8 x 8 PROGRAMMABLE MIDI PATCH BAY
User's Guide
Version 1.0

KMX-8

KMX–8 User's Guide

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Welcome!

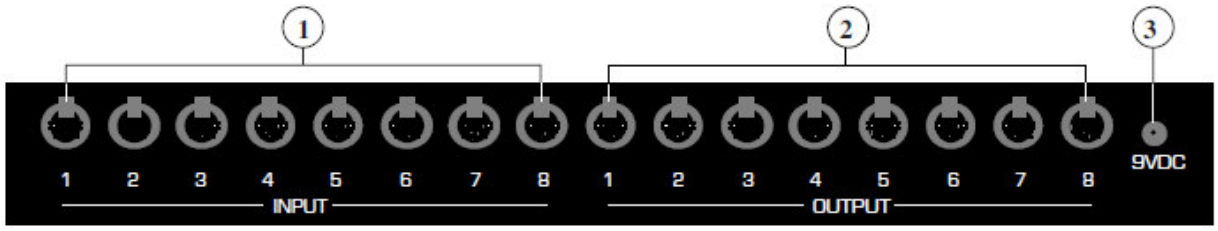
Thank you for purchasing an ENSONIQ KMX-8 MIDI patch bay. The KMX-8 is a programmable MIDI patch bay that has 8 inputs and 8 outputs. Your main application for the KMX-8 is the internal switching of MIDI connections without the usual time-consuming and annoying unplugging and replugging of your MIDI devices. With the KMX-8 in your MIDI rack you need less time for switching cables and have more time for your music. The KMX-8 has thirty memory locations to store the input-output associations - "patches" - which are remotely accessible from software, keyboard, MIDI program change or another KMX-8. Additional features are a MIDI mixer on inputs 1 and 2, and a system exclusive format that allows storing patches on external MIDI devices, such as a computer. After you have used the KMX-8 for a short time, you'll wonder how you ever organized your MIDI rack without it.

While we are confident that you will find the KMX-8 easy to use, it has some functions that may not be understood at first glance. Please take the time to read these instructions so that you will get the most from your KMX-8.

Front and Rear View

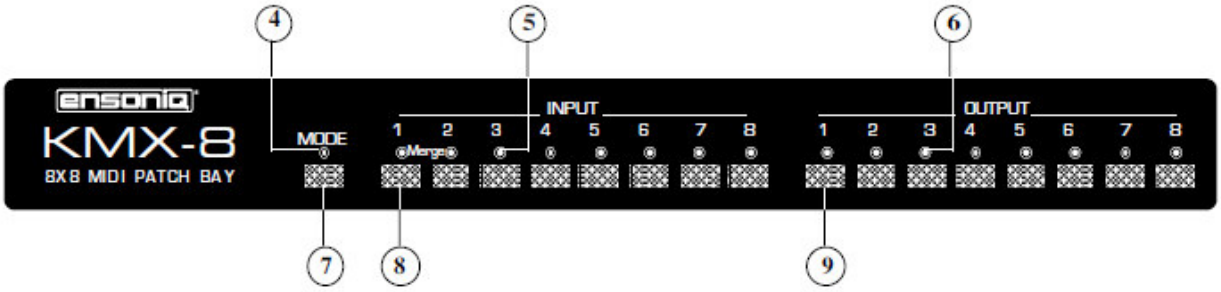
The following figures show the keys and connectors that you will use when you configure your KMX-8.

Connectors on the back:



1. MIDI input jacks 1-8
2. MIDI output jacks 1-8
3. Port for power supply

Front:

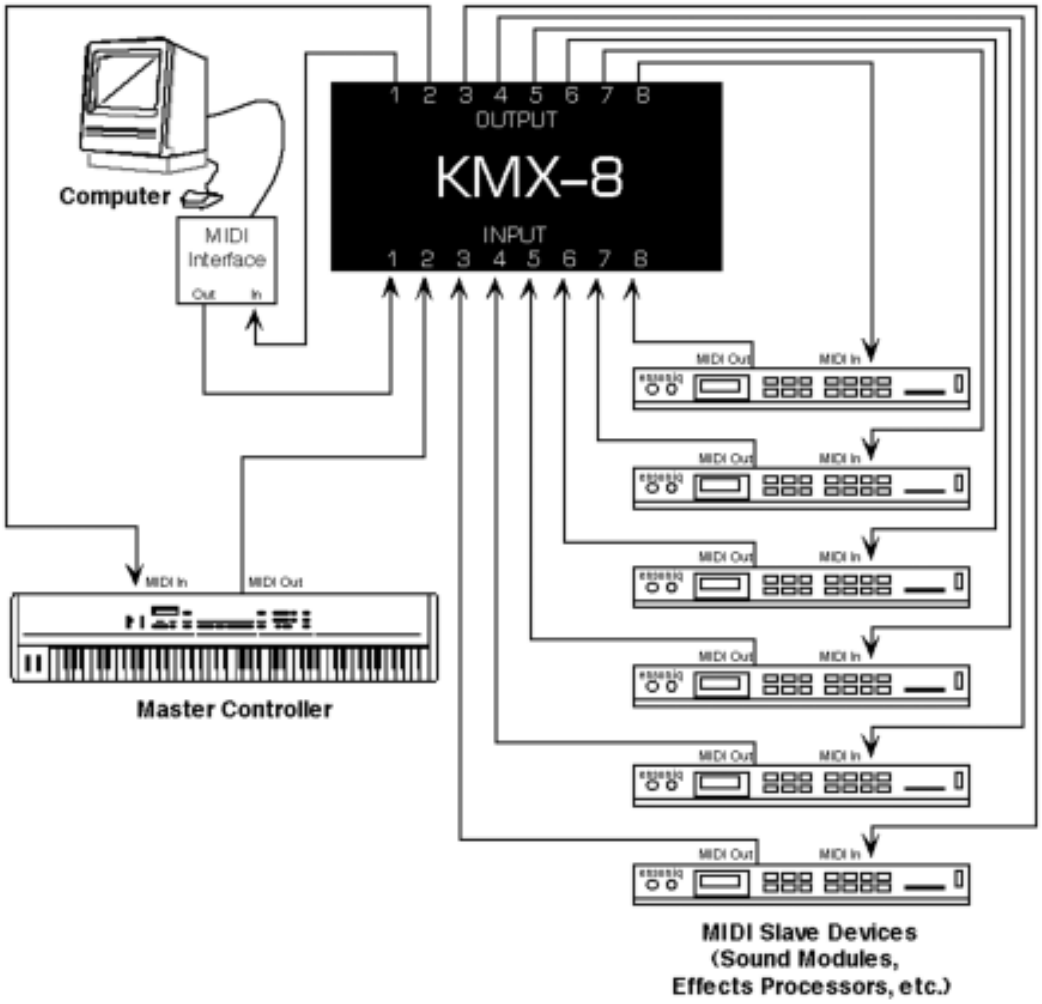


4. Mode LED
5. Input LEDs 1-8
6. Output LEDs 1-8
7. Mode button
8. **Input 1-8**: Input buttons
9. **Output 1-8**: Output buttons

System Setup

First and foremost you must decide where intend to setup your KMX-8 within your MIDI rack. Since the KMX will be "nerve centre" of your MIDI Setup, select a place where you have easy access to the keys on the front and from where all MIDI devices within range of the MIDI cable are. The top of a MIDI rack is an ideal place. KMX-8 will continue through an external power supply is connected to the back. The device turns as soon as the power supply plugs into a conductive outlet. It makes sense to put the power supply to connect all other devices of your rack into a power strip. You can turn on the complete rack with a single switch and turn off.

On the back of the 16 MIDI ports located two sets per eight. The left group is marked with "Input" (input) and right group "Output" (output). Jacks of the two groups are numbered from left to right with 1 to 8. MIDI information are in on the "input" jacks that go into the device. So are connected to the MIDI-Out jacks of your instruments. Just connect the "output" jacks to MIDI-In jacks of your instruments. Generally, it is easiest, an instrument the Einund output with the same number to connect. You want to join as an ENSONIQ KMX-8 KS-32. You connect the MIDI-Out port of KS 32 1 of the KMX and MIDI output of 1 of KMX with MIDI-In KS 32 then the input. If you use a MIDI device as a "Slave", which receives only MIDI, need you the MIDI out to combine insertion with an input of the KMX which are most sound modules in this way connected. Of course must both ports - MIDI in and out - a device with the KMX - 8 connect if you want to transfer data in both directions. This includes any use a master keyboards with a sequencer as well as programming or storing sounds of a sound module to your computer. You can connect the outputs MIDI Einund and KMX-8 all in all up to eight devices. The following illustration shows a typical configuration for KMX-8.


1 2 3 4 5 6 7 8
OUTPUT
KMX-8
INPUT
1 2 3 4 5 6 7 8
Computer
MIDI Interface
Out In
MIDI In
MIDI Out
Master Controller
MIDI Slave Devices
(Sound Modules,
Effects Processors, etc.)

Configuring the KMX-8

This section is intended to show how to control the flow of MIDI data by KMX-8. The KMX allows you to "route each MIDI input on any combination of MIDI outputs". Thus, eight MIDI controller can be connected to the KMX-8 each control a group of "Slaves". To determine which controller controlled what "slave", by a few keyboard shortcuts. So for example, input could be 1 with the outputs 1-4 while input 2 with 5-8 outputs is connected. How you configure your system to the logical operation of KMX-8 makes it easy you. A complete configuration input output connections called "Preset".

Follow these steps to configure a preset:

1. Ensure that the mode LED is not lit. If so, press the mode button.
2. Select an input by pressing either the input keys. The LED above the input keys is turned on. It appears that you can now assign outputs this receipt.
3. Take an initial mapping by pushing the output button corresponds to the MIDI output which want to issue the MIDI signals. LED above the button lights up and displays the selected input signal flow leads to this issue. You can assign multiple outputs each input by pressing multiple output keys. To deselect an associated outlet press the corresponding output key again (extinguished the output LED).
4. To configure of a different input, select it by pressing the appropriate input key and map to the desired outputs by pressing the corresponding output buttons. The KMX allows the mapping of an outlet to more than a receipt except for mixing MIDI information (see below).

If you select an output, which previously was associated with a different input KMX-8 toggles the output of the old entrance to the new. Each time you press an input key, all the associated outputs LEDs light up. So you can get quickly an overview of the entire device configuration by press successively all input keys.

MIDI Merge

KMX-8 acts as MIDI mixer (merge). Midi information are digital, i.e. they are composed of a sequence of numbers that are understood by MIDI devices. Not as easy as audio digital signals can be mixed. To achieve this, a processor must ineinandergefügt MIDI information. KMX-8 can be mixed input 1 and 2.

This Mischfunktionen granted additional options when building your MIDI Setup. If you use two devices as main controller, a keyboard and a computer sequencer to both at the same time the other MIDI devices control. This allows you to play a MIDI sound module during it even MIDI information from your:

- Press the keys together input 1 and 2. Both input LEDs light up.
- You can now assign outputs to the mixed inputs as you would with regular inputs. Outputs associated with the mixed entrances to receive MIDI signals from all devices that are connected 1 or 2 input to input.
- To turn off the mixer press 1 input button. The input 2 LED turns off while the input further leuchtet 1 LED.

Whenever the mixer, all outputs were formerly associated with the input of 1 that are assigned the mixer. Equally, all outputs associated with the mixer to input 1 when turned off. In contrast to input 1 input 2 can have assigned independent outputs of mixer.

To configure input 2 separate press the input button 2. Input 2 led and outputs can be assigned in the usual way. If input 2 led and the mixer is turned on, you can retrieve mapping to the mixer with 1 input button.

To avoid timing problems, the MIDI information are mixed sequencer start, stop, continue and clock KMX-8 not readily. Once the first two mixed input receives a MIDI start command, passes this information to the selected outlet. From then on will each clock information to the other input is filtered but, until the first of the two inputs receives a MIDI stop command. Then the second entrance can again receive clock information. KMX-8 lets you mix song position pointer and MIDI time code information from two sources.

Tip: Because of the limited memory you should not use mixer, if you send large system exclusive messages from one device to another through inputs 1 or 2. Turn off the mixer to deliver MIDI dumps.

Save patches in memory

After you assign the inputs and outputs of KMX as described above, save the entire preset for future purposes on one of its memory:

- Hold the mode button and release it, if the start mode LED blinking (about one second).
- The input and output buttons now act as storage-dial buttons. There are 30 memory you can select: 1-8, 11-18, 21-28, and 31-36. The input keys 1-3 selects the left digit (0-3) and the output buttons the right point (1-8). Since there are no buttons with 0 or 9, 09, 10, 19, 20, 29 and 30 numbers are not used.
- Choice 1-8 memory switch off all input LEDs by pressing the appropriate buttons.

The following table represents the allowed combinations of input and output LEDs for 30 memory:

For space no.:	Turn on this input LED:	Then turn on this output LED:	For space no.:	Turn on this input LED:	Then turn on this output LED:
1	(none)	1	18	1	8
2	(none)	2	21	2	1
3	(none)	3	22	2	2
4	(none)	4	23	2	3
5	(none)	5	24	2	4
6	(none)	6	25	2	5
7	(none)	7	26	2	6
8	(none)	8	27	2	7
11	1	1	28	2	8
12	1	2	31	3	1
13	1	3	32	3	2
14	1	4	33	3	3
15	1	5	34	3	4
16	1	6	35	3	5
17	1	7	36	3	6

- Once you have selected a space hold back down the mode button until the associated LED stops blinking. To cancel the storage process before that date briefly press the mode button. The preset is only stored if the mode button is pressed for at least one second.
- You can maximum build more 29 other presets and thereby save by assigning an own space each preset. KMX-8 uses an EEPROM (electronically erasable programmable read only memory - electronically discardable read-only memory) for their storage, which keeps memory contents for around ten years.

To call a presets from memory:

- Ensure that the led mode. Otherwise press the mode button to turn the LED.
- Select the space number you want to call by pressing the appropriate combination of input and output keys as described above. If you want to call, for example, the space of 18 press the input button 1 and 8 output key. Thus, the preset is enabled and ready for use.
- If you want to change the preset, press the mode button briefly that originated the mode LED. You can then change the configuration with the input and output buttons according to your needs.

Get presets via MIDI

You can retrieve presets via MIDI by sending MIDI program change information to input 1 KMX-8. You must first define which MIDI channel should expect the KMX-8 program change messages. To do this:

- Press the mode button, the input button at the same time. The mode light starts flashing slowly.
- Select the MIDI channel 1-16 by pressing one of the 16 input or output buttons. The input keys 1-8 are associated with the MIDI channels 9-16 MIDI channels 1-8 and 1-8 output buttons.
- You can turn off MIDI program change KMX-8, by, as long as press Inputund output buttons until all their lights.
- Once you have selected the MIDI channel, press the mode button quickly and the fashion LED stops blinking.

Can MIDI program swapping, sent to the input of 1 on the set channel be a preset from the store as shown in the following table KMX-8 (the KMX-8 ignored program change numbers that are not included in the table):

Sent MIDI program change number	Space accessed KMX-8	Sent MIDI program change number	Space accessed KMX-8
00	01	17	18
01	02	20	21
02	03	21	22
03	04	22	23
04	05	23	24
05	06	24	25
06	07	25	26
07	08	26	27
10	11	27	28
11	12	30	31
12	13	31	32
13	14	32	33
14	15	33	34
15	16	34	35
16	17	35	36

Tip: The KMX-8 responds to program change by you dials the space which number is greater by one than the received number, when the sending device sends numbers between 0 and 127. If the device but sends program numbers between 1 and 128, as all ENSONIQ products then program change match number and preset number.

Saving and loading memory content via MIDI

KMX-8 can transfer their memory contents to an external MIDI data store as at a computer, MIDI data recorder or an ENSONIQ product with a floppy drive. Such data can be reloaded later in the KMX-8. This is especially useful, or to back up the contents of memory KMX-8 If you want to save more than 30 KMX Setup. There are two ways to submit memory contents via MIDI: trigger the dump from the keypad on the front or get it with a system exclusive message send to input 1.

To trigger a dump from the keypad on the front:

- Ensure that the receiving device to receive system exclusive data is set.
- Squeeze the mode button and input 2 button. KMX-8 LEDs do for about a second while transferring the memory contents. If you again, the dump is complete. KMX-8 sends the memory dump on all eight outputs.

KMX-8 can system exclusive messages send and receive, which allow an external MIDI device, such as a computer with an editor software both single presets as the entire memory contents, send and receive. These messages are shown for information for programmers in Appendix A.

Appendix A: MIDI System Exclusive Implementation

This section is intended for programmers who write their own applications for KMX-8. Most users of a KMX-8 will, however, never make use of this technical information. All system exclusive messages must be sent to the input of 1 or 2. The MIDI channel must be set for these inputs. All hexadecimal digits are the following with a H, all others are decimals.

The format of the message looks like this:

`F0H 00H 00H 19H 02H nn <dd..> F7H`

Where:

- `F0H` indicates the start of the system exclusive message
- `00H 00H 19H` is the KMX manufacturer code. This code is used instead of the ENSONIQ vendor ID to ensure compatibility with older KMX products.
- `02H` is the device ID KMX-8
- `nn` is the code for the type of message (0.101)
- `<dd..>` is the data segment (variable length), depending on the message type
- `F7H` is the end ID of system exclusive message.

Messages

Messages 0-36 (0.24H) - single preset dump

Message 0 includes the current patch Bay configuration (in the edit buffer) and 01 36 according to configurations for presets 01 36 messages. Note that here 36 locations are addressiert while the KMX-8 has only 30 locations. Memory 09, 10, 19, 20, 29 and 30, however, are not used by KMX-8, are not valid numbers for messages.

Messages 0-36 uses 8 bytes of data. Each byte represents an input-output mapping, starting with output 1. A value of 0 represents "No input assigned", 1 - 8 are available for input 1 8 and 9 represents a combination of input 1 and 2. Note: If one of the eight bytes of data is 9, all other bytes with a value of 1 to 9 are changed.

Message 37 (25H) - all presets (complete memory with 30 repositories))

Each preset dump packets with 8 bytes (see above) are delivered 30 times where each package is followed by 112 bytes 00H. They enter the time it takes for a write operation in the preset storage which takes 20 milliseconds KMX-8. Instead, you can send a series of single preset packets as long as you consider not these 20 milliseconds between the packages.

Messages 64-101 (40H–65H) - dump request

These messages are used to request one of the above data packets (same numbers + 64; corresponds to Bit6 = 1). In response the packet from KMX-8 to exit 1 is displayed.

Technical data

Memory

- 30 Preset memory (accessible via MIDI or Panel front)
- Control of up to 8 MIDI inputs and 8 MIDI outputs
- Presets are preserved during power outage
- No batteries needed to back up the contents of memory
- Edit Buffer

Front Panel

- 8 numbered "IN" and "OUT" buttons with corresponding LEDs
- Separate storage button for storing patches
- Quick and easy programming

Rear Connectors

- 8 MIDI input ports
- 8 MIDI output ports
- 9 Volt DC voltage port (Use the included power supply)

MIDI

- Built-in MIDI mixer on input 1 and 2
- Presets can be selected via MIDI program change
- The memory can be saved via MIDI system exclusive message using a data recorder

Dimensions

- Dimensions: width 48.26 cm, height 4.32 cm, depth 14.30 cm
- 19" rack enclosure, height 1U
- Weight: 2.09 kg