

PERFORMING SYNTHESIZER
SPELENDER SYNTHESIZER
SYNTHETISEUR DE CONCERT

KORG Σ Sigma



+ 2600:

Owner's Manual
Bedienungsanleitung
Mode d'emploi

Sound
Revolution
KORG

About Sigma

Synthesizers are musical instruments. They should be playable outside of a recording studio, and should give the musician full expressive freedom without having to depend on multi-track recording.

It is from this concept that Sigma was born. Sigma is revolutionary because it offers the tone-color flexibility of modular control-type synthesizers, along with the fast and simple playability of preset synthesizers. Conventional preset units have limited expressive capability because the manufacturer fixes each preset tone color. This has led to the common concert scene where the keyboard artist is literally surrounded by a wide variety of different keyboards and synthesizers. On the other hand, control-type synthesizers can only show their full versatility when the musician has time to change around the patch cords and reprogram the system.

Sigma is a new type of performing synthesizer that goes beyond all previous designs. For even more versatile control and freedom of expression, we've equipped this instrument with advanced features like keyboard sensors, joy sticks, and quarter-tone capability. Just as the lucidity and detailed texture of the sound quality of the MiniKorg 700S showed the world the synthesizer's possibilities for true musical excellence, Sigma is now changing the entire concept of the synthesizer's role as a performing musical instrument.

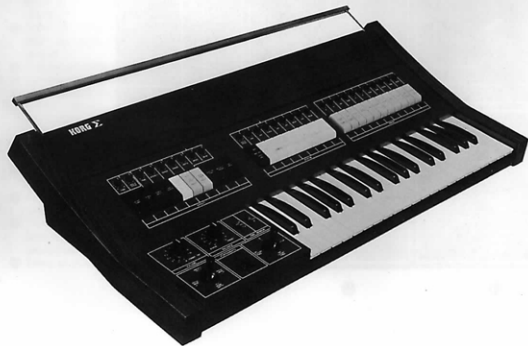
Der neue Synthesizer Sigma

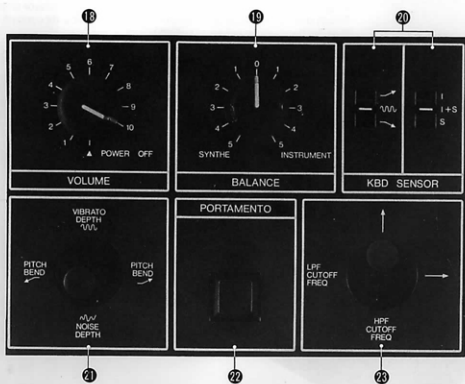
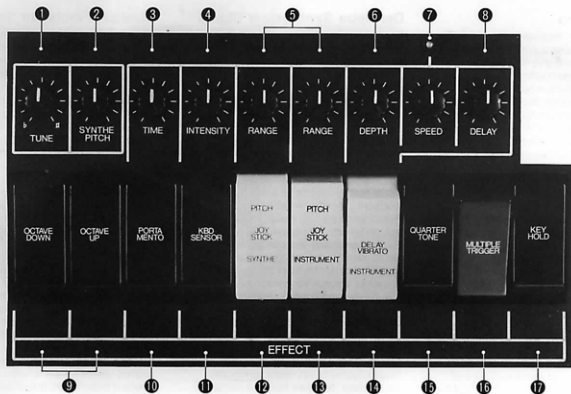
Synthesizer sind Musikinstrumente, die auch außerhalb eines Aufnahmestudios spielbar sein müssen und dem Musiker Freiheit im Ausdruck geben sollten, ohne von Mehrspur-Aufnahmen abhängig zu sein. Es ist dieses Konzept, das zur Entwicklung des Synthesizers Sigma geführt hat. Modell Sigma ist ein revolutionärer Synthesizer, da sowohl die Tonfarbenflexibilität eines modularen Synthesizers als auch das einfache und schnelle Spielvermögen eines vorprogrammierten Synthesizers geboten werden. Herkömmliche, vorprogrammierbare Einheiten weisen jedoch Beschränkungen im Ausdrucksvermögen auf, da bereits der Hersteller jede vorprogrammierte Klangfarbe festlegt. Dies hat zu dem nun bereits gewohnten Übel geführt, daß der Musiker bei einem Konzert von einer Vielzahl von verschiedenen Klaviaturen und Synthesizern umgeben ist. Geregelte Synthesizer können aber nur dann voll genutzt werden, wenn der Musiker ausreichend Zeit hat, um die Verbindungskabel umzustecken und das System neu zu programmieren.

Modell Sigma ist ein neuer spielender Synthesizer, der allen früheren Konstruktionen weit überlegen ist. Um noch vielseitigere Regelung und absolute Freiheit im Ausdruck zu gewährleisten, haben wir dieses Instrument mit zukunftsweisenden Merkmalen ausgerüstet, zu denen u.a. gehören: Klaviatur-Sensoren, Steuerknüppel und Viertelton-Funktion. Wie bereits Modell Minikorg 700S die Klarheit und die Einzelheiten jedes Musikgeschehen in die Welt der Synthesizer gebracht hat, so bringt Modell Sigma das vollständig neue Konzept des spielenden Musikinstrumentes mit seinen vielseitigen Möglichkeiten.

Quelques mots sur Sigma

Les synthétiseurs sont des instruments de musique. Ils devraient pouvoir être joués en dehors des studios d'enregistrement et procurer au musicien une liberté d'expression complète, indépendante de l'enregistrement à pistes multiples. Sigma est le fruit de ce concept. Sigma est révolutionnaire car il combine la souplesse de coloration de tonalité des synthétiseurs à programmation modulaires, avec le jeu rapide et facile des synthétiseurs pré-réglés. Les appareils pré-réglés conventionnels ont une capacité d'expression limitée car le fabricant en fixe chaque coloration de tonalité. Ceci a conduit au spectacle courant des scènes de concert sur lesquelles l'artiste est littéralement entouré d'un grand nombre de claviers et de synthétiseurs divers. D'un autre côté, la souplesse des synthétiseurs à programmation ne peut être exploitée à fond que si le musicien a le temps de reprogrammer l'instrument en déplaçant les cordons. Sigma est un nouveau type de synthétiseur de concert surpassant tous les modèles existants. Afin d'obtenir un instrument de grande souplesse permettant une importante liberté d'expression, nous avons équipé de dispositifs avancés, tels que senseur de clavier, manches à balai et quart de ton. De même que la lucidité et la texture détaillée de la qualité sonore du MiniKorg 700S ont montré au monde les possibilités du synthétiseur dans la perfection musicale, Sigma change maintenant le concept du rôle du synthétiseur en tant qu'instrument musical de concert.





1. EFFECT TABLETS AND MANUAL CONTROL

FUNCTIONS OF MANUAL CONTROLS

● JOY STICKS ① ②

Each of the two joy sticks has its own effects and uses.

The left joy stick ① controls pitch. Moving it up increases depth of vibrato; moving it down increases depth of noise modulation. Moving it to the left and right bends the pitch down and up. These effects can be applied to the SYNTH and INSTRUMENT (abbreviated to "INST" in the following text) sections separately, and the range of the effect in each section can be adjusted independently.

The right joy stick ② controls the tone color of the SYNTH section (by varying the cut-off frequencies [fc] of a high-pass VCF and low-pass VCF). Moving the stick up and down varies the tone in the low range (because frequencies below the HPF [fc] are attenuated). Moving it to the right and left varies the tone in the high range (because frequencies above the LPF [fc] are attenuated). Since the stick's position in both directions determines tone color (timbre), you can use this stick to vary the brightness, fullness, and richness of the sound for real expressive freedom while playing.

● KBD SENSOR (keyboard sensor) ③

Keyboard sensor effects depend on how hard you press down on the keys (not how fast) when you play. The left KBD SENSOR switch lets you choose rising or falling pitch bends, or a vibrato effect. The more pressure on the keys, the greater the pitch will bend, or the greater the depth (up and down frequency modulation) of the vibrato. The right KBD SENSOR switch lets you apply the effect to just the SYNTH or INST section, or to both sections together.

● PORTAMENTO ④ ⑤ ⑥

In the portamento effect, the change of pitch when you play one note after another becomes smoother and more gradual. There are two switches on the Sigma that can be used to turn on the portamento effect.

One of these is the button ④ between the two joy sticks. This button turns on portamento temporarily. The effect stops as soon as you release the button.




The other is the tab switch ⑤ which will keep the portamento effect on. In either case, use the knob ⑥ above the tab switch to control how gradually the pitch will change.

● BALANCE ⑦

In the Korg Sigma, the SYNTH and INST sections are completely independent from their VCO's (voltage controlled oscillators) to their outputs. Therefore, the volume balance between these two sections will greatly affect the tone color and amplitude variations in the final sound, when both sections are used together. You can also turn the balance knob back and forth while playing, to match the rhythm and melody line.

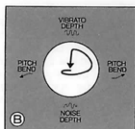
- ① Tuning knob for the entire unit. Adjusts pitch by more than ± 200 cents (2 degrees).
- ② SYNTH section tuning knob. Adjusts pitch by more than ± 700 cents (5 degrees).
- ③ Adjusts portamento time.
- ④ Adjusts depth of KBD SENSOR effect.
- ⑤ These adjust depth of JOY STICK controlled effects. SYNTH and INSTRUMENT section intensity can be separately adjusted.
- ⑥ Adjusts depth of delayed vibrato in INSTRUMENT section only.
- ⑦ Adjusts vibrato speed for all vibrato effects. Flashing LED shows speed.
- ⑧ Adjusts the time that vibrato will be delayed.
- ⑨ These raise or lower the pitch of all effects by one octave. If both tablets are depressed, UP has priority.
- ⑩ Turns on portamento effect.

- ⑪ Turns on KBD SENSOR.
- ⑫ Turn this tab switch on when you want to use the left joy stick to bend (raise or lower) the pitch of SYNTH section effects.
- ⑬ Turn this tab switch on when you want to use the left joy stick to bend the pitch of INSTRUMENT section effects.
- ⑭ Turns on delayed vibrato for the INSTRUMENT section only.
- ⑮ Turns on quarter tone effect.
- ⑯ Turns on multiple trigger effect (so that a separate trigger signal is produced for each note when playing in a legato style).
- ⑰ When this tab switch is on, the sound of the last note played will be held.
- ⑱ Turns on power, and adjusts output signal level.
- ⑲ Adjusts relative volume of SYNTH section and INSTRUMENT section sound.
- ⑳ For selecting KBD SENSOR effects. On the left switch, the upper position (rising

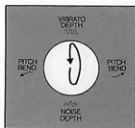
- arrow)  gives an upward pitch bend. The middle position (wavy line)  gives a vibrato effect. The lower position (falling arrow)  gives a downward pitch bend. On the right switch, the upper position I limits the effect to the INSTRUMENT section. The center position I+S adds the effect to both the INSTRUMENT and SYNTH sections. The lower position S limits the effect to the SYNTH section.
- ㉑ Varies the pitch in different ways depending on which direction you move the joy stick.
 - ㉒ Turns on portamento for as long as you keep pressing on the button.
 - ㉓ Varies the tone color of the SYNTH section depending on which way you move the joy stick.

USING THE MANUAL CONTROLS

Guitar choking effects.



Realistic trumpet effect.



1. Parallel thirds or fifths.

This involves raising the pitch of the SYNTH section above the pitch of the INST section.

Switch on one SYNTH tab, and one INST tab. Then use the EFFECT section SYNTH PITCH knob (above the OCTAVE UP tab) to adjust the SYNTH pitch so it is tuned a third or fifth above the INST pitch when you play the keyboard. Tuning is easier if the tabs you turn on in both sections have the same pitch to start with. (If both are marked 8', for example.)

2. Joy stick effects.

● Pitch bends.

Bending the pitch of a note is a major expressive technique on a synthesizer, and each musician develops his or her own style. Switch on the PITCH JOY STICK SYNTH tab, or the PITCH JOY STICK INSTRUMENT tab, or both. The left joy stick is used for pitch bends in either section. The range knobs let you set how far the pitch will be bent. The left range knob is for the SYNTH section, the right range knob is for the INST section.

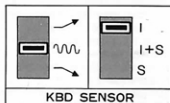
When adjusting these knobs, be sure to have one of the tabs switched on in the section you want to bend the pitch of. Then, turn the range knob all the way down, hold the joy stick all the way to the right, play a key on the keyboard, and turn up the range knob until the pitch bends as much as you want it to. After completing this adjustment, you won't have to worry about the range knob while playing. How much you move the joy stick to the left or right, will control how far the pitch bends.

● Vibrato.

Add vibrato whenever you like, by shifting the joy stick forward. You can add vibrato as you bend the pitch of a note. This can give effects like choking a guitar. Two examples of this are shown in the diagrams (A) and (B). In (A) you start with the joy stick to the left (or right), then you play a key and move the stick in and upward to apply vibrato. In (B) you play a key first, and then bend the pitch and apply vibrato. In either case, you are first bending the pitch, and then applying vibrato, all in one fluid motion of your hand.

3. KBD SENSOR

The keyboard sensor comes in handy for pitch bend and vibrato effects. Like the joy stick, it can be used to control just the SYNTH section or the INST section, or both at the same time. Therefore, you can use the joy stick for one section, and the keyboard sensor for the other section. This gives you independent, variable control over each section's vibrato and pitch bend effects. And if one of your hands is not free to operate the joy stick, you can still get the same effects with the keyboard sensor. How hard you press down on the keys will control the vibrato or pitch bend. Adjust the INTENSITY knob above the KBD SENSOR tab while playing a key with maximum pressure. The position of this knob will determine the range over which the effect varies.



In the diagram here, you see how you would set the KBD SENSOR switches for vibrato in the INST section only.



Foot control pedal.

Fußschalterpedal

Pédale de commande au pied.

Additional modules, other synthesizers.

Zusätzliche Module, andere Synthesizer

Modules supplémentaires, autres synthétiseurs.

External control units.

Externe Steuereinheit

Unités de commande extérieures.

Stereo headphones.

Stereo-Kopfhörer

Casque stéréo.

Volume pedal.

Lautstärkepedal

Pédale de volume.

AC power cord.
Netzkabel
Cordon d'alimentation.



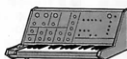
MS-01



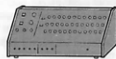
MS-50



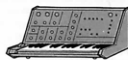
MS-03



MS-10,20



SQ-10



MS-10,20

FK-3
2-channel volume pedal.
Zweikanal-Lautstärkepedal
Pédale de volume pour 2 canaux



Amps
Verstärker
Ampères.



KA-180



KA-180

3. INPUT JACKS, OUTPUT JACKS, AND CONNECTIONS

- 1 Input jack for units like the MS-01 foot control pedal, used for remote control SYNTH section tone color. (by varying LP VCF c)
- 2 Input jack for external control from MS-01 (or other unit) over Sigma's total pitch. Maximum pitch fluctuation is 3-octaves.
- 3 Output jack for Sigma keyboard's trigger signal. Use with KBD CV OUT to play additional synthesizers.
- 4 Output jack for Sigma keyboard's control voltage signal. Use when playing other voltage controlled synthesizers such as the MS-50.
- 5 Input jack for trigger signal from external unit for control of the Sigma's EG (envelope generator). Used with VCO CV IN, to play Sigma without using the Sigma keyboard.
- 6 Input jack for control voltage signal (from MS-03, SQ-10, MS-10, MS-20, or other unit) that controls Sigma's VCO's.
- 7 Output jack for stereo headphones.
- 8 Output jack for INST section audio signal.
- 9 Output jack for SYNTH section audio signal.

• If only one of these jacks is connected to an amp, then that jack's output signal will be a mixture of both the INST and SYNTH section signals.

Precautions when using guitar or bass amps

Synthesizer output signals are very large compared to the signals from a guitar or bass pickup.

Noise can be minimized by following these steps to get the correct volume settings on the Sigma and the guitar or bass amp:











First turn on three of the Sigma tablets, and set the Sigma volume knob to "8" or "9".

Then turn up the amplifier volume knob to get the loudness you want.

4. CAUTION

- Before plugging in the Sigma's AC power cord, always make sure the AC line voltage matches the Sigma's voltage rating. If power supply voltage is less than 90% of the standard rating, the synthesizer's S/N ratio will drop and it will not sound as clear; the synthesizer modules may not operate with their normal stability, either. Therefore, when you use the Sigma in a new place and you have any reason to suspect that the AC voltage may not be right, have it checked with a reliable AC voltmeter before turning on the power on the Sigma.
- When making connections, only use standard phone plugs in the Sigma's input and output jacks. Never try to insert any other type of plug in these jacks.

5. SPECIFICATIONS

1. KEYBOARD ● C - C 37 keys
2. TABLET SYNTH
- Ring Mod. Synth x INSTRUMENT CONTROL
Synth Pitch (± 700 cents)
 -  Attack/Release
 -  32' Attach/Release
 -  S/H 16' Clock Speed
 -  16' Attack/Release
 -  8' Attack/Release
 -  8' Decay
 -  8' Attack/Release
 -  4' Decay
- INSTRUMENT
- Electric Bass 32' CONTROL
Cutoff Freq.
 - Tuba 32' Cutoff Freq.
 - Clavi 16' Pulse Width
 - Fuzz Guitar 16' Tone
 - Horn 16' Cutoff Freq.
 - Trumpet 8' Cutoff Freq.
 - Clarinet 8' Tone
 - Double Reed 8' Tone
 - String 8' Attack
 - Flute 4' Tone
 - Hammered Percussion 4' Decay
- EFFECT
- Octave Down CONTROL
 - Octave Up
 - Portamento Time
 - Keyboard Sensor Intensity
 - Joy Stick SYNTH Range
 - Joy Stick INSTRUMENT Range
 - Delay Vibrato INSTRUMENT Delay, Depth, Speed
 - Quarter Tone
 - Multiple Trigger
 - Key Hold
3. CONTROL ● Joy Stick Pitch Bend, Vibrato Depth,
Pink Noise Depth
- Joy Stick LPF. Cutoff Freq. (SYNTH)
 - Keyboard Sensor Control Switch HPF. Cutoff Freq. (SYNTH) x 2
- Pitch Bend Up/Vibrato Depth/Pitch Bend Down,
INSTRUMENT/INSTRUMENT + SYNTH/SYNTH
- SYNTH/INSTRUMENT Balance
 - Total Tune ± 250 cents
 - Synth Pitch ± 700 cents
 - Portamento Memory Switch
 - Power Switch and Volume
4. OUT PUT ● Signal Out Max/Synth Out 5Vp-p Max.
Mix/Instrument Out 5Vp-p Max.
- KBD CV Out Hz/V (0V ~ 8V)
 - KBD TRIG Out  GND
 - Headphones Out
5. CONTROL IN ● VCO CV In Hz/V (0V ~ 8V)
- EG TRIG In  GND
 - VCO FM In OCT/V (-3V ~ +3V)
 - Synth VCF FcM In 2 OCT/V (-5V ~ +5V)
6. POWER CONSUMPTION 17 Watts, Local Voltage, 50/60 Hz
7. DIMENSIONS 774 x 400 x 173 (mm)
8. WEIGHT 11 kg
9. ACCESSORIES Connection cord x 1
Dust cover x 1