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The DPA Microphones 3532-T stereo microphone kit is a great introduction to recording with spaced-pair, omnidirectional microphones. Packaged in a spill-proof, foam-lined Samsonite attaché, the kit includes two omnidirectional DPA 4041-T mics with MMP-4000-T tube preamplifiers, the HMA4000 high-voltage mic amplifier/power supply, a UA0836 stereo boom bracket, mic holders, windscreens and cables. The kit is also available as the 3532-S, with 4041-S solid-state mics and packed with the same capsules but with the MMP4000-S discrete, solid-state preamps. Extra slots in the carrying case are provided for adding these FET preamps --they are interchangeable and are also powered by the HMA4000.



Danish Pro Audio was set up 10 years ago by former B&K (Brüel & Kjær) employees, and since February '98, all B&K microphones are branded as DPA and built with the same dedication to wide bandwidth, dynamic range and high sonic quality as B&K's audio measurement gear. With 24/96 (and higher) resolution digital fast becoming the standard, engineers and producers are becoming increasingly concerned with dynamic range, low distortion, frequency bandwidth and the wide-band phase integrity of the entire recording/mixing chain -- all starting with the microphone.

THE TYPE 4041-T MIC

The 4041-T microphone uses similar technology as DPA's flagship 4040 Special-Edition Hybrid Microphone. Only 100 of these \$10,000 glass and metal-cased microphones were made using the MMC4041 capsule and a cylindrical body that contains both tube and solid-state preamps. The MMC4041 capsule is housed in a stainless-steel shell for environmental protection and is one inch in diameter. The 2-micron-thick diaphragm is also stainless steel. With its larger capsule end, the 4041-T resembles a small flashlight because the black, anodized, tubular preamp body is smaller, with a 3/4-inch diameter and 6.7-inch length.



The mic's 200-volt capsule polarization allows for a higher capsule sensitivity at 90 mV/PA and a higher SPL rating due to the greater diaphragm-to-back plate distance, which allows larger diaphragm excursions before "bottoming out." The mic's SPL is rated at 144dB SPL before clip; the dynamic range is 113 dB.

The mic's MMP4000-T tube preamp body runs warm to the touch and requires 130 volts for the 7599 miniature pentode running at unity gain as a Class-A cathode follower. The 3532-T kits are delivered with both mics matched within 1 dB for frequency response, sensitivity and self-noise. The total phase response difference from 50Hz to 20kHz is just 10 degrees.

Frequency range is 10 to 20kHz, with a smooth 4 to 6dB lift centered around 8kHz.

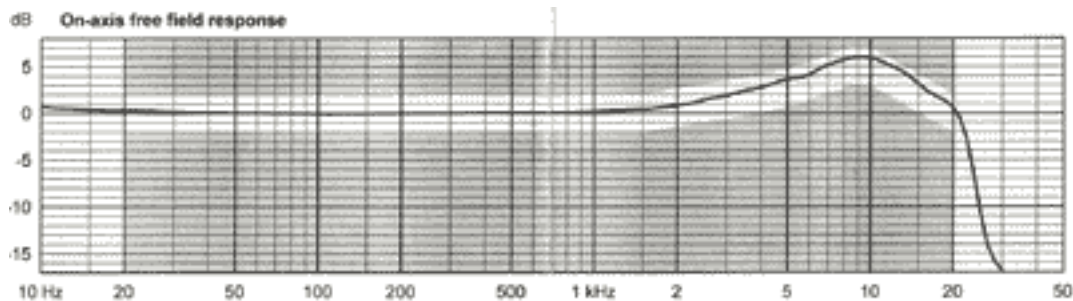
HMA4000

All voltages are provided by the 2-channel HMA4000 mic amp/power supply over 10-meter cables using 6-pin XLRs. The HMA4000 is also the mic's output amp, because these mics put out line level. There's no need for mic preamps and these balanced line level outputs eliminate many mic preamp issues--such as noise, distortion and limited dynamic range--not

to mention cost. Buyers should remember these built-in mic preamps when considering the \$8,000 MSRP.

For each mic, the HMA4000 provides an XLR output connector and a three-position gain switch for a choice of -20dB, 0dB or +20dB operating levels. The mic's standard output reference level is 0 dB, not the "+4dB/0dB" studio reference level. It is also best to start with a 0dB position when you are first setting up the mic. Able to drive lines up to 300 meters, the HMA4000 uses Analog Devices op amps for input stages and electronically balanced, transformerless, Class-A line output drivers using only a single high-quality, polycarbonate capacitor in the signal path.

Connecting mics into line inputs is a whole new ball game of gain structure for me. Your console should have a line trim pot. Because the three switch positions are a little too coarse to "dial-in" super exact recording levels, a rotary wafer switch with finer 5dB increments from -20 dB to +30 dB seems like a good modification for the HMA4000. I also suggest a power-on/off switch, as cables must be connected before plugging in the AC cable.



IN THE STUDIO

My first session with the mics was a drum kit overdub at Noise Club Studios with songwriter/producer Oliver Leiber playing his vintage Gretsch kit. We were using a Pro Tools Mix Plus rig, and I just plugged the mic cables right into Leiber's Apogee AD8000 I/O for a minimum signal path.

I recorded drum room tracks about 10 feet in front of the kit, spacing the mics about 10 feet apart. The room is small and wood-paneled, and room mics help to take "boxiness" out of the overall sound. Using omnis when overdubbing is best—they just sound more like what you hear in the room. These room tracks turned out to be the best I have ever recorded (given the room's size), with huge dynamics, a more diffuse sound and no noise at all. The top lift of the mics was just the right amount so that cymbals didn't get overly loud.

For drum miking, I put the mics on the UA0836 stereo boom bracket. This is a black, anodized aluminum bar that screws on a single mic stand and rigidly holds both mics. The mics can be adjusted and then fixed anywhere across the bar according to a calibrated scale. Each mic can be individually aimed and locked down using the recticle markings on swivel mounts. This precision makes it easy to recall the exact distances and aiming angles later.

Standing three feet in front of the drum kit, I had both mics on the "11" markings (9.5 inches apart) and aimed slightly outward, with the left mic looking toward the floor tom side and the right mic looking right toward the hi-hat side. The center of the bar was directly in-line with the kick drum, about five feet off the floor. Omnidirectional mics do have an on-axis point for higher frequencies, so, in that sense, they are slightly directional. When I soloed the DPAs, I

could hear each physical position of each drum in a natural way, as though I were standing right where those mics were. I did use a mic on the kick to get more low-end boom and another for the snare, but the majority of the drum sound was captured by the two unequalized, uncompressed 4041-Ts.

Next, I recorded producer/artist Greg Mathieson playing his Yamaha C7 grand at [L.A.F.X. Studios](#). I used the stereo bracket with the mics about twelve inches apart, positioned looking at the harp from midway down the piano's right side, with the left mic aimed toward the hammers and the right mic at the far end of the harp. With the lid fully opened, the mics were halfway between the piano's edge and the underside of the lid. One word: Fabulous! I had the HMA4000 set to 0dB gain and had instant, full peak recording levels when Mathieson played his hardest. The sound was high-resolution and clear--full, not overly bright--and you could hear everything, including the room's anomalies, even though the mics were three feet from the strings.

GEE-TARS!

Next stop was Hollywood's [Icon Recording Group](#) for close-miked acoustic and electric guitars. Comparing and using omni condensers for electric guitars to the immediacy and midrange character cardioid dynamic microphones is like comparing "apples to oranges." There is no proximity effect, none of the inherent dynamic mic compression and exact positioning is less critical. This mic offers a new sound choice to producers who layer many electric guitar overdubs.

I liked the mics for loud and clean/crunch rhythm guitar parts where sometimes dynamic mics (and preamps) compress too much for a clear sound. For heavily distorted guitar sounds, the mic holds up well and is able to take the level, although a lot of the subtleties the 4041-T captures are lost amid the compressed and distorted guitar sound itself. Suffice it to say, the 4041-T captures the sound of the whole guitar amp better than a dynamic aimed at an individual cabinet speaker. I began with the mics two inches from the grille and then four feet

SECOND OPINION

Engineer/Producer Bruce Botnick Comments On The Type 4041-T and 3532-T Stereo Kit.

"I use a wide palette of mics for their color, clarity and imaging. My favorites are the classic tube models: the Neumann M50, Sony C37 and AKG C-12. I recently had the chance to listen to DPA's 3532-T tube mic stereo kit under battle conditions.

For this test, I used a matched pair of 4041-Ts in the 3532-T Kit in various configurations for a motion picture score that I recorded with David Newman at the Fox/Newman scoring stage in L.A. First, I mounted the two mics about 20 feet apart and 12 feet over the percussion section. Next, I used the mics as overalls on a trap drum set. The third test involved hanging the 4041-Ts on multibrackets in a Decca Tree configuration along with my classic Neumann M50s. Lastly, I used the 4041-Ts as my main mics for recording a vocal chorus in some very dead (and sonically unfriendly) rooms.

Overall, the DPA 4041-Ts are wonderful. In comparison to my M50s, they exhibited excellent imaging and reach--the ability to hear sonic details coming from all the way back in a room-- to hear the room's reverberation. With transistor microphones, "openness" and "reach" are not in the vocabulary. Switching back and forth between the 4041-Ts and the M50s, I found the differences slight when listening to a click track coming from an open pair of earphones. The 3-D image in the room, even in mono, was excellent. The sound isn't flat or boring. It is open, smooth and beautiful. Above the percussion section with timpani, shakers, vibes, marimba and grand cassa (bass drum), the DPAs had great dynamic range and could deliver an explosion of percussion with plenty of headroom to spare. Indicative of a great tube omni mic, the 4041-T's bottom end goes cleanly through the floor while its high end is silky and musical. When applying shelving or peaking EQ, the mics responded well, without unflattering

away. The mics performed flawlessly, with no complaints or overloading, and gave me a full, rich sound that was vastly different from what is typical with dynamic mics. It sounds like you are standing in front of the amp.

Recording acoustic guitars is natural for the 4041-T. I switched the HMA4000 over to a +20dB output level, and I was good to go. I liked the way the mic didn't hype the high frequencies, leaving that choice to me with EQ. For fingerpicking or nuance/soft playing, this is definitely the mic to use. The sound was clear and showed exceptional detail. The 4041-T didn't blow up (distort) with loud, open E-string thumbing from the Martin D-16 I was recording, and even at one inch away, there was no bass buildup. I used both mics spaced about six inches apart, and at a distance of 18 inches, I got a stunning sound without EQ or compression!

At \$8,000, the 3532-T stereo microphone kit is a long-term investment in great sound. These are the first microphones I have ever used that were fantastic for **any** recording task, from room tracks to drums, piano and acoustic or electric guitars. You can also buy a single 4041-T with HMA4000 for \$4,195.

Thanks to Bruce Botnick, Oliver Leiber, Dan Vacari, Greg Mathieson, Aaron Kaplan and Chris Walsh for their help.

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