

# On The Diamonds Tip

Rihanna's vocals are captured by a Shure wireless mic system sporting a Heil RC 35 capsule.



BY KELLEIGH WELCH

Since the release of "Diamonds," the first single off her new album *Unapologetic*, Barbados-born pop and R&B singer Rihanna has continued her run on the *Billboard* charts, bringing fans a mix of high energy dance music and soulful ballads.

To support the new album, Rihanna recently embarked on her 10-month "Diamonds World Tour," and during the first U.S. leg, that meant making a stop in Brooklyn for two performances at the Barclays Center.

At front of house for her shows is 20-year sound veteran Kyle Hamilton, manning a system supplied by the tour's sound company, Eighth Day Sound (Highland Heights, OH). Each night,

he mixes the show on a DiGiCo SD7 console, with Avid Pro Tools hooked up alongside it.

"It's pretty much a straightforward set up," he said. "I multitrack the show on 110 inputs total and I have the Pro Tools rig right where I multitrack each night."

Rihanna's performances involve intricately choreographed dance routines and carefully matched lighting designs, so Hamilton said the set list remains the same each night; however, he still mixes to give the audience a live feel.

"My approach to mixing each and every act is that it's a live show first—but I do want to make it sound like the record with a live feel," Hamilton explained. "At the end of the day, people come to hear the record, not my rendition of the record."

Rihanna's performances rely on a five-piece band, along with the skills of Pro Tools tech Demetrius Henry, who edits all the music in the program for each show. "Any type of musical element (in the show) is isolated, so we can extend the chorus or just use a keyboard if needed," Henry explained. "We put the show

together in rehearsal, and I play it back while the band also plays on top of it."

This method helps keep the concert going even in the event of a technical mishap, explained Hamilton: "Say Pro Tools were to crash—I mix in a way that you wouldn't know it had stopped. The band is playing so much stuff that it's almost hard to tell when the band isn't playing; there would just be no signature sounds," he said. "We haven't had any catastrophes like Pro Tools stopping though. It did happen overseas once, but the only people who knew something was wrong were on stage; the audience didn't notice."

The console is rigged up to an Antelope Audio Orion 32 AD/DA converter, which also clocks the whole system. "It's phenomenal sounding," Henry said. "It completely blew my mind when I found out about it; it's the most powerful rack I've had, and it's easy to manage."

Hamilton chose a variety of mics for the show, setting up Audio-Technica AE3000s, ATM 650s, Shure KSM 32s and KSM 137s on the drum kit. Rihanna herself is heard via a Heil RC35 capsule on a Shure wireless mic. "With the Heil capsule, that mic is amazing. The rejection is incredible. Anything that isn't coming directly into the mic doesn't get through—it keeps all the other sounds out," Hamilton said.

Alluding to the name of the tour, Rihanna's main stage is shaped like a diamond, with two d&b audiotechnik M2 wedges at the tip of the diamond's edges. Rihanna and the band use Sennheiser in-ear monitors, and the wedges are mainly there for the dancers.

For FOH, Eighth Day Sound provided a d&b J8 rig with 18 main hang cabinets, with six flown subs and 14 side hangs. There are also six ground stacks and four front fills going across the edge of the stage.

"The punch is incredible," Hamilton said. "Normally we have subs flown in the air, and you can hear the bass, but won't feel it. But this way, the programming with d&b provides a huge sound with minimal speakers."

Set up for each show begins around 5 a.m. and ends around 6:30 p.m. when doors open. Hamilton said the first performance on the tour took 21 hours to set up, but the crew has been able to shrink it down to just over 12 hours now.

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# LIVESOUND showcase IIII



## Rihanna

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Henry said he makes sure to check every cable connection prior to each performance, just as added security with his Pro Tools rig.

“Around 4 p.m. before the show, we test all the instruments,” Henry explained. “Thirty minutes before

the show, we test everything again, just to make sure everything is fine.”

The Diamond World Tour will bring Hamilton, Henry and the rest of Rihanna’s crew around the world, starting in the U.S. and Canada, moving to Morocco, Europe, Australia and continuing on before returning back to the U.S. at the end of the year.

“The ending is my favorite part,” Henry said, discussing the set list for

the show. “With the lights and dancing, it’s a total celebration. The whole place turns into a club.”

“Most of the tour is centered around *Unapologetic*, with other hits incorporated in,” Hamilton said. “Before I started mixing with Rihanna, I didn’t listen to much of her music. When I was mixing her stuff, I really enjoyed all of it. There’s not one specific song I en-

The Diamonds tour sports a d&b audiotechnik PA and monitors.

joy mixing more; they all have little thing in them that I enjoy.”

Eighth Day Sound

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VITALstats



innovations: the manufacturer's view

# On the Hunt for a World Class Multi-Channel Audio Interface

ANTELOPE AUDIO ORION32



BY MARCEL JAMES

While the brand name may be relatively new to some, Antelope Audio has a well-established heritage and expertise in many audio technologies, particularly clocking and digital interfaces. The company was the successor to Aardvark, whose clocks and interfaces were sold beginning in the early '90s

and which are still present in many commercial studios. Indeed, Aardvark clocks are still considered an industry standard among many television broadcast networks in the U.S. and Europe to this day. Antelope's president, Igor Levin, was founder and lead designer of Aardvark and the person behind the vast majority of that company's innovations, including the Direct Pro 24/96: a high-quality

interface introduced over a decade ago that was capable of handling 16 simultaneous audio inputs and 24 outputs.

Ever since Antelope Audio was established back in 2005, the company has pursued an 'upmarket' strategy, focusing on extremely high-end/high performance products that appeal to the ears of even the most discerning audio professionals and audiophiles.

Antelope's first product, the Isochrone OCX clock, which was introduced in 2005, is still considered to be among the finest digital clocks on the market and set the pace for further innovations at Antelope in both clocking and interface technology.

Antelope's Orion32 was introduced at the AES in San Francisco last October and is the company's most innovative product to date. It is the world's first 32-channel AD/DA converter/master clock in a 1U rack space—and at a cost of \$2,995, is set to revolutionize how interfaces are used in both the studio and in live sound applications.

To understand just how innovative the Orion32 really is, we need explore some of its origins from a very basic perspective. The first interface Antelope introduced was the Zodiac: a two-channel audiophile interface that took almost two full years of research and development. Despite having only two channels, the Zodiac opened the doors for the Orion32

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# Innovations

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in nearly every respect because of the research and innovation that was required. For instance, we wanted to facilitate two channels of 384 kHz audio on the Zodiac, but were not able to achieve this with ‘off the shelf’ circuits. So our design team developed our own proprietary, custom USB controller circuit that could handle high-resolution audio in a reliable fashion, while seamlessly interfacing with both Macs and PCs. In the process of developing this circuit, we also discovered that it could handle many more channels at 192 kHz—and thus could facilitate plenty of I/O on the Orion32 at high sample rates.

Another innovation that came out of the Zodiac was the super-efficient power supply. In order to keep distortion and noise down, we had to design a linear-style power supply that stayed cool over long periods of time. We ended up designing and integrating two separate elements inside the Zodiac: an analog and a digital circuit board, each deriving their own power from separate sources. These innovations—combined with recent cutting edge, green power innovations that occurred during the last two years—played a foundational role in helping us power the Orion32 in a super-efficient manner, while keeping heat down.

These are just two examples. Though the Orion32 would see many

more channels than the Zodiac, as well as the application of many other unique multi-channel features, the basis for much of the true technical innovation had already occurred during the development phase of the Zodiac. The Orion32 saw refinement and fine-tuning of many of these innovations.

Outside of our own research and development efforts, there were already trends afoot in the market that would align in Antelope’s favor with respect to the Orion32. For instance, USB2 was now ubiquitous. Audio professionals and home recordists alike were creating increasingly complex projects on laptop PCs, MacBook Pros, Mac Minis, even iPads, and the widespread adoption of solid state hard drives meant even greater stability and performance among these devices. Meanwhile, the USB circuit Antelope’s designers had spent so much time designing and perfecting now had plug-and-play applications with all of these and other products on the market.

Add to this the widespread use of summing boxes with large channel counts of 16 to 32 channels, the proliferation of 500-series modules and ever-increasing demand for portability, and you have a perfect market storm supporting the Orion32. These and other market developments helped us solve one of our earliest, most fundamental questions we had even before it was asked: What would people connect the Orion32 to? Answer: all of the above.

We knew the Orion32 would be

facing some pretty tough competition in the market, especially in the 8- and 16-channel interface categories. But until now, if you wanted a 32-channel converter, competitive solutions would require no less than two rack spaces—and would likely need to be accompanied by an additional 2U ventilated panel space. With the Orion32, we were able to fit an incredible amount of I/O into a single rack space, while providing unmatched stability across all platforms and delivering supreme audio quality.

In terms of market acceptance, we predicted with confidence that the Orion32 would be very popular in the commercial studio and home recording markets, but one area where this product has exceeded our rosiest expectations has been in the live sound market. The simple reason for this is real estate: Rack space is a precious commodity in the studio environment, but even more so for touring FOH and monitor engineers where more space equals more money. Since the Orion32 system is USB-based, it eliminates the need to bring huge computers with PCI cards and the need to synch multiple devices, given its inherent clocking capabilities.

I believe the Orion32 is one of those special products that come out every 10 years or so; the feedback we have received so far is nothing short of astounding. Despite its ability to deliver so much quality and functionality in an incredibly small footprint, the Orion32 features an elegant design and is incredibly easy to use. It

has the potential to not only improve the audio quality and workflow in just about any audio environment, but to change the way audio professionals work altogether.

Antelope Audio  
antelopeaudio.com

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## UA LA-2A

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aling it counter-clockwise focuses the compression on the high frequencies. It’s a perfect adjustment when you’re looking for creamier top-end sound.

The beauty of UAD’s Teletronix LA-2A Classic Leveler Collection is the ability to compare the different classic models. I can’t ever remember seeing more than one real hardware unit at the same time, especially the rare LA-2. This is very exciting—an accurately modeled collection of all three versions

This is very exciting—an accurately modeled collection of all three versions of one of the most praised