

# Musical Fidelity 750K Supercharger

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MONOBLOCK POWER AMPLIFIER

**DESCRIPTION** Solid-state, monoblock power amplifier with balanced and unbalanced line-level inputs and 1 pair speaker-level inputs. Maximum power output: 750W into 8 ohms (28.75dBW), 1150W into 4 ohms (24.7dBW). Maximum output voltage: 78V RMS, 20Hz–20kHz; 222V peak–peak. Maximum current: 250 amps peak–peak. Frequency response: 20Hz–30kHz, +0/–0.2dB. THD+noise: <0.01%, 20Hz–20kHz. Damping factor: 220. Input impedance: 50k ohms (line), 50 ohms (speaker). Input sensitivity for full power out into 8 ohms: 2.5V (line), 35V (speaker). Signal/noise (no reference level quoted): >120dB (line), >115dB (speaker), both figures A-weighted.

**DIMENSIONS** 22" (560mm) H (including feet) by 8.5" (215mm) W by 8.75" (220mm) D (including terminals). Weight: 37.75 lbs (17.2kg).

**SERIAL NUMBERS OF**

**UNITS REVIEWED** ZZ049 & '54.

**PRICE** \$10,000/pair. Approximate number of dealers: 70. Warranty: 5 years parts & labor.

**MANUFACTURER** Musical Fidelity Ltd., 24-26 Fulton Road, Wembley, Middlesex HA9 0TF, England, UK. Tel: (44) (0)181-900-2866. Fax: (44) (0)181-900-2983. Web: [www.musicalfidelity.com](http://www.musicalfidelity.com). US distributor: KEF America, Inc., 10 Timber Lane, Marlboro, NJ 07746. Tel: (732) 683-2356. Web: [www.kefamerica.com](http://www.kefamerica.com).



Musical Fidelity 750K Supercharger monoblock power amplifier

**M**usical Fidelity's "Supercharger" concept is simple, which is perhaps why no one had thought of it before: If you love the sound of your low-powered amplifier but your speakers are insensitive, or you just need more loudness, you insert the high-power Supercharger amplifier between your low-powered amp and speakers. The Supercharger loads the small amplifier with an easy-to-drive 50 ohms, and, in theory, has so little sonic signature itself that it passes on the sonic signature of the small amp unchanged, but louder.

Michael Fremer reviewed Musical Fidelity's first Supercharger amplifier, the 550W 550K (\$5000/pair), in September 2007 (see [www.stereophile.com/solidpoweramps/907mf](http://www.stereophile.com/solidpoweramps/907mf)). Using the 550K both as a traditional monoblock power amplifier and as a Supercharger to increase the dynamic range of his beloved Music Reference RM200 tube amp, a 1964-vintage Scott 299D integrated amplifier, and some solid-state designs, Mikey was impressed by what he heard. "Using a variety of very different-sounding amplifiers of various power outputs overwhelmingly demonstrated to me that the 550K Supercharger will retain the sonic attributes of your favorite low- or medium-powered amp (50–200Wpc), whether tubed or solid-state, while increasing its output by 10dB or more. . . . The result will be dynamic realism and, in most cases, better overall performance. You can have your cake and make it rock, too."

In my own auditioning of the same pair of 550K Superchargers, used as conventional monoblock amplifiers, I was very impressed by their effortless dynamics and iron-fisted control of the loudspeakers' bass. However, I ultimately felt that the 550Ks did have some character, sounding lean compared with my reference Mark Levinson No.33H monoblocks, and with a less liquid midrange. Overall, the 550Ks sounded very similar to Musical Fidelity's flagship dual-mono kW behemoth, which Michael Fremer reviewed in January 2004 (see [www.stereophile.com/solidpoweramps/104mf](http://www.stereophile.com/solidpoweramps/104mf)), but perhaps with less delicacy.<sup>1</sup>

Of Musical Fidelity's high-powered amplifiers, I much preferred the balance of the kW750 (750Wpc into 8 ohms, \$10,000; see [www.stereophile.com/solidpoweramps/1205mf](http://www.stereophile.com/solidpoweramps/1205mf)). I had first encountered this stereo design

when I used it to drive Wilson WATT/Puppy 8s, playing some of my high-resolution recordings at a pair of musical evenings promoted by North Carolina dealer Audio Advice in December 2005. The kW750 combined the kW's extraordinary dynamic range and control of the woofers with a warmer lower midrange and sweeter-sounding high frequencies. Mikey found it *too* mellow compared with his kW's, though that is perhaps a matter of taste. After using it in my system for a while, I seriously considered buying

a kW750, but a cooler financial head than mine prevailed. So when MF's Antony Michaelson told me that he was introducing a Supercharger based on the 750K's circuitry, I asked for a pair for review.<sup>2</sup>

**The 750K**

At first glance, the 750K Supercharger looks identical to the 550K: a black cylinder topped with an aluminum cap, made in Taiwan. It has the same music-sensing turn-on/off circuit and the same three LEDs at its base: red for standby, blue

<sup>1</sup> In May 2008, I used the review samples of the 550K for a rather unusual purpose: driving Revel Performa F30 loudspeakers as a super-high-quality sound-reinforcement system for a series of concerts by male choir Cantus in Minneapolis's Southern Theater (see <http://forum.stereophile.com/photopost/showphoto.php/photo/1665>). Following the shows, I asked Cantus producer Erick Lichte, with whom I have worked for eight CDs now and whose ears I respect immensely, to give the 550Ks a listen, using them to Supercharge his sweet-sounding Pass Labs Aleph 3. His report appears in this issue's Follow-Up section.

<sup>2</sup> Readers should note that, at the end of 2003, Musical Fidelity's Antony Michaelson asked me to produce a recording of him performing Mozart's Clarinet Concerto, K.622, which was released on SACD and LP. To avoid any appearance of a conflict of interest, I waived any fee and paid my own expenses to attend the sessions in London's Henry Wood Hall. I also imposed a moratorium of five years on my writing a review of a Musical Fidelity product (other than the usual measurement sections that accompany reviews by other *Stereophile* writers).

**MEASUREMENTS**

I examined the Musical Fidelity's measured behavior primarily using *Stereophile's* loaner sample of the top-of-the-line Audio Precision SYS2722 system (see the January 2008 "As We See It" and [www.ap.com](http://www.ap.com)); for some tests, I also used my vintage Audio Precision System One Dual Domain.

My first test of an amplifier is to run it for 60 minutes at one-third its specified power into 8 ohms, which is thermally the worst case for an amplifier with a class-B or -AB output stage. The 750K got very hot very quickly, its cooling fans turning on after two minutes, its side-mounted heatsinks reaching 60°C (140°F) after five minutes, and the fans switching to their maximum speed at eight minutes. I ended the test after 10 minutes, before the 750K's thermal sensor cut in, because the Supercharger doesn't have enough heatsink area for sustained operation at high powers. But of course, it can be argued that that is beside the point, as its large output-voltage swing capability is intended to handle musical peaks without waveform clipping. During my auditioning, though the heatsinks did

get quite warm, the cooling fans rarely turned on.

The voltage gain into 8 ohms was a fairly high 29.9dB for the balanced line-level input, 29.2dB for the unbalanced input. The speaker-level inputs offered just 7.1dB of voltage gain, close to the specified 6.9dB. All three inputs preserved absolute polarity; *ie*, were non-inverting. The speaker inputs offered an input impedance almost identical to the specified 50 ohms, at 49.5 ohms, while the line-level input impedances were 47.5k ohms (unbalanced input and each leg of the balanced input) at low and mid-range frequencies, dropping slightly and inconsequentially to 40k ohms at 20kHz.

The output impedance was a little higher than usual for a solid-state design, at 0.11 ohm at 20Hz and 1kHz, rising to 0.22 ohm at 20kHz, which resulted in frequency-response variations of ±0.1dB with our standard simulated loudspeaker (fig.1, red trace). The small-signal bandwidth was a wide 150kHz into 8 ohms (fig.1, blue trace), but dropped with decreasing load impedance, reaching -3dB at 56kHz and -1.35dB at 20kHz into 2 ohms (fig.1, magenta

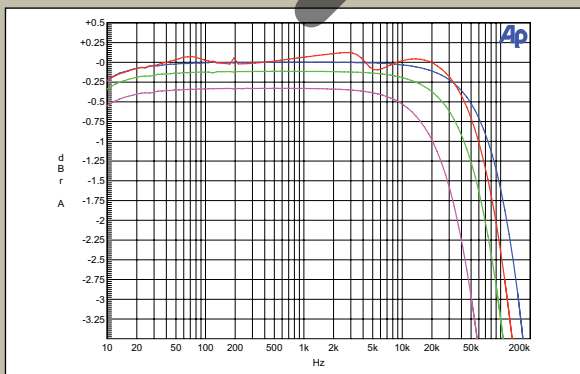


Fig.1 Musical Fidelity 750K Supercharger, frequency response at 2.83V into simulated loudspeaker load (red), 8 ohms (blue), 4 ohms (green), 2 ohms (magenta). (0.25dB/vertical div.)

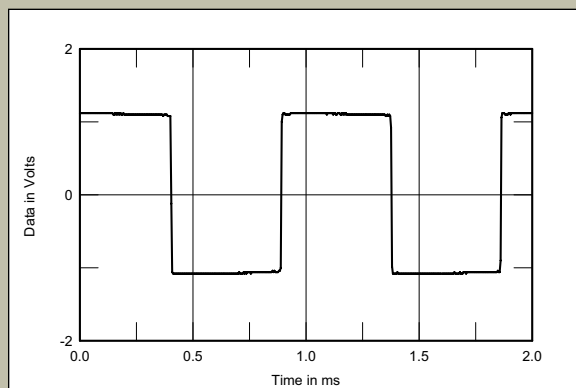


Fig.2 Musical Fidelity 750K Supercharger, small-signal 1kHz squarewave into 8 ohms.

for operation, orange for thermal overload. However, while the new amplifier shares the 550K's 8.5" diameter, it is just over 6" taller, and its aluminum cap has a mesh-covered vent, through which two temperature-controlled fans exhaust hot air. (There are discreet inlet vents at the sides; the fans run briefly when the amplifier is first switched on, then remain off until the heatsink temperature rises above a preset threshold.) There is now a balanced XLR input jack on the rear panel in addition to the 550K's single-ended RCA. The maximum power is specified as 750W into 8 ohms or 1150W into 4 ohms, an increase of 1.75dB compared with the 500K, though the price is 6dB higher: \$10,000/pair compared with \$5000/pair. (Commendably, considering the vagaries of the international financial market, the UK price is *numerically* the same as it is in the US: £10,000/pair.)

**Sound**

Psychoacousticians tell us that our aural memories are reliable only in the short term (though that doesn't tie in with the fact that we instantly recognize friends' voices on the phone despite the lack of fidelity). But from the instant I powered up the 750K Superchargers in my sys-

soundstage—all were exactly what I remembered of the sound of the kW750 in my system, back in the day.

The images of the singers in Cantus's luminous performance of Eric Whitacre's *Lux Aurumque*, from *While You Are Alive*, the recording I made with them in summer 2007 (CD, Cantus

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tem, using them as conventional mono-blocks from their balanced inputs, I was immediately reminded of the kW750. A warmish midrange, sweet-toned high frequencies, tight, deep low frequencies, and a voluminous, stable, well-defined

CTS-1208; see [www.stereophile.com/news/092708CTS1208](http://www.stereophile.com/news/092708CTS1208)), were precisely positioned in space; it was very easy to perceive when the tenors turned away from the microphones to add spaciousness to their sound. And the character of

trace). This graph was taken using the balanced input; the unbalanced input produced an identical result. The wide bandwidth results in excellent squarewave response (figs. 2 and 3), though the faintest hint of overshoot is visible.

The 750K's signal/noise ratio (unweighted, wideband, ref.1W into 8 ohms) was a good 79.5dB, this increasing to 90dB when A-weighted. Considering the amplifier's high gain of 30dB, this gives it a very high dynamic-range capability of almost 120dB, which, in terms of a digital system, is almost equivalent to 20 bits. This is an amplifier that can handle the full dynamic range of high-resolution recordings. Fig.4 plots the percentage of THD+noise in the Musical Fidelity's output against continuous output power into 8, 4, and 2 ohms. The downward slope of the traces below 200W or so in this graph implies that the actual distortion is below the level of the background noise—this is an extremely linear amplifier, at least into 8 and 4 ohms. The 750K obviously has more difficulty driving 2 ohms, as witnessed by the small discontinuities in the trace above a few tens of watts. Clipping power (defined as 1% THD+N)

was enormous, at 760W into 8 ohms (28.8dBW), 1050W into 4 ohms (27.2dBW), and 1200W into 2 ohms. That the Musical Fidelity doesn't quite meet its 1150W specification

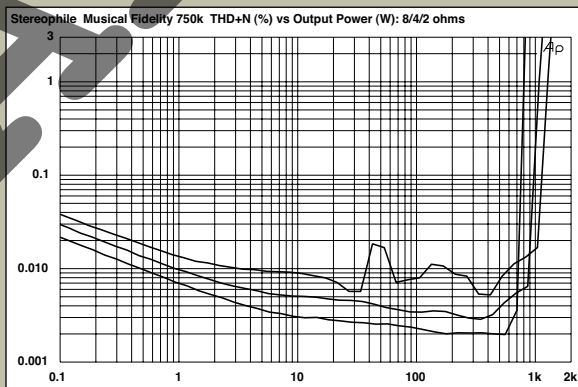


Fig.4 Musical Fidelity 750K Supercharger, distortion (%) vs 1kHz continuous output power into (from bottom to top at 100W): 8, 4, 2 ohms.

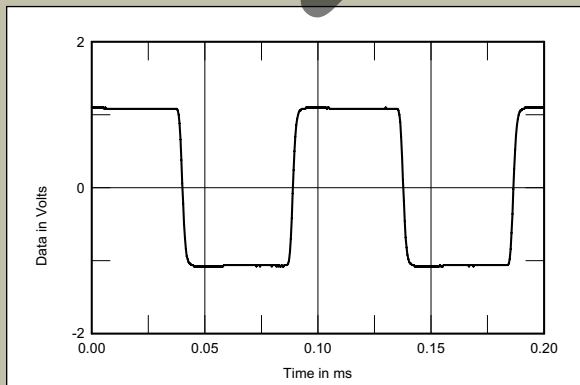


Fig.3 Musical Fidelity 750K Supercharger, small-signal 10kHz squarewave into 8 ohms.

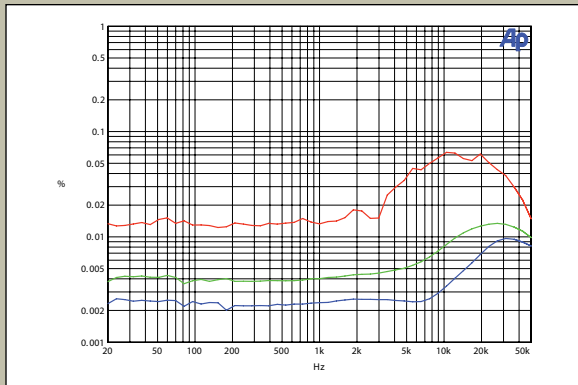


Fig.5 Musical Fidelity 750K Supercharger, THD+N (%) vs frequency at 15.6V into 8 ohms (blue), 4 ohms (green), 2 ohms (red).



