

# HX3 Drawbar Controller



**HX3 Drawbar Controller** is designed to be used with **HX3 MIDI Expander** or other Native Instruments B4® compatible organ module. It will merge incoming MIDI data on MIDI MERGE input to its own controller data. Special mode allows remote control of Nord C2 organs.

## Features

- 9 Drawbars for harmonics 16', 5 1/3', 8' 4', 2 2/3', 1 3/5', 1 1/3' and 1' as found on classic console organs
- 4 Percussion tab buttons
- 6 Vibrato knob settings V1-V3, C1-C3
- 3 Reverb settings plus reverb off
- Rotary run/slow/fast control
- Assignable to upper and lower manual or bass pedal
- MIDI MERGE input for external MIDI keyboard
- DC 9V input or phantom powered by HX3 MIDI Expander
- Sturdy metal case, side panels made of american walnut
- Compatible to HX3, NI B4® and Nord C2®
- 5-pin MIDI cable enclosed with package
- hand-crafted in Germany

Default MIDI setting is channels 1/2/3 for upper/lower/bass, MIDI CCs NI B4® compatible.

**DC input 9 to 12V, 200 mA min., 5.5/2.1 mm plug, plus on center.**

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Keyboardpartner is not related to these trade marks in any way.



Please read this manual carefully before using the HX3 Drawbar Controller.



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 Controller 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.

## EU conformity declaration

This device conforms to EU regulations



EMV-Richtlinie 2004/108/EG

Niederspannungsrichtlinie 2006/95 EG

RoHS-Richtlinie 2011/65/EU

Made in Germany by

# KEYBOARDPARTNER UG

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# Usage

HX3 MIDI Expander (or any other HX3 sound module) and HX3 Drawbar Controller should be powered on the same time; switch on HX3 sound module first if HX3 Drawbar Controller is not phantom-powered. On power-up (either through MIDI phantom supply or wall wart), HX3 Drawbar Controller will wait a few seconds until HX3 module is ready to accept MIDI data. Wait time is indicated by a "running light" on button LEDs. After wait time, HX3 Drawbar Controller will send all its MIDI controller data to the host so both settings are consistent.

## Connection

Connect HX3 Drawbar Controller MIDI OUT to HX3 MIDI Expander MIDI IN/OUT jack by standard MIDI cable. Connect your master keyboard to MIDI MERGE input of HX3 Drawbar Controller. A second keyboard or a bass pedal may be connected to secondary MIDI IN of HX3 MIDI Expander.

When using the HX3 Drawbar Controller without phantom power supply, a small wall wart (5.5/2.1mm jack, 9V/200mA min., plus on center) is needed for power supply. Our SNT9 is a good choice.

## Controls

Buttons control the main functions of HX3 as found on Hammond (R) B3. Button status is indicated by LED. All buttons toggle status ON/OFF whenever pressed, except 3 buttons for vibrato knob setting (V1 to V3, only one active like radio buttons) and ASSIGN buttons (toggle ON/OFF, only one of them active). Percussion buttons SOFT/FAST/THIRD get dim if percussion is all OFF.

To assign the 9 drawbars to **upper manual**, both buttons ASSIGN LOWER and ASSIGN PEDAL must be off. To assign drawbars to **lower manual**, button ASSIGN LOWER must be ON. To assign drawbars to **bass pedals**, button ASSIGN PEDAL must be ON.

If ASSIGN PEDAL is enabled, first two drawbars control 16' and 8' of bass pedal. Third drawbar controls bass pedal **sustain**. Three rightmost drawbars control SWELL TRIM CAP (general volume of organ AO28 preamp), TONE and ROTARY AMP simulation volume.

## Additional Functions

Some MIDI gear sends annoying Program Change or Continuous Controller data you may not want on HX3. You may enable a Program Change filter and a Continuous Controller filter to avoid HX3 misbehaviour:

- Hold "ASSIGN LOWER" button a few seconds when powering up to enable/disable the Program Change filter.
- Hold "ASSIGN PEDAL" button a few seconds when powering up to enable/disable the Continuous Controller filter.
- Hold both to enable/disable both filters.

Status of each filter (ON/OFF) toggles each time you hold the button on power-up. If filter is enabled, its button LED flashes 3 times on startup.

DBC will filter SysEx, real time data and other stuff to clean up MIDI transmission by default. Filters do **only** affect MIDI data sent to MIDI MERGE input, not directly to HX3's secondary MIDI input.

MIDI send channel for upper manual is selected in a similar way on power-up:

- Hold V1 button to set MIDI channel 1 (default)
- Hold V2 button to set MIDI channel 2
- Hold V1 plus V2 button to set MIDI channel 3
- Hold V3 button to set MIDI channel 4
- Hold V1 plus V3 button to set MIDI channel 5
- Hold V2 plus V3 button to set MIDI channel 6
- Hold V1 plus V2 plus V3 button to set MIDI channel 7

MIDI channels for lower manual and bass pedals are consecutive, i.e. upper +1 for lower and upper +2 for pedals assignment. On power-up, V1 to V3 LEDs indicate selected MIDI channel by flashing 3 times on startup. Factory default is channel 1, so V1 LED will flash.

## Nord C2 Mode

As a factory default, HX3 drawbar Controller sends MIDI CCs according to Native Instruments B4 and HX3 MIDI implementation. By switching to Nord C2 mode, MIDI CCs sent will be altered according to Nord C2 MIDI implementation.

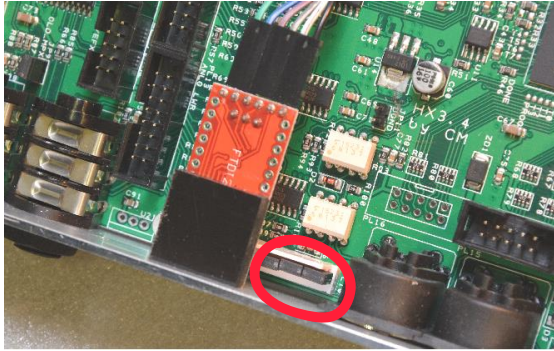
- Hold "REV I" button a few seconds when powering up to enable/disable the Nord C2 mode.
- On normal power up, "REV I" LED will flash briefly to indicate Nord C2 mode.

Note: Do not use Nord C2 mode with HX3 Expander module.

## Phantom Supply

**To enable phantom supply via MIDI cable, insert two jumpers to PL10 inside HX3 MIDI Expander as shown (picture applies to mk4 boards only)**

For use with HX3 MIDI Expander with **HX3 mk4** version board, you may utilize its "phantom" power supply feature (power over MIDI cable). To enable phantom supply on the HX3 MIDI Expander, you need to open the device and set two jumpers (enclosed with Drawbar Controller package).



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.

Note for previous version boards: On **HX3 mk3**, only one jumper fits on rightmost pins of white header. Second jumper must be inserted on position JP13. **HX3 mk2** boards do not have a phantom power supply feature.

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.**

When connecting the HX3 Drawbar Controller to other equipment, a small wall wart (5.5/2.1mm jack, 9V/200mA min., plus on center) is needed for power supply.

Complete documentation of HX3 system is available through our wiki pages on

<http://wiki.keyboardpartner.de>

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

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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.

## MIDI Implementation for HX3 and NI B4

HX3 Drawbar Controller sends MIDI CC data always on MIDI channel 1 resp. base channel for upper manual.

Channel	CC#	Type	Function	Remarks
1	1	Switch	Rotary Slow/Fast	Modulation Wheel
1	7	Slider	Master Volume	
1	11	Slider	Swell Pedal	
1	12..20	Slider	Upper Drawbars	
1	21..29	Slider	Lower Drawbars	
1	30	Switch	Vibr Lower ON	
1	31	Switch	Vibr Upper ON	
1	33	Slider	Bass DB 16	
1	34	Slider	Bass DB 8	
1	66	Switch	Percussion ON	
1	68	Switch	Rotary RUN	"Rotary On/Off" on B4
1	70	Switch	Percussion SOFT	inverted!
1	71	Switch	Percussion FAST	inverted!
1	72	Switch	Percussion THIRD	
1	73	Fixed	Vibr Mix	Chorus if < 96
1	74	Fixed	Vibr Amount	0..55 = V1, 56..87 = V2, 88..127 = V3
1	75	Slider	Bass Pedal Sustain	"Key Click" on B4
1	76	Slider	Amp 122 Volume	"Tube Amp Drive" on B4, same as CC #7
1	78	Slider	Swell Trim Cap	"Tube Amp Body" on B4
1	79	Slider	Tone	"Tube Amp Brightness" on B4
1	84	Fixed	Reverb	0..23 = OFF, 24..47 = Rev 1, 48..63 = Rev 2, 64..127 = Rev 3
2	12..20	Slider	Lower Drawbars	Same as 21..29 on Channel 1
2	30, 31	Switch	Vibr Lower ON	Same as 30 on Channel 1

## MIDI Implementation for Nord C2

HX3 Drawbar Controller sends MIDI CC data separately for MIDI channel 1 (or base channel selected) for upper manual, channel 2 1 (or base channel + 1) for lower manual and 31 (or base channel + 2) for bass pedals in Nord C2 mode.

Channel	CC#	Type	Function	Remarks
1	82	Switch	Rotary Slow/Fast	127 = FAST, 0 = SLOW, 64 = STOP
1	16..24	Slider	Upper Drawbars	
2	16..24	Slider	Lower Drawbars	
2	85	Switch	Vibr Lower ON	
1	85	Switch	Vibr Upper ON	
3	16	Slider	Bass DB 16	
3	17	Slider	Bass DB 8	
1	87	Switch	Percussion ON	
1	28	Switch	Percussion SOFT	0 = SOFT, 127 = NORMAL
1	27	Switch	Percussion FAST	0 = SLOW, 127 = FAST
1	95	Switch	Percussion THIRD	0 = 2nd, 127 = 3rd
1	74	Fixed	Vibrato Knob	0, 26, 51, 77, 102, 127 for V1..C3
1	64	Slider	Bass Pedal Sustain	
1	111	Slider	Amp 122 Volume	"Overdrive" on Nord C2
1	78	Slider	Swell Trim Cap	"Equ Mid" on Nord C2
1	79	Slider	Tone	"Equ High" on Nord C2
1	102	Fixed	Reverb	0 = OFF, 40 = Rev 1, 80 = Rev 2, 120 = Rev 3