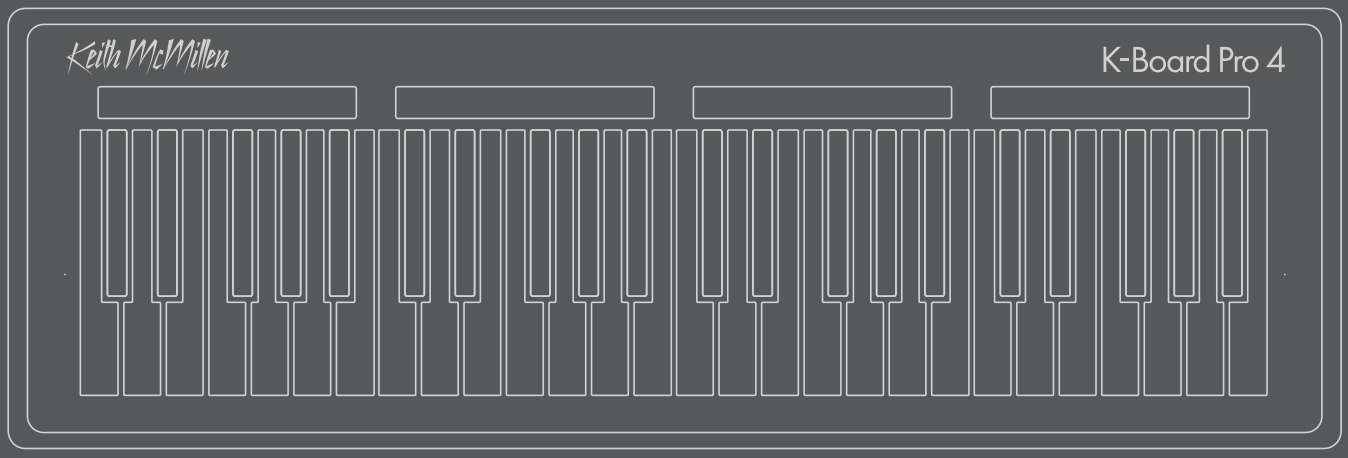

K-Board Pro 4
User Manual

VERSION 1.2

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Welcome

Hello, and welcome to the world of K-Board Pro 4! Taking the time to read this document is a huge step toward mastering the K-Board Pro 4.

The purpose of this document is to provide a resource containing helpful information regarding the use of the K-Board Pro 4 hardware and software. While this document is written for people of all levels, it does not attempt to explain basic, fundamental MIDI concepts or terminology, and it is assumed that you have at least basic experience working with USB MIDI devices, MIDI software, and MIDI hardware.

Questions? Feedback? Contact Us!

Any questions or feedback that may come up regarding K-Board Pro 4 or its software can be directed to us here:

- **Technical Support**: https://support.keithmcmillen.com
- **General Questions**: contact@keithmcmillen.com
- **User Forum**: https://forum.keithmcmillen.com

Where To Download Everything

All K-Board Pro 4 software can be downloaded on the KMI website: keithmcmillen.com

You can also access the K-Board Pro 4 Editor online: https://files.keithmcmillen.com/products/k-board-pro-4/editor/

Before You Begin



1.1 What's In The K-Board Pro 4 Box?

K-Board Pro 4

For playing.

Micro USB Cable

For connecting K-Board Pro 4 to a USB host (computer, tablet, etc).

1.2 What's In The MIDI Expander Package?

MIDI Expander

For connecting K-Board Pro 4 to MIDI hardware.

USB Power Supply + Converter Blades

+5V DC, 500 mA

Includes power converter blades for non-United States AC sockets.

USB B Cable

For connecting the Expander to the USB power supply.

Mini-USB Cable

For connecting the K-Board Pro 4 to a MIDI Expander.

1.3 – System Requirements

1.3.1 – Hardware

Mac OS

- Mac OS 10.6 (or greater)
- Intel Core 2 Duo (or greater)
- USB 2.0 (or greater) port

Windows

- Windows 7, 8, & 10
- USB 2.0 (or greater) port

1.3.2 – Software

Mac OS

- Mac OS 10.9 or later
- Intel Core 2 Duo (or greater)
- USB 2.0 (or greater) port
- 100 MB free hard disk space

Windows

- Windows 7, 8, & 10
- 64 bit
- 2.5 GHz processor (or greater)
- 4 GB RAM (or greater)
- USB 2.0 (or greater) port
- 100 MB free hard disk space

Web Editor

- Chrome, Opera or other Web MIDI capable web browser. To check compatibility with WebMIDI, go here: http://caniuse.com/#feat=midi
- Windows Users: if you have issues with device connections or Firmware updating, you can enable a flag in the browser, enter the following in the URL bar: `chrome://flags/#use-winrt-midi-api` and set it to “enabled” and then restart your browser.

Getting Started



2 - Getting Started

This section provides information that will help you get started with the K-Board Pro 4. We will introduce the K-Board Pro 4 hardware, discuss how to connect your K-Board Pro 4 to the world, and go over basic operation of the device and the editor. More in-depth information is available in the K-Board Pro 4 Hardware and K-Board Pro 4 Editor sections.

To connect your K-Board Pro 4 to a USB host, use the included micro USB cable to connect the USB port on the back of the K-Board Pro 4 to a USB A port on the desired device.

2.1 The K-Board Pro 4 Hardware

You can interact with the K-Board Pro 4 via the keys, and the four assignable sliders above the keys. The sliders can be programmed to control internal functions of the device, or send a variety of MIDI data using the Editor.

The K-Board Pro 4 has two USB ports on the back of the device, as well as one expression pedal input and one sustain pedal input. Use the micro USB port to connect to a USB host, and the mini USB port to connect to a MIDI Expander to allow for communication with 5 pin MIDI devices. More information can be found in the K-Board Pro 4 Hardware section.



To connect to an iOS device, we recommend using an Apple branded Camera Conection Kit (USB to Lightning adapter). To connect to an Android device, you should use a USB OTG cable.

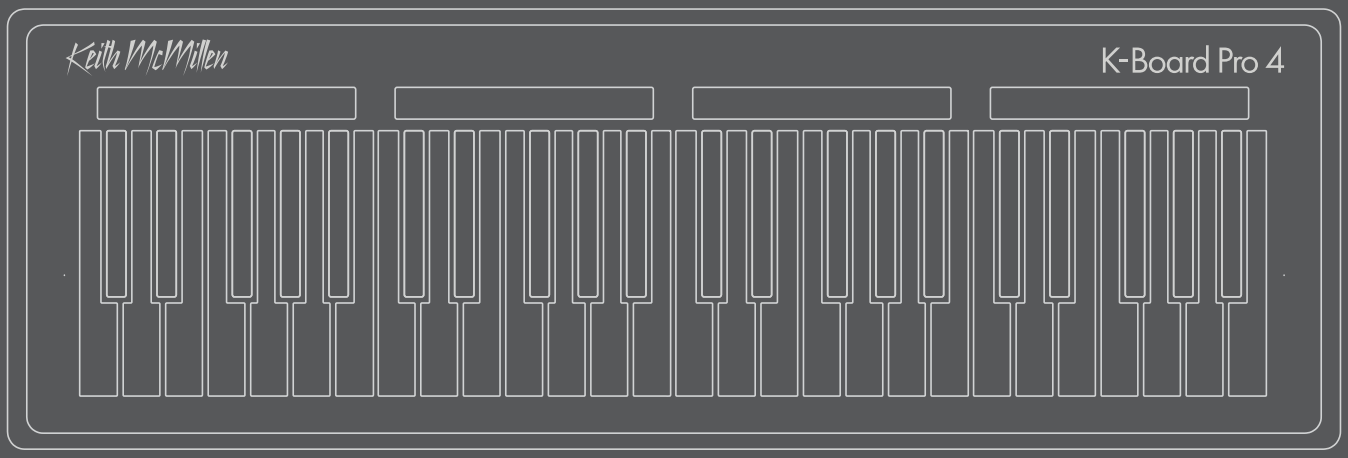
2.2 The K-Board Pro 4 Software

The K-Board Pro 4 Editor runs on the desktop, and in WebMIDI capable browsers. The Web Editor for K-Board Pro 4 is compatible with any device that can run a WebMIDI capable browser. The Standalone Editor is compatible with any device running MacOS or Windows. The Editor allows you to customize nearly all aspects of how the K-Board Pro 4 responds to user input. More information can be found on the K-Board Pro 4 Editor section.



You may need to give the browser permission to control your MIDI device. This is simply a security precaution when sending SysEx to a MIDI device.

Features Overview



3 - Features Overview

The K-Board Pro 4 is a fully MPE compatible instrument capable of sending accurate and highly nuanced MIDI data to your computer or other MIDI device.

3.1 Expressiveness and Flexibility

The K-Board Pro 4 can send a variety of different MIDI data from its keys and sliders.

Notes

The K-Board Pro 4 can send MIDI notes with strike and release velocity just as some other MIDI keyboards.

Control data

The K-Board Pro 4 can send CC data, pitch bend data, channel pressure, and poly aftertouch in a variety of ways. You can send these messages from the Z-Axis (pressure), Y-Axis, X-Axis.

3.2 Connectivity

The K-Board Pro 4 is a class compliant MIDI device, which means you can connect it to just about anything that speaks MIDI. Simply connect the full size USB port to any USB host and start playing.

Using the included USB cable you can connect to a computer running any modern OS (Mac, Windows, and Linux) that supports the Class Compliant MIDI standard, as well as mobile operating systems.

You can also connect to the optional MIDI Expander to communicate with MIDI hardware using traditional 5 pin MIDI connections.

3.3 MPE Compatible

The K-Board Pro 4 is fully MPE compatible right out of the box.

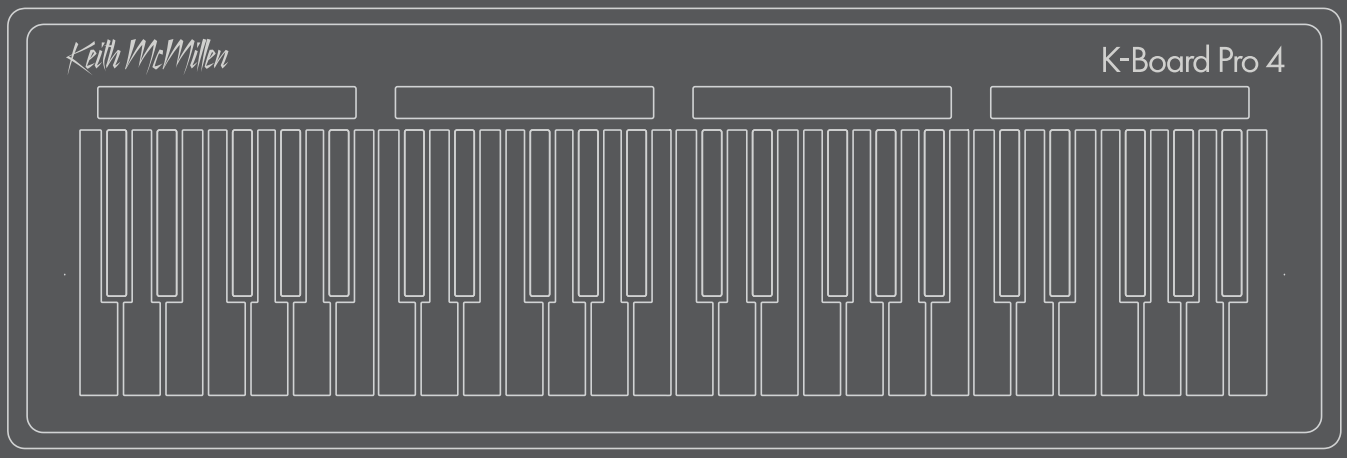
What is MPE?

MPE stands for MIDI polyphonic expression and allows for each note to have its own control and pitch bend data. MPE is a recently approved part of the MIDI specification and is starting to see more widespread adoption.

The basic idea of MPE is that each note is sent on its own MIDI channel, along with some standardized MIDI messages to control the expression/pitch for that note. Each note can be accompanied by pitch bend, channel pressure, and CC74 giving three unique dimensions of control and expression to each note. You can also assign most any MIDI control message to any axis using the K-Board Pro 4 Editor.

If you'd like to dig a little deeper into the MPE specification you can find the full documentation here: https://www.midi.org/articles-old/midi-polyphonic-expression-mpe

K-Board Pro 4 Hardware



4 - K-Board Pro 4 Hardware

The Keys

The K-Board Pro 4 has 4 octaves of Smart Sensor keys that provide full MPE support in a familiar keyboard layout. The keys provide you with 5 dimensions of control, along with pitch data.

- Strike Velocity
- Continuous Pressure
- X-Axis
- Y-Axis
- Release Velocity

For more information on configuring the keys, see the Keys & Zones section of the manual.

The Sliders

The Sliders can send MIDI CCs or Pitch Bend messages, or you can have them perform functions that modify the behavior of the hardware. The slider modes available are:

- Off
- Preset Select
- Global Pitch Bend
- CC
- Octave 4
- Octave 7
- Transpose
- Key Pitch Bend Range
- Pitch Bend Return Time

Any slider can be set to any of the 9 modes. For more information on modes and configuration see the Sliders & Pedals section of the manual.

The USB Ports

The USB ports allow the device to communicate with the outside world. The micro USB port is used to connect to laptops, tablets, or other USB hosts. The mini USB port is used to connect to the KMI MIDI Expander for communicating with 5 pin MIDI devices. The K-Board Pro 4 is bus powered, and can be powered from either port.

The pedal inputs

There are two inputs on the back of the device that allow you to connect one sustain pedal and one expression pedal to send CCs.

With Sustain Pedals, an open switch outputs as a 0, closed switch outputs 127.

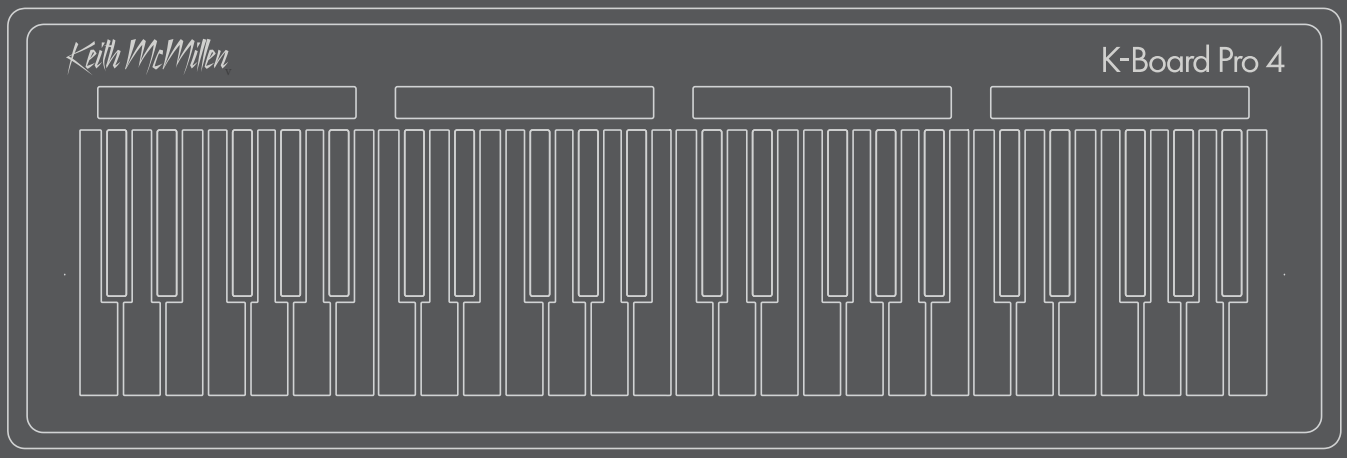
The expression pedal input works best with a 10V linear pedal, such as the Roland EV.

The MIDI Expander

The KMI MIDI Expander allows the K-Board Pro 4 to communicate with traditional 5 pin MIDI hardware. Using a mini USB cable, connect the mini USB port of the K-Board Pro 4 to the Expand port of the MIDI Expander. Provide power using a USB power supply into the Power USB B port on the Expander (most all USB power supplies provide 5V and plenty of amps, but be sure that the power supply provides 5V and at least 500 mA). You can also provide power via the main USB port from a connected computer, or a USB power supply.

No further configuration is needed, the MIDI Expander output mirrors the MIDI data that is sent over USB. Simply connect the MIDI Out of the Expander to the MIDI input of your synthesizer/MIDI hardware. The MIDI out LED will light yellow indicating that the Expander is passing MIDI data.

K-Board Pro 4 Editor



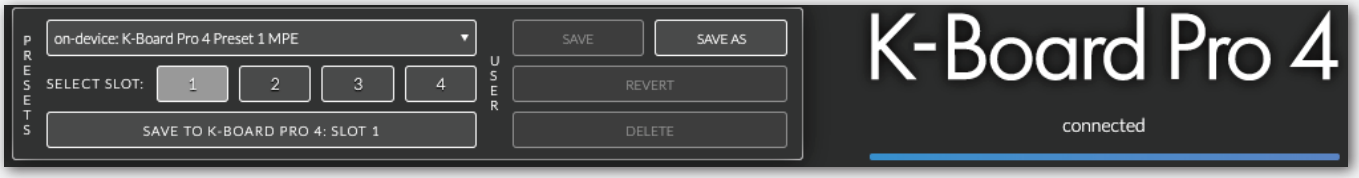
5 - K-Board Pro 4 Editor

This section covers the basic operation and features of the K-Board Pro 4 Editor, along with any differences between the desktop and web editors.

The Editor

The K-Board Pro 4 Editor is where you define what data your K-Board Pro 4 will send, how it will send the data, and a variety of other settings. This information is stored in Presets.

5.1 The Preset Section



The Preset section allows you to save, recall, and send presets to the K-Board Pro 4. The K-Board Pro 4 can hold up to 4 presets. Presets can be selected by sending Program Change Messages to the K-Board Pro 4 from software or hardware. Simply send a program change message 0-3 on channel 1 to select one of the 4 on board presets. Sliders can be programmed to select presets.

Selecting a Preset for Editing

Select the preset you want to edit from the dropdown menu. When selected, the preset is loaded into a temporary 'edit buffer', which allows you to instantly preview any changes made in the editor on your K-Board Pro 4. The edit buffer is only temporary and any unsaved changes will be lost when the K-Board Pro 4 is disconnected from your computer/tablet/phone.



You cannot save or overwrite a factory preset. Use the Save As function to create a user preset.

Saving a Preset

To save a preset to the K-Board Pro 4, load a preset into the editor from the dropdown menu, select one of 4 K-Board Pro 4 Destinations, and then click 'Save To K-Board Pro 4.' This stores your preset into one of the 4 memory locations on the K-Board Pro 4 until you choose another preset to store in that memory location.

Types of Presets

On-Device

These are the presets currently stored on your K-Board Pro 4. You can store 4 presets on your K-Board Pro 4. By default, your K-Board Pro 4 is loaded with our 4 Factory presets.

User

These are your custom presets that have been saved into the Editor. You can store an unlimited number of User presets to the Editor. You can also export and import User Presets as JSON files (discussed below).

Factory

These are our Factory presets that are designed to help you explore the various playability features of the K-Board Pro 4. These are stored on our servers and may be updated by us at any time.

Exporting a Preset

The Editor allows you to export all of your User Presets as a JSON (JavaScript Object Notation) file for storage, backup, or portability. In either the Web or Desktop Editor, open the preferences window and click on the Export button to save the JSON file to your computer. If you're using the Desktop Editor, you can also select Presets > Export Presets from the application menu.

Importing a Preset

You can import your saved User Presets into the Editor in two ways. If you're using the Web Editor, you can drag n' drop the User Presets JSON file onto the Preset Manager section of the Editor. If you import a preset that has the same name as an existing User Preset, a dialog window will appear allowing you to rename your imported presets. If you're using the Desktop Editor, you can also drag n' drop the preset file onto the Preset Manager or you can select Presets > Import Presets from the application menu.

Using User Presets

Create / Save As

User Presets are your custom presets. To create a new User Preset, you can use an existing preset as a starting point and click Save As, this will open up a dialog box where you can name your new preset (names are limited to 32 characters). Click the Save button to save your new preset.

Save / Revert

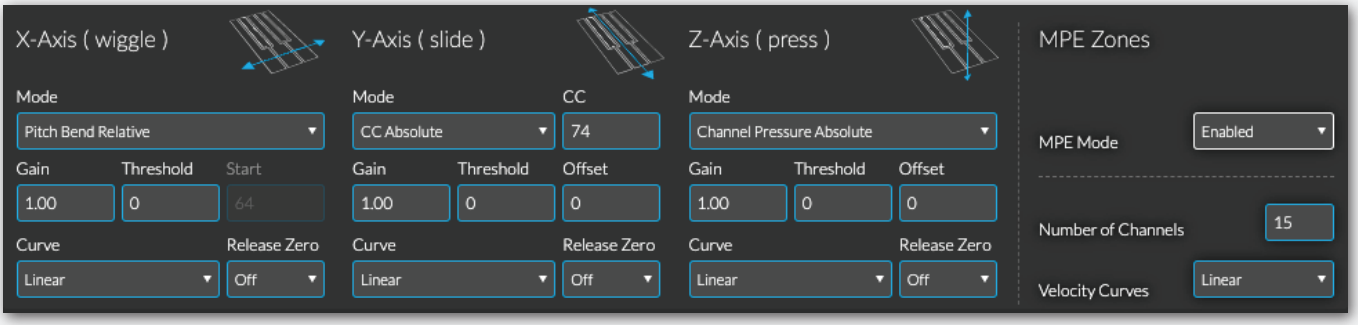
When editing your preset, the 'Save' button and the 'Revert' button become red, indicating that there are unsaved changes to the preset. To save changes, click 'Save'. To revert your changes to that last saved state, click 'Revert'. Note: this only saves the preset to the editor. If you want to load the preset onto the K-Board Pro 4, follow the 'Saving a Preset' section above.

Delete

You can delete a User Preset by selecting the preset in the preset menu and then clicking 'Delete'. This only deletes the preset from the Editor and not from the K-Board Pro 4.

5.2 The Keys & Zones Section

The Keys & Zones section is where you define and fine tune how the data from the X-Axis, Y-Axis, and Z-Axis is sent from the K-Board Pro 4.



Keys

The K-Board Pro 4 can send a variety of MIDI message types. Use the Mode menu to choose what kind of data you wish to send from each axis:

- Off - No data will be output from this axis. Note data will always be sent.
- Pitch Bend Absolute - The absolute position will be used to output 14 bit pitch bend data.
- Pitch Bend Relative - The relative position (initial position = 0) will be used to output 14 bit pitch bend data.
- Pitch Bend |x| - The relative position will be used to output only positive 14 bit pitch bend data.
- CC Absolute - The absolute position will be used to output a 7 bit CC message.
- CC Relative - The relative position (initial position = 0) will be used to output a 7 bit CC message.

  Note: When the X and Y axis are set to send a CC, the X-Axis will default to CC 1 (mod wheel) and the Y-Axis will default to CC 7 (volume).

- Channel Pressure Absolute - The absolute position will be used to output an aftertouch message.
- Channel Pressure Relative - The relative position (initial position = 0) will be used to output an aftertouch message.
- Poly Aftertouch (Z-Axis only) - Outputs Poly Aftertouch messages on the zone master channel.

  X axis and Y axis have identical message types, while the Z axis (pressure) does not allow for Pitch Bend Relative. The data from each axis can also be fine tuned using the threshold, gain and offset parameters.

- Threshold - The Threshold setting operates differently depending on the axis and the mode that is selected.

  X-Axis:

  - X-Axis Pitch Bend modes: Threshold enlarges the physical space around the portion of the X-Axis that corresponds to a bend of zero. (In Relative modes this is the initial position after a key-on, and in Absolute modes it is the middle of the X-Axis).
  - X-Axis non-Pitch Bend Modes: Threshold works the same way as above, except the zero value is dictated by the Axis Start setting.

Y-Axis:

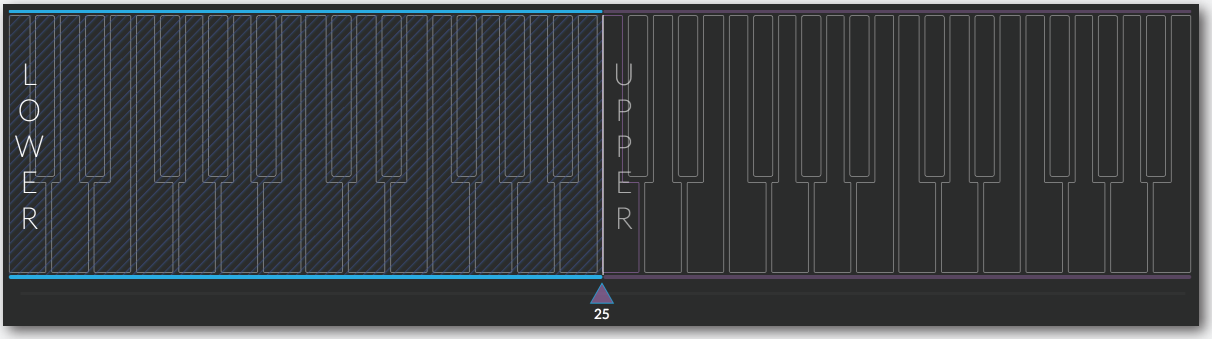
- Y-Axis Relative Modes and Pitch Bend Modes: Threshold enlarges the physical space around the portion of the key that corresponds to a bend of zero. (The initial position in Relative modes, and the middle of the key in Absolute).
- Y-Axis non-Pitch Bend Absolute Modes: Threshold enlarges the area at the base of the key that is considered to be zero.

Z-Axis:

- Z-Axis: Threshold extends the lower pressure range which the Z-Axis considers to be zero.

- Gain - Scales (multiplies) the data. For example, with a gain of 2, the data will be twice as large, with a gain of .5 the data will be half as large. In relative mode, gain is applied evenly in the positive and negative directions. Values range from 0.0 - 2.0.
- Offset - This value is added to the axis output after Gain is applied. Values range from -127 to +127. Offset is not applicable to the Y-Axis Pitch Absolute, the middle of the key is 0.
- Start - In Relative mode, axis output begins at this value and all output for the duration of the keypress centers around it. Gain is calculated with Start considered to be zero and values above and below are treated as growing in the positive or negative direction. Values range from 0 -127.
- Curve - Select a curve to apply to the incoming data. You can choose from a variety of template curves, or a use your own curves. See the User Curves section for more information.
- Release Zero - With this turned on, a value of zero will be sent for the data of the axis when you release a key. Turning this on is often necessary to play in tune when using a sustain pedal.
- MPE Mode - Turn MPE on or off. When MPE mode is disabled values from each axis will be averaged (for example, if sending a CC from the Z-Axis the average value from all keys will be used). The exception to this is Z-Axis Poly Aftertouch, which behaves the same in both MPE and non MPE mode.

5.2.1 Zones



You can split the K-Board Pro 4 into 2 zones; the zones section lets you define the behavior of the zones.

Settings that apply to the lower zone will be blue; settings that apply to the upper zone will be purple. Settings that are global, or note specific to a zone will be white. Settings that are off will be gray.

- Number of Channels - Available when MPE mode is set to "Enabled". Set the number of channels for MPE each zone will use. If there are no zones, this parameter sets the number of channels to use for MPE.

- Zone Channel - Available when MPE is disabled. Set the MIDI channel the selected zone will send on.
- Velocity Curves - Select the note velocity curve for the selected zone. There is a collection of template curves, as well as 4 customizable user curves. See the User Curves section for more information on editing and using User Tables. Select the --Edit Curves-- option to open the User Curves Window.

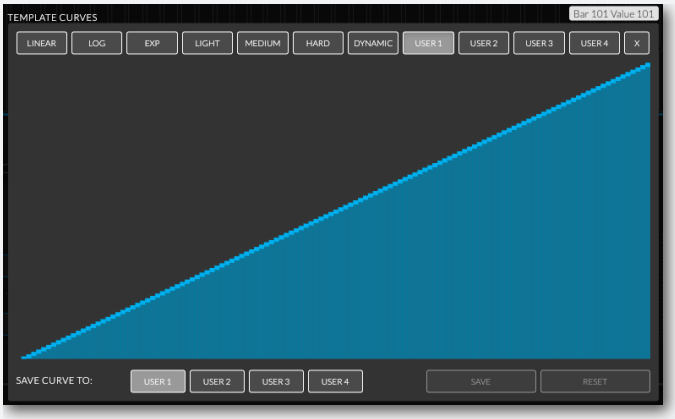
You can also set the zone split by dragging the handle below the keyboard visualizer. You select a zone by clicking within a zone in the keyboard visualizer. Once a zone is selected the outlines of the key parameters will reflect the currently selected zone (blue for the lower zone and purple for the upper zone). Once a zone is selected, each axis can be assigned to send data per zone. For instance you could send pitch bend from the X axis from the lower zone, and CC 7 from the X axis on the upper zone.

5.2.2 Visualizer

In addition to allowing you to define Zones (as discussed above), the visualizer displays what the sensors are seeing when you interact with K-Board Pro 4. This information can be used as a visual overview of your current preset settings and can be particularly useful for understanding how Return Mode works.

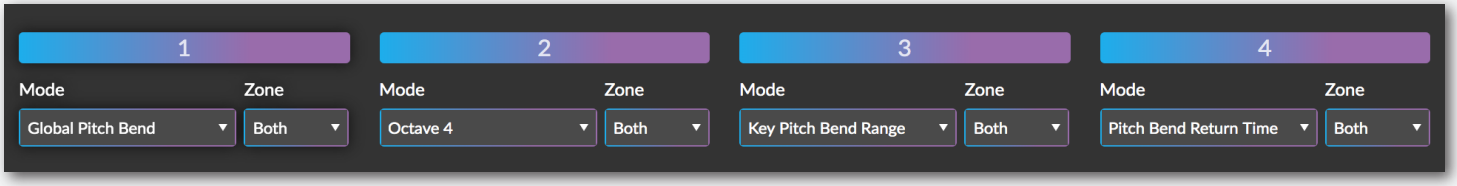
5.2.3 User Curves

The User Curves Window allows you to create custom curves to shape a variety of data. These curves can be applied to note velocity, release velocity, and key axis modlines. You can save up to 4 user curves. Simply drag your cursor to create a custom curve. Clicking on any of the template curves will give you a starting point. Hitting reset will revert the curve to linear. After creating a user curve, you must save and send the curve to the device with the Save & Send button.



5.3 The Sliders & Pedals Section

The Sliders Section



The Sliders section is where you define the behavior of the 4 horizontal sliders; they can be set to any of 7 modes:

- CC - This mode sends out a user selectable CC number on either the Lower or Upper Zone channel.
- Global Pitch Bend - Global Pitch Bend, like the other modes, can be assigned to send on either of the zones individually or both simultaneously. Note that when MPE is On, it is distinct from the Key Pitch Bend, which is sent on whatever Zone Member Channel a specific key occupies.
- 4 Octave Select - Adjusts the notes of the assigned zone(s) up or down by octave within a four octave range, this is the most useful range for general use (MIDI notes 24–107).
- 7 Octave Select - Adjusts the notes of the assigned zone up or down by octave within a seven octave range (MIDI notes 0–119).

- Key Pitch Bend Range - This modifies the Key Pitch Bend Range (most commonly assigned to the X-Axis, but also potentially the Y or Z Axes). It does not affect the range of the Global Pitch Bend. Assignable to the upper, lower, or both zones.
- Preset Select - Selects from one of the four user presets. Note that if you switch to a preset in which this slider is assigned to a different mode, the functionality of the slider will change to the new assignment under your finger.

> For smooth preset switching, verify that all on device presets have the same slider set to Preset Select mode.

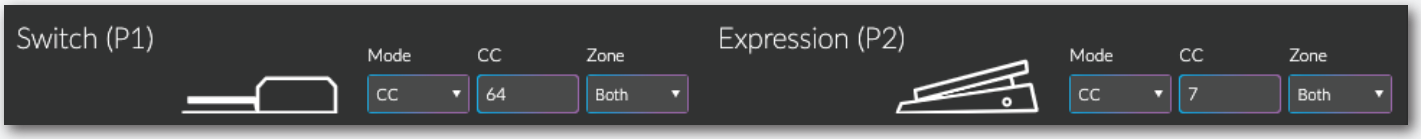
- Transpose - Shifts the notes of the keyboard up by 0-12 semitones. Assignable to the upper, lower or both zones. No transpose is indicated by the two outermost LEDs being lit.
- Pitch Bend Return Time - Adjusts X-Axis Return Time for per key pitch bend and toggles Return Mode on/off. The first 11 slider positions set the range of X-Axis Pitch Bend from 0.1 to 1.1 seconds. The rightmost slider position sets Pitch Bend Return Mode off (infinite return time) and is represented by an alternating LED on/off pattern.
- Off - This slider will have no functionality.

Use the Zone dropdown menu to assign a slider to a particular zone.

By default the sliders are assigned to the both zones and set to the following modes:

- Slider 1 - Global Pitch Bend
- Slider 2 - Octave 4
- Slider 3 - Key Pitch Bend Range
- Slider 4 - Pitch Bend Return Time

The Pedals Section



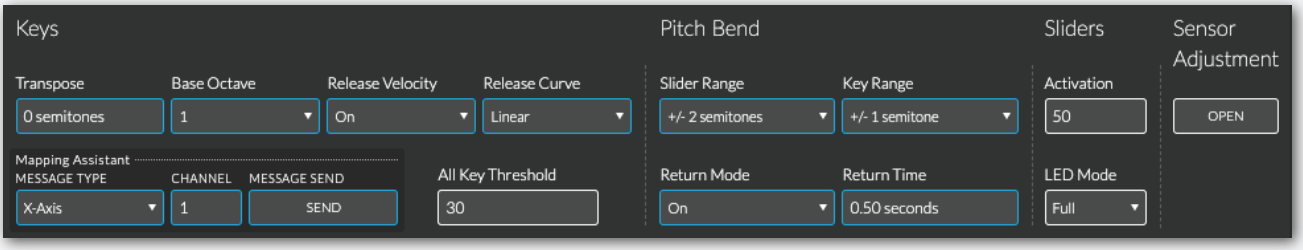
The Pedals section is where you define the behavior of the K-Board Pro 4's pedal inputs.

The first pedal is the switch pedal input. This input accepts standard sustain type (momentary) pedals. There is no internal sustain function, setting the CC to 64 (the general MIDI message for sustain) will allow the K-Board Pro 4 to instruct the destination software/hardware to sustain. You can also set it to output any CC you wish. The second pedal input is the Expression pedal input. This input accepts standard expression type (continuous) pedals. Similar to the sliders, the pedals can send on one or both zone's master channel.

- Mode - set the pedal to send a CC, or turn it off.
- CC - Set the CC that the pedal will send.

5.4 The Advanced Section

The Advanced section provides control over a variety of hardware settings.



Keys

- Base Octave - Set the base octave for keys in a selected zone. The range depends on if a slider is set to an Ocatve mode. If set to Octave 4, the range is 0 to3. If set to octave 7, or not set the range is -2 to 4.
- Transpose - Set the transposition, in semitones. Values range from 0 to 12.
- All Key Threshold - Controls how easy it is to activate the keys. Lower values make the keys easier to trigger, higher values will require more pressure to activate the keys. Values range from 0 to 254, the default value is 30.
- Release Velocity - When release velocity is on, note-off messages are sent with a velocity determined by a combination of the pressure on the key and the speed of release. When release velocity is off, note-off messages are sent with a user selectable velocity of 0, 64 or 127.
- Release Curve - Apply a curve to release velocity.

Pitch Bend

- Slider Pitch Bend Range - Set the range of pitch bend for any slider assigned to global Pitch Bend. Values range from +/- 0, to +/- 12, with some microtonal ranges available.
- Key Pitch Bend Range - Set the range of pitch bend for the keys. Values range from +/- 0, to +/- 12, with some microtonal ranges available.
- Return Mode - Turns Pitch Bend Slew on/off. When this is active, pitch bend from a key will slew back to 0 as long as the key is held down. This allows you to add a vibrato to a note and easily return to playing in tune. Return mode is On by default.
- Return Time - Sets the time it takes for the pitch to slide back to zero. Larger values make longer slower bends easier to execute. Smaller values make quick vibrato gestures sound tighter and more controlled. Values range from 0.1 to 1.1 seconds.

Sliders

- Activation - Controls how easy it is to activate the sliders (useful if you find yourself accidentally triggering sliders). Higher values make it more difficult to trigger the sliders. Value defaults to 50.
- LED Mode - You can set the LEDs beneath the sliders to Full or Reduced mode. Reduced mode is useful when powering from a tablet.

- Sensor Adjustment - Opens the Sensor Adjustment window.

5.4.1 Mapping Assistant

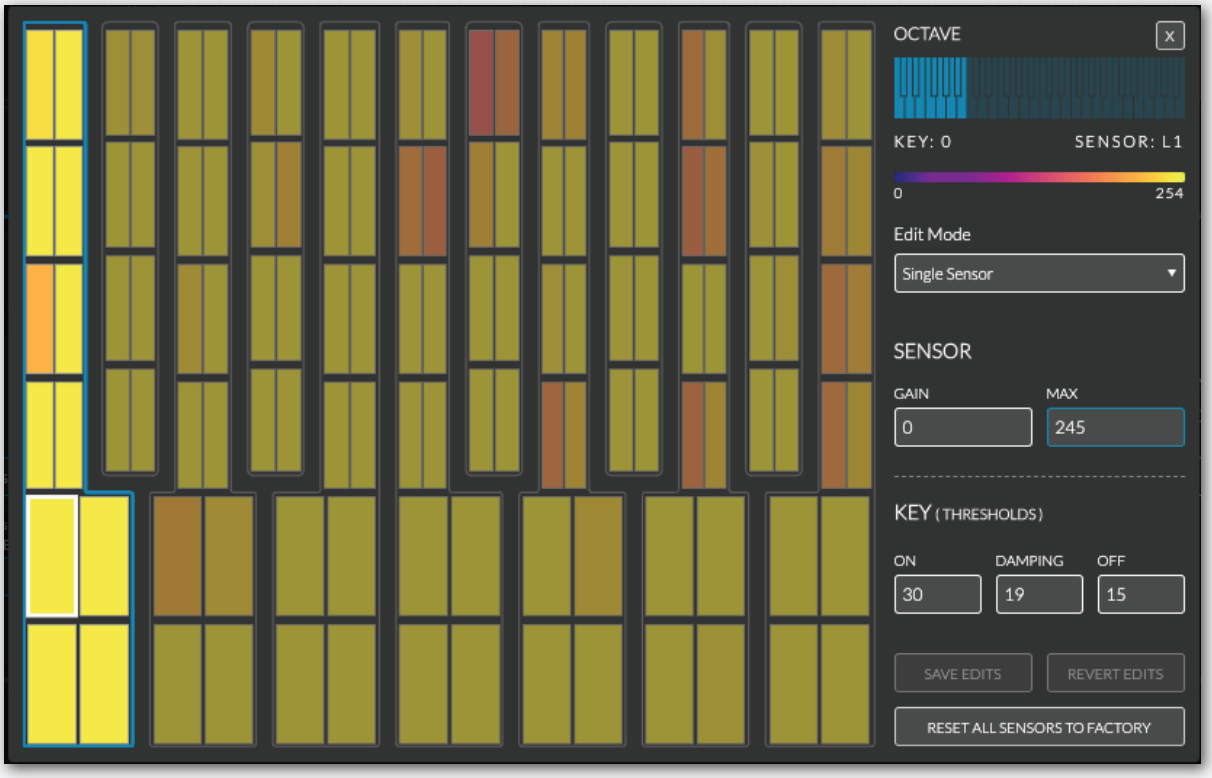


Mapping MIDI messages from a controller to elements within a DAW can be difficult under any circumstances, but MPE's use of multiple message types sent simultaneously over all 16 MIDI channels can create an especially great challenge for a DAW or synth that is not yet MPE-compliant.

The Mapping Assistant makes this process simpler by allowing you to 'solo' any of the MIDI messages that the K-Board Pro 4 is assigned to send and send them one at a time over a single channel.

Use the Message Type and Channel boxes to select which message-type you wish to send (X-Axis, Y-Axis, Z-Axis, or Note On/Off) and the channel. Hit the SEND button and the K-Board Pro 4 will send the specified message up to your DAW or out the Expander port to your hardware device. This isolated MIDI message can then be easily detected and assigned to your desired parameter.

5.4.2 The Sensor Adjustment Window



The Sensor Adjustment window allows you to fine tune the response of individual sensors, entire keys, entire octaves, or the entire device.

Select an octave to edit in the upper right. You can choose to edit individual sensors or groups of sensors with the Edit Mode menu.

Each key contains two rows of sensors that are used to detect everything about how your fingers interact with the keys. Select an individual sensor by clicking on the display on the left. The user-adjustable parameters for that sensor, as well as for that entire key, will be displayed in number-boxes below the octave selector.

Each sensor has its own Gain and Max setting, and each key has independent On, Damping and Off thresholds that override the values given by the All Key Threshold (section 5.4).

Once a parameter is selected the sensor display will color in each of the sensor locations to visually indicate that parameter's value across the octave (blue is low, yellow is high – look for the color bar beneath the octave selector for more detail).

Sensor Settings

These settings affect the sensor input to the Key On/Off and Note Velocity calculations.

Gain - This is the input to a tapered gain algorithm that boosts the lower range of the sensor response. If you feel a sensor is not as sensitive to lower pressures as its neighbor or is too sensitive, try raising or lowering this number. Lower settings in the range of 0-20 can be effective here, and the full range for this value is 0-100.

Max - This sets the maximum expected output of the sensor after the gain stage and is useful for setting the sensor response to higher pressures and heavier hits. The full range for this value is 0-254. Lower settings to the Max value will cause the sensor to 'max out' at lower pressures. If you feel it is too hard to get a note on velocity of 127 out of this particular sensor, try lowering this value. Conversely if it feels like it clips too soon, try raising this value.



The K-Board Pro 4 Gain and Max values are calibrated in the factory, but we've made them available here to tweak in case you determine that adjustment is needed to better accommodate your playing preferences. You can always reset back to factory settings with the Reset All Sensors To Factory button in the bottom right hand corner of the Sensor Adjustment window.

Key Settings

These settings determine the Key On/Off characteristics based on the sum of the sensor outputs after the Gain and Max adjustments. The default behavior is for Key On, Damp, and Off to be determined as ratios of the All Key Threshold preset parameter (Section 5.4). You will see that if you adjust All Key Threshold and load the Sensor Adjustment window, the values for any key without a saved override will reflect that parameter value. Saving a value in the Sensor Adjustment window will cause that key to ignore the All Key Threshold in favor of this setting.

On Threshold - Defines the amount of force required to trigger a note on. Values range from 0 - 254.

Damping Threshold - Defines the pressure point at which axis reporting is damped (temporarily turned off). If this number is greater than the On Threshold, then a note-on will go out when the On Threshold is crossed, but key axis reporting does not start until the Damping Threshold is crossed. Values range from 0 - 254.

Off Threshold - Defines the pressure at which the note turns off. If this value is greater than the On Threshold, then it is ignored until the key pressure passes through it. Values range from 0 - 254.

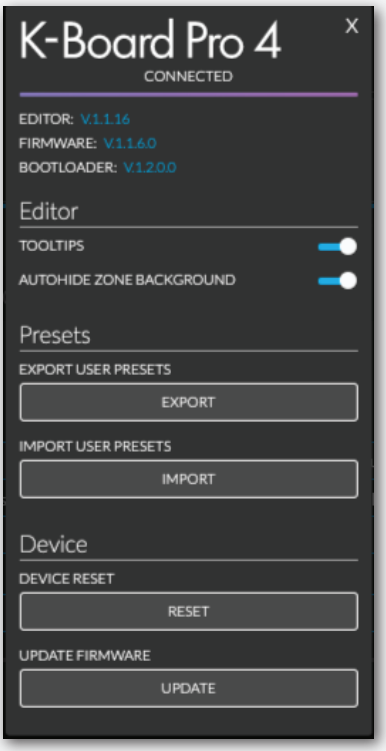
You can audition edits made in the Sensor Adjustment Window immediately, but the changes will only be saved to the board by hitting the Save Edits button. If you wish to revert any edits you've made, hit the Revert Edits button. If you wish to revert all sensors to factory settings, hit the Reset All Sensors to Factory button.

If you exit the Sensor Adjustment Window before saving, all the edits will be reverted to the previous state.



If you want to adjust the velocity response of the entire K-Board Pro 4 or a specific Zone, you can do that much more easily using the Velocity Curves Editor (Section 5.2.1).

5.5 The Preferences



The Preferences window gives you some useful information about the connected device, as well as a few options for managing presets and restoring the device to defaults.

You can check the version of the Editor you are using, as well as the firmware and bootloader version of the connected device.

Toggle on/off tooltips as well as autohide zone background.

You can export your user presets to a .json file. You can also import user presets.

You can reset the device to default, as well as reinstall/update the firmware. These options can be helpful if you are experiencing unusual hardware behavior, or just want to go back to square one after making changes.

5.6 The Desktop Editor

The Desktop Editor will run on Mac OSX 10.9 - 10.14.

The Desktop Editor will run on Windows 7, 8, and 10.



Resetting the device does not affect any adjustments made to the sensors in the Sensor Adjustment Window.

Reinstalling/updating the firmware should not affect the presets on the device, but we recommend backing up any important presets as a precaution.

5.6.1 The Menu Bar

The various menu items at the top give you access to file management features, the preferences, and built in help options.

- The K-Board Pro 4 menu - open the preferences, check the firmware/Editor version or check for updates.
- The View menu - allows you to customize the size of the Editor, enter/exit fullscreen, or reload the editor.
- The Presets menu - allows for importing and exporting of K-Board Pro 4 presets.
- The Hardware menu - update/reload the firmware onto the connected device.
- The Help menu - open the documentation, contact support and toggle tooltips on or off. You can also display the developer tools which can provide helpful information when contacting support.

5.7 The Web Editor

Any WebMIDI capable browser will be able to successfully run the Web Editor. The Web Editor is functionally identical to the desktop Editor, with a few minor cosmetic differences.

Find the web Editor here: https://files.keithmcmillen.com/products/kbp4/editor/



You may need to give the browser permission to control your MIDI device. This is simply a security precaution when sending SysEx to a MIDI device.

5.8 Factory Preset Overview

The K-Board Pro 4 Editor includes five factory presets.

Preset 1: MPE

The first factory preset sends MIDI according to the MPE protocol. X-Axis sends pitch bend, Y-Axis sends CC74 (timbre), and Z-Axis sends channel pressure (pressure). Slider 1 is assigned to global pitch bend, slider 2 is set to Octave 4, slider 3 controls Key Pitch Bend Range, and slider 4 controls Pitch Bend Return Time. The switch pedal input sends CC64 (sustain), and the expression pedal input sends CC7 (volume).

Preset 2: Poly Aftertouch & MPE Off

The second preset does not send any per key messages, and is usable with any software or hardware that understands standard MIDI messages. X-Axis sends pitch bend, Y-Axis sends CC74, and Z-Axis sends poly aftertouch. Slider 1 is assigned to global pitch bend, slider 2 is set to Octave 4, slider 3 controls Key Pitch Bend Range, and slider 4 controls Pitch Bend Return Time. The switch pedal input sends CC64 (sustain), and the expression pedal input sends CC7 (volume).

Preset 3: X-Axis Octave Bend

This preset showcases some of the more extreme pitch manipulations you can accomplish with the K-Board Pro 4. Pitch bend is on the X-Axis, but the range is set to an entire octave, and return mode is turned off. Gain on the X axis is set to 1.5 to easily reach an entire octave, and the threshold is set to 20 to ensure that pitch bends only happen intentionally. Y-Axis sends CC74 (timbre), and Z-Axis sends channel pressure (pressure). Slider 1 is assigned to global pitch bend, slider 2 is set to Octave 4, slider 3 controls Key Pitch Bend Range, and slider 4 controls Pitch Bend Return Time. The switch pedal input sends CC64 (sustain), and the expression pedal input sends CC7 (volume).

Preset 4: Y-Axis Pitch Bend

This preset maps pitch bend to the Y-Axis and X-Axis to give a totally different way to manipulate pitch bend while playing the K-Board Pro 4. Use the Y-Axis for expressive bends, and use the X-Axis for subtle vibrato. Return Mode does not apply to pitch bend on the Y-Axis. Z-Axis sends channel pressure (pressure). Slider 1 is assigned to global pitch bend, slider 2 is set to Octave 4, slider 3 controls Key Pitch Bend Range, and slider 4 controls Pitch Bend Return Time. The switch pedal input sends CC64 (sustain), and the expression pedal input sends CC7 (volume).

Preset 5: MPE Zones

This preset provides an example of splitting the keys into zones. X-Axis sends pitch bend, Y-Axis sends CC74 (timbre), and Z-Axis sends channel pressure (pressure) for both zones. The way pitch bend is sent differs between the two zones. The lower zone is almost the same as the factory MPE preset, but the key range is set to +/- 1/2 semitones. The upper zone has X-axis gain set to 1.3, the threshold set to 20, return mode turned off, with the range set to +/- 2 semitones. Slider 1 sends global pitch bend on both zones, slider 2 is set to Octave 7 for the lower zone, slider 3 is set to Octave 7 for the upper zone, slider 4 sends CC1 (modulation) on both zones. The switch pedal input sends CC64 (sustain) on both zones, and the expression pedal input sends CC7 (volume) on both zones.

Troubleshooting



Try a new USB cable

One of the first (yet most often overlooked) things to try is a different USB cable, preferably one that is known to work well. When a cable goes bad it can lead to all sorts of odd behavior (flaky connections, dropped messages), or no behavior at all (won't even power on).

Try plugging into a different USB port

It's possible that trying a different USB port on the computer may lead to a proper connection. While extremely rare, we have come across USB ports that just don't seem to like some USB devices.

Do not use an unpowered USB hub

Unpowered USB hubs may not be able to provide enough power to the K-Board Pro 4, leading to connectivity issues. Unpowered hubs typically divide the power coming from the computer's USB port and split it up between all of the hub's ports – providing less power than if the K-Board Pro 4 were to be directly connected to the computer's USB port. If a USB hub is absolutely necessary, it is recommended to always use a powered hub.

Try with or without a USB hub

If experiencing connectivity issues while using a USB hub, try without the hub and plug directly into the computer's USB port. The reverse holds true as well – if experiencing connectivity issues while not using a USB hub, try with a hub (if one is available to you).

Try resetting the device to defaults

Using the Editor you can reset the device, and all the sensors to default settings . This can sometimes help resolve hardware quirks, or unexpected behavior.

Be aware of issues native to the operating system being used

While it is indeed possible the K-Board Pro 4 may be the source of issues, sometimes the cause is actually due to the operating system itself. Always be aware of these issues, like the Mac OS CoreMIDI issue or the Windows class-compliant device limitation.

Connect to a different computer

If the K-Board Pro 4 is not making a connection to the computer at all (and all other troubleshooting issues have been exhausted), it is recommended to try connecting it to a different computer. If it works on the new computer, try the original one again. In some circumstances we have seen this solve connection issues.

An important note about USB cables

We always recommend using the USB cable(s) that shipped with your K-Board Pro 4. Sadly, not all USB cables are created equal.

If you are having troubles powering your K-Board Pro 4 or connecting to a computer, please make sure you are using the USB cables that came with your K-Board Pro 4.

We fully understand that it seems like using different USB cables shouldn't matter, but it really can have a drastic effect on operation, not just with K-Board Pro 4, but with all USB devices. Very often the only thing needed is to swap out the USB cable for another one.

F.A.Q.



Do I need a computer to use my K-Board Pro 4?

No! With the optional MIDI Expander you can send MIDI data to any device that uses a 5 pin MIDI connection. You can connect to a USB host and a MIDI Expander at the same time.

I plugged in my K-Board Pro 4 and it isn't making any sound. What's wrong?

It's highly likely that nothing is wrong! The K-Board Pro 4 is a MIDI controller, which means it doesn't actually make sound on its own. Instead, it sends MIDI messages, which are used to control other sound generating software/hardware. A seemingly minor distinction, but is actually quite important to understand.

Just open up any audio software that is able to respond to incoming MIDI messages and, depending on the software, K-Board Pro 4 should start working right away. It's possible there may be more steps required to properly configure an application to respond to an attached MIDI device – please refer to the software's documentation if this is the case.

Can I use more than one K-Board Pro 4 at a time?

Yes! You can use as many K-Board Pro 4s as you can keep track of. It would be helpful to put different presets on each device that send on different MIDI channels, or that send different notes and control messages to avoid confusing the software or hardware you intend to control.

My K-Board Pro 4 is sending unexpected messages, is it broken?

Probably not! Be sure that the K-Board Pro 4 is on a flat surface when you power it up so it can properly calibrate. Try reinstalling the firmware, and resetting the device and any sensor adjustments to default.

Speaking of broken, can I break my K-Board Pro 4?

The K-Board Pro 4 is built with no moving parts and is designed to be incredibly durable. That being said, it is possible to damage the sensors if an excessive amount of pressure is placed on the keys. If you find yourself needing to lean into a sensor to get the full range of MIDI values that you need, try applying Axis Gain or Sensor Gain to keep your playing pressure within a comfortable range for you and your K-Board Pro 4.

How do I connect to a Mobile Device?

To connect to an iOS device, we recommend using an Apple branded Camera Connection Kit (USB to Lightning adapter). To connect to an Android device, you should use a USB OTG cable.

What software plays well with the K-Board Pro 4?

You can use the K-Board Pro 4 with any software that can speak MIDI but you will get the most out of the device if you use it with MPE compatible software. Desktop DAWs/Software that are MPE compatible include:

- Cycling '74 Max
- Reaktor
- Cakewalk
- Logic Pro X/Mainstage

- Reaper
- Cubase
- Bitwig
- Roli

Mobile apps that are MPE compatible:

- Moog apps: Animoog, Moog Model 15, etc.
- PPG apps: Phonem, WaveGenerator, etc.
- GarageBand iOS
- Roli Apps

What hardware plays well with the K-Board Pro 4?

Similar to software, you can use the K-Board Pro 4 with any hardware that has 5 pin MIDI input (optional MIDI Expander required), but you will get the most out of the device if you use it with MPE compatible hardware. Hardware that supports MPE includes:

- Modal Electronics
- Polyend
- Axoloti
- Black Corporation

Safety Precautions



Medical Devices

K-Board Pro 4 may emit electromagnetic fields. These electromagnetic fields may interfere with pacemakers or other medical devices. If you wear a pacemaker, maintain at least 6 inches (approximately 15cm) of separation between your pacemaker and K-Board Pro 4. If you suspect K-Board Pro 4 is interfering with your pacemaker or any other medical device, stop using K-Board Pro 4 and consult your physician for information specific to your medical device.

Medical Conditions

If you have any medical condition that you believe could be affected by K-Board Pro 4 (for example, seizures, blackouts, eyestrain, or headaches), consult with your physician prior to using K-Board Pro 4.

Explosive Atmospheres

Do not use K-Board Pro 4 in any area with a potentially explosive atmosphere, such as a fueling area, or in areas where the air contains chemicals or particles (such as grain, dust, or metal powders). Obey all signs and instructions.

Repetitive Motion

When you perform repetitive activities (such playing the K-Board Pro 4 for an extended period of time), you may experience occasional discomfort in your hands, arms, wrists, shoulders, neck, or other parts of your body. If you experience discomfort, stop using K-Board Pro 4 and consult a physician.

High-Consequence Activities

K-Board Pro 4 is not intended for use where the failure of the device could lead to death, personal injury, or severe environmental damage.

Choking Hazard

Some K-Board Pro 4 accessories may present a choking hazard to small children. Keep these accessories away from small children.