Getting started with Expressiv

Overview

Synthesizer Play Modes

Note Hold
Allows you infinitely sustain notes and chords. Fret a note in Tap Mode, press the button, let go of the note and the note will hold until you press the string again.

Octave Shift
Either button shifts up or down an octave.

Tuning Change
Hold both octave buttons for 4 seconds and you will get an alternative tuning. Switch off *Expressiv* and it will reset to standard tuning.

String Calibrate
Accurate note detection requires occasional calibration which is easy and takes about 20 seconds per string. Press and hold the joystick (it clicks like a button) while pressing and holding the octave up button. With these two buttons held, press the first fret of the string you wish to calibrate. The infinity will flash and a MIDI note will sound. Move up through the 22 frets each time the note sounds.

JoyStick
Pitch Bend is mapped to horizontal axis and Modulation to the vertical axis. Press it to switch on pitch bend mode. In this mode, Pitch bend is tracked mode by bending strings.

Track Pad
Maps to MIDI control parameters allowing you to interactively control and effect notes on the fly. It also allows you trigger synthesiser notes in Touch Mode.

1/ Touch Mode
MIDI notes are triggered by touching the Track Pad.

2/ Pick Mode
MIDI notes are triggered by picking a string.

3/ Tap Mode
MIDI notes are triggered when string touches fret.

Pickup Selector Switch
allows you to select the bridge or neck or both pickups for tone changes

Guitar Volume
Controls the standard guitar output volume

On/Off and MIDI Volume
'Clicks' to switch *on/off* from the battery. It also controls the synthesizer volume.

Smart Fretboard Scanner
Instantly detects notes when the string touches a fret. *Expressiv* is patent pending and is the worlds fastest note detection system for real guitar.

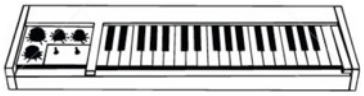
Getting great synthesizer sounds

There are literally millions of incredible synthesizer and modeling sounds available which will fit criteria of virtually any instrument or synthesizer. See the table for a few suggested options

iPhone/iPad
IPhone and iPad require a camera connection kit which converts the USB to the standard apple connection. After that, you just plug in, open the app, connect the iphone to a speaker system, and play

iMac/MacBook
No extra hardware is required, you need a standard USB cable and you just plug + play. Garage Band comes as standard on all iMac and Macbooks so this will get you going.

PC/Laptop
No extra hardware is required, you need a standard USB cable and you just plug + play. Of course you'll need to have software downloaded. to play through



Hardware Synthesizer
You will need a standard 5 pin MIDI cable and Expressiv will need to be re-charged or plugged in with a USB power lead into a wall adaptor. After that, just select your tone on the synthesizer or keyboard and just plug in.

a few apps	Great programs	Great programs	Some synthesizers
Garage Band	Ableton Live	Ableton Live	Korg MicroKorg
Arturia iMini	Garage Band	Cubase	
Waldorf Nave	Main Stage	Mixcraft	
Korg iMS-20	Logic Pro X		

Outputs

USB
This is a Plug + Play output meaning that you can plug it into almost any sound generating software and it will automatically detect and play notes from Expressiv.

While your using this output, the system will be self powered and will also recharge the battery.

MIDI
This is a traditional output for hardware synthesizers. You could connect to something like a microkorg or any hardware synthesizer if you have one. Expressiv will not be powered if you use this output. It will rely on the battery being recharged. Alternatively you can plug the USB into a USB power adaptor like a wall socket charger or even a laptop.

STANDARD 1/4" GUITAR JACK
This is the same guitar output that has always been available for electric guitar. You can operate this output at the same time as the MIDI output meaning you can essentially play two instruments at one time.

This output connects to a conventional guitar amplifier

MIDI explained

MIDI is an electronic language that allows musical devices to communicate. Its very simple to use.

Plug a MIDI controller, like *Expressiv* into a synthesiser or sound generating device and when you play, the controller tells the synthesizer exactly what you are playing (like notes, velocity, pitchbends etc). Then the synthesizer decides what to do with it and generates the sound.

Play Modes

How to change modes
push the toggle switch towards the back of the guitar and release it (it will spring back to the centre position). You will see the infinity mirror flash. Now when you touch a string, it will not sound until you touch the touchpad. This can make it very easy to alternate between standard guitar mode and MIDI mode.

1/ Tap Mode
When you power up Expressiv, it will always be set as default as tap mode. When expressiv is in tap mode, the note instantly sounds when you press a string on a fret. This is great for one handed playing when you want to effect and modulate the note on the other.

2/ Touch Mode
Touch mode means that the note is not triggered until you press the track pad. Depending on where you touch the touchpad, you can get variable effects on the note.

3/ Finger Pick Mode - Select Models Only
This plays just like a normal guitar but with a MIDI output. However, there are some key benefits such as infinite note sustain allowing you to use your picking hand lots of time for modulating and effecting notes, just like if you were playing synthesizer.

MIDI channels and mapping

What is a MIDI channel
In MIDI, there are 16 channels available. Expressiv sends a different channel for each string. This means that with certain programs, you can control one individual synthesizer (or layer up as many as you like) from each string. This is done by selecting on the synthesizer which channel will control it. Alternatively, if you wish to have just one sound, you can set that the synthesizer will accept all channels. This would normally be the default setting.

What is MIDI mapping
MIDI mapping means that a certain effect or note parameter will be controlled by one of the controllers of the guitar. For example if you wish to slide across the track pad in one direction and control an effect on the synthesizer. For this you use MIDI mapping. You will need to find out how to do this individually on each program or synthesizer.

	Fret	StringBend (mode 1)	StringBend (mode 2)
String 1 (E)	Notes on Channel 1	Modulation/ch1	Pitch Bend/ch 1
String 2 (B)	Notes on Channel 2	Modulation/ch2	Pitch Bend/ch 2
String 3 (G)	Notes on Channel 3	Modulation/ch3	Pitch Bend/ch 3
String 4 (D)	Notes on Channel 4	Modulation/ch4	Pitch Bend/ch 4
String 5 (A)	Notes on Channel 5	Modulation/ch5	Pitch Bend/ch 5
String 6 (E)	Notes on Channel 6	Modulation/ch6	Pitch Bend/ch 6
Track Pad X (Vertical)		PitchBend All Channels	
Track Pad Y (Horizantal)			
JoyStick (X)		Pitch Bend / ch 1	
JoyStick (Y)		CC07 / ch 1	CC07 / ch 1

Recharging the Battery

Battery life
Infinity guitar has a powerful Lithium-Ion battery which gives approximately 3 hours of use with the infinity mirror switched on and about 6 hours of use with the infinity mirror switched off.

How to re-charge?
You can recharge from any usb source (like a car charger, a phone charger, a USB laptop output). The battery will continue re-charging while you are using the Expressiv if you are plugged into a laptop. It takes about 8 hours to fully recharge the battery.

Plug and Play

Expressiv is designed for ease of use particularly with laptops and software. You plug Expressiv into your laptop and after a few seconds your device should recognise the system and immediately play. By default, it is set to tap mode on power up and your battery will begin to recharge. If the battery is flat, expressive will automatically power up to give you ease of use and you can get creative from the word go!

Tuning Changes

It's really easy!
With Expressiv, its really easy to change tuning. Just hold octave up and octave down buttons for 4 seconds. You will see the infinity mirror flash and the tuning will have changed. Depending on the colour the infinity mirror flashes, you will know which tuning you are on. Once Expressiv is powered down, when powered back up, the default standard tuning will be restored. Below is a table showing the tuning change options

Table of Tuning Changes

Infinity Colour	String 1	String 2	String 3	String 4	String 5	String 6
Default - Red	E	B	G	D	A	E
Blue	E	E	E	E	E	E
Green	D	A	G	D	A	D
?						

Switch off a string

Why would you switch off a string?
Any string can be switched off on the fly so that it does not output any MIDI notes. This may be desirable for example if you wanted bass notes on the bottom 3 strings and normal guitar on the top 3 strings. You may also find it useful if for example you accidentally press the first string in tap mode while playing the other strings.

How to switch it off
1) Press and hold the joystick button and the octave up button
2) on the string you wish to switch off, press the string against the top fret (or one of the top frets)
3) You will see the infinity mirror flash. (RED means it is switched off, GREEN means it is switched back on)
4) The string is now switched off. Repeat the step to switch it back on or alternatively power down Expressiv and it will reset.

Note Holding

Its really easy to hold a note or a number of notes while your playing. In tap mode, when you have a note or number of notes playing, just push the toggle switch (4) towards the front of the guitar. While it is in this position, let go of the strings. Now these notes will continue playing until you touch the same strings against a fret.

While they are playing, on different strings you can overdub other notes on top of these notes giving a great effect.

PitchBend

Bend a String
One of the great advantages of guitar over other instruments such as keys, is the fact that pitch bends can be incorporated into the music without your fingers leaving the fretboard. We did not forget about this with Expressiv. It allows you to control not only pitch bend but also note parameters and effects such as velocity or frequency cutoffs by bending a string while your playing. The MIDI mapping table above shows the exact MIDI control changes that you get when you bend a note. Each string provides a separate parameter giving you 6 variable MIDI controls that you can use without your fingers leaving the fretboard.

Enable String Bending
To enable String Bending by MIDI, press the Joystick 'Click Button' (1) once. You will see the infinity mirror flash Green when it is enabled and Red when it is disabled.

JoyStick
By pushing the joystick forward and backwards, you can bend a string. To use the joystick for pitch bending, you need the string bending disabled.

Calibrating

What is Calibrating?
Calibrating is done to optimize the performance of Expressiv.

Why do you need to calibrate Expressiv?
It generally only needs to be done if you change a string and it only needs to be done on that string. The calibration process also allows you to only have strings output only a MIDI signal on say the first 12 frets. This means that you could play MIDI on the bottom 12 frets and standard guitar on the top 12 frets.

How do you calibrate a string?
1) Generally, its better to calibrate after your frets have been cleaned using the fret cleaning card or after extensive playing.
2) press and hold the octave up button and the joystick (note that if you push the joystick down you will feel it click like a button).
3) While holding the two buttons, press the first fret of the string you wish to calibrate.
4) You will see the infinity mirror flash and hear a note play through MIDI. Immediately move up to the second fret. Again you will hear the note so immediately move to the third fret and so on.
5) Continue to the top fret or as many frets as you would like to switch on.
6) Once you let go of the string, the calibration process will end and the number of frets you calibrated will be switched on. The rest will be off.

Changing your Strings

Recommended Strings
We strongly recommend you use Ernie Ball Regular Slinky strings. These are USA made strings, are industry standard and are probably the most popular string on the market. The Expressiv system has been fully tested and designed to work seamlessly with these strings. However, you are free to try any other strings you wish. There should not be a problem unless there is an electrically insulating coating on the string or the ball ends.

Changing the strings
1) Unlock the old string at the tuning head and remove the string
2) To avoid scratching your instrument, it is advisable to snip the strings with a cutter and slide them out through the through holes on the body.
3) slide the new strings through the body from the back, ensuring that they go over the V in the bridge, and through the tuning head
4) Pull them tight, lock the tuning head firmly and tune up the string as normal.
5) Depending on the new string, you may need to calibrate the MIDI settings on that string which should only take about 20 seconds. Follow the calibration instruction for this.

Firmware Update

What is Firmware?
Firmware is the software that makes an electronic device operate in the way it does.

Why would you need to update it?
If there are improvements, extra functionality or other features available, why not have them. By updating the firmware with the most recent software development, this allows you to avail of these features and improvements.

Basic Steps to update the firmware
1) Get the most recent software update from RORguitars.
2) Download the program needed to send the new software to Expressiv. Right now, that is the Arduino IDE programming software which is available to download from www.arduino.cc
3) You need to switch an internal programming switch on the guitar. Remove the backing plate of your Infinity Guitar to access the electronics and you will see a small sliding switch on the green printed circuit board. Switch this in the opposite direction
4) Plug the guitar into your laptop or desktop computer (mac or PC) using a standard USB cable
5) Upload the software which takes about 30 seconds.
6) Switch the internal programming switch back to the initial position and replace the back cover of your guitar
7) It should now be working as normal but with the new firmware installed.

Single Channel - Multi Channel Mode

What is Multi-Channel Mode?
Multi channel MIDI mode on *Expressiv* allows you get different sounds from each string. This gives you huge sound possibilities with some software programs and also gives you 132 individual MIDI outputs from your string/fret contacts. The default setting of Expressiv when powered up is multi-channel mode.

What is Single-Channel Mode?
Single Channel mode means *Expressiv* only sends on channel 1. This means you can only control the same sounds from all your strings. However, when using hardware synthesisers, this may be much more convenient because it requires no complicated setups. If you plug into a synthesizer and you do not sounds from some of the strings, just flick into single-channel mode and you can play

How to Change from Multi-Channel to Single-Channel Mode:
To change from Multi Channel to Single Channel mode
1/ press and hold the octave down button
2/ now at the same time, pull the spring toggle switch towards you.
3/ You will see the infinity mirror flash. It is now in single channel mode and you will get channel 1 from all strings.
Note: when you power down Expressiv it will be re-set to multi-channel mode.

Cleaning your

When and Why do you need to clean your frets?
Expressiv uses the electrical contact between your frets and your strings to track the notes you play. If your frets get very dirty or corroded, normally due to long storage and lack of use, the notes may not be tracked accurately. However, during play of the guitar, the frets clean themselves, particularly with string bending. If you want to manually clean your frets, you can use the fret tool provided.

How to clean your frets?
You can either play your guitar with lots of string bending, or you can use the fret cleaning tool as shown below.

Steps to clean your frets with the fret cleaning tool supplied:
1/ place the fret cleaning tool in between the strings and the frets.
2/ Starting at the higher frets (which are closer together). Slide the fret cleaning card vertically up and down 5-10 times on each area of frets. Apply light pressure.
3/ Move down through the frets towards the nut.
4/ Be cautious on the lower frets not to scratch your fret board. As the frets get wider apart, ensure that you are only rubbing agains the fret and not the fretboard.

Trouble Shooting