

## **miniMIDI JOYstick**

### **Basic User Guide and Outline of Factory Presets (vers 1a)**

The miniMIDI JOYstick is an amazingly powerful MIDI device, especially for its size! It can send a wide variety of MIDI message types and offers 16 stored presets (which can be reprogrammed by the user). The first 5 presets can be recalled on startup by simply holding the joystick in a particular direction. Any of the 16 presets can be recalled by sending the MMJ program change messages. The MMJ can also receive certain types of MIDI to change the way it behaves.

If you are already familiar with MIDI message types you can skip this next section and scroll down to the “miniMIDI JOYstick – Presets” section. If you need to brush up on your MIDI, however, read on....

### **About MIDI messages**

MIDI (the Musical Instrument Digital Interface) is a specification manufacturers can follow so that their equipment (hardware or software) can communicate easily between various devices.

It was made to be simple yet flexible, and though intended primarily for music MIDI proved so effective and pliable that its use quickly expanded well beyond the original conception.

A MIDI “Note On” message can be used to tell a synthesizer to play a musical note (like a middle C) but it could alternately be used to trigger an audio effect (like an echo) or to turn on a stage light.

While these uses of a “Note On” are less common, their existence underscores the concept of how MIDI implementation can vary widely. What any particular MIDI message actually accomplishes depends on how a particular manufacturer decided to implement that message coupled with any special settings, message remapping or filtering added by the user.

### **MIDI Channels**

MIDI messages can be sent independently to different devices (hardware or software) by designating them to one of sixteen channels. One common way to take advantage of this is to use channels to send notes to different synthesized instruments; flute notes are sent to the flute sound over channel 1 and clarinet sounds are sent to the clarinet synth over channel 2, thereby keeping them distinct. When the MIDI spec was originally crafted (over 40 years ago) it was thought that 16 channels would be plenty... but the demand for more channels came quickly as synthesizers became more powerful and studio setups more complex, so the idea of ports was created. MIDI setups may use port designations to drastically increase the number of channels available as each port can support 16 channels and a system may have 8, 16, 128, or even more, available ports.

## MIDI Controllers (aka. Continuous Controllers or CCs)

The original MIDI specification contained 128 Continuous Controller (or CC) messages per channel (with 16 channels.) These were intended to allow manufacturers and users to address things beyond basic descriptions of notes such as vibrato, use of the sustain pedal, stereo panning, volume, tone, etc.... Some of these 128 Controllers have more common uses, while others are much rarer, and some were always considered as generic (meaning their use was up to each manufacturer, without even a suggestion of what they might be used for in the MIDI spec).

### The most common CCs are:

Modulation (Controller 1) - When Controller 1 is used for its main intended purpose, called Modulation, it normally changes a musical performance parameter like vibrato, tremolo or chorus... sometimes tone.

Expression (Controller 11) - Controller 11 has two common uses; to control a musical crescendo or decrescendo or to control another musically expressive element like tone.

Volume (Controller 7) - Controller 7 was intended to let users change the output level of the sounds triggered on a particular channel.

Sustain (Controller 64) - Controller 64 was intended to interact with a piano style sustain pedal, allowing notes to ring even after a key has been let up.

Pan (Controller 10) - Allows a sound to be moved along a horizontal axis in stereo space.

### Some slightly less common Controllers, but still used by a lot of manufacturers, include:

Breath Control (Controller 2) - Originally created to add special control to synthesized or sampled brass or woodwind sounds. Often changes the tone, tremolo or vibrato of a sound.

Filter Frequency (Controller 74) - Most commonly used to control the frequency of a low pass filter on a sound.

Reverb (Controller 91) - Controller 91, when implemented, may either turn reverb on and off, or might adjust the mix between the reverb and the dry (original) signal.

The Controllers mentioned above are all included in various presets of the miniMIDI JOYstick. Preset 5 adds four more (Controllers 45, 46, 47 and 48) which are generic codes to be used any way the user likes. These were chosen so as not to interfere with the standard uses listed above, and may be very convenient for use with devices or software to map to controls that are not part of the fundamental general MIDI outline. Examples of such things may be: mixer channel muting, distortion amount or type, oscillator frequency, lighting or video controls, etc....

## **Program Change messages**

Another type of MIDI message is the Program Change. This was created to switch between different sounds on a synth or sampler (often called *programs* or *patches*). In the original specification, there were only 128 possible Program Change messages on any MIDI channel, which was thought to be plenty.... It was not long, however, until MIDI devices contained well over 128 sounds, so Program Change messages were combined with Controller Codes (0 and 32) in a scheme called Bank Select, allowing for over 2 million different patches to be addressed.

The 16 different presets of the MiniMIDI JOYstick can be selected by sending it Program Change messages 0-15, available through MIDI controllers or software (like MIDI sequencers or Digital Audio Workstations).

The MiniMIDI JOYstick is also capable of sending Program Change messages, allowing it to be used to recall different sounds on a synth or sampler, to change effects presets, or to change presets on a digital mixer or lighting board.

## **Pitchbend messages**

Pitchbend messages are a way to get a sound to portamento (slide, bend or scoop) between two pitches rather than jump discreetly from one to the next.

## miniMIDI JOYstick - Presets

Each user may choose to mount the MiniMIDI JOYstick in a position most appropriate for their instrument, hands and playing style, so the directionality of the joystick movement is relative to each user. For this manual we have chosen to refer to directionality as North, South, East, West where the usb connector is on the South end (with the joystick is facing up). North is, therefore, directly away from the usb connector, East is to the right, and West is to the left.



These presets are included for convenience and as a starting point for users to begin exploring the creative possibilities of the MiniMIDI JOYstick, which is capable of so much more than is even represented through the presets. The presets can be changed and overwritten by the user through MIDI messages and users can even share presets through small MIDI files (see advanced user manual). Alternately, users can change what a push in any direction does in real time through MIDI without relying on presets at all (this process is also described in the advanced manual).

### **PRESET 0** – 4 way bending: minor 3<sup>rd</sup> range

This preset is automatically selected if the joystick is in the center on startup (when plugged in) or by using Program Change 1.

Set your synthesizer or sampler pitchbend range to +/- a minor 3<sup>rd</sup> to use this one.

North = Down a minor 2<sup>nd</sup>

South = Down a Major 2<sup>nd</sup>

East = Up a Major 2<sup>nd</sup>

West = Down a minor 3<sup>rd</sup>

\*Note: MIDI Pitchbend numbers are relative to the pitchbend range set on your synthesizer or sample player. If that range is not set properly you will not get the intervals intended and they may not even be from the traditional 12-note equal tempered system. With preset 0, however, if your synthesizer is set to +/- an octave, rather than the intended minor 3<sup>rd</sup>, the bends will all remap to different standard musical intervals:

North = bend Down a minor 6<sup>th</sup>

South = bend Down a Major 3<sup>rd</sup>

East = bend Up a minor 6<sup>th</sup>

West = bend Down an octave

## **PRESET 1 – Bend & Modulation**

Select by holding East on startup, or using Program Change 2.

Set your synthesizer or sampler to a pitchbend range +/- a minor 3<sup>rd</sup>.

North = Modulation (Controller 1), value 64

South = Modulation (Controller 1), value 127

East = bend Up a Major 2<sup>nd</sup>

West = bend Down a minor 3<sup>rd</sup>

## **PRESET 2 – Expression & Modulation**

Select by holding West on startup, or using Program Change 3

North = Modulation (Controller 1), value 64

South = Modulation (Controller 1), value 127

East = Expression (Controller 11), value 127

West = Expression (Controller 11), value 64

## **PRESET 3 - minor pentatonic scale bending**

Select by holding South on startup, or using Program Change 4

Set synthesizer or sampler to pitchbend range to +/- an octave

This preset allows you to bend to all of the notes in a minor Pentatonic scale from a single note, including a lower octave.

North = bend Down a Major 6<sup>th</sup> (can also be thought of as playing the minor 3<sup>rd</sup> scale degree of a start note) - releasing to center from North plays the lower octave root note

South = bend Down a Perfect 4<sup>th</sup> (plays Perfect 5<sup>th</sup> scale degree) - releasing to center from South plays the lower octave root note

East = bend Down a Major 2<sup>nd</sup> (plays minor 7<sup>th</sup> scale degree) - releasing to center from East plays the original pitch (no transposition)

West = bend Down a Perfect 5<sup>th</sup> (plays Perfect 4<sup>th</sup> scale degree) - releasing to center from West plays the lower octave root note.

## **PRESET 4** - expressive controller codes

Select by holding joystick North on startup, or by using Program Change 5

This preset is intended to address some of the most common expressive controllers. While these are very common, they may or may not be implemented by a particular device, or used by a particular sound. For instance, a particular piano sound may have a reverb activated on it, but may not implement a low pass filter. Piano patches also have a tendency not to use pitchbend, as acoustic pianos themselves do not bend or portamento.

North = Reverb (Controller 91), value 127

South = Modulation (Controller 1), value 127

East = Filter Cutoff (Controller 74), value 127

West = Expression (Controller 11), value 127

## **PRESET 5** - generic controller codes

Select using program change 6

This preset is intended to offer four codes that have no common function, and so their use for a particular user need will not be likely to interfere with other functions.

North = Controller 48, value 127

South = Controller 47, value 127

East = Controller 45, value 127

West = Controller 46, value 127

## **PRESET 6** – Pitchbend Triads; 3rd in the middle

Select using program change 7

Set synthesizer or sampler to pitchbend range to +/- an octave

North = Bend Down a Major 3rd

South = Bend Down a minor 3rd

East = Bend Up a Major 3rd

West = Bend Up a minor 3rd

## **PRESET 7** – Pitchbend: intervallic lower bends

Select using program change 8

Set synthesizer or sampler to pitchbend range to +/- an octave

North = Bend Down a minor 2nd (or Major 7th of scale based on original pitch) - returns to original pitch on recenter

South = Bend Down Perfect 4th (or Perfect 5th of scale based on original pitch) - returns to original pitch on recenter

East = Bend Down a minor 6th (or Major 3rd of scale based on original pitch) - stays bent on recenter

West = Bend Down a Perfect 5th (or Perfect 4th of scale based on original pitch) - stays bent on recenter

### **PRESET 8** - diminished inspiration

Select using program change 9

Set synthesizer or sampler to pitchbend range to +/- an octave)

This one may take some thinking and music theory to figure out... or just good ol' experimentation!

North = Bends down a minor 6<sup>th</sup> down, returns to low octave on recenter

South = Plays a unison on move south and then plays a Perfect 4<sup>th</sup> down (Perfect 5<sup>th</sup> of scale) on recenter

East = Bends down a Perfect 5<sup>th</sup> and returns to the Major 3<sup>rd</sup> down on recenter

West = Bends up a Major 2<sup>nd</sup> and then down the minor 2<sup>nd</sup> (Major 7<sup>th</sup> degree of scale) on recenter

### **PRESET 9** - Volume, 4-way

Select using program change 10

North = Volume (Controller 7), value of 90

South = Volume (Controller 7), value of 100

East = Volume (Controller 7), value of 110

West = Volume (Controller 7), value of 120

Users are recommended to set their initial MIDI volume on the receiving device (or software) to 100, calibrating the overall mix so that this level sits well within it or represents a useful, median performance level. Then, Volume can be changed by musical increments (like jumping up to 110 or 120 to take a solo, then moving back to 100 when done). Note: the exact implementation of MIDI volume varies widely, so a change of 10 may be quite different when using different platforms.

### **PRESET 10** - Linda Lou bass (8 way bending)

Select using program change 11

Set synthesizer or sampler to pitchbend range to +/- 2 octaves

This preset allows the user to play a complete 12-bar blues Linda Lou, or Box, bass line (root, octave, b7, 5 of each change) while actually playing very few notes. Note: this preset also drops the pitch by up to 2 octaves to get higher instruments (like the harmonica) into the bass range.

North = Bends down an octave plus a Perfect 4<sup>th</sup> (5<sup>th</sup> degree of scale), returns to octave plus Major 2<sup>nd</sup> down (minor 7<sup>th</sup> of scale)

South = Bends Down one octave and a Perfect 5<sup>th</sup> (to the 4<sup>th</sup> degree of the scale... the root of the IV chord), then to an octave plus a diminished 5<sup>th</sup> down when recentered

East = Bends Down 2 octaves, returning to 1 octave down when recentered

West = Bends Down one octave and a Major 2<sup>nd</sup> (to the b7), then down an octave and a Perfect 4<sup>th</sup> (the 5<sup>th</sup>) when recentered

This may seem complicated, but it's actually pretty simple if you play through it playing swung 8<sup>ths</sup> like a bass player, thinking of the descending box pattern.... Start East for the low octave, then return to center to play the upper octave. Now move to the West and return to center. You'll notice this outlines the whole bass box pattern used in the Linda Lou. You can play through all 12 bars just by playing the 3 chord roots. North/South offer extra notes for the turnaround.... Have fun!

**PRESET 11 - Bluesy dominant low bends**

Select using program change 12

Set synthesizer or sampler to pitchbend range to +/- one octave

North = Bends Down a minor 7th (to 2nd scale degree), then to an octave below the pitch played when returned to center

South = Bends Down a Major 2nd (to the minor 7th scale degree), then returns to a unison

East = Bends down a Major 6th (the minor 3rd scale degree) then to a minor 6th down (the Major 3rd degree) when returned to center

West = Bends down a Perfect 4th (to the 5th scale degree), then to an octave below the pitch played when returned to center

**PRESET 12 - Triadic and diminished scalar #1**

Select by Program Change 13

Set synthesizer or sampler to pitchbend range to +/- an octave

North = Bends Down a minor 3<sup>rd</sup>, returns to unison on recenter

South = Bends Down a minor 2<sup>nd</sup>, returns to unison on recenter

East = Bends up a minor 3<sup>rd</sup>, returns to unison on recenter

West = Bends up a Major 2<sup>nd</sup>, returns to unison on recenter

**PRESET 13 - Triadic and diminished scalar #2**

Select by Program Change 14

Set synthesizer or sampler to pitchbend range to +/- an octave

North = Bends Down a minor 3<sup>rd</sup>, returns to unison on recenter

South = Bends Down a Major 2<sup>nd</sup>, returns to unison on recenter

East = Bends up a minor 3<sup>rd</sup>, returns to unison on recenter

West = Bends up a minor 2<sup>nd</sup>, returns to unison on recenter

**PRESET 14 - minor 3rd Bending #2**

Select by Program Change 15

Set synthesizer or sampler to pitchbend range to +/- an octave

North = Bends Down a Major 2<sup>nd</sup>, returns to unison on recenter

South = Bends Down a minor 2<sup>nd</sup>, returns to unison on recenter



East = Bends up a minor 3<sup>rd</sup>, returns to unison on recenter  
West = Bends up a Major 2<sup>nd</sup>, returns to unison on recenter

**PRESET 15** - Major/minor 2nd bends

Select using program change 16

Set synthesizer or sampler to pitchbend range to +/- a Major 2nd

North = Bends Down a Major 2<sup>nd</sup>, returns to unison on recenter

South = Bends Down a minor 2<sup>nd</sup>, returns to unison on recenter

East = Bends up a Major 2<sup>nd</sup>, returns to unison on recenter

West = Bends up a minor 2<sup>nd</sup>, returns to unison on recenter