

# SoundField Microphones and Processors

## Surround Sound Production Tools



[www.tslproducts.com](http://www.tslproducts.com)

With TSL Products' SoundField range of Surround Sound Microphones and Processing equipment, broadcasters, music producers and location sound specialists can capture the atmosphere of any environment from sports venues, concerts, talent shows and recording studios, to documentary, film and TV sets.



# SoundField Surround Sound Microphones and Processing - Product Overview.

|                    | Product | Description                                 | Page No. | Mic System Type |                | Mic Connector |               |               | Mic Cable Type   |                  |          | Output Formats |        |               | Output Type  |         |          |                | Applications       |                 |   |
|--------------------|---------|---|----------|-----------------|----------------|---------------|---------------|---------------|------------------|------------------|----------|----------------|--------|---------------|--------------|---------|----------|----------------|--------------------|-----------------|---|
|                    |         |   |          | Mic with CU     | Mic without CU | Lemo 12-pin   | Binder 12-pin | SPS200 10-pin | LSF310-353 Cable | LSF310-500 Cable | A-Format | B-Format       | Stereo | Analogue Line | Analogue Mic | AES 75Ω | AES 110Ω | Live Broadcast | Location Recording | Music Recording |   |
| Microphone Systems | DSF-1   | Digital Music Performance Microphone System | 10       | Y               |                | Y             |               |               | Y                |                  |          | Y              | Y      |               |              | Y       |          |                |                    | Y               |   |
|                    | DSF-2   | Digital Live Broadcast Microphone System    | 4&5      | Y               |                | Y             |               |               | Y                |                  |          | Y              | Y      | Y (stereo)    |              | Y       |          |                | Y                  |                 |   |
|                    | SPS422B | Analogue Live Broadcast Microphone System   | 5        | Y               |                |               | Y             |               | Y                |                  |          | Y              | Y      | Y             |              |         |          |                | Y                  |                 | Y |
|                    | ST450   | Portable Location Microphone System         | 8        | Y               |                | Y             |               |               | Y                |                  |          | Y              | Y      | Y             |              |         |          |                |                    | Y               |   |
|                    | SPS200  | Software Controlled Microphone System       | 9        |                 | Y              |               |               |               | Y                |                  | Y        |                |        |               |              | Y       |          |                |                    |                 | Y |

|                     | Product | Description                         | Page No. | Inputs        |         | Outputs       |         |               | Processing        |          |             |                  |                     |              | Features |     |      |                       |                  |               |   |   |
|---------------------|---------|-------------------------------------|----------|---------------|---------|---------------|---------|---------------|-------------------|----------|-------------|------------------|---------------------|--------------|----------|-----|------|-----------------------|------------------|---------------|---|---|
|                     |         |                                     |          | Analogue Line | AES 75Ω | Analogue Line | AES 75Ω | Adapt Optical | B-Format Decoding | Upmixing | Down Mixing | Metadata Receive | Metadata Generation | Auto Sensing | Ethernet | USB | GPIO | Serial Dolby Metadata | Redundant Supply | Remote PC App |   |   |
| Surround Processors | DSF-3   | Digital Surround Sound Processor    | 4&5      |               | Y       |               | Y       | Y             | Y                 |          |             |                  |                     |              |          |     | Y    |                       |                  |               | Y |   |
|                     | SP451   | Analogue Surround Processor         | 5        | Y             |         | Y             |         |               | Y                 |          |             |                  |                     |              |          |     |      |                       |                  |               |   |   |
|                     | UPM-1   | Stereo to 5.1 Upmix Converter       | 6        |               | Y       |               | Y       |               |                   | Y        |             |                  |                     |              |          |     | Y    |                       |                  |               |   |   |
|                     | X-1     | Multichannel Processing Environment | 7        |               | Y       | Y             | Y       |               |                   | Y        | Y           | Y                | Y                   | Y            | Y        | Y   | Y    | Y                     | Y                | Y             | Y | Y |

|                   | Product       | Description                           | Page No. | Inputs            |          | Supported Plug-In Formats |                  |                  |        |         |        |  |
|-------------------|---------------|---------------------------------------|----------|-------------------|----------|---------------------------|------------------|------------------|--------|---------|--------|--|
|                   |               |                                       |          | B-Format Decoding | Upmixing | ProTools TDM PC           | ProTools TDM Mac | ProTools TDM Mac | VST PC | VST Mac | AU Mac |  |
| Surround Plug-ins | UPM-1 Plug In | Stereo to 5.1 Upmix Converter Plug-In | 6        |                   | Y        |                           |                  | Y                | Y      |         |        |  |
|                   | Surround Zone | Surround Sound Post Production Pug-In | 9        | Y                 |          | Y                         | Y                | Y                | Y      | Y       | Y      |  |

Application notes available



Symbols Key



# A revolution in surround sound broadcasting and recording, SoundField microphones and accessories enrich the consumer-experience by bringing atmospheres of sporting events, concerts, documentary locations and film sets to life.

HD has fast become the mainstream delivery standard for broadcasters worldwide, which in turn presents a growing need for a straightforward means of recording and broadcasting 5.1 audio. With TSL Products' new range of SoundField surround microphones and processors for broadcasting, location and music applications, 5.1 recording and upmixing can be achieved simply and cost-effectively with the installation of a single microphone.

## 5.1 surround recording and broadcasting of major and minor live events with a single microphone

Traditionally, multiple microphone arrays have been used to capture surround soundscapes, but the set-up, trouble shooting and de-rigging of multiple arrays takes time. Moreover, such arrays usually produce audio that suffers from phase incoherency creating several problems when the 5.1 audio has to be 'collapsed' to create a stereo soundtrack for broadcast over SD or legacy networks. This is often the case with transmissions destined for re-use in a variety of markets, e.g. international sporting events, music concerts and live audience TV shows.

Whatever type of broadcast, a single SoundField mic is all that's needed to generate simultaneous stereo and 5.1 audio for SD and HD transmission. SoundField's digital microphone systems create a completely phase-coherent 5.1 surround soundscape, which can be reduced to stereo or even mono, all from a single, easily-rigged microphone. Even audio already captured in stereo, such as recorded archive material, can now be converted into phase-coherent 5.1 by utilising SoundField upmix processors.

This is why the likes of **BSkyB (UK)**, **Disney (USA)**, **BBC (UK)**, **Sogecable (Spain)**, **NRK (Norway)**, **RTS (Serbia)**, **SABC (South Africa)** and events companies like **Video Sound Services (FIFA World Cup)** all rely on SoundField microphones and upmix processors for quality 5.1 surround recording, transmission and production.

## SoundField's unique B-Format

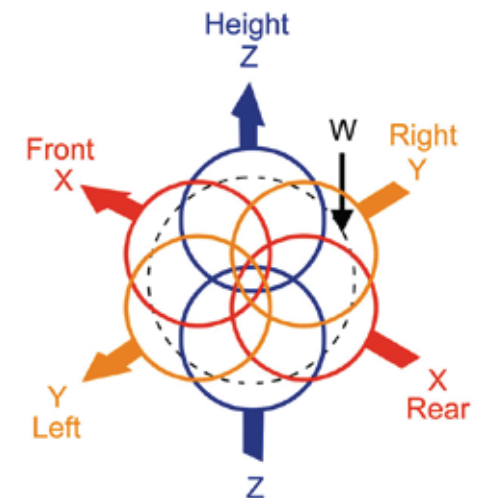
SoundField Technology is based on the principle that all acoustic events can be represented by four basic elements. These are 'X' which is front/back information (depth), 'Y' which is left/right information (width), 'Z' which is up/down information (height) and 'W' the central point from which the other three elements are referenced. Collectively, W, X, Y and Z are entitled SoundField B-Format. Because the SoundField capsule array captures three dimensional sound at the same 'central point', all 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 mono – without the phase cancellation and high frequency differences encountered when 'summing' multiple spaced microphones.

## Optimum control

A significant advantage that SoundField offers to engineers is that all microphone parameters are adjustable either in real-time or in post-production. These controls include microphone orientation – with controls such as Rotate, Tilt and Zoom – as well as output formats including Mono, Stereo and 5.1. This combination of controls allows the audio engineer to create the optimal microphone array right from the ideal listening position in the OB truck or the studio control room.

## 'Future-proof' audio archiving

If the B-Format signal is recorded to a four-channel storage medium, the decoding can take place in post-production, allowing decisions about the eventual output format to be made when it's actually required. This makes the B-Format an excellent 'future-proof' audio archiving format, as B-Format signals could easily be decoded into any future surround formats, including 3D audio.



# Digital Broadcast Surround Microphone package.

Representing the latest generation of SoundField technology, the DSF-B MKII Digital Broadcast package consists of a DSF-2 MKII microphone system (which includes the DSF-2 MKII microphone and DSF-2 MKII microphone controller) and the DSF-3 MKII digital surround processor. The system provides simultaneous digital surround and stereo soundscapes at large scale live outside broadcast events such as sports stadiums, concert hall venues and live audience TV shows.



Uniquely, the multi-channel audio that the **DSF-2 MKII microphone system** generates from a 'single point' source that is completely phase coherent. This enables the broadcaster to collapse the surround to stereo or mono for TV and radio feeds without loss of information, frequency imbalance or any of the other phase problems associated with spaced microphones or multi capsule 'dummy head' arrangements.

The **DSF-2 MKII controller** outputs stereo, M/S, and four-channel B-Format which can be decoded into any current surround format using the hardware **DSF-3 MKII** or Surround Zone software plug-in. All microphone parameters can be adjusted from the **DSF-2 MKII controller** without the need to physically move the mic itself, including orientation, angle, pickup pattern and a unique Mic Rotate control.

The **DSF-3 MKII** is a digital surround processor designed to decode the digital SoundField B-Format signals generated by the **DSF-2 MKII systems** simultaneously into digital surround sound and stereo at any incoming sample rate. Offers a fully digital surround sound production chain when used with **DSF-2 MKII system**.

## Latest Features

The DSF-B MKII packaged system encompasses the DSF-2 MKII microphone and DSF-3 MKII processor; when these units are connected, B-Format reversal auto-correction is performed and a connecting a reversal between the two AES links are detected, displayed and auto-corrected.

A crucial new function for the DSF-2 MKII digital surround and stereo microphone system is a wide range of integrated system self-tests with alarming and correction. They include the monitoring of all supplies (including those for the microphone) and monitoring of microphone cable health, showing detected errors on the front panel display and the SoundField Remote App, while at the same time auto-correcting errors as necessary to allow the event or recording to continue.

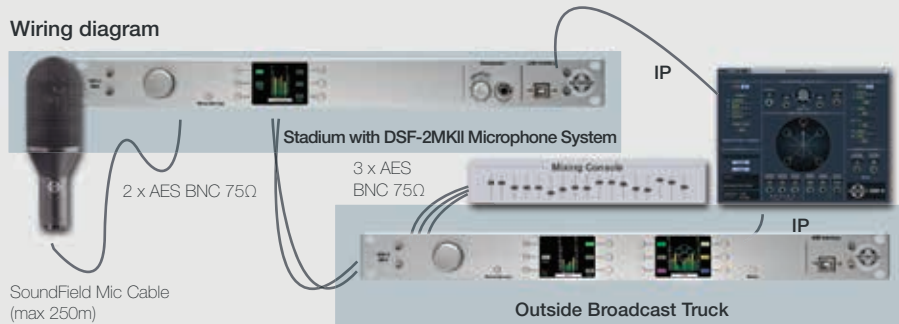
The DSF-3 MKII digital surround processor supports a new range of Object Based Audio formats, in addition to Stereo and 5.1. These new formats include height information – 5.1 + 2, 5.1 + 4 and 7.1 + 2. The new front panel design is based around two LCDs, with a lock-out function to avoid accidental changes

The new models offer both Ethernet and USB connectivity to interface with the SoundField Remote App. The DSF-2 MKII features new low noise mic-pre design with 1dB gain steps and new low-jitter clock circuitry for further improved audio performance, as well as auto-ranging power supplies which reduce power consumption.



In OB situations where a broadcast truck often cannot be located near the microphone, the **DSF-2 MKII mic** can be situated up to a distance of 1.25km from the truck without any problems. The stereo signal may be output directly in the analogue or digital domain via rear panel XLR and unbalanced 75Ω BNC connectors respectively. The B-Format signals are output digitally via unbalanced 75Ω BNC connectors.

**Wiring diagram**



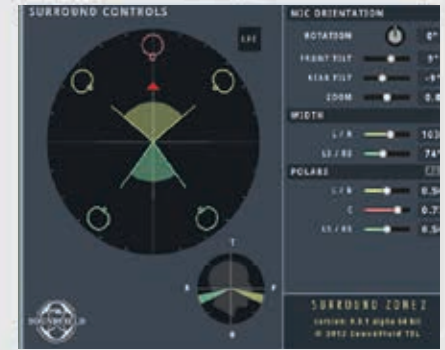
SoundField Mic Cable (max 250m)

“ After the 64 games there was nothing but praise from the world’s broadcasters who took the 5.1 feed. We were delighted with the sound and the robustness of the signals delivered to us in Munich.  
 Robert Edwards, Sound Director at Video Sound Services on DSF Broadcast Package at a world sporting event. ”

**DSF-B control APP**

Now you can remotely control all **DSF-B** parameters via a PC. The **DSF-B APP** also brings further advanced features that are not available on the front panel.

- Snap/Tilt – enables the axis of the front and rear surround pickup to be independently ‘tilted’ to focus on sound sources above or below the microphone.
- Zoom control
- Variable polar patterns – front, centre and rear
- Variable delay for rear channels
- Memory presets for individual venues
- Full 5.1 bargraph metering
- Instant visual representation of array and parameters



**Analogue alternative**  
**Analogue Broadcast Surround Microphone package**

Designed for analogue broadcast applications, the **SPS-B Analogue Broadcast Package** is an economical alternative to the **DSF-B Digital Broadcast Package**.

The **SPS-B Kit** is made up of an **SPS422B Microphone System** (which includes the **SPS422B microphone** and **SPS422B controller**) and an **SP451 Surround Processor**. The **SPS422B Control Unit** outputs analogue mono, stereo, M/S and B-format and the **SP451** outputs discrete analogue 5.1.



# UPM-1 upmix processor and X-1 combined upmix/downmix processor with GUI control.

As the world continues to adopt 5.1 surround for HD, many broadcasters still do not have established workflows for transporting, archiving and editing discrete 5.1. Broadcasters often find themselves in situations where they either need to introduce stereo material into a 5.1 audio stream through upmixing or derive stereo from a 5.1 production through downmixing.

Software and hardware upmixing tools have existed for some time, but most of these devices employ effects such as reverb and phase-shifts to create the extra channels required for 5.1. Instead, the **UPM-1** uses a unique algorithm to perform detailed real-time analysis of the stereo source material, identifying and separating the ambience from the direct sound. Mono sources (dialogue, commentary, etc.) are extracted from the stereo signal and fed to the centre channel while maintaining the frontal stereo image by keeping the direct sound sources at the front. The extracted natural ambience is then intelligently distributed between the front and rear stereo pairs.

SoundField offers a range of products using our highly regarded upmix and downmix algorithms covering a wide range of Broadcast and Post-Production applications.



## UPM-1

### Hands on upmixing for live broadcast

The **UPM-1** is a 1U hardware stereo to 5.1 upmix processor based on the unique SoundField upmix algorithm and was designed for hands-on Live Broadcast applications. A defining feature of the **UPM-1** is its simplicity of use with only five physical rotary controls required to control the upmix parameters. The ease of use and the natural sound of the upmix make this device a must for any OB truck or Broadcast studio working with 5.1 surround.

### Control features of the UPM-1

#### Input controls

1. Input Level Trim
2. L/R Input Balance Trim
3. L/R Swap

#### Upmix controls

4. Input mode select between Upmix (Lo/Ro) and Matrix (Lt/Rt) Mode
5. Front Direct Sound (+/-6dB)
6. Front/Rear Ambient Sound (+/-6dB)
7. Width
8. Centre Divergence

#### Output controls

9. L/R Trim
10. C Trim
11. LFE TRIM
12. LS/RS Trim
13. System Bypass

#### Inputs and Outputs (hardware version only)

14. Stereo Input (AES 75Ω BNC)
15. 5.1 Outputs (AES 75Ω BNC)
16. Wordclock Input and Output (75Ω BNC)
17. USB Interface (software upgrades)

## UPM-1 Plug-in

### Upmixing in a post-production environment

Whilst the hardware **UPM-1** is ideally suited to live broadcast applications, the new **UPM-1 plug-in** is designed to seamlessly integrate into a post production workflow. It is available in VST (PC and Mac), RTAS (PC and Mac) and Mac only AU formats and is aimed at both post-production houses and high-definition broadcasters who need to ensure that all of their material is transmitted in fold down compatible 5.1. This includes archived stereo material, stereo only broadcasts, effects and jingles, etc. The upmix algorithm used in the **UPM-1 plug-in** is identical to that used in the UPM-1 hardware.

“ The thing that’s great about the UPM-1 is that it produces very phase-coherent, stereo compatible results. We need backwards compatibility. It’s no use doing 5.1 mixes if they sound terrible when they’re folded down to stereo.  
 Keith Lane, Operations Manager, Sky ”

## X-1 Combined Upmix/Downmix Processor – surround to stereo and back, all in one box.

The X-1 provides a flexible, transparent interoperability between 5.1 and stereo audio all in one unit which is easily controllable from any PC. Designed for the rigours of on-air use, the X-1 is fitted with a redundant power supply, and can be implemented as a 'set and forget' processor, or as a fully adjustable real-time upmixer and downmixer. A software control application allows full control and configuration of the unit via an easy-to-use graphical user interface. The control app may be run on a laptop or PC connected to the X-1 via Ethernet, or via the USB socket on the device itself. GPIO-capable consoles and other control surfaces or hardware devices can also control and edit parameters on the X-1 via a rear-panel D-Sub connector.



The X-1 can upmix and downmix simultaneously as well as being able to perform as two completely independent processes handling different audio streams simultaneously if required. Auto-detection algorithms allow it to identify the format of incoming audio, and act accordingly, upmixing or downmixing as necessary.

### Features of the X-1

- Simultaneous Upmixing and Downmixing from separate sources
- Auto 5.1 and Stereo input detect
- Redundant Power Supply
- Eight Channel input with thru outputs (AES 75Ω BNC)
- Dual eight channel outputs (AES 75Ω BNC)
- Dolby Metadata input and output (RDD-06)
- Ethernet and USB Connectivity
- Wordclock I/O (75Ω BNC)
- Stand Alone PC Control App
- GPIO Port (9-pin D-Sub)



### Master Control Room (MCR)

The X-1 can deliver a constant 5.1 and stereo output regardless of the input. Upmixing or downmixing as appropriate or passing the 5.1 and stereo straight through when available.

### DSF-3 surround processor

OB vehicles will often need to down-mix 5.1 to stereo in real-time for transmission to legacy broadcasters or networks. At the same time, there is a constant need to upmix from stereo to 5.1 to incorporate archive clips, music or library material in stereo. The X-1 can handle both requirements simultaneously, treating upmix and downmix inputs and outputs completely independently as required.

### Stereo-only edit suites

For edit suites that haven't been upgraded to 5.1 or HD, the X-1 is ideal. It converts 5.1 surround to stereo for editing and then re-converts it to 5.1 for broadcast.



Control APP

# ST450 MKII SoundField Portable.

The new portable, battery-powered **ST450 MKII microphone system** is ideal for location recording film and TV sound specialists everywhere.



The **ST450 MKII** takes full advantage of the latest improvements in electronic components, resulting in superior noise performance. Also incorporated is a new approach to converting the information captured by its four-capsule array resulting in more accurate stereo and surround imaging. All inputs/ outputs are located on one side of the control unit for easy access and connectivity to portable recorders in the field.

The robust **ST450 MKII mic** weighs just 290 grams, and can be used at a distance of up to 200 metres from its associated control unit – the weight of the control box is 580grams.

A single **ST450 MKII** can generate mono, stereo, M/S and B-Format for surround sound simultaneously.

The microphone's control unit includes a built-in front-panel headphone monitor, bar-graph metering, and flexible control over all microphone parameters.

### Control features of the ST450 MKII

#### Front controls

1. High performance microphone pre-amplifiers with discretely switched 6dB gain steps and composite 8-segment LED bar graph for level monitoring.
2. End-Fire: maintains correct three-dimensional surround/stereo perspective when mic is used in the horizontal position. Invert: maintains correct three-dimensional surround/stereo perspective when mic is suspended upside down above the sound source.
3. Continuous control over stereo and mono Polar Patterns (omni through cardioid to figure-of-eight) for the Stereo outputs.
4. Width control – from mono (0) through to wide image stereo.
5. High quality headphone amplifier with variable level control.
6. Switchable Hi-Pass filter to reduce rumble/wind noise on both the stereo and B-Format outputs.
7. Switches Left/Right stereo outputs to M/S.



#### Side panel connections

8. Balanced mic input – 12 pin Lemo connector
9. Stereo Left/Right, M/S line level outputs – balanced 5 pin XLR
10. B-Format (W, X, Y, Z) line level outputs – balanced 5 pin XLR's
11. 12V DC input on 4 pin Hirose connector



# SPS200 Software Controlled Microphone.

The **SPS200 Software Controlled Microphone** brings the advantages of SoundField technology to a wider audience and provides the perfect 'front end' to capture both stereo and 5.1 surround. It is ideally suited to those working in the field on laptop based recording systems or in the studio on fully fledged Digital Audio Workstations.

Equipped with the same established SoundField multi-capsule technology as the high-end models in the SoundField range, this lightweight microphone (approximately 220 grams) is powered by standard 48v phantom power and incorporates four low noise, studio grade condenser capsules. A short break-out cable outputs the four signals generated by the **SPS200** at mic level on four balanced XLRs, ensuring compatibility with all third party equipment.



The SPS200 is the first SoundField microphone that does not require an accompanying control unit. All the processing – such as stereo and surround sound decoding and manipulation – takes place in the Surround Zone software which is included FREE with the SPS200. SoundField Surround Zone is available as a TDM/RTAS for ProTools, VST and AU.

## Surround Zone Software features

- Rotate: Allows for full 360° rotation
- Tilt: Provides  $\pm 45^\circ$  tilt
- Zoom: Gives effect of zooming in or further away from sound source
- End Fire: Re-orientates mic for end fire use as opposed to standard 'side address'
- Invert: maintains correct three-dimensional perspective in both surround and stereo when microphone is suspended upside down above the sound source

## Surround

- Option of six different surround modes: three 5.1 pre-sets, a 6.1, a 7.1 and an 8-channel pre-set
- Variable front and rear width
- Variable rear polar patterns

## Stereo

- Variable polar patterns
- Variable stereo width
- Variable high pass filter
- Mid/Side encoder (AES 75 $\Omega$  BNC)

## Anti-vibrating location microphone kit SPS200 Zephyx Kit

The **SPS200 Zephyx Kit** includes a specially manufactured version of SoundField's existing **SPS200 microphone** with a shorter body, known as the **SPS200-SB** (Short Body), which comes as standard fitted into the supplied Zephyx suspension mount.

Given its size and weight, the **SPS200-SB** is ideally suited to capturing both stereo and surround audio on location.

The new **SPS200 Zephyx kit** is supplied with a Zephyx mount and windshield system with unique lightweight 'floating cage' assembly which mechanically decouples the microphone from the supporting boom pole or stand to virtually eliminate vibration or handling noise. To further improve mechanical isolation, the **SPS200-SB** is fitted with a 28cm 'flying lead' which acts as an anti-vibration cable inside the Zephyx floating cage. Also supplied as standard with the kit is a 5 metre microphone cable terminating in four male XLRs, and a Zephyx 'hat box' style carry case.

# Surround Zone Post Production Plug-In.

The **Surround Zone Plug-In** brings all the benefits of SoundField technology into the post production environment.

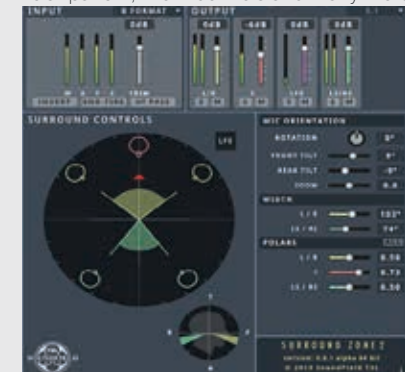
## Anti-vibrating location microphone kit

The most unique advantage or 'insurance' that SoundField technology offers is the opportunity to change all microphone parameters after the performance has occurred. Not only can the orientation of the microphone be altered, the desired output format – mono, stereo, 5.1, etc. – can also be decided on.

The **Surround Zone plug-in** is designed to accept the four B-Format signals generated by any SoundField microphone\* and allows complete control over a wide range of microphone parameters after the recording has taken place.

## Controls include

- Microphone Rotate
- Tilt and Zoom
- Output format selection – Mono, Stereo, 5.1, etc.
- Polar pattern, width controls and many more.



\* The SoundField SPS200 microphone has its own specific version of this plug-in "SPS200 Surround Zone" which has an A-Format input.



# DSF-1 MKII Digital Performance Microphone System – Ideal for concert venue broadcast and recording markets.

The **DSF-1 MKII** is a digital surround microphone system aimed at the discerning concert venue broadcast and recording markets, ideal for capturing classical performances in both stereo and high-quality surround.



The **DSF-1 MKII system** comprises of a SoundField microphone and hardware digital control unit which benefits from much of the techniques employed by the established **DSF-2 digital broadcast system**. These include the ability to change the pickup pattern, output the results in mono, stereo, Mid and Side or surround sound, as well as to Rotate, End Fire or Invert the microphone without physically handling it.

Modifications to the **DSF-1 MKII** which are specific to the performance and recording markets include its output signals, which are all 110Ω AES-EBU on XLRs, instead of BNC connectors. In addition to standard 48/96/192kHz sample rates, the **DSF-1 MKII** can also handle audio at the CD mastering standard of 44.1kHz, as well as 88.2kHz and 176.4kHz. Both world clock input and output are provided.

The **DSF-1 MKII** is perfect for capturing performances by artists of international standing in world-class concert venues, whether for broadcast or release on disc.

## Latest Features

The DSF-1 MKII features new low noise mic-pre design with 1dB gain steps and new low-jitter clock circuitry for further improved audio performance, as well as auto-ranging power supplies which reduce power consumption.

A crucial new function for the DSF-1 MKII digital surround and stereo microphone system is a wide range of integrated system self-tests with alarming and correction. They include the monitoring of all supplies (including those for the microphone) and monitoring of microphone cable health, showing detected errors on the front panel display and the SoundField Remote App, while at the same time auto-correcting errors as necessary to allow the event or recording to continue.

The new models offer both Ethernet and USB connectivity to interface with the SoundField Remote App, as well as a new front panel design based around an LCD display.



**Ian Vysick, Audio Development Specialist for US-based All Mobile Video on its repeat contract with NBC to provide the technical services/OB truck for the recent Macy's fireworks display at New York City's Chelsea Piers, 23rd Street and Hudson River Park.**



"It was the first time the audio for network broadcast was specified to be captured and delivered in discrete 5.1 surround."

"All Mobile Video has never used the DSF-B system under this kind of Sound Pressure Level. There was some serious noise going on during the fireworks display and the system never distorted once, yielding a rich full sound. Because of the inherent flexibility of the three elements in the DSF-B system, the show was easy to set up, run and, because of the high quality capture, we actually needed fewer effects/specialty microphones scattered about to deliver all the excitement of this major fireworks display to the network."

**Jonathan Freed, US-based mix engineer – currently works on TV coverage of high-profile US sports events for the major broadcast networks, including the Winter Olympics every four years, NBA Basketball and American Football Fan's Week for the NFL. His experience with the DSF-2.**



"A product like this DSF-2 should be heard by as many people as possible. The SoundField capsules have an extraordinarily smooth and wide response, at least equal to the very best microphones I have heard in 40 years of mixing."

"To my ears, the SoundField DSF-2 has a distinct sonic fingerprint – it sounds extremely realistic and spacious, with a tremendous sense of detail, and the sonic illusion of being located inside the stadium. The front side pickup provides a heightened sense of size and place, while the rear channels pick up a natural and convincing sense of being surrounded by the excited fans in the stands."

"Audio from the SoundField DSF-2 always folds down well," affirms Freed. **"I am a fan of coherence where possible, and always arrange my arrays so that my audio will fold down well to mono, stereo, or LtRt. SoundField fits right into that philosophy."**

"I find that aspect of the DSF-2 very useful in a live sports environment. If you get an unexpectedly loud section of the crowd in, say the right rear of the soundstage, you can tip the microphone away from that area electronically, and make it less sensitive to that area. Before I had the DSF-2, to achieve the same effect, I had to shut off one mic array, or one of the lobes of an array, to achieve the same thing, which could unbalance the sound."

**Sky Sound Supervisor Carlton Waghorn on transmitting completely live, for the first time ever, a series of weekly television plays in high definition, with a 5.1 surround soundtrack for Sky Arts Channel using the UPM-1.**



"It's a great piece of kit; it brought the whole thing to life, and meant we had some 5.1 content all the way through the performance. For example, for the finale of one of the plays, we had some library music in stereo, which in the play was supposed to be coming from backstage. On the initial run-throughs and rehearsals, we put it through a stereo effect and just panned it left and right – we played it safe. But for transmission, we put it through the UPM-1, and it really opened up in surround. It sounded terrific. I know some people regarded it as a postproduction tool when it was announced, but it is adaptive and designed to be used in real time, and we were making the most of that."

"I will be running an awful lot of things through the UPM-1 over the next few years, because all of our cart, music and effects libraries are still in stereo as far as I know, and if you want to make those work in 5.1 broadcast, the UPM-1 provides a really good way to do it. I imagine there won't be large numbers of 5.1 effects libraries for some time yet, and also you need to be able to deal with stereo material the clients bring you."

**John Casali, Freelance Sound Mixer used the SoundField ST350 (now superseded by the new ST450) on the set of 'Harry Potter and the Deathly Hallows' as well as Sherlock Holmes.**



"The ST350 has been brilliant for capturing the basic 5.1 beds that the post-production guys to build up the surround mix from scene to scene. It creates very realistic soundscapes – sometimes I still can't believe it's all from one microphone."

"I used the ST350 a lot on crowd scenes and in the Great Hall at Hogwarts on the Harry Potter films, and on Sherlock Holmes it's been great for capturing the sounds of the period horse-drawn carriages on the streets."



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**Surround Sound Capture**

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