EIGHT-VOICE DCO POLYSYNTH

Hotaru 240

蛍 firefly

Hotaru 240 is an eight-voice DCO polysynth: two oscillators, a brass circuit, an ensemble, and a panel that glows in the dark.



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Hotaru 240, from the first sound to the last setting.

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A firefly in the dark.

The panel and its programmer, the voice, the key modes, the deck and the twelve factory programs; then presets and installing.

Welcome

Hotaru 240 is an eight-voice polysynth: two digital oscillators, a brass circuit, a warm 24 dB filter on every voice, an ensemble chorus, and a panel that glows in the dark.

Each of its eight voices, or cards, has a saw and a pulse on the first oscillator with a square an octave below, a square on the second, white noise, a four-pole low-pass filter with its own envelope, and a level envelope. The Brass switch adds a sound of its own: the first oscillator's saw let through only while the second's square is high, a hollow, reedy edge.

A sound is a program, and each program holds two tones, Upper and Lower. Play the Upper tone alone with one card a note, two cards a note, or all eight on one note; split the keyboard between the tones; or layer them. Each tone has one LFO, shared by its voices, which can restart the envelopes in time with your host: LFO Trig.

Under the voice sections, the deck adds an arpeggiator with a chord generator, a modulation matrix, and tape delay and reverb.

Five minutes with Hotaru 240

1. Put Hotaru 240 on an instrument track, start your host playing, and hold one key. It opens on A1 M25 RISE: a chord from that key, swelling in while its pitch and level leap back and forth in quarter-note triplets.
2. Press **2** under PROGRAM for A2 Firefly Code and hold a chord: LFO Trig strikes it again on every sixteenth. Move the mod wheel to send it into the echo.
3. Click the **Cutoff** fader in the VCF section. The display shows its value and name, 60CUTOFF, with the full reading beneath. Turn the **INCREMENT** knob to change it, and press **FAST** to move in steps of five.
4. Press **B** under BANK, then **1**, for B1 Silver Darling, and hold a chord. It is in Dual: every key plays both tones, a saw pad on the right and a pulse pad an octave down on the left.
5. Choose B5 Init with the arrows or the keys. Click **POLY-4** under ASSIGN, set **Poly-4 Chord** in the KEYBOARD section to 7, and play: every key is now a fifth.
6. Click **SPLIT** under KEY MODE, then **LOWER** under EDIT. The faders glow amber: you are editing the Lower tone, which plays below middle C.

> TIP
>
> Double-click any fader to put it back to its starting value. Hold Shift while you drag for fine steps.

The panel



Hotaru 240 on A1 M25 RISE, editing the Upper tone.

1	**Display**	Eight characters of dots and a line beneath: the program, or the parameter you are editing. Click it for the program menu.
2	**Scope**	The output as a trace, held still on the newest note, whose name and frequency are shown beneath.
3	**Cursor and FAST**	The arrows move the cursor from control to control. FAST makes the Increment knob move in steps of five.
4	**Increment**	An endless knob that changes the control under the cursor.
5	**Bank** A to I	Chooses the bank, keeping the program number.
6	**Program** 1 to 8, and arrows	Chooses the program in the bank. The arrows either side of the legend step to the previous and next sound.
7	**DCO 1**	Saw, pulse and pulse width, the sub-oscillator, Brass, and the range.

8 **DCO 2 & Pitch**	The second oscillator's switch and tuning, the noise, vibrato, Auto Bend and the pitch wheel's reach.
9 **VCF**	The low-pass filter: cutoff, resonance, envelope, keyboard tracking, LFO and the pitch wheel's reach.
10 **VCF EG**	The filter's envelope.
11 **Mode**	Key mode, assign, which tone you are editing, and a lamp for each voice.
12 **VCA**	The level, its tremolo and its envelope.
13 **LFO & Output**	The tone's LFO, its sync, phase and LFO Trig; the high-pass filter and the Ensemble switch.
14 **Keyboard**	The split, the Lower tone's octave, portamento, the Poly-4 chord and the tuning.
15 **Additions**	Part Pan, Stack Spread, Tolerance, Velocity and Master.
16 **Arpeggiator**	The arpeggiator, the chord generator and the sixteen-step pattern.
17 **Modulation**	The Mod LFO and four routing slots.
18 **Effects**	Tape delay and reverb.
19 **Keyboard**	Five octaves to play with the mouse. The arrows at each end move it an octave.
20 **Keyboard glyph**	Shows or hides the keyboard.
21 **Size**	The window size. Hotaru 240 is free, so there is no licence key.

The display

When you choose a program, the display shows its address and as much of its name as fits: A1 M25RI, with Program A1 · M25 RISE beneath. When you touch a control, it shows the value and a six-letter name, as the instruments of the 1980s did: 70LFOSPD is LFO Speed at 70. The line beneath spells it out: the name, the value with its unit, and Upper or Lower, as in LFO Speed · 70 (5.00 Hz when free) · Upper.

The cursor and Increment

The small lamp above each control is the cursor: it lights on the control you are editing. Click any control to move the cursor there, or use the **CURSOR** arrows: left and right move to the previous and next control, across the sections in turn; up and down move to the same place in the section before or after. Then turn **INCREMENT**, by dragging up and

down or with the scroll wheel. With **FAST** lit, it moves five at a time.

The controls

Faders 0 to 99	Drag up and down. Hold Shift for fine steps. The scroll wheel steps one at a time. Double-click to return to the starting value. The value is printed underneath; Coarse, Fine and Tune show it signed, from −49 to +50.
Switches On or off	Click to switch. Lit is on.
Lamps A choice	Click the name you want.
Sync 13 values	LFO Sync's window: click its upper half for the next value, its lower half for the one before.

Banks and programs

The twelve factory programs live in banks A and B, eight to a bank, A1 to B4, with Init at B5. A bank is only an address; the keys of banks that hold nothing stay dark. **BANK** moves to another bank at the same program number; the number keys choose within the bank. The lit keys show where you are.

> COLOUR
>
> The colour tells you which tone you are editing: firefly green for Upper, amber for Lower.

The voice

Each tone has the same controls, in the panel's order: two oscillators and the noise, the filter and its envelope, the level and its envelope, and the tone's LFO. The EDIT switches choose whether you are setting the Upper tone or the Lower.

DCO 1

Saw On or off	The saw: bright and full. On to begin with.
Pulse Off, PW, PWM	A pulse taken from the same oscillator, mixed with the saw. PW holds the width set by PW/PWM; PWM lets the LFO sweep it.
PW/PWM 0 to 99	In PW, the pulse's width, from a square at 0 to a thin pulse at 99. In PWM, how far the LFO sweeps it. The LFO's delay does not apply here.
Sub Osc On or off	A square an octave below DCO 1, for weight.
Brass On or off	DCO 1's saw let through only while DCO 2's square is high: a hollow, reedy edge, added to the saw. It sounds with Saw off, and changes with DCO 2's tuning even when DCO 2 itself is off.
Range 16', 8', 4'	The octave of both oscillators. 8' is the note you play.

DCO 2 & Pitch

DCO2 On or off	The second oscillator, a square. On to begin with.
Coarse −49 to +50	DCO 2's interval in half-semitone steps, from about two octaves below to two above: +14 is a fifth, +20 a minor seventh, +24 an octave, −24 an octave down.
Fine −49 to +50	Fine tuning in steps of 3 cents. Starts at +3, a slight beating against DCO 1.
Noise 0 to 99	White noise, one generator for each tone, so a chord's noise is one sound.

DCO LFO 0 to 99	Vibrato: how far the LFO moves both oscillators, up to an octave either way. Gentle in the first half of its travel.
Auto Bend 0 to 99	Each note rises into pitch from below, from up to an octave down, over the LFO Delay time.
DCO Bender 0 to 99	How far the pitch wheel bends the oscillators, up to a fifth at 99. Starts at 28, about two semitones.

VCF and VCF EG

A four-pole low-pass filter on every card, 24 dB to the octave. Resonance thins the sound as it rises; at 98 the filter is at the edge of oscillation, and at 99 it rings on its own, a pure tone from the first moment of a note.

Cutoff 20 Hz to 18 kHz	The filter's brightness. Starts at 55, a little under 900 Hz.
Reso 0 to 99	Resonance: a peak at the cutoff, ringing at 99.
EG 0 to 99	How far the filter's envelope opens it, up to seven octaves.
KCV 0 to 99	Keyboard tracking around middle C, from none to an octave for every octave. Starts at 50, half.
LFO 0 to 99	How far the LFO moves the cutoff, up to three octaves either way.
Bender 0 to 99	How far the pitch wheel moves the cutoff, up to two octaves either way.
Attack, Decay, Sustain, Release 1 ms to 15 s; sustain 0 to 99	The filter's envelope. The attack rises quickly at first; decay and release fall exponentially, the time shown being about 35 dB of fall.

VCA

EG 0 to 99	The tone's level, following its envelope. Starts at 70.
LFO 0 to 99	Tremolo: how far the LFO swings the level, up to about 70 % either way.
Attack, Decay, Sustain, Release 1 ms to 15 s; sustain 0 to 99	The level's envelope.

As on the original, with either envelope's sustain at 0, its release is ignored: a key let go during the decay carries on at the decay's rate.

LFO & Output

One LFO for each tone, shared by all its voices, so a chord moves together. It starts again when you play after letting go of every key, and its delay starts again with it.

Speed 0.17 Hz to 20 Hz	The LFO's speed while Sync is Free. Starts at 70, 5 Hz.
Sync Free, 2/1 to 1/32	Locks the LFO to your host's tempo, from two bars to a thirty-second note, with dotted and triplet values. While the host plays, each cycle starts on its grid.
Phase 0 to 99	Moves each cycle's start later, by up to a whole cycle. Synced, 50 puts it half a cycle off the grid: at 1/4, on the off-beats. Free, it sets where a note's LFO starts.
Delay None to 6 s; 99 the wheel	How long the LFO takes to fade in after you play from silence. At 99 it never fades in by itself: the mod wheel brings it in.
Wave Square, Saw, Tri	The LFO's shape. The saw rises. Starts on Tri.
Reverse On or off	Turns the wave upside down.
Trig On or off	LFO Trig: every new LFO cycle restarts the tone's envelopes while you hold the keys. With Sync on, the notes repeat on your host's grid.
HPF Off, 20 Hz to 1.2 kHz	A high-pass filter on the tone, after its voices: thins the low end.
Ensemble On or off	Sends the tone into the Ensemble, a stereo chorus of three lines swept at two speeds, slow and fast. Both tones share it.



A2 Firefly Code: LFO Trig synced to sixteenths, LFO Sync on the display.

> WHEEL
>
> For the mod wheel to bring in vibrato, set DCO LFO to taste and LFO Delay to 99.

Key modes and the keyboard

Eight cards, and two tones to play on them. The MODE section chooses how the cards are shared; the KEYBOARD section sets the split, the glide and the tuning.

Key mode

Normal	The Upper tone alone, assigned as ASSIGN says.
Split	Keys below the split point play the Lower tone, keys from it upwards the Upper. Split Assign divides the cards.
Dual	Every key plays both tones, one card each: four notes at once.

Assign, in Normal

Poly-8	One card a note: eight notes.
Poly-4	Two cards a note: four notes. The second card plays Poly-4 Chord above the first, so a key can play an interval, or with DCO 2 tuned, a whole chord.
Mono	All eight cards on one note. Playing legato moves the note without restarting it; let go, and it returns to the last key still held.

ASSIGN dims in Split and Dual, where it doesn't apply. Changing the key mode, or the assign in Normal, lets go of any notes that are sounding. **EDIT** chooses the tone the panel shows; in Normal it goes back to Upper. The eight **VOICES** lamps light green for cards playing Upper, amber for Lower.

Keyboard

Split Assign 2-6, 4-4, 6-2	In Split, how many cards play Lower and how many Upper. Starts at 4-4.
Split Point MIDI note 0 to 127	The lowest key of the Upper tone in Split. Starts at 60, middle C.
Lower Oct Up On or off	Raises the Lower tone an octave.

Porta Speed Off, then 3 s to 5 ms an octave	Portamento on the Upper tone, between notes played legato. 1 is the slowest glide, 99 the fastest.
Glide Mode Porta, Gliss	Porta glides smoothly; Gliss steps through the semitones.
Poly-4 Chord 0 to 24 semitones	In Poly-4, the second card's interval above the first. 0 is unison, 7 a fifth, 12 an octave.
Tune −49 to +50 cents	The whole instrument's tuning.

One-finger chords

Poly-4 Chord and DCO 2's Coarse together make chords from one key. With DCO 2 a fifth up (+14), a Poly-4 Chord of 3 plays root, minor third, fifth and minor seventh: a minor seventh. A chord of 4 makes a major seventh. With DCO 2 a minor seventh up (+20), 4 gives a ninth chord and 5 the stacked fourths of Dub Chord.

Additions

Part Pan 0 to 99	In Split and Dual, sends Upper to the right and Lower to the left. At 99 each has its own side; at 0 both are in the centre. Starts at 99.
Stack Spread 0 to 99	Detunes the stacked cards in Poly-4 and Mono, up to 12.5 cents either way, for a thick unison.
Tolerance 0 to 99	Gives each card a slightly different filter, up to a quarter of an octave, and envelope timing, up to about 12 %, as separate circuit boards would have. Starts at 15.
Velocity 0 to 99	How much velocity sets the level. At 0, where it starts, every note plays at the same level, as on the original.
Master 0 to 99	The output level. Starts at 70.

Arpeggiator and chords

The arpeggiator takes the keys you hold and plays them one by one, in time with your host, through a sixteen-step pattern. Before it, a chord generator can turn every key into a chord.



The arpeggiator playing A4 Midges Over The Dee: random steps over three octaves, some missed (Chance), the playing step lit.

The arpeggiator

Preset
59 presets

Loads a pattern and its chord settings over the sound you are playing, from five groups: Classical, Electronic, Progressive, IDM and Ambient. Everything in the arpeggiator and chord rows changes except Key.

Arp
On or off

Switches the arpeggiator on.

Mode
Up, Down, Up-Down, Played, Random, Chord, Converge, Thumb, Walk

The order the held notes play in. Played keeps the order you pressed them. Chord plays all of them on every step. Converge works from the outside in; Thumb returns to the lowest note between each of the others; Walk steps up or down the list at random, never jumping.

Rate 1/4 to 1/32	The length of a step: 1/4, 1/8., 1/8, 1/8T, 1/16, 1/16T or 1/32.
Octaves 1 to 4	How many octaves the notes climb before starting again.
Swing 50 % to 75 %	Pushes every second step late: 50 % is straight, 75 % a hard shuffle.
Chance 0 to 100 %	How often each step plays. Below 100 % some rest, at random. The pattern's first step always plays, to keep the bar.
Loose 0 to 100 %	Lets each hit fall a little late (up to 30 ms) and a little softer, at random, like a hand.
Hold On or off	Keeps the chord playing after you let go, until you play a new one.

The pattern

Under the settings, sixteen steps. The step playing lights.

VEL Rest, or 1 to 127	Each step's velocity, a ladder of lights. Drag across the steps to draw. Click at the very bottom, or right-click, to rest a step; double-click to set it to 100. Raise Velocity in the Additions section to hear the accents.
NOTE Auto, or 1 to 8	A dot plays the mode's next note. A number plays that note of the held chord, counting up from the lowest; past the last, they repeat an octave up. Click to count up, right-click or Shift-click to count down.
OCT −2 to +2	Moves the step's note by octaves. Click to step through 0, +1, +2, −2, −1; right-click to go back.
GATE Short, Half, Long, Tie	How long each note lasts. Tie runs it into the next step, so in Mono the notes join without restarting.
RPT 1 to 4	Ratchets: the step's note repeated two, three or four times within it.
Step numbers 1 to 16	Click a number to end the pattern on that step.

While your host plays, the steps sit on its grid. Stopped, the arpeggiator runs at the host's tempo from the first key you play; the standalone application runs at 120 BPM.

Chords

Chord Off, Chord, Scale	Chord plays the same chord on every key. Scale plays the chord that belongs to each key in a key and scale: in C major, D plays D minor and G plays G major, so holding one root after another plays a progression.
Type 20 chords	In Chord mode: Major, Minor, Sus2, Sus4, Maj7, Min7, Dom7, Maj9, Min9, Add9, Power, Dim, Aug, Min11, 6/9, Quartal, Maj7#11, 7sus4, Min Add9, Cluster.
Size Triad, Seventh, Ninth	In Scale mode, in Type's place: how many notes each chord stacks.
Key C to B	The key for Scale mode.
Scale 18 scales	Major, Minor, Harmonic Minor, Melodic Minor, the church modes, both pentatonics, Blues, Whole Tone, Hirajoshi, In Sen, Phrygian Dom, Lydian Dom, Hungarian. On five- and six-note scales the chords stack in fourths and fifths.
Voicing Close, Open, Wide	Open lifts every second note an octave; Wide adds the root an octave below.
Inv 0 to 3	Inversion: lifts the lowest notes an octave.

With the arpeggiator off, the chords play as chords. A program that uses the arpeggiator or the chords brings its own settings; one that doesn't switches both off, and leaves your pattern where it was for when you switch them back on.

> TIP
>
> The chord generator and Poly-4 multiply: its chords played with a Poly-4 Chord of 12 double every note an octave up.

Modulation, effects and MIDI

Modulation

One more LFO, the Mod LFO, and four slots that route a source to a destination. They act on the whole instrument, both tones alike.

LFO Wave Sine, Triangle, Saw Up, Saw Down, Square, S&H, Drift	The Mod LFO's shape. S&H jumps to a random value each cycle; Drift glides between random values.
Rate 0.05 Hz to 30 Hz	Its speed, while Sync is Free.
Sync Free, 2/1 to 1/32	Locks the Mod LFO to the host's tempo, from two bars to a thirty-second note, with dotted and triplet values. While the host plays it follows the host's position.
Key On or off	Restarts the Mod LFO when you play a key from silence.
Source Mod LFO, Mod Wheel, Aftertouch, Velocity, Key, Random	What moves the destination. Key is the note's distance from middle C; Random is a value chosen afresh for each note.
Destination	Cutoff (up to four octaves either way), Resonance, Pulse Width, Pitch and DCO2 Pitch (up to an octave either way), Noise, Level, Delay Mix or Reverb Mix.
Amount −100 to +100	Drag along the bar, from its centre. It snaps to 0 near the centre; hold Shift to set small amounts there. Double-click to return to 0.

The small windows step with the chevrons at their sides, or list every choice when you click their middle. Velocity reaches the matrix whatever the Velocity setting.

Effects

Tape delay and reverb, after the voices and the Ensemble. Each adds to the dry sound rather than replacing it, and at zero does nothing at all.

Delay 0 to 100 %	The level of the echoes.
Time 1/16 to 1/2	The echo time, in step with the host's tempo: 1/16, 1/16., 1/8T, 1/8, 1/8., 1/4T, 1/4, 1/4. or 1/2.

Fdbk 0 to 100 %	How many echoes. The repeats saturate like tape rather than running away.
Tone 0 to 100	The echoes' brightness, from dark to bright.
Wow 0 to 100	Bends the repeats in pitch, as a worn tape transport does.
Ping On or off	Ping-pong: the echoes cross from side to side.
Reverb 0 to 100 %	The level of the room.
Size 0.4 s to 10 s	How long the room rings.
Tone 0 to 100	The room's brightness.

MIDI and the host

CHANNELS	Hotaru 240 plays notes on every MIDI channel.
VELOCITY	Sets the level as far as Velocity allows, and is a source in the modulation matrix.
PITCH BEND	Bends each tone's oscillators by its DCO Bender, and its filter by its VCF Bender.
MOD WHEEL (CC 1)	Brings in each tone's LFO, whatever its delay has reached: at the top of the wheel the LFO is at full depth. It is also a source in the modulation matrix; on many showcase programs it opens the filter.
AFTERTOUCH	Channel aftertouch is a source in the modulation matrix.
SUSTAIN PEDAL (CC 64)	Holds the notes you let go until the pedal comes up.
ALL NOTES OFF, ALL SOUND OFF	Release or silence every voice, and restart the arpeggiator and chord generator.
TEMPO	LFO Sync, the arpeggiator, the Mod LFO's sync and the delay time follow the host's tempo. The standalone application runs at 120 BPM.
AUTOMATION	Every control is a host parameter. Upper's are named Up and Lower's Lo. Their values read as on the display: the number, then the unit. Map a controller to one in your host, or learn it on the panel (MIDI learn, below).

PROGRAMS	The 13 factory programs appear in your host's program list.
BYPASS	Your host's bypass silences everything at once, and Hotaru 240 starts afresh when you bring it back.
OUTPUT	Stereo, or mono on a mono track.

MIDI learn

The knobs, keys and menus on Hotaru 240's panel can be moved by a knob or fader on your MIDI controller. Right-click it (Control-click on a Mac), choose Learn MIDI control, and move the hardware. While Hotaru 240 waits, a thin outline breathes round the control (on a knob, its value reads MOVE A CONTROL); once learned, the controller's number shows there for a moment.

Learn MIDI control	Waits for the next controller (CC) to arrive, on any channel. While it waits, the menu reads Waiting for a MIDI control… (click to stop).
Forget CC 74	Shown when the control has one: lets that controller go.
Knob	Shown when the control has one: what kind of knob it is, as learning found it (ticked). Choose another if it guessed wrong: Ordinary knob, or one of three kinds of Endless knob.
Use these for every new Hotaru 240	Keeps the controllers learned now as the starting set for every Hotaru 240 you add from now on. Projects keep their own. Choose it with none learned to start new ones with none again.
Forget every MIDI control	Lets every learned controller go, on every control.

A controller moves one control, and a control answers one controller: learning a controller already in use moves it to the new control. Its whole travel, 0 to 127, sweeps the control's whole travel, as the mouse does; a switch turns on from the middle up, and a choice steps evenly through its choices. The moves reach your host as the mouse's do, so it writes them as automation and undo takes them back.

Controls never jump. An ordinary knob sends where it is, so when it and the control disagree (a project just opened, a new program, the mouse moved the control) the control waits until the knob reaches it, then follows; meanwhile its value reads TURN UP or TURN DOWN, with a steady outline round it. An endless knob, one that turns round and round, sends only a little up or a little down, so the control moves on from wherever it is. Learning tells the two apart from the first few turns, so turn the knob a little way after it is learned before you judge it.

The controllers learned are kept with the project; a project saved before Hotaru 240 had MIDI learn opens with none. A learned controller still reaches Hotaru 240 as before: learn the mod wheel (CC1) onto a knob and it turns the knob and goes on being the mod wheel. Notes, pitch bend, aftertouch, bank select and the like are never learned.

The starting set is a small file, `%APPDATA%\Denki Digital\Hotaru 240\midi-map.json` on Windows and `~/Library/Application Support/Denki Digital/Hotaru 240/midi-map.json` on a Mac.

A control learns the tone that Edit shows: with Edit on Upper, the Upper tone's Cutoff; switch Edit to Lower and right-click the same fader to give the Lower tone's Cutoff a controller of its own. Key Mode and Assign learn too. The deck's knobs, menus and switches learn too: the arpeggiator and chords, Modulation (each slot's source, destination and amount) and Effects. Its step pattern does not.

> HOSTS
>
> The controller reaches Hotaru 240 only as notes do: in Logic Pro, on the track selected or armed; in Live, on a track armed or monitoring. A knob your host has kept for itself (Logic's Controller Assignments, Live's MIDI Map) stays your host's: free it there, or learn another.

Factory programs

Twelve programs and Init, in banks A and B. Each shows a different side of the instrument: the key modes, LFO Trig, the deck, and the filter under your hands. Where a program plays a pattern or a chord, its line says what to hold. Those that keep time follow your host's tempo; in the standalone, set the tempo box.

A1 M25 RISE

Hold one key: a major chord from it, inverted, of saw, Brass and sub, swelling in while its LFO, in quarter-note triplets with the host, throws the pitch and the level back and forth and strikes the chord again on every cycle. Into a long ping-pong echo.

A2 Firefly Code

Hold a chord and LFO Trig strikes it again on every sixteenth: a pulse with DCO 2 an octave up and a breath of noise, through a resonant filter, a random step on the cutoff each time. The wheel sends it into the echo.

A3 ARP Me

Keys of saw and a PWM pulse that strike bright and fall away, through the Ensemble; play harder and they open further. Made for the arpeggiator: choose an arpeggio preset and hold a chord. The wheel sends it into the echo.

A4 Midges Over The Dee

Hold a chord: narrow pulses at 4', with an octave above them, flicker on at random over three octaves, half of them missed, into a long, wavering echo and a reverb of several seconds. The wheel deepens the echo; aftertouch, the reverb.

A5 Tin Roof Rain

Noise alone through a ringing filter that follows the keys, so every drop has a pitch. Hold a chord and the drops fall at random over three octaves, some missed, all a little loose. Play harder for more ring; the wheel opens the reverb.

A6 Union Street 3AM

Split at G3. Below, a 16' saw and sub that scoop up into each note (Auto Bend); above, brass stabs that LFO Trig strikes again every dotted eighth while you hold them. Velocity and the wheel open the filter.

A7 Slow Embers

A mellow pad of detuned PWM and the sub, swelling in over about a second, its pulse width breathing. Shape it with Cutoff; the wheel and aftertouch open it. A long, dark reverb.

A8 Blue Hour

Poly-4: every key a saw with a detuned octave above it, swelling in slowly, a little resonant so the Cutoff sings as you move it, drifting on its own. The wheel opens it; aftertouch adds resonance. A long, wavering echo and a very long reverb.

B1 Silver Darling

Dual, the tones apart: a detuned saw pad on the right and a PWM pad an octave down on the left, each swept by its own slow LFO. Aftertouch opens both; the wheel carries them into the reverb. Four notes at once.

B2 Rig 2000

Poly-4: each key two cards a fifth apart, a square with the sub and DCO 2 an octave up, like drawbars, through the Ensemble with a gentle tremolo. Aftertouch opens it. A small, stony room.

B3 Eight Cards

Mono: all eight cards on one note, spread wide, saw and PWM pulse with the sub, gliding between legato notes. The vibrato fades in. Aftertouch opens it; the wheel sends it into the echo.

B4 Concrete Sub

A mono bass of saw, sub and DCO 2 an octave down, spread a hair, sliding between legato notes. Velocity opens it, aftertouch adds resonance, the wheel opens it further. Nearly dry.

B5 Init

A saw alone, the filter wide open, every time at zero, quieter than the rest. Start a sound from here.

Ways to start

IN TIME WITH THE HOST	Firefly Code, Union Street 3AM, M25 RISE. Change LFO Sync and Phase.
ARPEGGIOS	Midges Over The Dee, Tin Roof Rain; ARP Me with an arpeggio preset.
PADS	Slow Embers, Blue Hour, Silver Darling. Turn Cutoff; try Dual with Lower Oct Up.
CHORDS FROM ONE KEY	M25 RISE for a chord from the chord generator; Rig 2000 for fifths. Then change Poly-4 Chord and DCO 2's Coarse.
LEADS AND BASS	Eight Cards, Concrete Sub: Mono, with a glide.

Programs and your presets

Hotaru 240 keeps two kinds of sound: the factory programs it ships with, which never change, and your own presets, which are plain text files you can keep, copy and share.

Click the dot-matrix display to open the program menu. The arrows either side of PROGRAM step to the previous and next sound: every factory program from A1 to Init, then your own, then any designer banks, and round to A1 again. The BANK and PROGRAM keys choose factory programs directly; see The panel.

The program menu

Factory programs	In the submenu Factory, the twelve programs, each with its bank address, A1 to B4, and Init at B5. Choosing one replaces the current sound; your changes to it are kept with the project until you choose another.
My presets	Your own presets, grouped by the category you gave them.
Designer banks	Banks of presets from other sound designers, if you have added any. They load like your own, but can't be overwritten: save a changed one under a new name.
Save	Saves the current sound over your own preset of the same name. Only offered while one of your own is loaded.
Save As...	Saves the current sound as a new preset, with a name, a category and an author.
Rename...	Renames your own preset, and its file with it.
Delete...	Deletes your own preset. Its file goes, so this can't be undone.
Import Preset...	Adds a preset file someone has sent you to your own.
Export Preset...	Saves a copy of your own preset wherever you choose, ready to send.
Open Preset Folder	Shows the folder in File Explorer, or in the Finder on a Mac.

While one of your own presets plays, the BANK and PROGRAM keys go dark, and the display spells its name as far as the dots allow, with My preset (or the designer bank's name) and the full name on the line beneath.

Where they live

Your presets are in `Documents/Denki Digital/Hotaru 240/Presets`, one `.txt` file each, in your Documents folder on Windows and on a Mac alike. Designer banks go beside them, in `Documents/Denki Digital/Hotaru 240/Banks`, one folder per bank. The files are readable text, so a preset can be sent in an email as easily as attached. Back the

folder up with your music.

Your host saves the whole sound with every project as well, so a project always opens as you left it, whether or not the preset is still in the folder.

Installing

Installing on Windows

1. **Close your music software.** Windows can't replace a plugin that is in use.
2. Run `Hotaru240-1.1.0-Windows.exe`. Windows asks whether to allow it to make changes; the publisher should read Denki Digital Limited. If it says Unknown publisher, don't run it, and write to **hello@denkidigital.com**.
3. **If Windows shows "Windows protected your PC",** choose More info, check the publisher, then Run anyway. Windows says this about new releases while it learns to recognise them.
4. **Choose what to install.** The VST3 plugin always installs; the standalone application is ticked too.
5. **Open your music software.** Hotaru 240 is under Denki Digital, listed as Hotaru 240 Synth. If it isn't there, ask your host to rescan its plugins.

PLUGIN	`C:\Program Files\Common Files\VST3\Hotaru 240.vst3`
STANDALONE	`C:\Program Files\Denki Digital\Hotaru 240`, and in the Start menu under Denki Digital
THIS MANUAL	`Hotaru 240 Manual.pdf` beside the standalone, and in the Start menu under Denki Digital Manuals
YOUR PRESETS	`Documents/Denki Digital/Hotaru 240`

Installing on a Mac

Hotaru 240 runs on macOS 12 or later, Apple silicon or Intel.

1. **Close your music software.**
2. Open `Hotaru240-1.1.0-Mac.pkg`. It is signed by Denki Digital Limited and notarised by Apple, so it opens without a warning. If your Mac says it can't check it for malicious software, don't open it, and write to **hello@denkidigital.com**.
3. **Agree to the licence, and choose what to install.** The VST3 plugin, the Audio Unit and the standalone application are all ticked; Customise leaves any out. Your Mac asks for your password, as it does for any plugin installed for everyone on the computer.
4. **Open your music software.** Hotaru 240 is under Denki Digital, listed as Hotaru 240 Synth: Logic Pro and GarageBand find the Audio Unit as they start, and other hosts may need to rescan their plugins.

VST3 PLUGIN	`/Library/Audio/Plug-Ins/VST3/Hotaru 240.vst3`

AUDIO UNIT	`/Library/Audio/Plug-Ins/Components/Hotaru 240.component`
STANDALONE	`/Applications/Denki Digital/Hotaru 240/Hotaru 240.app`
THIS MANUAL	`Hotaru 240 Manual.pdf` beside the standalone, whichever parts you install, and on www.denkidigital.com, from Hotaru 240's page
YOUR PRESETS	`Documents/Denki Digital/Hotaru 240`

Free

Hotaru 240 is free, with nothing to unlock and no licence to keep. It works fully, with no time limit and no rests, on any of your own computers. The notices for the fonts and code inside are in `THIRD-PARTY-NOTICES.txt`, in the `Licences` folder beside the standalone.

The window

The window-size control, the small square of corner marks low on the right-hand cheek, sets the window's size, from 60 % to 160 % of its natural size, with Fit to screen for the largest that fits. You can also drag the window's corner. The size is kept with your project, and the window never opens bigger than the screen it is on. In the standalone application, Full screen in the same menu, or the F11 key (Control-Cmd-F on a Mac), fills the whole screen with the panel; the same key or Esc brings the window back.

On the left-hand cheek, level with it, the small keyboard glyph shows or hides the on-screen keyboard. Hidden, the window gets shorter. Each project remembers whether the keyboard was showing.

On a Mac: where this manual says Ctrl, press Cmd; where it says Alt, press Option; and a right-click is a Control-click, or a two-finger click on a trackpad.

Ableton Live on Windows: if the window looks soft, right-click the title of Hotaru 240's device in Live's Device View, untick Auto-Scale Plug-In Window, then open the window again. Hotaru 240 scales itself to your screen and stays sharp at any size; Live's auto-scaling stretches a smaller picture instead.

Updating and moving

Run a newer installer over the old one; your presets and projects are left as they are. On a new computer, Windows or Mac, install, then copy `Documents/Denki Digital` across: your presets come with it. To uninstall on Windows, open Windows Settings, then Apps, then Installed apps, and choose Hotaru 240. On a Mac, drag the plugin files and the standalone's folder, where the table above shows them, to the Bin. Either way, your files in Documents stay where they are.

The full guide, with each host's rescan menu, is at **www.denkidigital.com/support/install**.

Technical

VOICES	8; Poly-8, Poly-4 and Mono
KEY MODES	Normal, Split (adjustable), Dual
OSCILLATORS	DCO 1: saw, pulse, sub; DCO 2: square; brass gate; noise
FILTER	24 dB low-pass per voice, self-oscillating
ENVELOPES	2 ADSR
LFO	Square, saw, triangle; delay, reverse, trig, host sync with a phase offset
MODULATION	Mod LFO and a 4-slot matrix
CHORUS	Three-line ensemble
EFFECTS	Tape delay, reverb
FACTORY PROGRAMS	12, plus Init
CPU	2.2% of one core; 2.3% with effects and modulation
OUTPUT	Stereo
PANEL	1328 × 778, scalable from 60 to 160%
MIDI	Notes and velocity on every channel; pitch bend, mod wheel (CC 1), sustain pedal (CC 64), channel aftertouch; MIDI learn on the panel's controls
OSCILLATORS AND FILTER	Run at twice the host's sample rate
FORMAT	VST3 plugin and standalone application; on a Mac also an Audio Unit
SYSTEM	Windows 10 or 11, 64-bit; or macOS 12 or later, Apple silicon or Intel
VERSION	1.1.0

Notices

Hotaru 240 is © 2026 Denki Digital Limited. Its sounds, programs, panel and this manual are the studio's own.

Using Hotaru 240 is governed by Denki Digital's end-user licence agreement, which the installer shows before it installs, and which is at **www.denkidigital.com/licence**. In short: use it on any of your own computers, for any music; what you make with it is yours; it is free, with no licence file; every update is free.

Its panel is set in Rajdhani and Inter, both under the SIL Open Font License 1.1, and it carries code from the open-source projects listed in its notices: open `THIRD-PARTY-NOTICES.txt` in the `Licences` folder beside the standalone.

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電 DENKI DIGITAL

Inspired by Tokyo. Built in Aberdeen.

東京に着想を得て、アバディーンで作る。

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