Logitek

Logitek Electronic Systems

Mosaic Reference Manual

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Document Revisions

Date	Revision	Author	Notes
May 2005	1.0	Paul Dengate	First release of Mosaic manual
November 2005	1.1	Paul Dengate	Renamed to Mosaic Reference Manual User Operations content now duplicated in Mosaic Operator's Manual Updated Release Notes (Appendix A) for Mosaic v2.x software Added details of new Mosaic commands (Appendix E)
December 2005	1.11	Paul Dengate	Final Release of Mosaic v2.1 updates & additions Updated Device Number details in Chapter 4 Corrections to Mosaic commands (Appendix E)
January 2006	1.12	Paul Dengate	Updated Power Supply details with respect to studio noise suitability (Chapter 3) Updated mounting details for new Meter Bridge mounts (Chapter 3) Updated Default Device Numbers for Mosaic v2.11 PSU firmware (Chapter 4) Removed MLX-EQ module pending re-design (Chapter 5) Updates for Mosaic v2.11 firmware notes (Appendix A) Corrections to Mosaic commands (Appendix E) Typo corrections

Contents

1 Introduction

About this Manual

This manual describes the installation and operation of the **Logitek** *Mosaic* control surface.

Intended Audience

This manual is aimed at Engineers responsible for installing, configuring and supporting a **Logitek Console Router System** with the *Mosaic* surface.

In the context of a system installation, or to become familiar with the entire **Logitek Console Router System**, the reader should also reference:

- Audio Engine Installation & Operation Manual
- AEConfig User's Manual
- Supervisor User's Manual
- CommandBuilder User's Manual

The content of this manual relevant to console operators (Chapter 5) is also duplicated in the separate *Mosaic Operator's Manual*. This provides announcers and operators with a brief overview of using the surface in a broadcast environment.

Manual Conventions

The following conventions are used in this manual:

This text indicates a menu choice to be made, with an arrow separating a multi-level selection, eg Control Panel ➢ Users & Passwords. This can be a menu choice in a Logitek application, or within Windows.

➥ *Indicates a "see-also" section in this manual, or another Logitek manual.*

The exclamation symbol signifies an important note or critical information.

```
This text represents a command, script block example, instruction to
          be typed, or directory path.
```

TIP: A useful tip from our knowledge base!

About Mosaic

Art meets technology in the *Mosaic* digital console, the latest in control surface designs from **Logitek Electronic Systems**. As with its namesake, the *Mosaic* is composed of a series of pieces (modules) to provide the highest possible flexibility in design and operation while bringing you an attractive visual centerpiece for your broadcast installations.

First released in 2005, *Mosaic* was designed to replace the *Numix* series of consoles, and adds many new features, including multi-color on/off lamps, variable intensity softkey buttons, and single-button access to more functions. The *Mosaic* surface is based on a series of modules that can be configured to suit the user's requirements. These modules include:

- ***MLX-FADER*** **Fader Module** (double width)
- ***MLX-MON*** **Monitor Module** (double width)
- ***MLX-NSOFT*** **Narrow Softkey Module** (single width)
- ***MLX-WSOFT*** **Wide Softkey Module** (double width)
- ***MLX-EQ*** **Audio Processing Module** (double width)
- ***MLX-BLANK*** **Blank Module** (single width)

In addition, the **Monitor Bridge** is available in both wide and narrow form factor.

The main frame is available in a number of different sizes to accommodate a variety of console sizes and fader numbers. The frame is designed to be sunken into a desk for permanent installation.

Figure 1 – Mosaic 12 Fader Console

System Requirements

Mosaic is designed to connect to a **Logitek Audio Engine** running DSP version 3.x or later. Certain *Mosaic* functions may require a specific type or release of DSP card. Contact **Logitek Electronic Systems** or your reseller if you are unsure, or are adding a *Mosaic* surface to a pre-existing **Logitek** facility.

System Architecture

Put simply, the *Mosaic* surface is just a remote control panel for the **Audio Engine**. Unlike traditional analog consoles, no audio passes through the *Mosaic* or its faders (with the exception of the cue speaker audio). The *Mosaic* talks to the **Audio Engine** using the **Logitek Command Protocol**, with all audio processing occurring inside the **Audio Engine**.

The mixing, routing and processing of audio is not dependant upon PCs. However, additional functionality, such as macro buttons, scene snapshots, intercoms, delay control and software tools interface to the system using the *Supervisor* PC application.

Whilst *Supervisor* is not a requirement to run a **Logitek Console Router System**, most systems are now sold with this PC suite, as it unlocks the true power of the **Logitek** system. The *Mosaic* surface contains many programmable buttons, which require scripting using *CommandBuilder*. The functionality for these buttons is then executed by *Supervisor*. If these buttons are performing on-air critical functions, such as delay control or studio switching, running a *Dual Supervisor* configuration is highly recommended.

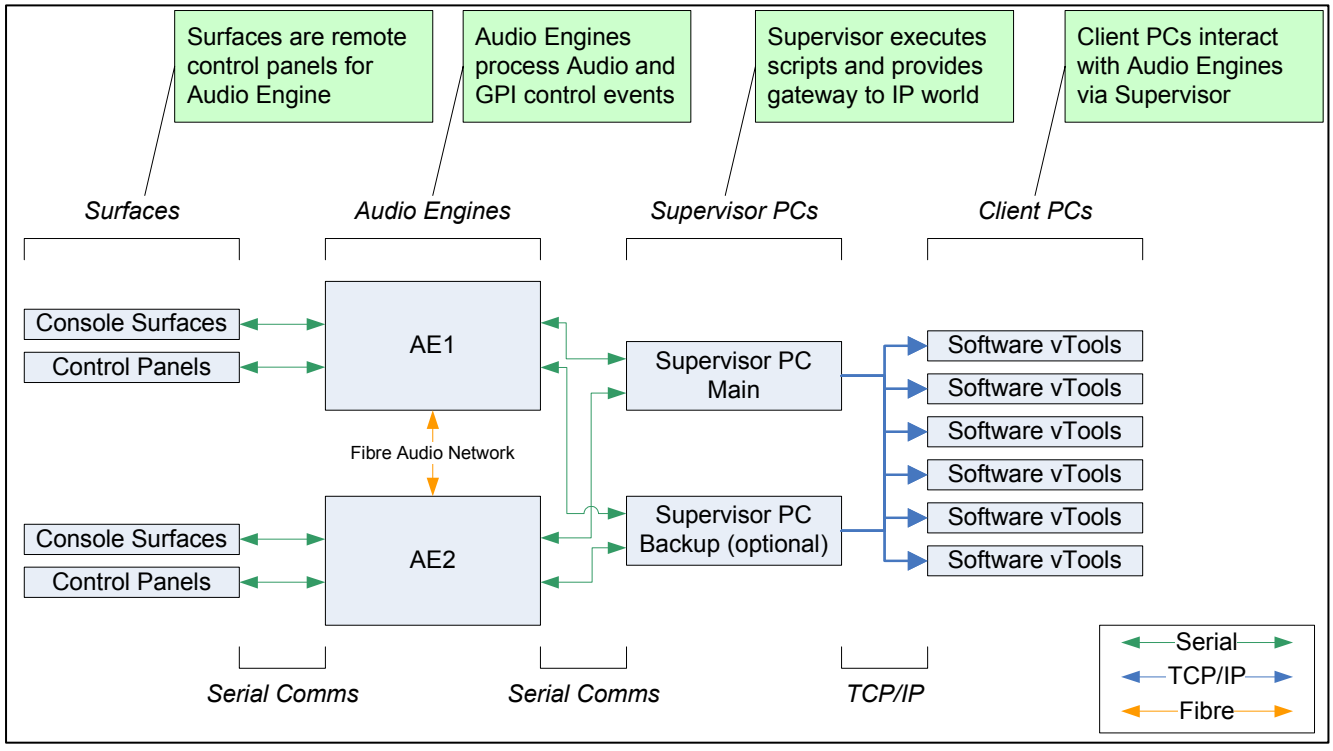


Figure 2 - Logitek System Architecture

Compatibility Matrix

Mosaic is designed for use with **Logitek Audio Engine** 3.x or later. The *Mosaic* retains compatibility with other surfaces for the majority of its features.

Support for *Mosaic* specific additional features has been progressively added to other components of the system. *Mosaic* v2.x firmware was released in November 2005.

Following is the minimum software release version/date that is required for *Mosaic* support.

Component	General Support	Additional Features
AE-C2 Controller Card AE-C6 Controller Card	v3.x v3.x	v3.25 Nov 2005 for extra cue/aux meters v3.63 Nov 2005 for extra cue/aux meters
SharcAttack DSP	v3.x	v3.60 Jun 2005 or later v3.63 Nov 2005 for extra cue/aux meters
LoneSharc DSP	v3.x	Contact Logitek or your reseller
Supervisor	2002 / v3	v3.0 November 2005
CommandBuilder	2002	v3.0 November 2005
AEConfig	2002	v3.0 for 16 character

➥ *See Appendix A for Mosaic related release notes and version information.*

2 Unpacking

This section details what you should do when unpacking your newly arrived *Mosaic* surface.

Parts List

The exact list of parts received will vary depending on your order, but should generally include:

- 1 x *Mosaic* Power Supply fitted with one PSU module, or two PSU modules (option)
- 1 x fully assembled *Mosaic* frame, containing modules as ordered
- 1 x wide or narrow meter bridge assembly
- 2 x mounting brackets for meter bridge, or optional bridge frame for additional 2 x MLX42
- 1 or 2 x "Telco" cables to link console to PSU (number depends on console size)
- 1 x RJ45-RJ45 patch cable to link PSU and Audio Engine (if in close proximity)
- 1 x Hex tool to allow removal of modules and faders

You will receive a parts list with the system that is specific to the modules on your order.

Unpacking

Carefully unpack the cartons whilst looking for any signs of shipping damage. You may wish to save the shipping cartons until the operation of the system is verified.

Report any damage to the shipping carrier immediately. Verify that the contents of each box match the packing list and report any discrepancies immediately to **Logitek** in writing.

Contacting Logitek

In the event of a shipping problem, you can contact **Logitek Electronic Systems** in several ways:

U.S. Mail	Logitek Electronic Systems, Inc. 522 Edgemoor Drive Houston, Texas 77081
Telephone	877-231-5870 713-664-4470 (outside U.S. and Canada)
Fax	713-664-4479
Email	help@logitekaudio.com
Website	www.logitekaudio.com

3 Physical Installation

The *Mosaic* surface is designed to be mounted in a desk cutout in a permanent studio installation. The **Meter Bridge** can be screwed to the desk and mounted using the supplied mounting brackets.

Power Supply Unit

The **Power Supply Unit** is a 2-RU sized rack mount box, designed for mounting in an under-desk studio rack. If the supplied cables are not long enough to allow for convenient mounting, custom length cables are readily available.

The **Power Supply** is suitable for mounting in a studio environment and has been designed to be silent. The modules are a low-noise type and all electronics is solid-state (no mechanical relays).

The **Power Supply** contains one or two switch-mode supply modules, with a power indicator for each module on the front panel.

Power inlet is via a single IEC connector on the rear of the **Power Supply Unit**. A power cable is supplied only for US installations. International customers may contact their reseller for the supply of power cables if required.

As the power supplies are of switch-mode type, there is no voltage selection required.

Mosaic Frames

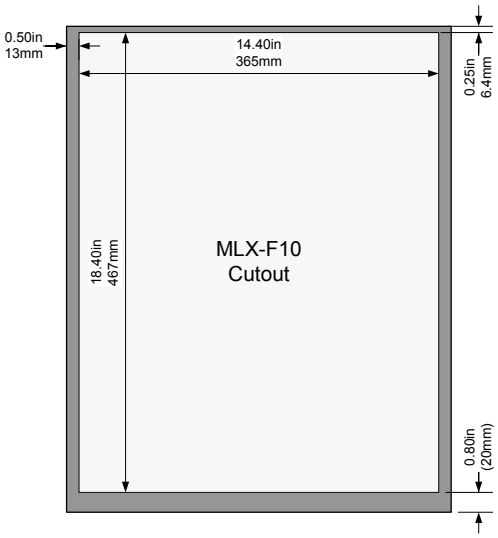
A number of *Mosaic* frame sizes are available, depending on the total number of faders and control modules. Each module takes up either one or two “slots” in the frame. The **Fader**, **Monitor**, **Processing** and **Wide Softkey** modules take two slots. The **Narrow Softkey** and **Blank Panel** take up one slot.

The frame will be shipped with the modules connected and fitted as ordered. These modules can be moved if desired. If moving modules, please retain the same internal COM port connections as the surface shipped with. If the COM port connections are changed, the device addressing for those modules will change.

Mosaic Cutouts

The *Mosaic* frame should be fitted into a desk, using the cutout sizes below. The height of the cutout remains the same for each frame size – only the width varies.

MLX-F10



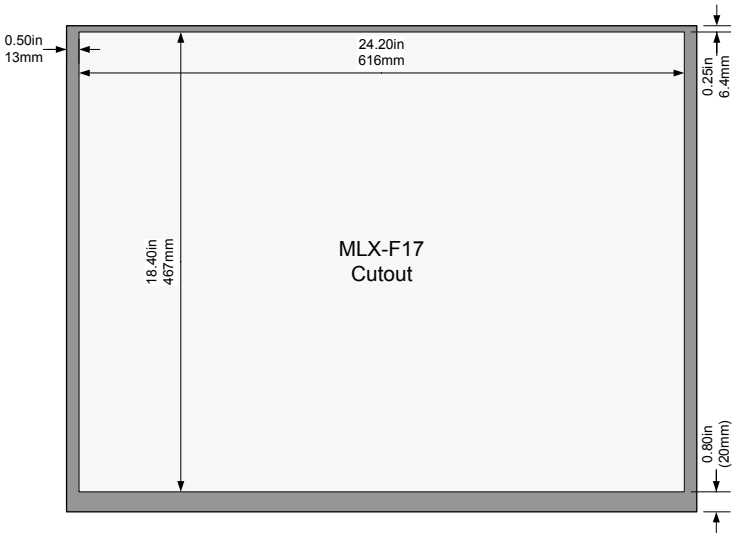
The MLX-F10 frame has capacity for 10 units. Suggested configurations include:

- 6 faders / Wide Softkey / Monitor
- 4 faders / Wide Softkey / EQ / Monitor
- 4 faders / Wide Softkey / Narrow Softkey / Blank / Monitor

The required desk cutout for the MLX-F10 is 14.4 x 18.4in / 365 x 467mm.

Figure 3 - MLX-F10 Cutout

MLX-F17



The MLX-F17 has capacity for 17 units. Suggested configurations include:

- 12 faders / Wide Softkey / Narrow Softkey / Monitor
- 10 faders / Wide Softkey / Narrow Softkey / EQ / Monitor

The required desk cutout for the MLX-F17 is 24.2 x 18.4in / 616 x 467mm.

Figure 4 - MLX-F17 Cutout

MLX-F24

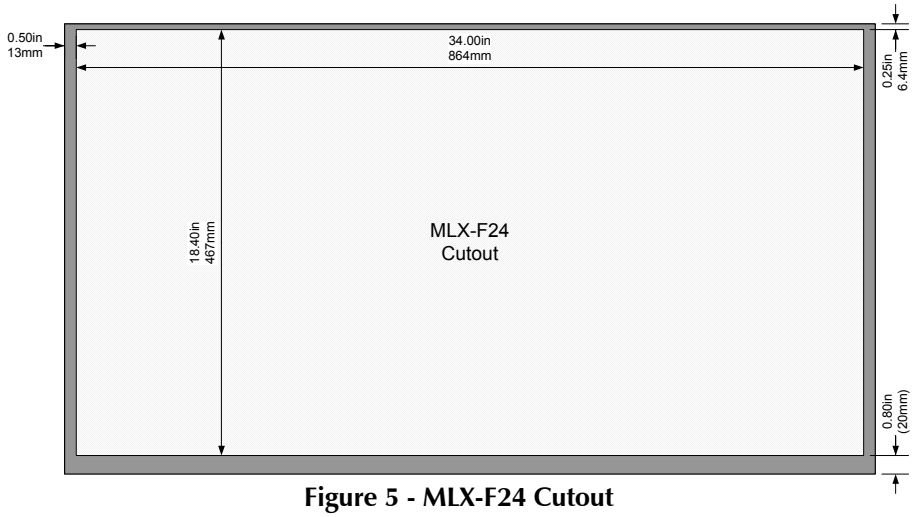


Figure 5 - MLX-F24 Cutout

The MLX-F24 has capacity for 24 units. Suggested configurations include:

- 18 faders / Wide Softkey / EQ / Monitor
- 18 faders / Wide Softkey / Narrow Softkey / Blank / Monitor

The required desk cutout for the MLX-F24 is 34.0 x 18.4in / 864 x 467mm.

MLX-F32

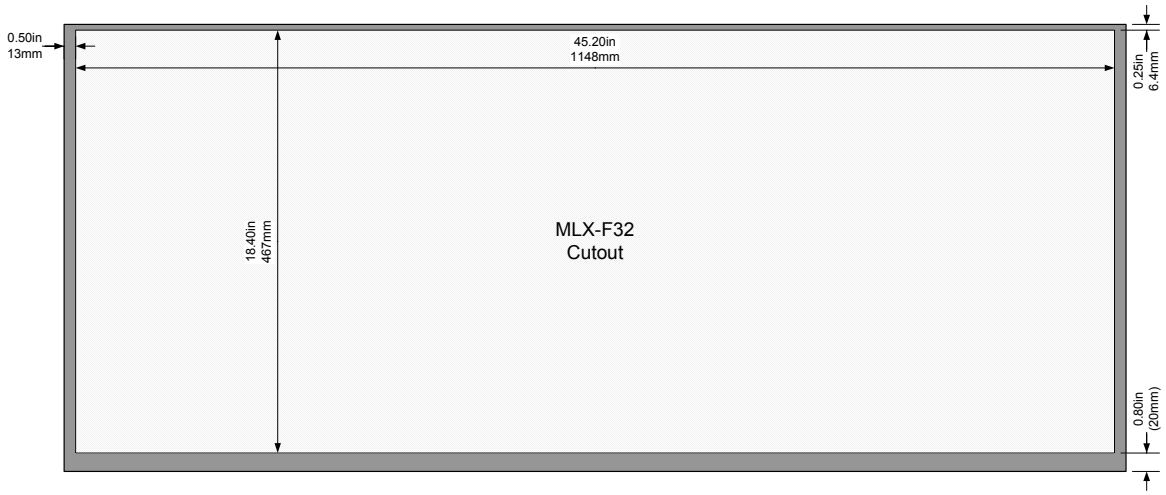


Figure 6 - MLX-F32 Cutout

The MLX-F32 has capacity for 32 units. Suggested configurations include:

- 24 faders / Wide Softkey / 2 x Narrow Softkey / Processing / Monitor

The required desk cutout for the MLX-F32 is 45.2.0 x 18.4in / 1148 x 467mm.

Meter Bridges

Two sizes of **Meter Bridge** are available. The **Wide Bridge** includes one high-resolution program meter, and 6 color LCD screens for text, clocks and other meters. The **Narrow Bridge** also includes the high-resolution meter, with two color LCD screens.

In addition, a special version of the **Wide Bridge** is available with space for two horizontal **Narrow Softkey** modules, providing additional programmable softkey buttons.

Mounting

- **Narrow** & **Wide Bridges** supplied in 2005 have a flange at the bottom of each foot to allow the assembly to be screwed into the furniture.
- Systems supplied in 2006 and beyond will have mounting brackets that bolt directly to the rear of the console frame, removing the need for separate mounting holes in the furniture.
- The **Wide Bridge with Button Riser** still requires mounting to the studio furniture.

Narrow Bridge

- 13″ W x 3.8″ H x 2.6″ D (330 mm x 97 mm x 66 mm)
- The standard mounting adds 2.4″ (61 mm) to the height

Wide Bridge

- 23.6″ W x 3.8″ H x 2.6″ D (599 mm x 97 mm x 66 mm)
- The standard mounting adds 2.4″ (61 mm) to the height

Wide Bridge with Button Riser

- 23.6″ W x 3.8″ H x 2.6″ D (599 mm x 97 mm x 66 mm)
- The 2 module slot riser adds 4.8″ (122 mm) to the height

Figure 7 - Mosaic Wide Bridge with button riser

Connections

The *Mosaic* **Power Supply Unit** contains the control and GPI circuitry for the console. It connects to the **Logitek Audio Engine** via a serial link. The **Power Supply Unit** connects to the **Surface** using one or two 25-pair "Telco" cables. These cables carry the communication between each module and the **Power Supply Unit**.

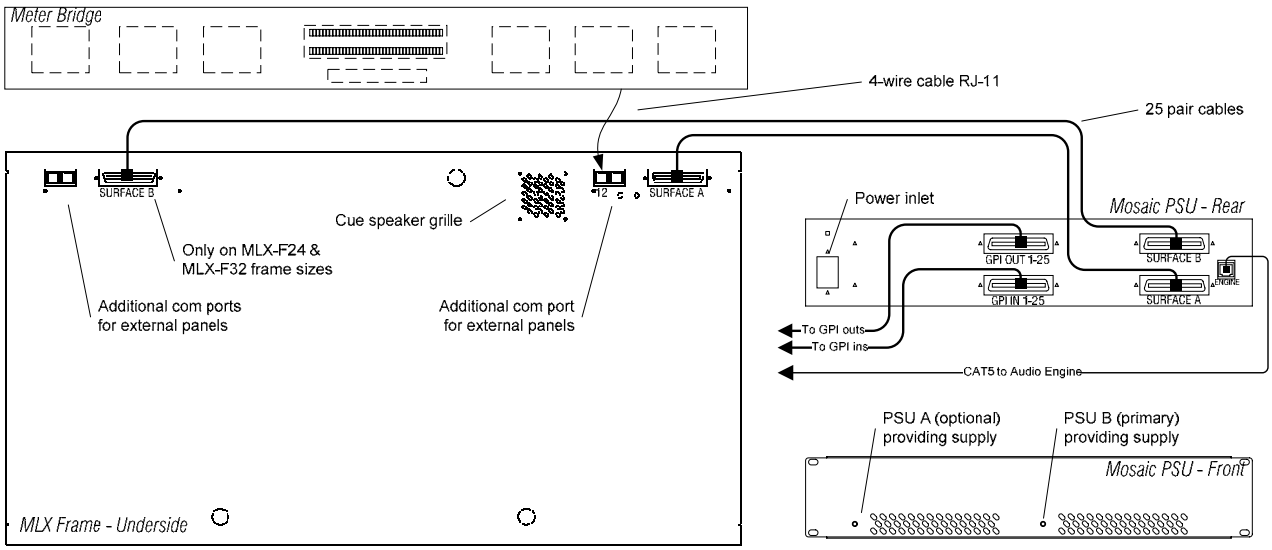


Figure 8 - Mosaic Connection Diagram

Surface to PSU

For the MLX-F10 and MLX-F17 frames, a single 25-pair Telco cable connects **Power Supply Unit** to the **Surface**. For the MLX-F24 and MLX-F32 frames, two of these cables are used.

The required cables will be supplied with your *Mosaic*. The length of these Standard cables is 10' (3m).

If the supplied cables are not long enough, you can order Telco style cables from **Logitek Electronic Systems** or a local supplier. The connectors are standard Telco style 50-pin Centronics Male plugs, wired straight through (all pairs connected).

Alternative wiring schemes may reverse or drop pairs, so please ensure you specify straight through wiring if purchasing custom-made cables.

➥ *See Appendix B for connector pinouts.*

Surface to Meter Bridge

The **Meter Bridge** has a short 4-wire cable with an RJ-11 connector on the end. This is plugged into the port labeled COM12. The cable length is suitable to mount the meter bridge behind the *Mosaic* frame. If alternative wiring is required, this can be replaced with a custom made cable using flat telephone cable and RJ11 connectors.

Internal Module Connections

Inside the frame, the one or two 25-pair connectors (depending on frame size) are broken out to individual port connections. There is generally no requirement to replace these cables, as the lengths are made to suit the position of each module.

PSU to Audio Engine

The *Mosaic* **Power Supply Unit** connects to the **Logitek Audio Engine** using a balanced serial link. Standard CAT5 or better cabling is recommended. The cable required will depend on the type of controller card and connectors in the **Audio Engine**.

New systems are supplied with the AE-C6 controller card, which connects using an RJ45 at the **Audio Engine** and *Mosaic*. Older Engines running the AE-C2 card (supplied in 2004 or earlier) have a DB9 connection at the **Audio Engine**.

The *Mosaic* is supplied with a CAT5 patch lead, to connect the AE-C6 to the *Mosaic* Power Supply Unit. This lead is sufficient for testing purposes; however, the **Audio Engine** will normally be located away from on-air studios.

You can use a dedicated CAT5 cable or existing structured cabling. If using structured cabling systems, care should be exercised to ensure the **Audio Engine** connections are not confused with other network outlets and that the link is not unintentionally “un-patched”.

➥ *See Appendix B for connector pinouts.*

GPIs

The *Mosaic* **Surface** has 25 GPI inputs and outputs for control of local studio devices.

GPI outputs are driven by optically-isolated, non-polarized, solid state switches, rated at 500ma at 50V AC/DC, with surge to 2A. These solid state devices do not conduct at low voltage, so cannot switch an audio input. However, they are suitable for most control signals, and avoid problems with relay contacts being damaged by surges. Caution should be exercised to avoid overloading the switches. If driving a high current device, we recommend driving an external relay or switch.

The GPI inputs are a current source to +5VDC that is pulled to ground to activate. This makes it suitable for control by push-button, relay or open collector. A diode protects against static and over voltage. See the wiring diagram for polarity information if using non-standard activation methods.

GPI connectors are on Telco style 50-pin Centronics. As wiring schemes vary from station to station, these cables are not supplied with the surface, but are available from **Logitek Electronic Systems**. They can also be purchased from local suppliers in the required form.

Wiring is straight-through style, with Pair 1 corresponding to GPI #1 and so on. A male AMP style 50-pin connector is required to connect to the *Mosaic* **Power Supply Unit**. We suggest ordering a single-ended cable with tails for punch-down to Krone style block or similar. There is one connector for GPI inputs and another for GPI outputs.

➥ *See Appendix B for connector pinouts.*

4 Configuration

This chapter covers basic configuration information, relating specifically to the *Mosaic* surface. **Audio Engine** setup and configuration is covered in detail in the following manuals:

- *Logitek Audio Engine User's Manual*
- *Logitek AEConfig User's Manual*

COM Port Configuration

The *Mosaic* contains 12 COM ports per 25-pair connector from the Power Supply Unit. These ports are internally mounted to connect to each module, with one external COM port to connect to the **Meter Bridge**.

By default, the **Device Address** to **Com Port** map is set inside the *Mosaic* **Power Supply Unit** firmware, and will suit most installations. The defaults are shown on the following page. *Mosaic* v2 adds the ability to change the **Com Port** mapping, using hex commands sent from *Supervisor*. These are stored in the power supply's non-volatile RAM, so don't need to be sent each power up.

➥ *See Appendix E for Mosaic configuration commands.*

Audio Engine Configuration

Configuration of the **Audio Engine** is done in *AEConfig*. Currently, there are no specific features that are set by *AEConfig* – configuration is as per other **Logitek Surfaces**.

Currently, *AEConfig* does not include specific DSP table entries for the *Mosaic*. You should use a *Numix* surface of the next nearest size when configuring a *Mosaic*. In the future, specific *Mosaic* support will be added to *AEConfig*, however, the two consoles are compatible in DSP allocations.

➥ *See the AEConfig User's Manual for information on configuring Audio Engines.*

CommandBuilder Triggers

The *Mosaic* surface contains many programmable buttons and features. These features are scripted in "triggers" in *CommandBuilder,* and executed by *Supervisor*.

➥ *See the CommandBuilder User's Manual for information on writing Triggers.*

The *CommandBuilder* manual includes details and examples of *Mosaic* specific features, such as Monitor Hotkeys, Colored On/Off Lamps, Multi-brightness lamps and more. The programming of these features does require a certain level of familiarity with the system. If you need assistance, please contact **Logitek Electronic Systems** or your reseller.

Device & Bus Addressing

Each device (such as a fader input or button panel) requires its own **Device Number**. Within that device, each button, lamp and feature has a **Bus Number**. Together, the **Device** and **Bus Numbers** allow the **Audio Engine** and **Surface** to communicate.

When configuring the *Mosaic's* programmable buttons in *CommandBuilder*, you will require the **Device Number** and **Bus Number** for each button or lamp. The information below will help you determine the addressing scheme in use on your *Mosaic*. As the layout of the *Mosaic* is extremely flexible, the addressing will vary and is usually unique to your station.

Please note that addressing is configurable, and any defaults listed may have been overridden.

Modules

Module	How Addressing is determined	Max Modules Supported
MLX-MON	Uses the standard Monitor, Headphones, Guest/Studio, Cue Gain, External Cue Gain & TB Return addressing	2 *
MLX-WSOFT	Uses chan29 (lamps) and chan30 (switches)	2 *
MLX-NSOFT	Device Pair determined by COM port allocation (configurable) Low device = lamps, High device = switches	Limited by available ports
MLX-FADER	Device Pair determined by COM port allocation (configurable) Low device = left fader, High device = right fader	12 modules (24 faders) subject to available ports
MLX-WBRIDGE MLX-NBRIDGE	Uses chan33 for Left LCD screens and chan34 for Right LCD screens Should be connected to Port 12 on underside of Mosaic, or Port 17 for 2nd bridge	2 *

* Support for replication between dual **Monitor**, **Wide Softkey** or **Bridge** modules is scheduled for addition to *Mosaic* v2.2 software in 2006.

Device Numbers

In *Mosaic* v1.x the **Device Number** of a module is determined by its firmware and position. In some cases, non-default port mapping was hard-coded into the ROM to suit user requirements.

In *Mosaic* v2.0 and above (from November 2005), the **Device Number** allocated to COM ports is user configurable. An international set of default mappings is installed in the ROM, but this map is adjustable using `ASM` commands in your **Init Trigger**.

When using **Device** addressing, we recommend you use the `SURF# CHAN#` notation in *CommandBuilder*. This provides more flexibility for future changes, and allows you to relocate the surface or re-use the code on another port by finding and replacing the `SURF#` instances. Shown below is the hex equivalent of the channels of a **Surface** connected to **Audio Engine** Port 1.

Default Device Numbers

Following is the default **Device COM Port** map that ships with *Mosaic* v2.x.

These defaults are designed to suit most standard consoles, up to 24 faders. In some cases it may be necessary to override the default mapping to support non-standard requirements.

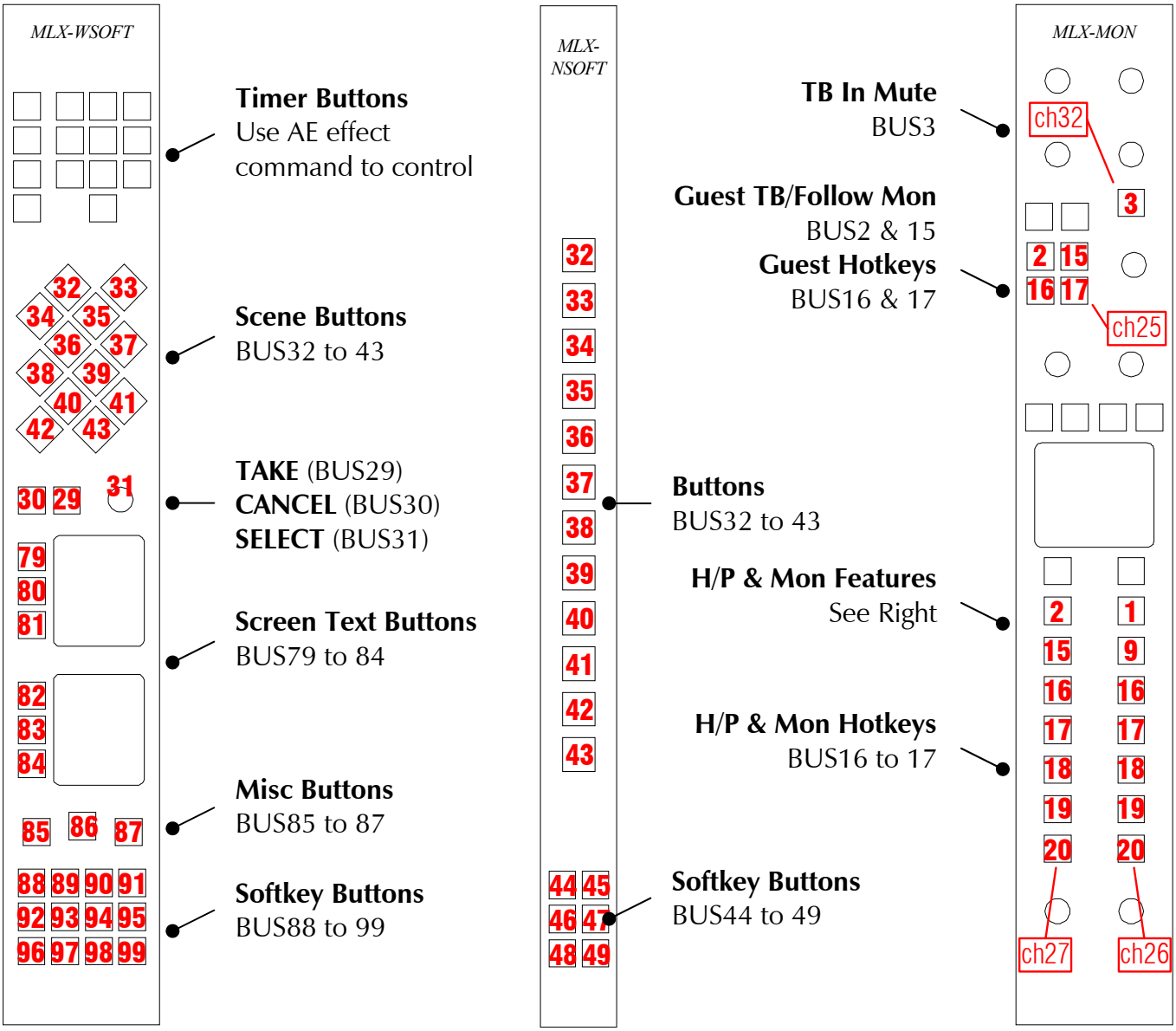
Port	Connector	Standard Module	Alternative	Channel (dec)	Port 1 Device (hex)
1	A 1	Fader 1/2		1 & 2	OB & OC
2	A 2	Fader 3/4		3 & 4	OD & OE
3	A 3	Fader 5/6		5 & 6	OF & 10
4	A 4	Fader 7/8		7 & 8	11 & 12
5	A 5	Fader 9/10		9 & 10	13 & 14
6	A 6	Fader 11/12		11 & 12	15 & 16
7	A 7	Wide Softkey A		29 & 30	27 & 28
8	A 8	Fader 13/14	Narrow Softkey 1	13 & 14	17 & 18
9	A 9	Monitor Module A		25;26;27;31;32	23;24;25;29;2A
10	A 10	Fader 15/16	Narrow Softkey 2	15 & 16	19 & 1A
11	A 11 (under)	External Softkey	Narrow Softkey 3	17 & 18	1B & 1C
12	A 12 (under)	Meter Bridge A		33 – 40	2B – 32
13	B 1	Fader 17/18	Narrow Softkey 4	17 & 18	1B & 1C
14	B 2	Fader 19/20	Narrow Softkey 5	19 & 20	1D & 1E
15	B 3	Fader 21/22	Narrow Softkey 6	21 & 22	1F & 20
16	B 4	Fader 23/24	Narrow Softkey 7	23 & 24	21 & 22
17	B 5	Spare		No default set	No default set
18	B 6	Spare		No default set	No default set
19	B 7	Wide Softkey B		29 & 30	27 & 28
20	B 8	Spare		No default set	No default set
21	B 9	Monitor Module B		25;26;27;31;32	23;24;25;29;2A
22	B 10	Spare		No default set	No default set
23	B 11 (under)	Meter Bridge B		33 – 40	2B – 32

Dual Controls / Split Consoles

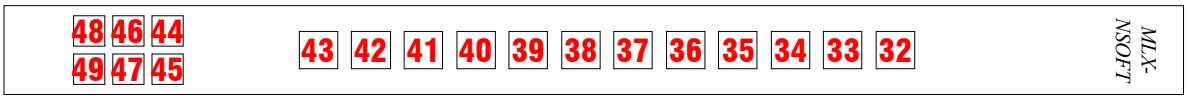
The default **Device Number** map above has been designed to support split consoles operating in a "Dual Control" mode. However, as of *Mosaic* v2.1, replication of commands between modules is not current supported. This feature is planned for future implementation.

In a Dual Control environment, the *Mosaic* PSU would connect to the two surface frames via the "Surface A" and "Surface B" connectors. Up to 16 faders could be supported on each surface, with mirrored **Monitor Module**, **Wide Softkey** and **Meter Bridges** in each.

Bus Numbers



The **MLX-NSOFT** module can also be mounted horizontally in the **Wide Meter Bridge Button Riser**. In this case the bus addresses do not change, but if the small Softkeys are on the left, the bus numbers run from right to left. There is nothing to stop the user from mounting the **MLX-NSOFT** module the other way, with the small softkey panel on the right hand side.



5 Operation

At first glance, your **Logitek** *Mosaic* may appear a little daunting. But if you've had experience with broadcast consoles before, you'll soon be at home, finding your way around quite easily.

Logitek Electronic Systems has been manufacturing broadcast consoles for decades, so we understand how to make control surfaces that are both powerful and straightforward. During the design of the *Mosaic*, customers and operators provided feedback that helped shape the final product. So we're confident you'll find the *Mosaic* a joy to use on-air.

As much of the *Mosaic* is user-programmable, the specifics of how you use softkey functions will depend on your existing configuration. Following is a look at each of the modules, and how the standard functions are used.

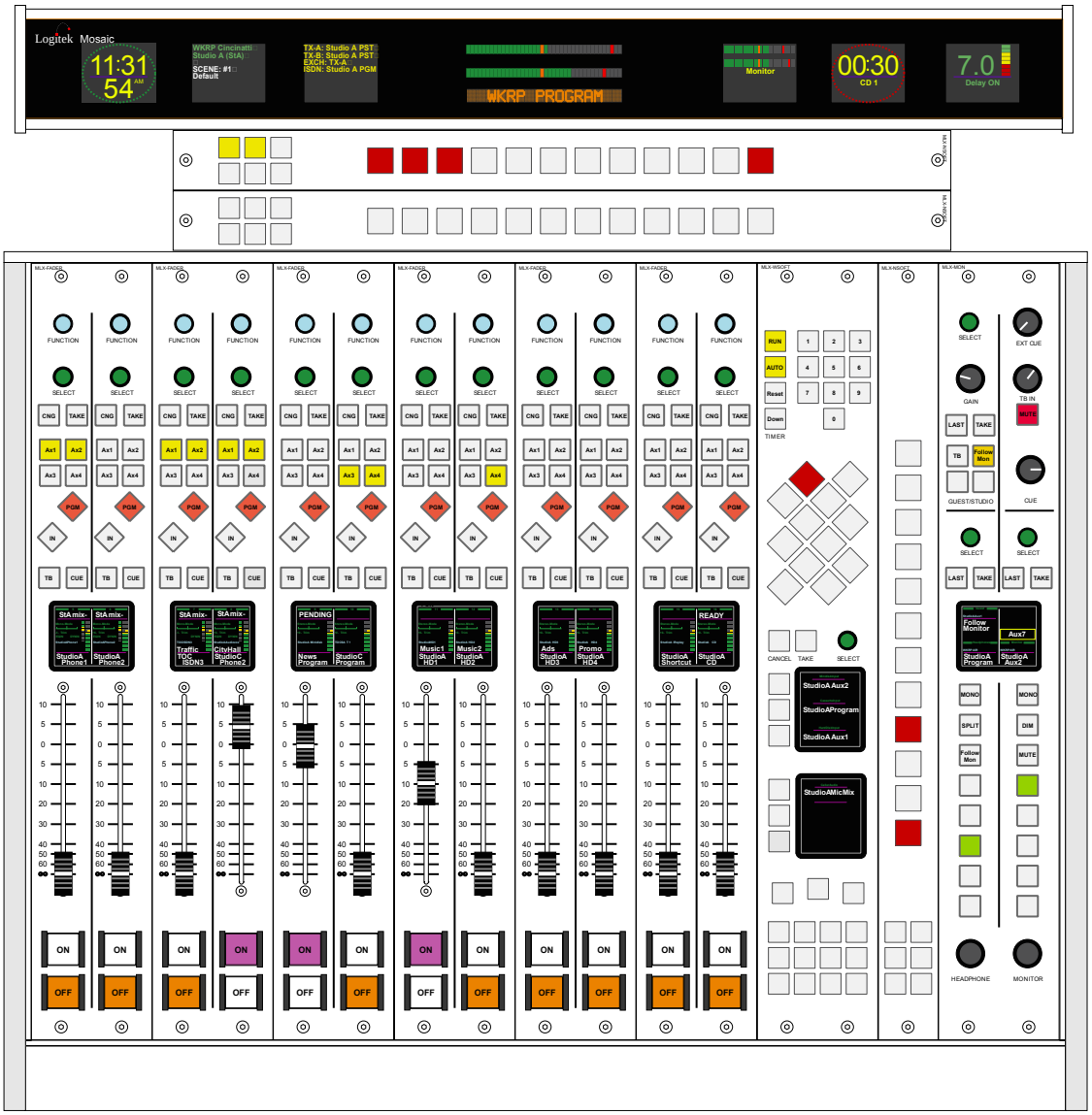
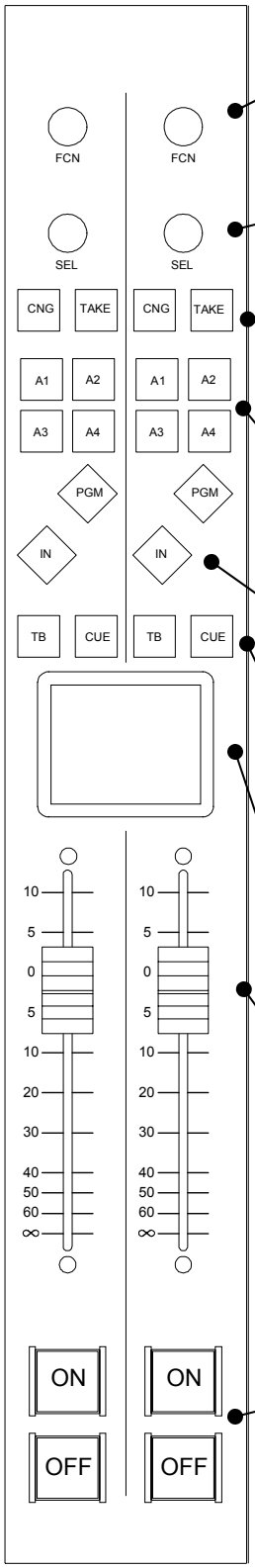


Figure 9 - Mosaic 12 fader, Wide Softkey, Narrow Softkey, Monitor & Wide Bridge Button Riser

Mosaic Fader Modules

MLX-FADER (Fader Module) – International (non-UK) Layout



Use the **FCN** (function) wheel to select the various input functions, such as extra Aux busses, mode, pan, trim, EQ, dynamics and Input selection. See the *Mosaic* screens section for details on each function.

Use the **SEL** wheel to change the input selection. If you press the **CNG** button first, or make a selection with the **FCN** wheel, the **SEL** wheel will cycle through the options for that function.

The **CNG** button provides access to the function selections, shown on the screen and will automatically illuminate when a change is in progress via the function/select wheels. Pressing the **CNG** button while it is active will cancel any changes in progress. The **TAKE** button accepts an input change to the fader and provides access to the extra menus for EQ and Dynamics.

Pressing **A1, A2, A3** or **A4** will assign/deassign the fader to that AUX bus.

Pressing **PGM** will assign/deassign the fader to the main Program bus.
Pressing **IN** will toggle the fader source between the last two used inputs. This button can also be configured to select a default input for that fader.

If the source has a return mix-minus, pressing **TB** sends the announcer mic to that source. Press the button momentarily to lock on, or hold it down for push to talk. Press the **CUE** button to hear the input on the internal cue (PFL) bus. Press again to turn **CUE** off for that fader. The cue bus may be pre or post-fader depending on your Engine and Input configuration. "Click down" Cue @ Infinity can be enabled in your **Engine** configuration to automatically select cue when the fader is all the way down.

See the following page for information on the *Mosaic* fader screen.

Moving the **FADER** up or down will increase or decrease respectively the level of the assigned source. Fader range is from infinity to +10dB.

Each fader has illuminated **OFF** and **ON** push buttons for that channel. These are used to put sources to air, in conjunction with the **PGM** and **AUX** mix busses. Both the **OFF** and **ON** buttons can have GPI remote control of sources, if configured in your **Audio Engine**.
In some cases, the operation of AUX busses may be configured to be independent of the **ON**/**OFF** switch and/or the **Fader** gain setting.
The color of the Mosaic **ON**/**OFF** buttons is software configurable, to allow for input designation, state change, or other effects.
In *Mosaic* v2, the ON / OFF buttons can be configured to swap positions.

MLX-FADER (Fader Module) – Screens

The **Fader Module** has an LCD color screen shared between two faders. Illustrated below is the section for a single fader. The *Mosaic* is also supplied with *vMosaic*, a software tool which allows the fader screen to be replicated onto a PC screen for larger display.

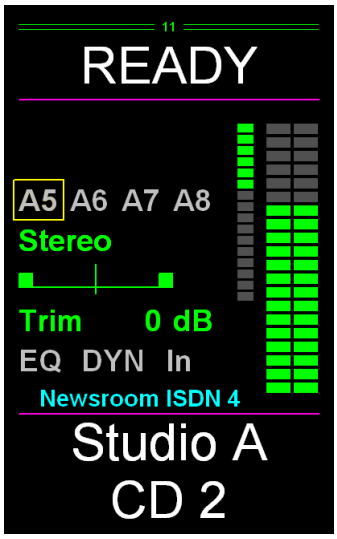


Figure 10 - Function Screen

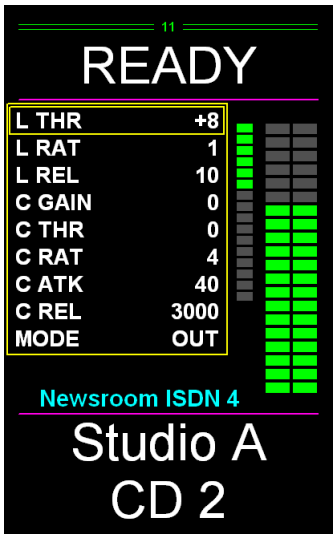


Figure 11 - Dynamics Screen

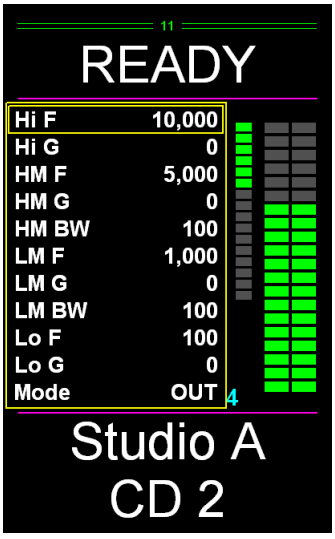


Figure 12 - EQ Screen

Fader Number

Faders are numbered from left to right starting at `01`.

Alias / Label

An **Alias** can be assigned to a source device and will be displayed on any fader that has that source as an input. A **Label** can be assigned to a specific fader or source. Both can only be a maximum of 8 characters and are displayed at the top section of the **Fader Screen**.

➥ *See the CommandBuilder manual for more information on Aliases and Labels.*

Input Meter

When a **SharcAttack** DSP card is fitted to the **Audio Engine** and is allocated to the *Mosaic* surface, an input meter is provided for each fader. By default this meter is pre-fader. Using recent SA-DSP firmware (March 2005 and later), this meter can be changed to post-fader by turning on `BUS20` for that fader. This setting can be set in the **Init Trigger** or changed as required in other **Triggers**.

Gain Reduction Meter

When a **SharcAttack** DSP card is fitted to the **Audio Engine** and is allocated to the *Mosaic* surface, a gain reduction meter is provided for each fader. This meter only appears when **Dynamics** is turned on for that fader, and shows the amount of gain reduction being applied by the compressor and limiter.

A5, A6, A7, A8

A5 to **A8** are additional AUX mix busses. These may not be available, depending on your **Audio Engine** configuration. To assign or de-assign a fader to AUX5-8, use the **FCN** wheel to select the appropriate mix bus, and then the **SEL** wheel to toggle the assignment on and off.

Mode

Use the **FCN** wheel to highlight the input mode. Then use the **SEL** wheel to move between the options of; **MONO, PHASE, LL, RR, Lx** and **xR**. The mode is changed as you make the selection. Press the **TAKE** button to accept and exit the menu. This function may not be enabled on certain inputs, depending on your **Audio Engine** configuration.

Pan

After highlighting the **PAN** function, use the **SEL** wheel to move the balance left or right by winding the wheel anticlockwise or clockwise. The source is panned as you turn the wheel. Press the **TAKE** button to accept and exit the menu. This function may not be enabled on certain inputs, depending on your **Audio Engine** configuration

Trim

After highlighting the **TRIM** function, use the **SEL** wheel to move the **TRIM** between **-10 dB** and **+10 dB** by turning the wheel anticlockwise or clockwise. The trim level is adjusted as you turn the wheel. Press the **TAKE** button to accept and exit the menu. This function is enabled on all inputs.

EQ

To edit the EQ settings for an input, use the **FCN** wheel to select the **EQ** function. Use the **SEL** wheel to toggle between EQ in and out. Press the **TAKE** button to bring up the EQ settings menu. Use the **FCN** wheel to select a parameter, and then the **SEL** wheel to adjust. The parameters are:

Hi F	High Frequency	4,000	to	20,000	Hz
Hi G	High Gain	-20	to	+20	dB
HM F	High-mid Frequency	1,000	to	20,000	Hz
HM G	High-mid Gain	-20	to	+20	dB
HM BW	High-mid Bandwidth	10	to	4,000	Hz
LM F	Low-mid Frequency	30	to	8,000	Hz
LM G	Low-mid Gain	-20	to	+20	dB
LM BW	Low-mid Bandwidth	10	to	4,000	Hz
Lo F	Low frequency	30	to	1,000	Hz
Lo G	Low Gain	-20	to	+20	dB
Mode	In or Out				

Press the **TAKE** button again to exit the menu.

DYN

To edit the dynamics (limiter and compressor) settings for an input, use the **FCN** wheel to select the **DYN** function. Use the **SEL** wheel to toggle between dynamics in and out. Press the **TAKE** button to bring up the dynamics settings menu. Use the **FCN** wheel to select a parameter, and then the **SEL** wheel to adjust. The parameters are:

L THR	Limiter Threshold	-20	to	+20	dB
L RAT	Limiter Ratio	1	to	40	
L REL	Limiter Release Time	10	to	1000	mSec
C GAIN	Compressor Gain	0	to	21	dB
C THR	Compressor Threshold	-40	to	0	dB
C RAT	Compressor Ratio	1	to	40	
C ATK	Comp. Attack Time	5	to	68	mSec
C REL	Comp. Release Time	100	to	6000	mSec
Mode	In or Out				

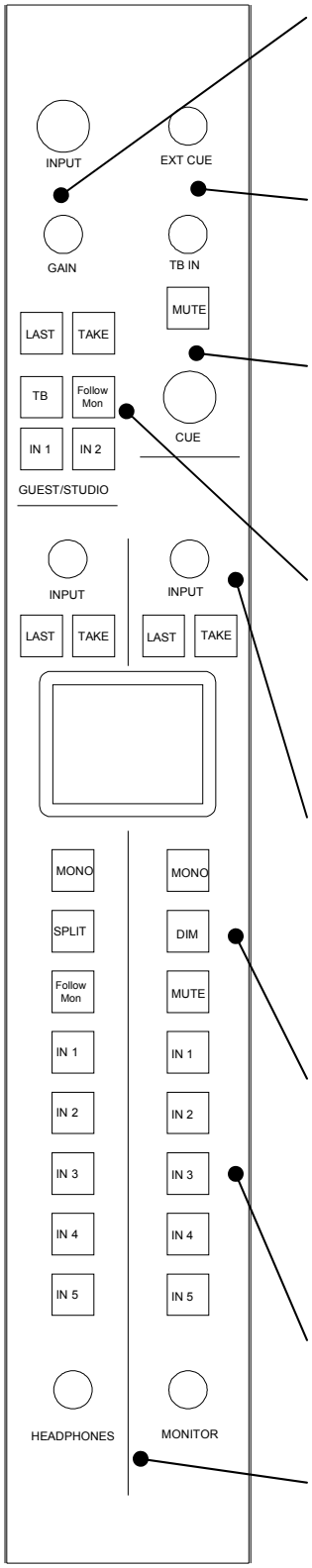
Press the **TAKE** button again to exit the menu.

IN

Use the **IN** function to select other sources that have been permitted for that fader. If only one source has been allowed for a fader, then no list will be available. Use the **FCN** wheel to select the **IN** function, then the **SEL** wheel to scroll through the list to find the source that you wish to route to that fader. Press the **TAKE** button to accept the change. Press the **CNG** button to cancel the change.

Mosaic Control Modules

MLX-MON (Monitor Module)



Use the **INPUT** wheel to select the source for the Guest Headphones/Studio send. Use the **GAIN** knob to increase (clockwise) or decrease (anticlockwise) the level to the Guest Headphone/Studio.

Use the **EXT CUE** knob to increase (clockwise) or decrease (anticlockwise) the level of the **External Cue** source to the **Cue** bus. Use the **TB IN** knob to increase (clockwise) or decrease (anticlockwise) the level of the Talkback Return being sent to the cue/headphones/monitor channels.

Press the **MUTE** button to mute **Talkback Return**. Pressing **MUTE** a second time will unmute the **Talkback Return**.
Use the **CUE** knob to increase (clockwise) or decrease (anticlockwise) the level going to the *Mosaic's* Cue speaker, and split-cue to headphones.

Press the **LAST** button to toggle between the current source and the last-used source. The last source is displayed above the current source.
Use the **TAKE** button to accept a change when selecting a source.
Use the **TB** toggle button to enable **Talkback Return** to the Guest/Studio send. Turning on **Follow Mon** function will set the Guest/Studio source to follow changes to the Monitor. The **IN1** and **IN2** buttons are programmed with "hotkey" sources, such as the **PGM** bus or off-air.

Use the **INPUT** wheel to select the source for the Monitor or Announcer Headphones. Press the **LAST** button, to toggle between the current source and the last-used source. Use the **TAKE** button to accept a change when selecting a source.

Press the **MONO** button to put the Monitor or Headphones into a mono mix. The **SPLIT** button for the Headphones will enable the Split Cue mode. When a fader is on Cue, the headphone source mixes to the left ear, and the Cue bus is sent to the right ear. Turning on **Follow Mon** function will set the Headphones source to follow changes to the Monitor. Pressing the **DIM** button will turn on the Monitor Dim. Pressing the **MUTE** button will mute the send to the Monitor. **DIM** and **MUTE** are independent of other monitor muting or dim, activated by mic mute or talkback dim.

The IN1 to IN5 buttons are programmed with "hotkey" sources, such as the **PGM** bus, off-air receiver, post-delay return, etc. These are programmed in CommandBuilder, and allow direct access to commonly used sources.

Turn the **HEADPHONES** or **MONITOR** gain knobs to increase (clockwise) or decrease (anticlockwise) the level going to the Headphones or Monitor sends.

MLX-MON (Monitor Module) – Screen

The **Monitor Module** has an LCD color screen which displays sources for the Guest/Studio, Headphones and Monitor sends. Pictured below is the screen showing various sources.

Figure 13 - MLX-34 Screen

For each input, the following information is displayed.

Current Source

This is displayed in large white text, either 8 or 16 characters. In 16-character mode, the display is across two lines (this requires a 16-character version of the **Audio Engine**).

Last Source

The last used input is displayed in small, light-blue text above the current input. The **Last** button is used to toggle between two sources. A series of dashes indicates there is no last source.

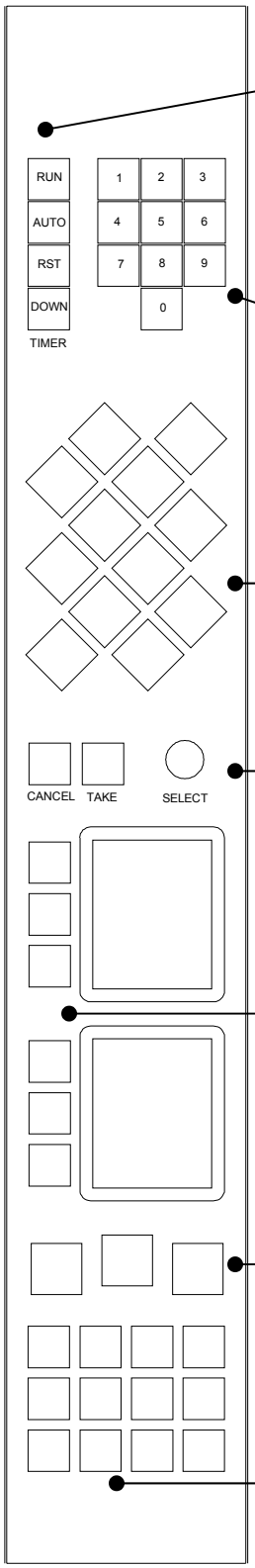
Gain Position

The Headphones and Monitor sections of the screen contain a small bar which indicates the gain to those sends. The Guest/Studio send has a gain pot rather than an encoder, and therefore no screen display is required. In addition, gain to the guest headphones is more often set by a remote control to the headphone amplifier itself.

Source List

When the **Input** wheel is moved, a box will appear to display the source list. Move the wheel to scroll through the list, and use the **Take** button to select a source input.

MLX-WSOFT (Wide Softkey Module)



These buttons control the timer display on the **Meter Bridge**.
RUN is used to toggle the timer running.
AUTO mode will reset the timer each time an input is turned on (where that input is not set to ***Timer Disable*** in *AEConfig*).
RST will take the counter back to zero.
DOWN will enable the number keypad to enter a countdown time.

When the timer control is set to **DOWN** mode, use the numeric keypad to enter a countdown time. To enter a time, the timer must not be running, and must be in **DOWN** mode. Use the **RST** key to clear unwanted time entries.

The 12 diamond buttons are programmable in *CommandBuilder*. Their use will depend on your station's requirements and setup. A common use for these buttons is to set console "scene" layout hotkeys. They may also be used to setup various console default settings. The lamps in the buttons support 16 brightness levels.

The **CANCEL** and **TAKE** buttons, along with the **SELECT** wheel, are used to make menu or route choices in conjunction with the two screens.

The two screens and six buttons are user programmable. A common use is to setup up to six "route select" functions for making record selections or feeding destination devices. In this case, each of the six buttons will bring up a source selection list for that device. Use the **SELECT** wheel to make a selection, and either **TAKE** to accept the source, or **CANCEL** to exit the menu. Examples of the menu display are shown on the following page.

These 3 Softkeys are programmable through *CommandBuilder*. Possible uses include announcer mic mute, post-delay monitoring swap, or other control. The lamps in the buttons support 16 brightness levels.

These 12 Softkeys are programmable through *CommandBuilder*. A common usage is as intercom buttons. The lamps in the buttons support 16 brightness levels.

➥ ***Refer to the CommandBuilder manual for information on programming functions.***

MLX-WSOFT (Wide Softkey Module) – Screens

The **Wide Softkey Module** has two LCD color screens, which are used to display user-defined text. Pictured below are the screens showing the **Route Select** function, which is programmed with the *CommandBuilder* scripting application.

Figure 14 - Route Select normal

Pictured are the screens showing the normal operation of the **Route Select** mode.

The text next to each button shows the currently routed source for that particular destination.

It is possible to use only one screen for **Route Selections**, and another for showing other text or menu selections.

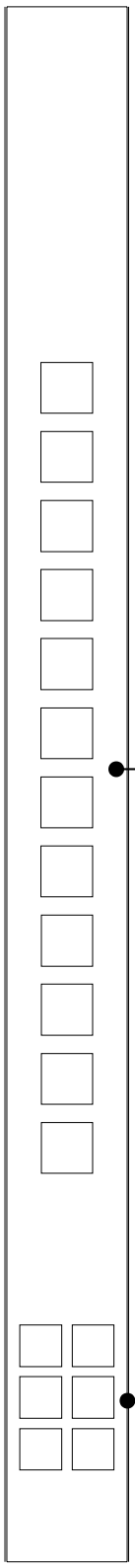
Figure 15 - Route Select choice list

To change a **Route Select**, press the button for the destination you wish to change. The lamp will light, and a list of sources will be displayed on the top screen. Use the **SELECT** wheel to make a selection, and **TAKE** to accept the choice. Use **CANCEL** to exit the menu without making a change.

When a route is made, the source name will be displayed next to the button.

To use the **Route Select** function, you will need to setup the appropriate outputs and allowed sources in *AEConfig*. You will then need **Route Select Triggers** programmed in *CommandBuilder*. The *CommandBuilder* manual includes examples of how to write these **Triggers**.

MLX-NSOFT (Narrow Softkey Module)



This module is totally configurable and has no default operation. It is programmed using **Triggers** in *CommandBuilder*. Refer to the *CommandBuilder* manual for more information on programming **Triggers** for these buttons.

These 12 keys are programmable through *CommandBuilder*. Possible uses include delay control (on, off, dump), remote record start/stop & tally, quick record, and other miscellaneous control functions. The lamps in the buttons support 16 brightness levels.

These 6 Softkeys are programmable through *CommandBuilder*. Possible uses include additional intercom buttons (eg for outside sources, orderwire lines, etc), or to show status information from external GPIs (eg program fail). The lamps in the buttons support 16 brightness levels.

6 Maintenance

The *Mosaic* uses multi-layer boards with surface mount technology. As such, the majority of the console is not user-serviceable. However, there are some basic tasks that can be performed by suitably qualified technical personnel.

Warranty

Logitek Electronic Systems will honor the warranty of the system when conducting field maintenance, provided:

- Repairs or updates only relate to recommended and documented procedures
- Care is taken and procedures are followed
- Repairs are conducted by suitably trained or experienced service personnel

If you do not feel comfortable performing maintenance or repairs, please do not proceed. If you would like advice prior to attempting a repair, please contact **Logitek Electronic Systems** or your reseller.

Firmware Updates

Each module strip has a firmware chip that is field upgradeable. **Logitek Electronic Systems** or your value-added reseller may from time-to-time supply firmware updates to add new features or fix bugs. A list of firmware versions is contained in Appendix A.

Each module type has specific firmware that only runs on that module. When fitting updated firmware ROMs, take care to use the correct chip for that module. Firmware chips are labeled with the module code, version and date.

A PLCC extractor tool is recommended for removing ROMs. Due to the physical layout of the *Mosaic* modules, you may only be able to extract the ROM from one side at a time (depending on the size/profile of the extractor tool). Take care to not bend the pins of the chip when removing it.

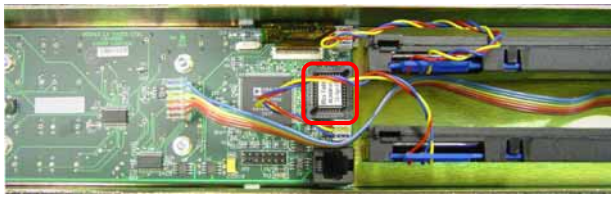


Figure 17 - Fader Module underside

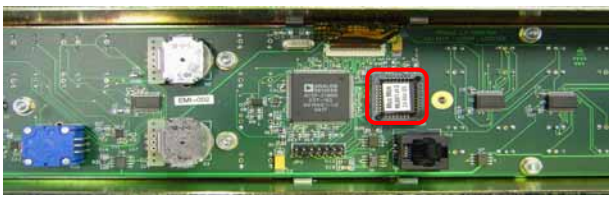


Figure 16 - Wide Softkey Module underside

Figure 18 - Narrow Softkey Module underside

Figure 19 - Monitor Module underside

Tools Required

- Hex/Allen Key –1/16" and 3/32" (As of Mid May 2005 a tool is provided with each surface)
- PLCC Extractor tool

Procedure

It is not essential that the *Mosaic* be completely powered off during a ROM upgrade, however, the individual module should be disconnected before removing the chip.

1. Remove the two or four hex screws from the required module.
2. Carefully remove the module from the frame.
3. Disconnect the COM cable from the RJ11 connector.
4. Use the PLCC extractor to carefully remove the existing ROM chip. Depending on the extractor used, you may only be able to use one side of the tool – if so, exercise caution so the pins are not bent.
5. Insert the new ROM chip by lining up the notch on the top-left of the chip and gently pressing it in.
6. Reconnect the module COM cable.
7. Replace the module in the frame, and screw it back in.

> ⚠ Anti-static precautions should be taken when replacing firmware chips.
>
> In addition, care should be taken with the module components to ensure no damage is done.

In addition to the module strips, the Power Supply Unit and Meter Bridge also contain a ROM chip. The replacement procedure is the same, except for the panel removal.

- The **Power Supply Unit** ROM is accessed by removing the top lid of the box. To prevent damage and because this unit contains live mains, disconnect from mains before removing the lid.
- The **Meter Bridge** ROM is accessed by removing the rear panel of the bridge. Take care not to damage the screws when removing this panel.

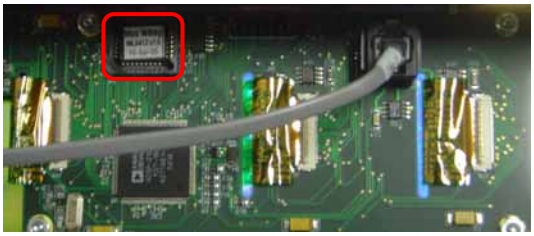


Figure 21 - Meter Bridge inside

Figure 20 - PSU inside

Component Replacement

The *Mosaic* spares kit contains commonly used physical components, including faders and switches, which can be replaced by station technicians.

Fader Replacement

The *Mosaic* uses a Penny & Giles digital fader:

Model No PFG8110/D/U----/A
Spec No D468111

No audio is carried through the fader, just control signals. The fader can be easily replaced with a spare from the spares kit, or an electronics supplier.

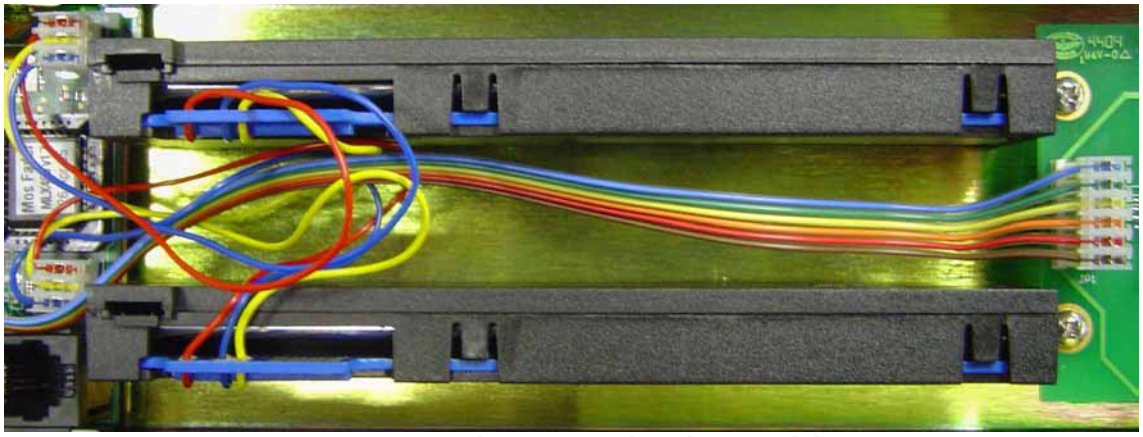


Figure 22 - Faders from underside of module

To replace a fader:

1. Remove the four hex screws from the required module.
2. Carefully remove the module from the frame.
3. Disconnect the fader from the main board.
4. Remove the slider cap.
5. Remove the two hex screws that mount the fader to the module.
6. Fit the replacement fader to the module using the two hew screws.
7. Replace the slider cap.
8. Reconnect the fader connector, ensuring the same polarity as the other fader on the module.
9. Replace the module in the frame, and screw it back in.

Module swap-out

If you need to swap a module with an on-site spare, you can simply unscrew the module, disconnect it, connect the replacement and screw it in. Modules are fully hot-swappable – they will refresh their status shortly after powering up.

Softkey Button LED Repair

The small *Mosaic* buttons used for bus assignments and Softkeys contain an LED which can sometimes be subject to movement by the button shell. In some cases, the LED may become dislodged from the PCB below.

It is possible to conduct field repairs to re-solder the LEDs to the PCB. However, this requires removing the knob caps, screen connectors and boards. This procedure can be delicate and time consuming. Please contact **Logitek Electronic Systems** or your reseller for advice before conducting this procedure. In many cases it may be easier to arrange replacement modules or boards rather than attempt a field repair.

More Assistance

If you would like more assistance with maintenance and service, please contact **Logitek Electronic Systems** or your reseller.

You can also post questions and review other users' experiences at the **Logitek** support forum. See www.logitekaudio.com and follow the links to Tech Support Forum.

Appendix A Release Notes

What's New

New Features in Mosaic v2.0

- **Fader On/Off** button function can be reversed so ON button is at bottom.
- **Fader On/Off** RGB lamp colors improved by turning off LEDs when color value is zero.
- **Fader On/Off** lamps now support three flash rates – slow, medium & fast.
- **Fader Bus Assignments** can now be locked individually to prevent accidental change.
- **Fader PGM Lock** from *AEConfig* is now honored.
- **Fader** levels stabilized to prevent *Supervisor* logging continuous level changes.
- **Fader IN** buttons can now be assigned default routes.
- **Fader Aux** button lamps are now dim when channel is off, unless independent bus switching is in use.
- **Meter Bridge** feature screen locations are now configurable.
- **Meter Bridge** fixes for 16 Character mode on **Timer** auto-reset.
- **Meter Bridge Timer**, **Clock** & **Delay** locations now configurable.
- **Meter Bridge** now supports 2 x **Timers** with small & large mode.
- **Meter Bridge** now supports 6 x **Horizontal LCD Meters** for showing **AUX** / **CUE** bus level.
- **Meter Bridge** improvements and bug fixes to seconds display on large **Clock** & **Timer**.
- **Meter Bridge Delay** display now clears after an Audio Engine reset (where delay is emptied).
- **Monitor Hotkey** buttons can now be assigned default routes and do not require Triggers.
- **Monitor LAST** buttons can now be assigned default routes.
- **Monitor Follow Mon** status now sent to Supervisor as BUS15.
- **Monitor Fader** levels stabilized to prevent Supervisor logging continuous level changes.
- **Monitor** module fixes for 16 character mode.
- **Narrow Softkey** module now supports the number of flashes command.
- **PSU COM Port** to **Device Number Map** is now configurable.
- **PSU COM Port Map** and Bridge feature locations are now saved in non-volatile memory.
- **PSU** module bug fixes.
- **PSU** module increased capacity for device names and tick marks.
- **Wide Softkey** module now supports the number of flashes command.
- **Wide Softkey Timer** button controls are now sent to *Supervisor*.

The *Mosaic* v2.x firmware also includes many minor bug fixes and improvements to the way text is displayed on screens. As such, the 2.x update is highly recommended for any 1.x users.

Upgrade Strategies

Upgrading from Mosaic v1.x to v2.x

Mosaic v2.x firmware is designed to retain compatibility with existing v1.x systems. As such, no critical issues are expected in doing a straight firmware upgrade from v1.x to v2.x.

Please observe the following considerations, which may affect your upgrade:

- All modules should be upgraded to v2.x – including **PSU** and **Meter Bridge**.
- The **Meter Bridge** screen locations are now programmable (see Appendix E for protocol commands). The default in v2.x firmware is to show these screens in the same location as their positions in v1.x firmware.
- The RGB color command format for the **Fader On/Off** lamps has changed to add support for a flashing lamp. As such, any `ASM` or `MOSAIC COLOR` commands in *CommandBuilder* will need to be changed. If updating `ASM` commands, see Appendix E. For a new version of *CommandBuilder* with the new `B1` command format, please contact **Logitek Electronic Systems** or your reseller.
- The **COM Port** to **Device Number** map is now configurable. See page 18 for a list of default **Device Numbers**.

Current Versions

Following are the currently released firmware versions of the *Mosaic* surface.

Module	Date	Version	Notes
MLX-400 (Fader)	January 2005	2.11	Mosaic v2 Public Release
MLX-407 (Wide Softkey)	November 2005	2.1	Mosaic v2 Public Release
MLX-408 (Narr Softkey)	November 2005	2.1	Mosaic v2 Public Release
MLX-410 (PSU)	January 2005	2.11	Mosaic v2 Public Release
MLX-411 (Monitor)	November 2005	2.1	Mosaic v2 Public Release
MLX-412 (Bridge)	November 2005	2.1	Mosaic v2 Public Release

This table was last updated 13-Jan-2005.

🎧 TIP: Mosaic Monitor mute, Ext Cue gain, TB In gain and TB Mute require SharcAttack DSP v3.60 (June 2005) or later. On prior versions, these functions will not work correctly, and the Ext Cue gain and TB In gain will affect monitor/headphones dim amounts instead of the intended function.

🎧 TIP: Additional Mosaic AUX / CUE meters requires SharcAttack DSP v3.63 (November 2005) or later, and either AE-C6 v3.63 or AE-C2 v3.25 (November 2005) or later.

Version History

The first public release of *Mosaic* v1.x firmware was in April 2005. In November 2005, v2.x firmware was released to add new features and fix minor issues in the previous versions. The following release notes detail the additions and fixes to each module in the *Mosaic*.

MLX-400 (Fader Module)

Version	Date	Notes
1.8	May 2005	v1.x Public Release
2.0	November 2005	v2.x Beta Release Added BUS37 mode switch for IN button (OFF = last input mode / ON = default input mode) Added AE command type 61 to set default route for IN button when in default input mode Added AUX bus lockout switch using BUS38-46 (AUX1-8). When on, surface AUX is disabled Timer Reset command is now also sent to Audio Engine using AE command type 64 Fader levels are stabilized when sitting on threshold between two levels Fader module honors the PGM Lock setting from AEConfig (preventing PGM/Route/IN button)
2.1	November 2005	v2.x Public Release Added reference marker to input meter Changed B1 intensity command so that RGB values are first 3 x 4 bits, with last 4 bits flash rate Added support for flash rate of ON/OFF buttons – slow, medium or fast Improved display of colors so that RGB LEDs turn off when color value is zero (intensifies others) Added AE command to allow ON/OFF button function to be reversed (ON button at bottom) Change buttons will now automatically timeout after 30 seconds Aux buttons now dim when main button is off, unless independent aux switching is active Fixed issue with ON/OFF button color command lamps could flash unexpectedly
2.11	January 2005	Fixed bug where the right hand CNG button could cancel after 1 second instead of 60

MLX-407 (Wide Softkey Module)

Version	Date	Notes
1.6	April 2005	v1.x Public Release
2.0	November 2005	v2.x Beta Release Added support for specified number of flashes in B1 flash command Timer control buttons are now also sent to Supervisor as AE commands
2.1	November 2005	v2.x Public Release

MLX-408 (Narrow Softkey Module)

Version	Date	Notes
1.4	March 2005	v1.x Public Release
2.0	November 2005	v2.x Beta Release Added support for specified number of flashes in B1 flash command
2.1	November 2005	v2.x Public Release Fixed issue with Intensity B1 command incorrectly turning on or flashing lamps

MLX-410 (Power Supply / Comms)

Version	Date	Notes
1.6 / 1.6b	April 2005	v1.x Public Release
2.0	November 2005	v2.x Beta Release Increased number of supported source names to 700 Increased number of supported tick marks to 2000 Fixed issue with name lookup procedure Country code now sent to all modules Independent bus switch state now sent to all modules COM port / device map can now be changed from commands sent from Supervisor Added COM port map and meter bridge feature locations to non-volatile memory
2.1	November 2005	v2.x Public Release Added support for v2.1 command set for other modules Save Fader On/Off swap mode to non-volatile memory
2.11	January 2005	Fixed bug that could cause the surface to lockup when powered on or module connected Changes to default COM Port to Device Address Map (see table on page 18

MLX-411 (Monitor Module)

Version	Date	Notes
1.3	March 2005	v1.x Public Release
2.0	November 2005	v2.x Beta Release Added BUS37 switch for LAST button (OFF = last input mode / ON = default input mode) Added AE command type 61 to set default route for IN button when in default input mode Added BUS15 switch/status for Follow Monitor mode on Headphones & Guest/Studio Fader levels are stabilized when sitting on threshold between two levels Fixed issues with Follow Monitor routing and status in 16 character mode
2.1	November 2005	v2.x Public Release

MLX-412 (Meter Bridge)

Version	Date	Notes
1.5	April 2005	v1.x Public Release
2.0	November 2005	v2.x Beta Release Added support for timer to be controlled from Supervisor with AE type 64 commands Added support for second timer Added support for small timer mode (no seconds oval) Locations for Timer, Clock, Meters and Delay time now settable with AE commands Added support for six horizontal meters on chan35-40 Improved seconds oval on clocks and timers Fixed bug in seconds oval when changing from down to up mode All 16 characters of source name are now shown in timer when in auto mode
2.1	November 2005	v2.x Public Release Restored default position of clock to screen 1 of Wide Meter Bridge Fixed problem where delay time display does not always update correctly Delay display is now erased after an Engine is reset (causing delay to be emptied) Fixed issue with timer running slow Fixes issue with components not erasing prior locations when moved to new location

Known Issues

The following issues have been reported and are under investigation.

Mosaic v1.x

Module	Issue Description	Resolution / Workaround
MLX-400 (Fader)	When the IN button is pressed, a phantom Bus On command is sent from the surface after the route is made. This may have undesirable effects on other functionality.	Upgrade to MLX-400 v1.8 or later
MLX-410 (PSU)	GPI Output #7 sticks on after a pulse (A2) command is sent.	Upgrade to MLX-410 v1.6b or later
MLX-411 (Monitor)	In 16 Character mode, the Monitor module does not update the 2nd line of the Device Name for the Headphones or Studio/Guest in Follow Mon mode.	Upgrade to MLX-411 v2.0 or later
MLX-411 (Monitor)	In 16 Character mode, the Monitor module does not perform the route for the Headphones or Studio/Guest in Follow Mon mode.	Upgrade to MLX-411 v2.0 or later
MLX-412 (Bridge)	In 16 Character mode, the Meter Bridge does not show the 2nd line of the Device Name on the Timer when auto-reset is used.	Upgrade to MLX-412 v2.0 or later
MLX-412 (Bridge)	LCD meter display right channel middle segment does not overhang	Firmware update in development

This table was updated in November 2005. There will be no further updates to *Mosaic* v1.x.

Mosaic v2.x

Module	Issue Description	Resolution / Workaround
MLX-400 (Fader)	Sending a MOSAIC COLOR B1 command to the top button (default ON button) when it is illuminated will cause it to flash when it should be steady. This affects MLX-400 v2.1 Beta versions only.	Upgrade to MLX-400 v2.1 or later
MLX-408 (NarrSoft)	Intensity B1 command causes lamps to turn on or flash in MLX-407 v2.0	Upgrade to MLX-408 v2.1 or later
MLX-412 (Bridge)	Mosaic clock display defaults to screen 2 instead of 1 in MLX-412 v2.0	Upgrade to MLX-412 v2.1 or later
MLX-412 (Bridge)	Delay display freezes during count up in MLX-412 v2.0	Upgrade to MLX-412 v2.1 or later
MLX-412 (Bridge)	Timers sometimes run slow in MLX-412 v1.x / 2.0	Upgrade to MLX-412 v2.1 or later
MLX-412 (Bridge)	LCD screens do not always boot up correctly	Resolution in progress
MLX-412 (Bridge)	LCD meter display right channel middle segment does not overhang when using default meter setting (OK when setting exact meter location)	Firmware update in development
MLX-412 (Bridge)	After issuing clear NV-RAM command, clock will not run until reset	Firmware update in development

This table was updated in January 2005.

Appendix B Specifications

Mosaic Frames

MLX-F10 (10 slot frame)

Dimensions 14.4″ W x 18.4″ D (365 mm x 467 mm)

MLX-F17 (17 slot frame)

Dimensions 24.2″ W x 18.4″ D (616 mm x 467 mm)

MLX-F24 (24 slot frame)

Dimensions 34.0″ W x 18.4″ D (864 mm x 467 mm)

MLX-F32 (32 slot frame)

Dimensions 45.2″ W x 18.4″ D (1148 mm x 467 mm)

Mosaic Modules

Fader Module

Width 2 slots
No of faders 2
Features The Fader Module provides the following features:

- RGB-illuminated on/off and control start/stop buttons
- Penny & Giles® conductive plastic faders
- Dedicated controls for six bus assigns, default input selection and talkback insertion
- LCD screen and two rotary controls allow access to the input router control, input mode control, input trim level, pan/balance control, aux bus assigns, 4-band equalizer and dynamics processor
- Color LCD screen also displays input meters and the 8 or 16-character source name
- Available in standard (International) or U.K. configurations

Monitor Module

Width 2 slots
Features The Monitor Module provides the following features:

- Contains controls for main monitor, cue speaker, operator headphone, guest headphone and talkback level
- Monitor and Operator Headphones have 5 input select hotkey buttons
- Guest has 2 input select hotkey buttons
- Guest and Operator Headphones can be set to follow the monitor source selection
- All three sections have direct access to the input router
- The full color LCD screen displays the 8 or 16-character source names
- Available in standard (International) or U.K. configurations

Narrow Softkey Module

Width 1 slot

Features The Narrow Softkey Module provides the following features:

- 12 programmable buttons with red illumination
- 6 programmable buttons with yellow illumination
- Solid illumination or three different flash speeds
- Each programmable button can be set to one of 16 brightness levels

Wide Softkey Module

Width 2 slots

Features The Wide Softkey Module provides the following features:

- 12 programmable buttons with red backlighting
- 21 programmable buttons with yellow backlighting
- Solid illumination or three different flash speeds
- Each programmable button can be set to one of 16 brightness levels
- Timer controls
- Two full color LCD screens that display record router information as well as user text

Meter Bridges

Narrow Meter Bridge

Dimensions 13″ W x 3.8″ H x 2.6″ D (330 mm x 97 mm x 66 mm)

Features The Narrow Meter Bridge provides the following features:

- 40-LED stereo bar graph meter, tri-color LEDs simultaneously showing peak and VU levels
- 16 character LED display shows meter source or programmable text
- Two full color backlit LCD screens can be user programmed to display auxiliary bus meters, clock, up/down timer, talk delay operation, user text or user graphics

Wide Meter Bridge

Dimensions 23.7″ W x 3.8″ H x 2.6″ D (602 mm x 97 mm x 66 mm)

Features The Wide Meter Bridge provides the following features:

- 40-LED stereo bar graph meter, tri-color LEDs simultaneously showing peak and VU levels
- 16 character LED display shows meter source or programmable text
- Six full color backlit LCD screens can be user programmed to display auxiliary bus meters, clock, up/down timer, talk delay operation, user text or user graphics

Mosaic Power Supply

Dimensions 19″ W x 3.5″ H x 7″ D (483 mm x 89 mm x 178 mm)
Voltage 110 - 230 VAC, automatically selected
Frequency 50/60 Hz
Consumption 65 W
Connections 2 ports for connection to surface, 2 ports for GPI inputs and outputs, 1 RJ45 for Audio Engine
Interfaces Includes 25 switch closure inputs and 25 relay outputs

Appendix C Pinouts

To Audio Engine

Connection to the **Audio Engine** is via a RJ45 connector mounted on the rear of the **Power Supply Unit**. When connecting to an AE-C6 Controller Card, straight through CAT5 cabling can be used.

Pin	Connection
1	Cue -
2	Cue +
3	RS485 RX-
4	RS485 TX-
5	RS485 TX+
6	RS485 RX+
7	No connect
8	Ground

GPIs

GPI connections are on 25-pair Centronics Telco cables. We recommend terminating GPIs to Krone style (or similar) termination blocks.

GPI Inputs

Pin	Connection	Pin	Connection
1	GPI In 1	**26**	Ground
2	GPI In 2	**27**	Ground
3	GPI In 3	**28**	Ground
4	GPI In 4	**29**	Ground
5	GPI In 5	**30**	Ground
6	GPI In 6	**31**	Ground
7	GPI In 7	**32**	Ground
8	GPI In 8	**33**	Ground
9	GPI In 9	**34**	Ground
10	GPI In 10	**35**	Ground
11	GPI In 11	**36**	Ground
12	GPI In 12	**37**	Ground
13	GPI In 13	**38**	Ground
14	GPI In 14	**39**	Ground
15	GPI In 15	**40**	Ground
16	GPI In 16	**41**	Ground
17	GPI In 17	**42**	Ground
18	GPI In 18	**43**	Ground
19	GPI In 19	**44**	Ground
20	GPI In 20	**45**	Ground
21	GPI In 21	**46**	Ground
22	GPI In 22	**47**	Ground
23	GPI In 23	**48**	Ground
24	GPI In 24	**49**	Ground
25	GPI In 25	**50**	Ground

GPI Outputs

Pin	Connection	Pin	Connection
1	GPI Out 1	**26**	GPI Out 1
2	GPI Out 2	**27**	GPI Out 2
3	GPI Out 3	**28**	GPI Out 3
4	GPI Out 4	**29**	GPI Out 4
5	GPI Out 5	**30**	GPI Out 5
6	GPI Out 6	**31**	GPI Out 6
7	GPI Out 7	**32**	GPI Out 7
8	GPI Out 8	**33**	GPI Out 8
9	GPI Out 9	**34**	GPI Out 9
10	GPI Out 10	**35**	GPI Out 10
11	GPI Out 11	**36**	GPI Out 11
12	GPI Out 12	**37**	GPI Out 12
13	GPI Out 13	**38**	GPI Out 13
14	GPI Out 14	**39**	GPI Out 14
15	GPI Out 15	**40**	GPI Out 15
16	GPI Out 16	**41**	GPI Out 16
17	GPI Out 17	**42**	GPI Out 17
18	GPI Out 18	**43**	GPI Out 18
19	GPI Out 19	**44**	GPI Out 19
20	GPI Out 20	**45**	GPI Out 20
21	GPI Out 21	**46**	GPI Out 21
22	GPI Out 22	**47**	GPI Out 22
23	GPI Out 23	**48**	GPI Out 23
24	GPI Out 24	**49**	GPI Out 24
25	GPI Out 25	**50**	GPI Out 25

To Surface

Connection from *Mosaic* PSU to Surface is via one or two 25-pair cables. Generally, there is no need to make your own cables. However, the pinouts are shown for reference.

Surface A

Pin	Connection	Pin	Connection
1	TX 1	**26**	+24V
2	RX 1	**27**	Ground
3	TX 2	**28**	+24V
4	RX 2	**29**	Ground
5	TX 3	**30**	+24V
6	RX 3	**31**	Ground
7	TX 4	**32**	+24V
8	RX 4	**33**	Ground
9	TX 5	**34**	+24V
10	RX 5	**35**	Ground
11	TX 6	**36**	+24V
12	RX 6	**37**	Ground
13	TX 7	**38**	+24V
14	RX 7	**39**	Ground
15	TX 8	**40**	+24V
16	RX 8	**41**	Ground
17	TX 9	**42**	+24V
18	RX 9	**43**	Ground
19	TX 10	**44**	+24V
20	RX 10	**45**	Ground
21	TX 11	**46**	+24V
22	RX 11	**47**	Ground
23	TX 12	**48**	+24V
24	RX 12	**49**	Ground
25	Cue Spkr -	**50**	Cue Spkr +

Surface B

Pin	Connection	Pin	Connection
1	TX 13	**26**	+24V
2	RX 13	**27**	Ground
3	TX 14	**28**	+24V
4	RX 14	**29**	Ground
5	TX 15	**30**	+24V
6	RX 15	**31**	Ground
7	TX 16	**32**	+24V
8	RX 16	**33**	Ground
9	TX 17	**34**	+24V
10	RX 17	**35**	Ground
11	TX 18	**36**	+24V
12	RX 18	**37**	Ground
13	TX 19	**38**	+24V
14	RX 19	**39**	Ground
15	TX 20	**40**	+24V
16	RX 20	**41**	Ground
17	TX 21	**42**	+24V
18	RX 21	**43**	Ground
19	TX 22	**44**	+24V
20	RX 22	**45**	Ground
21	TX 23	**46**	+24V
22	RX 23	**47**	Ground
23	No connect	**48**	No connect
24	No connect	**49**	No connect
25	No connect	**50**	No connect

Appendix D Spares Kit

A spares kit is available from **Logitek Electronic Systems**.

This kit contains mechanical parts that may need to be replaced in the life of a console.

Contents

The *Mosaic* spares kit contains the following:

- 1 x Cue gain pot for monitor module
- 1 x Large softkey module switch
- 1 x Fader On/Off switch
- 2 x Small fader & softkey module switch
- 1 x Mechanical encoder with detents
- 1 x Penny & Giles fader

Appendix E Additional Protocol Commands

This section documents **Logitek Protocol** commands specific to the *Mosaic* surface. These commands add additional support for functions such as meter bridge feature locations, timer controls and advanced feature sets.

The standard set of **Logitek Protocol** commands (such as channel on; channel off; input route; fader level; etc, is documented in the **Logitek Protocol Reference**.)

> ⚠ The commands and busses in this section have been added for *Mosaic* v2.x and are not supported in v1.x versions.

Mosaic Busses

These **Bus** settings supplement the standard busses available in the **Logitek** system.

Fader Devices

BUS16 Channel Off (bottom) button lamp address
BUS17 Channel On (top) button lamp address

These two **Busses** are used to address *Mosaic* **Color** or **Flash** commands to the fader ON and OFF buttons. The lamp state is not addressed by these; instead it is tied to the channel's **BUS0** state.

If the function of the OFF and ON buttons has been swapped, the above commands will still address the bottom or top button lamp respectively (the lamps are still addressed with the position bus number, irrespective of function).

BUS37 Select mode for "IN" button – OFF = last input / ON = default input
BUS38 PGM bus lock (ON = locked)
BUS39 AUX1 bus lock (ON = locked)
BUS40 AUX2 bus lock (ON = locked)
BUS41 AUX3 bus lock (ON = locked)
BUS42 AUX4 bus lock (ON = locked)
BUS43 AUX5 bus lock (ON = locked)
BUS44 AUX6 bus lock (ON = locked)
BUS45 AUX7 bus lock (ON = locked)
BUS46 AUX8 bus lock (ON = locked)

The above busses are used to set a lock on the **PGM** or **AUX** buttons on the *Mosaic*. If the bus is on, the respective **PGM** or **AUX** assignment button for that channel will not operate in the studio.

These **Busses** could be set inside a **Trigger** to prevent an operator from changing assignments on certain faders. This is useful when network/clean feed mixes must be made, and you do not wish the console operator to override or accidentally change an assignment.

Monitor Devices

BUS15 Follow Monitor mode on/off (applies to Headphones In and Studio In)
BUS16 Monitor Hotkey 1
BUS17 Monitor Hotkey 2
BUS18 Monitor Hotkey 3 (not available on Studio In)
BUS19 Monitor Hotkey 4 (not available on Studio In)
BUS20 Monitor Hotkey 5 (not available on Studio In)
BUS37 Select mode for "LAST" button – OFF = last input / ON = default input

BUS15 can be used to query or set whether the **Headphones** or **Studio (Guest)** are in **Follow Monitor** mode. This is useful inside **Triggers** to ensure routes are not made when the user has specifically select **Follow Monitor** mode.

BUS16-20 can be used to query or set the **Monitor Hotkeys**. This is useful inside **Triggers** when updating the **Hotkey** lamps based on other routes. When one bus is turned on, the others in the group will be automatically turned off by the *Mosaic* and this will be reflected in *Supervisor*.

🎧 TIP: Mosaic v2.x firmware supports the direct assignment of the Monitor Hotkey routes, without the need to use Triggers to change routes or update lamps. This arrangement is simpler and removes complex logic previously required in Triggers. These commands are detailed on the following pages.

BUS37 is used to query or set the mode of the LAST button on the *Mosaic* monitor module (for each of the Monitor In, Headphones In and Studio In devices).

Mosaic Feature Commands

The following **Feature Commands** use the `AE` (**Set Effects**) command to change the function of certain *Mosaic* features.

These commands are planned for keyword support in *CommandBuilder* in early 2006.

TIP: The following commands can be sent to the Mosaic using CommandBuilder's ASM command. See the CommandBuilder Reference Manual for more information.

To build a command, lookup each byte in order (sequence #) adjusting the values where applicable. To be a valid command, the number of bytes to follow must be correct. Where a default value is shown, this is for reference only and these byte values must still be set.

`<00>` denotes a byte in hex. All decimal values must be converted to hex.

Lamp Flash

Used to flash a lamp in Mosaic buttons. (v1.x and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<06>	Bytes to follow	
3	<B1>	Command = Flag	
4	<d#>	Device Number	Device Number of Lamp section of module
5	<b#>	Bus Number	Bus Number of Lamp (hex)
6	<06>	Type = Set Flash	
7	<dt>	Data = Flash Rate	<02> = Slow <03> = Medium <05> = Fast (do not use other values)
8	<dt>	Data = Flash Times	<00> to <FF> Number of times to flash (hex) <00> = continuous

The follow example will set a fast flash 255 times on a **Narrow Softkey** module on CHAN15:

```
02 06 B1 19 30 06 05 FF
```

TIP: Flash Times is supported only in Mosaic v2.x firmware.

Lamp Intensity

Used to set the intensity of Mosaic button lamps, without affecting lamp on/off state. (v1.x and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<06>	Bytes to follow	
3	<B1>	Command = Flag	
4	<d#>	Device Number	Device Number of Lamp section of module
5	<b#>	Bus Number	Bus Number of Lamp (hex)
6	<07>	Type = Set Color/Bright	
7	<dt>	Data = Not Used	<00> for this command
8	<dt>	Data = Intensity	<00> to <0F>

The follow example will set maximum intensity on a **Narrow Softkey** module on CHAN15:

```
02 06 B1 19 30 07 00 0F
```

Lamp Color

Used to set the color of the lamps in Mosaic Fader On and Off buttons. (structure changed in v2.1)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<06>	Bytes to follow	
3	<B1>	Command = Flag	
4	<d#>	Device Number	Device Number of Lamp section of module
5	<b#>	Bus Number	Bus Number of Lamp (hex) <10> = Lower Button <11> = Upper Button
6	<07>	Type = Set Color/Bright	
7	<dt>	Data = Red / Green	1st 4 bits = RED value (0 to F hex) 2nd 4 bits = GREEN value (0 to F hex)
8	<dt>	Data = Blue / Flash Rate	1st 4 bits = BLUE value (0 to F hex) 2nd 4 bits = FLASH rate (see below)

Flash Rate	Notes
0 = Default	Restores default lamp function (ie lamp is illuminated if that is the current fader state)
2 = Slow	On/off cycle = 1 second
3 = Medium	On/off cycle = 0.5 second
5 = Fast	On/off cycle = 0.25 second

The follow example will set the Fader 1 Off button to maximum RGB values and fast flash:

```
02 06 B1 OB 10 07 FF F3
```

TIP: This command format has changed from v1.x firmware, to support the FLASH rate. The new format has 4 bits for RGB colors (0 to F) followed by the flash rate.

TIP: The Mosaic Color command is addressed to the lower or upper button, irrespective of if the ON / OFF functions have been reversed.

TIP: This command allows the lamp that is not illuminated to flash. This is useful for EOM indicators. On reset to no flash, the lamp returns to its correct state.

Set Default Route

Used to set the default route for the IN / LAST buttons and Monitor Hotkeys. (v2.0 and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<06>	Bytes to follow	
3	<AE>	Command = Set Effect	
4	<d#>	Device Number	Device Number in hex (eg Fader number, Monitor In, Studio In, Headphones In)
5	<3E>	Type = Default Route	
6	<b#>	Bus Number	<01> = LAST / IN button <10> to <14> = Monitor Hotkeys (16-20 decimal)
7	<sh>	Source High	Source Device high byte
8	<sl>	Source Low	Source Device low byte

The follow example will set the default route for the IN button on Port 1 Fader 1 (**Device** `0B`) to **Source Device** `0100`:

```
02 06 AE 0B 3E 01 01 00
```

TIP: BUS37 must be turned ON for this device to enable the IN button to function as the default route selector. If BUS37 is OFF, the IN button will operate in "swap" mode.

The follow example will set the default route for the Monitor Hotkey 1 button on Port 1 (**Device** `24`) to **Source Device** `0100`:

```
02 06 AE 24 3E 10 01 00
```

TIP: Source Device numbers can be found in AEConfig's Input Settings page, or the Device Table of Supervisor's Engine State Vector page.

Timer Control

Used to control the Mosaic timer displays. (v2.0 and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<06> <15>	Bytes to follow Bytes to follow	<06> bytes for Timer Command <15> bytes for Timer Reset (includes ASCII text label)
3	<AE>	Command = Set Effect	
4	<d#>	Device Number	Device Number of Meter Bridge in hex (2C = Port 1 / 54 = Port 2 / 68 or 6A = Port 3)
5	<40>	Type = Timer Control	
6	<t#>	Timer Number	<01> = Timer 1 <02> = Timer 2
7	<cm>	Command Byte	See table below
8	<dt>	Data Byte / ASCII Byte 1	See table below
9-23	<dt>	ASCII Data Bytes 2-16	For Command <03> and <04>, bytes 8-23 are the 16 character device name printed inside the timer as 2 x8 character strings. For other Commands, these bytes are omitted.

Command Byte	Data Byte
<01> = Run	<00> = Stop <01> = Run
<02> = Auto Reset	<00> = Off <01> = On
<03> = Fader Reset	16 character source name (only works in Auto Mode)
<04> = Manual Reset	16 character source name (working in Auto & Manual modes)
<05> = Direction	<00> = Up <01> = Down
<06> = Keypad Digit	0 to 9 for each keypad digit – 1 command per digit press

The follow example will set Timer #1 into run mode:

```
02 06 AE 2C 40 01 01 01
```

Surface Configuration – Meter Control

Used to control the Mosaic LED and LCD meter displays. Store in Mosaic NV-RAM. (v2.0 and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<0A>	Bytes to follow	
3	<AE>	Command = Set Effect	
4	<d#>	Device Number	Device Number of Meter Bridge in hex (2C = Port 1 / 54 = Port 2 / 68 or 6A = Port 3)
5	<41>	Type = Surface Config	
6	<cm>	Command = Meter No.	<01> = PGM <02> = Monitor <03> = CUE/PFL <04> = AUX1 <05> = AUX2 <05> = AUX3 <06> = AUX4 <07> = AUX4 <08> = AUX5 (note, PGM LED meter cannot be changed in v2.1)
7	<dt>	Data Byte = Mode	<00> = Off <01> = On
8	<dt>	Data Byte = Type	<00> = LED <01> = LCD
9	<dt>	Data Byte = X Pos	<00> to <FF> = Distance from left edge of screen, in pixels (default = 0A)
10	<dt>	Data Byte = Y Pos	<00> to <FF> = Distance from top edge of screen, in pixels (default = 14)
11	<dt>	Data Byte = LCD #	<01> to <06> = LCD screen number, from left to right (default = 04)
12	<dt>	Data Byte = Offset	<00> to <FF> = Lower bar offset from top bar (in pixels)

The follow example sets the location of the Monitor meter (Meter #2) to its default location and spacing on LCD screen #4:

```
02 0A AE 2C 41 02 01 01 0A 14 04 16
```

Surface Configuration – Clock Control

Used to control the position and settings of the Mosaic time-of-day clock. (v2.0 and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<09>	Bytes to follow	
3	<AE>	Command = Set Effect	
4	<d#>	Device Number	Device Number of Meter Bridge in hex (2C = Port 1 / 54 = Port 2 / 68 or 6A = Port 3)
5	<41>	Type = Surface Config	
6	<0B>	Command = Set Clock	
7	<dt>	Data Byte = Mode	<00> = Off <01> = On (default = 01)
8	<dt>	Data Byte = Type	<00> = Big <01> = Small (default = 00)
9	<dt>	Data Byte = X Pos	<00> to <FF> = Left edge of first digit, in pixels (default = 21h / 33d)
10	<dt>	Data Byte = Y Pos	<00> to <FF> = Bottom edge of first digit, in pixels (default = 50h / 80d)
11	<dt>	Data Byte = LCD #	<01> to <06> = LCD screen number, from left to right (default = 01)

The following example will put the *Mosaic* clock in its default position on LCD screen #1:

```
02 09 AE 2C 41 0B 01 00 21 50 01
```

TIP: The Mosaic clock should be addressed to CHAN33 LINE15, and then positioned using the command above. If the clock data is sent to another line, the clock will display as a standard text clock as per Numix and Remora surfaces.

Surface Configuration – Timer Control

Used to control the position and settings of the Mosaic timers. (v2.0 and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<09>	Bytes to follow	
3	<AE>	Command = Set Effect	
4	<d#>	Device Number	Device Number of Meter Bridge in hex (2C = Port 1 / 54 = Port 2 / 68 or 6A = Port 3)
5	<41>	Type = Surface Config	
6	<cm>	Command = Timer No.	<15> = Timer 1 Control <16> = Timer 2 Control
7	<dt>	Data Byte = Mode	<00> = Off <01> = On (default = 01)
8	<dt>	Data Byte = Type	<00> = Big <01> = Small (default = 00)
9	<dt>	Data Byte = X Pos	<00> to <FF> = Left edge of first digit, in pixels (default = 21h / 33d)
10	<dt>	Data Byte = Y Pos	<00> to <FF> = Bottom edge of first digit, in pixels (default = 50h / 80d)
11	<dt>	Data Byte = LCD #	<01> to <06> = LCD screen number, from left to right (default = 05)

The following example will enable Timer #1 in big mode in its default position on LCD screen #5.

```
02 09 AE 2C 41 15 01 00 21 50 05
```

Surface Configuration – Delay Control

Used to control the position and settings of the Mosaic talk delay display. (v2.0 and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<09>	Bytes to follow	
3	<AE>	Command = Set Effect	
4	<d#>	Device Number	Device Number of Meter Bridge in hex (2C = Port 1 / 54 = Port 2 / 68 or 6A = Port 3)
5	<41>	Type = Surface Config	
6	<1F>	Command = Set Delay	
7	<dt>	Data Byte = Mode	<00> = Off <01> = On (default = 01)
8	<dt>	Data Byte = Type	<00> = Default Type
9	<dt>	Data Byte = X Pos	<00> to <FF> = Left edge of first digit, in pixels (default = 10h / 16d)
10	<dt>	Data Byte = Y Pos	<00> to <FF> = Bottom edge of first digit, in pixels (default = 18h / 24d)
11	<dt>	Data Byte = LCD #	<01> to <06> = LCD screen number, from left to right (default = 06)

The following example will enable delay display in its default position on LCD screen #6:

```
02 09 AE 2C 41 1F 01 00 10 18 06
```

TIP: The delay time display will only turn on when the Audio Engine sends delay status information from the SharcAttack card. When delay is off, or no data is received, this display will not show.

Surface Configuration – COM Port Control

Used to set the map of COM ports to device numbers. (v2.0 and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<06>	Bytes to follow	
3	<AE>	Command = Set Effect	
4	<d#>	Device Number	Lowest numbered device assigned to COM Port
5	<41>	Type = Surface Config	
6	<AA>	Command = Set COM	
7	<dt>	Data Byte = COM Port	<01> to <17> = COM Port Number in hex (1-23 decimal)
8	<dt>	Data Byte = Devices	<00> to <09> = Number of Devices on this port (1-9 decimal)

This is used where it is necessary to remap the default COM Port to device allocations.

The following example will set **Com Port 1** to use two **Device Numbers**, starting at 0B:

```
02 06 AE 0B 41 AA 01 02
```

TIP: After issuing a COM Port mapping change, it is recommended you do a power cycle reset on the Mosaic surface.

TIP: The Mosaic v2.x currently only supports one module using a device number set. You cannot mirror the same device across multiple modules/ports.

Surface Configuration – Set Global Features

Used to set Global features, such as On/Off Aussie button swap. (v2.1 and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<06>	Bytes to follow	
3	<AE>	Command = Set Effect	
4	<d#>	Device Number	Any device number on surface (suggest using Fader 1)
5	<41>	Type = Surface Config	
6	<29>	Command = Set Global	
7	<dt>	Data Byte = Feature	<00> = Set On/Off Swap (Aussie Mode)
8	<dt>	Data Byte = Setting	<00> = International Standard <01> = Alternate Standard

The following example will set the *Mosaic* **Fader On/Off** buttons into **Aussie Down-Under** mode:

```
02 06 AE 0B 41 29 00 01
```

TIP: After issuing this command, a power-cycle reset is recommended. This mode is stored in non-volatile memory, so does not need to be sent on surface reset. After the command is sent, the function changes when the buttons are next used, or on startup.

TIP: This command requires MLX-400 Fader firmware v2.1 or later.

Surface Configuration – Reset to Defaults

Used to set the Mosaic functions to their default locations. (v2.0 and later)

Seq	Byte	Description	Notes
1	<02>	Start byte	
2	<05>	Bytes to follow	
3	<AE>	Command = Set Effect	
4	<d#>	Device Number	Any device number on surface (suggest using Fader 1)
5	<41>	Type = Surface Config	
6	<55>	Command Byte	<55> = Defaults
7	<01>	Data Byte = Set Defaults	<01> = Set Defaults

The following example will set the *Mosaic* features to default locations and clear feature locations from non-volatile memory:

```
02 05 AE 2C 41 55 01
```

TIP: After issuing this command, a power-cycle reset is required. This command should not be left in Init Triggers or Surface Reset Triggers. It is designed to be used once only when a NV-RAM clear is required.