

GR-20 Guitar Synthesizer



Using the GR-20 with a Sequencer

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GR20WS03

About the Workshop Booklets

Roland's GR-20 Guitar Synthesizer opens up spectacular new sonic possibilities for the electric guitarist. With the included GK-3 Divided Pickup installed, any six-string electric guitar can play the GR-20's amazing collection of synthesizer sounds and sampled real-world instruments. You can also mix your guitar's own sound with those in the GR-20 to create new timbres that are all your own.

Each GR-20 Workshop Series booklet focuses on one GR-20 topic, and is intended as a companion to the *GR-20 Owner's Manual*.

This booklet requires GR-20 O.S. Version 2.00 or higher. You can download the latest GR-20 O.S. for free from www.RolandUS.com.

About This Booklet

A MIDI sequencer captures and plays back MIDI performances. It's a powerful tool that allows you to layer multiple performances, and do all sorts of things to hone your sequenced music to perfection. The GR-20 provides a way for you to record MIDI data into a MIDI sequencer from your guitar, using the GR-20's own sounds or any other MIDI sounds you like. This booklet explains how to sequence with the GR-20.

Understanding the Symbols in This Booklet

Throughout this booklet, you'll come across information that deserves special attention—that's the reason it's labeled with one of the following symbols.



A note is something that adds information about the topic at hand.



A tip offers suggestions for using the feature being discussed.



Warnings contain important information that can help you avoid possible damage to your equipment, your data, or yourself.

Hot Links

Each Workshop booklet is meant to be read in order from beginning to end. However, if we mention an upcoming section—and you see this arrow—you can click the arrow to jump there immediately.



About MIDI, Sequencers, and the GR-20



If you're experienced with MIDI and sequencers, feel free to skip this section.

A full discussion of MIDI is beyond the scope of this booklet—in fact, we have an InFocus booklet devoted entirely to MIDI called *An Introduction to MIDI*. You can download this booklet from the [Support Documents](#) section of the Roland US website.

Meanwhile—if you just want to get started—there are three basic things you really need to know about MIDI, sequencing, and the GR-20:

- *MIDI isn't sound, it's instructions*—When you play a MIDI instrument, your performance is converted into instructions that tell a sound-producing MIDI device what notes to play, and how to play them. These instructions are called "MIDI messages."
- *A sequencer*—captures MIDI data, and can play it back. This can make a sequencer *seem* like an audio recorder, but it's not: it's just playing back instructions that cause a sound-producing MIDI device to recreate your performance. A sequencer, by the way, can be a software program on a computer, part of a keyboard workstation such as the Roland Fantom-X, or a standalone hardware device.
- *Your GK-3 and the GR-20*—convert your playing to MIDI data, which can play the GR-20 sounds and/or be transmitted to another device, such as a sequencer, from the GR-20's MIDI OUT jack.



Many sequencers offer standard audio tracks in addition to MIDI tracks. You can, of course, easily record standard audio from the GR-20 into this kind of sequencer by simply connecting the GR-20's OUTPUT jacks to the sequencer's audio inputs. To learn about the GR-20 OUTPUT jacks, see the *Getting Started with the GR-20* Workshop booklet.

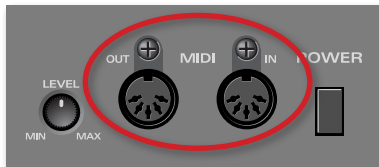
Connecting the GR-20 to a Sequencer

On the Sequencer Side of Things

To connect your sequencer to the GR-20, the sequencer has to have a MIDI IN jack and a MIDI OUT jack. If you're using a:

- *hardware, standalone sequencer*—you'll typically find a MIDI IN jack and a MIDI OUT jack on its rear panel.
- *keyboard workstation*—you'll typically find a MIDI IN jack and a MIDI OUT jack on its rear panel.
- *sequencing program on a computer*—MIDI connectivity has to be added to the computer in either of two ways. You can use a:
 - *MIDI interface*—which is usually a rack-mounted or tabletop box that connects to the computer via USB or FireWire, and provides MIDI ports you can connect to your other MIDI devices.
 - *sound card*—that offers MIDI jacks, or a game port to which you connect a special cable that provides MIDI jacks.

On the GR-20 Side of Things



Using a MIDI cable:

- 1 Connect the GR-20's MIDI OUT jack to the sequencer's MIDI IN jack.
- 2 Connect the sequencer's MIDI OUT jack to the GR-20's MIDI IN jack.



If you don't intend to use the GR-20's own sounds, you don't need to connect the sequencer's MIDI OUT jack to the GR-20's MIDI IN jack.



Preparing the GR-20 for Sequencing

MIDI Channel

Select the basic MIDI channel on which you want the GR-20 to send and receive data. (As we'll see, this channel also acts as the first channel the GR-20 uses in its Mono transmission mode.)



Unless you have a MIDI system that provides each MIDI device its own set of 16 MIDI channels, select a channel no other device is using.

To set the GR-20's basic MIDI channel:

- 1 Press SYSTEM EDIT repeatedly until the MIDI CH indicator lights.

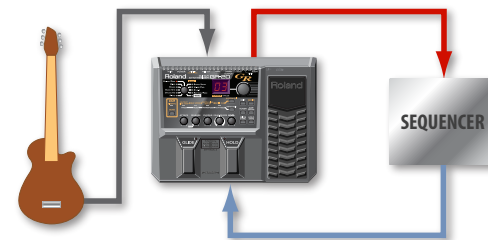


- 2 Turn the Number/Value dial to select a basic MIDI channel, from 1-11.
- 3 Press EXIT—the GR-20 stores your settings.

Local Off

When you're using a GR-20 patch while sequencing, notes can play twice: once from your guitar, and once more from the output of your sequencer.

- 1 The guitar plays the GR-20 note.
- 2 The GR-20 sends a note event to the sequencer via MIDI.



- 3 The sequencer plays the GR-20 note again.

The best way to solve this problem is to temporarily turn off the GR-20's own response to your guitar by activating the GR-20's Local Control Off feature. Here's how:

- 1 Power off the GR-20.
- 2 While holding down the GR-20's SYSTEM EDIT button, turn the GR-20 back on—the display briefly shows “Lo,” for “Local off.”



To switch local control back on, turn the GR-20 off and then back on.

The GR-20's Transmission Modes

For maximum flexibility, the GR-20 offers two different modes for sequencing: poly and mono mode.

Poly Mode

In poly mode, everything you play on your guitar is sent from the GR-20 to the sequencer on the basic MIDI channel. This is the most straightforward way to sequence.



If You're Bending Notes

Because the notes from all of your strings are being sent on a single MIDI channel, the GR-20 automatically disables the sending of pitch bend data when more than one note is playing. If it didn't do this, bending one note would cause all of the currently playing notes to bend, not something a guitarist always wants to hear happening. If you're bending notes, therefore, it's best to use Mono mode.

Mono Mode

In Mono mode, each of your guitar's strings sends its data on its own MIDI channel. This allows you to do a couple of interesting things. In Mono mode, you can:

- *control six different sounds at once*—with each sound being played by one string on your guitar.
- *sequence realistic guitar parts that involve string bending*—since each string's bending data is transmitted on its own MIDI channel.

In Mono mode, the basic MIDI channel carries the data for the high E string. The B string uses the next MIDI channel, the G the channel above that, and so on.



This is why you can select only MIDI Channels 1-11 as the basic channel: To make sure you always have a full set of five MIDI channels—counting upwards from the basic channel—you need for Mono mode.

To select a transmission mode:

- 1 Power off the GR-20.
- 2 While holding down the GR-20's EXIT button, turn the GR-20 back on.
- 3 Turn the Number/Value dial to select the desired mode:
 - Mono mode
 - Poly mode
- 4 Press EXIT to store your new setting.

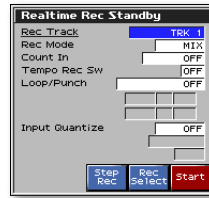


Setting Up Your Sequencer

Here's a list of things to set up before sequencing—see your sequencer's documentation for specific instructions on performing these tasks.

Select and Arm a Sequencer Track for Recording

Select the sequencer track you want to use for your GR-20 MIDI data, and arm it for recording. (Sequencers receive MIDI data from all 16 MIDI channels all the time, so they require no setting of a MIDI channel for recording.)



In a workstation keyboard like the Fantom-X, you select the track in a setup window.



In a computer sequencing program, click a track's Record button so it turns red.

Record Track Monitoring

Your sequencer may be able to send MIDI data from a track being recorded to its output destination as you record, so you can hear what you're doing. You may need to turn this feature—sometimes called “soft thru”—on. (In some sequencers, simply arming the track for recording automatically switches on the soft thru.)

Recording GR-20 Patch Changes

When you're recording a sequencer track that plays a GR-20 sound, you may want to set your sequencer to record MIDI Bank Select and Program Change messages. Here's why.

When you select a new patch on the GR-20, the GR-20 transmits MIDI Bank Select and Program Change values that identify the patch. You can record these values into a sequencer track so that when the track is played back, it sends these values back to the GR-20, and the patch is automatically re-selected.

This spares you having to remember the GR-20 patch you want to use, and is especially handy in situations where you want to change GR-20 patches over the course of a song.

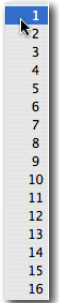
To capture a patch's Bank Select and Program Change values, start recording in the sequencer, and then select the desired patch on the GR-20 a few seconds before you start playing—during a countoff, for example.

Set the Sequencer Recording Track's Output

In a sequencer, each track sends its MIDI data to a sound-producing device that actually causes the recorded notes to play. You therefore need to point the track's output at this device.

When you're in Poly mode on the GR-20, you can use:

- *the GR-20's current sound*—by sending the track's output to the GR-20.
- *a sound in another MIDI device*—by sending the track's output to that device.



In a device like the Fantom-X, Tracks 1-16 send data out on MIDI Channels 1-16, respectively, by default.

The complexity of your MIDI setup determines the actual track output settings you need. In a:

- *simple MIDI setup with no MIDI patchbay*—set the track's output to the MIDI channel on which the sound-producing device is set to receive data, as shown above.
- *complex MIDI setup with a patchbay that allows each device its own set of 16 MIDI channels*—select the desired device, and then select its MIDI reception channel.



If you want your sequencer to use a GR-20 patch, set the track's output to the GR-20's basic MIDI channel, which we described on Page 3.



If the MIDI channel you need is different from the track's default output channel—as might be the case on a workstation such as the Fantom-X—you can usually change the track's output channel to anything you like. See the workstation's documentation for details.



We recommend setting up your output routing for Mono mode recordings after playback.

Sequencing

Once you've got everything set up, you can record a sequencer track, punch in, or record additional tracks from the GR-20 the same way you'd record from a MIDI keyboard—again, your sequencer's documentation is the best source for specific instructions in recording.

What the GR-20 Sends Out



MIDI has a set of “Control Change” messages that represent common behaviors in a MIDI instrument.

Here's a bit more detail on what the GR-20 does during sequencing:

- *When you start to play each note on your guitar*—the GR-20 sends out a MIDI note-on message for that note.
- *When you stop playing a note*—the GR-20 sends out a note-off message.
- *When you bend strings*—the GR-20 sends out pitch bend messages that mimic the behavior of your string bends.
- *When you press the GR-20 GLIDE pedal*—the GR-20 sends out pitch bend messages that mimic the way your notes' pitches change when GLIDE is pressed.
- *When you press the GR-20 HOLD pedal*—the GR-20 sends out MIDI messages that describe what the pedal does to your notes. If the HOLD pedal is set to:
 - *H1, H2, or H3*—the GR-20 stops sending out note-off messages until you release the pedal.
 - *H4*—the GR-20 sends out a sustain pedal-on (Control Change #64) value for as long as you press the HOLD pedal down.



Sustain pedal messages sent from the GR-20's HOLD pedal work best when you're sequencing in Mono mode.

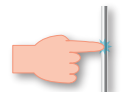
- *When you move the GR-20 Expression pedal*—the GR-20 sends out MIDI Control Change messages, depending on the pedal's configuration. If it's set to:
 - *Vo*—the GR-20 sends out volume change (Control Change #7) values as you rock the pedal.
 - *Fl or EF*—the GR-20 sends out foot pedal (Control Change #4) values when you rock the pedal.
- *When the patch's RELEASE knob is set to E FLW*—the GR-20 sends out General Purpose Controller (Control Change #18) values. If your sequencer's playing a GR-20 sound, these values set the GR-20's Release parameter to E FLW.



Tips for Successful Sequencing

Here are some tips for sequencing with the GR-20:

- *Play as cleanly as possible*—as always with the GR-20. If you do wind up with extra or unwanted notes in the recorded sequencer track, you can always delete them, thanks to the ease with which MIDI data can be edited in a sequencer.
- *If you're having trouble playing in time with the sequencer*—slow the sequencer's tempo down. You can speed it back up on playback. (One of the advantages of MIDI is that you can change a performance's tempo even after recording.)
- *If you're having trouble playing a complex part*—break the part up into simpler components you can record separately on different tracks. Your sequencer will allow you to merge them into a single track after recording.
- *If you're recording notes you didn't actually play*—set up your sequencer to ignore the unintended notes. In MIDI, the force with which you play a note is measured as a “velocity” value. Higher velocity values, up to 127, mean louder notes, while lower velocity values mean quieter notes. Most often, unwanted notes are played softly. You may be able to set up your sequencer so it ignores notes with a velocity value of 25 or less.



Playing softly
=low velocity



Playing hard
=high velocity

Playing Back a Mono Mode-Recorded Track

- 1 Depending on your sequencer, when you sequence using Mono mode, one track may wind up with the data for all six strings' MIDI channels. The best way to work with all this data to split it out onto six separate tracks. (See your sequencer's documentation to learn how to do this.)
- 2 Set each of the six tracks' output to the desired sound source. The tracks can play six sounds in a multitimbral sound module, plug-in soft synths, a bunch of single-sound modules, or a combination of these.



You can also send the outputs of your mono-mode-recorded tracks to the GR-20 when it's in Mono mode, and all of the tracks will play the same currently selected GR-20 sound.



When you're sequencing realistic guitar parts with string bending, set the sequencer to play six copies of the same guitar sound—one for each string. Use a multitimbral module for all of the sounds, or six copies of the same soft synth plug-in.

Storing the GR-20's Memory in an External Device

When the GR-20 is connected to a MIDI device that can store data internally—on a floppy disk, memory card, or hard drive—you can use the device for storing the contents of the GR-20's internal memory.

Using a special form of MIDI messages called "System Exclusive"—or "SysEx"—data, the GR-20 can transmit the entire contents of its memory, including all of your settings and User patches, as well as the GR-20's system settings, as a "bulk dump" for storage on an external MIDI device.



To learn more about SysEx data, see the InFocus booklet *An Introduction to MIDI*.

When a storage-capable MIDI device receives the GR-20's SysEx data, it saves it, and can then retransmit the data at a later date to the GR-20 for reloading. This allows you to keep a safety copy of the GR-20's data, or to save different GR-20 setups—including patches—for different situations.



You can store the GR-20's SysEx data onto a sequencer track from where it can be reloaded it into the GR-20 by simply playing the track. (Make sure your sequencer is set to receive SysEx data.)

Before proceeding, check your MIDI device's documentation to learn its procedure for receiving, storing, and transmitting SysEx data.

Transmitting the GR-20's Memory as a Bulk Dump

- 1 Making sure the GR-20's MIDI OUT is connected to the MIDI IN of the external MIDI device, power down the GR-20.
- 2 While holding down the GR-20's PATCH EDIT button, turn on the GR-20—the GR-20 powers up with "dP" for "dump," on the display.



- 3 Begin recording data on the MIDI device.






If you're recording onto a sequencer track, make sure to wait until the sequencer's countoff is finished before proceeding to Step 4.

- 4 On the GR-20, press the WRITE button to transmit the GR-20's SysEx data—during the transmission, the display shows "t."
- 5 When "dP" returns to the display, the GR-20's done, so stop recording on the MIDI device and save the data as you would any other data on the device.
- 6 Power down the GR-20, and then turn it on again to return to normal operation.



Reloading the GR-20's Memory from a Bulk Dump

- 1 Making sure that the external MIDI device's MIDI OUT is connected to the MIDI IN of the GR-20, power down the GR-20.
- 2 While holding down the GR-20's PATCH EDIT button, turn on the GR-20—the GR-20 powers up with "dP" for "dump," on the display. 
- 3 Turn the Number/Value dial so the GR-20 display reads "Ld," for "Load." 
- 4 Send out the SysEx data from the MIDI device—as the GR-20 receives the data, its display shows "r.." 
- 5 When "Ld" returns to the display, press the GR-20's WRITE button to store the received SysEx data.
- 6 Power down the GR-20, and then turn it on again to return to normal operation.

The End

We hope you've found this workshop helpful. Keep an eye out for other GR-20 Workshop booklets for downloading at www.RolandUS.com.