PRODUCT OVERVIEW

The TM-D4000 is TASCAM's third generation of digital mixers, benefiting from seven years' development of digital mixing technology. The TM-D4000 is a 32 channel, 8 buss, 6 auxiliary digital mixer with built in effects and surround mix capabilities. For users wanting even more channels, up to four TM-D4000s can be cascaded with the built-in cascade port. A flexible I/O structure and extensive built-in machine control capabilities allow users to integrate this mixer into many live and recording situations. Single layer buttons and a large, clear screen offer intuitive navigation of this feature packed mixer. Libraries for EQ curves, dynamics, snapshots, and effects allow frequent settings to be recalled at any time. Dynamic automation can be accomplished with the included Windows 95/98 software application. *TM-D4000 shown at right with optional MU-4000 meter bridge.*

- 32 Mono & 2 Stereo Inputs
- 8 Busses & 6 Auxiliary Sends
- 24 Bit A/D and D/A Converters
- 8 High Quality Analog Inputs with XLR & TRS inputs
- 4 Band Parametric EQ and Dynamic Processor on Each Channel, Aux Return, and Stereo Output
- 100mm Long-Throw Motorized Faders
- Stereo Effect Processor
- Built-in Full Featured Machine Control

- SPDIF and AES/EBU Digital I/O
- Built-in Cascade Port Supporting Up To 4 Mixers
- Surround Capabilities for 5.1 (Dolby Digital™) and LCRS (Pro Logic™) Systems
- Libraries for EQ, Dynamics, Effects and Snapshots
- Dynamic Automation Package Included for Windows 95/98 computers
- Option Cards Provide I/O in 8 Channel Banks In Analog, TDIF, Lightpipe, and AES/EBU Formats

APPLICATIONS

The TM-D4000 is an incredibly cost effective mixer, and is flexible enough to fit into a number of applications.

Personal and Project Studios
The TM-D4000 is a wonderful centerpiece for studios based around MDMs (Modular Digital Multitracks). A digital mixer minimizes the A/D and D/A conversions, allowing the highest quality audio available. The TDIF and Lightpipe cards come with their associated machine control built in, offering direct control right from the surface of the console. The added value of all the dynamic processors, extensive EQ and built in effects offer mix control far beyond anything found in analog consoles many times the price. Plus, dynamic automation capabilities with the external Windows 95/98 computer and surround sound capabilities solidify the mixer's relevance well into the future of DVD audio delivery.

Audio for Video
The TM-D4000 has 8 high quality mic preamps and surround mixing capabilities, offering a powerful solution for monitor mixes in ADR and Foley stages, as well as recording simple surround stems for later assembly. The TM-D4000 has a standard 9-pin port for controlling video decks, and can be equipped with AES/EBU cards for interfacing with most any digital audio workstation. For larger projects, up to four TM-D4000s can be cascaded providing up to 128 channels.

SPECIFICATIONS

MIC Inputs (CH 1-8):	Balanced XLR, +67dB Max Gain (Pad Off)
Line Inputs (CH 1-8):	Balanced TRS, +39dB Max Gain (Pad Off)
Insert Connections:	Unbalanced TRS (T=Send, R=Return, S=Ground)
OL LED (CH 1-8):	Lights at -3dB Full Scale
Stereo In:	Unbalanced 1/4", +4dBu Nominal
Aux Sends 1-6:	Balanced 1/4", +4dBu Nominal
Stereo Output:	Balanced XLR, +4dBu Nominal
	Unbalanced RCA, -10dBu Nominal
2 Track Return:	Balanced XLR, +4dBu Nominal
	Unbalanced RCA, -10dBu Nominal
CR Monitor Outputs:	Unbalanced 1/4", +4dBv Nominal
Studio Monitor Outputs:	Unbalanced 1/4", +6dBu Nominal
Phones:	1/4" Stereo, 40 Ohm, 50mW per side
Digital In/Out 1:	XLR, AES/EBU (AES3-1992 data format)
Digital In/Out 2:	RCA, SPDIF (IEC60958 data format)
Sample Frequencies:	44.1kHz & 48kHz, accurate to ±50ppm
Supported Fs Variances:	Follows up to ±6% base sample rates
Word Sync In and Out:	BNC, TTL level, 75 Ohm
RS-422:	Female DB9, conforms to RS-422 spec
To Host:	Female DB9, conforms to RS-422 spec
MIDI Ports:	IN, OUT, THRU on 5 pin DINs
TC In:	Unbalanced RCA, 20 kOhm, -30dBV
Cascade In/Out:	DB25, uses optional PW-4000CS cable
To Meter:	DB37, connects to optional MU-4000
Power Requirements:	US/Canada: 120VAC, 60Hz
	Europe: 230VAC, 50Hz
	Australia: 240VAC, 50Hz
A/D, D/A Converters:	24 bit, 44.1kHz, 48kHz
Overall Frequency Response:	20Hz-20kHz, +0.5dB, -1dB
Overall THD:	<.1% (Nominal Levels)
Power Consumption:	60W
Dimensions (mixer only):	644x237x703mm, 25.4" x 9.3" x 27.7"
Weight:	26kg (57.2 lbs)
Standard Accessories:	Moxa CI-132 ISA card, Serial Cable, Automation Software
Optional Accessories:	IF-AN4000 (Analog), IF-AE4000 (AES/EBU), IF-TD4000 (TDIF), IF-LP4000 (Lightpipe) MU-4000 (Meter Bridge) PW-4000CS (Cascade Cable)

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GENERAL OPERATION

The TM-D4000 is a very intuitive mixer to operate. All mixing functions have dedicated buttons, allowing quick navigation of common controls and views. Well thought out displays on a large 320x240 LCD screen offer clear information on all parameters in the mixer.

Controlling the Mixer

There are 19 motorized faders on the TM-D4000. Faders are dedicated for the L/R output, as well as the 2 Stereo Aux Returns. The remaining 16 faders flip through three banks to control channels 1-16, 17-32, and the 8 busses and 6 aux sends.

The standard conventions of digital mixers are followed with the selection of a channel to appear in the mixing section. However, you can also display global parameters. For instance, instead of showing all the parameters on a particular channel strip, you can display a specific parameter from all channels.

To make the process even easier, the parameters displayed in the screen will be shown in rows of 4 dials. The rows will be controlled by the 4 dials just beneath the screen. The arrow keys right by the dials control which row you are working on. (The row you are working on is highlighted.) If there are not 4 parameters to edit in that screen, a blank dial will be shown in the screen as a place holder to help keep clear the grid's relationship with the dials.
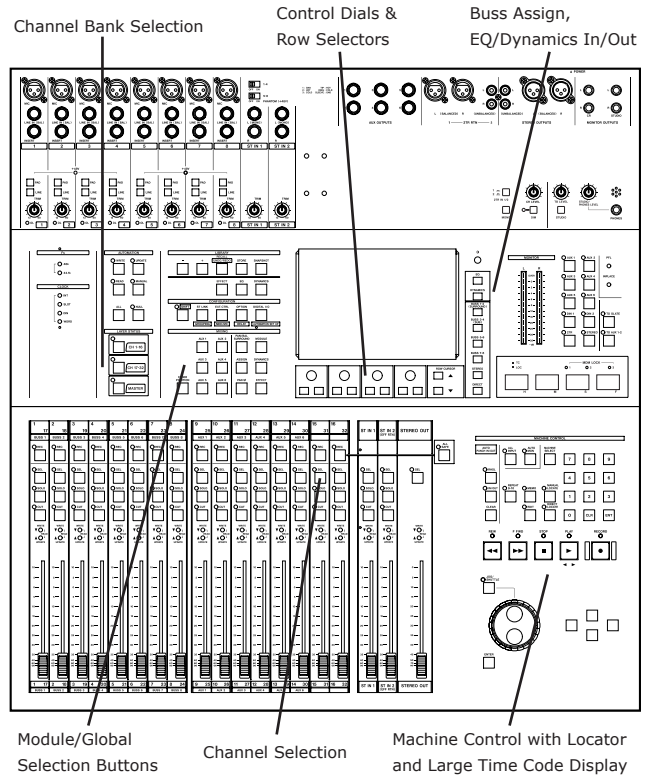
The Channel Input Strip

Each channel on the TM-D4000 has a 4 band parametric EQ, phase reverse, and dynamic processing. The EQ and dynamics are incredibly flexible. The EQ section sounds sweet enough to add a little extra sparkle to a particular track, yet it's powerful enough to be used for corrective measures or even manhandling tracks for wild EQ effects.

All four EQ bands offer a wide ±15dB of gain. Each band can sweep the entire range from 31Hz to 19kHz, so you don't have to worry over which bands can reach any particular part of the audio spectrum. The high and low bands can also act as shelf EQs, or can be assigned as a high pass filter or a low pass filter.
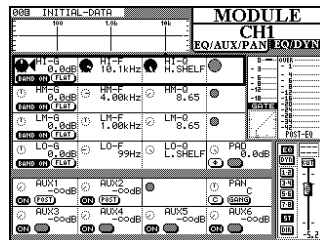
A/B auditioning is revolutionary. Most mixers in this class will offer an in/out switch for the EQ section. The TM-D4000 goes far beyond that. In addition to the overall EQ in/out control, each band has an in/out switch, allowing you to audition the effect of each individual band. If you don't like it, hit the "flat" button, and only that band is flattened, allowing you to start over.

The dynamics on each channel can act as compressors, or as expanders. Like the EQ, the impact of the dynamics can be subtle or dramatic, depending on your needs. There is also an in/out control for the dynamic section.

Channel Bank Selection

Control Dials & Row Selectors

Buss Assign, EQ/Dynamics In/Out

Module/Global Selection Buttons

Channel Selection

Machine Control with Locator and Large Time Code Display

Aux, Buss, and Groups

The TM-D4000 has 6 aux sends. The first two can be switched between pre or post fader for cue mix applications. There are two dedicated aux returns with all the EQ and compression that the input channel strip has, plus the ability to feed another aux send.

There are 8 busses, which can be used for multitrack feeds, or surround sound monitoring. There are also direct output for the tracks, allowing more tracks to be recorded simultaneously.

For channel grouping, there are 8 fader groups and 8 cut groups. Fader groups link numerous channels together, allowing multiple channels to be adjusted together. For example, all the mics on a drum kit could be assigned to a group. Each mic would be adjusted independently through their individual faders, but if the fader group master was moved, then they all move in accordance to the master. (This is similar to how submixes were done on an analog console during mixdown, except a fader group affects each individual channel, rather than their summed output.)

Machine Control

Right on the top of the mixer is a convenient machine control section. Large, "can't miss 'em" buttons for standard transport controls let you keep your eyes on the talent during overdubs. A large jog/shuttle wheel helps make quick minor adjustments to time locations. There is also a 10 locator memory built in.

GENERAL OPERATION (CONTINUED)

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9 pin and MIDI Machine Control are standard on the back panel of the TM-D4000. For users wanting to control MDM machines like TASCAM DTRS machines or ADAT format machines, the related remote ports are included on their respective I/O cards. (DTRS Remote is on the TDIF card, and ADAT Sync is on the Lightpipe card.)

Setting up the TM-D4000 to recognize these recorders is easy. The machine control screen can automatically search for attached machines. Personalities for most popular machines are already in memory, and will be loaded in automatically. If your machine doesn't show up, there are numerous known personalities to choose from, allowing you to find a similar personality to follow. (Most any standard audio and video deck will be represented.)

Built-In Effect Processor

A built in effect processor offers a totally digital path for effect processing. Reverb, delay, chorus, flange, phase, pitch shift, stereo enhancer, compression, gates, and de-essers are all available. All effect programs utilize 24 bit processing.
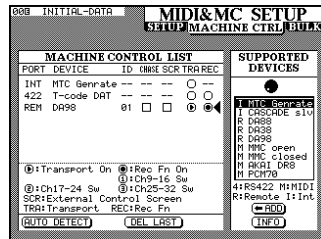
Libraries

Separate libraries are available for EQ settings, dynamics, effects, and snapshots. The snapshots capture the entire set-up of the mixer, while the others will store a specific section.

EQ and dynamics libraries are extremely useful for storing commonly used curves. For instance, a record could be kept for the curve on the lead vocal, or the bass. Others could be kept for a "phone voice" setting, or a dip on a feedback frequency. The library or the "2 EQ" function can also be used to copy settings from one channel to one or several others. Setting up multiple channels the same is typically helpful when mixing doubled parts, or monitoring several takes of a single part for compilations.

Surround Sound

The TM-D4000 can be set up for standard stereo, 2+2 (quad sound), LCRS (Pro Logic™), or 5.1 (AC3™) matrices. The surround sound panning screen offers simple control over the positioning with standard X/Y coordinate controls. There are also diagonal panning patterns so you don't have to "Etch-A-Sketch" across the field. True to the 5.1 concept, a separate sub output control is provided, that is independent of all other outputs.
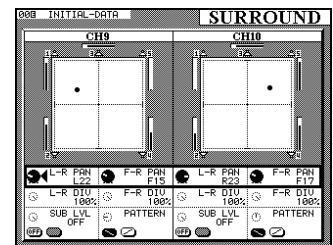
DYNAMIC AUTOMATION SOFTWARE
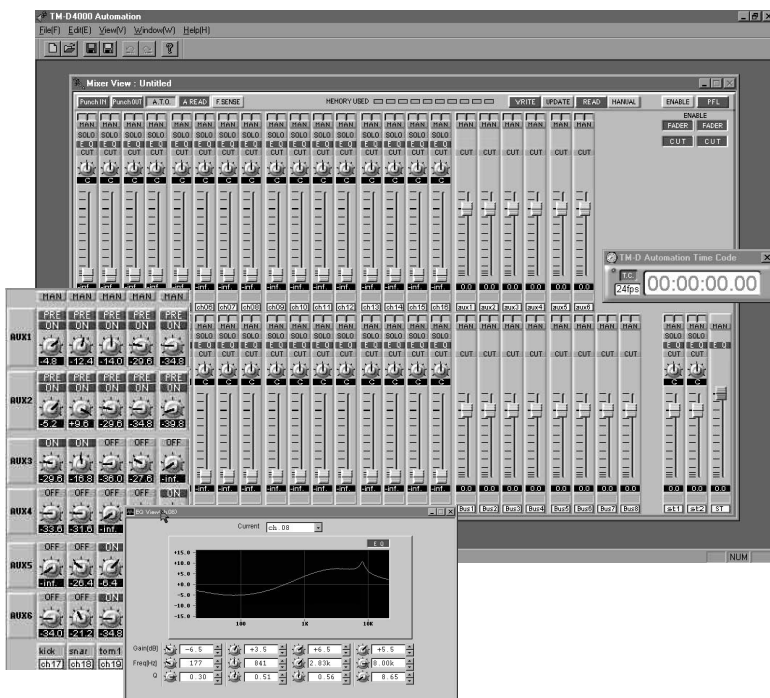
A dynamic automation software application comes with the TM-D4000, as does an ISA serial card, and the cable to connect the card to the mixer. The application can automate fader levels, pan, mutes, EQ and aux sends.

The automation software runs on an external PC, and offers several handy views for different ways of looking at the parameters of the TM-D4000. Dedicated automation buttons on the TM-D4000 mean you can still sit in the sweet spot when creating your automated mix.

MX-2424 owners - This dynamic automation software can run on the same computer as ViewNet. (ViewNet is the GUI for the MX-2424.)

Automation System Requirements:

- Windows 95™ or Windows 98™
- 233mHz Pentium™ II processor or better
- 32MB RAM or more (64MB recommended)
- Minimum display size of 1024x768
- Available ISA slot for the Moxa CI-132 card
  (This card must be installed in the computer running the automation software. There is a PCI version available directly from Moxa: CP-132.)

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I/O CONFIGURATIONS & MULTI-MIXER CASCADE

The first 8 channels of the TM-D4000 are dedicated to analog input, providing 8 mic preamps and balanced TRS inputs with insert points. The remaining 24 channels are configured with I/O cards in 8 channel blocks with the 3 card slots in the back panel. Cards are available for analog, TDIF, Lightpipe, or AES/EBU I/O formats.

IF-TD4000 & IF-LP4000 - The TDIF and Lightpipe cards offer extremely cost effective connections between the TM-D4000 and TDIF equipped devices. The IF-TD4000 is the TDIF card, and the IF-LP4000 is the Lightpipe card.

In addition to the audio I/O, these cards also offer remote control port for their associated machines. (The TDIF card includes a DTRS Remote port, and the Lightpipe card includes an ADAT Remote port.) The TM-D4000 can then act as a powerful remote control for these recorders. The large time code display on the front panel of the TM-D4000 will also be able to display tape location from the remote port.

IF-AN4000 - The analog card employs 24 bit A/D and D/A converters, and is accessed through two DB25 breakout connectors. Standard breakout connectors used for connecting DTRS machines like the DA-88 to an analog are ideal for connecting balanced analog equipment into the TM-D4000.

IF-AE4000 - The AES/EBU card offers 24 bit AES/EBU input and output through a single DB25 connector. It is important to keep in mind that AES/EBU cables going from DB25 to DB25 are pinned out differently than an analog cable of the same configuration. (The TDIF cable is also configured differently.) We have included specific CableUp part numbers to help make sure you order the proper cables.

CableUp Cable Model Numbers

Analog DB25 to XLR Male	10'	CU/SD203
	16'	CU/SD205
Analog DB25 to XLR Female	10'	CU/SD303
	16'	CU/SD305
Analog DB25 to TRS	10'	CU/SD403
	16'	CU/SD405
Analog DB25 to DB25	10'	CU/SD103
	16'	CU/SD105
TDIF Cable	10'	CU/PW88DM
	16'	CU/PW88DL
DTRS Remote Cable	16'	CU/PW848
	33'	CU/PW848L
Lightpipe Cable	6'	CU/ADOP06
	16'	CU/ADOP16
ADAT Remote Cable	15'	CU/ADCS15
AES/EBU DB25 to XLR 4M/4F	26'	CU/AES825
AES/EBU DB25 to DB25	10'	CU/AES2510
	16'	CU/AES2516
TM-D4000 Cascade Cable		PW/4000CS

Cascading the TM-D4000 - Dedicated cascade ports are built in to the TM-D4000, allowing up to 4 mixers to be connected without giving up any I/O slots. Master L/R mix, aux sends, and busses can be selectively cascaded on an individual basis. All that is needed is the PW/4000CS cable to link the mixers.

For users looking to automate cascaded mixers, it should be noted that the automation software only addresses one mixer. Multiple mixers will require multiple computers for automation.

BACK PANEL
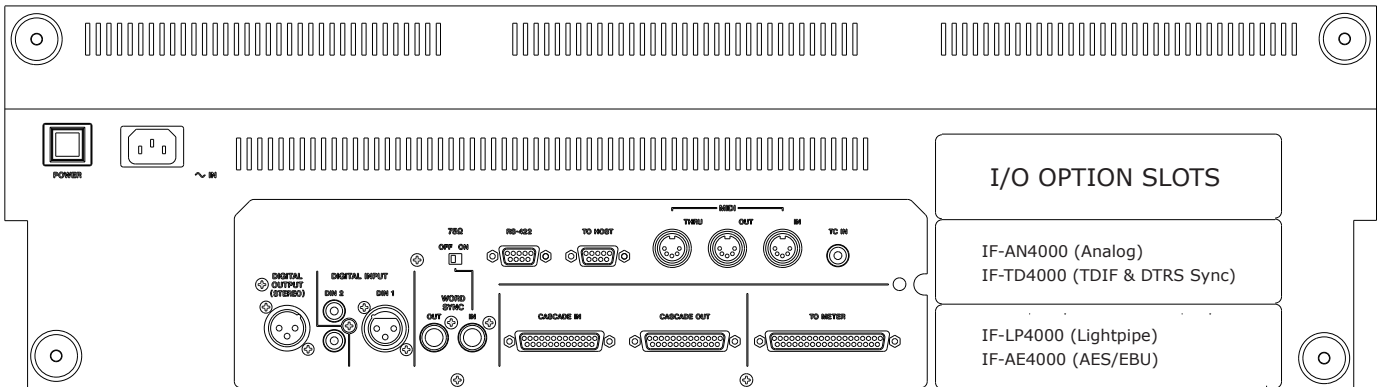
A stock TM-D4000 does not come with any I/O slots filled. The TM-D4000T comes with slots 2 and 3 filled with IF-TD4000s. The TM-D4000A comes with slots 2 and 3 filled with IF-LP4000s. The meter bridge (MU-4000) is also optional, and comes with the associated cables and brackets for mounting on the TM-D4000.

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TOP PANEL

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