MIX
Professional Audio and Music Production

Sennheiser Evolution 900 Series

FIELD TEST

by Barry Rudolph

Back To The Home Page

You Are Here: www.barryrudolph.com > mix > sennheiserevolution900.html

The Sennheiser Evolution 900 Series microphones are like a new palette of colors for an engineer--10 exquisitely designed tools to enable vivid live sound reinforcement and truer-to-the-source studio recordings. Apart from a large diaphragm condenser model, a well-stocked microphone cabinet is represented with good choices covering all miking applications for stage and studio--some with purpose-built variants. The mics have matching black-painted die-cast metal bodies (brass for the e914) and gold-plated XLR connectors, and come with holder/clamps or integral mounts, windshields, carrying pouches and multilanguage instruction manuals.

The Sennheiser Evolution Microphone Line

The Evolution 900 series consists of: the e904 ($279) and e905 ($299) are, by virtue of their compact size, designated for tight drum kit placement or unobtrusive instrument miking. The e906 ($349), with its flatten shape and unique three-position presence filter switch is for electric guitar that, in addition to using its holder, can be hung (by its XLR cable) over the front of a cabinet. The e935 ($279) and e945 ($299) are handheld vocal mics and the e908B for brass and e908D for drums are small electret condensers with flexible goosenecks and spring-loaded mounting clips ($399 each). Finally the subject of this review, the e901 ($379) wide

cardioid boundary layer condenser mic, e902 ($349) bass/kick drum dynamic mic and the general purpose e914 ($649) cardioid small diaphragm condenser microphone.

Sennheiser e901

e901
The e901 is a boundary-layer electret condenser microphone that uses a 10mm diameter KE10 capsule mounted perpendicular to a flat metal back plate. Also known as a pressure-zone microphone (or PZM), it has a half-cardioid polar pattern and, when placed on a reflective surface such as a wall or window, will have up to a 6dB gain in sensitivity and a flatter frequency response. The 901's response starts rising at 800 Hz to about a 12dB boost at 10 kHz. The 901's "stealthy" profile and rear-mounting holes make it perfect for permanent installation on a wall for ambient/room pickup. This mic comes with a rubber, non-slip backside surface and is phantom powered. It has a sensitivity of 0.5 mV/Pa with max SPL of 154 dB.

Sennheiser e902

e902
The e902 is a dynamic cardioid microphone that has a neodymium magnet structure, shock-mounted capsule, replaceable front basket (screen) and integral stand-mount. The maximally adjustable mount and rear-mounted XLR connector make placement and connection a breeze--the best yet in the world of kick drum mics. Besides kick, the carved frequency response is tailored for bass instruments such as bass guitar cabinets or the bottom end of a Hammond organ Leslie speaker. Sensitivity is rated at 0.6 mV/Pa @ 60 Hz.

e914
The e914 electret condenser mic has a removable capsule section and, for now, only comes in cardioid. The KE14 capsule is 14 mm in diameter and 3.5 microns thick. A recessed three-position attenuator rotary switch offers 0, -10 and -20 dB of attenuation. Another three-position recessed rotary switch selects either a flat response, a 6dB/octave @ 130Hz roll-off filter or an 18dB/octave @ 85Hz cut-off filter. Both of these switches have a good solid feel and cannot accidentally change position when normally handled. The e914 has 7mV/Pa sensitivity with a max SPL (with -20dB pad) of 157 dB.

PERFECT FOR DRUMS
I first used the mics recording an '80s Gretsch kit with 22-inch bass drum, DW chrome snare, 12-inch rack, 16-inch floor toms and K Zildjian Dark cymbals. The hi-hats were old 14-inch Paiste Sound Creations. The room was small--about 8 X 16 feet--with an 8-foot ceiling, a wood floor and acoustically treated walls. (I recorded into a Pro Tools|HD Accel rig.)

I placed two e914s without any roll-off or attenuation at about two feet above the cymbals, pointing straight down at the toms and snare, using only the preamp sections of two Manley EQ-500 tube mic pre's without

Sennheiser e914

EQ. The other mics included Shure SM57s on top and bottom snare, Milab DC-96B on hat, MD-421 on rack tom and a Shure B52 on floor tom. I used Focusrite ISA-215 and Neve 1084 modules.

I placed the e901 boundary-layer condenser inside the kick, right on the bottom and directly on the wood drum shell; the rubber backing kept it from sliding around all session long. I placed the e902 right into the hole on the front WeatherKing PowerStroke 3 head. For this session, I placed the entire mic inside the drum slightly off-center, aimed at the beater and directly above the e901.

In front of the kick, I constructed a 5-foot-long tunnel and put a U87 about three feet away. All three mics were recorded flat to separate tracks with three more Neve 1084 modules. Because it was on the other side of the bass drum head from the other two mics, the U87's polarity had to be flipped. I adjusted the time relationship for the three tracks subsequent to the recording. The U87 was late in relation to the e902 and later yet compared to the e901 inside, my reference for defining the leading edge of the beat.

Without any tweaking, this simple setup produced a good rock drum sound with no phasiness, well-balanced overheads with clear and not overly bright crash cymbals, a present snare drum and good low-frequency energy content from the toms and kick. Of special interest was the e901 inside the kick. This mic produces an extremely sharp, percussive attack that is natural-sounding because it is real and not contrived by EQ'ing and compressing a main kick mic. However, you must use another mic to get the rest of the kick's sound to complete the sonic picture.

The e902 ended up being my main mic in the kick drum submix--it could stand alone with plenty of high-end crispness and solid low end. I quickly found the sweet spot, and I liked that the XLR connector and integrated holder worked well together at the end of my short boom stand.

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Of Drums Sounds Obtained With These Mics.
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The e901 was a great choice for handclaps when I taped it to the studio's window. Similar to using a PZM, my hand clappers didn't have to gather around a central mic and concern themselves with being balanced--they just stood in front of the window and the e901 picked up everything with a very percussive, sharp and consistent sound.

The 901 also worked well right outside the bass drum; I just placed it on the wood floor in front of the kick. This created a more ambient sound without the delay and phase issues caused by mixing through distant room mics. This position also works well for loud guitar cabinets, especially as an added mixing element to a main mic. If you mount the 901 on a large sheet of plywood, you can aim it at a source with better isolation and the extra surface area will increase the low-frequency response.

Finally, I tried the e914 on an acoustic guitar with great results. I could move in close and, to get rid of most of the proximity effect, use one of the filter settings for a very present, in-your-face percussive sound or move

back out for a smoother overall acoustic body sound heard on many country ballads. Either way, the high frequencies were smooth with the overall spectral balance even.

SOLID CHOICES FOR STUDIO OR LIVE

The Evolution Series e901, e902 and e914 are a ready-made collection of classic workhorse mics. The sturdy, all-metal construction and impressive specifications make them worthwhile additions to any live sound company's or a studio's mic locker. Each mic's dialed-in sound signature does all the work of getting great sounds on drums, guitars and bass. In general, I found little need to EQ these mics; with careful positioning, I could capture everything I wanted.

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Back To Home Page

Back Up To The Top

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