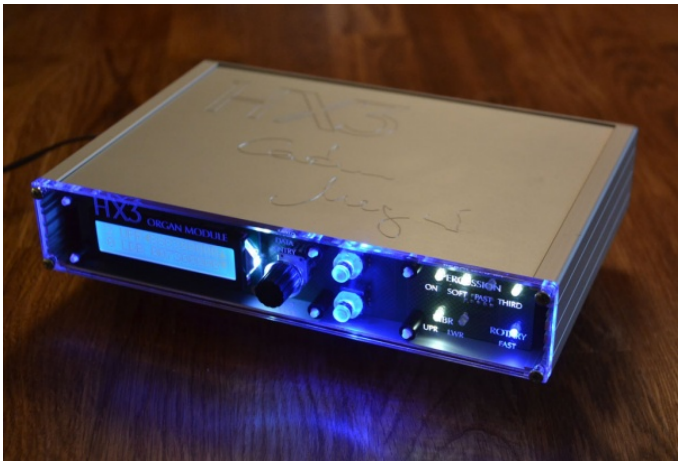
KEYBOARDPARTNER UG

HX3 MIDI Expander Version 4.22



HX3 MIDI expander is a tonewheel organ emulation with all B3 features in a small box. Controlled completely via MIDI, selectable CC-sets for various keyboards. 30 presets (to be stored locally), unlimited polyphony, many parameters tweakable by simple menus - like key click response, more or less percussion punch etc. And, of course, it yields the legendary unmatched HX3 sound.

Features

- Compact organ emulator in aluminum box, 222 x 150 x 42 mm
- Authentic reproduction of generator, tapering, key contacts, percussion and vibrato by FPGA (Field Programmable Gate Array) and physical modeling
- Extremely low internal latency of 50 microseconds Key-to-Audio. However, MIDI transmission delays are about 1 ms per note played.
- Natural key click by "rattling" contacts
- Accurate Rotary simulation with separate 122 amp output
- Dual MIDI IN for 2 separate keyboards or bass pedal
- LEDs show vibrato and percussion setting
- LCD display and menu system with 2x16 presets and parameter tuning
- Swell (expression) pedal and footswitch jacks
- Mini-USB for firmware updates and parameter editor
- Built-in reverb DSP with 3 levels
- Hand-crafted in Germany

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 Drawbar Expander.

Only clean with damp soft cloth. Using detergents or solvents may deteriorate finish and lettering.

Wood parts are unique, so deviations in colour and texture may occur. Maintain finish by using medium dark wood wax or wood oil. Do not allow water spills to stain into wood.

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 Drawbar Expander in moist places. Do not spill liquids or solvents into unit.

No user-serviceable parts inside. 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

This device conforms to EU regulations CE

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

Made in Germany by

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1.0 Jack Connections

The HX3 expander module has two 1/4" mono **audio output jacks**, one DC input jack, one USB mini connector and two accessory jacks on back panel.

- **AUDIO1/AUDIO2:** Typically rotary simulation stereo output, may be configured by menu to custom setting. 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:** Mini USB connector for updates and configuration by *HX3 Remote* or *HX3 Flash* application. Not suitable for MIDI over USB.

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 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.

Press menu panel encoder knob briefly to switch to **Rotary Tube Amp Gain** control. If gain is set to high levels, the simulated tube amplifier will distort/overdrive on full swell. Press menu panel encoder knob again to obtain **Main Volume** overall output level menu.

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

2.0 Panel Buttons

(only on HX3 Drawbar Expander)

3.0 Menu Panel

The Menu Panel knob **Data Entry** (incremental encoder) will change drawbar preset numbers from 0 to 15, parameters in other menu entries or rotary TubeAmp Gain, depending on menu mode.

On power on, the **presets/drawbar menu** is present. Press knob briefly to switch to **Rotary Tube Amp Gain** control and back. Rotary Volume acts like the potentiometer found on classic Leslie™ cabinets: If set to high levels, the simulated tube amplifier will distort/overdrive on full swell.

Each manual yields 16 presets (0..15). An arrow indicates if upper or lower manual preset change is active. Use Up/Down buttons to switch from upper to lower and vice versa. LED buttons will show current percussion and vibrato setting.

Press Up/Down buttons several times to reach other menu entries (press and hold for auto-repeat). For faster access, upper drawbar settings are located on top of preset menu, lower drawbar settings and default settings are located below of preset menu.

- Use **Up/Down buttons** to scroll through menu items.
- Use the incremental encoder knob **Data Entry** to change parameter values. Changes are temporary; to make them permanent, press incremental encoder knob for 2 seconds until a “Saved” message appears in display. Changed parameters which have not yet been saved are marked with an **"*"** asterisk in upper display line.
- In main menu (presets/drawbar display), turning the knob changes preset numbers for upper or lower manual.

The menu system consists of about 50 entries. A "<" arrow will direct to the parameter to be changed. Vertical arrows indicate if parameter is at limits or not.

3.1 Main Display Upper/Lower

- **DrbUXXXXXXXXX** - default main menu, shows upper drawbar settings as numbers 0 to 8 (here represented as "X"). Incremental knob recalls UPR (upper preset) number. Preset 0 is a “live” setting UDB (upper drawbars). Returning from any preset UPR to drawbars UDB restores last drawbar setting.
- **PXXLXXXXXXXX**- same for pedal (P) and lower (L) drawbars, incremental knob recalls preset.

3.1.1 Upper Manual

Step upwards to reach upper manual settings; change to desired value by turning incremental encoder knob. Save changes to current preset by pressing knob for more than 2 seconds. On “live” drawbar preset 0 (DrbU) any changes are always saved temporarily and restored when returning from preset to “live” in main menu.

- **UpperDB 1 to UpperDB 16** - drawbar setting for upper manual
- **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.

3.1.2 Lower Manual

Step downwards to reach lower manual settings; change to desired value by turning incremental encoder knob. Save changes to current preset by pressing knob for more than 2 seconds. On “live” drawbar preset 0 (DrbL) any changes are always saved temporarily and restored when returning from preset to “live” in main menu. Bass pedal settings are saved along with lower manual presets. All lower manual settings are indicated by ‘L’ on display.

- **UPR LWR< Vibr** - vibrato/chorus ON/OFF for lower manual
- **LowerDB 16 to LowerDB 1** - drawbar setting for upper manual
- **PedalDB 16 to PedalDB 8** - drawbar setting for pedals
- **PedalSustain** - changes pedal sustain release time. Set to 0 to obtain B3 pedal sound. Saved to lower preset

3.2 Defaults Group

Step downwards to reach lower manual settings; change to desired value by turning incremental encoder knob. Save changes to current preset by pressing knob for more than 2 seconds. On “live” drawbar preset 0 (DrbL) any changes are always saved temporarily and restored when returning from preset to “live” in main menu.

- **TubeAmp Gain**, sets volume of internal rotary tube amp simulation from 0 to full (overdriven tube amp). This menu entry may be reached directly from main menu by pressing encoder knob briefly. Amp will get into decent saturation on increased swell amount and higher gain values as seen on ‘real’ amps. Amount of distortion is controlled by swell pedal.
- **Master Volume**, sets final volume of all outputs. For best noise performance, higher values are desirable.
- **ToneTrimPot** mimics TONE pot on simulated AO28 amp; well, a little bit more on high values.
- **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

These parameters are saved to power-on defaults when encoder knob is pressed more than 2 seconds.

3.2.1 Split Configuration

Keyboard split default is pedal mapped to lower manual on first 25 keys (console organ pedal range, two octaves). To save split mode and split point to power-on default, go to menu entry “Split Mode” and press encoder knob for 2 seconds. Default split modes may be changed by menu:

- **Split Manual** switches split mode on or off.
- **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** sets split point (when split is on) as key number (24 is second „C“ on manual).

All of these parameters are saved to power-on defaults if encoder knob is pressed more than 2 seconds (message will appear). Split mode may also be changed by one of the following procedures:

- Pedal to Lower: Press and hold desired **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 Output Configuration

HX3 generates five output signals: rotary stereo simulation left/right, plain organ, bass pedal, and organ with rotary tube amp simulation. All output signals may be routed to any output jack. Two configurations are available, so you may set these for your own needs and toggle between them simply by "Audio Jacks" menu. Factory default is set to match rear panel jack lettering.

- **Audio Jacks** - Switches between two output configurations **Config A** or **Config B** which may be configured separately.
- **AudioJ Conf A** sets audio jack configuration A and
- **AudioJ Conf B** sets audio jack configuration B according to table below.

There are 32 entries total on each configuration: 16 with **no bass pedal** added, and same 16 **with bass pedal** added to organ, amp and rotary simulation signals (marked by **+B** in display). Please note: It is not possible to route the same signal to more than one output.

Configuration	AUDIO 1	AUDIO 2
Organ/BPed	Organ Plain	Pedal
BPed/Organ	Pedal	Organ Plain
Rotary L/R	**Rotary Left**	**Rotary Right**
Rotary R/L	Rotary Right	Rotary Left
Organ/RotL	Organ	Rotary Left
RotL/Organ	Rotary Left	Organ Plain
BPed/RotR	Pedal	Rotary Right
RotR/BPed	Rotary Right	Pedal
Amp/BPed	Organ AmpSim	Pedal
BPed/Amp	Pedal	Organ AmpSim
Rotary L/R	Rotary Left	Rotary Right
Rotary R/L	Rotary Right	Rotary Left
Amp/RotR	Organ AmpSim	Rotary Left
RotL/Amp	Rotary Left	Organ AmpSim
BPed/RotR	Pedal	Rotary Right
RotR/BPed	Rotary Right	Pedal

Description: **L** and **R** = rotary cabinet sim left/right channel, **ORG** = plain organ signal like G-G output on B3®, **AMP** = organ signal with Leslie® tube amp simulation and overdrive (controlled by Rotary volume), **PD** = bass pedals.

3.2.3 Commons Group

- **Transpose** all manuals and pedal from -6 to +7 semitones. Notes beyond 5 octave limits of console organ will not produce any sound due to accuracy of physical model.
- **MIDI Channel** sets MIDI base receive channel 1 to 10 (upper manual, lower manual is on +1, pedals on +2).
- **MIDI Option** <*RcvSendMerge*> - sets MIDI routing behaviour to
    - 'ReceiveThru' (MIDI OUT is THRU),
    - 'ReceiveSend' (MIDI received, only own MIDI key events to MIDI OUT),
    - 'RcvSendMerge'(MIDI received, own MIDI key events and incoming MIDI events merged to MIDI OUT) and
    - 'RcvSndMgNoCC' (as before, but MIDI CC commands discarded). On expander module, only valid setting is 'ReceiveThru'.
- **MIDI CC Set** <*NI B4*> - sets recognized MIDI CC set to
    - 'NI B4' Native Instruments B4 (default),
    - 'Voce' MIDI drawbars,
    - ''KeyB Duo'
    - Hamichord' (or 'KeyB Duo' on special request),
    - 'Hammond XK',
    - 'Hammond SK' (Note: Hammond changed MIDI CC set between XK and SK series, so try out which will fit)
    - ‘Custom CC’, predefined for Nord C2, may be changed to custom values by *HX3 Remote* application.
    - ‘NI B4 .’ to 'Custom CC .': Sostenuto enabled CC sets are marked with a full stop (dot). Per default, HX3 recognizes MIDI CC #64 as “Sustain”. Same sets as above with dot will recognize MIDI CC #64 as “Sostenuto” (keys already pressed when *Sostenuto* is enganged will sustain, new keys not).

- **MIDI Swell CC** sets accepted swell/expression CC number (default #11).
- **MIDI VolumeCC** sets accepted overall volume CC number (default #7).

3.2.4 Vibrato Group

Detailed modelling of scanner vibrato yields lots of adjustable parameters. Avoid to randomly change parameters as they are intended for real organ enthusiasts – you should know what you're doing.

- **Scanner Gears** adjusts scanner drive gearing and therefore vibrato frequency.
- **Scanner Leak** adjuste leakage of higher notes in scanner compartment due to parasitic capacitances.
- **VibCh AmplMod** 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 will lead to a ‚celeste'-like effect as found on model M100.
- **VibCh Response** sets upper frequency response of LC linebox.
- **Ch LineboxLvl** adjusts ‚wet' modulated amount when in chorus mode.
- **Ch BypassLvl** adusts ‚dry' unmodulated amount when in chorus mode.
- **V1..C3 ModAmount** sets modulation amount for each vibrato knob setting (6 menus)

3.2.5 Percussion Group

- **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 250.

3.2.6 Generator Group

- **TG Flutter** adjusts tone generator "sloppyness" (spring clutch tension, bearing precision).
- **TG Leakage** sets tone generator leakage to
    - 'OFF' (never seen that)
    - 'New Organ' (recapped/new generator),
    - 'Old Organ' (higher leakage on several notes) or
    - 'Sleazy Organ' (lots of beer inside).
- **TG CapSet** sets tone generator age to vintage
    - 1955 (very aged caps, mellow sound)
    - 1961 (aged wax caps, jazz-type sound)
    - 1972 (new “red” caps, rock-type sound)
    - Recapped (more aggressive).

- **No DB1 @Perc** enables drawbar 1 cancel when percussion ON (as original B3®)
- **DB16 1st Oct** controls Foldback 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") withmuted level.

3.2.7 Preamp Group and Misc.

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

- **SwellTrimCap** adjusts organ oputput volume like the trim cap in B3 swell pedal control. Higher values add more punch and output transformer saturation effects.
- **AO28 TubeAge** controls simulated AO28 preamp tube aging (higher triode distortion k2 in 12BH7 output stage).

- **ContSpringFlx** adjusts key contact spring flex, affects click frequency
- **ContSpringDmp** adjusts key contact spring damping, affects click length

3.3 Rotary Group

A few common parameters for rotary sim are available on menu. HX3 imlements a 4-beam direct/reflection model along with 512-pole FIR filter for horn simulation and a separate 2-beam direct/reflection model for rotor simulation. Most of parameters are editable through *HX3 Remote* application; avoid to randomly change parameters in *HX3 Remote* as they are intended for developers and OEMs – you should know what you're doing.

- **HornSlowTm** Rotary simulation horn revolution timer when set to SLOW
- **RotorSlowTm** Rotary simulation rotor revolution timer when set to SLOW
- **HornFastTm** Rotary simulation horn revolution timer when set to FAST
- **RotorFastTm** Rotary simulation rotor revolution timer when set to FAST
- **HornRampUp** Rotary simulation horn accelleration from SLOW to FAST.
- **RotorRampUp** Rotary simulation rotor accelleration 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.

3.4 Factory Reset

All parameter changes are saved permanently by pressing the MenuPanel knob for more than 2 seconds. To retrieve the factory defaults, press the MenuPanel encoder knob when powering on until "Factory Reset" prompt appears, then confirm by pressing "up" button.

3.5 Serial Numbers and Licences

HX3 is protected agains forging by licence numbers. If not set appropriately after firmware update, HX3 will refuse to word 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 Remote* application) to generate new licences for you.

4.0 MIDI Control

HX3 expander 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 influences key click noise. SysEx data is always ignored. Both MIDI jacks act as MIDI inputs with equal priority, so that you may connect two separate MIDI keyboards or controllers at the same time.

HX3 expander may be remote-controlled via given MIDI CC set, but some settings are available via menu system only. If a valid MIDI CC command is received (despite expression/volume changes) for current MIDI CC set, MenuPanel will briefly show the changed parameter.

General

Please connect MIDI out of your MIDI controller/keyboard to one of the two HX3 MIDI inputs. HX3 does not introduce any audio latency, so delays are only due to MIDI transmission.

Since MIDI is a one-way interface, HX3 cannot determine the setting of any MIDI controller value until you touch/use it once. As 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.

MIDI CC #7 controls the rotary amp volume which only affects the rotary or rotary amp simulation, not plain organ output. MIDI CC #11 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. Otherwise, by not touching the attached swell pedal, 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 **Menu Panel** section to select the desired MIDI CC set. Factory default is Native Instruments B4, which provides the most versatile command set.

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.

You may change the Voce MIDI Drawbars send channel (back rotary HEX switch) at any time to lower (2) and bass channel (3), although this is somewhat inconvenient.

Have your technician install a toggle switch on the back side so channels may be changed easily.

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. Please note: HX3 tracks drawbar and button changes even when in preset position 2 to 12, so it keeps itself updated all the time.

There is no way to save an upper or lower preset/program remotely; you have to use the MenuPanel’s Save function, see below.

Using HX3 with Hammond XK/SK series

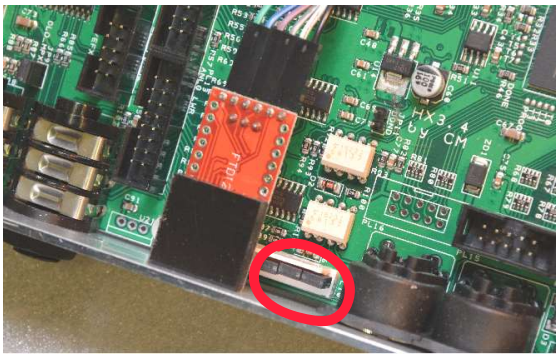
HX3 supports most of Hammond XK MIDI controller functions. For convenience, some controllers have been relocated to other HX3 functions:

- 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 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.



Remove four Philips screws on back and carefully pull out chassis a few inches. Insert two jumpers supplied with Drawbar Controller to jumper header PL10 on positions 7-8 and 9-10 as shown in picture. Re-assemble USB interface and back plate in reverse order and you’re done.

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

HX3 Update for Windows application is a "one click solution" to update your HX3 mk2/mk3/mk4 board or expander.

Both programs and complete documentation are available through our wiki pages on

http://wiki.keyboardpartner.de

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

KEYBOARDPARTNER UG

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