

superOS-106

Shortcut Guide

VERSION 1.16 · CUSTOM FIRMWARE FOR THE JUNO-106
ASSIGNER EPROM · VOICE EPROM · F-RAM CODE BLOCK

Every panel function of the Owner's Manual on one drawing each: the programmer strip, the buttons involved, and the order to press them. Read the chapter you need, look at the picture, follow the numbered steps below it. Nothing here needs to be memorised; the sheet is meant to sit on the instrument. Everything not drawn here (velocity, scales, local off, LFO sync, sysex) is a menu item, listed at the back, followed by the required setup (F-RAM code block) and a table of what controls what from the panel, MIDI and the web editor.

READING THE DRAWINGS

- Black ring: press or tap this button.
- Red ring and red label: hold this button while you press the others.
- Blue dashed box: any button in this group.

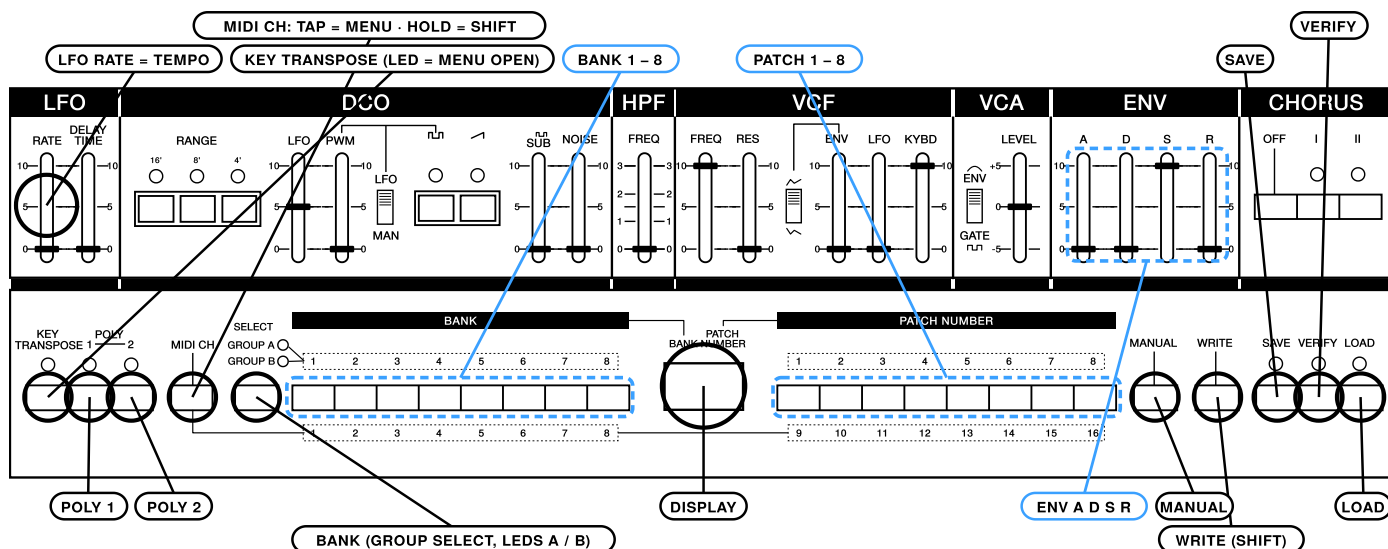
COMBINATIONS

WRITE + SAVE means hold the first control, then press the second; release both when done. Numbered labels (1., 2., 3.) give the order. Combinations are swallowed before the stock firmware sees them, so they never write a patch by accident.

PANEL NAMES

The three orange tape buttons are written SAVE, VERIFY and LOAD. BANK on its own means the group-select button under the GROUP A / B LEDs; the eight numbered buttons to its right are bank 1 to 8 and the eight right of the display are patch 1 to 8.

THE PROGRAMMER STRIP



Shift keys: WRITE and MANUAL are the shift keys for the sequencer and arpeggiator; MIDI CH tapped alone opens the settings menu; WRITE held with VERIFY steps through envelope 2 edit and the voice page (BANK = voice, PATCH = parameter, LFO RATE = value); VERIFY held with PATCH 1 to 3 selects patterns. The voice modes live on the two POLY buttons. Sliders: LFO RATE sets the internal tempo of the sequencer and the arpeggiator; the four ENV sliders set envelope 2 while its edit mode is on. Saving: settings and patterns are kept in the F-RAM as they change; unison detune, envelope 2, the voice page (detune, LFO depth, speed, PWM, drift), the voice mode and the chord are also stored with a patch on WRITE (F-RAM code block).

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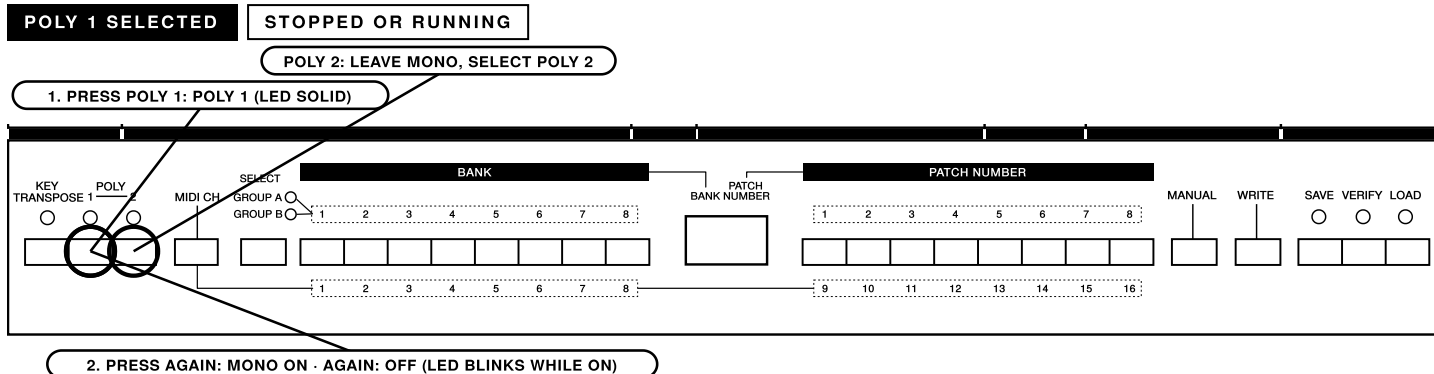
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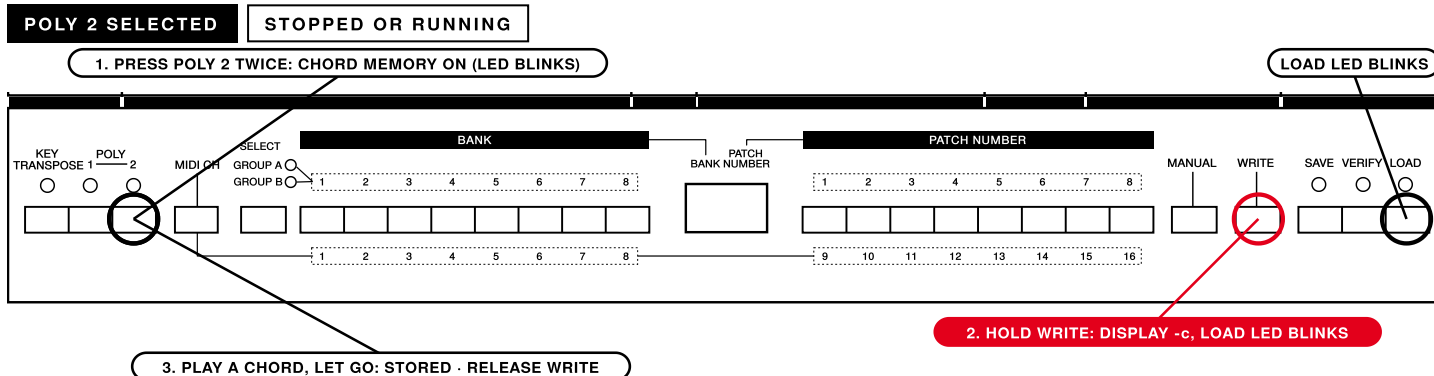
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1 MONO MODE



1. Press POLY 1 once to select the stock Poly 1 mode, then press it again: voice 1 now plays one note at a time with note memory.
2. Overlapping keys change the pitch without starting the note from silence: the envelope climbs back to its peak from where it is. Release the newer key and the pitch returns to the highest key still held (F-RAM code block; without it the note ends).
3. A further press of POLY 1 returns to Poly 1. POLY 2 leaves mono and selects Poly 2.

2 CHORD MEMORY



1. Press POLY 2 once for Poly 2 and again for Chord Memory; the POLY 2 LED blinks while it is on. Until a chord is stored it plays single notes.
2. Hold WRITE, play the chord in any order and let go: the chord with the most keys held at once is stored. Let go of all keys and play again to replace it. Release WRITE.
3. Each key now plays the full chord transposed to that key, monophonically: a new key cancels the previous chord outright. Press POLY 2 again (or POLY 1) to leave; the chord is remembered.

NOTE

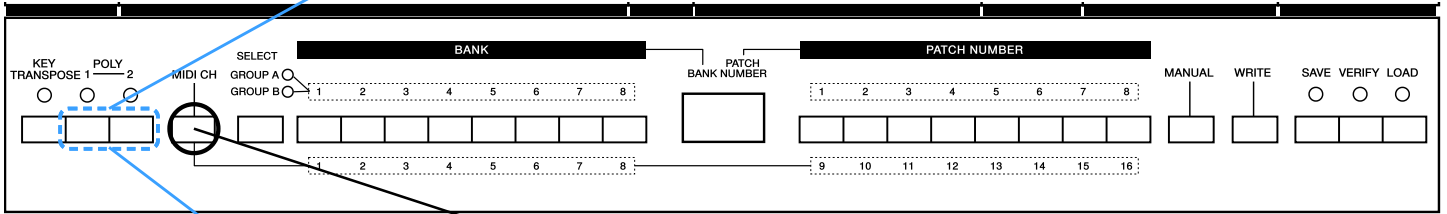
The lowest note becomes the root; up to six notes are stored as intervals above it. Incoming MIDI notes expand the same way. The chord is kept across power-off, and a patch written in Chord Memory brings its chord back. CC 22 = 3 switches Chord Memory on (F-RAM code block); the chord itself is captured on the panel only.

3 UNISON & DUAL

F-RAM CODE BLOCK

STOPPED OR RUNNING

BOTH TOGETHER: UNISON (BOTH SOLID) · AGAIN: DUAL (BOTH BLINK)



ONE ALONE, LET GO = LEAVE FOR THAT MODE

UNISON DETUNE: MENU ITEM 10 (0 – 15)

1. Press POLY 1 and POLY 2 together: unison, both LEDs solid. All six voices play one note, monophonic, with the legato and note memory of mono mode; menu item 10 sets their spread, 0 (in tune) to 15 (widest).
2. Press both again: dual, both LEDs blinking. Three notes, each played by a voice pair (1+2, 3+4, 5+6), so every note has two oscillators; the second voice of each pair takes its own detune, LFO depth and PWM from the voice page (next chapter). A fourth note held at the same time is not played. Press both again to go back to unison.
3. To leave, press POLY 1 or POLY 2 on its own: it acts when you let go, so a pair pressed a moment apart is still a pair.

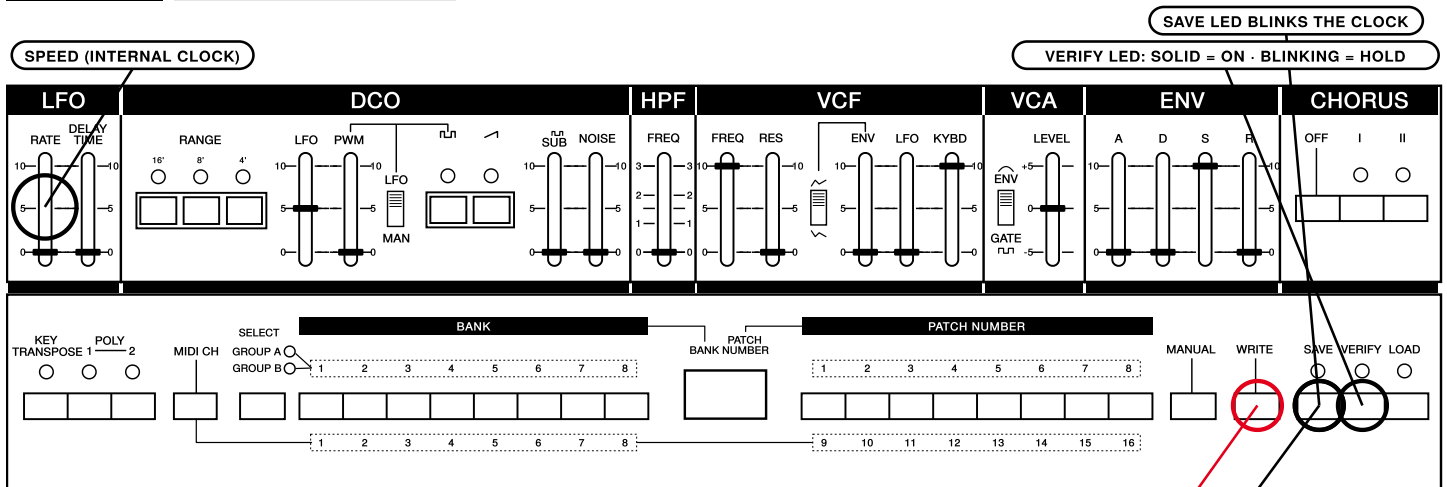
NOTE

Two-oscillator pad: dual, voices 1, 3, 5 plain, voices 2, 4, 6 detune about +12 and LFO depth about +6, PWM 3 – 4; unison detune 0 (it spreads every mode, pairs too). Saved with the patch on WRITE. Over MIDI: CC 22 = 4 unison, 5 dual (0 Poly 1, 1 Poly 2, 2 mono, 3 chord memory).

4 ARPEGGIATOR: OFF, ON, ON WITH HOLD

ANY PATCH

STOPPED OR RUNNING



1. Hold WRITE and press SAVE. Each press steps on: arpeggiator on (VERIFY LED solid), on with hold (VERIFY LED blinking), off.
2. Hold a chord: the held keys play in a loop, upwards by default. Add or remove keys and the pattern follows. In mono and unison every step starts again on the mono voice; with Chord Memory on every step plays the stored chord. MIDI notes are not arpeggiated.
3. With hold on the last chord keeps looping after you let go; the next chord replaces it. The SAVE LED blinks the clock the whole time the arpeggiator is on, so you can set the speed before playing.

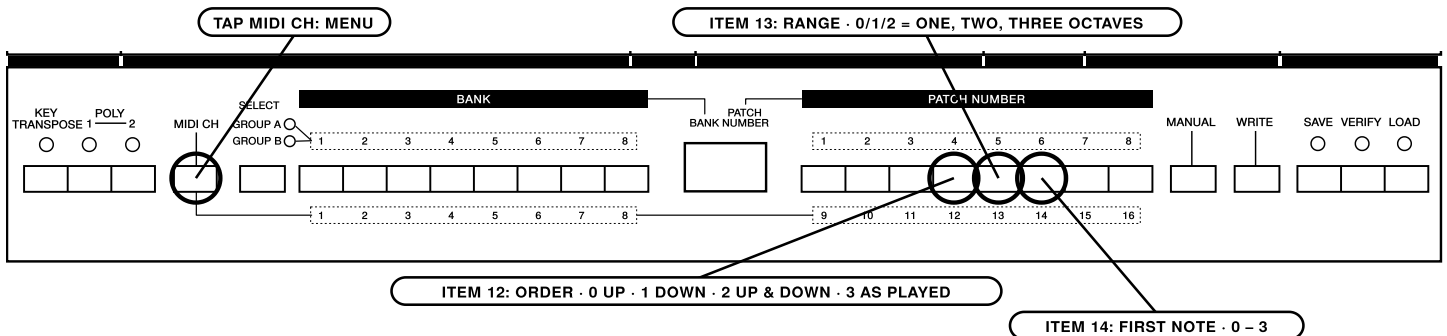
NOTE

Internal clock: the patch's LFO RATE value, about 2 to 32 steps per second. The clock source is shared with the sequencer (menu item 2). On MIDI clock the arpeggiator always steps in sixteenths. Arpeggiator on / hold is panel-only (no CC, no editor control) and is off at power-on.

5 ARPEGGIATOR PATTERN (MENU)

MENU OPEN

STOPPED OR RUNNING



1. Tap MIDI CH to open the menu (KEY TRANSPOSE LED blinks). Patch button 4 = item 12 (order), 5 = item 13 (range), 6 = item 14 (first note).
2. Press BANK (group select) to see the value, then a number button to set it: bank 1 = 0, bank 2 = 1, bank 3 = 2, bank 4 = 3. Tap MIDI CH to leave.
3. Up and down turns at the top and the bottom without repeating the end note. As played keeps the order the keys were pressed in, at most 16 keys.

NOTE

A chord played after all keys were up restarts the pattern from its first note; adding keys while others are held does not.

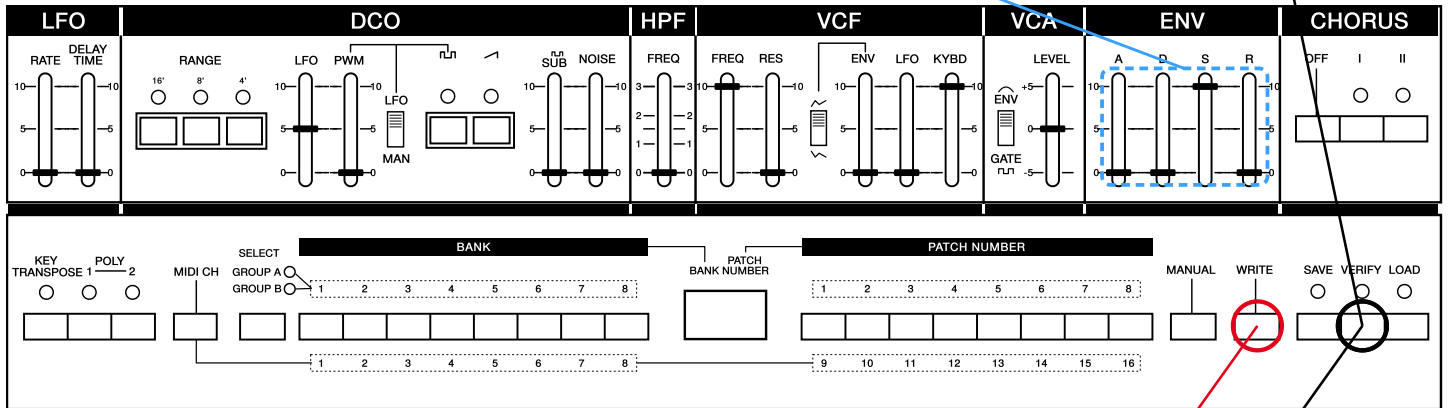
6 ENVELOPE 2 (FILTER): EDIT ITS SHAPE

MENU ITEM 7 = 1

STOPPED OR RUNNING

ENV SLIDERS NOW SET ENVELOPE 2

VERIFY LED ON WHILE EDITING



1. HOLD WRITE

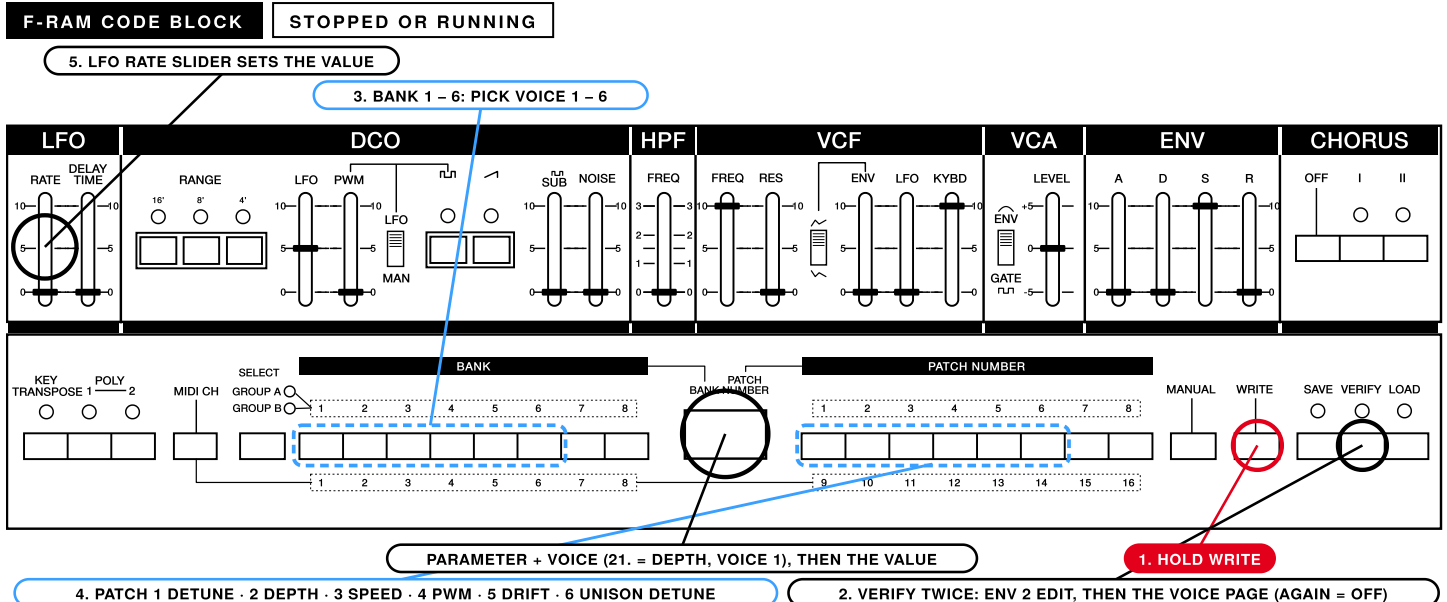
2. PRESS VERIFY: ENVELOPE 2 EDIT

1. Turn envelope 2 on with menu item 7. The filter then follows envelope 2 instead of the panel envelope; the amplifier keeps the panel envelope.
2. Hold WRITE and press VERIFY: the VERIFY LED lights and the four ENV sliders (A, D, S, R) set envelope 2, leaving the patch's own envelope untouched.
3. Press the combination again: with the F-RAM code block it moves on to the voice page (next function), otherwise it leaves. The sliders are the normal envelope once more.

NOTE

Envelope 2 is remembered across power-off and, with the F-RAM code block, saved with the patch on WRITE. MIDI: CC 38 to 41 = A, D, S, R, CC 42 = on (0 off). Velocity to filter, the ENV amount slider and the polarity switch act on envelope 2 when it is on. While the arpeggiator is on, the VERIFY LED shows the arpeggiator instead.

7 PER-VOICE DETUNE, LFO, PWM & DRIFT

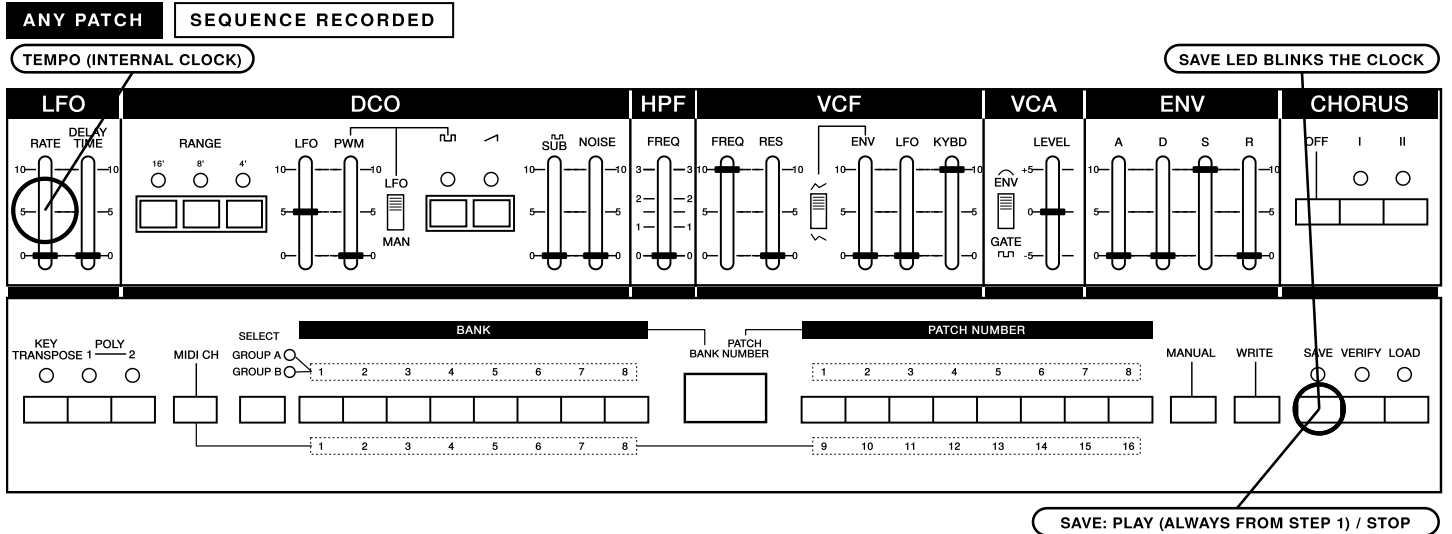


1. Hold WRITE and press VERIFY: envelope 2 edit. Press VERIFY again (WRITE still held): the voice page, display 11. (detune of voice 1). Once more leaves it.
2. BANK 1 to 6 picks the voice and PATCH 1 to 6 what to set: 1 detune, 2 LFO depth, 3 the detune LFO speed (all voices), 4 the voice's PWM level, 5 drift (all voices), 6 unison detune (menu item 10). The display shows parameter and voice, e.g. 26. = LFO depth of voice 6, 3. = the speed, 5. = drift.
3. Move LFO RATE to set the value; the display shows it (detune and depth as the distance from the slider centre, right dot = below; speed 0 = the panel LFO with its rate and delay; PWM 0 – 7; drift and unison detune 0 – 15). Bank and patch presses never change the patch here, and every other slider plays the patch as usual. After leaving, LFO RATE is the patch's slider again (move it to take it back).

NOTE

Detune reaches half a semitone either way. The LFO swings the voice up and down around its detuned pitch (depth 63 = about one semitone each way, below the centre it is inverted; detune 0 gives a plain vibrato). PWM moves that voice's pulse width either side of the panel's width with the same LFO (7 = about 37 – 59 % from a square). Drift lets each voice's pitch wander slowly at random (0 off; 15 = up to about 12 cents). PWM and drift over MIDI: settings sysex items 21 – 26 (level × 16) and 27 (0 – 15). Picking another voice does not change anything until LFO RATE moves. Without the F-RAM code block WRITE + VERIFY only toggles envelope 2 edit. MIDI: CC 102 to 107 detune, 108 to 113 LFO depth, 114 speed, with or without the code block. Remembered across power-off and saved with the patch on WRITE.

8 PLAY AND STOP

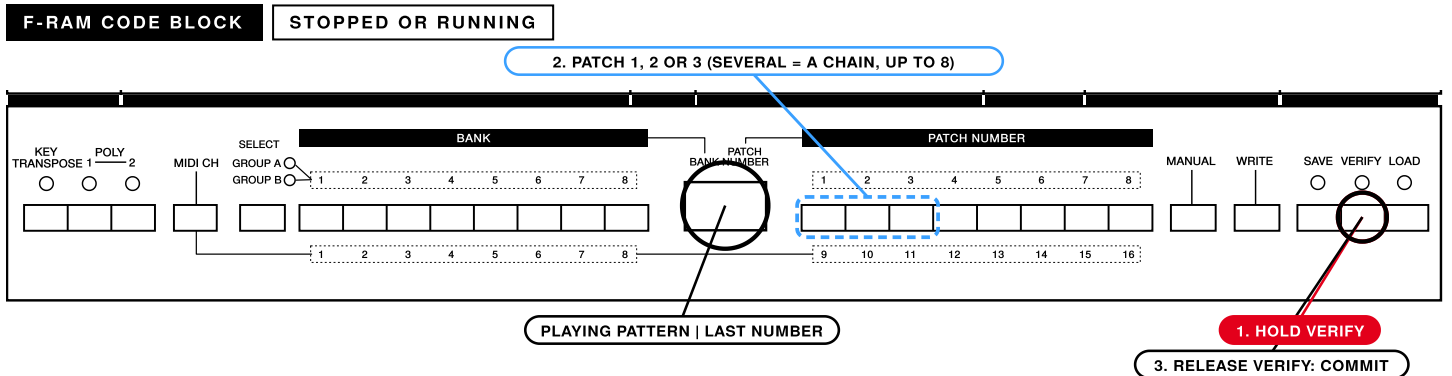


1. Press SAVE to play from step 1; press it again to stop. Stopping silences the sequencer's notes at once.
2. Internal clock: the patch's LFO RATE value, about 2 to 32 steps per second. With the MIDI clock source (menu item 2 = 2, or AUT) MIDI Start runs it from step 1 and MIDI Stop stops it, no SAVE needed.
3. You can play along on the keyboard and over MIDI while it runs; with the F-RAM code block the sequencer only turns off its own notes.

NOTE

The stock tape functions are gone: TAPE IN is now a trigger input (one step per positive pulse, menu item 2 = 1). Start / stop has no CC; from a computer use MIDI Start / Stop.

9 PATTERNS: SELECT, QUEUE, CHAIN



1. Hold VERIFY and press PATCH 1, 2 or 3, then release VERIFY. Stopped: that pattern is selected at once (record and step edit then work on it). Running: it is queued and starts when the playing pattern reaches its end.
2. Press several numbers before releasing VERIFY for a chain: 1, 1, 2, 3 plays pattern 1 twice, then 2, then 3, and loops. MIDI Start or SAVE begins a chain from its first entry; a single number ends it.
3. While VERIFY is held the display shows the playing pattern (left) and the last number pressed (right).

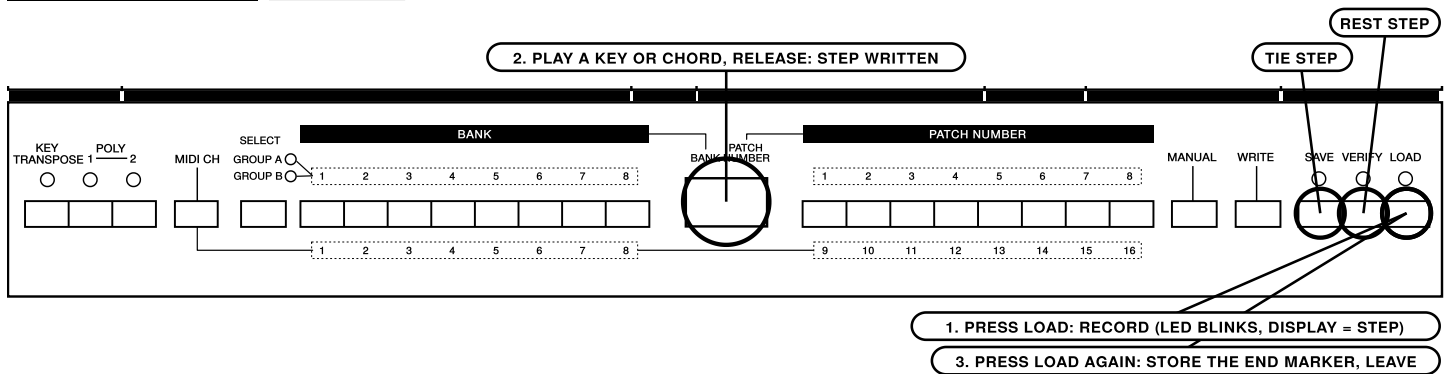
NOTE

Panel only: no CC, program change or sysex selects a pattern and neither editor can. Not available during record, step edit, the voice page or the menu, or with WRITE held. Without the F-RAM code block only pattern 1 plays. The selected pattern and chain are remembered across power-off.

10 RECORD STEPS

SELECTED PATTERN

STOPPED



1. Press LOAD. The sequencer stops, the LOAD LED blinks and the display shows the step number from 01. Keys sound normally while you record.
2. Play a key (or up to six keys, together or one after another while the first stays down) and release everything: the step is written and the display advances. VERIFY writes a rest, SAVE a tie.
3. Press LOAD again: the end marker goes where you stopped, so the loop is exactly as long as what you entered, and the display returns to the patch number.

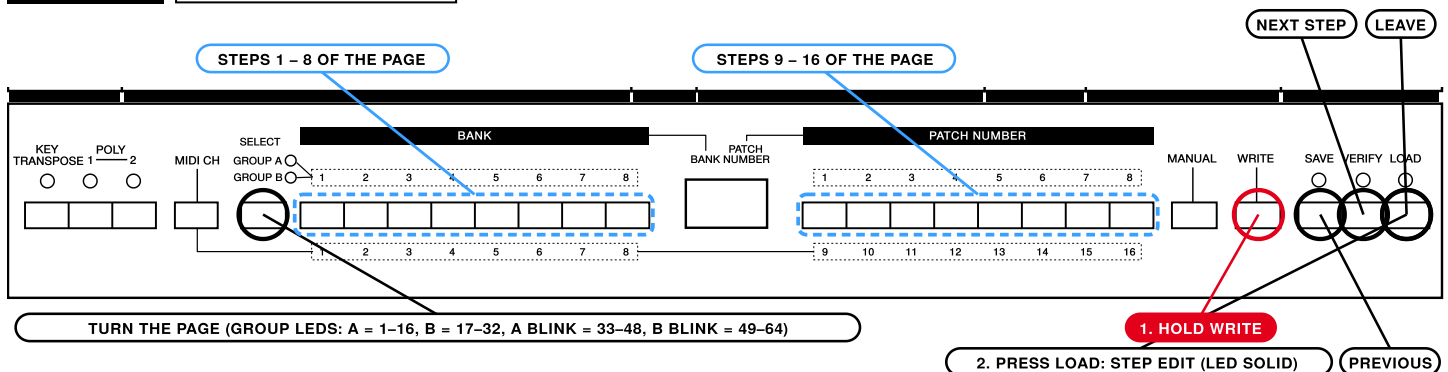
NOTE

To clear the pattern, enter record and press LOAD straight away. After 64 steps recording stops accepting entries; press LOAD to leave.

11 STEP EDIT: PICK AND HEAR A STEP

ANY PATCH

STOPPED OR RUNNING



1. Hold WRITE and press LOAD. The LOAD LED lights and the display shows the step number. Running, the sequencer keeps playing; stopped, the step you are on sounds (audition), retriggered on every landing.
2. Pick a step: bank buttons are steps 1 to 8 and patch buttons 9 to 16 of the current page; BANK (group select) turns the page, shown on the GROUP A / B LEDs. VERIFY and SAVE step forward and back, wrapping.
3. Play a key or chord and release it to rewrite the step in place. Press LOAD to leave; the sequencer carries on if it was playing.

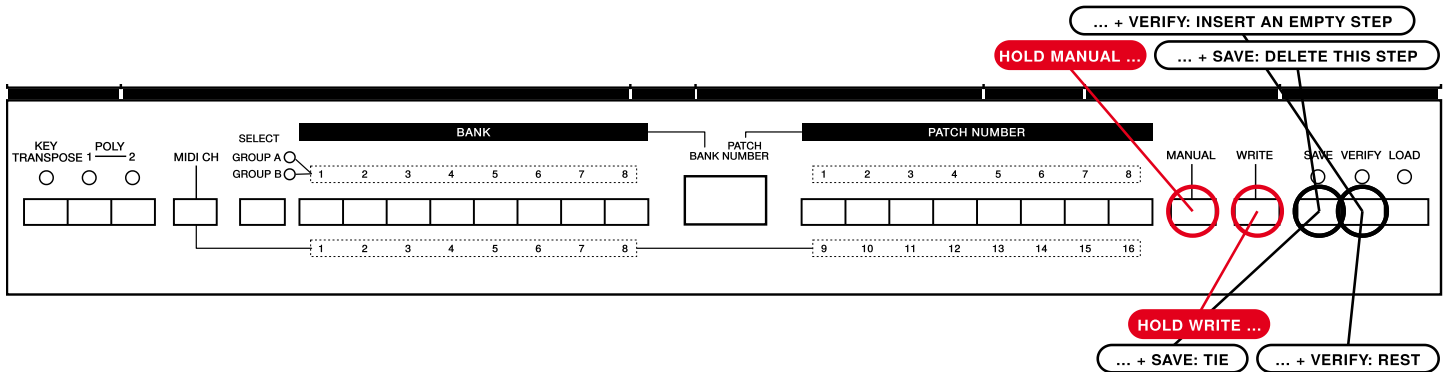
NOTE

The display shows one decimal point for a tie, two for a rest, and -- for a moment if you pick a step beyond the end of the sequence.

12 STEP EDIT: TIE, REST, INSERT, DELETE

STEP EDIT OPEN

STOPPED OR RUNNING

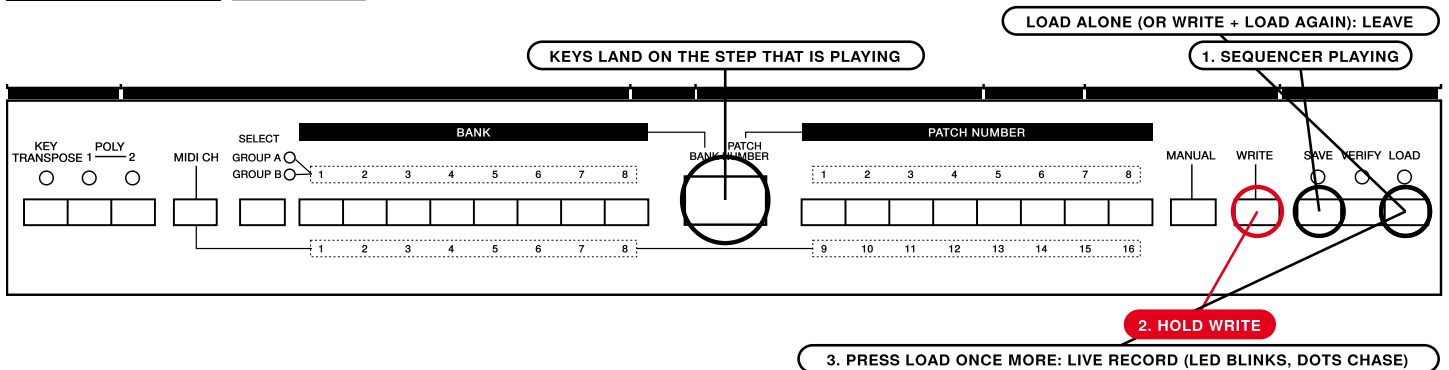


1. With step edit open (previous page), WRITE + SAVE turns the current step into a tie and WRITE + VERIFY into a rest.
2. MANUAL + VERIFY inserts an empty step here: the sequence grows by one and later steps and the end marker move up. MANUAL + SAVE deletes this step and the sequence shrinks. Insert works up to 63 steps.

13 LIVE RECORD OVER THE LOOP

STEP EDIT OPEN

RUNNING

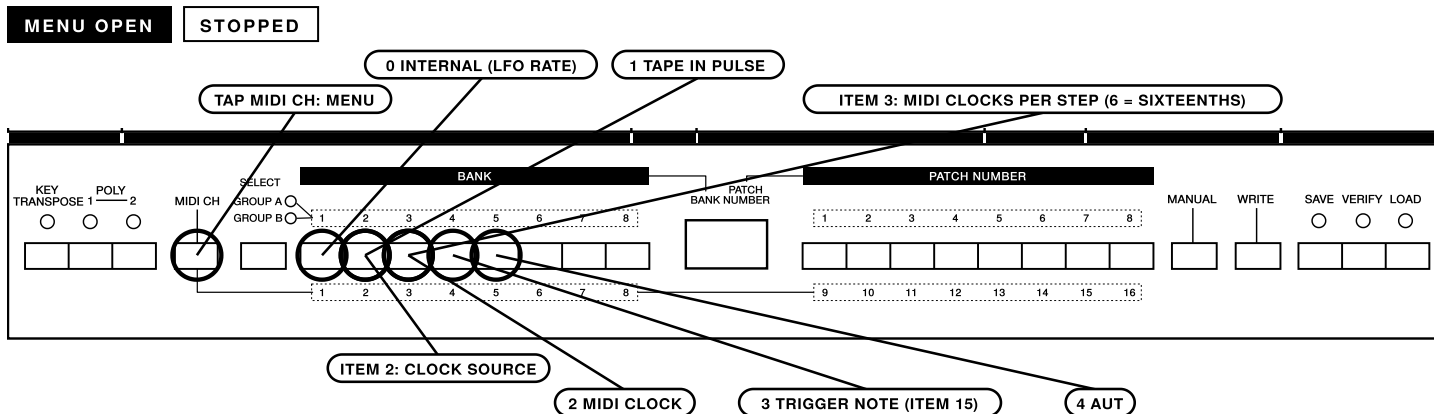


1. Start the sequencer with SAVE, open step edit with WRITE + LOAD, then press WRITE + LOAD once more. The LOAD LED blinks and the display's two decimal points chase each other.
2. Every key or chord you play is written into the step playing at that moment, quantised to it; keys added while the first is still down join the same step. The step buttons and the other edit controls keep working.
3. Press WRITE + LOAD a third time, or LOAD alone, to leave.

NOTE

Record (LOAD alone) stops the sequencer; step edit and live record do not. Inside record and step edit SAVE and VERIFY are edit buttons, so leave first to start playback from the panel.

14 CLOCK SOURCE

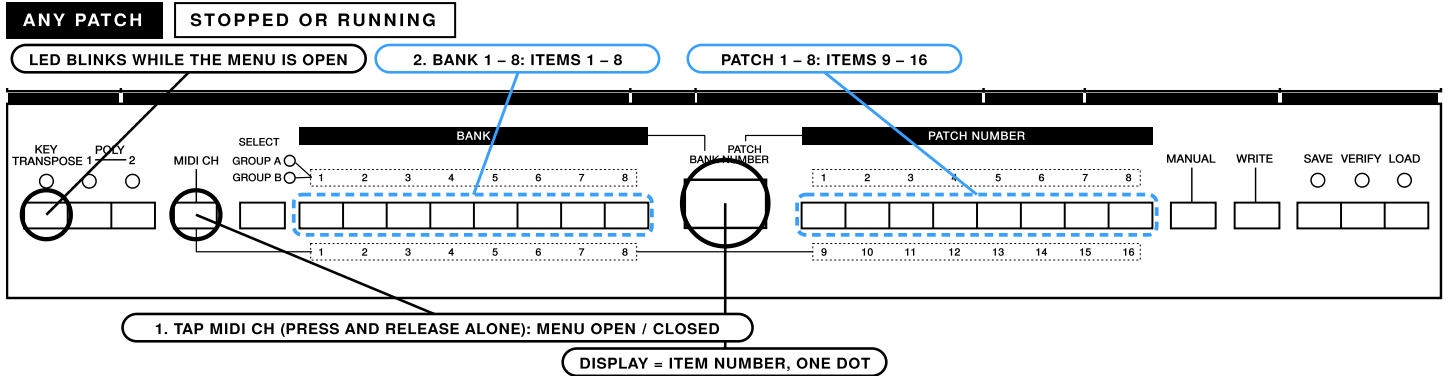


1. Tap MIDI CH, press bank 2 (item 2), then BANK to see the value and a number button to set it: bank 1 = internal, 2 = TAPE IN pulse, 3 = MIDI clock, 4 = MIDI trigger note, 5 = AUT (internal until a MIDI clock, Start or Continue arrives).
2. MIDI clock: MIDI Start runs the sequencer from step 1, Stop silences and rewinds, Continue resumes; SAVE also starts and stops it. Item 3 sets MIDI clocks per step (6 = sixteenths, 12 = eighths, 3 = thirty-seconds).
3. Trigger note: a note-on of the trigger note (item 15, MIDI note 0 to 15, default 0) on the synth's MIDI channel advances the running sequencer and steps the arpeggiator; the note itself is never played. MIDI clock and transport are ignored in this mode.

NOTE

The clock source is shared by the sequencer and the arpeggiator and remembered across power-off. CC 28 (0 to 4) sets it over MIDI, with the F-RAM code block. Clock without a Start does not start the sequencer; the arpeggiator steps on clock alone.

15 OPEN THE MENU AND PICK AN ITEM

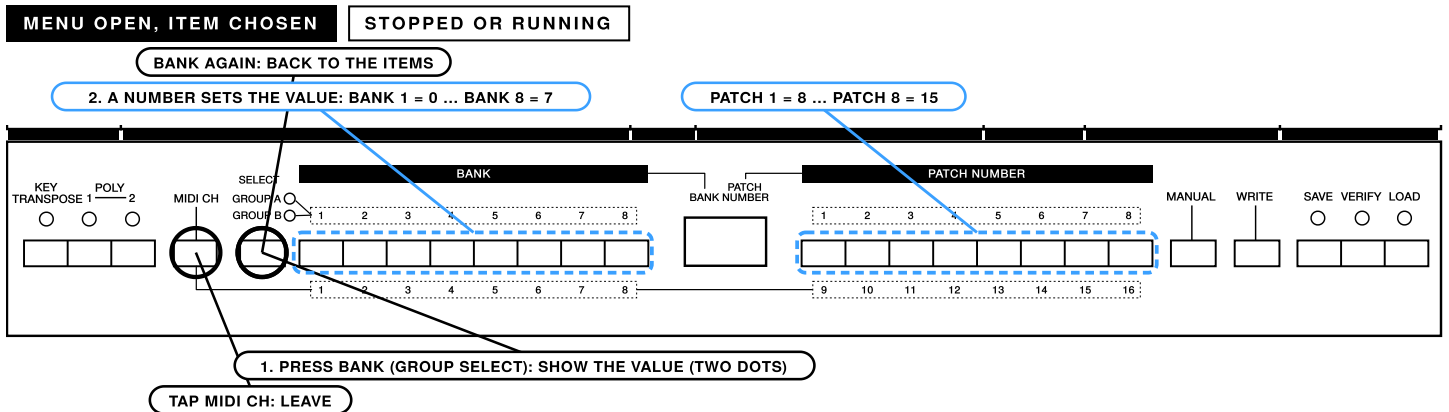


1. Tap MIDI CH: press and release it without pressing any other button. The KEY TRANSPOSE LED blinks while the menu is open. (MIDI CH has no combinations: held, it blocks the other buttons. The menu opens or closes each time MIDI CH is released.)
2. Choose an item: the bank buttons are items 1 to 8 and the patch buttons items 9 to 16. The display shows the item number with one decimal point.
3. Tap MIDI CH again to leave; the display returns to the bank and patch number.

NOTE

While the menu is open the bank, patch and group buttons belong to it. All settings are remembered across power-off. Every item can also be set by settings sysex F0 41 3D ch 05 ii vv F7 (ii = item - 1, vv = value), only with the F-RAM code block installed.

16 READ AND CHANGE A VALUE



1. Press BANK (the group select button under the GROUP A / B LEDs): the display shows the value with two decimal points.
2. Press a number button; the value becomes the number minus one. On/off items: bank 1 = off, bank 2 = on. The MIDI channel and clock divide items count from 1 instead, so bank 1 = channel 1 and patch 8 = channel 16.
3. The change takes effect at once (sounding notes are cut). Numbers above the item's range are ignored. BANK again returns to the items; tap MIDI CH to leave.

WHAT SUPEROS-106 ADDS

Everything this firmware adds to a stock Juno-106. The stock sound engine, the 128 patches and the panel behave as before; without a command combination the synth plays stock.

AREA	ADDED
Voice modes	Mono with note memory (POLY 1 twice) · chord memory, up to 6 notes (POLY 2 twice, WRITE held to store) · unison with detune (POLY 1 + POLY 2, menu 10) · dual: 3 notes on voice pairs (POLY 1 + POLY 2 twice)
Arpeggiator	Hold, 4 orders, 1 – 3 octaves, first note (WRITE + SAVE, menu 12 – 14) · clock from LFO RATE, TAPE IN, MIDI clock or a trigger note
Sound	Per-voice velocity to amp and filter (menu 4 – 6) · envelope 2 for the filter (menu 7, WRITE + VERIFY) · Arabic scale and 4 user scales (menu 8) · LFO locked to MIDI clock (menu 16)
Voice page	Per-voice detune, LFO depth and PWM, detune LFO speed, drift, unison detune (WRITE + VERIFY twice, CC 102 – 114) · all saved per patch on WRITE with envelope 2, the voice mode and the chord
Sequencer	Three patterns of 64 steps, up to 6 notes per step, ties and rests · step record (LOAD), step edit, audition, insert / delete, live record (WRITE + LOAD) · pattern queue and chains (VERIFY + PATCH 1 – 3) · MIDI Start / Stop
MIDI	Settings menu on the display (tap MIDI CH) · Local Off (menu 9, CC 122) · CCs for the 16 sliders and the new features · sysex dump and load of patches, patterns, scales and the whole memory
Memory	8 KB F-RAM: all 128 patches free for sounds, no battery · F-RAM code block for the newest functions

REFERENCE

ITEM	SETTING	VALUES (TAP MIDI CH, PICK THE ITEM, BANK, THEN A NUMBER = VALUE + 1)
1	MIDI channel	1–16 (bank 1 = channel 1 ... patch 8 = channel 16). Also sends Omni Off / Poly On on the new channel
2	Clock source (arpeggiator and sequencer)	0 internal (LFO RATE slider) · 1 TAPE IN pulse · 2 MIDI clock · 3 MIDI note (item 15) · 4 AUT: internal until an external clock arrives, then that clock
3	Clock divide: MIDI clocks per step	1–16 (6 = sixteenths, 12 = eighths, 3 = thirty-seconds, 4 or 8 for triplets)
4	Velocity routing	0 off · 1 amp · 2 filter · 3 both
5	Velocity depth	0 (none) – 15 (full)
6	Keyboard velocity	0 (softest) – 15 (full, default)
7	Envelope 2 (filter)	0 off · 1 on (shape: WRITE + VERIFY; CC 42)
8	Scale	0 equal · 1 Arabic (Maqam Rast on C) · 2–5 user scales 1–4
9	Local control	0 on · 1 off (also MIDI CC 122)
10	Unison detune	0 (none) – 15 (widest); acts in every voice mode, dual pairs too
11	Sysex dump	1 = send all 128 patches · 2 = send patterns 1–3 · 3 = identity reply (reads 0 again once sent)
12	Arpeggiator order	0 up · 1 down · 2 up and down · 3 as played
13	Arpeggiator range	0 one octave · 1 two octaves · 2 three octaves
14	Arpeggiator first note	0 (first note of the pattern) – 3
15	Trigger note (clock source 3)	0–15 = MIDI note 0 (C-2, default) to 15 (D#-1)
16	LFO sync to MIDI clock	0 off · 1 sixteenth · 2 eighth · 3 beat · 4 two beats · 5 bar

CLOCK & TRANSPORT

With the clock source at MIDI clock (or AUT), MIDI Start runs the sequencer from step 1, Stop stops and rewinds it, Continue resumes; SAVE also starts and stops it. Item 3 sets MIDI clocks per step; the arpeggiator always steps in sixteenths. With the MIDI note source, a note-on of the trigger note (item 15) steps both instead and MIDI clock and transport are ignored. LFO sync (item 16) locks the single LFO to MIDI clock at the chosen division, down to about 30 BPM; it follows MIDI clock only.

VELOCITY & SCALES

Velocity (items 4 to 6) scales each voice's amp and filter-envelope paths by the MIDI note velocity; the keyboard plays at the fixed velocity of item 6. Scale (item 8) retunes inside the voice board's pitch pipeline: 1 = Maqam Rast on C (E and B half-flat), 2 to 5 = user scales of twelve offsets, 1/128 semitone each, within ±50 cents.

MIDI CONTINUOUS CONTROLLERS

CC	PARAMETER
74	VCF cutoff
71	VCF resonance
16	VCF envelope amount
17	VCF LFO amount
18	VCF key follow
73	ENV attack
75	ENV decay
79	ENV sustain
72	ENV release
7	VCA level
76	LFO rate (also the internal tempo)
77	DCO LFO depth
78	LFO delay
12	DCO PWM
13	Noise level
14	Sub oscillator level
22 *	Voice mode: 0 Poly 1 · 1 Poly 2 · 2 mono · 3 chord memory · 4 unison · 5 dual
28 *	Clock source: 0 internal · 1 TAPE IN · 2 MIDI clock · 3 MIDI note · 4 AUT
38–41	Envelope 2 attack, decay, sustain, release (0–127)
42	Envelope 2: 0 off, other values on
102–107	Voice 1–6 detune (64 = none)
108–113	Voice 1–6 LFO depth (64 = none)
114	Detune LFO speed (0 = panel LFO)
122	Local control: 0–63 off, 64–127 on

* = needs the F-RAM code block. A received CC acts exactly like the slider move, 0–127 in slider units, sounding notes included. CC 1 mod wheel and CC 64 sustain as stock. A slider you are moving owns its parameter for half a second after it stops. Panel switches are set with the stock parameter sysex (no CC). No MIDI control at all: arpeggiator on / hold, chord capture, key transpose, record / step edit, pattern select.

REQUIRED SETUP

Hardware: the 8 KB F-RAM on IC3 (A11, A12 wired) and EPROM A12 wired on the module board (IC37 pin 2 to IC29 pin 51). Then install the **F-RAM code block** for version 1.16: rear MIDI switch at III, MEMORY PROTECT off, send the F-RAM code file from the web editor (F-RAM code: Install / update), which sets the MIDI channel for you (the plain file works on channel 1 only). Switch the Juno off and on. On the first install that start empties the three patterns and the per-patch records; later updates keep them. Reinstall after every firmware change; a block from another release is ignored.

Needs the code block: settings sysex, CC 22, CC 28 (queued; only the code applies the queue, so without it they do nothing), patterns 2 and 3, queue and chains, per-patch extras, the voice page on WRITE + VERIFY, unison and dual on the POLY pair, mono note memory, sequencer steps that leave MIDI notes playing. **Works without it:** the other panel functions and every menu item, CC 38–42 and 102–114, the parameter CCs, all loads and dumps.

PER-PATCH EXTRAS

With the code block, WRITE + patch also stores the unison detune, envelope 2 (A, D, S, R, on) and the voice page (6 detune, 6 LFO depth, speed, 6 PWM levels, drift) in that patch's record, plus the voice mode (dual included) and, in chord memory, the chord; selecting the patch (panel or program change) recalls them and switches to that voice mode (and chord). A patch never written this way keeps the current values. A patch sent by sysex does not carry its record.

SYSEX (F0 41 3D CH ...)

ch = MIDI channel - 1; other channels are ignored. Rear switch at III. 00 nn: patch 0–127 (A-1-1 = 0, B-8-8 = 127). 01 qq: pattern part 0–11 (pattern = qq / 4). 02 ss: user scale 0–3 (upload only). 03 bb: memory block bb of 128 bytes, blocks 18–63 (0–17 refused). 05 ii vv: setting, ii = menu item - 1, 16–19 envelope 2 A/D/S/R, 20 voice mode 0 – 5, 21 – 26 voice PWM level × 16, 27 drift 0 – 15 (code block). 7E 01 all patches, 7E 02 patterns (12 messages), 7E 03 identity, 7E 04 the whole 8 KB as 64 raw blocks. 7F 00: identity, reply 7F 00 01 10 (1.16). Every load is refused with MEMORY PROTECT on; settings and CCs are not.

MEMORY BLOCKS (F-RAM)

Blocks 0–15: the 128 patches, all free for sounds. 16–17: settings, user scales, chord memory and working state (read-only). 18–19: voice page settings and the chord table. 20–31: patterns 1–3. 32–51: per-patch records. 52–63: F-RAM code block. To restore a whole-memory dump, send blocks 18–51 and the patches, and install the code block from its own file.

INSTALLATION

Burn the assigner and voice images from the same release into 28C64 EEPROMs or 27C64 EPROMs; a 27C256 takes the supplied 32 KB images. Keep the original EPROMs. On the first power-up every setting starts at its default (MIDI channel 1, internal clock, envelope 2 off and flat, equal temperament, local on = 0); from then on settings are remembered. Not remembered: arpeggiator on / hold, key transpose, sequencer running. The synth starts in Poly 1; a patch brings its voice mode back when selected.

WHAT CONTROLS WHAT

Where each feature is controlled. Menu = settings menu item. SysEx = message after F0 41 3D ch (05 item n = settings message ii = n), or the stock 41 30 / 32 messages. Web editor = the superOS-106 web editor. * = needs the F-RAM code block. – or no = not possible there. Saved: Patch = with WRITE; Global = one value kept across power-off; No = lost at power-off.

FEATURE	FRONT PANEL	MENU	MIDI CC	SYSEX	WEB EDITOR	SAVED
16 patch sliders	Sliders	–	7, 12–14, 16–18, 71–79	41 32 (stock)	Front panel faders	Patch
Panel switches	Switches	–	–	41 32 (stock)	Front panel buttons	Patch
Patch select	Bank / patch	–	Program change	–	Program, Send PC	As stock
Patch write	WRITE + patch	–	–	3D 00, 41 30	Patch memory	Patch memory
Voice mode (incl. unison, dual)	POLY 1 / 2 / both *	–	22 *	05 item 20 *	Settings; Patch extras	Patch (WRITE) *
Chord memory chord	WRITE held, play	–	–	–	Display only	Global + patch (WRITE) *
Unison detune	Voice page: PATCH 6 *	10	–	05 item 9 *	Settings; Patch extras	Global + patch *
Voice detune 1–6	Voice page: BANK 1–6, PATCH 1 *	–	102–107	03 block 18	Voice detune	Global + patch *
Voice LFO depth 1–6	Voice page: BANK 1–6, PATCH 2 *	–	108–113	03 block 18	Voice detune	Global + patch *
Detune LFO speed	Voice page: PATCH 3 *	–	114	03 block 18	Voice detune	Global + patch *
Voice PWM level 1–6	Voice page: BANK 1–6, PATCH 4 *	–	–	05 items 21–26 *	–	Global + patch *
Drift 0–15	Voice page: PATCH 5 *	–	–	05 item 27 *	Settings row 27; Patch extras	Global + patch *
Envelope 2 on / off	–	7	42	05 item 6 *	Settings row 7	Global + patch *
Envelope 2 ADSR	WRITE + VERIFY, ENV	–	38–41	05 items 16–19 *	Settings: Env 2 A/D/S/R	Global + patch *
Velocity (3 items)	–	4, 5, 6	–	05 items 3–5 *	Settings rows 4–6	Global
Scale select	–	8	–	05 item 7 *	Settings row 8	Global
User scales	–	–	–	3D 02 (upload)	User scales	Global
Local control	–	9	122	05 item 8 *	Local buttons; row 9	Global
Arp off / on / hold	WRITE + SAVE	–	–	–	no	No
Arp order, range, first	–	12–14	–	05 items 11–13 *	Settings rows 12–14	Global
Sequencer play / stop	SAVE	–	–	MIDI Start / Stop	MIDI clock generator	No
Internal tempo	LFO RATE	–	76	41 32 (stock)	LFO Rate fader	Patch
Clock source	–	2	28 *	05 item 1 *	Settings row 2	Global
Divide, trigger, LFO sync	–	3, 15, 16	–	05 items 2, 14, 15 *	Settings rows	Global
Record / step edit	LOAD; WRITE + LOAD	–	–	–	no	Pattern
Pattern steps	Record / edit	–	–	3D 01 parts 0–11	Sequence, Send pattern	Pattern
Pattern select / chain	VERIFY + PATCH 1–3 *	–	–	–	Status only	Global
MIDI channel	–	1	–	05 item 0 *	Settings row 1	Global
Per-patch extras	WRITE stores *	–	–	03 blocks 32–51	Patch extras	Patch
Dumps	–	11	–	7E 01 / 02 / 03 / 04	Request; Raw memory	–
F-RAM code install	–	–	–	03 blocks 52–63	F-RAM code: Install	F-RAM
Version	–	11 = 3	–	7F 00	Header readout	ROM