RHYTHM DESIGNER RD-8

Classic Analog Drum Machine with 16 Drum Sounds, 64 Step Sequencer, Wave Designer and Dual-Mode Filter
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Thank you
Thank you very much for expressing your confidence in Behringer by purchasing the RD-8 Rhythm Designer with 16 original drum sounds, 64-step sequencer, integrated Wave Designer, integrated dual-mode filter, 11 independent analog outputs plus a mono mix, 16 authentic step pads, 16 pattern changes per song and an easily readable 7-segment 4-character LED display for temps.

Important Safety Instructions
Terms marked with this symbol carry electrical current of sufficient magnitude to constitute risk of electric shock.
Use only high-quality professional speaker cables with ¼” TS or twist-locking plugs pre-installed. All other installation or modification should be performed only by qualified personnel.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer’s instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

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LIMITED WARRANTY
For the applicable warranty terms and conditions and additional information regarding Music Tribe’s Limited Warranty, please see complete details online at musictribe.com/warranty.

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1. Introduction

An ultra-affordable leap into the warm world of analog drum beats, the RD-8 gives you the power to create fascinating rhythms with incredible power and ease. The RD-8’s pure analog signal uses legendary analog circuitry with some additional pots for more parameters.

The RD-8 is ideal for the studio and/or the road. Owning an RD-8 gives you all the power of a classic drum machine in a flexible package with the ability to create bewildering beats.

1.1 Before you get started

The RD-8 was carefully packed in the factory to guarantee safe transport. Nevertheless, we recommend that you carefully examine the packaging and its contents for any signs of physical damage that may have occurred during transit. If the unit is damaged, please do NOT return it to us, but notify your dealer and the shipping company immediately, otherwise claims for damage or replacement may not be granted.

1.1.1 Initial operation

Be sure that there is enough space around the unit for cooling purposes and, to avoid overheating, please do not place the RD-8 on high-temperature devices such as radiators or power amps.

WARNING: The RD-8 is supplied with a DC power adapter that meets the required safety standards. Do not use any other power adapter.

WARNING: Please make sure that all units have a proper ground connection. For your own safety, never remove or disable the ground conductor from any units.

1.2 The product manual

This product manual is designed to give you both an overview of the RD-8, as well as detailed information on each of the controls and parameters. The manual is based on the initial software release, V1.1.8. Further features and updates will be added later so please regularly check for software updates. You will find an overview of the physical control elements in the next chapter.

1.3 Preparation

CAUTION: Remember to turn your monitors/loudspeakers on last when powering up your system. Turn your monitors/loudspeakers off first when powering down your system.

2. Features

A Past Masterpiece Rejuvenated

Great care has been taken in designing the RD-8 to achieve new possibilities in beat creation by reviving a timeless analog design from one of the best classic drum machines of yesterday. By creating a fresh modern take on a characteristic drum machine, the RD-8 gives you the power to harness the phenomenal sound of the original. Classic bass drums through to sizzling hi-hats can be manipulated to take your rhythm conception to the next level. This is no digital clone, it’s an analog beat making monster.

Powerful and Feature Rich Sequencer

The RD-8 features what we believe to be one of the most powerful step sequencers ever created. Improved workflows increase productivity making complex song creation simple. The 64-step sequence with storage of up to 256 patterns and 16 songs allows complicated song arrangements.

A Design for Life

Designed for life and live performance, including all new features for live use in each of the sequencer modes: Step Repeat, Note Repeat, Real-Time Triggering and live Step-Overdubbing. Enabling recording in Pattern Launch mode to build up song structures on the fly, switch back to Manual Mode at the touch of a button, and then use AutoFill to introduce more variations. Cue up another song from memory, without interrupting playback, so you can literally perform entire sets straight from the one machine.

Advanced Dual-Mode Filter

To add new possibilities to the RD-8 it has a highly-flexible 12 dB filter, which lets you freely experiment with the cutoff frequency and resonance to create out-of-this-world beats. RD-8’s HPF button toggles between LPF (in-pass filter) and HPF (in-pass filter). Fluid sweeps of the filter’s CUTOFF knob can be recorded straight into the sequence and can be further tweaked in the Step Editor.

Wave Shaping Goodness

The integrated Wave Designer has individual ATTACK and SUSTAIN controls for adding another dimension to drum beats. Sounds can be controlled in new ways to provide exciting new tones.

Polymer Mode

RD-8 gives you the power to control loops in new ways with the Loop Overlay function, which generates continual variations and Polymeric and to add spice to your beats. With the Loop Overlay function, you can set different sequence lengths for each of the drum tracks independently to create complex overlapping rhythms and make your song structures really evolve.

Parameter Chaining

Set separate chain preferences for each of your parameters, allowing them to persist globally or to switch on song or pattern changes. Parameters include Tempos, Swing, Flash, Probability, independent track mutes/solos, FX bus assignments, Filter knobs and sweeps for enhanced real-time control. Patterns can be changed on the fly for further creative control when using the RD-8 as the heart of your live setup.

Creative Auto Fill

The auto fill function lets you make on the fly changes and gives that extra touch to your compositions by adding fills at any point in a song. This gives the RD-8 a musical edge when it comes to bringing songs to life.

USB Control

To bring the RD-8 into the modern world USB has been added for sync and MIDI triggering. The RD-8 can be controlled by a DAW if required. Songs and patterns exchanged, or individual sounds triggered by the DAW sequence.

Trigger Happy Controls and Connectivity

The RD-8 has 29 knobs, 5 switches and 19 buttons, all laid out in a highly-intuitive format that puts the fun back into your drum beat creation. Input and output connections include: audio input/output, MIDI input, output and thru over USB and 5 pin MIDI din ports. With 3 trigger outs the RD-8 lets you control external synths and hardware sequencers to create songs with a digital audio workstation (DAW) in sight. Full live performances can be made using these extra outputs by controlling other units. The RD-8 can also send and receive clock information with highly accurate timing to sync to the outside world.

You are covered

We always strive to provide the best possible customer experience. Our products are made in our own Music Tribe factory using state-of-the-art automation, enhanced production workflows and quality assurance labs with the most sophisticated test equipment available in the world. As a result, we have one of the lowest product failure rates in the industry, and we confidently back it up with a generous warranty program.

3. Front and Rear Panel Control Layout

3.1 Top Controls

3.1.1 Volume Section

- MASTER – Controls the main output level.
- PHONES – Adjusts the headphones level. NOTE: The headphones signal is taken before the Wave Designer and Filter for monitoring purposes. This means the Wave Designer and Filter are not audible in the headphones.

3.1.2 Analog Filter Section

- CUTOFF – Adjusts the cutoff frequency of the filter.
- HPF – Toggle the filter between HPF (in-pass filter) and LPF (in-pass filter, default).
- ON – Engages the filter into circuit when illuminated.
- RESONANCE – Adjusts the resonance of the filter. This emphasizes the frequencies around the cutoff point.
3.1.3 Wave Designer

- **ATTACK** – Controls the attack portion of the Wave Designer circuit. Turn clockwise (CW) to reduce the attack portion of the selected signal.
- **S sustain** – Controls the sustain portion of the Wave Designer circuit. Turn CW to reduce the sustain portion of the signal and turn CCW to lengthen the sustain.

3.1.4 Edit Section

- **SAVE** – Save a song or pattern to a memory slot.
- **COPY** – Copy pattern from one location to another memory location.
- **ERASE** – Delete the selected song, pattern or settings.
- **DUMP** – Performs a MIDI SysEx Dump of pattern, song or settings.

3.1.5 Mode Section

- **SONG** – Enter Song Mode. Cue 1 of 16 songs.
- **PATTERN** – Enter Pattern Mode. Use the 16 available patterns to build your song.
- **STEP** – Shows each available step for the selected voice (up to 64 steps per pattern).

3.1.6 Sync Section

- **CYCLE** – Cycles through the various SYNC options when the sequence is stopped. Internal, MIDI, USB or TRIG (External Clock) options.
- **INTERNAL** – The unit is the sync master.
- **MIDI** – Sync is taken from the MIDI in port.
- **USB** – Sync is taken from the USB port.
- **TRIG** – Sync is taken from the External Clock input.

3.1.7 Playback Controls

- **TAP/HOLD** – Set the tempo of the unit with 5 taps. Hold for quick macro control.
- **DISPLAY** – Multi function 4-character display.
- **RECORD** – Enable/disable record mode.
- **STOP** – Stops the currently playing song or pattern.
- **PLAY/PAUSE** – Play or pause the current song or pattern.
- **DATA** – Encoder for data editing.
- **DATA MODE** – Cycles through the various Data Modes. Tempos, Swing, Probability and Flam.
- **TEMPO** – Adjust the Tempo parameter when selected with the DATA encoder.
- **SWING** – Adjust the Swing parameter or shuffle feeling when selected with the DATA encoder (50% straight to 75% full swing).
- **PROB** – Adjust the probability factor of steps triggering.
- **FLAM** – Adjust the FLAM width.

3.1.8 Auto Scroll Section

- **AUTO SCROLL** – Step Mode: Keep Playhead visible. Pattern Mode: Advance song when loop expires. If Auto Scroll is enabled for a pattern that has more than 16 steps, when the Playhead advances beyond a 16-step boundary, the steps will automatically switch pages to stay in sync with the Playhead.
- **BANKS** – White shows bank position of Playhead in current pattern. Red shows currently viewed bank position.
- **<< (POSITION MOVE LEFT)** – Step Mode: Choose viewed bank position. Pattern Mode: Choose Playhead position within selected song.
- **>> (POSITION MOVE RIGHT)** – Step Mode: Choose viewed bank position. Pattern Mode: Choose Playhead position within selected song.

3.1.9 Step & Note Repeat Section

- **1** – Step or Note repeat of a value of 1.
- **2** – Step or Note repeat of a value of 2.
- **4** – Step or Note repeat of a value of 4.
- **8** – Step or Note repeat of a value of 8.
- **STEP REPEAT** – Repeats the step by the selected value.
- **NOTE REPEAT** – Repeats the note played with the trigger button by the selected value.
- **TRIGGER** – Triggers repeats when engaged.
- **1/2/4/8** – Indication of number of repeats selected.

3.1.10 Track Control and Settings

- **MUTE** – Activates mute menu.
- **SOLO** – Activates solo menu.
- **STEP BUTTONS** – Used to input step information into patterns and is also used for various system tasks when used in conjunction with the (58) SETTINGS button or for deeper editing.
- **SETTINGS** – Used in combination with the (49) STEP BUTTONS to select different operational modes.
- **AUTOFILL** – Select and add a fill pattern.

3.1.11 Voice Control

- **LEVEL** – Level of the 11 voices, plus Accent.
- **TUNING** – Relative tuning of associated voice.
- **TONE** – Applies a filter to the voice reducing the high frequencies as you turn CCW.
- **DECREMENT** – Changes the decay time of the voice. Turn CCW for shorter, CW for longer.
- **SNAP** – Adjust the amount of snap sound to the snare sound. Turning CW increases snap.
- **VOICE SELECT** – Switch between the two voices available.
- **SNAP** – Selects the voice for editing patterns, Wave Designer, soloing or mute.
- **OFFSET** – Changes the length of the Hand Clap sound.
4. Overview

This overview will help you set up the RD-8 analog rhythm designer and briefly introduce its capabilities.

4.1 Connections

The RD-8 has a ¼” (6.35 mm) mono jack output on the rear of the unit plus 11 independent voice ¼” (6.35 mm) jacks. When the individual voice outputs are used and connected, they cut that voice from the MAIN MONO output. This is useful for adding effects or external processing to individual sounds.

Audio return is via the ¼” (6.35 mm) mono RETURN jack on the rear panel. This input can be used to process an individual voice or voices via external processing (mixer, compressor or reverb, etc.), then return the signal back into the main output of the RD-8. Please consult the connection set-up guide for examples (8.1).

The CLOCK IN/OUT connections use 1/8” (3.5mm) TRS jacks. Start/stop signal on ring and clock on tip.

4.2 Software Setup

The RD-8 is a USB Class Compliant MIDI device, and so no driver installation is required. The RD-8 does not require any additional drivers to work with Windows and Mac OS.

4.3 Hardware Setup

First make all the audio and power connections to your system. Connect a DAW, external sequencer or keyboard with MIDI output directly to the RD-8 MIDI IN 5-pin DIN type input or via MIDI over USB if desired. Apply power to the RD-8 using the supplied power adapter only. Ensure your sound system is turned down. Turn on the RD-8 rear power switch. Use the MIDI page in the settings function to set the RD-8 to a unique MIDI channel within your system.

5. Creating a Pattern (Step Mode)

Patterns can use up-to 64 steps which gives a great deal of flexibility.

How to record a basic 16-step pattern:

1. Select a SONG.
2. Press PATTERN.
3. Select desired pattern number via step keys 1-16.
4. Press STEP.
5. Select desired tempo with Data control.
6. Press RECORD.
7. Select the VOICE you wish to use.
8. Steps can be programmed either with the unit playing (press PLAY) or in the stopped position. The mixing white LED is the play head which shows the current play position. The TRIGGER pad can also be used to play and record the currently-selected voice.
9. Select different voices to add into the current pattern.
10. Press stop and record to exit record step-mode.

How to save a pattern:

1. Once you have created your masterpiece of a pattern press PATTERN.
2. Press SAVE.
3. Press PATTERN again.
4. Select the Step number of the Pattern you wish to save, current pattern will be displayed in white after which SAVE will flash.
5. Press the flashing SAVE button to execute the operation.
How to change the number of steps in a pattern:
1. Press ERASE.
2. The SONG and PATTERN buttons will flash. Press PATTERN.
3. Select the pattern you wish to delete via one of the 16 step keys.
4. Press the now flashing ERASE button to execute the delete process. This is a permanent process and can't be undone.

3. To change the source song with the pattern you wish to copy:
4. Press COPY.
5. Next select the step size using 1/16th notes. Pattern length can be changed from 1 to 64 steps on a pattern by pattern basis.
6. Press AUTO FILL button and selecting one of the 4 flashing Auto Fill step keys.

The Auto Fill function is used to insert fill rhythms into the live play mode of the RD-8. Fills are created in the same way a pattern is created and stored. The difference between Auto Fill and normal pattern playback is that once an Auto Fill has finished playing, the function will return you to the previously played pattern unless you have selected a different pattern while the Auto Fill function is active. If a different pattern is selected, the new pattern will play after the Auto Fill pattern has ended.

How to use Auto Fill
Once you have programmed the Auto Fill patterns use them by pressing the AUTO FILL button and selecting one of the 4 flashing Auto Fill step keys.

4. Pattern length can be changed from 1 to 64 steps on a pattern by pattern basis. This adjustable length can be used to create different time signatures. For example, selecting a pattern length of 12 steps with a step size using 1/16th notes will create a 3/4 (waltz style) time signature.

The solo function gives you the ability to solo a voice or voices within a pattern, song or globally. To mute a voice(s):
4. Press MUTE.
5. Use the STEP buttons 1-16 to choose the song that you want to play first.
6. Press SONG.
7. Select the voice(s) you wish to mute. The muted voice(s) will be illuminated solid, other voices will flash.

6. Press SONG.
7. Use the STEP buttons 1-16 to choose the song you wish to record, play or edit.
8. Press the LENGTH button (lights solid), use the DATA knob to select number of repeats.

Creating a Song Chain (Song Mode)
Songs are a collection of up to 16 patterns which can be played and interacted with in a live playing format. Pattern Record mode is used to arrange the patterns into the structure of a song (described in section 7).

To change the current song:
1. Press the SONG button to enter Song Mode.
2. Use the STEP buttons 1-16 to choose the song you wish to record, play or edit.
3. Press SONG.
4. Use the STEP buttons 1-16 to choose the song that you want to play first.
5. Press the RECORD button. You can now select the next song in the chain.

7. Creating a Song Mode
Pattern mode can be used to trigger any of the 16 patterns available when playing back. Patterns can be chained together to form a song in the following steps:
1. Select song via 16 step keys.
2. In Pattern Mode press the RECORD button.
3. With the AUTO SCROLL button uniti and the LENGTH button flashing, press the STEP BUTTONS to open the first pattern.
4. Press the LENGTH button (lights solid), use the DATA knob to select number of repeats.
5. Press AUTO SCROLL (control lights), and then press any of the STEP buttons to add next step.
6. Switch off the AUTO SCROLL button.
7. Repeat steps 3 – 6 until all desired patterns have been entered.
8. At any time use the << >> keys with the AUTO SCROLL button unit to move forward and backward through the song to check programming. If the LENGTH button is lit, the display will show number of repeats if the LENGTH button is flashing, the display will show the pattern number of that step.

To save the song that you have just created:
1. Press SAVE.
2. Press SONG.
3. Select destination via step key (current song highlighted with a white LED)
4. Press SAVE to execute operation.
5. Press the PATTERN button and select the pattern that you wish to play.
6. Step Repeat
This function can be used for changing patterns during a live performance. When Step Repeat is triggered the current step or steps (depending on the step settings) will be repeated until the TRIGGER button is released. The number of steps repeated are 1, 2, 4 or 8. This is a very powerful feature that can, for example be used to loop the end of a pattern creating a fill.

To use:
1. Press STEP REPEAT.
2. Select how many repeats you require (1,2,4 or 8). This creative feature can be used to create drum roll and ratchet style effects on the fly by repeating the current note while the rhythm continues to run.

To use:
1. Press NOTE REPEAT.
2. Select how many repeats you require (1,2,4 or 8). This creative feature can be used to create drum roll and ratchet style effects on the fly by repeating the current note while the rhythm continues to run.

To use:
1. Press COPY.
2. Select the source song with the pattern you wish to copy.
3. Press COPY to execute the operation.

8. Creating a Song Chain (Song Mode)
Songs are a collection of up to 16 patterns which can be played and interacted with in a live playing format. Pattern Record mode is used to arrange the patterns into the structure of a song (described in section 7).

A total of 16 songs can be created with up to 16 patterns in each. That makes 256 possible patterns in the unit at any one time.

To change the current song:
1. Press the SONG button to enter Song Mode.
2. Use the STEP buttons 1-16 to choose the song you wish to record, play or edit.
3. Press SONG.
4. Use the STEP buttons 1-16 to choose the song that you want to play first.
5. Press the RECORD button. You can now select the next song in the chain.

When the AUTO SCROLL button is selected in Song play the songs will chain as indicated. You can still manually override this default setting by selecting a different song while the first is playing.

Please note that this feature over-rides the Chain Songs function in Settings (see below). De-selecting the AUTO SCROLL button while a song is playing reverts to the original Chain Songs setting.
9. Wave Designer

Wave Designer is a powerful tool for adjusting signal transients and dynamics, such as attack and sustain. Use the Wave Designer to make a snare drum really “crack” in the mix, or to expand the bass drum to be more devastating. With both ATTACK and SUSTAIN controls set to 12 o’clock the Wave Designer is essentially in bypass and will not affect any voices being sent to the Wave Designer via the bus.

Adjusting the ATTACK knob will make the opening transient of the voice sound punchier. Increasing the SUSTAIN control acts in a similar way as a compressor. Adjusting the ATTACK knob will make the opening transient of the voice sound punchier. Increasing the SUSTAIN control acts in a similar way as a compressor.

Wave Designer uses the stored filter automation data. The live Filter Mode can be toggled on and off by holding the TAP/HOLD button and pressing the filter ON button to activate the filter circuit.

The filter CUTOFF control setting can be recorded as automation. After the checkbox has been saved, the filter settings that will be stored with the current pattern.

The filter settings are stored and are independent of the pattern or song.

At any time, you can drop into Record Mode and adjust the filter settings that will be stored with the current pattern.

The CP button sets the frequency where the filter is applied. The filter cut off frequency cutoff point as you turn the control CW. When the HPF (High Pass Filter) button is engaged the filter will be fully engaged, the CUTOFF knob defaults to a low-pass filter (LPF), which gradually cuts the low frequencies as you turn the control CCW.

When the HPF button is engaged, the CUTOFF Mode can be toggled on and off by holding the CUTOFF button and pressing the filter ON button to activate the filter circuit.

Press the ON button to activate the filter circuit.

The RESONANCE control adjusts the resonance of the filter. Turning CW adds a peak at the cutoff frequency that accentuates the surrounding frequencies. The filter is in cutoff mode.

The Analog Filter section works on selected sounds routed via an audio bus fed from the Wave Designer circuit.

The CUTOFF filter section sets the CUTOFF frequency where the filter is applied. The filter cut off can be programmed and automated (when the ON button is flashing, automation is active).

When the HPF (High Pass Filter) button is engaged the filter cuts the low frequency cutoff point as you turn the control CW. When the HPF button is not engaged, the CUTOFF knob defaults to a low-pass filter (LPF), which gradually cuts the high frequencies as you turn the control CCW.

Press the ON button to activate the filter circuit.

The RESONANCE control adjusts the resonance of the filter. Turning CW adds a peak at the cutoff frequency that accentuates the surrounding frequencies. The filter is in cutoff mode.

The filter CUTOFF control setting can be recorded as automation. After programming a pattern, add the voice or voices you wish to be processed by the Analog Filter and Wave Designer bus as described earlier in this manual. Next, while the pattern is playing and in Record Mode, rotate the CUTOFF knob and listen to the results. Once you are happy with your filter sweep, exit Record Mode. Next time you play the pattern, the recorded filter sweep will play back.

10. Analog Filter

The Analog Filter section works on selected sounds routed via an audio bus fed from the Wave Designer circuit.

The CUTOFF control sets the frequency where the filter is applied. The filter cut off can be programmed and automated (when the ON button is flashing, automation is active).

When the HPF (High Pass Filter) button is engaged the filter cuts the low frequency cutoff point as you turn the control CW. When the HPF button is not engaged, the CUTOFF knob defaults to a low-pass filter (LPF), which gradually cuts the high frequencies as you turn the control CCW.

Press the ON button to activate the filter circuit.

The RESONANCE control adjusts the resonance of the filter. Turning CW adds a peak at the cutoff frequency that accentuates the surrounding frequencies. The filter is in cutoff mode.

The filter CUTOFF control setting can be recorded as automation. After programming a pattern, add the voice or voices you wish to be processed by the Analog Filter and Wave Designer bus as described earlier in this manual. Next, while the pattern is playing and in Record Mode, rotate the CUTOFF knob and listen to the results. Once you are happy with your filter sweep, exit Record Mode. Next time you play the pattern, the recorded filter sweep will play back.

NOTE: Using a long sustain on naturally staccato sounds (e.g. Rim Shot) may cause noise. Dial this noise out by reducing the sustain amount.

All voices sent to the Wave Designer as described will then pass into the Analog Filter section to be processed.

The SIG LED shows that a signal is present in the Analog Filter/Wave Designer bus.

All voices sent to the Wave Designer as described will then pass into the Analog Filter section to be processed.

The SEND button activates the Wave Designer circuit.

How to assign voices to the FX bus:

1. Press SEND in the FX section.

2. Use SELECT to assign which voices go to the bus (solid red LED is bus send on).

3. Press SEND in the FX section to return to playback.

The diagram below shows the audio routing of the voices as they pass through the RD-8. Only one voice is shown in this example, but the same process applies to all voices.

NOTE: Using a long sustain on naturally staccato sounds (e.g. Rim Shot) may cause noise. Dial this noise out by reducing the sustain amount.

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11. Settings

The Settings functions are listed below. All features are accessed by pressing the SETTINGS button and selecting the associated step key.

11.1 MIDI

To enter the MIDI settings page press SETTINGS, select MIDI (STEP BUTTON 1) and use the TAP/HOLD key to access the various pages described below:

1. Choose the MIDI channel from 1-16, All or Off (The Output setting follows the MIDI OUT setting in the next step below) for the incoming MIDI IN port.

2. Select the MIDI OUT channel from 1-16.

3. Turn on FORWARD to USB to send the MIDI output of the unit to the USB OUT.

4. SOFT THRU on/off turns the MIDI OUT jack into a 2nd MIDI THRU port by sending the data from the MIDI IN to the MIDI OUT port.

5. DEVICE ID sets the unit ID from 1-16. This is helpful when dealing with multiple units via SysEx.

11.2 USB

To enter the USB MIDI settings page press SETTINGS, select USB MIDI (STEP BUTTON 2) and use the TAP/HOLD key to access the various pages described below:

1. Choose the USB MIDI channel from 1-16, All or Off (The Output setting follows the USB MIDI OUT setting in the next step below) for the incoming USB MIDI IN port.

2. Select the USB MIDI OUT channel from 1-16.

3. Turn on FORWARD to MIDI to send the USB MIDI output of the unit to the MIDI OUT.

NOTE: Care should be taken with Forward to MIDI/USB settings when both MIDI and USB interfaces are connected to the same computer, as there is a possibility of data loops occurring.

11.3 CLOCK

To enter the CLOCK settings page press SETTINGS, select CLOCK (STEP key 1) and use the TAP/HOLD key to access the various pages described below:

Tempo Preference Options:

1. Global, where all patterns tempo settings, even if a different Swing setting is stored within a pattern or song.

2. Song, where all patterns Swing settings will follow the setting within that song, even if a different Swing setting is stored within a pattern.

3. Pattern, where all patterns will play with the Swing settings they have been saved with and not be affected by global or song Swing changes.

Probability Preference Options:

1. Global, where all the patterns probability settings, even if a different probability setting is stored within a pattern or song.

2. Song, where all patterns probability settings: will follow the probability setting within that song, even if a different probability setting is stored within a pattern.

3. Pattern, where all patterns will play with the probability settings they have been saved with and not be affected by global or song probability changes.

Flam Preference Options:

1. Song, where all patterns flam settings will follow the flam settings within that song, even if a different flam setting is stored within a pattern.

2. Pattern, where all patterns will play with the flam settings they have been saved with and not be affected by song flam changes.

Analog Clock Modes

PPQ (Pulses Per Quarter) is the smallest unit of time used for sequencing note and automation events, both by step sequencers and in the MIDI standard. Most MIDI sequencers allow the number of PPQ to be varied for more or less temporal resolution depending on the needs of the performer. The default is 24 PPQ, as this is the most commonly used setting.

This function allows communication with various analogue clock types as listed below:

Clock Settings

- 4PPQ

- 8PPQ

- 16PPQ

- 48PPQ

Pattern, where all patterns will play with the flam settings within that song, even if a different Swing setting is stored within a pattern.

Pattern, where all patterns probability settings, even if a different probability setting is stored within a pattern.

Pattern, where all patterns probability settings: will follow the probability setting within that song, even if a different probability setting is stored within a pattern.

Pattern, where all patterns will play with the probability settings they have been saved with and not be affected by global or song probability changes.

Analog Clock Modes

PPQ (Pulses Per Quarter) is the smallest unit of time used for sequencing note and automation events, both by step sequencers and in the MIDI standard. Most MIDI sequencers allow the number of PPQ to be varied for more or less temporal resolution depending on the needs of the performer. The default is 24 PPQ, as this is the most commonly used setting.

This function allows communication with various analogue clock types as listed below:

Clock Settings

- 4PPQ

- 8PPQ

- 16PPQ

- 48PPQ
11.4 MAP
The map function allows you to change the MIDI notes that trigger the RD-8 voices either via the USB or MIDI ports.

The default numbers are listed in the table below.

<table>
<thead>
<tr>
<th>Voice</th>
<th>MIDI Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bass Drum</td>
<td>34</td>
</tr>
<tr>
<td>Snare Drum</td>
<td>60</td>
</tr>
<tr>
<td>Low Tom/One Conga</td>
<td>45</td>
</tr>
<tr>
<td>Mid Tom/Hat Conga</td>
<td>42</td>
</tr>
<tr>
<td>Hi Tom/Hat Conga</td>
<td>58</td>
</tr>
<tr>
<td>Rim Shot/Cymbal</td>
<td>37</td>
</tr>
<tr>
<td>Clap/Maracas</td>
<td>39</td>
</tr>
<tr>
<td>Woodblock</td>
<td>56</td>
</tr>
<tr>
<td>Cymbal</td>
<td>51</td>
</tr>
<tr>
<td>Open Hat</td>
<td>46</td>
</tr>
<tr>
<td>Closed Hat</td>
<td>42</td>
</tr>
</tbody>
</table>

To enter the MAP settings page press SETTINGS, select MAP (STEP BUTTON 4) and use the SELECT key for each voice to view the current MIDI note number. The DATA knob can be used to adjust the number from 0-127.

The MID map is set globally and is the same for all songs and patterns.

11.5 PREFS
To enter the PREFS settings page press SETTINGS, select PREFS (Step key 6) and use the DATA knob to adjust the various settings.

Chain Songs
The Chain function allows you to link together songs. PREFS has three options:

1. Loop – Causes selected song to loop from beginning to end until the STOP button is pressed. Pressing the PLAY/PAUSE button will cause the next selected song to start from the beginning.
2. Hold – Causes the last bar of the selected song to repeat until stop is pressed. Pressing the PLAY/PAUSE button will cause the next selected song to start from the beginning.
3. Step – The selected song will run from beginning to end, then stop at the end of the last bar. Pressing the PLAY/PAUSE will cause the next selected song to start from the beginning.

Note that the above preferences are over-ridden when chaining songs (see section 8).

Filter HPF Preference
Set the HPF on/off state globally, by Song or by Pattern.

Filter LPF Preference
Set the filter on/off state globally, by Song or by Pattern.

Filter Auto Preference
Set the filters. Automation state globally, by Song or by Pattern. This determines how the filter uses recorded filter automation information.

Poly Preference
Set the Poly loop function to be controlled globally, by Song or by Pattern (see section 11.7 for more information on polyrhythmic patterns).

Step Size Preference
Set the Step Size to be controlled globally, by Song or by Pattern.

Auto Advance Preference
Set the Auto Advance Globally or by Song.

Auto Scroll Preference
Set the Auto Scroll function Globally or by Pattern.

Bus Send Preference
Set the bus send to Filter and Wave Designer Globally, by Song or by Pattern.

Mute Preference
Set the mute control preference Globally, by Song or by Pattern.

Solo Preference
Set the solo control preference globally, by Song or by Pattern.

11.6 FILTER
The filter CUT/OFF knob setting can be recorded as automation and programmed into a pattern to create sweeping textures and effects as described in section 10.

11.7 POLY (POLYmetric)
Polymer (poly) is the simultaneous use of two or more conflicting rhythms. In this unit, it is possible to change the number of steps played back per voice to create interesting overlapping rhythms. For example, 16 steps of Bass Drum can be played while 15 steps of Snare which will make the pattern evolve over time. It really must be experimented with to hear its full potential.

Each of the 12 voices can be set to a different Polymer which will work across all 64 steps of a pattern. This lets you create large evolving percussive patterns that can evolve over time.

To enter Poly Mode:
1. Press SETTINGS.
2. Press POLY (STEP BUTTON 7).
3. Use the DATA control to activate Poly Mode.
4. Select the voice you wish to reduce the number of steps (this is none destructive).
5. All the step LEDs will illuminate to show the current status of the selected voices Polymer settings.
6. Select the step key you wish to use to reduce the pattern playback. If a pattern is 32, 48, or 64 steps long use the << key to navigate to the step you wish to use.
7. Flashing LEDs indicate any steps that will not be triggered.
8. Press SETTINGS twice to exit.

To return to normal pattern playback turn poly mode off or press the step key which is the end of the chosen pattern length i.e. 16, 32, 48 or 64 steps.

If you are using Poly mode with a pattern containing more than 16 steps then all voices which are playing every step, including accent, must have all the used steps selected with poly on in order that the pattern plays correctly.

For example, if you have a pattern programmed of 32 steps. Setting poly mode “On” a voice, then setting the range to 4-8 steps, then setting all the other voices to “poly mode on” and to the length of the pattern (in this case 32) will result in the last 16 steps of the voice set to 48 steps being silent if nothing has been programmed there (you could also fill the last 16 steps for more sonic interest).

If you don’t set your non-Poly voices to the nominal pattern length the pattern will only loop the first 16 steps.

Please note that individual voices can have Poly/lengths that are longer than the nominal pattern length, for extra rhythmic variation.

11.8 RAND (Random)
This function allows randomly played sounds to trigger on a pre-selected group of voices on any pre-programmed step that you wish to have the ability to hear random voices triggering. This can be used to create indiscernible variations into patterns, for example, random tom fills.

To add to a pattern:
1. Press SETTINGS.
2. Press RAND (STEP BUTTON 8).
3. Pick the voices you want with the SELECT buttons.
4. Use the step keys (1-64 via length navigation) to apply the random action on the steps you require.
5. Press SETTINGS twice to exit.

NOTE: Random step settings are stored on a per pattern basis.

11.9 PROB (Probability)
The PROB function allows you to adjust the probability of predefined steps playing as programmed. This Probability function is great for adding a human feel to patterns by setting how likely a programmed note will play. This simulates how a drummer could miss playing a drum.

The range can be set from 0% to 100%. As a guide 0% means a programmed voice won’t trigger, 50% allows voices to be played around half of the time, while 100% will trigger the voice as programmed.

By default, all steps in a pattern are enabled to be controlled by the PROB setting. Probability can be turned on and off per step as described below:

1. Press SETTINGS.
2. Press PROB (STEP BUTTON 9).
3. Select the voice you wish to give probability to.
4. Use the step keys and length navigation arrows to enable probability on the steps (up to 64 steps) you require.
5. Adjust the probability range with the DATA control to taste (0% causes the voice to not trigger where as 100% signifies the voice will trigger as programmed).
6. Press SETTINGS twice to exit.

Probability step settings are stored per pattern, but the amount (0%-100%) is controlled globally.

11.10 FLAM
Flam is the simulated effect of a drummer hitting a note with 2 sticks.

The amount of flam dictates the length of time between the next hit after the first. Range from 0-24 adjusts the width of the flam and is set globally.

By default, all steps in a pattern are enabled to be controlled by the FLAM setting. Flam can be turned on and off per step as described below:

1. Press SETTINGS.
2. Press FLAM (STEP BUTTON 10).
3. Select the voice you wish to add flam on.
4. Use the step keys (1-64 via length navigation arrows) to enable flam on the steps you require.
5. Adjust the flam range with the DATA control to taste (0 = No Flam. 24 = Longest flam length).
6. Press SETTINGS twice to exit.

The global setting can also be changed by selecting FLAM with the DATA NODE button and using the DATA knob to adjust the flam length between hits.

11.11 RPT (Note repeat)
Note repeat lets you program a step to repeat either 1,2,4 or 8 times. This can be used to add extra ratchet style rolls to voices on a pre-defined step (1-64) by completing the following:

1. Press SETTINGS.
2. Press RPT (step key 11).
3. Select the voice to which you wish to add repeats.
4. Select the step key (1-64 via length navigation arrows) to enable repeat on that step. Each step in a pattern can have a different repeat value.
5. Select the number of repeats (1,2,4 or 8).
6. Turn on the repeat with the NOTE REPEAT button.
7. Select the next step to add more repeats or press SETTINGS twice to exit.

11.12 Step Size Preference
The step size of a rhythm pattern refers to the note duration of a step. When composing rhythms, the basic unit of duration (in time) is a ‘bar’. The step size you can choose on your RD-8 are 1/8, 1/8T, 1/16, 1/16T, and 1/32.

If you choose the step size 1/16, the duration of a single step is 1/16th of a bar. This means that a 6 step pattern has a duration of exactly one bar.

The durations are as follows:

• 1/8 = 1/8th bar.
• 1/8T = 1/128th bar.
• 1/16 = 1/16th bar (default)
• 1/16T = 1/256th bar
• 1/32 = 1/32nd bar

To change the step size preference:
1. Press SETTINGS.
2. Press the STEP BUTTON associated with the step size you require (1/8, 1/8T, 1/16, 1/16T or 1/32).
3. Press SETTINGS twice to exit.
12. Software Updates

The RD-8 update can be downloaded by going to www.musictribe.com. Please follow the steps on the website and update your RD-8.

To check the current firmware version:
1. Press SETTINGS.
2. While holding the TAP/HOLD button press CHAIN/PREFS (STEP BUTTON 5).
3. The LED will display the firmware version.
4. Press SETTINGS to exit.

13. Parameters

There are three types of data files used by the RD-8. The contents of these file types are described herein.

Global Settings File

All of the RD-8’s Settings and Preferences are stored in the Global Settings file. This file is loaded from Storage Memory when the unit is powered on. The exact contents of the file are described below:

Settings

Settings in the Global Settings file are automatically saved back to Storage Memory whenever they are changed.

11.13 SYNCH

Pressing the SYNCH button multiple times scrolls through the 4 SYNCH options available.

1. INT (internal) – This sync is set by the unit's internal clock.
2. MIDI – The sync is taken from the MIDI IN port. A MIDI start message is required in order for playback to start.
3. USB – The sync is taken from the USB port. A message is required in order for playback to start.
4. TRIG (clock) – The sync is taken from the TRIG IN port. Clock start signal is required or playback can be started manually. Synch has 1/2 step signal on ring and clock on tip.

11.14 DATA MODE

The DATA MODE button toggles between the four available parameters and uses the DATA control to adjust parameters:

- Time
- Song Chain Mode
- Voice Note Mappings
- USB to MIDI Thru

Default Settings

Initial settings are used to solo the RD-8’s voices. Initial settings are used to solo the RD-8’s voices. This preference selects which set of Solo Bus Assignments are used to solo the RD-8’s voices.

- Filter Enable
- Pattern Preference
- Tempo Preference
- Swing Preference
- Probability Preference
- Flare Preference
- Filter Mode Preference
- Step Size Preference
- Step Value Preference
- Polyphonic Preference

Preference Selection

This preference selects which set of Solo Bus Assignments are used to solo the RD-8’s voices.

The RD-8 has many parameters that can be tweaked to make your rhythm more interesting. The Global Settings file contains the following list of parameters. These parameters are used in (use the corresponding Preference is set to Global), they remain fixed, even when new Songs and Patterns are loaded into the sequence. As in the case for the Settings and Preference, Global Parameters are automatically saved back to Storage Memory whenever they are changed.

Global Parameters

The RD-8 is one of a number of Behringer products that include global parameters that are stored in a Global Settings file. Each time a pattern is loaded into the sequencer it is used to distinguish between RD-8 Song Data Files and other song data files.

1. TEMPO – sets the speed of the current pattern or song. Depending on how the RD-8 is configured will result in how tempo is affected. For example, if the Tempo parameter is set to global, all songs and patterns will be affected by the current tempo set by the DATA control. See the TEMPO section for more information.
2. SWING – changes pattern step timings by quantizing each drum beat to the nearest step and then delaying the playback of every other step in the pattern. The DATA control adjusts the Swing range from 50% (straight) to 75% (full Swing).
3. PROB (probability) – in PROB settings menu you can select the steps as described earlier in this manual. The global settings allow you to adjust the probability that these steps will play programmed note events. This is a number that sets anywhere between 0%-100% range to simulate a human element to patterns.
4. FLAM – Part of a pattern of RD-8, consisting of a stroke preceded by a grace note. Range 0-24 adjusts the width of the flam. Flam in the simulated effect of a drummer hitting a note with 2 sticks. The amount of Flam dictates the length of time between the next hit after the first and can be programmed per step.

Song Data Files

Each of the 16 songs stored in the RD-8’s Storage Memory has a Song Data file. When a song is loaded into the sequencer from Storage Memory, this is the file that is loaded. The song loaded into the sequencer at any given time is called the Live Song. Changes the user makes to the Live Song file does not persist, the file must be saved back to Storage Memory before another Song Data file is loaded.

Preferences

In addition to the Settings described above, there are a number of Preferences that can be used to specify whether certain sequencer parameters will persist on a Global, Song or Pattern basis. Just like the Settings, the Preferences in the Global Settings file are automatically saved back to Storage Memory whenever they are changed.

Each time a pattern is loaded in the sequencer, the RD-8 is configured will result in how tempo is affected. For example, if the Tempo parameter is set to global, all songs and patterns will be forced to the tempo set by the DATA control. See the TEMPO section for more information.
## Rhythm Design Rhythm Designer RD-8 User Manual

### Parameter Name | Description | Values
--- | --- | ---
**Tempo** | The tempo of the song is stored. | 26 – 240 BPM
**Swing** | The Swing level is stored. | 0 = Inactive, 0.25 – 0.75
**Probability** | The probability of a step being heard is stored per song. | 0 – 100%
**Flam** | The Flam on/off is stored per song. | 0 = Off, 1 = On
**Filter Mode** | Filter Modes stored per song, either LPF or HPF. | 1 = LPF, 2 = HPF
**Filter Enable** | Whether the filter is on/off per song. | 0 = Off, 1 = On
**Filter Automation** | Automation of the filter is stored per song. | 0 = Inactive, 1 = Active
**Filter Step Values** | Filter step values per song are stored. | 0 – 255
**Polyphonic** | Polyphony is either on/off per song. | 0 = Off, 1 = On
**Step Size** | Steps size is stored for the song. | 0 = 1/8th, 1 = 1/16th, 2 = 1/32nd, 3 = 1/64th
**Note Advance** | Whether or not the song will auto advance to the next or not is stored per song. | 0 = Off, 1 = On
**Fill In Beats** | Whether or not the Fill In Beats is active or not, stored per song. | 0 = Off, 1 = On
**Mute Voices** | Which voices are muted, stored by song. | 0 = Muted, 1 = Active
**Solo Voices** | Which voices are soloed, stored by song. | 0 = Not Soloed, 1 = Soloed

### Pattern Data Files

Each of the 16 patterns associated with a song has its own Pattern Data file. When a song is loaded from Storage Memory, the Pattern Data files are loaded in addition to the Song Data file. These 16 patterns are called the Live Patterns. Changes made to the Live Pattern Data files do not persist. The files must be saved back to the Storage Memory before another song and its associated patterns are loaded.

### Pattern Parameters

Some of the parameters in the Pattern Data file are comparable to the Global Parameters. When these parameters are in use (i.e. the corresponding Preference is set to Song), a new pattern for playback will trigger the corresponding change in the sequence. A change to the Step Size is one such example.

## Sample Song Data File

### Parameter Name | Description | Values
--- | --- | ---
**Tempo** | The tempo of the song is stored. | 26 – 240 BPM
**Swing** | The Swing level is stored. | 0 = Inactive, 0.25 – 0.75
**Probability** | The probability of a step being heard is stored per song. | 0 – 100%
**Flam** | The Flam on/off is stored per song. | 0 = Off, 1 = On
**Filter Mode** | Filter Modes stored per song, either LPF or HPF. | 1 = LPF, 2 = HPF
**Filter Enable** | Whether the filter is on/off per song. | 0 = Off, 1 = On
**Filter Automation** | Automation of the filter is stored per song. | 0 = Inactive, 1 = Active
**Filter Step Values** | Filter step values per song are stored. | 0 – 255
**Polyphonic** | Polyphony is either on/off per song. | 0 = Off, 1 = On
**Step Size** | Steps size is stored for the song. | 0 = 1/8th, 1 = 1/16th, 2 = 1/32nd, 3 = 1/64th
**Note Advance** | Whether or not the song will auto advance to the next or not is stored per song. | 0 = Off, 1 = On
**Fill In Beats** | Whether or not the Fill In Beats is active or not, stored per song. | 0 = Off, 1 = On
**Mute Voices** | Which voices are muted, stored by song. | 0 = Muted, 1 = Active
**Solo Voices** | Which voices are soloed, stored by song. | 0 = Not Soloed, 1 = Soloed
14. SysEx information

Supported System Exclusive Messages

It is possible to import/export your Rhythm Designer data to/from the RD-8 using the supported System Exclusive Messages. This section describes the messaging protocol used for that purpose.

Storable Data

As described in section 13, the Storage Memory in the RD-8 stores three different file types containing:
1. <<Song Data>>
2. <<Pattern Data>>
3. <<Global Settings Data>>

Data Stuffing

In order to transmit these files over MIDI, the data contained within them must be stuffed. Details of the exact stuffing technique used go beyond the scope of this document. It should be noted however, that the stream of bytes in the <<Data>> sections of the messages described herein, are not interchangeable with the streams of bytes in their corresponding file types, as they are described in section 13.

Definitions

The following symbols appear in the message contents.

Symbol Definition
<<DD>> Device ID is set to 1.
<<SS>> Reserved for future use.
<<RS>> Software Major Version Number
<<RR>> Software Minor Version Number
<<TP>> Software Patch Number
<<SS>> Song-slot Number: This is 0 based – value 0 corresponds to Song-slot 1 on the RD-8 unit.
<<PP>> Pattern slot Number: This is 0 based – value 0 corresponds to Pattern-slot 1 on the RD-8 unit.

Supported Messages

Firmware Version Request Message

Description: This message is used to request the Firmware Version installed on the RD-8 unit.

Expected Response from RD-8:
The RD-8 does not respond upon receipt of this message.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message requests Firmware Version of RD-8 unit whose Device ID is set to 1.

Storable Song Request Message

Description: This message is used to request the Song data stored in one of the 16 song slots in the RD-8's memory storage.

Expected Response from RD-8:
Upon receipt of this message, the RD-8 will respond with a Storable Song Response Message (described below). The data section of the Storable Song Response Message will contain the Song data the user requested.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message requests Song data from Song-slot 1 on the RD-8 unit whose Device ID is set to 1.

Storable Pattern Request Message

Description: This message is used to request the Pattern data stored in one of the 16 song slots in the RD-8's memory storage.

Expected Response from RD-8:
Upon receipt of this message, the RD-8 will respond with a Storable Pattern Response Message (described below). The data section of the Storable Pattern Response Message will contain the Pattern data the user requested.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message requests Pattern data from Song-slot 1, Pattern-slot 1 on the RD-8 unit whose Device ID is set to 1.

Stored Song Response Message

Description: This message is used to request the Song data stored in one of the 16 song slots in the RD-8's memory storage.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> < <Pattern Data> > F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message contains the Pattern Data from Song-slot 1, Pattern-slot 1 on the RD-8 unit whose Device ID is set to 1.

Live Pattern Request Message

Description: This message is used to request the Pattern data that is currently loaded into the RD-8's sequencer.

Expected Response from RD-8:
The RD-8 does not respond upon receipt of this message. If the message is received correctly, the live Pattern data will be overwritten. If not, the message will be ignored.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message contains Live Pattern Data from sequencer pattern-slot 1 on the RD-8 unit whose Device ID is set to 1.

Live Song Request Message

Description: This message is used to request the 'Live' Song data that is currently loaded into the RD-8's sequencer.

Expected Response from RD-8:
The RD-8 does not respond upon receipt of this message. If the message is received correctly, the 'Live' Song data will be overwritten. If not, the message will be ignored.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message contains the Live Song data from the RD-8 unit whose Device ID is set to 1.

Live Song Response Message

Description: This message is used to overwrite the 'Live' Song data currently loaded into the RD-8's sequencer.

Expected Response from RD-8:
The RD-8 does not respond upon receipt of this message. If the message is received correctly, the 'Live' Song data will be overwritten. If not, the message will be ignored.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message contains the 'Live' Song data from the RD-8 unit whose Device ID is set to 1.

Expected Response from RD-8:
The RD-8 does not respond upon receipt of this message. If the message is received correctly, the 'Live' Song data will be overwritten. If not, the message will be ignored.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message contains the Global Settings Data from the RD-8 unit whose Device ID is set to 1.

Global Settings Request Message

Description: This message is used to request the Global Settings data stored in the RD-8's memory storage.

Expected Response from RD-8:
The RD-8 does not respond upon receipt of this message. If the message is received correctly, the stored Global Settings data will be overwritten. If not, the message will be ignored.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message requests Global Settings data from the RD-8 unit whose Device ID is set to 1.

Expected Response from RD-8:
The RD-8 does not respond upon receipt of this message. If the message is received correctly, the Global Settings data will be overwritten. If not, the message will be ignored.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message requests Global Settings data from the RD-8 unit whose Device ID is set to 1.

Restore Factory Settings Request Message

Description: This message is used to request the Global Settings data stored in the RD-8's memory storage.

Expected Response from RD-8:
The RD-8 does not respond upon receipt of this message. If the message is received correctly, the stored Global Settings data will be overwritten. If not, the message will be ignored.

Message Content:
The message takes the following form:
F0 00 20 32 30 <DD> 00 00 00 00 <RR> <TP> <SS> F7

An example message is:
F0 00 20 32 30 01 00 00 00 00 00 00 00 01 01 08 00 F7

Note: This example message requests that the RD-8 unit whose Device ID is set to 1 should restore all settings to factory defaults.
15. RD-8 Set-up Example

Connect a MIDI Device

MIDI OUT

Studio Monitors

Mixer

Audio Input

USB Out

USB In

Mono Audio Output

BD Audio Output

Trigger Output

Trigger Input

Audio Output

Synthesizer

Power Adaptor

Headphones

1. STORED SONG REQUEST

2. STORED SONG RESPONSE

3. STORED PATTERN REQUEST

4. STORED PATTERN RESPONSE

5. GLOBAL REQUEST

6. GLOBAL RESPONSE
16. Specifications

Voices

- **Number of sounds**: 16
- **Type**: Analog
- **Number of simultaneous voices**: 11 (12 including global accent)

Sound Controls

- **Accent**: Level
- **Bass drum**: Level, tone, decay, tuning
- **Snare drum**: Level, tone, snappy
- **Low, mid, hi conga / low, mid, hi tom**: Level, tuning, voice selection
- **Claves / rim shot**: Level, voice selection
- **Maracas / hand clap**: Level, offset, voice selection
- **Cow bell**: Level
- **Cymbal**: Level, tone, decay
- **Open hat**: Level, tone, decay
- **Closed hat**: Level, tone

Select buttons: 16 Voice select buttons

Connectivity

- **Outputs**
  - **Phones**: 1 x ¼” TRS, stereo, 8 Ω impedance
  - **Mono**: 1 x ¼” TRS, servo-balanced
  - **Voice-out**: 1 x ¼” TS, unbalanced
  - **MIDI In, Out & Thru**: 3 x 5-pin DIN
  - **Trigger outs**: 3 x +5 V, 1 ms pulse
  - **Sync in / out**: 2 x 1/8” TS
  - **USB**: Class compliant USB 2.0, type B
  - **Supported operating systems**: Windows 7 or higher, Mac OS X 10.6.8 or higher

- **Volume controls**: Master, phones
- **Return (Input)**: 1 x ¼” TRS, balanced

Wave Designer

- **Bus**: 11 voices, independently assignable
- **Controls**
  - **Attack**: -15 to +15 dB, adjustable
  - **Sustain**: -24 to +24 dB, adjustable
  - **Send button**: On/off, switchable
  - **Sig LED**: Red

Analog Filter

- **Type**: State variable, 12 dB slope
- **Cutoff**: 10 kHz - 15 kHz, adjustable
- **Resonance**: 0 - 10, adjustable
- **HPF button**: LPF / HPF mode, switchable
- **On button**: On/off, switchable

Sync Section

- **Mode selector**: Internal / MIDI / USB / TRIG, selectable

Sequencer Section

- **Edit buttons**: Save, copy, erase and dump
- **Mode buttons**: Songs, pattern and step
- **Control**: Encoder for data editing
- **Playback controls**: Tap / hold, record, stop, play / pause
- **Data mode**: Tempo / swing / prob / flam, selectable
- **Auto scroll**: On / off, rewind, length (16 / 32 / 48 / 64, selectable), fast forward
- **Trigger**: On / off, repeat division (1 / 2 / 4 / 8, selectable), step repeat, note repeat
- **Track**: Mute / solo, selectable
- **Step buttons**: 16 step-enter buttons

Settings

- **Settings**: Enter settings mode, use step buttons to select operation.

Autofill

- **Autofill**: Enter autofill selection mode

Songs / Storage

- **Song mode**: Chain any of the 16 songs together for full sets
- **Pattern / Storage**: Capacity 16 songs, 16 patterns each
- **Steps**: 64 steps

Pattern / Storage

- **Capacity**: 16 songs, 16 patterns each
- **Pattern mode**: Up to 99 iterations per pattern/unit
- **Steps**: 64 steps

Power Supply

- **External power adapter**: 18 V DC, 1000 mA
- **Power consumption**: 15 W typical

Environmental

- **Operating temperature range**: 5°C to 40°C (41°F to 104°F)

Physical

- **Dimensions (H x W x D)**: 77 x 498 x 265 mm (3.0 x 19.6 x 10.4”)
- **Weight**: 3.0 kg (6.6 lbs)
17. Glossary

RD-8 GLOSSARY

This glossary provides an explanation of useful symbols, terms and abbreviations.

AC: Alternating Current

Analog: Something which is proportional or similar to something else. In the case of the drum machine, audio electronic circuits are another form of air pressure waves. Analog signals contain distortions from the components, topology, circuits and designs which are often perceived as warmer and more natural than their digitally generated counterparts.

Attack: Increase or decrease the initial transient of the signal.

Auto Scroll: Follows the Playhead to show current step position.

Balanced Audio: A type of audio connection that uses the three wires in a cable as part of a phase-canceling arrangement to boost the signal and reduce noise.

Bass: Lower frequencies in a signal ranging from 60 Hz to 250 Hz (approximately B1 to B3).

Beats Per Minute (BPM): Used to describe the tempo of a composition by specifying the number of beats which should occur in one minute.

Cent: Unit of measurement for pitch tuning. There are one hundred cents in a semitone.

Chain: A function to link songs or pattern information together.

Control Voltage (CV): A voltage signal used to control any parameter. This was common on drum machines before the advent of MIDI.

Cut-Off Frequency: The frequency which a filter is set to. Beyond this frequency (in a low-pass filter, the most common), the sound is cut off (attenuated) at a rate set by the slope of the filter response curve.

dB: Symbol for “decibel”. A unit of measurement of the loudness of sound. See dBu.

Default: An initial value for parameter; i.e., the value before any changes have been made.

Digital Audio Workstation (DAW): A computer-based recording system. More commonly used to describe the software package used to record, process and mix.

Dip Switch: A manual-electric switch that is packaged with others in a group.

Dump: To send (dump) the contents of the memory of the device over the MIDI cables as “SysEx” information.

Fam: The simulated effect of a drummer hitting a note with 2 sticks. The amount of flaut dictates the length of time between the next hit after the first.

Filter: A device that attenuates certain frequencies while letting other frequencies through. Using a filter to reduce harmonics, changes the timbre or colour of the sound.

Gain: The amount of signal level increase provided by an amplifier stage.

Gate (Synthesizer): A signal used to trigger an event, such as a note or an envelope.

Gate (Dynamics): A device used to cut off the level of a signal when it falls below a specified threshold. Can be used to cut background noise, control reverb tails, or creatively to produce chopping type effects.

Global: The settings and parameters which govern the general operation of the drum machine and are not directly associated with the voice engines.

Harmonics: A series of integer-related sine waves at varying levels creating different timbres. Waveforms (other than a pure sinusoidal) generate various harmonics which help define the character of the sound.

Hertz (Hz): A unit of frequency equal to one cycle of a wave per second.

High Pass Filter (HPF): A filter that attenuates lower frequencies from a signal, leaving the higher frequencies unaffected.

Hum: Undesirable low-frequency tone (typically 50 or 60 Hz) present in a signal due to grounding problems or proximity to a power source or power cables.

Impedance (Z): Opposite to the flow of alternating current in a circuit, measured in Ohms.

Kilohertz (kHz): A unit of frequency equal to one thousand cycles of a wave per second.

Latency: A delay introduced by processing. Measured by the time it takes to produce a signal after a request has been made. In a synth, this is the time taken to produce a note after a key has been played. In an audio interface, it is used to measure the time it takes for an input signal to reach the processor, or for a signal from the processor to reach the output.

Level: Used to describe the magnitude of a sound, often relative to an arbitrary reference.

Length: Defines the number of steps in a pattern.

Line Level: A nominal operating level used by audio equipment. Professional line level is normally +4 dBu and consumer line level is -10 dBu.

Looping: Automatically restarting a function at the end of a period of time or the occurrence of a determined event. For example, a Loop function is specified to loop every 8 measures.

Low Pass Filter (LPF): A filter that attenuates higher frequencies from a signal, leaving the lower frequencies unaffected.

Map: How MIDI note numbers are assigned to voices.

Master: Overall volume control.

Meter: Visual device to indicate the level of a signal.

MIDI (Musical Instrument Digital Interface): A technical standard that describes a protocol, digital interface and connectors and allows a wide variety of electronic musical instruments, computers and other related hardware/software devices to connect and communicate.

MIDI Clock: A clock signal which is broadcast over MIDI to ensure that devices are synchronized. Also known as MIDI Beat Clock or MIDI Timing Clock.

MIDI Message: Data or information transmitted from a MIDI device to another. Every MIDI message contains at least two numbers: one that identifies the type of message being sent, and another which represents a value for the selected type of message.

Midrange: Frequencies in a signal ranging from 250 Hz to 5 kHz (Approximately B3 to D4).

Mia: The balance of level between one signal and another.

Mixer: A device that blends input signals into composite signals for output.

Mode: The selection of song, pattern or step edit.

Monitor: Studio quality loudspeakers, providing an accurate representation of the audio signals.

Mono: A single signal.

Mutex: Function that allows a signal to be silenced.

N.A.: Abbreviation for "not applicable" or "not available".

Ohm (Ω): Unit of electrical resistance.

Output: The signal sent out by a device or process. Also used to describe the physical output device where a signal leaves a device.

Parameter: A setting whose value can be changed. The result is a sweeping effect similar to a flanger but smoother and often more natural sounding.

Pattern: A rhythmic pattern, or repeated rhythm establishing the meter and groove through the pulse and subdivision.

Pitch: A quality of sound that makes it possible to judge if a sound is higher or lower than another.

Playhead: A moving white LED in the step timeline that represents the position on the pattern.

Polyphonic (Poly): The simultaneous use of two or more conflicting rhythms.

Post: The point for accessing audio just after it leaves a specific component or stage. For example, Post-fader audio is affected by the fader.

Power Supply Unit (PSU): The component in a system which is responsible for supplying and managing power.

PPQ: The smallest unit of time used for sequencing note and automation events, both by step sequencers and in the MIDI standard.

Pre: The point for accessing audio just before it reaches a specific component or stage. For example, Pre-fader audio is not affected by the fader.

Probability (Prob): The extent to which a programmed step is likely to happen.

Random: Does not follow a definite plan or pattern.

Resonance: The emphasis/boost of frequencies around the cut-off point just before attenuation starts to occur. As resonance increases, it will reach a point where the filter will start to self-oscillate, producing a signal even when there is no input.

Return: A way to add audio into the signal path after the FX bus.

Send: Select which sounds are sent to the FX bus for further processing.

Sequencer: A programmable device or module used to arrange/sequence timed events into musical patterns and songs.

Sig (Signal): Shows presence of audio.

Step: A step is one stage in a sequence or pattern.

Solo: To isolate a chosen voice in playback.

Song: A collection of patterns played back in a predefined order.

Sub-Bass: Frequencies in a signal ranging from 10 Hz to 60 Hz (lower than C1 to approximately B1).

Sustain: Acts in a similar way to a compressor, allowing the peaks to carry longer before decay. The effect can also be used to reduce the sustain for a more staccato sound.

Swing: The Swing function as we now know it – originally known as ‘shuffle’, a term still used to approximate the effect of a human drummer playing in swing timing by quantizing each drum beat to the nearest step and then delaying the playback of every other step in the pattern.

Synchronization (Sync): Coordination of timing between devices.

Sync (Tempo): A function which adds a rhythmic event such that an LFO is synchronized to a tempo value.

Tap: A way to enter step information.

Tempo: The speed at which a composition is played, usually expressed in beats per minute (BPM).

Timbre: The tone, character, or aesthetic qualities of a sound.

Treble: Frequencies in a signal ranging from 5 kHz to 20 kHz (approximately 3800 Hz above C18).

Trigger: Activation of a function, such as the Note Repeat or Step Repeat.

Unbalanced Audio: A type of audio connection that uses two wires in a cable and does not offer the noise rejection qualities of a balanced system.

Universal Serial Bus (USB): A “plug and play” interface that provides a fast connection between a computer and peripherals.

Volts (V): A unit of electrical potential differential or electrodynamic force. A difference in charge between two points in a circuit. This difference, when combined with the rate of the charge (current) allows for the control of many analog circuits that “synthesise” sound.

Voice: A sound which can play a single note at a time.
FEDERAL COMMUNICATIONS
COMMISSION COMPLIANCE
INFORMATION

Responsible Party Name: Music Tribe Commercial NV Inc.
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Phone Number: +1 702 800 8290

RHYTHM DESIGNER RD-8
complies with the FCC rules as mentioned in the following paragraph:
This equipment has been tested and found to comply with the limits for a Class B
digital device, pursuant to part 15 of the FCC Rules. These limits are designed
to provide reasonable protection against harmful interference in a residential
installation. This equipment generates, uses and can radiate radio frequency
energy and, if not installed and used in accordance with the instructions, may cause
harmful interference to radio communications. However, there is no guarantee that
interference will not occur in a particular installation. If this equipment does cause
harmful interference to radio or television reception, which can be determined
by turning the equipment off and on, the user is encouraged to try to correct the
interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the
  receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the
following two conditions:
1) This device may not cause harmful interference, and
2) This device must accept any interference received, including interference that may
   cause undesired operation.

Caution!
Any changes or modifications not expressly approved by the party responsible
for compliance could void the user’s authority to operate the equipment.
We Hear You