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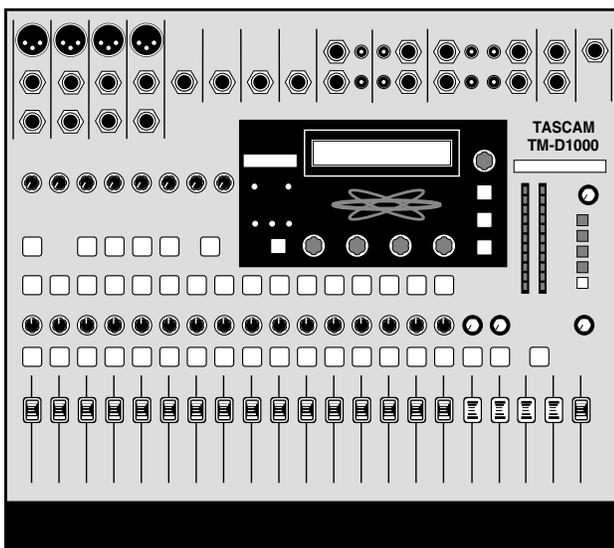
TM-D1000

Digital Mixer Tutorial

January 1999

The Purpose of this Tutorial:

The TM-D1000 Digital Mixer Tutorial is designed to help you become familiar with the normal operations of this digital mixer in a reasonably short time. Its content was based on the training and trouble shooting experience of our Product Specialists. This guide does not cover every feature; its purpose is to get you up and running quickly. We recommend you start out with this manual, but remember to at least scan the other manuals later on so you will be aware of their contents. Enjoy!

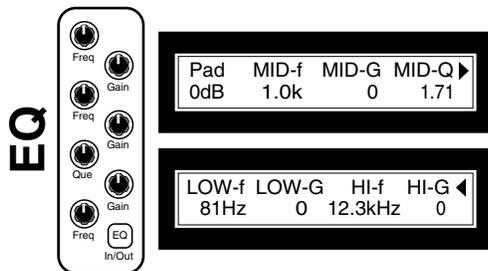


Section I	Overview of the TM-D1000
Section II	Crash Course in Digital Audio
Section III	Recording Hook-up Instructions
Section IV	Navigating the TM-D1000
Section V	Buss+Aux=4
Section VI	Effect Set-ups
Section VII	Buss Out vs. Direct Out
Section VIII	AES/EBU and SPDIF in/out
Section IX	Live Sound Applications
Section X	Recording Applications
Section XI	TM-D1000 QuickStart
Section XII	MIDI Implementation
Section XIII	What the Heck is That?
Section XIV	Optional Accessories for the TM-D1000
Section XV	Troubleshooting the TM-D1000

Overview of the TM-D1000

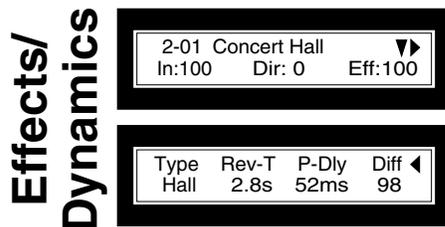
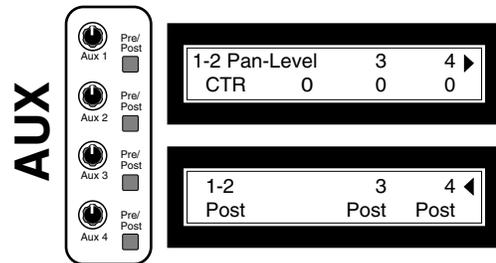
On the next page, we have shown the TM-D1000 with a familiar analog mixer layout. You can refer to this if you are looking for specific features.

The TM-D1000 is a 16 channel digital mixer. The first 8 channels have analog inputs, the last 8 have digital inputs. When recording, the first 8 channels will probably be used for bringing signal into the mixer and sending it to the multitrack. The last 8 will probably be used for monitoring multitrack returns. On mixdown and for live situations, you can use all 16 channels simultaneously.



Each channel has a 3 band EQ. The mid band is parametric, and the highs and lows are sweepable. (If you are unfamiliar with these terms, look up "EQ" in Section XIII - What The Heck is That?) All three bands are totally overlappable from 41Hz to 16kHz. While the names of the bands are high/mid/low, they can all be assigned virtually anywhere in the audible frequency spectrum.

The TM-D1000 also offers up to 4 auxiliary sends. Each one is individually selectable pre or post fader. They can be used as mono sends or you can take two and gang them in stereo. That way, you've got either 4 mono sends, or one stereo and two mono sends.



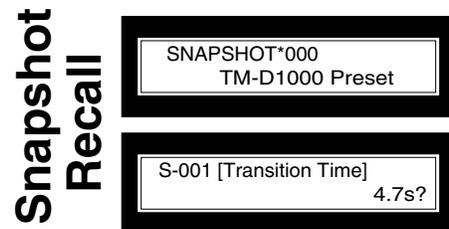
Built in effects also come standard on the TM-D1000. The built in card offers 4 "slots" of processing. Dynamics (i.e. compressors and expanders) take one slot. Stereo effects (i.e. reverb, flange, delay, etc.) take two slots.

After you've slaved over your mix and gotten everything set just the way you like it, you can save the mix. There are 128 scenes of snapshot memory, which will store your levels, EQ, aux, routing, and effects. You can name your scenes, with up to a 16 character name. We have included upper and lower case letters, numbers, and everything you need for proper punctuation in your scene name. (Your English teacher will be proud.)

One unique feature and great advantage to the scene memory in this mixer is the "transition time". This allows you to create a crossfade from one scene into the next. The transition time is adjustable from 0 to 10 seconds in 1/10 of a second intervals. This is very useful for setting up separate mixes of the verse, chorus, or bridge, and simply recalling the scene to smoothly fade from one section to the next. It can also be used to give a beautiful fade-out at the end of the song. These scenes are recallable via MIDI with a standard program number message. (Note: Channel and master volumes are the only parameters that will crossfade. The EQ, aux, etc. all snap instantaneously with the scene change.)

For more advanced automation options, all mixing functions have been assigned to MIDI parameters for real-time automation with a MIDI sequencer. Simply put the sequencer into record and start mixing. MIDI messages will be sent out, and received.

Also, if you have a recorder that can receive MIDI Machine Control, the TM-D1000 can act as the remote control with Play, Stop, Fast Forward, Rewind, Record, 16 locate points, and track arming.



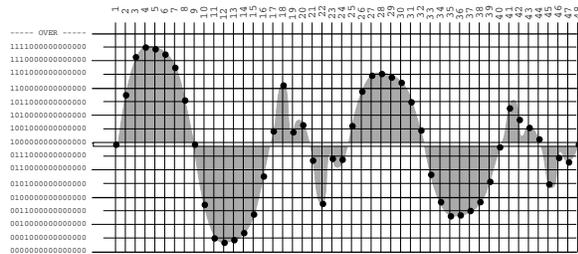
Crash Course in Digital Audio

Whether your studio is digital or analog, there are a few things you need to know before really getting into any recording. When digital audio devices are linked together, it is imperative that the user understand terms like word clock, sample rate, and bit rate. So, here's a crash course in digital audio.

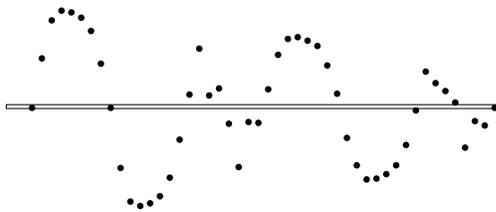
The first thing we need to explain is what this squiggly line that everyone always draws actually represents. For the physics buffs, this displays force over time. For the rest of the world, think of this line as the path the speaker diaphragm will take to reproduce the sound. If you put a ruler vertically across the wave, and drag the paper across underneath the ruler horizontally, the waveform line tells you where the speaker moves when making that sound.

Digital audio converters are kind of like a movie projector on 15 cups of Starbucks coffee. In a movie, the moving picture is made up of a series of still images flashed by you at a rate of 24 to 30 frames a second. But remember, each picture is a still image. In audio, we are examining the waveform at a rate of 44,100 times per second (44.1kHz) or 48,000 times per second (48kHz.) The number of times per second we are examining the sound wave is our sample rate.

Sampling 1/1000th Second of Audio



Recovering Sample Data



Each time the waveform is examined, the position of the waveform is recorded with a binary number, called a word. The number of digits in the word is your bit rate. (Each digit is one "bit".) For instance, 0100110100111001 is a 16 bit word, because it has 16 digits in it. 011010001011110100110010 is a 24 bit word, because it has 24 digits in it.

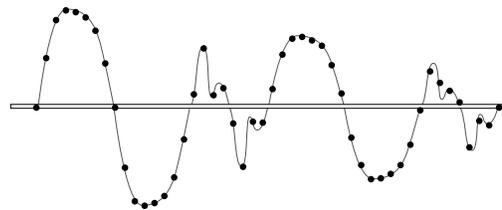
When it comes time to convert the digital signal back into analog, the sample data must be reconstructed. The data itself is simply storing the location of the sound wave at a given interval.

Once the data is recovered, the waveform is reconstructed. This is a big game of dot-to-dot, except the converters are typically armed with some fancy mathematical symbols that round out the edges. Once that's done, you've got your sound back!

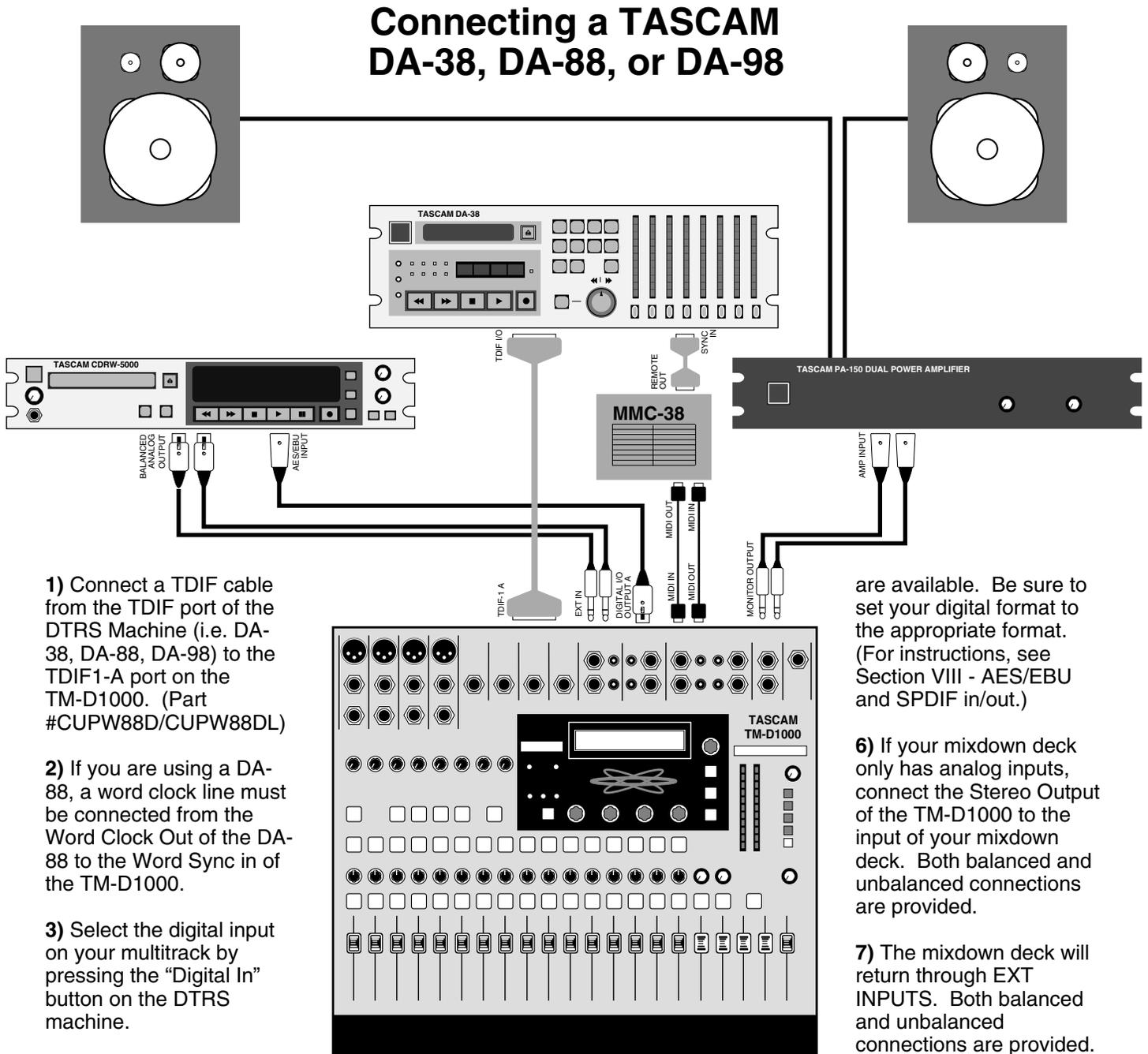
So, the two main aspects of a digital signal are the sample rate, and the word length AKA bit rate. The word length of each device can vary because most digital devices can truncate extra digits out, or fill blank spaces in with more zeros. But, the sample rate must remain the same when the connection is made digitally. In fact, the sample rate not only needs to be the same, but the sample rate needs to be synchronized between all the units.

The sample rate is synchronized by utilizing a **word clock master**. One device in the chain will be designated the master, and the others will follow. Some digital lines are internally clocked, meaning they carry word clock information within the line. Others will require separate word clock lines. On the next three pages you will find diagrams for some common hook-ups for the TM-D1000, as well as instructions for setting the word clock status on your TM-D1000 mixer.

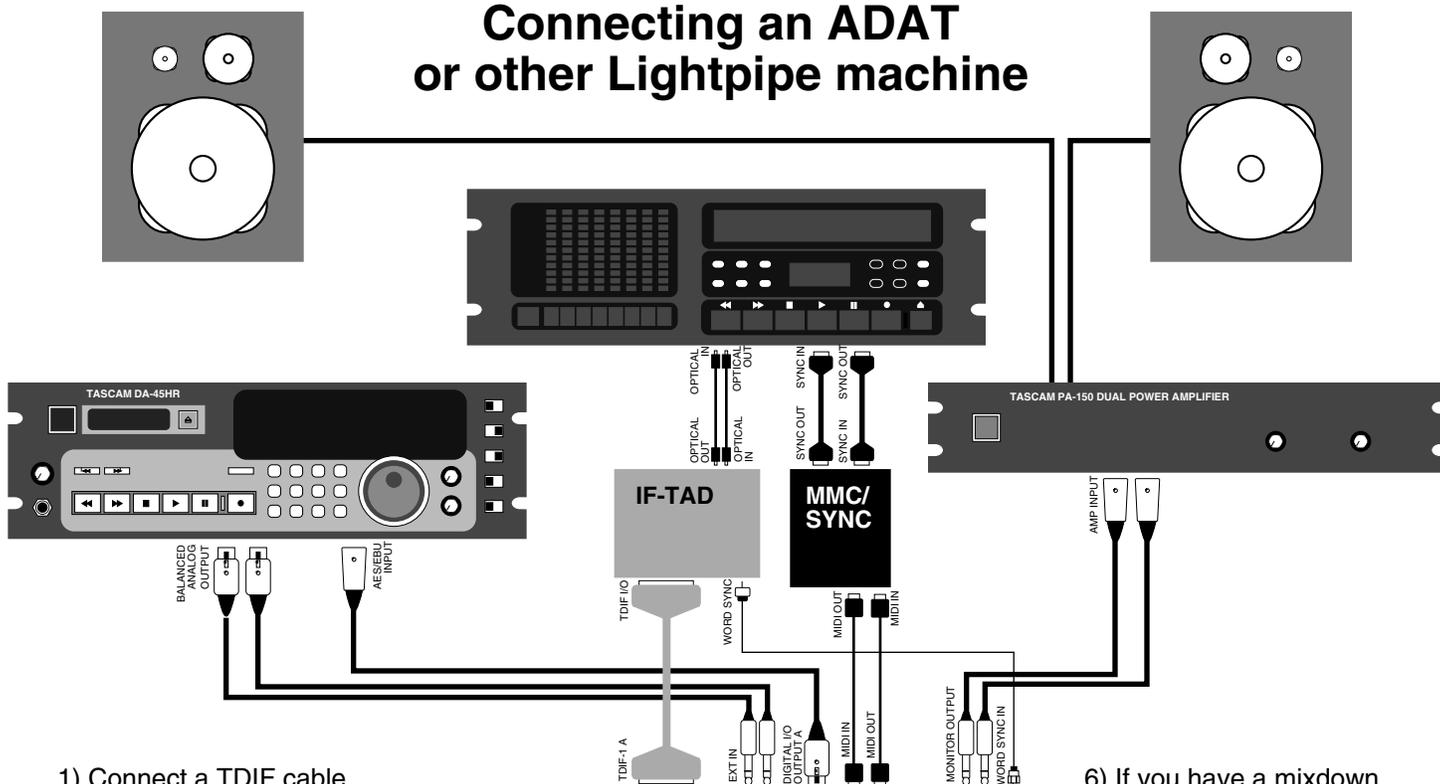
Reconstructing Waveform



Recording Hook-up Instructions



Connecting an ADAT or other Lightpipe machine



1) Connect a TDIF cable from the TDIF1-A port of the TM-D1000 to the IF-TAD.

2) Connect optical cables from the optical in of the IF-TAD to the out of the ADAT, and from the out of the IF-TAD to the in of the ADAT.

3) Connect a BNC to RCA cable from the Word Clock out of the IF-TAD to the Word Sync in of the TM-D1000.

4) Select the digital input on your multitrack. For an ADAT, push "Digital In" or "Digital Input" (depending on the vintage) of your ADAT. For other lightpipe machines, consult that machine's manual for settings.

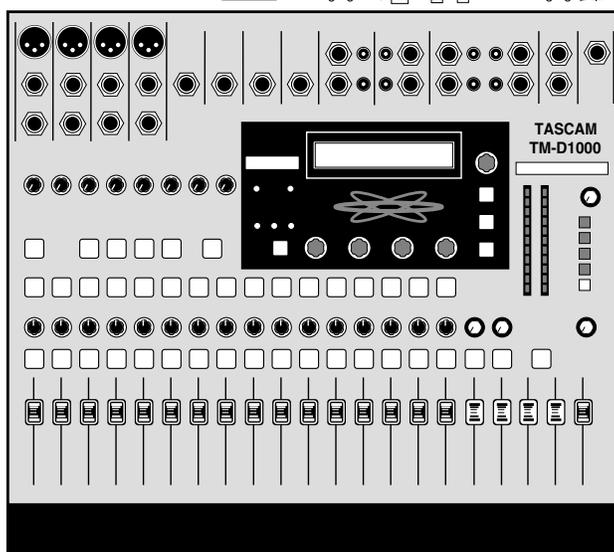
5) Connect a balanced cable from your monitor outputs (not your stereo outputs) to the power amplifier for your monitor speakers.

6) If you have a mixdown deck with a digital input, connect your mixdown deck to Digital Output A. Both SPDIF and AES/EBU connections are available. Be sure to set your digital format to the appropriate format. (For instructions, see Section VIII - AES/EBU and SPDIF in/out.)

7) If your mixdown deck only has analog inputs, connect the Stereo Output of the TM-D1000 to the input of your mixdown deck. Both balanced and unbalanced connections are provided.

8) The mixdown deck will return through EXT INPUTS. Both balanced and unbalanced connections are provided.

9) If you have an MMC to ADAT sync box, consult that unit's manual for hook-up instructions and settings.



Master Word Clock Set-up

If you are using a DA-38 or DA-98, your master word clock should be set to TDIF1 A. This makes your Multitrack machine the word clock master. The DA-38 and DA-98 can both transmit word clock information through the TDIF1 line, and the TM-D1000 will follow that. *NOTE: The TDIF cable must be connected from the DA-38 or DA-98 to the TM-D1000 before setting the Master Word Clock. Otherwise, the TM-D1000 display will read "Error! No Signal TDIF-1 A". This means there is no word clock information at the TDIF port. The TM-D1000 then resets the Master Word clock to the internal clock.*

If you are using a DA-88, your master word clock should be set to Word Sync In [44.1k] or Word Sync In [48k] depending on what sample rate you are using. If you formatted your tape at 44.1kHz, then use Word Sync In [44.1k]. If you formatted your tape at 48kHz, then use Word Sync In [48k]. If you don't know which sample rate you selected for your machine, there are two indicator lights on the DA-88 just to the right of the "tape eject" button labelled 44.1k and 48k. *NOTE: The BNC to RCA cable must be connected from the DA-88 to the TM-D1000 before setting the master word clock. Otherwise, the TM-D1000 display will read "Error! Fs Clock Error>Internal". This means there is no word clock information at the Word Sync In port. The TM-D1000 then resets the master word clock to the internal clock.*

If you are using an ADAT or another lightpipe unit with an IF-TAD, your master word clock should be set to Word Sync In [44.1k] or Word Sync In [48k] depending on what sample rate you are using. If you formatted your tape at 44.1kHz, then use Word Sync In [44.1k]. If you formatted your tape at 48kHz, then use Word Sync In [48k]. *NOTE: The BNC to RCA cable must be connected from the IF-TAD to the TM-D1000 before setting the master word clock. Otherwise, the TM-D1000 display will read "Error! Fs Clock Error>Internal". This means there is no word clock information at the Word Sync In port. The TM-D1000 then resets the master word clock to the internal clock.*

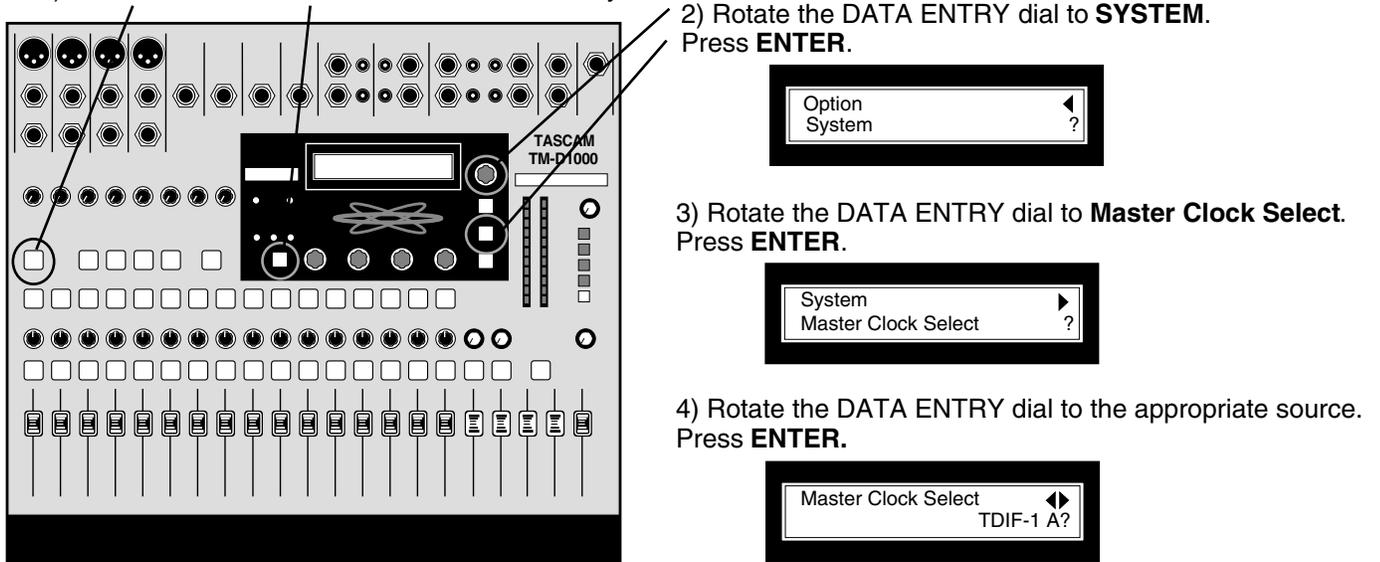
To set the master clock on the TM-D1000:

1) Press **SHIFT** and **PARAM SEL** simultaneously.

2) Rotate the DATA ENTRY dial to **SYSTEM**. Press **ENTER**.

3) Rotate the DATA ENTRY dial to **Master Clock Select**. Press **ENTER**.

4) Rotate the DATA ENTRY dial to the appropriate source. Press **ENTER**.



The diagram shows the TASCAM TM-D1000 control panel with callouts for the following steps:

- Press **SHIFT** and **PARAM SEL** simultaneously.
- Rotate the DATA ENTRY dial to **SYSTEM**. Press **ENTER**. The display shows:


```
Option
System
```
- Rotate the DATA ENTRY dial to **Master Clock Select**. Press **ENTER**. The display shows:


```
System
Master Clock Select
```
- Rotate the DATA ENTRY dial to the appropriate source. Press **ENTER**. The display shows:


```
Master Clock Select
TDIF-1 A?
```

Navigating the TM-D1000

The faders, pan pots, and mute/solo buttons are all dedicated per channel giving you instant access to all of these parameters on all channels simultaneously. Bussing, EQ, and Aux are all handled one channel (or stereo pair) at a time. In other words, you select which channel you want to change and then start modifying the parameters.

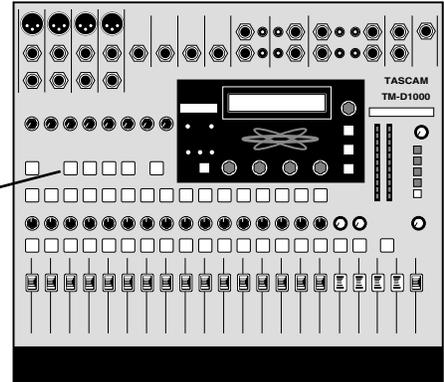
To select a channel, press the CH SEL button located on the channel strip. You can group channels together by simply pressing the adjacent CH SEL buttons at the same time. To ungroup the channels, press the two CH SEL keys together again. (You can only group an odd channel with the following even channel. In other words, channels 1 & 2 can be grouped, but not channel 2 & 3. Channels 3 & 4 can be grouped, but not 4 & 5...)

ACCESSING BUSSES

Press CH SEL of the channel you wish to route, then select your busses. The buttons will light up to indicate signal is routed.



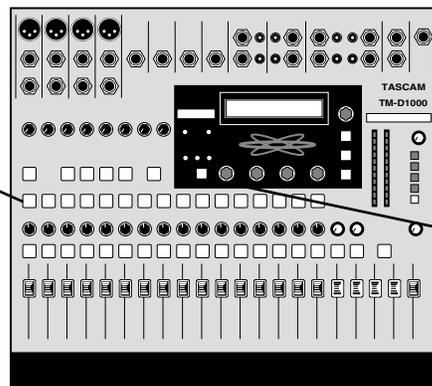
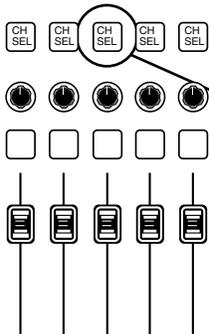
Note: Busses are only active in some buss/aux configurations. For more information, see BUSS+AUX=4.



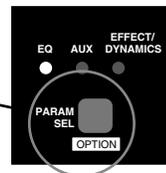
Once you've selected a channel to work on, you can change the settings of the channel. The bussing groups are located just above the first 8 channel strips. (Not all of these are accessible right off the bat... we'll cover that soon.)

ACCESSING EQ, AUX, and EFFECTS/DYNAMICS

1) Press CH SEL of the channel you wish to change.



2) Press PARAM SEL to scroll through EQ, AUX, and EFFECTS.



The EQ and aux controls are accessed in the display window. Simply press the PARAM SEL button to scroll through the parameters and stop at the one you wish to change. The lights just above it will turn green to indicate which parameter is accessed.

Inside the display screen, up to four parameters are available for adjustment. They can be changed with the four dials just underneath the screen. If there is an arrow in the upper right corner of the screen, that means there are more parameters on another screen. Simply turn the DATA ENTRY dial in the direction of the arrow to get to those parameters. If there is a down arrow, press the DATA ENTRY dial directly down.

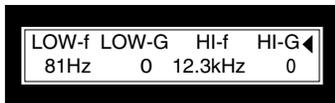
----- Walk through EQ -----

To access the EQ, press the CH SEL button on the channel you wish to change, then press PARAM SEL until the EQ light just above the PARAM SEL button turns green. Also, make sure the EQ ON/OFF button above channel 6 is lit. Otherwise, the EQ on that channel is defeated.



The digital pad is in the EQ screen just in case you boost the EQ to the point of distorting the channel. When you boost the gain on the EQ, you are actually increasing the volume of the signal. If the volume is boosted too much, the channel can overload. So, we put the digital pad into the channel in case you go hog wild with the EQ. The digital pad reduces the signal level before it enters the EQ section in increments of 6dB, allowing more headroom for heavy handed EQ curves.

The other three parameters are the controls for the mid band of the EQ. This is the parametric band. You'll notice the right arrow in the upper right of the screen. So, turn the DATA ENTRY dial to the right, and we'll see the rest of the EQ section. The screen should look something like this:

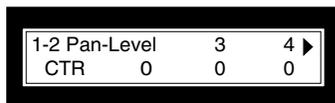


Here we have the two sweepable bands of EQ. As we mentioned in Section I - Mixer Overview, all of the bands of EQ sweep from 41Hz to 16kHz. So, they can be placed in any order you wish. Again, in the upper right hand side of the screen, there is an arrow. This time it points to the left. Turning the DATA ENTRY dial to the left will bring us back to the first screen of the EQ.

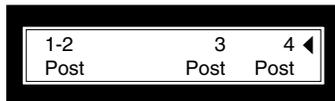
----- Walk through the Aux -----

Note: The following walk-through assumes you have not changed the mixer from the factory default configuration.

To get to the Auxiliaries, press the CH SEL button on the channel you wish to change, then press PARAM SEL until the AUX light just above the PARAM SEL button turns green. The screen will look as follows:



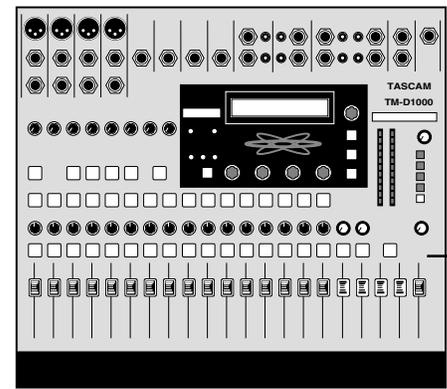
Currently, the first two auxiliaries are ganged in stereo. The third and fourth aux sends are each mono. Again, the four parameters are changed with the four dials located directly underneath them. Since the first two effects are ganged in stereo, the two controls become panning between the two sends, and level. Sends 3 and 4 each have simple level controls. Again, you'll notice there is an arrow in the upper right.



If you turn the DATA ENTRY dial to the right, you can change the aux to pre or post fader. Note that each aux on each channel is independently adjustable to pre or post fader; this screen is not a global change for the entire board.

The black faders to the right of all your channel strips act as the aux send master. So, to get an aux send out, you need to mix the appropriate amount on each channel aux and raise the aux send master to the appropriate level.

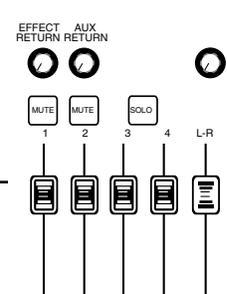
If we are using the aux for effect sends, then we will also need to return the effects somewhere. The board's default setting brings one of the built-in effects into EFFECT RETURN. So, if the board is set up in the default mode, the channel aux send, master aux send, and EFFECT RETURN all need to be raised.



MASTER AUX SENDS AND AUX RETURNS

The EFFECT RETURN and AUX RETURN can both be used as effect returns. The mute controls the effect returns, not the sends.

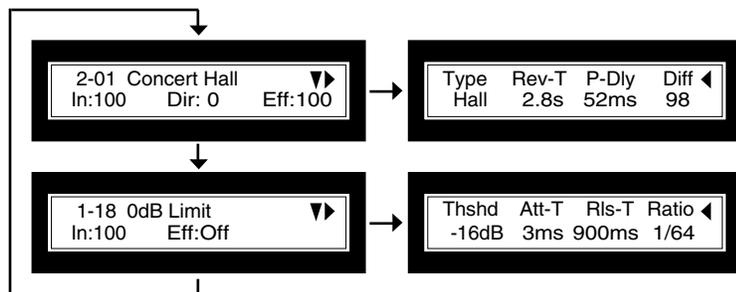
The black faders at the bottom right are your master aux sends.



When you are ready to change the configuration of the mixer from the default settings, it is important to know that the busses (1-2, 3-4) share the routing with the auxiliaries. So, you can have 4 busses and no auxiliaries, 2 busses and 2 auxiliaries, or no busses and 4 auxiliaries. For more information on this, read Section V - Buss+Aux=4.

----- Walk through the Effects -----

Note: The following walk-through assumes you have not changed the mixer from the factory default configuration. For more information on effect configuration with the effects card, see Section VI - Effect Set-ups.



To get to your built-in effects, press the PARAM SEL until the EFFECT/DYNAMICS light turns green. The first screen shows whether the effect is engaged or not, and where the input and output levels are set for that processor. In the upper right, there is an arrow pointing to the right, as well as a down arrow. If you turn the DATA ENTRY dial to the right, you can edit

the parameters of a particular effect. If you press the DATA ENTRY dial down, you can switch between two built-in processors.

To change the type of effect, make sure the screen is showing the processor you wish to change, and press ESCAPE/RECALL. The screen will flash effect names. Rotate the DATA ENTRY dial to select the effect you wish to use. To make finding specific effects easier, the top line gives you the name of the effect, while the bottom line will tell you what the effect is (i.e. reverb, delay, flange, chorus, etc.) Once you've found the effect you wish to select, press Enter.

Currently, there are two effect processors

Processor 1 on L/R output - This processor is very useful for master mix compression, gating, enhancing EQ, or even adding some phase/flange/chorus for wild effects.

Processor 2 on aux 1&2 - This processor allows reverb, delay, chorus, phasing, flanging etc. to be applied in different amounts to each channel. This will act just like an external effect processor which is fed by AUX SEND 1 and 2, and returns through EFFECT RETURN.

These effect processors can be reassigned to many different configurations. For a detailed explanation of the options, see Section V - Buss+Aux=4, and Section VI - Effect Set-ups.

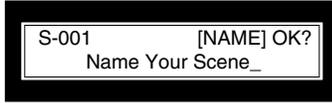
----- Walk through Snapshots -----

The built-in snapshot capability can make mixing your song much easier. You can set up separate mixes for the intro, verse, chorus, etc. Then, you can use the transition time with each snapshot to create a smooth crossfade from one part to the next.

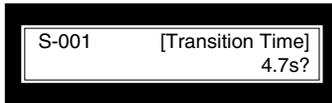
To save a snapshot, press SHIFT and STORE. (You must do this while not in an effects screen, otherwise you will only store the effect.) The screen will show you your first available snapshot. In other words, if you have 8 snapshots already stored, the mixer will automatically offer to record the snapshot as number 9. This way, you do not have to worry about accidentally recording over any other scenes. If you are choosing to write a new snapshot, press ENTER. If you want to record over an old snapshot, rotate the DATA ENTRY dial until you reach the snapshot you want to overwrite and press ENTER.



The TM-D1000 will then allow you to name the scene. Rotating the DATA ENTRY dial will select different characters. To change from upper to lower case (or visa versa), press the shift key. To move to another letter, press down on and rotate the DATA ENTRY dial. When you're finished naming the scene, press ENTER.



Now, you can select the transition time for the scene. The transition time allows you to adjust the crossfade from one scene into the next. It should be noted that only the volumes crossfade. The panning, EQ, aux, etc. will all snap as soon as the next scene is recalled. Rotate the DATA ENTRY dial to determine the transition time between scenes, then press ENTER. The scene is now stored in memory.



To recall a snapshot, press ESCAPE/RECALL. The scenes available will flash in the screen. Rotate the DATA ENTRY dial to select from the scenes in memory, then press ENTER to load the snapshot.

If you've got a MIDI sequencer, you can have the sequencer recall snapshots with standard program change messages. You can also dynamically automate any feature in the board. (For more information, see Section XII - MIDI Implementation.)

Buss+Aux=4

With the TM-D1000, the same routing path is used for both auxiliaries and busses (also called groups). So, you can have up to 4 auxiliaries -OR- 4 busses, but not both. If you look to the left of the screen, you will see two lights labeled REC and MIX.

If you put the mixer into REC mode, all four paths are turned into busses; you will have no auxiliary sends in this mode. This is a quick way to assign all of your submix paths to busses so you can track your parts across any channel.

In MIX mode, all four paths are assigned as auxiliary sends; you will have no busses in this mode. This way, you can have 4 aux sends to use as effect sends, monitor sends, or cue mixes.

But what if you want to record tracks and/or inputs with effects? Here, you need busses to run multiple signals together and auxiliaries to send to effects. We thought of that, too. You can assign two paths as busses and two as auxiliaries. Basically the rule of thumb is:

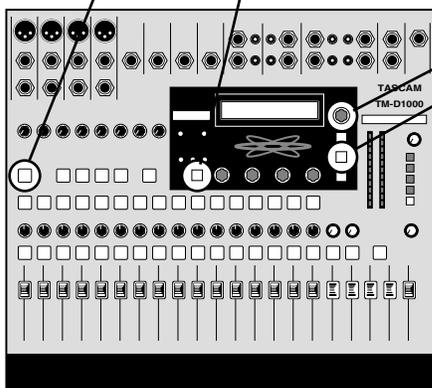
BUSSES + AUXILIARIES = 4

Your different bussing/aux options are:

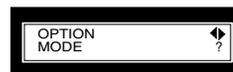
BUSS Function Select MIX MODE:ST+4Grp	- 4 groups/busses (Default REC mode)
BUSS Function Select MIX MODE:ST+4Aux[1-2ST]	- 4 aux sends with aux 1&2 ganged in stereo (Default MIX mode)
BUSS Function Select MIX MODE:ST+2Aux+2Grp	- 2 aux sends and 2 groups/busses (If you want to bounce tracks with effects, you'll need to use this.)
BUSS Function Select MIX MODE:ST+4AUX[Mono]	- 4 mono aux sends

To switch between Record Mode and Mix Mode:

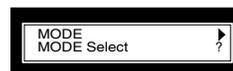
1) Press **SHIFT** and **PARAM SEL** simultaneously.



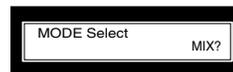
2) Rotate the DATA ENTRY dial to **MODE**. Press **ENTER**.



3) Rotate the DATA ENTRY dial to **MODE SELECT**. Press **ENTER**.

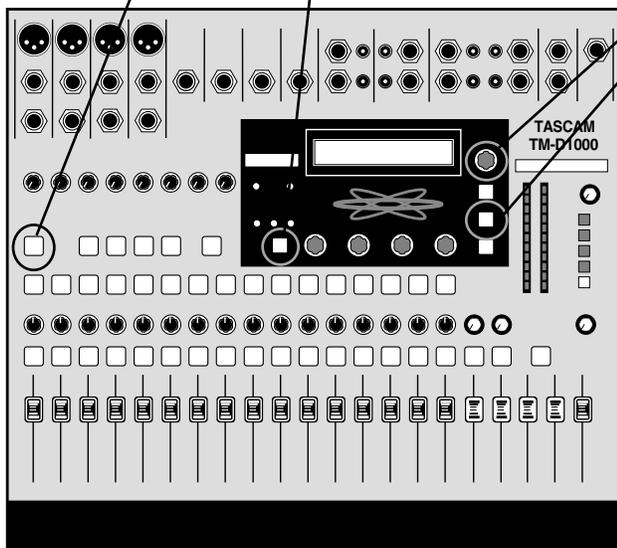


4) Rotate the DATA ENTRY dial to the desired Mode. Press **ENTER**.

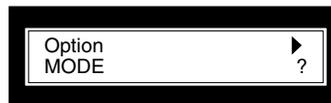


Once you are familiar with recording and mixing with Record Mode and Mix Mode, you may want to try some of the other buss/aux combinations. To more directly access these combinations:

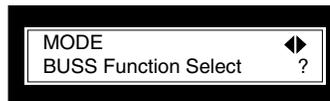
1) Press **SHIFT** and **PARAM SEL** simultaneously.



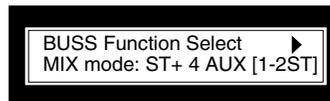
2) Rotate the DATA ENTRY dial to **MODE**. Press **ENTER**.



3) Rotate the DATA ENTRY dial to **BUSS Function Select**. Press **ENTER**.



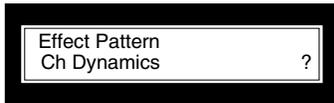
4) Rotate the DATA ENTRY dial to the desired BUSS/AUX Setup. Press **ENTER**



Effect Set-ups

The internal effects can be configured in many different ways, but they all come down to these two basic options:

- 4 channel dynamics (i.e. compressor/limiter or noise gate/expander)
- OR -
- 2 stereo processors in the master section (i.e. dynamics, reverb, chorus, delay, etc.)



- Channel dynamics

The channel dynamics can be used on any channels you choose. They can be placed at internal digital insert points.

Effect Routing - Signal Flow

The important thing to remember when assigning stereo effects to an auxilliary send is that the effect must return somewhere. The effect output can come back through either the EFFECT RETURN, AUX RETURN, or through any channel. If the effect output is assigned to a channel, that channel cannot feed aux sends. (This prevents a feedback loop created by feeding the output of a processor back into the input of the processor via the aux send.)

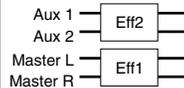
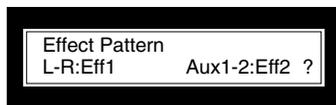
If the stereo effect is assigned to the Master L/R Output, then it is treated as an insert. Therefore, the effects on the Master L/R actually receive signal from the L/R, then continue straight through to the L/R output. (These effects should not return back to channels, EFFECT RETURNS, or AUX RETURNS because that would create a feedback loop.)

Effect Capabilities

One other thing to remember is that the two effect processors have different capabilities. Listed below are the effects possible with each processor:

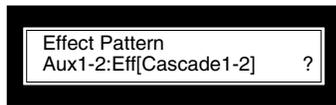
Effect 1: delay, chorus, pitch shifter, flanger, phaser, limiter, compressor, expander, de-esser, and exciter.

Effect 2: same as Effect 1 plus reverb and gated reverb



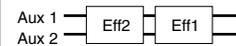
- Stereo Effect 2 on Aux 1-2 and Stereo Effect 1 on L/R Master

Typically, aux 1-2 would be used as a reverb or delay, and the L/R Master Output would use an exciter or compressor limiter.



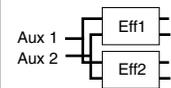
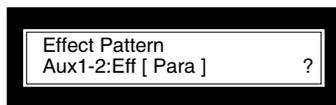
- Two cascaded stereo effects on Aux 1-2

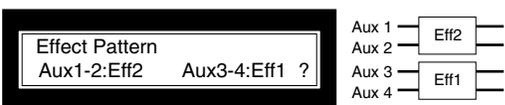
This feeds one effect into the other, such as a delay into a reverb, or chorus into a delay. Another possibility is to apply a dynamic processor to the signal about to be processed. You will need to work with the direct and processed signals to achieve a suitable amount of each effect. There are two options for this, allowing you to reverse the order of the two processors.



- Two parallel stereo effects on Aux 1-2

This again puts two stereo effects on Aux 1-2, but this time it splits the signal, and feeds each effect processor independently. This way, the delay and reverb will both be processed from the same Aux Send, but they do not feed each other. So, there is no reverb in the delay, and no delay in the reverb.





- Stereo Effect 2 on Aux 1-2, Stereo Effect 1 on Aux 3-4
Here we have each stereo effect on its own stereo send. Remember, only one of these can be a reverb, and you must have all 4 Aux/Buss paths assigned as Aux to access this setting.

----- FX-D1000 Additional Capabilities -----

The FX-D1000 expansion card essentially doubles the internal processing power. The FX-D1000 effects card can be assigned as 4 dynamic processors or two stereo effects, just as the internal effects can. When combined with the internal card, the effect combinations grow to 20 different set-ups. However, they all boil down to one of these three basic options:

- 8 channel dynamics
- OR -
- 4 channel dynamics and 2 stereo processors
- OR -
- 4 stereo processors

The effect processors on the expansion card have different effects capabilities, just as the effect processors built into the board have different capabilities. Listed below is the summary of all the processors:

Built in to the TM-D1000:

Effect 1: delay, chorus, pitch shifter, flanger, phaser, limiter, compressor, expander, de-esser, and exciter.

Effect 2: Same as Effect 1 plus reverb and gated reverb

On the FX-D1000 expansion card:

Effect 4: Same as Effect 1.

Effect 5: Same as Effect 2.

In case you're wondering why there is no Effect 3, the mixer designates channel dynamics as Effect 3. For this reason, you really won't see Effect 3 in any set-up menus.

Again, as mentioned in the previous section, stereo effects assigned to aux sends need to be returned somewhere. Channel dynamics and stereo effects assigned to the Master L/R Output are treated as inserts.

When multiple effects are run from the same source (Aux output or L/R), there are a few different typical methods for that:

Applications for Parallel Stereo Effects on Aux Sends: This allows two separate effects to pull from the same Aux Send. For instance, the Aux 1-2 could feed a delay and a chorus. The important thing to realize here is that there is no delay effect feeding into my chorus, and there is no chorus effect feeding into my delay. Also, since both effects are taking sound from both Aux 1 and Aux 2, there is no independent control of each effect. This is useful however, for stacking two delays on the same signal. Each could be set up with different delay times, allowing more polyrhythmic taps.

Applications for Cascaded Stereo Effects on Aux Sends: Here, you do have one effect feeding the other. So, a chorus effect could feed a delay. This is a popular combination, because this means your chorused rhythm guitar is also chorused in the delay signals. Another common application is to place a dynamic before a reverb, or dynamic before a delay. This helps control the amount of effect, so that if a loud section of the lead vocal is followed by some softer parts, the reverb tail (or delay taps) from the louder passage won't drown out the more subtle parts that follow.

Applications for Cascaded Stereo Effects on the Master L/R Output: There are a number of possibilities here, ranging from master mix compression and exciter, to creating some extremely WILD effects for a “breakdown” section in the song. In other words, you could create a passage for a few bars that have a heavy phaser and stereo delay over the entire mix to create a surreal effect for a few moments. Of course, as mentioned previously, there are also the standard combinations of compression and/or gating and/or enhancers to give your mix more of a “Mastered” sound.

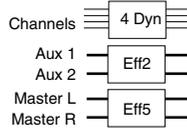
----- Additional Effect Set-ups with Expansion Card -----

Effect Pattern
Ch Dynamics[8ch] ?



- 8 Channel dynamics

Effect Pattern
Ch Dynamics+Aux1-2+L-R ?



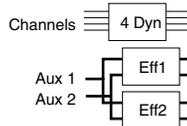
- 4 Channel dynamics, Stereo Effect 2 on Aux 1-2, Stereo Effect 5 on L/R

Effect Pattern
Ch Dynmcs+Aux1-2[Cscd] ?



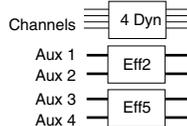
- 4 Channel dynamics, Stereo Effect 2 cascaded into Stereo Effect 5 on Aux 1-2

Effect Pattern
Ch Dynmcs+Aux1-2[Para] ?



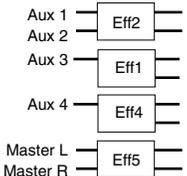
- 4 Channel dynamics, Stereo Effect 2 and Stereo Effect 5 in parallel on Aux 1-2

Effect Pattern
Ch Dynmcs+Aux1-2+Aux3-4 ?



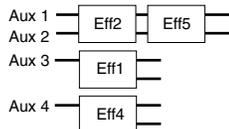
4 Channel dynamics, Stereo Effect 2 on Aux 1-2, and Stereo Effect 5 on Aux 3-4

Effect Pattern
Aux 1-2+Aux3,4[Mono]+L-R ?



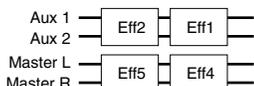
- Stereo Effect 2 on Aux 1-2, Effect 1 in mono on Aux 3, Effect 4 in mono on Aux 4, Stereo Effect 5 on L/R Master

Effect Pattern
Aux 1-2[Cscd]+Aux3,4[Mono]?



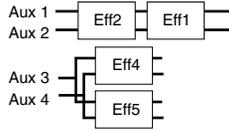
- Stereo Effect 2 cascaded into Stereo Effect 5 on Aux 1-2, Effect 1 in mono on Aux 3, Effect 4 in mono on Aux 4

Effect Pattern
Aux1-2[Cscd]+L-R[Cscd] ?



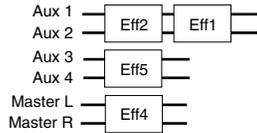
- Stereo Effect 2 cascaded into Stereo Effect 1 on Aux 1-2, Stereo Effect 5 cascaded into Stereo Effect 4 on L/R Master

Effect Pattern
Aux1-2[Cscd]+Aux3-4[Para] ?



- Stereo Effect 2 cascaded into Stereo Effect 1 on Aux 1-2, Stereo Effect 4 and Stereo Effect 5 in parallel on Aux 3-4

Effect Pattern
Aux1-2[Cscd]+Aux3-4+L-R ?



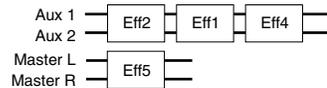
- Stereo Effect 2 cascaded into Stereo Effect 1 on Aux 1-2, Stereo Effect 5 on Aux 3-4, Stereo Effect 4 on L/R Master

Effect Pattern
Aux1-2[Cscd3]+Aux3-4 ?



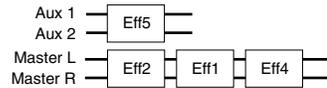
- Stereo Effect 2 cascaded into Stereo Effect 1 cascaded into Effect 4 on Aux 1-2, Stereo Effect 5 on Aux 3-4

Effect Pattern
Aux1-2[Cscd3]+L-R ?



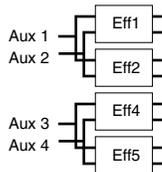
- Stereo Effect 2 cascaded into Stereo Effect 1 cascaded into Effect 4 on Aux 1-2, Stereo Effect 5 on L/R Master

Effect Pattern
Aux1-2+L-R[Cscd3] ?



- Stereo Effect 5 on Aux 1-2, Stereo Effect 2 cascaded into Stereo Effect 1 cascaded into Effect 4 on L/R Master

Effect Pattern
Ax1-2[Para]+Ax3-4[Para] ?



- Stereo Effect 1 and Stereo Effect 2 in parallel on Aux 1-2, Stereo Effect 4 and Stereo Effect 5 in parallel on Aux 3-4

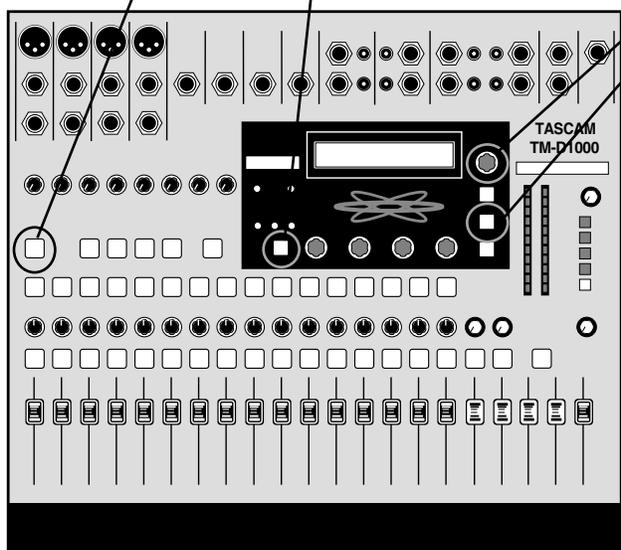
----- Changing Effects Set-ups -----

When determining which effects set-up you wish to use, it is important to keep in mind that these set-ups require you to have at least 2 aux sends. (Some of them will require all 4.) For more information on making aux sends available, see Section V - Buss+Aux=4.

Also, keep in mind that effects on the Aux Sends need to return somewhere. Directions for selecting the effects set-up and routing effect returns are listed below.

To change your effects set-up:

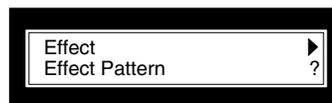
1) Press **SHIFT** and **PARAM SEL** simultaneously.



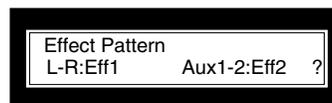
2) Rotate the DATA ENTRY dial to **Effect**. Press **ENTER**.



3) Rotate the DATA ENTRY dial to **Effect Pattern**. Press **ENTER**.

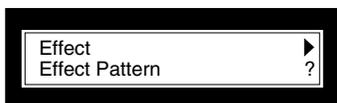


4) Rotate the DATA ENTRY dial to the desired effect pattern. Press **ENTER**.

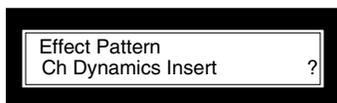


If you are assigning stereo effects, then you can move on to the next page. If you are assigning channel dynamics, then continue below. (The built-in effects processor is now set up for your processing slots, but the individual dynamics still need to be assigned to specific channels.)

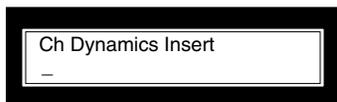
5) Press **ESCAPE** one time.



6) Rotate the DATA ENTRY dial to **Ch Dynamics Insert**. Press **ENTER**.



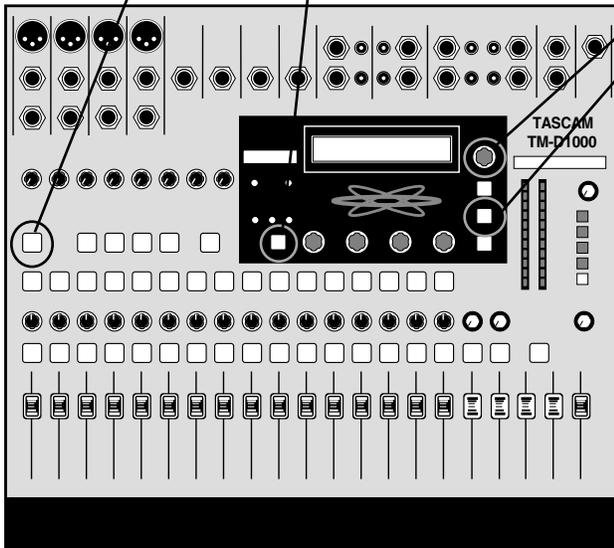
7) Rotate the DATA ENTRY dial to select a channel, and press the DATA ENTRY dial down to insert or remove a dynamic processor.



The channel numbers are silkscreened on the frame of the display window.

To assign the internal effects to either the EFFECT RETURN -or- AUX RETURN:

1) Press **SHIFT** and **PARAM SEL** simultaneously.



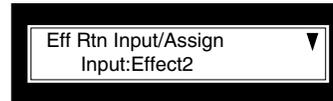
2) Rotate the DATA ENTRY dial to **Setup**. Press **ENTER**.



3) Rotate the DATA ENTRY dial to **Eff Rtn Input/Assign** or **Aux Rtn Input/Assign**. Press **ENTER**.



4) Rotate the DATA ENTRY dial to the desired input source. Press **ENTER**.



5) Push the DATA ENTRY dial down to assign the EFFECT RETURN or AUX RETURN to the L/R output or buss 3-4 (if available). Press **ENTER**.



----- Which Effect is it?!?!? -----

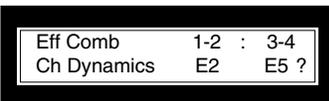
With all the effect combination possibilities, it can get confusing which effect is on Aux 1-2, or Master L/R, or whatever. While it is easy to see in the chart we provided in this manual where it details all of the effect possibilities, what happens if you don't carry this manual with you everywhere you go? It is possible to simply ask the mixer what effect processors are assigned where. To get to this screen:

Press **SHIFT** and **OPTION MONITOR** simultaneously. (OPTION MONITOR is located just under the **ENTER** key.

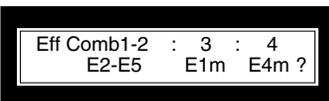
Press the DATA ENTRY dial down until the bottom line reads **Effect**.

Rotate the DATA ENTRY dial all the way to the right, and the screen will display your effects set-up.

NOTE: These effect set-up examples are only possible with the optional FX-D1000 expansion card.



This screen indicates that there are 4 channel dynamics, and Stereo Effect 2 is assigned to Aux 1-2, and Stereo Effect 5 is assigned to Aux 3-4.



This screen indicates that Stereo Effect 2 is cascaded into Stereo Effect 5 on Aux 1-2, Effect 1 is fed in mono on Aux 3, and Effect 4 is fed in mono on Aux 4.

Buss Out vs. Direct Out

Note: Be sure to read BUSS+AUX=4 section to better understand the descriptions here.

There are two ways to record audio to your multitrack machine. There is the Direct Output, and the Buss output.

Direct Output means whatever comes through channel 1 goes to track 1. Channel 5 goes to track 5. Channel 7 goes to track 7. The signal is pulled from the end of the channel strip. This is great for individually tracking all 8 analog inputs at the same time, or just simplifying the signal flow.

Bussing allows you to assign any channel to any buss which flows to a track. Here, Buss 1 feeds tracks 1 and 5. Buss 2 feeds tracks 2 and 6. Buss 3 feeds tracks 3 and 7, and buss 4 feeds tracks 4 and 8. The track that the buss is recorded to is determined by the multitrack. (Simply by enabling Record on that channel.) So, the signal is brought in a channel, assigned to a buss, then recorded to a track.

Bussing is very important, because it enables you to mix down several channels to one track or a stereo pair. It also allows you to move one input across several channels for quick overdubs.

The only caveat with using busses is that it eats into your aux sends. Remember, as we mentioned in the BUSS+AUX=4 section, you can have 2 busses and 2 aux sends. Plus, the EFFECT RETURN is assignable to the buss for mixing down with effects.

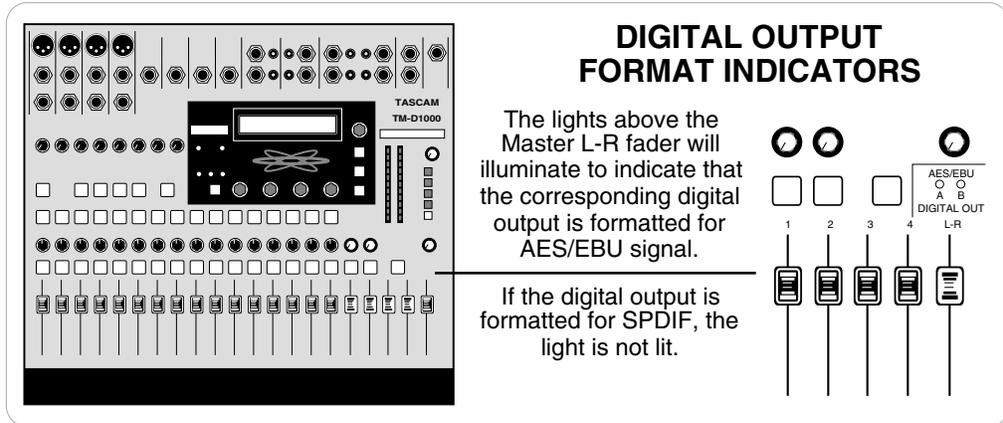
AES/EBU and SPDIF in/out

The TM-D1000 comes with two stereo digital outputs and one stereo digital input available on AES/EBU and SPDIF. These are assignable to different locations on the board, allowing you to keep more signals in the digital domain.

First of all, it is important to realize that you cannot use both the AES/EBU and SPDIF of a single input or output at the same time. However, Digital Output A can operate with AES/EBU signal while Digital Output B is operated with SPDIF signal.

For convenience, there are two LED indicators located just above the master fader. They will light to let you know if one of the digital outputs is configured with AES/EBU signal.

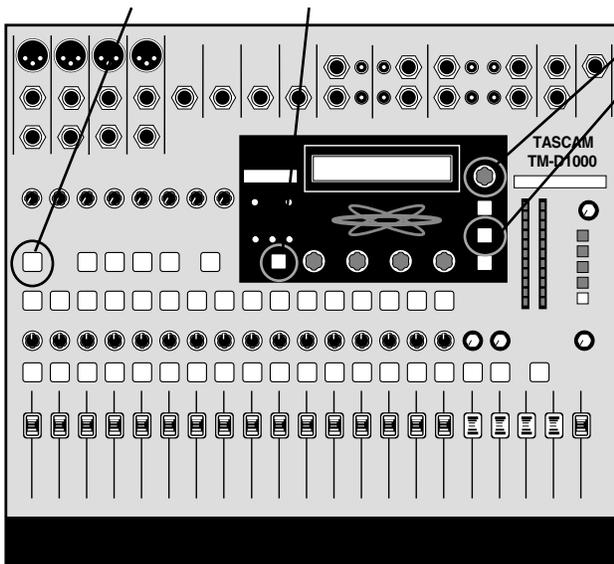
The digital output can be assigned to the buss/aux sends or to the L/R output. The digital input can be assigned to any channel, the EFFECT RETURN or the AUX INPUT.



User Tip: If you are assigning the digital input to a pair of channels from 1-8, you can also assign the analog channel inputs to the aux return. For example, if you are routing a keyboard with a digital output to channels 7-8 through the digital input, the analog inputs on channels 7-8 aren't going to be used. It is possible to assign those analog inputs to the AUX INPUT. This really comes in handy if you want to use external effects with analog connections and you don't have any more channels available.

To configure the source of the digital output:

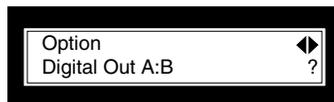
1) Press **SHIFT** and **PARAM SEL** simultaneously.



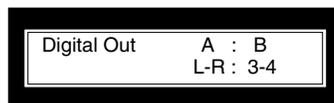
2) Rotate the DATA ENTRY dial to **Setup**. Press **ENTER**.



3) Rotate the DATA ENTRY dial to **Digital Out A:B**. Press **ENTER**.



4) Rotate the DATA ENTRY dial to select the routing you wish to use. Press **ENTER**.



----- Setting Digital I/O Formats -----

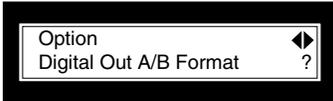
To configure the digital output format:

Press **SHIFT** and **PARAM SEL** simultaneously.

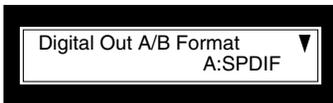
Rotate the DATA ENTRY dial to **Setup**.
Press **ENTER**.



Rotate the DATA ENTRY dial to **Digital Out A/B Format**.
Press **ENTER**.



Rotate the DATA ENTRY dial to select which digital format you wish to use. Press **ENTER**.
(Press the DATA ENTRY dial down to reach Digital Out B.)



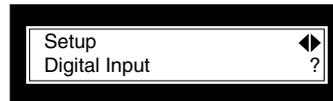
To configure the digital input format:

Press **SHIFT** and **PARAM SEL** simultaneously.

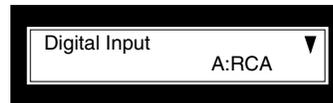
Rotate the DATA ENTRY dial to **Setup**.
Press **ENTER**.



Rotate the DATA ENTRY dial to **Digital Input**.
Press **ENTER**.



Rotate the DATA ENTRY dial to select which digital format you wish to use. Press **ENTER**. If you have the optional IF-TD1000 installed, you can push the DATA ENTRY dial down to reach Digital Input B.



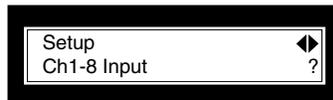
----- Routing Digital Input Targets -----

To route your digital inputs to a channel, EFFECT RETURN or AUX RETURN:

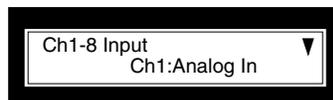
Rotate the DATA ENTRY dial to **Setup**.
Press **ENTER**.



Rotate the DATA ENTRY dial to Eff Rtn Input/Assign, Aux Rtn Input/Assign, Ch1-8 Input, or Ch9-16 Input.
Press **ENTER**.



Rotate the DATA ENTRY dial to select which digital format you wish to use. Press **ENTER**. In the channel screens, pushing the DATA ENTRY dial down accesses other channels.



Live Sound Applications

The TM-D1000 is totally at home in a live situation, as well as the home recording situation. Below is a diagram of a typical application (shown with optional accessories):

The TM-D1000's flexible and transparent routing, snapshot automation, and quick access to the major mixing features makes this board a great live mixer.

Scene snapshots can do wonders for live productions. Live performers can automatically recall preset scenes giving each song, or each section of a song its own mix. In churches, often times the tech who usually runs sound can't be there all the time. So, scenes

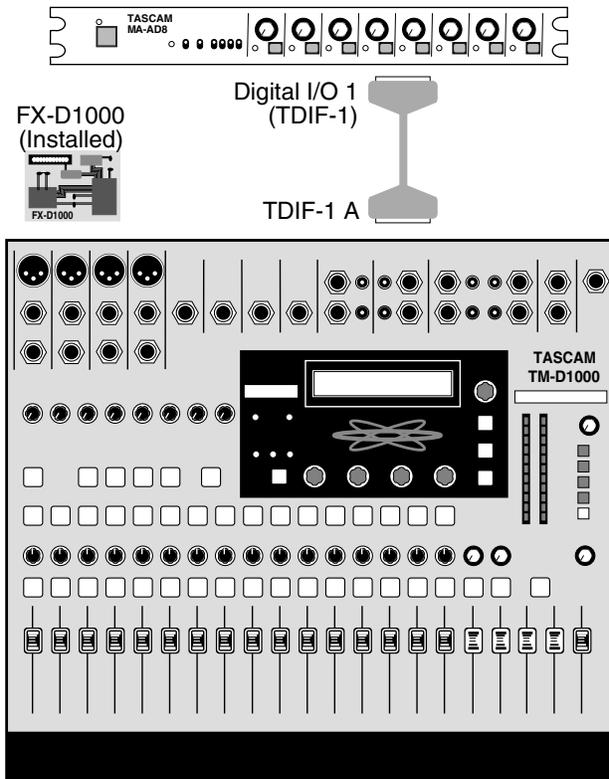
could be set up for each portion of the service that anyone can recall with the push of a button. Theaters could even set snapshots for different scenes or different performers. (This especially comes in handy when multiple performers have to share use of a single mic.) Also, since the snapshots can be recalled through MIDI program change messages, the TM-D1000 can be linked with MIDI equipped lighting consoles or show automation equipment.

Since the Auxiliaries are independently assignable to be pre or post fader, you can set up great monitor mixes from the same console that is running your house sound. For instance, you use the first two aux for a reverb effect, the third aux for the vocalist's monitor send, and the fourth aux for a band monitor send. Obviously, the first two aux will be set as post fader effect sends. The vocalist will be pre-fader in his/her monitor, while the band may be post fader. This way, as you make adjustments to the house level, you are also correcting the level in the vocalist's monitor. This becomes extremely important if you simply turn down the channel for the guitar while he tunes. You don't want the sound of the guitar player tuning coming through the vocalist's monitor, right?!?

As always, in live performance, there is no take two. So, you've got to get everything right the first time. That is why the architecture of the mixing functions were laid out so simply. You're only a button push or two away from where you need to be.

If you need more inputs, TASCAM makes the MA-AD8... a high quality, 8 channel digital mic preamp. This way, all 16 channels can have analog inputs. (For more information, see Section XIV - Optional Accessories for the TM-D1000.)

Another option that could help greatly is the FX-D1000. This is a digital effects card that doubles the internal effect processing horsepower. You can then use up to 8 compressors, or 2 effects and 4 compressors, or 4 stereo effects. The extra compressor options can really come in handy in a live show situation. (For more information, see Section XIV - Optional Accessories for the TM-D1000.)



Example of input, routing, and effect set-up in for 5 piece band.

- CH 1: Lead Vocal
- CH 2: B. Vocal 1
- CH 3: B. Vocal 2
- CH 4: Guitar
- CH 5: Keyboard 1 (L)
- CH 6: Keyboard 1 (R)
- CH 7: Keyboard 2 (L)
- CH 8: Keyboard 2 (R)
- CH 9: Bass DI
- CH 10: Kick Mic
- CH 11: Snare Mic
- CH 12: Tom-Tom 1
- CH 13: Tom-Tom 2
- CH 14: Tom-Tom 3
- CH 15: Overhead Mic 1
- CH 16: Overhead Mic 2
- AUX SEND 1&2: Reverb
- Aux SEND 3: Vocal Monitor
- Aux Send 4: Band Monitors
- COMP/LIM 1: L Vocal
- COMP/LIM 2: Bass DI
- COMP/LIM 3: Kick Mic
- COMP/LIM 4: Snare Mic
- Master L-R: Compressor
- EFFECT RETURN: Reverb Return
- AUX RETURN: DAT for Intros
- EXT INPUT: CD player for music during breaks

Recording Applications

Using a digital mixer like the TM-D1000 will dramatically improve the sound of your recordings. In many professional recording studios, microphones are fed to a mic pre-amp and recorded immediately thereby completely bypassing the board. They do this to avoid any noise added by extra analog circuitry. In the digital mixer, we're taking that one step further. As soon as the input is gain staged, the signal is converted to digital signal which can go directly to tape. But what's really cool is that you still have the capability of adding EQ or effects *without adding more noise!*

The TM-D1000 really shines in the recording environment by keeping the signal digital as often as possible. The digital input can be used for recording keyboards, importing sounds from CD or DAT, or for returning signals from effect processors. The digital output can send signal to effect processors, DAT players, CD burners, or even go to digital speakers.

The built-in effects and dynamics give you the ability to process the signal without ever having to leave the digital domain, or even the mixer! For even more processing capabilities, the optional FX-D1000 doubles your processing capability. For more information, see Section XIV - Optional Accessories for the TM-D1000.

The built-in snapshot capability can make mixing your song much easier. You can set up separate mixes for the intro, verse, chorus, etc., then use the transition time with each snapshot to create a smooth crossfade from one part to the next.

If you have a MIDI sequencer, you can trigger these scenes automatically with the sequencer. One step better, you can also automate the entire mixer with a MIDI sequencer. For more information, see Section XII - MIDI Implementation.

The TM-D1000 is also ready to grow with your studio. You've already got a TDIF port, two digital outs and one digital in. If your studio grows to 16 tracks, you can add the IF-TD1000. That adds another TDIF port for up to 16 tracks of multitrack sends and returns, an additional 2 digital inputs, and a sample rate converter. Also, if you need more mic inputs, the MA-AD8 offers 8 more mic preamps just like the ones on the mixer. Again, for more information, see Section XIV - Optional Accessories for the TM-D1000.

While all of this probably seems real fascinating, you probably want to find out how to record right now! The next section walks you through the recording process step by step.

TM-D1000 QuickStart

For directions on how to set everything up, see Section III - Recording Hook-up. Once that's done, the instructions below will walk you through a really basic recording session. There are two different paths for routing audio to your multitrack: direct out or buss. This QuickStart session will walk you through both types.

Step I - Initializing the TM-D1000

Initializing the mixer resets the mixer to the factory settings. It erases all snapshot scenes, custom effects, and routing options selected. We put this option at the top of the QuickStart to make sure you are starting from the same point we are. If you have custom settings in the mixer, either perform a data dump to save the data to a sequencer (step-by-step directions can be found Section XII - MIDI Implementation), or DO NOT DO THIS! YOU WILL LOSE YOUR OLD DATA!!!

Step II - Direct Out Recording

When using a direct out, each channel is routed directly to a corresponding track on the recorder. In other words, input channel 1 records DIRECTLY to track 1, input 7 records directly to track 7, etc. In order to use this:

Basic recording settings

- Raise the master fader to "0"
- Set the level control above the L-R fader to a comfortable level (probably around the 10 o'clock position.)
- Make sure the L-R button directly beneath the Phones control is pushed down.

Getting signal into the channel

- Plug a microphone, guitar, keyboard, or another sound source into channel 1.
- Raise the fader of channel 1 to the "0" on the channel strip.
- Raise the Trim control for channel 1. You should hear signal.

Routing signal to the recorder

- Press CH SEL above channel 1 to access routing of channel 1.
- The L-R button just above channel 5 should be lit. Press L-R to disengage the routing of channel 1 directly to the main output, and the light will go out. You should not be able to hear the input signal anymore. (Trust me, that's a good thing... you'll see!)
- Arm (record enable) track 1 of the multitrack recorder. If your recorder is connected correctly, input signal from channel 1 should be showing up on the meters of the recorder.
- Set the Trim of channel 1 so the meter is approaching the maximum level at its loudest point, but not exceeding the maximum level.

Setting monitor level and recording

- Raise the fader on channel 9 to hear the tape return of track 1. You should be able to hear your signal now.
- Press Record and Play on your multitrack, and record your track. Press Stop when you're done.
- Disarm track 1 on the multitrack recorder. Signal from channel 1 of the TM-D1000 will no longer be heard.
- Rewind the tape to the beginning, and listen to your new masterpiece.

That's it. You've just recorded your first track through the TM-D1000. Pretty cool, eh? Now, let's try another method of recording: BUSSING!!!

Step III - Buss out Recording

Setting up busses to be available

The TM-D1000 uses the same signal paths for both auxiliary sends and busses. Since the default setting of the board is with 4 auxiliaries, and we want to record using busses, we need to make some busses available. For detailed explanation of your options, read Section V - Buss+Aux=4. But for now, to save you the page flipping and prevent information overload in this session, we've given you instructions on basic switching between aux and busses.

- Press SHIFT and PARAM SEL together. The top line of the screen should read "Option". If it does not, press ESCAPE until it does.
- Rotate the DATA ENTRY dial to the left until the bottom line of the screen reads "MODE". Press ENTER.
- Rotate the DATA ENTRY dial to the left until the bottom line of the screen reads "MODE select". Press ENTER.
- Rotate the DATA ENTRY dial to the left until the bottom line of the screen reads "REC". Press ENTER.

You have just entered... Record mode. (*Cue "Twilight Zone" music.*) Record Mode and Mix Mode are a simple way of keeping track of whether your four BUSS/AUX paths are all busses (Record Mode) or all Auxiliaries (Mix Mode.) There are other options available. Again, they are explained in Section V - Buss+Aux=4.

Setting up input signal

Just to make things easy, we can use the same input we used in Step II - Direct Out Recording. Or, if you want to plug another source in, then go for it! Just remember to set the signal up just as we did in "Step II - Direct Out Recording" under "Setting up and input signal".

Routing signal to the recorder

- Press CH SEL above your input channel, and disengage it's L-R routing by pressing the lit L-R button. Again, the L-R button will turn off when you do this, and you will no longer be able to hear the signal directly. Of course, if the light is already out, then you can leave it alone.
- Press the 3-4 button, just to the left of the L-R button. The 3-4 button should now light up. This indicates that we have routed signal to busses 3 and 4.
- Raise the 3-4 buss level to "0". (They're the right two black faders in the bottom right of the mixer.)
- Arm track 3 and 4 of your multitrack.
- Start playing signal into the mixer. You will notice the signal feeds both tracks. If you rotate the pan control to the left, the signal will only show up to track 3. Rotating the pan to the right moves the signal to track 4. Basically, groups 3 and 4 are a stereo pair, and the pan control moves the signal between them. This is especially useful for live submixing or bouncing tracks. (i.e. recording 4 drum mics, a bass and rhythm guitar down to a stereo pair of tracks.)
- Rotate the pan to the far right. We'll record this signal on track 4 only. You can disengage track 3 if you like... we don't need that. We just used it to demonstrate panning in busses.
- Set the Trim of channel 4 so the meter is approaching the maximum level at it's loudest point, but not exceeding the max level.

Setting monitor level and recording

- Raise the fader on channel 12 to hear the tape return of track 4. You should be able to hear your signal again now.
- Press Record and Play on your multitrack, and record your track. Press Stop when you're done.
- Disarm track 4 on the multitrack recorder. Signal from your input channel of the TM-D1000 will no longer be heard.
- Rewind the tape to the beginning, and listen to your new masterpiece.

You just bussed a signal! Feeling like a pro yet? Well, let's take this a step further: ADDING EQ!!!

STEP IV - Adding EQ

Recording enthusiasts want more bass in their bass and more sizzle in their cymbal. The seasoned pro wants to “bring out the character in the sound by enhancing its natural qualities.” However you say it, you’re tweaking EQ. Here’s how you do it on the TM-D1000. *If some of the terms regarding different types of EQs become intimidating, look up EQ in Section XIII - What the Heck is That?. You will find explanations of what the different types are and some potential applications of each type.*

- Press CH SEL above the channel you want to add EQ on. If you followed our QuickStart, that would be channels 9 or 12... not channel 1 or 4. Remember, we want to add it to our multitrack recorder returns.
- To engage the EQ on the channel you’ve selected, press the EQ ON/OFF switch just above channel 6.
- Press PARAM SEL until the EQ light turns green. The screen should show you the digital pad and the parametric mid EQ band.
- The arrow in the upper right corner of the screen indicates that there are more parameters available. Turn the DATA ENTRY dial to the right, and the screen should show you the low and high sweepable EQ bands.
- Tweak the parameters to your heart’s content.

Now you’re thinking this is pretty cool, but we thought you might like to kick it up a notch! Read on to STEP V - Adding Effects.

STEP V - Adding Effects

In order to use effects, we need to have aux sends available. If you went through “Step III - Buss Out Recording”, then we’ll need to switch the board back to MIX mode. To do that:

- Press SHIFT and PARAM SEL together. The top line of the screen should read “Option”. If it does not, press ESCAPE until it does.
- Rotate the DATA ENTRY dial to the left until the bottom line of the screen reads “MODE”. Press ENTER.
- Rotate the DATA ENTRY dial to the left until the bottom line of the screen reads “MODE select”. Press ENTER.
- Rotate the DATA ENTRY dial to the right until the bottom line of the screen reads “MIX”. Press ENTER.

Now that we’re back in MIX mode, let’s add some effects.

Raising the channel aux level

- Press CH SEL above the channel you want to add effects on. If you followed our QuickStart, that would be channels 9 or 12... not channel 1 or 4. Remember, we want to add it to our multitrack recorder returns.
- Press PARAM SEL until the aux light turns green. The screen should show you the aux sends. The first two sends are ganged together in a stereo send. The first dial is panning between the two sides of the send, and the second dial is the level.
- Turn the second dial up so the screen displays 80.

Raising the master aux send and return

- Raise the 1-2 aux send level to “0”. (They’re the left two black faders in the bottom right of the mixer.)
- Rotate the Effect Return level to about the 3 o’clock position.

You should hear a “Concert Hall” Reverb. To change that to another type of effect:

Changing the effect type

- When the screen is showing the effect type, press ESCAPE/RECALL. The screen will flash different effects, indicating that you can select from the available effects.
- Rotate the DATA ENTRY dial to select the effect you wish to use
- Press ENTER to load that effect. Or, if you decided not to change, press ESCAPE again to leave the settings the way they are.

STEP VI - Storing/Recalling Snapshots

Now that you've slaved over your mix, you can save your mixer settings in a "snapshot." This way, you can set up a mix, save it, set up another mix, save it, and recall either at any time. To do this:

Storing snapshots

- Exit the effects screen if you are in one. (Otherwise, you will be storing effects, not snapshots.)
- Press SHIFT and STORE together. The screen will show the first unwritten snapshot.
- Press ENTER. The screen will now allow you to name the scene.
- Rotate the DATA ENTRY dial to select a character. To switch between upper and lower case letters, press SHIFT. To get to another space, simultaneously press down and rotate the DATA ENTRY dial. When you're done naming your snapshot...
- Press ENTER. The screen will now allow you to set the transition time between scenes. Rotate the DATA ENTRY dial to determine the transition time.
- Press ENTER.

Recalling snapshots

- Exit the effects screen if you are in one. (Otherwise, you will be recalling effects, not snapshots.)
- Press ESCAPE/RECALL.
- Rotate the DATA ENTRY dial to select the desired scene.
- Press ENTER to load that snapshot.

That's it!

Well, that's about it. You just walked through most of the major recording functions of the TM-D1000. We still encourage you to read the other parts of this guide to help you understand these features in more detail and to learn about some of the more advanced features.

MIDI Implementation

From project to pro, MIDI has become a standard part of studios everywhere. On the back of the TM-D1000 is a pair of MIDI jacks, extending the functionality of the mixer.

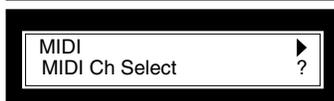
----- Automation -----

Saved scenes can be recalled with a standard program change message, just like changing patches on a synthesizer. The crossfade transition time associated with that scene will engage, just as if you had manually recalled the scene from the board.

To set the channel your mixer will receive the program change on:



- Press **SHIFT** and **PARAM SEL** simultaneously. The top line of the screen should read Option. If it doesn't, press **ESCAPE** until it does.



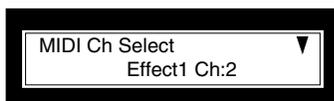
- Rotate the DATA ENTRY dial to **MIDI**. Press **ENTER**.

- Rotate the DATA ENTRY dial to **MIDI Ch Select**. Press **ENTER**.

- Rotate the DATA ENTRY dial to select the MIDI channel you wish to use. Press **ENTER**.



As a side note, you can also recall each effect processing program separately. From the same screen you were in on the previous instruction:



- Press the DATA ENTRY dial down to access the processors' MIDI assignment.

- Rotate the DATA ENTRY dial to select the MIDI channel you wish to use. Press **ENTER**.

For more in-depth automation, all of the mixer functions have been assigned a MIDI parameter. Parameter change information is sent whenever you change something on the mixer. (i.e. move a fader, sweep an EQ, change the delay from multi-tap to stereo, etc.) Simply have your sequencer recording when you change the parameter. Be aware however that the mixer sends and receives information across all 16 MIDI channels, so you will want to use a sequencer and MIDI interface capable of cabilization (using more than 16 channels.) Consult your sequencer manual for more information on that. Also, you may want to make sure your sequencer can record from more than one MIDI channel at a time without merging the signals to one channel.

MMC (MIDI Machine Control) -----

The TM-D1000 can act as a remote control for multitracks, sequencers, etc. The bussing function buttons, CH SEL buttons and MUTE buttons can double as MIDI Machine Control buttons. Simply press **SHIFT**, and the buss function keys become basic transport controls: play, stop, fast forward, rewind, and record. The CH SEL buttons double to give you 16 locate points!!! Plus, the MUTE buttons double as track record arming/disarming. (The **SHIFT** functions are listed in blue by the buttons.)

When you are in the heat of mixing, chances are you won't need to get to your bussing or EQ in/out switches. So, you can "lock" the shift key for those buttons. Just double click the shift key, and the **LOCK** light will turn on, indicating that the top row is locked as standard transport functions. To undo this, double click the shift key again and the light will go out.

One thing you will need to determine is whether you have an "Open Loop" or "Closed Loop" for MIDI Machine Control. All that means is whether or not the communication between the mixer and controlled units is one-way or two-way.

Closed loop (two-way communication) is generally considered better because you have current information in your mixer. (Signals can be sent from the controlled decks verifying the action requested.) The play light will be solidly illuminated telling you that the unit is playing or recording. Also, you can stack commands. For instance, you could press locate 1 and play right away. This way, when the machine gets to locate point one, it immediately plays.

Open loop (one-way communication) is better than nothing, but you have no verification that your controlled unit is doing anything. The lights on the mixer will constantly flash, to help you know what commands were last sent. However, the mixer cannot confirm any mode without the closed loop. Also, you might not be able to stack commands

To set the type of MMC communication loop:

- Press **SHIFT** and **PARAM SEL** simultaneously. The top line of the screen should read OPTION. If it doesn't, press ESCAPE until it does.
- Rotate the DATA ENTRY dial to **MIDI**. Press **ENTER**.
- Rotate the DATA ENTRY dial to **MMC Communication**. Press **ENTER**.
- Rotate the DATA ENTRY dial to select the type of MMC loop. Press **ENTER**.

----- MTC (MIDI Time Code) -----

While the TM-D1000 cannot generate MTC (there is no reason for it to do so,) it can receive MIDI Time Code. If you are using the remote control features of the mixer, you can capture locate points on the fly. You will need to set the type of timecode coming into the mixer. To do this:

- Press **SHIFT** and **PARAM SEL** simultaneously. The top line of the screen should read OPTION. If it doesn't, press ESCAPE until it does.
- Rotate the DATA ENTRY dial to **MIDI**. Press **ENTER**.
- Rotate the DATA ENTRY dial to **MTC Type**. Press **ENTER**.
- Rotate the DATA ENTRY dial to select the MTC frame rate. Press **ENTER**.

----- System Exclusive Data Dump/Load -----

A simple way of backing up your mixer data is to perform a MIDI data dump. You can either transfer all of the data to a MIDI sequencer, or from one mixer to another. To dump the data:

- Press **SHIFT** and **PARAM SEL** simultaneously. The top line of the screen should read OPTION. If it doesn't, press ESCAPE until it does.
- Rotate the DATA ENTRY dial to **MIDI**. Press **ENTER**.
- Rotate the DATA ENTRY dial to **Data Dump**. Press **ENTER**.
- You can select between dumping All the mixer data, just the SNAPSHOT Data, or just the Effect Data. Rotate the DATA ENTRY dial to make your selection and press **ENTER**.
- The screen will show "OK?" Make sure your target is ready to receive, and Press **ENTER**.
- The screen will show "Execute..." while it is performing the data dump, and should display "Complete press ESCAPE.." when done.

To load saved data back into the mixer:

- Press **SHIFT** and **PARAM SEL** simultaneously. The top line of the screen should read OPTION. If it doesn't, press ESCAPE until it does.
- Rotate the DATA ENTRY dial to **MIDI**. Press **ENTER**.
- Rotate the DATA ENTRY dial to **Data Load**. Press **ENTER**.
- You can select between loading All the mixer data, just the SNAPSHOT Data, or just the Effect Data. Rotate the DATA ENTRY dial to make your selection and press **ENTER**.
- The screen will display "Ready..." Start dumping the data from your source.
- The screen will show "Execute..." while it is performing the data dump, and should display "Complete press ESCAPE.." when done.

What the Heck is That?

Our wonderful artistic musical world has been flooded with acronym alphabet soup in the last 10 years or so. Here's a guide to help you better understand what all those techie terms mean.

AES/EBU - The digital communication format standard developed by the Audio Engineering Society and European Broadcast Union. It puts 2 channels of digital audio through an XLR connector. (Obviously, it must connect to another AES/EBU port... don't expect any great results plugging it into your mic pre.) If you are copying DAT tapes or CDs, this might not be the format to use since it does not transmit track data (whereas SPDIF does). However, the good news is that there is no SCMS code on the signal.

bit rate - Each time that digital audio records the amplitude of a signal, it is done with a binary number (in 0's and 1's.) Each 0 or 1 is a bit. The bit rate simply lets you know how many 0's and 1's are used to record the signal. The widely accepted standard in digital audio is the CD quality 16 bit.

CD - Acronym for Compact Disc. Perhaps you've heard of it.

CD-R - Acronym for Compact Disc Recordable. This is a CD that you can record to only once. CD-R discs will work in the majority of CD players and CD-ROMs. There are standard CD-R media, and "music" CD-R media. Instead of (or sometimes in addition to) SCMS code, some manufacturers have made CD-R devices require "music" CD media which are significantly (as much as 6 times) more expensive than regular CD-R media to prevent or help offset the cost of piracy. However, TASCAM units are designed for professionals and people making their own music, so they work with the standard, inexpensive CD-R media and override or ignore SCMS code. (i.e. CD-RW5000, CD-D4000, CD-R400)

CD-RW - Acronym for Compact Disc ReWriteable. This is a CD you can write, erase and rewrite over and over again. The only catch is that CD-RW does not work in many standard CD players or CD-ROMs. However, these are still great for experimentation or assembly of a master. Almost all CD-RW drives can also read/record CD-R discs as well. (i.e. CD-RW5000)

coaxial - In the audio industry, this is a fancy way of saying "SPDIF signal down an RCA cable." Typically, a coaxial port is an RCA connector that is set up to carry SPDIF signal. However, be aware that some devices allow you to transmit AES/EBU out the coax port also.

DAT - Acronym for Digital Audio Tape. DAT recorders work like a cross between CD and cassette. The tape stores stereo digital information and can utilize track ID numbers just like a CD. DAT uses the familiar cassette transport controls, and can be written and re-written many times. (i.e. TASCAM DA-20mkII, DA-40, DA-45HR, DAP-1)

DTRS - Acronym for Digital Tape Recording System. This refers to TASCAM's MDM recording system which uses Hi8 tapes. (i.e. DA-38, DA-88, DA-98)

EQ - Acronym for Equalizer. Most people are pretty familiar with EQ; it operates on a mixer just like it does on a home stereo. However, most people are not familiar with the different types of EQ. (i.e. parametric, sweepable, shelf, peak, etc.) Below are some basic explanations of the different types.

Boost/Cut - Boost/cut is the type of EQ found on most home stereos. It simply boosts or cuts the frequency response around a center frequency in a Bell curve fashion. The amount of boost or cut is controlled by the "Gain" dial, and the frequency given is the center frequency.

Shelf - Similar to the boost/cut, a shelf EQ is fixed in location and is a simple boost or cut. However, instead of the band-width building and falling around a center frequency, it boosts up to it, and continues boosting at the desired level until it reaches the end of our hearing potential. So, a low shelf EQ gain pattern could slope up to 80Hz, and continue at that amount of gain all the way down to the frequency response of the mixer. The High Shelf may slope up to 12kHz, and continue at that boost until it reaches the highest frequency response of the mixer. The amount of boost or cut is controlled by the "Gain" dial, and the frequency given is usually the frequency where the EQ first reaches its maximum level.

Sweepable - A sweepable EQ simply means the center frequency can be moved. Sweepable EQs can be either boost/cut or shelf EQs. This is very handy because the EQ may be focused on a specific part of the audio where it may bring out more character of the signal. For instance, a High Sweep/Shelf EQ may be focused just above the primary bands of a singer's voice, giving them more of a breathy quality. A low sweepable boost/cut may be used to add more of a pillow sound to a kick drum, a little higher will make it punchy, and around 1kHz you might find more kick drum beater. On a sweepable EQ, the Gain will adjust the amount of boost/cut, and the Frequency will select the center frequency of the band.

Parametric - A parametric EQ is a sweepable EQ that also gives you the ability to adjust the bandwidth. In other words, you can determine how wide an area around the center frequency you are affecting. (1/10th octave, 1/3 octave, 3 octaves, etc.) So, if you want to add a wide, smooth sounding rise in response, you can. If you want to slice out a specific part, you can do that too. This is particularly helpful to remove a 60Hz buzz, a ringing feedback frequency in a live show, or to add a little more edge to the crack of a snare drum. The controls for a parametric EQ are Gain for adjusting the amount of boost or cut, Frequency for selecting the location of boost or cut, and "Q" for adjusting the width of boost or cut.

Notch - A notch filter is a term used for a narrow band of EQ, typically used to "notch out" a frequency. As mentioned in the parametric EQ listing, it is typically used for removal of trouble frequencies.

I/O - This is a real cool way of saying "input and output." Also, it is the last two letters of "Old MacDonald had a farm, E-I-E-I/O". No one knows what the E-I-E part stands for, or why there are 5 spaces and only 3 of the 5 vowels on that song.

insert - An insert is also known as a "send and return". Both names aptly describe what it does. Basically, an insert point allows you to put another device into the signal flow. This way, if you have a compressor, noise gate, fancy EQ, etc. you can *insert* it into the signal path. This is usually accomplished through a TRS plug (Tip-Ring-Sleeve), that utilizes the two channel signals as one path going in, one going out (instead of left side and right side). The signal then comes to the insert point, goes out to the connected processor, and then returns to continue down the signal path just like normal.

jitter - Jitter is caused by multiple digital devices interconnected that can't synchronize themselves, and samples are cut out or missing which causes audible pops or other anomalies. To prevent this, the devices will use "word clock" to keep them all together.

MDM - Acronym for Modular Digital Multitrack. Typically the units will each handle up to 8 tracks, and have the capability of slaving multiple units together for larger recording systems. The two major formats for this type of machine are the Hi8 format from TASCAM, or the SVHS format from Alesis. (i.e. TASCAM DA-38, DA-88 or DA-98, or Alesis ADAT)

MIDI - Acronym for Musical Instrument Digital Interface. MIDI sends *performance data* that allows one synthesizer to control another. No audio is actually passed through MIDI. What MIDI sends and receives is instructions like "middle C was just played" or "the sustain pedal was pushed down". In the case of the TM-D1000, messages would be transmitted that "fader 14 was moved up" or "aux 1 on channel 12 was turned down." This way, whatever you do, a sequencer can remember all of your instructions in a mix, and play them back over and over again for you. Plus, you can edit your moves in the sequencer. It is important to remember that MIDI is a digital communication system, but is not used to transmit digital audio.

MMC - Acronym for MIDI Machine Control. MMC is a standard that gives transport control of MMC compliant recorders/players through standard MIDI cables. (Transport control includes things like play, stop, fast forward, rewind, record, pause, locate, and track record enabling.)

Lightpipe - The digital communication format standard developed by Alesis. It puts eight channels of digital audio through an optical cable. Don't get an optical SPDIF signal confused with the ADAT lightpipe... they're not compatible. When hooking up devices with Lightpipe ports, you will need to use a TASCAM IF-TAD conversion box to convert the Lightpipe format to TDIF format.

optical - SPDIF and Lightpipe digital formats both travel through an optical cable (Only one at a time, please.) Remember, Lightpipe and SPDIF are not compatible formats, though. Lightpipe is 8 channels, SPDIF is 2 channels.

sample rate - The sample rate indicates how many times per second the amplitude of a sound is recorded. Current typical standards are the CD standard 44.1kHz (44,100 samples/second) or the higher resolution 48kHz (48,000 samples/second.)

sample rate converter - A sample rate converter simply allows you to change a digital signal from one sample rate to another. For instance, if a recording system is running at 48kHz and you need to bring a CD in (which is always running at 44.1kHz) then the sample rate converter will make the adjustment in real time. The TM-D1000 does not come stock with a sample rate converter. However, there is an optional one on the IF-TD1000 digital I/O expansion option. TASCAM's CD-RW5000 does come with one, allowing sessions recorded at 48kHz to be digitally recorded to CD.

SCMS - Acronym for Serial Copy Management System, the copy control system in digital communication. Basically, SCMS only lets you make one digital copy of a master. It was introduced to help control piracy on the consumer market. (SCMS is typically found on consumer grade equipment.) However, professionals in the audio industry need to make copies of things for many different reasons. So, most TASCAM pro equipment can either override or ignore SCMS code, allowing you to distribute your masterpiece without restriction.

snapshot - Once a mix is set up on the mixer, all of the settings can be stored in a "snapshot." The term came from simply taking a picture of the mixer settings. On the TM-D1000, up to 128 snapshots can be stored and recalled.

SPDIF - The digital communication format standard developed by Sony and Philips. (SPDIF stands for Sony/Philips Digital Interface.) It puts 2 channels of digital audio through an RCA connector (coaxial) or an optical cable. Yes, this one has two different cables that can carry it. (Obviously, it must connect to another SPDIF port... don't expect any great results plugging it into your vintage 1973 8 track.) Don't get an optical SPDIF signal confused with the ADAT lightpipe either... they're not compatible. When working with consumer digital players/recorders, SPDIF sometimes carries SCMS code on it. SPDIF can also carry track number data for DAT players and CD players/recorders which is one advantage to SPDIF over AES/EBU.

TDIF - Acronym for TASCAM Digital Interface. The digital communication format standard developed by TASCAM. TDIF provides for 2 way communication of 8 channels of audio through a DB25 plug. A TDIF cable is not the same as a SCSI, parallel, or any other 25 pin cable. Use only approved TDIF cables to ensure proper operation.

transition time - The TM-D1000 has the capability of crossfading into a scene or between scenes. (The only thing that crossfades is volume. Everything else snaps upon recalling the scene.) The duration of that crossfade is called the transition time. On the TM-D1000, the transition time is adjustable from 0 to 10 seconds in 1/10th of a second intervals.

word clock - (If you don't have a firm grasp on sample rates and bit rates, see Section II - Crash Course in Digital Audio.) When multiple devices are connected digitally, they need to synchronize their sample rates. Each digital sample makes up one "word". So, the word clock basically makes sure that all the devices are transmitting their digital information at the same time to prevent "jitter" problems. Remember, you'll probably be needing to synchronize 44,100 or 48,000 samples every second from EACH source channel. It is important to realize that only one device can be the master, and all of the others will follow that master.

Optional Accessories for the TM-D1000

RM-D1000 - Rack Ears for TM-D1000

Rack ears for the TM-D1000. FYI - The black wrist rest can come off of the TM-D1000 to save space.

FX-D1000 - Digital Effects Card

This card essentially doubles the internal effects capability of the TM-D1000, adding 4 more processing slots (making it a total of 8.) You will need version 1.18 or later to install and use the card. If you need a system update, it is available free of charge from TASCAM.

IF-TD1000 - Digital I/O Expansion Card

This card adds a second TDIF port, a digital in and out on both SPDIF and AES/EBU, and a sample rate converter. With this card, you can feed every channel with digital information, using 16 channels on TDIF, three stereo digital outs and two stereo digital ins. The IF-TD1000 makes the TM-D1000 more than just a great multitrack board... it also becomes an amazing digital router! You will need version 1.18 or later to install and use the card. If you don't have that system, it is available free of charge from TASCAM.

MA-AD8 - 8 Channel Digital Mic Preamp

The MA-AD8 has 8 high quality mic pre-amps with digital audio converters. Each mic pre has gain control, phantom power and a pad. All the signals are converted to digital, and sent through a TDIF line. There are 2 TDIF ports on the unit, allowing cascading of units.

The MA-AD8 has a multitude of applications. One is to simply add more analog inputs to the TM-D1000. With this, it becomes a powerful 16 channel live mixer. In the recording environment, it can add more analog ins for large scale recording without losing the TDIF port for the multi-track. (The multitrack cascades through the MA-AD8's second TDIF port.) For the club gigs, you can record 8 tracks of live audio for 1 hour and 48 minutes in 4 rack spaces with the DA-38 and MA-AD8!

CUPW88D and CUPW88DL - TDIF Dubbing Cables

These are the model numbers for the CableUp! TDIF digital cables. The CUPW88D is 1 meter in length. The CUPW88DL is 5 meters in length.

MMC-38 - MMC/MTC/SMPTE for the DA-38

The MMC-38 does a number of things for the DA-38: It converts MIDI Machine Control into TASCAM Sync, and converts the DA-38 Absolute Time Code (the time displayed on the front time counter) into both MIDI time code and SMPTE time code. So, you get timecode without striping a tape track with timecode. The time code converter supports 24, 25, 29.97 & 30 drop and non-drop frame rates.

MMC-88 - MMC/MTC/SMPTE for the DA-88

This unit is basically the same thing as the MMC-38, but designed for the DA-88. If your DA-88 does not have an SY-88 card in it, the MMC-88 will provide a lower cost alternative if the DA-88 is only going to be the master in the sync set-up.

IF-TAD - Lightpipe to TDIF Converter

The IF-TAD simply converts the Lightpipe digital format to TDIF digital format, converting two optical cables into one TDIF line for 2 way communication. Again, this can do more than simply link an ADAT to the TM-D1000. It could be used to transfer ADAT tapes to Hi8 tapes, integrate DA-38s with Lightpipe editors, and more.

IF-AE8 - 8 Channel TDIF to AES/EBU Converter

This single space rack unit converts a TDIF signal into 4 stereo pairs of AES/EBU in/out. This is handy for connecting a ProTools 888 I/O, or multiple AES/EBU signals from samplers, DATs, etc.

IF-DA8 - 8 Channel Digital (TDIF) to Analog Converter

This single space rack unit converts digital signal from TDIF to analog for connecting analog recorders to the TM-D1000. The IF-DA8's 24 bit converters support sample rates of 44.1kHz and 48kHz. For more involved set-ups, Word Clock In and Thru ports are available, and its balanced outputs have an adjustable maximum level of +15dBu, +20dBu, or +24dBu. This unit also has a cascading TDIF port, so other TDIF units can be added to the line.

Troubleshooting the TM-D1000

AUX - I can't hear any effects!

- 1) Do you have AUX sends available? If you are in RECORD mode, the answer is no. Read the section entitled "BUSS+AUX=4" for more information on this. If you haven't changed the board from the factory defaults, then don't worry about that right now.
- 2) There are three different places where you have control of your effects. Each channel has an individual effect send, the individual sends feed a master send, and the effect has to return somewhere.
 - A) Is the effect level up on that channel? Press CH SEL of the channel you are trying to add effect to, then press PARAM SEL until the AUX light turns green. Make sure you have a good amount of level send. (The number goes from 0 to 100. To be sure, crank that level up to around 75 or higher.)
 - B) Is the effect send master level up? That would be the black fader in the lower right. Make sure that is up to at least the shaded area. In fact, move the fader up and down back into position just in case you have a snapshot assigning a volume to a value other than what your fader shows.
 - C) Is the effect return level up? This depends on where you have the effect returned to. If you are using internal effects, it would be either returned to the EFFECT RETURN or AUX INPUT. Make sure those levels are up. Again, move the dials to make sure a snapshot hasn't assigned a lower volume for you.
- 3) Make sure you have the effect returning properly. To check the return routing of the effects:
 - A) Press SHIFT and PARAM SEL simultaneously. The top line of the screen should read OPTION. If it doesn't, press ESCAPE until it does.
 - B) Rotate the DATA ENTRY dial to SETUP. Press ENTER.
 - C) Rotate the DATA ENTRY dial to EFFECT RETURN INPUT SELECT. Press ENTER. If the screen does not show "EFFECT 2", then rotate the DATA ENTRY wheel until it does. Press ENTER to select that input.

AUX - I assigned two effects loops, and I can't hear the second effect!

- 1) Did you assign a return for the second effect?
 - A) Press SHIFT and PARAM SEL simultaneously. The top line of the screen should read OPTION. If it doesn't, press ESCAPE until it does.
 - B) Rotate the DATA ENTRY dial to SETUP. Press ENTER.
 - C) Rotate the DATA ENTRY dial to AUX INPUT SELECT. Press ENTER. If the screen does not show "EFFECT 1", then rotate the DATA ENTRY wheel until it does. Press ENTER to select that input.

BUSS - I can't assign my channels to a buss!

- 1) The group selection buttons, EQ and Direct Output double as MMC transport controls. If the LOCK light is lit, that means those controls are "locked" as transport controls. To unlock them and return them to their original functions, double-click the shift key. The LOCK light should turn off.
- 2) Do you have any busses enabled? Read the BUSS+AUX=4 section about configuring the mixer's busses and auxiliary sends.

Digital Input A - I plugged a device into my digital input, but I'm not getting any signal!

- 1) Do you have the right format of input assigned? To check the input format:
 - A) Press SHIFT and PARAM SEL simultaneously. The top line of the screen should read OPTION. If it doesn't, press ESCAPE until it does.
 - B) Rotate the DATA ENTRY dial to SETUP. Press ENTER.
 - C) Rotate the DATA ENTRY dial to DIGITAL INPUT FORMAT. Press ENTER.
 - D) Select the appropriate input format. For AES/EBU, rotate to XLR. For SPDIF input, rotate to RCA.
- 2) Do you have the digital input assigned anywhere? See the Configurations section for information on routing signal to a channel, EFFECT RETURN, or AUX RETURN.

Digital Outputs - I've connected my digital output to an external digital device, but it's not getting any signal!

- 1) Do you have the right format of output assigned? The lights just above the master fader will indicate whether the outputs are designated as AES/EBU or SPDIF. If the signal is output as AES/EBU, the light turns on. If not, the light is out. To change the output format:
 - A) Press SHIFT and PARAM SEL simultaneously. The top line of the screen should read OPTION. If it doesn't, press ESCAPE until it does.
 - B) Rotate the DATA ENTRY dial to SETUP. Press ENTER.
 - C) Rotate the DATA ENTRY dial to DIGITAL OUTPUT FORMAT. Press ENTER.
- 2) Do you have the appropriate signal assigned to that output?
 - A) Press SHIFT and PARAM SEL simultaneously. The top line of the screen should read OPTION. If it doesn't, press ESCAPE until it does.
 - B) Rotate the DATA ENTRY dial to SETUP. Press ENTER.
 - C) Rotate the DATA ENTRY dial to DIGITAL OUT A:B. Press ENTER. Rotate the dial to show the appropriate output assignments.
- 3) Is there any level being assigned to that output?
 - A) Press the monitor select buttons in the master section to determine if anything is being sent to that output. (i.e. BUSS/AUX 1-2, 3-4, etc.)
- 4) The TM-D1000 has 2 digital outputs. Did you connect your external device to the correct one?
- 5) Did you go into the *digital* port on your digital device?

Direct Output - When I push the DIRECT OUTPUT button, it doesn't light up and doesn't route my signal.

- 1) The group selection buttons, EQ and Direct Output double as MMC transport controls. If the LOCK light is lit, that means those controls are "locked" as transport controls. To unlock them and return them to their original functions, double-click the shift key. The LOCK light should turn off.

Dynamics - When I try to engage one of the dynamic processors, it removes one of the others I've already assigned.

- 1) Do you have any processors left? Right out of the box, the board is capable of up to 4 dynamic processors. If you have the extra effects board, you are then capable of up to 8.
- 2) What software version do you have? Version 1.14 and earlier assigned processor 1, then 2, then 3, then 4, then 1, then 2 (and so on.) This was changed to pull from the available processors in version 1.18 and later. Contact TASCAM Technical Support at (323) 726-0303 to receive a software update. To check your software version:
 - A) Press Option Monitor.
 - B) Press the DATA ENTRY dial down until the top line reads SYSTEM.
 - C) Turn the DATA ENTRY wheel all the way to the right. The system software version should be displayed.

EQ - I'm making adjustments to the EQ, but I'm not hearing any changes.

- 1) Do you have the right channel selected? Sometimes users forget to press CH SEL of the appropriate channel strip, and are actually adjusting the EQ of a channel not in use. Make sure the CH SEL button is lit for the channel you are working on.
- 2) The EQ may not be engaged. See if the EQ light above channel 6 is lit. If not, the EQ is not engaged. Press the EQ button to engage the EQ

EQ - I'm pressing the EQ in/out switch, but the EQ isn't engaging.

- 1) The group selection buttons, EQ and Direct Output double as MMC transport controls. The LOCK light is probably lit, indicating that those controls are "locked" as transport controls. To unlock them and return them to their original functions, double-click the shift key. The LOCK light should turn off.

EQ -When I EQ a channel the way I like it, the channel overloads.

- 1) Boosting EQ actually increases the level of the signal. This boost can take the signal to the point of overloading the channel. For this reason, we have included a digital pad to reduce the signal level before it hits the EQ stage. This way, it will not overload the channel.

Error Messages:

- 1) **Error! No Signal...** [Name of digital port i.e. TDIF-A, D in A, etc.]
 - A) This means you have a digital input set as the word clock master, but there is no information coming from it. The master unit could either be disconnected or turned off.
- 2) **Warning! Emphasis On...** [Name of digital port i.e. TDIF-A, D in A, etc.]
 - A) This means you have a digital input set as the word clock master, and that master source has just switched its sample rate. Press Escape to leave this screen. There is no action required when this message comes up; it simply informs you that your sample rate has changed. (The TM-D1000 automatically changes sample rate to match the master clock.)
- 3) **Error! Fs Clock Error>Internal**
 - A) This means you have a Word Sync port set as the word clock master, but there is no information coming from it. The master unit could either be disconnected or turned off. The TM-D1000 now resolves to its internal clock.
- 4) **Error! MMC System not closed**
 - A) This means that MMC information is being sent to a recorder, but there is not 2-way communication. See the MIDI Implementation section for more information on open/closed MIDI loops, and how to set them.

Option Cards - I installed my FX-D1000 and/or IF-TD1000 expansion cards, and the mixer won't address them and/or freezes up.

- 1) You need to have software version 1.18 or later to support those cards. The cards shipped with the software update on an E-PROM. To check your software version:
 - A) Press Option Monitor.
 - B) Press the DATA ENTRY dial down until the top line reads SYSTEM.
 - C) Turn the DATA ENTRY wheel all the way to the right. The system software version should be displayed.
- 2) The card's ribbon cable may not be seated properly. Check that connection to make sure it is on all the way.

Output - I'm not hearing my mix properly -OR- at all.

- 1) Is your monitor system plugged into the Monitor Output of the mixer? (Not the Stereo Output!)
- 2) Do you have L-R button pushed down? (Located above the Monitor Level control.)
- 3) Is there any level showing in the meter? If not, then there is nothing feeding the output. Solution: ADD SOME SIGNAL!!!

Output - My pan controls aren't panning anywhere! -OR- Everything's in mono!

- 1) The MONO phase compatibility switch is pushed down. (Located just above the MONITOR LEVEL control.) Push it again to disengage it.

Output - There is a lot of static coming from the mixer.

- 1) The word clock chain is not functioning properly. Determine which part of your digital set-up is the master, and verify that the units are set up properly for that. (See Master Clock Set-up, page 5.)

TDIF - I plugged my TM-D1000 and DA-38/DA-88/DA-98 together with a TDIF cable, but no signal is passing.

- 1) Make sure you plugged the TDIF cable into the TDIF port of the DA-38. There are 2 other identical 25 pin D-SUB connectors on the back of the DTRS machines. (The other two are for analog input and output.) The TDIF cable should be plugged into the jack that says "TDIF" just above it.
- 2) Make sure the digital input is selected on your MDM. There should be a button labelled Digital In, or Digital Input on your machine.
- 3) Make sure you used an authentic TASCAM or Cable-Up TDIF cable. Computer cables will not work, due to different wiring configurations on the connectors. Also, some other cable companies have made TDIF cables that are not wired properly.

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TM-D1000

Digital Mixer Tutorial

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