



Guitar Rig

KONTROL



Manual



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Special thanks to the Beta Test Team, who were invaluable not just in tracking down bugs, but in making this a better product.

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1 Welcome to the World of GUITAR RIG!

GUITAR RIG KONTROL is the complete solution for guitar and bass players. The stage-ready RIG KONTROL foot pedal integrates seamlessly with the GUITAR RIG software and provides studio-quality sound with its built-in audio interface. It is designed and optimized for GUITAR RIG, but as it complies with industry standards and features full MIDI support, it works perfectly with most professional audio software.

The RIG KONTROL connects to your computer via high-speed USB 2.0, which also provides its power supply. It features two inputs, suited either for instrument or line level signals. A two-channel line-out connects to your monitoring system, and a stereo jack allows for headphone monitoring at an independent volume.

As a controller, the RIG KONTROL offers nine switches and a pedal, giving you control over almost all of GUITAR RIG's functions. Moreover, it features MIDI connections as well as two analogue inputs to connect external controllers.

In the following chapters, you will learn more about the RIG KONTROL and how to make the best use of it. Please read this manual carefully in order to get acquainted with the product.

2 Before You Start – Important Notes

First things first; before using GUITAR RIG, it is advised that you read this chapter carefully.

2.1 Serial Numbers and Nameplate

GUITAR RIG Kontrol comes with two serial numbers. The RIG KONTROL's serial number can be found on the bottom of the hardware, along with the nameplate listing the product model name and other technical information. The serial number for activating GUITAR RIG is located on the sleeve of the product DVD.

2.2 Using the Unit Safely

Please read the following instructions thoroughly to prevent from health risks and damaging the product.

2.2.1 Warning

To prevent hearing damage, please observe the following warnings:

- This Product, in combination with an amplifier, headphones, or speakers can produce sounds in decibel ranges that may cause hearing damage.
- For protection, set all volume levels to a minimum before using the RIG KONTROL. Gradually raise the volume controls while music is playing to set the desired listening level.
- Do not operate it at high volume levels for long periods. If you experience any hearing problems or ringing in the ears, consult an audiologist immediately.

2.2.2 Caution

To make sure that the RIG KONTROL or any device connected is not damaged during usage or maintenance, it is important that you observe the following rules:

- Do not open the device or attempt to disassemble or modify the internal parts. The device contains no user-serviceable parts. If it appears to be malfunctioning, discontinue use immediately and have it inspected by qualified service personnel.
- Do not expose the unit to rain, use it near water or in damp or wet conditions.
- Do not allow any objects or liquids of any kind to penetrate the unit.
- Never use or store the unit in areas that are subject to temperature extremes (e.g., direct sunlight in an enclosed vehicle or near heat-generating equipment) or high levels of vibration.
- Do not place the RIG KONTROL in an unstable position where it is possible the unit could accidentally fall. Remove all connected cables before moving the unit.
- Before turning the power on or off for any component, set all volume levels to their minimum.
- Do not use excessive force on the knobs or connectors.
- When cleaning the RIG KONTROL, use a soft, dry cloth. Never use paint thinners, solvents, cleaning fluids or chemical-impregnated wiping cloths.

2.2.3 Disposal Notice

Should this product become damaged beyond repair, or if you wish to dispose it, please observe the regulations of your area and country that relate to the disposal of electronic products.

2.3 Disclaimer

Native Instruments GmbH cannot be held responsible for damage or lost or destroyed data caused by improper use or modification to the RIG KONTROL.

The information contained in this manual is believed to be correct at the time of printing or digital release. However, Native Instruments reserves the right to make changes to the specifications at any time without notice or obligation to update existing units.

3 The RIG KONTROL Hardware

This section will give you an overview of the RIG KONTROL hardware.

3.1 Top Panel

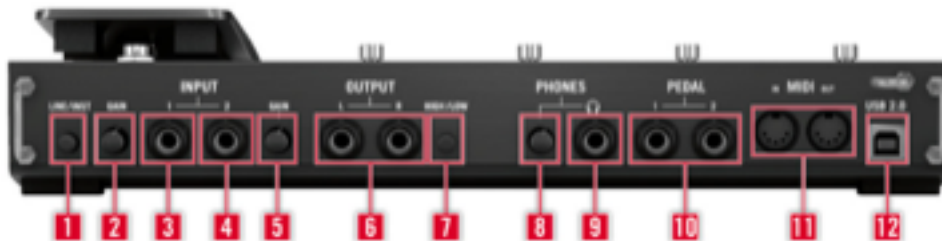


The RIG KONTROL's top panel.

(1) The footswitches can be assigned in the software to perform tasks such as stepping through presets, or turning individual components on and off. Each switch has an LED to indicate whether it is activated. The top row is labeled with the most frequently used functions of GUITAR RIG, matching their pre-configured assignments.

- (2) The expression pedal can be used to control any continuous parameter of the software, such as volume or wah-wah. There is an additional freely assignable switch underneath the tip of the pedal.
- (3) Shows the number of the currently activated preset.
- (4) This LED-Meter shows the level of the audio signal at the input. The red LEDs indicate clipping and should never light up. Turn the according input gain down if it does.
- (5) This LED-Meter shows the level of the audio signal at the output. The red LEDs indicate clipping and should never light up. Turn the output level down if it does.
- (6) This LED indicates that the RIG KONTROL is receiving MIDI signals from a sequencer or from another controller.
- (7) This LED shows whether the switch underneath the pedal is activated.

3.2 Rear Panel



The RIG KONTROL's rear panel.

- (1) The Inst/Line switch sets the input sensitivity for Input 1 and 2. When depressed, the inputs will handle instrument signals such as a guitar or bass, when pressed, line level signals are accepted. The selected input type is also indicated on the unit's top.
- (2) This knob controls the gain of input 1.

- (3) The socket for Input 1 (¼" jack, TRS balanced) will accept line level or instrument level signals, depending on the position of the Line/Inst switch. Connect a guitar, bass guitar, keyboard or the left channel of a stereo device.
- (4) The socket for Input 2 (¼" jack, TRS balanced) will accept line level or instrument level signals, depending on the position of the Line/Inst switch. Connect a second guitar, bass guitar, keyboard or the right channel of a stereo device.
- (5) This knob controls the gain of input 2.
- (6) These jacks transmit the processed output from the audio interface. Connect both for stereo sound.
- (7) The output amplification can be set to full or -14 dB.
- (8) Separately controls the volume of the headphones output.
- (9) For connecting stereo headphones.
- (10) For connecting external expression pedals, footswitches, volume pedals or switchboxes.
- (11) The RIG KONTROL features a MIDI interface with one input and one output. The RIG KONTROL does not require MIDI to send controller messages to GUITAR RIG, but it is able to send MIDI signals to other applications.
- (12) The USB port connects the unit to your computer. Your computer must support USB 2.0 in order to work with the hardware. The unit also relies on the USB bus power to function. Connect this unit directly to your computer's USB 2.0 port and avoid using un-powered USB hubs. You should always secure the USB cable by wrapping it around the USB Hook.

4 Installation Under Windows

This chapter describes the installation of the RIG KONTROL hardware under Windows 7, focusing on the setup of the audio interface. To activate the foot pedal as a controller in GUITAR RIG and to use its MIDI capabilities, please refer to [↑7, Using the RIG KONTROL as a Controller Interface](#) of this manual.

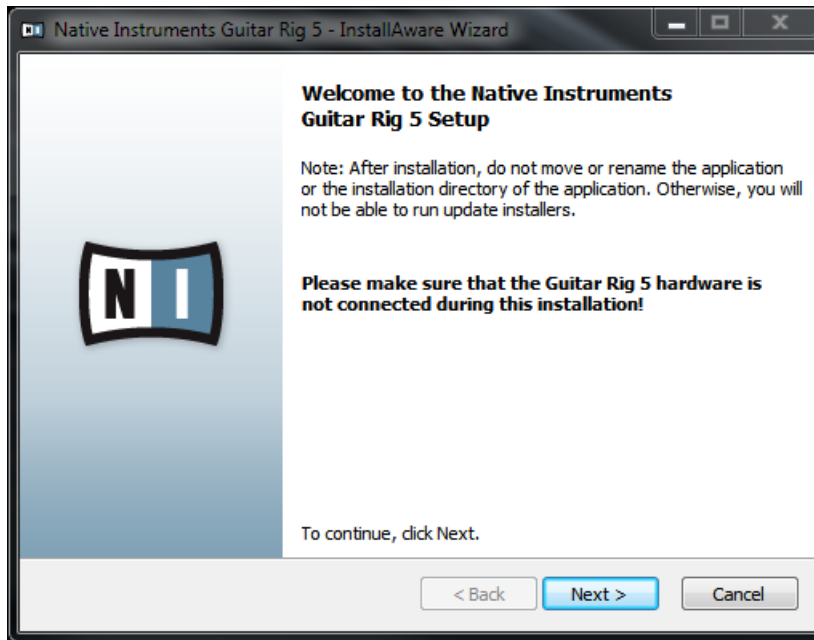
For detailed information about the GUITAR RIG software, please consult the Application Reference. You can find this on the product DVD or in the GUITAR RIG menu under *Help > Open Manual > Your Language*.

4.1 Software Installation

Make sure you are logged in with administrator privileges. Don't connect the RIG KONTROL yet.

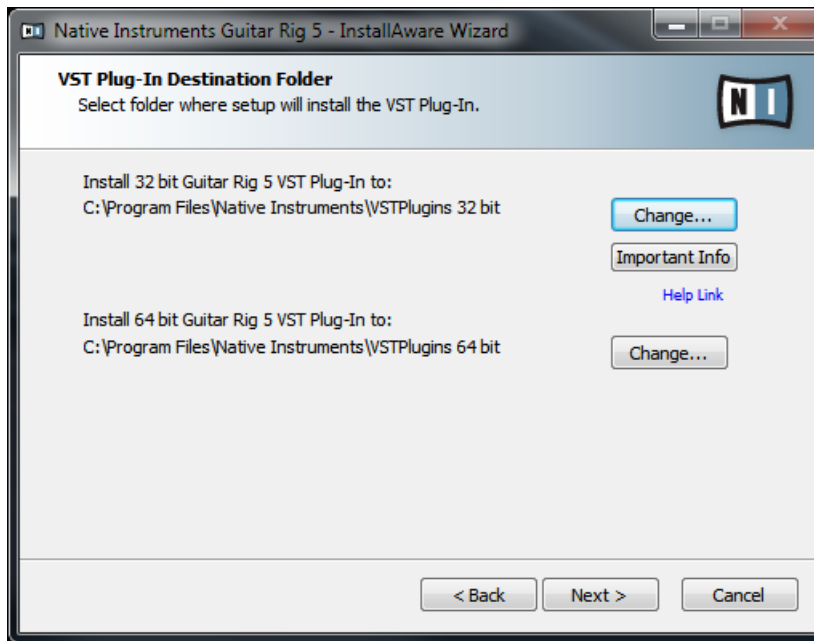
1. Browse the content of the product DVD and locate the setup file. If you are using a download version of GUITAR RIG, you need to extract the setup files first.

2. Double-click the GUITAR RIG setup file ("Guitar Rig 5 [version number] Setup PC.exe") to start the installation procedure.

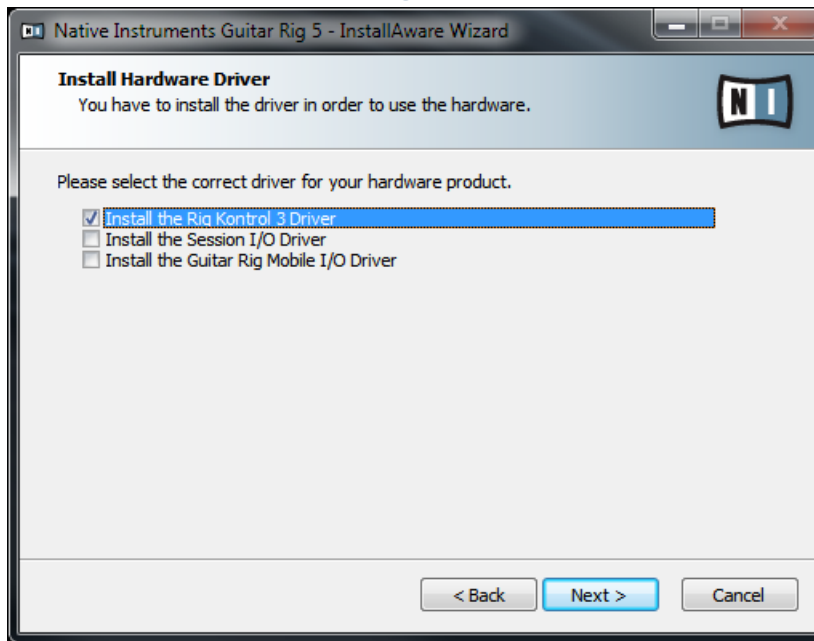


3. Follow the on-screen instructions, which will guide you through the installation procedure. It is advised to install the software to the default installation folders.
4. You will be asked to specify the path to the VST plug-in folder on your system. If you don't know what a VST plug-in is, or if you are sure you will be using GUITAR RIG in stand-alone mode only, just use the standard setting. If you want to use GUITAR RIG as a

plug-in in a host software, you need to change the folder to your host software's plug-in folder.



5. You will be asked if you want to install drivers for the GUITAR RIG audio interfaces. Put a checkmark next to [Install the Rig Kontrol 3 Driver](#) and click [Next](#).



6. If prompted, you may need to restart your computer upon completion.

The following applications have been placed onto your hard drive:

- The GUITAR RIG fully featured stand-alone software.
- The GUITAR RIG plug-ins: Use GUITAR RIG as a plug-in in your Digital Audio Workstation (DAW) of choice. On Windows computers, GUITAR RIG supports the VST and the RTAS plug-in formats.
- The Service Center: this application handles product activation as well as update management. Please refer to the Setup Guide for details.
- The hardware drivers for the RIG KONTROL.



In case you want to install the hardware drivers only, a separate driver installer file is available on the installation DVD. You can also download its latest version from the Support section of the Native Instruments website.

4.2 Hardware Installation

Use the supplied USB cable to connect the RIG KONTROL directly to a USB 2.0 port on your computer.



Connecting the controller to your computer.

The RIG KONTROL is powered via USB. Operation is guaranteed only with a USB 2.0 controller as a single device or with self-powered USB 2.0 hubs.

► After successfully installing the driver, the RIG KONTROL will be recognized automatically. If not, start the software installation again as explained above.

Several driver modules will be assigned to the RIG KONTROL now, each one causing a small pop-up window notifying you of the installed driver.



On a Windows computer, the driver is associated with a particular USB port. If you plug the USB cable into a different port than the one it was installed at, the driver assignment process starts again.



If at any time the computer does not seem to recognize the RIG KONTROL, disconnect the USB cable, wait a few seconds, then re-connect it. If the problem remains, restart your computer with the interface connected.

4.3 Configuration

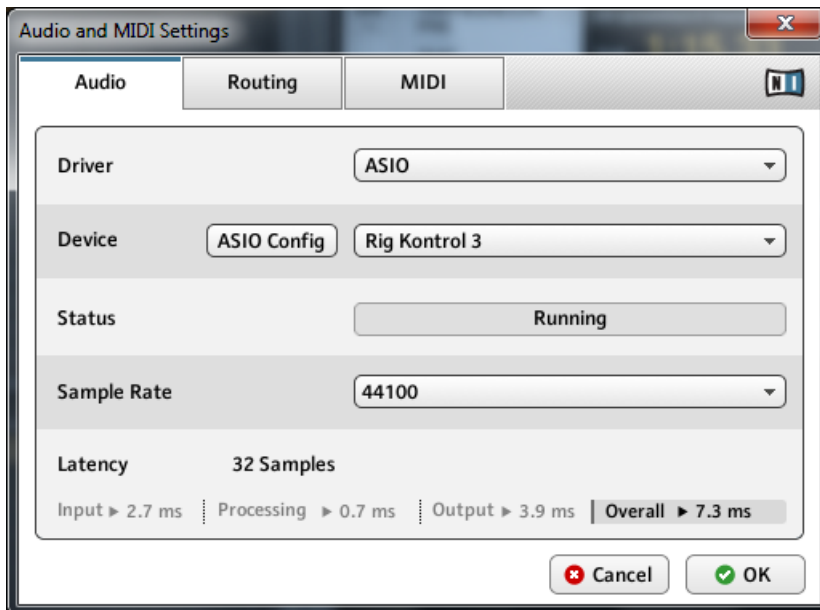
This chapter explains how to use the RIG KONTROL audio interface with Windows and particularly with the GUITAR RIG software. It is assumed that you have already activated GUITAR RIG using the Service Center. If not, please refer to the Setup Guide for further information on registering your product.

4.3.1 Configuring GUITAR RIG

We will now set up GUITAR RIG to use the RIG KONTROL audio interface.

► Start the software before you proceed.

When the software is started for the first time, you will be prompted with the [Audio and MIDI Settings](#) window automatically, where you need to make the following settings (to access these settings later on, select *File > Audio and MIDI Settings* from the program menu):



The Audio and MIDI Settings window.

1. On the [Audio](#) tab, choose *ASIO* from the [Driver](#) drop-down menu.
2. Select *RIG KONTROL 3* from the [Device](#) drop-down menu.
3. Choose a [Sample Rate](#) that is compatible with your music application and suited to your computing power. Per default, the sample rate is set to 44100 Hz (CD-Quality). Higher sample rates may improve sound quality, but cause a higher CPU load as well, and 44100 Hz is a very common setting.



If *RIG KONTROL 3* does not appear in the list, something went wrong. Restart the installation as explained in [↑4.1, Software Installation](#).

Advanced Configuration

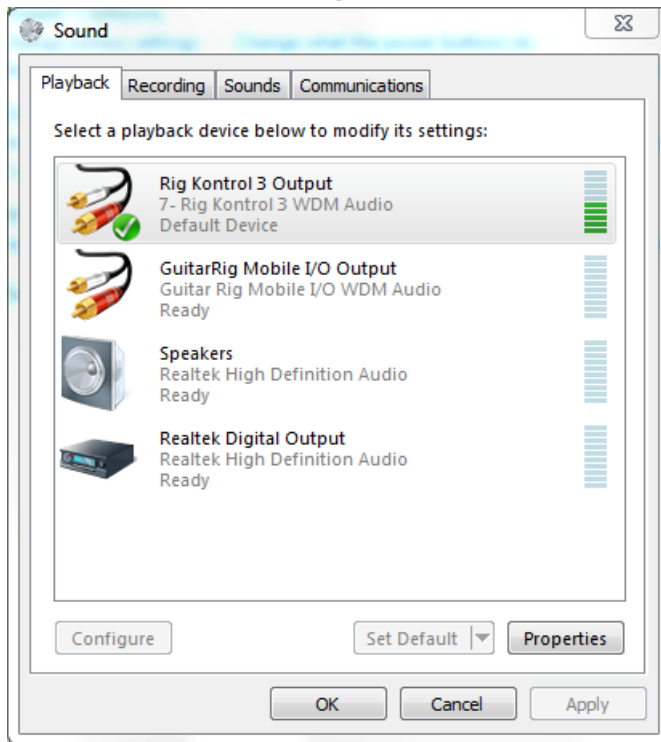
For advanced configuration settings using the driver control panel, please refer to [↑5.4, Audio Connections and Levels](#).

4.3.2 Using the RIG KONTROL as Your Default Audio Interface

If you want to use the RIG KONTROL for playback of all audio applications on your computer (not only for music software), you have to set it as your default audio interface. For Windows 7, this works as follows:

1. Open *Start > Control Panel > Hardware and Sound > Sound*.
2. Select the [Playback](#) tab.
3. In the device list, select [Rig Kontrol 3 Output](#) and click on [Set Default](#).
4. Select the [Recording](#) tab.
5. In the device list, select [Rig Kontrol 3 Input](#) and click on [Set Default](#).

- Click **OK** to close the dialog.



4.4 Audio Connections and Levels

In the following chapters you will learn how to connect your guitar and your monitoring system to the RIG KONTROL and how to set the right amplification levels both on the hardware and on the software side of your setup. Please start GUITAR RIG before proceeding.

4.4.1 Connecting Your Instrument and Adjusting the Input Level

- Turn down the volume on your monitoring system to prevent hearing damages.

2. Make sure the input selector is set to instrument input amplification (LINE/INST button on the back of the RIG KONTROL depressed) except if you are using a preamp to boost your signal to line level.
3. Plug the cable connected to your guitar or bass into one of the input jacks of the RIG KONTROL.
4. Completely turn down the volume of the input channel you are not using.

Keep in mind that for an instrument that generates a stereo signal, such as a synthesizer keyboard, you need to connect it to both input channels for stereo sound.



Connecting a guitar or bass guitar to the controller.

In order to achieve the best sound quality by providing the interface with a sufficiently powerful signal, you need to carefully adjust the input level of the RIG KONTROL. The Input Level meter helps you identify the level of the incoming signal:

Meter Status	Meaning
All LEDs are off	No incoming signal
Green LEDs flashing	Incoming signal
Green and red LEDs flashing	Incoming signal is too loud

Before adjusting the input sensitivity, turn up the volume knob on your guitar. Strum some chords at the volume level you are typically playing at and look at the Input Level meter:

1. Turn up the input level knob next to the input jack you chose, just until the meter is reaching the red zone when you play.
2. At that point, slightly turn the knob down until you are safely in the green zone, even when you are playing really powerful chords.

Now the input sensitivity is set to its optimum level, enabling the RIG KONTROL to provide the highest dynamical range without clipping.

4.4.2 Connecting a Second Instrument

You can connect different instruments to both input channels, as long as they both provide a signal at the same level (line or instrument). Just plug the cable of your second instrument into the other input jack and set the right input level as described in the previous section.



If only one channel is used, set the other channel's Gain knob to zero

For instruments generating a stereo signal, the second channel needs to be connected for stereo sound.

4.4.3 The Input Level of GUITAR RIG

It is assumed that your guitar is connected to the RIG KONTROL and its input level is properly adjusted (see [↑4.4.1, Connecting Your Instrument and Adjusting the Input Level](#)). Now you need to make sure that the input signal is processed at the right level by the software.

Please take a look at the header of the GUITAR RIG window: It consists of the input module with channel selectors (L/R), a basic noise gate, the output module with a limiter and information about the processing power consumed.



GUITAR RIG's software header.

Note that the Input meter shows an amplitude when you are playing. It also features an integrated volume fader that controls the input level. Adjust it to achieve the highest possible level for your signal without clipping. This is indicated by the Level meter getting close to the red zone without actually hitting it.

If only one guitar is connected, GUITAR RIG will receive a mono signal. You can set up the Input module to route your guitar signal to both channels. Per default, GUITAR RIG is set to process both input channels (L + R are activated), so one of the input channels remains mute. To change this, deactivate the channel you are not using: Click on the appropriate button (L or R) on the left hand side of the Input meter once, so that only the input channel in use is active. This will route the mono signal to both channels.

4.4.4 Connecting the Output

The RIG KONTROL provides two mono outputs to connect your monitoring system, be it a mixing desk, a pair of active speakers or your home stereo. Mind that both of them have to be connected for stereo sound. A separate stereo output (TRS) allows for connecting your headphones.



Connecting speakers and headphones to the controller.

1. Connect the output jacks to the input of your amp with its volume level turned down.
2. If you are using headphones, connect them to the output jack and put them on with the headphone level fully turned down.
3. Go to the Preset Browser and select one of the presets by clicking on it.

4. Start playing and carefully turn up the volume of your amp or the headphone level of the RIG KONTROL to the desired level.

You should be all set now, and ready to rock!

5 Installation under Mac OS X

This chapter describes the basic installation of the RIG KONTROL hardware under Mac OS X, focusing on the setup of the audio interface. To activate the foot pedal as a controller in GUITAR RIG and to use its MIDI capabilities, please refer to [↑7, Using the RIG KONTROL as a Controller Interface](#) of this manual.

For detailed information about the GUITAR RIG software, please consult the Application Reference. You can find it on the product DVD or in the GUITAR RIG menu under *Help > Open Manual > Your Language*.

5.1 Software Installation

Make sure you are logged in with administrator privileges. Don't connect the RIG KONTROL yet.

1. Browse the content of the product DVD and locate the file GUITAR RIG Installer file. If you are using a download version of GUITAR RIG, you need to extract the installer file first.
2. Double-click the installer file to start the installation procedure.
3. Follow the on-screen instructions that will guide you through the installation procedure.
4. You will be asked if you want to install drivers for the GUITAR RIG audio interfaces. Select the RIG KONTROL 3 driver (this may be preselected already) and click on [Continue](#).
5. Restart your computer upon completion.

The following applications will be placed onto your hard drive:

- The GUITAR RIG fully featured stand-alone software.
- The GUITAR RIG plug-ins: Use GUITAR RIG as a plug-in in your Digital Audio Workstation (DAW) of choice.
- The Service Center: this application handles product activation as well as update management. Please refer to the Setup Guide for details.
- The hardware drivers for the RIG KONTROL.



If you have never owned a Native Instruments product, you will need to register by following the on-screen instructions. More information about creating a NI User Account and about activating GUITAR RIG is available in the Service Center Quick Start Guide and Manual located in the Service Center installation folder.



In case you want to install the hardware drivers only, a separate driver installer file is available on the installation DVD. You can also download its latest version from the Support section of the Native Instruments website.

5.2 Hardware Installation

Use the supplied USB cable to connect the RIG KONTROL directly to a USB 2.0 port on your computer.



Connecting the controller to your computer.

The RIG KONTROL is powered via USB. Operation is guaranteed only with a USB 2.0 controller as a single device or with self-powered USB 2.0 hubs.

► After successfully installing the driver, the RIG KONTROL will be recognized automatically. If not, start the software installation again as explained above.

Several driver modules will be assigned to the RIG KONTROL now, each one causing a small pop-up window notifying you of the installed driver.



If at any time the computer does not seem to recognize the RIG KONTROL, disconnect the USB cable, wait a few seconds, then re-connect it. If the problem remains, restart your computer with the interface connected.

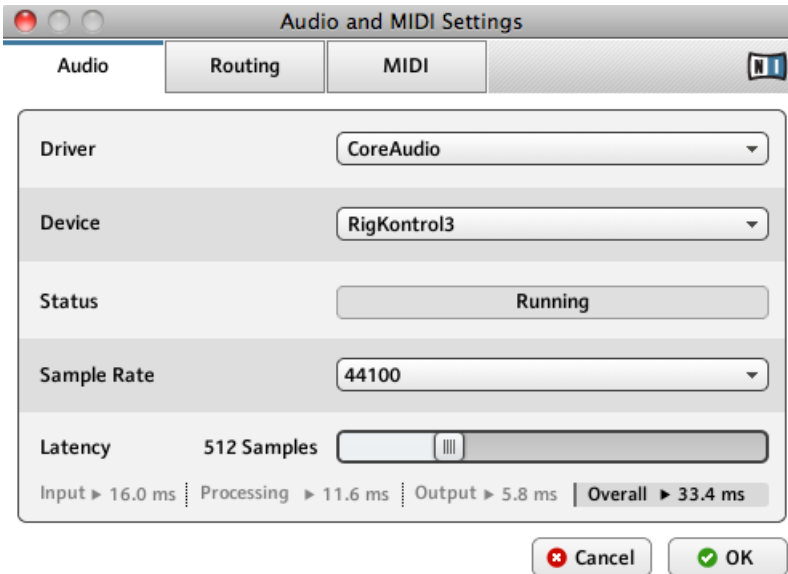
5.3 Configuration

This chapter explains how to use the RIG KONTROL audio interface with Mac OS X and particularly with the GUITAR RIG software. It is assumed that you have already activated GUITAR RIG using the Service Center. If not, please refer to the Setup Guide for further information on registering your product.


5.3.1 5.3.1 Configuring GUITAR RIG

We will now set up GUITAR RIG to use the RIG KONTROL audio interface. Start the software before you proceed.

1. When the software is started for the first time, you will be prompted with the [Audio and MIDI Settings](#) window automatically, where you need to make the following settings. If you want to access these settings later, select *Guitar Rig > Preferences* from the program menu.



2. On the [Audio](#) tab, choose *CoreAudio* as the [Driver](#) interface.
3. Select *RigKontrol3* from the [Device](#) drop-down menu.

 If RIG KONTROL does not appear in the list even though it is connected, something went wrong. Restart the installation as explained in [↑5.1, Software Installation](#).

The audio interface allows to be configured by the following parameters:

- [Sample Rate](#): Choose a sample rate that is compatible with your music application and suited to your computing power. Per default, the sample rate is set to 44100 Hz (CD-Quality). Higher sample rates may improve sound quality, but cause a higher CPU load as well.



The sample rate defines how many samples are played/recorded per one second of sound. A higher sample rate results in higher audio quality; however, 44100 Hz (as used for recording audio CDs) is a common setting and absolutely sufficient for most tasks. If your final destination is CD, you should use this setting or a multiple of it (88200 Hz). For a better understanding: 48000 Hz is used by DAT recorders and for DVD (films) recording. 96000 Hz and higher rates are typical for DVD, HD DVD, and Blu-ray Disc audio recording. You should be aware that a higher sample rate also causes higher CPU load.

- **Latency:** Use the Latency slider to set the buffer size of the audio interface, measured in samples. The buffer size has two effects: The higher it is set, the lower is the probability of dropouts during real-time audio processing. On the other hand, the size of the buffer directly affects the overall latency of your system. The time between the moment you hit a note and the moment you hear the processed sound will be longer if the buffer size is increased.

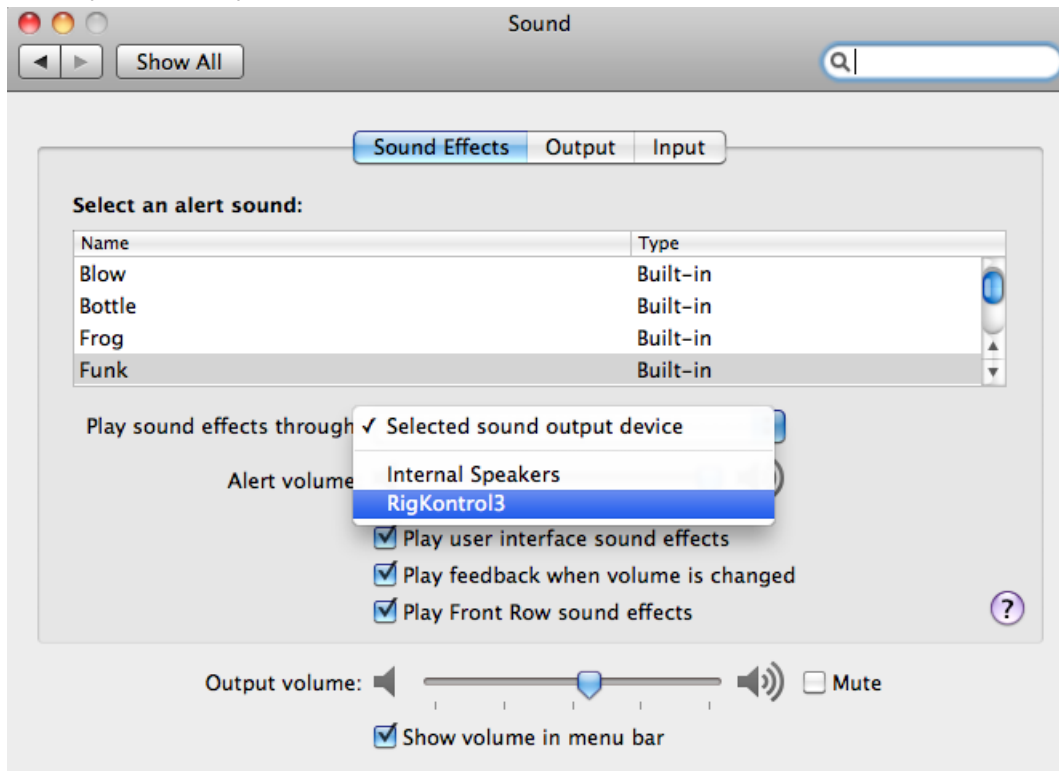
It is recommended that you start with the default buffer size and continue with the subsequent steps of the installation. Once you are finished, you should load a clean preset and revisit the audio and MIDI settings to figure out the best latency setting for your system. This is done by gradually reducing the buffer size: Drag the latency slider to the left while playing something. Once you begin to hear crackles or dropouts, carefully drag the latency slider to the right until you reach the point where no crackles or dropouts occur.

5.3.2 Using RIG KONTROL as Your Default Audio Interface

If you want to use the RIG KONTROL for all audio playback (not only for music software), you have to set it as your default audio interface. For Mac OS X, this works as follows:

1. From the Apple menu, select [System Preferences](#).

- In the panel that opens, click on [Sound](#).



- On the [Sound Effects](#) tab, select *RigKontrol3* in the [Play sound effects through](#) menu.
- Click on the [Output](#) tab, and then select *RigKontrol3* from the [Choose a device for sound output](#) list.
- Click on the [Input](#) tab, and then select *RigKontrol3* from the [Choose a device for sound input](#) list.

5.4 Audio Connections and Levels

In the following chapters you will learn how to connect your guitar and your monitoring system to the RIG KONTROL and how to set the right amplification levels both on the hardware and on the software side of your setup. Please start GUITAR RIG before proceeding.

5.4.1 Connecting your Instrument and Adjusting the Input Level

1. Turn down the volume on your monitoring system to prevent hearing damages.
2. Make sure the input selector is set to instrument input amplification (LINE/INST button on the back of the RIG KONTROL depressed) except if you are using a preamp to boost your signal to line level.
3. Plug the cable connected to your guitar or bass into one of the input jacks of the RIG KONTROL.
4. Completely turn down the volume of the input channel you are not using.

Keep in mind that for an instrument that generates a stereo signal, such as a synthesizer keyboard, you need to connect it to both input channels for stereo sound.



Connecting a guitar or bass guitar to the controller.

In order to achieve the best sound quality by providing the interface with a sufficiently powerful signal, you need to carefully adjust the input level of the RIG KONTROL. The Input Level Meter helps you identify the level of the incoming signal:

Meter Status	Meaning
All LEDs are off	No incoming signal
Green LEDs flashing	Incoming signal
Green and red LEDs flashing	Incoming signal is too loud

Before adjusting the input sensitivity, turn up the volume knob on your guitar. Strum some chords at the volume level you are typically playing at and look at the Input Level Meter:

1. Turn up the input level knob next to the input jack you chose, just until the meter is reaching the red zone when you play.
2. At that point, slightly turn the knob down until you are safely in the green zone, even when you are playing really powerful chords.

Now the input sensitivity is set to its optimum level, enabling the RIG KONTROL to provide the highest dynamical range without clipping.

5.4.2 Connecting a Second Instrument

You can connect different instruments to both input channels, as long as they both provide a signal at the same level (line or instrument). Just plug the cable of your second instrument into the other input jack and set the right input level as described in the previous section.



If only one channel is used, set the other channel's Gain knob to zero

For instruments generating a stereo signal, the second channel needs to be connected for stereo sound.

5.4.3 The Input Level of GUITAR RIG

It is assumed that your guitar is connected to the RIG KONTROL and its input level is properly adjusted (see [↑5.4.1, Connecting your Instrument and Adjusting the Input Level](#)). Now you need to make sure that the input signal is processed at the right level by the software.

Please take a look at the header of the GUITAR RIG window: It consists of the input module with channel selectors (L/R), a basic noise gate, the output module with a limiter and information about the processing power consumed.



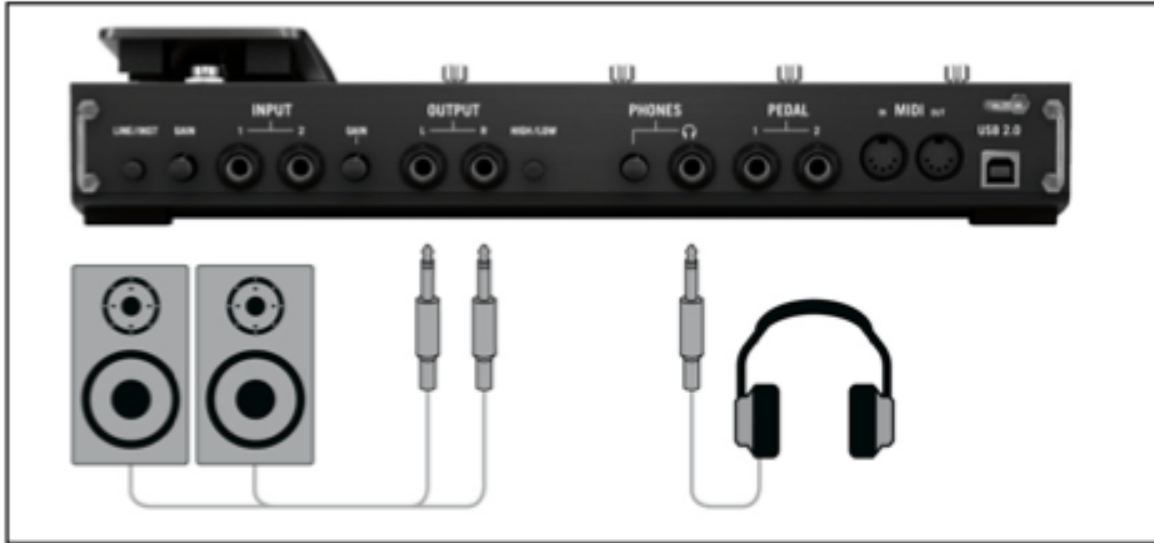
GUITAR RIG's software header.

Note that the Input Meter shows an amplitude when you are playing. It also features an integrated volume fader that controls the input level of the software. Please adjust it to achieve the highest possible level for your signal without clipping. This is indicated by the Level Meter getting close to the red zone without actually hitting it.

If only one guitar is connected, GUITAR RIG will receive a mono signal. You can set up the Input module to route your guitar signal to both channels. Per default, GUITAR RIG is set to process both input channels (L + R are activated), so one of the input channels remains mute. To change this, deactivate the channel you are not using: Click on the appropriate button (L or R) on the left hand side of the Input Meter once, so that only the input channel in use is active. This will route the mono signal to both channels.

5.4.4 Connecting the Output

The RIG KONTROL provides two mono outputs to connect your monitoring system, be it a mixing desk, a pair of active speakers or your home stereo. Mind that both of them have to be connected for stereo sound. A separate stereo output (TRS) allows for connecting your headphones.



Connecting speakers and headphones to the controller.

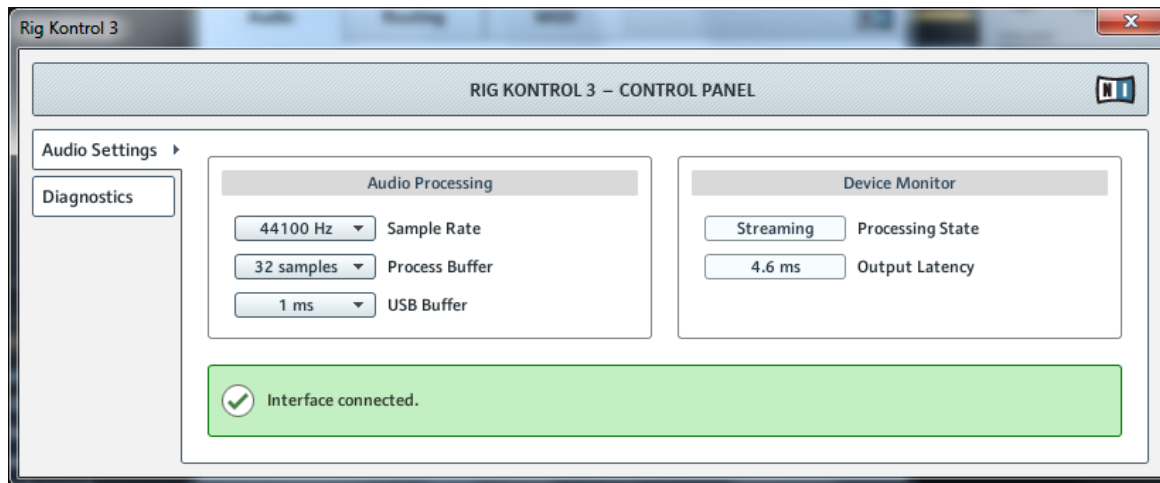
1. Connect the output jacks to the input of your amp with its volume level turned down.
2. If you are using headphones, connect them to the output jack and put them on with the headphone level fully turned down.
3. Go to the Preset Browser and select one of the presets by clicking on it.
4. Start playing and carefully turn up the volume of your amp or the headphone level of the RIG KONTROL to the desired level.

You should be all set now, and ready to rock!

6 Advanced Configuration

6.1 Advanced Configuration on Windows

You can access the driver control panel (Control Panel) by clicking on [ASIO Config](#) in the [Audio and MIDI Settings](#) window (*File > Audio and MIDI Settings* from the GUITAR RIG file menu). In the Control Panel, a status field on the bottom shows whether the RIG KONTROL hardware is connected and ready to use.



The Control Panel with the Audio Settings page opened.

6.1.1 The Audio Settings Page

In the [Audio Settings](#) page, you can configure the audio latency and sample rate; and you can monitor the device's status. The [Audio Settings](#) page consists of two sections: [Audio Processing](#), and [Device Monitor](#).

Audio Processing Section

The **Audio Processing** section sets the parameters for the analog-to-digital/digital-to-analog conversion done by your audio interface. It has two menus:

- **Sample Rate:** Choose a sample rate that is compatible with your music application and best suited to your computing power. A higher sample rate improves the audio quality, but also causes higher CPU load. By default, the sample rate is set to 44100 Hz (CD quality).



The sample rate defines how many samples are played/recorded per one second of sound. A higher sample rate results in higher audio quality; however, 44100 Hz (as used for recording audio CDs) is a common setting and absolutely sufficient for most tasks. If your final destination is CD, you should use this setting or a multiple of it (88200 Hz). For a better understanding: 48000 Hz is used by DAT recorders and for DVD (films) recording. 96000 Hz and higher rates are typical for DVD, HD DVD, and Blu-ray Disc audio recording. You should be aware that a higher sample rate also causes higher CPU load.



If you want to use multiple software clients simultaneously with the device, keep in mind they'll also have to share the same sample rate.

- **Process Buffer:** Lower the buffer size value for a quicker response time from your computer to audio software and MIDI controller actions.



When converting audio information to digital and vice versa, the audio driver needs to store the data in buffer packages (audio buffers) which are then sent to and processed by the CPU. The higher the buffer size, the longer it takes for a signal to finally arrive at the output as audio. You might experience this as a delay between the time you hit a key on your computer or controller and when you actually hear the sound. This delay is called latency. A rule of thumb is: lower buffer size results in lower latency. However, there are more factors to latency than buffer size alone (e.g., CPU speed and RAM size). You should start off with a higher buffer size setting, and gradually decrease the value until you find the perfect balance between playability and system performance. If you experience crackling at the audio output, the chosen buffer size is very likely too low for your computer's CPU to cope with, as lower buffer size causes higher CPU load.

- **USB Buffer:** Use this menu in case you cannot achieve satisfactory latency settings with the **Process Buffer** menu. Lower the USB buffer size for smaller USB buffer packaging, which should further reduce the audible latency. If you notice any audio interruptions, you should raise the buffer size until you have a clear sound, free of dropouts.

Device Monitor Section

The [Device Monitor](#) section displays information about the audio interface's processing status and your system's output latency. It has two displays:

- [Processing State](#): The processing state monitor provides feedback on the current status of the device. There are three possible status messages:
 - [Idle](#): interface is connected, but no client delivers audio data.
 - [Streaming](#): driver is working and processing audio data.
 - [Panic](#): driver stopped streaming. Too many USB I/O errors occurred in the interface communication.
- [Output Latency](#): Shows the amount of output latency in milliseconds.

6.1.2 Diagnostics Page

The information provided in the [Diagnostics](#) page might be more of interest to advanced users; however, in case of problems, you should always have a look at this page.

The [Diagnostics](#) page consists of three sections:

- [Drop-Out Detection](#): displays USB I/O errors and buffer underruns when detected.
- [Connection Monitor](#): displays client-to-driver connections and USB data errors when detected.
- [System Performance Test](#): offers the possibility to run a performance test to measure latency values.
- [Information](#): displays information on driver and firmware version. There is also a link to the Troubleshooting Guide [here](#).

Drop-Out Detection Section

The [Drop-Out Detection](#) section holds two displays and a button:

- [USB I/O Errors](#): counts USB input/output errors. A high [USB I/O Errors](#) count points to your system being overloaded.

- **Buffer Underruns:** Buffer underruns occur when your computer isn't able to process an audio buffer in time. Reasons for underruns can be too many ongoing background tasks or high CPU usage within a music program that uses the device as audio driver.
- **Reset:** A click on this button resets the error count.

Connection Monitor Section

The **Connection Monitor** section holds two displays and a button:

- **Number of Clients:** displays the number of clients connected to the interface. Multiple ASIO applications are counted separately, WDM and WASAPI increase the number by one, no matter how many WDM/WASAPI applications play audio.
- **USB Data Errors:** counts USB data errors. Poor quality or long cables as well as irradiation can be the source of data errors on the USB bus.
- **Reset:** A click on this button resets the error count.

System Performance Test Section

- **Current Latency:** Click on the **Start** button below to display the current latency value here.
- **Maximum Latency:** displays the highest value that was during the current measuring cycle.
 - Clicking on **Reset** has the same effect as clicking on **Start** for the first time. It resets the testing procedure to its beginning and starts a new test with fresh values.
 - Clicking on **Stop** will end the test. The **Maximum Latency** value will remain displayed.

Information Section

The **Information** section holds two displays and a button:

- **Driver Version:** See the currently installed driver version here.
- **Firmware Version:** See the currently installed firmware version here.
- **Troubleshooting Guide:** Click **Show** to open the Troubleshooting Guide.

6.2 Advanced Configuration on Mac OS X

On Mac OS X, all relevant settings are accessed from the Audio and MIDI Settings window. Refer to section [↑5.3, Configuration](#) for further information.

7 Using the RIG KONTROL as a Controller Interface

The RIG KONTROL enhances your experience using GUITAR RIG by integrating perfectly as a hardware controller. Aside from the built-in controller features, it offers MIDI connections and two jacks for external footswitches and pedals. The following sections explain how to set up the hardware to fully exploit these features. To learn how to assign functions of GUITAR RIG to controller inputs, refer to the Getting Started Guide and the Application Reference.

To use the RIG KONTROL as a standard MIDI controller, you have to use the included Controller Editor software. Please refer to the Controller Editor Manual for details.

7.1 Activating the RIG KONTROL in GUITAR RIG

The RIG KONTROL is activated automatically in GUITAR RIG when the hardware is connected. The first time it is activated, a window will pop up asking you to calibrate the foot pedal. Please press the pedal all the way up and down and confirm by clicking on [OK](#). To recalibrate the pedal at any time, go to the [Options](#) page and select [Preferences](#). Click on the [Reset](#) button next to [RIG KONTROL Pedal Calibration](#).

The RIG KONTROL hardware has a graphical counterpart in GUITAR RIG which is shown after clicking on the Show/Hide Rig Kontrol button above the rack.

If you are running multiple instances of GUITAR RIG (e.g., in a sequencer), you may want to define which of them is controlled by the foot pedal. By default, the RIG KONTROL is activated in the instance of GUITAR RIG you launched first. By clicking on the [Connect](#) LED on the Virtual Kontrol in another instance, it gets the focus of the RIG KONTROL – only one instance can have it at a time!

Some functions are assigned to the footswitches 5-8 by default, as indicated by text labels on the hardware. You can instantly step through the presets currently visible in the browser with switches [5 \(Preset Prev\)](#) and [6 \(Preset Next\)](#). Switches [7](#) and [8](#) are for activating the tuner and tapping in a tempo with your foot. These buttons can of course be re-assigned to other functions as you please.

The easiest way to assign a button or the pedal of the RIG KONTROL to any function in the rack is to drag it from the Virtual Kontrol and drop it on the parameter you want to control. For a detailed description of the way controller assignments work, please refer to the Getting Started Guide and the Application Reference.

7.2 Using MIDI Controllers with the RIG KONTROL MIDI Interface

While being capable of sending MIDI messages to control other applications, the RIG KONTROL communicates with GUITAR RIG directly via USB. Nonetheless, it features a standard MIDI interface with one input and output channel.

To use a controller connected to the MIDI input jack, make sure that the RIG KONTROL MIDI channel is activated in GUITAR RIG:

1. Open the Audio and MIDI Settings. On Windows, they are found in the [File](#) menu. In Mac OS in the GUITAR RIG menu.
2. Go to the MIDI tab.
3. On the [Inputs](#) table, locate [Rig Kontrol](#) and switch it on by clicking in the [Status](#) column.

The MIDI input channel is set on the [Options](#) pane of GUITAR RIG: On the [Preferences](#) tab, click on the dropdown menu labeled [MIDI channel](#) and select 1-16 or omni. To learn how to assign functions to external MIDI controllers, refer to the Getting Started Guide and the Application Reference.

7.3 Using Additional Footswitches and Pedals

The RIG KONTROL features two jacks for connecting external footswitches and pedals with a ¼" patch cable. Once connected and set up, they can be assigned just like MIDI controllers in GUITAR RIG. Refer to the Getting Started Guide and the Application Reference to see how.

Under [Preferences](#) on the [Options](#) page of GUITAR RIG, the following settings are available:

- ▶ To calibrate an external pedal, click on the [Reset](#) button next to [Rig Kontrol Ext Pedals Calibration](#).



The two lines **Rig Kontrol Ext Pedal 1/2 Mode** allow to configure each both inputs to match your external footswitch or pedal. Consult the manufacturer's product specifications to find out if it is a tip or ring active pedal, or respectively, if it is an opening or a closing switch. If problems occur, try out the other available modes.

8 Troubleshooting

Should you encounter any problems with your hardware, it is recommended that you follow these steps to find a solution to your problem before contacting Technical Support:

- Visit NI's online Knowledgebase. The easiest way to find it is by selecting *Help > Visit the Knowledge Base...* from the GUITAR RIG menu.
- Visit the NI User Forum on our website:
<http://www.native-instruments.com/forum/>

When contacting Technical Support, please make sure to have all relevant information about your computer at hand. For information about the driver's version and the firmware revision, please check the driver control panel:

- On Windows computers, you can find driver and firmware version in the RIG KONTROL's Control Panel. Open the Rig Kontrol 3 folder from the Native Instruments software folder and double-click the [Rig Control 3 Control Panel](#) launcher. Click on *Help > About Rig Kontrol 3 Control Panel* to display the information.
- On Mac OS X computers, you can access the driver control panel from the system preferences. The information is shown in the main window.

Please visit this URL to contact the support team:

<http://www.native-instruments.com/support/>

All products by Native Instruments are tested extensively in real life situations during the development phase. However, if your product needs to be returned, the Technical Support team will assign you an RA (Return Authorization) number to expedite the processing of your return. Please contact our Technical Support team prior to returning any item. Packages returned without this RA number will not be correctly identified and as such might not be processed efficiently.

8.1 Audio Issues

This section provides help with the most common audio issues you may encounter.

8.1.1 No Sound or Low Volume

There are several possible reasons for a silent or low audio output:

- Disconnected or broken cables. Please check all connections and cables.
- Incorrect soundcard or audio input selected. Please check the Audio and MIDI Settings in the GUITAR RIG menu to see if the RIG KONTROL driver is selected.
- Wrong channel selected in the Input module of GUITAR RIG. Connect your instrument to the other input jack or switch to the other channel by choosing it from the user interface's header.
- The RIG KONTROL's input gain is set too low. Turn up the input level.
- Your instrument's volume is turned down. Turn up the volume knob.

8.1.2 Distorted Signal

If the audio signal sounds distorted, and no distortion is being added by the GUITAR RIG software, then this is most likely caused by the RIG KONTROL's gain being set too high. Reduce the input level at the Interface to prevent the preamp from clipping. If your instrument delivers such a high signal that the preamp is always overdriven, you should reduce its volume. Usually this only happens if the instrument is equipped with special high power pickups.

8.1.3 Noise

Audible hum can have several reasons, some of which are listed below:

- Single-coil pickups are prone to collecting electrical interferences. Humbucker pickups produce much less hum, which is why they got their name.
- Your guitar is too close to electrical equipment. To reduce this type of hum, move the guitar further away from the equipment.
- The guitar's volume knob is set to a low level. Turn the knob up. If your guitar has more than one volume knob, make sure to check all knobs.
- You are using a non-shielded or broken guitar cable. Your guitar's shielding may also be insufficient. Try replacing the cable with a shielded model first. If this does not help, you should consider having your guitar's electronics serviced and shielded by a professional.

If you are experiencing hiss, the input level at the RIG KONTROL preamp might be too low. Turn up the instrument's volume or increase the input level on the RIG KONTROL. For more information on setting the input level, see section 4.4 (Windows) or section 5.4 (Mac OS X) of this manual.

8.1.4 Ground Loops

Ground loops (usually perceived as a hum or buzz) are a common problem when multiple electrical devices are connected to the same power circuit. The following steps should help to eliminate them:

- ▶ Disconnect all devices that you are not currently using, e.g. peripheral devices you may have connected to your computer (external data storage, CD/DVD burners).
- ▶ Hook up a DI box behind the RIG KONTROL outputs. Most of these boxes have a ground lift switch, which allows breaking the ground loop and eliminating the noise.

8.2 Hardware-Related Problems

Check the Native Instruments website and the Service Center for updates of the RIG KONTROL driver and more information.

8.2.1 Driver Issues

Make sure that the RIG KONTROL is connected to the computer and open the driver control panel. See the intro to this chapter on how to find the driver control panel.

If the driver control panel is missing, the driver is most likely not installed at all. In this case, please re-install the driver as described above.

If all the drop-down menus of the driver control panel are grayed out, the RIG KONTROL is not recognized by the driver. Something might be wrong with the USB connection, see the following sections for details.

8.2.2 USB Issues

The RIG KONTROL is a USB 2.0 interface and will not work on a USB 1.0/1.1 port. Always connect it directly to a USB 2.0 port on your computer. The port needs to fulfill the minimum power specification for a USB 2.0 port (500 mA). On certain computers, the USB 2.0 ports do not meet the official USB 2.0 power specification. In this case, you may see a message, saying that there is not enough power available to operate your device. The RIG KONTROL may produce crackles or may not work at all.

- If your computer is unable to supply the necessary amount of bus power, try connecting your RIG KONTROL to a USB 2.0 hub with external power-supply. Avoid connecting other devices to the hub, as every bus-powered device will diminish the total amount of power available.
- In case of failures, it is useful to check if RIG KONTROL works if you disconnect any other USB device from the computer.
- If you are experiencing audio dropouts or other problems that may be related to the USB connection, try connecting the RIG KONTROL to another USB 2.0 port.
- A bad USB cable can be responsible for audio dropouts and/or other connectivity problems. Try using a different cable bearing the official USB logo, in some cases using a shorter cable might help.
- If you are experiencing problems with RIG KONTROL crashing or performing badly on a Windows machine, the first thing to do is to disable power management for the USB hubs, which is turned on by default. Go to the Device Manager (*Control Panel > System > Hardware*) and right click a USB hub to bring up its properties. On the Power Management page, uncheck all boxes. Repeat for each hub and reboot.

8.2.3 Using the RIG KONTROL with a Laptop

Please check if your computer is suited for handling real-time audio processing without dropouts. There are a couple of freeware tools to analyze your system, for example:

www.thesycon.de/deu/latency_check.shtml

Start the tool with the RIG KONTROL disconnected. In case your computer is unable to handle glitch-free audio processing, the tool will show red latency bars and report this in the box on the bottom.

In general, it is not recommended to use laptops with shared-memory graphic cards. You will need all the memory and processing power available for your audio project.

There are some steps to optimize your laptop's audio performance:

- ▶ It is not recommended to run the laptop on battery, as power management might slow the clock rate of the CPU down, to save battery.
- ▶ Disconnect all unused hardware (e.g., printer, scanner). This will increase the amount of processing power available for your music software.
- ▶ Laptops often are equipped with built-in devices that disturb audio processing, most commonly a network adapter or a wireless LAN card. You might need to disable these devices while working with the RIG KONTROL.

9 Technical Specifications

This section contains all relevant technical specifications of the RIG KONTROL hardware.

9.1 Jacks and Sockets

- 2 input jacks (In 1, In 2) for mono 6.3mm (1/4 inch) phone plugs
- 2 output jacks (Out 1, Out 2) for 6.3mm (1/4 inch) mono (unbalanced) or TRS (balanced) phone plugs
- 1 Headphones jack for stereo 6.3mm (1/4 inch) phone plug
- 2 input jacks for external pedals / footswitches / switchboxes
- (Pedal 1, Pedal 2) for stereo 6.3mm (1/4 inch) phone plugs
- 2 MIDI (In/Out) 5-pin DIN circular connector
- 1 USB 2.0 Type B

9.2 Audio Specifications

Audio Inputs (A/D)	
Channels	2
Sample Rate	44.1, 48, 88.2, 96, 192 kHz
Bit Resolution	16, 24 Bit
Converter	Cirrus Logic

Instrument Inputs	
Input Impedance	1M Ohm
Full Scale Level at Maximum Gain	-11,5 dBu

Instrument Inputs	
Maximum Input Level	+16 dBu
SNR (weighted)	>100 dB
THD+N	0,009%
Frequency Response	+/- 0,5 dB, 20 Hz – 24 KHz
Dynamic Range	105 dB (ADC)

Line Inputs	
Input Impedance	44 KOhm
Full Scale Level at Maximum Gain	-5,5 dBu
Maximum Input Level	+16 dBu
SNR (weighted)	>100 dB
THD+N	0,009%
Frequency Response	+/- 0,5 dB, 20 Hz – 36 KHz
Dynamic Range	105 dB (ADC)

Audio Outputs (D/A)	
Channels	2
Sample Rate	44.1, 48, 88.2, 96, 192 kHz
Bit Resolution	16, 24 Bit
Converter	Cirrus Logic

Line Outputs	
Output Impedance	100 Ohm
Maximum Output Level	+6,3 dBu
SNR (weighted)	>100 dB

Line Outputs	
THD+N	0,010%
Frequency Response	+/- 0,5 dB 22 Hz – 44 KHz
High/low level switch	Full scale 5 Vpp / -14 dB

Headphone Output	
Load Impedance	8-600 Ohm
Maximum Output Level	1,61 V rms @ 100 Ohm
SNR (weighted)	>91 dB
THD+N (60 Ohms)	0,013%
Frequency Response	+/- 0m5 dB 22 Hz – 44 KHz

9.3 Power Supply

USB 2.0 interface, 5 V / 500 mA bus power. No additional power supply or battery is needed, only power from the USB is required. However, proper operation is guaranteed only when RIG KONTROL is used as a single device with a USB 2 controller, or with a self-powered USB 2 hub.

9.4 Dimensions and Weight

- Dimensions: 360 x 237 x 102 mm (14.1 x 9.3 x 4 in)
- Weight: 2.6 kg (5.7 lb)

9.5 Environmental Specifications:

- Operating temperature: 0°C to 40°C (32°F to 104°F) (85% non-condensing humidity)
- Storage temperature: -20°C to 50°C (-4°F to 122°F) (85% non-condensing humidity)

9.6 System Requirements

- Mac OS X 10.6 (latest update), Intel Core Duo, 1 GB RAM, USB2.0
- Windows 7 (latest Service Pack, 32/64 Bit), Intel Core Duo or AMD Athlon 64, 1 GB RAM, USB2.0