Sound Configure

User's Guide

Revision 1.07

Darim Vision Co., Ltd.

Limited Warranty

Our company warrants this product against defects in materials and workmanship for a period of one year from the date of purchase. During the warranty period, products determined by us to be defective in form or function will be repaired or replaced at our option, at no charge. This warranty does not apply if the product has been damaged by accident, abuse, misuse, or as a result of service or modification other than by us.

This warranty is in lieu of any other warranty expressed or implied. In no event shall we be held liable for incidental or consequential damages, such as lost revenue or lost business opportunities arising from the purchase of this product.

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1 Introduction

At creation of multimedia product frequently there is a need to collect sound signals from various sources in one or several signals. For example, to connect together music and a vocal, in addition to impose on a sound some sounds from other sources, etc. Tasks sorts of operator are very extensive. The *Sound Configure* application allows to solve one of them – mix in real time of several audio signals from various sources. Besides for output audio signals it is possible to set time of delay in milliseconds.

VS2000 has 6 mono inputs and 6 mono outputs. Inputs and outputs are grouped in stereo pairs (Figure 1). For each of inputs it is possible to set independently time of delay, input volume level and input balance, and also to direct a sound from it on any of outputs stereo. For each output stereo pair it is possible to set a volume level and balance.

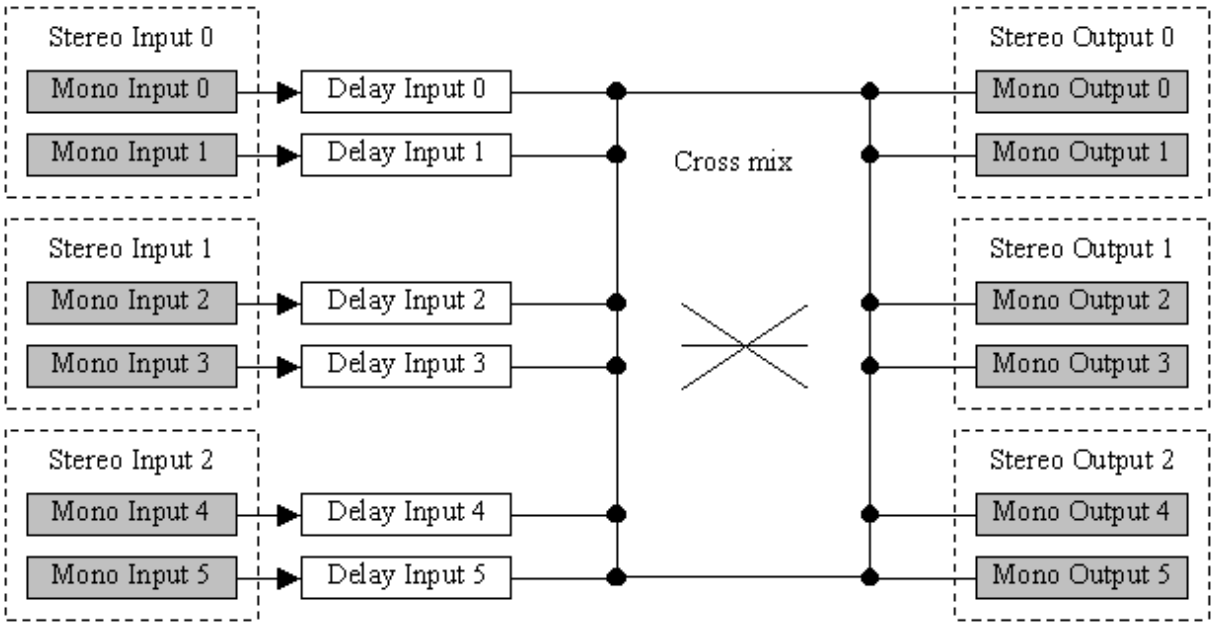

Figure 1. The diagram of sound mixing

The audio subsystem of *VS2000* has the standard audio mixer accessible to control through a standard volume level regulator. This mixer allows operating volume level of the following system audio devices working with board:

- digital reproduction of compact disc (**CD Player** – it is accessible if it is allowed in system);
- standard device **Wave**;
- program musical MIDI-synthesizer (**SW Synth**).

The given user's guide is intended for the user working with sound card *FD300*, and describes the interface of *Sound Configure* application.

2 The main window of *Sound Configure* application

After *Sound Configure* application start the main window *FD300 Sound Control* is showing (). Its appearance is approached to standard mixer control panel, which are used in usual sound studios.

The main window contains 4 parameters groups:

- input signals control (see 3);
- standard audio PC devices control (see 3);
- output signals control (see 5);
- application settings (see 5).

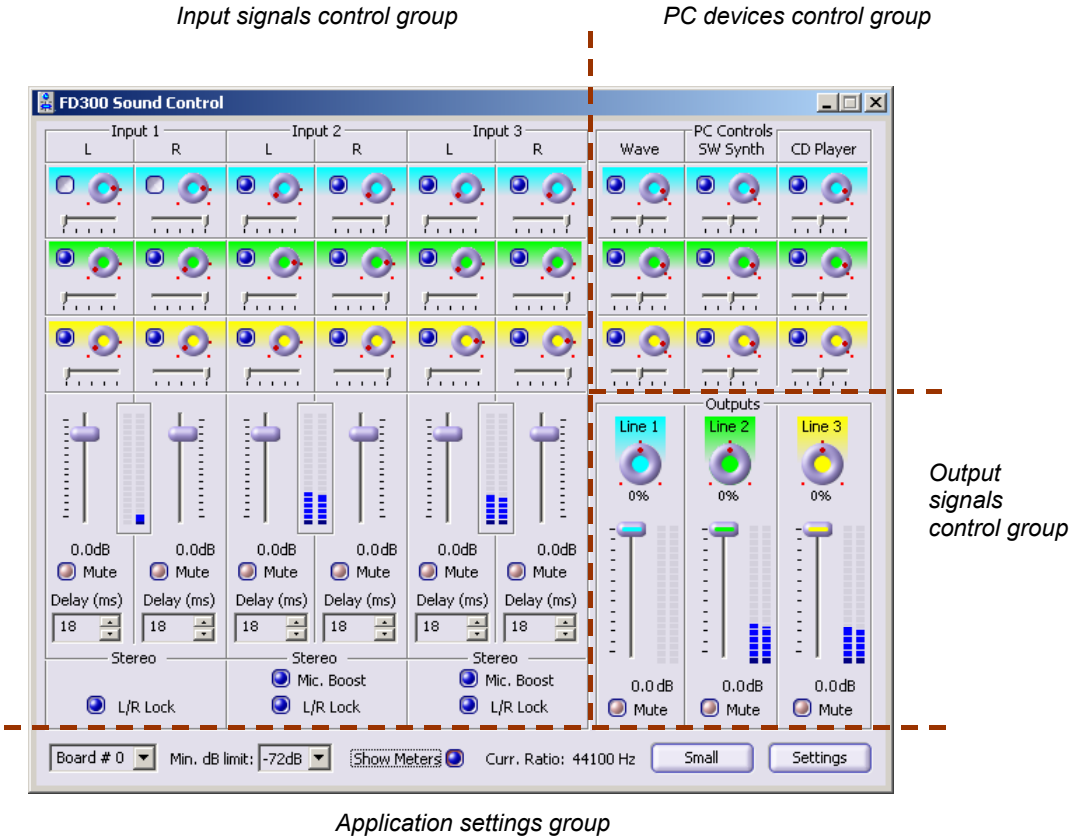

Figure 2. The main window of *Sound Configure*

Input and output signals are conditionally divided into pairs and designated **Input 1**, **Input 2**, **Input 3** and **Output 1**, **Output 2**, **Output 3** accordingly. Inside each pair signals share on left and right (**L** and **R**). Identical elements of management are located in input and output signals control groups (from below upwards) (Figure 2):

- combo-box **Delay (ms)** – a delay in milliseconds;
- check box **Mute** for signal switching on/off;
- vertical slider of volume level, moves upwards/downwards;
- the round balance handle.

Except for it three more output volume level handles with combo-boxes are in the input signals control group.

The control elements of the standard sound devices PC are located in the right top part of the main window.

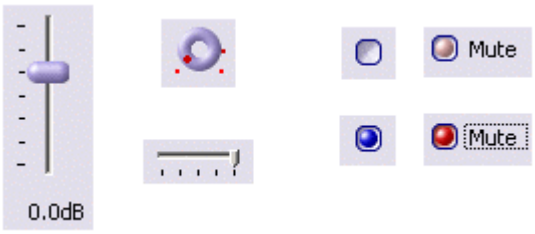

Figure 3. Check-boxes and control handles

The settings application group is located in the bottom part of main window. In more detail all groups of parameters are described below.

3 Input signals control

The input control elements are in the left top part of main window of the *Sound Configure* application. The control inputs group **Input 1, Input 2** and **Input 3** with the instruction of control various mixing operations zones is in Figure 4:

- the control input signals parameters zone (see 3);
- the mixing input signals zone (see 3.1);
- the switching on/off stereo mode and signal amplification zone (see 3.2).

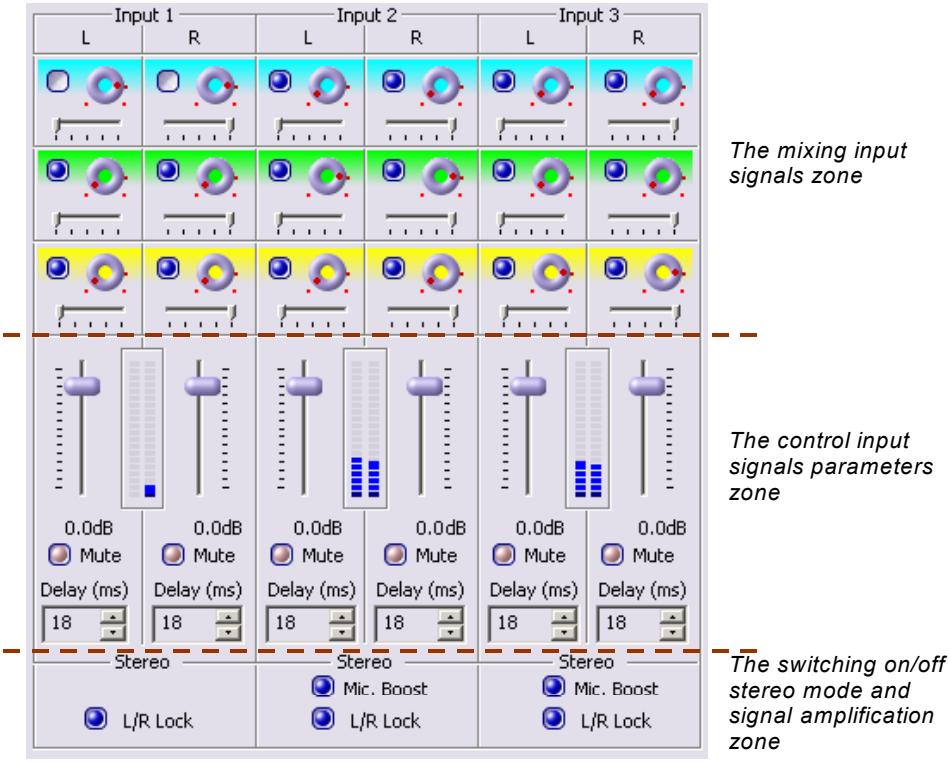

Figure 4. Control input signals zones

Each of six mono inputs has the following control elements located in an average part of control input signals group (Figure 4).

- The **Delay (ms)** combo-box. The delay time is measured in milliseconds; the top limit reaches 999 ms (up to 1 second) (Figure 5). There is a bottom hardware delay limit, to which there is a transfer of external signals on output channels. Below this level to set a delay it is impossible. To change the delay value probably as from the keyboard, having entered value it is direct in a delay combo-box, and by the mouse, pressing on the buttons located in the right party of a delay combo-box.

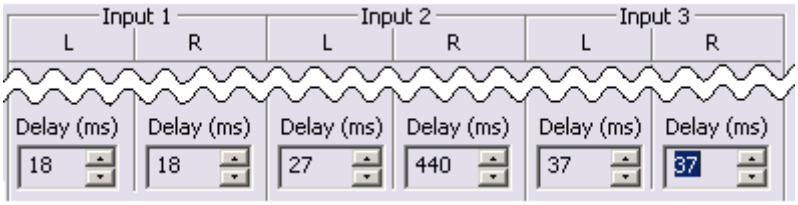

Figure 5. Delay using for input signals

- The **Mute** check box for switching on/off of a signal. To switch off this or that input signal from mixing process it is enough to include corresponding switch **Mute** by the mouse. It will allow to exclude the given signal from the further processing (Figure 6). For signal inclusion in processing it is enough to switch off this switch.

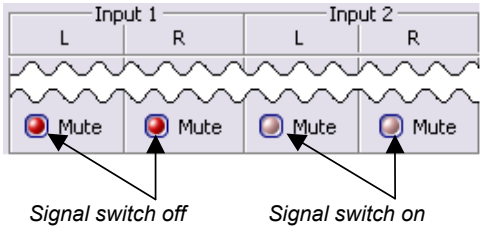

Figure 6. Input signals switching on/off

- Vertical slider of volume level; for volume level change it moves upwards/downwards. The range of volume level change is from +12 dB up to-96 dB that corresponds to change of signal volume level from 4 multiple increases before practically full switch off (Figure 7). Change of volume level is made by means of the mouse. The current volume level is specified under the setting handle.

For sensitivity change of volume level regulator, for example, at work with loud signals in the given application the opportunity of change of volume level scale (see 6) is provided.

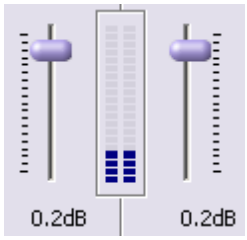

Figure 7. Vertical slider and indicator of input volume level

- The round balance handle and three output level handles with keys. For example, if the top key was switched on, the sound from the corresponding input will be directed on output stereo 1 with output volume level that was settled by the output level handle at the right of key. The second key and the output level handle operate a sound output to the second output stereo, etc.

Between tuning volume level handles for the left and right signals the volume level indicator of signal from the corresponding source is located. Concerning a standard audio range it is possible to judge input signal power on color palette of the signal power indicator – from faint signal up to critical level when distortion of a signal (Figure 8) is possible.

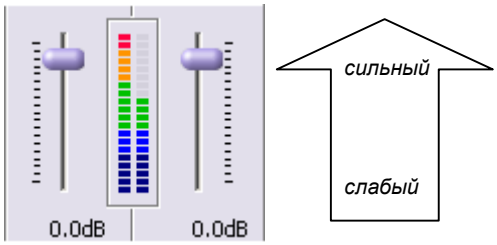

Figure 8. Colors of the signal power indicator

The **Show meters** option in the settings application group in the bottom part of the main window (see 6) is for switch on of the volume level indicators.

3.1 Input signals mixing

In the top part of input signals control group locate necessary elements for signals mixing. Application *Sound Configure* allows to define, with what volume level in each output channel each input signal will be audible.

Each of input signals can be transferred to any of three output lines. For this purpose it is enough to switch on by the mouse the switch corresponding to the chosen output channel. The color palette allows to define number of the output channel on which transfer of a signal is carried out. Color is identical at a background of the output channel and a background of settings input signals (Figure 9).

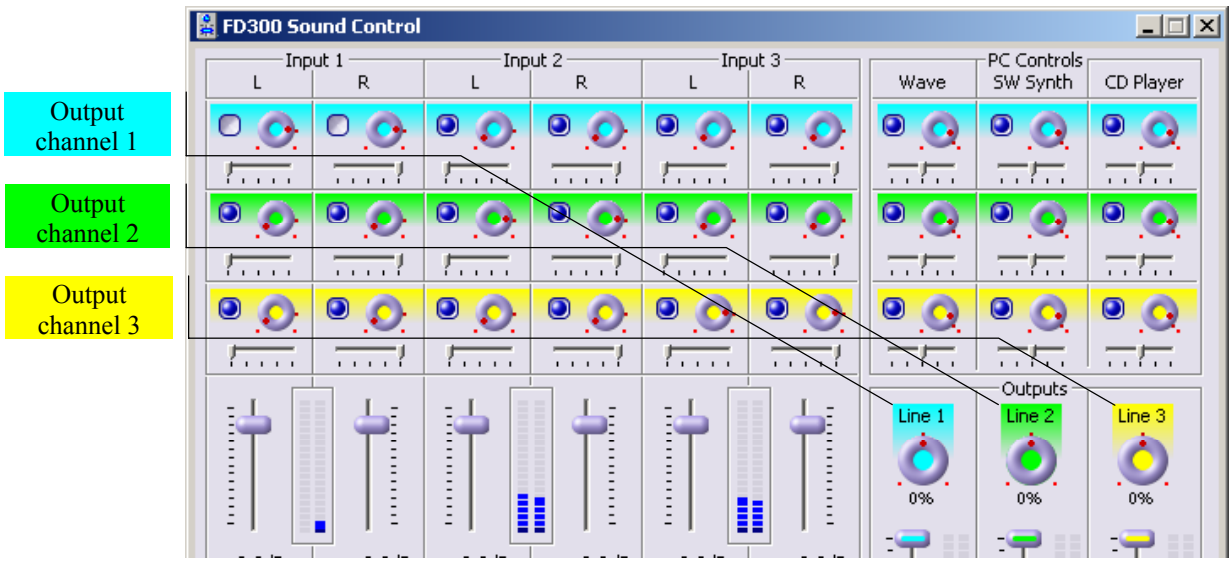

Figure 9. Visual definition of output channel

The pop-up prompting about input signal number and output channel number appears at induction of cursor mouse on switch (Figure 10).

Figure 10. Transmission of second right input signal to second output channel

The volume level handle realizes the volume level control of transmission of input control to output channel. The range of volume level change is up +12 dB to –96 dB (from 4-fold increase in a signal before practically full switching off a signal). Points in the bottom of the settings handle designate the bottom and top range limit of volume level change. The point between them designates a zero (normal) volume level – absence of volume level change (Figure 11).

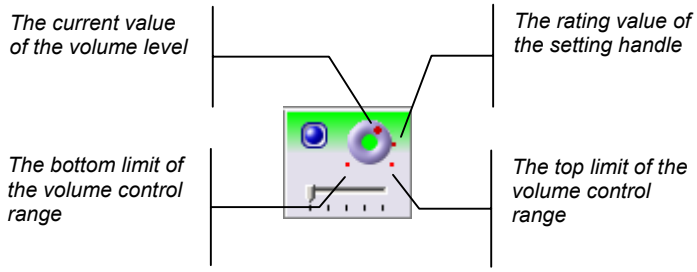

Figure 11. The volume level change of input signal at transmission to output channel

At prompting the mouse cursor on the control handle the cursor changes the appearance from an arrow to a hand. The information on numerical value of external input signal volume level on the given output can be received, having brought the cursor to the control handle and keeping it two seconds.

The volume level change is carried out by means of the mouse cursor: guide the mouse cursor on the control handle and, keeping the mouse left button, move the cursor to the left or to the right. Thus in the screen during all volume level change the pop-up prompting about numerical value of volume level input signal at transmission to output channel and output channel number will be displayed (Figure 12).

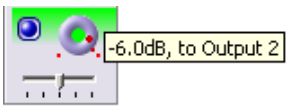

Figure 12. The pop-up prompting about volume level input signal at transmission to output channel

At volume level scale change control sensitivity of the top part of a scale changes.

For sensitivity change of a volume level regulator, for example, at work with loud signals in the given application the opportunity of change of scale of a loudness scale (see 6) is stipulated.

At transmission input signal on the output channel it is possible to make balancing between right and left output channels by the control handle (Figure 13, Figure 19). For this purpose it is enough to switch on the chosen output channel. To define its number you can by the color palette, identical at a background of the output channel and a background of settings input signals (Figure 9).

Besides at induction the mouse cursor on the switch there is the pop-up prompting about number of input signal and the output channel (Figure 10).

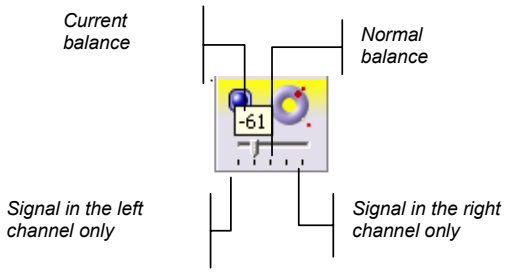

Figure 13. The pop-up prompting about output channel switch on/off

3.2 Work with stereo pair

On an external input of *VS2000* the stereo signal can be given. Thus it is desirable, that the source of stereo pair has been connected to the left and right channels of one of inputs (**Input 1**, **Input 2** or **Input 3**). In this case adjustment of stereo pair is made, instead of the right and left signals separately. Located in the bottom part of input signals control group keys **L/R Lock** allow to operate inputs as in three stereo pairs (Figure 14).

Figure 14. Switches in the stereo mode, microphone amplification

Each pair input signals can be used as one stereo signal or as two independent mono signals. For example, if to switch on option **L/R Lock** for inputs 1 and 2 control parameters of volume level, balance and delay will be the general for both inputs and, accordingly, will simultaneously change.

At change of stereo pair volume level the difference of levels of loudness of the left and right signals of this stereo pair is kept. At switching-off of option **L/R Lock** parameters left and right mono signals are settled independently from each other. It is possible to make also setting of the left and right signals of stereo pair separately, and then, having united their inclusion of option **L/R Lock** in one stereo pair to make setting of the stereo pair. Thus the relative difference in parameters between left and right signals will be saved (Figure 15).

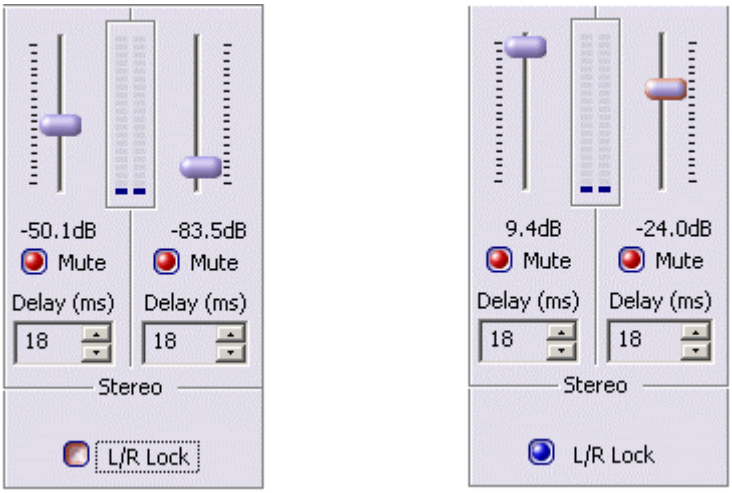

Figure 15. Synchronous volume level change in stereo mode

The **Mic. Boost** key is for input signals 3,4 and 5,6 (Figure 14). Switch on of this option allows to make hardware amplification of input signal on 20 dB and further to work already with an amplified signal. Such amplification is widely used, for example, at work with microphone. However it is necessary to take into account, that amplification is possible only for 2-nd and 3 stereo pairs and simultaneously for the left and right signals.

4 Sound devices PC control

The *Sound Configure* application allows to make mix not only sound signals from external sources, but also signals from system sound devices of a computer to which *VS2000* is connected (a compact disc of CD Player; the standard Wave-device, MIDI-synthesizer SW Synth). Further in the text signals from the listed system devices we shall name internal input signals. The sound subsystem of *VS2000* has the standard sound mixer accessible to control by standard volume regulator.

In the right top part of the *Sound Configure* main window the sound internal input control group **PC Controls** is located. Control elements of this group allow to make balancing between right and left channels, to control signal volume (from 0 dB up to-96 dB) and also to disconnect a signal from transmission on any output channel (Figure 16).

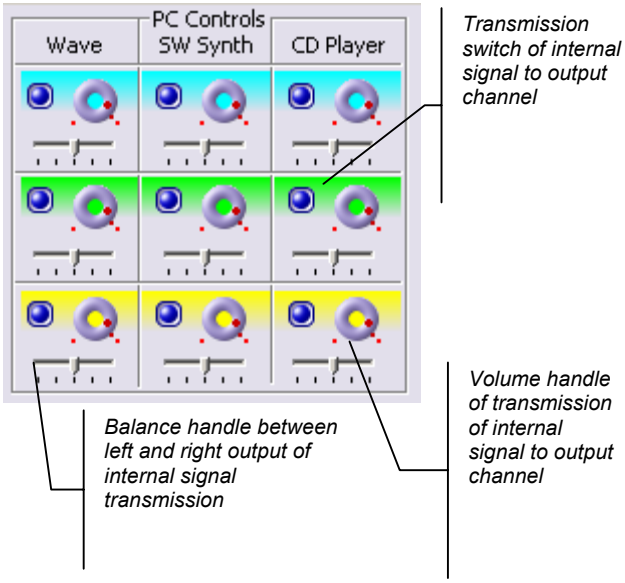

Figure 16. The internal input signals mixing

At change of control handles positions there are the pop-up prompting giving the information about volume level of signal on the given output channel and about output channel number for which signal control is making (Figure 17).

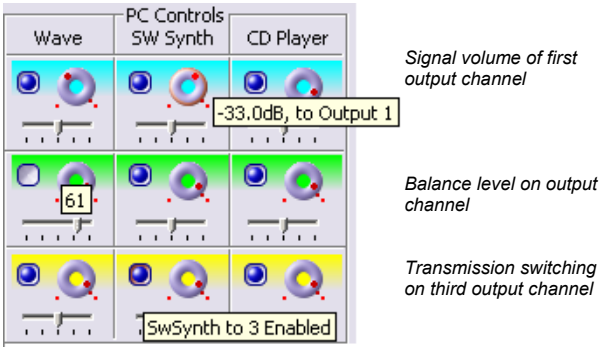

Figure 17. The pop-up promptings

To define output channel number for which transmission of input signal is making you can by the color palette (Figure 18).

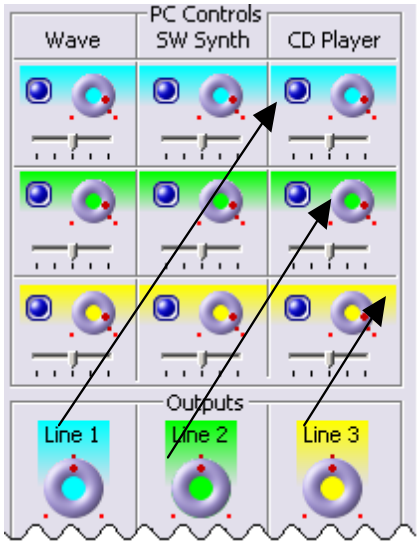

Figure 18. Visual definition of output channel

For sensitivity change of volume regulator, for example, at work with loud signals in the given application the opportunity of scale volume change (see 6) is stipulated.

5 Output signals control

The elements of output control are in the right bottom part of the *Sound Configure* main window (Figure 2). All resolved input signals mix to output channels.

You can with output signals as with signals stereo. Setting is made simultaneously for the left and right channels of signal stereo. For each output signal it is possible to set a volume level, to change balance and completely to switch off signal (Figure 19).

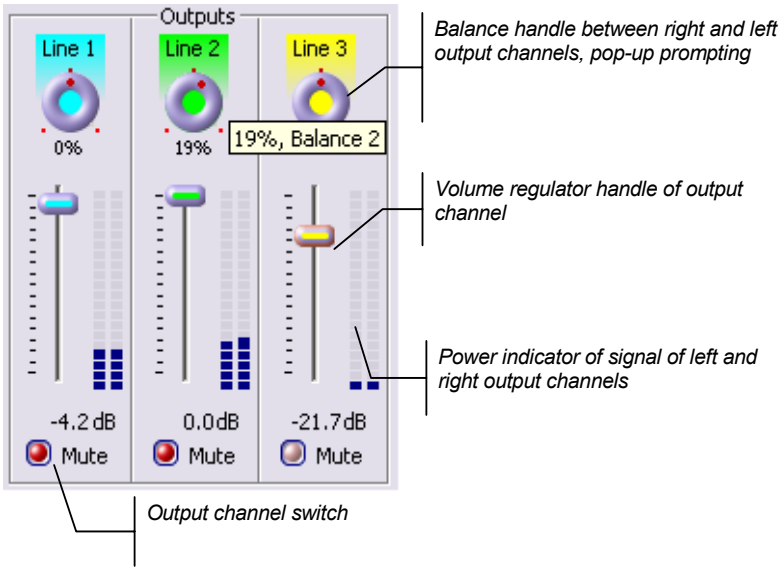

Figure 19. Output signals control

Each of the stereo outputs has the following control elements:

- the **Mute** check box for stereo output switching off;
- vertical slider of volume level; for output volume level change it moves upwards/downwards;
- the balance handle between right and left outputs.

For sensitivity change of volume regulator, for example, at work with loud signals in the given application the opportunity of scale volume change (see 6) is stipulated.

6 Application settings

The *Sound Configure* application settings group was placed in the bottom part of the main window. (Figure 14,Figure 20).

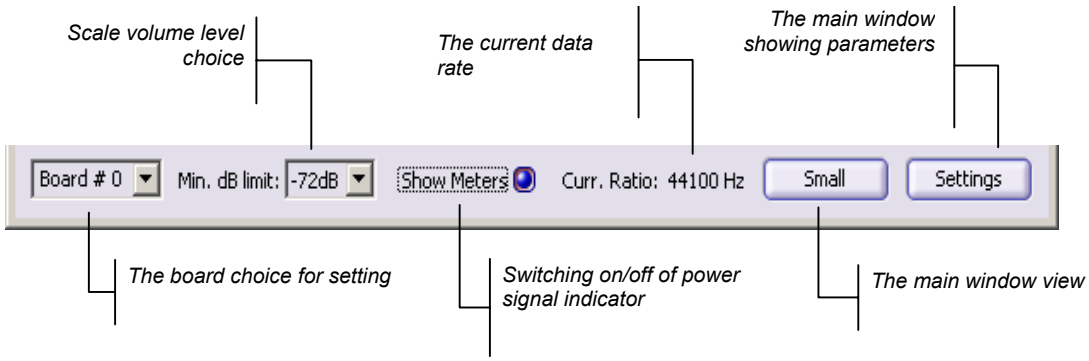

Figure 20. The *Sound Configure* application settings

- In the drop-down list **Board #** (Figure 21) you can choose necessary board number for the further work.

Figure 21. The *FD300* board choice

- In the drop-down list **Min. dB limit:** (Figure 22) you can choose range of volume change on all inputs and outputs. Possible range of volume signal change, allowable in the *Sound Configure* application – from +12dB up to -96dB for external input channels, and from 0dB up to -96dB for internal and output channels. But during work there is a need of more exact of signal regulation, especially in the top volume range. For this purpose in drop-down list **Min. dB limit:** the new bottom limit of scale volume gets out. **0 dB** corresponds to a maximum volume level – extreme top position of slider.

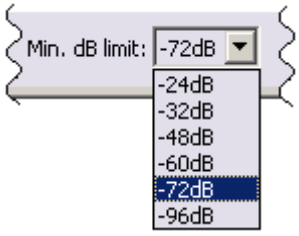

Figure 22. Scaling choice of volume level handles

The choice of new bottom scale border is showing in all volume regulators located in the basic window, and also on all power signal indicators. Control volume handles will move on new positions, according to the current volume level and new scale (Figure 23).

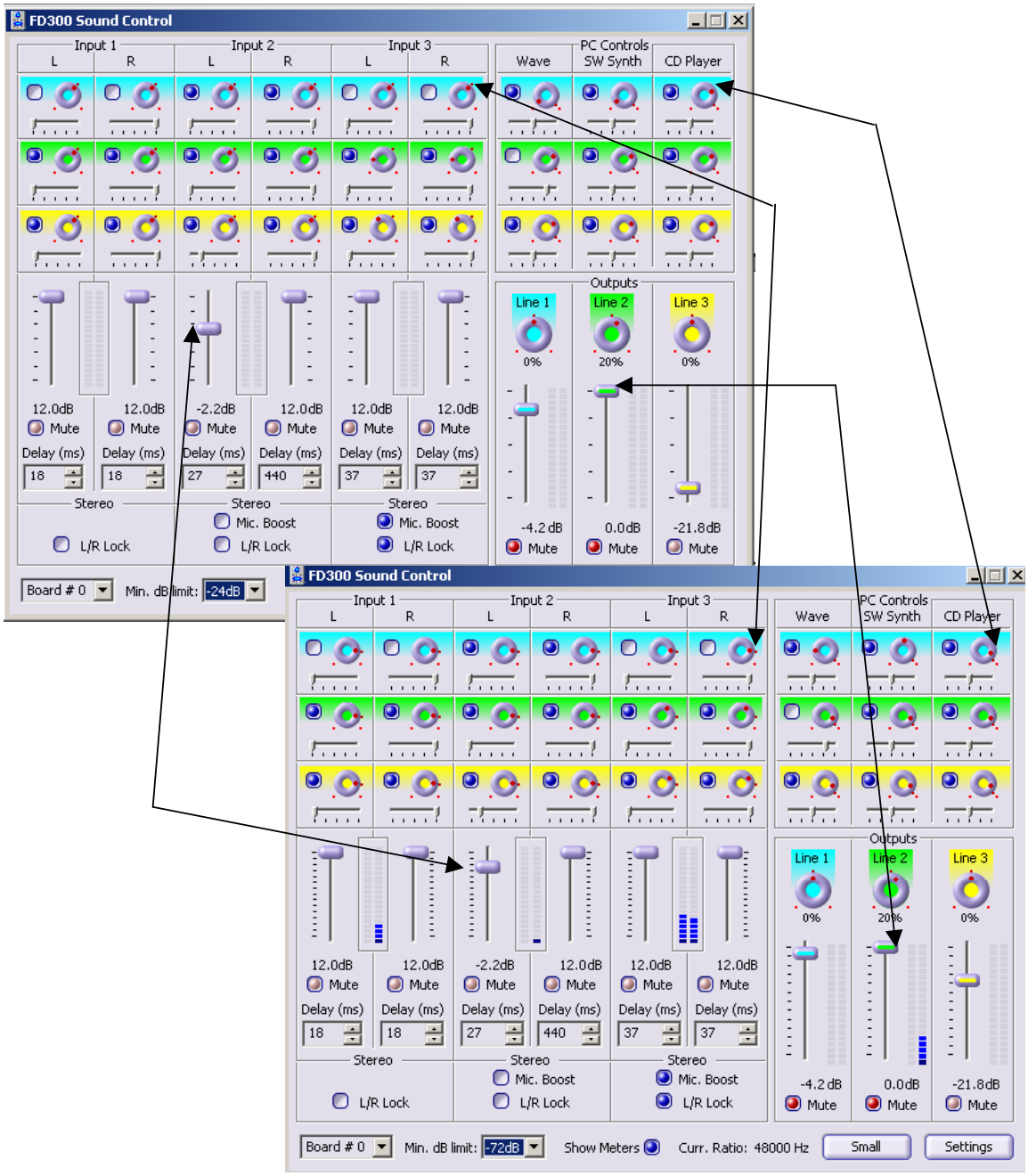

Figure 23. The bottom border changing of volume scale

In situations when the volume signal level goes down below current bottom scale limit, the control volume handle goes down to the scale bottom (Figure 24). At attempt to change volume level of such signal there will be a spasmodic transition of volume signal level in a working volume scale range that can be accompanied by «click» of this signal (spasmodic volume signal change).

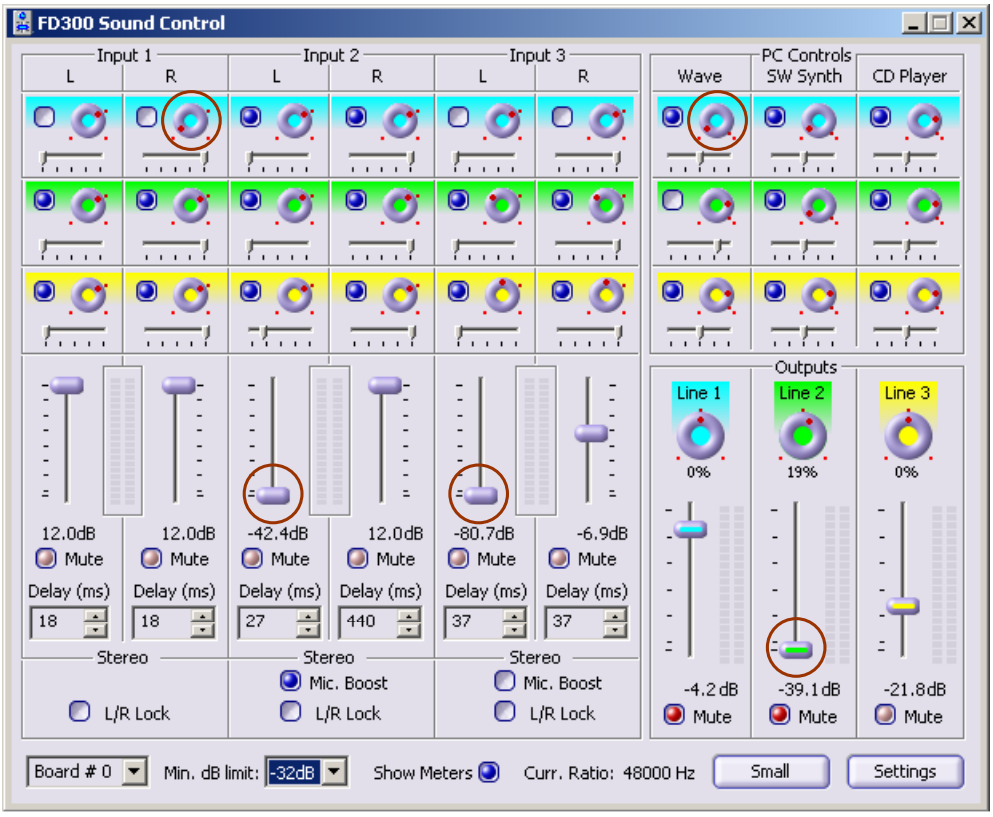

Figure 24. The position change of control handles

- The check box setting **Show Meters** switches on the showing of the volume indicator to the right of volume level slider on inputs/outputs.
- Parameter **Curr. Ratio:** displays the current audio data rate (in Hz). The data rate of input audio signals coincides with output signals data rate.
- Click on the **Small** button decreases the application main window (Figure 25). There are only the volume control handles of input and output channels and application settings parameters. The small view is convenient for using, when directly mix is already adjusted, and audio data stream control is carried out at volume level control of sound signals. The button **Advanced** returns to the basic window its original form (Figure 2).

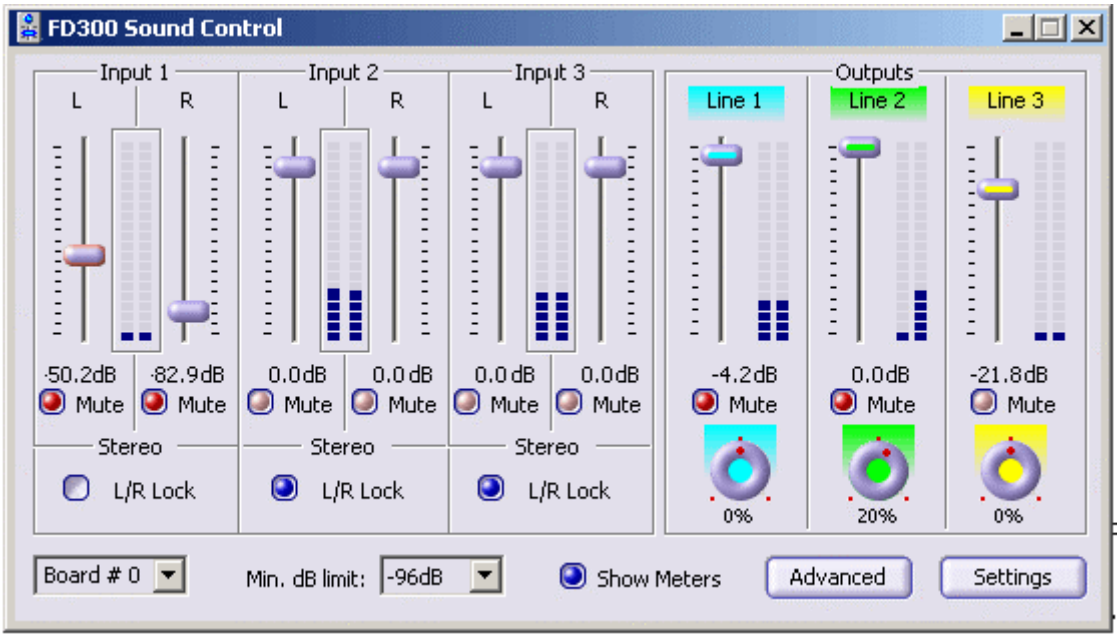

Figure 25. The «small» main window

- The **Settings** button opens the *Sound Configure* dialog (Figure 26). In this dialog you can choose some variants of arrangement of main window *Sound Configure* application on the desktop:
  - **Minimize to Tray**. In inactive condition the main window is turned off up to the pictogram which will settle down in right corner of the task panel.
  - **Always on top**. The main window settles down always atop of all other windows on desktop.
  - **Start minimized**. At start the main window is displayed as the button on the task panel.

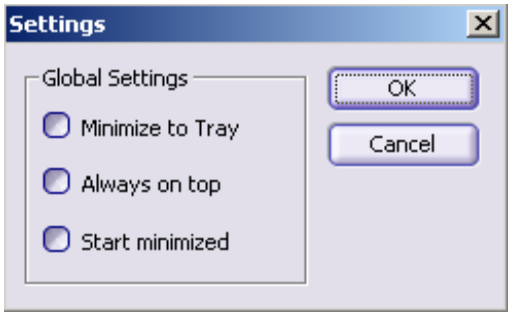

Figure 26. The *Settings* dialog