

Sennheiser MKH800 Twin

Take a well regarded two-capsule mic and re-engineer its back-end so you can control it externally in the old-fashioned way; it's what Sennheiser has done with its MKH800.

JON THORNTON discovers that he has a twin.

Sennheiser's MKH series has always been something of a rarity in the modern microphone world, falling into the category of Radio Frequency (RF) capacitor microphones rather than the more usual Audio Frequency (AF) design. The MKH800 Twin takes this unusual approach a step further by taking the basic design of the multipattern MKH800 and allowing the signals generated by the two capsules to be output separately and processed externally, rather than mixed internally by the microphone.

To start with, it might be useful to recap how an RF capacitor microphone differs from a more conventional design. The capsule in a typical AF capacitor microphone is externally biased by a DC power source, in conjunction with a high value resistor to ensure that the charge remains reasonably constant as the capacitance of the capsule changes with variations in sound pressure. This leads to a changing output voltage proportional to the change in capacitance of the capsule, but is inherently a high impedance circuit. This means that impedance conversion is required, using either valves or FET transistors, and also means that there is some susceptibility to environmental factors such as humidity.

In an RF design, the capsule forms part of a circuit that modulates a high frequency but low voltage RF signal generated by a crystal oscillator. Following demodulation, the audio frequencies responsible for this modulation are recovered. This is easy to describe, but quite tricky to do in practice, but it's a technique that Sennheiser, almost uniquely, has refined over the years.

The key advantage of this approach is that the capsule is now part of a low impedance circuit. This means that there are fewer environmental problems caused by moisture and humidity, and also that subsequent amplification can be performed by 'ordinary' bi-polar devices with inherently better noise performance.

Although based on the MKH800 variable pattern microphone, the MKH800 Twin is actually a little shorter in length as it doesn't need the internal pattern switches and associated electronics. It's available in Nickel or non-reflective Nextel finishes, and ships with a compact suspension mount and a fixed clip. The supplied lead converts the 5-pin XLR on

the base to two 3-pin XLR outputs, one for each of the two capsules. Power is standard 48V phantom, and this is required down both of the two legs for the microphone to function. Two recessed LEDs on the mic body indicate that phantom is present and healthy — one for the front facing capsule and one for the rear facing capsule. Each of the capsules has a native cardioid characteristic.

Two further advantages of this type of design are that the microphone's electrical sensitivity is very high — 40mV/Pa means that the noise contribution of the microphone preamplifier is substantially reduced — and the frequency response rises gradually above about 10kHz but doesn't really start to roll off until 50kHz. The net result of all of this is a microphone whose sonic characteristic is really about resolving detail and definition rather than adding any of its own character to the recording. Like

its stablemate the MKH800, it isn't a microphone that really favours close positioning, so the test for the day was recording an acapella choir in a reasonably large (14m x 10m) studio space.

To start with, the Twin was rigged forward facing, roughly ten feet from the choir who were arrayed in a semi-circle around it. As a reference, an AKG 414 XLS was also set up in the same position. First impressions are that, despite the inclusion of a fixed clip, you'd probably never use it in preference to the suspension mount, as the Twin does seem very susceptible to structure-borne noise. This is exacerbated by the lack of any onboard high pass filter but in most cases the Twin would be used in conjunction with some form of mixer, so this isn't a huge issue.

Starting with the standard cardioid pattern of the 414 and simply using one output of the Twin, the initial sonic impression is one of the Twin having noticeably more 'reach' — revealing more detail in individual sung voices than the 414, and seemingly a more extended low end. Switching the 414 to its wider cardioid pattern, and achieving the same thing with the Twin by mixing in a little of the rear capsule really only reinforced this perception. The Twin seemed to resolve the reverberant sound much more accurately — helped in part by that low and high frequency response extension.

Accurate isn't always the same thing as pleasant, though and any shortcomings in a venue's acoustics are really shown up by

the Twin. Fortunately there's always the possibility of tweaking this somewhat in postproduction by simply recording the two outputs separately and then rebalancing them later. As a slight extension to this approach, I also brought a standard MKH800 into play as a fig-8 microphone using the double MS technique. Recording all three signals separately (fig-8 and both outputs from the Twin) allows quite a bit of potential for postproduction. Front and rear left and right can be had by simply matrixing the fig-8 signal with the front and rear signals from the Twin respectively. Then if necessary, a front centre and even rear centre channel can be established by combining the outputs of the Twin as required.

The results of this were technically very good when matrixed and played back in a control room with 5.1 monitoring. I say technically, because aesthetically it wasn't brilliant but this had more to do with the acoustic of the venue than anything else. Still, a nice tight centre was achieved using a slightly super-cardioid response derived from the Twin's outputs, with excellent stereo imaging across the LR speakers and some nice coherent ambience in the rears.

For anybody who has used other microphones in the MKH series, the performance and reach of the MKH800 Twin shouldn't really come as a surprise. And if you want this performance simply packaged as a multipattern microphone, then the standard MKH800 is probably the better bet. But what is surprising is just how capable and versatile the Twin is in conjunction with another fig-8 microphone. For MS stereo and surround applications, it makes a neat, compact and very high quality solution. ■



PROS

Excellent reach and resolution; flexibility of continuously variable pattern on the fly or in postproduction; quiet and sensitive; extremely versatile in MS or double MS applications.

CONS

Quite susceptible to structure-borne LF noise; can be a bit fiddly if all you want is a quick single pattern other than cardioid.

EXTRAS

Sennheiser's MZD 8000 digital module allows MKH 8000 series mics to be



digitised directly at the microphone head. The compact digital module is screwed onto the microphone head in place of the XLR module. Like all signal-carrying components in the 8000 series, the module is designed with two channels and converts the microphone signal according to AES 42, turning the signal of the MKH 8020 (omni), MKH 8040 (cardioid) and MKH 8050 (super-cardioid) into digital.

The module also contains a DSP unit which, with the aid of PC control software and an AES 42 interface, allows microphone settings, such as the low-cut filter, attenuation and limiter, to be remote-controlled. The interface also provides phantom power and Word clock.

Contact

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