# plaits

## _travelers guide
## _for finding your voice

| 24 | 3 | 8 |
|---|---|---|
| models in 3 banks | tone knobs, per-model jobs | octaves on one knob |

**[ left ]** press  [ left ] hold  › then  noon = 12 o'clock  cw / ccw = clockwise / counter

24 models · 3 banks · each model gives the three tone knobs and aux their own jobs (atlas)

internal lpg + envelope · trig plucks · 8-octave knob · one cv per tone knob

orange = hold

## 01 models

plt_01

| | |
|---|---|
| **[ left ]** | next model in the **green** bank · pitched (wraps) |
| **[ right ]** | next model in the **red** bank · noise + drums |
| **[ left ]**+**[ right ]** tap | **step mode** on / off: **[ left ]** back · **[ right ]** forward through all 24 · the only way to the **yellow** bank |
| LED colour | yellow = new in 1.2 · green = pitched · red = noise + drums |
| **[ model ]** cv | moves away from the chosen model, across all 24 · steady LED = playing · slow blink = button choice |
| + trig patched | model changes wait for the next trigger |
| power on + [ right ] | colour-blind mode: brightness instead of colour |

## 02 pitch · tone

plt_02

| | |
|---|---|
| **[ frequency ]** | 8 octaves (c0–c8) by default · range is settable (07) |
| **[ v/oct ]** | –3 to +7 octaves above the knob |
| **[ fm ]** att | how much the fm jack bends pitch (±) |
| **[ harmonics ]** | spread, or the balance between the parts |
| **[ timbre ]** | dark · sparse → bright · dense |
| **[ morph ]** | sideways: variations of the same colour |
| cv ranges | timbre fm morph ±8 v · harmo model ±5 v · level trig 0–8 v |

## 03 trig · level · lpg

plt_03

| | |
|---|---|
| **[ trig ]** | fires the envelope · excites physical + drum models · plucks the lpg · samples the model cv |
| **[ level ]** | opens the lpg (louder + brighter) · accent on physical + drum models |
| trig in, cv out | **[ timbre ]** **[ fm ]** **[ morph ]** atts set how much internal envelope each gets |
| unplugging a cv | turn its att back to noon, or the envelope takes over |
| red 4–8 | own envelope + filter · the lpg is off · level = accent |
| **[ aux ]** | a variant, sidekick or by-product of out |

## 04 green bank · pitched

plt_04

### 1 virtual analog — two classic waves

| | |
|---|---|
| harmo | detune between the two |
| timbre | narrow pulse → square → hardsync formants |
| morph | triangle → saw with a widening notch |
| aux | two hardsynced waves |
| tip | narrow pulse or wide notch = silence: one osc only |

### 2 waveshaping — triangle › shaper › folder

| | |
|---|---|
| harmo | shaper curve |
| timbre | fold amount |
| morph | asymmetry |
| aux | warps-style folder |

### 3 fm — two sines, phase-modulating

| | |
|---|---|
| harmo | frequency ratio |
| timbre | modulation index |
| morph | feedback: ccw chaotic · cw rough |
| aux | sub-oscillator |

### 4 grain formant — vosim · pulsar · cz

| | |
|---|---|
| harmo | ratio of formant 1 to 2 |
| timbre | formant frequency |
| morph | formant width + shape |
| aux | filtered waves · harmo = lp bp hp |

### 5 additive — 24 harmonics

| | |
|---|---|
| harmo | number of bumps in the spectrum |
| timbre | loudest harmonic (like a bp cutoff) |
| morph | bump shape: wide → peaked |
| aux | hammond drawbar harmonics only |

### 6 wavetable — 4 banks of 8×8

| | |
|---|---|
| harmo | bank: a b c d smooth, then d c b a stepped |
| timbre | row (darker → brighter) |
| morph | column |
| aux | 5-bit lo-fi |

### 7 chords — four-note string / organ

| | |
|---|---|
| harmo | chord type |
| timbre | inversion + transposition |
| morph | string-machine waves → 16-wave table |
| aux | root note alone |

### 8 speech — formant · sam · lpc

| | |
|---|---|
| harmo | vowels, then banks of words |
| timbre | species: daleks → chipmunks |
| morph | phoneme or word |
| aux | raw vocal cords |
| words | trig speaks · fm att = intonation · morph att = speed |

## 08 LED codes

plt_08

| | |
|---|---|
| range | chasing = lfo · one LED = c0…c7 · alternating = octaves · all lit = full |
| lpg settings | two rows of 4 yellow: response · decay |
| calibration | 1st LED blinks green: send 1 v · then orange: send 3 v |

## 05 red bank · noise + drums

plt_05

### 1 granular cloud — swarm of 8 saws

| | |
|---|---|
| harmo | pitch randomness |
| timbre | grain density |
| morph | grain length · cw = merged stack |
| aux | sine swarm |
| tip | supersaw: some random, some density, full overlap |

### 2 filtered noise — clocked noise › filter

| | |
|---|---|
| harmo | lp → bp → hp |
| timbre | noise clock |
| morph | resonance |
| aux | two band-passes |
| pitch | frequency + v/oct track the cutoff |

### 3 particle noise — dust › resonators

| | |
|---|---|
| harmo | frequency randomness |
| timbre | particle density |
| morph | ccw reverb-ish all-pass · cw resonant |
| aux | raw dust |

### 4 inharmonic string — mini-rings red

| | |
|---|---|
| harmo | inharmonicity / material |
| timbre | exciter brightness, dust density |
| morph | decay |
| aux | raw exciter |
| trig | none = dust excites · 3 voices |

### 5 modal resonator — mini-rings green

| | |
|---|---|
| harmo | material |
| timbre | exciter brightness, dust density |
| morph | decay |
| aux | raw exciter |
| voices | 1 voice, 24 partials |

### 6 bass drum — two analog flavours

| | |
|---|---|
| harmo | attack sharpness + overdrive |
| timbre | brightness |
| morph | decay |
| aux | fm triangle › sine › dirty vca |
| trig | none = a steady tone |

### 7 snare drum — two analog flavours

| | |
|---|---|
| harmo | tone ↔ noise balance |
| timbre | balance of the drum modes |
| morph | decay |
| aux | fm sine pair + hp noise |

### 8 hi-hat — two analog flavours

| | |
|---|---|
| harmo | metal ↔ noise balance |
| timbre | high-pass cutoff |
| morph | decay |
| aux | ring-mod pairs, clean vca |

red 4–8 ignore the lpg: trig strikes them, level = accent

## + custom models · plaits palette

a free browser tool for building your own plaits firmware: pick a model for every slot (stock, braids ports, alternates, rubato labs and community models), set the options, get an audio-installable build.

rubato.audio/plaits-palette · by rubato labs, not mutable instruments

## 06 yellow bank · new in 1.2

plt_06

### 1 va + filter — classic waves › vcf

| | |
|---|---|
| harmo | resonance · ccw 24 dB gentle · cw 12 dB harsh |
| timbre | cutoff |
| morph | waveform + sub level |
| out/aux | low-pass / 12 dB high-pass |

### 2 phase distortion — pd / pm

| | |
|---|---|
| harmo | distortion frequency |
| timbre | distortion amount |
| morph | asymmetry |
| out/aux | synced carrier (pd) / free carrier (pm) |

### 3–5 six-op fm — 2 voices · 32 presets each

| | |
|---|---|
| harmo | preset |
| timbre | modulator level |
| morph | stretch envelopes · no trig = time-travel |
| trig | alternates the 2 voices · level = velocity |
| banks | basses + synths · keys, plucks, perc · organs, pads, strings, brass |

### 6 wave terrain — 8 terrains, blended

| | |
|---|---|
| harmo | terrain · fully cw = your own |
| timbre | path radius |
| morph | path offset |
| out/aux | height / height as phase distortion |

### 7 string machine — stereo filter + chorus

| | |
|---|---|
| harmo | chord |
| timbre | chorus / filter amount |
| morph | waveform |
| out/aux | voices 1+3 / voices 2+4 |

### 8 chiptune — four square voices

| | |
|---|---|
| harmo | chord |
| timbre | arpeggio or inversion · att = env shape |
| morph | pulse width / sync |
| out/aux | squares / nes triangle |
| trig | clocks the arpeggiator |

reached in step mode only: tap [ left ]+[ right ], then step

## __fig.01 : hidden settings

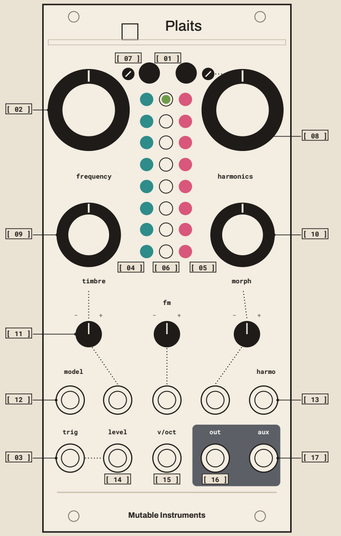
what the 8 LEDs show




saved only on the next model change

## __fig.03 : front panel

01–07 = sections · 08–17 = hardware




| | |
|---|---|
| [ 01 ] | __buttons : models · banks |
| [ 02 ] | __frequency : pitch · tone |
| [ 03 ] | __trig : trig · level · lpg |
| [ 04 ] | __teal icons : green bank |
| [ 05 ] | __pink icons : red bank |
| [ 06 ] | __LEDs : model · yellow bank |
| [ 07 ] | __icons : held-button settings |

| | |
|---|---|
| [ 08 ] | __harmonics : spread · balance |
| [ 09 ] | __timbre : dark → bright |
| [ 10 ] | __morph : sideways |
| [ 11 ] | __atts : timbre · fm · morph |
| [ 12 ] | __model : cv in ±5 v |
| [ 13 ] | __cv ins : timbre fm morph harmo |
| [ 14 ] | __level : lpg · accent |
| [ 15 ] | __v/oct : –3 to +7 v |
| [ 16 ] | __out : main |
| [ 17 ] | __aux : variant |

## 07 held buttons

plt_07

| | |
|---|---|
| **[ left ]** + turn **[ timbre ]** | lpg response: vcfa (filter + amp) → vca |
| **[ left ]** + turn **[ morph ]** | lpg ring time + envelope decay |
| **[ right ]** + turn **[ harmonics ]** | frequency range: lfo · c0–c7 ±7 st · octaves · full 8 oct |
| octaves **[ right ]** + **[ frequency ]** | set the root · then **[ frequency ]** jumps whole octaves |
| **[ left ]** / **[ right ]** 2 s | show the lpg / range setting |
| saving | settings stick only after the next model change |
| **[ left ]**+**[ right ]** 2 s | calibrate: 1 v › **[ left ]** › 3 v › **[ left ]** |
| **[ timbre ]** jack | loads custom fm patches, a terrain or waves from the online editor |