HX3
SOUND ENGINE

User Manual

HX3 Touch Control

(as of HX3 FW Version 5.6x, Juni 2020)

keyboardpartner.com

Contents

Please note: This manual refers to TouchOSC mk1.

Hexler has meanwhile released a new, more expensive version under the name TouchOSC and renamed the previous version TouchOSC mk1.

This manual was written for TouchOSC mk1 in conjunction with HX3.5 devices, but can be used analogously for HX3.6 devices as well. Please note that you have to load adapted layouts which are available for download on our file server updates.keyboardpartner.de in the directory "HX3.6 TouchOSC Layouts". Replace "HX3.5" by "HX3.6" in the layout names mentioned in this manual.

The screenshots in this guide show HX3.5 layouts that differed slightly from the HX3.6 layouts.

Controlling HX3 with TouchOSC

With TouchOSC from Hexler the HX3 system can be controlled via virtual controls on your tablet or smartphone. This works in both directions: With the fingertip on the touch panel you control the HX3 device and what you set on the device is displayed on the screen.

You need the **TouchOSC mk1** app, which is available for a few euros in Apple's App Store and at Google Play, and a suitable TouchOSC layout. We provide layouts for tablets and smartphones for download.

In order to communicate with smartphones or tablets via WiFi, the HX3 device must be equipped with a WiFi interface. This is the only option for Android devices, while iPhones and iPads can also be connected via cable. See the following section for more information.

The WiFi interface requires an HX3 system as of version 3.5. It cannot be used for older hardware versions. The TouchOSC operation described here requires firmware 5.6 or later.

TouchOSC and the HX3 Manager application **cannot be used at the same time**. After connecting HX3 Manager the WiFi interface is switched off.

Connection

TouchOSC communicates with the HX3 system best via **OSC** (Open Sound Control), a network protocol for music applications. To connect the mobile device to the HX3 system conveniently via WiFi, we have developed a WiFi interface that is also available in the KeyboardPartner shop for retrofitting in existing devices. This solution is compatible with Android and iOS devices.

The HX3 firmware supports bi-directional communication via OSC from version 5.6. Details in the following chapter 'HX3 via WiFi'.

For iPhones and iPads from Apple, **MIDI over USB** can be used alternatively. The WiFi interface is not required for this. Activate the MIDI connection in the TouchOSC setup. There are two types of connection:

- a USB cable connection from the mobile device to the USB-B jack on the HX3 device. Suitable cables (Lightning to USB-B or USB-C to USB-B) are available from your local dealer.

- a wireless MIDI connection to a Mac or Windows PC as a relay station connected to the HX3 device via USB cable. This requires configuring a MIDI network using the Audio MIDI Setup utility on the Mac or the free rptMIDI program on the Windows PC. We'll show how to do this in a YouTube video: https://www.youtube.com/watch?v=0Q_sTW1hUR8.

If "MIDI over USB" is used, no cable must be connected to the second MIDI input (left DIN socket).

In this case only the first MIDI input is available for connecting a controller.

For bidirectional communication via MIDI over USB we have implemented a special CC set called 'HX3.5/KPB'. This is automatically selected when TouchOSC connects to the HX3 device via MIDI. However, this does not always guarantee that all controls of a controlling master keyboard will continue to function as usual. The HX3.5/KBP set uses 4 MIDI channels (default: MIDI channel 1 through 4).

These disadvantages do not exist when communicating via OSC. OSC also transmits text so that the names of presets and GM instruments can be displayed on the mobile device. If using MIDI transmission, on the other hand, only the numbers are displayed.

HX3 via WiFi

The HX3 WiFi interface can be used either as an **Access Point** or as a **Client/Station** in an existing wireless network.

Access Point Mode

In Access Point mode, the WiFi module acts as a simple web server that creates its own wireless network called "HX3 Touch OSC" with the IP address 192.168.4.1. Using that address, your tablet or smartphone can be connected directly to the HX3 system. Access point mode is recommended whenever your wireless network is out of range.

The first time you use the WiFi interface, it always enters Access Point mode.

Dial into this network in the network configuration of your mobile device. The default password is "password". In the TouchOSC configuration switch OSC to 'Enabled' and enter the IP address 192.168.4.1 as host.

You can change the SSID and password on the HX3 WiFi interface configuration page. You can access this page with the Web browser on your mobile device or PC by specifying 192.168.4.1 as the URL.

Client/Station Mode

In Client/Station mode, the HX3 WiFi interface registers as a client with the router of your wireless network. If your mobile device is registered on the same network, TouchOSC can connect to the HX3 device over the network.

To enable Client/Station mode, set *Force Access Point mode* to off on the HX3 WiFi Interface configuration page. Tap *Select..* and select your wireless network from the list that appears. Enter the password for your wireless network and tap *Submit Changes* at the bottom. Power-cycle the HX3 device. The settings are valid after restarting the HX3 device.

When logging into your network, the HX3 device receives an IP address from your router, such as "192.168.178.65". As soon as this is done, HX3 shows the IP address briefly in the display. Now enter this address as host in the TouchOSC configuration. After that TouchOSC should be able to connect to the HX3 device.

The HX3 WiFi interface will preferably try to connect to your network. You can force it into Access Point mode by enabling *Force Access Point mode* on the configuration page.

HX3 WiFi Configuration, more options

UPD delay suspends the TouchOSC transmission for a few milliseconds before the next packet is sent. The default value is 2 ms. If your tablet or smartphone experiences data loss (i.e., preset settings from HX3 are not fully displayed), increase this value by a few milliseconds.

UDP Client Timeout disables the feedback after a certain time (default: 300s). This becomes effective when a TouchOSC device has been permanently removed.

Feedback to other OSC clients transfers the settings on the TouchOSC user interface to other TouchOSC clients. The default setting is ON. Up to four TouchOSC devices (tablets or smartphones) can be connected to the HX3 WiFi module. You can even work with different TouchOSC user interfaces for the same HX3 device, such as one tablet for the upper manual, a second tablet for the lower manual.

Feedback to sending OSC client (self) transmits the settings on the TouchOSC user interface back to the sending TouchOSC client. This is useful if controls are present on more than one TouchOSC layout page or if a button (e.g. vibrato) is to snap in certain positions.

Further Pages on the HX3 Server

The HX3 server provides additional HTML pages that you can access with your web browser:

Manage File System

Access to the file system of the WiFi interface, for internal use. Please do not change.

Manage Preset Names

On this page you can name or edit the presets on your HX3 device.

Manage Board Params

Like the HX3 Editor, this page gives access to parameters of the HX3 system. Settings should only be made by experienced users .

View Help Page

Help page with brief instructions on HX3 WiFi configuration.

Configuration Page

Link from one of the other pages back to the 'HX3 WiFi Configuration' homepage.

Setting up TouchOSC

The TouchOSC layouts for tablets and smartphones are available for download at updates.keyboardpartner.de in the directory 'HX35 TouchOSC'. We also recommend to download the free TouchOSC editor from hexler.net, which allows you to customize the layouts according to your own ideas and download them to your mobile device. You can also transfer the suitable layout to the mobile device with the iTunes file sharing function or with data transfer under Android.

The TouchOSC mk1 app already contains several layouts for various DAWs and plug-ins. It's best to delete all layouts you never want to use, to make it easier to keep track in the layout directory.

When TouchOSC is started the setup window opens. Under *CONNECTIONS* set the connection method: MIDI to Enabled if you want to control the HX3 device with MIDI over USB, OSC to Enabled for WiFi. For WiFi, also enter the IP address of the host in the OSC section: Because the WiFi interface operates in access point mode the first time it is used, this is the address "192.168.4.1".

If the device is operated in client/station mode in your wireless network, enter the IP address that is assigned to it at logon and briefly shown in the display, e.g. "192.168.178.65" (see section "HX3 via WiFi"). Port (outgoing) should be set to 8000, port (incoming) to 9000.
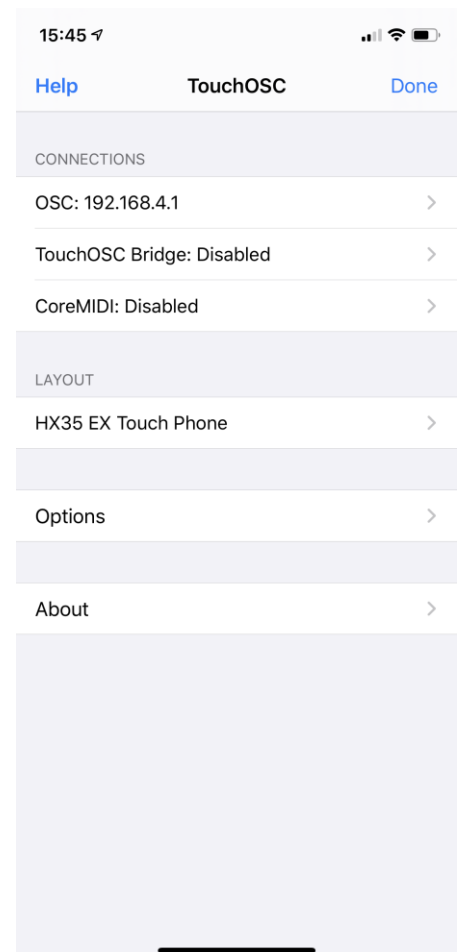
To transfer the layout with the editor, load it into the editor and tap *Sync* in the editor window.

iOS: In TouchOSC Setup, tap the name displayed in the *LAYOUT* section and then tap *Add*. In the following window, the name of the computer on which the editor is running is then displayed under *FOUND HOSTS*. Touch the name.
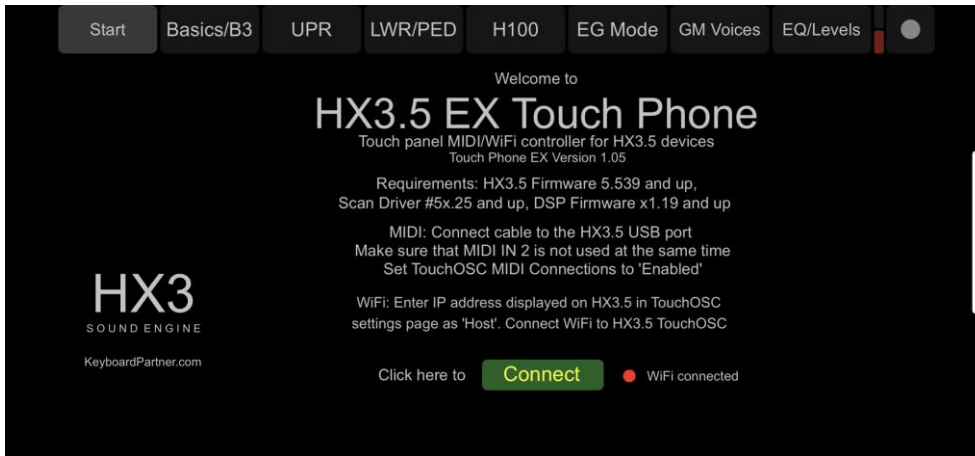
Android: Tap on *Layout* and then on *Add from Editor*. As host, enter the IP address of the computer on which the editor is running. You can find this out with the *ipconfig* utility; it is displayed as IPv4 address. Tap on *DOWNLOAD*.

The layout is transferred and is now in the list. Select it and tap *Done* in the top right-hand corner.

Now the HX3 layout start window opens. To get back to the setup, tap on the round symbol in the upper right corner.

TouchOSC in Action

Tap the *Connect* button in the HX3 Layout start window. When a WiFi connection is established, the LED next to "WiFi connected" will flash regularly.

If the LED does not light up, no connection has been established. In this case, please check and correct the connection settings. Irregular flashing is an indication of a poor wireless connection. Change the orientation of the antenna or the position of the device.
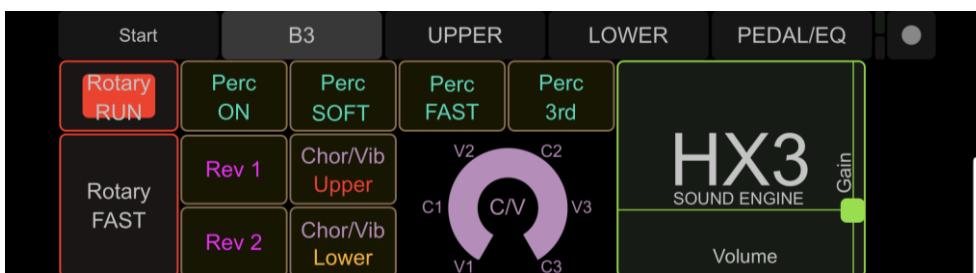
Once the connection is established, the HX3 device will transfer all settings to TouchOSC. After a few moments the display will automatically switch to the "Basics/B3" window with the basic settings for B3 mode.

The operation of the touch interface is mostly self-explanatory. There is only little to explain:

With the buttons at the upper edge you can not only call up the different windows. The buttons "Basics/B3", "H100" and "EG Mode" in the smartphone layout "HX3.5 EX Touch Phone" for HX3 with Extended License shown above also switch the HX3 device to the corresponding organ type at the same time.

The other windows are not linked to switch functions. However, some controls in these windows are only active with Extended License and not in every mode.

For HX3 devices with standard license there is a second smartphone layout with fewer windows called "HX3.5 Touch Phone":

While the drawbars on the smartphone are accessible in separate windows for the upper manual (UPR) and the lower manual and pedal (LWR/PED), on the tablet they can be displayed together with switches and buttons in one window thanks to the larger screen:

To save settings as a preset, tap *Store Preset/Voice*. Then select a preset store or a voice store and tap its number to save either an overall preset or drawbar settings as a voice.

The tablet layout "HX3.5 Touch Pad" is only available in one version. If it is not to be used in conjunction with an extended license, you can delete the unneeded windows "H100", "EG Mode 1" and "EG Mode 2" without hesitation using the TouchESC Editor.

Documents Library, Download Repository:

updates.keyboardpartner.de

wiki.keyboardpartner.de

KeyboardPartner shop:

keyboardpartner.com

rptMIDI download:

https://www.tobias-erichsen.de/software/rtpmidi.html

TouchOSC-Editor download:

hexler.net/products/touchosc

TouchOSC Online Documentation:

iOS: https://hexler.net/docs/touchosc

Android: https://hexler.net/docs/touchosc?android

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