

MIDI Sequencing with the GR-1

This is an application guide for use with the GR-1 and an external MIDI sequencer. This guide will cover MIDI connections, setup of the GR-1 transmit parameters, setup of the GR-1's sound module section and recording a performance Patch. You should start by properly connecting MIDI cables between the sequencer and GR-1. Next, you will need to access the MIDI Out parameters in the SYSTEM menu and set them up to properly control your multitimbral Parts. Then, you will need to set-up the GR-1's sound module section by programming the MIDI Part parameters located in the RECORDER/PART menu. Finally, you will need to setup up the GR-1 to record a Patch.

When you first turn on the GR-1, you are playing what is called a Patch. A Patch is a combination of up to two smaller elements called Tones. The GR-1 has four multitimbral Parts for accompaniment applications, which means that you can have a bass Part, a piano Part, a string pad Part, and a rhythm Part played back at one time by the sequencer. The Parts of the GR-1 use Tones. You can then play a Patch live and record that performance into another track of your sequencer. This makes a total of 5 sounds that can be accessed through MIDI at the same time. Following this procedure will also allow you to monitor the performance you are recording on a sequencer more accurately, since you will hear all of the Parts played through MIDI while they are being recorded.

MIDI Cable Routing

If your MIDI system is limited to a GR-1 and a sequencer, connect a MIDI cable from the GR-1's MIDI Out to the external sequencer's MIDI In. Connect another MIDI cable from the sequencer's MIDI Out to the GR-1's MIDI In.

If you are using one or more additional MIDI devices such as synthesizers, drum machines or MIDI effects processors, you will need to use the MIDI connections labeled MIDI Thru. MIDI Thru takes the data that your MIDI device receives at it's MIDI In and passes it, unprocessed, to the MIDI Thru connection. It is possible to "chain" several MIDI units together by connecting the MIDI Out of your controller into the MIDI In of your first slave, then MIDI Thru of the first slave into the MIDI In of the second slave. This procedure can be repeated until all of the MIDI devices in your system have been connected. The GR-1 does not have a MIDI Thru jack so it will have to be the last slave sound module in your system. If you have more than one MIDI device that does not have a MIDI Thru, you may need to add a MIDI Patch bay or a MIDI Thru box to your system.

Initialize the GR-1

If you have any custom sounds or songs in the GR-1 be sure to save them to a M-256E card or via MIDI bulk dump to an external MIDI device before executing the following procedure. If you are unfamiliar with the procedure to save you sounds refer to pages 7-12,13 and 7-18,19 for card or 6-31 for bulk dump.

Note: This procedure will erase ANY custom settings in the GR-1!

- 1) Turn off the GR-1.
- 2) Hold down WRITE/COPY.
- 3) Turn on the GR-1.
- 4) Press ENTER.

I. Programming the MIDI Out Parameters

After making the appropriate MIDI connections and initializing the GR-1, we need to set up the MIDI Out parameters located in the SYSTEM menu. This is where we assign the MIDI transmit channel and transmit mode. We can also turn local control off in this menu, which will allow us to sequence the entire Patch along with the four multitimbral Parts. We will discuss the purpose of these MIDI Out parameters in more depth as we get further into the sequencing process, but for now, let's access them and set them up so we can begin sequencing.

- 1) Press SYSTEM and then press PARAMETER NEXT two times to access the following display screen:



- 2) Press ENTER, and you will access the BASIC MIDI channel that the GR-1 transmits on.

We will use this channel to transmit on the MIDI channels that the multitimbral Parts are set to. For now, use the VALUE buttons and set this to MIDI Channel 2.

- 3) Press PARAMETER NEXT once to access the MODE parameter abbreviated MD. Use VALUE to select POLY mode.

POLY mode is used for recording Parts because they are all on an individual MIDI channel. Patches are recorded using Mono mode, because each string requires one MIDI channel. Mono mode transmits each guitar string on a separate MIDI channel while Poly mode transmits all six guitar strings on one MIDI channel. Mono mode is important for solo guitar playing styles which require different pitch bend messages for each individual string. We will use Mono mode later in this guide when we record a Patch of the GR-1.

- 4) Press PARAMETER NEXT again to access the BEND parameter. Use VALUE to select the appropriate value.

A Bend Range of 12 should normally be used if you need to sequence your string bending. The GR-1's Parts default to this setting. A chromatic bend setting 0 is advisable when sequencing chords so that you can save memory in your sequencer. Pitch Bend messages can clutter up the MIDI stream so it is best to set this value to 0 when it is not needed. You will also find that your music will be more in tune if you do not transmit bend messages while sequencing.

Note: It is EXTREMELY important that this value match the sound module bend range. If you are using the GR-1 as a sound module, then set the PART BEND RANGE to match this value. We will cover how to change the GR-1's MIDI PART parameters in the next section.

- 5) Press the PARAMETER NEXT button again to access LOCAL. Use the VALUE buttons to select OFF. Local control is basically an internal MIDI cable that connects the fret board to the synthesizer internally. By turning LOCAL OFF, you will have to use a MIDI cable, connected from the GR-1's MIDI Out back to the MIDI In, in order to play the Patches. We will be placing a sequencer in between the GR-1's MIDI Out and In so that we can record the performance from the MIDI Out and play the sounds via the MIDI In.

Make sure to turn Soft Thru, sometimes called echo, ON in your sequencer so that the MIDI messages transmitted from the GR-1 into the external sequencer are merged with the sequencer's data and sent back to the GR-1 via the sequencer's MIDI Out. This allows you to monitor the Part you are performing while listening to the additional tracks that may already be recorded in your sequence.

Note: Make sure to turn LOCAL back to ON when done sequencing or you will hear no sound!

The settings in the SYSTEM menu are global and do not need to be written into memory. You will need to change them periodically throughout the "Recording the Multitimbral Parts" coming up later in this guide.

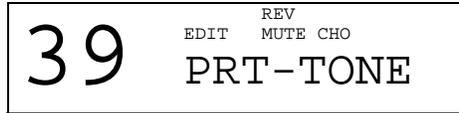
- 6) Press EXIT as many time as necessary to return to PLAY mode, indicated by the Patch name and number.

II. Setting The Multitimbral Parts

The GR-1 is a multitimbral synthesizer. This means that it can play back different instrument sounds on different MIDI channels at the same time. It has one Part dedicated to drums, three polyphonic instrument Parts, which play back any of the 400 Tones (200 internal and 200 on the optional SR-GR1-01 expansion board). In addition to these four Parts, the GR-1 can also play one Patch. The four Parts are set up in the EDIT RECORDER/PART mode. Let's access these Parts and select Tones for them to use with an external sequencer.

Front Panel Tone Select

- 1) From the PLAY mode, press the EDIT RECORDER/PART button.
- 2) Press PARAMETER PREVIOUS down one time to access the parameter for selecting the PART-TONE:



- 3) Press ENTER to call-up PRT1.
- 4) Use VALUE to select an appropriate bass sound for your song. Pressing CURSOR > will tell you which Tone you have selected.

Note: While in the Tone Select screen, you are placing the GR-1 in MIDI Omni mode. This will take whatever notes are coming into the GR-1 on ANY MIDI CHANNEL and play them with the sound selected on this screen. When choosing Tones with this method, make sure to leave this screen after your choices have been made before returning to sequencing.

- 5) CURSOR < to return to the PART1 page and use PARAMETER NEXT to call-up PART2. Use VALUE to select a nice chord accompaniment sound for the 2nd Part.
- 6) Repeat the same steps for PART3 and select a nice melody/solo tone.

Calling up Sounds via MIDI

If you would prefer to call up sounds from your external sequencer, you can do so with MIDI program change messages. The original MIDI specification only allowed for 128 different program locations. The GR-1 has 200 internal Tones, and 200 more Tones can be added with the optional SR-GR1-01 Expansion Board. To call up all of the GR-1's Tones, we can use the newly adopted MIDI bank select controller message.

The GR-1 uses MIDI bank select message control change 0. The value of the control change 0 will change to select the bank of the tone you want to use. Use the following chart for a guide:

MIDI Bank Select #	Controller # 0 Values	Program Change Numbers											
		1	2	3	4	.....	.....	125	126	127	128		
0	0	00	01	02	03	.....	.....	124	125	126	127		
128	1	128	129	130	131	.....	.....	252	253	254	255		
256	2	256	257	258	259	.....	.....	380	381	382	383		
384	3	384	385	386	387	.....	399						

Each of these controller messages needs to be followed immediately with a program change. In sequencing programs the bank number may be requested. Here is an example of how to do this:

- 1) To call up Tone number 64 BRT STRG, we would need the following messages:

Controller 0 value 0 (Bank 0)
 Program Change 64

To call up Tone number 175 AMBIENCE we would need the following messages:

Controller 0 value 1 (Bank 128)
 Program Change 4

Other Tone Parameters

Now that we have learned how to choose sounds for each Part from the GR-1's front panel and from an external sequencer, let's look at the other parameters that can be set up from the EDIT RECORDER/PART menus.

- 1) Press EDIT RECORDER/PART. Then press PARAMETER PREVIOUS twice to access PART SET.
- 2) Press ENTER. Within this menu, parameters are available for all three instrument Parts plus the rhythm Part. This screen allows us to work with PART 1:



- 3) Using the PARAMETER buttons, scroll between the 3 instrument Parts and the parameter menus for the DRUM Part. Call up PART 1 and press the ENTER button again to access individual parameters for the Part. Use the VALUE INC and DEC buttons to alter values. Here is a list of the available parameters with a brief definition:

P1VOL: This sets the volume level of the Part. You can also send MIDI continuous controller number 7 from your sequencer to alter this parameter setting in real time.

P1CH: This assigns the Part MIDI channel. The Part can be set to 1 through 16 or OFF. Be sure to assign each Part in your multitimbral system to its own MIDI channel. In the "Recording the Multitimbral Parts" tutorial later in this guide, we will need the three instrument Parts assigned to MIDI channels 2, 3 & 4.

Note: When the GR-1 is in MONO mode it is possible to conflict with the MIDI channel settings of each Part. For example, if we set the BASIC channel to 1 in MONO mode we will use up channels 1-6 conflicting with any of the Parts set on MIDI channels 1-6.

P1REV: This adjusts the reverb level of the Part. You can also send MIDI continuous controller number 91 from your sequencer to alter this parameter setting in real time.

P1CHO: This adjusts the chorus level of the Part. You can also send MIDI continuous controller number 93 from your sequencer to alter this parameter setting in real time.

P1BND: Bend Range is a very important parameter for accurate tracking with MIDI Guitars. 0 to 24 are valid settings, with 12 being the most common.

P1PAN: This parameter sets the stereo panning of the Part to between <63(Left), 63>(right) & RANDOM. You can also send MIDI continuous controller number 10 from your sequencer to alter this setting in real time.

There are also parameters designed to set-up the Rhythm/Drum Part.

- 1) Press the EXIT button one time, then use the PARAMETER buttons to scroll through Drum Part Parameters. These parameters are the same as the ones in the Part parameters.
- 2) Press the PARAMETER buttons to call up DR-CH. MIDI channel 10 is the industry standard for drums and it is strongly recommended that you keep your drum Part set there.

III. Recording The Multitimbral Parts

Before you begin recording data, make certain that the MIDI Thru function in your sequencer is set on. Before we begin recording, we need to discuss Auto Channelize. Many sequencers, including the MC-50MkII, require that you transmit your performance on the same MIDI channel that you wish the sequencer to play back. This means that you will need to change the BASIC channel to match the MIDI channel of the selected Part for each track. Many computer software sequencers have the ability to re-channelize the incoming data to any MIDI channel you

select. This function is typically called Keyboard Thru or Auto Channelize. Throughout the remainder of this guide, we will assume that your sequencer does not re-channelize incoming MIDI messages. For this reason, we will do most of our sequencing work from the SYSTEM MIDI menu.

- 1) Press SYSTEM, then press PARAMETER NEXT twice to access the MIDI display screen.
- 2) Press ENTER to access the BASIC MIDI channel. If it is not already set to 2, use the VALUE buttons and make it so.
- 3) Play your guitar, and you should hear the Part that you assigned to MIDI channel 2 earlier in this guide. Start recording your first track into your sequencer and it should record and play back your data.
- 4) Use the VALUE buttons to select the MIDI channel that you want to record your next track on. Part 2 of the GR-1's sound source should be set to MIDI channel 3, Part 3 should be set to MIDI channel 4, and Part R is on MIDI channel 10. If they are not set this way, review pages 2-4 to make the appropriate adjustments.

If you are using a computer-based sequencer, typically you will have Keyboard Thru or Auto Channelize. If that is the case, then you simply need to change the MIDI channel of the track on which you are recording to channels 2,3,4 and 10. Consult your sequencer's owners manual for more information.

- 5) Record onto track 2 of your sequencer. While you are recording, you should be hearing track 1 of the sequencer playing back Part 1 of the GR-1. The track you are recording should be playing Part 2 of the GR-1.
- 6) Repeat the last two steps to record onto track 3 on MIDI channel 4.
- 7) If you want to record a drum Part, set the external transmit channel on the GR-1 to 10.
- 8) Record your percussion Parts into the sequencer.

It is recommended that you insert MIDI bank and program changes at the beginning of a sequence so the correct sounds are recalled when loading and playing back sequences. Consult the owner's manual of your sequencer to find out how to do this.

IV. Recording the GR-1's Performance Patch

To sequence a performance Patch of the GR-1, you have to set the GR-1 to Mono so that each string is on its own individual channel. This allows you to use splits, layers and velocity mix/switch Patches in your sequences. If you are using a sequencer that re-channelizes your data, you will need to set it up to record on six MIDI channels at the same time. Consult your software manual for more information. The Patch track has to be the final track in your recording procedure because it is necessary to be in poly mode to record with the multitimbral Parts. You can actually use any of the Patches in the GR-1, but remember that the effects settings of your selected Patch will also effect the multitimbral Parts. In other words, if you use a lead Patch that has echo programmed into it, you will have the same echo on your bass track and your drums. Let's set up the MIDI Out parameters.

- 1) Press the SYSTEM button and the PARAMETER NEXT button two times to return to the MIDI menus.
- 2) Press the ENTER button and the PARAMETER NEXT button to select BASIC. Choose BASIC 11 so that we are using MIDI channels 11 through 16 to trigger the Patch.
- 3) Press the PARAMETER NEXT button to select MD, and VALUE the transmit mode to MONO.
- 4) Press the PARAMETER NEXT button again to access the BEND parameter. A Bend Range of 24 should be used if you need to sequence your string bending. The GR-1's Patches default to this setting so you will need to change the MIDI Out bend range to match the Patches default. A chromatic bend setting 0 is advisable when sequencing chords so that you can save memory in your sequencer.
- 5) Press EXIT twice to return to the PLAY mode and select the Patch that you want to use for your final track.

- 6) Play your guitar, and you should hear the Patch being played through MIDI. If you have been using Auto Channelize, turn it off so that incoming MIDI messages pass through your computer on the channels transmitted from your GR-1. Start recording on your sequencer and play your guitar.

V. Common Questions

- Q: I play a note on my guitar, hold it and after a little bit, it jumps an octave in pitch.
- A: This problem is caused because the guitar in question is not outputting the correct pitch. This typically occurs because of one of two reasons. If this is occurring on a particular fret and note then chances are that you have a 'sweet spot' on your guitar that is outputting a tone that the GK-2A pickup is interpreting as an octave above the intended pitch. If this is occurring on a particular string or range of frets, the chances are that a harmonic of a note is being accidentally triggered for that string or group frets. This effect can also occur with open strings. When the GK-2 or GK-2A pickup sees this new pitch, it assumes you meant to play a harmonic on the guitar and accordingly matches it with the appropriate note one octave up. This is primarily caused when a string vibrates and hits a loose or high fret and in turn creates a harmonic. Whichever problem you are having, typically the solution is a 'fret file'. A 'fret file' is an operation where a technician will file down the frets of your guitar so they have more consistent height. This operation should be performed by a qualified guitar technician. Raising the action of the strings can also yield results.
- Q: I play my guitar and get bizarre pitch results when using the GR-1 through MIDI.
- A: This problem is primarily caused when the pitch bend range of the transmitting device and the pitch bend of the receiving device do not match. Check the settings in the GR-1's MIDI Out section and the receive section of the sound module and make sure they match. Ideal settings for pitch bend range send and receive are typically 12 or 24.
- Q: I play the same string and fret but get different notes each time I play through MIDI..
- A: This problem is typically caused by uneven pitch being generated by the guitar. You can test this by plugging the guitar into a guitar tuner (not the GR-1) to check and see if your guitar is outputting different pitches each time you play. If this is the case, then your guitar frets may need work. Remember the tracking of the GK-2 pickup is only as good as your guitars output.
- Q: I play notes that are on pitch, but I still see pitch bend messages on my sequencer.
- A: Whether you play perfectly or not, you'll always send small amounts of pitch bend. It is not possible to play perfectly all the time. By playing a little bit off-the-fret of your guitar you will generate pitch bend messages. Turn the BEND to OFF when not needed. If you already have pitch bend range turned OFF and are still getting a pitch bend message with a value of '0,' this is normal. Even with the BEND set to OFF the GR-1 always outputs a pitch bend message with a value of '0' before each note to make sure the previous notes will be played in tune.
- Q: Can I use the GR-1 with a 12-string guitar, bass, pedal steel guitar, banjo or ukulele?
- A: While the GR-1 is not designed for a banjo, pedal steel, or ukulele, we've heard of some success with these types of instruments. However, since this unit was not designed for these types of instruments, Roland cannot endorse this application. What does this mean? Take your instrument of choice to a store and hook it up with a GK-2A and decide if the unit is able to track your instrument in the fashion you desire.
- Q: Why does the GR-1 seem to track slower through MIDI?
- A: Consider this - the cable that connects from the GK-2A to the GR-1 has 13 pins, so the internal sound source of the GR-1 tracks very quickly. A MIDI cable only has two pins connected, so many messages must wait in line and therefore will take longer to get down the MIDI cord. Turning BEND to OFF will cut down on the amount of MIDI messages the GR-1 will have to transmit and therefore possibly the waiting time.
- Q: The GR-1 receives continuous controllers 7 and 11. What are they used for?

- A: Controller 7 is used for master volume. Controller 11 is an expression control within the master volume. For example if we set controller 7 to 50, controller 11 would be a volume control with a maximum volume of 50.
- Q: Can I dump the sequence I made on the GR-1's internal sequencer to an external sequencer to continue editing?
- A: A sequence made using the GR-1's internal sequencer can only be transferred to external sequencer for storage purposes. The only way the GR-1's sequencer will send out its contents is via a bulk dump. This information is sent using a different type of transfer that a sequencer is not able to interpret and change to note information.
- Q: How come my tape sync device does not work properly when the GR-1's MIDI Out is connected to my MIDI system?
- A: The GR-1 outputs active sensing messages at all times. Although part of the original MIDI specification, active sensing messages can cause problems with tape sync devices and can cause timing mistakes on the tape sync device. These messages can not be turned off, therefore, disconnect the MIDI out of the GR-1 while using tape sync devices. You can also filter active sensing with many patch bays and MIDI interfaces.
- Q: How come I'm hearing all the music I have recorded playing the tone I've selected?
- A: While you are in the tone select screen, the GR-1 changes to OMNI ON. In this mode, no matter what MIDI channel you send to the GR-1, it will play the currently selected tone. Exit this screen to alleviate this problem.
- Q: How come I am not able to hear the Patch that I recorded play back when using an external sequencer on MIDI channel 1?
- A: When the GR-1 is in MONO mode, the BASIC channel and the next 5 channels are used for the current Patch in memory. If you have the BASIC channel set to 1 then you are using channels 1-6 for the Patch. The Parts that are set up in the sequencer section of the GR-1 will override the Patch of the GR-1. Change the BASIC channel of the GR-1 to 11 to alleviate this problem.
- Q: How do I sync the internal sequencer of the GR-1 to an external sequencer?
- A: It is not possible to have the GR-1's internal sequencer follow an external MIDI device via MIDI clock. The GR-1 does transmit MIDI clock messages when its internal sequencer is started. If you wish to sync the GR-1 internal sequencer and another device you must connect the MIDI out of the GR-1 to the MIDI IN of an external sequencer. Then you must set the external sequencer to follow MIDI clock. However, the GR-1 does not respond to MIDI clock messages unless it is in DOWNLOAD mode. DOWNLOAD mode is used for the purpose of transferring a song from an external sequencer to the internal sequencer of the GR-1.
- Q: Can I put the GK-2A pickup in a different position on my guitar?
- A: While the control section of the pickup can be moved to various positions, it is important that the pickup mechanism itself be installed in a manner as directed by the GK-2A owner's manual. Please use the picture in the GK-2A's owner's manual as your guide to installation.
- Q: Why am I not able to select expansion board Patches from the PN-GR1-01 while using my GR-1 with MIDI?
- A: This is caused when the GR-1's MIDI IN and OUT are connected to an external MIDI device and a MIDI loop is created. The Patches on the PN-GR1-01 have been made with program changes 1-64. When selecting Patches from the PN-GR1-01 card with your GR-1 you will send out these messages. These program changes bring up the first 64 Patches of the GR-1 instead of the card Patches. For instance, after you select a Patch such as 311, the GR-1 will transmit program change 1, receive it and then change to 111. There are a few ways to fix this problem. Turning the Basic Channel to OFF will stop the GR-1 from transmitting or receiving program changes. You can also filter program changes on your external MIDI device so they do not get back into the GR-1.