# Stem Ripper - Operation Manual
# ALM050

**Version 0.2 · Firmware v101 · Sept 18 2025**

## Contents

# I INTRODUCTION

The Stem Ripper is a compact 8 channel audio recorder designed for immediate full patch recording without the need for external hardware. Capture all audio stems of a patch with ease.

Patch stems are recorded directly to a micro SD card which can then be easily transferred to a computer to mix, edit or archive patches. Each input is recorded as an individual track in a 16bit 44.1kHz multichannel date stamped WAV file. Record time is limited only by SD Card size. Two additional tracks within the output WAV contain a configurable stereo mix down of the inputs. The module has large 20Vpp per input headroom with LED clip indication if exceeded.

An optional 2HP 'Thru' output expander duplicates the 8 inputs to a row of unbuffered outputs, eliminating the potential need for stacking patch cables at the expense of more case real estate.

# 2 Features

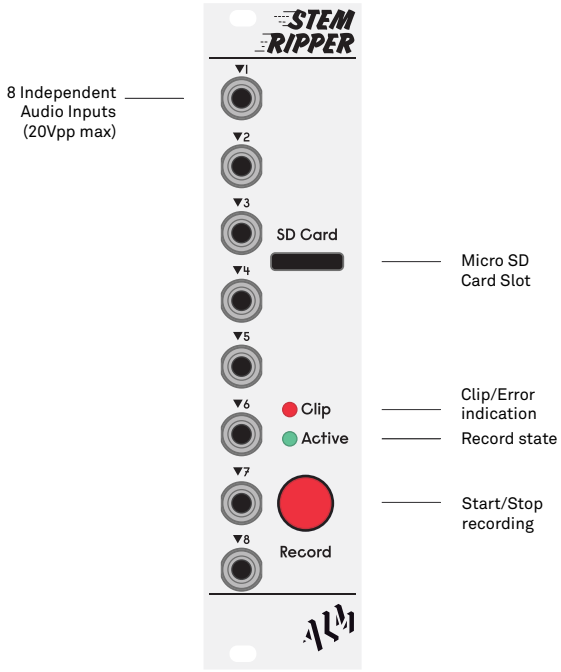
- Simple quick full patch audio recording.
- 8 independent audio tracks recorded as 44Khz or 48Khz, 16bit or 32bit float Wavs
- Direct recording to a micro SD card with recording time limited only by SD card size.
- Multichannel WAV file output for easy drag and drop functionality.
- Additional fixed stereo mix tracks with configurable levels.
- Accurate automatic date stamping of recordings with battery backed clock.
- 20 Vpp headroom per input with LEDs for clip indication and recording status.
- Optional 'Thru' expander that allows signal to pass unbuffered through the Stem Ripper.
- Up to 1Tb sized SD cards supported.
- Skiff friendly with reverse power protection.
- 2 Year Warranty.
- Made in England.

## 2.1 Technical Specifications

- **Supply:** +12V 150mA / -12V 20mA
- **Size:** 6HP
- **Depth:** 32mm
- **Headroom:** 20Vpp per channel (approx)
- **Noise Floor:** -80 dB (approx)

# 3 CORE OPERATION

## 3.1 Panel Layout




## 3.2 General Usage

The 8 inputs along the left hand side of the Stem Ripper allow 8 independent audio channels to be processed and recorded to a micro SD card.

To begin recording, first patch up to 8 audio sources into the 8 inputs of the Stem Ripper, then insert an appropriate SD Card (see SD Card appendix) facing upwards into the slot on the front panel. The Green LED will glow dimly to indicate the card is mounted and ready to record. Press the record button to start the new recording and jam for as long as you have space for on the card. The green LED will light to show recording is ongoing while the red LED will show if any of the input sources are too loud and are clipping. Each channel will handle approx 20Vpp (Volts peak to peak signal) which is close to Eurorack maximum signal level.

Press the record button again to stop the recording. The green LED will turn off and a new date stamped and numbered 10 channel WAV file will be created on the SD card in the 'alm-stem-ripper' directory. You can press record again to repeat the process and create another file (files are not overwritten).

When your recording session is finished you can remove the SD card and insert into your computer, and edit the stems in your DAW or audio editing program. Do not remove the SD Card whilst recording is occurring (green light). This will corrupt the recording and possibly the card.

The optional 'Thru' expander module can be used to pass audio signals through the module unbuffered whilst recording. 'Mult' type cables can also be used for this purpose.

## 3.3 LEDs

The two LEDs on the panel provide feedback to the current state.

| LED State | Meaning |
|---|---|
| Green LED glowing dimly | Ready to record to SD card |
| Green LED glowing brightly | Recording |
| Red LED lit | An input is too loud (clipping) |
| Both LEDs flashing | Error - see below |

## 3.4 Errors

If an error occurs, the two LEDs on the front panel will flash alternately. Common errors are:

- SD card not formatted correctly
- SD card too slow (see SD Cards appendix for minimum required speeds)
- SD card corrupted
- SD card out of space

Pressing the record button will acknowledge the error and stop the LEDs flashing.

## 3.5 Created Files

Each of the 8 'stems' will have its own channel (3-10) in the resulting multitrack WAV file, as well as two extra channels (1-2) containing a 'fixed' stereo reference mix of the entire recording (Each channel is mixed at approx -6dB by default).

The first time an SD card is used with the Stem Ripper, a folder named *alm-stem-ripper* will be created on the root of the card in which future recordings will be stored.

Recordings are named in the following format: 'PREFIX-stem-rip-DD-MM-YYYY-NUM-CHUNK.wav'

| | |
|---|---|
| PREFIX | Optional text set by a configuration file (See config file appendix) |
| DD-MM-YY | The date of the recording |
| NUM | Increases for each recording on the same date |
| CHUNK | When max file size of 4Gb is reached a new file is created and this is increased |

A 4Gb, 10 channel WAV file at 44.1KHz, 16bit will contain approximately 81.1 minutes of audio. There is a possibility of slight discontinuities between saved 4Gb chunks.

See the Working with Multi Channel WAV files Appendix for working with Mulichannel file formats in your DAW.

# 4 LIMITED WARRANTY

From the date of manufacture this device is guaranteed for a period of 2 years against any manufacturing or material defects. Any such defects will be repaired or replaced at the discretion of ALM. This does not apply to:

- Physical damage arising for mistreatment (i.e. dropping, submerging etc).
- Damage caused by incorrect power connections.
- Overexposure to heat or direct sunlight.
- Damage caused by inappropriate or mis-use including physical 'modding'.
- Use of incorrect or unofficial firmware.

No responsibility is implied or accepted for harm to person or apparatus caused through operation of this product. By using this product you agree to these terms.

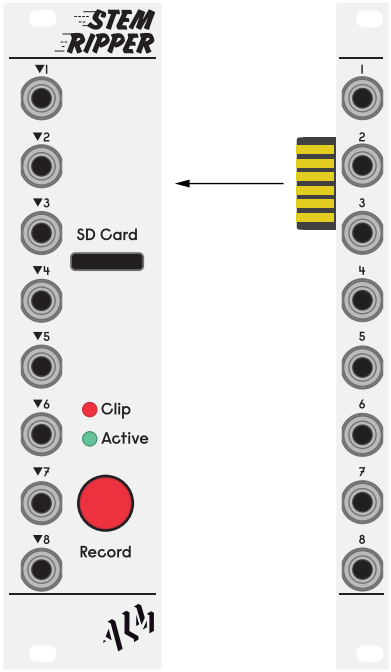
# 5 SUPPORT

For the latest news, additional info, downloads and firmware updates please visit the ALM website at busycircuits.com and follow @busycircuits on Twitter and Instagram.

Questions? Email help@busycircuits.com.

# 6 APPENDIX

## 6.1 'Thru' Expander Module




The 'Thru expander' is an optional 2hp utility module which simply plugs into the side of the Stem Ripper and allows signals to pass unbuffered through the stem ripper.

Consider this an alternative to using more complicated patching or stackable type patch cables at the expense of 2hp extra space.

## 6.2 Configuration

### 6.2.1 Setting the Internal Clock

The Stem Ripper uses an internal battery to keep time in order to accurately name the WAV files with the date of the recording. To change the time/date follow these steps:

1. Create an optionally empty file called *time.txt* on your computer.
2. Insert the micro SD card you're planning to use into your computer.
3. Drag and drop *time.txt* into the *alm-stem-ripper* folder on the SD card.
4. Insert the SD card into the Stem Ripper and power on.
5. The Stem Ripper will update its internal time and delete *time.txt* automatically.

*Note:* Due to daylight savings time the recorded files may have an incorrect creation time by 1 hour.

### 6.2.2 Config File

An option file named *config.ini* can be added to the *alm-stem-ripper* directory containing the following:

```
; Example config file for the Stem Ripper. This is an ignored comment.
; If this file is not present, options are all set to defaults here.

[general]               ; section name
DoubleTap=Yes           ; Double click record button to stop recording
                        ; Defaults to 'no'
FilePrefix=xyz          ; Optional prefix to add to all saved WAV filenames.
                        ; Defaults to nothing.

SampleRate=44100        ; Sets the recording sample rate,
                        ; can be 44100 (default) or 48000

SampleFloat=No          ; If set to 'Yes' Wav file samples are stored as
                        ; 32 bit floats otherwise 16 bit (default)

[mix]
left-1 = 30             ; L/R Mix levels for each channel.
right-1 = 30            ; Linear percentages 0-100 default 30
left-2  = 30
right-2  = 30
; .. and so on left-3, right-3 etc
```

The values in the config file can be adjusted to customise the record button functionality, optional file prefix, and channel levels if desired.

## 6.3 Working with Multi Channel WAV Files

Many DAWs such as Reaper and Apple Logic will support simple drag and drop functionality for multi channel WAV files. Drag the WAV file into your DAW and tracks for each channel should be automatically created.

Other DAWs such as Ableton Live do not support WAV files with more than 2 channels, so the extra 8 channels produced by the Stem Ripper will need to be extracted before editing in third party software.

There are various free multi-platform options for separating the individual tracks:

- RME Multichannel WAV File Batch Processor
- OCEN Audio
- Command line utilities
  - Sox

- FFmpeg

Once extracted individual track WAV files can be imported into your DAW.

## 6.4 Appropriate SD Cards

SD cards up to 1Tb are supported by the Stem Ripper. It is extremely important to use cards from a well known brand intended for high performance type applications. Beware of 'fake' cards with poor performance.

It is strongly recommended to use cards rated UHS Speed Class 3 (U3) 30Mb/sec or above.

Class 10 'UHS Speed Class 1' cards with a minimum speed of at least 10Mb/sec may work but are not recommended.

*Slower cards will not work!*

The Stem Ripper will abort the recording if the card does not meet performance requirements and LEDs will flash to indicate error. If this occurs you should try a different card!

Higher quality sample rates and was formats (i.e 32bit float vs 16bit samples) will require more storage and thus a faster card! Keep in mind the noise floor stays the same.

SD Cards should be formatted as Fat32 or better.

## 6.5 Battery Replacement

The Stem Ripper uses a small CR2032 coin cell battery to keep the internal clock updated when your Eurorack system is powered off. The battery should last for many years and can be replaced.

The battery is accessible from the lower side of the module next to the SUB connector. It can be carefully pushed out from the rear of the batter holder with a small screw driver or similar. When replacing the positive side of the battery should face upwards towards the module face plate.

## 6.6 Firmware Updates

With the unit unpowered, connect a USB cable from the port at the left side of the PCB to a computer. The Stem Ripper will appear as a standard removable storage device. Copy a valid firmware file to the root directory to update. When complete, the Stem Ripper will automatically eject once the update completed and is ready to use powered normally (any 'unmount' errors from the computer can be safely ignored).