EasyStart

RADIAS SYNTHESIZER / VOCODER

KORG

RADIAS Main Features

- Complete synthesis system with four Timbres per Program, including drum kits
- MMT Multi Modeling Technology offers seven types of synthesis
- Two ultra low-aliasing oscillators per Timbre afford sonic horsepower in every range
- Illuminated controls are always active for quick editing
- Two multi-mode filters, routable in series, parallel, or independently
- Filter Balance parameter allows Filter 1 to continuously vary amongst four filter types
- 24-note polyphony
- Up to 9 simultaneous effects per Program: 2 Insert effects and 1 Master effect, plus 2-band EQ for each Timbre
- Mod Sequencer lets you record step or motion sequences, including wave sequencing
- Arpeggiator and two polyphonic step sequencers for many melodic and rhythmic patterns
- Advanced 16-band Vocoder allows recording of Formant Motion phrases; 120 seconds (16 segments of 7.5 seconds each) of such data can be stored
- Envelope Follower allows external or internal sounds to shape the synthesis in new ways
- Timbre and Effects Templates make programming from a good starting point a snap
- 256 Programs, 32 Drum Kits provides lots of sounds at instant access
- Four outputs; two audio inputs; includes headset mic
- USB MIDI connectivity, plus included Editor/Librarian for both PC and Mac platforms

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Getting Started:

Getting Started - Connections

1. Assemble the RADIAS keyboard and rack per the included instructions, or if using the RADIAS as a sound module, connect your external MIDI device to the RADIAS **MIDI INPUT**.

2. Connect the AC power cable **>** Make sure that the **VOLUME** knob is turned down first, and then connect audio cables from the **MAIN OUTPUT L/R** jacks on the back of the RADIAS to your stereo monitor system (or connect headphones to the PHONES jack).

3. Press the **POWER ON** key on the rear panel. If you're using the RADIAS as a sound module, make sure that its Global MIDI channel matches that of your external MIDI device (see page 17 in the RADIAS Owner's Manual).

Working with the RADIAS

Playing the Demo Songs

1. Press and hold the **DRUM** and **GLOBAL** keys. The songs will play consecutively.

2. To advance to the next song at any time, press the ▼/► **CURSOR** key.

3. Press the **EXIT** key to leave demo song mode.

Selecting Programs

1. Turn the **PROGRAM/VALUE** knob to select any one of 256 Programs.

2. Alternatively, you can select one of 16 Banks A-P with the **PROGRAM BANK/TRIGGER UP/DOWN** keys **>** Select a Program with one of the **SELECT** keys 1-16. The **SELECT** keys access Programs, and the **BANK** keys move through Programs within the selected bank of sounds.

3. Selecting Programs by Category: Press the ▲/◄ **CURSOR** key to highlight the current category name **>** Turn the **PROGRAM/VALUE** wheel to select the desired category **>** Press the ▲/◄ **CURSOR** key to highlight the word **"Category" >** Now you can turn the **PROGRAM/VALUE** wheel, and remain in the current category.

Categories:

1: Bass	5: Motion	9: Bell/Decay	13: Split
2: Lead	6: Strings/Pad	10: Acoustic	14: Audio In
3: Synth Hard	7: Keyboard	11: S.E/Hit/Drum	15: Vocoder
4: Synth Soft	8: Guitar/Pluck	12: Arp/Seq	16: User

Try these RADIAS Programs:

PROGRAM	Name	Performance Tips / Program notes
A13	Smooth EP	Oh yeah! Play it and let the sound develop – hold chords
B09	Synth Hydra	Great aggressive hard synth sound! Try it with the MOD SEQ and ARP ON.
E01	Radias Power	Play a note and hold it a LONG time. This shows off power of formant recording, 4 timbres, 2 step sequencers and an arp!
F02	Dark Moon	May bring back memories (good or bad ☺) Play a low C then C4 and C5 to bring in the additional yummy elements.
H07	Tek Seq Bass	Play, then ARP ON, and then MOD SEQUENCER ON
H06	Dukey Lead	Pitch and Mod wheels; Turn ARP ON
H16	Entity	Try adjusting the LFO speeds and the EDIT 1 INSERT FX knob for creepy effects on timbre 1
L03	Acid Jazz	Use the MOD wheel to overdrive the EP, giving it a brass like character.
N16	FrNkNsTeln	Why not?!!! Get on that MOD Wheel, turn ARP on/retrigger! Edgar!!!

Selecting and Editing Timbres within a Program

1. *To select Timbres:* When the **PROGRAM** key is lit, one of the four **TIMBRE SELECT** keys will flash: this is the Timbre that is currently active from the front panel **>** Press any of the lit **TIMBRE SELECT** keys, and the front panel is now active for that Timbre.

2. *To Mute/Un-mute Timbres:* To mute an active (lit) Timbre, hold down the **EXIT/NO** key and press the lit **TIMBRE SELECT** key for the Timbre you wish to mute **>** Hold down the **EXIT/NO** key and press a muted (dark) **TIMBRE SELECT** key to un-mute a Timbre.

3. *To edit Timbres:* After selecting a Timbre, press the **EDIT/YES** key, move any knob, and the Display immediately updates to the page, parameter, and value **>** Press the **SELECT** keys **1-16** to jump to a different page of the RADIAS architecture.

4. *To Assign a Drum Kit to a Timbre:* Press the **EDIT/YES** key **>** Press the **SELECT key #2**, **COMMON >** Press the **COMMON** key again or use the **PAGE** + key to highlight the **DRUM** tab on the display **>** Turn the **PROGRAM/VALUE** wheel to select one of Timbres 1 through 4 as the Drum Kit Timbre **> CURSOR ▼** to "Kit No." to select a different Drum Kit.

   The Original Value LED and COMPARE Key: The currently flashing Timbre is always available for quick editing **>** The **ORIGINAL VALUE** LED lights up when a knob or key is at its programmed value **>** Alternatively, press the **COMPARE** key to hear the original version of a Program **>** Press **COMPARE** once more to exit from Compare mode.

Animation, Animation! (Arpeggiator, Step Sequencer, Mod Sequencer)

As you dial through RADIAS' Programs, you'll hear lots of motion in the sounds. Now to explore the tools you have to animate a sound...

1. Select Program **E07, Krash Bass >** Press the **ARPEGGIATOR ON** key **>** The "**A**" character after Timbre #2 denotes that the Arpeggiator is assigned to this Timbre **>** The **1** and **2** characters denote that those Timbres are using Step Sequencers 1 and 2, respectively. Play a note on the keyboard to trigger the patterns.

2. Try turning the **GATE** and **TEMPO** knobs as this groove percolates. RADIAS also has a **TAP TEMPO** key: Tap it three or four times for to set the BPM **>** The BPM indicator on the Display will update to the new tempo.

3. The Key Sync parameter is a valuable one to know, if you wish to have the motion patterns re-start with each new key strike **>** Press the **EDIT/YES** key, press **SELECT** key #**14**, **ARPEGGIATOR**, and **PAGE** to the "**COMN**" tab **> CURSOR** to "**KeySync**" and turn it ON by turning the **PROGRAM/VALUE** wheel **one clockwise notch >** Play the keyboard, and hear how the patterns always re-start with your key-on messages.

4. Press the **16 KEYS SELECT** key: it will toggle between TRIGGER and PAGE **>** Leave it set to **TRIGGER >** Press the **Timbre #4 TIMBRE SELECT** switch ("80s OldSkool" drum Timbre) **>** Using the **16 SELECT keys**, try turning the trigger steps on and off in real time as the patterns run selected, you can move between the two measures of this pattern with the PROGRAM BANK/TRIGGER UP/DOWN keys. *Each measure, and each Timbre, can have its active trigger steps edited independently, in real time!* Press the **EXIT/NO** key to exit.

5. Select Program **G05, Wavesequenza >** Notice that the **ARPEGGIATOR/STEP SEQUENCER** switch is OFF, but RADIAS is still generating a Wavestation-like wave sequence! This is a great example of the **MOD SEQUENCER >** Turn the **MOD SEQUENCER** OFF (unlit) and play the RADIAS; now turn it back on, play a note or notes, and hear this waveform animation.

6. Press the **EDIT/YES** key, then press **SELECT** key #**12, MOD SEQ;** press it again or **PAGE** to the **SEQ1** tab **>** Notice that the Knob parameter is set to "**OSC1c2**": When "**SYNTH PCM**" is selected as the sound generator for **OSC 1**, the **CONTROL2** knob can dial any of 64 waveforms in this wavetable > This Mod Sequence is changing that waveform selection in real time! **>** DIAL through the 'Knob' parameter choices: *There are over forty possible assignments for the Mod Sequencer, and remember, three of them can be running at once!*

The Vocoder & Modifying External Signal Through the Audio Inputs

When you speak, your voice consists of two components. The first component is the basic voice character that is produced by your vocal chords. It varies in pitch but remains fairly constant. The second component forms and shapes the basic voice, and is called the **formant**. Note how your voice is changed (modulated) by your mouth and tongue when you speak. For example, "ohh. ahh."

In the simplest of terms, a **Vocoder takes the formant of your voice and uses it to modulate a second sound** (In this case, a 'carrier' sound generated by RADIAS). The sounds are mixed together to an output signal and results are wonderful! The RADIAS' Vocoder is capable of simulating classic Vocoder sounds from the past, and allowing for advanced possibilities to create new and totally unique Vocoder sounds.

The RADIAS has two audio inputs. INPUT 1 is for connecting a synthesizer or other sound source. The input signal can be used as OSC 1's waveform, routing it through the entire synth engine. INPUT2 is a microphone input for the Vocoder Programs (if you use another type of mic besides the included headset mic), or it can be used as the right side with INPUT 1 if you are plugging in a stereo source.

1. Make sure the **AUDIO IN 1 /INST** and **AUDIO IN 2/VOICE** knobs on the RADIAS are turned all the way down.

2. Connect the **included headset** microphone to the rear panel **CONDENSER MIC INPUT**, and set the switch to **CONDENSER MIC.** Alternatively, you can use another type of microphone and connect it to the rear panel **INPUT 2** jack **>** Set the rear panel **AUDIO IN 2** level switch to the **DYNAMIC MIC** position.

3. Slowly adjust the **AUDIO IN 2/VOICE** knob up until the LED turns green (red indicates clipping) when you speak into the microphone.

4. Select any "Init Program' in Bank P **>** Press the **VOCODER** key, press a note on the keyboard, and speak into the mic. Try adjusting the **FC OFFSET** and **RESONANCE** knobs while speaking and playing; **FORMANT SHIFT** also effectively modifies the sound.

The Vocoder in RADIAS has a new Formant Record function: vocal or other sound data can be recorded so that you can play the Vocoder without having to speak into the mic!

5. After completing Steps 1-4 above, make sure that the **ROUTING/ MODULATOR** key points to "**AUDIO" >** Press the **FRMNT REC** key: it will flash **>** Press it again so it is solidly lit, and say a phrase up to 7.5 seconds long **>** Press **FRMNT REC** again so it is unlit.

6. Press the **ROUTING / MODULATOR** key so that **"FRMNT PLAY**" is selected **>** Now play the keyboard and hear your phrase!

7. Press the **EDIT/YES** key, then press **SELECT** key **#8, MODULATOR**. **CURSOR ▼** to the "Mode" parameter: 'TrigReset" means that each key event will force the phrase to re-start; "FreeRun" means the phrase will finish **>** Another useful parameter is "Threshold": higher values will gate or separate the syllables in your phrase.

8. Note that the Formant Motion you have recorded must be written to memory to be re-used **>** Press the **WRITE** key to do so **>** Turn the **PROGRAM/VALUE** dial to choose to save either the "Formant" only (Note that all Programs can share the sixteen Formants currently in memory); or choose "Prg&Frmnt" **>** Press the **EDIT/YES** key to complete the Write operation.

Note: *The included RADIAS Sound Editor (CD) allows you to Trim and Normalize Formant phrases.*

Editing using Templates

Working with advanced DSP synthesis has never been easier, thanks to RADIAS' synth and effects Templates. In this section we'll learn how to use Templates for effortless sound creation.

1. Select the **"P"** Bank with the **PROGRAM BANK/TRIGGER** keys and choose any "Init Program" **>** Press the **EDIT/YES** key, then press **TIMBRE SELECT** key #**3.**

2. Navigate through the tabs at the bottom of the Display by either repeatedly pressing the **TIMBRE 3** key, or by pressing the **PAGE –** and **+** keys, until **"TMBR"** is highlighted **>** Use the **CURSOR ▼/►** key to highlight **"Init Timbre 1"**.

3. Turn the **PROGRAM/VALUE** dial counterclockwise to select a pre-programmed Timbre **>** Turn it clockwise to select one of 128 synth templates for the type of sound you wish to create. *(Note: The full names of these templates may be found in the Owner's Manual p.165.)*

4. Press the **EQ/FX** key **>** Navigate as in Step 2 to the **"IFX1" tab**, and use the **CURSOR** keys to highlight the dashes after **"Load" >** Turn the **PROGRAM/VALUE** knob and select one of 128 Effects Templates **>** Repeat as desired for IFX2, and for the Master Effect. *(Remember: RADIAS is so powerful, each of a Program's four Timbres can be assigned <u>two</u> different Insert Effects; plus the program can have a ninth Master Effect!)*

Virtual Patch Mode

Early analog synthesizers used patch cables to create signal paths between various parameters (for example, to use an envelope to modulate filter cutoff). With the RADIAS' Virtual Patch function, any of fifteen modulation sources can be routed to one of fifteen parameters, and there are **six** Virtual Patch setups available **for every Program!**

1. Select any "Init Program" in Bank P **>** If **PATCH 1** is not selected, press the **SELECT** key repeatedly until its LED is lit.

2. Press the **SOURCE** key repeatedly until **"M.Wheel"** is selected on the Display **>** Now press the **DESTINATION** key repeatedly until **"NoiseLvl"** is displayed **>** Rotate the **INTENSITY** knob clockwise, so the Display shows **"Int=+63."**

3. Now play the keyboard while pushing the Mod Wheel back, and you'll hear how we've set the M.Wheel to control Noise Level at full intensity

4. Now, using the same steps, try creating another Virtual Patch for **PATCH 2 >** Try Velocity as a Source, and Filt1Cut as a Destination, with a negative value of -50: Now your sound gets darker the harder you play, and the Mod Wheel introduces noise.

The benefit of the Virtual Patch Matrix is extremely flexible routing allowing for more sonic possibilities!

Factory Preload

All or a portion of the original factory data can easily reloaded at any time. The process is simple, so you should never be afraid to experiment with RADIAS!

To reload the factory data...

1. Press the **GLOBAL** key **>** Using the **PAGE** - and **+** keys, advance to Page 3 of the Global Menu, **"PRELOAD"**.

2. Turn the **PROGRAM/VALUE** wheel to modify the **"Load Data"** request. You can load **"All Data"** at once; or choose to load a single Program *to any destination, not just its original location.*

RADIAS Sound Editor software and MORE

Included with the RADIAS is a CD containing the RADIAS Sound Editor software. This marvelous little software program allows you to edit, manage, save and load RADIAS programs, drum kits, global data, and template data using your PC or MAC computer. Also on the CD are the Korg USB-MIDI Drivers and a demo version on the KORG Legacy collection. All of the information you'll need to install and work with the RADIAS Sound Editor software and other included applications can be found on the CD.

For more information, read the RADIAS Owner's Manual, and visit www.korg.com for more support, tips and tricks!