

X-FDBK

FEEDBACK ELIMINATOR | USER GUIDE

WAVES

X-FDBK

Table of Contents

Chapter 1: Introduction 3

1.1 Welcome 3

1.2 About X-FDBK 3

1.3 Components 3

Chapter 2: Interface and Controls 4

2.1 Interface 4

2.2 Controls 5

Chapter 3: How to Use X-FDBK 10

CHAPTER 1: INTRODUCTION

1.1 Welcome

Thank you for choosing Waves. In order to get the most out of this Waves processor, please take some time to read through this manual.

We suggest that you visit the Waves support site, http://www.waves.com/support. There you will find an extensive answer base, the latest tech specs, current information about installation, registration and activation, and more.

1.2 About X-FDBK

X-FDBK is a feedback elimination plugin that helps sound engineers to optimally prepare their stage monitors and PA prior to soundcheck. In the "live sound" lingo, this process is called "ringing out." It's usually a lengthy and annoying process. It requires identifying feedback-sensitive frequencies and then cutting them from the stage monitors or PA. In most cases it's difficult to precisely identify an offending frequency and then correct the Q and amplitude in order to eliminate it. Moreover, in many situations, especially when ringing out stage monitors, two engineers are required to perform the process: usually one engineer agitates the stage monitor with the lead vocal mic, while the other "drives" the console's EQ or outboard equipment.

X-FDBK dramatically simplifies and speeds up this process by precisely identifying the offending frequencies and cutting them with the exact Q and amplitude. X-FDBK enables you to globally adjust the Q and amplitude, as well as manually add, delete, and adjust filters.

1.3 Components

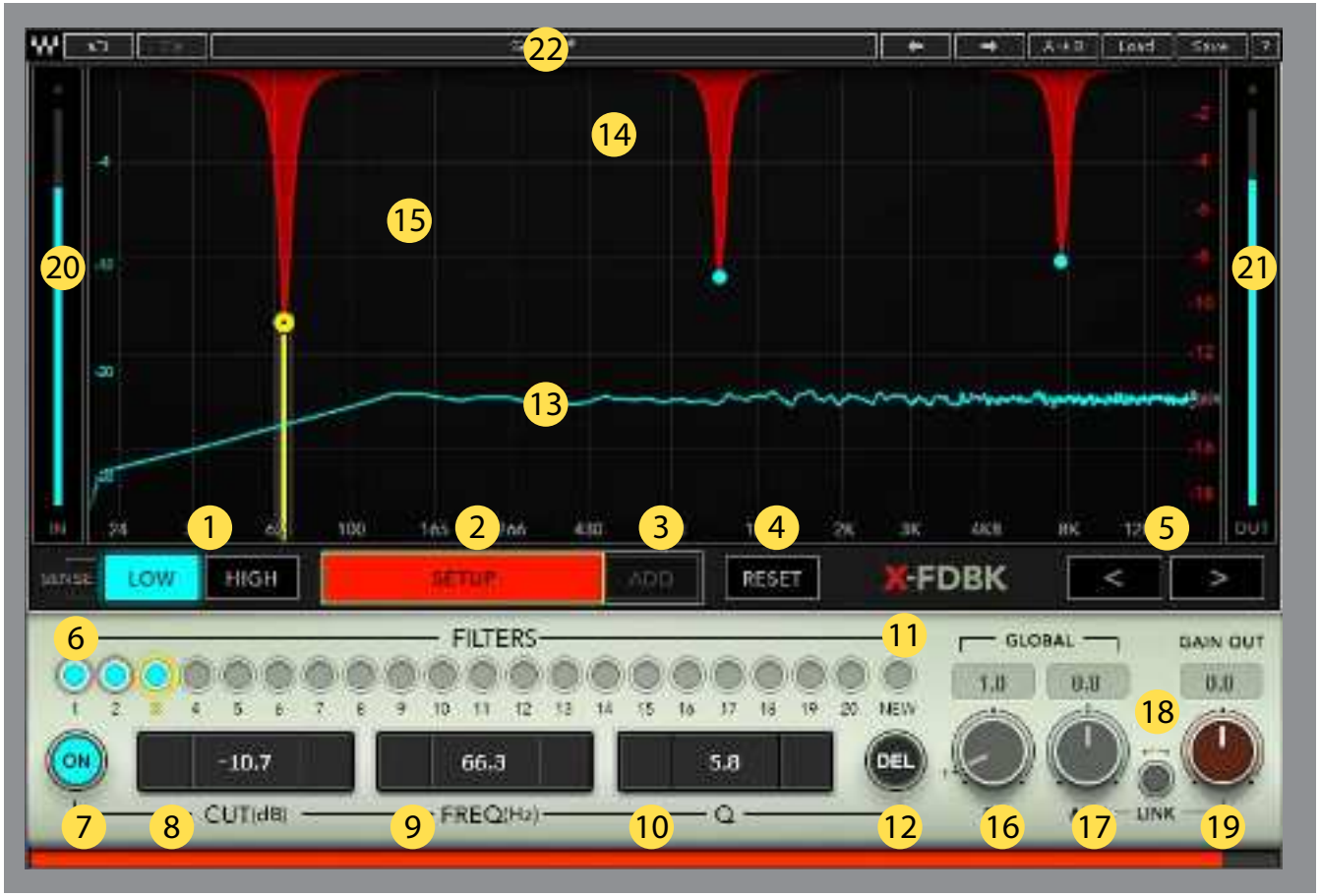
WaveShell technology enables us to split Waves processors into smaller plugins, which we call components. Having a choice of components for a particular processor gives you the flexibility to choose the configuration best suited to your material.

The X-FDBK plugin includes the following components:

- X-FDBK Mono
- X-FDBK Stereo

CHAPTER 2: INTERFACE AND CONTROLS

2.1 Interface



Toolbar

1. SENSE
2. SETUP
3. ADD
4. RESET
5. Nav arrows

Filter Controls

6. Filter Indicators
7. ON
8. CUT
9. FREQ
10. Q
11. NEW
12. DEL

Graphs

13. Input Analyzer Curve
14. Filters Curve
15. Cursor

Global

16. Q
17. AMP
18. LINK
19. GAIN

Meters

20. Input meter
21. Output meter
22. WaveSystem toolbar

3.2 Controls

Toolbar

SENSE



Toggles X-FDBK's sensitivity to the input signal.

Range: Low, High

Default: Low

SETUP



Activates the X-FDBK detection engine. When on, the Setup button is red. Setup will automatically turn off after one minute, as indicated by countdown bar at the bottom of the frame. When feedback is detected, the engine will add a filter at the exact feedback frequency. The filter will be added with appropriate Q and amplitude as needed to stop the feedback.

Range: On, Off

Default: Off

ADD



This momentary control lets you add one new filter at a time. While you hold the control, the engine searches for feedback until a new filter is engaged.

Range: On, Off

Default: Off

RESET



Resets all existing filters.

Range: On, Off

Default: Off



NAV ARROWS

Click the Left or Right arrow to navigate between existing filters on the graph. The yellow vertical cursor will jump to the previous or next filter. This selects the filter.

Range: Left, Right.

Default: Off

Cursor

Move the Filter selection cursor from one filter to another using Left/Right arrows or a mouse.
The cursor snaps to the previous or next filter when adjusted with a mouse

Filter Controls

Filter Indicators



There can be up to twenty filters. Indicators will light as filters on the graph are engaged.
A selected filter has
a yellow rim. Double-clicking the indicator turns off the corresponding filter.

Range: On, Off
Default: Off

ON



Turns the selected filter on or off.

Range: On, Off
Default: Off

CUT



Displays or adjusts the Cut of the selected filter. Click the + or - buttons for incremental changes, or enter a value manually by double-clicking the text window.

Range: -20 to 0 dB
Default: 0 dB
Steps: 0.1 dB

FREQ



Displays or adjusts the frequency of the selected filter. Click the + or - buttons for incremental changes, or enter a value manually by double-clicking the text window.

Range: 24 Hz to 20 kHz
Default: 24 Hz
Steps: 1 Hz (24 Hz–500 Hz); 10 Hz (500 Hz–1 kHz); 100 Hz (1 kHz–20 kHz)

Q



Displays or adjusts Q of the selected filter. Click the + or - buttons for incremental changes, or enter a value manually by double-clicking the text window.

Range: 0.5–20
Default: 2.5
Steps: 0.1

NEW



Add a new filter manually by clicking the "+ NEW" button, then adjust as necessary. The new Filter indicator will be assigned the next number after the existing filters.

Default position:
Gain: 0 dB
Freq: 24 Hz
Q: 2.5

DEL



Deletes the selected filter. Filter indicators will move left to close the gap.

Range: On, Off
Default: Off

Graphs

Input Analyzer Curve
The dynamic curve displays the input signal.

Filter Curve

Displays all existing filters, whether added by the SETUP or manually. The values of these filters can be adjusted only with the Adjust Filter controls at the bottom of the frame.

Global Controls

Q



Adjusts the Q globally for all existing filters. When not set to its default value, the control will have a red rim. Q will be reset to the default value every time you activate SETUP.

Range: 0.2–10
Default: 1.0
Steps: 0.1

AMP



Click and drag to adjust amplitude globally for all existing filters. When not set to its default value, the control will have a red rim. AMP will be reset to the default value every time you activate SETUP.

Range: -24 to 24 dB
Default: 0 dB
Steps: 0.1 dB

LINK



When the switch is On, AMP and GAIN OUT are locked together, moving in opposite directions: for example, when AMP is decreased (moves to the right), GAIN OUT is decreased (moves to the left) correspondingly.

GAIN OUT



Adjusts X-FDBK's output gain. Click and drag to control.

Range: -24 to 24 dB
Default: 0 dB
Steps: 0.1 dB

Meters



Input/Output meters: I/O meters feature peak indicators for observing the gain structure. Reset the peak indicator by clicking on it.

Meter Range: -80 to 0 dB

CHAPTER 3: HOW TO USE X-FDBK

When to Use X-FDBK

X-FDBK is designed for "ringing out" monitor or PA speakers before soundcheck. We don't recommend using the plugin's SETUP function during a live show. X-FDBK has the "smarts" to differentiate between complex harmonic sounds and actual feedback. But it cannot distinguish between, let's say, the electric guitar feedback that guitarists love so much, and undesired feedback from a vocal mic. If the detection engine is active during the show, X-FDBK might be triggered by sounds that you do want people to hear.

Basic Workflow

X-FDBK is usually inserted on the L/R Master OUT if used for FOH, and on AUX outs if used for monitors.

1. Set up the basic gain structure: Establish the proper relationship between microphone gain, aux send, channel fader, master out, aux out, and amplifiers.
2. Set the microphone as loud as you can before the system begins to feed back.
3. Activate SETUP on X-FDBK. This activates the detection engine.
4. Boost X-FDBK's GAIN OUT. Slowly. As you boost the volume, feedback will begin to occur at certain frequencies.
5. X-FDBK will start cutting the ringing frequencies by engaging filters.
6. Add 4-6 filters. Stop the detection engine and restore the GAIN OUT to its default position. Most likely your gain before Feedback or Headroom will be increased by 3 to 5 dB.
7. Listen to your microphone chain and test it. From there, adjust to your liking.

You can add more filters by running SETUP again or clicking and holding the ADD button to activate the detection engine. This adds a single filter to the existing curve. You can manually adjust a filter's parameters — Cut, Frequency and Q — using the +/- controls. You can also turn a filter On/Off or delete it altogether.

Add filters by clicking the "+ NEW" button.

Use the Global controls to adjust the Q and amplitude of the all existing filters, and use LINK to boost GAIN OUT by 3-5 dB while simultaneously increasing the CUT amplitude of all filters.

Something important to remember:

X-FDBK is a very powerful tool for controlling and suppressing feedback, but it's not the silver bullet solution for all possible feedback problems.

The plugin is built to provide about 6 dB of additional headroom, which, under proper gain structure, translates to around 6 filters with cuts of up to 8 dB and Q of up to 2.0. Normally, these moderate settings will eliminate feedback. But you are probably asking too much of the plugin if:

- There are more than 12 filters engaged with 16 dB cuts, yet you are still getting feedback.
- Your filters are set to a Q of 0.7 and a cut of -20 dB, and there is still feedback around the filter frequencies.

These are the maximum cut and the widest Q that X-FDBK will provide, so if feedback persists despite these settings, it's likely that the gain structure is incorrect or there is a problem with the sound system itself.

HAVE A GREAT SHOW!