overall sound quality.

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