Evolution MK-425C • MK-449C • MK-461C

User Guide

Table of Contents

1 Evolution Advanced Guide

About The Advanced Guide

In the MK-425C/449C/461C Advanced Guide we have made the assumption that you have been through the Getting Started Guide which should have been supplied in printed form with your keyboard. If you do not have this guide, please contact your local distributor or download it from our website www.evolution.co.uk

The Getting Started Guide should insure that you are now familiar with the basic operation of the keyboard so that we now can focus on more in-depth features.

First however, we need to explain some terminology we use throughout the guide.

Terminology

Edit Mode:

Edit Mode describes the short period after a function button has been pressed during which the parameters of that function can be altered. The numeric keypad can be used to alter a parameter during this time. No data is sent out of the Evolution MK-425C/449C/461C when it is in Edit mode except for program and bank changes. LCD symbols shown in Edit mode will flash to show you that a particular parameter can be edited. If a number is part entered, and a new controller turned, that number will become the relevant parameter number for the new controller and the 3 second editing period will re-trigger.

Default mode :

Default Mode describes the state of the keyboard, when no function buttons have been pressed within the last 3 seconds. In Default mode, the LCD will show the controller symbol, and the 2 digit display will show the last selected controller. The 3 digits display the currently assigned MIDI CC number.

2 Programming & Editing The MK-425C/449C/461C

Introduction To Programming Options

Each of the MK-425C/449C/461C's controllers can send MIDI cc, RPN/NRPN, GM 1&2 SysEx messages and even be assigned to individual MIDI channels.

MIDI cc (continuous controller) numbers are part of the standard MIDI specifications and are typically used to control the real-time changing of parameters in musical equipment. For a complete list of standard MIDI controller numbers from 0 to 131, please see Appendix E on page 16.

Any of the real-time controllers on the keyboard can be assigned to a MIDI cc number however the 10 assignable buttons have slightly different options from the 9 Faders (MK-449C/461C only) or rotary controllers.

The following 2 charts show all the transmit messages you can program for each of the fader/controllers and assignable MIDI buttons respectively. We show you this already at this stage, so you can follow the principle of programming the controllers in the following instructions and examples.

Please pay extra attention to the differences between how you program the faders or controllers and how you program the buttons.

Faders & Controllers			
ASSIGN	Description	Data Lsb (Press Twice)	Data Msb (Press Twice)
0-119	Standard MIDI CC's	-	-
120-127	Channel Mode Messages	-	-
128	Pitch Bend Sensitivity	-	-
129	Channel Fine Tune	-	-
130	Channel Coarse Tune	-	-
131	Channel Pressure	-	-
132	RPN coarse	RPN LSB	RPN MSB
133	RPN fine	RPN LSB	RPN MSB
134	NRPN coarse	NRPN LSB	NRPN MSB
135	NRPN fine	NRPN LSB	NRPN MSB
136	Master Volume GM*	Volume LSB	Volume MSB
137	Master Pan*	Pan LSB	Pan MSB
138	Master Coarse Tune*	Tuning LSB	Tuning MSB
139	Master Fine Tune*	Tuning LSB	Tuning MSB
140	Chorus Mod rate**	Mod rate	-
141	Chorus Mod Depth**	Mod depth	-
142	Feedback**	Feedback level	-
143	Send to Reverb**	Reverb send level	-
144	Pitch Bend	Pitch shift LSB	Pitch shift MSB
255	Controller Off****	-	-

* Sysex messages - for details please see page 8.
** MMC Sysex messages, for details please see page 5.
*** This value cannot be typed in using the numerical keypad. Type in 144 and then press the + button to set this value.

Assignable MIDI Buttons				
ASSIGN	**Description**	**Program (Press Twice)**	**Bank LSB (Press Twice)**	**Data Msb (Press Twice)**
0-119	Standard MIDI CC's	-	Toggle Value 2	Toggle Value 1
120-127	Channel Mode Messages	-	Toggle Value 2	Toggle Value 1
128	Pitch Bend Sensitivity	-	Sensitivity value	-
129	Channel Fine Tune	-	Tuning amount	-
130	Channel Coarse Tune	-	Tuning amount	-
131	Channel Pressure	-	Pressure amount	-
132	RPN Coarse	Value	RPN LSB	RPN MSB
133	RPN Fine	Value	RPN LSB	RPN MSB
134	NRPN Coarse	Value	NRPN LSB	NRPN MSB
135	NRPN Fine	Value	NRPN LSB	NRPN MSB
136	Master Volume*	-	Volume LSB	Volume MSB
137	Master Pan*	-	Pan LSB	Pan MSB
138	Master Coarse Tune*	-	Tuning LSB	Tuning MSB
139	Master Fine Tune*	-	Tuning LSB	Tuning MSB
140	Chorus Mod rate**	-	Mod rate	-
141	Chorus Mod Depth**	-	Mod depth	-
142	Feedback**	-	Feedback level	-
143	Send to Reverb**	-	Reverb send level	-
144	Pitch Bend	-	Pitch shift LSB	Pitch shift MSB
145	Program/Bank Preset	Program	Bank LSB	Bank MSB
146	MIDI CC (on/off)	MIDI CC	Button release value	Button press value
147	Note (on/off)	Note	Velocity off	Velocity on
148	Note (on/off toggle)	Note	Velocity off	Velocity on
149	MMC Command***	-	Command select.	-
150	Reverb type **	-	Type	-
151	Reverb time **	-	Time	-
152	Chorus type **	-	Type	-
255	Controller Off****	-	-	-

* Sysex messages - for details please see page 8.

** MMC Sysex messages, for details please see page 5.

*** This value cannot be typed in using the numerical keypad. Type in 144 and then press the + button to set this value.

Selecting A Controller For Editing

Before you can assign a MIDI cc to one of the MK-425C/449C/461C's controllers, you will need to select it for editing. There are 2 methods for doing this:

1. Press CONTROL SELECT. The LCD will display the CONTROLLER symbol.

   The symbol will be flashing to indicate the controller settings can be altered. The 3-digit display will show the number of the currently selected controller, proceeded by a 'C', or an 'F' if the controller is a fader.

2. Type in the number of the controller using the numeric keypad, or the +/- buttons.

or

   Move a fader/rotary controller.
   Simply moving a fader/rotary controller will make it the currently selected controller, ready for editing.

It is not possible to select any of the 10 numerical buttons by pressing them, since during edit mode, they are used to enter numerical values. To program these buttons, please use the first method. We have given the buttons 0 to 9 the following numbers for the selection process: MK-425C = 11-20, MK-449C = 20-29, MK-461C = 24-33 respectively.

Assigning MIDI CC's

Once the controller you want to edit has been selected, you can change the assigned MIDI cc number in the following way:

1. Press "CONTROL ASSIGN". The LCD will flash the CC symbol.

   The 3 digit display will indicate the currently assigned MIDI cc number.

2. Type in a new MIDI cc value using the numeric keypad or '+' and '-' buttons.

   The MIDI controller number you select will be assigned to the currently selected controller, shown by the number on the small, 2-digit display.
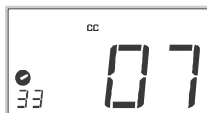
Example: After pressing ASSIGN, the display shows the cc symbol and in this case displays that currently the MIDI cc 07 is assigned to fader/rotary controller number 33.

Assigning An Individual MIDI Channel

1. Select the controller you want to edit as described earlier.
2. Press "CHANNEL ASSIGN".
   The LCD will display the CHAN symbol and the 3-digit display will show the current channel assignment of the selected controller, preceded by a 'c'. The small 2-digit display will show the currently selected controller for assignment.
3. Type the MIDI channel number (01-16) you want the controller to send to, using the numeric keypad or the +/- keys.

If the controller is assigned to channel 00, it will transmit on the global channel.

Setting Toggle Values For The Buttons

The 10 assignable buttons can each be assigned to toggle between two values. You may for instance want to send out value 15 when you first press the button followed value 74 when you press the button for a second time. This is how you do it:

1. Press the Function button labelled "DATA MSB" 2 times.
2. Type in 15 using the numerical keypad or the +/- keys.
3. Press the Function button labelled "DATA LSB" 2 times.
4. Type in 74 using the numerical keypad or the +/- keys.

If you want the button to send the same value every time you press it, simply type in the same value both times.

RPN/NRPN, GM 1+2 SysEx & Other Messages

As already described, the standard MIDI controller numbers range from 0 to 131. We have extended the list of MIDI cc's that can be assigned to the controllers of the keyboard to include RPN/NRPN, MMC and General MIDI 1&2 SysEx messages.

These advanced messages are as easy to program as a regular MIDI cc instruction by entering values 132 to 152 when programming MIDI cc's. The charts on page 6 (or Appendix B) show you what number correspond to each message.

To program the values required for these advanced messages, the MK-425C/449C/461C requires you to press the PROGRAM, DATA LSB and DATA MSB buttons twice respectively. Pressing only once will send the program and bank change instructions "on the fly" as described in the Getting Started guide.

Lets look at a couple of examples to see how this works. Please refer to the charts on pages 3 & 4 so you get to grips with the principle:

Assigning MMC Control To A Button

1. Select the button you want to control the MMC message.
2. Press "CONTROL ASSIGN" on the MK-425C/449C/461C.
3. Type in "149" using the numerical keypad.
   This is the number that corresponds to the MMC instruction, as per the charts on pages 3 and 4.
4. Press "CHANNEL" once.
5. Type in "127", using the numerical keypad.
   This ensures that the message is set to all device ID numbers. For more information about this, please read "About SysEx Messages & Device ID" on page 6.
6. Press the "DATA LSB" button twice.
7. Enter a number from the chart on the next page to select the MMC message you want:

Number	MMC Command
01	STOP
02	PLAY
03	DEFERRED PLAY
04	FAST FORWARD
05	REWIND
06	RECORD STROBE
07	RECORD EXIT
08	RECORD PAUSE
09	PAUSE
10	EJECT
11	CHASE
12	COMMAND ERROR RESET
13	MMC RESET

Assigning RPN/NRPN To A Fader/Rotary Controller

Note: For a detailed description of RPN/NRPN data see section RPN/NRPN's explained on page 8.

1. Select the desired control as described earlier.

2. Press "CONTROL ASSIGN" twice and while the display is flashing, enter controller 132 for RPN coarse, 133 for RPN fine, 134 for NRPN coarse or 135 for NRPN fine.

3. Press "DATA MSB" twice to assign the number for the RPN/NRPN MSB.

4. Press DATA LSB twice to assign the number for RPN/NRPN LSB.

5. Press "CHANNEL ASSIGN" to assign the MIDI channel the message should be sent on.
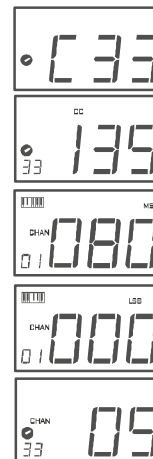
You will find most data sheets for synths that make use of NRPN's will give the MSB and LSB values that you should enter into DATA MSB and DATA LSB banks (also see Appendix F). However, some manuals may only give the hex values.

The MK-425C/449C/461C requires you to enter the decimal value. You can easily convert hexadecimal values to decimal using the windows calculator. Simply select Scientific mode, select hex and enter the hexadecimal value you need to convert.

Press the Dec button to convert it to a decimal value.

Alternatively, use the look up table in Appendix C.

Assigning A Note To A Button

The following shows how to set a button to transmit a note on when pressed, and a note off when released.

1. Press "CONTROL SELECT" and press the "0" button.
2. Press "CONTROL ASSIGN" and enter '147' this is the MIDI cc number that corresponds to Note on/off mode, as shown in Appendix B.
3. Press "DATA MSB" twice and enter a value of '100'. This means when you press the button, a Note on message will be sent out with a velocity of 100.
4. Press "DATA LSB" twice, and enter a value of '000'. This means when you release the button, a Note off message will be sent out.
5. Press the "PROGRAM" button twice and enter '064'. This will mean you are sending out MIDI note 64 or E4, each time you press the button. The MIDI note numbers are given in Appendix D.

This button mode has many uses. You can play a conventional sound on the keyboard while triggering samples and effects on different MIDI channels from the buttons. You could even trigger video clips or a lighting rig.

Note: When you press the button in note mode, the LCD display will briefly show the note velocity.

About SysEx Messages & Device ID

When transmitting SysEx messages, the individual control channel number does not define a transmit channel, but a device ID. This is made clear since when you press the CHANNEL button, the Channel symbol will not be shown and there is no 'c' in the 3 digit display.

Device ID's range between 00 – 127. In most cases, you should set the device ID as 127. 127 means the SysEx message will be received by all devices.

Please note that the device ID for a Sys Ex message assigned to a controller can not be changed using the Device ID buttons. These buttons are used for varying the global device ID of the MK-425C/449C/461C.

Non-Volatile Memory

The MK-425C/449C/461C uses non-volatile memory so that you can continue where you left off even after powering down and restarting. The current controller and channel assignments are stored whether you have stored your setup to a memory locations or not. Also stored is Draw Bar mode (on/off), DATA LSB and DATA MSB data, global channel setting and last used memory preset.

Memory Dump

The dual press "MEMORY DUMP" buttons will send out a number of Sys Ex data packets that represent the 10 memories you have set up in your MK-449C/461C (MK-225C:

Press "DATA LSB" and "RECALL" simultaneously to send out memory dump). This is useful for storing or backing up the contents of your memory presets externally.

You can record the complete memory dump in to a standard sequencer. To recall the memory dump back, play the MIDI track containing the recorded memory dump to the keyboard, making sure that the MK-425C/449C/461C's drivers are selected as output for that particular track.

The current controller assignments are not affected by a memory dump, or a memory send to the keyboard. Once a memory dump has been sent to the keyboard, you will need to recall a preset to access the new memory settings.

Assigning Device ID

The dual press "DEVICE ID" buttons will allow you to assign a Device ID to the MK-449C/461C (MK-225C: Press "PROGRAM and DATA MSB"). The default Device ID is 127, which means when a memory dump is performed, that dump can be received by the same keyboard model, regardless of the Device ID setting.

If a device ID is assigned to any number other than 127, the memory dump performed will be specific to MK-425C/449C/461C with the same device ID. If the device ID of a MK-425C/449C/461C differs from the one recorded with the memory dump, the data will be ignored.

The device ID is a handy way of differentiating between multiple keyboards. Otherwise, we recommend you keep the device ID setting as 127.

When you press the Device ID buttons, you will see the small 2-digit display on LCD display 'id'. The 3-digit display represents the assigned Device ID. You can enter a new device ID using the numeric keypad, or the '+' and '-' buttons.

Resetting To The Factory Default Setting

You can reset the MK-425C/449C/461C back to the factory defaults on power-up by holding down the +/- buttons.

Note: Restoring the Factory presets will erase all setups stored to memory.

3 MIDI Messages Explained

Program & Bank Changes Explained

The original GM MIDI specification catered for only 128 voices, numbered from 0-127. It is possible to access a different voice by sending a program change.

In order to expand on the GM set of voices, Bank changes were devised. Each bank contains 128 patches, that can be accessed using a program change. There are 16,384 banks available, accessible by sending a 14-bit Bank change message. The first 7 bits of this message are sent in a single byte known as the Bank LSB. The last 7 bits are specified by another byte known as the Bank MSB. The BANK LSB is the most commonly used. This allows for 128 bank changes, and often there is no need to send a Bank MSB.

You will find almost all MIDI devices respond to the program change, but some that do not conform to the GM set of voices use the program change message for other purposes. Many VST instruments have adopted this approach, allowing you to use a program change to change the instrument patch. The FM7 by Native Instruments is a good example of this.

Bank changes are more rarely used, although they do exist. Bank changes are useful in manufacturer's extensions to the MIDI specification, such as Roland's GS specification and Yamaha's XG specification. Both of these require you to specify a Bank change, in order to access the extra voices and effects that these specifications provide.

Sending Program, Bank LSB and Bank MSB data is made simple using the Mk-425C/449C/461C. Simply press the PROGRAM, DATA LSB or DATA MSB button and enter the program or bank change you wish to send.

RPN/NRPN's Explained

Non-registered parameter numbers (NRPN's) are device specific messages that enable the control of synths via MIDI. The MIDI specification defines parameter numbers to allow scope for manufacturers to specify their own controllers. The more common of these have been registered by the MIDI Manufacturer's Association and are part of the MIDI specification (hence the term Registered Parameter Numbers – RPN's). (See Appendix F.)

MIDI controllers 98 and 99 represent the NRPN LSB and MSB respectively, while 100 and 101 represent the RPN LSB and MSB. This can be seen from the MIDI controllers list in Appendix D. To transmit an NRPN/RPN, these two controller messages are sent along with their user-specified values. A further controller message and value needs to be sent to specify the (coarse or fine) value adjustment. This is specified by controller number 6 (Data entry) for coarse adjustments or number 38 for fine adjustments.

A list of NRPN's will always be given in the User Manual of a device that receives NRPN messages. It is always necessary that the NRPN MSB and LSB are sent together. Both will be specified in the device's manual. You may find the manufacturer's have only specified the numbers in Hexadecimal format. In this case, use Appendix C to translate the value to Decimal.

Your Evolution keyboard makes the process of transmitting NRPN's easy. All you need is to enter the appropriate NRPN LSB by pressing the LSB/DATA button twice, enter the NRPN MSB by pressing the MSB/DATA button twice, and as you move the controller, an appropriate NRPN message will be sent out. Assign NRPN coarse to make big sweeps, or NRPN fine to make slight adjustments.

SysEx Explained

System Exclusive (SysEx) messages were defined in the MIDI specification to allow individual devices to have individual control via MIDI. The format of SysEx messages allows for virtually any function to be performed via MIDI – so long as the receiving device is able to translate the message, and act accordingly. This allows devices to send audio sample memory data, memory dumps, controller settings, and much more. It also allows the controllers of one device to be controlled by another.

It is not possible to program your own specified SysEx message into the MK- 425C/449C/461C. However, there are some useful SysEx messages pre-programmed into the keyboard, that can be accessed by assigning the appropriate MIDI CC to a controller (see Appendix B).

It should be noted that a SysEx message is not transmitted on any specified channel. All SysEx messages contain a device ID, that is used to single out devices to respond to the SysEx message. All other devices are ignored. If you are using a SysEx message on the MK-425C/449C/461C, the global channel is ignored. When you press CHANNEL, instead of entering a channel for the controller, you will be enter a device ID instead. This is indicated by the fact that the Chan symbol will not be showing.

Device ID's run from 00 to 127. 127 is the default device number setting on the MK-425C/449C/461C. This setting transmits the SysEx message to all devices.

Although it is not possible to program the controllers of the MK-425C/449C/461C with your own SysEx messages, there are software applications that can receive a MIDI input signal and transmit a different, user specified message. You can program your SysEx messages into the translator software, then translate the incoming data from the keyboard to your SysEx, depending on the controller you are using.

4 The Evolution Librarian Software

About The Evolution Librarian Software

The Evolution Librarian Software is a Windows PC librarian program developed for Evolution products. The program not only works with the MK-425C/449C/461C keyboards but is also compatible with the Evolution UC-33e USB controller. That means you can use one librarian package for both your keyboard and your controller, if you own a UC-33e.

And even better, you can swap patches between Evolution products that's supported by the Librarian so you never have to create the same patch twice.

The librarian itself, allows you to send and receive the 10 patches to and from the MK-425C/449C/461C, load and save memory banks, view how individual patches have been programmed and drag and drop patches in order to create new combinations in the 10 memory locations.

Installing The Evolution Librarian Software

1. Insert the Evolution Installer CD-ROM in to your CD-ROM drive.
2. Click on "Librarian Installer"
3. Follow the on-screen instructions to complete the installation process.

Once the installation has been completed, launch the program. The following is a screenshot of what you should be seeing on your monitor.
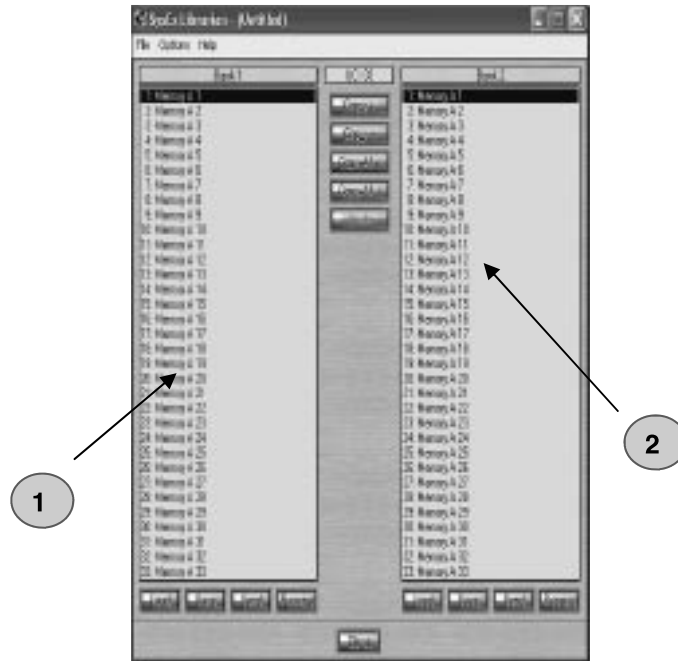
Setting Up The Librarian Software

Before you start using the Librarian, check that the MK-425C/449C/461C has been selected as input and output device.

1. Select MIDI Setup from the Options menu.
2. Ensure the USB driver for you MK-425C/449C/461C is selected in the "Inputs" Column.
   If you are using native drivers this may be named "USB Audio Device".
3. In the "Outputs" column, select the USB driver for you MK-425C/449C/461C
   If you are using native drivers this may be named "USB Audio Device".

You should now be ready to use the Librarian software with you Evolution keyboard.

Librarian Overview

As you can see from the screenshot of the Librarian on page 9, you can save, load, receive or send the complete content to and from either Bank columns.

To transmit the complete content of your MK-425C/449C/461C to the librarian, simply press the "Receive" button on the Librarian software.

This process can only be completed successfully if the USB drivers for your keyboard have been selected correctly, as described in the "Setting Up The Librarian Software" section.

Once you have Received data from the keyboard, the memories are displayed in the column.

Organising Presets Received From A Device

You can name the memories as you like. To re-name a memory, double-click on the memory. You can then move memories around by dragging them to a new position, or using the copy buttons between the two windows.

These buttons are defined below:
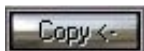
Button	Description
Copy <-	Will copy the selected memory in Bank 2 to Bank 1.
Copy ->	Will copy the selected memory in Bank 1 to Bank 2.
Copy All <-	Will copy all memories in Bank 2 to Bank 1.
Copy All ->	Will copy all the memories in Bank 1 to Bank 2.
Undo	Will undo the last copy you made. Only the last copy is remembered.
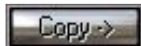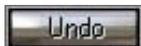
It's a good idea to decide which column is your master column, to avoid confusion and maybe loosing hours of work.

Viewing The Contents Of A Memory

Right-click on a memory to view the contents. Please note that it is not possible to edit the contents of a memory. The Sys Ex librarian will simply allow you to rearrange the order of memories, or copy memories between one dump and another. The screen shot shown below shows the first memory of a memory dump from a 425C with the factory defaults.

Saving A Setup

Once you have named all your presets, and organised them in the desired order, click 'save' to save the content.

Alternatively you can click on the File menu and select save to save the file with the previously assigned file name, or save as to assign the memory dump a new file name.

The shortcut key to save is CTRL+S. Make sure you give the file a name which allows you to quickly identify your collection of setups.

Loading A Setup

To load a memory setup file back in to the librarian, click on the 'Load' button and select the required file. The loaded preset setups will appear in the Edit Window. You can then either send it directly to the Evolution device by clicking send, or edit it.

Alternatively, select Open from the File menu.

The shortcut key for loading is CTRL+O.

Future Development Of The Librarian

We strongly recommend you register your ownership of the Evolution Librarian if you would like to be kept informed about future development. As you can see from the version number, the software is at an early version 1.0 stage and we will continue to work on enhancements for the software.

To register your copy, please visit www.evolution.co.uk/register

5 Technical, Contact and Warranty Info

Technical Info

Caution: The normal function of the product may be disturbed by Strong Electro Magnetic Interference. If so, simply reset the product to resume normal operation by following the instruction manual. In case the function could not resume, please use the product in other location.

Note: Your M-Audio product has been tested to comply with FCC Standards FOR HOME OR OFFICE USE. Modifications not authorized by the manufacturer may void users authority to operate this device.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

ASIO is a trademark of Steinberg Soft– und Hardware GmbH.
VST is a trademark of Steinberg Soft– und Hardware GmbH

M-AUDIO MK-425C /449C /461C
FCC Tested to comply with FCC standards
FOR HOME OR STUDIO USE
CE VCI N382

M-AUDIO

Contact

If you have any questions, comments or suggestions about this or any M-Audio product, we invite you to contact us by using the following information:

<table>
<tr>
<td>

M-AUDIO U.S. -
5795 Martin Road, Irwindale, CA 91706-6211, U.S.A.

Sales Information:. 626-633-9050
Sales (fax):. 626-633-9070
Sales Information (email): . . . . info@m-audio.com
Tech Support (phone):. 626-633-9055
Tech Support (email):. . . . . techsupt@m-audio.com
Tech Support (fax): 626-633-9060
Internet Home Page: . . . . .http://www.m-audio.com

</td>
<td>

M-AUDIO Deutschland (Germany) -
Kuhallmand 34, D-74613 Ohringen, Germany

Sales Information:. . . . . +49 (0)7941 987000
Sales Information (email): . . . . .info@m-audio.de
Technical Support:. . . . . +49 (0)7941 9870030
Technical Support (email): . . . . support@m-audio.de
Technical Support (fax): . . . .+49 (0)7941 98 70070
Internet Home Page:. . . . . http://www.m-audio.de

</td>
</tr>
<tr>
<td>

M-AUDIO U.K. -
Floor 6, Gresham House, 53 Clarendon Road, Watford, WD17 1LA, United Kingdom

Sales Information (phone): 44 (0) 1923 204010
Sales Information (fax): 44 (0) 1923 204039
Sales Information (email): . . . . info@maudio.co.uk
Technical Support (PC): 44 (0) 1309 671301
Technical Support (Mac): 44 (0) 1765 650072
Technical Support (email): . . . . .support@maudio.co.uk
Internet Home Page: . . . . .http://www.maudio.co.uk

</td>
<td>

M-AUDIO Canada -
1400 St-Jean Baptiste Ave. #150, Quebec City, Quebec G2E 5 B7, Canada

Technical Support (e-mail): . . . . techcanada@m-audio.com
Technical Support (PC): . . . . (418) 872-0444
Technical Support (Mac): 1-800-638-2120
Technical Support (fax): . . . . (418) 872-0034
Sales (e-mail): . . . . .infocanada@m-audio.com
Sales (phone): . . . .(866) 872-0444
Sales (fax): . . . .(514) 396-7102
Internet Home Page . . . . http://www.m-audio.ca

</td>
</tr>
<tr>
<td>

M-AUDIO France -
Floor 6, Gresham House, 53 Clarendon Road, Watford, WD17 1LA, United Kingdom

Assistance Technique (aucune questions reliées aux ventes)
courriel (assistance PC): . . . . support@m-audio-france.com
courriel (assistance Mac):. . . . . mac@m-audio-france.com
téléphone (assistance PC): . . . . .0820 000 731 (0,12 Euros par minute)
téléphone (assistance Mac): . . . . 0820 391 191 (0,12 Euros par minute)
télécopieur/fax: 01 72 72 90 52
Ventes (aucun appels d'assistance technique)
téléphone: . . . . 0810 001 105 (Numero Azur)
courriel: . . . . info@m-audio-france.com
télécopieur/fax:. 01 72 72 90 52

</td>
<td>

M-AUDIO Japan -
株式会社エムオーディオジャパン：460-0002 愛知県名古屋市中区丸の内 2-18-10

テクニカルサポート（電話）： 052-218-0859
テクニカルサポート（Macintosh 環境での email）：. . . . . .mac-support@m-audio.co.jp
テクニカルサポート（Windows 環境での email）： . . . . win-support@m-audio.co.jp
テクニカルサポート（OS に依存しない製品での email）：. . . . . . win-support@m-audio.co.jp
テクニカルサポート（英語での email ／ English Only）：. . . . . . . .e-support@m-audio.co.jp
テクニカルサポート（Fax）：. 052-218-0875
Web サイト（ホームページ）： . . . . http://www.m-audio.com

</td>
</tr>
</table>

Warranty

Warranty Terms

M-Audio warrants products to be free from defects in materials and workmanship, under normal use and provided that the product is owned by the original, registered user. Visit www.m-audio.com/warranty for terms and limitations applying to your specific product.

Warranty Registration

Thank you for registering your new M-Audio product. Doing so immediately both entitles you to full warranty coverage and helps M-Audio develop and manufacture the finest quality products available. Register online at www.m-audio.com/register to receive FREE product updates and for the chance to win FREE M-Audio gear

6 Appendix A –G

Appendix A

MIDI IMPLEMENTATION CHART

Function	Transmitted	Received	Remarks
Basic :Default Channel:Changed	1-16 1-16	X	
:Default Mode :Messages :Altered	--------- X *********	X	
Note Number:True Voice	0-127 *********	X	
Velocity: Note ON : Note OFF	0 0	X	
After : Keys Touch :Ch's	0 0	X	
Pitch Bend	0	X	
Control 0-119 Change	0	X	
120-127	0	X	
Program Change:True Number	0-127 *********	X	
System Exclusive	GM, GM2, MMC	Memory Dump	
Song Position Common:Song Select	X X	X	
System :Clock Exclusive:Commands	X 0	X	
Aux :Local ON/OFF Messages :All Notes OFF :Active Sense :Reset	0 0 0 0	X	
Notes:	0 = YES	X=NO	

Appendix B - Assignable MIDI CC's on the MK-425C/449C/461C

B1 - The Faders and rotary Controllers:

MIDI CC	Description	Data Lsb (Press Twice)	Data Msb (Press Twice)
0-119	Standard MIDI CC's	-	-
120-127	Channel Mode Messages	-	-
128	Pitch Bend Sensitivity	-	-
129	Channel Fine Tune	-	-
130	Channel Coarse Tune	-	-
131	Channel Pressure	-	-
132	RPN coarse	RPN LSB	RPN MSB
133	RPN fine	RPN LSB	RPN MSB
134	NRPN coarse	NRPN LSB	NRPN MSB
135	NRPN fine	NRPN LSB	NRPN MSB
136	Master Volume GM*	Volume LSB	Volume MSB
137	Master Pan GM*	Pan LSB	Pan MSB
138	Master Coarse Tune GM*	Tuning LSB	Tuning MSB
139	Master Fine Tune GM*	Tuning LSB	Tuning MSB
140	Chorus Mod rate GM2*	Mod rate	-
141	Chorus Mod Depth GM2*	Mod depth	-
142	Feedback GM2*	Feedback level	-
143	Send to Reverb GM2*	Reverb send level	-
144	Pitch Bend	Pitch shift LSB	Pitch shift MSB
255	Controller Off***	-	-

* Sysex messages - for details please see page 8.
** MMC Sysex messages, for details please see page 5.
*** This value cannot be typed in using the numerical keypad. Type in 144 and then press the + button to set this value.

B2-The Buttons:

MIDI CC	Description	Program (Press Twice)	Data Lsb (Press Twice)	Data Msb (Press Twice)
0-119	Standard MIDI CC's	-	Toggle Value 2	Toggle Value 1
120-127	Channel Mode Messages	-	Toggle Value 2	Toggle Value 1
128	Pitch Bend Range	-	Sensitivity value	-
129	Channel Fine Tune	-	Tuning amount	-
130	Channel Coarse Tune	-	Tuning amount	-
131	Channel Pressure	-	Pressure amount	-
132	RPN Coarse	Value	RPN LSB	RPN MSB
133	RPN Fine	Value	RPN LSB	RPN MSB
134	NRPN Coarse	Value	NRPN LSB	NRPN MSB
135	NRPN Fine	Value	NRPN LSB	NRPN MSB
136	Master Volume GM*	-	Volume LSB	Volume MSB
137	Master Pan GM*	-	Pan LSB	Pan MSB
138	Master Coarse Tune GM*	-	Tuning LSB	Tuning MSB
139	Master Fine Tune GM*	-	Tuning LSB	Tuning MSB
140	Chorus Mod rate GM2*	-	Mod rate	-
141	Chorus Mod Depth GM2*	-	Mod depth	-
142	Feedback GM2*	-	Feedback level	-
143	Send to Reverb GM2*	-	Reverb send level	-
144	Pitch Bend	-	Pitch shift LSB	Pitch shift MSB
145	Program/Bank Preset	Program	Bank LSB	Bank MSB
146	MIDI CC (on/off)	MIDI CC	Button press value	Button release value
147	Note (on/off)	Note	Velocity off	Velocity on
148	Note (on/off toggle)	Note	Velocity off	Velocity on
149	MMC Command**	-	Command select.	-
150	Reverb type GM2 *	-	Type	-
151	Reverb time GM2 *	-	Time	-
152	Chorus type GM2*	-	Type	-
255	Controller Off***	-	-	-

* Sysex messages - for details please see page 8.

** MMC Sysex messages, for details please see page 5.

*** This value cannot be typed in using the numerical keypad. Type in 144 and then press the + button to set this value.

Appendix C - Hexadecimal Conversion Chart

Hexadecimal to Decimal Conversion Chart

Hexadeci-mal value	Decimal Value	Hexadeci-mal value	Decimal Value	Hexadeci-mal value	Decimal Value
0	0	2B	43	56	86
1	1	2C	44	57	87
2	2	2D	45	58	88
3	3	2E	46	59	89
4	4	2F	47	5A	90
5	5	30	48	5B	91
6	6	31	49	5C	92
7	7	32	50	5D	93
8	8	33	51	5E	94
9	9	34	52	5F	95
0A	10	35	53	60	96
0B	11	36	54	61	97
0C	12	37	55	62	98
0D	13	38	56	63	99
0E	14	39	57	64	100
0F	15	3A	58	65	101
10	16	3B	59	66	102
11	17	3C	60	67	103
12	18	3D	61	68	104
13	19	3E	62	69	105
14	20	3F	63	6A	106
15	21	40	64	6B	107
16	22	41	65	6C	108
17	23	42	66	6D	109
18	24	43	67	6E	110
19	25	44	68	6F	111
1A	26	45	69	70	112
1B	27	46	70	71	113
1C	28	47	71	72	114
1D	29	48	72	73	115
1E	30	49	73	74	116
1F	31	4A	74	75	117
20	32	4B	75	76	118
21	33	4C	76	77	119
22	34	4D	77	78	120
23	35	4E	78	79	121
24	36	4F	79	7A	122
25	37	50	80	7B	123
26	38	51	81	7C	124
27	39	52	82	7D	125
28	40	53	83	7E	126
29	41	54	84	7F	127
2A	42	55	85		

Appendix D - Useful MIDI data

General MIDI Instruments

Piano	Bass	Reed	Synth Effects
0 Acoustic Grand Piano 1 Bright Acoustic Piano 2 Electric grand Piano 3 Honky Tonk Piano 4 Electric Piano 1 5 Electric Piano 2 6 Harpsichord 7 Clavinet	32 Acoustic Bass 33 Electric Fingered Bass 34 Electric Picked Bass 35 Fretless Bass 36 Slap Bass 1 37 Slap Bass 2 38 Syn Bass 1 39 Syn Bass 2	64 Soprano Sax 65 Alto Sax 66 Tenor Sax 67 Baritone Sax 68 Oboe 69 English Horn 70 Bassoon 71 Clarinet	96 SFX Rain 97 SFX Soundtrack 98 SFX Crystal 99 SFX Atmosphere 100 SFX Brightness 101 SFX Goblins 102 SFX Echoes 103 SFX Sci-Fi
Chromatic Percussion	**Strings/Orchestra**	**Pipe**	**Ethnic**
8 Celesta 9 Glockenspiel 10 Music Box 11 Vibraphone 12 Marimba 13 Xylophone 14 Tubular bells 15 Dulcimer	40 Violin 41 Viola 42 Cello 43 Contrabass 44 Tremolo Strings 45 Pizzicato Strings 46 Orchestral Harp 47 Timpani	72 Piccolo 73 Flute 74 Recorder 75 Pan Flute 76 Bottle Blow 77 Shakuhachi 78 Whistle 79 Ocarina	104 Sitar 105 Banjo 106 Shamisen 107 Koto 108 Kalimba 109 Bag Pipe 110 Fiddle 111 Shanai
Organ	**Ensemble**	**Synth Lead**	**Percussive**
16 Drawbar Organ 17 Percussive Organ 18 Rock Organ 19 Church Organ 20 Reed Organ 21 Accordion 22 Harmonica 23 Tango Accordion	48 String Ensemble 1 49 String Ensemble 2 (Slow) 50 Syn Strings 1 51 Syn Strings 2 52 Choir Aahs 53 Voice Oohs 54 Syn Choir 55 Orchestral Hit	80 Syn Square Wave 81 Syn Sawtooth Wave 82 Syn Calliope 83 Syn Chiff 84 Syn Charang 85 Syn Voice 86 Syn Fifths Sawtooth Wave 87 Syn Brass & Lead	112 Tinkle Bell 113 Agogo 114 Steel Drums 115 Woodblock 116 Taiko Drum 117 Melodic Tom 118 Syn Drum 119 Reverse Cymbal
Guitar	**Brass**	**Synth Pad**	**Sound Effects**
24 Nylon Acoustic 25 Steel Acoustic 26 Jazz Electric 27 Clean Electric 28 Muted Electric 29 Overdrive 30 Distorted 31 Harmonics	56 Trumpet 57 Trombone 58 Tuba 59 Muted Trumpet 60 French Horn 61 Brass Section 61 Syn Brass 1 62 Syn Brass 2	88 New Age Syn Pad 89 Warm Syn Pad 90 Polysynth Syn Pad 91 Choir Syn Pad 92 Bowed Syn Pad 93 Metal Syn Pad 94 Halo Syn Pad 95 Sweep Syn Pad	120 Guitar Fret Noise 121 Breath Noise 122 Seashore 123 Bird Tweet 124 Telephone Ring 125 Helicopter 126 Applause 127 Gun Shot

MIDI Note Numbers

Octave (n)	Note Numbers											
	Cn	**C#n**	**Dn**	**D#n**	**En**	**Fn**	**F#n**	**Gn**	**G#n**	**An**	**A#n**	**Bn**
-1	0	1	2	3	4	5	6	7	8	9	10	11
0	12	13	14	15	16	17	18	19	20	21	22	23
1	24	25	26	27	28	29	30	31	32	33	34	35
2	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59
4	60	61	62	63	64	65	66	67	68	69	70	71
5	72	73	74	75	76	77	78	79	80	81	82	83
6	84	85	86	87	88	89	90	91	92	93	94	95
7	96	97	98	99	100	101	102	103	104	105	106	107
8	108	109	110	111	112	113	114	115	116	117	118	119
9	120	121	122	123	124	125	126	127				

M-AUDIO

Standard MIDI Controller numbers (MIDI CC's)

00 Bank Select
01 Modulation
02 Breath Control
03 Controller 3
04 Foot Control
05 Porta Time
06 Data Entry
07 Channel Volume
08 Balance
09 Controller 9
10 Pan
11 Expression
12 Effects Controller 1
13 Effects Controller 2
14 Controller 14
15 Controller 15
16 Gen Purpose 1
17 Gen Purpose 2
18 Gen Purpose 3
19 Gen Purpose 4
20 Controller 20
21 Controller 21
22 Controller 22
23 Controller 23
24 Controller 24
25 Controller 25
26 Controller 26
27 Controller 27
28 Controller 28
29 Controller 29
30 Controller 30
31 Controller 31
32 Bank Select LSB
33 Modulation LSB
34 Breath Control LSB
35 Controller 35
36 Foot Control LSB
37 Porta Time LSB
38 Data Entry LSB
39 Channel Volume LSB
40 Balance LSB
41 Controller 41
42 Pan LSB
43 Expression LSB
44 Controller 44
45 Controller 45
46 Controller 46
47 Controller 47
48 Gen Purpose 1 LSB
49 Gen Purpose 2 LSB
50 Gen Purpose 3 LSB
51 Gen Purpose 4 LSB
52 Controller 52
53 Controller 53
54 Controller 54
55 Controller 55
56 Controller 56
57 Controller 57
58 Controller 58
59 Controller 59
60 Controller 60

61 Controller 61
62 Controller 62
63 Controller 63
64 Sustain Pedal
65 Portamento
66 Sostenuto
67 Soft Pedal
68 Legato Pedal
69 Hold 2
70 Sound Variation
71 Resonance
72 Release Time
73 Attack Time
74 Cut-off Frequency
75 Controller 75
76 Controller 76
77 Controller 77
78 Controller 78
79 Controller 79
80 Gen Purpose 5
81 Gen Purpose 6
82 Gen Purpose 7
83 Gen Purpose 8
84 Portamento Control
85 Controller 85
86 Controller 86
87 Controller 87
88 Controller 88
89 Controller 89
90 Controller 90
91 Reverb Depth
92 Tremelo Depth
93 Chorus Depth
94 Celeste (De-tune)
95 Phaser Depth
96 Data Increment
97 Data Decrement
98 Non-Reg Param LSB
99 Non-Reg Param MSB
100 Reg Param LSB
101 Reg Param MSB
102 Controller 102
103 Controller 103
104 Controller 104
105 Controller 105
106 Controller 106
107 Controller 107
108 Controller 108
109 Controller 109
110 Controller 110
111 Controller 111
112 Controller 112
113 Controller 113
114 Controller 114
115 Controller 115
116 Controller 116
117 Controller 117
118 Controller 118
119 Controller 119

Channel Mode Messages
120 All Sound off
121 Reset all Controllers
122 Local Control
123 All Notes Off
124 Omni Off
125 Omni On
126 Mono On (Poly Off)
127 Poly On (Mono Off)

Extra RPN Messages
128 Pitch Bend sensitivity
129 Fine Tune
130 Coarse Tune
131 Channel Pressure

Appendix F

Roland GS and Yamaha XG NRPN Support to Roland JV/XP

NRPN MSB CC99	NRPN LSB CC98	Data MSB CC06	Data LSB CC38
01	08	00-7F	n/a (-64 - 0 - +63) Vibrato Rate (relative change)
01	09	00-7F	n/a (-64 - 0 - +63) Vibrato Depth (relative change)
01	0A	00-7F	n/a (-64 - 0 - +63) Vibrato Delay (relative change)
01	20	00-7F	n/a (-64 - 0 - +63) Filter Cutoff Freq. (relative change)
01	21	00-7F	n/a (-64 - 0 - +63) Filter Resonance (relative change)
01	63	00-7F	n/a (-64 - 0 - +63) EG (TVF&TVA) Attack Time (relative change)
01	64	00-7F	n/a (-64 - 0 - +63) EG (TVF&TVA) Decay Time (relative change)
01	66	00-7F	n/a (-64 - 0 - +63) EG (TVF&TVA) Release Time (relative change)
*14	00-7F	00-7F	n/a (-64 - 0 - +63) Drum Filter Cutoff Freq. (relative change)
*15	00-7F	00-7F	n/a (-64 - 0 - +63) Drum Filter Resonance (relative change)
*16	00-7F	00-7F	n/a (-64 - 0 - +63) Drum EG Attack Rate (relative change)
*17	00-7F	00-7F	n/a (-64 - 0 - +63) Drum EG Decay Rate (relative change)
18	00-7F	00-7F	n/a (-64 - 0 - +63) Drum Instrument Pitch Coarse (relative change)
*19	00-7F	00-7F	n/a (-64 - 0 - +63) Drum Instrument Pitch Fine (relative change)
1A	00-7F	00-7F	n/a (0 to Max) Drum Instrument Level (absolute change)
1C	00-7F	00-7F	n/a (Random, L>C>R) Drum Instrument Panpot (absolute change)
1D	00-7F	00-7F	n/a (0 to Max) Drum Instrument Reverb Send Level (absolute change)
1E	00-7F	00-7F	n/a (0 to Max) Drum Instrument Chorus Send Level (absolute change)
%1F	00-7F	00-7F	n/a (0 to Max) Drum Instrument Variation Send Level (absolute change)

* = added by Yamaha XG; % changed from Delay to Variation by Yamaha XG

Appendix G

General MIDI Reverb and Chorus Types

Reverb Types
0: Small Room
1: Medium Room
2: Large Room
3: Medium Hall
4: Large Hall
8: Plate

Chorus Types
0: Chorus 1
1: Chorus 2
2: Chorus 3
3: Chorus 4
4: FB Chorus
5: Flanger