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Neumann's new Series 180 condenser microphones consist of three models: the KM 183, KM 184 and KM 185. Available in either matte black or silver nickel finishes, the three mics offer a range of pickup patterns to accommodate any recording or live sound situation. The omnidirectional KM 183 and cardioid KM 184 microphones are successors to the KM83 and KM84 models (popular in the '70s but no longer manufactured). The KM 185 is the new hypercardioid variant. Unlike the KM100 Series, these mics do not have interchangeable capsules and thus sell for a lower price.

All three of the new mics are based on KM100 circuitry and are 48-volt phantom powered, although a new DC-to-DC converter changes the 48 to 60 volts and provides a more stable polarizing voltage. A side benefit is that the mic's transformerless output is more forgiving of the unbalanced inputs of consumer gear.

The KM 183 has a boost of approximately 7 dB at 10 kHz in the free field but a flat frequency response in the diffuse sound field. Just like the KM140 microphone, the KM 184's response starts to lift at 9 kHz, which means that the new KM 184 is brighter than the original KM84. This characteristic has been achieved by slightly modifying the capsule's rear opening, rather than by electronic means. Compared to the KM84, the KM 184's dynamic range is increased by 21 dB, self-noise is reduced to 25 dB (CCIR), and the new mic can handle SPLs up to 138 dB.

The KM 185 hypercardioid features a 10dB front-to-back-to-side rejection--minimum sensitivity is at 120% off-axis. The pressure gradient transducers in both KM 184 and KM 185 provide for smooth frequency responses, not only for the on-axis sound, but also for off-axis sounds.



## LET THERE BE DRUMS

The 180 Series mics' small size makes them perfect for miking acoustic and string

instruments, or getting in and around a drum kit. I have always favored close-miking drums with condensers for light-to-moderate playing--I find that condensers pick up more of the subtleties of a drummer's technique--although they may not be the best choice for bashers. For this Field Test, I used two KM183s for overheads (one over the ride cymbal/floor tom side and the other over the snare/hi-hat side), a KM 184 for the snare drum close mic and the KM 185 for the hi-hat.

The drum recording room was small, and I found the omnidirectional overhead mics picked up a lot of reflections from the wood paneling and floors, positively influencing the instruments' tonality. The mics ended up being about two feet above the highest cymbal, but even this close, the omnis captured more of the room sound than the pair of cardioids I normally use. To get a little drier sound, I just moved the overheads closer in six-inch increments and reduced mic input gain. A nice feature of omnis, of course, is that there is no change in the proximity effect when close-miking.

I did have to experiment with the lateral spacing of the overheads, as I heard some phasiness when I first placed them about four feet apart. Moving them closer together solved the phase problem, but I have to admit I did like the extra wide sound when they were farther apart.

I placed the KM 184 cardioid close in on the snare drum, where it provided plenty of sparkle, obviating the need for high-frequency EQ, although I did add a couple dB of boost at around 3 kHz to fit the song. If there was ever a place to test a condenser mic, two inches from a rock snare drum is it! The KM 184 had absolutely no trouble at all, even when my flailing drummer tagged the mic's body right on the Neumann logo. Aside from a loud crack on that particular backbeat, the mic kept on working. I also A/B'd the track before and after the accident and noticed no sonic differences, nor any change in the waveform (scrutiny made possible by Pro Tools). I also noticed that none of the mics got "soft" after hours of use.

The KM 185 hypercardioid worked wonderfully on the hi-hat, picking up only minor leakage from snare and the rest of the kit. Because of its pattern, I could put the mic a little farther away to pick up the total sound, which sounds better than putting the mic extra close to minimize leakage. Also, unlike a lot of other mics, the KM 185 also did not "fold up" or get strident under the dynamics of good hi-hat playing. Again, little or no EQ was required here for a crystal clear sound. As is my preference, I did roll out some low frequencies to reduce the amount of rumble from the rest of kit.

All three Series 180 mics have high output. To get proper recording levels, I had to back down all of the mic gain settings I usually use. Make sure your mic preamps have pads, sufficient dynamic range and proper gain structure to handle the extra hot peak levels. In fact, if you use an external phantom power supply, you could try these mics at line level.

## ACOUSTIC GUITAR

Next I used the mics on acoustic guitar, routing a single mic preamp straight into a DAT machine with no EQ and no compression. I tried all three mics at one meter (the farthest away I would ever mike an acoustic guitar) and then very close, right over the guitarist's right hand and the sound hole (the closest possible I could ever get). The KM 183 omni offered the most

diffuse sound, with no change in proximity when I moved it closer. As expected, this mic captured more of the room character along with the guitar, making for a more diaphanous or transparent sound.

The KM 185 hypercardioid, which I aimed at the point where the fingers struck the strings, produced a more percussive sound. Fret squeaks and noises off-axis were not very loud. When I moved it closer, the KM 185 exhibited only a slight rise in low frequencies because of the proximity effect.

The KM 184 cardioid also had a great sound, with good spectral balance and the usual bass buildup as I moved it closer, and more output. Although the three mics use the same electronics, the 184's capsule has greater sensitivity and therefore more output. All three mics produced a great guitar sound with minimum fuss.

If you are as interested as I am in building up a mic collection, the new Neumann Series 180 mics make a good choice for compact condenser pencil mics. The Series 180 models are a big improvement over the old KM83/84 mics and offer improved SPL handling, lower noise, lower prices and demonstrable ruggedness. Both the KM 183 and KM 185 sell for \$750, and the KM 184 goes for \$725.

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