soundsation

DFE 1224

FEEDBACK ELIMINATOR

USER MANUAL

Dear customer,

first of all thanks for purchasing a **SOUNDSATION®** product. Our mission is to satisfy all the possible needs of musical instrument and professional audio users offering a wide range of products using the latest technologies for a reasonable price.

 We hope you will be satisfied with this item and, if you want to collaborate, we are looking for a **feedback** from you about the operation of the product and for possible improvements to introduce in the next future. Go to our website www.soundsationmusic.com and send an e-mail with your opinion, this will help us to build instruments ever closer to customer's real requirements.

One last thing: read this manual before using the instrument, an incorrect operation can cause damages to you and to the unit. Take care!

The SOUNDSATION Team

GENERAL WARNINGS

	RISK OF ELECTRICAL SHOCK DO NOT REMOVE THE COVER	

To prevent possible damages read the following list of actions:

- Do not place the instrument in wet or dirty environments.
- Do not remove the protective coverings.
- Do not cover any of the instrument's ventilation holes.
- Air must circulate freely around the instrument.
- Do not set the instrument on a surface with excessive vibration.
- Do not expose the instrument to electro-magnetic interference.
- Do not expose the instrument to heat, cold, wet or dust.
- Do not leave the instrument in direct sunlight.
- Do not expose the instrument to electrostatic forces.
- Do not place items with flames, such as candles or lighters, on the instrument.
- Do not place the instrument on anything containing water or other fluids.

If any foreign objects enter the instrument, please contact your dealer or an authorized **SOUNDSATION** center.

The **serial number**, electrical features and international standards are printed on a label located in the Back Panel of the instrument.

In case of problems remember to give the serial number to the responsible of the technical assistance.
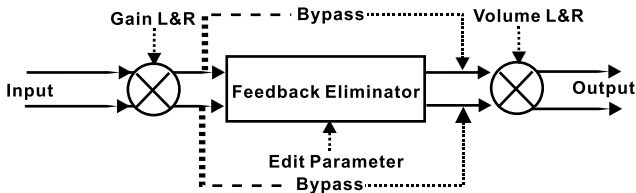
DFE1224
FEEDBACK ELIMINATOR

Controls

◆ Key Enter   Enters sub-menus
◆ Key Quit   Exits sub-menus
◆ Key Process   Bypass L+R
◆ Led Clip   Process overflow.
◆ Enc Variation   If running Threshold variation, if into menus parameter variation
◆ Enc Navigation   Navigation menus
◆ Pot Input Level   Input gain Left, Right
◆ Pot Output Level   Output volume Left, Right

Parameters

◆ Inputs :   Balanced 2 TRS/2 XLR
◆ Outputs :   Balanced 2 TRS/2 XLR
◆ Input Max Level :   9 dBu
◆ Output Max Level :   9 dBu
◆ THD+N :   <0.01% @ -6 dBFS (Bypass)
◆ S/N Ratio :   >90 dBA (Bypass)
◆ Frequency Response :   20Hz-20kHz +/- 0.5dB
◆ A/D and D/A Resolution :   24 bit
◆ Process Resolution :   24x48bit
◆ Processes :   Feedback Eliminator
◆ Display :   LCD 2x20 alphanumeric
◆ Connectivity :   MIDI/USB

The DFE1224 is a feedback remover dual mono device. The system analyzes frequencies contained into the input signal removing the feedback using Up to 12 real-time high precision notch filters with -45dB attenuation. Sensitivity is adjustable in 15 steps,allowing the user to Increase or reduce the reactivity of the DFE1224 to the feedback The 12 notches per channel Used for the feedback eliminator remain Placed and can be saved into a user preset. If they are not saved, switching off the device resets the filter configuration to the last saved one.
There are 4 Factory Presets and 16 User Presets.
The product has a bypass control in the analog domain and can be linked to external controllers through RS232/USB/MIDI.

User Interface

At power on, after the init phase, the unit shows on LCD display the below

```
PRESET XX: NAME PRESET
  L:IIIIIIIIIII      R:IIIIIIIIIII
```

On upper row the preset number and the preset name are visible, on the lower row the vu-meter shows the input signal level after the analog GAIN L&R.

To access the main menu the user pushes the ENTER key or rotates the NAVIGATION encoder.
To return to the vu-meters, the user pushes the QUIT key.
Every time the user pushes a key, the led near it changes its state.

After an encoder rotation or an ENTER key beat, the LCD display shows:

```
PRESET XX: NAME PRESET
SEARCH FEEDBACK L&R
```

Using the encoder, the main menu is accessible through the lower row:

1. **Search feedback L&R** 2. **Search feedback L**
3. **Search feedback R** 4. **Utility Function**
5. **Edit Notch left** 6. **Edit Notch Right**
7. **Load preset** 8. **Save preset**
9. **Copy channel L to R** 10. **Copy channel R to L**
11. **Reset manual notch L** 12. **Reset manual notch R**
13. **Reset auto notch L** 14. **Reset auto notch R**
15. **View notch filter L** 16. **View notch filter R**

To select one of the menu fields, use the ENCODER (Navigation). To access the sub menus use ENTER, to exit use QUIT. Those keys ore also used to confirm / deny user choices.

SEARCH FEEDBACK L & R / L / R

The user has the possibility to select the channel to be monitored simply accessing one of the 3 functions: Search L&R, only L, only R.
The screen displays (case SEARCH FEEDBACK L & R):

```
L <SENS> RS ---------M
R <SENS> RS ---------M
```
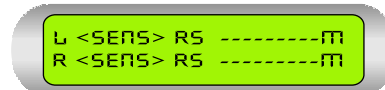
The upper row of the display shows informations on LEFT channel, the lower row shows informations on RIGHT channel.
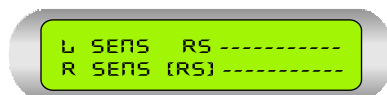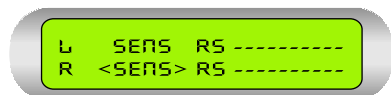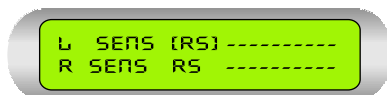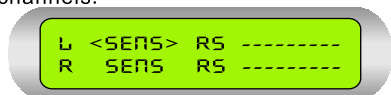
The available informations are :

Sens : it shows the system sensitivity to the feedback phenomenon. Its values are included between 1 (lowest sensitivity) and 16 (highest sensitivity)

Rs : automatic notch filters reset.
The "_" symbol indicates the notch filter is automatic and it is flat.
The "M" symbol indicates the notch filter is manual.

Using the NAVIGATION encoder the user can select **Sens** or **Rs** option for both channels.

```
L <SENS> RS ---------
R  SENS  RS ---------
```

```
L  SENS [RS]----------
R  SENS  RS  ----------
```

```
L   SENS  RS ----------
R  <SENS> RS ----------
```

```
L SENS   RS -----------
R SENS [RS]-----------
```

The parameter name between the $<>$ symbols indicates the user can change the parameter value using the VARIATION encoder, the parameter name between the [ ] symbols indicates the user can change the parameter value using the ENTER button.

In order to reset all automatic notch filters, select the Rst option of the desired channel and push ENTER. The LCD display will show :

```
RST AL: ARE YOU SURE?
 YES = ENTER; NO=QUIT
```

```
RST AR: ARE YOU SURE?
 YES = ENTER; NO=QUIT
```

Push the ENTER button in order to confirm, QUIT button in inder to cancel.
After it, the LCD display shows the previous informations.

When the detection engine is active and the notch variable is set, the system automatically removes the inserted notch filters gradually if the feedback conditions are no more present.
Of course the system automatically puts new notch filters when new feedback frequencies arise.
The LCD display shows the disabled notch filters (and the enabled notch filters Pushing on QUIT button, the user freezes all automatic notch filters and stops the detection engine.

UTILITY FUNCTION MENU

It is possible to select one of this functions :
1. **Config communication**
2. **Config mode search L**
3. **Config mode search R**

use the ENCODER to select the desired function and press ENTER to access it, press QUIT to exit.

Config communication

It is possible to select the remote control interface to use. Use the potentiometer to select one of the following: USB, MIDI Channel $1, \ldots, 15$. Use the potentiometer to change the setting. Check also the coherent setting on the back panel hardware switch. To exit press QUIT.

```
CONFIG COMMUNICATION
 DEVICE: <usb>
```

Config mode search L / R

It is possible to configure the feedback search engine mode. The user can vary:
The number of automatic notch filters (1 to 12). The remaining filters are available as manual filters.
Automatic notch filters bandwidth ($1/70$, $1/20$, $1/10$, $1/5$ oct).
Auto removal of automatic notches (Fixed, Variable).
Inside **Config mode search L / R** menu the screen will show:

```
CONFIG MODE SEARCH L
NUM. NOTCH AUTO <11>
```

turning the encoder the screen will display:

```
CONFIG MODE SEARCH L
Q NOTCH AUTO   <1/10>
```

turning the encoder the screen will display:

```
CONFIG MODE SEARCH L
ATT. NOTCH      <FIX>
```

Each parameter can be varied using the encoder:
The Att Notch Var function is operating only when the user positions itself into the Search feedback L&R, L, R function.
To exit this sub-menu, press QUIT.

EDIT NOTCH LEFT/RIGHT MENU

Here it is possible to edit all the manual notches formerly selected using the utility function. If the number of manual notches is (automatic notches = 12) when the user tries to access the sub-menu, the display will briefly show:

```
FEEDBACK ELIMINATOR
 NO MANUAL NOTCH
```

Otherwise, the following will be displayed:
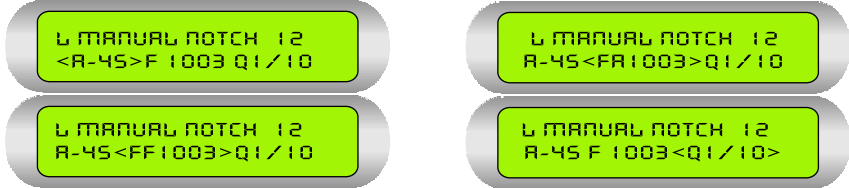
```
L MANUAL NOTCH  12
 A-45 F 1003 Q1/10
```

The user can edit for each notch: Attenuation, Frequency and Q (bandwidth)
Attenuation varies between -45dB and 0dB with 1 dB steps.
Frequency varies between 20Hz and 20 kHz with $1/70$ octave steps.
Q can be $1/70$, $1/20$, $1/10$, $1/5$ octave.

After selecting Edit Notch left/right and pressing enter the user accesses the menu. Using the encoder it is possible to select the required manual notch filter（the number is shown upper right）, in order to edit the filter parameters press ENTER, then it is possible to select the parameter（selection is visible within $\langle \rangle$）.

```
┌──────────────────────┐          ┌──────────────────────┐
│ L MANUAL NOTCH  12   │          │ L MANUAL NOTCH  12   │
│ <A-45>F 1003 Q1/10   │          │ A-45<FA1003>Q1/10    │
└──────────────────────┘          └──────────────────────┘

┌──────────────────────┐          ┌──────────────────────┐
│ L MANUAL NOTCH  12   │          │ L MANUAL NOTCH  12   │
│ A-45<FF1003>Q1/10    │          │ A-45 F 1003<Q1/10>   │
└──────────────────────┘          └──────────────────────┘
```

Use the potentiometer to vary the parameter value.
For the frequency edit there are 2 parameters: FA and FF.
When FA（frequency Adjust）is selected the frequency value varies with $1/3$ oct steps. When FF（frequency Fine）is selected the frequency value varies with $1/70$ within the selected $1/3$ octave.

LOAD PRESET MENU
Here it's possible to select and load one of the $4+16$ available presets.
To load a preset select it using the ENCODER, during navigation it is possible to visualize the preset name（max 8 character）and its position.

```
┌──────────────────────┐
│     LOAD PRESET      │
│  01:   NAME PRESET   │
└──────────────────────┘
```

If the selected preset is not the current one, the preset number will blink.

```
┌──────────────────────┐
│     LOAD PRESET      │
│  01:   NAME PRESET ^ │
└──────────────────────┘
```

To load the selected preset press ENTER, to exit press QUIT. During preset loading the following message will appear:

```
┌──────────────────────┐
│  WAIT: LOADING ....  │
└──────────────────────┘
```

If an empty User preset is selected and loaded, the system displays an error message:

```
┌──────────────────────┐
│ ERROR: PRESET EMPTY  │
└──────────────────────┘
```

SAVE PRESET MENU
Using this menu it is possible to save a preset in one of the 16 user locations available.
Use the ENCODER to select the desired location, only user presets are shown. Press enter to save the preset in the desired location, if the location is already occupied the following message will appear:

```
┌──────────────────────┐
│ OVERWRITE  PRESET ?  │
│ YES = ENTER; NO=QUIT │
└──────────────────────┘
```

Press QUIT to return to SAVE menu , press ENTER the preset wil be saved and the display will show:

```
WAIT: SAVING.....
```

After that, saved preset name editing will be possible.
Use the ENCODER to select character position, and POTENTIOMETER to change the character. To save press ENTER, to maintain default name press QUIT.
After this the system returns to main menu.

If a preset is not saved, switching off the device will lose it.

COPY CHANNEL L to R / R to L
This function copies the settings of one channel to the other. Press ENTER to show the following message:

```
COPYLR: ARE YOU SURE?
 YES = ENTER; NO=QUIT
```

```
COPYRL: ARE YOU SURE?
 YES = ENTER; NO=QUIT
```

Press ENTER to confirm, QUIT to cancel.

RESET MANUAL NOTCH L/R
This function resets all manual notches of the Left/Right channel. After pressing ENTER the following message will appear:

```
RST ML: ARE YOU SURE?
 YES = ENTER; NO=QUIT
```

```
RST MR: ARE YOU SURE?
 YES = ENTER; NO=QUIT
```

Press ENTER to confirm, QUIT to cancel.

RESET AUTO NOTCH L/R
This function resets all automatic notches of the Left/Right channel. After pressing ENTER the following message will appear:

```
RST AL: ARE YOU SURE?
YES = ENTER; NO=QUIT
```

```
RST AR: ARE YOU SURE?
 YES = ENTER; NO=QUIT
```

Press ENTER to confirm, QUIT to cancel.

VIEW NOTCH FILTER L/R
This function allows to see the configuration of all automatic and manual filters.

```
L NOTCH FILT NUM TYPE
A=-45 F=1003 Q=1/10
```

Rotating the VARIATION encoder, the LCD display shows the configurations of the 12 notch filters.

MIDI STANDARD PROGRAM CHANGE

		Value Range	Legend
		0,…,3	Factory Preset
		4,…,20	User Preset

Control Change

	Controller	Value Range	Legend
	0	0.1	Bank select ; Bank = 0: channel 1 (Left); Bank = 1: channel 2 (Right)
	16	0,…,11	Number Manual notch filter (>num Automatic notch)
	17	0,…,45	Attenuation Notch filter (from -45dB to 0dB step 1dB)
	18	0,…,26	Frequency Adj Manual Notch filter (from 20Hz to 20kHz step 1/3 Oct)
	19	0,…,26	Frequency Fine Manual Notch filter (step 1/70 Oct)
	20	0,…,3	Band-widt Manual Notch filter (1/70Oct, 1/20Oct, 1/10Oct, 1/5Oct)
	21	0,…,11	Set num Automatic notch
	22	0,…,3	Set Q Automatic notch
	81	0.1	Set Attenuation Automatic notch fix or variable
	83	0,…,15	Set Sensitivity from min (0%) to max (100%)
	25	0,…,3	Feedback Eliminator 0=OFF; 1=Search L&R; 2=Search L; 3=Search R;

WARRANTY & SERVICE

All SOUNDSATION products feature a limited **two-year warranty**. This two-year warranty is specific to the date of purchase as shown on your purchase receipt.

The following cases/components are not covered from the above warranty :
- Any accessories supplied with the product
- Improper use
- Fault due to wear and tear
- Any modification of the product effected by the user or a third party

SOUNDSATION shall satisfy the warranty obligations by remedying any material or manufacturing faults free of charge at SOUNDSATION's discretion either by repair or by exchanging individual parts or the entire appliance. Any defective parts removed from a product during the course of a warranty claim shall become the property of SOUNDSATION

While under warranty period, defective products may be returned to your local SOUNDSATION dealer together with original proof of purchase. To avoid any damages in transit, please use the original packaging if available. Alternatively you can send the product to SOUNDSATION SERVICE CENTER – Via Enzo Ferrari , 10 – 62017 Porto Recanati - Italy . In order to send a product to service center you need an RMA number. Shipping charges have to be covered by the owner of the product.

For further information please visit www.soundsationmusic.com

WARNING

PLEASE READ CAREFULLY – EU and EEA (Norway, Iceland and Liechtenstein) only

This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2202/96/EC) and your national law.

This product should be handed over to a designated collection point, e.g., on an authorized one-for-one basis when you buy a new similar product or to an authorized collection site for recycling waste electrical and electronic equipment (WEEE) .

Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time , your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources.

For more information about where you can drop off your waste equipment for recycling , please contact your local city office , waste authority , approved WEEE scheme or your household waste disposal service.

Contents and images shown on this manual can be changed without any notice. Please visit our website www.soundsationmusic.com to check latest version.

DESIGNED IN ITALY BY SOUNDSATION®

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MADE IN CHINA