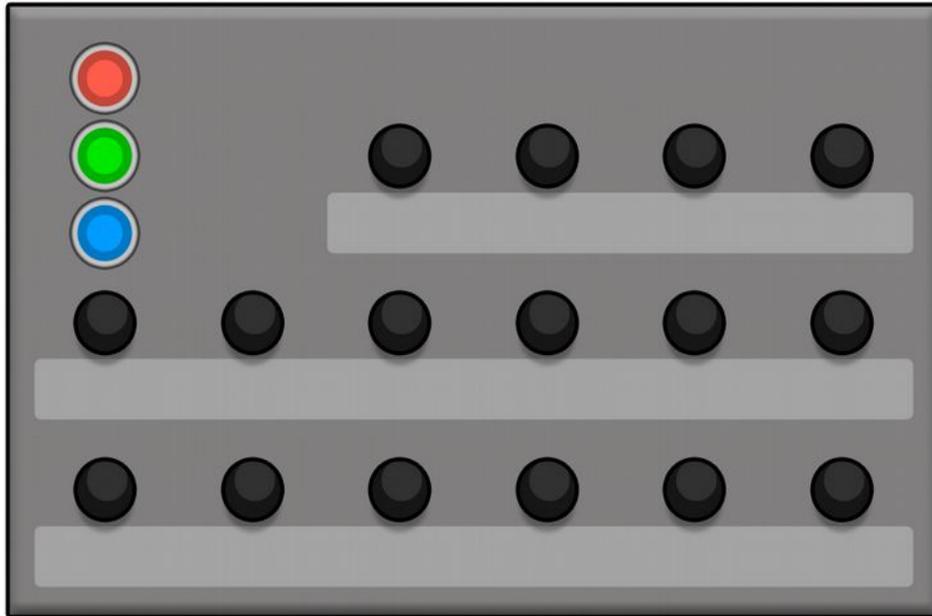


STEREOPING



Synth Controller Manual

Hi

and thanks for getting a 'Stereoping Synth Controller'. This manual's content:

- 1. Features, power supply, editions**
- 2. Integration into your setup**
- 3. Basic operation**
- 4. 'Midi Controller Change Message' to 'SysEx' translator**
- 5. Technical limits**
- 6. Updating the firmware**
- 7. Imprint**

1. Features, power supply, editions

The Stereoping Synth Controller offers 16 knobs and 3 buttons to quickly tweak the sound of your favourite vintage music synthesizer in a comfortable way. Right at the moment you dial a knob, it sends the appropriate message in Midi SysEx-format over the Midicable into your synth, changing it's sound immediately.

Features

- Synthesizer hardware realtime editor
- Frontpanel designed to match the target synthesizer's design
- Easy operation, avoiding cryptic 'Shift' or 'Alt' operations
- Beautiful lighted colored buttons of durable quality
- Tough and handsome steelcase
- Protection diode to avoid electronic damage from PSUs with wrong polarity
- Built in 'Midi Control Change to SysEx'-translator for changing and automating your synths parameters with standard Midi Control Change messages
- Handy 'move pot without sending messages'-feature to prevent excessive parameter jumps
- Useful 'Bypass Mode' letting all Mididata pass unfiltered for smallest latency and ignoring pot changes at the same time
- Learnt Midichannel permanently stored in memory
- Firmwareupdate via SysEx-dump
- Hardware compatible throughout all editions
- Current draw 40 mA
- Weight without power supply 660g
- Size incl. Knobs and rubber feet about 180 x 130 x 60 mm

Technical handling

The Synth Controller was built to be used in a comfortable music studio environment. You can operate it under free skies of course. But please keep in mind, it uses electricity for proper operation and therefore is quite sensitive to water, drinks or other fluids. Excessive heat or exposition to sunlight is also not advised.

Power supply

You can use any ordinary 9 Volt DC powersupply to operate your controller. The connector should have **Plus on the outside** and Ground - sometime labeled as 'Minus' - on it's centerpin. Most guitar effects walwarts for Boss, Ibanez and other brands use this pin-standard. The Synth Controller has a protection diode for not doing any harm if the polarity of the power supply is wrong, it just won't work.



The current of the PSU should at least offer about 100 mA (=0.1 A). If it supplies more current (e.g. 500mA) this is fine and won't cause problems.

Please do NEVER use a powersupply which has an 'AC'-Output. AC means alternate current.

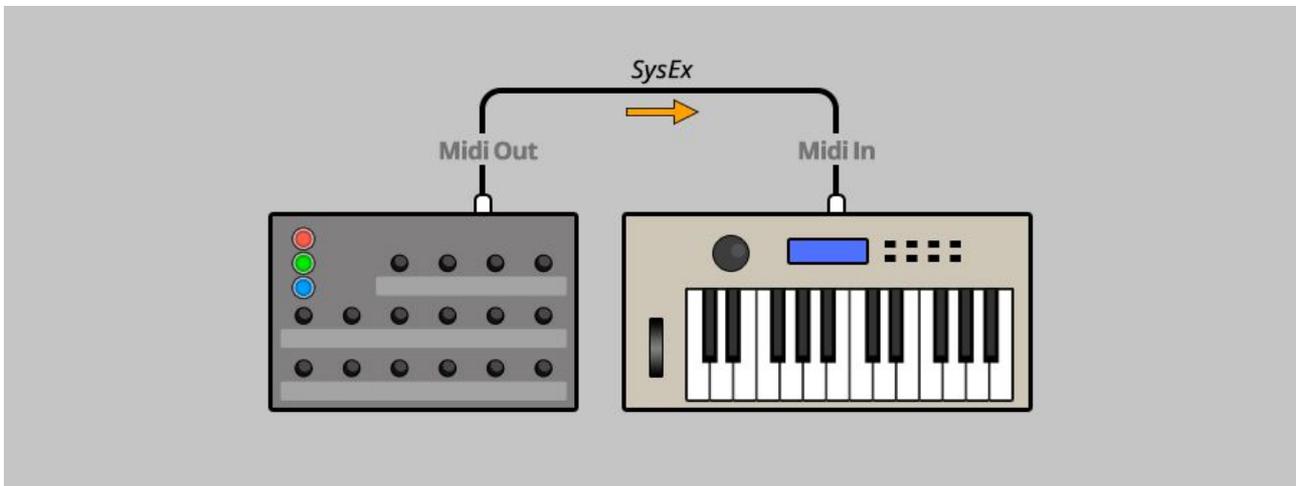
Editions and this manual

The Synth Controller is available in different versionen ('Editions') each carefully designed for a special target synthesizer. This manual describes the common properties throughout all editions. Some editions offer further features, this is documented in an addendum covering the edition's details. All addendums are freely available for download on our website www.stereoping.com under 'products' in the 'Synth Controller' section.

2. Integration into your setup

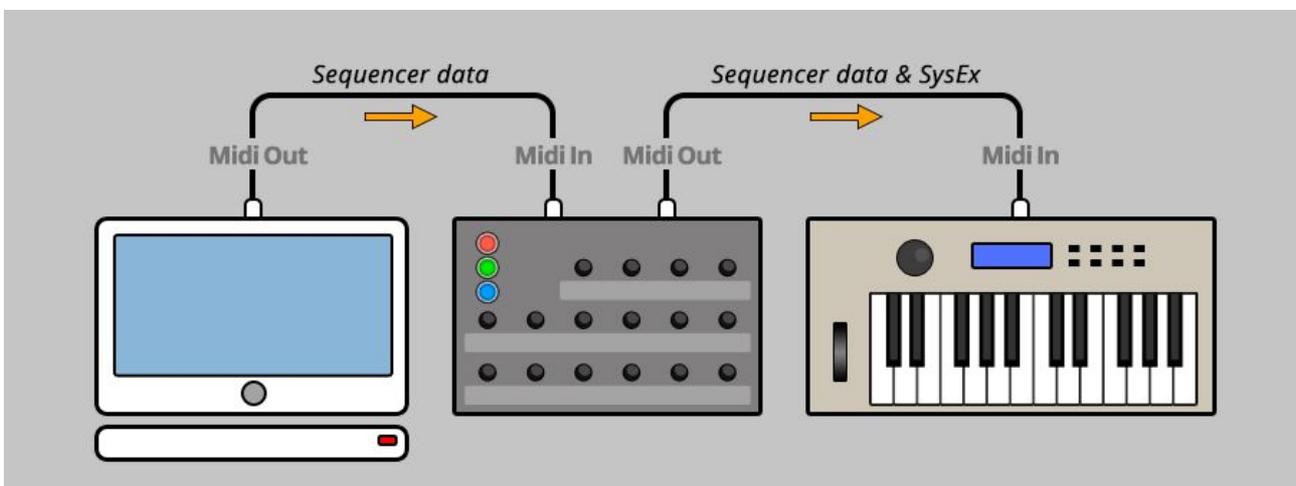
Example 1 - Synth Controller with a keyboard synth

Connect 'Midi Out' of the Synth Controller with a Midi cable to 'Midi In' of your synth:



Example 2 - Midi-Sequencer/DAW -> Synth Controller -> Synth

If you want to edit your Synth while it's being fired with notes from a sequencer you'd prefer this setup:



The Synth Controller merges incoming data (notes, velocity, pitchbend...) of the sequencer with the SysEx-data generated by itself and sends all together further into your synth.

Automating parameters in your DAW

Maybe you'd like to automate e.g. cutoff, envelope times or other parameters in your song? For automation we do not recommend recording the Synth Controller's output into your DAW. Besides the fact, not all DAWs can record SysEx-Data at all, your recorded tweaks could not be edited further.

The following makes much more sense: most DAWs allow collecting a set of tweakable controls/knobs/sliders into a 'dashboard' or 'mixermap' (or whatever). These controls can be programmed to send any midi data when being tweaked. In this case we need midi controller change data ('CC'). You then configure these knobs to send the CC-numbers you will find on the Synth Controller's faceplate besides your desired parameter.

Now when you move / automate your DAW's knob, it sends CC-data into the Synth Controller which immediately translates the CC into the SysEx-commands, your synth wants to see. More about that in chapter 4.

The cable-setup for this automation method is the same as shown above in example 2.

3. Operation

After all midi cables are connected, 2 more things need to be checked before starting:

1. the following synths have a parameter for 'allowing' SysEx-Data receiving

- Roland JX-8P: MIDI Menue page 26 – EXCLUSIVE ON
- Yamaha TX81-Z: UTILITY – MIDI CONTROL – 'Exclusive:on'
- Kawai K3: MASTER Parameter Nr 42 – FUNC to value 5
- Oberheim Matrix 6: MASTER EDIT – MIDI Parameter 04 – SYSTEMX ON
- Korg DW-/EX-8000: Parameter 85 must be set to value 2 ('All Data')

2. the midichannel of the Synth Controller and your synth have to be identical.

How to set the Synth Controller's default channel is described below.

Colorcoded parameters

In the upper left corner you find 3 colored lighted buttons which activate one of the 3 color modes. Each color mode has a set of parameters printed on the frontpanel in exactly THAT color, which are sent out on the MIDI Out jack when the appropriate pot is dialed. For example if you press the green button, it will light up and the parameters on the frontpanel printed in green will be sent to the synth as you move the pots. If you find a parameter you want to change next, have a look at it's color and change into that color mode with one of the 3 buttons - if it is not already selected.



Some editions have got some parameters like 'Volume' or 'Cutoff' in neutral color (white, grey, black). These parameters will be sent always, no matter which color mode you selected.

Pot dialing without sending data

Changing between the color modes logically has the unwanted side effect, the rotation angle of a pot often won't correspond to the appropriate parameter value. Moving such a pot will cause the synthesizer's parameter to jump to the new value immediately, causing a sometimes unpleasant sonic experience.

Example on a Korg DW-8000: the synths delay level is at 0 % and you want to increase the delay level softly. After switching into the blue color mode you realize, the last pot in the second row for the delay level unfortunately is set fully clockwise. If you would move the pot now, the delay level of the DW-8000 would most likely jump shortly to a high level, even if you tried turning the pot quickly to it's 0 % position.

We have a workaround: **pressing and holding an already lighted color-button will prevent the Synth Controller's pots from sending data.** Release the color-button and the messages will be sent again - of course from the new pot position on.

For the upper example, we would hold the lighted blue color button, dial the pot to the left, release the button and start to softly fade in the delay level dialing the pot clockwise - with a masterfully smile on our face.

Button Combinations and special modes

According to the edition you purchased, the one or other mode mentioned here might not be available. If even more features are available, they are described in detail in the edition specific addendum below.

All Notes off

It should not happen and during development we did not experience problems here. But for several reasons it *might* happen that a ringing note of your synthesizer will not stop anymore. This is caused by a missing midi message called 'Note Off' which was lost for some reason. It is not necessary to power your synth off and on again. Powering the Synth Controller off and on again would be even more useless. For these occasion: **to send an 'All Notes Off' event to your synth, shortly press the button combination printed on the frontpanel.** In most editions, the combination consists of the upper 2 buttons. Hopefully all your synths voices should be quiet then.

Midi channel learn mode

The Synth Controller has a Midi Channel Learn Mode. Once engaged, the Synth Controller waits for an incoming Midi note on it's Midi In jack.

*Exceptions for the editions '1016R' and 'Qfeld': they await a NoteOn **or** Pitchbend. More details in the edition's addendum. To keep things simple we just talk about midi notes in the following.*

Exception for 'Microwave' edition: you will need the midi channel only for automating parameters with the CC-SysEx-translator, not in normal edit operations. The learn the midichannel on this edition hold ALL three buttons for 2 seconds.

To enter the Midi Channel Learn Mode, hold the button combination printed on the frontpanel for about 2 seconds. The lights of the pressed buttons will start flashing, you can release the buttons now. The Synth Controller awaits an incoming note on it's Midi In jack. If nothing comes in for about 30 seconds, the Synth Controller will return to normal operation mode, keeping it's old Midichannel. If the Synth Controller learnt which channel to use, it will nicely flash and also return to normal operation. You can also leave this mode manually by shortly pressing any of the buttons.

Bypass Mode

This mode is for optimizing mididata flow and locking the user interface against unintended parameter changes at the same time. You can enter the Bypass Mode by holding the button combination printed on the frontpanel. The corresponding lights will flash to indicate your Synth Controller is in Bypass Mode.

In Bypass Mode, most routines of the Synth Controller's software are skipped and incoming Midi is passed through unprocessed offering the least latency. In addition any dialing of the pots is ignored. This is useful for several situations:

- your perfect song is ready for being recorded and you want to ensure the smallest latency for mididata going through the Synth Controller
- you want to dump a SysEx soundbank into your synth
- you got kids or cats (or both) in your studio and want to prevent, they destroy your soundpatch masterpiece at the moment they see the awesome Synth Controller and can't stand to fiddle the pots

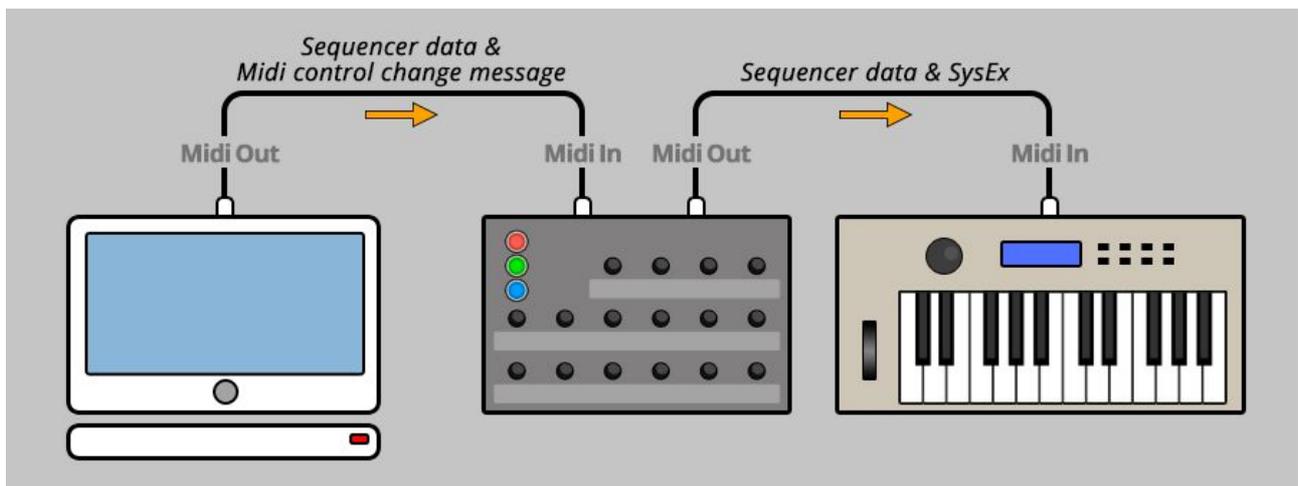
You can leave Bypass Mode by pressing any of the 3 buttons.

4. 'Midi Controller Change Message' to 'SysEx' translator

Some editions like e.g. 'Qfeld' or 'Puls' do not have a CC-Sysex translator because they already use CC-data for parameter editing.

As described in chapter 2, CC-data is the better choice for automation of parameters. We therefore spent the Synth Controller a little data translator which offers the possibility to remote control the parameters on the frontpanel by incoming CC changes. The little numbers besides the parameters show the number you need to send into the Synth Controller to translate this parameter. To still allow the standard CCs like volume (#7) or panning (#10) the numbers start with #11 and end at max. #63.

The CC message must be sent on the same midichannel as the Synth Controller's default and the synthesizers midichannel. When the Synth Controller detects a CC message with a suitable controller number, it translates it into the appropriate SysEx message and sends it out to your synth - which should change the desired parameter immediately.



Technical info: depending on your synth and the amount of simultaneously changed parameters while being fired with notes, realtime-performance will work better or worse. Especially the Oberheim Matrix-Synths are known for their not so optimal behaviour on remoting parameters.

5. Technical Limitations

Some synthesizers offer far more parameters than the Synth Controller's concept can handle. Especially the Waldorf Microwave and the Oberheim Matrix 1000 / 6 / 6r with their extensive modulation capabilities can not be controlled entirely by a small box with few knobs. We tried to find and implement the most relevant and interesting parameters into the Synth Controller, but your synth might offer much more. Please check your synth's manual to find out what it has to offer apart from the Synth Controller's frontpanel.

Parameter jumps

We already talked about that above: changing an edit mode by pressing one of the unlighted buttons naturally leads to knobs, dialed into positions not corresponding to the parameter values in your synth. Dialing one of these pots lets the appropriate parameter jump immediately onto its new value which might result in unpleasant sound changes. To overcome this issue, we implemented a handy shortcut feature which helps in many cases:

a pot's parameter is NOT sent to your synth as long as the already lighted button is held down. Let the button go and the messages will be sent again on dialing.

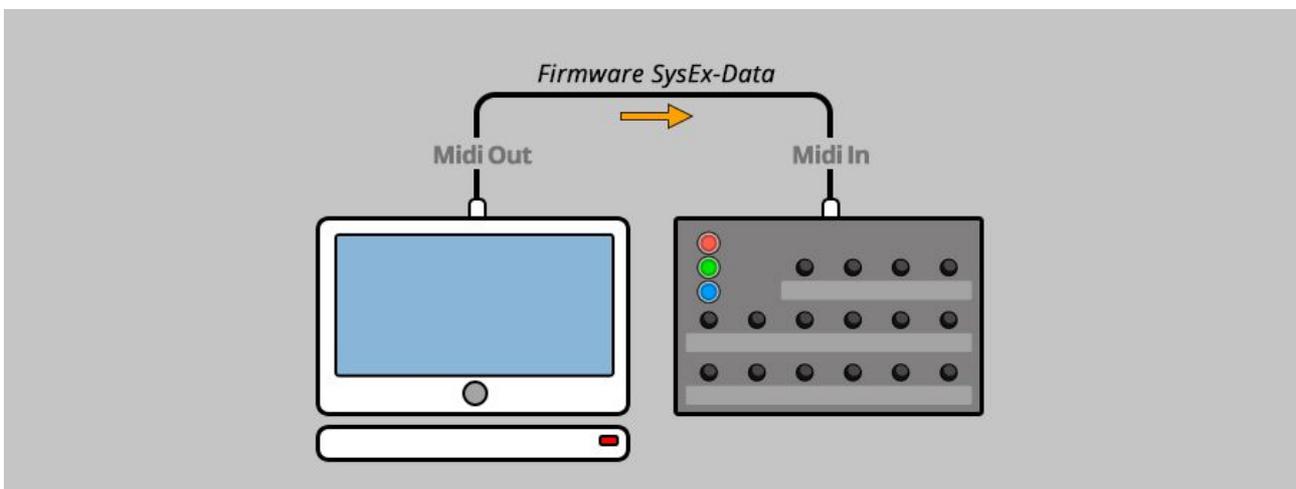
Notes lagging in time

Another issue you might encounter while using the Synth Controller are delayed or timing related unprecise notes while excessive pot fiddling. This problem is not caused by the Synth Controller, it is dismantled by it. It arises when too much data wants to travel the small pipe of the Midibus. Synth editing through the Synth Controller is performed using so called 'Midi SysEx data' which uses quite many databytes and normally plays a secondary role in every day's Midi world.

6. Updating Firmware

The day may come you want to update your edition or try out another. Your Synth Controller offers a firmware update mode for this. After entering this mode you just send a Firmware-file into the controllers Midi-In jack. The firmwares in SysEx-format are all compatible to your controller and freely available on our website. You can dump them with any standard SysEx dump tool of which several are available as freeware for different operating systems.

The technical part: Plug 'Midi Out' of your midi-interface into the 'Midi In' of the Synth Controller, if possible without a midi-patchbay in between and with a short cable.



To enter bootloader mode, hold the topmost button while powering on the Synth Controller. The middle button will light up. You can release the button then of course. Configure the SysEx-dump-software to use the correct Midi Output, open the firmware file and send it into the Synth Controller.

While the incoming stream is valid and saved into the program memory, the lights are flashing up slowly one after the other. The dump process should take less than a minute. If the button's lightshow ends and the lowest button keeps flashing an error occurred. Either the firmware file was corrupt (unlikely) or the incoming data was sent faster than the controller could write the data before. The software you dump the Firmware-File into the controller should have a parameter somewhere like "Delay between Buffers". Set this parameter to at least 100 mS.

After the successful dump, the Synth Controller restarts again, welcoming you with some nicely flashing buttons going into normal operation. **The default midichannel is reset to 1 after flashing a new firmware.**

7. Imprint

Stereoping is a registered brand of Gregor Zoll, Hattingen, Germany.

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