

1. Introduction

Many thanks for choosing the Interactive fx Controller.

The Interactive fx Controller is a means of providing real-time control of all the MIDI devices connected to it via MIDI. The unit has 8 buttons on the front panel, each of which can send MIDI strings on press and/or release, and these buttons are mirrored on the rear by DIN plugs so you can connect your own switches. The unit can also respond to tones (using a supplied tone generator), the on and off of the tone acting as the switch on and off. Thus switches can be audio triggers so it then becomes possible to send switch on/off messages via a radio mic system. You may program strings of almost any MIDI messages to the buttons and/or switches and send them at any time.

The buttons may be programmed to control the connected MIDI devices when pressed, released or even continuously when held down. These strings of MIDI messages are called Data Streams and are organised into 8 Banks of 8 Groups, each called a Performance Memory.

The programming interface has been designed to be simple and clear, no fiddling with loads of crazy numbers, but straightforward plain language descriptions of the MIDI message you want. All the memories are kept when the power is turned off. Every Performance Memory and Data Stream has a 16 character name that you choose and assign to have real meaning to yourself.

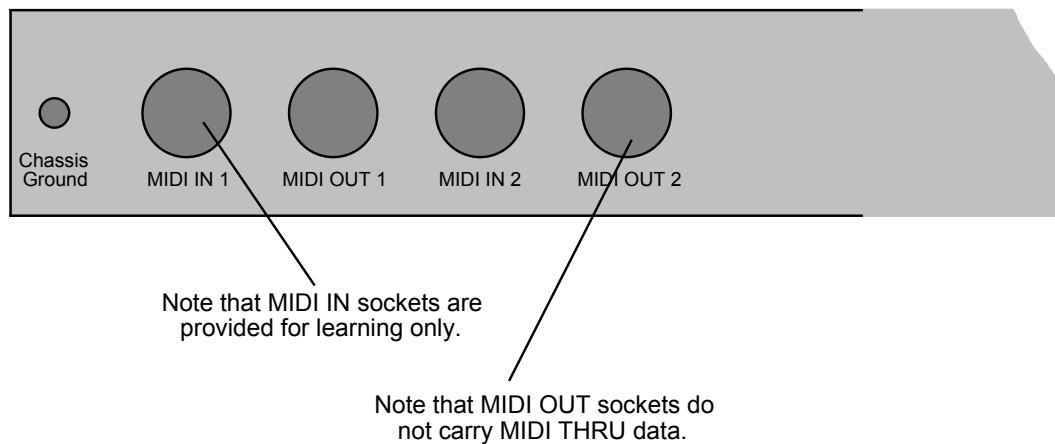
A full list of all the MIDI messages you may program the Interactive fx Controller to use is given later but remember that the extensions to MIDI are all being implemented using features that already exist. This means that General MIDI Bank Select is available as are Show Control and Machine Control using System Exclusive messages. Your The Interactive fx Controller will grow with MIDI fulfilling your needs for many years to come.

2. Connections

The power is supplied via a 3 core IEC lead.

The switch connectors are on 5-pin DIN sockets. Pin 2 is a common ground. Pin 3 is the contact switch and Pin 5 is the audio in. So, to connect a remote switch or button, wire up between pin 2 and 3. For an audio tone, wire pins 2 and 5.

Connect your MIDI cables to the MIDI sockets. Note that there are two separate pairs of MIDI connectors available, they are not linked together in any way. There is no difference at all between them, but please be aware that (unless you have changed them) all of the factory presets operate out of the socket marked with the legend **MIDI OUT 1**.



3. Performance Memory

There are 64 Performance Memories held permanently in battery backed up memory. You may change these at any time, but short of manually deleting them or reading a data-card over them or allowing the battery to become exhausted, you will not lose them.

A Performance Memory contains up to 32 Data Streams, associated with button/switch presses or releases. They may be copied around the system using the File menu so you may easily set up two similar Performances by basing one on another that already exists. As you may only set up 150 different Data Streams be aware that not all of the possible changes can be different! During use you will often see something like:

```
Performance Memory 1/2 Akai S3200
```

□

in the System Unit display. The numbers 1/2 refer to the Performance Memory's Bank and Group. There are 8 Banks and 8 Groups. When selecting a Performance via the System Unit's front panel every one must be stepped through but when using the Remote Unit it is possible to directly select a Bank and Group using the 8 numbered button/switches with the Program button/switch.

Performance Memories and Data Streams have 16 character names that you may change or set up. The characters available are as below:

```
space ! " $ % & ' ( ) * + , -
. / : ; < = > ? @ [ \ ^ ] _ `
0123456789
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
```

Which, for the technically minded or those happy with computers, is part of the ASCII character set, specifically from 32 through 122 (hex 20 through 7a).

4. The Display

The display shows the Performance Memory and Data Stream assignments.

So that you may quickly learn which mode you are in, some example displays from all of the modes are shown here.

1/ Performance mode

```
Performance Memory 1/2 Akai S3200
```

2/ Performance Naming mode

```
Performance Memory 1/2 Akai S3200
                          Akai S3200
```

3/ Performance Assigning mode

```
Performance Memory 1/2 Akai S3200
Pedal1      ↓1 Normal      Note 60 on
```

4/ Stream mode

```
Data Stream                Note 60 on
```

5/ Stream Naming mode

```
Data Stream                Note 60 on
                          Note 60 on
```

6/ Stream Assigning mode

```
Data Stream                Note 60 on
1 Note On MidC Channel 2 Velocity 64
```

7/ Utility mode

```
Utility Menu:
Copy      Calc      Preset      File
```

8/ Help mode

```
***** Naming a Data Stream *****
Select a Data Stream as shown above.
```

See *Operating Modes: The Modes* and *Operation: Performance Memory Handling* and *Operation: Data Stream Handling* later for more detail.

5. Operating Modes

There are three fundamental types of operation:

1/ The Performance mode and its descendants (Stream mode, Naming mode, Assign mode) which are all directly accessible via single-purpose keys on the front panel. Since these are the modes that you will be using most you do not need to be slowed by working your way through menus to a function that you, perhaps, use all the time. As its name suggests the Performance mode is the one to be in when actually using the Interactive fx Controller (as opposed to programming it) since it is only from here that data will be sent to MIDI when a button/switch is pressed. If nothing is happening to your outboard MIDI devices please check FIRST that the Interactive fx Controller is in the Perform Mode.

2/ The Utility mode is where all the housekeeping facilities are kept (see *The Utility Functions* for a list of them). Since these functions are not ones that will be required every day they do not have associated keys for directly accessing them, but exist behind a menu structure.

3/ The Help mode is only one keypress away from the Performance mode at all times and offers a mind-jogging service for some of the more common facilities available on the Interactive fx Controller. For comprehensive help a browse through this manual should help!

5.1. The Modes

The Interactive fx Controller operates in one of a number of modes (see *The Display*). They are described here, and the front panel keys that are used to enter them are described below.

5.1.1. Performance Mode

Allows the browsing and selection of the Performance Memories. This is the only mode in which the button/switches will send data to MIDI.

The second line of the display changes depending on the last action. If the mode has just been entered the second line is blank:

```
Performance Memory 1/2 Akai S3200
```

□

If a button/switch has just been pressed or released its number and the direction of movement are displayed along with the name of the associated Data Stream. In the example below Button/switch number one has just been pressed down resulting in Data Stream "Note 60 on" being sent.

```
Performance Memory 1/2 Akai S3200
Button/switch 1 t Note 60 on
```

The Performance Mode is entered at power up, when quitting from the Help or Utility menu modes and when the Perform key is pressed while in Stream mode.

5.1.2. Performance Naming Mode

□

Allows the naming or renaming of the currently selected Performance Memory. The INSERT and DELETE keys may be used as well as the α wheel. Note that as well as the NAME LED coming on the PERFORM LED will flash. See the section *Operation:Performance Memory Handling:Renaming a Performance Memory*.

```
Performance Memory 1/2 Akai S3200
                        Akai S3200
```

□

Entered by pressing the NAME key when in the Perform mode. Exit by pressing the OK or CANCEL keys.

5.1.3. Performance Editing Mode

Allows the assigning of data streams to button/switches, and the definition of how each button/switch behaves in the current Performance Memory.

As well as the Performance Memory name the button/switch currently being assigned to it is displayed. Note that as well as the ASSIGN LED coming on the PERFORM LED will start to flash. See the later section *Operation:Performance Memory Handling:Changing a button/switch assignment.*

```
Performance Memory 1/2 Akai S3200
Button/switch 1 ↓1 Normal Note 60 on
```

□

Entered by pressing the ASSIGN key when in the Perform mode. Exit by pressing the PERFORM key.

□

5.1.4. Stream Mode

□

Allows the browsing and selection of the data streams. The name of the current Data Stream is shown.

```
Data Stream Note 60 on
```

□

Entered by pressing the STREAM key when in the Perform mode. Exit by pressing the PERFORM, ASSIGN or NAME keys.

□

5.1.5. Stream Naming Mode

□

Allows the naming or renaming of the currently selected data stream. The INSERT and DELETE keys may be used as well as the α wheel. Note that as well as the NAME LED coming on the STREAM LED will flash. See the section *Operation:Data Stream Handling:Renaming a Data Stream.*

```
Data Stream Note 60 on
                        Note 60 on
```

Entered by pressing the NAME key when in the Stream mode. Exit by pressing the STREAM key.

□

5.1.6. Stream Editing Mode

□

Allows the assigning of MIDI messages to a data stream. Up to 64 bytes may be assigned to each stream. It is in this mode that the MIDI programming takes place, but remember the Interactive fx Controller can learn from your MIDI devices. If you can get a device to output the messages you want to send, and the Interactive fx Controller supports them (see the Appendix for the list of supported MIDI messages) the Interactive fx Controller will store them without your having to enter them via the α wheel. The second line of the display can look very different in this display since it must reflect the various different formats of the supported MIDI messages. Two examples are given below, the first shows a Note On message for middle C on MIDI channel 2 (counting from 1). See the section *Operation:Data Stream Handling:Changing a Data Stream's contents.*

```
Data Stream Note 60 on
1 Note On MidC Channel 2 Velocity 64
```

□

The second shows a System Exclusive message. Note it is at step 4, meaning that there are three bytes of MIDI message (such as a Note On) before it.

```
Data Stream          Set Reverb Delay
4 SysEx 1 40 16 12 0 0 23 EOX
```

□

Step numbers follow the actual byte position of the start of the message so that you have an immediate and clear indication of how much room you have left for more MIDI data. Remember that not all MIDI messages are of the same length so it is not possible to say "There is room for exactly 12 more MIDI messages", only that "There are 36 bytes left in this Data Stream which equates to roughly 12 messages on average".

Entered by pressing the ASSIGN key when in the Stream mode or the STREAM key when in the Performance Editing mode. Note that as well as the ASSIGN LED coming on the STREAM LED will flash. Exit by pressing the STREAM, OK or CANCEL keys.

5.1.7. Utility Mode

Provides a menu driven interface to the housekeeping routines. Various utilities exist, from copying Performance Memories and Data Streams, to converting numbers between base 16 and base 10, from restoring the factory presets, to handling the backing up or restoring of data from a Data Card. See the section *The Utility Functions*.

```
Utility Menu:
Copy      Calc      Preset      File
```

Entered by pressing the OK key when in Perform mode. Exited by cancelling or completing a utility function.

5.1.8. Help Mode

Displays simple help on the most frequently used functions. Use the α wheel to move up and down.

```
***** Naming a Data Stream *****
Select a Data Stream as shown above.
```

□

Entered by pressing the CANCEL key when in the Perform mode, exited by pressing the CANCEL key again.

5.2. Front Panel Mode Keys

□

The four front panel mode keys each have an LED to indicate the current mode of operation.

5.2.1. Perform

The 'Performance Memory selection' key. This key has an LED that indicates the Performance mode has been successfully selected. If a Performance Memory is selected that has not been named or has been deleted the display will show 'UnNamed!'.

The section below describes what happens if the PERFORM key is pressed in various situations. If no entry exists for a situation then the result will be a beep and the Interactive fx Controller will do nothing.

When browsing the Data Streams:

Displays the current Performance Memory and enters the Performance Memory browsing mode.

When editing a Performance name:

If any changes have been made to the name, asks if they are to be saved and returns to the Performance mode. Note that pressing the OK key will have the same effect but you will not be asked whether or not the changes are to be saved, but they will be anyway.

When assigning a Stream to a Button/switch:

Asks if any changes made to the button/switch assignments since entering the Assign mode are to be saved and returns to the Performance mode.

Any other time:

Beeps and does nothing.

5.2.2. Stream

The 'Data Stream selection' key. This key has an LED that indicates the Stream mode has been successfully selected. If the selected stream has not yet been named it will show EMPTY.

The section below describes what happens if the STREAM key is pressed in various situations. If no entry exists for a situation then the result will be a beep and the Interactive fx Controller will do nothing.

When browsing the Performance Memories:

Displays the first Data Stream assigned to the current Performance Memory and enters the Data Stream browsing mode.

When editing a Data Stream name:

If any changes have been made to the name, asks if they are to be saved and returns to the Stream mode. Otherwise returns directly to the Stream mode. Note that pressing the OK key will have the same effect but you will not be asked whether or not the changes are to be saved, but they will be anyway.

When assigning a Stream to a Button/switch:

If changes have been made to any of the button/switch assignments since entering the Assign mode, asks if they should be saved and then enters the Stream Edit mode with the stream from the current button/switch assignment. Note that pressing the OK key first will prevent you from being asked whether or not any changes

are to be saved. Otherwise directly enters the Stream Edit mode with the Data Stream from the current button/switch assignment.

When editing a Stream

If changes have been made to any message in the Data Stream since the Assign mode was entered asks if they should be saved and then returns to the Stream mode. Otherwise returns directly to the Stream mode. Note that pressing the OK key first will prevent you from being asked whether or not the changes are to be saved.

Any other time:

Beeps and does nothing.

5.2.3. Name

The 'name a Performance Memory/Data Stream' key. This key has an LED that indicates the Name mode has been successfully selected. Performance Memories and Data Streams have names that may be up to 16 characters long. They may include letters (upper and lower case), numbers and certain punctuation marks in any mix you like. An unnamed Performance Memory or Data Stream has the name 'UnNamed!'.

The section below describes what happens if the NAME key is pressed in various situations. If no entry exists for a situation then the result will be a beep and the Interactive fx Controller will do nothing.

When browsing the Performance names:

Displays a copy of the current Performance Memory name below the original and enters the Name mode, allowing insertion, deletion or change of any of its characters. The NAME LED will light up and the PERFORM LED will start to flash. See the later section *Operation:Performance Memory handling:Renaming a Performance Memory*.

When browsing the Stream names:

Displays a copy of the Data Stream name below the original and enters the Name mode allowing insertion, deletion or change of any of its characters. It may be exited by pressing the OK key to save the changes or CANCEL to throw away the changes. The NAME LED will light up and the STREAM LED will start to flash. See the section *Operation:Data Stream handling:Renaming a Data Stream*.

5.2.4. Assign

The 'assign Data Stream to button/switch/edit Data Stream' key. This key has an LED that indicates the Assign mode has been successfully selected.

The section below describes what happens if the ASSIGN key is pressed in various situations. If no entry exists for a situation then the result will be a beep and the Interactive fx Controller will do nothing.

When browsing the Performance names:

Enters the Performance Memory edit mode and displays the current assignment of unshifted button/switch 1 in the current Performance Memory, allowing any of the parameters to be changed. The ASSIGN LED will light up and the PERFORM LED will start to flash. See the section *Operation:Performance Memory handling:Changing a button/switch assignment*.

When browsing the Stream names:

Enters the Data Stream edit mode and displays the data at the first step of the current Data Stream allowing any of the messages in the stream to be edited. The ASSIGN LED will light up and the STREAM LED will start to flash. See the section *Operation:Data Stream handling:Changing a Data Stream's contents*.

6. Operation

This section describes how to program the Interactive fx Controller prior to use. Please remember if you are a new user that there are a number of factory preset memories for you to play with and edit to your own requirements. It may also be helpful to refer to the *Quick Reference Appendix*.

6.1. Performance Memory Handling:

Described below are the actions you may carry out on the Performance Memories.

6.1.1. Selecting a Performance Memory:

- 1 Enter the Perform mode by pressing PERFORM key if necessary.
- 2 Display will show a Performance Memory name or "Unnamed!" and its Bank/Group numbers.

```
Performance Memory 1/2 Akai S3200
```

- 3 Rotate α wheel until required Performance Memory name comes into view on the top line of the display.

6.1.2. Renaming a Performance Memory:

- 1 Select a Performance Memory as shown above under *Operation:Performance Memory handling:Selecting a Performance Memory*.
- 2 Press the NAME key.
- 3 The display shows an editable copy of Performance Memory name on the bottom line

```
Performance Memory 1/2 Akai S3200
                          Akai S3200
```

- 4 Press the ◀ or ▶ key until the cursor is under the character to be changed.

```
Performance Memory 1/2 Akai S3200
                          Akai S3200
```

- 5 Rotate α wheel to change the character at the selected position. The INSERT key inserts a space, the DELETE key deletes the character under the cursor and moves all the characters on the right one position to the left, inserting a space at the end of the name. Go back to 4 if there are more characters to change.
- 6 Press the OK key to save new name or CANCEL to quit edit. You will be returned to the Perform mode. Pressing the PERFORM will prompt you for a save before returning you to the Perform mode.

```
Do you wish to save the changes?
Ok=Yes                          Cancel=No
```

6.1.3. Deleting a button/switch assignment:

- 1 Select a Performance Memory as shown above under *Operation:Performance Memory handling:Selecting a Performance Memory*.
- 2 Press the ASSIGN key.
- 3 Turn the α wheel until the button/switch to be unassigned is displayed.
- 4 Press the ▶ key until the cursor is under the Data Stream name assigned to the current button/switch.
- 5 Press the DELETE key. The Data Stream name will change to *UNASSIGNED*.

```
Performance Memory 1/2 Akai S3200
Pedall      ↓1 Normal      *UNASSIGNED*
```

6.1.4. Deleting a Performance Memory:

-
- 1 Select a Performance Memory as shown above under *Operation:Performance Memory handling:Selecting a Performance Memory*.
- 2 Press the DELETE key. The Performance Memory name will change to "UnNamed!".

```
Performance Memory 1/2 UnNamed!
```

6.1.5. Changing a Button/switch Assignment:

-
- 1 Select a Performance Memory as shown above under *Operation:Performance Memory handling:Selecting a Performance Memory*.
- 2 Press the ASSIGN key
- 3 Display shows a Performance Memory name on the top line and the button/switch 1 assignment on the bottom line with the cursor under the button/switch number.

```
Performance Memory 1/2 Akai S3200
Pedal 1 ↓1 Normal Note 60 on
```

- 4 Use the α wheel to select the button/switch number, which may be between 1 and 8, corresponding to the eight programmable user button/switches on the Remote Unit.
- 5 Press the ◀ or ▶ key to select button/switch number, **contact**, **sense**, **MIDI port number**, **state** or **stream name**.

- 5i The **contact** may be one of three types:

- ↕ Momentary, which allows a different Data Stream to be sent to MIDI on each press and release of the button/switch. The button/switch LED is on while the button/switch is pressed down and flashes when released.

- ↓ Latched, which allows a different Data Stream to be sent to MIDI for each press/release pair. The button/switch LED remains on after the first release and flashes after the second press/release.

- + Continuous, which sends a Data Stream to MIDI 50 times a second as long as the button/switch is pressed. The button/switch LED is on as long as the button/switch is pressed down and flashes when released. Note that this uses a great deal of the system's time, and the total number of bytes sent in a continuous stream to MIDI *must* be less than 60 (60 bytes * 50 per second = 3000 bytes per second, almost the total MIDI bandwidth of 3125). Since a sequence may be running in the background, the actual number of bytes assignable to a continuous stream is actually less. IT IS HIGHLY UNLIKELY THAT DAMAGE COULD OCCUR TO YOUR INSTRUMENTS if you over-step this figure, but the data may become corrupted. This phenomenon is called 'MIDI choke' and is a recognised problem in any networked system, of which MIDI is just one example. Since lighting rigs etc. may involve mechanical movement you should be careful here to ensure you do not cause MIDI choke.

- 5ii **Sense** may be one of two values:

- t Means send this Data Stream when the button/switch is pressed DOWN or on the 1st press/release pair for a latched button/switch.

- s Means send this Data Stream when the button/switch is released UP or on the 2nd press/release pair for a latched button/switch.

- 5iii **Port number** is the number of the MIDI OUT socket on the back of the System Unit. It may be any one of the following four values:

- N Don't send anything to MIDI. Useful for disabling a troublesome Data Stream without actually losing the assignment.

- 1 Send the Data Stream to MIDI OUT socket 1.

- 2 Send the Data Stream to MIDI OUT socket 2.

- B Send the Data Stream to Both MIDI OUT sockets.

- 5iv **Stream name** is the name of the Data Stream that will be sent to MIDI upon a button/switch press/release. It will be *UNASSIGNED* if there is no currently assigned Data Stream.

- 6 Rotate α wheel to change the data over the cursor.
- 7 Press the OK key to save the new assignment or CANCEL to quit edit. You may still make further changes or select a new **Button/switch number**. Pressing the PERFORM will prompt you for a save before returning you to the Perform mode.

```
Do you wish to save the changes?  
Ok=Yes          Cancel=No
```

6.2. Data Stream Handling:

6.2.1. Selecting a Data Stream:

- 1 Press the STREAM key (this can be done from Perform mode in which case the last used Data Stream is displayed, or if one has not yet been accessed, the first Data Stream in the system, or whilst assigning a Performance Memory, in which case the Data Stream assigned to the current button/switch is displayed ready for editing).
- 2 The display will show a Data Stream name.

Data Stream	Note 60 on
-------------	------------

- 3 Rotate α wheel until required Data Stream name is on view on the top line of the display.

6.2.2. Renaming a Data Stream:

- 1 Select a Data Stream as shown above under *Operation:Data Stream handling:Selecting a Data Stream*.
- 2 Press the NAME key.
- 3 The display shows an editable copy of the Data Stream name on the bottom line.

Data Stream	Note 60 on
	Note 60 on

- 4 Press the ◀ or ▶ key until the cursor is positioned under the character that you want to change.
- 5 Rotate α wheel to change the character at the selected position. The INSERT key inserts a space at the cursor position, moving the rest of the name one place to the right, the DELETE key deletes the character under the cursor and moves all the characters on the right one position to the left, inserting a space at the end of the name. Go back to 4 if there are more characters to change.
- 6 Press the OK key to save the new name or the CANCEL key to quit edit. You will be returned to the Stream mode. Pressing the STREAM key will prompt you for a save before returning you to the Stream mode.

Do you wish to save the changes?	
Ok=Yes	Cancel=No

6.2.3. Deleting a Data Stream:

- 1 Select a Data Stream as shown above under *Operation:Data Stream handling:Selecting a Data Stream*.
- 2 Press the DELETE key. The Data Stream name will change to "UnNamed!".

Data Stream	UnNamed!
-------------	----------

6.2.4. Changing a Data Stream's Contents:

- 1 Select a Data Stream as shown above under *Operation:Data Stream handling:Selecting a Data Stream*.
- 2 Press the ASSIGN key.
- 3 The display shows the MIDI message at the first step in the current Data Stream on the bottom line. This line of data will be different depending on the MIDI message stored there. MIDI messages supported by the Interactive fx Controller are listed in the Appendix *Recognised MIDI Messages* with the format in which they are displayed. With the exception of System Exclusive (which by its very nature is of a very flexible length) all the data belonging to any message is displayed in the window on the bottom line. The step number is the position in the 64 byte space for the Data Stream where the Status Byte of the MIDI message exists. The first step is 1 and the last step is 64. Obviously you cannot enter a three byte message (such as Note On) into step 64 since there would be no room for the two data bytes. The reason why the step number shown does not increment by 1 for each message, but by the length of each message, is to make this clear as you enter data.

Data Stream	Note 60 on
1 Control change 1	on Channel 1

- 4 Rotate α wheel over the step number until the required data or "UnNamed!" is on view. You may press the INSERT key to make room for a new message in front of the displayed one, or the DELETE key to remove the message currently displayed.
- 5i Press the ◀ or ▶ key until the field for edit is over the cursor.
 - ii Rotate α wheel to change the value. Go to 5i until the changes is complete.
 - iii Press the OK key to save the new message or the CANCEL key to restore the original. If you have made any changes and then try to change message (by editing the step number) you will be asked if you want to save the changes to the current message before you may see the other message.
 - iv Return to 4 or press the STREAM key to exit in which case you will be asked if you want to save all the changes you have made to the Data Stream.
- 6 Pressing DELETE when the cursor is at the step or message field deletes the message from the Data Stream, copying subsequent messages down to close the gap. While editing a SysEx message the DELETE key will delete the byte of data at the cursor from the message.
- 7 Pressing INSERT when the cursor is over the step or message field will allow you to insert a new MIDI message between the current message and the next. While editing a SysEx message the INSERT key will insert a 0 byte of data at the cursor position which you may then change to the required value.

There are actually two modes in which the Interactive fx Controller can 'learn' MIDI messages. The first is the one described above. The second, called 'MIDI learn mode', allows you to play messages into the Data Stream. If the Interactive fx Controller sees any data on either of the MIDI IN ports when in Stream Editing Mode, it puts it into the edit buffer. You may then accept it by pressing the OK key or reject it using the CANCEL key. A short example will show you how to avoid unwanted data.

Attach a MIDI keyboard to either MIDI IN port, put the Interactive fx Controller into the Edit Data Stream mode and play a chord. **DO NOT RELEASE THE CHORD!** Press the OK key. At this point the first Note On message will be displayed. Now release the chord and then press the CANCEL key. Only the 'Note On's have been stored. To store the 'Note Off's in another message edit another Data Stream. Play the chord and press CANCEL. Now release the chord and press the OK key. Only the 'Note Off's are stored. You would normally then store these to Data Streams on the press and release functions of the same button/switch so that pressing the button/switch played the chord and releasing the button/switch ended the chord.

The Interactive fx Controller will ignore any unsupported MIDI messages. The most likely cause of a continuous beep on entry to Stream Edit Mode is a device continuously sending supported messages and filling the Data Stream buffer completely. This would occur, for instance, if a device transmitted a huge System Exclusive message dumping all its memories.

7. The Utility Functions



The Utility Mode is entered by pressing the OK key whilst in the Perform Mode. A wide variety of housekeeping functions are available here, kept out of the way of the performance controls. Navigation around the menus is simple: Use the ◀ and ▶ keys to get to the menu item you require, then press OK to select it. Repeat this process until the function you want is activated.

7.1. Copy

Two types of copying are available, copying Performance Memories and copying Data Streams.

7.1.1. Copy->Performance Memory

Displays the current Performance Memory as a source and destination for copying. You may use the α wheel to select a new destination. Pressing the OK key completes the copy and returns you to Perform mode. Pressing the CANCEL key returns you to Perform mode without copying anything. If a copy does take place the original data in the destination is lost forever, so be careful! The source is always the current Performance Memory so please ensure that the required data is selected prior to entering the COPY function.

7.1.2. Copy->Data Stream

Displays the current Data Stream as a source and destination for copying. You may use the α wheel to select a new destination. Pressing the OK key completes the copy and returns you to Perform mode. Pressing the CANCEL key returns you to Perform mode without copying anything. If a copy does take place the original data in the destination is lost forever, so be careful! The source is always the current Data Stream so please ensure that the required data is selected prior to entering the COPY function.

7.2. Calc

Because MIDI data is provided by manufacturers in hexadecimal (base 16) and/or decimal (base 10), two base calculating helpers are provided so that you may use the base the manufacturer has chosen, without having to convert the values yourself. It is unlikely that you will need these functions, so do not be afraid if you do not understand them. If, however, you do need them, they are here.

7.2.1. Calc->Set Base

By default all numbers are displayed in decimal (with the exception of the step numbers, Pitch Bend and Song Position values which are always decimal). However, many manufacturers publish device specific codes and data in hex (base 16). This function allows you to specify whether you want numbers displayed in decimal or in hex.

7.2.2. Calc->Convert

Having set the base for displaying numbers (see Calc->Set Base above) you may need to take a quick peek at a number in the other base to convert one from the other into your current base. This function displays a number in hex and decimal. Turning the α wheel changes the number in both bases. Both OK and CANCEL take you back to Perform mode.

7.3. Preset

This permits you to overwrite the first 8 Performance Memories and the first 50 Data Streams with their factory presets. You DO get a chance to cancel the request before the copy occurs since any data that you have edited or put into those locations will be lost forever.

7.4. File

WARNING! Please switch the Interactive fx Controller OFF before inserting or removing a data card.

Whenever a card is put into the slot in the System Unit front panel it is automatically checked for initialisation and size. If it is the first time it has ever been used it will need to be striped with codes showing its empty state. This is called formatting.

All the Performance Memories and Data Streams together are called a file. The Performance Memories and Data Stream in the System Unit are called the current file. On a 64k data card there are four file slots. The data cards are of the PCMCIA v2.0 type. This is an emerging computer standard that will ensure supplies for many years to come. Most companies selling computers or memory will be able to supply them. Note that for marketing (and, strictly speaking, technical) reasons data cards are sometimes marked with a figure EIGHT times their actual size. The reasons are unimportant here, but be aware that, for instance, the cards marked 512k are actually 64k bytes and have four file slots. The cards used by the Interactive fx Controller should be 64k bytes in size. You can ensure that you buy the correct size and type by referring your sales enquiry to the point of sale from which your The Interactive fx Controller was originally sold.

To help you remember which data is in which file you may give your files 16 character names, following the Performance Memory and Data Stream naming convention. The current file may be saved to or read from a data card.

On entering the File System the display shows the name of the current file on the top line. The available options are shown on the bottom. The bottom line displays the menu options available in the file system.

File System	My Set-up
Put Get List Name Delete Format	

7.4.1. File->Put

The Put function allows you to write the current file onto a data card. The top line displays the current file name.

File System	My Set-up
Destination slot 1/4	Saved File 1

The bottom displays the current destination file slot on the data card and which slot it occupies out of how many there are available on the card. Note that if the slot is numbered 1/0 (actually any/0) the card needs formatting. You will be warned of this if you try to put your data to the card.

Turning the α wheel selects a new destination file slot on the data card either showing the name of the file in the slot or "UnNamed!" if the slot does not contain a file. Pressing the OK key puts the current file into the file slot on the data card overwriting its previous contents. The CANCEL key simply returns to the Perform mode.

7.4.2. File->Get

The Put function allows you to read a file from a data card into the current file in the System Unit. The top line displays the current file name.

File System	My Set-up
Slot 1/4	Saved File 3

The bottom displays the current source file slot on the data card. See the discussion above concerning Data Card sizes. Note that if the slot is numbered 1/0 (actually any/0) the card needs formatting. You will be warned of this if you try to put your data to the card.

Turning the α wheel selects a new source file slot on the data card either showing the name of the file in the slot or "UnNamed!" if the slot does not contain a file. Pressing the OK key puts the file in the file slot on the data

card into the current file in the System Unit overwriting its previous contents. The CANCEL key simply returns to the Perform mode.

7.4.3. File->Name

Allows you to name the current file. The current file name is displayed on the top line with an editable copy on the bottom. The current file is the data actually in the system rather than available on a card.

```
File System           My Set-up
                     My Set-up
```

□

Use the ◀ and ▶ keys to select a character position for edit. Turn the α wheel to change the character at the current position. The INSERT key inserts a space, the DELETE key deletes the character under the cursor, moves all the characters to the right one position left and inserts a space over the last character in the name. The OK key saves the changes and returns to the Perform mode and the CANCEL key rejects them and returns to the Perform mode.

7.4.4. File->Delete

The top line displays the current file name.

```
File System           My Set-up
Delete slot 3/4      Saved File 3
```

□

The bottom line displays the file name on the data card that is to be deleted. Turning the α wheel selects a different file for delete. The OK key deletes the file and returns to the Perform mode, the CANCEL key deletes nothing and returns the Perform mode. Note that once deleted the file slot is cleared irretrievably so be careful!

7.4.5. File->Format

The Format option prepares a new data card for use. Since this will destroy any and all data already on the card the system asks you first if you really want to continue. You need only use this function the very first time you put a card into the System Unit. Never format a data card that contains data you wish to keep, unless it has become unuseable for some reason and you are sure that formatting it will not make matters worse!

```
Are you sure you want to format card?
Ok=Yes                      Cancel=No
```

Remember; once formatted there is ABSOLUTELY NO WAY of getting your data back. The format option does NOT affect the Performance Memories or Data Streams held in the System Unit memory.

8. Appendix A: Recognised MIDI Messages

Here is a brief description of the displays you will see when editing the various MIDI messages. Note that most, but not all MIDI messages are recognised.

8.0.1. Note On

Data Stream	Examples
1 Note On C#+1 Channel 2 Velocity 64	

□

Field #	Text	Meaning
1	1	The current step number
2	Note On	The MIDI message status name
3	C#+1	The name of the note that will be played. Note names are centred around middle C, called MidC in the the Interactive fx Controller display. Notes higher in frequency than middle C are marked with a + and the number of octaves above, notes lower are marked with a - and the number of octaves below.
4	2	The MIDI channel number that the message will be sent on
5	64	The velocity at which the note will be played

8.0.2. Note Off

Data Stream	Examples
1 Note Off C#+1 Channel 2 Velocity 0	

□

Field #	Text	Meaning
1	1	The current step number
2	Note Off	The MIDI message status name
3	C#+1	The name of the note that will be stopped
4	2	The MIDI channel number that the message will be sent on
5	0	The release velocity at which the note will be stopped

8.0.3. Control Change

Data Stream	Examples
35 Control Change to 14 Channel 5	

□

Field #	Text	Meaning
1	35	The current step number
2	Control Change to	The MIDI message status name
3	14	The new controller value
4	5	The MIDI channel number that the message will be sent on

8.0.4. Poly Pressure (Aftertouch)

Data Stream	Examples
29 Aftertouch(key) D +1	Chan 3 Vel 96

□

Field #	Text	Meaning
1	29	The current step number
2	Aftertouch(key)	The MIDI status name
3	D +1	The name of the note that aftertouch will be applied to
4	3	The MIDI channel number that the message will be sent on
5	96	The Poly pressure value

8.0.5. Program Change

Data Stream	Examples
3 Program Change to 14	on Channel 15

□

Field #	Text	Meaning
1	3	The current step number
2	Program Change to	The MIDI message status name
3	14	The new program number
4	15	The MIDI channel number that the message will be sent on

8.0.6. Channel Pressure (Aftertouch)

Data Stream	Examples
17 Aftertouch(Channel)	34 on Channel 2

□

Field #	Text	Meaning
1	17	The current step number
2	Aftertouch(Channel)	The MIDI message status name
3	34	The Channel pressure value
4	2	The MIDI channel number that the message will be sent on

□

8.0.7. Pitch Bend

□

Data Stream	Examples
22 Pitch Bend to 1000	on Channel 16

Field #	Text	Meaning
1	22	The current step number
2	Pitch Bend to	The MIDI message status name
3..7	1000	The new Pitch Bend value. Note: Each digit is separately editable
8	2	The MIDI channel number that the message will be sent on

8.0.8. System Exclusive/EoX

Data Stream	Examples
19 SysEx F0 10 44 16 12 0 55 93 EoX	

□

Field #	Text	Meaning
1	19	The current step number
2	SysEx	The MIDI message status name
3...N-1	xx	The System Exclusive data. If there are more data bytes than can be displayed on one line (8 data bytes) the screen will scroll left or right if the ◀ or ▶ keys are pressed at the screen extremes. You will usually have to calculate a checksum to go at the end, just before the EoX. Since various manufacturers have different schemes for doing this, The Interactive fx Controller is unable to do it for you. See the System Exclusive Implementation Table in your synth manuals for details.
N	EoX	The MIDI status byte for End of Exclusive. Whilst it is not an absolute rule that SysEx messages must end with an EoX it is good practice, so The Interactive fx Controller puts one in for you. You cannot delete or change the EoX byte.

Note that you may have the Interactive fx Controller display numbers in either decimal (base 10) format or hexadecimal (base 16) format. This is because most manufacturers give SysEx information in hex, but most musicians think in decimal. See the utility menu functions for details on changing the displayed number base.

8.0.9. Song Position Pointer

Data Stream	Examples
40 Song Position Pointer 24	

□

Field #	Text	Meaning
1	40	The current step number
2	Song Position Pointer	The MIDI message status name
3..7	24	The position to move to within a sequence. Note: Each digit is separately editable.

8.0.10. Song Number

Data Stream	Examples
5 Song Select number 40	

□

Field #	Text	Meaning
1	5	The current step number
2	Song Select number	The MIDI message status name
3	40	The number of a song to be played by a sequencer.

8.0.11. Tune

□

Data Stream	Examples
1 Tune Request	

□

Field #	Text	Meaning
1	1	The current step number
2	Tune Request	The MIDI message status name

8.0.12. Start

Data Stream	Examples
1 Start	

Field #	Text	Meaning
1	1	The current step number
2	Start	The MIDI message status name

□

8.0.13. Continue

□

Data Stream	Examples
4 Continue	

□

Field #	Text	Meaning
1	4	The current step number
2	Continue	The MIDI message status name

□

8.0.14. Stop

□

Data Stream	Examples
1 Stop	

Field #	Text	Meaning
1	1	The current step number
2	Stop	The MIDI message status name

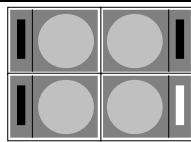
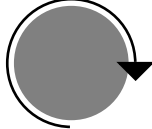
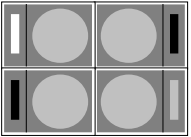

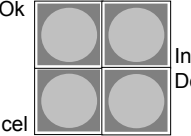
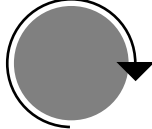
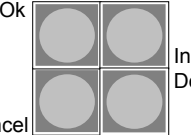
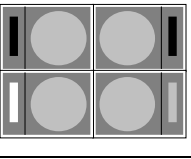

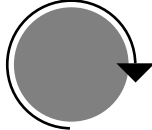

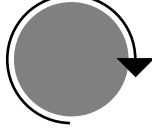
8.0.15. Reset


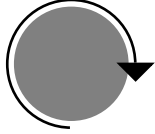
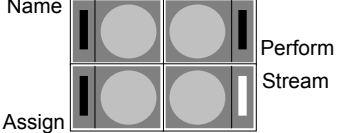
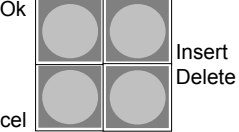
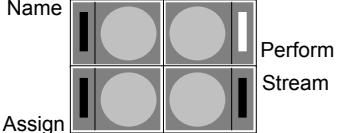
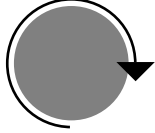
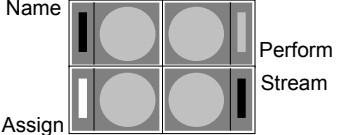
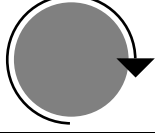

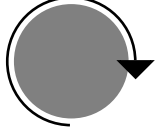

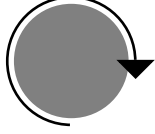
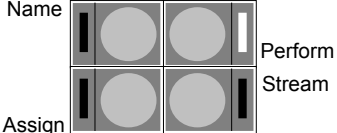
Data Stream	Examples
23 Reset	

Field #	Text	Meaning
1	23	The current step number
2	Reset	The MIDI message status name

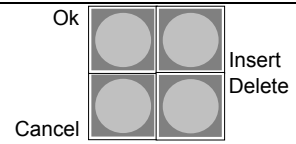
9. Appendix B: The Quick Reference

This section describes the entire procedure for naming and defining a Data Stream and assigning it to a button/switch in a Performance Memory.

<p>The first stage is to select an empty Data Stream for assigning MIDI commands and data to. Go to the Stream mode by pressing the Stream key. The Stream LED will light.</p>	
<p>Select an empty Data Stream using the alpha wheel. The empty Streams are identified by the name "UnNamed!".</p>	
<p>So that the assigned Data Stream does not get lost amongst all the other empty Streams the first thing to do is to give it some meaningful name. Go to the Name mode by pressing the Name key. The Name LED will light and the Stream LED will flash.</p>	
<p>A copy of the name will appear on the second line of the display, with a cursor under the first character. Move the cursor to the character to be changed.</p>	
<p>Press the Insert key to insert a space or the Delete key to delete the character over the cursor.</p>	
<p>Turn the alpha wheel until the desired character appears. Remember that all the upper and lower case letters are available, numbers and some punctuation as well. Go back to the previous stage to select the next character for change.</p>	
<p>When the Data Stream name is complete press the OK key to save it. The name on the first line of the display will update to reflect the changes and the Stream LED will light.</p>	
<p>Next, assign MIDI commands and data to the Stream. Press the Assign key. The Assign LED lights, the Stream LED flashes and the display shows the first MIDI command in the Stream. This, if the Stream was an empty one will be "1 UnNamed!" with a cursor under the "1".</p>	
<p>Move the cursor to the "UnNamed!" MIDI command.</p>	
<p>Use the alpha wheel to dial in the required MIDI command. All data fields will be zero if the Stream was originally empty, or will contain the previous data if the Stream contained a MIDI command. This can be useful if a Note Off is to be associated with a Note On, by copying the Note On to an Empty Stream and then simply changing the Note On to a Note Off in the copy.</p>	
<p>Move the cursor to a data field that needs changing. If the command is SysEx then use Insert to make room for data bytes.</p>	
<p>Use the alpha wheel to dial in the required value. Repeat these last two stages for as many data fields as exist for the requested MIDI command.</p>	

<p>The MIDI command is complete, but perhaps more commands are to be assigned to a button/switch. If this is so then move the cursor to the step number in the display. Otherwise skip the next action.</p>	
<p>Use the alpha wheel to dial on to the next step. The step number increases by the length of the MIDI command and cannot be dialled passed the first "UnNamed!" step (so no 'holes' can be accidentally left in Data Streams). Now go back five actions and move the cursor to the "UnNamed!" MIDI command.</p>	
<p>Once the Data Stream is complete quit the Assign mode by pressing the Stream key. The Stream LED will light and the display will ask if the changes are to be saved.</p>	
<p>Press the OK key to save the changes to the Data Stream.</p>	
<p>The Data Stream is now complete, it has a name and some MIDI data. At this point it must be assigned to a Performance Memory. Press the Perform key. The Perform LED lights and the display shows the name of the current Performance Memory.</p>	
<p>Use the alpha wheel to find the Performance Memory that the Data Stream is to be assigned to.</p>	
<p>Press the Assign key. The Assign LED lights, the Perform LED flashes and the display shows the assignment of button/switch 1 in the current Performance Memory. If no Data Stream has been assigned then "*UNASSIGNED*" will be displayed.</p>	
<p>Use the alpha wheel to select the button/switch number that the Data Stream is to be assigned to. As a short cut the button/switch itself can be pressed at this point to select its number.</p>	
<p>Move the cursor to the three state flags</p>	
<p>Use the alpha wheel to select the button/switch's behaviour options. <u>Note that button/switchs always default to NO output</u>, so the port number MUST be changed to "1", "2", or "B" (for both).</p>	
<p>Move the cursor to the Data Stream name on the right of the display.</p>	
<p>Use the alpha wheel to select the name of the Data Stream that was edited in the actions above.</p>	
<p>If the assignment is now complete, press the Perform key. The Perform LED will light and the display will clear to show only the current Performance Memory name. If there are any more button/switch assignments to be made move the cursor to the button/switch number and go back six actions to select a new button/switch.</p>	

When the display asks if the changes are to be saved or not press the OK key to save them.



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Interactive fx Controller

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Throughout the manual references are made to specific pieces of musical equipment. These references in no way reflect a recommendation by mm for the equipment, nor an endorsement of mm by the equipment manufacturers. They are there simply as examples so that you may recognise what sort of data would be likely to be used in a particular situation.

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