

Synth Controller manual addendum for editions 'PH-800' for Korg Poly 800 with 'HAWK-800' upgrade kit

Technical requirements

The 'original' Poly 800 will not work with this Synth Controller edition as it simply does not support changing parameters with Control Change messages. The PH-800 edition is designed for a Poly 800 with HAWK 800 expansion, no matter if it's the green Poly 800, the Poly 800 II or the EX-800.

The HAWK800 offers more parameters the Controller can handle. We picked the parameters we considered to be the most important.

The firmware is carefully programmed for most parameters to avoid unnecessary midi data traffic. Nevertheless it is not uncommon you will encounter slight note timing lags when moving knobs while notes are played. This is a normal behaviour of the old Poly 800 and not an issue of the programmer. Please take a look into the manual of the HAWK-800 kit how to optimize midi performance by making special settings like e.g. setting LFO mode to 'free run'.

Some of the Controller's parameters are not supported by all Poly 800s. The green/first Poly 800 e.g. does not offer a delay. Logically nothing special will happen if you change delay time on the Controller. The Parameters of the FM-800 section (blue-colored layer to the right) only have effect on the sound if you also installed the AtomaHawk addon. It's the same with „Reso aggressive mode“ and „Slope 12db/24db“. Nothing bad will happen if you turn these knobs on a PH-800 not having the hardware feature installed, your changes will just be ignored by the Synth.

Some parameter changes will have effect on already held notes like e.g. CUTOFF or HARMONICS. Other parameters like e.g. OCTAVE only have effect after you trigger another note. This is a normal behaviour of the Poly-800 with HAWK-800 kit and not an issue of the Controller.

Shift parameters

Parameters on the faceplate printed below each knob in bold letters are the main parameters like e.g. OCT in the red layer. Sometimes there is a second word printed right behind in italic and slim letters like e.g. „WAVE“ right behind „OCT“. Parameters with this formatting describe „shift-parameters“. They will be active as long as you hold down the already lighted button.

Example: turning the knob labeled CUTOFF will – you guess it – change the Poly 800's cutoff frequency. Hold down the blue button, keep it pressed and turn CUTOFF again: now you will change the KEYTRACK. After letting the blue button go, the knob will change CUTOFF again.

Bipolar envelopes

The PH-800 offers four knobs to adjust envelope modulations: DCO pitch modulation, Cutoff, Reso and in the FM800 section. All of these 4 knobs have a double function. Mainly you will alter the modulation amount of EG3 in the first (negative amount) and last (positive amount) quarter of the knob's supported turning angle. In addition you can swap the polarity of the envelope, to the left and right of the null position right in the middle. Try to have a look on the Poly 800's display to go monitor how polarity is swapped. On quick changes the Poly 800's slow brain might not notice your desired changes.

LFOs, SOURCES and WAVEFORMS

The parameter WAVE can be found on several positions. The WAVE beside the red OCT parameter describes the original Poly 800 parameter called WAVEFORM, which is responsible how the different squarewaves (16" to 2") of one DCO are mixed together – to sound like a SAW or more like a SQUARE wave mix.

All other WAVES describe the waveform for an LFO – to be precise: the waveform for the LFO on the knob to the left of WAVE. WAVE and LFO are connected by a horizontal line. The „LFO“ knob itself adjusts the LFO modulation depth of the section where it is located. The shift-parameter SRC (for „SOURCE“) allows selecting one of the 4 LFOs.

Example: the knob labeled LFO in the red DCO MODULATION section adjusts the modulation amount of both DCO's pitch by the selected LFO. While holding the red button (= shift parameter selected) you can select LFO 1-4. Following the horizontal line to the right you find the knob labeled WAVE. This is where you select the waveform for this LFO.

Technical hint: if you can not hear any effect while turning up LFO modulation, there might be 2 reasons:

1. you selected LFO 1 or 2 and it's DELAY TIME parameter is set to a quite long time.
2. The selected waveform is 7 (SQUARE) or 8 (INVERTED SQUARE) and the corresponding LFO PWM parameter is set to 01 or 63.

Red layer – DCOs

DCO1 and 2 get some additional parameters by the HAWK-800 kit. You can add modulation to the mix of the different squarewaves (HARMONICS), even by different LFOs.

The DCO pitch modulation by EG3 and LFO always affects both DCOs. That is why it can be found in the 1st row above DCO1 and DCO2.

Row 2 offers one of the most important Poly 800 parameters: MODE. It determined the Synth to offer 8 voices with only DCO1 or 4 voices with DCO1 & 2. Another important Poly 800 parameter WAVE can be found as shift-parameter near OCTAVE, separate for both DCOs. It switches the interpretation mode for the squarewave mix of each DCO between SAW and SQUARE.

„CHORUS“ does not have any effect on a Poly 800 II as it offers a delay instead.

HARMONICS is the abstract summary for all the numerous squarewave On/Off parameters (16" to 2") of the original Poly 800. The different combinations are layed out on values between 1 and 16. Technical hint: the value of 16 means ALL OFF, resulting in – silence!

The parameter „WAVE“ to the right of „HARM LFO“ is for selection the waveform of the LFO modulating HARMONICS. Turning knobs here might result in quite chaotic sounds which some people might find inspiring. However, it could be easier finetuning the different options for HARMONICS MODULATION directly on the Poly 800.

For the parameter TREMOLO on DCO 1 & 2 to take effect keep in mind the parameter P2 81/82 must be set to 1 (LFO 1) or 2 (LFO 2). A value of 0 means TREMOLO OFF, no matter how much modulation amount is tuned in.

Yellow layer

The yellow layer contains the parameters for the three envelope generators. The Controller

unfortunately lacks 2 pots for laying out all envelopes completely. We therefore layouted the EG for DCO2 in the first row with 2 shift-Parameters. This might seem confusing first as DCO2 resided in row 3 on the red layer. But we preferred to have the more important EG3 spread completely with one knob per function.

DECAY/SLOPE as well as **SUSTAIN/BREAKPOINT** in DCO2's EG are swapped in position intentionally. DECAY and SUSTAIN are used much more often than Slope and Breakpoint, it would be annoying to have the yellow button pressed down the whole time.

The yellow layer also contains the delay and EQ parameters for the Poly 800 II. They will not have any effect on the green Poly 800.

Blue layer

The first row offers frequency adjustment for all 4 LFOs. The shift function on the first 2 pots set DELAY TIME for LFO1 & 2, knobs 3 & 4 set PWM for LFO 1 & 2, which allows quite nice rhythmic modulations.

Technical note: PWM only takes effect on LFO modulations with WAVEFORM set to 7 (SQUARE) or 8 (INVERTED SQUARE).

The first 4 knobs in **row 2** are all about cutoff. The EG3 mod amount shift-parameter „TRIGGER“ is of global importance here. It determines the trigger behaviour of all 3 Egs: single trigger (all notes need to be lifted for a new EG triggering to take place) or multi trigger (retrigger on each newly pressed key).

The HAWK-800 offers 2 LFO modulation slots in the cutoff section. The Mod amount for the 1st LFO is on knob 3. The related shift parameter selects the LFO between 1-4; although it's called '1st' LFO this does not mean it is necessarily LFO 1. The WAVEFORM for the 1st Cutoff modulation LFO must be selected on the Poly 800 itself. The last knob here is for setting the velocity intensity.

Technical note: for VELO to show some effect the Poly 800 needs to be feeded with some midi notes of different velocity. The Poly 800's keyboard does NOT supply any velocity features.

Row 3 is for Resonance settings. As mentioned above, the parameters AGGRESSIVE MODE and SLOPE only show some effect if the optional AtomaHawk kit is installed.

The 4 knobs inside the FM800 rectangle finally are for direct adjustment of the FM-800 parameters – if the hardware option is installed.