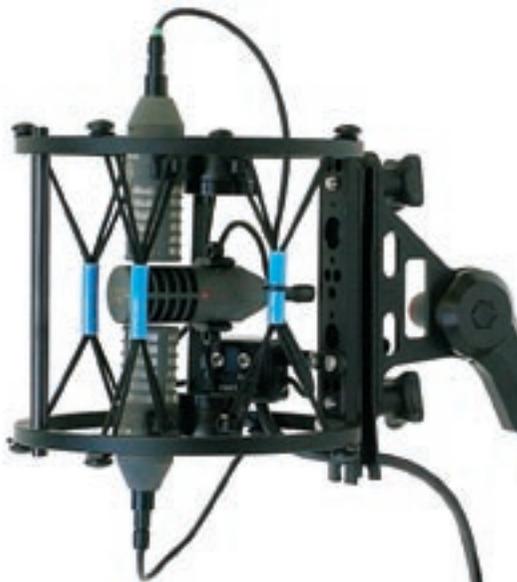# Schoeps Double MS Tool

MS is a commonly used technique that has great potential as an acquisition means but is not accepted in all production chains. Mic manufacturer Schoeps has released a free VST plug-in that harnesses the increased flexibility afforded by the Double MS provided by its mic clusters. ROB JAMES straps up and goes walkabout.

MIDDLE AND SIDE, MS, is a simple location technique but despite or perhaps because of this it remains a major source of confusion. It is important to understand that the term is used pretty indiscriminately to describe both microphone and stereo encoding techniques. As the name implies, all you need to make an MS recording is a forward facing mic, the Middle, and a mic positioned at 90 degrees to the first one's axis, the Side. The M is usually a directional capsule, e.g. a cardioid, and the S is either a fig-8 with its in-phase side pointing left, or two cardioids arranged back to back connected in parallel to produce a fig-8. If the signals from these M and S mics are added in a particular way conventional Left-Right stereo can be obtained.

M+S gives Left and M+(-S) gives Right (-S = phase reversed). This can be achieved passively, using transformers or actively with buffer amps, a mixing console or a DAW. However, the process is reversible. A Sum and Difference signal can be derived from any AB source by using the same arithmetic in reverse, i.e. A+B = Sum and A+(-B) = Difference. Sum and Difference is a less ambiguous term for such recordings. There are two good reasons for making the conversion. First, varying the level of the difference component adjusts the width of the stereo signal, avoiding the phase cancellations that occur with simple panning and also allows the width to be increased. Second, more important in analogue systems, dropouts or variations in level only give rise to a change in image width rather than disturbing image shifts.

From the location recordist's point of view, MS mics are very useful since they enable recordings to be made using the same techniques as mono.

I write from the perspective of a re-recording mixer with extensive experience of being on the receiving end of stereo MS recordings. I have observed that many of the mic combinations used result in 'phasey' recordings that are very uncomfortable to listen to. This is equally applicable to 'all-in-one' designs and to separate capsules. Still worse, such recordings played havoc with the matrix used in Dolby stereo. This led to blanket advice from re-recording mixers not to use MS for film.

However, in reality there are some honourable exceptions and one of the more notable has always been Schoeps.

Back of envelope scribblings have long suggested that the MS principles should be extensible to surround recording by using a second, rear facing cardioid capsule. Now Schoeps offers a convenient collection of components for the purpose and a free VST plug-in to decode and control the resultant fMSrM recording (front Middle, Side, rear Middle).

We used two compact CCM 4V cardioids and a CCM 8 fig-8 in a Schoeps custom Rycote modular mount with Windgag and Windjammer for recording. A 'Connbox' attached to the mount combines the mic outputs into a single XLR7 cable that ran down my Rode pole and was subsequently split out into three XLR3s to plug into the recorder (in this case an Edirol R-4 Pro). Subjectively, the complete mic package is no heavier or more unwieldy than a 416. I made a number of recordings, monitoring just the forward facing cardioid capsule.

I used Wavelab as the host application. Installing the plug-in is as easy as throwing the DLL file in the VST folder. After a quick check on studio monitor levels while transferring the files over USB, it took no time at all to place the three-channel recordings and load the DMS plug-in in Wavelab's Master Section. The DMS Tool control panel is divided into five areas. Horizontal bargraphs show the three input and five output channel levels. Each of the three input channels has a level fader and Mute button. The Centre, LR and LsRs Polar Patterns can be varied anywhere between omni and fig-8, the LR angle can be varied from 0 to 90 degrees and the LsRs angle between 180 and 90 degrees. Variable Rear Delay can be added to ensure correct localisation. (Haas Effect, the brain locates a sound with identical loudness and frequency characteristics in the position it is first heard). A variable low pass filter is also provided to help avoid localisation errors. Preset offers the choice of five set-ups optimised for different purposes. User presets can also be saved and loaded. In the centre of the panel the resultant polar diagrams are displayed graphically.

The results are highly impressive. My favourite is a stormy day with heavy surf, birds, dogs and a tolling bell. As you might expect, if there are specific sounds like the bell behind the mic, the delay needs to be used with caution or these sounds will appear to be in front of you.

A less obvious bonus with the plug-in is that it overcomes one of the disadvantages of simple stereo MS, namely that varying the polar pattern also varies the acceptance angle. Here, they are independent, making this an interesting tool for stereo. While playing with this I was struck by a phenomenon I've noticed before with MS recordings. The aforementioned bell, when recorded behind the mic, still appears to come from the rear even in stereo. This effect was so marked I even checked twice to make sure the rear speakers were muted!

If you wish to record the 'point 1' as a separate channel rather than deriving it in the mix, Schoeps suggests the use of an omni capsule with a LPF since the bass response of the omni is better. For the same reason this is better mounted outside the Rycote gag. Incidentally, there was no trace of wind noise on my exterior recordings despite the 20mph plus wind speed.

Outside of a SoundField, this is the first mic combination for location surround recording that has me convinced.

The DMS-Tool controls offer a very useful extension to what can be achieved using a simple decoder or console. It has been specifically tailored to suit the sensitivities of the CCM 4V/MK 4V and CCM 8/MK 8 and the equalisation of the CCM/ MK 8.

Make no mistake, injudicious use of the plug-in can produce some very disturbing effects but, used with care, this is a great tool for producing truly immersive surround-sound environments from DMS recordings. ◼

PROS	It's free!; provides excellent and intuitive control; far more convenient than other post decoding alternatives; specifically tailored to the Schoeps capsules.
CONS	The mics aren't! (free that is); would be even more convenient if the .1 channel was also handled.
EXTRAS	In the context of DMS, Schoeps supplies a number of options.

DMS-Splitter — A passive device that takes a DMS input and outputs the centre channel plus the two MS pairs while preventing any overlap.

M DMS U Matrix — Uses transformers to form a passive decoder matrix. The microphone signals are converted directly into 5.0 LRC LS/RS surround signals. A switch accesses a second setting, for four-channel LR LS/RS.

LP 40 U low-pass filter — A 12dB/octave in-line XLR design with a -3dB point at 40Hz.