

FAQ for ControllerHub 8

Once upon a time, if you wanted multiple sounds, you had to have multiple keyboards. Then MIDI was invented and you could have just one keyboard driving a rack full of synth modules. Finally, those synth modules became plug-in soft synths, and disappeared inside your computer. All their physical knobs and buttons went in there with them! Where you once could manipulate a real knob or button, you now had to use a mouse, trackpad, or touchscreen to navigate nested drop-down menus in order to find a parameter and change its setting. This doesn't work during live performance when you are using both hands to play your instrument.

ControllerHub 8 puts you back in control during live performance. It's a small electronic box with eight places to connect physical controls such as expression pedals or footswitches. It converts your physical control changes to MIDI messages and sends these over standard 5-pin MIDI and/or USB cables, so that your audio software apps (or other MIDI hardware) can react to them. Its modular approach lets you use the exact compliment of expression pedals and foot switches you prefer, and locate them wherever you wish.

MIDI was invented in the early 80's. Hasn't this been done before?

Yes. Once upon a time, there was a robust market of MIDI controller devices that solved this type of problem. That market has all but disappeared. Yet MIDI as a message protocol has yet to be replaced with anything superior. In fact, MIDI is enjoying a resurgence since being officially ratified as a part of USB. It is advantageous to send MIDI over USB because computers don't have MIDI connectors, but they *do* have USB connectors.

So, ControllerHub 8 is modern update that combines two things: Physical-Control-to-MIDI, followed by MIDI-to-USB. In the past, this combination required the purchase of two physically distinct boxes. In addition to USB, we still give you the old-school, 5-pin MIDI In and MIDI Out jacks, and we provide a fully functional internal MIDI patch bay to selectively route messages between your physical controllers, your MIDI In and Out, and your USB.

What sounds does ControllerHub 8 make?

ControllerHub 8 does not process audio. It is a control-only device; no audio passes through it. The sounds are generated in the audio software running on your computer or tablet. The audio software in question could be any combination of DAWs, hosted plug-ins, or stand-alone apps.

What ControllerHub 8 does is allow you to more fully harness the power of your audio apps and plug-ins during live performance, whose parameters are otherwise inaccessible because your hands are busy playing the instrument. Even in a studio environment, outside live performance's "heat of battle", you might have favorite controls that you can access much quicker and easier using a footswitch or pedal. ControllerHub 8 could speed up your workflow by bypassing "menu hell" and directly mapping physical controllers to those often-used parameters.

What is a parameter?

A parameter is a generic term referring to any user-adjustable quantity (such as volume, pan,

effects send, reverb time, mid-range cut/boost, master volume, etc.) provided by your software or hardware. In other words, anything that was once controlled with a physical knob, fader, or push button on the front panel of a piece of audio hardware (such as a mixing board, synthesizer, effects processor, etc.) is now called an adjustable parameter in the world of soft-synth and effects plug-ins.

What is parameter “mapping” or “assignment”?

Mapping assigns a physical controller (a source) to a target parameter (a destination). In other words, mapping establishes a connection between the physical control (such as an expression pedal or footswitch) and a user-adjustable parameter in your audio plug-in. Another word for mapping is “assignment”.

This brings up one of the most powerful aspects of map-able controls. In the old days, if you had 100 parameters you had to have 100 knobs, because each knob was hard-wired exclusively to its target parameter. It was a permanent assignment. Now, you can have a very small number of physical controls that can be dynamically mapped to different destination parameters as the performance progresses.

Are the controller-to-parameter assignments made in ControllerHub 8?

No, ControllerHub 8 merely translates physical controller movements into USB/MIDI message streams. It doesn't know what ultimately becomes of the streams it creates. Once it puts the message stream on the USB or MIDI cable, its job is done.

The assignments are made in your target software or connected MIDI hardware device (such as a synth module or effects processor, for example).

What messages does ControllerHub 8 send?

ControllerHub 8 comes from the factory with the first group of four inputs sending MIDI CC#7 (volume) messages on the first 4 MIDI channels, and the second group of four inputs sending MIDI CC#64 (sustain) messages on those same 4 channels. So if you take ControllerHub 8 new right out of the box and connect an expression pedal to its Input 3, when you move that pedal it will cause ControllerHub 8 to generate a stream of MIDI CC#7 messages on MIDI channel 3. If you connect a momentary footswitch to Input 6, then ControllerHub 8 will generate a stream of MIDI CC#64 messages on MIDI Channel 2.

Can the messages sent by ControllerHub 8 be customized?

Yes. You can edit each input's message generation properties independently. For example, you could have Input 1 sending CC#64 on MIDI Channel 3, while Input 2 sends CC#7 on MIDI Channel 13, etc.

Can ControllerHub 8 send messages other than MIDI CC (Continuous Controller) type?

No. You can change the MIDI channel and CC# on a per-input basis, but ControllerHub 8 only sends the Continuous Controller message type. Early on the decision was made to keep the hardware simple in favor of putting such complexity into software. Many if not most audio apps (such as MainStage or Qlab) allow you to remap incoming MIDI message of one type to outgoing messages of a different type. This being the case, it is really only important that the

eight inputs of ControllerHub 8 send messages that are different from the others. So the default configuration is thought likely to work for the majority of users.

How do you customize the messages sent by ControllerHub 8?

There are two methods:

First, if you have an iPad, you can get the [MIDI Designer](#) iOS app. We've created a ControllerHub 8 editing template for this app that allows you to edit ControllerHub 8's parameters in a visual way.

Second, you can also edit ControllerHub 8's internal parameters via MIDI SysEx commands, so you can edit ControllerHub 8's parameters with anything capable of sending MIDI SysEx commands. For example, you could edit ControllerHub 8 with any common DAW that allows you to edit and send SysEx messages. The manual has a section describing how this is done, and there is a MIDI Implementation Chart at the end of the manual that concisely encapsulates this information on one page.

Do I have to tell ControllerHub 8 whether I've connected an expression pedal or a footswitch?

This one's a little complicated!

It was a bit of a trick to design ControllerHub 8's input circuit such that it could switch-hit between pedals and buttons. But we prevailed, so you can switch back and forth between connecting pedals or buttons to the same input.

But generally speaking, you should tell ControllerHub 8 if you have a pedal or a switch connected to an input. This is done by setting or clearing the Button Mode switch for the input in question. If you connect a button and leave this parameter off, you will occasionally get double triggers for single presses. This has no adverse effect if the destination parameter is a keyboard sustain switch, for example, but if you've mapped the button to increment to the next preset during live performance, a double-trigger can completely derail your automation scheme. On the other hand, if you connect a pedal to an input that has the Button Mode switch engaged, the pedal will act like a button! Who knows, it could be useful in some situations.

So – when you hook up a button, it is highly recommended that you engage the internal Button Mode switch. Essentially this is how you tell ControllerHub 8 that hey, I've connected a button and not a pedal. When you do this, ControllerHub 8 employs additional circuitry to completely eliminate switching noise and “bounce” that is otherwise a fact of life with physical switches of any type. A single button press is now guaranteed to create just one trigger.