



SPS200
Software Controlled
Microphone

User Guide

Version 1.01

System comprises:

- SPS200 Microphone • 5m Microphone Cable
- Microphone Holder • 'SPS200 Surround Zone' Software
- Professional Carry Case • User Manual

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SAFETY INFORMATION

- This equipment must be EARTHED.
- Only suitably trained personnel should service this equipment.
- Please read and take note of all warning and informative labels.
- Before starting any servicing operation, this equipment must be isolated from the AC supply (mains) by removing the incoming IEC mains connector.
- Fuses should only be replaced with ones of the same type and rating as that indicated.
- Operate only in a clean, dry and pollutant-free environment.
- Do not operate in an explosive atmosphere.
- Do not allow any liquid or solid objects to enter the equipment. Should this accidentally occur then immediately switch off the unit and contact your service agent.
- Do not allow ventilation slots to be blocked.

Cleaning

For cleaning the front panels of the equipment we recommend anti-static screen cleaner sprayed onto a soft cloth to dampen it only.

Explanation of Warning Symbols



The lightning flash with arrow head symbol within an equilateral triangle is intended to alert the user to the presence of dangerous voltages and energy levels within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock or injury.



The exclamation mark within an equilateral triangle is intended to prompt the user to refer to important operating or maintenance (servicing) instructions in the documentation supplied with the product.

WHAT IS IN THE BOX?

- SPS200 Microphone
- SPS200 Microphone Cable - 10 pin to four XLRs
- SPS200 Mic Holder
- Professional Carry Case
- ‘SPS200 Surround Zone’ Plug-In for TDM or VST
- User Manual

SOUNDFIELD HISTORY

In 1933, British scientist Alan Blumlein was issued a patent that stands today as a landmark in the development of stereophonic recording and reproduction. Among its numerous declarations, it defined the basis for all coincident microphone techniques, including the Mid/Side and crossed bidirectional configurations. (The latter, in fact, is commonly referred to as a “Blumlein Stereo” pair.) In the 1970s, British mathematicians Michael Gerzon, Peter Craven and colleagues expanded upon the stereo concepts pioneered by Blumlein to develop the concept of a microphone system that could reproduce fully three-dimensional audio. Both Blumlein and Gerzon realised that only when a soundwave is captured at a single point in space can it be reproduced faithfully and without the phase distortion anomalies inherent in spaced microphone techniques.

Early SoundField prototype models were developed using Gerzon’s theory in conjunction with the National Research Development Corporation of Great Britain and Calrec Audio. Chief Designer at Calrec, Ken Farrar, and colleagues played a leading role in turning Gerzon’s theory into a real product and Ken Farrar’s contribution was later recognised by his appointment as a Fellow of the Institution of Electrical Engineers (F.I.E.E.). In 1993, the company SoundField Ltd. was formed specifically to manufacture and further develop the range of products and their application in both stereo and multi-channel audio environments. SoundField Ltd. is the owner of all patent and intellectual property rights relating to SoundField Technology.

Today, the SoundField range enjoys a reputation as the ultimate microphones for recording both stereo and the new developing multi-channel surround formats. These unique microphones employ a proprietary four capsule array of closely spaced capsules to capture an acoustic event in three-dimensions at a single point in space. This single point source pick-up principle avoids all of the time - or phase-related anomalies generated by spaced microphone arrays. Thus, surround recordings made with SoundField microphones can be collapsed to stereo - or stereo recordings to mono - without the phase problems that result in “comb-filtering” (phase cancellation) distortions. Furthermore, a single point source system is the only one that allows a truly phase coherent sub-channel to be derived. Spaced microphone arrays are unable to be reduced without introducing significant phase errors unless some of the microphone signals are discarded, which consequently results in loss of essential audio information.

INTRODUCTION

The SPS200 microphone has been developed for high quality music recording, both in studio environments as well as on location, and is ideally suited to the capture of live performances in acoustically compatible venues, both in stereo and 5.1 surround. The SPS200 is the first SoundField microphone in the company's history that doesn't require a dedicated microphone control unit; it outputs the four discrete capsule signals without any decoding, what we refer to as A-Format. Instead of decoding hardware, the SPS200's A-Format output is processed by means of the included post-production 'SPS200 Surround Zone' software to create the desired mono, stereo or surround format and with the ability to effectively 'steer' the microphone and adjust its pickup pattern after recording.

All the parameters normally controlled by a dedicated hardware control unit are available from within your DAW at the post-production stage in the form of a software plug-in that currently supports both TDM and VST hosts. The 'SPS200 Surround Zone' offers all the functionality of the highly regarded "Surround Zone" but also incorporates the capability to deal directly with the A-Format signals generated by the SPS200 microphone. This makes the SPS200 microphone ideal for use with high-end DAW systems such as Pro Tools HD and Nuendo.

The SPS200 microphone ships with a dedicated microphone cable terminating in standard XLR connectors allowing it to be connected to four standard mic-pre's of the user's choice. To find out more about suited mic-pre's and how to connect the SPS200 read the "Interfacing the SPS200" section of this manual.

The SPS200 is designed to function as either a single variable pattern mono microphone, a variable pattern, variable width coincident stereo microphone or to generate full surround. Because the A-Format signal is recorded to four separate audio channels, future decoding to any conceivable surround format is possible, including those that incorporate height information.

To derive any of these output formats the A-Format signals generated by the microphone need to be processed either at the post-production stage using the 'SPS200 Surround Zone' plug-in or in real-time using the DSF-3 hardware Digital Surround Processor. By utilising SoundField's four-capsule proprietary array and adding or subtracting the outputs from these four capsules in varying proportions, all of these output formats may be generated with comprehensive control over all microphone parameters.

HOW DOES IT WORK?



The SoundField SPS200 Four Capsule Array

The capsules are placed as closely together as possible to eliminate the phase problems associated with 'spaced' multi-microphone set-ups where further processing compensates for the small spacing that remains between the capsules, effectively creating a single-point pickup. The source sound is received equally effectively from all directions, reproducing a realistic listening experience. Essentially, the outputs from the four capsules of the SoundField SPS200, once processed, convey a three dimensional snapshot of an acoustic event: width, depth and height.

Pictured left: the SPS200 capsule array

The 'SPS200 Surround Zone' Software

The 'SPS200 Surround Zone' software provides complete control over the 'decoding' of the four audio signals generated by the SPS200 microphone. Controls include Output Format (mono, stereo, 5.1 etc.), polar patterns, rotation, tilt, zoom and width. The software can operate in real time (allowing for any latency inherent in the DAW) or in post production environments. As the A-Format output is recorded prior to processing, the recording can always be revisited and output in any desired surround format, stereo or mono. Furthermore, live recordings may be adjusted to narrow or widen the polar pattern of the virtual microphone array making it possible to change the balance of direct-to-reflected sound or to steer the mic array to either side of centre.

Please read the 'SPS200 Surround Zone' software section of this manual for more information.



The 'SPS200 Surround Zone' 5.1 page



The 'SPS200 Surround Zone' stereo page

INTERFACING THE SPS200

The SoundField SPS200 Software Controlled Microphone breaks-out to four standard XLR connectors using the supplied SPS200 microphone cable. The SPS200 cable connects to the microphone with a circular 10-pin screw lock connector where the four capsule signals from the SPS200 microphone are labeled:

1. Left Front – referred to as LF
2. Right Front – referred to as RF
3. Left Back – referred to as LB
4. Right Back – referred to as RB

The XLR Connectors are labelled and colour coded as follows:

1	LF	Red
2	RF	Yellow
3	LB	Green
4	RB	Blue

The input to the ‘SPS200 Surround Zone’ plug-in follows the identical channel order so it is recommended to record the four capsule signals in the above order to avoid possible confusion. Each of the four capsules must be connected to a mic preamp with +48 Volt phantom power and it is important to observe the following criteria:

- 1. It is essential that the gains of all four channels are identical to ensure correct decoding. High-quality mic-pre’s that either have switched gain settings or allow gain linking are clearly simpler to manage in this respect. Where the mic preamps have variable input gains, they may be calibrated by feeding a fixed level test signal into each one, then monitoring the output while making adjustments using an accurate level meter, which in many cases is possible using an on-screen DAW meter or metering plug-in.**
- 2. Take care to ensure that the pad, phase reverse and low cut filters on the preamp are not engaged. Should a pad be deemed necessary, ensure that it is switched in for all four channels.**
- 3. Do not adjust individual mic pre gains if the signal balance appears incorrect; it is normal that some of the channels will show lower gain levels than the others depending on the location of the sound sources and the reflectivity of the environment.**

Interfacing the SPS200 in a Studio Environment

The SoundField SPS200 microphone is ideally suited for recording in studio environments (where DAWs such as ProTools HD or Nuendo are used), with sources ranging from drums to vocals.

In a studio environment there is usually a choice of mic-pre's available to the recording engineer but while most good quality mic pre's are compatible with the SPS200, it is strongly recommended to use four identical mic-pre's with either gain linking or switched gain settings for good gain matching. If you use different types of mic preamp on the four outputs, phase and frequency response errors may be introduced that could degrade the decoding process, especially if some of the preamps incorporate transformers and others do not.

Once the four audio signals from the SPS200 microphone are at line level they can be fed into the DAW as usual using a soundcard or dedicated audio interface. An interface with built-in multiple microphone inputs may be used as long as you are satisfied with the audio quality and in most cases you'll have the reassurance that they are identical.

Once inside the DAW, the 'SPS200 Surround Zone' plug-in takes the four signals generated by the SPS200 and provides the desired output format such as stereo or 5.1 for routing to the DAWs surround output busses.

Interfacing the SPS200 for Laptop Recording

In combination with a Firewire audio interface and suitable mic preamps, the SPS200 makes an ideal front-end for laptop recording providing a compact and highly versatile high-end recording system perfectly suited to any application, from simple mono vocal mic'ing to capturing both live acoustic performances and their ambience in full surround.

There are a variety of firewire interfaces available that incorporate four or more mic-pre's, such as the MOTU Traveller, the Focusrite Saffire Pro and the Prism Orpheus; all are well-suited to getting the four audio signals (A-Format) generated by the SPS200 into your DAW of choice. Both 5.1 and stereo monitoring options are provided by the 'SPS200 Surround Zone' within a compatible 'surround savvy' DAW environment.

Note: The A-Format signal is best recorded into a surround audio track capable of holding four or more streams as this prevents alignment errors being introduced when editing. Where it must be recorded into four discrete tracks for any reason, it is recommended the tracks be grouped to avoid accidental offsetting and that the DAW supports sample-accurate editing.

Interfacing the SPS200 with Portable Recorders

The SPS200 microphone can also be connected directly to portable recorders providing they include four mic pre's with phantom power. This allows the capture of the A-Format signals for later post production using the 'SPS200 Surround Zone' software in a studio environment. A 24-bit recording system is preferred - any recorders using data compression should be avoided as they can introduce artifacts that will compromise the decoding of the recording in post production. Recording at 96kHz or higher sample rates ensure that the recordings will be 'future proofed' though perfectly successful recordings may be made at the standard 44.1kHz and 48kHz sample rates.

Interfacing the SPS200 for Live Broadcast



For real time broadcast applications the SPS200 can be partnered with the SoundField DSF-3 Digital Surround Processor where the latency introduced by a DAW would be unacceptable. The DSF-3 is a rackmount 1U hardware unit which accepts digital A-Format and outputs both stereo and 5.1 in real time. To interface the SPS200 with the DSF-3 you will require four channels of mic pre and A/D conversion.

SoundField microphone systems are widely used in broadcast to capture the ambience and excitement of large-scale sporting events and concert performances.

MICROPHONE POSITIONING AND ORIENTATION GUIDE

As with any other microphone, putting the mic in the right place is the first step to making a good recording. Admittedly you have more post-production opportunities to correct problems if you use a SoundField microphone but taking the time to locate the best mic position always pays off. There's always a temptation just to put the mic up, check the levels and get on with the job but a little more attention invariably produces better results.

Firstly, be sure to select the appropriate orientation mode for the microphone as its

capsule array enables it to be used in Invert  or End Fire  mode as well as 'right way up'. So be sure to 'tell' the 'SPS200 Surround Zone' software how the microphone is facing before you start to decode your recording.

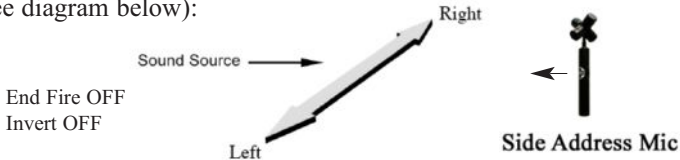
Experienced SoundField users understand the importance of checking out your mic position in mono before you open the sound up to monitor in stereo or surround. Set the Pattern control to Omni and the Width control to 0° and listen to the overall sound, paying particular attention to the balance between the various elements, the relationship of direct-to-reverberant sound and the presence of extraneous noises. If it doesn't sound right, move the microphone around until it does, just as with any other mic.

You can also adjust the Pattern control to focus more on the sound source and less on the surrounding environment (or vice versa) if necessary. Remember that the essence of SoundField microphones is based on the Mid/Side technique, where the Mid microphone provides the basic sonic balance. Once the feed sounds good in mono, it will sound fine in stereo but the converse is not necessarily true, hence the importance of doing a mono check. Only after you are satisfied with the mono pick-up, should you open-up the microphone into stereo. Set the Pattern control to the polar pick-up you think will be a good starting point then adjust the Width control for your desired stereo image. You can adjust both controls to achieve exactly the right stereo perspective and ambience balance for your recording and you can refine your settings further during post production.

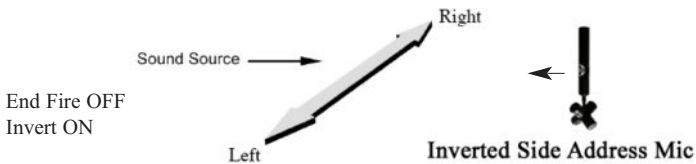
In acoustically lively venues, pay particular attention to the perceived ratio of direct-to-reverberant sound. Too much reverb makes a recording sound 'mushy' and vague with a diluted sense of source placement. The beauty of SoundField microphone systems is their unequalled clarity and articulation. Don't waste this by including too much extraneous sound unless you have an artistic reason for doing so. If you're from the analogue old school, also leave yourself plenty of headroom: with a 24-bit recording resolution you can afford to leave at least 12dB of headroom on the DAW meters but also check that you have left adequate analogue headroom in the preamps.

Keys to proper placement of SoundField microphones

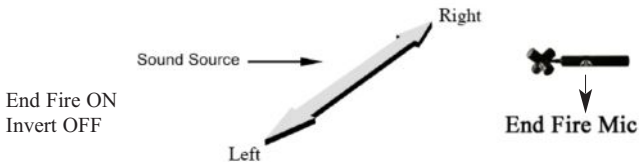
The SPS200 microphone captures sound in all three dimensions, therefore the orientation of the microphone is very important. The standard orientation of the SPS200 microphone is in side-address with the microphone positioned vertical and the SoundField logo facing forward (see diagram below):



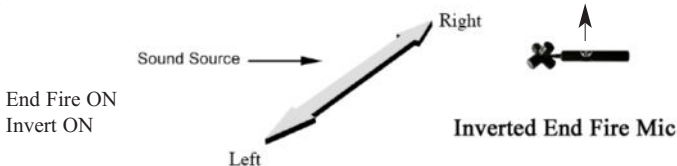
With the microphone positioned as above the resulting output from the ‘SPS200 Surround Zone’ will be as with conventional studio microphones. There are however two alternative ways to orientate the microphone, End Fire and Invert (see diagram below):



With the microphone suspended upside down facing the sound source as shown in the above diagram, the “Invert” mode on the ‘SPS200 Surround Zone’ software must be enabled.



With the microphone positioned horizontally and pointing at the sound source with the logo facing down, the “End-Fire” mode on the ‘SPS200 Surround Zone’ software must be enabled.



When making a recording with the microphone positioned horizontally and pointing at the sound source with the logo facing up, the “End-Fire” and “Invert” mode on the ‘SPS200 Surround Zone’ software must be enabled.

Note: When recording A-Format in the Invert or End-Fire orientation it is useful to label your tracks accordingly so you know which mode to enable in the ‘SPS200 Surround Zone’ during post-production.

THE SPS200 ‘SURROUND ZONE’ SOFTWARE

Explanation of Controls

Input Section:



- The input LEVEL control adjusts the input gain of all four A-Format channels simultaneously and ranges from -30dB to $+10\text{dB}$.

- The A-Format INPUT signals are displayed via the four 16 segment bargraphs.



- The INVERT mode maintains the correct three-dimensional perspective in both surround and stereo when the microphone is suspended upside down above the sound source. Not selecting this mode with the mic suspended will result in the Left/Right width information and Up/Down height information being inverted.



- The END FIRE mode maintains the correct three-dimensional perspective in both surround and stereo when the mic is used in the horizontal position pointing at the sound source ‘like a flash-light’. Not selecting this mode when the microphone is horizontally pointed will result in the Up/Down height information and the Front/Back depth information being reversed.

The Surround Section:



The ‘SPS200 Surround Zone’ 5.1 page

The surround sound section has six different surround sound modes plus an info page for each of these six modes, referred to as the ARRAY pages. The six modes include three 5.1 presets, a 6.1, a 7.1 and an 8 channel preset (8 channel for VST users only).

The following controls are identical for all six surround modes:

- Independent Channel Gain

Each discrete output channel has an independent gain control in the form of a slider and ranges from -30dB to +10dB. A 16-segment bargraph meter is provided for level monitoring of each individual output channel. SOLO and MUTE buttons are also provided for each individual channel.



- Master Output Gain

The master output gain allows you to simultaneously increase or decrease the gain of all discrete output channels, and ranges from -30dB to +10dB. The resulting changes in gain will be displayed on all individual output channel bargraphs.



- The SoundField Controls

The ROTATE, TILT and ZOOM controls are unique to SoundField Technology and give the user a ‘you are there again’ post production experience with the opportunity to re-position the microphone. It can be rotated, tilted up or down, or zoomed in or out from the sound source.



ROTATE allows the user to rotate a captured three dimensional soundfield a full 360 degrees without losing any spatial information or introducing any artefacts, audible or otherwise.

TILT allows the user to tilt a captured three dimensional soundfield by ± 45 degrees without losing any spatial information or introducing any audible artefacts.

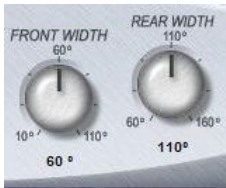
ZOOM gives the effect of zooming in or further away from the sound source i.e. it alters the front/back balance without introducing any artefacts, audible or otherwise.

• REAR PATTERN



The REAR PATTERN control allows the user to vary the polar pattern of the rear surround channels on all but the 8-channel surround mode. Cardioid or hyper-cardioid may be selected to optimise localisation or figure-of-eights for a more enveloping sound depending on application and personal preference.

• FRONT & REAR WIDTH

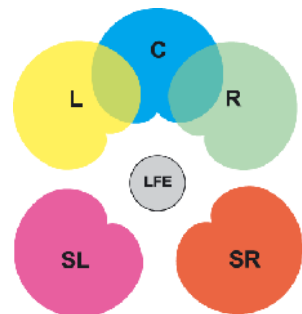


These controls allow the front and rear stage width to be varied. For example, a wider front image may be desirable for a large orchestra, whilst for a centre-front positioned soloist a more narrow angle may be preferable.

• SURROUND MODES

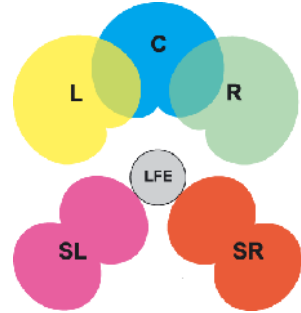
The Surround Zone plug-in offers the option of six different surround modes, three 5.1 pre-sets, a 6.1, a 7.1 and an 8-channel pre-set (8 channel for VST users only). The two first 5.1 pre-sets, 5.1 cardioid and 5.1 figure-of-eight, are variations on the same decoding scheme.

1. The 5.1 cardioid pre-set provides a standard five cardioid microphone array, plus a truly omni-directional LFE-channel.



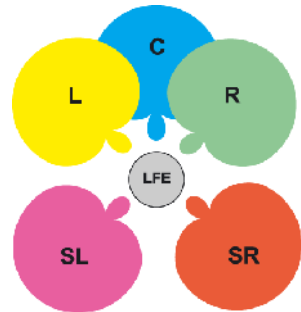
This pre-set has been level adjusted to suit standard 5.1 playback, however, individual levels can be adjusted to suit requirements. This pre-set is ideally suited for recordings where localisation is important such as movie sound effects.

2. The 5.1 figure-of-eight pre-set provides three frontal cardioids (L/C/R) and two rear figure-of-eights (SL/SR), plus a truly omni-directional LFE-channel.



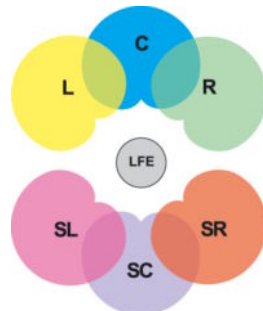
This pre-set only differs from the 5.1 cardioid in the rear-pattern control setting and has also been level adjusted to suit standard 5.1 playback, levels can however be user adjusted to suit requirements. This pre-set is ideally suited for creating an enveloping surround feel, whilst maintaining a stable front image.

3. The third 5.1 pre-set: 5.1 hyper, provides a five hyper-cardioid microphone array, plus a truly omni-directional LFE-channel.



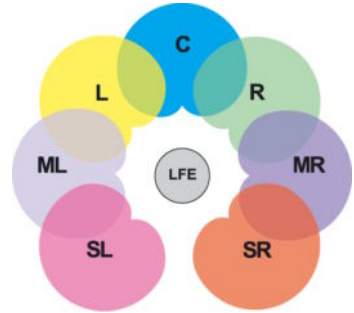
This pre-set has been level adjusted to suit standard 5.1 playback, levels can however be user adjusted to suit requirements.

4. The 6.1 pre-set provides a six cardioid microphone array, plus a truly omni-directional LFE-channel.



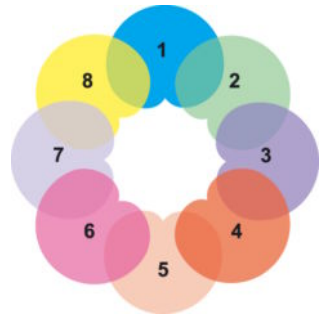
The output is fully compatible with standard 5.1 playback systems yet adds the enhancement in localisation a rear-centre channel brings. This pre-set has been level adjusted to suit standard 6.1 playback, however, individual levels can be adjusted to suit requirements.

5. The 7.1 pre-set provides a seven-cardioid microphone array, plus a truly omnidirectional LFE-channel.



The output is fully 5.1 compatible yet adds the enhancement of two extra playback channels. Aimed at demonstrating the benefits in localisation and envelopment of an increased number of loudspeakers. This pre-set has been level adjusted to suit standard 7.1 playback, individual levels can be adjusted to suit requirements.

6. The 8-channel pre-set provides an eight-cardioid microphone array and is aimed at playback over a regular eight-channel loudspeaker array. Individual levels can be adjusted to suit requirements. (VST only)



On screen information for each of the surround modes can be obtained by clicking the array page tab followed by the relevant surround mode tab.

Note: All LFE-channels are low-pass filtered using a 2nd order filter with a cut-off frequency of 90Hz. Users requiring a different LFE cut-off frequency can achieve this by using a DAW provided filter.

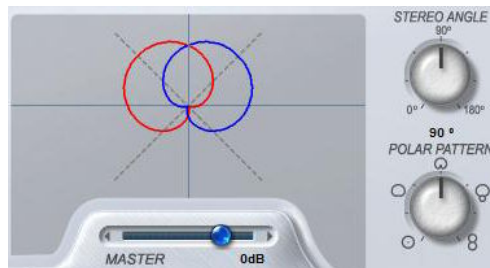
STEREO SECTION

The stereo section provides the user with highly flexible and configurable stereo outputs. Features include variable stereo width and polar pattern control, which are visually represented on the Stereo page. Also provided is a fully variable high-pass filter (20Hz to 250Hz), an M/S encoder and the SoundField controls, ROTATE, TILT and ZOOM.



The 'SPS200 Surround Zone' stereo page

- STEREO ANGLE & POLAR PATTERN



The Stereo Angle control allows the user to set the angle between the coincident stereo pair either 'live' or after the recording has taken place. For example a small stereo angle can be utilised to emphasise a soloist, where as a wide angle can be used to create a wide stereo image such as that required for an orchestra. The Polar Pattern control is continuously variable ranging from Omni through Sub-Cardioid, Cardioid, Hyper-Cardioid to Figure-of-eight and sets the polar patterns used for the stereo pair. Both parameters are reflected in real-time in the visual representation window.

- MID/SIDE ENCODER



When the Mid/Side button is enabled the stereo outputs will be M/S encoded. The Left output channel provides the Mid signal and the Right output channel provides the Side signal.

- HIGH PASS FILTER



This filter is included in the Stereo Section to remove any unwanted Low frequency rumble, such as wind noise. The filter is only enabled when the filter button is illuminated and is a 3rd order Butterworth high-pass filter.

- SOUNDFIELD CONTROLS



The effect of the SoundField controls in stereo mode differs slightly from their operation in surround mode as described in the Surround Sound section.

- **ROTATE** re-defines the centre of the stereo image by rotating the soundfield anywhere between 0 degrees and 360 degrees.
- **TILT** tilts the soundfield up or down by ± 45 degrees.
- **ZOOM** offers the effect of zooming in or further away from the front sound source as defined by the ROTATE angle.

- MASTER OUTPUT GAIN



The master output gain controls the gain of both stereo output channels simultaneously. All changes are displayed on the 16 segment Left/Right output bargraphs.

A stereo array page with further information can be accessed by clicking on the array page tab followed by the stereo mode tab.

QUICK START GUIDE: TDM (PRO TOOLS® HD)

Installation:

The Surround Zone plug-in is available for both PC and MAC (PowerPC and Intel Mac) based Pro Tools HD systems. Installers for both versions of this software are available on the product CD-Rom or on our website (always check the website for the most recent version of the software before commencing the install).

iLok licence:

In order to run this plug-in you will require an iLok account and USB dongle (available as a SoundField accessory or from most pro audio dealers). In order to obtain your iLok licence send an e-mail to SPS200TDM@soundfield.com with **your name, iLok user ID** and the **SPS200 mic serial number**. A licence will then be deposited in your iLok.com account within 24 hours (mon - fri). We recommend obtaining your iLok licence before installing the plug-in.

To install on your MAC based Pro Tools HD system:

Insert the CD-ROM and browse for the Macintosh folder, open this folder and double click the Surround Zone TDM MAC installer – **SPS200SZONETDM.pkg** – this will start the installer. Simply follow the on-screen instructions to complete the installation, this should take no more than a few minutes.

When running Pro Tools for the first time the licence will be picked up on your iLok dongle. Should a licence not be present on your iLok USB dongle make sure you have loaded it from iLok.com, for further licence assistance contact support@soundfield.com

To install on your PC based Pro Tools HD system:

Insert the CD-ROM and browse for the Windows folder, open this folder and double click the Surround Zone TDM PC installer – **SPS200SZONETDM.exe** – this will start the installer. Simply follow the on-screen instructions to complete the installation, this should take no more than a few minutes.

When running Pro Tools for the first time the licence will be picked up on your iLok dongle and you'll be good to go. Should a licence not be present on your iLok USB dongle make sure you have uploaded it from iLok.com, for further licence assistance contact support@soundfield.com

Getting started with the Surround Zone plug-in for Pro Tools:

The SoundField Surround Zone plug-in for Pro Tools can be inserted in any Pro Tools project. The plug-in has four audio inputs for the SoundField A-Format signals and up to eight audio outputs depending on the output format selected within the plug-in, ranging from Stereo to 5.1, 6.1 and 7.1.

The Surround Zone plug-in follows the Pro Tools internal surround channel mapping ('FILM' format). This means the channel output configurations are as follows:

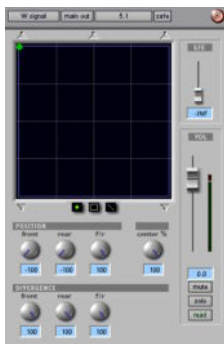
5.1. L, C, R, Ls, Rs, Lfe

6.1. L, C, R, Ls, Cs, Rs, Lfe

7.1. L, Lm, C, Rm, R, Ls, Rs, Lfe

Stereo and 5.1:

- Using I/O setup, create a 5.1 output configuration. For each instance of the Surround Zone create a 5.1 bus configuration.
- Create a 5.1 aux input track. Set the input to this track to be the 5.1 bus. Set the output from this track to be the 5.1 output interface.
- Insert the Surround Zone plug-in into the aux input track by selecting "multi-channel TDM plug-in > Surround Zone (5.1)"
- Create 4 mono audio tracks to accommodate the A-Format audio. The tracks can be labelled LF, RF, LB, RB.



- Route each mono track output to the 5.1. bus. In doing this, a surround panner will appear for each mono track. In order to route the A-Format audio correctly to the plug-in the panner settings must be arranged as follows:

LF-track : pan front full left (-100, -100, 100 in panner window)

RF-track : pan front centre (0, 0, 100 in panner window)

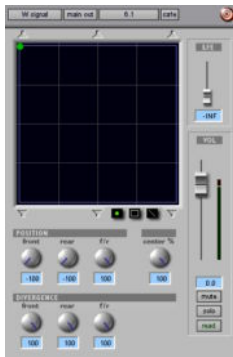
LB-track : pan front full right(100, 100, 100 in panner window)

RB-track : pan rear full left (-100, -100, -100 in panner window)

Tip: double clicking on the corresponding loudspeaker symbol in the panner window will automatically achieve the above settings. The session is now correctly configured to use the Surround Zone plug-in in 5.1 and stereo mode. Due to limitations in the routing a 5.1 bus is required even when just using the stereo outputs.

6.1:

- Using I/O setup, create a 6.1 output configuration. For each instance of the Surround Zone create a 6.1 bus configuration.
- Create a 6.1 aux input track. Set the input to this track to be the 6.1 bus. Set the output from this track to be the 6.1 output interface.
- Insert the Surround Zone plugin into the aux input track by selecting "multi-channel TDM plugin > Surround Zone (6.1)"
- Create 4 mono audio tracks to accommodate the A-Format audio. The tracks can be labelled LF, RF, LB, RB.



- Route each mono track output to the 6.1 bus. In doing this, a surround panner will appear for each mono track. In order to route the A-Format audio correctly to the plugin the panner settings must be arranged as follows:

LF-track : pan front full left (-100, -100, 100 in panner window)

RF-track : pan front centre (0, 0, 100 in panner window)

LB-track : pan front full right(100, 100, 100 in panner window)

RB-track : pan rear full left (-100, -100, -100 in panner window)

Tip: double clicking on the corresponding loudspeaker symbol in the panner window will automatically achieve the above settings.

7.1:

- Using I/O setup, create a 7.1 output configuration. For each instance of the Surround Zone create a 7.1 bus configuration.
- Create a 7.1 aux input track. Set the input to this track to be the 7.1 bus. Set the output from this track to be the 7.1 output interface.
- Insert the Surround Zone plugin into the aux input track by selecting "multi-channel TDM plugin > Surround Zone (7.1)"
- Create 4 mono audio tracks to accommodate the A-Format audio. The tracks can be labelled LF, RF, LB, RB.



- Route each mono track output to the 7.1 bus. In doing this, a surround panner will appear for each mono track. In order to route the A-Format audio correctly to the plug-in the panner settings must be arranged as follows:

LF-track : pan front full left (-100, -100, 100 in panner window)

RF-track : pan front half left (-50, -50, 100 in panner window)

LB-track : pan front centre (0, 0, 100 in panner window)

RB-track : pan front half right (50, 50, 100 in panner window)

Tip: double clicking on the corresponding loudspeaker symbol in the panner window will automatically achieve the above settings.

Once the ‘SPS200 Surround Zone’ plug-in is inserted correctly you are ready to begin.



The ‘SPS200 Surround Zone’ plug-in (Pro Tools® HD)

QUICK START GUIDE: VST (NUENDO)

The Surround Zone plug-in is available for both PC and MAC (Power PC and Intel Mac) based VST hosts and installers for both versions of this software are available on the CD-ROM or on our website (always check the website for the most up to date version of the software before commencing installation).

iLok licence:

In order to run this plug-in you will require an iLok account and USB dongle (available as a SoundField accessory or from most pro audio dealers). In order to obtain your iLok licence send an e-mail to SPS200VST@soundfield.com with **your name, iLok user ID** and the **SPS200 mic serial number**. A licence will then be deposited in your iLok.com account within 24 hours (mon - fri). We recommend obtaining your iLok licence before installing the plug-in.

To install on your PC based VST system:

Insert the CD-ROM and browse for the Windows folder, open this folder and double click the Surround Zone VST PC installer – **SPS200SZONEVST.exe** – this will start the installer. Simply follow the on-screen instructions to complete the installation, this should take no more than a few minutes.

When running your VST host for the first time the licence will be picked up on your iLok dongle and you'll be good to go. Should a licence not be present on your iLok USB dongle make sure you have loaded it from iLok.com, for further licence assistance contact support@soundfield.com

To install on your MAC based VST system:

Insert the CD-ROM and browse for the Macintosh folder, open this folder and double click the Surround Zone VST MAC installer – **SPS200SZONEVST.pkg** – this will start the installer. Simply follow the on-screen instructions to complete the installation, this should take no more than a few minutes.

When running your VST host for the first time the licence will be picked up on your iLok dongle. Should a licence not be present on your iLok USB dongle make sure you have uploaded it from iLok.com, for further licence assistance contact support@soundfield.com

Getting started with the Surround Zone plug-in using Nuendo:

The SoundField Surround Zone plug-in can be inserted in any Nuendo project. The plug-in has four audio inputs for the SoundField A-Format signals and up to eight audio outputs depending on the output format selected within the plug-in, ranging from Stereo to 5.1 to 6.1 etc.

The easiest way to insert the plug-in into a project is to open an 8-channel music track in which a four channel A-Format track (1) is placed, the plug-in can then be inserted in this eight channel track independent of the output format chosen, as long as enough audio channels are available on the selected audio bus. If required the plug-in can also be introduced through an effects track using the Nuendo send and return paths (2). The plug-in will appear in the plug-in insert list as shown on the image below:



(1) A four channel wav file in this case containing SoundField A-Format where LF, RF, LB & RB correspond to track 1, 2, 3 & 4.

(2) For more info refer to the Nuendo user manual.

WARRANTY

Limited Liability

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What to do if a fault is found

If a fault develops in the unit, notify SoundField Ltd. or their nearest service facility giving full details of the difficulty. On receipt of this information, service or shipping instructions will be forwarded to you. No equipment should be returned under the warranty without prior consent from SoundField Ltd. or their authorised representative.

SHIPPING AND QUALITY ASSURANCE

Authorised returns should be prepaid and must be insured. All SoundField products are packaged in specially designed containers for the best possible protection. If the unit is returned the original container should be used. If this is not possible, a new container can be obtained from SoundField Ltd.; please specify the model number when requesting a new container. If the specially designed container is not used ensure that a suitable rigid container of adequate size is used, wrap the instrument in paper and surround it with a good thickness of shock absorbing material.

Claim for damage during transit

The instrument should be thoroughly inspected immediately upon delivery to the purchaser. If the instrument is damaged in any way a claim should be filed with the carrier immediately. A quotation to repair shipment damage can be obtained from SoundField Ltd or their certified representative. Final claims and negotiations with the carrier must be completed by the customer.

Applications problems

SoundField Ltd. will be happy to answer any applications questions to enhance your use of this equipment. Please address all correspondence to:

SoundField Ltd.
Charlotte Street Business Centre
Charlotte Street
Wakefield
West Yorkshire
WF1 1UH
ENGLAND
Tel: +44 (0) 1924 201089
Fax: +44 (0) 1924 290460
email: info@soundfield.com
www.soundfield.com

Quality Assurance and Service Policy

Over the years SoundField products have gained an enviable reputation for their quality of design, performance and reliability, however, in the unlikely event that problems are encountered with this unit, please contact SoundField Service at the appropriate address above or alternatively inform one of our world wide network of distributors who will be able to assist with any of your queries.

10 PIN A-FORMAT OUTPUT WIRING DETAILS

10 Pin	Mic Cable	XLR
Pin 1	Core 1 RED	Pin 2 RED (LF)
Pin 2	Core 1 WHITE	Pin 3 RED (LF)
Pin 3	Core 2 RED	Pin 2 YELLOW (RF)
Pin 4	Core 2 WHITE	Pin 3 YELLOW (RF)
Pin 5	Core 3 RED	Pin 2 GREEN (LB)
Pin 6	Core 3 WHITE	Pin 3 GREEN (LB)
Pin 7	Core 4 RED	Pin 2 BLUE (RB)
Pin 8	Core 4 WHITE	Pin 3 BLUE (RB)
Pin 9	GND of cores 1 & 2	Pin 1 of RED & GREEN
Pin 10	GND of cores 3 & 4	Pin 1 of BLUE & YELLOW

TECHNICAL SPECIFICATIONS

Specification for each individual capsule:

Frequency Response	40Hz-20KHz	
Sensitivity	14mV/Pa	
Signal to Noise Ratio	DIN/IEC	82dB
Equivalent SPL DIN/IEC	12dB	
Maximum SPL	130dB	

SPS200 ACCESSORIES**Windshields:**

Rycote Windshield Kit for SPS200 SPS200/RY

Comprising: Pistol Grip with suspension, set of mic clips,
105mm diameter windshield, windjammer,
SPS200 Anti-vibe Rycote cable

High Wind Cover 430-399

Cables:

SPS200 5 Metre Microphone Cable (multipin to 4 male XLRs) NN4001

SPS200 5 Metre Extension Cable (multipin to multipin) NN4002

SPS200 10 Metre Extension Cable (multipin to multipin) NN4003

SPS200 20 Metre Extension Cable (multipin to multipin) NN4004

SPS200 50 Metre Extension Cable on drum (multipin to multipin) NN4005

SPS200 100 Metre Extension Cable on drum (multipin to multipin) NN4006

SPS200 Anti-vibe Rycote Cable (multipin to multipin) NN9204

SPS200 Microphone Cable by the metre 310-500

Connectors:

10-pin Female In Line Connector 410-401

10-pin Male In Line Connector 410-402

Mic mount:

SPS200 Shock Mount System HW4000

SPS200 Mic Holder MSA-200

Camera Hot Shoe to 3/8" adapter SCM-1

Camera Hot Shoe to 3/8" adapter with extension SCME-2

Cases:

SPS200 Professional Carry Case PFC200

SPS200 + Rycote Case PFC201

Misc:

iLok USB Key for Surround Zone software ILOK-1