DOEPFER

MIDI Master Keyboard

SK2000

User's Guide

Contents

Introduction

The SK2000 combines a high quality Midi masterkeyboard with an XG compatible sound generator, built into a compact flightcase. The SK2000 uses an 88 note keyboard with real hammer mechanics - the same type of keyboard as used in our MIDI master keyboards of the LMK-plus series and PK88. The case used is a rugged and easy to carry black flightcase with handle and removable lid, with compact dimensions of 135 x 28 x 12 cm, weighing just 20 kg.

The SK2000 was designed especially for the gigging musician who needs a high class and easy to carry keyboard with a built-in sound generator to be able to play quickly without the need for any additional equipment.

The SK2000 transmits note messages at the Midi output on one Midi channel (1 - 16) that can be selected by the user. This can be used to control other Midi devices from the SK2000 (additional to the built-in sound device). The velocity resolution is 127 steps, and is set to a high value on the conversion of the mechanical impact to the MIDI velocity so that it is as close as possible to the behaviour of a real piano keyboard - within the limited possibilities of Midi.

At the rear panel a double foot switch can be connected to obtain sustain (Midi controller #64) and soft pedal (Midi controller #67). The double foot switch is not included with the SK2000. A suitable pedal being our VFP2.

The main functions of the XG sound card inside the SK2000 can be controlled directly by the keyboard and stored in one of 64 non-volatile presets. Functions beyond these can be controlled via Midi In by using external control boxes such as the Pocket Control, Drehbank, software (e.g. XGedit, XGgold) or any XG-compatible sequencers.

Up to 2 sounds (out of the 480 XG sounds) can be played as a layer combination where many parameters can be adjusted and stored, e.g:-

- volume and pan
- modulation depth and frequency
- filter frequency and resonance
- velocity intensity (to adjust the dynamic response to the current sound)
- reverb send level
- chorus send level
- for the reverb section one out of 11 reverb types can be chosen as well as its parameters reverb time and feedback
- for the chorus section one out of 11 chorus types along with LFO frequency and feedback can be selected.

The SK2000 has a built-in headphone amplifier with it's own volume control. The headphone jack socket and its volume control are located on the left control panel.

The other controls (2 buttons and one LED) are also located on the control panel, this compact design makes the SK2000 the same size as the PK88.

The rear panel has the connections for: MIDI In, MIDI Out, audio out, double foot switch (both ¼" stereo jack socket) and power supply. A universal power supply (90…240V AC with Euro connector) is included with the SK2000. The double foot switch is an optional extra.

The SK2000 is supplied with an OEM-Version of Emagic's SoundDiver (PC and Mac version on CD). This universal editor program enables you to edit all parameters and archive the 64 presets of the SK2000 very easily. OEM version means Original Equipment Manufacturer version, i.e. that this program works only in combination with **DOEPFER** devices and is not a full version of SoundDiver.

SK2000 features overview

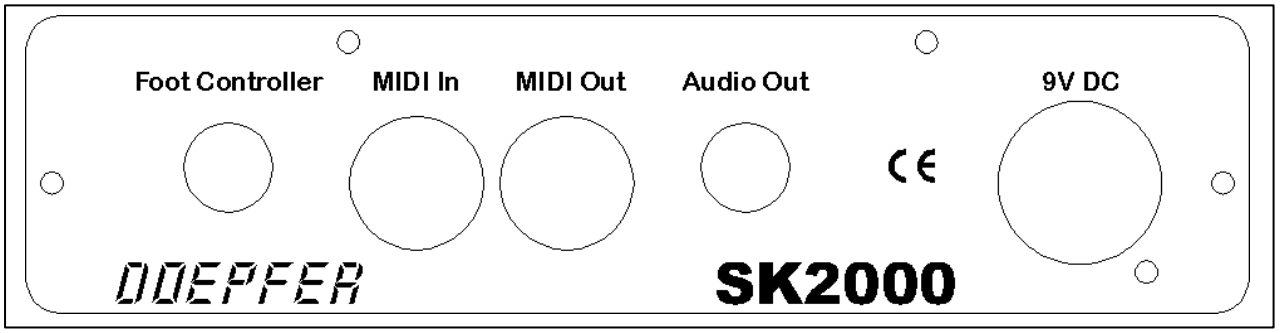
- MIDI keyboard with 88 keys hammer mechanics A-C
- Black flightcase with removable lid
- Transmission of MIDI note messages in the note range 21-108 with velocity
- One MIDI output
- One MIDI input
- Connector (1/4" stereo) for double foot switch (MIDI controller sustain / #64 and soft pedal / #67)
- Power supply 230/115V (via external AC adapter. AC adaptor with 115-230V AC input / 9V @ 800mA DC output with European mains plug type is included with the SK2000, if another power supply is used, then 9V DC stabilized at 800mA is required).
- Built-in XG-compatible Yamaha sound card (same sound generation system as the Yamaha MU50 expander)
- Total:
    - 676 fully dynamic playable sounds
    - 21 drum kits
  - XG:
    - 480 sounds
    - 11 drum kits, compatible with General Midi, TG300B and XG
  - 3 independent effect sections:
    - reverb (11 types)
    - chorus (11 types)
    - variation (43 types), not used by the SK2000
- Built-in headphone amplifier with volume control

Operating and Safety Instructions

Please follow the given instructions for use of the instrument because this will guarantee correct instrument operation. Due to the fact that these instructions touch on Product Liability, it is absolutely imperative that they be read carefully. Any claim for defect will be rejected if one or more of the operating instructions are ignored. Disregard of these instructions can invalidate the warranty.

- The instrument may only be used for the purpose described in this operating manual. Due to safety reasons, the instrument must never be used for other purposes not described in this manual. If you are not sure about the intended purpose of the instrument please contact an expert.
- The case (flight case) is not suitable for shipment, as it is the case of the instrument. If you want to ship the instrument via mail, UPS, rail, forwarding agency or others you must always use the original packaging. Therefore, you should keep the original packaging.
- Transport the instrument carefully, never let it fall or overturn. Make sure that during transport and in use the instrument has a proper stand and does not fall, slip or turn over because it could cause injury.
- The instrument or the external power supply may only be operated with the voltage written on the instrument power supply input on the rear panel or on the external power supply.
- Before opening the instrument or the external power the instrument or external power supply must be disconnected from mains power supply.
- All eventual modifications must only be carried out by a qualified person who will follow the valid safety instructions. Every modification should be carried out only at the manufacturer or an authorized service company. Any modification not authorised by the manufacturer could make the instrument unsafe to use.
- With the introduction of a third person the warranty will be lost. In case of a destroyed warranty seal, any warranty claim will be rejected.
- The instrument must never be operated outdoors but in dry, closed rooms. Never use the instrument in a humid or wet environment nor near inflammables.
- No liquids or conducting materials must get into the instrument. If this should happen the instrument must be disconnected from the power immediately and be examined, cleaned and eventually be repaired by a qualified person.
- Never subject the instrument to temperatures above +50°C or below -10°C. Before operation the instrument should have a temperature of at least 10°C. Do not place the instrument into direct sun light. Do not install the instrument near heat sources.
- Keep the top side of the instrument free in order to guarantee proper ventilation, otherwise the instrument could overheat.
- Never place heavy objects on the instrument.
- All cables connected with the instrument must be checked periodically. If there is any damage the cables must be repaired or replaced by an authorized person.
- Never use the instrument in the immediate proximity of interfering electronic devices (e.g. monitors, power supplies, computers) since this could create disturbances within the instrument.
- The exchange of electronic parts (e.g. EPROMs for software update) must only be carried out when disconnected from the power supply.
- The instrument should only be shipped in the original packaging. Any instruments shipped to us for return, exchange, warranty repair, update or examination must be in their original packaging! Any other deliveries will be rejected. Therefore, you should keep the original packaging and the technical documentation.
- When using the instrument in Germany, the appropriate VDE standards must be followed. The following standards are of special importance: DIN VDE 0100 (Teil 300/11.85, Teil 410/11.83, Teil 481/10.87), DIN VDE 0532 (Teil 1/03.82), DIN VDE 0550 (Teil 1/12.69), DIN VDE 0551 (05.72), DIN VDE 0551e (06.75), DIN VDE 0700 (Teil ½.81, Teil 207/10.82), DIN VDE 0711 (Teil 500/10.89), DIN VDE 0860 (05.89), DIN VDE 0869 (01.85). VDE papers can be obtained from the VDE-Verlag GmbH, Berlin.

Connections at the rear panel

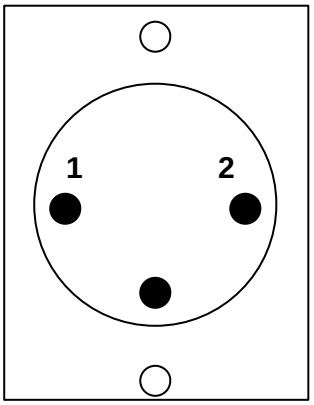


From right to left:

Power supply (9V DC)

The SK2000 does not have a built-in power supply. Instead it uses a plug-in type external power supply (DC adapter). The connector is labelled **9V DC**. The primary reason for this feature is the fact that line voltages and plug types vary considerably from country to country. Using a plug-in external supply the SK2000 can be used anywhere with a locally purchased power supply, thus keeping the cost down.The SK2000 is switched ON by plugging the supplied AC adapter into a wall outlet and connecting it to the appropriate jack on the back of the case. There is no separate ON/OFF switch. The SK2000 includes an AC adapter for 115-230V mains supply with a European type mains plug.
In countries with different mains plug types or voltages a suitable power supply has to be purchased locally by the user. The power supply must be able to deliver a voltage of 9 VDC (stabilized), as well as a minimum current of 800mA.

Attention: Using a non-stabilized power supply will cause hum noise on the audio lines (audio out at the rear panel and headphone output at the left front panel).
If the polarity of the power supply is incorrect, the SK2000 will not function. However, there is no danger of damage to the circuitry since it is protected by a diode. If you are not using the power supply shipped with SK2000 the following diagram shows the pinout of the SK2000 power jack. An XLR type 3 pin female connector is used.



Power Supply

1 = +9V DC / 800mA
stabilized !!!

2 = GND

Audio out

This is a ¼ " stereo jack socket to connect the audio output to the mixer, amplifier, PA or similiar.
Note:
The **headphone volume control** at the left front panel does not affect the level of this output.

MIDI out

Next to the audio output you will find the **MIDI Out** socket. Connect the MIDI output of the SK2000 to the MIDI input of your MIDI device (e.g. synthesizer, expander, sampler, computer) using a suitable MIDI cable when you wish to control another MIDI device from the SK2000. If you want to use only the internal sound generation of the SK2000 this connector does not need to be used.

MIDI in

The MIDI input of the SK2000 is used in two cases:

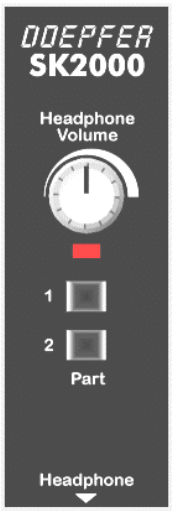
- 1. If you want to control the sound generation unit of the SK2000 from an external MIDI controller
- 2. If you want to merge the MIDI data generated by the SK2000 to the MIDI data of another MIDI device

The first case is the standard application of the SK2000 MIDI input. It enables you to control the parameters of the SK2000 sound card from an external control device. You may select one of the SK2000 presets, change the preset data or modify sound parameters in real time (e.g. filter frequency, reverb level, decay time). Suitable controllers are the **DOEPFER** Pocket Control, Drehbank, any XG editor or another suitable MIDI control unit.
The second case is used if existing MIDI data from another MIDI device is to be merged with the SK2000 MIDI data. Typical applications are another MIDI keyboard or bass pedals. Note that the MIDI input of the SK2000 is not suitable to process very high amounts of MIDI data (e.g. large SysEx strings from a software sequencer with a lot of active tracks) but only single auxiliary equipment like keyboards, bass pedals or MIDI controllers. Try to avoid intense MIDI data rates, otherwise data delay or data loss may occur. Problems with the SK2000 velocity resolution may also reduce as the processor power is normally used to calculate the keyboard velocity but has to process the incoming MIDI data too.
If both applications are not used the MIDI in socket is not connected.

Foot Controller

The most left connector is a jack socket for connecting a single or double foot switch. The two foot switches have SUSTAIN (MIDI controller #64) and SOFT PEDAL function (MIDI controller #67). If a single foot switch is used only the SUSTAIN function is available. A suitable double foot switch is e.g. the **DOEPFER** VFP2.
Do not connect the footswitch unless the SK2000 is switched OFF. At power on the SK2000 electronics checks the level of the foot switches and assumes that this level is the "off" state. So do not operate the foot switches while turning power on. This feature allows the use of foot switches with contacts normally open as well as those normally closed.
Please pay attention that in case you control external MIDI equipment from the SK2000 that some MIDI devices do not support the MIDI controller #67 (Soft pedal). Sustain (#64) is recognized by nearly all expanders, synthesizers and so on. Please refer to the user's guide of the MIDI device used if both controllers are supported.
The double foot switch is not included with the SK2000 and has to be ordered separately if required. The SK2000 will work without the double foot switch, although the functions SUSTAIN and SOFT PEDAL will not be available to the user in that case.

Controls on the front panel



The **SK2000** is equiped with the following controls on the front panel:

- Two buttons labelled "**Part 1, 2**"
- LED (as operation control and for display of menu mode)
- Rotary potentiometer **Headphone Volume** (volume of the headphones)
- ¼ " stereo jack socket **Headphone** (for connecting stereo headphones)

In the **menu mode** the 88 keys of the keyboard are used as controls too.

Buttons Part 1 , Part 2

The different modes of the SK2000 are selected with the buttons **Part 1** and **Part 2**.
These buttons are used to ....

- select one of two **parts** of the XG sound generation
  (in case you are not yet familiar with XG compatible sound generation please refer to the appendix 'Introduction to XG standard' describing the meaning of the parameters part 1 and part 2)
- enter the **menu mode** (if play mode was selected)
- enter the **play mode** (if menu mode was selected)

LED operation control

After power on the LED should light up. Otherwise the power supply is not working. The LED works as a power control in the play mode. In this mode one can play normally on the keyboard. In the menu mode the LED turns off.

Keyboard keys

In the **play mode** the 88 keys of the keyboard are used to play as usual. The MIDI note number range is 21 (A-1) to 108 (C-7). The MIDI channel can be adjusted (see below).
In the **menu mode** the 88 keys are used to select a menu, sub-menu or for data input.

Headphone (Jack Socket)

This is a ¼" jack socket to connect stereo headphones. We recommend using high quality headphones with a minimum impendance of 100 Ohm. Headphones with a lower impedance may be used but the audio quality may deteriorate (hum, noise, bad signal-to-noise ratio). There is no risk of damaging the SK2000 or the headphones though.
Do not put on the headphones during power on. Extreme audio levels will damage your hearing !

Important: Turn this knob fully counterclockwise and then turn it slowly clockwise until the desired level is reached. ***Extreme audio levels will damage your hearing !***

Headphone Volume (Control)

This Control is used to adjust the **overall level** and affects both channels (stereo potentiometer).
Important: *Turn this knob fully counterclockwise and then turn it slowly clockwise until the desired loudness is reached.* ***Extreme audio levels will damage your hearing !***

Operation

Power On

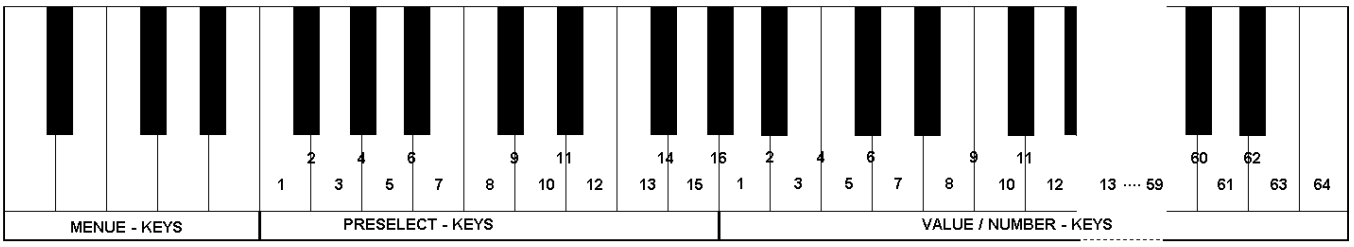
After **power on** the **LED** turns on and the SK2000 enters the **play mode**.
None of the 64 **Presets** available in the SK2000 are called-up automatically. Rather an XG reset is executed leading to the standard settings of the built-in XG sound card:

- Part 1-16 is assigned to the MIDI channels 1-16 (i.e. part 1 = channel 1, part 2 = channel 2 and so on)
- '**Grand Piano**' sound is chosen for all parts except part 10 (channel 10)
- Part 10 is set to basic **Drumset**

Menu Structure

Preface

Originally the SK2000 was designed as a simple combination of our PK88 keyboard with a built-in sound card as many PK88 customers asked for such a device. Only changing the sound should be possible. During the development of the SK2000 we recognized that many of the features of the built-in sound card (Yamaha DB51XG) would lie idle in this case. So we added the possibility to adjust the most important sound parameters of the sound card. To maintain the compact size of the PK88 and to keep the SK2000 affordable, we refrained from adding a lot of expensive controls like displays, rotary controls, buttons (like our other MIDI master keyboards LMK4+ or LMK2+). This is the reason why the operation of the SK2000 may appear a little bit complicated and not state of the art. But we tried to make the sound card features available even under these limited conditions. If you want to use only the basic functions (i.e. changing the sound) the operation will be very easy. Only the far-reaching functions will be a little bit long-winded.
For a more comfortable control of the sound card we recommend the usage of an XG editor program or external MIDI controllers like the Pocket Control or Drehbank. The OEM version version of Emagic's SoundDiver is supplied with the SK2000 for that purpose (PC and Mac version on CD).



There are **7 menus** available which are selected by means of the 8 MENU-keys in combination with the two buttons part 1 and 2.

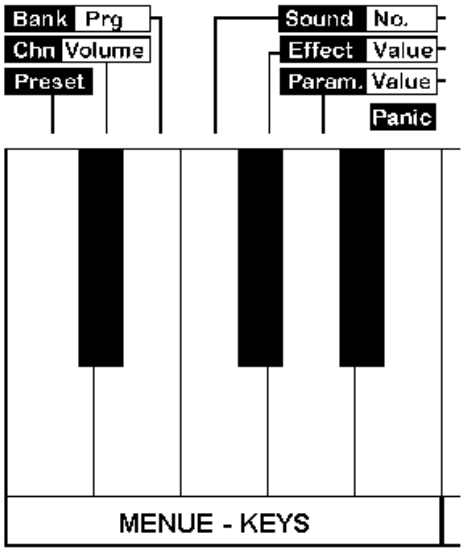
MENU KEYS

The first 8 keys of the keyboard (A-1 to E 0) are used as menu keys.

- A **menu** is **selected** by pressing the corresponding **menu key** after one of the **buttons part 1 or part 2** is pressed. In the menu mode the **LED** control turns **off** and it is not possible to play on the keyboard (i.e. no MIDI note messages are generated) as the keys are used to adjust the parameters of the SK2000.
- **Each menu** is **exited** by pressing the same **button part 1 or 2 a second time**.
- **Some menus** are **exited** by pressing one of the **keys** of the keyboards.
- Whenever the **LED** lights up the **play mode** is active.

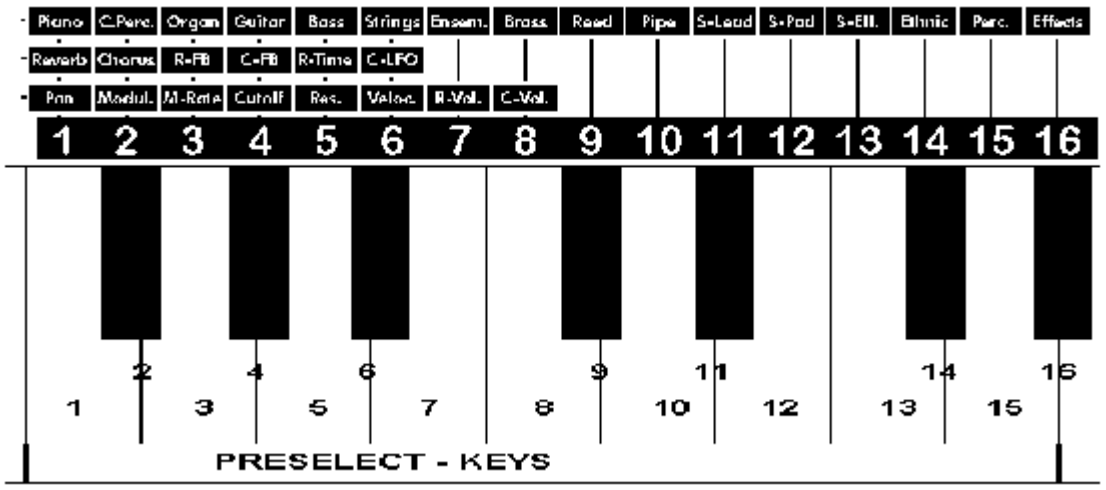
The 8 keyboard **menu keys** are assigned to the following menus:

A 1	A# 1	B 1	C 0	C#0	D 0	D# 0	E 0
PRESET	Chn_Volume	Prg_Chn	Sounds	Effects	Sound_Par.	Panic	Panic



To adjust the parameters the remaining keys of the keyboard are used. The remaining keys are divided into two main groups: **preselect keys** and **value/number keys**

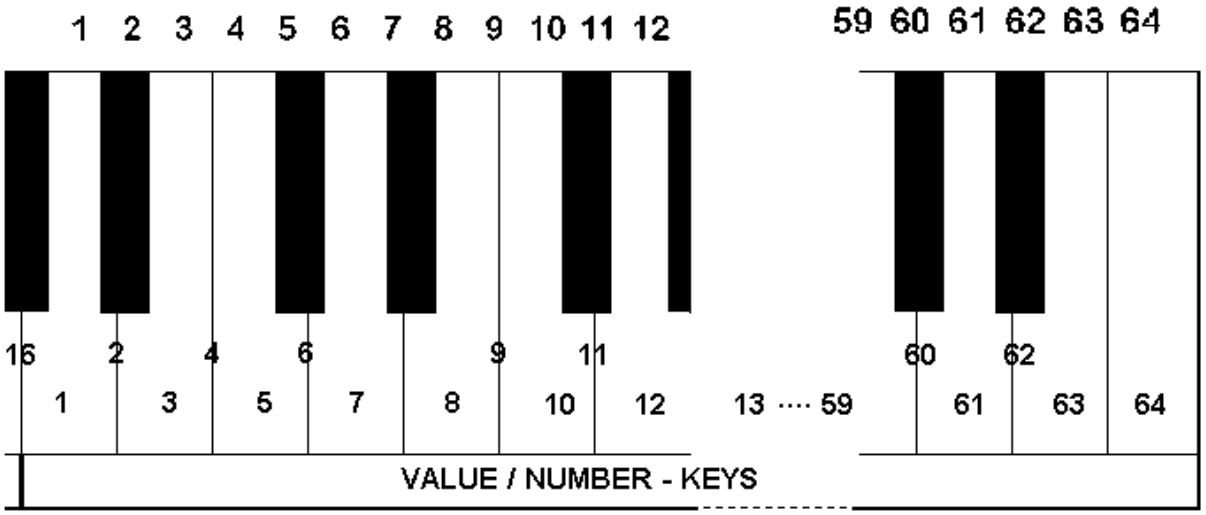
PRESELECT KEYS



These 16 keys act as additional selection keys, e.g. to address one of 16 sub-menus or to extend the number range (like bank keys). They are labelled 1-16 on the case (white characters on black background).

VALUE / NUMBER KEYS

The remaining keys are numbered 1-64 (black characters on white background). They are used to enter numerical values. The number range may be 1...64 or 1...128 or –64...+64 depending upon the function. In the case 1...128 the numerical distance between two steps is 2. In the case –64...+64 the numerical distance between two steps is 2 and the middle position (or zero position) corresponds to key no 32. Most of the part parameters use this data range. This is used also for relative data. In this case the key no 32 represents the original preset value.
If it is necessary to input an exact value (e.g. program no) the numbers above the keys help to find the right key. For other parameters (like volume, pan, effect) the exact value may be not so important. In this case is valid: more left = smaller value / more right = higher value.



The meaning of the keyboard keys in different menus are shown in the table on the next page.

A –1	A# -1	B -1	C 0	C#-0	D 0	D# 0	E 0	F 0	F# 0	G 0	G# 0	A 0	A# 0
Preset_No	Chn_Volume	Prg_Chn	Sounds	Effects	Sound_Par.	Panic	Panic	1	2	3	4	5	6
Preset_No													
	Chn_Volume							Chn 1	Chn 2	Chn 3	Chn 4	Chn 5	Chn 6
		Prg_Chn						Bank 1	Bank 2				
			Sounds	see	Sound list			PIANO	CHROMATICPERC.	ORGAN	GUITAR	BASS	STRINGS
				Effects				Reverb-Type	Chorus-Type	Feedb-Rev.	Feedb.-Chorus	Rev-Time	Chorus-LFO
					Sound_Par			Pan	Modulation	Mod-Rate	Cutoff	Resonance	Velocity Sense
						Panic	Panic	N-OFF Chn 1	N-OFF Chn 2	N-OFF Chn 3	N-OFF Chn 4	N-OFF Chn 5	N-OFF Chn 6

	B 0	C 1	C# 1	D 1	D# 1	E 1	F 1	F# 1	G 1	G# 1
	7	8	9	10	11	12	13	14	15	16
Preset_No										
Chn_Volume	Chn 7	Chn 8	Chn 9	Chn 10	Chn 11	Chn 12	Chn 13	Chn 14	Chn 15	Chn 16
Prg_Chn										
Sounds	ENSEMBLE	BRASS	REED	PIPE	SYNTHLEAD	SYNTHPAD	SYNTHEFFECTS	ETHNIC	PERCUSSIVE	SOUNDEFFECTS
Effects										
Sound_Par	Volume Reverb	Volume Chorus								
Panic	N-OFF Chn 7	N-OFF Chn 8	N-OFF Chn 9	N-OFF Chn 10	N-OFF Chn 11	N-OFF Chn 12	N-OFF Chn 13	N-OFF Chn 14	N-OFF Chn 15	N-OFF Chn 16

	A 1	A# 1		B 6	C 7
	1	2		63	64
Preset_No	Preset 1	Preset 2		Preset 63	Preset 64
Chn_Volume	Volume 0	Volume 2		Volume 124	Volume 126
Prg_Chn	Bank*PrgNr 1	Bank*PrgNr 2		Bank*PrgNr 63	Bank*PrgNr 64
Sounds	SoundNr 1	....		....	....
Effects	Value 0	Value 2		Value 124	Value 126
Sound_Par	Value 0	Value 2		Value 124	Value 126
Panic					

In the next few paragraphs the function of each menu is briefly discussed. A detailed description of each menu can be found in the next section after that.
On top of the SK2000 there is a short menu description so that you will need the user's manual no longer in the future as soon as you are familiar with the SK2000 operation:

- The first 8 keys are the **menu** keys
- **White characters on black background** indicate the **preselect** keys, labelled 1-16 controls the functions of the keys in the menus: sound, effect and parameter.
- **Black characters on white background** indicate **value/number** keys, labelled 1-64.

Preset

The SK2000 has 64 presets. A preset contains data about the complete XG sound configuration, i.e. all changeable parameters of the XG section (MIDI channel, volume, velocity sensitivity, filter, effects and so on). A new preset is called up by pressing the menu key (leftmost key) followed by one of the number keys 1-64. Then the keyboard returns to the PLAY-mode.

Attention:
Whenever a preset is selected a lot of MIDI data is sent to the internal sound card. During this time the MIDI input of the SK2000 is not scanned and no MIDI data should appear at the MIDI input during this time. Otherwise data delay or data loss of the incoming MIDI messages may appear.

Note::
None of the Presets available in the SK2000 is called-up automatically after the device is switched on. Rather a XG reset is executed leading to the standard settings of the built-in XG sound card (see Operation/Power on for details). As long as no preset is called up all changes are not stored in the preset memory of SK2000. This means that you may experiment with this default setting without changing any of the SK2000 presets. After power off/on the default setting is called up again.

Chn/Volume

This menu serves to set the MIDI channels and volume settings for part 1 and 2 of the XG sound generation. After entering this menu by pressing the second menu key the MIDI **channel** is set with the **preselect keys 1-16**, the **volume** ist set with the **value/number keys 1-64**.
Note:
The MIDI channel of part 1 is also the channel on which the data are transmitted to the MIDI output of the SK2000.

Bank/Prg

This menu serves to send **MIDI-program change** and **MIDI-bank select** messages to change the GM sounds of the internal sound card and the sounds of MIDI devices connected to the MIDI out.

XG sound/no

As the MIDI program change message addresses only 128 different sounds an additional **program bank** message is necessary to access more than 128 sounds. The 16 different instrument groups are selected with the **preselect keys 1-16:**

PIANO, CHROMATICPERC., ORGAN, GUITAR, BASS, STRINGS, ENSEMBLE, BRASS, REED, PIPE, SYNTHLEAD, SYNTHPAD, SYNTHEFFECTS, ETHNIC, PERCUSSIVE, SOUNDEFFECTS
In each of these groups the single sound has to be selected with one of the **value/number keys 1-64.**

Effect/Value

This menu is used to select one of 11 reverb and 11 chorus effects. Different effect parameters (e.g. feedback of both reverb and chorus, reverb time, chorus LFO frequency) can be adjusted in this menu too. The settings in this menu are global, i.e. they are valid for all parts independent of which part button was operated to enter the menu.

Param./Value

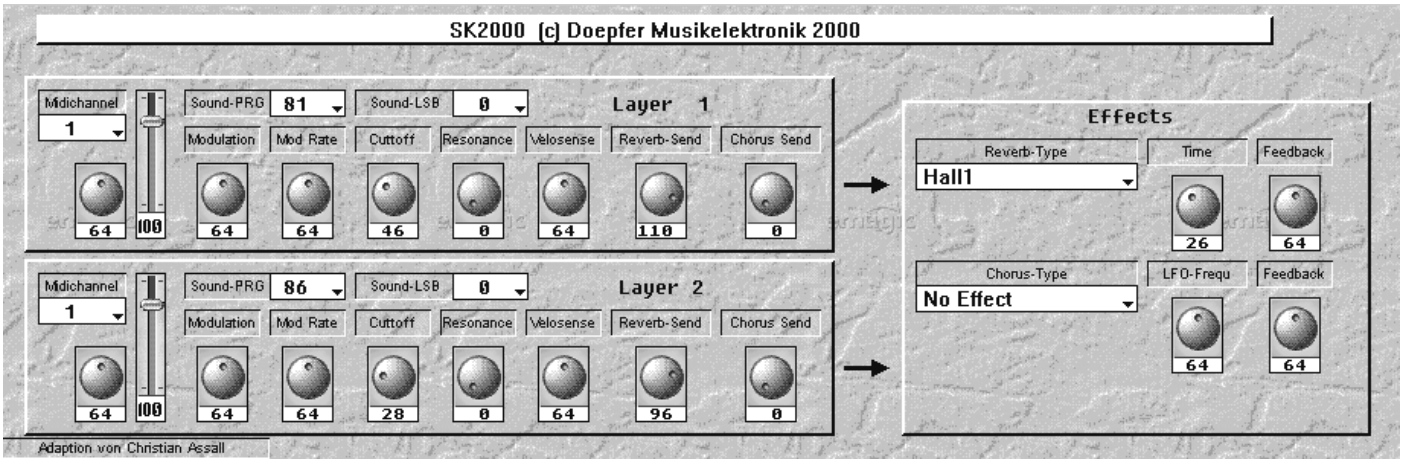
The MIDI XG standard uses a lot of additional parameters to adjust the sound called up with the program change/sounds menu. SK2000 enables the control and storage in the preset of the following XG sound parameters :
pan, modulation intensity, modulation frequency, filter cutoff frequency, filter resonance, velocity sensitivity, reverb send volume, chorus send volume (MIDI channel and volume are adjusted in the CHN/VOLUME menu).

Panic

Pressing one of these two keys calls up the panic menu. Whenever one of the 64 Value/Number keys is operated in this conditon "All Notes Off" and "All Controllers Off" messages are sent on all 16 MIDI-channels. If the device controlled by the SK2000 does not respond to the "All Notes Off" message it is also possible to transmit all 128 single "Note Off" messages using the Preselect keys 1-16. The number of the Preselect key determines the MIDI channel for the "Note Off" messages. To transmit 128 "Note Off" messages on all 16 MIDI channels all 16 Preselet keys have to be operated one after another.

DETAILED DESCRIPTION OF MENUS

The pictures on the following pages are taken from the EMAGIC SoundDiver with the SK2000 adaption that is included with the SK2000 (SoundDiver OEM version on CD ROM with both PC and Mac version). These pictures show very clearly which parameters of the XG standard can be modified with the SK2000. If you already own SoundDiver (full version) you don't need the OEM version and may use only the SK2000 adaption for your SoundDiver. The term OEM (Original Equipment Manufacturer) means that this version of the SoundDiver can be used only in combination with the SK2000 and that it is not a full version.



The following rules apply to all menus and will not be mentioned in each individual menu description:

- A **menu** is **activated** by pressing one of the **buttons Part 1 / 2 followed** by the operation of one of the 8 **menu keys**. In this mode the control LEDs above the buttons turn off.
- Menus are deactivated automatically once a parameter has been set. The keyboard will then go into PLAY-mode.
- To adjust all parameter the control buttons and the keyboard keys are used.
- The **latest menu selected** and the **latest Preselect key operated** remain **active until changed**. I.e. as long as a new menu or Preselect key is not chosen, the last menu and preselect key are still valid when entering the menu mode by pressing one of the menu buttons part 1 / 2. You only have to enter the new value/number. If you are not sure what the last menu and/or Preselect key is, you may of course select a new menu and/or Preselect key to be on the safe side.

Preset

A -1		F 0		G# 1	A 1	A# 1		B 6	C 7
Preset_No		1		16	1	2		63	64
Preset_No		unused		unused	Preset 1	Preset 2		Preset 63	Preset 64

A new preset is called up by entering the Preset menu followed by pressing one of the keyboard Value/Number keys 1...64. The preset data is loaded from the non-volatile data memory of the SK2000 and transferred to the internal XG sound generation unit (XG card). After that the SK2000 returns to PLAY-mode. The Preselect keys have no function in this menu.

Chn/Volume

A# -1		F 0	F# 0		G 1	G# 1	A 1	A# 1		B 6	C 7
Chn_Volume		1	2		15	16	1	2		63	64
Chn_Volume		Chn 1	Chn 2		Chn 15	Chn 16	Volume(*2) 0	Volume(*2) 1		Volume(*2) 62	Volume(*2) 63

This menu is used to adjust the MIDI channels and volume of the parts 1 and 2 of the XG sound generation unit. The MIDI channel of the part selected is adjusted with the Preselect keys 1-16, the volume with the Value/Number keys 1...64. The actual MIDI volume data (i.e. the data value of the MIDI volume message) is twice the key number minus 2 to obtain the whole MIDI data range 0...127 (exactly: only 0...126 for the SK2000). Normally it is not necessary to know the absolute volume data value. It is more important to know that left means soft (small numbers) and right means loud (high numbers).
After the MIDI channel or volume data has been entered the SK2000 will return to PLAY-mode.

Bank/Prg (GM SOUNDS)

B -1		F 0	F# 0		A 1	A# 1		B 6	C 7
Prg_Chn		1	2		1	2		63	64
Prg_Chn		Bank 1	Bank 2		Bank*PrgNr 1	Bank*PrgNr 2		Bank*PrgNr 63	Bank*PrgNr 64

This menu is used to send **MIDI program change messages** by **selecting** one of the 128 **GM sounds** of the internal XG card. Therefore this menu is a sub-set of the Sound menu described later in this manual (with the LSB value mentioned in the appendix equal to zero). But there is still another difference to the sound menu: while **part 1** is selected a normal MIDI program change message is transmitted to the MIDI output of the SK2000. This may be used to select a sound (sometimes also called preset) from a MIDI expander connected to the SK2000 that does not follow the XG standard.

As the SK2000 is equipped with 64 Number/Value keys only an additional bank selection is necessary to address the 128 program changes and GM sounds that are available in MIDI. For bank selection the first two Preselect keys are used:

- F0 (1) = Bank 1, i.e. the 64 Number/Value keys correspond to the program change numbers. 1 – 64 (or 0 – 63 depending upon the numerative system)
- F#0 (2) = Bank 2, i.e. the 64 Number/Value keys correspond to the program change numbers. 65 – 128 (or 64 – 127 depending upon the numerative system)

This means that one of the bank keys (i.e. Preselect keys 1 / 2) have to be operated to select the range 1-64 or 65-128 before the Number/Value key is pressed. The latest bank used is memorized by the SK2000. So you only have to enter the new value/number when you require a different bank setting. If you are not sure what the last bank selection was, you should re-select the bank to be on the safe side.

Sound/No. (XG SOUNDS)

C 0	F 0	F# 0	G 0	G# 0	A 0	A# 0	B 0	C 1
Sounds	1	2	3	4	5	6	7	8
Sounds	PIANO	CHROMATICPERC.	ORGAN	GUITAR	BASS	STRINGS	ENSEMBLE	BRASS

C# 1	D 1	D# 1	E 1	F 1	F# 1	G 1	G# 1
9	10	11	12	13	14	15	16
REED	PIPE	SYNTHLEAD	SYNTHPAD	SYNTHEFFECTS	ETHNIC	PERCUSSIVE	SOUNDEFFECTS

A 1	A# 1		B 6	C 7
1	2		63	64
Value 0	Value 2		Value 124	Value 126

As the MIDI **program change** message allows only 128 different sounds the additional **program bank** messages were introduced. The selection of the 16 instrument groups is selectedd with the 16 Preselect keys. The following instrument groups are available:

PIANO, CHROMATICPERCUSSION, ORGAN, GUITAR, BASS, STRINGS, ENSEMBLE, BRASS, REED, PIPE, SYNTHLEAD, SYNTHPAD, SYNTHEFFECTS, ETHNIC, PERCUSSIVE, SOUNDEFFECTS

When one of the 16 Preselect buttons is pressed the SK2000 does not yet return to Play-mode. Only if one of the Number/Value keys is selected, does the keyboard return to Play-mode. In other words: one has to select an instrument group with the Preselect keys and then the instrument within this group using the Number/Value Keys.

Depending upon the instrument group different numbers of instruments (or sounds) are available within the group. E.g. SOUNDEFFECTS contains only 8 sounds whereas SYNTHEFFECTS has 56 sounds available. Unused sounds addressed by the Number/Value keys cause no reaction and the SK2000 does not return to Play-mode.

The latest instrument group used is memorized by the SK2000. So you only have to enter the new value/number when you require a different group setting. If you are not sure of the last group selection you should operate one of the Preselect keys to be on the safe side before you choose the sound within the group with the Value/Number keys.

All sounds available are listed in the appendix. The 128 GM sounds (see preceeding menu) are printed bold in this list.

Effect/Value

C#-0		F 0	F# 0	G 0	G# 0	A 0	A# 0		A 1		C 7
Effects		1	2	3	4	5	6		1		64
Effects		Reverb-Type	Chorus-Type	Feedb-Rev.	Feedb.-Chorus	Rev-Time	Chorus-LFO		Value 0		Value 126

The parameter to be modified is selected with the Preselect keys and then adjusted with the Value/Number keys. For some parameters this is relative to the pre-defined settings of the selected sound. In this case the Value/Number keys mean the following:

1= maximum reduction of the effect ..... 32 = no change ..... 64 = maximum effect

Internally the value selected by the Value/Number key is multiplied by 2 to cover the whole data range of 0...127 resp. –64...+64.

Reverb types

In the effect menu 11 different reverb types are available (Preselect key 1 = **reverb**). With the Value/Number keys 1...12 one of these reverb types can be selected:

Value/Number key	Effect
1	No effect
2	Hall 1
3	Hall 2
4	Room 1
5	Room 2
6	Room 3
7	Stage 1
8	Stage 2
9	Plate
10	White room
11	Tunnel
12	Basement

Chorus types

In the effect menu 11 different chorus types are available (Preselect key 2 = **chorus**). With the Value/Number keys 1...12 one of these chorus types can be selected:

Value/Number key	Effect
1	No effect
2	Chorus 1
3	Chorus 2
4	Chorus 3
5	Chorus 4
6	Celeste 1
7	Celeste 2
8	Celeste 3
9	Celeste 4
10	Flanger 1
11	Flanger 1
12	Flanger 1

Reverb feedback

In the effect menu the intensity of the feedback for the reverb can be controlled (Preselect key 3 = **reverb feedback**). With the Value/Number keys the feedback is adjusted in the range –64 ... +64.

Chorus feedback

In the effect menu the intensity of the feedback for the chorus can be controlled (Preselect key 4 = **chorus feedback**). With the Value/Number keys the feedback is adjusted in the range –64 ... +64.

Reverb time

In the effect menu the reverb time can be controlled (Preselect key 5 = **reverb time**). With the Value/Number keys the reverb time is adjusted in the range 0.3 ... 30.0 sec.

Chorus LFO frequency

In the effect menu the frequency of the modulation oscillator (LFO = low frequency oscillator) controlling the chorus effect can be controlled (Preselect key 6 = **chorus LFO**). With the Value/Number keys the feedback is adjusted in the range 0.00 ... 37.9 Hz

All these settings are global, i.e. they are valid for all parts. Therefore it doesn't matter which of the two part buttons was operated to enter the menu.

Param./Value

D 0	F 0	F# 0	G 0	G# 0	A 0	A# 0	B 0	C 1	
Sound_Par.	1	2	3	4	5	6	7	8	
Sound_Par	Pan	Modulation	Mod-Rate	Cutoff	Resonance	Velocity Sense	Volume Reverb	Volume Chorus	

A 1	A# 1		B 6	C 7
1	2		63	64
Value 0	Value 2		Value 124	Value 126

The XG implementation contains a lot of additional sound-modifying parameters for each part, that is called up when the program change/sounds menu is used. The SK2000 enables the adjustment of these parameters and the storage within the SK2000 presets. The adjustment is the same as for the effect section:

The parameter to be modified is selected with the Preselect keys and then adjusted with the Value/Number keys. With the exception of the Pan, these parameters are relative to the pre-defined settings of the selected sound. The Value/Number keys normally have the following meaning:

1= miniumum effect ..... 32 = no change ..... 64 = maximum effect

Internally the value selected by the Value/Number key is multiplied by 2 to cover the whole data range of 0...127 or –64...+64, depending upon the pre-defined settings of the selected sound the adjustment of some parameters will have little or no effect. E.g. if the filter frequency is already very high for the selected sound an additional increase will have no or little effect.

The following parameters are available (as the adjustment is the same for all parameters it is not explained in detail for each parameter):

Pan (Preselect key 1)

Range for the Value/Number keys: 0 = random, L63 ..... 64/C 127/R63

Please pay attention that the pan effect may be ineffective if the the reverb level or chorus level is very high as the reverb and chorus signal is not panned!

Modulation (Preselect key 2)

Range for the Value/Number keys: 0=-64 (min) ..... 32=0 (no change) ..... 64 =+64 (max)

This parameter adjusts the intensity of the modulation (normally frequency modulation)

Modulation rate (Preselect key 3)

Range for the Value/Number keys: 0=-64 (min) ..... 32=0 (no change) ..... 64 =+64 (max)

This parameter adjusts the frequency (rate) of the modulation oscillator (LFO)

Filter cut-off (Preselect key 4)

Range for the Value/Number keys: 0=-64 (min) ..... 32=0 (no change) ..... 64 =+64 (max)

Each XG sound part has its own low pass filter. This parameter adjusts the cut-off frequency of the filter.

Filter resonance (Preselect key 5)

Range for the Value/Number keys: 0=-64 (min) ..... 32=0 (no change) ..... 64 =+64 (max)

This parameter is the resonance or emphasis of the low pass filter. A higher resonance will emphasise the frequencies around the cut-off point of the filter (if you want to learn more about filters please look at the user's manuals of the filters of the modular system A-100 on our web site www.doepfer.de).

Velocity sensitivity (Preselect key 6)

Range for the Value/Number keys: 0=-64 (min) ..... 32=0 (no change) ..... 64 =+64 (max)

This parameter adjusts the effect of the MIDI velocity (note-on messages) to the sound.

Reverb send volume (Preselect key 7)

Range for the Value/Number keys: 0=-64 (min) ..... 32=0 (no change) ..... 64 =+64 (max)

This parameter adjusts the level of the reverb section.

Chorus-Send-Volumen (Preselect key 8)

Range for the Value/Number keys: 0=-64 (min) ..... 32=0 (no change) ..... 64 =+64 (max)

This parameter adjusts the level of the chorus section.

Additionally the MIDI channel and volume are adjusted in the CHN/VOLUME menu.

PANIC

D#0 & E 0	F 0	F# 0		G 1	G# 1	A 1		C 7
Panic	1	2		15	16	1		64
Panic	N-OFF Chn 1	N-OFF Chn 2		N-OFF Chn 15	N-OFF Chn 16	Keys 1- 64 = ALL NOTES OFF		

Pressing one of these two keys calls up the panic menu. Whenever one of the 64 Value/Number keys is operated in this conditon the following messages are sent on all 16 MIDI-channels:

- "All Notes Off" (MIDI controller change # 123 with data = 0)
- "Reset All Controllers" (MIDI controller change # 121 with data = 0)

During normal operation the panic function is not required. It is used only in case of irregular conditions (hanging notes) to turn off the sound. Pay attention that the devices connected to MIDI out of the SK2000 have to recognize both the "All Notes Off" and "Reset All Controllers" messages. If the connected instruments do not respond to these messages, then the SK2000 enables the transmission of all 128 single "Note Off" messages on one MIDI channel using the Preselect keys 1-16. The number of the Preselect key determines the MIDI channel for the "Note Off" messages. To transmit 128 "Note Off" messages on all 16 MIDI channels all 16 Preselect keys have to be operated one after another.

Layer Sounds (two simultaneous sounds)

When the same MIDI channel is assigned to both parts one obtains two simultaneous sounds (layer sounds). In this case both parts of the internal XG sound card respond when playing on the keyboard. Even though the internal XG card has available 16 parts the SK2000 only uses the parts 1 and 2 of the XG card. This has to be considered if external MIDI messages are used to play the SK2000 sounds. External MIDI messages are mixed with the messages generated by the SK2000 and passed on to the XG card. In this way it may happen that both messages affect or cancel each other.

On the other hand this may be used to play triple or even quad layer sounds with the SK2000. One simply has to assign MIDI channels 3 ... 16 to the parts 1 and 2. In this case the XG card receives additional note information on the 2 new channels. Unfortunately it is not possible to adjust these additional sounds with the SK2000. Without an external editor one always is limited to the sound after power on, i.e. Grand Piano for channel 3..9 and 11...16 resp. Drum Set for channel 10. Therefore an external editor software is recommended (or even necessary) in case of triple or quad layer sounds. But as the sound card has only 32 voices available it is doubtful if triple or quad layers really make sense.

Appendix A : XG-Sounds

PIANO
1

		PRG	LSB
1	**GrandPiano(=default)**	**0**	**0**
2	GrandPiano KS	0	1
3	MelloGrandPiano	0	18
4	Piano&Strings	0	40
5	Dream(=+SynthPad)	0	41
6	**BritePiano**	**1**	**0**
7	BritePiano KS	1	1
8	**ElectronicGrandPiano**	**2**	**0**
9	ElectronicGrand Piano KS	2	1
10	DetunedConcert Piano80	2	32
11	ElectronicGrandPiano1	2	40
12	ElectronicGrandPiano2	2	41
13	**HonkyTonk**	**3**	**0**
14	HonkyTonkKS	3	1
15	**ElectronicPiano 1**	**4**	**0**
16	ElectronicPiano 1 KS	4	1
17	MelloElectronicPianol	4	18
18	Chor.ElectronicPianol	4	32
19	HardElectronicPiano	4	40
20	VX ElectronicPianol	4	45
21	60sElectronicPiano	4	64
22	**ElectronicPiano2**	**5**	**0**
23	ElectronicPiano2 KS	5	1
24	Chor.ElectronicPiano2	5	32
25	DX Hard	5	33
26	DX Legend	5	34
27	DX Phase	5	40
28	DX+Analog	5	41
29	DX Koto EP	5	42
30	VX ElectronicPiano2	5	45
31	**Harpsichord**	**6**	**0**
32	Harpsichord KS	6	1
33	Harpsichord 2	6	25
34	Harpsichord 3	6	35
35	**Clavichord**	**7**	**0**
36	Clavichord KS	7	1
37	Clavichord+Wah	7	27
38	PulseClavichord	7	64
39	PierceClavichord	7	65

CHROMATICPERCUSSION
2

		PRG	LSB
1	**Celesta**	**8**	**0**
2	**Glocken**	**9**	**0**
3	**MusicBox**	**10**	**0**
4	Orgel	10	64
5	**Vibes**	**11**	**0**
6	VibesK	11	1
7	HardVibe	11	45
8	**Marimba**	**12**	**0**
9	MarimbaK	12	1
10	SineMarimba	12	64
11	Balafon2	12	97
12	Log Drum	12	98
13	**Xylophone**	**13**	**0**
14	**TubularBell**	**14**	**0**
15	ChurchBell	14	96
16	Carillon	14	97
17	**Dulcimer**	**15**	**0**
18	Dulcimer2	15	35
19	Cimbalom	15	96
20	Santur	15	97

ORGAN
3

		PRG	LSB
1	**DrawOrgan**	**16**	**0**
2	DetunedDrawOrgan	16	32
3	6OsDrawOrganl	16	33
4	6OsDrawOrgan2	16	34
5	7Os DrawOrganl	16	35
6	DrawOrgan2	16	36
7	6OsDrawOrgan3	16	37
8	Even Bar	16	38
9	16+22/3	16	40
10	Organ Ba	16	64
11	7osDrawOrgan2	16	65
12	CheezOrgan	16	66
13	DrawOrgan3	16	67
14	**PercussiveOrgan**	**17**	**0**
15	70s PercussiveOrganl	17	24
16	Detuned PercussiveOrgan	17	33
17	LiteOrgan	17	34
18	PercussiveOrgan2	17	37
19	**RockOrgan**	**18**	**0**
20	RotaryOrgan	18	64
21	SlowRotar	18	65
22	FastRotar	18	66
23	**ChurchOrgan**	**19**	**0**
24	ChurchOrgan3	19	32
25	ChurchOrgan2	19	35
26	NotreDam	19	40
27	OrganFlute	19	64
28	TremoloOrganFlute	19	65
29	**ReedOrgan**	**20**	**0**
30	PuffOrgan	20	40
31	**Accordion**	**21**	**0**
32	Accordionlt	21	32
33	**Harmonica**	**22**	**0**
34	Harmonica2	22	32
35	**TangoAccordion**	**23**	**0**
36	TangoAccordion2	23	64

GUITAR
4

		PRG	LSB
1	**NylonGuitar**	**24**	**0**
2	NylonGuitar2	24	16
3	NylonGuitar3	24	25
4	VelGtHrm	24	43
5	Ukelele	24	96
6	**SteelGuitar**	**25**	**0**
7	SteelGuitar2	25	16
8	12 SteelGuitar	25	35
9	Nylon&Steel	25	40
10	Steel&Body	25	41
11	Mandolin	25	96
12	**JazzGuitar**	**26**	**0**
13	Mello Guitar	26	18
14	JazzAmp	26	32
15	**Clean Guitar**	**27**	**0**
16	Chorus Guitar	27	32
17	**Mute Guitar**	**28**	**0**
18	Funk Guitar 1	28	40
19	MuteSteelGuitar	28	41
20	FunkGuitar2	28	43
21	Jazz Man	28	45
22	**Overdrive**	**29**	**0**
23	Guitar Pinch	29	43
24	**Distorted Guitar**	**30**	**0**
25	Feedback Guitar	30	40
26	Feedback Guitar	30	41
27	**Guitar Harmonic**	**31**	**0**
28	GuitarFeedback	31	65
29	Guitar Harmonie 2	31	66

BASS
5

		PRG	LSB
1	**Acoustic Bass**	**32**	**0**
2	Jazz Rythm	32	40
3	VX Upright	32	45
4	**Fingered Bass**	**33**	**0**
5	Fingered Dark	33	18
6	Flanged Bass	33	27
7	Bass&DistortedGuitar	33	40
8	Fingered Slap	33	43
9	Fingered Bass 2	33	45
10	Mod Alem	33	65
11	**PickBass**	**34**	**0**
12	Mute PiekBass	34	28
13	**Fretless Bass**	**35**	**0**
14	Fretless Bass 2	35	32
15	Fretless Bass 3	35	33
16	Fretless Bass 4	35	34
17	SynFretlessBass	35	96
18	Smooth	35	97
19	**SlapBass1**	**36**	**0**
20	ResoSlap	36	27
21	PunehThm	36	32
22	**SlapBass2**	**37**	**0**
23	VeloSlap	37	43
24	**SynBass1**	**38**	**0**
25	SynBass1 Drk	38	18
26	Fast Res Bass	38	20
27	Acid Bass	38	24
28	Clv Bass	38	35
29	Tekno Bass	38	40
30	Qscar	38	64
31	Sqr Bass	38	65
32	Rubber Bass	38	66
33	Hammer	38	96
34	**SynBass2**	**39**	**0**
35	Mellow SynBassl	39	6
36	Seq Bass	39	12
37	ClkSynBass	39	18
38	SynBass2Drk	39	19
39	SmthBass2	39	32
40	ModularBass	39	40
41	DX Bass	39	41
42	X WireBass	39	64

STRINGS
6

		PRG	LSB
1	**Violin**	**40**	**0**
2	SlowViolin	40	8
3	**Viola**	**41**	**0**
4	**Cello**	**42**	**0**
5	**Contrabass**	**43**	**0**
6	**Tremolo Strings**	**44**	**0**
7	SlowTremoloStrings	44	8
8	Suspense Strings	44	40
9	**Pizzicato Strings**	**45**	**0**
10	**Harp**	**46**	**0**
11	Yang Chin	46	40
12	**Timpani**	**47**	**0**

ENSEMBLE
7

		PRG	LSB
1	**Strings 1**	**48**	**0**
2	Stereo Strings	48	3
3	SIow Strings	48	8
4	Arco Strings	48	24
5	60s Strings	48	35
6	Orchestra	48	40
7	Orchestra 2	48	41
8	Tremolo Orchestra	48	42
9	Veb Strings	48	45
10	**Strings 2**	**49**	**0**
11	Stereo SbowStrings	49	3
12	Legato Strings	49	8
13	Warm Strings	49	40
14	Kingdom	49	41
15	7osStrings	49	64
16	String Ensemble 3	49	65
17	**Syn. Strings 1**	**50**	**0**
18	Reso Strings	50	27
19	Syn Strings 4	50	64
20	85 Strings	50	65
21	**Syn.Strings 2**	**51**	**0**
22	**ChoirAah**	**52**	**0**
23	Stereo Choir	52	3
24	ChoirAah2	52	16
25	Mel Choir	52	32
26	Choir Strings	52	40
27	**VoiceOoh**	**53**	**0**
28	**Synth Voice**	**54**	**0**
29	Synth Voice 2	54	40
30	Choral	54	41
31	Ana Voice	54	64
32	**Orchestral Hit**	**55**	**0**
33	Orchestral Hit	55	35
34	Impact	55	64

BRASS
8

		PRG	LSB
1	**Trumpet**	**56**	**0**
2	Trumpet2	56	16
3	Brite Trum pet	56	17
4	Warm Trumpet	56	32
5	**Trombone**	**57**	**0**
6	Trombone2	57	18
7	**Tuba**	**58**	**0**
8	Tuba2	58	16
9	**MutedTrumpet**	**59**	**0**
10	**French Horn**	**60**	**0**
11	French HornSolo	60	6
12	French Horn2	60	32
13	Horn Orchestra	60	37
14	**Brass Section**	**61**	**0**
15	Trumpet&TubaSection	61	35
16	Brass Section 2	61	40
17	Hi Brass	61	41
18	MeIlow Brass	61	42
19	**Syn Brass 1**	**62**	**0**
20	Quack Brass	62	12
21	RezSyn Brass	62	20
22	Poly Brass	62	24
23	SynBrass3	62	27
24	Jump Brass	62	32
25	Ana Vel Brass	62	45
26	Ana Brassl	62	64
27	**Syn Brass 2**	**63**	**0**
28	SoftBrass	63	18
29	Syn Brass4	63	40
30	Choir Brass	63	41
31	Vel Brass	63	45
32	Ana Brass 2	63	64

REED
9

		PRG	LSB
1	**Soprano Sax**	**64**	**0**
2	**Alto Sax**	**65**	**0**
3	Sax Section	65	40
4	HyprAlto	65	43
5	**Tenor Sax**	**66**	**0**
6	Breath TenorS	66	40
7	SoftTenorS	66	41
8	Tenor Sax2	66	64
9	**Bariton Sax**	**67**	**0**
10	**Oboe**	**68**	**0**
11	**English Horn**	**69**	**0**
12	**Bassoon**	**70**	**0**
13	**Clarinet**	**71**	**0**

PIPE
10

		PRG	LSB
1	**Piccolo**	**72**	**0**
2	**Flute**	**73**	**0**
3	**Recorder**	**74**	**0**
4	**PanFlute**	**75**	**0**
5	**Bottle**	**76**	**0**
6	**Shakhchi**	**77**	**0**
7	**Whistle**	**78**	**0**
8	**Ocarina**	**79**	**0**

SYNTHLEAD
11

		PRG	LSB
1	**SquareLead**	**80**	**0**
2	SquareLead2	80	6
3	LmSquare	80	8
4	Hollow	80	18
5	Shmoog	80	19
6	Mellow	80	64
7	SoloSine	80	65
8	SineLead	80	66
9	**SawtoothLead**	**81**	**0**
10	SawtoothLead2	81	6
11	Thick SawtL	81	8
12	Dynamic SawtL	81	18
13	Digital SawtL	81	19
14	Big Lead	81	20
15	HeavySyn	81	24
16	WaspySyn	81	25
17	Pulse Saw	81	40
18	Dr. Lead	81	41
19	VeloLead	81	45
20	SeqAna	81	96
21	**CalliopeLead**	**82**	**0**
22	Pure Pad	82	65
23	**ChiffLead**	**83**	**0**
24	Rubby	83	64
25	**CharanLead**	**84**	**0**
26	Distorted Lead	84	64
27	Wire Lead	84	65
28	**Voice Lead**	**85**	**0**
29	SynthAah	85	24
30	Vox Lead	85	64
31	**Fifth Lead**	**86**	**0**
32	Big Five	86	35
33	**Bass&Lead**	**87**	**0**
34	Big&Low	87	16
35	Fat&Porky	87	64
36	SoftWurl	87	65

SYNTHPAD

12

		PRG	LSB
1	**NewAge Pad**	**88**	**0**
2	Fantasy 2	88	64
3	**Warm Pad**	**89**	**0**
4	ThickPad	89	16
5	SoftPad	89	17
6	Sine Pad	89	18
7	Horn Pad	89	64
8	Rotar String	89	65
9	**PolySyn Pad**	**90**	**0**
10	Poly Pad 80	90	64
11	CIick Pad	90	65
12	Analog Pad	90	66
13	Square Pad	90	67
14	**ChoirPad**	**91**	**0**
15	Heaven2	91	64
16	Itopia	91	66
17	CC Pad	91	67
18	**BowedPad**	**92**	**0**
19	Glacier	92	64
20	Glass Pad	92	65
21	**MetalPad**	**93**	**0**
22	Tine Pad	93	64
23	Pan Pad	93	65
24	**HaloPad**	**94**	**0**
25	**SweepPad**	**95**	**0**
26	Shwimmer	95	20
27	Converge	95	27
28	Polar Pad	95	64
29	Celestiai	95	65

SYNTHEFFECTS

13

		PRG	LSB
1	**Rain**	**96**	**0**
2	Clavichord Pad	96	45
3	Hrmo Ram	96	64
4	African Wind	96	65
5	Carribean	96	66
6	**SoundTrack**	**97**	**0**
7	Prologue	97	27
8	Ancestral	97	64
9	**Crystal**	**98**	**0**
10	SynDrCmp	98	12
11	Popcorn	98	14
12	Tiny Beil	98	18
13	Round Glock	98	35
14	Glock&Chimes	98	40
15	ClearBell	98	41
17	Synth Mailet	98	64
18	SoftCryst	98	65
19	Loud Glock	98	66
20	Xmas Beil	98	67
21	VibeBell	98	68
22	DigitalBeil	98	69
23	AirBeiis	98	70
24	Bell Harp	98	71
25	Gamelemba	98	72
26	**Atmosphere**	**99**	**0**
27	WarmAtmosphere	99	18
28	Hoilow Rls	99	19
29	NylonEP	99	40
30	Nylon Harp	99	64
31	HarpVox	99	65
32	Atmosphere Pad	99	66
33	Planet	99	67
34	**Bright**	**100**	**0**
35	FantasyBell	100	64
36	Smokey	100	96
37	**Goblins**	**101**	**0**
38	GobSyn	101	64
39	SOsSciFi	101	65
40	Ring Pad	101	66
41	Ritual	101	67
42	To Heaven	101	68
43	Night	101	70
44	Giisten	101	71
45	BelChoir	101	96
46	**Echoes**	**102**	**0**
47	Echo Pad 2	102	8
48	Echo Pan	102	14
49	Echo Beil	102	64
50	Big Pan	102	65
51	Syn Piano	102	66
52	Creation	102	67
53	Stardust	102	68
54	Reso Pan	102	69
55	**Sci-Fi**	**103**	**0**
56	Starz	103	64

ETHNIC
14

		PRG	LSB
1	**Sitar**	**104**	**0**
2	Det Sitar	104	32
3	Sitar2	104	35
4	Tambra	104	96
5	Tamboura	104	97
6	**Banjo**	**105**	**0**
7	Mute Banjo	105	28
8	Rabab	105	96
9	Gopichnt	105	97
10	Oud	105	98
11	**Shamisen**	**106**	**0**
12	**Koto**	**107**	**0**
13	T.Koto	107	96
14	Kanoon	107	97
15	**Kalimba**	**108**	**0**
16	**Bagpipe**	**109**	**0**
17	**Fiddle**	**110**	**0**
18	**Shanai**	**111**	**0**
19	Shanai 2	111	64
20	Pungi	111	96
21	Hichriki	111	97

PERCUSS1VE
15

		PRG	LSB
1	**TinkleBell**	**112**	**0**
2	Bonang	112	96
3	Gender	112	97
4	Gameian	112	98
5	5. Gamelan	112	99
6	Rama Cym	112	100
7	Asian Beil	112	101
8	**Agogo**	**113**	**0**
9	**SteelDrum**	**114**	**0**
10	GiasPerc	114	97
11	ThaiBeii	114	98
12	**WoodBlok**	**115**	**0**
13	Castanet	115	96
14	**TaikoDrm**	**116**	**0**
15	Gr. Cassa	116	96
16	**Melod Tom**	**117**	**0**
17	Melod Tom 2	117	64
18	Real Tom	117	65
19	Rock Tom	117	66
20	**Syn.Drum**	**118**	**0**
21	Ana Tom	118	64
22	Elec Perc	118	65
23	**Rev.Cymbal**	**119**	**0**

SOUNDEFFECTS
16

		PRG	LSB
1	**FretNoise**	**120**	**0**
2	**BreathNoise**	**121**	**0**
3	**Seashore**	**122**	**0**
4	**Birdlweet**	**123**	**0**
5	**Telephone**	**124**	**0**
6	**Helicopter**	**125**	**0**
7	**Applause**	**126**	**0**
8	**Gunshot**	**127**	**0**

Appendix B : Factory Presets

(as of August 2001)

Grand Piano	1	HardVibes	17	Brass Section	33	LayerSound1	49
MeloGrandPiano	2	Marimba	18	Synth Brass	34	LayerSound2	50
DreamPiano	3	Dulcimer2	19	Sawtooth Lead	35	LayerSound3	51
BritePiano	4	DetuneDrawOrgan	20	Saw Thick	36	LayerSound4	52
ElectronicGrand	5	60sDrawOrgan1	21	Fith Lead	37	LayerSound5	53
Detune Piano	6	60sDrawOrgan2	22	NewAgePad	38	LayerSound6	54
MelloPiano	7	Perc.Organ	23	MetalPad	39	LayerSound7	55
PianoChoirString	8	Church Organ	24	Shwimmer	40	LayerSound8	56
Honky Tonk	9	NotreDam	25	SoundTrack	41	LayerSound9	57
Electronic Piano	10	OrganFlute	26	Crystal	42	LayerSound10	58
ElectronicPiano2	11	Violin	27	ChorBell	43	LayerSound11	59
DX Sound	12	Harp	28	Planet	44	LayerSound12	60
DX Effect	13	Strings	29	Goblins	45	LayerSound13	61
Harpsichord	14	Synth Strings	30	Starz	46	LayerSound14	62
Full Harpsichord	15	Choir Ahhh	31	Tamboura	47	LayerSound15	63
Clavichord	16	Voice Ohhh	32	Sitar	48	LayerSound16	64

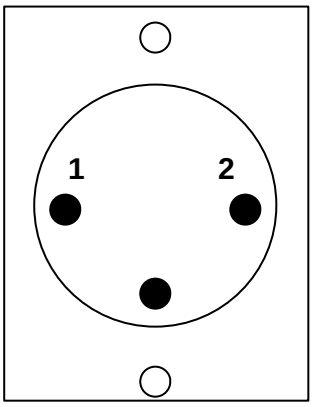
Appendix C : Notes about velocity

The special chip used inside the SK2000 to poll the key-contacts uses the time difference required by the switch-contact to derive the velocity response (or dynamics-value). The relationship between measured time difference and velocity is one of inverse proportion, i.e.doubling the time causes the velocity-response to be halved. However, this is not the response one is used to from a piano. In the case of a non-adjusted velocity-response most musicians feel that the high values start too early and that there is insufficient resolution in the lower range. In the SK2000 this is compensated using a non-linear scanning algorithm.

Velocity-response is to some extent also dependant upon the expander being used. There are significant differences in the velocity behaviour of different expanders. The scanning algorithm included with the SK2000 generally permits sufficiently good adjustment of the velocity-response characteristics. Pay attention that some expanders also include various velocity-response curves of their own.

The XG sound card used in the **SK2000** has available a parameter to adjust the velocity effect to the sound.

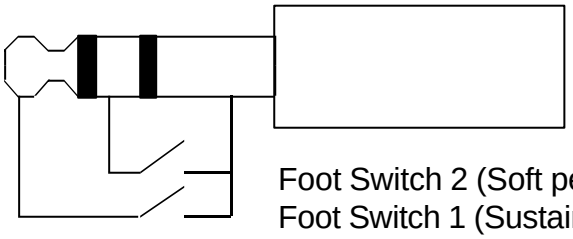
Appendix D : Pin Assignment of the Sockets



Power Supply

1 = +9V DC / 800mA
stabilized (!!!)

2 = GND



Foot Controller

Foot Switch 2 (Soft pedal)
Foot Switch 1 (Sustain)

Appendix E : SK2000 System Exclusive Implementation

Single-Dump

F0 00 20 20 20 00 20 presetnr presetdata (16 Bytes) F7

F0 SysEx Byte
00 European Sub ID
20 Doepfer Sub ID 1
20 Doepfer Sub ID 2
20 Device **'SK2000**'
00 reserved
20 Command Byte 'Single dump'
00 Preset-Nr
00 reserved

Data [32 Bytes - 7 Bit]

F7 EOX (end of System Exclusive)

DATA Structure of one Preset (32 Byte - 7 Bit)

Parameter	Position	Parameter	Position
CHN_Part 1	0	CHN_Part 2	1
VOLUME Part 1	2	VOLUME Part 2	3
SOUND_PRG Part 1	4	SOUND_PRG Part 2	5
SOUND_LSB Part 1	6	SOUND_LSB Part 2	7
REVERB_TYPE	8	REVERB_FEEDBACK	9
CHORUS_TYPE	10	CHORUSFEEDBACK	11
REVERBTIME	12	CHORUSLFO	13
MODRATE Part 1	14	MODRATE Part 2	15
MODULATION Part 1	16	MODULATION Part 2	17
PAN Part 1	18	PAN Part 2	19
CUTOFF Part 1	20	CUTOFF Part 2	21
RESONANCE Part 1	22	RESONANCE Part 2	23
VELOSENS. Part 1	24	VELOSENS. Part 2	25
REV_VOL Part 1	26	REV_VOL Part 2	27
CHOR_VOL Part 1	28	CHOR_VOL Part 2	29
reserved	30	reserved	31

Single Dump Request

F0 00 20 20 20 00 26 00 presetnr 00 F7

Version Request

F0 00 20 20 20 00 06 00 00 F7

Version Request- Answer

F0 00 20 20 20 00 00 VERS SUBVERS F7

Appendix F : Supplementary Equipment

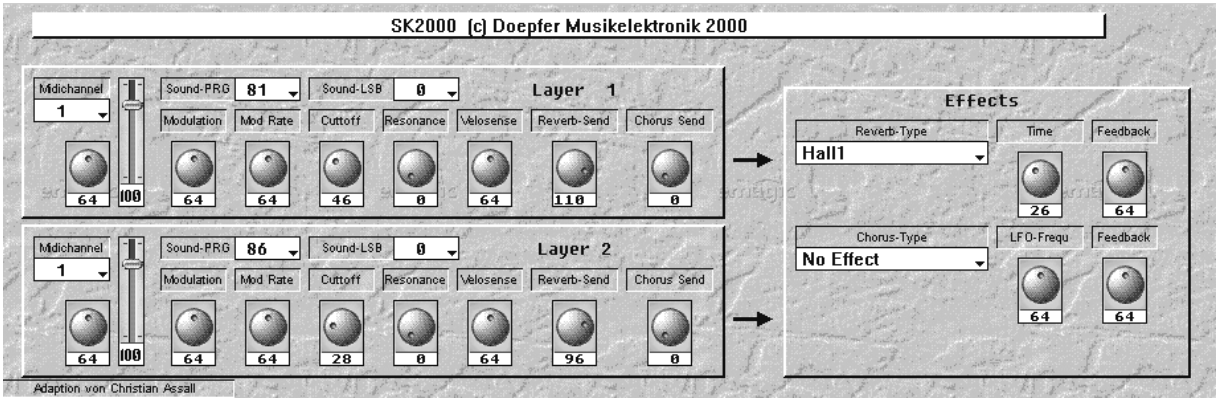
DOEPFER *Pocket Control / Pocket Fader / Pocket Dial*

All these devices contain different XG presets.

DOEPFER *Drehbank*

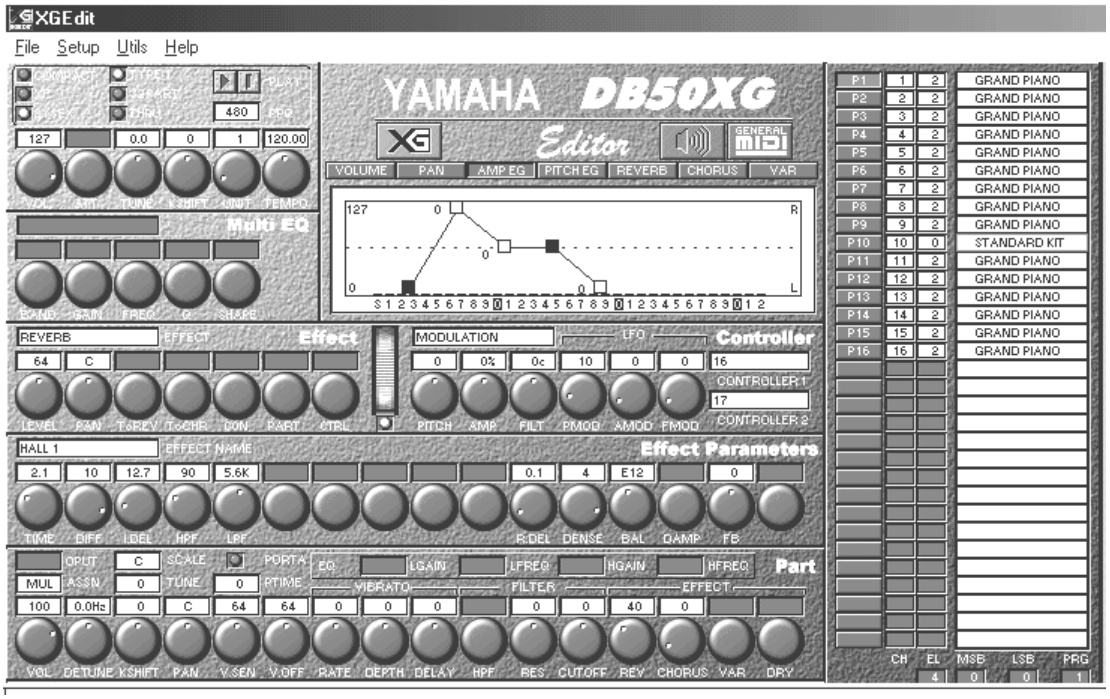
For Drehbank different XG presets are available.

Emagic SoundDiver -OEM - Version (included with the SK2000)



The internet has a lot of additional information concerning XG, and free XG editor programs are available.
E.g. visit this web site : **http://xgmidi.wtal.de/**

XG-Editor: XGEDIT



XG-EDITOR: XG-GOLD