A Performance Instrument

Version 1.3.0

04/23/2023

Booting Up

Plug in the included power cable to the barrel connector on corner of the instrument and plug the other end into an AC 120 volt outlet. The XYZ Pad lights will come on to indicate power is available.

Next, press and hold the power button until the button light comes on. Wait for the instrument to boot up. Once booted, touch the Netherkeys app shortcut on the desktop. This will launch the main application and you are ready to play.

To play an external synthesizer over USB, connect a type c USB cable and connect the other end to a USB MIDI compatible host such as a PC, Mac, or synth. For vintage synthesizers that do not support USB, connect the mini MIDI jack to a Type A 3.5mm phone to 5-pin din adapter and connect to a standard MIDI input.

Internal VST software synthesizers can also be installed and played via audio output. See section on Internal MIDI Ports.

Shutting Down

Touch the menu button on the touchscreen interface and select Exit. Respond OK to close the Netherkeys application. This will return to the startup screen.
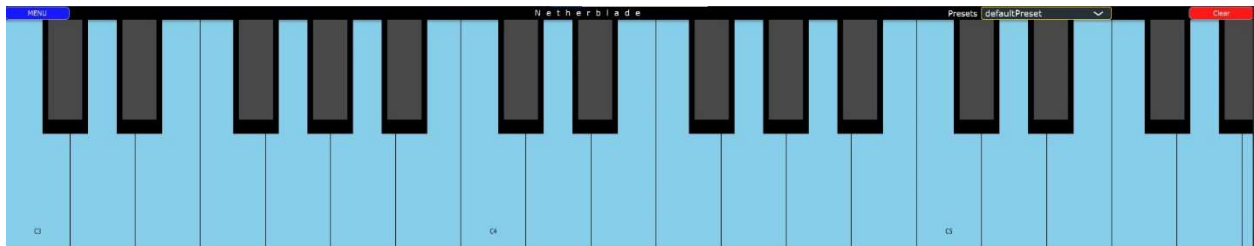
Press and hold the power button on the back of the instrument. After a few seconds a graphic will appear on the touchscreen asking if you want to shut down. Release the power button and slide the graphic down to initiate shut down. Once the power button light goes out the instrument is completely shut down. It is now safe to disconnect the power supply.
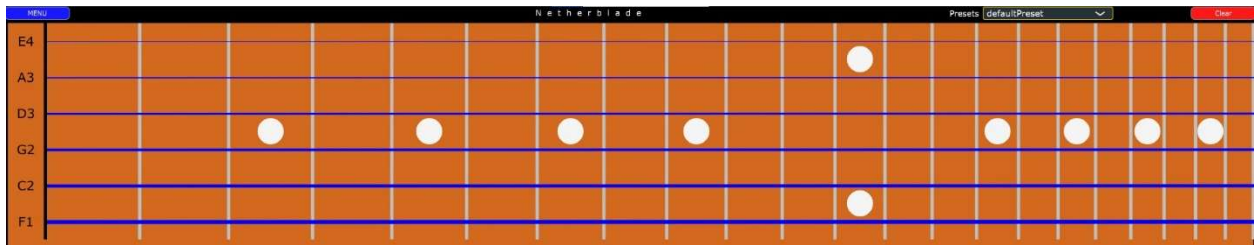
The Interface
Pitch touchscreen

The heart and soul of the instrument. A touch sensitive flat surface where you can trigger notes and slide pitch easily and independently to and from any note or chord. (Patent Pending) Express natural vibrato with your own unique character. Invent new techniques.
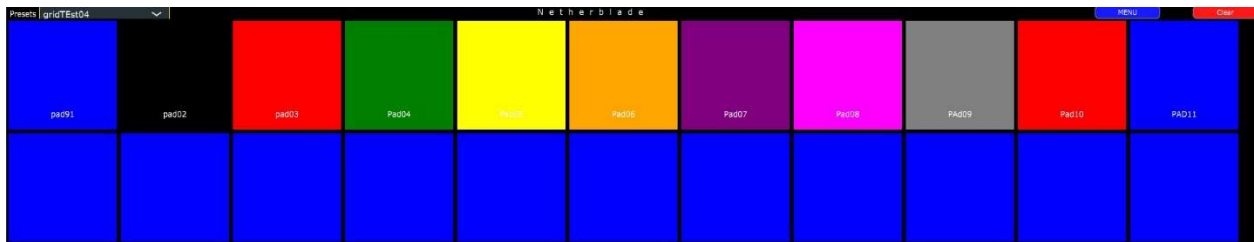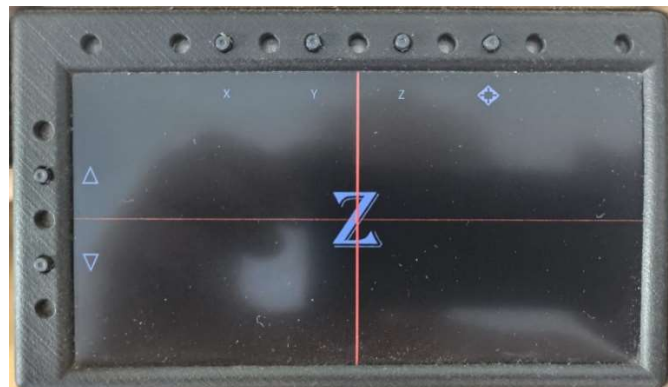
Keyboard

Fretboard

Grid

The Z Pad

Articulation

Here is where you perform all the non-pitch dimensions such as tone, mutes, volume, velocity, etc. The XYZ pad allows for 3 simultaneous real-time controllers. Add key switches and momentary Continuous Controller for quick changes. The up down switches change octave.

The switch closest to the touchscreen is dedicated to quickly toggling to and from the presets list.

Another powerful feature of the zPad is repercussion. Rhythmic repeating notes or chords adds another fun element to keyboards or a more natural way to trigger notes with the fretboard.

IMPORTANT NOTE:

To release the full power of the Netherblades patented pitch control algorithm there are 2 important factors to configure.

Pitchbend Range

The pitchbend range of the Netherblade must match the pitchbend range set on the target synthesizer. Range increments are usually in semitones: 2 is a whole step, 12 is an octave, etc. For example, If the Netherblade pitchbend range is set to 12 semitones then the synth you are playing must also be set to 12 so the pitchbend movements are precise for all musical intervals. This will let you do natural vibratos and slides intuitively to any interval while resolving in tune.

Multi channel or MPE

Unlike a standard pitch wheel, another key feature of the Netherblade is the ability to bend each note independently. This requires that each note be on a separate MIDI channel. If the Netherblade Output Channel setting is MPE(MIDI Polyphonic Expression) or Multichannel that will happen automatically. However, It is also important for the target synthesizer to be set to receive on multiple channels. Many synths are capable of this but some are not. Check your synthesizer for multitimbral/multichannel capability or MPE. Select MPE if available. If your synth is multitimbral but not MPE, use the MultiChannel option on the Netherblade and set the corresponding channels on the synth to the same preset. For example, if the base channel is 1, set channels 1 thru 5 to the same preset/sound.

For VST synthesizers that are not multitimbral you can still use this feature by selecting Multichannel on the Netherblade. You will also need your host program to launch multiple instances of the plugin with the same preset. Each instance would need to be set to receive on a separate channel. 5 channels maximum for keyboard. 6 channels maximum for fretboard. This can be done on a DAW using separate tracks or with a live performance program such as GigPerformer by opening multiple instances of the same plugin.

Main Menu

Play Surface

Select this for standard playing mode

Settings

Select this to modify the preset parameters. Optionally use the XYZ Pad switch closest to the touchscreen to toggle between play surface and settings page.

Minimize

Puts the application in the background but does not close.

Exit

Closes the application

Preset Menu

Select from the list of user created presets

To create a new preset, select/touch the preset name to trigger the virtual keyboard. Type in the new name and hit return. If the virtual pc keyboard does not automatically appear, touch the QWERTY keyboard button.

Settings

Here are all the parameters for dialing in your setup. Each parameter can be saved as a unique preset and recalled.

Interfaces
Choose between keyboard, fretboard or grid. More interfaces may be added in future updates.

Internal MIDI ports
Select an internal port to communicate with for playing internal VST software synthesizers. The External MIDI Output toggle must be off for this mode to be active.

A virtual port may be needed. It is recommended to download and install loopMIDI. This is a virtual MIDI port generator that will allow you to connect to an internal host program or DAW.

Pitch Range
1 thru 48 semitones is supported. This must be set to match the synthesizer you are playing. Most synths default to 2 semitones (1 whole step). A 2 semitone range will work but it is recommended to use at least 12 (1 octave) If your synth supports it.

The Netherblade sends pitch range NRPN messages which may automatically match the range if supported by the target synthesizer.

MIDI Base Channel

The starting MIDI channel for the keyboard channel per note algorithm.

For the fretboard, this is the high string channel number and each adjacent string is one channel up from there.

Default Velocity

This is the note velocity for standard play unless aftertouch or repercussion is active.

Output Channel Type

This selects how the MIDI channels are managed

MPE

Complies with a single zone of the MPE standard: MIDI Polyphonic Expression. All controls from the XYZ pad and foot controller will be sent on the base channel and the keyboard and fretboard will send notes starting on base channel + 1. Not Applicable for grid

MultiChannel

This is to support polyphonic pitchbend and multi channel controller changes for non MPE synthesizers. The XYZ pad and the touchscreen interfaces will start on the base channel and send MIDI as needed to as many channels as your synth setup can handle up to the max. Max is 5 channels for the keyboard and 6 channels for the fretboard. Not Applicable for grid.

Single Channel

This mode sends on the base MIDI channel only. Pitchbend will still work but independent pitchbend per note or per string will not. Not Applicable for grid.

Pitchbend Style

How pitchbend is managed

Pitchbend OFF

No pitchbend? Well ok if you must.

Fretless

Smooth bends with left/right sliding on the touchscreen interface.

The fretboard will respond to smooth hammer on legato movements. 2 fingers per string max.

Fretted

Vibrato within a note/fret but sliding to another note or fret will trigger a new note

For the fretboard, bends must be up/down to virtually "bend" the string. Pull off movement is supported by holding one fret and then touching another on the same string. 2 fingers per string max.

Pitchbend Auto Correct

This will automatically adjust the pitch once you have stopped sliding movement to the in-tune note or fret that you have landed on. Disable this if you want to be able to bend to pitches in-between the equal temperament scale.

Repercussion

This turns the XYZ surface into a drum pad that re-triggers any active notes playing on the touchscreen interface. Full note velocity is supported by playing soft or hard. XYZ CC values will continue to work if set so the combinations of articulations and rhythms are vast.

External MIDI Output

Select this if you intend to play an external synth either with USB MIDI or standard MIDI outputs.

Deselect this to activate the internal virtual MIDI ports.

Theme

Selects from a list of graphical color combinations for keys and frets. Visual effect only.

GTR String Tuning

Selects from a list of tunings for the fretboard interface only.

Program Change

Sets a program change number that is sent on a preset change.

Z Pad Mapping

Parameters for the ZYZ pad control surface

X Y Continuous Controller

Sets the Continuous Controller number for the X (left/right) or Y (up/down) slide movements. The led lights will let you know where the current value. Set to 0 for off.

Z Aftertouch/Velocity

Enable/disable z-axis aftertouch (pressure). If the velocity setting is enabled, pressure will determine the note velocity for the touchscreen interface.

Key Switches

Momentary switches to send notes for synthesizers that have key switches. Set note value and velocity to trigger a desired effect on your target synth.

CC Switch

Momentary Continuous Controller value. This can be used to set something on your synth such as sustain (64) or other.

Foot Controller

Sets the CC value for the foot controller or sustain pedal optionally plugged in to the middle phone jack.

Flip Display

Rotates the display 180 degrees. Useful for guitar style play or to use the XYZ pad on the right hand.

Grid interface control

The grid interface works differently than the keyboard and fretboard. Each pad can be controlled independently for note, color, text, and pitchbend. Notes can be triggered by tapping or sliding from one to another. Pitchbend (if enabled) will respond to up/down in fretted mode and side to side in fretless mode. Use repercussion feature for velocity controlled notes.

Presets Control

Save

Delete

Revert
Reset all parameters to last saved.
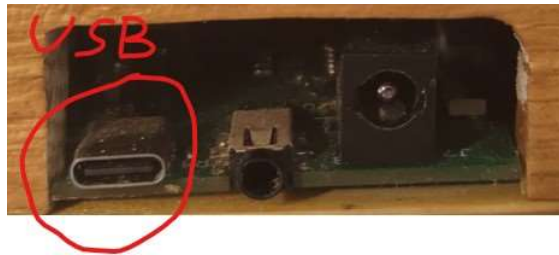
Virtual Qwerty Keyboard

Clear
MIDI All Notes Off

Sends MIDI all notes off command on all channels to clear any stuck notes on the target synthesizer.

Physical Jacks

USB MIDI Type C
Output to external synthesizer or PC host

MIDI mini
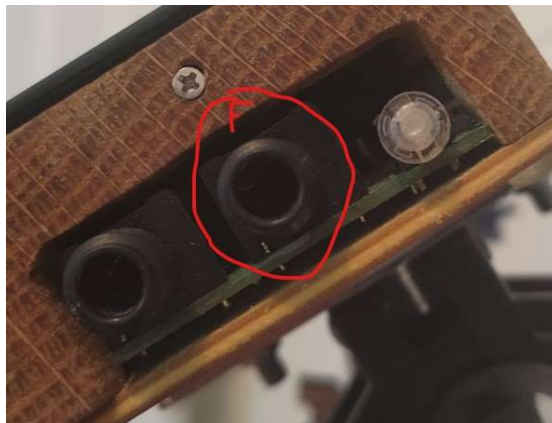Requires type-A 3.5mm to 5 pin din adapter

Power Input

Audio Stereo

Stereo ¼" phono jack suitable for headphones or left/right stereo breakout cable

Foot Controller

¼" CV or sustain pedal input jack.

Tested with Roland polarity pedals.

Power Switch

See booting Up