



*An Impact Soundworks Instrument for Kontakt Player 5.7+*

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User Manual v1.0

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## INTRODUCTION

The pedal steel guitar's journey to Nashville began in the Hawaiian Islands. Islanders would take an old guitar, lose the frets, raise the strings, and then slide the dull edge of a steel knife to sound wavering chords up and down the strings. Further tinkering led to the invention of the Dobro, the classic bluegrass instrument. The Dobro eventually morphed into the lap steel, which when electrified was one of the first electric guitars, and along with the ukulele became one of the signature sounds of Hawaii. After pedals were added to the lap steel, pedal modifications developed until the standardized pedal steel was born.

Unlike the lap steel, the pedal steel guitar is not limited in its voicings – it allows for an unlimited amount of inversions and chords. By depressing pedals and knee levers while playing, the pedal steel performer can raise or lower each string up to two steps. Combined with the crying slide of the steel bar used to fret the strings, this affords the pedal steel guitar its expressive and distinct whine, “the other voice in country music.”



The pedal steel guitar that was sampled for this library is a modern standard 10-string E9 (Nashville tuning) guitar made by Williams, with single coil TrueTone pickup made by Jerry Wallace. It was recorded through a DI box and later re-amped with Fender and MESA/Boogie tube amps. The amps were recorded at their speaker output using a reactive load box so that they can be used with any cabinet IR.

Capturing all the nuance and flexibility of a pedal steel guitar was a huge challenge, but making it playable on a standard MIDI controller was an even greater hurdle. Our goal with this library was to offer easy playability without requiring intimate knowledge of a pedal steel guitar. To that end, it has a few key design concepts:

1. There is no visual fretboard, as we wanted the focus to be on simply playing the

instrument.

2. Multiple modes of playing depending on whether you want monophonic leads, polyphonic chords, or lead + harmonies.
3. An innovative harmony system that uses simple keyswitching with a powerful editor to produce nearly unlimited voicings.

The project's goal was to create an expressive instrument that doesn't distract you with unnecessary complexities. We hope we came close, and that you will find this virtual instrument inspiring and enjoyable!

## INSTALLATION

Follow these steps:

1. Download all RAR files for Pedal Steel to the same location on your computer.
2. Extract the file labeled Instruments Data, which will create a Pedal Steel folder.
3. Extract the file labeled Samples part1. This should add the Samples subfolder to Pedal Steel folder made in step 2. If you are prompted to "Merge" the folders, click YES.
4. Activate the library in Native Access using the serial number you received. You can then use the library from Kontakt Player or Kontakt!

For a short video tutorial on downloading, installation, and activation, [click here](#).

## USER INTERFACE

There are two user interface tabs, Pedal Steel and Console, located at the bottom. The Pedal Steel interface contains performance and engine related controls, while the Console one is all about the sound of the instrument.

For the Console interface, refer to the separate Impact Soundworks Console manual.

- *TIP: If you don't see the interface at all, click on the ISW logo on the left side, or the PV (Performance View) icon on the right side.*



The Pedal Steel interface is split into two areas:

1. Performance controls, that may regularly be adjusted during a performance.
2. Various settings, that depend on the user's preferences and Midi gear and will likely not need frequent adjustments during a performance.

## PERFORMANCE CONTROLS

On the left side there are various basic controls. The controls on the right side are vibrato related. Let's take a closer look at each one.



### VOICE MODE

Selects the instruments operating mode. There are three modes:

1. **Polyphonic Legato:** Polyphonic mode that automatically produces portamento legato (or glide) for overlapping notes that are one or two semitones apart. This mode represents the pedal and knee lever tuning function of the actual instrument.
2. **Polyphonic:** Works as a standard polyphonic keyboard or piano. May come in handy when you need a close voiced arpeggio.
3. **Harmonized Monophonic:** This mode is necessary to emulate the multiple note gliding ability of the actual instrument. This mode allows harmonization of monophonic melodies, transferring the expressive attributes of the melodic performance (e.g. portamento legato, dynamics) to the harmony notes. This mode represents the steel bar gliding of the actual instrument.

### ARTICULATION

Selects the picking technique. There are two articulations:

1. **Normal:** Represents 99% of a regular performance. It is the standard

fingerpicking technique, using two metal fingerpicks and a plastic thumbpick.

2. **Harmonic:** This mode triggers octave harmonics, a common pedal steel technique resulting in a chimelike tone.

## FRET POSITION

Pedal steel may be a fretless instrument but frets are still present on the board under the strings and indicate the position of the notes. A note can be played in multiple fret-string combinations and it sounds different in each one. This control allows you to switch between such different timbres for a given note. There are six fret position ranges to choose from. If a note cannot be played on a certain position range, it is played at the closest possible one. The six options are:

1. Low: This position ranges from open string to the 4th fret and produces the brightest timbre. As the position climbs to higher frets the timbre gradually loses its brightness and becomes fuller.
2. Low-Medium: Ranges from 5th to 8th fret.
3. Medium: Ranges from 9th to 12th fret.
4. Medium-High: Ranges from 13th to 15th fret.
5. High: Ranges from 16th to the highest fret sampled. For most strings that is the 21st fret, for the highest string that is the 26th.
6. Closest: Unlike the previous, this is not a fixed range. Instead, it will play the note at the closest fret to the current one and recalibrate its focus at the new fret. This means that the position range may keep changing as you play. Useful when playing long distance legato while in Harmonized Mono mode.

## TONIC

Although not strictly required, setting the tonic note serves a double purpose:

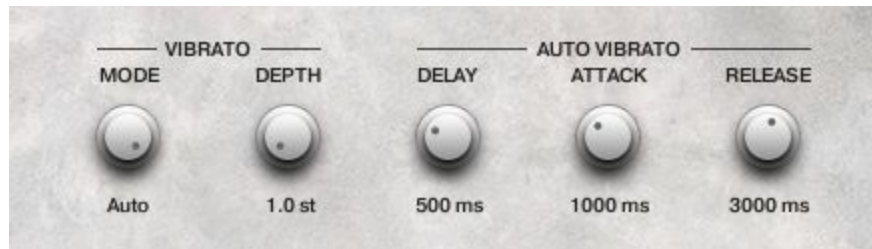
1. Sets the tonal center for any tuning system (or “temperament”). More on that in the [Temperament table chapter](#).
2. Sets the tonal center for the harmonization of the Harmonized Monophonic voice mode. More on that in the [Harmonization chapter](#).

## VOLUME PEDAL

Expression (Midi CC#11) is used as a volume pedal, but can be replaced by any other Midi CC# (by right-clicking on the control and assigning a different one). Its response can be

adjusted via the EXP > VOLUME table (more on that in the [EXP > VOLUME TABLE](#) chapter).

- *TIP: A standard pedal steel technique is to slightly knock back the volume pedal when pressing a note then gradually increase the volume. This technique compresses the signal and builds sustain.*



## VIBRATO MODE

There are two vibrato modes, Manual and Auto. Both make use of the modwheel, but in different ways. In Manual mode, the modwheel directly adjusts the vibrato depth and rate. In Auto mode, the modwheel sets the peak point of a vibrato envelope that is defined by the auto vibrato controls.

## VIBRATO DEPTH

Vibrato depth sets the maximum depth, i.e. the depth when modwheel is set to maximum. Works the same way for both Manual or Auto vibrato modes.

## AUTO VIBRATO DELAY

Controls how long a note is played before the vibrato kicks in.

## AUTO VIBRATO ATTACK

Once the vibrato kicks in, this control adjusts how long it takes for the vibrato to reach maximum depth.

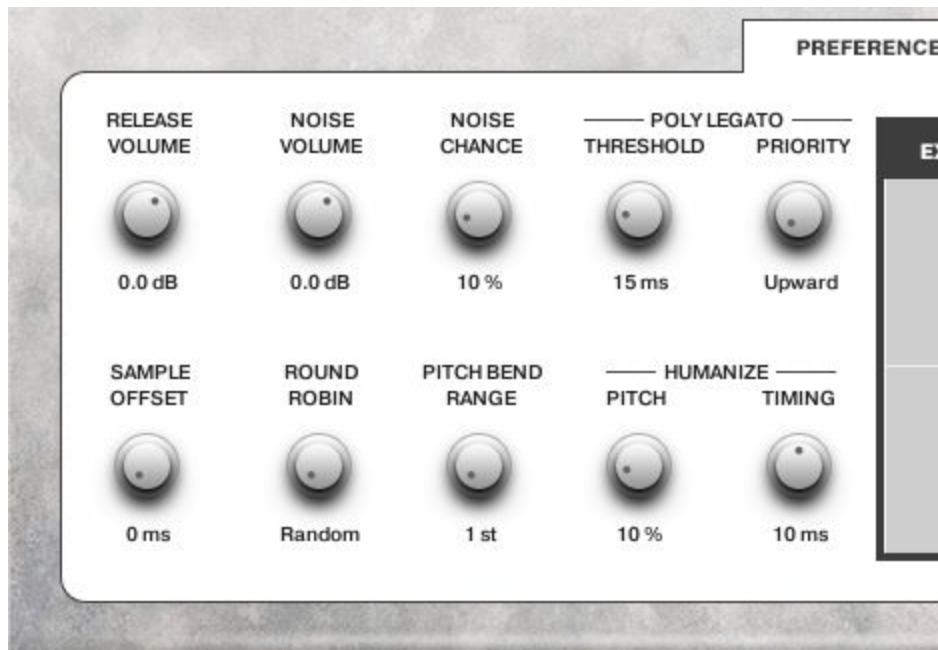
## AUTO VIBRATO RELEASE

After it reaches maximum depth, this control adjusts how long it takes for the vibrato to fully fade out.



## PREFERENCES

These controls will help you fine tune the instrument's behavior and sound to your needs.



### RELEASE VOLUME

Adjusts the volume of the samples that are triggered upon releasing a key.

There are two techniques for muting strings in steel guitars, palm blocking and pick blocking. While palm blocking doesn't produce any sound, pick blocking does, because the string vibrates momentarily on the hard surface of the fingerpick. With this control, you can bring pick blocking sound forward, or turn it all the way down (palm blocking).

Note that releasing sustain pedal will not trigger any release samples, emulating palm muting that is used for muting chords.

### NOISE VOLUME

There are several noises that are automatically triggered while you play. These noises, although subtle, are an integral part of the sound of the instrument. This control adjusts the volume for all of them. Noises include:

- pedal presses, triggered at the end of a legato glide.
- steel bar friction, triggered during vibrato, portamento and resetting fret position.
- guitar resonance, triggered during vibrato.
- Other small noises, triggered randomly.

## NOISE CHANCE

This knob controls if (and how often) small noises are randomly triggered after notes have been released.

## POLY LEGATO THRESHOLD

While in Polyphonic Legato voice mode, legato notes that are played faster than this time threshold are played in polyphonic mode, like a chord. This control allows you to play close voiced chords without the need to switch to Polyphonic voice mode. Set to 0 ms to deactivate this feature entirely.

## POLY LEGATO PRIORITY

When a polyphonic legato can go multiple ways, one way is prioritized. Example: While D and F notes are sustained, pressing E note triggers legato portamento. It could go upward from D to E or downward from F to E. Setting priority to Upward does the former, setting priority to Downward does the latter.

There are also two more options: Shortest and Newest. Shortest means shortest distance. In the same example, setting priority to Shortest would trigger a downward legato F to E because F to E is 1 semitone while D to E is two. Newest means newest source note. In the same example, if you had played the D note after F then Newest priority would trigger D to E, while if F had been played after D, the legato would be F to E.

## SAMPLE OFFSET

Trims off some of the pick-string impact noise that is heard before the note attack.

- *TIP: This portion is great for realism, but may make playing feel a bit laggy for some users. To overcome this, set this control to whatever feels comfortable while playing, then set to 0 ms during mixdown, compensating by moving the MIDI track back by the same amount.*

## ROUND ROBIN

The number of round robin samples for the various string-fret-articulation combinations varies. Sometimes there are 6, another time they are 12, and so on. But in all cases, they are evenly spread within the 1-127 range.

Example: In a 9\*RR case, these would be spread like this:

RR 1	RR 2	RR 3	RR 4	RR 5	RR 6	RR 7	RR 8	RR 9
0-13	14-27	28-41	42-55	56-70	71-84	85-98	99-112	99-112

If you wish to force a specific round robin to be triggered, which is why this control is for, play the note while sweeping the knob until you hear it, then use that value.

## PITCH BEND RANGE

Changes the pitch bend wheel range. Goes from 1 to 12 semitones.

- *TIP: A setting of 1 semitone may be best for performing vibrato manually using the pitch bend wheel.*

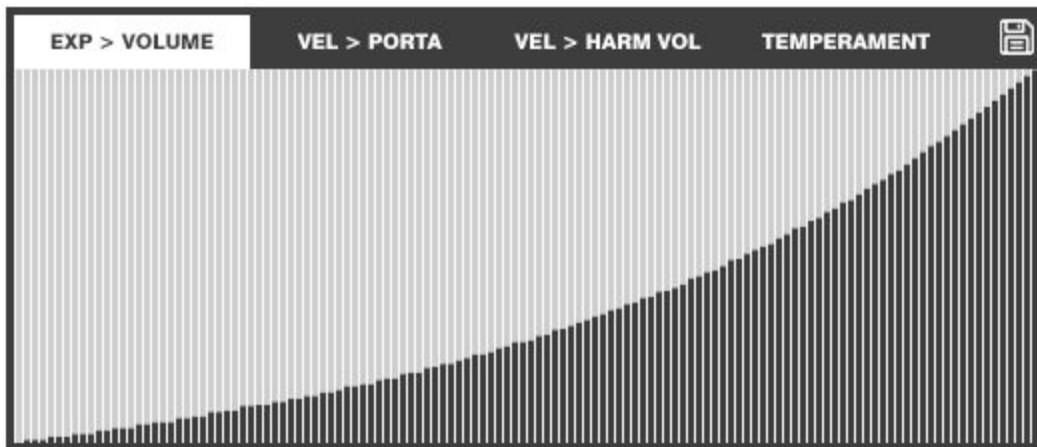
## HUMANIZE PITCH

Injects some randomness to the pitch. This is not an aggressive detuner, at 100% its range is plus or minus 7 cents of a semitone.

## HUMANIZE TIMING

Injects some randomness to the timing of harmonized notes so that they are not always triggered at the exact same time as the melody.

## EXP > VOLUME TABLE



Volume pedal is a very important component of the pedal steel sound. From swells to unlimited sustain, the volume pedal is one of the main reasons why this instrument is so expressive. This control allows you to customize the feel of the volume pedal to your liking. Use the mouse to draw the response curve (or “taper”) that feels best.

Horizontal axis represents note velocity and ranges from 0 to 127 (left to right). Vertical axis represents volume and ranges from 0% to 100% (bottom to top). The numerical values that appear as you click or draw show just that.

By clicking on the disk icon while the EXP > VOLUME table is displayed, you can save/load the current curve to/from file.

## VEL > PORTA TABLE



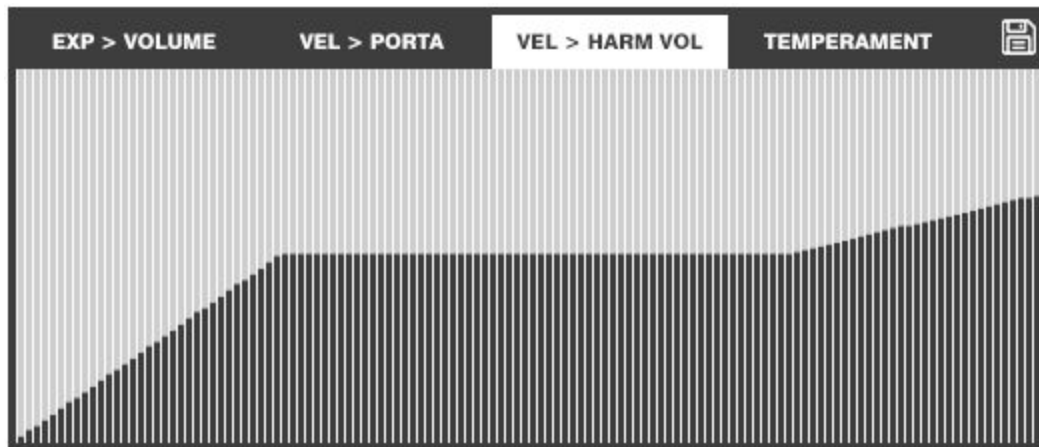
Portamento (or “glide”) speed is controlled by the Midi velocity of the target note.

Horizontal axis represents target note velocity and ranges from 0 to 127 (left to right). Vertical axis represents Portamento time and ranges from 0% to 100% (bottom to top). The numerical values that appear as you click or draw show just that.

The reason that Portamento time is not absolute is that it also depends on the distance between the notes in order to stay within a realistic range. In all cases, 0% equals no portamento (instant jump).

By clicking on the disk icon while the VEL > PORTA table is displayed, you can save/load the current curve to/from file.

### VEL > HARM VOL TABLE

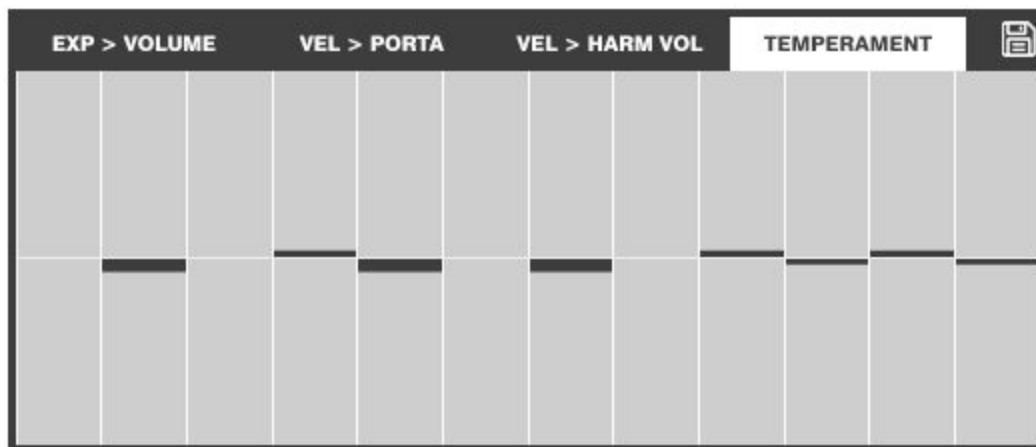


Since Harmonized notes are triggered by the melody note, they don't have separate volume. In most cases this doesn't matter, but for the case where it does (e.g. melody standing out) you can use this control to affect the harmony's volume in relation to the melody's.

Horizontal axis represents harmony keyswitch velocity and ranges from 0 to 127 (left to right). Vertical axis represents harmony to melody volume relationship and ranges from 0% to 200% (bottom to top). The numerical values that appear as you click or draw show just that.

By clicking on the disk icon while the VEL > HARM VOL table is displayed, you can save/load the current curve to/from file.

## TEMPERAMENT TABLE



With its ten strings and all the pedals and levers, a pedal steel guitar can create all sorts of intervals. And being able to transport the open tuning to any fret (via the bar), pedal steel is one of the few instruments that can effectively apply a tuning system (or “temperament”) to any key. This ability allows steel guitar musicians to optionally step away from equal temperament and improve the intonation of their instrument. There are benefits as well as disadvantages to each tuning system, regarding intonation, and steelers tend to customize their tuning a lot. This control allows you to do just that.

Each column represents one of twelve steps of the octave, with the tonic being first from the left. Middle horizontal line represents the equal temperament tuning. If you click with your mouse above that line, that note is tuned up. Click below the line and that note is tuned down. The numerical values that appear as you click are semitone cents (1/100 st).

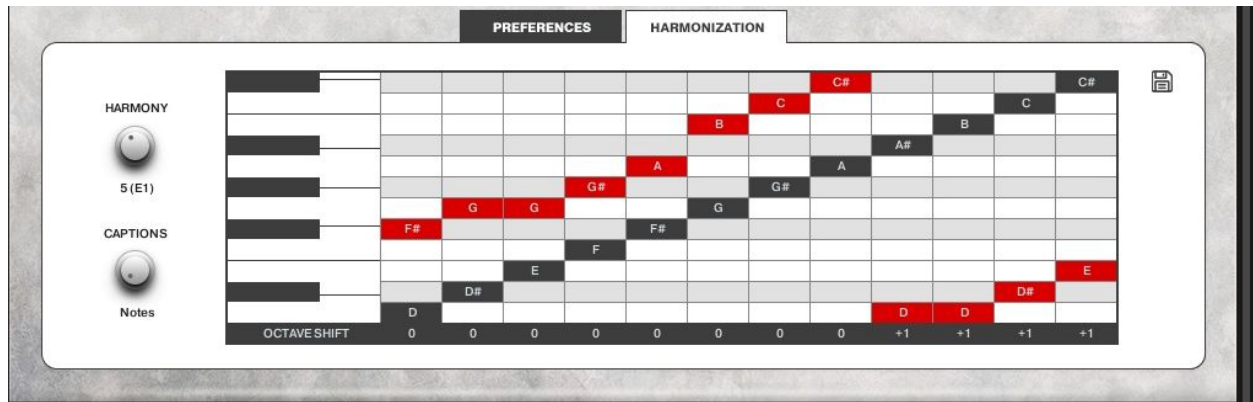
By clicking on the disk icon while the Temperament table is displayed, you can save/load the current temperament to/from file.

## HARMONIZATION

The Harmonization tab opens the Harmonization editor, which lets you create custom harmonic interval sets and assign them to keyswitches. Pressing such keyswitch, while in Harmonized Monophonic voice mode, will trigger an additional note (“harmony”) for each note you play (“melody”).

The editor piano roll adapts to the tonic currently selected. Bottom-left note is the tonic.

Each set consists of 12 intervals, one for every step of an octave (black notes). Intervals are created by dragging red notes up or down with the mouse. You can create intervals up to an octave above or below the melody note. You can harmonize in major, minor or any harmony you want to.



The set is stored in the Harmony preset that is currently selected and can also be saved to an external file via the disk icon. You can additionally save or load all eleven Harmony sets bundled together, as Harmony banks.

To the left of the Harmonization editor, there are two knobs:

## HARMONY

Harmony knob selects the preset that holds the current interval set.

## CAPTIONS

Captions knob switches between note names and intervals.

- *TIP: You can press more than one Harmony keyswitches at once and harmonize simultaneously, using multiple voices.*

## OPERATION TIPS

- For realistic results, limit your chord polyphony to 3 voices, as pedal steel is commonly played using three fingers.
- Almost every control can be automated. Right click on it and assign a Midi CC#.
- CTRL+click on controls resets them to their default value.

## CREDITS

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**Console Design** : Nabeel Ansari, Mario Krušelj and Dickie Chapin

**Console Programming** : Nabeel Ansari and Mario Krušelj

**Testing** :

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## TROUBLESHOOTING

Having trouble with Pedal Steel? Use it in a project you want to tell us about? Drop us a line via our [Contact page](#) (but be sure to [read the FAQ](#) first!)

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