



LP1

Gen B

Version 2.52

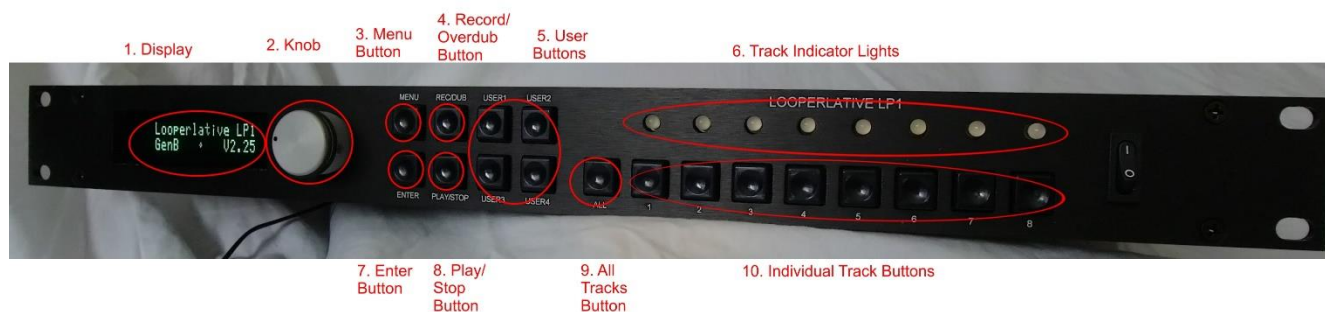
User Manual
May 11, 2021

Table of Contents

Front Panel	4
Back Panel.....	5
Getting Started	5
Quick Start.....	5
Setting Audio Levels.....	6
Recording your first loop	6
Menu Operation	6
Track Display	7
Undo.....	9
Recording and Playing Loops	9
Recording a new unsynchronized loop	9
Recording a new internally synchronized loop.....	9
Recording a new MIDI synchronized loop	10
Starting and stopping a recorded track	11
Creating Song Sections	11
Switch Record	11
Switch Play	11
Switch Play + CKSR.....	11
Using Switched Commands.....	11
Changing Switch Behavior From End of Part to End of Clock Source.....	12
Changing Switched Tracks	12
Track Bouncing	12
Cue Track	13
Replace	13
Quantified Functions	13
Q Replace.....	14
Q MIDI Sync Rec	14
Random Restart	14
Saving and Loading Track Audio	14
Audio Manipulations.....	15
Volume Control.....	15
Fade/Swell.....	15
Pan Control.....	15
Feedback Control	15
Audio Level Presets	16
Track Volume Fade/Swell.....	16
Reverse	16
Speed Changing.....	16
Stretching/Shrinking.....	17
Mellotron Mode.....	17
Scramble.....	17
Re-trigger	17
Configuring the LP1.....	17
Edit Group.....	18

MIDI Channel	18
Noise Gate	18
Wet/Dry Mix	19
Time Display	19
Pedal Mode.....	19
MIDI Clock Out	20
Mono Aux Out	20
Programming the LPI to use MIDI pedals or dials.....	20
CC De-jitter	21
MIDI or USER Button Configuration.....	21
Advanced MIDI or User Button Configuration	21
Network configuration	22
Assignable Functions	23
Drum Machine	27
Drum Machine Menu	27
Drum Patterns.....	28
Drum Clock Out.....	28
Audio Output.....	28
Starting and Stopping.....	28
Tips and Special Techniques:	28
Chorus/Verse/Bridge (deprecated).....	29
Software Upgrades.....	29
LIMITED WARRANTY	30

Front Panel



Front panel features:

1. **Display** shows current LP1 menu item. Initially the display shows “Looperlative LP1”, hardware generation and software version number.
2. **Knob** is used to change menu item or menu item value. See “Menu Operation”.
3. **Menu Button** is used to move to previous menu. See “Menu Operation”.
4. **Record/Overdub Button** is a multifunction button that:
 - a. Records if track is stopped or empty,
 - b. Overdubs if track is playing or recording, or
 - c. Erases if button is held for 2 seconds.
5. **User Buttons** are programmable buttons. See “MIDI or USER Button Configuration”.
6. **Track Indicator Lights** are described in this table:

<i>Light color and action</i>	<i>Track state</i>
Light off	Track empty
Light blinking red	Audio recording to the track
Light blinking green	Audio overdubbing on the track
Light solid red	Audio recorded to the track, but the track is not playing
Light solid green	Audio recorded to the track and it is playing

7. **Enter Button** is used to select current menu item or select currently showing value on the display. See “Menu Operation”.
8. **Play/Stop Button** is a multifunction button that:
 - a. Changes track to play mode if recording, overdubbing or stopped,
 - b. Changes track to stopped mode if playing,
 - c. Creates empty track same length as the clock source track if empty and the clock source track is playing, or
 - d. Stops track immediately if button is held for 2 seconds.
9. **All Tracks Button** selects all tracks.
10. **Individual Track Buttons** select an individual track. If one of these buttons is held for 2 seconds, it opens a mode for selecting multiple tracks.

Back Panel



1. **Power** accepts the connector from the adapter supplied with the LP1. The LP1 requires a 9 VDC power supply capable of supplying at least 1A of power.
2. **Network** is used to connect a standard Ethernet cable. The LP1 GenB does not require cross-over cables because it autodetects cable connection type. By default, the LP1 is configured to automatically obtain its network configuration from a DHCP server or use an auto IP address if there is no DHCP server on the network. Auto IP allows connecting an LP1 directly to a computer Ethernet port without an additional router. The computer must support auto IP configuration. For DHCP, the LP1 must be connected to a network with a DHCP server. This is often your home router. You may instead manually configure the IP address, gateway address, DNS server address, and netmask. All of these must have a value other than 000.000.000.000 otherwise the LP1 will attempt automatic configuration. Manual configuration is described in “Network configuration”.
3. **MIDI in** is used to provide MIDI control and clock to the LP1.
4. **MIDI through** sends back out everything received on MIDI in.
5. **MIDI out** is used to send MIDI clock out to another device.
6. **Audio In** is two ¼ inch unbalanced audio connectors that accept line level inputs.
7. **Audio Out** is two ¼ inch unbalanced audio connectors that are the main outputs.
8. **Aux 1 Out** is two ¼ inch unbalanced audio connectors that are the aux 1 outputs.

Getting Started

Quick Start

- Unpack the LP1 from shipping carton. Please save shipping carton.
- Mount the LP1 in an empty space in your rack. The LP1 is not designed for desktop use. Please properly mount your LP1 in a rack case or floor-standing rack.
- Connect the audio source to the audio inputs on the rear panel. The LP1 accepts unbalanced tip-ring 1/4” connectors. The audio inputs accept line levels or in some cases instrument levels. Never connect an audio source that exceeds 5V peak-to-peak.
- Connect the audio outputs to line-level inputs on your amplifier, mixing console, or other effects boxes.
- If you are using a remote MIDI controller, attach it with a MIDI cable to the MIDI input connector on the back of the LP1.
- Plug the cable of the supplied power adapter into the power connector on the back of the LP1. The LP1 requires 9VDC 1A power.
- Plug the power adapter into an appropriate power outlet.

- Turn on the power to your LP1.
- Your LP1 will display “LP1 booting ...”
- After about 8 seconds, the LP1 will display “Looperlative LP1” on the top line and the software version on the bottom line.

Setting Audio Levels

To get the best possible audio from your sound system. It is important to correctly set audio levels. When the display is left at the top menu where the software version is displayed for 10 seconds, then the display will show input level on the top line and output level on the bottom line. These are the levels of the digital audio within the unit. If possible, adjust signal levels with other equipment. If this is impossible, then it is possible to adjust the trimmer pots within the LP1 GenB. There are 6 trimmers: right and left input, right and left output, and right and left aux out. These trimmers require a small screw driver to adjust the gain. You should always unplug the LP1 before removing the lid.

If the input audio level is too low or too high, adjust the volume on your audio source. Audio levels should be set as high as possible without distortion.

When using multiple tracks or overdubbing it is possible to overdrive the output of the LP1 and cause distortion. If this occurs, adjust the “All Main Level” from the “All Tracks” menu. A setting of -1 or -2 is often enough.

Recording your first loop

- Press “REC/DUB” to begin recording.
- Play your musical phrase that you want looped.
- Press “REC/DUB” to end the loop and enter overdub mode.
- When you have completed overdubbing to the track, press “REC/DUB” one more time to change from overdub mode to play mode.
- Press “PLAY/STOP” to stop playback of the loop.

Menu Operation

The selector knob allows you to scroll through menu items and to change the value of a menu item. Menu items are displayed on the second line of the panel. To select a menu item:

- Turn the knob until the menu item is displayed.
- Press ENTER.

To change the value of a menu item:

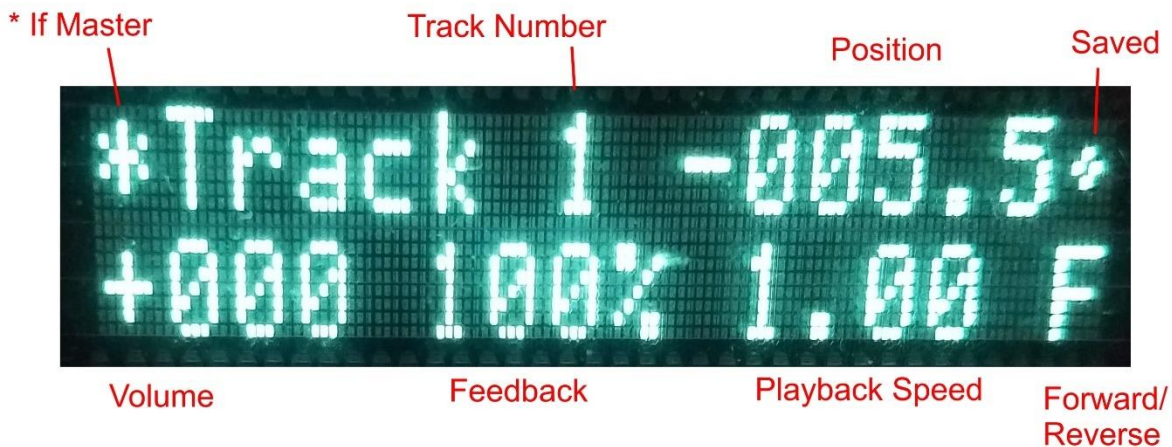
- Select the menu item.
- Turn the knob until the value you want to select is displayed.
- Press ENTER

The MENU button returns the display to the previous menu.

The track selection buttons select a track for recording or changing. After selecting a track, turn the knob to select a menu choice. Selecting a track also allows you to record, overdub, start or stop that track.

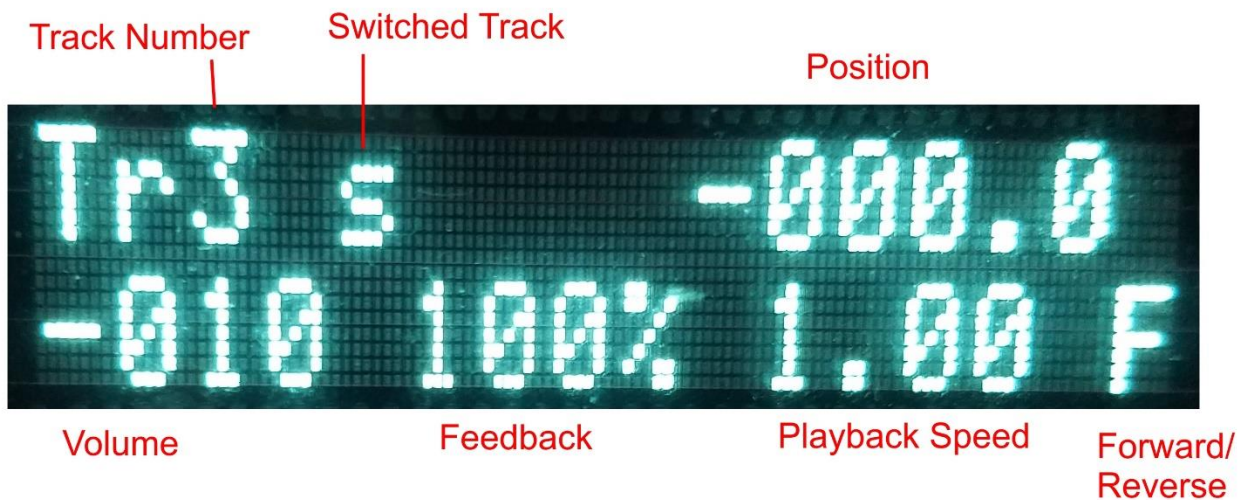
Track Display

When a track is selected, the menu shows information about the track. The basic display which is the default looks like this:



From the main menu item "Simple Display", you can choose the option "Expert" instead of "Basic". The expert display is slightly different as can be seen in the following images.

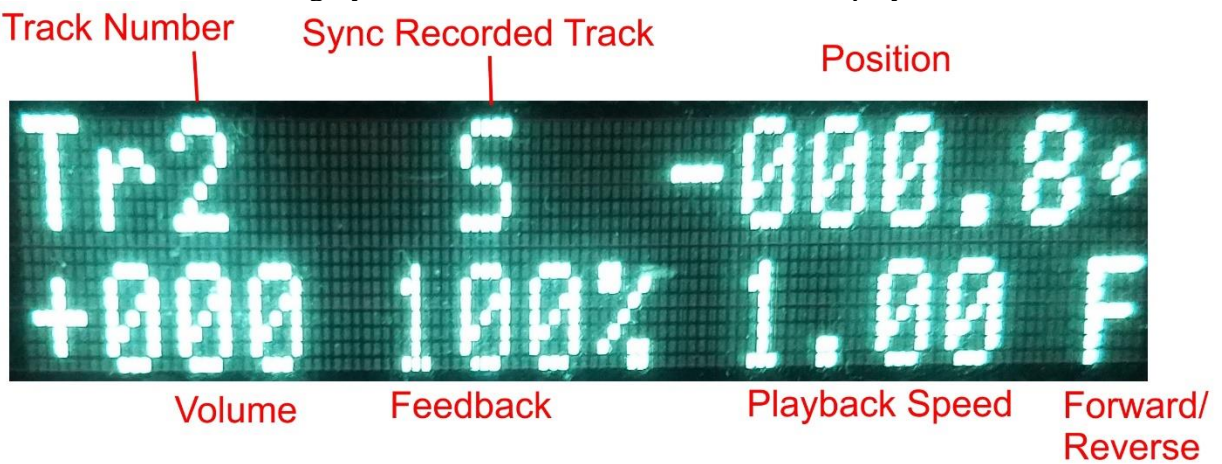
Tracks that are designated in the configuration as switched tracks (see Creating Song Sections) will have a small "s" to indicate the track will be switched.



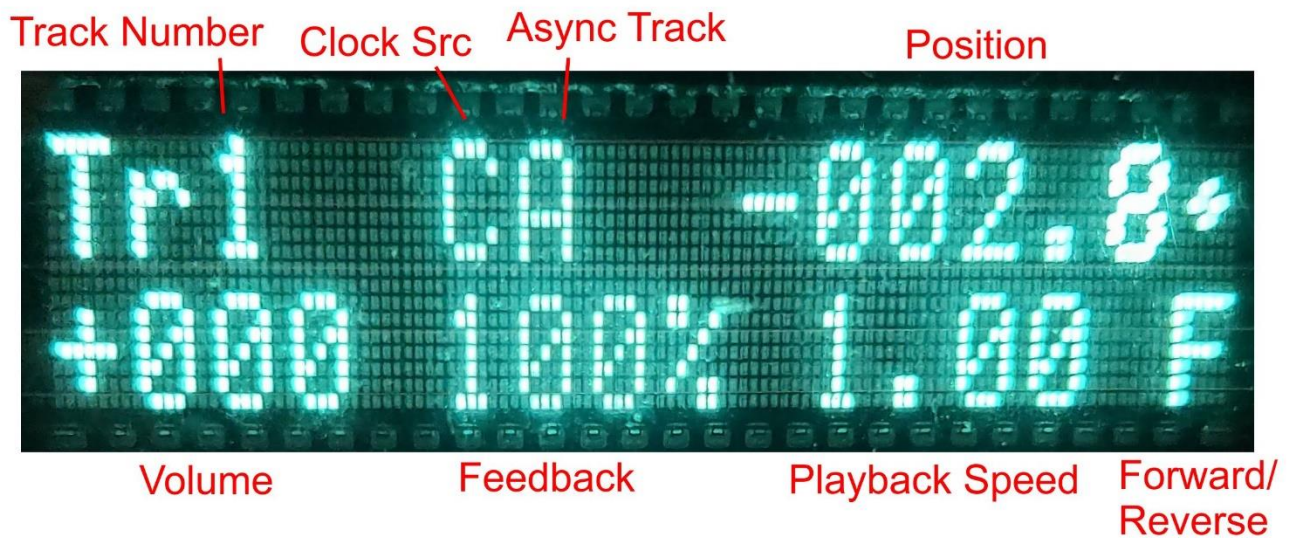
MIDI synchronized tracks will indicate the MIDI clock on the display.



Tracks that were recorded using Sync Record will be indicated on the display.



Tracks recorded with the normal Rec/Dub show up as an asynchronous track. This also includes a clock source track because clock source tracks are recorded as asynchronous. The subsequent child tracks will show as synchronous as shown in previous picture.



Undo

Undo is available in the LP1. It is per-track and there are multiple undos per track. This feature is limited by the available memory in the LP1. For a Gen B LP1, this is around 10 minutes of total audio time. Many manipulations can be undone such as overdub, replace and scramble. Undo layers are created when a track changes. If a track changes another time before the undo layer is completed, then the incomplete layer is abandoned and a new layer is created. This means that changes made in close succession may be saved together on a single undo layer.

If the audio memory runs out, the oldest undo layer from any track is thrown away. The LP1 always maintains preference on retaining the newest undo layers.

Recording and Playing Loops

Recording a new unsynchronized loop

To record a loop to a track:

- Select an empty track (track light is off).
- Press the REC/DUB button or press the MIDI button assigned to this function.
- Play the audio that you want to record.
- Press the PLAY/STOP button or the MIDI button assigned to this function to begin looping the audio.

Recording a new internally synchronized loop

Synchronized loops are loops that are locked in time with each other. In other words, if you have two tracks, the music in those tracks will always stay together. You synchronize a loop to the clock source track. By default, the clock source track is the first loop recorded. You can change the clock source track at any time, which will not affect previous synchronizations.

Any track can be selected as the clock source track using the track menu. To select a clock source track:

- Press the track number button.
- Turn the knob until the front panel displays, "Set As Clock Src."
- Press ENTER.

Or,

- Do nothing, and the first loop recorded will be the clock source track.

There are two methods available to create new synchronized tracks. The first method creates a synchronized track that is the same length as the clock source track.

Method 1 for creating a new synchronized track:

- Select an empty track.
- Press the PLAY/STOP button or equivalent MIDI button. This will create an empty loop of the same length as the clock source track.
- Press the REC/DUB to begin overdubbing on the new empty track.
- Play the audio that you want to record.
- Press the PLAY/STOP button to end overdubbing and continue looping.

Method 2 for creating a new synchronized track:

- Select an empty track.
- Choose the Sync Rec/Dub function or equivalent MIDI button. This begins the recording of a new synchronized track.
- Press REC/DUB or the same button as in the last step to end the track and enter overdub mode on the new track.
- Press REC/DUB or the same button as in the last step to stop overdubbing and simply replay the loop.

Recording a new MIDI synchronized loop

It is possible to use an external MIDI clock source such as a drum machine to create loops that stay synchronized. Recording new MIDI synchronized tracks is very similar to method 2 of recording internally synchronized tracks. However, before you record a MIDI sync track, you need to tell the LP1 how many beats per measure there are. This allows the LP1 to create loops which consist of only complete measures. To set the number of beats measure:

- Press the ALL button on the front panel.
- Turn the knob until the bottom line reads “Beats / Measure”.
- Press the ENTER button.
- Turn the knob until the current number of beats per measure are displayed.
- Press the ENTER button.

After the measure length has been configured and the MIDI clock source is sending clock messages to the MIDI input port of the LP1, you may now record a MIDI sync track. To do this:

- Select an empty track.
- Choose the MIDI Sync Rec function or equivalent MIDI button to start recording.
- To end recording and enter overdub mode, press the same button used in the last step.
- Finally, press the same button one last time to exit overdub mode.
- Your new loop will now be synchronized with the MIDI clock.

If your MIDI clock fluctuates a bit, the LP1 will adjust playback to remain synchronized. The LP1 will try to remain synchronized even if you alter the MIDI clock speed. The results of changing speed are unpredictable and if the speed is changed by a large enough amount the LP1 will lose synchronization. However, this can be an interesting musical technique.

Starting and stopping a recorded track

The PLAY/STOP button starts and stops playback of a track when it is not currently overdubbing or recording. This button is synchronized to the end of loop. Using this button to stop a playing track will be delayed until the loop ends. A USER button or MIDI button can be programmed to perform a “Stop Now” function which does not wait for the end of the loop. Also, “Stop Now” can be selected from the track menu.

To stop all the playing tracks, press the ALL button and then the PLAY/STOP button. The “Stop Now” functions are also available for stopping all tracks.

An important thing to know is that the stop function acts as a mute. To maintain synchronization of synchronized tracks, the audio position of a stopped track continues to move in time. When all tracks are stopped, then the first track to be played will cause all the tracks to shifted in time to allow the track to start playing at its beginning. If more than one track is started after all tracks are stopped, the LP1 will shift all the tracks to allow the longest track to restart at its beginning.

Creating Song Sections

To help create songs with multiple sections, the LP1 can use different tracks for different sections. These tracks are called switched tracks. By default, tracks 3, 4, 5 and 6 are switched tracks. Switched tracks can be asynchronous tracks or synchronous tracks. Typically, track 1 will be recorded as a rhythm track. As the first track recorded, this track will automatically become the clock source track. The following functions which can be assigned to buttons are then used to create and select song sections.

Switch Record

Switch Record stops all other switched tracks at their end, then starts recording of the current track when that happens. If already recording, Switch Record ends recording. The newly created track will be synchronized with the clock source track.

Switch Play

Switch Play stops all other switched track at their end, then starts playing the current track when that happens. Switch Play will also stop recording of another switched track.

Switch Play + CKSR

Switch Play + CKSR is the same as Switch Play, but will also start the clock source track if it is stopped.

Using Switched Commands

To create a song with part A and part B:

1. Select track 1.
2. Set clock source.
3. Record the rhythm part.
4. Select track 3.
5. Switch Record to record part A at the next start of the clock source track.
6. Switch Record to end recording (or any other overdub or play function).

7. Select track 4.
8. Switch Record to record part B at next end of part A.
9. Switch Record to end recording (or any other overdub or play function).
10. Select track 3.
11. Switch play to switch back to part A at the end of part B.
12. Select track 4.
13. Switch play to switch back to part B at the end of part A.

Changing Switch Behavior From End of Part to End of Clock Source

From the main menu, selecting the menu item “Switch Priority” will allow you to change whether the switch function operates on the end of the other part or the end of the clock source track. By default, switch is at the end of the previous part. There are some people that would prefer switching at the next end of the clock source track instead. This could cut the previous part short if it is longer than the clock source track.

Changing Switched Tracks

The main menu item “Edit Switched” will allow you to change which tracks are designated as switched tracks.

Track Bouncing

Because the LP1 is designed to treat each track as an independent looping box, it will sometimes be desirable record a new track from the output of an existing track. This would be the same as taking the output of one looping box into the input of another. The original track can be altered using the various audio manipulations allowed in the LP1, and that altered output will be recorded into the bounce track. Track bouncing can also be used to capture a small portion of a larger loop and repeat it.

There are three bounce functions the same as there are three record functions: bounce, sync bounce, and MIDI sync bounce. The bounce function is asynchronous. The first tap of the bounce button starts the recording and the second tap immediately ends the recording.

The sync bounce function is nearly the same as the asynchronous bounce except that the end of the recording is delayed after the second tap until the new loop is an integer multiple of the clock source track length. The sync bounce function thus gives you a new loop that will remain synchronized with the clock source track.

The MIDI sync bounce gives you a new track that is synchronized with the MIDI clock. The MIDI sync bounce also makes use of the beats per measure setting in the all track menu. When this type of bounce is used, the new track will be an integer number of measures long based on the MIDI clock and the number of beats per measure programmed in the LP1.

Unlike the record functions, the bounce function is always ended by pressing the same button used to start the bounce. After recording ends on the new track, all tracks that are being recorded into the bounce track are stopped. They may be immediately restarted if you desire.

The bounce function automatically chooses the new track that you will record. It always picks the highest numbered track that is currently empty (the front panel light is off). If no track is empty, then the bounce function will not start.

Cue Track

The cue function is used to mark a track as ready to play or record. When used on an empty track, it prepares a track to record the next time that any other track stops. When used on a stopped track, it prepares the track to begin play the next time that any other track stops. This can be used to switch between sections of a song.

Replace

Replace records new audio while erasing the old audio in a track. Press replace once to begin replacing and press it a second time to end replacing. The replace function may also be assigned to a MIDI note. In this case, the replacement starts when the note is pressed, and replacement ends when the note is released.

There are two varieties of this function: replace and replace+original. The replace function replaces while silencing the old audio that is being replaced. The replace+original function continues to play the replaced audio one last time during the replace.

Quantified Functions

There are some situations where it is desired to operate on exact time divisions of a loop. For example, substituting one quarter note in a loop that makes up one measure in 4/4 time. In this case, a quantization value of 4 will be needed to divide the loop in 4 pieces. In MIDI sync recording, we may want to record an exact number of measures. In these situations, we use quantified functions.

There are three ways to set the quantization value.

1. Each track menu has an option “Set Q Steps”.
2. MIDI CC message can set the value for all tracks.
3. Button programming can be used to assign a value at a button press.

“Set Q Steps” in the track menu sets the quantization value on a per track basis and saves the new value to the configuration. This is the only method that is guaranteed to save to the configuration although the other methods may save their value. Simply press ENTER when the track menu shows “Set Q Steps”, then turn the dial to select the new value and press ENTER again.

By default, MIDI CC 126 can be used to transmit a new quantization value for all tracks. This changes the configuration but doesn't immediately save it. If you power off the LP1 before changing any other configuration values, the new value will be lost until sent again. The main menu also allows changing which Continuous Controller (CC) sends the value. The main menu item “Quant CC Num” is used to set which controller can change the quantization value.

When programming buttons (see MIDI or USER Button Configuration), the options that look like “Quant Value 4” will set the quantization for all tracks. This is similar to the MIDI CC behavior in previous paragraph. Since each button can have multiple functions, you can set the quantization value and then immediately run the quantized function from the same button.

Q Replace

Q Replace is very similar to the replace function described in an earlier section. It is used to replace all or a portion of a loop. It differs from replace in that it is based on specific divisions of the original loop. When you press Q Replace, it does not begin replacing until the next division is reached and when ending the replace, it also waits until the next division is reached.

This is useful when creating rhythmic replacements of the original loop. For example, if a loop contains one measure in 4/4 time. You can replace individual eighth notes by setting the number of q steps to 8 and using two Q Replace functions in quick succession.

Q MIDI Sync Rec

This function allows you to record an exact number of measures of a MIDI synchronized track. Like MIDI Sync Rec, you need to set the number of beats per loop in the ALL track menu. Once that is set, the quantization value will be used to record an exact multiple of the beats per loops. For example, if beats per loop is 4 and the quantization value is 2, then 8 beats will be recorded. If you set beats per loop to 1, then the quantization value can be used to record an exact number of quarter notes.

The LED for this function is odd compared to other record functions. Because the exact length of the loop is predetermined, the loop is set blank and immediately changes to overdub mode. It will automatically switch from overdub to play mode at the end of the loop.

Random Restart

This function triggers a track to play once, then pause for a random amount of time before playing again. After each playing of the loop, the pause length is randomly chosen resulting in a track that plays at unpredictable times. To turn off random restart, you must use a stop function on the track.

To adjust the minimum and maximum pause lengths, there are two main menu items: “Rnd Restart Min” and “Rnd Restart Max”. These set the minimum and maximum number of seconds to pause between playing.

If you are using the expert display, a small “r” will appear on tracks that are in random restart mode.

Saving and Loading Track Audio

Track audio can be saved to the internal microSD storage card. Typically, this card is a 16GB card. This storage is maintained even with the power turned off. Storage is done on a per track basis. To save your audio, select a track and then use the front panel knob to select “Save Audio”. When you hit ENTER, you will be prompted to choose a save slot to store the audio for this track.

To bring the audio back into this or another track, select the track that you want to receive the stored audio. Then turn the knob to select “Load Audio”. Again after you press ENTER, you will be prompted to select the save slot that you want to load from.

Audio Manipulations

Being able to record and play multiple loops is useful for musicians. However, the LP1 doesn't stop there. The LP1 is capable of altering the audio in a recorded loop in several ways. These manipulations can be used to assist in creating a unique musical composition that otherwise could not exist without the assistance of the looper.

Volume Control

The volume level of each track can be individually controlled via the front panel or through a MIDI controller. A desktop MIDI control panel can be used to adjust volumes providing a mixing console feel.

In the Main Menu, “Volume Minimum” sets the lowest volume value that a controller will go down to. By default, this number is -127, but a value near -60 is often better.

In the All Track menu, you can save and use volume presets. Volume presets remember the current volume, pan and feedback settings for all tracks. Saving to preset 0 will determine the volume settings that are used when the LP1 powers on.

Fade/Swell

The LP1 can automatically change volume to fade out or swell in. Fade and swell alter the volume setting of the track to create the effect. After using fade, you will need to restore the volume to normal levels to hear any new material placed on that track. This can be done in one of several ways:

- Swell will slowly restore the volume back to its normal level in a reverse effect of fade.
- An expression pedal assigned to track volume can be used to move the volume back to full.
- The volume menu item on the front panel can be used to restore the track volume.
- A volume preset can be used to restore all tracks back to a known setting.

Two settings in the LP1 control the operation of fade and swell. In the All Tracks menu, “Fade Time” is used to determine how many seconds it takes for the fade to complete. In the Main Menu, “Volume Minimum” sets the lowest volume value that fade will go down to. By default, this number is -127, but a value near -60 is often better.

Pan Control

Each track can be panned left or right of center to create a more 3-dimensional feel. MIDI control and front panel control are available for this feature.

Feedback Control

Audio delay lines normally have a feedback control. At 100%, all of the audio that exits the delay line is reinserted at the beginning of the delay. At 0%, none of the audio is sent back to the beginning.

Thus, the feedback level determines how much of the delay output is sent back to the beginning after it is heard delayed.

An audio loop is a long delay line. Audio heard playing from a loop is considered the same as audio exiting a delay line. If the feedback setting on a track is reduced below 100%, then the audio sample is reduced by the feedback setting after it is played. Thus, any feedback setting below 100% will cause a loop to fade. The lower the feedback setting, the faster it will fade.

The feedback setting can be controlled in different ways. The first way is through the track menu. There is a menu option to change the feedback level.

The second way to adjust feedback is to assign a MIDI controller. See the section on programming MIDI controllers to learn how to assign your MIDI controller to the track feedback level.

The last way is to assign buttons to adjust the feedback level. This is useful if you have a MIDI remote control that only has buttons.

Audio Level Presets

Track level, pan, and feedback levels for all tracks can be stored into presets that can be recalled from a single button press or via the front panel menu. To save a preset, set track volume, pan and feedback on all tracks to the desired levels. From the ALL track menu, select “Save Preset #” where “#” is the preset number that you wish to save. Preset 0 is special because it is automatically loaded when the the LP1 is turned on.

Track Volume Fade/Swell

The fade function will slowly lower the track volume until it reaches -127. The fade function remembers the starting volume. The swell function can be used to slowly increase the volume to the remembered starting volume.

Reverse

The reverse function causes the audio to play back in the reverse direction. This would be similar to reversing the direction of an audio tape that is playing. Reversing a track that is playing in reverse will cause it to play forward again.

Pressing reverse while recording a new loop will cause the loop to be ended and will immediately play back the new loop in reverse.

Speed Changing

The LP1 can change the playback speed of a track. Changing the speed will alter both the timing of the notes and the pitch of the notes. Changing the speed of a track to half-speed will shift the notes one octave down. Overdubbing is allowed on a track that has been slowed below normal speed. When the

speed is increased again, the overdubbed audio will increase in pitch.

Speed can be toggled between half and normal using the track menu or by using a button assigned to the half-speed function. The LP1 also allows you to assign a MIDI controller such as a pedal to speed control. This allows you to adjust a track speed to values between half and normal.

Stretching/Shrinking

The LP1 can stretch or shrink a track without changing pitch. Note that this is an imperfect transformation that can result in some artifacts in the audio. Use at your own discretion. From the track menu, you can select one of the following menu items:

Shrink to 50%	Halves the time of the loop
Stretch to 200%	Doubles the time of the loop
Stretch	Allows selection of various stretches from 5% to 200%. Note that some of the values may have significant artifacts depending on the audio.

Mellotron Mode

The original Mellotron used tape loops to generate notes from different sounds. The LP1 offers a set of functions to alter the speed of a loop to generate different notes in a scale. These functions are Octave Lower, Minor 2nd, Major 2nd, Minor 3rd, Major 3rd, 4th, Diminished 5th, 5th, Minor 6th, Major 6th, Minor 7th, Major 7th, and Original Note. These functions change the speed of the looping track. Original Note is normal speed and Octave Lower is half speed. All the other steps are in between Octave Lower and Original Note. Because of this, you will need to select Octave Lower before recording if you wish to use notes higher than the original note.

Scramble

A unique feature of the LP1 is the ability to randomly scramble a track. The scrambling divides a loop into smaller chunks. These chunks are then randomly reordered during playback. Three different varieties of the scramble function are available: slow, medium, and fast

Pressing scramble on a scrambled track will restore it to normal. Each time a track is scrambled, it is scrambled in a different order. If a track is left scrambled, the pattern will repeat each time through the loop.

Re-trigger

The “play re-trigger” function does two things. If the track is stopped, it will begin playing it from the beginning of the track. If the track is already playing, it will instantly rewind back to the beginning of track and start playing from there again. Repeatedly using this function creates a stutter effect.

Configuring the LP1

The LP1 main menu offers ways to configure the device for your specific needs. This section of the document is devoted to the options seen in the main menu.

Edit Group

Track groups are used to manipulate more than one track with a single command. Grouping can be used to create song sections which can be stopped and started together. Grouping can also be used with track bouncing to combine several tracks into a single track.

To create a new group:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP” on the top line of the display.
- Turn the knob until the second line of the display reads “Edit Group.”
- Press ENTER
- The top line will read “Select group:”
- Turn the knob to select the group that you wish to edit.
- Press ENTER.
- The top line will now indicate the group number that you selected.
- Press the track buttons for the track that you want in this group. The track buttons are toggle controls. The first press adds the track, the next press removes the track. The display shows which tracks are selected on the second line.
- Press ENTER when you have selected the tracks that you want in this group.
- Press MENU to return to normal operating mode.

MIDI Channel

To change the MIDI channel that the LP1 responds to:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP” on the top line of the display.
- Turn the knob until the second line of the display reads “MIDI channel.”
- Press ENTER
- The top line will read “MIDI channel”
- Turn the knob to select the channel that you wish.
- Press ENTER.

Noise Gate

The LP1 contains a built-in noise gate to assist in eliminating noise build up when using overdub. The default settings are adequate for most circumstances. If you need to adjust it, there are two parameters: noise gate level and noise gate delay.

Both parameters are adjusted in a similar manner:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP” on

the top line of the display.

- Turn the knob until the second line of the display reads “Noise Gate Level” or “Noise Gate Delay”.
- Press ENTER
- The top line will read “Noise Gate Level” or “Noise Gate Delay.”
- Turn the knob to select the setting that you wish.
- Press ENTER.

Wet/Dry Mix

The main output normally outputs the audio in and the track audio. If you want to output only the track audio and not the input audio, then the wet/dry mix needs to be set to wet only. To do this:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP” on the top line of the display.
- Turn the knob until the second line of the display reads “Wet/Dry Mix”.
- Press ENTER
- The top line will read “Wet/Dry Mix.”
- Turn the knob to select the setting that you wish.
- Press ENTER.

Time Display

The LP1 normally shows track times increasing from 0 at the beginning. If you prefer to see this reversed where the display indicates time until the end of the loop, you can change the setting from the main menu:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP” on the top line of the display.
- Turn the knob until the second line of the display reads “Time Display”.
- Press ENTER
- The top line will read “Time Display.”
- Turn the knob to select the setting that you wish.
- Press ENTER.

Pedal Mode

The LP1 normal respond immediately to pedal changes. However, when switching tracks this can lead to sudden jumps in volume or feedback level. The LP1 offers a mode where pedal changes don't occur until the pedal is brought to about the same location that it was the last time it was changed on the current track. This mode is called “catch first”.

To change the setting:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP” on the top line of the display.
- Turn the knob until the second line of the display reads “Pedal mode”.
- Press ENTER

- The top line will read “Pedal mode.”
- Turn the knob to select the setting that you wish.
- Press ENTER.

MIDI Clock Out

The LP1 is capable of providing a MIDI clock output. This is used to synchronize another LP1, a drum machine, or any other device that accepts a MIDI clock input. The clock output is based on the length of the first track and the number of beats per measure configured in the ALL track menu.

To enable MIDI clock output from the main menu:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP” on the top line of the display.
- Turn the knob until the second line of the display reads “MIDI Clock Out”.
- Press ENTER
- The top line will read “MIDI Clock Out.”
- Turn the knob to select the setting that you wish.
- Press ENTER.

Selecting tracks by changing volume or feedback

When using multiple MIDI continuous controllers (CC) to change volume or feedback, the LP1 can be programmed to automatically change track to the last track modified by a MIDI CC message. To enable this feature:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP” on the top line of the display.
- Turn the knob until the second line of the display reads “Track Follows CC”.
- Press ENTER
- The top line will read “Track Follows CC.”
- Turn the knob to select the setting that you wish.
- Press ENTER.

Mono Aux Out

The LP1 can provide stereo (default) or monophonic auxiliary outputs. The Gen B LP1 has a single stereo aux out pair. Thus can only provide Aux 1. If mono aux out is turned on, then the Aux 1 port is changed to two independent mono aux out ports. This allows having two aux outs, but each out is mono instead of stereo.

Programming the LP1 to use MIDI pedals or dials

The LP1 can accept MIDI CC messages to control volume and feedback. To program a MIDI pedal, follow the following procedure:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP” on the top line of the display.
- Turn the knob until the second line of the display reads “Calibrate Pedal.”
- Press ENTER.
- The display will read “MIDI controller?”
- Change the pedal position and then press ENTER.
- The display will read “Move nn To Min.” “nn” will be replaced by the CC number of the pedal.
- Move the pedal to its minimum position.
- Press ENTER.
- The display will read “Move nn To Max.” “nn” will be replaced by the CC number of the pedal.
- Move the pedal to its maximum position.
- Press ENTER.
- Turn the knob to the desired function that you want to assign to this pedal.
- Press ENTER.

CC De-jitter

Some MIDI controllers produce extraneous CC messages that vary slightly each message. Specifically, this has been seen with some MIDI controllers that take expression pedal inputs. This can cause the LP1 to keep displaying the new volume or feedback setting on the display. This will interfere with menu operation on the LP1. To handle this, there is a main menu item “CC de-jitter”. You can use this menu item to increase the number to instruct the LP1 to ignore CC changes unless they are greater than the number chosen. Many controllers work fine with this setting at 0. However, we have seen at least one controller that requires this number to be set to 2 to avoid spurious display changes.

MIDI or USER Button Configuration

The LP1 can accept MIDI program change messages, MIDI continuous controller messages, or MIDI note messages to activate a variety of functions. To program a button on a MIDI controller, follow the following procedure:

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP1” on the top line of the display.
- Turn the knob until the second line of the display reads “MIDI/USER btn.”
- Press ENTER.
- The display will read “Press button.”
- Press the MIDI button or USER button that the LP1 will respond to.
- The display will indicate which button you selected.
- Turn the knob to change the LP1 function on the second line of the display. This is the function that will be assigned to the selected button.
- Press ENTER to accept the selection.

The MIDI configuration is remembered when the unit is powered off.

Advanced MIDI or User Button Configuration

Each button can perform up to 8 different functions in order with a single button press. When using the

above procedure to assign functions to each button, you are actually assigning a sequence of functions to each button. In the above procedure, you only assign the first step in each sequence.

To assign additional functions in the sequence, you use the track selection buttons to select the sequence position that you want to assign. For example, to assign the second step, press the track 2 button.

EXAMPLE: Assigning the USER 4 button to reverse and half-speed

- Press the MENU button until the main menu is selected. The main menu says “Looperlative LP1” on the top line of the display.
- Turn the knob until the second line of the display reads “MIDI/USER btn.”
- Press ENTER.
- The display will read “Press button.”
- Press the USER 4 button.
- The first line will now read, “USER 4 : 1”.
- Turn the knob until the second line reads, “Reverse Track.”
- Press the track 2 button.
- The first line will now read, “USER 4 : 2”.
- Turn the knob until the second line reads, “Half Speed Tr.”
- Press the track 3 button.
- Turn the knob until the second line reads, “end sequence.”
- Press ENTER to accept the selection.

Network configuration

By default, the LP1 attempts to automatically obtain its network configuration from a DHCP server which is normally a function provided by your network router. If you wish to directly connect the LP1 to a computer then it becomes necessary to manually configure the LP1 network parameters.

All of the network parameters are assigned from the the main menu. These parameters are:

IP Address	This is the IP address that the LP1 will respond to. If you are creating a link from an LP1 to a computer, then the recommended value for this parameter is 192.168.99.2.
Gateway Addr	This is the address of your network router. If there is no router, then it is recommended that you assign the value of your computers IP address to this. For an LP1 directly connected to a computer, the recommended value is 192.168.99.1.
Netmask	This is the network mask for your network. For most small networks, the value of 255.255.255.0 is appropriate. This value must match the network mask assigned to the other devices on your network.

DNS Server This is the address of the domain name server (DNS) on your network. If you don't have one, then assign your computers address to this value. This parameter is only used if you use the “Upgrade” option from the main menu. Upgrade needs the DNS server to locate the Looperlative upgrade server.

Assignable Functions

<i>Function:</i>	<i>Meaning:</i>
Switch Record	See “Switch Record”.
SwitchPlay+CKSR	See “Switch Play + ”.
SwitchPlay	See “Switch Play”.
Sync Rec/Dub	Same as Rec/Dub button except that when recording to track that isn't the clock source track, the track is extended to a multiple of the clock source track length making it synchronized with the clock source track. If there is no clock source track or if the clock source track is the current track, then this operates exactly as the Rec/Dub button.
MIDI sync rec	Same as Rec/Dub button except that when recording a new loop, it is synchronized to the incoming MIDI clock.
Rec/Dub	This is the same as the Rec/Dub button on the front panel. First press begins recording a loop. The second press ends the loop and places the loop in overdub mode. The third press ends overdub and leaves the loop in play mode. Subsequent presses toggle overdub on and off.
Play/Stop Now	This is similar to the PLAY/STOP button on the front panel, but instead of a delayed play and stop, it uses the play now and stop now functions.
Play/Stop	This is the same as the Play/Stop button on the front panel. This is a multifunction button that starts or stops playback of a loop, creates an empty synchronized loop, or closes a loop depending on the current state of the loop.
Replay/All Stop	If any tracks are running, this button immediately stops all tracks. If no tracks are running then it starts playing the tracks that were playing before the very last stop command.
Play Retrigger	Starts playback of a loop from the beginning. If the track is currently playing, it instantly restarts it at the beginning. If the track is stopped, it is started from the beginning.
Play Now	Start playing selected track(s) immediately.

Function:***Meaning:***

Play	Start playing selected track(s) when loop counter reaches the beginning.
All Play Now	Start playing all tracks immediately.
All Play	Start playing all tracks when loop counters reach the beginning.
Stop Now	Stop playing selected track(s) immediately.
Stop	Stop playing selected track(s) when loop reaches the end.
All Stop Now	Stop playing all tracks immediately.
All Stop	Stop playing all tracks when the loops reach the end.
All Tracks	Select all tracks for next command.
Select Track(n)	Select track n (n = 1,2,3,4,5,6,7,8) for next command.
Select Group(n)	Select group n (n = 1,2,3,4,5,6,7,8,9,10) for next command.
Track Erase	Erase selected track(s).
Track Level	Change track level. This function instantly takes you to the set track level menu on the front panel. Track level still needs to be adjusted using the knob on the front panel when you use this function.
Set As Clock Source	Select the current track as the clock source track for newly synchronized tracks.
Next Track	Select the next higher track number. If all tracks were selected, then track 1 is selected.
Prev Track	Select the next lower track number. If all tracks were selected, then track 8 is selected.
Double	Duplicate the loop making it twice as long.
Triple	Make the loop three times as long copying the loop to fill the new time.
Quadruple	Make the loop four times as long copying the loop to fill the new time.
Reverse Track	Reverse direction of playback of the currently selected track(s).
Half Speed Tr	Toggle between normal speed and half speed for the currently selected track(s).
Feedback 100%	Set the feedback level for currently selected track(s) to 100%
Feedback +10%	Increase the feedback level for currently selected track(s) by 10%
Feedback -10%	Decrease the feedback level for currently selected track(s) by 10%
Feedback +5%	Increase the feedback level for currently selected track(s) by 5%
Feedback -5%	Decrease the feedback level for currently selected track(s) by 5%

Function:

Meaning:

Cue Track	Marks selected track(s) as ready to play. They will be started from the beginning as soon as any other track stops.
Replace	This function is used to replace a portion of a track. First press of a button assigned to this function begins a replacement and the second press ends the replacement. The track light will flash red during a replacement. The original track contents are lost and not played during replacement.
Replace+Original	This is identical to the “Replace” function except that the original track contents are played during the replacement.
Q Replace	This function is used to replace a quantized portion of a track. First press of a button assigned to this function begins a replacement and the second press ends the replacement. Button presses are not activated until the next quantization of the loop is reached. See section above on Quantized Replace to learn how to set the quantization points. The track light will flash red during a replacement. The original track contents are lost and not played during replacement.
Q Replace +Original	This is identical to “Q Replace” but the original audio is played while the replace is being made.
Assign to AUX 1	A button assigned to this function will cause the current track or group to be assigned to the AUX 1 output instead of the main output.
Assign to AUX 2	A button assigned to this function will cause the current track or group to be assigned to the AUX 2 output instead of the main output.
Assign to MAIN	A button assigned to this function will cause the current track or group to be assigned to the main output.
MIDI Stop	This function sends a MIDI STOP message to the MIDI output.
MIDI Start/Stop	This function is a toggle that sends MIDI START on odd numbered presses and MIDI STOP on even numbered presses.
Fast Scramble	Splits the loop into 0.1 second long pieces and randomly reorders the pieces.
Medium Scramble	Splits the loop into 0.4 second long pieces and randomly reorders the pieces
Slow Scramble	Splits the loop into 1.6 second long pieces and randomly reorders the pieces
Bounce	This takes the output of this track and any manipulations done to it and records them to a new track until this button is pressed a second time.

Function:

Meaning:

Sync Bounce	This takes the output of this track and any manipulations done to it and records them to a new track until this button is pressed a second time. When bounce is pressed the second time to end the bounce, the new loop continues to record until it is long enough to remain synchronized with the clock source loop.
MIDI Sync Bounce	This is similar to the Sync Bounce function except that synchronization is maintained with the external MIDI clock rather than the internal clock source track.
MIDI Bypass	This function can be assigned to a front panel button. This function toggles MIDI processing on and off. When MIDI is bypassed, the LP1 will no longer respond to MIDI input and will instead pass all MIDI input to the MIDI output. It is important to use a front panel button for this function since all MIDI data is ignored when bypassed.
Use Preset (n)	Use volume preset n (n=0,1,2,3,4,5,6,7,8,9). A volume preset sets the volumes, pans, and feedback for all tracks to a level previously remembered. Volume preset 0 is loaded when the LP1 is first turned on.
Pan Center	Pans current track(s) to center (equal volume setting for both left and right).
Fade/Swell	When the volume of a track is at its normal level, this function will slowly lower the volume of the track to fade it out. Fade actually alters the track volume to fade the track. If the track volume is at its faded level, then this function cause the track to slowly increase in volume until it returns to its original volume before the fade.
Fade	Only fades a track as described in the Fade/Swell function
Swell	Only swells a track as described in the Fade/Swell function.
Copy	Creates a copy of the current track in an empty track. It will always copy to the highest numbered track that is currently empty.
Undo	Activating undo will remove the last overdub recorded in the LP1. Pressing undo a second time (redo) will bring the last overdub back. Undo will only work if the last overdub was done on a track shorter than 30 seconds. Also, undo data will be erased when a track is recorded or bounced to.
Octave lower	See Mellotron mode
Minor 2nd	See Mellotron mode
Major 2nd	See Mellotron mode
Minor 3rd	See Mellotron mode

Function:***Meaning:***

Major 3rd	See Mellotron mode
4th	See Mellotron mode
Diminished 5th	See Mellotron mode
5th	See Mellotron mode
Minor 6th	See Mellotron mode
Major 6th	See Mellotron mode
Minor 7th	See Mellotron mode
Major 7th	See Mellotron mode
Original Note	See Mellotron mode
Except Track	This selects all tracks except for the current track. This is useful for stopping all but the current track.
Track level 0	Set track level at +000.
Track level -5	Reduce track level by 5.
Track level +5	Increase track level by 5.
Shrink to 50%	See “Stretching/Shrinking”.
Stretch to 200%	See “Stretching/Shrinking”.

Drum Machine

Starting version 2.52 of the LP1 software, the LP1 has a basic drum machine built-in. This drum machine support 64 programmable patterns using up to 8 different sound samples. The sound samples may be uploaded to the device and can be any sounds that you like. Typically, these sounds would be the various drums in a drum kit, but the LP1 doesn't limit your creativity in choice of sounds.

To upload new samples, you need to use the LP1Ctrl application version 2.52 or higher. You will need a computer capable of running the Java application with network connectivity between the computer and the LP1. Typically, you would connect both the computer and the LP1 to your local network in your home or studio. The GenB LP1 can be connected directly with an Ethernet cable to your computer.

Drum Machine Menu

The drum machine menu is accessed by pressing and holding the ALL button for 2 seconds. The menu has the following items:

	Description
Start	Starts drum machine playing current pattern
Stop	Stops the drum machine from playing
Set BPM	Used to change the drum machine tempo
Select Pattern	Used to immediately change to a different stored pattern
Edit Pattern	Used to edit the current pattern

Drum Gains	Leads to a sub-menu for adjusting gains and pans
Clock Out	Used to change the clock output choice
Audio Output	Used to change the audio output choice

Drum Patterns

Drum patterns contain the pattern of which samples are played on which beat. Along with each pattern, the sample volumes, sample pans, and tempo are stored with the pattern. Thus changing pattern will also change tempo, volumes and pans.

The actual pattern is a series of beats. There are 2 bars in each pattern. There are 4 quarter notes in each bar. There are 24 beats in each note. Tempo is expressed as quarter notes per minute. Any of the 8 samples may be triggered on any beat.

The “Edit Pattern” menu choice starts the pattern editor. The knob in the pattern editor scrolls through the beats. The first line of the display indicates bar, quarter note, and beat. The eight track buttons are used to toggle a sample on the current beat shown. Pressing “1” enables sample 1 to trigger on the current beat. Pressing “1” a second time disables sample 1 on that beat.

Drum Clock Out

The clock out choices are:

	Description
Internal	Drum machine provides MIDI clock internally only
Int + MIDI Out	Drum machine provides MIDI clock internally and also out the MIDI output connector on the back of the LP1
Off	Drum machine doesn't provide MIDI clock

The drum machine generates clock to the internal looper via the MIDI clock interface in the looper. This means that you should not have MIDI clock provided from an external source to the LP1 at the same time that you are using the drum machine. This will result in MIDI clock being seen from both sources at the same time and will confuse recognition of the clock. The internal MIDI clock path is very efficient and actually provides more information to the looper than external MIDI clock. The internal path informs the looper of the tempo before the first MIDI clock pulse is received by the looper. This allows recording a loop as soon as the drum machine is started.

Audio Output

Audio output by default goes to the main audio out. This can be switched to the aux output using the menu.

Starting and Stopping

The menu items “Start” and “Stop” can be used to start and stop the drum machine. Alternatively, these functions can be programmed to a MIDI or front panel button.

Tips and Special Techniques:

Chorus/Verse/Bridge (deprecated)

Please use the section switch functions described in “Creating Song Sections”. The following is left in the manual for an example of how commands can be combined.

The LP1 is very versatile and does not impose song structure on your composition. However, there are situations where musicians will use the LP1 in a traditional song structure of three parts. This section is intended to assist people attempting to do this.

Our goal here is to assign five buttons:

1. REC/DUB
2. PLAY/STOP
3. Change to section 1
4. Change to section 2
5. Change to section 3

Buttons 1 and 2 are simple. Button 1 is assigned to the built-in REC/DUB function and button 2 is assigned to the PLAY/STOP function. Note that we are using the asynchronous REC/DUB and the PLAY/STOP that waits until the loop end. This is important.

Buttons 3, 4 and 5 are all similar but slightly different. They all require the use of the advanced button programming which allows multiple steps to be assigned to a single button push. These three buttons should be assigned as follows:

<i>Button</i>	<i>Step 1</i>	<i>Step 2</i>	<i>Step 3</i>	<i>Step 4</i>	<i>Step 5</i>
3	Select Track 1	Cue	Except Track	Stop	Select Track 1
4	Select Track 2	Cue	Except Track	Stop	Select Track 2
5	Select Track 3	Cue	Except Track	Stop	Select Track 3

Once we have programmed these five buttons, we use them as follows:

To record the first section of the song, we select track 1 by pressing button 3. Then we press button 1 to begin recording. When the loop for this section is done, we press button 2 to end the recording. At this point, our first section is playing.

To record the second section, we press button 4 and immediately start playing the second section after the first section stops. To end the recording of the second section, we press button 2.

To record the third section, we press button 5 and immediately start playing the third section after the current section stops. To end the recording of the third section, we press button 2.

Once the sections are recorded, buttons 3, 4 and 5 can be used to switch sections. The section will switch to the new section after the current section stops.

Software Upgrades

The LP1 is designed for future upgrades. Looperlative will periodically offer new features over the Internet. Upgrade announcements and instructions are posted to the Looperlative support site. Go to the Looperlative web site: <http://www.looperlative.com> for more information.

LIMITED WARRANTY

This product is warranted to the original consumer purchaser to be free from defects in materials and workmanship under normal installation, use and service for a period of one (1) year from the date of purchase as shown on the purchaser's receipt.

The obligation of Looperlative Audio Products under this warranty shall be limited to repair or replacement (at our option), during the warranty period of any part which proves defective in material or workmanship under normal installation, use and service, provided the product is returned to Looperlative Audio Products, transportation charges prepaid. Products returned to us must be accompanied by a copy of the purchase receipt. In the absence of such purchase receipt, the warranty period shall be one (1) year from the date of manufacture.

This warranty shall be invalid if the product is damaged as a result of defacement, misuse, abuse, neglect, accident, destruction or alteration of the serial number, improper electrical voltages or currents, repair, alteration or maintenance by any person or party other than our own service facility, or any use violative of instructions furnished by us.

This one-year warranty is in lieu of all expressed warranties, obligations or liabilities. Any implied warranties, obligations, or liabilities, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, shall be limited in duration to the one year duration of this written limited warranty. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

In no event shall we be liable for any special, incidental or consequential damages for breach of this or any other warranty, expressed or implied, whatsoever. Some states do not allow the exclusion or limitation of special, incidental or consequential damages so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.