

KS1

MIDI 9 / GULBRANSEN MIDI ADAPTER

OWNER'S MANUAL

**MIDI 9
800-757-MIDI
www.midi9.com**

KS1

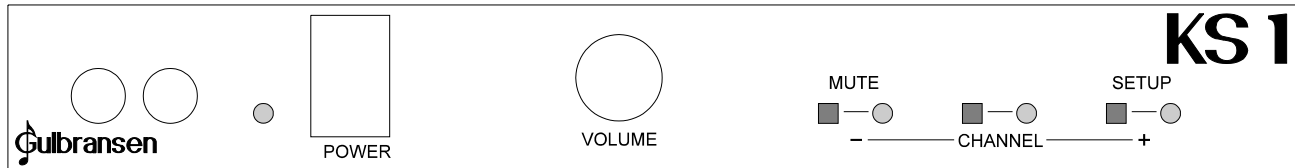
GULBRANSEN MIDI ADAPTER

Congratulations! Your investment in a GULBRANSEN KS1 will tremendously enhance the musical variety and pleasure obtainable from your acoustic piano.

What does the KS1 do? The Gulbransen KS1 is a simple MIDI interface for your acoustic piano. The KS1 allows you to use your piano as a MIDI controller. The KS1 MIDI OUT jack can be connected to any synthesizer, sequencer, or computer having a MIDI IN jack.

If the SS88 sensor strip is not already installed in your piano, refer to the installation manual that was shipped with the KS1. The first thing you will want to do is perform a bench test to make sure none of the KS1 components were damaged in shipping. It is much easier to resolve any problems if the system is bench tested before installation into the piano. The general bench test procedures are outlined in the installation manual. This manual covers the steps that are specific to the KS1. See the Setup section below.

KS1 Operation



The KS1 is a very simple device and is easy to use. Once the setup procedure has been performed, there are only three controls that you need to worry about. Everything you need to know is on this page!

Volume: This control allows you to set the volume of your external sound module(s). Twisting this knob causes the KS1 to transmit a new Channel Volume* (Controller 7) message on the current MIDI channel. Any device that is listening to that MIDI channel will set its volume for that channel to the new value.

* "Channel Volume" was called "Main Volume" prior to an agreement made by the MIDI Manufacturers Association in January 1995.

Mute: Shuts off any held notes and releases sustain and sostenuto pedals. This button allows you to easily turn off your piano's MIDI output.

Set MIDI Channel: By default, the KS1 transmits on MIDI Channel 1, but you can change this to any of the 16 MIDI channels. The MIDI channel assignment is permanently stored in non-volatile memory, even if the KS1 is turned off or the power is disconnected.

To display the current MIDI channel, press and hold the Channel button for one second. The light above the button will "flash the channel." For example, if the MIDI channel is set to four, the Channel light will flash four times and go out. You can release the channel button when the light starts flashing.

To change the MIDI channel, press the + or - button as indicated on the front panel. The flashing cycle will reflect this new MIDI channel.

To exit this function, press and release the Channel button again. The Channel light will stop flashing and the KS1 will resume normal operation.

SET-UP FUNCTIONS

Key adjust:

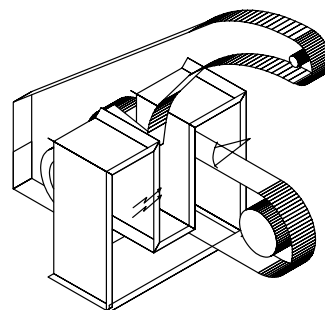
To enter: Press and hold the SETUP button for one second.

Indication: SETUP light flashes rapidly.

To exit: Press any button.

Inside your piano, there is a sensor strip beneath the piano keys. This sensor strip detects the position of each key and keeps track of this over time. The KS1 control unit makes decisions based on this information which tell it when to play notes, when to release them, and so on. There is a keyboard calibration procedure which must be performed in order for the sensor strip to work properly. It's necessary so the control unit can know the rest position and full travel of each key. With this information, an accurate judgment of the current position of the key can be made while the piano is being played.

For the technically-minded, here's a brief explanation of how the sensor strip actually works. The sensor strip is a series of optical sensors, one for each key. Each optical sensor has two small plastic "towers." One tower transmits a beam of infrared light to the other tower which detects infrared light. There is a small spring-loaded actuator finger which serves as a shutter by blocking the light beam. It gradually reduces the amount of light detected as it is depressed. The sensor strip is mounted beneath the keyboard, positioned so that an actuator touches the bottom of each key. The actuator's position is maintained by a very light spring and is undetectable by the player. The travel of the key is not restricted by the sensor strip and the piano action is completely unaffected.



The adjustment procedure is simple and takes little time. It should have been performed when your piano was delivered, and should be performed again if the piano is ever moved or if some notes don't seem to work properly. It is a good idea to do an adjustment from time to time and is one of the first things to do if notes do not play correctly.

Press the Setup button for one second to begin the keyboard calibration. Make sure you are not holding any keys down when you do this. The KS1 will look at the key rest positions when entering this function. If you are holding any keys down, they will not work properly.

After holding the SETUP button for one second the SETUP LED will flash rapidly. You can now release the button. Play every key on the piano. It does not matter if a key is pressed more than once, but it is important that each key be pressed down all the way without unduly compressing the felt that is under the front of the key. You can think of this as a good opportunity to practice the chromatic scale.

Press the Setup button to exit adjustment mode.

Hot note fix:

To enter: Hold SETUP Button and CHANNEL button together for one second.
Indication: SETUP LED flashes slowly
To exit: Press any button.

If there are notes that seem to play too loudly relative to other notes, you probably need to perform a keyboard adjustment, described above. Most of the time this will solve the problem. There is a way to adjust the calibration of an individual note, however.

This function only works on notes that actually play, but whose relative loudness you wish to adjust. As with the tuning function, you should set the volume to an appropriate level before entering this function because there's no way to adjust the master volume while you're in this mode.

To use this function, play some notes on the keyboard. When you find one you want to adjust, play it repeatedly while slowly twisting the volume knob back and forth. You should discover that the note will get louder ("hotter") as you twist the knob clockwise, and softer ("colder") as you twist it counterclockwise. Go slowly. If you play lots of different notes while twisting the knob like a maniac, there's no telling what the result will be. The software uses the knob's position to alter the settings of the last note you played. The only way to use this function predictably is to be careful to only move the knob AFTER you've played the note you want to adjust.

Clear EEPROM

The KS1 stores its setup information in an EEPROM, which is a small circuit about the size of a very flat crouton. This amazing little device will retain this setup information for 10 years without power. The use of this device means the KS1 has no batteries to replace. Truly no user-serviceable parts inside.

There are times when it is necessary to clear the EEPROM. This will restore the KS1 to its factory settings. It will also erase the keyboard adjustment and MIDI output channel assignment. If you clear the EEPROM, you absolutely *must* perform the keyboard adjustment over again. To clear the EEPROM, press and hold the all three buttons for five seconds. The KS1 will clear the EEPROM and automatically reboot. The first thing you need to do is perform the keyboard adjustment, described above.

TROUBLESHOOTING

Before calling your GULBRANSEN KS1 dealer for technical assistance, please check the following items. You may be able to avoid an unnecessary service call.

Symptom	Probable Cause	Solution
No lights on the panel. Hint: The KS1's power indicator will always be on if the unit is on and has power.	Unit is turned off	Turn the unit on
	Power supply not plugged into a live 110V outlet	Test the outlet with a lamp or some other appliance
	Power connector has come loose	Check the connection on the back of the control unit
There is power, but no MIDI output	MUTE button is on.	Press MUTE to turn it off. Light should go out.
	Faulty keyboard adjust	Perform a new keyboard adjust.
	Keyboard sensor strip not connected, or connected to wrong jack.	Verify that Connector J1 of the keyboard sensor strip is connected to the SS88 jack on the rear panel of the control unit
	MIDI cable loose or missing	Verify that a good MIDI cable is plugged into KS1 MIDI OUT and into external module's MIDI IN
	Wrong MIDI Channel or Mode	Verify external module is in correct MIDI mode and is listening to the same channel the KS1 is transmitting. To get started, set your external module's MIDI mode to OMNI or MULTI. (It will listen to all MIDI channels)
	Misbehaving MIDI IN device	Try using a different sound module
Some notes do not play	Improper installation	Verify installation parameters and clearances
	Faulty keyboard adjust	Perform a new keyboard adjust.
	Stuck actuator	Verify actuator movement
	Misbehaving MIDI IN device	Try using a different sound module
Incorrect velocities ("hot" or "cold" notes - individual notes that are too loud or too soft)	Faulty keyboard adjust	Perform a new keyboard adjust, taking care to press each key firmly.
	Improper installation	Verify installation parameters and clearances
	Key bounce, or poor key regulation	Adjust back checks, remove excessive slop or play in key action
Will not accept keyboard adjust	Keyboard sensor strip not connected, or connected to wrong jack.	Verify that Connector J1 of the keyboard sensor strip is connected to the SS88 jack on the rear panel of the control unit
	EEPROM has become corrupted	Clear the EEPROM

PRODUCT SPECIFICATION

CONTROL PANEL/SCANNER

Three buttons: Mute, Channel, Setup

One knob: Volume

One Switch: Power

Four LEDs: Power, Mute, Channel, Setup

Input Power - 12 Volts DC or AC, 1 AMP (Positive Voltage at connector center)

20 MHz 80C186 Processor (1 MIPS)

Custom VLSI Synthesis Engine (105 MIPS)

64 K Bytes RAM

256 K Bytes ROM

External Dimensions: 125 mm (5.1") W x 216 mm (8.8") D x 30 mm (1.2") H

Weight: 450g (1 lb.) (Approx.)

KEYBOARD SENSOR STRIP

88 Continuously Variable Opto-Electronic Note Sensors

Velocity Sensitive

External Dimensions: 122 cm (48") W x 76 mm (3") D x 51 mm (2") H (Approx.)

Weight: 7 kg (3.2 lb.) (Approx.)

Specifications subject to change without notice.