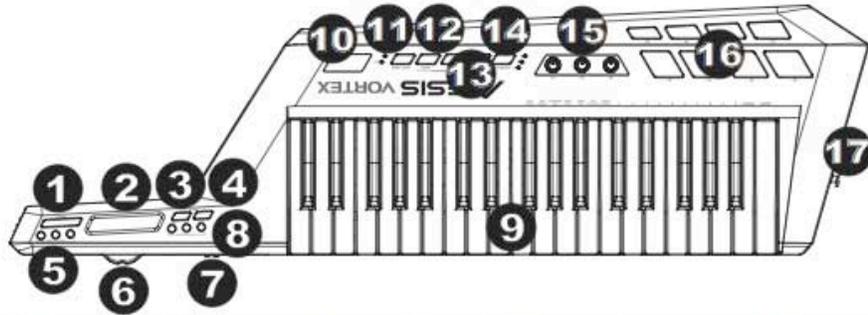


This Guide is [available as a PDF file](#).

In the [previous post](#), I looked at the inside of the Alesis Vortex. This time, I examine the messages coming out of the Vortex and look at the programming of the different switches and sensors.

I decided to write this guide because I kept forgetting how certain buttons were programmed, and because as of this writing (2012/12), Alesis still hasn't produced a detailed manual. Also because you have to reprogram the Vortex quite often, especially since there is NO way to know what is already programmed, and NO way to save the programs on a computer. Hopefully, Alesis will change this in the future.

This colour is used to identify a word (or a series of words) as actual markings on the Vortex.



1. **Sustain Button** – This button continues notes that are playing when depressed, or are played while depressed, until it is released.
2. ***Ribbon Controller** – Touch-sensitive strip that sends MIDI messages.
3. **Octave Down** – Press this button to shift the KEYBOARD's octave range down.
4. **Octave Up** – Press this button to shift the KEYBOARD's octave range up.
5. ***Ribbon Control Buttons** – Sets the type of MIDI message to be sent by the Ribbon Controller.
6. **Pitch Wheel** – Transmits MIDI Pitch Bend information to raise or lower the pitch of a note temporarily.
7. ***Slider** – Sends MIDI data for the currently assigned parameter.
8. ***Keyboard Zone Buttons** – Press these buttons to enter the various Keyboard zones.
9. **Keyboard** – Velocity-sensitive keys with aftertouch for sending MIDI notes. Use the keys to manually enter values in Patch Edit mode.
10. **Display** – Shows the data, values, settings, and various Vortex functions.
11. ***Start/Stop Button** – Transport control button to toggle MIDI Start/Stop message. The LED will light up when a Play command is sent and will turn off when a Stop command is sent.
12. **Program Change Up/Down** – Sends program change messages to your computer software or MIDI device. Hold either button to scroll through 10 programs at a time.
Note: Vortex will not send a program change message until the Up/Down buttons are released.
13. **Patch Edit Button** – Press this button to toggle between Edit and Performance Mode.
Note: The three Patch Select LEDs will be lit when in this mode.
14. **Patch Select** – Press and use the drum pads to select onboard patches. The pad of the currently selected patch will light up.
15. ***Knobs** – Sends various MIDI messages when turned. Each knob can be individually assigned to a different MIDI parameter.
16. ***Trigger/Drum Pads** – Press the pads to send MIDI messages or use the Patch Select button along with the pads to select onboard patches.
17. **Strap Button** – Use the included guitar-style strap for added stability when playing.

The image above is probably ©Alesis. Taken from the Quick Start Guide available on the [Alesis site](#)

The Vortex uses "patches" to store modified parameters. There are three "banks" of 8 patches.

To select a patch:

- press the **Patch Select** button (once to enter the Patch Select Mode and

- then each press will roll to the next "bank")(the active Bank is indicated by a LED (A, B or C) and then chose a particular Patch by pressing a Pad button (P1 to P8).

Each Patch contains all the modified assignments for every modifiable button and function on the Vortex. I still haven't found a way to save patches on a computer. I still haven't found a way to tell what parameter has been modified for a particular button except to go in Patch Edit Mode and edit the button. I still haven't found a way to know which patch is active at a particular moment, except right after switching! So, I tend to use one or two patches at the most. Otherwise, I would need a pencil and paper to make a list (and tape it to the Vortex?). Not good. I'm guessing there must be a way to exchange SysEx information with a computer through the USB, but it is not documented.

Normally, the Vortex is in **PF** (Patch Function?) Mode. In general, the Vortex is programmed by pressing Patch Edit (the display will show "PE")(**Patch Edit Mode**), then by pressing a button/sensor. The display will show the button/sensor name (abbreviation) and you can then change the values. Pressing the Enter key (on the Keyboard itself)(Key #37) will change (store) the value. Pressing Patch Edit again will let you out of Patch Edit mode. Often, values can be changed by using the three knobs (potentiometers) aptly named **K1**, **K2** and **K3**.

If you end up programming the Vortex and just can't figure out what you did, you can **reset the patches to default settings** by powering the Vortex off, then pressing the Start/Stop AND Patch Select keys and while holding these two buttons, power it back on. Hold it for a couple seconds and release the two buttons. The LEDs will flash and all patches will be reset.

Sections:

- [Keyboard](#)
- [Keyboard Zones](#) buttons
- [Octave Down/Up](#) buttons
- [Ribbon Controller](#)
- [Ribbon Modes](#) buttons
- [Pitch Wheel](#)
- [Sustain](#) button
- [Slider](#)
- [knobs](#)
- [Start/Stop](#) button
- [Program Down/Up buttons](#)
- [Pads](#)
- [Accelerometer](#)

Here's what happens when you press...

The Keyboard

The keyboard sends NoteOn and NoteOff Midi messages. The messages cannot be changed, except as noted in the next section ([Keyboard Zones](#)). This means that the keyboard cannot send CC or other Midi messages.

There are two velocity messages sent by the keyboard: the faster you press a key, the higher the velocity. That's the normal behaviour of nearly every keyboard on the market. What's special here is that the velocity is also sent when you release the key. This is the first time that I see this. I have seen keyboard that send a NoteOn messages with a velocity of zero to substitute a NoteOff, and I have one keyboard that sends a velocity of 64 on NoteOff messages. But this is the first time that I see an actual velocity value on key-release, with a NoteOff message. I have no idea if I will ever need to use this. But I know it's there.

As with all keyboards, how hard you hit a key is not really important. Velocity is related to speed, not strength. But if you keep pressing on a key hard enough, you will engage Aftertouch. Aftertouch **is** force sensitive.

The Aftertouch (AF) on the Vortex is Channel Pressure only. This means that the AF is applied to the whole channel as a global message, not to individual notes. This also means that even if you press more than one key, only one type of AF message will be sent. By the way, the AF engages after about 1/4 of a second. Also, the MIDI message for Channel AF is two bytes long.

The AfterTouch message cannot be modified. Too bad. I would love to be able to change the velocity (or sensitivity) curve.

But... there are three buttons on the left hand bar that affect the behaviour of the keyboard. They are called ...

The Keyboard Zones: Lower/Split/Upper

With the default settings, the Vortex powers up in **Lower** mode. This means that the keyboard will send Note messages on channel 1 and that the lowest note on the keyboard will be C2. If you press **Upper**, the messages are sent on channel 2, and the lowest note is C2 again. If you press **Split**, the lower half of the keyboard will send on channel 1 and the upper half will send on channel 2 (split after F3)(or after the 18th key). These 3 buttons can be reprogrammed.

- Enter Patch Edit Mode by pressing the **Patch Edit** button
- Press one of the three buttons. Its name will show up on the display ("Lo", "19" or "uP").

For Lower and Upper, three parameters can be modified by turning the knobs (**K1** to **K3**).

For the **Lower** and **Upper** buttons:

- **Transposition:** Turn knob **K1**. The first parameter goes from -12 to +12. This will transpose the notes sent by the keyboard, one or more semitones at a time. For example, setting it at -12 will send a note that is one octave lower. Why would you do that, when you have dedicated **Octave Down/Up** keys? One good use of this function is when the keyboard is put into Split Mode (see below), You can then have the keyboard operate on non-contiguous octaves (or, even, overlapping octaves). This is useful in MusicLab's RealGuitar, for example.
- **Midi Channel:** Turn knob **K2**. The second parameter is the midi channel (1-16). So, by pressing one key (**Keyboard Zone**) you can effectively switch the channel of the whole keyboard, or use two channels at the same time based on the Split location.
- **Velocity Curve:** Turn knob **K3**. The third parameter is the Keyboard Velocity Curve. The value go from 1 to 8 and if you refer to the Quick Start Guide on page 37, the nice (hand drawn) velocity curves can be applied to the Zone. I don't know what the default curve is. I would think #1.
- Press the **Enter** key on the keyboard to save your changes. You don't have to change every parameter.

Note: By the way, pressing the Lower or Upper buttons in PF mode will send two midi messages: CC121 (Reset Controllers) and CC123 (All Notes Off) on the other zone's channel. This is to ensure that you don't end up with stuck notes in the case that a Zone change is made after a key has been pressed but before it has been released (Alesis must have caught that while debugging...)

For the **Split** button:

- **Split Point:** When you edit the **Split** button, the only parameter to edit is the split point. Enter Patch Edit Mode, then press Split and touch the key where you want the split to occur (19 by default) and press **Patch Edit** again. As of this writing, the official Quickstart Guide is wrong. Pressing Enter or Cancel will only change the split to 37 or 36!

These buttons help a lot with the limited size of the keyboard (3 octave). The next buttons go hand in hand with the Keyboard Zone keys...

The Octave Down/Up buttons

These two buttons cannot be modified and don't send midi messages. They just allow you to change the whole keyboard, transposing every key by exactly one octave (12 semitones), up or down.

The Octave buttons will have the same effect when the keyboard is in Split mode, meaning that the **WHOLE** keyboard is transposed. So you can't "freeze" one section. Too bad. That would have been awesome in RealGuitar!

The Ribbon Controller

The Ribbon Controller sends midi messages. By default, it sends CC1 (Modulation).

- Enter Patch Edit Mode by pressing the Patch Edit button
- Press the Ribbon Controller. The display will show "Rib"

- Press the **Mode Assign** key on the keyboard to alternate between two states: You can only change the **behaviour** of its release. It can be made to send a value of zero when released (the display will show "rn" (or 'return' I guess)), or it can latch ("Lch") and keep the last value sent. The default action ("rn") is the usual choice.

But you can also program the type of message sent by using ...

The Ribbon Modes buttons

The **Ribbon Modes** buttons (**1,2** or **3**) will change **what is sent** by the Ribbon Controller while in PF Mode. By default, button 1 will make the Rib send CC1 (modulation), button 2 will make the Rib send CC2 (Breath Controller) and button 3 will make it send CC3 (undefined CC).

In Patch Edit Mode, pressing one of the three buttons will let you change *four* parameters.

- Enter Patch Edit Mode by pressing the Patch Edit button
- Press one of the **Ribbon Modes** buttons. The display will show "rb1", "rb2" or "rb3".

The first parameter is the type of message:

- press the **Mode Select** key repeatedly on the keyboard. You will have a choice between Control Change ("cc"), Pitch Bend ("Pb") or AfterTouch ("AF").
- Once this choice is made, press the **Enter** key on the keyboard
- pressing the same **Ribbon Mode** button again will let you adjust 3 parameters by turning the knobs (**K1-K3**):
- CC:
 - CC number

- Range Min
- Range Max
- PB
 - Channel
 - Range Min
 - Range Max
- AF
 - Channel
 - Range Min
 - Range Max
- Don't forget to press the **Enter** key after changing the parameters to register the modifications.

Note: The Range values are interesting. You can limit the range of values sent by the Ribbon Controller. I find it useful when doing Pitch bends, for example. I like my PB to be 2 semitones to 4 semitones up or down, so I set the range accordingly, with an initial CC value of 64 and a Max value of 128. The software on my computer does the rest. I can then assign another Ribbon Mode button to set the limit to something else or the Pitch Bend. **Also**, by setting the Max value to a number smaller than the Min value, you can **reverse** the action of the Ribbon Controller. Nice feature.

Note: The channel assigned to the button can be changed right after entering Patch Edit Mode. Just press the **Midi Channel** key on the keyboard and use the numeric keys (**1-9** and **zero** on the keyboard) to set the channel. Yes, redundantly, you can also change the channel by turning knob **K1**, but only for modes PB and AF.

The Pitch Wheel

The **Pitch Wheel** cannot be programmed. It will send ... Pitch Wheel messages (Midi Message 14). But the PW will send the messages on the same channel as the keyboard. Interestingly, it will send two pitch message when the keyboard is split. It's logical, but will definitely send a lot of traffic on the Midi line.

The Sustain button

The **Sustain** button cannot be programmed. It behaves exactly like the pitch wheel, sending messages on the same channel as the keyboard. It sends CC64 (Sustain) with values of 127 when pressed and 0 when released. It will also send two messages in Split mode: one for each channel.

The Slider

No, not the Ribbon Controller, often called "the slider". It's the little sliding potentiometer near the Pitch Wheel. By default, the **slider** sends CC7 (Channel Volume). For the Vortex, it behaves like a Master Volume, not a Channel Volume. It sends on **one channel only**, even if the Keyboard Zone button forces the keyboard on another channel.

But it can be programmed to send CC, Pitch Bend or Aftertouch messages, just like the Ribbon Mode buttons. Just go into Patch Edit Mode and move the slider (you might have to move it back and forth a few times)(the display will show "SLi"). Then chose Mode by pressing **Mode Assign** on the keyboard. Then refer to **Ribbon Modes** button programming technique [above](#) to modify the parameters. Of course, the "value" field of the assignment is variable and its value is determined by the slider position.

The knobs

... are in fact **potentiometers (pots)**. In PE Mode, the knobs (**K1**, **K2** and **K3**) are used to change parameter values when you program the buttons and sensors of the Vortex.

They can also be programmed to send various Midi messages themselves, while in PF Mode. By default, they send CC21, CC22 and CC23 (all Undefined Midi CCs) on Channel 1. They can be programmed like other buttons by entering Patch Edit Mode and then moving the knobs. The display will show "nb1" for knob one, etc. They are then programmed like other buttons (see the Ribbon Modes buttons section [above](#)).

The Start/Stop button

The **Start/Stop** button sends Midi Start or Midi Stop messages (Midi Real Time Message, values 252 or 254). It can be programmed to send CC messages instead. It will then send the CC message with a value of 127 when the button is pressed, and a value of zero when the button is released.

To program the Start/Stop button,

- enter Patch Edit Mode by pressing the **Patch Edit** button and then
- press the **Start/Stop** button. the display will show "PLy" (for 'PLay', I guess)
- change the message type by pressing the **Mode Assign** on the keyboard (or by turning knob 1, as per the Official QuickStart Guide). It will switch between "?"(strange "Predator" style

alphabet here!)(which I guess means Midi Real Time) and "cc"

- Press the **Enter** key on the keyboard to save the change
- In CC mode, the knobs are used to enter the CC code that you want. The button can send ANY CC code. So you can use it as a CC sending button that has a LED showing its state.

Nice feature.

- Turning knob **K1** will alternate between "PLy" and "cc"
- Turn knob **K2** to select the first CC number
- Turn knob **K3** to select the second CC number

Note: When in CC mode, one press of the Start/Stop button will send the CC number set by knob K1 with a value of 127. Releasing the Start/Stop button will send the same CC number with a value of zero. Pressing the Start/Stop button again will do the same thing for the second CC number, assigned by knob K3.

Note: When in CC mode, the channel for the Start/Stop button cannot be changed and is linked to the channel of the keyboard, like the Pitch Wheel. So it will also send two messages when the keyboard is in Split Mode.

The Program Down/Up buttons

The **Program Down/Up** buttons cannot be programmed. They can only send a Program Change Midi message (PC, code 12) on channel 1 (not modifiable), in **sequential** order. The program number is shown on the display. This is a two-byte midi message. Those keys are quite useless if you have a lot of program changes, unless you never jump to a particular program.

So how do you **jump** to ANY program? You have to use...

The Pads

The Pads (**P1** to **P8**) can send a variety of messages. They are a key feature of the Alesis Vortex.

To program the Pads:

- Press the **Patch Edit** key to enter Patch Edit Mode, then
- press the Pad (**P1** to **P8**) you want to edit. Each of the parameter types (Channel, Mode and values) can be edited separately.

If you don't edit one parameter type, it will retain the previous value (which you have no way of knowing, by the way)(unless you use MidiMonitor on the Mac or MidiOx on the PC). The display will show its number (like "Pd1").

You can change the Midi channel, while in Patch Edit Mode:

- by pressing the Pad and then the **Midi Channel** key on the keyboard and using the numeric keys (**1-0**) on the keyboard to enter the channel number. Don't forget to
- press the **Enter** key at this point to save that channel.

To choose a Mode, while in Patch Edit Mode:

- press that Pad again. You then
- choose the Mode for this Pad by repeatedly pressing the **Mode Assign** key on the keyboard. Then,
- press the **Enter** key on the keyboard (if you don't, the Pad will not be programmed). You then
- press that Pad again to program the codes and values.

There are *four* modes:

- **Note:** Sends a NoteOn message when pressed and NoteOff message when released. The display will show "no" (which must mean 'note')
- **CC Toggle:** Sends a Control Change (CC) message when pressed once and the same CC message when pressed a

second time, but with a different value. The display will show "cc1"

- **CC Momentary:** Sends a Control Change (CC) message with value1 when pressed and another value for the same CC when released. The display will show "cc2"
- **Program Change:** Sends an MSB (Most Significant Byte) (Midi Message zero) message, then an LSB (Least Significant Message)(Midi Message 32), then a Program Change (PC) (Midi Message 12) message when pressed. The display will show "Pc"

Programming the actual codes and values is a bit of a challenge. Here's how it's done:

- To program a **Note:**
 - Turn knob 1 (**K1**) to chose the note (you knew that there were 128 notes in Midi, right?)(So you must KNOW the number for each note, right!)(No, you can't just press a key on the keyboard to assign its value to the note. The program would have no way of knowing which octave you're in)(or wouldn't it?). There is room for improvement here.
 - Turn knob 2 (**K2**) to assign a velocity to the note when the Pad is pressed. This velocity will be sent regardless how hard you press the Pad, although they are Velocity Sensitive ([kind off](#)). It disables the velocity sensors. But if you set this value to zero, then you...
 - Turn knob 3 (**K3**) to chose a Velocity Curve (nicely hand drawn on page 37 of the Official QuickStart Guide). Remember that this knob is useless if you chose anything else than zero on knob 2.
 - Finally, don't forget to hit the **Enter** key on the keyboard to validate and assign the values
- To program a **CC Toggle:**

- Turn knob 1 (**K1**) to choose the CC number
- Turn knob 2 (**K2**) to choose the first toggle value
- Turn knob 3 (**K3**) to choose the second toggle value (the one sent on the second press of this Pad)
- Finally, don't forget to hit the **Enter** key on the keyboard to validate and assign the values
- To program a **CC Momentary**:
 - Turn knob 1 (**K1**) to choose the CC number
 - Turn knob 2 (**K2**) to choose the first value
 - Turn knob 3 (**K3**) to choose the second value (the one sent when the Pad is released)
 - Finally, don't forget to hit the **Enter** key on the keyboard to validate and assign the values
- To program a **Program Change**:
 - Turn knob 1 (**K1**) to select the Program Number
 - Turn knob 2 (**K2**) to choose a value for the Bank LSB
 - Turn knob 3 (**K3**) to choose a value for the Bank MSB (keep in mind that the MSB and LSB are sent in reverse order (i.e. MSB first))(??)
 - Finally, don't forget to hit the **Enter** key on the keyboard to validate and assign the values

That's it for the pads. They are a (relative) pain to program, but very flexible.

What am I forgetting? Ok yeah, ...

The Accelerometer

The Accelerometer ("Accel" for short) is stuck inside the Vortex. But there is a LED (the only green one!)(right next to the display) (it's called **Tilt**, for some strange reason)(maybe the guy at Alesis played a lot on pinball when young) that flashes when the Accel is activated. By default, the Accel is activated whenever the Vortex is

tilted more than 45 degrees from horizontal with the left hand UP (it's called "the neck" in the Official QuickStart Guide). It can be programmed to act differently and also can be programmed to send other Midi messages than the default CC1 on Channel 1. By the way, it doesn't matter if the Vortex is flat on its back, in normal playing mode or upside down. The fact is that if the left hand is above the right hand, the Accel will eventually get activated.

To change the **behaviour** of the Accelerometer:

- Enter Patch Edit Mode by pressing the **Patch Edit** button
- Press the **Edit Accel** key on the keyboard. The display will show "Acc"
- Press the **Mode Assign** key on the keyboard. The display will show "cc" for Control Change, "Pb" for Pitch Bend, "AF" for AfterTouch or "oFF" for, well, Off.
- Choose a Mode by repeatedly pressing the Mode Assign key and then
- Press the **Enter** key on the keyboard to record the new setting

See the [Ribbon Mode buttons section](#) for info about how to change the parameters for each modes

Note: If you use CC, keep in mind that the values entered are for minimum and maximum. This means that if you set the minimum to 5 and the maximum to 6, for example, the Accel will alternate between these two values only.

To **calibrate** the Accelerometer:

- Enter the Patch Edit Mode by pressing the **Patch Edit** button

- Press the **Cal Accel** key on the keyboard. The display will show "||Y1"(which, in Modern Klingon is the same as "XY1")
 - TILT the Vortex to the minimum horizontal threshold position (the position, from horizontal, that will trigger the Accel)(don't choose zero, or horizontal, as this will set the Accel off nearly continuously)(The Accel is set at 45 degrees or so by default)
 - Press the **Enter** key on the keyboard. The display will show "||Y2"("XY2")
 - TILT the vortex to the maximum position, which, by default is about 90 degrees (totally vertical)
 - Press the **Enter** key on the keyboard again to save all that
- Note: If you set the minimum position too close to horizontal, the Vortex will send Midi messages pretty much continuously. But you can, if you want. You can even set it to a point BELOW horizontal.

Note: if you set the CC to alternate between two values, by choosing number X for minimum and X+1 for maximum, the Vortex will act like a momentary CC trigger. It will alternate based on the range that you calibrated. Nifty.

Note: You can, of course, reverse the action by choosing a Max value smaller than the Min value.

That's it, I think.