



Using the KARMA Function as a Simple Arpeggiator Part 1 – Monophonic Arpeggiations (Single Notes)

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The first 32 GEs included in the Karma Music Workstations have the designation "Arp Model" inside their names. That's because they were designed to emulate conventional arpeggiator behavior. We are going to experiment with "GE 0000 Arp Model 01 Up/Dn."

This particular Arp Model does about 95% of what any "conventional arpeggiator" does on another keyboard. You just need to understand the differences in terminology, for one thing. And also, you need to "disconnect" the front panel controls from the parameters when experimenting, so that varying them works as you might expect, instead of them still being modified by the position of various knobs and switches.

- 1) To start, let's select a synth program. Follow along and select **Program A092: Seq DDL Lead**.

Each GE has up to 16 "GE Parameters" assigned that allow you to modify the behavior of the GE. Some of these 16 parameters will be assigned to the 8 knobs and 2 switches of the KARMA section on the front panel. If you attempt to modify the GE and edit it while these controls are hooked up, you may not get the effect you want, because the settings are still being modified by the controls.

The 16 parameters are available on the UI pages 6.3-1, 2, 3 and 4 [K GE] [GE P..4,8,12,16]. If you go there now, you will see that some of the "Asgn" fields (Control Assign) display knob and switch settings. That is because they are hooked up to the controls. However, for our experiment, we don't want confusing behavior, so we will INITIALIZE all the GE/Module parameters before continuing:

- 2) Go to 6.1-1 [Setup]. Press [F8] UTILITY and select "Init KARMA Module," check the [X] KARMA RT&Panel Setting box, and press [F8] OK.
- 3) Now, select **GE 0000 Arp Model 01 Up/Dn** in the GE Select field.
- 4) Turn on the KARMA On/Off switch, and play a 4 note chord in the octave below middle C. You will hear an "straight" arpeggio going up and then down, over about a 4 octave range. If you let go, it stops. Turn on the Latch Switch of the KARMA function. Now you can release the keys and have the arpeggio continue while we experiment.
- 5) First, before going into all 16 GE Parameters in detail, let's limit the note range. Go to 6.3-2, [K GE] [GE P..8] where we will find GE Parameter 08: Note Series: Replications. For this parameter, "100" is equal to one octave. "150" would be approximately an octave and a half, and "300" would be 3 octaves. Just play with this and you can easily constrain the notes to whatever range you prefer. For now, let's set it to "200" (two octaves).

6) Most arpeggiators let you select between Up, Down, Up/Down, Down/Up, and Random. You can do all of that here, and more. Parameter 14: Phase Template Steps 1~4 is your "Up, Down, Up/Down and Down/Up" control. Just go to 6.3-4 and change this to hear the different directions:

- 0: Up
- 1: Down
- 2: Up/Down
- 3: Down/Up

Parameter 09: Index: Pattern Type [B] is our "random" selector. A value of "0" gives you the up/down patterns, while "1" is completely random, and "2" is another type of random algorithm explained later on.

7) Most arpeggiators have a "Note Sort" function. Ours is available on 06: Note Series: Input Sort. Check it out:

- 0: Up (most normal)
- 1: Down
- 2: As played
- 3: Random

Right there, you've just done about 90% of everything you can do with most simple arpeggiators. ;)

The following table is a complete reference for all 16 parameters for this GE model. Read the descriptions and experiment with each one as you do so – you'll learn a lot! Many of the other "Arp Models" in the first 32 GEs have very similar settings. (Actually, the ones with the same names followed by different Up/Down designations are really the same GE, with Parameter 14 set to produce the different directions, in an attempt to provide these to people who cannot be bothered to even change one parameter.) However, since you are now enrolled here in "Arpeggio Model 101", you are becoming familiar with changing that parameter and others!

Incidentally, all of the following GE parameter names and terminology are explained in the "KARMA GE Guide", which is one of the manuals included with the keyboard (also available online at the KARMA Documents Page (www.karma-lab.com/KARMA/KARMA_Docs.html))

Of course, it's not always easy to make the connection between the descriptions and the various ways they are set up inside the GEs, so that's where you have to use a little brain power and experimentation!

01: Rhythm: Swing %			
This applies a swing feel to the notes, from 0% (off) to 50% (triple) to 100% (all the way to half the current rhythm value, i.e. from a 16th to a 32nd.) Note that if the next parameter is set to produce triplets, it will not have an effect on them.			
02: Rhythm: Straight/Trip Mults [B]			
This selects one of several “Rhythm Multiplier” settings to change the base resolution of the notes that are generated. By default, it comes up as “4”, which is 16th notes. The multiplier affects the internal Rhythm Pattern of the GE, which is set to all 16ths, so here’s the settings:			
0: 25%	64th notes		
1: 34%	32nd note triplets		
2: 50%	32nd notes		
3: 68%	16th note triplets		
4: 100%	16th notes		
5: 136%	8th note triplets		
6: 200%	8th notes		
7: 272%	Quarter triplets		
8: 400%	Quarter notes		
9: 544%	Half note triplets		
10: 800%	Half notes		
03: Duration: Duration Value [B]			
This controls the durations of the notes, from 0 to 125%. 100% is “legato” (each note extends to the next note. Other settings are pretty obvious. A typical arpeggiator might call this control “gate time”.			
04: Velocity: Velocity Scale [B]			
Parameter 05 (the next one) selects one of several different Velocity Patterns, which subtract velocities from some of the notes. This one, Velocity Scale, sets a percentage for how much the pattern effects the actual note velocities. At “0” (0%), it has no effect at all and all the velocities come out at the same level. At “100” (100%), the pattern is applied according to its internal values. At higher values like 300~600%, you can actually make some notes drop out, getting different simpler patterns from the arps. Leave this set to something fairly obvious like “300” as we move to the next parameter.			
05: Velocity: Velocity Template [B]			
This chooses one of several completely different Velocity Patterns for the internal pattern grid, changing which notes are accented and which are lower in volume/brightness. Make sure GE Parm 04: Velocity Scale is set to something high like +0300 when you experiment with this one.			
06: Note Series: Input Sort			
As explained earlier, this corresponds to the “Note Sort” feature of most conventional arpeggiators. When you play a group of notes, those notes are “replicated” across a number of octaves based on the 08: Replications; Input Sort controls how the notes are sort prior to each replication. For example, when 1: Down is selected, the notes will be sorted in a downward direction within each octave. It’s pretty easy to hear the differences:			
0: Up (most normal)	1: Down	2: As played	3: Random

07: Note Series: Inversion

This controls a basic inversion for the notes. In other words, play a C Major triad (C – E – G), with the C on the bottom (root position). When Inversion is “0”, you get what you played. +1 would start the arpeggio from the E (first inversion), +2 would start the arpeggio from the G (second inversion), and so on. This can be useful when you put the same arp on more than one module – offset the inversions, and they will play “in harmony” with each other!

08: Note Series: Replications

As explained previously, the notes you play are “replicated” across a number of octaves according to this setting. For this parameter, “100” is equal to one octave. “150” would be approximately an octave and a half, and “300” would be 3 octaves. Just play with this and you can easily constrain the notes to whatever range you prefer – you can even set it to “0” and get a single repeated note, which you can then apply velocity accents to using GE Parm 04 and 05 above.

09: Index: Pattern Type [B]

This switches the arp between a normal up/down type of pattern, and one of two different random variations:

0: Use the internal pattern (up/down)

1: Random – each note is played once at random based on 08: Replications

2: Random Walk – the notes will be played in a random fashion, starting at the top or bottom, and move randomly to the next note with a maximum jump of 2 notes (internally set). This can create very improvisational sounding patterns.

10. Env: Env On/Off [2]

A GE can use up to three independent envelopes, each doing a different CC or modifying some parameter such as velocity. This one turns on Envelope #2, which is set internally to generate CC #16 (Ribbon, which is internally controlling Filter Cutoff). It will apply a “shape” to the overall filter setting, causing the sound to get brighter and darker over time as the GE generates notes. (Note that the “Voice Name List” can tell you which envelopes are generating which CC numbers – see page 10.)

Note that the actual functioning of the envelope is highly dependent on the Envelope Latch settings, which can be located on 6.2-2 [Parm2]. As you can see, at the moment Env2’s Latch setting is “Off”. Play a chord and hold it down – you should hear the sound get brighter and then slowly get darker. If you release the keys, the notes will continue because the Latch button is on, but the envelope itself is set to Latch “Off”, so it will simply go into its release portion, and get bright again, and stay there.

However, we can make the envelope “loop” over and over, by changing the Envelope Latch setting to “Sus2” – now it will play to its sustain portion, and then restart at the beginning, and loop over and over. You should now be able to hear the sound getting gradually brighter and darker continuously. To change the speed of the envelope, so it gets brighter/darker faster, skip ahead to GE Parm 12: Env: Time Scale[2]. If you set GE Parm 10: Env On/Off [2] to “0”, you’ve turned the envelope off and there is no filter variation.

11. Env: Attack Lvl [2]

This changes the attack level setting of the envelope. Provided that 10: Env On/Off is set to “1” and you have got the envelope looping as explained above, varying this will change the shape of the envelope, in conjunction with 13: Env: St/Su/RI Lvl [2]. You can concentrate the variation of the envelope more towards the brighter or darker portions of the sweeping sound.

12. Env: Time Scale [2]

This controls an overall time value for the envelope, from 1 to 10 seconds. With the envelope looping as explained above, vary this and hear the difference with the faster settings.

13. Env: St/Su/RI Lvl [2]

This varies the Start, Sustain, and Release levels of Envelope 2 all at the same time. It is the corresponding setting to 11: Env: Attack Lvl, and allows you to control the shape of the envelope using the two of them.

14. Phase: Template Steps 1~4

With regards to typical arpeggiation, this is your "Up, Down, Up/Down and Down/Up" control.

0: Up 1: Down 2: Up/Down 3: Down/Up

15. CCs: Fixed/On [1]

Do you hear the panning that is moving the sound back and forth, left to right? That is being generated by this setting. (If you were to look in the Voice Name List, for GE 0000, we will see that CC-A is set to CC10, which is Panning).

The way the "Fixed" parameter works is that if it is set to "128", it kicks in the pattern, while if it is set to any other value, that fixed value is sent out. Set it to "64" and the panning stops, with the sound in the center. "0" would be far left, while "127" is far right. Setting it to 128 kicks in the pattern again. The pattern itself is controlled by the next parameter, 16: CCs: Template.

16. CCs: Template [B]

This is set up to select one of 16 different patterns which start at "Left to Right Slow," get faster and faster, and eventually move into some patterns that flip back and forth with each note or group of notes. Here are the template names, which you cannot see inside the keyboard:

- 1: L <-> R Slow
- 2: L <-> R Med Slow
- 3: L <-> R Med
- 4: L <-> R Med Fast
- 5: L <-> R Fast
- 6: L <-> R Very Fast
- 7: L <-> R Really Fast
- 8: L <-> R Truly Fast
- 9: L <-> R Fastest
- 10: 1L, 1R (one note left, one note right)
- 11: 2L, 2R (two notes left, two notes right) etc.
- 12: 3L, 3R
- 13: 4L, 4R
- 14: 5L, 5R
- 15: 6L, 6R
- 16: 8L, 8R

Note that you can see these names and the templates themselves, using KARMA MW Software, on the GE Editor > CCs Panel.

One other thing to try:

Some keyboard's arpeggiators have a function named something like "Key Sync" that controls whether or not the arpeggio starts over every time you play notes or just continues from where it was. In KARMA, this is named "Note Trigger" and is found on UI page 6.2-2 [K Mdl] [Parm2].

Any: Every note-on will cause the phrase or pattern to restart from the beginning.

AKR: (1st After Key Release) Triggering will occur when the first note-on occurs from a state in which no keys are "on." Triggering will not occur if even one note is being pressed. By changing the chord you play on the keyboard while holding at least one note, you can control the phrase or pattern without triggering.

1st: (1st Only Until Module Stops) After KARMA function is turned on, only the first note-on will cause triggering. Subsequent note-ons will not cause triggering.

Dyn: (Dynamic MIDI) Triggering will be produced by operating the controller specified by Dynamic MIDI (6.4-3). In this case, note-ons will not cause triggering.

By now, you should be able to see that a single GE "Arp Model" is quite a powerful tool, allowing you to do most of what any other keyboard's arpeggiator will do.

"**Part 2 – Polyphonic Arpeggiations**" presents an example of how to generate simple arpeggiations having chords (clusters) instead of just single notes. Have fun!