

Needles Loom Manual

Needles.ino is made on Loom 2.4 and is more in line with the old needles firmware. Needles-joystick.ino is a newer version which shuffles some things around but can do more and is built on Loom 2.7.2

LOOM UPDATE

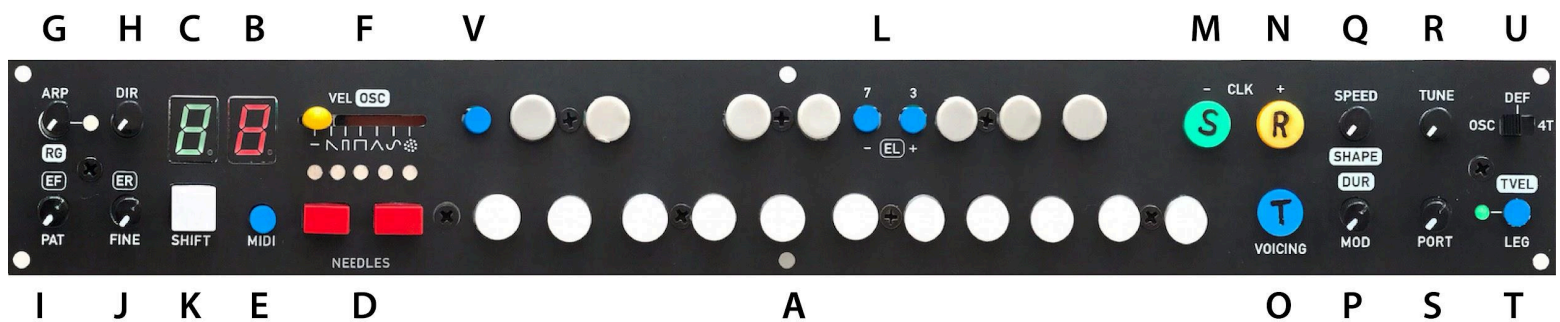
JOYSTICK UPDATE

LAYOUT RC Update

You can use the needles-joystick.ino firmware if you don't have a joystick attached by setting the hasJoystick boolean to False. This will skip the joystick code. needles-joystick.ino firmware has everything that the loom update (needles.ino) has but adds more and reorders some parameters.

Joystick also introduces octave led blinking when you hit an important value such as fine tune center, no portamento, breath cv out when joystick contains breath modulation and so forth.

You can now switch layout through holding the midi button and scrolling through various layouts with octave up and down. The leds will show which layout is selected. Set yarns RC channel to the RC channel variable from the ino file (default is channel 8) Midi channels for needles will be handled by the selected layout. Holding midi and playing the keys will handle the notes for all channels. Holding midi and changing a knob or button will change it for all active channels (also with midi + shift)



- A. **Keyboard:** G2-C4. Full range is G-2 to C8. Will also transpose any recorded sequence. See "SHIFT" for latching
- B. **Red:** MIDI channel segment. 1-4.
- C. **Green:** Values segment.
- D. **Octaves:** 4 up and 4 down. Press both Octave buttons at the same time to return to center. **Press SHIFT + octave down to enter loop sequence mode (the left most octave led will blink to indicate the mode). Press SHIFT + octave up to enter step sequence mode (the right most octave led will blink to indicate the mode). Pressing one of these twice will let you go back to manual play.**
- E. **MIDI** - Channel selection 1-4. **SHIFT + MIDI enters in strum mode. This mode will give you only short plucks of midi notes. This is handy for when you want to strum a certain chord on rings or just friends. Arp led flashes to indicate strum mode. When you enter arp strum will be deactivated (otherwise you cant play arps) Strummed notes can be sequenced through the loop sequencer. JOYSTICK VERSION:**

When in strum mode the last note held will stay on. This is more useful for the internal oscillator and envelope.

- F. **VEL/OSC** - Velocity 0-127. In 1M mode velocity is recorded into a sequence and output on Yarns CV2. Try recording a different velocity for each note in your sequence and using CV2 output to modulate something. When "OSC mode" is on slider changes to Waveform selection. **Slider changes osc shape SHIFT + slider changes osc type. First type is off** JOYSTICK VERSION: If osc is off this will change the tremolo shape. SHIFT + Slider will still change oscillator type but they are categorized now so it isn't as finicky anymore to select the correct osc type. To change osc category press 7 while having a oscillator. The 3 categories are Noise / Classic / FM
- G. **ARP** - Range "0-4". "0" is off. Turns on at "1" with red LED. Turning with SHIFT **and going past the 1 arp activation threshold** turns on "Euclidean mode" with green LED. In "4T mode" used to turn on RG - Rhythm Generator. **1 or higher will let you go in arp play mode and returning to 0 will let you go to manual play mode** JOYSTICK VERSION: When you are in step mode this knob will directly activate and deactivate euclidean steps. This way you can combine euclidean with step mode introduced in Loom version 2.6.
- H. **DIR** - Arp direction. Used also in "Euclidean mode" **SHIFT + DIR changes pwm lfo mod** JOYSTICK VERSION: This knob is very mode dependant now:
Arp mode: Changes arp direction. SHIFT + DIR changes clock speed
Loop mode: Changes loop phase. SHIFT + DIR changes clock speed
Step mode: Changes fine tune SHIFT + DIR changes clock speed.
OSC on: Fine Tune. SHIFT + DIR pwm lfo modulation amount
Manual OSC of: non SHIFT and SHIFT both change fine tune
Holding midi and changing DIR will change output clock ratio
- I. **PAT** - Arp Pattern "**S** and 1-22". In "Euclidean mode" chooses Euclidean Fill "0-32". **The arp uses the current sequence when S is selected** JOYSTICK VERSION: This knob is very mode dependant now:
Arp mode: Changes arp pattern. SHIFT + DIR changes gate length
Loop mode: Changes loop length . SHIFT + DIR changes gate length
Step mode: Changes euclidean fill. SHIFT + DIR changes gate length
OSC on: Tuning system SHIFT + DIR pwm envelope modulation amount
Manual OSC of: non SHIFT and SHIFT both change Tuning system
- J. **FINE** - Fine tuning. In "Euclidean mode" chooses Euclidean Rotate "0-32". **SHIFT + FINE changes the hold pedal mode used when tapping the SHIFT button when pressing keys**
JOYSTICK VERSION: This knob is very mode dependant now:
Arp mode: non SHIFT and SHIFT both changes hold type
Arp mode Euc on: Changes euclidean rotate. SHIFT + DIR changes hold type
Loop mode: non SHIFT and SHIFT both changes hold type
Step mode: Changes euclidean rotate. SHIFT + DIR changes hold type
Manual: non SHIFT and SHIFT both change hold type
Holding midi and changing FINE will change SWING

K. **SHIFT** - Special functions and **Hold** indicator. **You can hold by pressing one or more notes and short pressing the SHIFT button. How notes will be held can be changed per midi channel by SHIFT + FINE. The shift led will blink when the current channel is holding. The shift led will be on when another channel is holding. While holding midi and tapping shift you will hold all channels. Also holding midi + shift will change shift parameters for all current channels**

L. **3 & 7** - When recording sequences in Yarns these will insert 3 or 7 ties. Together with SHIFT will insert 3 or 7 rests. In “Euclidean mode” will choose Euclidean Length +/- . **In loop sequence (left most blink) mode the buttons will change the loop length. SHIFT + 3/7 for finer adjustments**
JOYSTICK VERSION: 3 and 7 ties are now only applied if you are in Step mode and recording. Euclidean length is applied if you are in EUC mode or in step mode and not recording.
Otherwise these buttons will do the following:

Having an oscillator on: 7 will scroll through model types. The oscillators are categorized in noise / standard / fm models. 3 will change from drone oscillator to envelope oscillator.
Having oscillator off: go through fm ratios on output. Holding shift will go through other cv outs. Fm ratios are on non shift button press for performance reasons.

- a. **3 & 7 explained:** Press “Record” on Yarns to record a sequence. It shows “step 01”
- i. Insert any note in “step 01”..
 - ii. Press “3”. You inserted 3 ties. Yarns will be on “step 5”.
 - iii. Insert any note.
 - iv. Press “7”. You inserted 7 rests. Yarns will be on “step 13”.
 - v. Press “3”. You inserted 3 ties. Yarns will be on step “17”.
 - vi. Press Record on Yarns exit recording. You recorded a 16 step sequence. This is how you can record sequences in Yarns super fast!

	3				7								3		
note	tie	tie	tie	note	tie	tie	tie	tie	tie	tie	tie	note	tie	tie	tie
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

- vii. Try inserting a kick on step 1, 5, 9, 13 by pressing 3 in between each one and exiting Yarns record mode on step 17. Takes 3 seconds (-:
- M. **SLIDE** - Inserts a Slide. Legato must be turned on. Together with SHIFT chooses Sequence Clock Division “-” **JOYSTICK VERSION: Pitch down SHIFT + SLIDE will still change sequence clock with gate lengths tied to it but you can control these 2 independent with the DIR and PAT knobs if you are in the corresponding modes.**
- N. **REST** - Inserts a Rest. Together with SHIFT chooses Sequence Clock Division “+” **JOYSTICK VERSION: Pitch up SHIFT + SLIDE will still change sequence clock with gate lengths tied to it but you can control these 2 independent with the DIR and PAT knobs if you are in the corresponding modes.**

- O. **TIE** - Inserts a Tie. Together with SHIFT chooses Voicing (2P, 4P, 2>, 4>, 8>) **JOYSTICK VERSION: No voicing SHIFT TIE is Rest now more in line with the 3/7 knobs**
- P. **MOD** - Vibrato. Independent for each channel. In "4T Mode" chooses Trigger Duration **SHIFT + MOD changes sustain envelope**
- Q. **SPEED** - Vibrato Speed. Independent for each channel. In "4T Mode" chooses Trigger Shape **SHIFT + SPEED changes attack envelope JOYSTICK VERSION: Changing any of the envelope parameters now while not having a oscillator will change the aux cv output to envelope**
- R. **TUNE** - Tuning System 0-33. **SHIFT + TUNE changes decay envelope JOYSTICK VERSION: This changes pitch bend range now to better incorporate the changes for a joystick and the - and + buttons (they pitch bend now based on the bend range defined by this knob)**
- S. **PORT** - Portamento. Only when Legato is off. **SHIFT + PORT changes release envelope JOYSTICK VERSION: When you are in strum mode this knob is set halfway (no portamento in loom) and will lock. This way strumming notes won't be weirded out by the portamento.**
- T. **LEG** - Legato on/off with LED indicator. Turn on for Slides. In "4T Mode" turns on Trigger Velocity Scale, used with Velocity Slider. **SHIFT + LEG will change the sequence input response.**
- U. **OSC - DEF - 4T:**
 - a. Default mode in center.
 - b. 4T mode changes SPEED, MOD, LEG, ARP to send 4T specific values. Remember that triggers in 4T come out of the Yarns CV outputs. Set the NO(TE) parameter to the trigger note you want for each Part. Default is "36, 38, 40, 42". I recommend setting it to "60, 62, 64, 65" which means C3, D3, E3, F3 which is the center octave setting. Save your Layouts in Yarns too.
 - c. OSC mode turns on an oscillator and loads a Saw waveform to as many channels as your current Yarns setup allows. Velocity slider chooses between the waveform. For example:
 - i. On CV4 in monophonic mode (1M)
 - ii. On CV3 and CV4 in duophonic modes (2M or 2P)
 - iii. On CV1, CV2, CV3, CV4 in quadraphonic modes (4M or 4P)

This is great for using Yarns as a 4 channel oscillator module (each channel having it's own unique waveform), or for fattening up sounds when sequencing in 1M and 2M modes - because CV3 or CV4 will play the exact same sequence that is recorded and sent out of CV1 and CV2.. So you can flip the OSC switch anytime and viola - you get one or two extra voices.

JOYSTICK VERSION:

This controls the behavior of the joystick now

OSC: X is pitch Y is Breath on channel 2

DEF: X is Breath on channel 1 Y is Breath on channel 2

4T: X is nothing Y is velocity control

Oscillators can be turned on by SHIFT + Slider. 4T functionality has been removed to better incorporate the rest of the changes

- V. **XTRA** - **This button now functions as a record button for the 2 sequence modes. Pressing it will start recording. Press SHIFT + XTRA to delete the recording When not in one of the 2 sequence modes this**

will switch the osc the oscillator between droning and enveloping. JOYSTICK VERSION: In loop or step mode this will be a record button. Press again to stop recording channel (can also be done on another channel to stop the recording) SHIFT + XTRA will still remove recorded material. In any other mode this button will change note priority. Loom arps are now using note priority. When in Strum mode this button will kill all midi notes. This is usefull if you are in a stuck situation (very rarely happens...)