

# *Simply the best ?*



**SoundField  
SPS 422**

**THE  
MIX**

*Review*



*SoundField have a great reputation among professionals for their multi-capsule microphones , but up til now they've been to pricey for all nut a few - that may change with the SoundField SPS422. Stuart Litobarski investigates....*

Although I am not one for serious flag waving, I think it is apparent that far-east technology has captured the influence that Britain once enjoyed in the audio field. Nevertheless, the UK still maintains a significant world lead in acoustic products, loudspeakers and microphones especially at the top end of the market. Cynics might say that's because it's just too expensive to ship a box full of air half-way around the world - however there

musician is generally self operated. Apart from the MIDI computer work, you're likely to find yourself engaged in basic track laying, either on your own, or with one or two associates you've conscripted in to add extra instruments. Although the SoundField technology might appear a little strange at first if you've not come across it before, you simply have to appreciate that the SPS422 is just as easy to operate as any conventional

using it as easy as any of the standard microphones you have easier in fact, because you won't have to keep running in the live room to move the mics 'ever so slightly'. You can do much of this fiddly setting up work from the control room, while monitoring over the big speakers, because the control unit allows you to steer the microphone's aim on the fly.

Changing from omni, through sub-cardioid, cardioid, super-cardioid, hyper-cardioid to bidirectional figure of eight is as easy as tweaking a knob!

## spec check

Microphone front sensitivity at -30dB trim 0 :	122dB
Microphone acoustic line-up at 0dB gain trim 0:	80dB SPL
Maximum input for less than 0.5% THD	145dB SPL
Frequency range :	20Hz to 20KHz
with bass roll off	80Hz to 20KHz
Equivalent self-noise, IEC 179 (cardioid):	14dB - A SPL
Control unit outputs at line-up :	0dBu , balanced
Maximum output levels :	+22 dBu
Minimum load (stereo outputs) :	600 ohms
Minimum load (headphones)	400 ohms
Output connections (balanced/line level)	XLR x 2
Output impedance	100 ohms balanced
Power requirements	80V to 240V AC

simply must be more to it than that. I think when you take a closer look at the SoundField microphone you'll understand a little of what that something is.

SoundField is a well-known company with a solid history in microphone manufacturing. This is certainly reflected in the Rolls Royce-like quality of the workmanship in their products quality which is absolutely first class. The SoundField steerable array system is identical to that used in the latest Star Wars satellite technology. Space age technology indeed, as we'll see.

### SoundField basics

The recording musician is almost certain to get round to buying at least one decent studio mic at some point or another, having realised that the bulk of gigging dynamics are just not high quality enough to deal with the standard of recordings needed to succeed in this competitive world. Leaving aside any youth trainee. the studio of a professional recording

'run of the mill' microphone. The one important difference is it's vastly superior sound quality and the superb flexibility in how you can drive it. The SPS422 is like having four separate microphones and an electronic mixer. That is because it has four, yes four, sub-cardioid condenser capsules. These are lab-matched and set diametrically opposed in a regular tetrahedron shape, mounted within the one casing. Now the clever part; the capsules are all referenced back to a single point source, using compensating circuitry. From then on in, the directivity functions of the SPS422 are electronically controlled in their entirety.

The directivity response of the microphone is infinitely variable, between any pattern you can think of, when you use the remote control unit supplied. As soon as you can get a chance to play with this microphone system. you'll find

### Aesthetics

The microphone kit comes packed in a substantial, yet portable flight case that is fully lockable. The padded compartments contain the microphone, control unit, shockmount suspension cradle, 20 metre cable, and a standard mic clip. The microphone construction is all metal, including the suspension cradle, is fairly strong, and painted black. On-board electronics are surface-mount and fabbed in Europe. The 1 U control unit is finished in an attractive grey and also features high-class surface-mount componentry. It has a toroidal mains transformer.

This is an amazing piece of kit it really is an extremely high quality product. Technical support should be easy to find, indeed the manual positively invites you to write in with your technical questions.

Spare parts for the electronics can be a source of worry for the maintenance techie (believe me, I know - I used to live in Western Australia) so buying a home grown product means parts are easier to get hold of in a hurry, and you can keep in much closer contact with the latest technical developments in the company pipeline.

### Principle of operation

There are two main parts to the SoundField system.

The microphone itself with suspension cradle, and the mains powered remote control unit, which is commonly mounted in the control room. The microphone is connected to the rear of the control By the way, cables of up to 100 metres, drum mounted, are available as accessories.

You plug two standard XLR balanced mic leads into the left and rear outputs, and feed them into line inputs on your mixing desk, or tape recorder. Although, line level outputs are advantageous in direct to DAT recording, it does mean if you use a mic input you are likely to need the pad: not to forgetting to switch off any phantom powering. The control unit has a knob to set the input gain in 10dB steps, from -30dB up to 0dB and a second knob for the finer +/-10dB trim. All condenser capsules are to some extent humidity sensitive, so the microphone includes a heater to protect against moisture formation. For this reason, it is best to leave the system warming up for a few minutes before you use it.

On the SoundField SPS422 control unit, the matrix is so intelligent it even allows you to program in whether you are using end-fire or side-fire orientation, all at the push of a button. End-fire is very practical on your overheads, for example, in a drum fill situation. Another button marked 'Inv' inverts the left and right sense, for when you suspend the mic from it's cradle, rather than having it stand vertically, although you don't need to stand on your head to see how it works - The User Guide gives a complete explanation of the various orientations on page 6. Just remember that the logo points to the front. There is a headphone socket on the front panel, with volume control, that allows monitoring of the stereo sound in both the XY or MS modes.

The headphone sound does not match the actual output quality, although it certainly proved more than satisfactory. Certainly, the frequency response plot given by the manufacturers is one of the smoothest I have ever seen.

According to the spec, it extends from 20 to 20,000 Hz +/- 1 dB when set to stereo cardioid. There is a 'rumble' filter for rolling off below 80Hz, (low E on a guitar) very advantageous for vocals in a room with 'air'.

### Stereo MS/XY miking

Above all this is a stereo microphone, offering you new possibilities in recording. There are two ways to process the signal off a stereo microphone, and most old hands have their chosen technique.

In the XY coincident pair system, not to be confused with the spaced stereo pair, two unidirectional mics are simply angled across each other, usually at 90 deg. with the diaphragms as close as possible to reduce audible phase cancellation, a.k.a. comb filtering.

So the XY system is fairly straight forward. In the slightly more complex, and increasingly popular, alternative MS system, electronic processing is used to treat the main central 'sound image' separately from the surround 'atmos' sound, said to preserve normal axis phase coherence.


However the main benefit of using MS is that you can 'matrix up' the signals off-tape, using just a standard mixing desk, or a dedicated decoder if you have one, and you thereby get the ability to change the microphone stereo characteristics after the event. Very handy for the classical buff!

This post production feature could be really useful in, say, live location recording, when you get the option of changing the width of

the stereo sound-stage, and rejecting room noise, during actual mixing. It's a topic that brings into play all sorts of serious things like the subjective preference to 'envelopment' in concert hall acoustics - but you don't really need to know any of that to enjoy the SPS422 microphone.


On the SPS422 you switch between XY and MS stereo by simply pushing a button in and out! The levels are automatically shown on the horizontal bar graphs, according to what you selected. In MS mode you get the Mid signal (the mono version) on the left channel, and the Side signal on the right channel, both undecoded. Keep the

*up close*



Control unit lets you adjust the mics directivity from the control room

The output from the control unit go straight into the line ins on your mixer



The mic itself is beautifully engineered and guaranteed to last the test of time

Pattern and Width controls centrally positioned during recording, then you will be able to use the MS post-processing facility mentioned above. Remember though, with any MS work it's a good idea to check the mix in mono afterwards.

There are just two knobs on the electronic unit to control directivity response. The 'pattern' knob rotates continuously between omni, through wider to tighter cardioid, and on to figure of eight - very useful for recording a pair of facing vocalists in harmonised duo work.

Whereas on conventional microphones the directivity pattern is usually switched by hand, to close acoustic ports in the capsule itself, in the SoundField that's all done remotely from the control room, using the remote control unit handily positioned in the FX rack. If the room acoustics allows, you can pull in more of the reflected room sound, although too wide a directivity pattern can slacken the stereo imaging. If you think about it, it's like moving closer to your subject, so it's image appears larger to you.

The second control is a 'width' control. This adjusts the angle between the virtual left and right mainlobes, to set the width of the stereo pickup angle. The effect is to continually spread the apparent sound-stage out from a centrally positioned mono, through narrow stereo, right up to a full-width soundstage. It can also enable you to match an instrument's acoustic radiation characteristic. I found the Width control quite effective at excluding room noise when used in conjunction with cardioid mode.

For most 'pop' multi-tracking you would close the stereo width right down to mono and set the pattern to cardioid response. Although bear in mind that with close miked instruments you could easily try the stereo setting, because most electronic reverb units have stereo inputs and outputs. Take care with using a figure-of-eight pattern in stereo though, as any rear-lobe room sounds will be reflected left to right and vice-versa. Also omni stereo would be a nonsensical setting, because the SoundField is co-incident. Another helpful tip with close mic work, if you use a mono-omni mic you completely escape the proximity effect, where bass is exaggerated at close distances worthy of consideration that!

### In use

I would have to say that this microphone is certainly a world leader. Sitting down with a mic suspended from a stand in front, I begin to play my acoustic guitar and sing.

Okay, I realise I am not going to make it onto *Top Of The Pops*, but I did play with the remote control unit whilst listening to the sound -both directly to my ears, and through the system over a set of fairly modest cans. I soon realised that the sound was indistinguishable in quality, and was convincingly realistic. I would say that, tonally, there was no difference at all between the sound I was hearing with my own ears, and that coming over the system through the cans sat on my head absolutely amazing, considering the cheapness of the standard studio cans I was using. That must surely be testament to the sheer engineering brilliance of this microphone. In stereo it sounded even better!

I hope to try out the SoundField SPS422 system on a live video session - a gig starring the Tom Robinson Band, and Bristol indie Rita Lynch. I'm sure that this mic will prove very handy in place of the usual ambient pair (to fill out the main mixer clean-feed) especially as that is a task where room noise could really spoil things. Hopefully, with the SoundField, I'll be able to 'steer' myself out of trouble.

Verdict Surely this is technology for the Millennium. You may have thought that the SoundField SPS422, having so many of the features of the B-format MkV, was out of your reach. However, the price of this kit represents a considerable reduction on the original MkV placing it well within the reach of a serious recordist.

Although initially you pay a lot for the SoundField, think of the time you'll save not having to search around for a lot of different microphones. If you did manage to locate another mic that you thought might do the job, your task is simple -compare it to the SoundField SPS422 and ask yourself 'is it better?' I personally think you'll find it difficult to come across a microphone that is anywhere near as good. Sure, I know that there are some world-class microphones in the acoustics laboratory, but they are mono omni, and not conveniently set-up for stereo audio use in the studio. You could easily overlook the power contained within this microphone, simply because it is so easy to use. There are no meaningless settings - all that has been taken care of in the meticulous design of the control unit. The operating ranges have been set only after full consultation with senior sound experts within the industry.

This is clearly a microphone you could make some bucks with and, when it's cost is averaged out over the life of the instrument, it seems even more of a must have. You'd need to buy at least a dozen different microphones to get all the features this one has got! I do hope you will enjoy using the SoundField SPS422 microphone system as much as I have done playing with it today. One day all microphones may be made like the SPS422 until that day comes, I know which microphone I'll pick.

### The Essentials

The system comprises of SPS422 microphone , SPS422 control unit , stand adaptor , 20 metre 12 pin microphone cable (mic to controller) , mains lead.

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