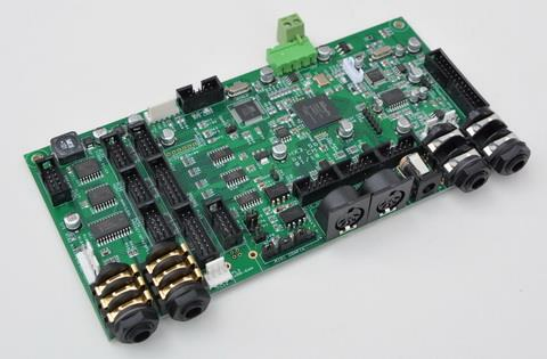
KEYBOARDPARTNER UG

HX3 Mainboard Version 5 (Firmware version 5.3)



HX3.5 is a tonewheel organ emulation with all B3 features on a single board, creating the legendary unmatched HX3 sound. Controlled via MIDI, it offers selectable CC-sets for various keyboards. Alternatively, it may be controlled directly by Fatar keybeds as well as drawbars, switches and buttons. HX3 provides unlimited polyphony, presets, parameters tweakable by simple menus. In addition, General MIDI sounds like piano and strings are available.

As an option (extended licence required), the new HX3 RealOrgan engine is capable of emulating all electromagnetic organs including the famous H100, combo organs, concert organs of the 70s and 80s like Böhm Orchester and Wersi Helios. This implies up to 15 harmonics, up to 12 drawbars per manual with individual mixtures, including phasing rotor (WersiVoice), mechanical and electronic keying available simultaneously. ADSR envelope available on all drawbars, also H100 percussion and "Harp Sustain". Various tone generator waveforms selectable, for "cheesy" combo organs as well as fully fledged concert organs.

Features

- Compact organ emulator circuit board, 200 x 100 mm
- Authentic reproduction of generator, tapering, key contacts, percussion and vibrato by FPGA (Field Programmable Gate Array) and physical modelling
- Tunable in range of A = 433 through 447 Hz
- Extremely low internal latency of 50 microseconds Key-to-Audio. However, MIDI transmission delay is about 1 ms per note played.
- Natural key click by "rattling" contacts
- Accurate rotary and 122 amp simulation
- Dual MIDI IN for 2 separate keyboards or bass pedal
- LCD display and menu system available
- Swell (expression) pedal and footswitch jacks
- USB for MIDI use and firmware updates
- Effects DSP with 3 reverb levels
- 24 voices GM Synth

Default MIDI setting is channels 1/2/3 for upper/lower/bass, MIDI CC NI B4 with Sustain on CC #64.

DC input 9 to 12V, 500 mA min., 5.5/2.1 mm plug, plus on center.

Please read this manual carefully before using the HX3 Mainboard.

Do not let liquids get on the board. Liquids may cause short circuits.

Keep packaging in case of service shipment.

Only use appropriate power supply as advised. Input voltages exceeding 15V may damage the device.

Designed for indoor use only. Do not use HX3 Mainboard in moist places. Refer to qualified technician or service representative if problems occur.

All information given herein is given to describe certain components and shall not be considered as a guarantee of characteristics. Rights to technical changes reserved.

EU conformity declaration

CE

The producer/distributor

KEYBOARDPARTNER UG
Entwicklung elektronischer Musikinstrumente
Carsten Meyer
Ithweg 37, D-30851 Langenhagen
info@keyboardpartner.de

hereby declares, that the product

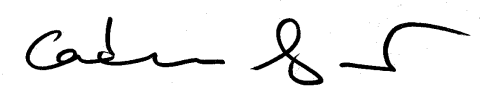
HX3.5 Mainboard

has been designed, produced and examined in compliance with the DIN VDE 0580 standard and in accordance with the EU Low Voltage Directive.

Following directives, standards and guidelines have been used:

EMV-Richtlinie 2004/108/EG
Niederspannungsrichtlinie 2006/95 EG
RoHS-Richtlinie 2011/65/EU

Langenhagen, August 2018



_____
Carsten Meyer / Geschäftsführer

1.0 Jack Connections

The HX3.5 mainboard features two 1/4" mono **audio output jacks**, two standard MIDI jacks, one DC input jack, one USB connector and two accessory jacks.

- **AUDIO1/AUDIO2:** Main audio stereo output. Output level is approx. 300 mV at full swell.
- **SWELL PEDAL** ¼" stereo jack. Expression pedal input is compatible with Yamaha FC-7 and similar expression pedals (direct connection preferred for speed/accuracy, but may also be remote controlled by MIDI control change, controller 11). Plug connection: Sleeve = ground / potentiometer start, ring = potentiometer tap, tip = potentiometer end.
- **FOOT SWITCH** ¼" stereo jack. Single or double footswitch controls simulated **rotary speed**: SLOW/FAST on plug tip, RUN/STOP on plug ring. Please use latching foot switches; momentary (button type) switches are not supported. If single footswitch used, Rotary is always on RUN (no plug ring, input grounded by plug sleeve).
- **MIDI IN** primary input from MIDI keyboard.
- **MIDI IN/OUT** factory default secondary MIDI input for additional lower manual, bass pedal or MIDI controller. Internally jumpered to supply +5V/200ma to our Drawbar Controller (phantom voltage). May be changed to act as MIDI OUT by internal jumper swap. See our wiki page for details.
- **DC IN:** Use stabilized DC wall wart 9 to 12V with at least 500mA current output, inner/outer plug diameter 2.1/5.5 mm on DC input jack. Polarity: positive voltage on inner tip.
- **USB:** USB B connector for MIDI over USB and GM Soundbank updates (optional).

For full control of parameter settings, we recommend the use of our MenuPanel. The menu system is described below. Installing the menu panel and other peripherals is described in http://wiki.keyboardpartner.de/index.php?title=HX3.5_Installation_Manual.

Please note: Menu entries depend on firmware type and selected organ model. Factory default is a firmware for MIDI and menu control. Other firmware types are available on our Github repository, see wiki.keyboardpartner.de for details.

1.1 Volume Control

Output level of all output channels is controlled by **Master volume** setting in menu or MIDI CC #7 "Volume", whichever occurs last.

Organ's **swell pedal** position is controlled by an expression pedal or MIDI CC #11 "Expression", whichever occurs last. HX3 resembles a loudness curve similar to the swell pedal of a classic tonewheel organ, so expression volume will not reach zero. We recommend connecting an expression pedal **Yamaha FC-7** or similar (1/4" jack, 10k to 47k total resistance) directly to the HX3 module. By using an expression pedal rather than MIDI sweller control will be faster and more precise.

MIDI CC #11 and #7 may be changed by menu to any other valid MIDI CC number.

2.0 Panel Buttons

Up to 64 buttons may be connected to the board; a standard organ uses at least 16. In standard configuration, one Panel16 is needed. See http://wiki.keyboardpartner.de/index.php?title=HX3.5_Installation_Manual#Panel16 for details.

3.0 Menu Panel

On power on, the **presets/drawbar menu** is present. Pressing the rotary knob twice briefly will let you return to the presets/drawbar menu from any other menu position. The menu system consists of up to 120 entries, depending on licence and menu configuration.

The menu is either brief (better suitable for live performance) or elaborate (offering many parameters for fine tuning). Configure the menu to desire by using the HX3.5 Editor and running either the script “config.ini” for the brief version or “config_a.ini” for the elaborate version. In the following description the parameters that show up only in the elaborate menu are marked by the symbol “(a)”.

Turn the rotary know to select overall presets 0 to 15. **Overall presets** consist of voices for upper manual, lower manual, and pedal, all tab switch settings (percussion, vibrato etc.), master volume and 122 tube amp gain as well as all other sound defining parameters, except rotary run/fast/slow.

Press rotary knob once briefly to scroll through the menu by turning the rotary knob. Up/down arrows are white (active) and parameter arrow is outlined (inactive) in this mode. Press rotary knob again briefly to change an entry. A white “<” arrow indicates the selected entry that may be altered.

Alternatively you may use the up/down buttons to step through the menu (autorepeat when you keep the button pressed).

Turn the rotary knob counterclockwise (or press the down button) to access upper (U), lower (L) or pedal (P) **voice presets**.

40 voices (0 … 39) are available for each manual and pedal. Voices 0 to 15 are designated for the organ drawbar settings. Voices 16 to 39 select a General MIDI (GM) preset. GM presets may be predefined by use of the HX3.5 Editor application.

Turn the rotary knob clockwise (or press the up button) to navigate to the **Master Volume** setting. Master Volume sets final volume of all outputs. For best noise performance, higher values are desirable.

Scrolls upwards in the menu to the **TubeAmp Gain** setting. TubeAmp Gain sets the volume of internal rotary tube amp simulation from 0 to full (overdriven tube amp). The Amp will produce decent saturation effects on increased swell amount and higher gain values as seen on ‘real’ tube amps. Amount of distortion is controlled by swell pedal.

A “*” star appears on the display, if a parameter value has been changed and now differs from the stored preset. To **store** values as **preset**, keep the encoder knob pressed until the prompt “Saved to Preset #XX” appears on the display. (“XX” representing the current preset number). Parameters tagged by the letter “D” in the display may be stored **as defaults**. These parameter settings will be applied to all other presets as well.

Voice settings will be stored along with the overall preset. Drawbar settings are being saved as voices under the same number, while GM instruments will retain their selected numbers. You may select any stored voice by choosing its number in the voice menu, and then modify the voice as you like and play it live or store it again along with an overall preset.

Turn the rotary know clockwise (or press the up button) to navigate to the rotary menu:

- **Rotary** Motor On/Off control
- **Rotary** Slow/Fast control

3.1 Menu Upper/Lower/Pedal

Starting from the preset/drawbar menu scroll downwards to navigate to the voice settings for upper manual, lower manual, and pedal. The white „<“ arrow points to the selected manual.

- **DrbXXXXXXXXXXXX** - voice menu, shows upper/lower or pedal drawbar settings as numbers 0 … 8 (here represented as "X") for 12 drawbars (9 harmonics plus 3 mixtures). Turn the rotary knob turn to alter a voice setting.To alter individual drawbar settings, step further in the menu.

3.1.1 Upper Manual

Scroll upwards, starting from the preset/drawbar menu, to navigate to percussion, vibrato und drawbar settings for the upper manual. Drawbars settings will be saved as voices for the upper manual.

Menu entry count depends on selected basic organ model (default: B3). Other organs (H100, Böhm/Wersi, Versatile Electronic Gating, Conn Single Note Generator, CheesyCombo) are available with extended licence only. Navigate to **Organ Model** in the menu to alter the basic organ model. On B3 and Combo organ models, mixture drawbars are not active.

3.1.1.1 B3 Organ Model

- **UPR< LWR Vibr** - Vibrato/chorus ON/OFF for upper manual
- **UPR LWR Vibr<** - Vibrato knob setting V1 to C3
- **Percussion** - will step through available percussion combinations of NORM/SOFT, FAST/SLOW, 2nd/3rd (8 options) plus OFF. Available for B3 organ model only.
- **UpperDB 16 to UpperDB 1** - drawbar settings for upper manual
- **Organ Model** selects basic organ model

3.1.1.2 H100 Organ Model

- **UPR< LWR Vibr** - Vibrato/chorus ON/OFF for upper manual
- **UPR LWR Vibr<** - Vibrato knob setting V1 to C3
- **UpperDB 16 to UpperDB 1** - drawbar settings for upper manual
- **UpperDB Mix1 to UpperDB Mix3** – mixture drawbar settings for upper manual. Mixtures consist of up to 3 higher harmonics in individual levels. Please note: As opposed to the original H100, HX3.5 provides three mixtures instead of two.
- **Perc/2ndV Vol** – controls percussion and 2nd voice volume.
- **H100 HarpSust** - activates Harp Sustain effect, 4’ harmonic decays after key has been released
- **H100 2ndVoice** – selected percussion harmonics will not decay. As on H100, all percussion voices are bypassing the vibrato circuit. If drawbar voices are on vibrato and 2nd Voice is active, this will yield a nice chorus effect.

- **Perc/EG Mask** – selects harmonics to enter the percussion/2nd Voice circuit. Each “o” symbol represents a single harmonic from 16’ to Mixture 3. An underscore indicates the harmonic to be changed. If activated, the “o” symbol is filled white.
- **Organ Model** – selects basic organ model

3.1.2 Lower Manual

Scroll downwards – starting from the preset/drawbar menu – to navigate to the vibrato und drawbar settings for the lower manual. Drawbars settings will be stored as voice for the lower manual.

Menu entry count depends on selected basic organ model (default: B3). Other organs (H100, Böhm/Wersi, Versatile Electronic Gating, Conn Single Note Generator, CheesyCombo) are available with extended licence only. Navigate to **Organ Model** menu to change basic organ model.

- **UPR LWR< Vibr** - vibrato/chorus ON/OFF for lower manual
- **LowerDB 16 to LowerDB 1** - drawbar settings for upper manual
- **LowerDB Mix1 to LowerDB Mix3** – (non-B3 organs only) mixture drawbar settings for lower manual. Mixtures consist of up to 3 higher harmonics in individual levels. Please note: As opposed to the original H100, HX3.5 provides three mixtures instead of one.

3.1.3 Pedal

Pedal drawbars including ADSR setting are saved to active pedal voice preset.

- **PedalDB 16, PedalDB 8** - drawbar settings for pedals
- **PedalDB 16H, PedalDB 8H** - drawbar settings for pedals, brighter tone
- **Pedal Attack** - changes pedal ADSR envelope attack time.
- **Pedal Decay** - changes pedal ADSR envelope decay time
- **Pedal Sustain** - changes pedal ADSR envelope sustain level
- **Pedal Release** - changes pedal ADSR envelope release time (often called string bass “sustain” on other organs)
- **Pedal Harmonc** – sets harmonic breakup of individual harmonics over time. Set to lower values to obtain a „picked bass“ effect.
- **AddPedalToAmp** – inserts the pedal signal before the tube amp simulation. If switched to OFF, the pedal signal will not be routed through the tube amp.

3.2 Defaults Group

Step downwards to navigate to various default settings; change to desired value by turning incremental encoder knob. Save changes to current overall preset by pressing knob for more than 2 seconds.

- **ToneTrimPot** – mimics TONE pot on simulated AO28 amp; well, a little bit more on high values.
- **TubeAmp Insrt** – activates 122 amp simulation, otherwise amp is bypassed. TubeAmp Gain has no effect if off.
- **SpkrSim Insrt** – activates rotary cabinet simulation, otherwise horn/rotor simulation is bypassed (recommended for use of external rotary cabinet).

- **Reverb Prgm** – selects one of 3 different reverb programs. For each program, amount of reverb may be adjusted.
    - **Reverb Lvl 1** reverb amount of reverb program 1
    - **Reverb Lvl 2** reverb amount of reverb program 2
    - **Reverb Lvl 3** reverb amount of reverb program 3
- **Transpose** – allows transposition by up to +24 or -24 half note steps. Notes beyond 5 octave limits of console organ will not produce any sound due to accuracy of physical model.

3.2.1 Split Configuration

Keyboard split default is “pedal mapped to lower manual” on first 25 keys (console organ pedal range, two octaves). Default split modes may be changed by menu:

- **Split Manual** – switches split mode on or off.
- **Split Point** – sets split point (when split is on) as key number (24 is second „C“ on manual).
- **Split Mode** – default split setting on power-up, engaged when split set to ON.
    - 'PedalToLower', map pedal to lower manual up to split point
    - 'LowerToUpper', map lower to upper manual up to split point
    - 'PedalToUpper', map pedal to upper manual up to split point
    - 'LowerToU +1', map lower to upper manual up to split point, transpose lower +1 octave
    - 'LowerToU +2' map lower to upper manual up to split point, transpose lower +2 octave

Split point and split mode may also be changed by one of the following procedures:

- Pedal to Lower: Press a **single key** on lower manual key while switching SPLIT on to obtain a custom split point (useful for playing pedal bass lines on dual manual keyboards without bass pedals).
- Lower to Upper: Press a **single key** on upper manual while switching SPLIT on to map lower to upper manual up to this key (useful for playing 16’ bass lines or 4’ accompaniment chords on single manual keyboards).
- Pedal to Upper: Press **two keys** simultaneously on upper manual while switching SPLIT on to map pedal to upper manual up to highest of both keys pressed (useful for playing pedal bass lines on single manual keyboards without bass pedal).
- Lower to Upper +1: Press **three keys** simultaneously on upper manual while switching SPLIT on to map lower to upper manual up to highest of all keys pressed. Lower notes range is transposed one octave up (useful for left-hand 8’ accompaniment chords on single manual keyboards).
- Lower to Upper +2: Press **four keys** simultaneously on upper manual while switching SPLIT on to map lower to upper manual up to highest of all keys pressed. Lower notes range is transposed two octaves up (useful for left-hand 16’ accompaniment chords on single manual keyboards).

3.2.2 Generator Group

- **TG WaveSet** (a) – selects harmonic content of tone generator. Will be changed according automatically with organ model selection, but may be overridden by this menu:
    - **0…3** – B3, clean to rich harmonics (new to old organ), increasing harmonic distortion on lower notes
    - **4** – Clean LSI/transistor sine generator
    - **5** – Sawtooth-like tone
    - **6** – Squarewave-like tone
    - **7** – Cheesy Combo organ
- **TG CapSet** (a) – sets tone generator age and characteristic:
    - 1955 (very aged caps, mellow sound)
    - 1961 (aged wax caps, jazz-type sound)
    - 1972 (new “red” caps, rock-type sound)
    - Recapped (more aggressive)
    - Straight (no tapering, equal loudness)
    - Cheesy (emphasises higher notes)
- **TG Gears Tune** – sets organ generator tuning in range from A = 433 through 447 Hz
- **TG Flutter** (a) – adjusts tone generator "sloppyness" (spring clutch tension, bearing precision).
- **TG Leakage** (a) – sets tone generator leakage (crosstalk noise of adjacent notes, “growl”)
- **ContSpringFlx** (a) – adjusts key contact spring flex, affects click frequency
- **ContSpringDmp** (a) – adjusts key contact spring damping, affects click length
- **No DB1 @Perc** – enables 1’ drawbar cancelling when percussion ON (as original B3®)
- **DB16 Foldback** – controls foldback behaviour on 16' lowest octave. Foldback is configurable in 4 settings:
    - foldback with full level,
    - foldback with muted level (original B3 behaviour),
    - no foldback ("all way down") with full level (like H-100®) or
    - no foldback ("all way down") with muted level.

3.2.3 Preamp Group and Misc.

Along with ToneTrimPot (see above), adjusts behaviour and response of the emulated AO28 preamp chassis and transformer/tube saturation.

- **Swell Type** – controls preamp loudness behaviour on swell pedal changes:
    - Hammond AO28 (“deep” loudness curve)
    - Böhm/Wersi (shallow loudness curve)
    - Linear
- **SwellTrimCap** – adjusts organ output volume like the trim cap in B3 swell pedal control. Higher values add more punch and output transformer saturation effects.

- **MinimalSwell** (a) – adjusts the minimum volume in heel position of the swell pedal.
- **AO28 TubeAge** – controls emulated AO28 preamp tube aging (higher triode distortion k2 in 12BH7 output stage).

3.2.4 Commons Group

- **MIDI Channel** – sets MIDI base receive channel 1 to 10 (upper manual, lower manual is on +1, pedals on +2).
- **MIDI Option** – sets MIDI routing behaviour to:
    - Local Tx – own MIDI events are sent on MIDI OUT
    - Inp 1 Thru – MIDI IN 1 is routed to MIDI OUT as THRU
    - Inp 2 Thru – do not use
    - USB InThru – USB MIDI IN is routed to MIDI OUT as THRU
- **MIDI CC Set** – sets recognized MIDI CC set to
    - NI B4 d3c - Native Instruments B4, Doepfer d3c controller (default),
    - VoceDrawbar,
    - KeyB/Duo,
    - Hamichord,
    - Hammond XK,
    - Hammond SK (Note: Hammond changed MIDI CC set between XK and SK series, so try out which will fit)
    - BoehmSempra (full MIDI implementation of all parameters, see MIDI documentation)
    - Custom CC (not implemented yet).
- **MIDI Swell CC** – sets accepted swell/expression CC number (default #11).
- **MIDI VolumeCC** – sets accepted overall volume CC number (default #7).

3.2.5 Vibrato Group (a)

Detailed modelling of scanner vibrato features lots of adjustable parameters. Avoid randomly changing parameters; they are intended for real organ enthusiasts – you should know what you're doing.

- **Scanner Gears** – adjusts scanner drive gear and thereby vibrato frequency.
- **Scanner Leak** – adjusts leakage of higher notes in scanner compartment due to parasitic capacitances.
- **VibCh ModFac** – adjusts amplitude modulation caused by delay line on all vibrato/chorus knob settings.
- **VibCh PreEmph** – adjusts treble increase when vibrato/chorus is switched on. Effect on chorus is obvious, while increase on Vibrato is more subtile.
- **VibCh Reflect** – sets amount of reflected signal on LC linebox due to aged caps. Higher values lead to a ‚celeste'-like effect as found on model M100.
- **VibCh Respons** – sets upper frequency response of LC linebox.
- **Ch LineboxLvl** – adjusts ‚wet' modulated amount when in chorus mode.

- **Ch BypassLvl** – adjusts ‚dry' unmodulated amount when in chorus mode.

3.2.6 Percussion Group (a)

- **PercNormLvl** – adjusts percussion level in PERC ON, NORMAL tab setting.
- **PercSoftLvl** – adjusts percussion level in PERC ON, SOFT tab setting.
- **PercLongTm** – adjusts percussion decay rate in PERC ON, SLOW tab setting (higher value = faster).
- **PercShortTm** – adjusts percussion decay rate in PERC ON, FAST tab setting (higher value = faster).
- **PercMuteDB** – sets drawbar muting amount while in Perc NORM. No mute will happen if value set to 125.
- **PercPrecharge** – sets percussion circuit recovery time; if set to lower values, staccato notes yield muted percussion.

3.2.7 Rotary Group (a)

- **HornSlowTm** – Rotary simulation horn revolution time when set to SLOW
- **RotorSlowTm** – Rotary simulation rotor revolution time when set to SLOW
- **HornFastTm** – Rotary simulation horn revolution time when set to FAST
- **RotorFastTm** – Rotary simulation rotor revolution time when set to FAST
- **HornRampUp** – Rotary simulation horn acceleration from SLOW to FAST.
- **RotorRampUp** – Rotary simulation rotor acceleration from SLOW to FAST.
- **HornRampDown** – Rotary simulation horn brake time from FAST to SLOW.
- **RotorRampDown** – Rotary simulation rotor brake time from FAST to SLOW.
- **Rotary Throb** – Rotary simulation "throb" modulation factor
- **Rotary Spread** – Rotary simulation stereo spread (width).
- **Rotary BaInce** – Rotary simulation volume balance horn/rotor.

3.3 Updates/Scripts

Update installation instructions and firmware images are made available through our HX3.5 Github repository on https://github.com/keyboardpartner/HX35. For your HX3.5 MIDI Expander, use file *UPDATE Plexi Expander.zip* and follow instructions given on the Github page.

- **Setup File** – Selection of an update oder setup script from a SD card. For details please see http://wiki.keyboardpartner.de/index.php?title=HX3.5_DSP-Updates

3.4 Factory Reset

To retrieve the factory defaults, press the MenuPanel encoder knob when powering on until “Factory Reset” prompt appears, then confirm by pressing “up” button. Note: A factory reset will void your presets.

3.5 Serial Numbers and Licences

HX3 is protected against forgery by licence numbers. If not set appropriately after firmware update, HX3 will refuse to work after 2 minutes. Licences may be re-installed at any time. Please contact KeyboardPartner to obtain a valid licence key. We need your serial number (issued on startup and by *HX3 Editor* application) to generate new licences for you.

4.0 MIDI Control

HX3 accepts MIDI key on/off events (default: channel 1 to upper manual, 2 to lower manual, channel 3 to bass pedals) as well as various MIDI CCs with selectable compatibility sets. MIDI dynamics slightly affect key click noise. SysEx data other than its own is always ignored. Both MIDI jacks act as MIDI inputs with equal priority. The second MIDI jack may be jumpered as MIDI Out. (For Details see HX35 Installation Manual in KeyboardPartner Wiki).

You may connect two MIDI keyboards or controllers at the same time. Connecting a third MIDI device requires a MIDI Merge Interface. All HX3 functions that are relevant for the organ player may be remote-controlled by MIDI commands.

General

Please connect MIDI out of your MIDI controller/keyboard to one of the two HX3 MIDI inputs. Since MIDI is a one-way interface, HX3 cannot determine the setting of any MIDI controller value until you touch/use it once. By default all HX3 controllers are OFF. Do not use any controller button or drawbar unless HX3 is ready to accept its data (drawbar preset displayed). It is a good idea to power up HX3 before your MIDI master keyboard or master controller.

HX3.5 supports MIDI over USB through its USB port connected to a USB host, typically a PC. The USB connection is also suitable for controlling HX3.5 by the HX35 Editor application, firmware updates via MIDI SysEx, and DSP updates via DFU data transfer.

MIDI CC #7 (default, CC number variable) controls master volume. MIDI CC #11 (default, CC number variable) controls swell pedal/expression if no expression pedal connected to HX3. If you use your HX3-attached swell pedal, any MIDI expression message will be overwritten. If the attached swell pedal is not actuated, MIDI expression messages are accepted.

Note: Some MIDI controllers as well as organ keyboards (like Hammond XK and SK series) allow 2nd and 3rd harmonic percussion ON at the same time. HX3 implementation regards "2nd ON" as "Percussion ON" tab in this case.

See 3.2.4 Commons Group section to select the desired MIDI CC set. Factory default is Native Instruments B4, which provides the most versatile command set.

More details including tables of all valid MIDI commands are to found on the KeyboardPartner wiki page “Using HX3 with MIDI controllers”.

Using HX3 with Voce MIDI Drawbars

Using your HX3 board with Voce MIDI Drawbars is straightforward, as the Voce module supports only one MIDI channel (i.e. upper manual). Please note that Voce MIDI Drawbars does not send drawbar data unless you press the “Drawbar/Save” button, so it’s LED lits up.

Using HX3 with Doepfer d3c or other NI B4 drawbar controller

The Doepfer d3c drawbar controller is a very nice and rugged piece of gear, so we recommend it for use with our HX3 board. It has support for foot controllers and foot switches. The Keyswerk/Böhm db4 is also compatible with NI B4 CC set.

Upper, lower and bass drawbars work as usual. It is a good idea to set all to zero before switching on as this is a “known state” for HX3. Also the Percussion and Vibrato buttons work as described in d3c manual.

There is a small drawback, anyway: Default HX3 Vibrato setting is V1 (but upper/lower vibrato OFF), while the V1 LED will not light when powering up the d3c (there is no “V0” on a real Hammond!). So pressing the V1 button will not change the sound – just it’s LED turns on.

The “Brightness” knob controls AO28 “tone” parameter in HX3. There is no key click emulation in HX3 (it is just there!), so you may not adjust key click (a real Hammond does not have key click adjustment, either). The “Key Click” knob controls the bass sustain instead. You may argue “a real Hammond does not have a bass pedal sustain, too”. Right, but many aftermarket kits are installed, so this is OK (for me).

Do not use the “Harmonic content” knob as it sends the “Percussion” button’s controller number like a continuous controller. Why that? No idea. This is definitely of no use.

Preset buttons may be used, but in a restricted way. First, HX3 yields 15 presets per manual, not 127 like NI B4. When selecting “Bank 1”, all 12 available preset buttons work on upper manual. When selecting “Bank 2”, all 12 preset buttons work on lower manual.

Doepfer d3c resends the program change message when changing the bank, which may be annoying. Choose bank 2, lower preset first, then bank 1, upper preset.

BTW: Bank buttons do not send bank select messages, they just add an offset to the preset buttons. Blame Doepfer for that.

Doepfer d3c preset 1 is the HX3 “Live” (preset 0) position. It will be saved temporarily (until HX3 switched off) when switching to a preset sound (2 to 12). If you return to preset 1 “Live”, your last drawbar/button setting will be recalled.

Using HX3 with Hammond XK/SK series

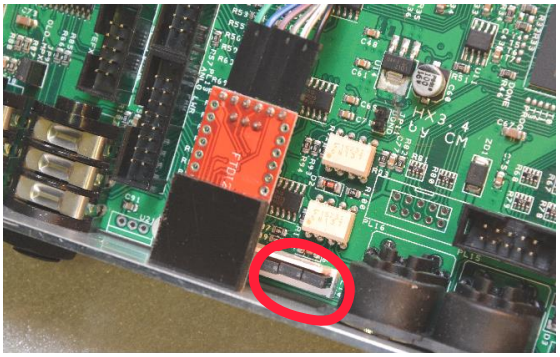
HX3 supports most of Hammond XK MIDI controller functions. For convenience, some controllers have been relocated to other HX3 functions:

- XK Overdrive knob controls HX3 Rotary tube **Amp Volume**
- XK Reverb button controls HX3 lower manual **Vibrato On**
- XK Tube On button controls HX3 Reverb

Using HX3 with HX3 DrawbarController

HX3 Drawbar Controller is specially designed to be used with HX3 MIDI Expander and provides convenient operation. It will merge incoming MIDI data on MIDI MERGE input to its own controller data.

For use with HX3 Plexi Expander, you may utilize its “phantom” power supply feature (power over MIDI cable). Phantom supply is usually set by factory – check if your expander supplies phantom voltage. In case it does not, you may use a separate wall wart for the HX3 Drawbar Controller or need to open the device and set two jumpers to enable phantom supply on the HX3 MIDI Expander.



Insert two jumpers supplied with Drawbar Controller to jumper header PL18 on positions 7-8 and 9-10 as shown in picture. Connect 5-wire MIDI cable (supplied) to HX3 MIDI Expander MIDI IN/OUT and to HX3 Drawbar Controller MIDI OUT. HX3 Drawbar Controller will now be phantom powered by the HX3 MIDI Expander through the MIDI cable.

Attention: Always connect wall wart to HX3 MIDI Expander. Never connect the wall wart to Drawbar Controller when phantom power is enabled. Doing so may damage the devices.

5. HX3 Apps

HX3.5 Editor for Windows application is a convenient way to update or maintain your HX3 MIDI expander. It allows for firmware and sound engine updates, parameter tweaking and preset setup for experienced users.

Programs and complete documentation are available through our wiki pages on

http://wiki.keyboardpartner.de/index.php?title=HX3.5_Main_page

Join the HX3 community at http://forum.keyboardpartner.de

6. How to …

How do I store drawbar settings as preset?

Once you have adjusted the drawbars just keep the rotary knob pressed until “Saved to Preset #XX” appears on the display. (“XX” representing the current preset number). Drawbar settings are stored as voice along with the overall preset carrying the same number.

Voices may be selected individually by their numbers. Alter the voice number to recall other drawbar settings for the manual the voice is assigned to, while all other settings will remain unchanged as stored in the preset. If you recall the preset the voice will regain its former settings.

How do I copy a stored voice to another preset?

In the menu, select the voice to be copied. Keep the rotary knob pressed until “Save Voice to Preset #XX” appears on the display. (“XX” representing the target preset number). Turn the rotary knob to select the target preset number to desire. Press the rotary knob until “Saved to Preset #XX” appears on the display.

How do I copy a stored preset to another preset?

Press the rotary knob twice to navigate to the preset/drawbar menu. Keep the button pressed until “Save Preset #XX to #XX” appears on the display. (“XX” representing the current preset number and the target preset number, respectively). Turn the rotary knob to select the target preset number. Press the rotary knob until “Saved to Preset #XX” appears on the display.

How do I access the General MIDI instruments?

In the menu, select the voice for the manual you wish to assign a GM instrument to. Turn the encoder knob to select a voice number in the range of 16…39. These are the available GM voices, which may be preassigned using the HX3.5 Editor. You may store the selected GM voice as preset just like the drawbar settings. However, the GM voice will retain its voice number.

How do I store my TubeAmpGain setting as preset?

You may store the TubeAmpGain setting as well as any other effect parameters as part of the active preset by simply keeping the rotary encoder knob pressed until “Saved to Preset #XX” appears on the display. (“XX” representing the current preset number). However, Rotary Motor ON/OFF and Rotary FAST ON/OFF are always live and not part of a preset.

In which way does the live preset 0 differ from other presets?

Traditionally, the live preset 0 is not a real preset, but instead applies the current “live” settings of the drawbars and control switches. This is also true for the HX3.5. If you select a preset different from 0, your live settings will remain stored. If you return to preset 0, the live settings will be recalled and if drawbars are connected, their current settings will be applied. In addition to that, the HX3.5 preset 0 preserves other parameter settings, which are cannot be set “live” by drawbars or other controls. It also determines the power-up settings.

KEYBOARDPARTNER UG

Entwicklung elektronischer Musikinstrumente
Carsten Meyer ♦ Ithweg 37 ♦ D-30851 Langenhagen
Web: www.keyboardpartner.de Instructions: wiki.keyboardpartner.de
EMail: info@keyboardpartner.de