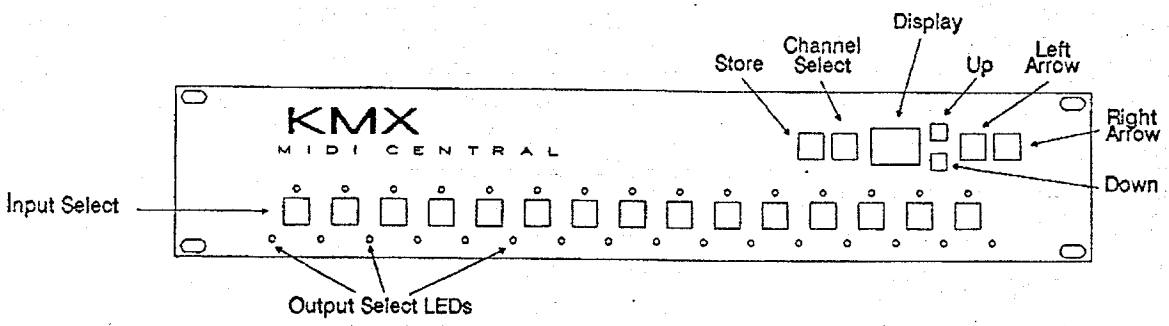
# KMX

# MIDI CENTRAL INSTRUCTIONS

MIDI CENTRAL is a 15 input by 16 output MIDI patch bay. Features include quick and easy programming, a MIDI merger on inputs 1 and 2 and memory which allows you to store as many as 99 patch configurations as numbered presets. These presets can be recalled using the switches on the front panel or by sending MIDI program changes to inputs 1 or 2. There are additional features as well so please take a minute to read this manual.




## SYSTEM CONNECTION

MIDI CENTRAL is powered by a wall mount transformer which is provided with the unit. The DC output from the transformer plugs into the back of the MIDI CENTRAL. It supplies 9 volts DC at 500 milli-amps. Polarity is + at the center. If you ever need to replace it with another, use one with the same voltage and power rating.

MIDI CENTRAL powers on when you turn on the transformer. Since it is generally most convenient with a rack mount system to use a central power strip with one master on/off switch for all units in the rack, there is no power switch on the MIDI CENTRAL.

There are two rows of MIDI connectors across the back. The top row has 15 connectors and is labeled "IN". The bottom row has 16 connectors and is labeled "OUT". Both rows are numbered from left to right with input 1 and output 1 to your left as you look at the back of the unit. The corresponding selector switches on the front are also numbered from left to right as you look at the front of the unit. This means that the cables in back will not line up with the switches in front.

"IN" on the MIDI CENTRAL is where the MIDI signal comes in so you must connect the MIDI outputs from your MIDI gear to the inputs on the MIDI CENTRAL. Likewise the outputs on the MIDI CENTRAL connect to the MIDI inputs on your MIDI gear. It is generally most convenient to connect each MIDI device to an input and output with the same number. For example, connect keyboard 1's MIDI out to input number 1 on the MIDI CENTRAL and keyboard 1's MIDI in to output number 1. If a MIDI device is only a slave and never needs to send MIDI, you don't have to connect its MIDI out to the system. Most sound modules generally need to have their MIDI outs connected though in order to perform library storage functions with a computer.

Inputs 1 and 2 on the MIDI CENTRAL are the "intelligent" inputs. They can listen for MIDI program changes, listen for system exclusive messages directed to the MIDI CENTRAL and do MIDI merge. You should connect these two inputs to the MIDI outs from your main controller and your computer or sequencer.

## PROGRAMMING THE SIGNAL PATH

MIDI CENTRAL allows you to internally patch its MIDI inputs to its MIDI outputs thereby saving you the trouble of plugging and unplugging MIDI cables to and from one device to another. A single input can drive up to sixteen outputs at once but you cannot funnel many input signals into one output. Each output on the MIDI CENTRAL can have one input assigned to it, have no input assigned to it, or have a merge from inputs 1 and 2 assigned to it. So when programming your signal paths you must choose the source of the MIDI signal for each device connected to an out on the MIDI CENTRAL.

The signal path can be programmed using the switches on the front panel. Across the bottom are fifteen numbered switches labeled "IN" with red LEDs above them. These correspond to the fifteen MIDI inputs on the back. Below the input switches are sixteen red LEDs labeled "OUT". These correspond to the sixteen MIDI outputs on the back.

To assign an "IN" to an "OUT", first pick the MIDI output you want to program by using the left and right arrow switches which are on the upper right of the front panel. Select the desired output by lighting its corresponding LED. Only one LED will light allowing you to select or view only one output at a time. Once you have selected an output, assign an input to it by pressing one of the input switches. The LED above the switch will light when assigned. Notice that when you assign a new input the LED from the previous input assignment goes out. This means that only one input can be assigned to an output. The exception to this is when assigning inputs 1 or 2. You can turn on both inputs together which allows you to merge the MIDI signals from those two inputs. To turn off an output simply press the input switch that's currently lit. This will toggle the LED off leaving no input assigned to that out. You must repeat this operation for each of the sixteen outputs.

For example, to program input 1 to drive all sixteen outputs, first select output 1 using the left or right arrow switch. Next assign input 1 to it by pressing the input 1 switch (unless it is already lit). Continue by selecting the remaining outs one at a time and assigning input 1 to each of them by pressing the right arrow then pressing the input 1 switch.

## STORING MEMORY

After you've programmed all sixteen outputs you can store the configuration in memory as a preset for later recall. To do this press the "STORE" switch. The number in the display will begin to flash. Next select the number you want to assign to the preset by using the up or down switch to increment or decrement the number in the display. Once you've selected the number (1-99), press and hold the "STORE" switch until the number stops flashing (about one second). Once saved, the preset will be preserved even during power down. There are no batteries required to maintain the memory.

To store after editing an existing preset, make the changes to the input assignments then press and hold the "STORE" button. The number will flash then stop after the edits are rewritten over the original preset.

Whenever you make an edit to an existing preset notice that the decimal point will light up in the display. This is a flag to tell you that the current patch configuration is an edited version of the one stored in memory. If you save the edited patch to memory the decimal point will turn off.

For most applications you will route the MIDI signal from your main controller or sequencer to combinations of selected MIDI devices. You can also use the MIDI CENTRAL to enable and disable different instruments in the system. Another useful application is to allow an individual instrument to communicate in both directions with a computer in order to transfer sound filing data back and forth. This type of patch would route the in on the instrument to the out on the computer and the in on the computer to the out on the instrument.

## RECALLING PRESETS

To recall a preset from memory use the up or down switch to increment or decrement the program number in the display. Pressing and holding the switch will increment or decrement the number at high speed.

> WARNING: Avoid changing presets while notes are being played. You can end up with stuck notes if an instrument is disconnected before receiving a note release from the controller.

You can also call presets with MIDI program change commands that are sent to inputs 1 or 2. Before this can be done you must first set the MIDI channel on the MIDI CENTRAL. To do this press the "CHANNEL SELECT" switch. The LED over input 1 will start to flash. This is to indicate that you are setting the MIDI channel for input 1. Inputs 1 and 2 can be set to separate MIDI channels. The display will show the current MIDI channel for the flashing input, "--" in the display means that program changes are disabled and will be ignored by that input. Use the up and down switches to select a new MIDI channel. To select the MIDI channel for input 2, press the input 2 switch. The LED over input 2 will flash and the current channel or "--" will now be displayed. Press the "CHANNEL SELECT" switch again after you are through setting the MIDI channel. The input LEDs will stop flashing and the display will return to the current preset number.

You can also select the range of MIDI program numbers that the MIDI CENTRAL will respond to. To do this press either the left or right arrow switch while in channel select mode. Pressing the left arrow will display the lower limit and pressing the right arrow will display the upper limit. Setting the MIDI program limits can be useful in performance situations where you need to send program changes to other instruments but only want the MIDI CENTRAL to respond to a few numbers. For example, to set the lowest program change allowed on input 1 to 05, first press the "CHANNEL SELECT" switch to get into channel select mode. The current MIDI channel will be shown in the display and the LED over input 1 will flash. Next press the left arrow switch. The lowest MIDI program number allowed will now be shown in the display. This will be 01 if you're setting it for the first time. While holding down the left arrow switch use the up switch to select 05. Now input 1 will ignore

MIDI program numbers 01 through 04 on input 1. Use the same operation with the right arrow switch to set the upper limit which is the highest MIDI program number that will be accepted. You can set different limits for input 2. You can use this feature to disable program changes but still allow system exclusive commands which also require you to set the MIDI channel. Set the limits to some unused range of programs to do this.

NOTE: Setting the program limits only affects program changes that are received from MIDI. You can still select from all 99 presets using the up and down switches.

## MIDI MERGE

MIDI CENTRAL provides a selectable MIDI merge for inputs 1 and 2. MIDI signals can't be mixed together indiscriminately like audio signals, therefore it is necessary to logically combine the data from both inputs. To enable this for a particular output, turn on both inputs 1 and 2 when selecting the signal source for that out.

MIDI CENTRAL will not merge two separate MIDI timing signals. This would certainly cause timing errors in any receiver. It will accept timing information from the first merging input that receives a MIDI start command. It will filter MIDI clock bytes from the other input until the first input receives a MIDI stop command. After a stop is received the second input is free to receive timing information. This only applies to start, stop, continue, and clock information. Song position and MIDI time code can be merged.

NOTE: Due to the limited amount of memory for the input buffers, merge should not be used when sending large system exclusive files from one device to another through inputs 1 or 2.

If you would like to merge other inputs besides 1 and 2 you can do so by sacrificing two outputs. Connect two MIDI cables from outputs 15 and 16 to inputs 1 and 2 on the back. Whenever you want to select two inputs for merging, route them to outs 15 and 16. The signal will then be carried through the two cables to inputs 1 and 2 which are the merging inputs. Any output that now selects merge (inputs 1 and 2) as its source will receive a merge of the two inputs assigned to outs 15 and 16. Confused?

## SYSTEM EXCLUSIVE

You can generate a data dump in order to back up the MIDI CENTRAL's memory to a MIDI data filing system. The filing system can be a computer with special software or a MIDI data disk device. To send the dump from any of the MIDI CENTRAL's outputs press the "STORE" switch once. The program number will flash indicating store mode. Next press one of the numbered "IN" switches for the corresponding out you want to send the dump. Make sure your data storage device's input is connected to that out and is ready to receive.

When loading the dump file back into the MIDI CENTRAL you must send it to inputs 1 or 2. Store mode and channel select mode must be off. The message "rd" will appear in the program display while the dump is being received. The message "Er" will appear if the message is interrupted or improperly received.

MIDI CENTRAL will respond to its own set of system exclusive messages allowing you to configure it remotely with special software. The messages can only be received by inputs 1 or 2 and the MIDI channel must be set for the input. The system exclusive format is provided here for programmers.

All hex numbers are followed by the letter H, all others are decimal.

The message format is as follows: F0H 00H 00H 19H 01H cc nn dd ..... F7H

Where F0H 00H 00H 19H 01H is the message header for MIDI CENTRAL

cc is the MIDI channel (00H - 0FH) (this byte is ignored when receiving message 101)

nn is the message number (0 - 102)

message 0 defines the current configuration (edit buffer)
messages 1 - 99 define configurations for presets 1 - 99
message 100 specifies the MIDI program change limits
message 101 defines all presets (memory dump)
message 102 requests any of the above messages

dd is the data

For messages 0 - 99 there are 16 data bytes. Each byte represents an input assignment for each output starting

with output 1. A value of 0 represents no input, 1 - 15 represents inputs 1 - 15 and 16 represents the merge of inputs 1 and 2.

For message 100 there are 4 data bytes, they represent in order: highest allowed MIDI program number for input 1, highest for input 2, lowest MIDI program number for input 1, lowest for input 2.

For message 101 the data represents the entire 99 preset memory.

For message 102 there is one data byte 0-101 which will request one of the above messages. The response will be sent through the output with the same number as the input that the request was received on (out 1 or 2).

F7H is the end byte and must terminate all messages.

## KMX LIMITED WARRANTY

This limited warranty against defects in materials and workmanship applies only to the original retail purchase. IMPORTANT: Please retain your sales receipt, as it is your proof of purchase covering your one year limited warranty.

Defective parts will be repaired or replaced without charge if the product is returned to any Authorized KMX Dealer or directly to KMX. Any service performed by other than an Authorized KMX Dealer or by KMX is not reimbursable under the warranty. Transportation costs are not included in this warranty.

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