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# DPA d:vote CORE 4099 Instrument Microphone

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In the world of high technology, the incremental innovation and improvement of products is standard operating procedure. Many high-tech products receive regular firmware updates that increase functionality, improve specs, or add features. While this is commonplace in the electronics world, it's not so prevalent in microphone design and manufacturing. Typically, a manufacturer will come out with a new mic, but not necessarily an update to an existing model or line. Enter DPA...

In what could best be considered incremental innovation or improvement on an otherwise well-regarded product, DPA has released the d:vote CORE 4099 instrument microphone.

A couple of years ago, I reviewed the DPA d:vote 4099 instrument microphone. It, along with all the related accessories, was impressive. I'd go so far as to say it is universally respected. I even called it the Swiss Army knife of instrument mics. It worked equally well on a variety of sources and had the mounting accessories to facilitate it.

Last year, at my day gig, we provided production support for some jazz orchestra performances at our local performing arts center. We needed high-quality audio but, since the events would be video-recorded as well, we needed the mics to be visually unobtrusive. We put legacy d:vote 4099s on the rhythm section (drums, bass, and piano) and the entire horn section, which consisted of saxes (soprano, alto, tenor, and baritone). We also used them for trumpets, trombones, flute, and clarinet. We could clip a mic onto an instrument or, if a musician was going to play more than one instrument (which was often the case), the mics attached easily to



DPA d:vote CORE 4099 instrument mic with accessory mounts.

music stands. They helped to keep the focus, visually and aurally, on the ensemble onstage, rather than the ensemble of microphones.

Core is the new technology retrofitted into certain existing DPA product lines. While stating that the updated mics sound better, the company backs

it up with reduced distortion and increased dynamic range, with an up-to-14dB increase in THD and dynamic range over legacy versions. At present, Core technology is incorporated into d:screet miniature mics, d:fine headset mics, and d:vote instrument mics.

DPA has made a few physical mod-

ifications as well, primarily to distinguish Core models from their predecessors. Instead of looking like a capsule, the windscreen on each is more angular, kind of conical. At the base of the gooseneck is a ring, in either red or yellow, which denotes the sensitivity version of the Core 4099. (Red equals “Loud” and yellow equals “Extreme.”) The mic is blue at the back, where the cable is attached to the mic proper; the legacy version was black. At a distance, however, you wouldn’t be able to tell them apart.

### By any other name

DPA has also changed some nomenclature. The legacy model was offered in standard and high-SPL versions. The d:vote 4099 comes in Loud SPL and Extreme SPL, though the maximum peak SPL before clipping remains the same in the Core update as it was before: 142dB for loud and 152 for extreme. Both can handle a pretty loud source.

The literature suggests that the Loud SPL is the one to use in most applications. However, when the conditions are, well, extreme—with drums or loud brass—the extreme version is recommended.

The promotional animation on DPA’s website shows Core technology on a miniature circuit board in the mic element. It looks a bit like a tiny city. I can only imagine the amount of circuitry packed in the mic capsule. I did not see where a diaphragm, or pick-up element, fit into the scheme of things, however.

It would be nice if it was possible to get a closer look, along with an explanation of what’s under the hood. However, not wanting to incur the wrath of the good folks at DPA, I refrained from disassembling the mic. That said, I am curious about its inner workings.

### Spec sheet comparison

Most specifications remain consistent between the legacy and Core models. Both versions of the 4099 are pressure



Mic with magnetic base piano mount.



The blue cable entry area helps to distinguish the unit from the legacy version.



The windscreen.

gradient, pre-polarized, condenser microphones, and both provide a supercardioid pickup pattern. The frequency range for both models remains 20Hz – 20kHz (+/- 2dB, at 7.9", 80Hz – 15kHz and includes a 2dB soft boost at 10-12kHz).

The sensitivity is essentially the same as its predecessors, with Loud SPL coming in at +/- 3dB at 1kHz 6mV/Pa; -44dB relative to 1V/Pa, and Extreme SPL clocking at 2mV/Pa; -54dB relative to 1V/Pa.

Where they start to diverge is in THD (total harmonic distortion) and

dynamic range specifications. The legacy model exhibited less than 1% THD up to 123dB (which is pretty good in its own right). The Core Loud SPL exhibits less than 1% up to 131dB SPL peak (THD for the extreme is less than 1% up to 137dB).

Another important spec is the dynamic range, which is, basically, the ability of the mic to accurately capture the source sound, from a whisper to a scream, or from a flute to a drum hit. The legacy version exhibited a dynamic range of 100dB (with the high SPL model clocking 95dB). The Core





Accessory mounts (clockwise from bottom left): Brass or sax mount, drum mount, acoustic guitar mount, clip mount.



Red band indicates sensitivity (Loud version).

model has a dynamic range of 108dB; the Extreme SPL provides 109dB.

### Accessorizing

A mic such as the 4099 is only as good as the ability to use it in a practical application. All accessories and mounts developed for the legacy 4099 will work with the d:vote CORE 4099

as well. With the plethora of mounting accessories available, probably any instrument in existence can be miked up. All too often, I've encountered nice mics with little available to use them practically. In true DPA fashion, its engineers have developed an amazing variety of mounts, and while some look like Rube Goldberg inventions,

they are useful in a performance environment. The mounts allow for attachment to instruments in an elegant, well-thought-out way. Back to a standard comment of mine: The majority of pro audio gear available today sounds pretty good. The thing that separates the men from the boys is logistics, ergonomics, and the user interface.

### What does it sound like?

DPA describes Core's improvements as providing a clearer, more open-sounding microphone, compared to the legacy model.

To test this proposition, we put the d:vote Core 4099 on a grand piano, side by side with a legacy 4099, and recorded each on a separate ProTools track for post analysis. We also were able to switch between them live.

The first difference was visual. As we adjusted the gain for each mic, we noticed the d:vote Core 4099 responded to transients more quickly. This would be a manifestation of the improved dynamic range spec.

In comparison, the overall sound of the d:vote Core 4099 might be described as a bit edgier and more in your face. With the improved harmonic distortion specification, the highs are noticeably more detailed than the legacy version.

### Cost-benefit analysis

There's no getting around it; the mics will set you back. The MSRP for the d:vote Core 4099 is \$619.95, which includes an accessory clip. If you have clips, it will run you \$469.95.

While, basically, the parameters of two specifications have been improved, to be able to make this much of an improvement is significant. And to make the improvement to an established product line is a bold move. My hat is off to DPA for not settling—the legacy version was pretty darn good—and its continued search for ways to develop and implement technological advancements in microphone design and manufacturing. 🎧