



surround

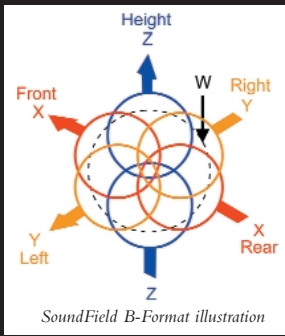
from a single microphone



SP451 Surround Sound Processor

SoundField introduces its next level of microphone technology with the SP451 Surround Sound Processor. The SP451, used with any current SoundField microphone system in the range, offers a complete 5.1 surround, stereo, mid/side and mono recording package. The addition of the SP451 makes SoundField the lowest cost and most flexible multi-channel microphone systems in the world.

SoundField Technology ...how does it work?



SoundField Technology is based on the principle that all acoustic events can be represented by four basic elements. These are 'X' which is front/back information (depth), 'Y' which is left/right information (width), 'Z' which is up/down information (height) and

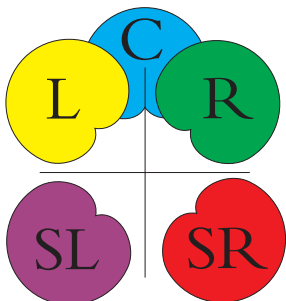
'W' the central point from which the other three elements are referenced. Collectively, W, X, Y and Z are entitled B-Format - SoundField are the only microphones in the world that deliver B-Format which can be stored on four tracks of any recorder. Because the SoundField capsule array captures three dimensional sound at the same 'central point' all time - or phase related anomalies created by spaced microphones are eliminated. Once in B-Format the point of acoustic origin is defined and all output variations i.e. mono, stereo, M/S, 5.1, 6.1 etc. are derived from this same 'central point'. Thus, surround recordings made with SoundField microphones can be collapsed to stereo - or stereo to mono - without the phase cancellation and high frequency differences encountered when 'summing' multiple spaced microphones.

The result - spatial 'you are there' imaging and consistent surround recording which are backward/forward compatible.

Surround Sound from a Single Microphone...

The SoundField SP451 is designed to accept the four channels of B-Format information generated by SoundField Microphone Systems. This can occur 'live' as the performance takes place, or retrospectively from pre-recorded B-Format in a post-production environment. The SP451 reconfigures the B-Format into a five mic array to deliver a high quality, full band, discrete Left / Centre /

SoundField MAP Card configured as 5 Cardioids



Right (L/C/R), Surround Left / Surround Right (SL/SR) 'mic' output plus a further sub-bass (LFE, <120Hz) output. Each of these six 'mic' outputs has its own level control and output level meter, plus the five mic array has individually definable mic polar patterns. The polar patterns are determined by an internally installed SoundField MAP (mic array pattern) card. One MAP card is included as standard with the SP451 which is a cardioid L/C/R/SL/SR.

This card also simultaneously outputs stereo with the facility to vary the width of the stereo pair. An optional second and third MAP card can be installed to provide almost any five mic array configuration imaginable. Any of the three MAP cards can be selected via the front panel switches to apply a different surround mic array either live or in post-production surround mixing. Each of the five microphone locations is based around the commonly accepted surround mic positions of Left (at -45 degrees), Centre (0 degrees), Right (+45 degrees), Surround Left (-135 degrees), Surround Right (+135 degrees) and a Sub-bass (LFE). Add to this impressive list of operational modes the provision to vary the width of the front

Left/Right microphones and the rear Left/Right microphone positions by +/-45 degrees (Front Width and Rear Width controls), and the SP451's flexibility becomes apparent. In addition a Rear Focus control offers the facility to vary the polar patterns of the rear pair (SL/SR) depending on what level of localisation or space is required. The SP451's surround outputs are mixed and handled as ordinary individual microphone outputs, but already at line level. No further special SoundField processing is necessary after the audio leaves the SP451.

Unsurpassed Flexibility and Versatility...

Just one SoundField microphone can provide all the most common output possibilities: 5.1 surround, stereo, M/S, or mono. It is not necessary to decide on what type of output configuration you need before you record SoundField's B-Format - these decisions can be made later. When the SP451 is used in conjunction with the SoundField MKV processor it is possible to steer the microphone in post to change the direction, angle and location. Maybe try an M/S output, or even a Mono output with no phase cancellation compared to stereo. Decide 'after the event' which of three potential 5.1 mic arrays should be utilised to best suit the artist's performance and the acoustics of the venue.

Unsurpassed Audio Quality...

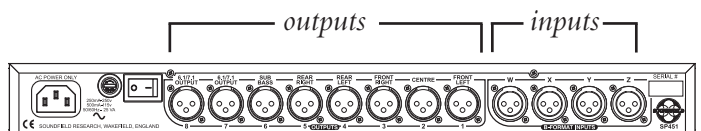
Because SoundField microphones deliver identically referenced audio to all of the possible output configurations, there is no error comparing a mono to stereo or 5.1 mix. Because all output possibilities are based on the same B-Format information, all have the same frequency response and sound quality. This is important as a conventional 'spaced' 5 microphone surround rig cannot be collapsed to stereo or mono without encountering significant phase error or discarding various mic outputs. Only SoundField can so easily address multiple delivery mediums and send the same pristine audio to them all.

The Possibilities are Endless...

Imagine using a single microphone in the studio for drum overheads that can deliver both 5.1 surround and a stereo output for use in the final mix. Imagine in-field recording of nature sounds in 5.1. Imagine recording live performances in venues in 5.1 and providing a simultaneous mono/stereo feed for radio. The possibilities go on and on. Perhaps the best is left for last, as the SoundField system is forward compatible to allow future surround applications such as 6.1, 7.1 or even 10.1 and beyond. SoundField's B-Format allows any number of future decoding possibilities, encompassing the past, present and future.

Rear Panel Connections...

All inputs/outputs are at line level via balanced XLR connectors with an additional two Surround outputs (7 and 8) to accommodate formats such as 6.1 and 7.1. Outputs 7 and 8 are utilised to provide a simultaneous stereo mix when 5.1 MAP cards are in operation.



Technical Specification:

INPUT IMPEDANCE 20KΩ (bal)
MAXIMUM INPUT LEVEL +22dBu
LINE INPUT CMR Better than -40dB (20Hz - 22kHz)
OUTPUT IMPEDANCE 100Ω
MAXIMUM OUTPUT LEVEL +22dBu
BANDWIDTH <10Hz to 30kHz
DISTORTION <0.05% at 1kHz (unity gain)
POWER REQUIREMENTS 115Volt or 230Volt at 50-60Hz, 76.5VA
CASE SIZE 482mm (w) x 44mm (h) x 256mm (d)
WEIGHT (inc. packaging) 4.0 KGS (8.8 lbs)



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