Sonalksis
TBK

Plug-in Operation Manual
For VST, AudioUnit and RTAS technologies

Contents

1: Introduction

2: Adaptive Resonance Technology

3: System Requirements

4: Installation

5: The Interface

6: Operation

7: Preferences and Presets

8: Support

APPENDIX : Specifications

Sonalksis TBK Plug-in

1. Introduction

Welcome to the SONALKSIS TBK audio plug-in for VST, AudioUnit and RTAS host technologies. This manual describes the features, operation, applications and technology of the TBK.

The Sonalksis TBK

The Sonalksis TBK is an ‘adaptive resonance’ multimode filter. This is an entirely new generation of filter with automatic resonance adjustment, according to a user selectable ‘feel’. A standard filter will require the alteration of resonance with frequency to maintain stable sonic attributes. This can make setup complex, adjustments difficult, and makes obtaining a good filter sweep extremely demanding. However the TBK ‘adaptive resonance’ system uses a psychoacoustic model to ensure a faultless sound regardless of filter style, frequency settings or sweep motions.

TBK also contains an adaptive distortion algorithm which adjusts with the filter sweep and type, giving saturation when required, but allowing clean sweeps when needed.

TBK is above all efficient, intuitive and direct - and therefore very simple to use, providing great results with minimal effort when for example you want:

- Slow gentle sweeps - insert on a bus full of elements you want to filter, automate the sweep, and enjoy instant results!
- Massive screaming distorted sounds - If you need that edgy distorted sound for an element, it's only a couple of clicks away.
- Everything in between - TBK is designed to be flexible enough to fulfil your needs whenever you reach for a filter, but without forcing you through a complex interface, or requiring time spent calibrating fine detail. TBK adaptively calibrates itself for you.

The TBK is exceptionally crafted like all Sonalksis plug-ins, and features:

- High quality, analogue-modelled minimum phase filters
- 64bit floating point precision internal processing throughout
- Zero latency – absolutely no internal signal delay whatsoever

2. Adaptive Resonance technology

Filters - swept or static - are used both correctively and creatively, and hence perform a vital function in modern sound and music production. ‘Standard’ filters though have drawbacks when circuit resonance or saturation (distortion) levels are elevated, as these features interact in an uncontrollable manner.

In order to develop an enhanced, intuitive filter more appropriate for audio processing, Sonalksis began with the standard and well-loved analogue filter topologies, and a psychoacoustic model of aural sensitivity (amongst other things).

Distortion caused through saturation of a filter circuitry can not normally be treated as an independent parameter, however isolating this distortion is an essential element in creating the enhanced filter model. By decoupling the filter frequency, resonance and circuit saturation, these parameters can be matched independently and dynamically to a suitable psychoacoustic model to obtain better results in a much simpler fashion.

Through careful research into the way these parameters interrelate with each other within each circuit, an optimal dynamic relationship between these parameters was calculated according to the psychoacoustic model, and a control model then developed – this is what Sonalksis has named ‘Adaptive Resonance’.

3. System Requirements [Native Versions]

In order to install, register and use the TBK, the following minimum system requirements are necessary:

Minimum PC System Requirements	Minimum Mac System Requirements
• Windows XP • Pentium III 600 MHz • 64 MB RAM • XVGA [High Colour 1024x768]	• Mac OS X* • G4 400 MHz • 64 MB RAM • XVGA [High Colour 1024x768]
	*Version 10.3.9 required

For professional audio applications, it is often imperative to be able to run multiple instances of a plug-in simultaneously. Therefore, while the minimum system requirements stated are adequate, faster processors are recommended, as this will allow more instances of the plug-in to be run.

Other Requirements

• Compatible format host software

For example:

Cubase / Nuendo	-	VST format plug-in,
Logic / DigitalPerformer	-	AU format plug-in,
Pro Tools	-	RTAS format plug-in

• A valid e-mail account

Note that in order to register your plug-in for unrestricted use, an unlocking key file will be sent to your e-mail account. This key file must be installed on the same system as the TBK plug-in. Therefore if your host system is not the system you use for your e-mail, you must have the ability to transfer this file to your audio host system.

4. Installation

The TBK plug-in can be obtained by downloading or ordering from the Sonalksis web site www.sonalksis.com, or acquired from a licensed dealer. In order to run and register the plug-in, you require two files:

For the **Mac OS X** RTAS, VST and AudioUnit versions of the TBK you require:

- SonalksisTBK.dmg
- TBK.licence

For the **PC Windows** RTAS and VST versions of the TBK you require:

- SonalksisTBK.msi
- TBK.reg

The first of these files [SonalksisTBK] is the plug-in installation file:

- **if you purchased a boxed CD copy of the plug-in you will find the installer file on the CD**

- **If you purchased the plug-in online you will have been e-mailed a link to download the installer file.**

Select the 'SonalksisTBK' in the appropriate manner for your chosen platform, and follow the on screen instructions. Installation should be a very simple procedure, however if you have any problems please visit our web site for support.

After you have installed the plug-in, you will need to activate it for unrestricted use. To do this you will need the registration key file 'TBK.licence' [Mac version] or 'TBK.reg' [PC version].

- **If you purchased the plug-in online, this registration file will have been sent to your e-mail account shortly after you made the purchase.**

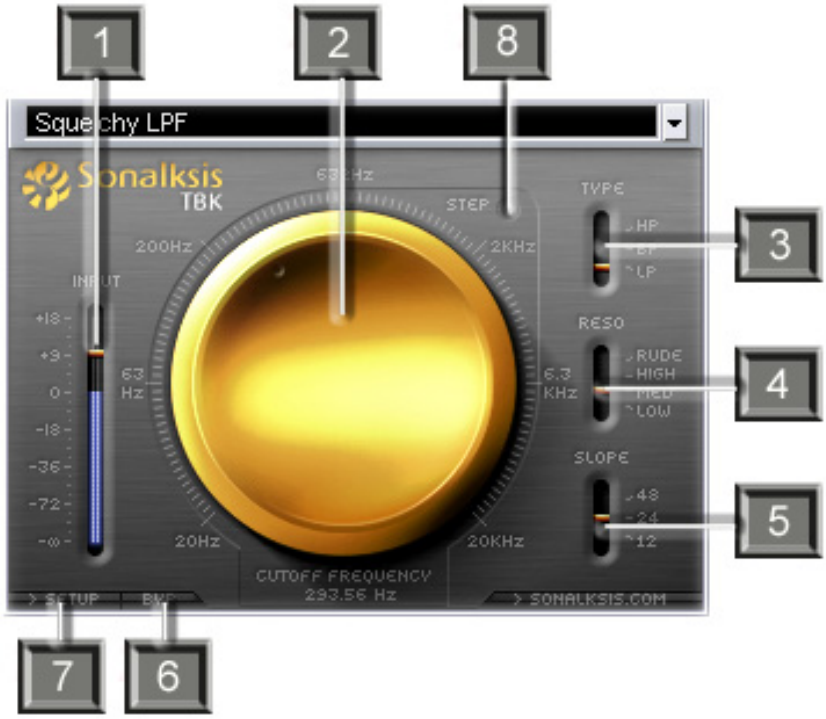
- **If you purchased a boxed CD version of the plug-in, details of how to receive the registration file e-mail will be included with the CD.**

To install the registration file, follow the simple procedure described in the registration file e-mail. Again, if you follow the instructions you should not encounter any problems, but if you require assistance please visit our web site www.sonalksis.com for support.

Once you have registered the plug-in, further software updates can usually be installed without the need to re-register [unless otherwise stated in the update information].

5. The Interface

The Sonalksis TBK interface.



1 - Input Gain: adjusts the signal level entering the processor

2 - Cutoff Frequency: controls the resonant filter cut-off frequency

3 - Filter Response Type: sets the filter type (Lowpass/Highpass/Bandpass)

4 - Resonance: sets the filter resonance 'mode'

5 - Filter Slope: switches between filter gradients

6 - Bypass: switches the filter out of circuit when selected

7 - Setup: click to access the preferences and registration screen

8 - Step: selects/deselects frequency 'step mode'

5.1. Interface Control Methods

Plug-in settings are displayed, metered and controlled through the editor interface window. The primary method of changing plug-in parameters is to alter a 'Control' setting on the interface. A 'Control' can be any one of the following:

- a circular knob
- a linear slider
- a button/switch
- a numerical 'text-display'

Button type controls can simply be clicked with the mouse at the appropriate point to select a respective setting. To change knob, slider, or text-display control settings, click and drag the mouse. There are two distinct control modes when moving circular knob controls:

- Circular Mode

  In order to move the knob when it is in 'Circular Mode', the control must be selected close to its 'pointer', and dragged in a circular motion clockwise or anticlockwise to increase or decrease the value of the parameter.
- Linear Mode

  When the knob is in 'Linear Mode', it can be 'grabbed' by clicking anywhere on the knob, and movements of the mouse vertically either up or down will increase or decrease the value of the respective parameter.

The default knob mode is set via a user preference (see section 7).

A control may be reset to its default value as follows:

- *Any control can be set to its default value by holding the 'Ctrl' key [PC] or 'Apple/Command' key [Mac] before clicking it with the mouse.*

5.1.1. Control Automation

Unless otherwise stated, all Sonalksis plug-in interface parameters may be automated - refer to your host software documentation for details on automation modes and procedures.

6. Operation

This section describes the general operation and functions of the TBK, beginning with an explanation of the concept behind the adaptive resonance multimode filter.

Filters are used both correctively and creatively with audio, and hence perform a vital function in modern sound and music production. The TBK is a new generation of filter, using ‘adaptive resonance’.

All standard filters require the alteration of resonance with frequency to maintain stable sonic attributes: alter the frequency and to achieve the same ‘sound’ the resonance must also be adjusted. However altering the resonance can affect the saturation of the filter circuit in unwanted ways. All this can make accurate adjustments difficult, and makes obtaining effects such as good filter sweeps demanding.

By decoupling the filter frequency, resonance and circuit saturation, these parameters can be matched independently and dynamically to a suitable psychoacoustic model to obtain better sounding results in a much simpler fashion.

‘Adaptive Resonance’ is the technology in the TBK that controls the interaction between frequency, resonance and distortion (saturation) with respect to a psychoacoustic model, in order to give an improved sonic aesthetic regardless of filter style, frequency settings or sweep motions.

The ‘Adaptive Resonance’ is an automatic technology, so the TBK interface is made very simple yet very effective. Using TBK requires nothing more than choosing the type of filtering, selecting the severity of the filter slope, and picking the ‘mode’ that feels right. With this done, the cutoff can be set or swept.

Sensitive to the many applications of filters, a number of different resonance ‘modes’ have been developed. The four modes available on TBK, when used in combination with the other settings, enable a large assortment of sounds to be achieved with a minimal set of parameters - all thanks to the ‘adaptive resonance’ technology.

6.1. The Multi-Mode Filter

The CUTOFF frequency dial is the primary control for TBK. At the full counter-clockwise position, it sets the filter to cutoff at 20Hz. The full clockwise position sets to a 20KHz cutoff.

For high-pass and low-pass filters, the CUTOFF determines the point below or above which the filter begins to roll-out frequencies. For band-pass filters, the CUTOFF determines the frequency at the centre of the pass-through band.

The TYPE switch allows selection of the type of filter to be used. HP selects High-pass, BP selects Band-pass and LP selects Low-pass. A High pass filter passes through frequencies above the cutoff, and reduces those below. A Low pass filter passes through frequencies below the cutoff, and reduces those above. A band-pass passes through frequencies either side of the cutoff, and reduces those further away, above or below.

The filter resonance mode selects the style or ‘feel’ of the filter resonance. LOW is best for gentle unobtrusive filtering. MED adds a degree of piquancy to the filtering, and reflects the most usual ‘filtered’ sound. HIGH provides a more aggressive effect, typical of an ‘effect’ filter. RUDE provides a massively distorted screaming filter sound, typical to an analogue filter heavily overloading; this effect cannot be ignored, and we accept no liability for the results of its use, not limited to the perceived intent to make music to offend.

The SLOPE switch selects the gradient of filter roll-off away from the cutoff frequency, measured in decibels-per-octave. 12 gives a standard ‘2-pole’ filter. 24 produces an intense rolloff, such as a dedicated analogue filter. 48 provides a very rapid rolloff which can be used for surgical purposes, or in conjunction with high resonance settings to provide extreme emphasis in the filter sound.

The Step option allows the user to centre the cutoff frequency on a note from the chromatic scale [with ‘A’ tuned to 440Hz]. When Step mode is active (highlighted blue) the cutoff frequency is quantized to a selected note, so that a specific note can be emphasized or any content above or below a certain note can be removed trivially.

6.2. The Input Section

The ‘Input Section’ consists of an input level fader/slider and a meter that monitors the signal level post-fader.

The Input Gain fader is used to change the level of the input signal. The gain structure within TBK is calibrated so that the output gain is compensated to match the input level regardless of input gain setting; therefore no output level adjustment should be necessary.

The Bypass 

button switches the entire filter in or out of circuit. When bypassed, the meter will become inactive as an indication of the bypassed state. The Bypass control may be used for simple ‘In/Out’ comparisons, or automated to effectively switch the filter on or off during use.

The Bypass in the TBK should be used in preference to any ‘audio host’ bypass as it will guarantee glitch-free in/out transitions, thanks to the use of high quality cross-fade circuitry.

7. Preferences and Presets

7.1 Presets

The control parameters in the TBK are efficient, intuitive and direct. Consequently the presets on offer are simple and relatively few. Users can access the built in presets via the audio host.

Individual presets or banks of presets may be created, stored and recalled if your plug-in host supports this feature - please refer to your host software guide for further details.

7.2 Preferences

The user preferences may be accessed by means of the 'SETUP' 

button on the bottom left of the interface. Click the button first to access the preferences, and again to exit the setup screen once the preferences are set.

All preferences are stored and recalled according to the user logged into the host system; therefore a unique set of preferences is maintained for each system user.

When the SETUP mode is entered, two internal pages are accessible via the heading tabs. The first of these pages relates to control and display preferences. The second page - accessed by clicking on the 'registration' tab - displays details about the registered user and the software version.

7.2.1 Control / Display Preferences

These preferences relate exclusively to interface control or display settings.

- **Knob Motion** - sets the default knob mode.

  In order to move the knob when it is in 'Circular Mode', the control must be selected close to its 'pointer', and dragged in a circular motion clockwise or anticlockwise to increase or decrease the value of the parameter.

  When the knob is in 'Linear Mode', it can be 'grabbed' by clicking anywhere on the knob, and movements of the mouse vertically either up or down will increase or decrease the value of the respective parameter.

- **Frequency Display When Stepped –** when 'Hz' is selected, the cutoff frequency is always displayed in Hertz, even when STEP mode is selected. When NOTES is selected, the filter cutoff will be displayed in musical-scale note format when in STEP mode.

8. Support

Please visit our web site www.sonalksis.com to find the latest product information and obtain free software updates. If you are a registered user you will automatically receive information about new releases and products.

Should you encounter any difficulties when installing or using our products, you should contact your dealer in the first instance. If you purchased directly from Sonalksis, we ask that you ensure you have fully read all appropriate product documentation (including this user manual) before you contact us.

If you are unable to resolve your problem after reading the documentation, you may find the solution to the issue if you view the support forum on our web site. You can also contact us directly for assistance via e-mail at support@sonalksis.com.

When contacting Sonalksis please quote your product registration code in all correspondence.

Web:	www.sonalksis.com
E-mail:	support@sonalksis.com
Tel:	+44 (0)870 7660303
Address:	Sonalksis Ltd. Mariners House Queens Dock Business Centre 67-83 Norfolk Street Liverpool L1 0BG England

APPENDIX : TBK Specifications

TBK Supported Sample Rates:

- 44.1 kHz
- 48 kHz
- 88.2 kHz
- 96 kHz
- 176.4 kHz
- 192 kHz

TBK Control Ranges:

Filter Response Type/s	Cutoff Range	Filter Slopes	Resonance Modes
Low Pass Band Pass High Pass	20Hz to 20kHz	12dB/oct 24dB/oct 48dB/oct	'Low' 'Med' 'High' 'Rude'