

RN Instruments

# RN-9090 USER GUIDE

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## **INTRODUCTION**

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The RN-9090 is “TR” style step sequencer with a uniform button grid interface. The uniform button grid enables one to see an entire pattern while the virtual page system allows one to work in two patterns concurrently. Pages are edited independently and can be swapped at the press of a button. The RN-9090 has dedicated knobs for velocity adjustments, swing, and note length manipulation. There is local storage for saving patterns, MIDI settings, and saved songs. The RN-9090 song feature comes with the ability to save, edit, and load songs comprised of saved patterns. There are two synchronized MIDI out ports. And rows on the button interface can be assigned to one or the other output. The 128 x 64 Graphic LCD screen is a backlit LCD perfect for use in dark settings. The RN-9090 is housed in a sturdy aluminum enclosure with a black powder coat finish and white silk screen. The RN-9090 enclosure is 16.5” x 14.75” x 1.75”. The RN-9090 operates at 96 PPQN.

# CONTROLS

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## Button Pad

The button pad is where patterns are created and where many of the controls for the RN-9090 are located. It is a 12 x 16 button grid that is separated into two distinct parts: the Control Row and the MIDI rows. The control row is at the top of the sequencer and is indicated by the always on LEDs. The control row also gives a visual representation of the counter position of the sequencer via a darkened button that moves from left to right. Each button on the Control Row allows the user to interact with the sequencer menus or other functions. The MIDI rows are the remaining 11 rows below the control row. Each MIDI row has 16 steps. A MIDI row can have two unique MIDI numbers assigned to it: the primary and secondary note assignments. Primary notes are activated with the press of a button and secondary notes are activated with a press and hold of the button.

## Control Buttons

In addition to providing a visual representation of the counter position, each button has a specific function. From left to right, the buttons and their basic functions are:

- **SONG** – Go to the Song Menu. The song menu gives access to features related to song playback, editing, and saving/loading song data. Access to the Song Menu is only allowed through the default main display.
- **PTRN** – Go to the Pattern Menu. The pattern menu gives access to features related to pattern storage and loading. Access to the pattern menu is only allowed through the default main display.
- **MIDI** – Go to the MIDI Menu. The MIDI menu gives access to functions such as setting the MIDI Channel In/Out, MIDI Row/Note assignment, and saving/loading MIDI settings. Access to the MIDI Menu is only allowed through the default main display.
- **SQCR** – Go to the Sequencer Menu. The sequencer menu gives access to the sequencer specific features such as grid setting, swing, and velocity. Access to the Sequencer Menu is only allowed through the default main display.
- **OK** – Menu navigation select/accept.
- **UP** – Menu navigation up.
- **DOWN** – Menu navigation down.
- **BACK** – Menu navigation back/cancel.

- **POP** – "Populate Display" is a function that will make a copy of the opposite page to the page that is currently being viewed. This includes all primary/secondary MIDI assignments for each button, any specific Note length settings, and in Per-Note Velocity Mode, all note specific velocity settings.
- **CLR** – "Clear Display" will clear the page currently being viewed.
- **PLAY** – Starts the sequencer if stopped. The RN-9090 will also send a MIDI START message out both CLOCK and OUT ports.
- **STOP** – If the sequencer is playing, then stop. Pressing the STOP command a second time will reset the sequencer to the start of the page. The RN-9090 will also send MIDI STOP message out both CLOCK and OUT ports.
- **LINK** – Link enables both pages to be linked together for a 32 step sequence. In LINK mode, the RN-9090 swaps back and forth between page 1 and page 2 for playing notes. But, the user is still free to control the page view independently of the virtual swap taking place in link mode. In other words, the pattern shown on the MIDI row buttons does not automatically update as it does when the swap button is pressed.
- **SWAP** – Swap allows the user to switch from one page to the other. When the swap button is pressed, the swap does not occur until the counter has reached the end of the current page. This maintains the flow of the music being played and allows a seamless transition between pages. When the swap does occur, the pattern shown on the buttons will always update to the page that is currently being played. The swap button only needs be pressed once per loop, but can be pressed every loop.
- **1** – Go to Page 1. The LEDs of the button pad will update to show the pattern of Page 1 regardless of which page is currently being played. This does not interrupt the music being played.
- **2** – Go to Page 2. The LEDs of the button pad will update to show the Pattern of Page 2 regardless of which page is currently being played. This does not interrupt the music being played.

## **MIDI Buttons**

The MIDI buttons are divided into 11 rows with 16 buttons each. Each button represents a step in the sequencer. Each button can be assigned to one of two MIDI settings. A press of the button activates the buttons primary MIDI note assignment. A press and hold of the button activates the secondary MIDI assignment. The secondary assignment is indicated visually by a periodic flash of the LED. A single row with active buttons may contain a mix of primary and secondary notes.

## **Control Knobs**

### Tempo (Encoder)

At the default screen, the tempo encoder controls the BPM of the RN-9090. Within menus, it can be used for navigation and value editing.

### Velo. A (Potentiometer)

The "Velocity A" knob has two controls. In Global Velocity mode, the knob controls the velocity for all primary notes played. In "Per-Note" mode, the knob controls the velocity of the last positive button press. When a button is pressed to de-select a note, it will not change the address setting of the last button press.

### Velo. B (Potentiometer)

The "Velocity B" knob has two controls. In Global Velocity Mode, the knob controls the velocity for all secondary notes played. When a button is pressed to de-select a note, it will not change the address setting of the last button press.

### Note (Potentiometer w/ center detent)

The Note feature allows for the control of the note length on a per-note basis. At the center detent, note lengths are normal. Note lengths can be shortened (turn counterclockwise) and lengthened exponentially (turn clockwise). The note under control is always the last button with a positive button press.

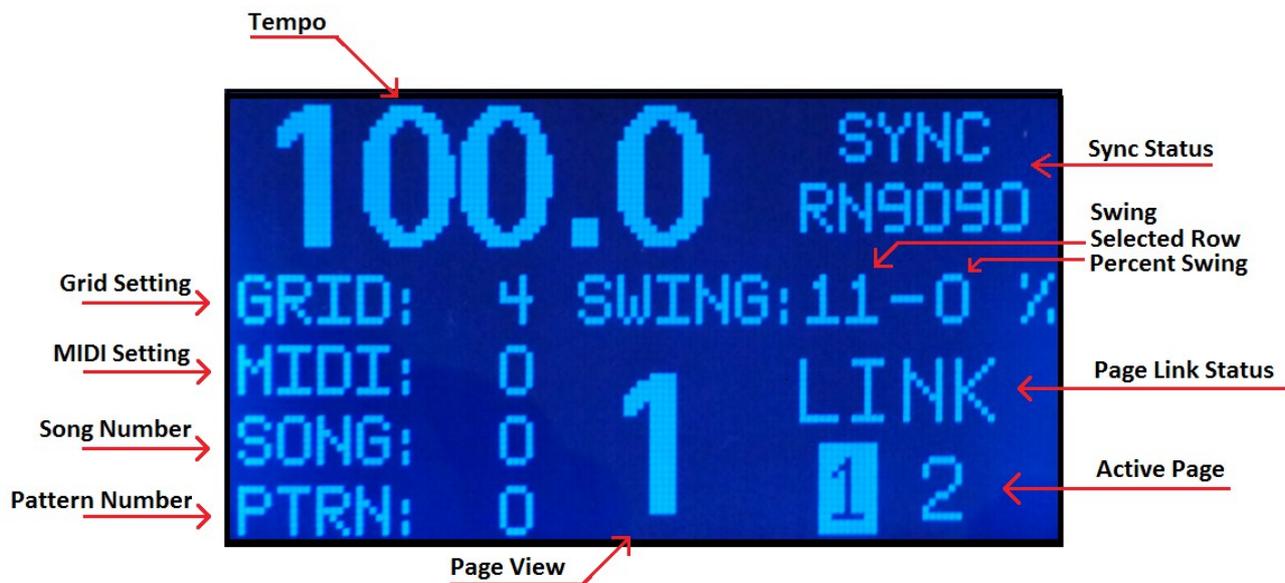
### Swing (Encoder)

The swing knob allows for control of the amount of delay that should be applied to every swing note for a given row. Swing notes are determined on a per-row basis. Each row can have it's own separate swing settings and swing notes. The swing knob is mapped to the row of the last positive button press. The swing amount and row selected can be found on the default display screen.

## OUTPUTS

The RN-9090 communicates with external devices via the midi protocol. There are two midi outs that provide simultaneous synced output. Each midi row can be assigned to either output and each output can be assigned a specific MIDI channel. The RN-9090 also features a 128 x 64 Graphic LCD screen to display operational information and navigate menus.

### Display Screen



Tempo – The tempo of the RN-9090 ranges from 60-180 BPM. The tempo automatically adjusts when the grid setting is changed.

Grid Setting – Shows the currently selected grid setting. Grid settings can be 4, 8, or 16 steps per measure.

MIDI Setting – The last loaded MIDI settings. MIDI settings include the MIDI Row Notes Assignments, Channel In, and Channel Out settings.

Song Number – The last loaded Song number. Default is 0.

Pattern Number – The last loaded pattern. Default is 0.

Sync Status – Displays information about whether the RN-9090 internal clock is set by the internal timer or external clock pulses. “RN9090” indicates no external sync. “REMOTE” indicates the timing is dictated by an external MIDI Clock.

Swing – The selected swing row is always the row of the last positive button press. The percent

swing is the amount of swing delay there is for valid swing notes.

Page Link Status – When LINK is highlighted, LINK mode is active and the RN-9090 will automatically swap between pages at the end of every loop to create a 32 step sequence. In Link Mode, the LEDs of the buttons do not update when the RN-9090 switches between pages. In order to change patterns, you must manually cycle back and forth between pages.

Active Page – The highlighted page is which page is currently being played. The display for the actively playing page will automatically update in LINK mode in order to stay current. Although the LEDs of the buttons do not update, the Active Page indicator will show which page is currently being played so changes can be made without interrupting the rhythm of the music being played.

## **MIDI PORTS**

There are two MIDI out ports MIDI 1 and MIDI 2. Each port has a unique MIDI channel assigned to it. Button MIDI rows can be assigned to Port 1 or Port 2 and note messages for a row will directed to the specific MIDI out port. The MIDI ports send the MIDI messages simultaneously.

MIDI THRU is a hard copy of MIDI IN.

MIDI IN is used for syncing MIDI clock and accepting system messages. The RN-9090 currently identifies and accepts the following MIDI messages: Clock, Start, Continue, Stop, and Song number.

## **MENUS**

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There are four main menus within the sequencer: SONG, PTRN, MIDI, and SQCR. The SONG Menu contains the menus and settings for Song related features. The PTRN (Pattern) Menu is where features for loading and saving patterns can be found. The MIDI menu provides access to MIDI related features. And, the SQCR (Sequencer) Menu provides access to sequencer specific functions.

### **SONG Menu**

#### PLAY/STOP

A song must be loaded before it can be played. If “Play Song” is selected and a song has not been loaded, the menu will automatically go to the load song menu. After a song has been loaded, and

“Play Song” has been selected, the song will begin shortly after. To stop a song, go to the Song menu and “Play Song” will have been replaced “Stop Song” at the top of the menu. When “Stop Song” is selected, the RN-9090 will continue to play the last loaded pattern.

### EDIT SONG

By default, the RN-9090 starts with blank song settings. A new song may be created or a song may be loaded for editing. To edit a song, navigate the song editor and adjust the song settings accordingly. A song consists of 64 pairs of slots for a pattern number and a corresponding number of times to repeat that pattern. If a song of less than 64 parts is desired, a 0 in both the file number and repeat counts will signify the end.

### LOAD SONG

Load a song from the stored songs. The currently loaded song is displayed on the LCD default display and the song settings can be viewed in the Song Editor.

### SAVE SONG

Save the current song information to one of the available song slots. Saving a song to any song slot will automatically overwrite any existing data. Song data can be viewed in the Song Editor.

## **PTRN (Pattern Menu)**

### SAVE PATTERN

Save the currently pattern of the page currently being viewed. Saved patterns are stored internally. Saved patterns include relevant swing, note length, and velocity data. Currently, only 16 step patterns can be saved and loaded.

### LOAD PATTERN

Load any of the saved patterns. Loading a pattern will cause the pattern to be loaded in the opposite page from the page that is currently being played. This is so that the music currently being played is not interrupted. To see the pattern update, simply switching to the opposite page of the page currently being played. Swap to activate the newly loaded pattern.

## **MIDI Menu**

### CHANNEL MENU

The Channel Menu is where the midi rows of the button interface can be assigned to either of the dual midi outs and the channel assignment of each midi out can be changed. To adjust the output

port of the midi rows, scroll down in the channel menu past the port channel assignments to access the row settings.

### NOTES EDITOR

Set the primary and secondary note assignments for each of the 11 MIDI button rows. Notes can be set for the full 128 MIDI Note Range. Primary notes are represented by the letter "A" while secondary notes are represented by the letter "B". Take the following example:

ROW 1A:	67	(Primary Row 1)
ROW 1B:	68	(Secondary Row 1)
ROW 2A:	69	(Primary Row 2)
ROW 2B:	70	(Secondary Row 2)

The "A" represents the primary note assignment and "B" represents the secondary row assignment for each row. MIDI rows are numbered 1-11 starting at the top and working downwards. In the previous example, the primary assignment for Row 1 is 67 and the secondary assignment is 68. Row 2's primary assignment is 69 and the secondary assignment is 70. In Global Velocity Mode, the potentiometer for Velo A would control the velocities for both Row 1A and Row 2A. The potentiometer for Velo B would control the velocities for Row 1B and Row 2B.

### SAVE MIDI

Save the current MIDI settings. Saved settings include the Incoming/Outgoing MIDI channels and all MIDI Row note assignments.

### LOAD MIDI

Load one of the stored MIDI settings.

## **SQCR (Sequencer Menu)**

### SWING MENU

The swing menu is where the swing settings for each MIDI row can be changed. The swing settings determine which notes are to be set as swing notes. The swing settings for each row are set independently from each other. Currently, swing notes can be set to 2, 4, 8, or 16<sup>th</sup> notes. The RN-9090 counts actual notes played (and not simply the number of steps) when determining swing notes.

### GRID

Set the Grid settings to 16, 8, or 4 steps per measure. The RN-9090 will automatically adjust the speed of the sequencer to maintain the proper BPM as shown on the display. Grid options are as follows:

16 Steps Per Measure = Each button represents a 1/16<sup>th</sup> note

8 Steps Per Measure = Each button represents a 1/8<sup>th</sup> note.

4 Steps Per Measure = Each button represents a 1/4 note.

## VELOCITY

*Global Mode:* Velo A controls the velocity for all primary notes and Velo B controls the velocity for all secondary notes. In Global Mode, velocities for all primary notes are linked together and all secondary notes are linked together. The velocities can be changed in real time with velocity knobs.

*Per-Note Mode:* Velo A is set to the last button press and Velo B is set to the second to last button press. The velocity for each note is independent from other notes. Populating pages in Per-Note Mode will copy the individual velocity settings as well as the pattern arrangement.

## **FEATURES**

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### **VELOCITY CONTROL**

There are two options for manipulating the velocity of outgoing MIDI notes: Global and Per-Note Modes. Global Mode sets the velocity for all outgoing notes to the same level. In Global Mode, Velo A controls the velocity for all primary notes sent and Velo B controls the velocity for all secondary notes sent.

“Per-Note” Mode allows one to set the velocity for each note independently. There are two dedicated pots for the velocity control. In Per-Note Mode, the velocities for each individual outgoing note are independent from each other. The pot for Velo A is assigned to the last button press as defined by the button with the last positive button press. De-selecting a note will not change the assignment of the last button press. The pot for Velo B is assigned to the second-to-last positive button press.

### **NOTE**

The Note knob is a potentiometer with a center detent. When the pot is in the detente position (12 o'clock), the note length is set to normal. The normal note length is for the duration of each step. As such the note length is dependent on the grid and tempo settings. Turning the knob counter-clockwise shortens the note to create a staccato effect. Turning the knob clockwise will increase the

note length exponentially. During testing, the maximum note length measured was approximately 11 minutes. Note lengths are button specific but independent of primary/secondary button status. For any given row, if a note of extended length is followed by a note that occurs before the note of extended length has finished, the new note will override the extended note length. The note being controlled is always the last button with a positive press. De-activating notes will not change the address of the note under control.

## **SWING**

Swing setting is determined on a per row basis. The swing setting for each row can be set via the Swing menu found in the Sequencer Menu. The swing setting determines which notes will have the swing applied. Calculations for notes to be swung are only applied to valid notes played and not simply the step spaces. The amount of swing applied to valid swing notes is determined by the swing knob. The percentage of swing represents the amount of delay as a function of the step event. Swing notes can only be moved off grid within their assigned step event. Notes cannot be moved off grid beyond the next step. Notes cannot be moved off grid in a backwards direction. The available swing settings for any given row are as follows:

Swing 2: Swing is applied to every other note.

Swing 4: Swing is applied to every 4<sup>th</sup> note.

Swing 8: Swing is applied to every 8<sup>th</sup> note.

Swing 16: Swing is applied to every 16<sup>th</sup> note.

## **SONG MODE**

The Song Menu is where all aspects of song playback are handled. Use Song Menu to Play/Stop a song, edit a song in the song editor, or save and load songs. Song playback is selected at the first (default) item of the song menu. A song must be loaded before song playback can begin. To stop song playback, simply go to the song menu and select Stop Song.

A song consists of 64 parts. Each part consists of a file number and their associated length of play. Both the file number and length of play can be set by the user. Each file number identifies a 16-step pattern to be played from the stored patterns. The REPEAT setting is the number of times the pattern will repeat before moving on to the next file/pattern. The file/repeat pairs for a song can be viewed and edited in the song editor. If a song is desired with less than 64 parts, then two zeros for a file and repeat will cause the song to end. See this song example:

FILE:           1

REPEAT: 22  
FILE: 2  
REPEAT: 18  
FILE: 3  
REPEAT: 4  
FILE: 4  
REPEAT: 60  
FILE: 0  
REPEAT: 0

In the above example, the song starts with Pattern #1 and repeats this pattern for 22 loops. During this time, the user can tweak the pattern, populate, clear, and swap pages. At the appropriate time, the RN-9090 will swap to the next page, in this case, Pattern #2. It will then play Pattern #2 for 18 loops, followed by Pattern 3 for 4 loops and Pattern 4 for 60 loops. When the song reaches two zeros together for the File and Repeat, it will exit song mode with the last pattern it was playing.

END