E.FOX MIDI - LOOPER

USER GUIDE v1.1

Contact: support@earnestfox.com

General Safety and Handling Precautions

WARNING: CHOKING HAZARD – Device includes small parts. Not suitable for children under 8 years.

Not a toy: The device is not a toy and should be kept out of reach of children.

Keep Dry: Do not use with wet hands or in wet conditions (e.g. outdoors in the rain).

Power Supply: The unit should be powered via the supplied USB to DC power cable. Only use the specified power cable.

Handle Cords Carefully: Do not excessively bend, place heavy objects on, or otherwise damage the USB and MIDI cables. Before each use, visually inspect the appliance's cable and plug for any signs of wear or

damage. Do not use items with damaged or frayed cords.

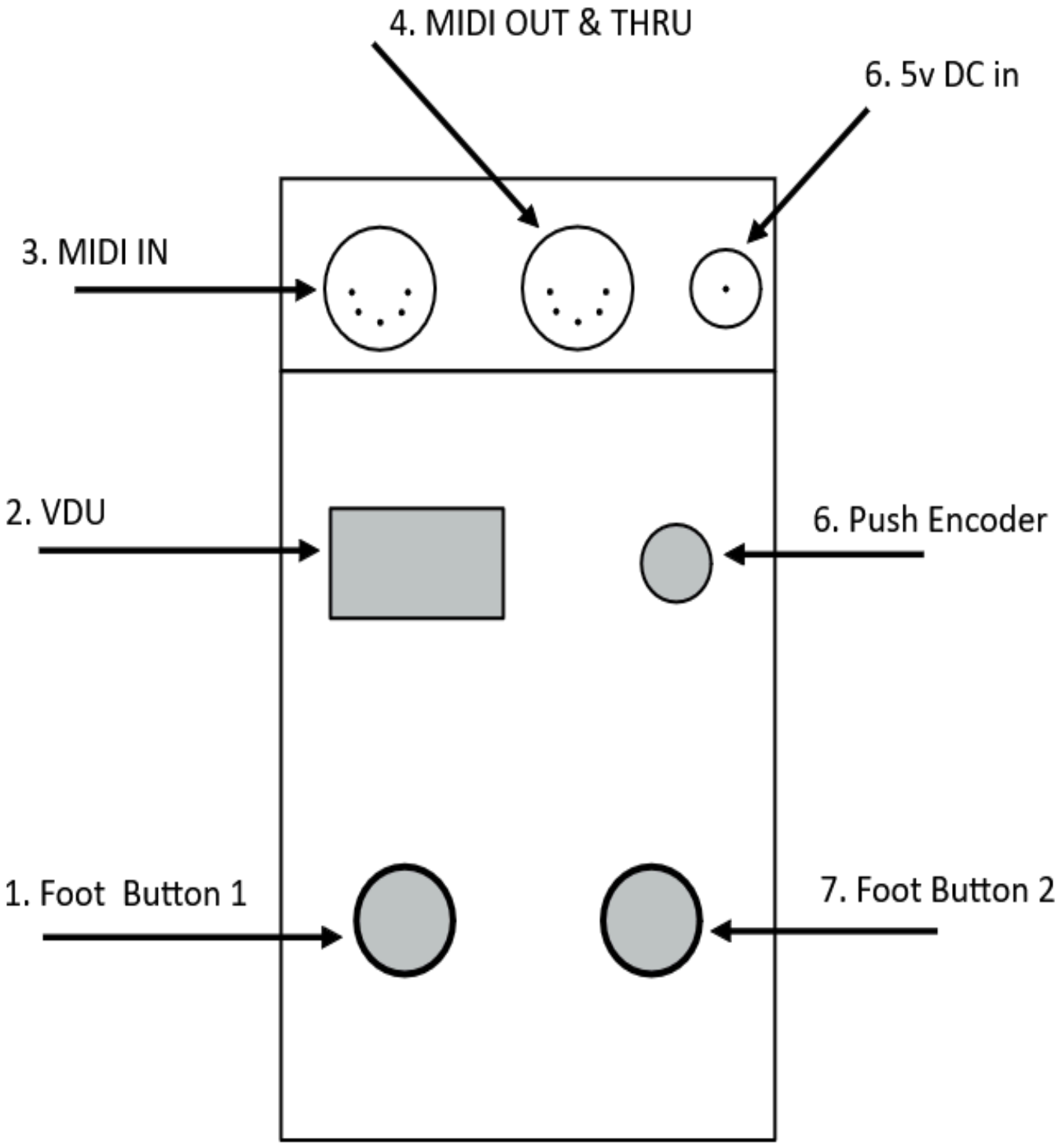
No User Serviceable Parts: Do not open the casing or attempt to disassemble/modify internal parts. Refer all servicing to qualified personnel.

Environmental Extremes: Avoid exposing the device to excessive dust, vibrations, or extreme cold/heat (e.g. direct sunlight or in a car during the day).

Do not use excessive force on buttons, switches, or connectors: All push buttons should be operated by no more than a light tap or a gentle press. Do not stamp-on the buttons.

Handle with care: Assume the unit is delicate and may be damaged by rough handling, dropping, or stacking of objects on top. Damage resulting from inappropriate handling will not be covered under warranty.

PART NAMES AND FUNCTIONS



1. **FOOT BUTTON 1**: AKA ‘Left Foot Button’. When the looper function is selected, pressing the foot button triggers recording or toggles play-back.

2. **VDU**: The VDU (Visual Display Unit) shows the currently selected function/parameter along with other relevant information.

3. **MIDI IN**: Socket for connecting a standard 5 pin din MIDI cable from a device sending MIDI input (e.g. controller keyboard).

4. **MIDI OUT**: Socket for connecting to a receiving device (e.g. synthesizer or sound module).

5. **5v DC INPUT**: power socket for use with included 5 volt USB to DC power supply cable only.

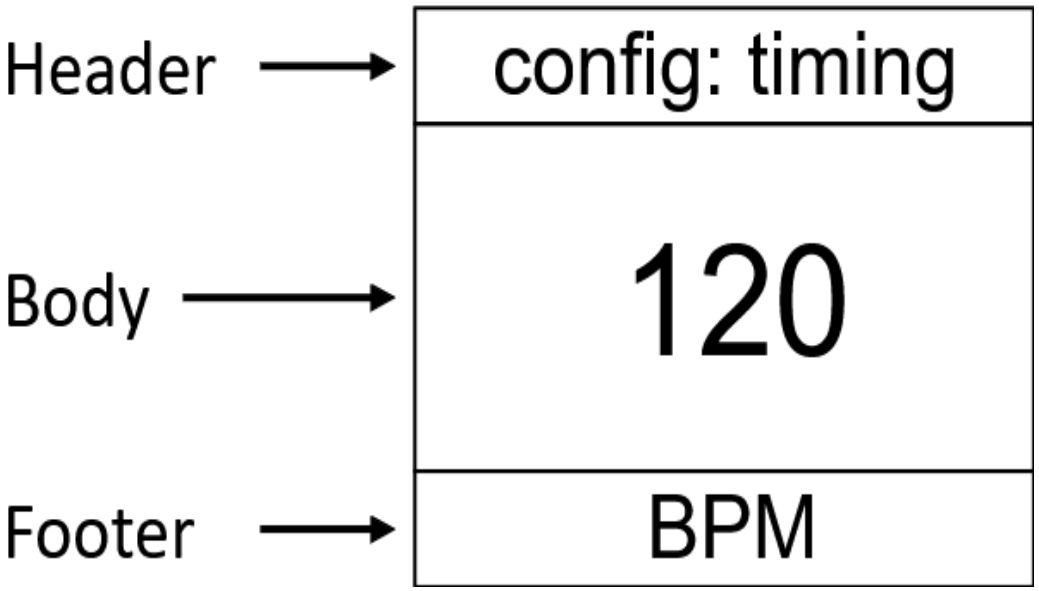
6. **PUSH ENCODER**: combined push button and rotary encoder. For selecting functions/parameters and selecting parameter values.

7. **FOOT BUTTON 2**: Increments the selected track when the looper function is selected.

A **USB 5v to DC cable** is also supplied. This connects from any standard USB power source to the 5v DC INPUT (4). It is a typical USB to 5 volt DC 5.5mm * 2.1mm centre-pin-positive barrel jack cable.

VDU Display

The VDU display divides into 3 parts: ‘header’, ‘body’ and ‘footer’.



The **header** appears at the top of the screen. Unless the Looper function is selected, the header indicates the current selection category. If the looper function is selected, the header shows the status of the first 8 tracks.

The **footer** appears at the bottom of the screen. Unless the looper function is selected the footer indicates the selected function or parameter.

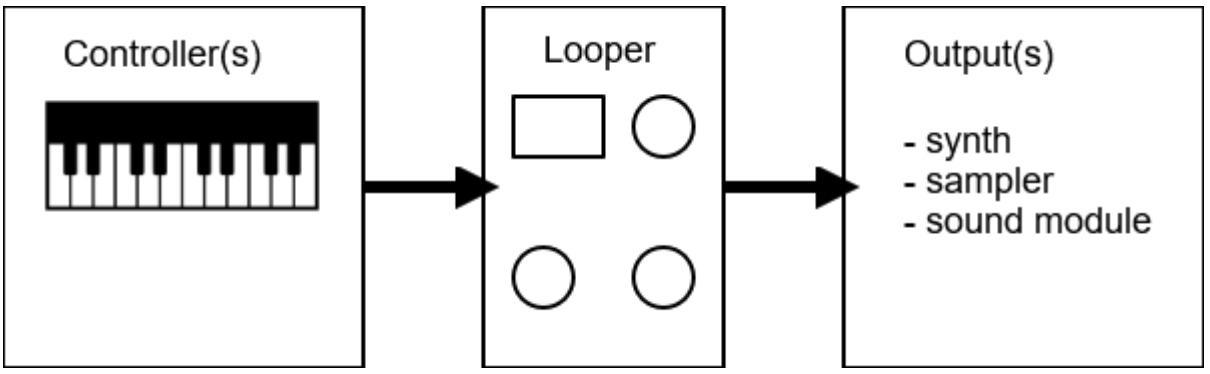
The **body** section is the centre of the VDU and indicates:

- the current parameter value when a parameter is being edited
- the selected track and play-back position if the Looper is selected

CONNECTIONS

MIDI controller devices (e.g keyboards, drum-pads) are connected to the MIDI-IN socket. Devices that generate sound are connected via the MIDI-OUT socket.

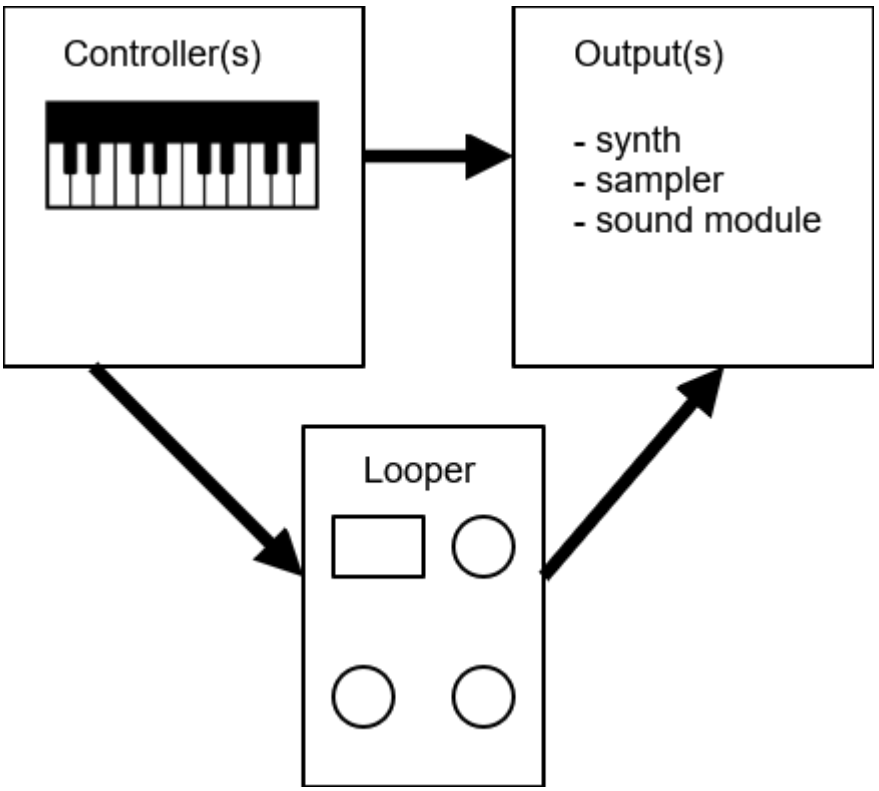
Suggested Configurations: 'MIDDLE-MAN' configuration



In this configuration the looper is inserted between the controller device(s) and the sound generating

device(s) and the ‘MIDI THRU’ parameter is set to ‘on’ (the default setting).

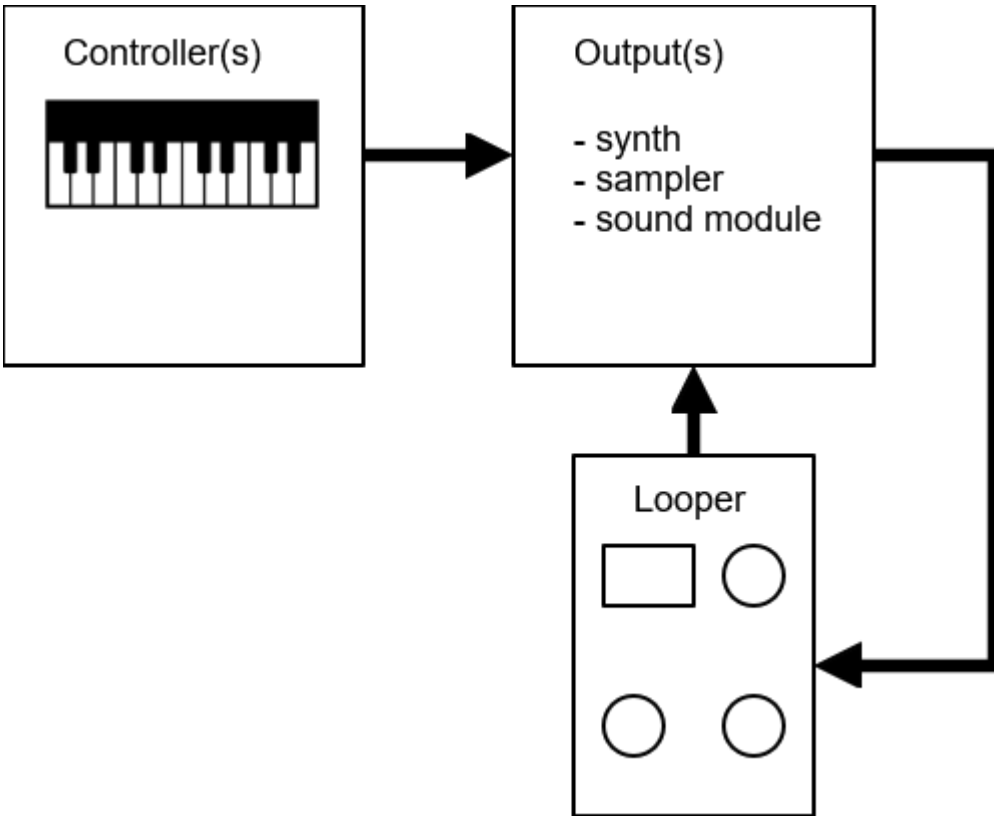
Suggested Configurations: ‘Parallel’ configuration



In this configuration the source MIDI signal is duplicated with one signal path going to the MIDI looper and the other signal path going directly

to the output device (this might be via a separate MIDI cable or via the internal wiring of an all-in-one synthesiser and keyboard). For this configuration the MIDI THRU parameter should be set to ‘off’. This configuration by-passes the looper during initial performance (except in so far as the performance is being recorded) with only the recorded loops being transmitted via the looper.

Suggested Configurations: ‘Feedback’ configuration



In this configuration the looper input is connected to the MIDI ‘thru’ socket of the output device and the looper output is then fed-back to the inputs.

To avoid creating a ‘feedback-loop’, the MIDI THRU configuration option

on the looper should be set to ‘off’. The ‘filter’ configuration parameter should also be set to ‘on’.

Sending to multiple devices:

To send MIDI output to multiple devices, a ‘splitter’ can be used (e.g. ‘MIDI THRU 5’ from CME). A ‘splitter’ takes the output carried by a single MIDI cable and allows it to be sent along multiple output cables to multiple output devices.

“Daisy-chaining” output devices using MIDI THRU sockets (when available) offers another method of sending output to multiple devices. However there can be an increasing probability

of signal degradation with each device chained. Consequently some suggest that no more than 3 devices should be chained using this method (although - in practise - more might be connected without a problem).

CONTROLS

The device is controlled using 3 inputs:

1) The Push Encoder
2) Foot Button 1
3) Foot Button 2

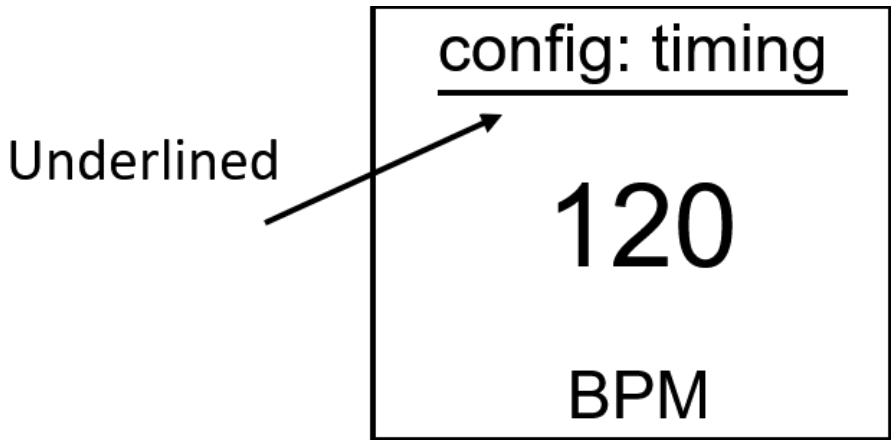
The purpose and effect of these controls vary depending on whether ‘Selector Mode’ is active. When in Selector Mode the buttons are directed to the task of selecting a parameter or function. When not in Selector Mode, behaviour varies in accordance with the selected function or parameter.

	FOOT BUTTON 1	**FOOT BUTTON 2**
SELECTOR MODE	shows previous function/parameter	shows next function/parameter
LOOPER	- records if no loop recorded - toggles play/stop if loop recorded - press and hold for 4 seconds to delete recorded loop	- selects next track - press and hold to stop playback of all tracks and send ‘all notes-off’ request
PARAMETER ENTRY	decrement value/option	increment value/option
DELETE ALL	press in sequence (fb1, fb2, fb1) to delete all recorded tracks	press in sequence(fb1, fb2, fb1) to delete all recorded tracks

	ENCODER PUSH	ENCODER TURN
SELECTOR MODE	selects displayed function or parameter and exits Selector Mode	cycles through functions and parameters
LOOPER	enters Selector Mode	selects track
PARAMETER ENTRY	enters Selector Mode	sets value/option or executes function

SELECTOR MODE

Selector Mode is used to cycle between function and configuration options. To enter Selector Mode, press the push encoder so that the header text on the VDU is underlined.



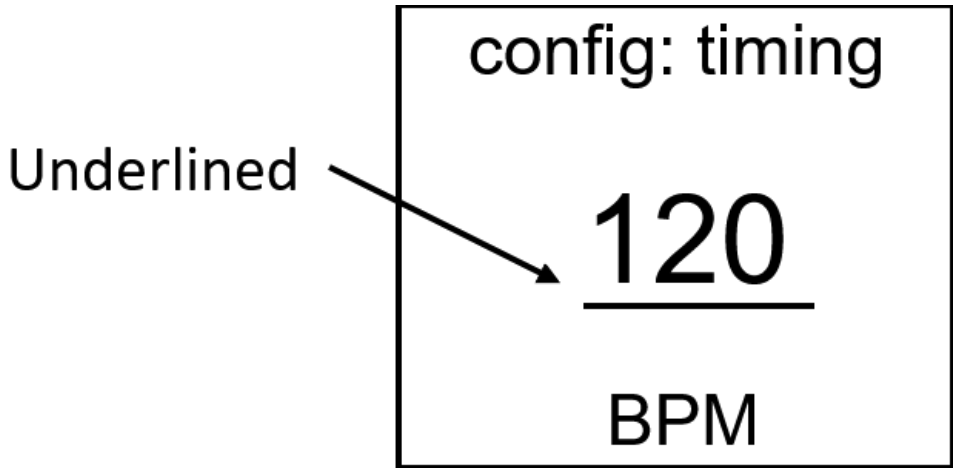
When in ‘Selector Mode’, turning the push-encoder cycles through the list of options (configuration parameters, functions & etc) as listed on the next page.

1. Looper / Select Track
2. Delete All
3. Channel Remapper Out
4. Channel Remapper In
5. Selected Track Sync. Mode
6. Selected Track Length
7. BPM Timing Source
8. Internal BPM (if applicable)
9. Send/Forward MIDI Beat Clock
10. PPQN of MIDI Beat Clock Input
11. Play Loop After Recording
12. Increment Track Selection After Recording
13. Play to Note-Off
14. Loop Length Granularity
15. Track Count
16. MIDI Thru on/off
17. Device Control Channel
18. Recording Channel
19. Filter on/off
20. External Controller Option A
21. External Controller Option B
22. Foot Mode on/off
23. Save Configuration
24. Reset Configuration
25. Memory Use %
26. Firmware Update

Parameters/Functions are selected by:

1. Pressing down on the push-encoder to enter selector mode.
2. Turning the push-encoder dial until the desired option is displayed
3. Pressing down on the push-encoder again to exit selector mode.

Once a parameter is selected the body section of the VDU (the middle row) will be underlined. This indicates that a parameter/function has been selected and Selector Mode has been exited.



THE LOOPER FUNCTION

The looper function encompasses the core purpose of the device. The looper function is selected when the device is first powered on.

Capturing loops of recorded MIDI supports quick and easy recording of the various parts making up a more complex composition: layering each new part over parts previously recorded one part at a time. For example, a performer might start by recording a looped chord-progression, then go on to play and record a bass-line to go with it, and then experiment with various different melodic lines to go over that.

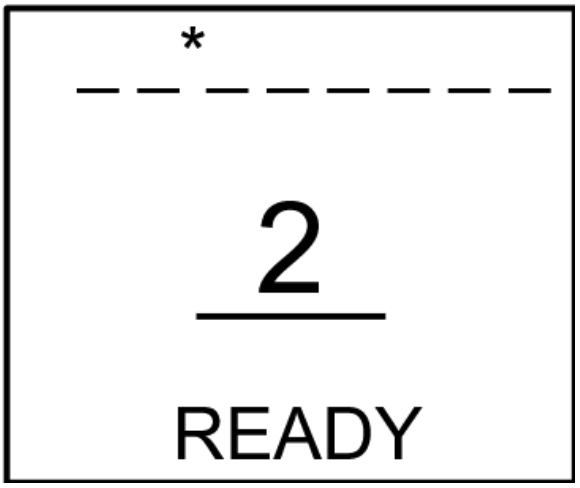
This approach offers an intuitive way to develop compositions, as it gives an immediate audible result to experimentation with various alternative combinations - before or after recording.

When the Looper is selected the controls are consequently directed toward recording, selecting and toggling play-back of MIDI loops.

Looper: Selecting Tracks

8 different loops can be recorded and played back simultaneously. Each of these 8 loops will be recorded to a correspondingly numbered slot referred to as a ‘track’.

Turning the push encoder, or pressing the right foot pedal, will cycle the track selection.



The body selection of the VDU will show the selected track number and the corresponding track-position will be indicated by an asterisk * in the header.

Looper: Track States

The status of the selected track is indicated in the footer. The status indicates which of the following states the selected track is in:

1. ready to record
2. recording
3. playing
4. stopped

- A track with no loop recorded yet will be in '**ready to record**' state.

- A track that is in the process of recording MIDI will be shown as '**recording**'.

- A track that is playing a MIDI loop previously recorded will be shown as ‘**playing**’.
- Where a loop has been recorded for a track, but it is not presently playing, the track will be marked as ‘**stopped**’.

Initially - prior to any loops being recorded - all tracks will be in the ‘**ready to record**’ state.

Looper: Recording loops

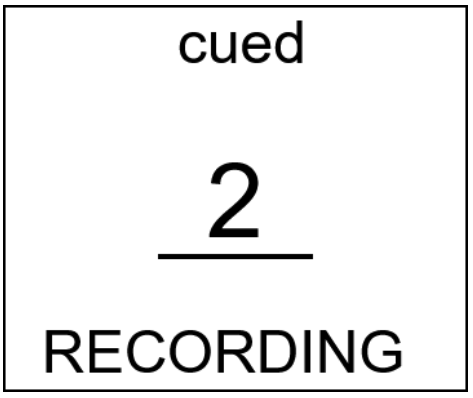
To record a loop, select any track that is in the ‘**ready to record’** state and press the left foot pedal.

To stop recording, press the foot pedal again.

When recording, there are 3 additional sub-states that a recording might be in.

1) cued
2) waiting for loop-end
3) waiting for note-off

These sub-states will be indicated in the VDU header.



The looper will enter '**cued**' mode when record is pressed while nothing is being played, in this case it will only

start loop recording when the first note-on event is received.

The looper has been designed to capture loops “mid-performance”, this means that a performer can aim to hit the record button and play the first note of the loop simultaneously (rather than consciously putting the looper into **cued** mode - waiting a moment - and then playing the first note). To facilitate that, notes that are played slightly ahead of the record button being pressed (ahead of the left foot pedal being pressed), will still be captured and loop recording will be started from those ‘pre-recorded’ notes: there will be no appearance of the recording ever having entered **cued** mode in that case.

In cases where the BPM of the looper has been set, the recorder will sometimes continue recording - after a request to stop recording - until the recorded loop length matches the selected BPM. The **‘waiting for loop end**’ state will be shown while that occurs.

When a record stop request is received - the looper will also continue recording and show ‘**waiting for note off’** until all captured key-presses are matched by a key-release. Recording will also stop if the length of the recorded loop elapses without a held key being released.

Looper: Loop Length and BPM

The BPM of the looper - and the length of recorded loops - can be derived from one of 3 sources:

1) The length of the first recorded loop
2) MIDI beat clock from the MIDI in
3) The BPM parameter (one of the selectable configuration options)

By default, the BPM is derived from the length of the first recorded loop. This means that the performer may play the first loop they record at any tempo and the BPM will be adjusted to match that tempo (assuming the record start and stop buttons are pressed in time with that tempo also). All subsequent loops

will then be extended or truncated to a length that synchronises with the tempo of that first recorded loop.

Looper: track playback

Once a loop is recorded, playback can be started by pressing the left foot button. Similarly, playback can be stopped by pressing the left foot pedal again.

There are various configuration options which can alter when and how loops are played back. For example, it is possible to select whether loop play-back starts automatically after recording.

GENERAL FUNCTION/PARAMETER ENTRY

In comparison with the Looper Function, the other 26 selectable options are relatively simple. These options are operated by selecting an option (via Selector Mode) - and then turning the push-encoder to set a parameter value or execute a function.

To protect against accidental deletion the '**Delete All**' function is an exception and requires the foot buttons to be pressed in a particular sequence (foot-button-1, foot-button-2 then foot-button-1 again). This will delete all recorded tracks.

CONFIGURATION PARAMETERS AND ADDITIONAL FUNCTIONS

Although the default settings will be enough for many users, the looper features a number of additional functions and adjustable configuration parameters with varying ranges.

List of configuration parameters/functions with ranges

- Channel Remapping
  - output channel { off, 1-16, ‘track’ }
  - input channel { all, 1-16 }
- Selected Track Configuration
  - loop sync. { off, on }
  - loop length { … }
- Timing Configuration
  - timing source { 1st recording, internal, external }
  - internal bpm { 40 to 180 }
  - send beat clock { off, on }

    - PPQN in { 24, 48, 96 }
- Looper Configuration
    - auto-play after record { off, on }
    - auto-increment track { off, on }
    - play-to-note-off { off, on }
    - recording granularity { 1 - 8 }
    - maximum tracks { 8 - 16 }
- MIDI Configuration
    - thru { off, on }
    - device control channel { off, 1- 16 }
    - record channel { off, 1-16, track }
    - filter { off, on }
    - MIDI implementation Option A { 1, 2 }
    - MIDI implementation Option B { 1, 2 }
- UI Configuration
    - foot-mode { off, on }
- Miscellaneous Functions
    - save configuration
    - reset configuration
    - memory usage display
    - firmware update mode

Channel Remapping: To change the MIDI channel of incoming MIDI messages, select a channel (ranging from **1 to 16**) as the '**output-channel**' parameter. Alternatively, select '**track**' to make channel remapping correspond with the number of the selected track (e.g. if track 2 is selected, messages will be sent to MIDI channel 2). Select 'off' for the output channel to disable channel remapping.

If **'all'** is selected for the **'input channel'** parameter, incoming messages on all channels will be retargeted to the selected output channel. If a channel between **1 and 16** is selected, only messages received on that channel will be changed.

Channel remapping would typically be used when there are multiple output instruments or devices - each configured to respond to a particular channel - and incoming MIDI needs to be adjusted so that it goes to the specified channel and device.

Loop Sync off/on: If loop sync is turned off, loop playback will commence from the start of the loop (the MIDI recorded around the time the record button was pressed) whenever playback is restarted. If loop sync is turned on, the loop will continue from the play-back position it would be at if it had looped continuously since it was first recorded.

Loop Length: Once a loop is recorded it is possible to adjust the length of the recorded loop. This parameter has been included to allow occasional small adjustments to loops that were not initially captured at the intended length. The length can be reduced to the last beat a note was recorded in. The length can also be increased with the effect that empty/silent beats are added to the end of the loop. The loop affected will be the one last selected in the looper.

Timing Source: This selects whether the looper “timing” should be adjusted to match an internally or externally specified BPM, or else match the length of the first loop recorded. If the unit is configured to send MIDI beat

clock, the selected timing source will determine the tempo of the beat clock. The timing source will also affect the length of recorded loops - with loops being truncated or extended to match the selected timing. If the timing source is specified internally or externally, the playback rate of previously recorded loops can also be adjusted by changing the BPM.

When the timing is specified as **“1st Recorded”**, the timing will be based on the time elapsed between record and record-stop being activated on the first loop recorded. The loop recorded will be assumed to be either 1,2,4,8,16,32,&etc beats long and the corresponding BPM will be calculated automatically.

When the timing is specified as “**external**” the timing will follow the BPM of the timing signal received via the MIDI IN cable. If the external signal is interrupted, play-back will continue at the tempo previously received. The BPM will default to 120BPM if no external clock is received.

When the timing is specified as ‘**internal**’, the timing will follow the BPM specified in the ‘**Internal BPM**’ parameter.

Internal BPM: this specifies the BPM timing that will be used if the **Timing Source** parameter is set to ‘**internal**’**.**

Send Beat Clock on/off: specifies whether MIDI beat clock should be sent. MIDI beat clock can be useful for synchronising parameters on sound-generating devices (e.g. arpeggiators, LFOs, envelopes) with the looping tempo.

The unit does not transmit general MIDI transport functions (e.g. play/stop/continue messages) and so will not fully synchronise with external recorders and players requiring that.

PPQN: The resolution of the beat clock can be changed from the standard 24 pulses per quarter note (PPQN) to 48 or 96 PPQN for devices that require it. A setting of 24 PPQN is recommended for most cases.

Auto-Play After Record off/on: when switched on (the recommended setting), playback of a recorded loop will start automatically after a loop is recorded. When switched off, recorded loops will not playback unless play is pressed.

Auto-Increment Track off/on: when switched on, the selected track will automatically increment after a loop recording completes.

Play to Note Off off/on: if switched off, play-back of all playing notes will stop immediately, when loop-play-back is stopped. Otherwise playback of any already playing notes will continue until the time when those notes would have

been released if play-back was on-going.

Recording Granularity (1 - 8): by default recorded loops are truncated or extended to length corresponding with a multiple of 2 beats at the selected BPM. This can be adjusted so that the loops are truncated/extended to a different number of beats instead. A length of 1 beat would be the most flexible - allowing 1,2 and 3 beat loops to be recorded - but requires the user to be more precise in their timing. The setting of 2 beats requires less precision and better facilitates the 4 beats to the bar timing that many performers are likely to intuitively aim for.

Maximum Tracks (8 - 16): The number of recordable tracks/loops can be extended to a maximum of 16.

MIDI THRU on/off: if switched on, MIDI messages received via the MIDI input socket will be immediately sent to the MIDI output socket. If switched off, only MIDI played back from recorded loops will be sent to the MIDI output.

Device Control Channel {off, 1-16 }: the Looper can be controlled from an external controller (see MIDI Implementation) but will only respond to messages on the specified channel. If ‘off’ the looper will not respond to any control messages.

Record Channel {off, 1-16, track }: the looper can be set up to capture only MIDI messages sent on the specified channel. If ‘track’ is selected, messages sent on the channel corresponding with the selected track number will be recorded. If ‘off’ the looper will capture messages on all input channels.

Filter { on/off }: If switched on, only key note-on and note-off messages will be recorded. Pitch-bend and other controller data will not be recorded. In addition, key-note messages matching a key-note playing back on a looper track will not be recorded.

MIDI Implementation Option A{1,2}: selects how the unit will be respond to incoming MIDI messages as detailed in the MIDI implementation for “A group” messages.

MIDI Implementation Option B{1,2}: selects how the unit will be respond to incoming MIDI messages as detailed in the MIDI implementation for “B group” messages.

Foot-Mode { off, on }: if off, the push-encoder has to be held down continuously to remain in selector mode. If on, the push-encoder can be pressed and released to toggle into selector mode.

Save Configuration: turn encoder to save current configuration parameters. If parameter changes are not saved, they will not be restored after the device is powered off. Turn encoder right when selected to execute.

Reset Configuration: resets configuration to original default settings. Turn encoder right when selected to execute.

Memory Usage Display: shows percentage of memory used. Once 100% memory is used, no more MIDI data can be recorded unless some previously recorded data is deleted.

Firmware Update: Puts the looper in Firmware Update mode. This function will only be available on “proto-type” devices and should only be executed if specifically advised by technical support (support@earnestfox.com) where there has been communication about a particular issue.

MIDI IMPLEMENTATION

MIDI CC	Control	Track	Range
0	Channel Modulation	selected	0-127
1	Select Track	n/a	0-15, 63 decrement, 64 increment
2	Record	selected	any
3	Play	selected	any
4	Stop	selected	any
5	Record/Play/Stop Toggle (inc. hold to delete)	selected	>64 trigger, <64 release
6	Unused		
7	Channel Volume	selected	0-127
8	Channel Balance	selected	0-127
9	Scale Velocity	selected	0-127
10	Channel Pan	selected	0-127
11	Play/Stop toggle	selected	any
12	Sync on/off	selected	<64 off >64 on
14-29	Channel Volume	1 - 16	0-127

30-37	Scale Velocity	1-8	0-127
39-46	Scale Velocity	9-16	0-127
47-62	**option A1** Record/Play/Stop toggle. Hold to clear. **option A2** Delete-and-record or Stop-recording.	1 - 16	>64 trigger, <64 release **option 2** any
63-78	**option B1** Channel Pan. **option B2** Channel Balance.	1 - 16	any
79-94	Play/Stop toggle	1 - 16	any
116	Record		0 = track 1, 1 = track 2, & etc
117	Play		0 = track 1, 1 = track 2, & etc
118	Stop		0 = track 1, 1 = track 2, & etc

119	Record/Play/Stop toggle. Hold to clear.		0 = track 1 down 1 = track 2 down... 16 = release
120	Play/Stop toggle.		0 = track 1, 1 = track 2…
121	Sync on/off toggle		0 = track 1 off, 64 = track 1 on, 2 = track 2 off, 65 = track 2 on...
122	Recording Granularity	n/a	1 - 8
123	Select MIDI output channel	n/a	0 = off, 1 - 16 output channel, 17 = track
124	Output Channel Increment	n/a	any
125	Output Channel Decrement	n/a	any
126	Track Increment	n/a	any
127	Track Decrement	n/a	any

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