



DSF-3 MKII  
Digital  
Surround Processor

User Guide

Version 1.0

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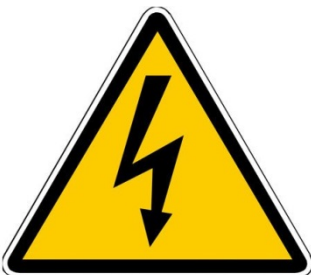
## SAFETY INFORMATION

- 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



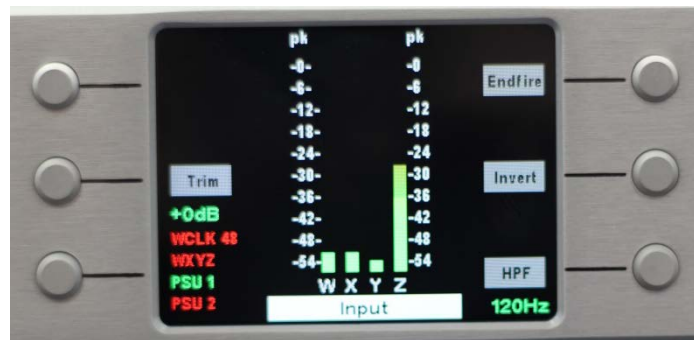
The lightning flash with arrow head symbol within an equilateral triangle is intended to alert the user to the presence of dangerous voltages and energy levels within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock or injury.



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

## CONTROLS

### Input Page




#### 1. Input Trim

The inputs can be level trimmed by +/- 10dB in 1dB steps.

To change the input trim press the “Trim” button - this will change the display to show the trim level in the middle of the screen – and use the rotary controller to alter the level.

To return back to the main screen either press the “Trim” button again or wait for the gain screen to automatically time out.

#### 2. End Fire

The End Fire mode should be selected when the microphone is horizontally pointed (  ) at the sound source as you would with a flashlight. Selecting End Fire maintains the correct three-dimensional perspective in both surround and stereo when the mic is used in the horizontal position.

If you do not select this mode when the microphone is horizontal it will result in the Front/Back depth information and the Up/Down height information being reversed. This mode is particularly necessary when the microphone is mounted in a Rycote or on a fishpole and pointed directly at the sound source.

To enable End Fire press the “End Fire” button - this will change the display to show the End Fire status in the middle of the screen – further presses of the “End Fire” button will toggle the status of End Fire on and off.

To return back to the main screen either press the “End Fire” button again or wait for the gain screen to automatically time out.

### 3. Invert

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 reversed. It is important to document the status of the Invert switch when making B-Format recordings for later post production.

To enable Invert press the “Invert” button - this will change the display to show the Invert status in the middle of the screen – further presses of the “Invert” button will toggle the status of Invert on and off.

To return back to the main screen either press the “Invert” button again or wait for the gain screen to automatically time out.

### 4. High Pass Filter

The variable High-Pass filter – second order Butterworth – will filter the incoming microphone signals and will affect all output signals. Enabling the High-Pass filter is ideal for removing unwanted low frequency rumble such as wind noise, etc.

To enable the High Pass Filter press the “High Pass Filter” button - this will change the display to show the High Pass Filter status in the middle of the screen – further presses of the “High Pass Filter” button will toggle the status of Invert on and off and the rotary controller will alter the cut-off frequency.

To return back to the main screen either press the “High Pass Filter” button again or wait for the gain screen to automatically time out.

## Orientation Page



### 1. Rotate

Rotates the microphone's pick up through a full horizontal 360° in 10° steps and redefines the front centre of the stereo and surround image.

To change the rotation press the “Rotate” button - this will change the display to show the angle of rotation in the middle of the screen – and use the rotary controller to alter the rotation.

To return back to the main screen either press the “Rotate” button again or wait for the gain screen to automatically time out.

### 2. Zoom

Zoom allows you to focus in on the front or the rear of the microphone.

To change the zoom press the “Zoom” button - this will change the display to show the amount of zoom in the middle of the screen – and use the rotary controller to alter the rotation.

To return back to the main screen either press the “Zoom” button again or wait for the gain screen to automatically time out.

### 3. Front and Rear Tilt

Tilt allows you to tilt the microphone up or down by +/- 45°. There are individual tilts for the front and the rear channels of the surround outputs to accommodate an umbrella effect, where both the front and the rear of the microphone is in essence tilted downwards.

To change the front and rear tilt press the “Fr Ht or Re Ht” button - this will change the display to show the angle of tilt in the middle of the screen – and use the rotary controller to alter the tilt.

To return back to the main screen either press the “Fr Ht or Re Ht” button again or wait for the gain screen to automatically time out.

## Surround Output Page



The Surround Output Page shows the surround sound output bargraphs and allows you to control the parameters of the available output pairs. In the case of 5.1 the output pairs are L/R, C, LFE and LS/RS.

### The L/R and LS/RS output Page:



#### 1. L/R, LS/RS Level

The L/R, LS/RS output pairs can be level trimmed by +/- 10dB in 1dB steps.

To change the output level press the “Level” button - this will change the display to show the level in the middle of the screen – and use the rotary controller to alter the level.

#### 2. Width

This control varies the stereo image from zero degrees (mono) through 90 degrees (standard stereo coincident pair) to an extra wide stereo 180 degrees. The effect of the Angle control can be viewed on the screen.

To change the Width press the “Width” button and use the rotary controller to alter the gain.

#### 3. Polar Pattern

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.

To change the Pattern press the “Pattern” button and use the rotary controller to alter the gain.

#### 4. Delay

A variable delay control is available for the LS/RS pair and can be varied by upto 40ms in 1ms steps.

To change the delay press the “Delay” button and use the rotary controller to alter the delay.

#### 5. Low Pass Filter

A low pass filter is provided with a cut-off frequency ranging from 20KHz to50Hz.

To change the cut off frequency press the “LPF” button and use the rotary controller to alter the frequency.

#### 6. High Pass Filter

A high pass filter is provided with a cut-off frequency ranging from 20Hz to 200Hz.

To change the cut off frequency press the “HPF” button and use the rotary controller to alter the frequency.

### The C, LFE output Page:



#### 1. C, LFE Level

The C and LFE output channel can be level trimmed by +/- 10dB in 1dB steps.

To change the output level press the “Level” button - this will change the display to show the level in the middle of the screen – and use the rotary controller to alter the level.

#### 2. Polar Pattern

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.

To change the Pattern press the “Pattern” button and use the rotary controller to alter the gain.



### 3. Delay

A variable delay control is available for the LS/RS pair and can be varied by upto 40ms in 1ms steps.

To change the delay press the “Delay” button and use the rotary controller to alter the delay.

### 4. Low Pass Filter

A low pass filter is provided with a cut-off frequency ranging from 20KHz to 50Hz.

To change the cut off frequency press the “LPF” button and use the rotary controller to alter the frequency.

### 5. High Pass Filter

A high pass filter is provided with a cut-off frequency ranging from 20Hz to 200Hz.

To change the cut off frequency press the “HPF” button and use the rotary controller to alter the frequency.

## REAR PANEL



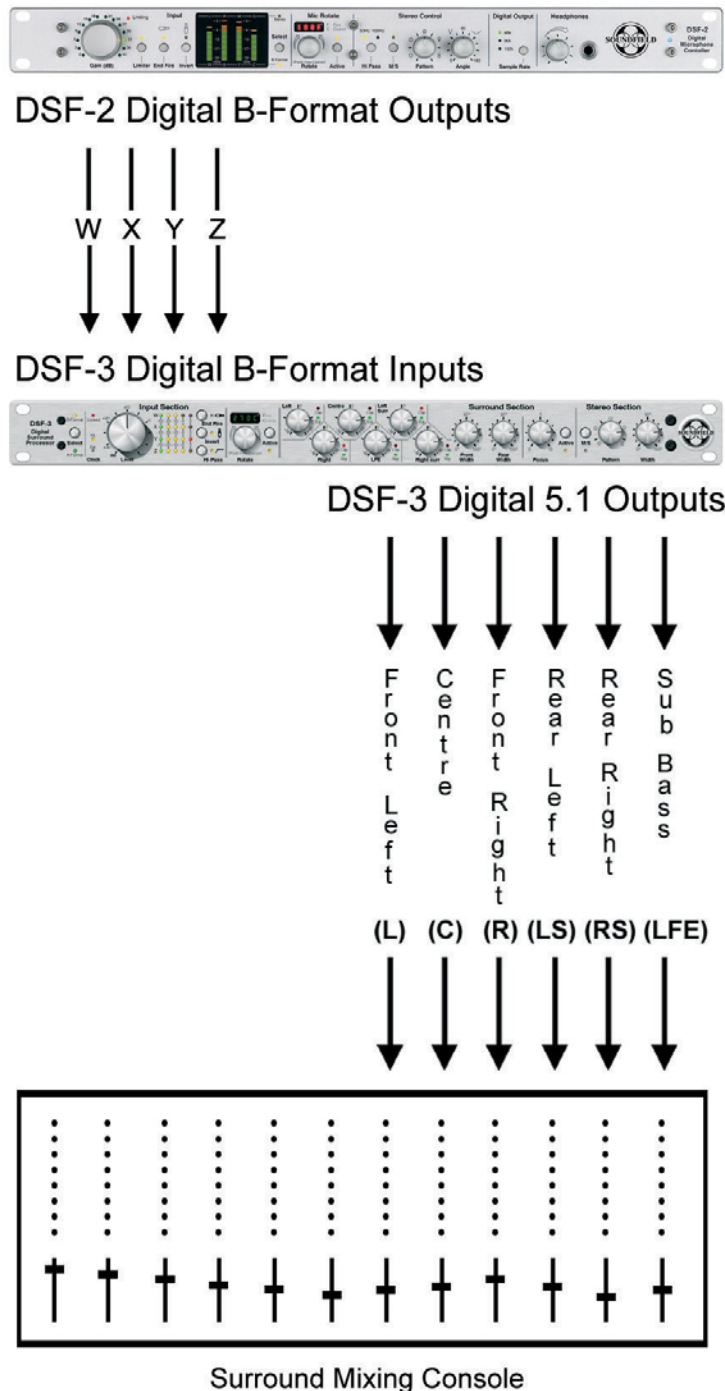
1. MAINS POWER INLETS - fully redundant power supply inlets.
2. Ethernet Port – for future expansion
3. Digital Outputs – 5 x 75Ω Coax (AES3id) digital audio outputs  
Currently supporting 5.1 output with support for 6.1, 7.1, 5.1.2, 5.1.4, 7.1.2 and to follow)

**5.1 Output Mapping**

- AES 1/2 – not used
- AES 3/4 – L/R
- AES 5/6 – C/LFE
- AES 7/8 – LS/RS
- AES 9/10 – not use

4. WORD CLOCK INPUT/OUTPUT - BNC 75Ω, 48kHz only
5. DIGITAL B-FORMAT INPUTS - 75Ω Coax (AES3id) - BNC connector

INTERFACING THE DSF-3 WITH THE DSF-2 DIGITAL BROADCAST MICROPHONE SYSTEM FOR LIVE SURROUND BROADCAST



In this configuration the DSF-2/DSF-3 combination will deliver six discrete channels of digital 5.1 surround for High Definition broadcast. The DSF-3 can also output simultaneous digital stereo for Standard Definition and radio.

**AUDIO SPECIFICATION**

Digital Inputs	75Ω Coax (AES3id)
Supported Input Sample Rates	48kHz Supported
Input Bit Rates	24 bit
Sample Rate Converter	AD1896 (128dB SNR)

Digital Outputs	75Ω Coax (AES3id)
Output Sample Rate	48kHz
Output Bit Rate	24 bit

Bandwidth	20Hz - 24kHz
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THD+N (-1dBfs, 1kHz)	<0.00005% on <-130dB
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**MAINS REQUIREMENTS**

AC Input	2 x 100V - 240V AC 50/60Hz
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Power Consumption	<20W
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Case Size	482mm (w) x 44mm (h) x 295mm (d)
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Weight	2.5 KGS
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## WARRANTY

### Limited Liability

SoundField Ltd., herein after known as the manufacturer, guarantees this equipment from defects in material and workmanship under normal use and service for a period of one year. This guarantee extends to the original purchaser only and does not apply to fuses or any product or parts subjected to misuse, neglect, accident or abnormal conditions of operation. The guarantee begins on the date of delivery to the actual purchaser or to his authorised agent or carrier. In the event of failure of a product covered by this guarantee, the manufacturer or their certified representatives will repair and calibrate equipment returned prepaid to an authorised service facility within one year of the original purchase and provided that the guarantors examination discloses to its satisfaction that the product was defective, equipment under this guarantee will be repaired or replaced without charge. Any fault that has been caused by misuse, neglect, accident, act of god, war or civil insurrection; alteration or repair by unauthorised personal; operation from an incorrect power source or abnormal conditions of operation, will not fall under this guarantee. However, an estimate of the cost of the repair work will be submitted before work is started. The manufacturer shall not be responsible for any loss or damage, direct or consequential, resulting from machine failure or the inability of the product to perform. The manufacturer shall not be responsible for any damage or loss during shipment to and from the factory or its designated service facility. This guarantee is in lieu of all other guarantees, expressed or implied, and of any other liabilities on the manufacturers part. The manufacturer does not authorise anyone to make any guarantee or assume any liability not strictly in accordance with the above. The manufacturer reserves the right to make changes or improvement in the design and construction of this unit without obligation to make such changes or improvements in the purchaser's unit. Any dispute arising from this warranty shall be subject to the laws of England.

### What to do if a fault is found or you need support

In the unlikely event that a fault develops with your product, please contact support as follows:

By email using [service@soundfield.com](mailto:service@soundfield.com)

### Claim for damage during transit

All products should be thoroughly inspected immediately upon delivery. If there is any damage to the product a claim should be filed with the carrier immediately. A quotation to repair shipment damage can be obtained from SoundField Ltd. Final claims and negotiations with the carrier are the responsibility of the customer.

### Repair process and how to return your goods

In the first instance you should contact support using the contact details above. In the event that your product needs to be returned, a unique return number will be provided which should be used for all further correspondence.

Repairs and returned goods are subject to the following conditions:

- No equipment should be returned without the prior consent of SoundField.
- Shipping/Insurance costs for returned items are the responsibility of the customer.
- All returned goods must be suitably packaged to avoid damage and preferably in the original purpose built SoundField packaging. If this is not possible, packaging may be available from SoundField.
- In the event of transit damage, you will be advised immediately and the repair of the unit may be subject to additional costs which will be quoted before repair work commences.
- Warranty repairs will be returned free of charge (subject to the limited liability terms detailed elsewhere in this document)
- Non - warranty repairs will be inspected and an estimated cost provided before work starts.
- If after initial inspection we find the product is beyond economic repair (BER) you will be notified and charged for inspection only.
- Non-warranty repairs will be subject to additional return shipping costs.

### Application support or help

SoundField Ltd will be happy to answer any applications questions to enhance your use of this equipment. Please contact support using the details provided above.