

PART SIX: APPENDICES

APPENDIX A: INTERFACES, MULTITRACKS, SYNCHRONIZATION, AND MACINTOSH & WINDOWS 95 NOTES

Analog Multitrack Recorders

We have good news and bad news. The good news is that UltraMix functions as part of a fully integrated MIDI studio environment. The bad news is, frankly, the same as the good news.

In other words, UltraMix does not function alone, in a vacuum. How well UltraMix works in your studio – and the problems you may encounter – depends to a great extent on the other equipment in your studio. In this section, we'll deal with some issues regarding the three most crucial pieces of peripheral gear: the multitrack recorder, the computer, and the computer/MIDI interface.

Working with most analog decks is relatively straightforward. Simply stripe a SMPTE track using a SMPTE sync generator, then connect the output of that track to the SMPTE input on your MIDI interface. (Check your interface and recorder manuals for more information on this procedure.) Your MIDI interface converts the SMPTE code to MIDI time code (MTC) for synchronization with UltraMix.

Because most analog decks do not support MIDI Machine Control (MMC), you will have to keep your deck's remote transport controller handy. UltraMix functions as a slave unit to your multitrack deck, following the SMPTE/MTC timing data to keep in sync.

What about SMPTE sync? UltraMix syncs to MTC only, so if your master sync source (e.g., analog multitrack) is SMPTE-based, then the MIDI interface must convert it to MTC to drive the UltraMix system. Various SMPTE frame rates are automatically converted by the interface; MTC transmits at one rate only, so there's no need to consider varying drop frame or tempo situations.

Most MDMs support MIDI time code, but in some cases you cannot access this code directly from the unit itself. Both the ADAT and the DA-88 have a hidden “9th track” that must be converted to MTC by an external box, either supplied by the MDM manufacturer (Alesis BRC) or another company (Steinberg-Jones ACI or J.L. Cooper Data Sync). An exception is the Fostex RD-8, which has direct MTC output capability.

In addition, most MDMs are compatible with the MIDI Machine Control specification (MMC), which means you can control playback directly from UltraMix. To prevent confusion and possible unintentional erasures, UltraMix does not allow placing the MDM (audio) in record mode.

MMC is a simple, one-way MIDI protocol. The transport commands are transmitted through the dedicated MIDI out of your interface to the MIDI input on the multi-track recorder itself, or to the recorder’s external sync unit. You also need to connect the MIDI out of the recorder (or external sync unit) to your MIDI interface, but this is to carry the MTC sync data and is not used for MMC commands.

Mac Desktop Models

The Apple Macintosh and Mac clones generally have two RS422 serial ports that you can connect to your MIDI interface: the printer port and the modem port. The modem port is the most commonly used port for MIDI, but larger studio setups may require both ports to accommodate greater MIDI data flow and increased MIDI bandwidth. This is the case with UltraMix — we recommend that you use both ports. That means you need a Mac/MIDI interface that has two serial ports as well.

The standard default transmission speed for a MIDI interface to the Macintosh is 1MHz, but the current “upscale” multiplexing/multiport interfaces can handle a fast mode, which allows for even greater data flow. We recommend using the fast mode, when available, because UltraMix uses much of the MIDI bandwidth provided on the port(s).

Mac Powerbooks™

Some notebook Macintosh models (Powerbooks) have only one serial port, and therefore will definitely require a beefier interface with fast mode capability. In fact, we recommend this type of interface (e.g., Mark of the Unicorn MIDI Time Piece or Opcode Studio 4 or 5) even if the Powerbook has two ports. This allows the interface to take on many of the MIDI tasks that might bog down the Powerbook.

Other Interface and Sync Issues

There are various styles of MIDI interfaces: single port, dual port, multiport, multiplexing, etc. There are even more choices of MIDI IN/OUT configurations, from one IN and one OUT through a dozen or more INs and OUTs. The choice for you is relative to how many pieces of MIDI gear you have (or plan to have) in your studio, what tasks your computer is going to handle, and how you route your studio sync.

How many ports will you need? MIDI for the Ultra-34 requires one pair of dedicated IN/OUT ports on your MIDI interface, with no daisy-chaining or MIDI Thrus. UltraMix is a closed-loop system, which means that MIDI data is flowing on both the IN and OUT ports of the Ultra-34, and the amount of data occurring in a very active mix file uses most of the bandwidth that one pair of MIDI ports will allow. That means that each additional Ultra-34 requires an additional dedicated pair of MIDI ports.

We could list and rate each manufacturer's interfaces individually, but that list would soon be outdated. The bottom line is that it's better to have a MIDI interface that does too much than one that does too little. Yes, UltraMix will work fine with a simple, \$50 single-port interface IF you run only on internal sync and don't need to sync to an external device. But that's not likely, so you're much better off getting an interface you can grow into. Feel free to call Mackie Tech Support for advice on the best type of interface for your needs.

Desktop Models

Unlike the Macintosh platform, many PC interfaces are installed right inside the computer. There are exceptions to this, of course, with external interfaces that connect to the 9-pin serial and 25-pin parallel/printer ports. However, some multiport PC interfaces use both an installed card and an attached box that houses the MIDI connections.

As with Macintosh computers, a multiport interface will take much of the MIDI processing workload off the main computer processor. As previously mentioned, UltraMix requires its own MIDI IN and OUT ports, so when using MIDI time code as your synchronization source, it will be necessary to use an interface with at least two MIDI ports. If your interface has SMPTE input and output capabilities, you may be able to get by with a single port. However, a single port configuration will not allow for any other MIDI devices or MMC commands.

Notebooks

Notebook computers rarely have slots large enough to accommodate internal/installed interfaces. Because of that, it's necessary to use an external interface connected to either the 9-pin serial or 25-pin parallel port. If you hope to use an interface with more than two ports, we highly recommend the parallel port variety. The bandwidth of a parallel port is more than four times that of a serial port and is better suited for large scale MIDI usage on a notebook.

Windows 95 Issues

UltraMix Pro is a native Windows 95 program. That means the program was written to run specifically in Windows 95, and not adapted to the platform haphazardly. Because of that, it is imperative that your MIDI interface is either supported directly by Windows 95 or comes with its own Windows 95 native drivers. If you're having trouble getting the UltraMix Pro software to start up properly, make sure you have the latest interface driver from the interface's manufacturer.

Also, UltraMix Pro software works in 256-color mode, so check the Control Panel (Display icon) to make sure that your display is set correctly. Once in Display, click on the tab labeled Settings. In Settings, the Color Palette pulldown menu should be set to 256 colors.

Parallel development with Windows 95 software has made Mac and Windows sessions pretty much identical, the exception being the external MIDI setups. Here are a few items to note before you use any mix files on the other platform.

Using Windows 95

If you're planning to use files generated by the Mac on a Windows 95 system, the filenames must have the .mix file extension, as in "chow.mix" (which could be labelled simply as "chow" if it were a Mac file, except then there wouldn't be much of a laugh in "chow.mix").

Hint: When copying the Mac session files onto a diskette, don't forget to put the files on an IBM-formatted diskette so that the Windows 95 computer can read them.

Using MacOS

In the Macintosh UltraMix Pro application, choose the Import Win95 Session command from the File menu to open a Windows 95 UltraMix Pro session. File conversion by Apple File Exchange is unnecessary.

APPENDIX B: SIGNAL FLOW AND USE OF THE PATCHBAY

The front panel patchbay on Ultra-34 is set up in a half-normalled arrangement. That means that the signal flows back through the internal signal path (as in figure 1a on the following page) whenever:

- a) There is no plug inserted in the channel's Return jack, or
- b) There is a plug in the Send jack only.

The internal circuit connection is broken only when a plug is inserted in the Return jack. In this case, the signal goes out through the Send and back through the Return (and the automation VCA), with no internal signal path.

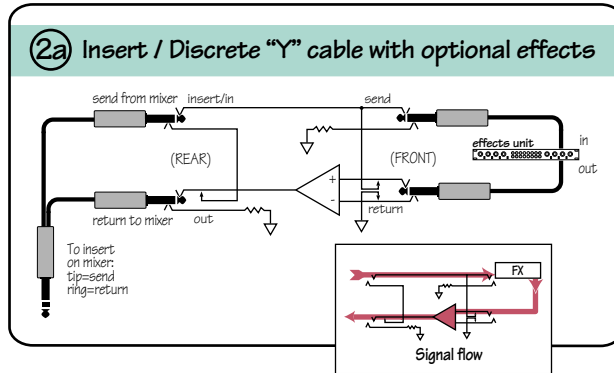
The half-normalled arrangement lets you split off your Send signal and still maintain your internal Return circuit connection. Applications include separate EQ or effects processing of the Send for recombining with the original signal, or tapping off the signal to another mixer or Ultra-34 channel for automation tricks like crossfading.

With this concept glued firmly in your mind, let's take a look at all the various signal flow possibilities into, out of, around, and inside your Ultra-34.

NOTE: Front panel patchbay Return connectors are fully balanced TRS jacks. You may use either balanced TRS plugs (for reduced pickup of stray noise) or unbalanced TS plugs for connecting to outboard equipment.

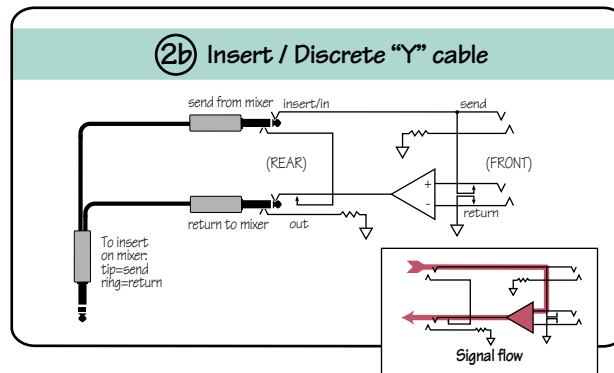
2a) Insert/Discrete “Y” Cable with Optional Effects

Similar to 1b, except using the “Y” cable arrangement. Signal flow is the same as 1b, except output from Ultra-34 is through a separate Out jack.



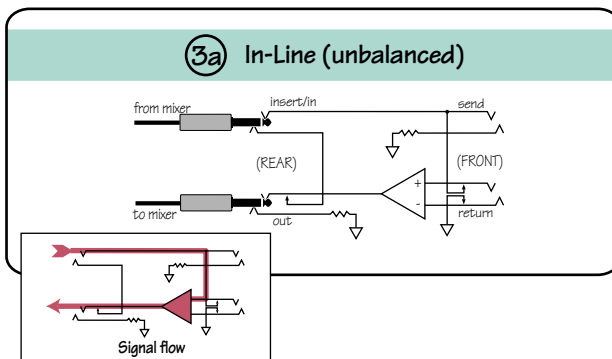
2b) Insert/Discrete “Y” Cable

Same as 1a, except output from Ultra-34 is through a separate Out jack.



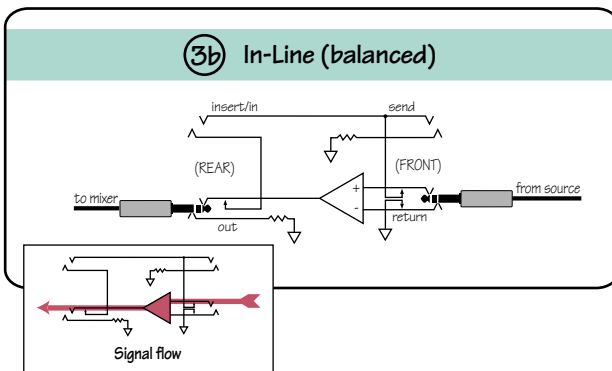
3a) In-Line (Unbalanced)

Signal flow is the same as in 2a, but separate unbalanced cables are used instead of the “Y” cable.



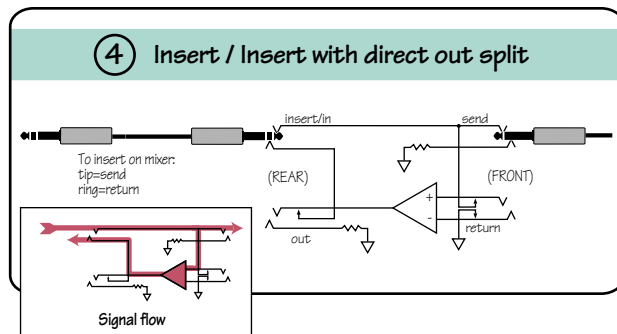
3b) In-Line (Balanced)

Input signal comes in on a balanced line through the front panel Return jack, flows through automation VCA and out the balanced rear panel discrete Out jack.



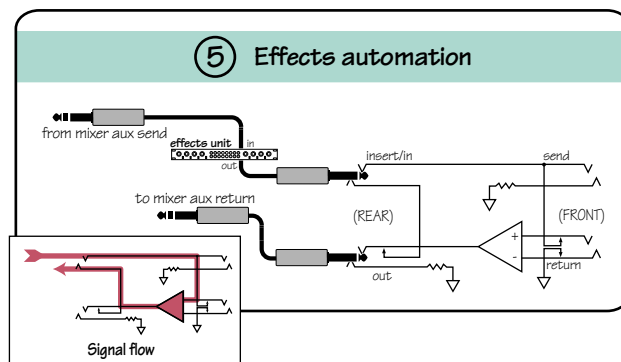
4) Insert/Insert with Direct Out Split

Signal flow is basically the same as 1a, except the input signal is split for output through the Send jack as well. This configuration can be used for patching in effects to be returned through other channels or effects returns.



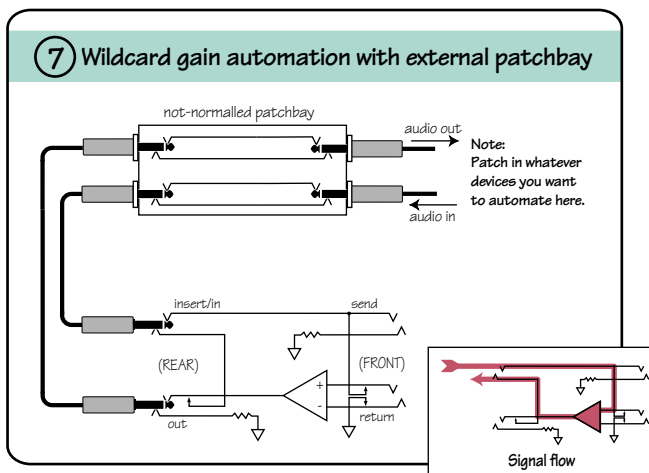
5) Effects Automation

Signal flow comes from the mixer aux send into the effects unit, then into Insert/In, through the VCA circuit, and back out through the Out jack and to the mixer aux return. (This is the same setup as shown in Hookup Diagram 3 on page 29, except there, the stereo output of the effects unit is fed to two channels of the Ultra-34.)



7) Wildcard Gain Automation with External Patchbay

If you have a separate patchbay, you can use this technique for easy access to automated gain control. Use this “dedicated automation point” to patch in an effects device, a synth module, a VCR audio output, or anything else you want to automate for any reason. If you want this signal included in the mix, you have to patch the signal back into your console at some point.



If you use a TT-style jack in your studio, this will allow you to patch between the 1/4" jacks on the Ultra-34 and the back panel of your TT patchbay.